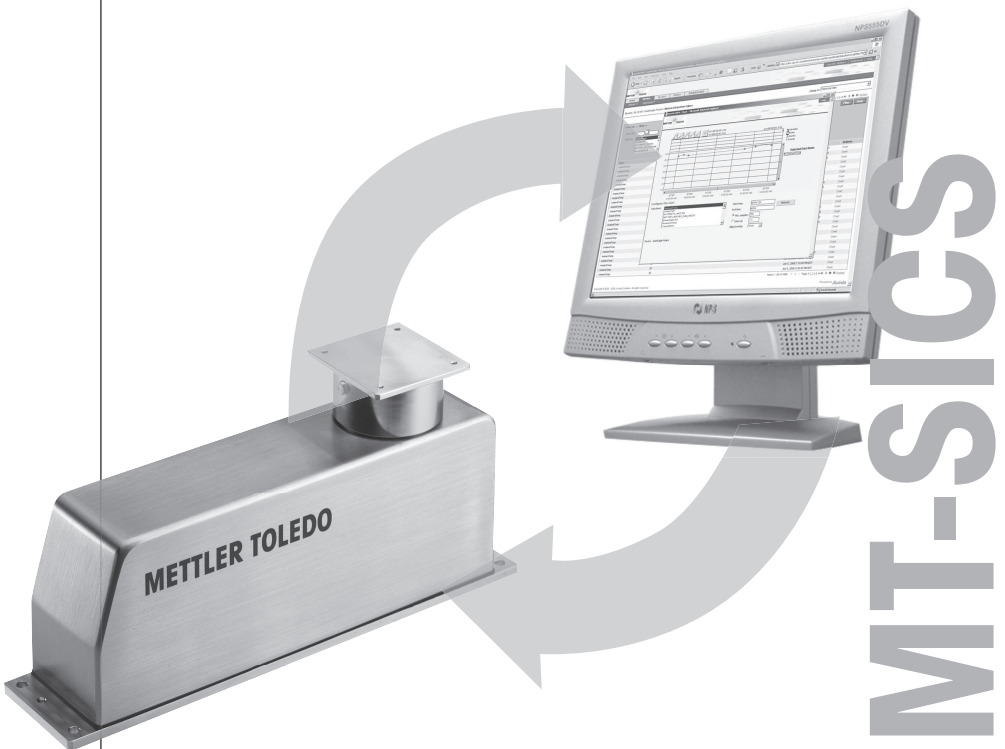
Reference Manual

MT-SICS Interface Commands

for Weigh Modules



METTLER TOLEDO

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1 Supported Products

		✓		✓				No terminal (with or without optional interface installed)
			✓		✓	✓		With SWT terminal connected
							✓	With PWT terminal connected
					✓			Legal-for-trade version
WKL, WKR	**WMS**	**WMC**		**WXS, WXT**				
		1	**2**	**3**	**4**	**5**	**6**	
								For more information: www.mt.com/APW
1.00	1.00	1.00	1.00 5.10	1.30	1.30 5.10	1.30 5.10	1.30 5.10	Bridge Software/Firmware version minimum required Terminal Software/Firmware version minimum required

2 Introduction

In weight measurements the demands on the readability and maximum capacity of weigh modules and balances from less than one microgram up to several hundred tons. To meet these and other requirements, METTLER TOLEDO offers an extensive range of weigh modules and balances. Many of the weigh modules/balances and scales used have to be capable of integration in a complex computer or data acquisition system. To enable you to integrate weigh modules and balances in your system in a simple manner and utilize their capabilities to the full, most weigh modules and balance functions are also available as appropriate commands via the data interface.

Standardization of the commands

All new METTLER TOLEDO weigh modules and balances launched on the market support the standardized command set "METTLER TOLEDO Standard Interface Command Set" (MT-SICS), which is divided into 4 levels, depending on the functionality of the weigh modules/balances:

MT-SICS level 0:	Basic Command set, e.g. weighing cell.
MT-SICS level 1:	Elementary command set, i.e. weigh modules or balances without integrated applications.
MT-SICS level 2:	Extended command set specific for a weigh modules or balance family.
MT-SICS level 3:	Application-specific command set, e.g. MT-SICS for piece counting or percent weighing.

A particular distinguishing feature of this concept is that the commands combined in MTSICS level 0 and 1 are identical for all weigh modules and balances. Both the simplest weighing balance and a fully expanded weighing work station recognize the commands of MT-SICS level 0 and 1.

What do the commands of MT-SICS level 0 and 1 offer?

You can use the commands of MT-SICS level 0 and 1 to perform the following operations via the interface:

- Request weighing results.
- Tare and preset the tare weight.
- Zero the balance.
- Identify MT-SICS implementation.
- Identify the weigh module orbalance.
- Cancel Commands.
- Control the display.
- Control the keys for operation of the balance.

The commands of MT-SICS level 2 and 3

You can naturally use the data interface to exploit all functions available with your current weigh module/balance or application. These additional functions are collected in the commands of MTSICS level 2 and 3. When creating your software application, please note that whereas the commands of MTSICS level 2 have been specially tailored to your weigh module/balance family, the commands of MTSICS level 3 apply to your weighing application and can not be supported by every METTLER TOLEDO weigh module/balance. In the enclosure with this manual, you can see what commands are supported by your weigh module/balance and application.

Version number of the MT-SICS

Each level of the MT-SICS has its own version number which can be requested with the command I1 (page 63) from level 0.

You can use the command I1 (page 63) via the interface to request the MT-SICS level and MT-SICS versions implemented on your weigh module/balance.
Please make sure that the versions implemented on your weigh module/balance agree with those listed above.

Additional documentation on data interface

Settings of the interface such as baud rate, number of data bits, parity, handshake protocols and connector pin assignment are described in the operating instructions of the optional interface and the peripheral instrument or cable in question.

Data Exchange with the Weigh Module/Balance

Each command received by the balance via the data interface is acknowledged by a response of the weigh module, balance to the transmitter.
Commands and balance responses are data strings with a fixed format, and will be described in detail in the commands.

The existing commands that are available can be called up using the I0 (page 62) command. Please take note that some of the commands work only via the built-in RS232 interface.

2.1 Command Formats

Commands sent to the weigh module/balance comprise one or more characters of the ASCII character set. Here, the following must be noted:

	Enter commands only in uppercase. Nevertheless, units have to be capitalized properly.
␣	The possible parameters of the command must be separated from one another and from the command name by a space (ASCII 32 dec.).
"text"	The possible input for "text" is a sequence of characters (8-bit ASCII character set from 32 dec. to 255 dec.).
..CR LF	Each command must be closed by CR LF (ASCII 13 dec., 10 dec.). The characters CR LF, which can be inputted using the Enter or Return key of most entry keypads, are not listed in this description every time, but it is essential they be included for communication with the weigh module/balance.

2.1.1 Language Conventions

Throughout this manual, the following conventions are used for command and response syntax:

< >	Triangle brackets indicate that you must specify a value for the enclosed parameter. The brackets are not sent with the command string.
[ ]	Square brackets indicate that the enclosed expression is optional and can be omitted. The brackets are not sent with the command string.
a..b	Intervals or ranges are represented using the "dot-dot" notation indicating the set of numbers from a to b including a and b.
↓	Commands sent to the weigh module/balance.
↑	Response of the weigh module/balance.

Example

Command to balance which writes Hello into the balance display:

↓	D␣"Hello"	The quotation marks " " must be inserted in the entry
↑	D␣A	Command executed successfully

The command terminator CR LF is not shown.

2.1.2 Response Formats

All responses sent by the weigh module/balance to the transmitter to acknowledge the received command have one of the following formats:

- Response with weight value
- Response without weight value
- Error message

2.1.2.1 Format of Responses with Weight Value

Syntax

A general description of the Response with weight value is the following.

<ID>	␣	<Status>	␣	<WeightValue>	␣	<Unit>	CR	LF
1-2 characters		1 character		10 characters		1-5 characters		

Parameters

Parameters

Name	Type	Values	Meaning
<ID>	String		Response identification, refers to the invoking command
␣	Blank		Space (ASCII 32 dec.)
<Status>	Character	S	**S**table weight value
		M	Stable weight value, but below minimal weight (SIUM (page 222) and SUM (page 235) only)
		D	Unstable ("D" for **D**ynamic) weight value
		N	Unstable weight value, below minimal weight (SIUM (page 222) and SUM (page 235) only)
<WeightValue>	Float		Weighing result; shown as a number with 10 characters (after a blank/space!), including decimal point, and minus sign (–) directly in front of the first digit if the value is negative. The weight value appears right aligned. Preceding zeros are not shown except for the zero to the left of the decimal point. With METTLER TOLEDO DeltaRange balances, outside the fine range the last decimal place is shown as a space.
<Unit>	String		Weight unit as actually set under host unit (page 17)
CR	Byte		Carriage return (ASCII 13 dec.)
LF	Byte		Line feed (ASCII 10 dec.)

Examples

Response with stable weight value of 14.256 g:

↓	S	Request a stable weight value
↑	S␣S␣␣␣␣14.256␣g	

Response with stable weight value of 152.38 g outside the fine range:

↓	S	Request a stable weight value
↑	S␣S␣␣␣152.38␣g	

2.1.2.2 Format of Responses Without Weight Value

Syntax

A general description of the Response without weight value is the following:

<ID>	␣	<Status>	␣	Parameters…	CR	LF
1-5 characters		1 character				

Parameters

Name	Type	Values	Meaning
<ID>	String		Response identification, refers to the invoking command
␣	Blank		Space (ASCII 32 dec.)
<Status>	Character	A	Command executed successfully
		B	Command not yet terminated, additional responses following
Parameters…			Command-dependent response code
CR	Byte		Carriage return (ASCII 13 dec.)
LF	Byte		Line feed (ASCII 10 dec.)

Examples

Set the update rate to 20 weight values per second:

↓	UPD␣20	
↑	UPD␣A	Command executed successfully

Query the actual update rate:

↓	UPD	
↑	UPD␣A␣18.3	Update rate is set to 18.3 values per second

2.1.3 Error Messages

2.1.3.1 Command-specific Error Messages

Syntax

A general description of the Response without weight value is the following:

<ID>	␣	<Status>	CR	LF
1-5 characters		1 character		

Parameters

Name	Type	Values	Meaning
<ID>	String		Response identification, refers to the invoking command
␣	Blank		Space (ASCII 32 dec.)
<Status>	Character	+	Weigh module or balance is in overload range (weighing range exceeded)
		–	Weigh module or balance is in underload range (e.g. weighing pan is not in place)
		L	Logical error (e.g. parameter not allowed)
		I	Internal error (e.g. Balance not ready yet)
CR	Byte		Carriage return (ASCII 13 dec.)
LF	Byte		Line feed (ASCII 10 dec.)

Examples

Trial to set the update rate to 20 weight values per second:

↓	UPD␣290	Update rate accidentally set to 290
↑	UPD␣L	Command not executed successfully; parameters is outside valid range

Response while weigh module or balance is in overload range:

↓	SI	Request a weight value immediately
↑	S␣+	Overload; no weight value available

2.1.3.2 General Error Messages

Syntax

There are three different error messages:

<ID>	CR	LF
2 characters		

Parameters

Name	Type	Values	Meaning
<ID>	String	ES	Syntax error: The weigh module/balance has not recognized the received command or the command is not allowed
		ET	Transmission error: The weigh module/balance has received a "faulty" command, e.g. owing to a parity error or interface break
		EL	Logical error: The weigh module/balance can not execute the received command

Name	Type	Values	Meaning
CR	Byte		Carriage return (ASCII 13 dec.)
LF	Byte		Line feed (ASCII 10 dec.)

Example

Trial to set the update rate to 20 weight values per second:

↓	upd␣20	UPD accidentally written in lowercase
↑	ES	Syntax error; upd not recognized as a command

2.1.3.3 Specific Error Messages on Weight Response

Description

If any error is detected in the system, it is no longer possible to get a weight value. In this case the weight value is overwritten with an error number and trigger code.

We recommend contacting your METTLER TOLEDO representative if any error occurs.

Syntax

The error message has the same format as the weight value (10 characters) and starts always with S␣S␣.

S␣S	␣	␣..␣	Error	␣	<ErrorNumber>	<ErrorTrigger>	CR	LF
		1-2 spaces			1-2 characters	1 character		
		Total 10 characters (same as weight value) - Filled with spaces on the beginning						

Parameters

Name	Type	Values	Meaning
<ErrorNumber>	Integer	1	Boot error
		2	Brand error
		3	Checksum error
		9	Option fail
		10	EEPROM error
		11	Device mismatch
		12	Hot plug out
		14	Weigh module / electronic mismatch
		15	Adjustment needed
<ErrorTrigger>	String	b	Error from electronics (weigh module, balance)
		t	Error from terminal
CR	Byte		Carriage return (ASCII 13 dec.)
LF	Byte		Line feed (ASCII 10 dec.)

Examples

↓	SI	Send current weight value
↑	S␣S␣␣Error␣10b	EERPOM error on the electronic unit occurred! Check if every thing is connected correctly. If any error occurs after power restart, contact your METTLER TOLEDO representative

↓	SIR	Send current weight value at intervals
↑	S␣S␣␣␣Error␣1t	Boot error on the terminal occurred! If any error occurs after power restart, contact your METTLER TOLEDO representative

2.1.4 Tips for Programmer

Note

This reference manual covers the MT-SICS commands for weigh modules/balances. As the weigh modules/balances can differ based on model and software version, not all the MT-SICS level 2 and 3 commands are usable on every model. We therefore recommend using the I0 (page 62) command to get an overview of all commands that are supported by a particular balance.

There is also a command overview in the appendix and a list with the supported products by each command.

Planning the use of MT-SICS Commands

Investigations of various applications have shown that the vast majority of all system solutions can be handled with the commands of MT-SICS level 0 and 1. This means for you: if you restrict yourself to the commands of MT-SICS level 0 and 1, you can expand your system with additional weigh modules, balances from METTLER TOLEDO without having to change your application programs.

Setup with / without terminal

Use the same setup during configuration and later use: If you intend to use the bridge without the terminal, the configuration has to be done without terminal as well. Due to the system's architecture, the storage behavioral of configurations is different whether the terminal is attached to the bridge or not: With a terminal attached, configuration is stored in the terminal's memory; without a terminal attached, the bridge's memory is used. Removing a terminal after configuration means to remove the configuration and activation the bridge's (default) configuration. Adding a terminal after configuration means overriding the configuration with the one stored within the terminal.

Command and Response

You can improve the dependability of your application software by having your program evaluate the response of the weigh module/balance to a command. The response is the acknowledgement that the weigh module/balance has received the command.

Cancel

To be able to start from a determined state, when establishing the communication between weigh module/balance and system, you should send a cancel command **see @** (page 18) to the weigh module/balance. When the balance or system is switched on or off, faulty characters can be received or sent.

Parameter Values After Switching the Weigh Module/Balance On/Off

The commands of the standard command are saved on the permanent memory of theweigh module/balance. This means that all values changed via the interface are saved when the weigh module/balance is switched off.

Several Commands in Succession

If several commands are sent in succession without waiting for the corresponding responses, it is possible that the weigh module/balance confuses the sequence of command processing or ignores entire commands.

METTLER TOLEDO DeltaRange Balances and Weigh Modules

If the fine range of DeltaRange balances has been exceeded at the time of transmission, the weigh module/balance sends a weight value as balance response in which the tenth character is a space.

Update Rate and Timeout

The update rate for repeated commands and the duration of the timeout (time-limit function) depend on the weigh module/balance type; **see** technical data of the weigh module/balance in question.

Carriage Return, Line Feed

Depending on the platform, CR LF is not just a "new line" (Java: "newLine()" or C/C++ "\n"):

Platform	'New Line'
DOS/Windows	CR LF
Macintosh	CR
Unix	LF

Nevertheless, all commands have to be closed by a CR LF (dec: 13, 10; hex: 0D, 0A).

Quotation Marks " "

Quotation marks included in the command must always be entered. If a quotation mark is located within the string, it may be escaped by a backslash (\):

↓	D␣"place 4\"filter!"	
↑	D␣A	Balance display: place 4" filter!

Weight Unit of Weight Value – Host Unit

It is always essential to consider the weight unit that is to be used to display weighing results. Depending on where the results are output, the weigh modules/balances offer the possibility of selecting a particular unit **see** M21 (page 117). This enables the displayed unit and info unit to be shown on the terminal. Host unit is used to output the weighing results via an interface (host) on the basis of MT-SICS commands. The weight values and the displayed unit can only be output by means of the SU commands.

Digit [d]

A digit refers to the smallest numerical increment a weigh module, balance can display – this is also referred to as the weigh modules/balance's readability. E.g. a WX205 has five decimal places; its digit is 0.01 mg. The digit is sometimes used as a generic unit.

Binary Coded Multiple Selections

Some parameters that allow multiple selections are binary coded: Each possible selection is represented by one bit, the corresponding parameter equals to the decimal interpretation.

Selection 8	Selection 7	Selection 6	Selection 5	Selection 4	Selection 3	Selection 2	Selection 1	Parameter
0/1	0/1	0/1	0/1	0/1	0/1	0/1	0/1	0..255
$2^7 = 256$	$2^6 = 128$	$2^5 = 64$	$2^4 = 32$	$2^3 = 16$	$2^2 = 4$	$2^1 = 2$	$2^0 = 1$	$\sum_{i=1}^{8} Selection_i \cdot 2^{i-1}$

Responses may easily be interpreted by converting the decimal number to binary again.

FastHost Commands

This section deals with a special set of commands that are implemented in the weighing platform independently of the other MT-SICS commands. Because the interface is addressed directly, these commands support an extremely high update rate. The weight values that are output can also be individually formatted and assigned additional information such as stability and time.

Essentially, these commands are suitable for special applications with embedded systems and in-process applications such as dispensing.

If implemented, FastHost commands will demonstrate the following properties:

- They will not appear in the command listing of the command I0 (page 62) request with B00 (page 24).
- In the case of a weighing platform with a connected terminal, the commands will only be available on the permanent RS interface via a host.
- In the case of a stand-alone platform without any additional options, the commands will be available on the permanent RS232 interface along with the usual host commands.
- In the case of a stand-alone bridge with an additional option, the commands will only be available on the optional interface along with the usual host commands.
- Most commands will be permanently saved. To establish a default condition, the following command sequence is recommended:

```
B02␣0
B04␣"S␣%S%␣%W:10%␣%␣%"
B05␣0
B06␣1
B07␣0
```

3 Commands and Responses

@ – Cancel

Description

@ can be used to achieve the same effect as disconnecting and reconnecting the power supply, which empties the volatile memories. The purpose of this command is to initiate a command sequence.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
✓	✓	✓	✓	✓	✓	✓	✓

Syntax

Command

@	Resets the weigh module/balance to the condition found after switching on, but without a zero setting being performed.

Response

I4␣A␣"<SNR>"	Serial number is emitted; the weigh module/balance is ready for operation.

Comments

- All commands awaiting responses are cancelled.
- Key control is set to the default setting K␣1.
- The tare memory is not reset to zero.
- The cancel command is always executed.
- If the balance is on standby, it is switched on.
- The emitted serial number corresponds to the serial number of the terminal (if one is present), **see** I4 (page 66).

Example

↓	@	Cancel
↑	I4␣A␣"B021002593"	Weigh module or balance is "reset", its serial number is B021002593

Also see:

- I4 – Query Serial Number (page 66)

A01 – Percent Weighing: Query/Set Reference in %

Description

Use this command to set or query the reference value for percent weighing.

For querying to take place, a reference value must have been saved beforehand (A01 or function key or).

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
			✓		✓	✓	✓

Syntax

Commands

A01	Query of the reference for the percent weighing application.
A01␣<Reference>	Set the reference for the percent weighing application.

Responses

A01␣A␣<Reference>	Reference for the percent weighing application is set.
A01␣B A01␣A	Start to set the reference (waiting for stable weight) Command understood and executed successfully.
A01␣I	Command understood but currently not executable.
A01␣L	Command understood but not executable (e.g. percent weighing application is not active or parameter is incorrect) or no reference value present.
A01␣E	Setting reference aborted (not stable, over- or underload, abort key,...).

Parameter

Name	Type	Values	Meaning
<Reference>	Float	(0) ... 100	Reference for the percent weighing application in %; must be greater than zero.

Comments

- This command can only be used when the application "Percent Weighing" is started. For details on available applications and how the activate them, **see** M25 (page 122) and M26 (page 124).
- Use the SU commands for percent weighing. Otherwise, the results will be displayed in the set unit unless the host unit (page 17) is changed to % using M21 (page 117).

Example

↓	A01␣100.00	Set the reference for percent weighing to 100.00%
↑	A01␣B	Reference is set, waiting for stable weight
↑	A01␣A	Command executed successfully

A02 – Query/Set IDs of the Weighing Application

Description

You can use A02 to assign a value or text to sample IDs, or query the current value or text.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
			✓		✓	✓	✓

Syntax

Commands

A02	Query the IDs of the Weighing Application.
A02␣<No>␣"<ID>"	Set the ID of the Weighing Application.

Responses

A02␣B␣<No>␣"<ID>" A02␣B␣<No>␣"<ID>" A02␣A␣<No>␣"<ID>"	Query the ID's of the Weighing Application.
A02␣A	Command understood and executed successfully.
A02␣I	Command understood but currently not executable.
A02␣L	Command understood but not executable (e.g. weighing application is not active or parameter is incorrect).

Parameters

Name	Type	Values	Meaning
<No>	Integer	1 … n	Number of Weighing ID
<ID>	String		String of Weighing ID (max. 24 char.)

Comment

- This command only applies to the "Weighing" application. For details on available applications and how the activate them, **see** M25 (page 122) and M26 (page 124).

Examples

↓	A02	Query the IDs of the Weighing Application
↑	A02␣B␣1␣"12345"	ID1 is 12345
↑	A02␣B␣2␣"67890"	ID2 is 67890
↑	A02␣A␣3␣""	No ID3 is set

↓	A02␣1␣"98765"	Set the ID1 to 98765
↑	A02␣A	ID1 is set

A03 – Query/Set ID-Names of the Weighing Application

Description

You can use A03 to assign an individual name to sample IDs, or query the current name.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
			✓		✓	✓	✓

Syntax

Commands

A03	Query the IDs-Name of the Weighing Application.
A03␣<No>	Query of specific ID.
A03␣<No>␣"<ID>"	Set the ID-Name of the Weighing Application.

Responses

A03␣B␣<No>␣"<ID>" A03␣B␣<No>␣"<ID>" A03␣A␣<No>␣"<ID>"	All existing ID-Names of the Weighing Application.
A03␣A	Command understood and executed successfully.
A03␣I	Command understood but currently not executable.
A03␣L	Command understood but not executable (e.g. weighing application is not active or parameter is incorrect).

Parameters

Name	Type	Values	Meaning
<No>	Integer	1 … n	Number of Weighing ID-Name
<ID>	String		String of Weighing ID-Name (max. 24 char.)

Comment

- This command applies to the "Weighing" application. For details on available applications and how the activate them, **see** M25 (page 122) and M26 (page 124).

Examples

↓	A03	Query the IDs-Name of the Weighing Application
↑	A03␣B␣1␣"Batch"	Name of ID1 is "Batch"
	A03␣B␣2␣"Lot"	Name of ID2 is "Lot"
	A03␣A␣3␣""	Name of ID3-Name is empty

↓	A03␣2	Query the second ID-Name of the Weighing Application
↑	A03␣A␣2␣"Lot"	Name of second ID is "Lot"

↓	A03␣1␣"Batch"	Set the ID1-Name to "Batch"
↑	A03␣A	Name of ID1 is set

A10 – Weighing: Query/Set Nominal, +Tolerance, -Tolerance

Description

You can use `A10` to enter the nominal values, inc. +/- tolerances, or query the current values. As soon as you have specified the values, the SmartTrac changes and displays the graphic weighing-in aid.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
							✓

Syntax

Commands

`A10`	Query of the nominal value, + tolerance, - tolerance.
`A10␣<No>␣<Value>␣<Unit>`	Set the nominal value, + tolerance, - tolerance.

Responses

`A10␣B␣0␣<Value>␣<Unit>`
`A10␣B␣1␣<Value>␣<Unit>`
`A10␣A␣2␣<Value>␣<Unit>`
	Query of the nominal value, + tolerance, - tolerance.

`A10␣A`	Command understood and executed successfully.
`A10␣I`	Command understood but currently not executable.
`A10␣L`	Command understood but not executable.

Parameters

Name	Type	Values	Meaning
`<No>`	Integer	`0`	Nominal value
		`1`	+ tolerance
		`2`	- tolerance
`<Value>`	Float		Nominal value
`<Unit>`	String		Weight unit, % with +/- tolerances possible

Comments

- The values will be output differently depending on the application. For details on available applications and how the activate them, **see** M25 (page 122) and M26 (page 124).
- Specified nominal and tolerance values must be reset manually:
  A10␣0␣0␣g
  A10␣1␣2.5␣%
  A10␣2␣2.5␣%
- As soon as you have specified the values, the SmartTrac switches to the graphic weighing-in aid.
- Weight and percentage values are rounded, as is the case with values entered manually.

Examples

↓	`A10`	Query of the nominal value, + tolerance, - tolerance
↑	`A10␣B␣0␣100.12␣g`	Current setting is nominal value 100.12 g, + tolerance is 5.25 g and - tolerance is 7.6%
↑	`A10␣B␣1␣5.25␣g`	
↑	`A10␣A␣2␣7.6␣%`	

↓	`A10␣0␣100.12␣g`	Set the nominal value to 100.12 g
↑	`A10␣A`	Nominal value is set

A30 – Internal Loads

Description

You can use A30 to request status of internal loads. This command is used to inquire how many internal weights are available in the balance and its status.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
			✓		✓	✓	✓

Syntax

Commands

A30	Query of quantity and status of the internal loads.
A30␣<Qty>	Place internal load

Responses

A30␣A␣Qty␣Stat	Quantity and status of the internal loads.
A30␣I	Command understood but currently not executable.
A30␣L	Command understood but not executable (incorrect parameter).

Parameters

Name	Type	Values	Meaning
<Qty>	Integer		Number of internal loads
		0	No load placed
		1	Total load placed
		2	First partial load placed
		3	Second partial load placed
<Stat>	Integer		Status of internal weights
		0	No load placed
		1	Total load placed
		2	First partial load placed
		3	Second partial load placed
		8	Error
		9	Not determined (not in defined end position)

Comment

- The number of internal loads depends on the balance model.

Examples

↓	A30	Query of quantity and status of the internal loads
↑	A30␣A␣1␣0	There is only one internal load which is currently not placed

Control of internal loads

↓	A30␣1	Place total internal load
↑	A30␣A	The load is placed

B00 – FastHost: List Commands

Description

Returns all implemented FastHost commands for the connected balance.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
	✓	✓*	✓	✓*	✓	✓	✓

* If an optional interface is installed: Only available on optional interface.

Syntax

Command

`B00`	Query of lists of FastHost commands.

Responses

`B00␣B␣"<FastHostCommand>"`
`B00␣B...`
`B00␣A␣"<FastHostCommand>"`
	1st FastHost command.
	...
	Last FastHost command.

`B00␣L`	Command understood but not executable (incorrect parameter).

Parameter

Name	Type	Values	Meaning
`<FastHostCommand>`	String		FastHost command

Example

↓	B00	Query of lists of FastHost commands
↑	B00␣B␣"B00"	Command `B00` is available
↑	B00␣B␣"B01"	Command B01 (page 25) is available
↑	B00␣B␣"B02"	Command B02 (page 26) is available
↑	B00␣B␣"B03"	Command B03 (page 27) is available
↑	B00␣B␣"B04"	Command B04 (page 28) is available
↑	B00␣B␣"B05"	Command B05 (page 31) is available
↑	B00␣B␣"B06"	Command B06 (page 32) is available
↑	B00␣B␣"B07"	Command B07 (page 33) is available
↑	B00␣A␣"B08"	Command B08 (page 34) is available

B01 – FastHost: Send Individual Value

Description

Outputs the data and weight values that have been individually formatted using B04 (page 28). The command behavior is similar to that of SI (page 215).

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
	✓	✓*	✓	✓*	✓	✓	✓

* If an optional interface is installed: Only available on optional interface.

Syntax

Command

B01	Send individual FastHost value.

Responses

<output>	As per format specification **see** B04 (page 28).
B01␣L	Command understood but not executable (incorrect parameter).

Example

↓	B01	Send individual FastHost value
↑	S␣␣␣␣␣123.45␣g	As per current format specification (B04␣"%S%␣%W:10%␣%U%") FastHost value is a stable ("S") value of 123.45 g

B02 – FastHost: Start/Stop Continuous Mode

Description

Continually outputs the data and weight values that have been individually formatted using B04 (page 28), and repeats this procedure until the function is switched off.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
	✓	✓*	✓	✓*	✓	✓	✓

* If an optional interface is installed: Only available on optional interface.

Syntax

Command

B02␣<ContinuousMode>	Start/stop continuous mode.

Responses

<output>	Continuous as per sampling reduction, **see** B06 (page 32) and format specification, **see** B04 (page 28).
B02␣L	Command understood but not executable (incorrect parameter).

Parameters

Name	Type	Values	Meaning
<ContinuousMode>	Integer	0	Stop (Default)
		1	Start

Comment

- Switch off: Must be switched off with B02␣0 once the task is complete.

Example

↓	B02␣1	Query of Start continuous mode
↑	D␣␣␣␣␣123.45␣g	Continuous and as per current format specification (B04␣"%S%␣%W:10%␣%U%") defined
↑	S␣␣␣␣␣123.54␣g	

B03 – FastHost: Query Time Interval of Value Counter

Description

B03 can be used to query the value-counter time interval. A time axis for the weighing results can be calculated on the basis of this time interval and the counter, while also taking into account the downsampling factor.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
	✓	✓*	✓	✓*	✓	✓	✓

* If an optional interface is installed: Only available on optional interface.

The value of the time interval is determined by the transmission speed.

Syntax

Command

B03	Query of time interval of the value counter.

Responses

B03␣A␣<TimeInterval>	Time interval the value counter in seconds.
B03␣L	Command understood but not executable (incorrect parameter).

Parameter

Name	Type	Values	Meaning
<TimeInterval>	Float		Time interval the value counter in seconds

Example

↓	B03	Query of time interval of value counter
↑	B03␣A␣0.010923	Time interval is 10.923 ms

B04 – FastHost: Query/Set Format Specification

Description

B04 can be used to individually format the output for B01 (page 25) and B02 (page 26). As well as the structure of the output string, additional information and comments on the weight value can be provided.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
	✓	✓*	✓	✓*	✓	✓	✓

* If an optional interface is installed: Only available on optional interface.

Syntax

Commands

B04	Query of the FastHost format specification.
B04␣"<Format>"	Set the FastHost format specification.

Responses

B04␣A␣"<Format>"	Format (string).
B04␣A	FastHost format specification is set.
B04␣L	Command understood but not executable (incorrect parameter).
B04␣I	Parameter not permanently saved.

Parameters

Name	Type	Values	Meaning
<Format>	String	Combination of Format specifiers listed in the table below; separated by blanks	Specification of the output format for B01 (page 25) and B02 (page 26)

Format specifiers	Information	Options	
%W[:[l][:p]]%	Weight value (net value)	l	Length: Total number of characters of the weight value including decimal point and decimal places (if any). Formatting is right-justified as long as the defined number of places for the output display is sufficient.
		p	Decimal places: Number of decimal places for the weight value.
		Note:	The maximum possible number of decimal places is limited to the resolution of the balance (default). Output is always as full range with rounding (DeltaRange is not supported).

Format specifiers	Information	Options	
%A[:[l][:p]]%	Absolute weight value referring to fabrication zero point	l	Length: Total number of characters of the weight value including decimal point and decimal places (if any). Formatting is right-justified as long as the defined number of places for the output display is sufficient.
		P	Decimal places: Number of decimal places for the weight value.
		Note:	The maximum possible number of decimal places is limited to the resolution of the balance (default). Output is always as full range with rounding (DeltaRange is not supported).
%U%	Unit (as string)	No options, unit is fixed to gram	
%S[:s:i]%	Stability information (stable/unstable)	s	Indicator for a stable weight value (default S)
		i	Indicator for an unstable weight value (default D).
		Note:	Only 1 character allowed. The stability information is only used with B01 (page 25) and B02 (page 26).
%Q[:[l][:p]]%	Signal width as indicator for the measured value stability in grams. **Note:** The signal width can be used for a user specific detection stable/ unstable with B05 (page 31).	l	Length: Total number of characters of the stability indication including decimal point and decimal places (if any). Formatting is right-justified as long as the defined number of places for the output display is sufficient.
		p	Decimal places: Number of decimal places for the weight value.
		Note:	Default:10:0.
%C[:m]%	Value counter **Note:** The measured value counter arises with fix counting rate and can be used as a Time information	m	Maximal counter value: supplies the measured value counter modulo indicated value m.
%T[:[l][:p]]%	Temperature level of the measuring cell. **Note:** The temperature value in the cell isn't identical to the balancing ambient temperature and can not be used instead.	l	Length: Total number of characters of the temperature value including decimal point and decimal places (if any). Formatting is right-justified as long as the defined number of places for the output display is sufficient.
		p	Decimal places: Number of decimal places for the weight value (default: 3).
		Note:	Maximum number of decimal places is limited to 3.

Format specifiers	Information	Options	
<text>	Constant Text	**Note:**	The characters % and " need to be escaped when they occur in static text:
		%%	Percent sign as constant text at the start of format or after a <Blank>
		\"	Double quotation mark as a text component
␣	Information delimitation		

Comments

- The format specification is permanently stored under user data.
- Only applies to the B01 (page 25) and B02 (page 26) commands.
- With overload the results %W% and %A% the value 99999999 are given.
  With underload the results %W% and %A% the value –99999999 are given.
- %C% concerns an internal value counter of signal processing. This is initialized after each Power On of the weighbridge with 0. With the maximum count 4294967295 (4Byte unsigned long) an overflow occurs and the counter starts again with 0. With weigh modules, balances with a time interval of measured value counter of 10.923 ms this overflow takes place on the 543rd day after Power On. With a "modulo-1000" formatting, the overflow counter runs only to 999 and then returns to 0 and starts again.

Examples

↓	B04␣"S␣%S%␣%W:11:3%␣%U%␣%C:100%"	Set the FastHost format specification
↑	B04␣A	FastHost format specification is set
↓	B01	Request a weight value
↑	S␣D␣␣␣␣1234.563␣g␣23	B01 (page 25)/B02 (page 26) response (weight right-aligned)

↓	B04␣"Weight␣=␣%W::2%␣%U%"	Set the FastHost format specification
↑	B04␣A	FastHost format specification is set
↓	B01	Request a weight value
↑	Weight␣=␣1234.56␣g	B01 (page 25)/B02 (page 26) response (weight left-aligned)

↓	B04␣"%%W%␣*␣%%A%␣=␣%%WA%"	Set the FastHost format specification
↑	B04␣A	FastHost format specification is set
↓	B01	Request a weight value
↑	%W%␣*␣%A%␣=␣%WA%	B01 (page 25)/B02 (page 26) supply this response

↓	B04␣"\"%W%\"␣is␣%W%"	Set the FastHost format specification
↑	B04␣A	FastHost format specification is set
↓	B01	Request a weight value
↑	"%W%"␣is␣161.5435	B01 (page 25)/B02 (page 26) supply this response:

B05 – FastHost: Query/Set Stability Criteria

Description

Use B05 to define a stability criterion for the weighing signal in grams/time interval.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
	✓	✓*	✓	✓*	✓	✓	✓

* If an optional interface is installed: Only available on optional interface.

Syntax

Commands

B05	Query of the FastHost stability criteria.
B05␣<Width>	Set the FastHost stability criteria in grams.

Responses

B05␣A␣<Width>	Current FastHost stability criteria.
B05␣A	FastHost stability criteria is set.
B05␣L	Command understood but not executable (incorrect parameter).
B05␣I	Parameter not permanently saved.

Parameter

Name	Type	Values	Meaning
<Width>	Float	See comments	FastHost signal width as stable criteria in grams

Comments

- The condition of stability is permanently stored.
- Only the signal width can be adjusted to determine the FastHost stability by means of B05. The observation time for the determination of the signal width is given by the weigh module, balance system. This can be different, depending on the adjustment of the weigh module, balance parameters and on the type.
- If the value of the FastHost signal width B5 is more than 1000 times smaller than the smallest resolution of theweigh module, balance, then the internal stability information of the balancing system will be sent to the stability marking, i.e. same behavior concerning stability information as with the command S (page 212).
- The default value of the weigh module, balance according to its type definition is set using B05␣0.
- The value has up to (number of decimal places +3) decimal places. The size of the value can be determined locally using B04 (page 28) and the parameter %Q%, and typically moves within the range of approx. ½ digit/time interval.

Example

↓	B05	Query of the FastHost stability criteria
↑	B05␣A␣0.0006	Width of signal for stability is 0.0006 g

B06 – FastHost: Query/Set Downsampling Factor

Description

Use B06 to specify that only every nth value should be output within the context of repetitive continuous sending.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
	✓	✓*	✓	✓*	✓	✓	✓

* If an optional interface is installed: Only available on optional interface.

Syntax

Commands

B06	Query of the FastHost downsampling factor.
B06␣<Rate>	Set the FastHost downsampling factor.

Responses

B06␣A␣<Rate>	Current FastHost downsampling factor.
B06␣A	FastHost downsampling factor is set.
B06␣L	Command understood but not executable (incorrect parameter).
B06␣I	Parameter not permanently saved.

Parameter

Name	Type	Values	Meaning
<Rate>	Integer	1	Give all values (max. rate)
		2	Give every second value
		3	Give every third value
		...	…
		65,535	Send every 65,535th sample only

Comments

- Settings are permanently stored.
- In the case of repetitive sending, the time between outputs is calculated using value B06 x value B03 (page 27).

Example

↓	B06	Query of the FastHost downsampling factor
↑	B06␣A␣4	With continuous sending every forth value will be given

B07 – FastHost: Query/Set Switch-On Mode

Description

You can use `B07` to specify that repetitive continuous sending as in B02 (page 26) should start automatically as soon as the balance is switched on.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
	✓	✓*	✓	✓*	✓	✓	✓

* If an optional interface is installed: Only available on optional interface.

Syntax

Commands

`B07`	Query of the FastHost switch-on mode.
`B07␣<Mode>`	Set the FastHost switch-on mode.

Responses

`B07␣A␣<Mode>`	Current FastHost switch-on mode.
`B07␣A`	FastHost switch-on mode is set.
`B07␣L`	Command understood but not executable (incorrect parameter).
`B07␣I`	Parameter not permanently saved.

Parameter

Name	Type	Values	Meaning
`<Mode>`	Integer	`0`	Normal start
		`1`	Automatic send after switch-on is activated

Comment

- The switch-on mode is permanently stored.

Example

↓	`B07`	Query of the FastHost switch-on mode
↑	`B07␣A␣1`	Automatic send after switch-on is activated

B08 – FastHost: Zero with FastHost Stability Criteria

Description

Use B08 to define the stability criterion for the FastHost zero, in a similar way to B05 (page 31) for the weight value.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
	✓	✓*	✓	✓*	✓	✓	✓

* If an optional interface is installed: Only available on optional interface.

Syntax

Command

B08	Set to zero with FastHost stability criteria.

Responses

B08␣A	Set to zero with FastHost stability criteria successfully completed.
B08␣-	Command stopped due to overload.
B08␣+	Command stopped due to underload.
B08␣I	Command not available, stopped or timed-out.

Comments

- The switch-on mode is permanently stored.
- Only affects B01 (page 25) and B02 (page 26).
- If a very large criterion has been selected (≥ weighing capacity), the corresponding command is ZI (page 258).
- If a very small criterion has been selected, this will result in a timeout error.
- With B08 0, the stability criterion corresponds to the default weight value and to command Z (page 256).

Example

↓	B08	Set to zero with FastHost stability criteria
↑	B08␣A␣1	Set to zero with FastHost stability criteria successfully completed

C0 – Query/Set Adjustment Settings

Description

C0 can be used to define the type of adjustment. Other commands are required to actually trigger the adjustment procedure and define the adjusted weights.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
✓	✓	✓	✓	✓	✓	✓	✓

Syntax

Commands

C0	Query of the current adjustment setting.
C0␣<Mode>␣<Weight>	Set the adjustment setting.

Responses

C0␣A␣<Mode>␣<Weight>␣"<Value>␣<Unit>"	Weight value and unit specify the value of the weight for an external calibration requested from the user via the display, **see** C1 (page 37). The unit corresponds to the factory setting of host unit (page 17), e.g. gram (g) with standard balances or carat (ct) with carat balances respectively. With internal adjustment, neither weight value nor unit appears.
C0␣I	Command understood but currently not executable (balance is currently executing another command, e.g. taring).
C0␣A	Adjustment setting set successfully.
C0␣L	Command understood but not executable (incorrect parameter; certified version of the balance).

Parameters

Name	Type	Values	Meaning
<Mode>	Integer	0	Mode = Manual The adjustment can only be triggered manually. A change in the ambient conditions has no influence on the initiation of the calibration procedure.
		1	Mode = Auto, status display AutoCal or Cal not activated When a considerable change in the ambient conditions is determined, the status display AutoCal or Cal will be activated; this means the balance will ask for adjustment.
		2	Mode = Auto, status display "AutoCal" or "Cal" flashes The sensors built into the balance have determined a considerable change in the ambient conditions. The balance requests an adjustment or at least a test, **see** TST (page 244) x commands.
<Weight>	Integer	0	Internal weight (factory setting)
		1	External weight
<Value>	Float		Weight values specify the value of the weight for an external calibration requested from the user via the display or interface, **see** C1 (page 37).
<Unit>	String		The unit corresponds to the factory setting of host unit (page 17), e.g. gram (g).

Comments

- Setting <Mode> = 1 and <Weight> = 0 corresponds to the menu setting "ProFACT" / "FACT" under "Adjust/Test".
- The value of the external weight can be changed in the menu of the balance under "Adjust/Test ", **see** Operating Instructions or with M19 (page 115).
- Use C1 (page 37) to start an adjustment defined with C0.
- C2 (page 38) is independent of C0.
- C0 must be reset manually; @ (page 18) has no effect.
- Check remaining ranges with I50 (page 86) command.
- The parameters are not stored permanently.

Examples

↓	C0	Query of the current status and setting of the adjustment
↑	C0␣A␣2␣1␣"␣␣␣100.000␣g"	Current setting of mode is "Auto". The ambient conditions of the balance have changed so much that the balance requests an adjustment (<Mode> = 2) with the external weight (<Weight> = 1). The adjustment is initiated with the command C1 (page 37) and requires a weight of 100.000 g
↓	C2	Start external adjustment, **see** responses of C2 (page 38)
↓	C0	Query of the current status and setting of the adjustment
↑	C0␣A␣3␣1␣"␣␣␣100.000␣g"	Adjustment started
↓	C0	Query of the current status and setting of the adjustment
↑	C0␣A␣4␣1␣"␣␣␣100.000␣g"	Adjustment successfully executed

↓	C0␣0␣1	Set adjustment setting to manual and external
↑	C0␣A	Adjustment setting set

Also see:

- C1 – Start Adjustment According to Current Settings (page 37)
- TST0 – Query/Set Test Function Settings (page 244)
- TST1 – Start Test Function According to Current Settings (page 245)

C1 – Start Adjustment According to Current Settings

Description

C1 is used to carry out adjustment in accordance with the C0 (page 35) settings.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
✓	✓	✓	✓	✓	✓	✓	✓

Syntax

Command

C1	Start the adjustment according to the current setting C0 (page 35).

First Responses

C1␣B	The adjustment procedure has been started. Wait for second response **see** Comments.
C1␣I	Command understood but currently not executable (balance is currently executing another command). No second response follows.
C1␣L	Command understood but not executable (e.g. certified version of the balance). No second response follows.

Further Responses

C1␣"<Weight>␣<Unit>"	Weight request with external adjustment.
C1␣A	Command understood and executed successfully.
C1␣I	The adjustment was aborted as, e.g. stability not attained or the procedure was aborted with the C key.

Comments

- Commands sent to the balance during the adjustment operation are not processed and responded to in the appropriate manner until the adjustment is at an end.
- The value of the external adjustment weight needed for adjustment must be set accordingly by an M19 (page 115) command.
- Use @ (page 18) to abort a running adjustment.
- Check remaining ranges with I50 (page 86) command.

Example

↓	C1	Start the adjustment according to the current setting
↑	C1␣B	Adjustment operation started
↑	C1␣"␣␣␣␣␣␣0.00␣g"	Prompt to unload the balance
↑	C1␣"␣␣␣␣2000.00␣g"	Prompt to load the adjustment weight of 2000.00 g
↑	C1␣"␣␣␣␣␣␣0.00␣g"	Prompt to unload the balance
↑	C1␣A	Adjustment completed successfully

Also see:

- C0 – Query/Set Adjustment Settings (page 35)
- M19 – Query/Set Adjustment Weight (page 115)
- TST1 – Start Test Function According to Current Settings (page 245)

C2 – Start Adjustment with External Weight

Description

Regardless of the C0 (page 35) setting, C2 carries out external adjustment with the reference weight defined in M19 (page 115).

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
✓	✓	✓	✓	✓		✓	✓

Syntax

Command

C2	Start the external adjustment. Query of the current weight used by means of the M19 (page 115) command.

First Responses

C2␣B	The adjustment procedure has been started.
C2␣I	Command understood but currently not executable (balance is currently executing another command). No second response follows.
C2␣L	Command understood but not executable (e.g. adjustment with an external weight is not admissible, certified version of the balance). No second response follows.

Further Responses

C2␣"<Weight>"␣<Unit>"	Prompt to unload or load the balance.
C2␣A	Command understood and executed successfully.
C2␣I	The adjustment was aborted as, e.g. stability not attained or the procedure was aborted with the C key.

Comments

- Commands sent to the balance during the adjustment operation are not processed and responded to in the appropriate manner until the adjustment is at an end.
- The value of the external adjustment weight needed for adjustment must be set accordingly by an M19 (page 115) command.
- Use @ (page 18) to abort a running adjustment.
- Check remaining ranges with I50 (page 86) command.

Example

↓	C2	Start the external adjustment
↑	C2␣B	Adjustment operation started
↑	C2␣"␣␣␣␣␣␣0.00␣g"	Prompt to unload the balance
↑	C2␣"␣␣␣␣2000.00␣g"	Prompt to load adjustment weight 2000.00 g
↑	C2␣"␣␣␣␣␣␣0.00␣g"	Prompt to unload the balance
↑	C2␣A	Adjustment completed successfully

Also see:

- M19 – Query/Set Adjustment Weight (page 115)
- TST2 – Start Test Function with External Weight (page 247)

C3 – Start Adjustment with Internal Weight

Description

You can use C3 to start an internal adjustment procedure.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
✓	✓			✓	✓	✓	✓

Syntax

Command

C3	Start the internal adjustment.

First Responses

C3␣B	The adjustment procedure has been started. Wait for second response.
C3␣I	Adjustment can not be performed at present as another operation is taking place. No second response follows.
C3␣L	Adjustment operation not possible (e.g. no internal weight). No second response follows.

Further Responses

C3␣A	Adjustment has been completed successfully.
C3␣I	The adjustment was aborted as, e.g. stability not attained or the procedure was aborted with the C key.

Comments

- Commands sent to the balance during the adjustment operation are not processed and responded to in the appropriate manner until the adjustment is at an end.
- Use @ (page 18) to abort a running adjustment.
- Check remaining ranges with I50 (page 86) command.

Example

↓	C3	Start the internal adjustment
↑	C3␣B	Adjustment operation started
↑	C3␣A	Adjustment completed successfully

Also see:

- TST3 – Start Test Function with Internal Weight (page 249)

C4 – Start Initial Adjustment (Initial Calibration)

Description

An initial adjustment is a procedure that determines a new adjustment factor between the built-in weight used for internal adjustment and the external weight defined by the M19 (page 115) command. All internal adjustments following this procedure will show the same weighing results as if the adjustment were done with the external weight. The initial adjustment thus allows tuning of the internal adjustment of several weigh modules to one external weight standard.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
	✓			✓		✓	✓

Syntax

Command

C4	Start initial adjustment (initial calibration).

First Responses

C4␣B	Initial adjustment (initial calibration) procedure has been started. Wait for second response.
C4␣I	Initial adjustment (initial calibration) cannot be performed at present because another operation is taking place (e.g. zero setting or taring), or the current weight value is outside the permissible range.
C4␣L	Command understood but not executable (parameter not allowed). No second response follows.

Further Responses

C4␣"text"	Prompt to unload or load the weighing module.
C4␣A	Adjustment (initial calibration) has been completed successfully.
C4␣I	The adjustment (initial calibration) procedure was aborted because, e.g. the stability needed for this operation was not achieved within the timeout limit, or a wrong weight was loaded.

Comments

- In order to perform an initial adjustment (calibration), the actual load seen by the weight module must be within plus/minus (2 g + 1% of weighing capacity) relative to the load when the weight module was switched on.
- The criterion that must be fulfilled to reach stability for initial adjustment depends on the type of the weigh module and cannot be changed.
- The timeout may be set using the M67 (page 176) command.
- The value of the external adjustment weight needed for initial adjustment (calibration) must be set accordingly by an M19 (page 115) command if preload exists.
- The new factor determined by the initial adjustment procedure will be reset to the adjustment factor evaluated in the factory when the FSET␣0 or FSET␣1 command is performed. With FSET␣2, the initial calibration by the user is retained.
- Check remaining ranges with I50 (page 86) command.

Example

↓	C4	Start the internal adjustment
↑	C4␣B	Adjustment operation started
↑	C4␣"␣␣␣100.0000␣g"	Prompt to load weight of 100.0000 g used for initial adjustment
↑	C4␣"␣␣␣␣␣0.0000␣g"	Prompt to unload the module
↑	C4␣A	Adjustment completed successfully

COM – Query/Set Communication Parameters Built-in Interface

Description

You can use this command to define the connection parameters of the serial interfaces (e.g. RS232, RS422).

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
	✓	✓		✓			

Syntax

Commands

COM	Query of the existing interface settings.
COM␣<Port>␣<Baud>␣<Bit>␣<HS>	Set parameters of the specified interface to desired values.

Responses

COM␣B␣<Port>␣<Baud>␣<Bit>␣<HS> … COM␣A␣<Port>␣<Baud>␣<Bit>␣<HS>	Current communication parameters.
COM␣A	Command executed successfully.
COM␣I	Command understood but not executable (e.g. update rate is too high for the selected baud rate, see comments).
COM␣L	Command understood but not executable (e.g. parameter incorrect).

Parameters

Name	Type	Values	Meaning
<Port>	Integer	0	Built-in RS232 interface
		1	Built-in RS422 interface
<Baud>	Integer	0	150 baud
		1	300 baud
		2	600 baud
		3	1200 baud
		4	2400 baud
		5	4800 baud
		6	9600 baud (factory setting)
		7	19200 baud
		8	38400 baud
<Bit>	Integer		Bits / Parity / Stop bits
		0	7 / Even / 1
		1	7 / Odd / 1
		2	7 / None / 1
		3	8 / None / 1 (factory setting)
		4	7 / Even / 2
		5	7 / Odd / 2
		6	7 / None / 2
		7	8 / None / 2
<HS>	Integer	0	No handshake (factory setting)
		1	Software handshake (Xoff – Xon controlled protocol)
		2	Hardware handshake (CTS – RTS controlled protocol)

Comments

- Command only available without a connected terminal.
- If an option is present in the system, the host is automatically assigned to that interface and the COM command is not available anymore.
- The answer is returned with the current settings, the settings are changed afterwards.
- No values other than those specified must be used; otherwise, uncontrollable settings may result.
- When adjusting the values, the connection parameters of the connected communication partner must also be adjusted. Otherwise, it will not be possible to establish any further communication.

Examples

↓	COM	Send current settings for interface parameters for all present interfaces
↑	COM␣B␣0␣6␣3␣0	RS232 is set to 9600 baud, 8 bits, no parity, 1 stop bit, no handshake

↓	COM␣0␣8␣3␣0	Setting the parameters for the serial interface to 38400 baud, 8 data bits, no parity, 1 stop bit, no handshake
↑	COM␣A	Parameters successfully set to desired values

COPT – Query/Set Interface Option Parameters

Description

Definition of the additional commands to configure the interface options in the standalone weigh module.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
		✓*		✓*			

* If an optional interface is installed: Only available on standard interface.

Syntax

Commands

COPT	Query configurations for options.
COPT␣"<function>"␣"<id>"␣"<typ>"␣"<val>"	Set configurations for options.
COPT␣"start"	Starts configuration. Host connection is suspended.
COPT␣"end"	Ends the configuration. Host connection is resumed.
COPT␣"get"␣"<id>"	Read a datum.
COPT␣"set"␣"<id>"␣"<typ>"␣"<val>"	Sets configurations for options.

Responses

COPT␣A␣"<response>"	Command executed successfully.
COPT␣I	Command understood but currently not executable (e.g. no option inserted, "start" command not executed, COPT already active).
COPT␣L	Command understood but currently not executable (e.g. parameter incorrect).

Parameters for all options

Name	Type	Values	Meaning
<function>	String	start	Starts configuration
		get	Read a datum
		set	Set a datum
		end	Ends the configuration
<id>	String	System.Infos.DeviceName	DeviceName (read only)
		System.Infos.SWNumber	SW Number (read only)
		System.Infos.SWVersion	SW Version (read only)
		System.FactoryReset	Restore factory settings
<typ>	String	0 … 20 characters	Type of the datum
<val>	String		Value of the datum

<id>	String	System.Infos.Status	System status (read only)
<typ>	String	i4	Type of the datum

<val>	String	-5	Lost DHCP lease (only Ethernet option)
		-4	Busy
		-3	Wrong/not configured
		-2	Starting up
		-1	Out-of-order
		0	Ready

<response>	String	differentformat possible	depends on option

Parameters for R232 option

Name	Type	Values	Meaning
<id>	String	Connection. Connection List.1.Baudrate	Baudrate
<typ>	String	i4	Type of the datum
<val>	String	2	600
		3	1200
		4	2400
		5	4800
		6	9600
		7	19200
		8	38400

<id>	String	Connection. Connection List.1.Parity	Parity
<typ>	String	i4	Type of the datum
<val>	String	0	7Bit/None
		1	7Bit/Even
		2	7Bit/Odd
		4	8Bit/None

<id>	String	Connection. Connection List.1.Handshake	Handshake
<typ>	String	i4	Type of the datum
<val>	String	0	None
		1	Software handshake (XON/XOFF)
		2	Hardware handshake (RTS/CTS)

<id>	String	Connection. Connection List.1.EndOfLine	End of Line
<typ>	String	i4	Type of the datum

<val>	String	1	<CR><LF>
		2	<CR>
		3	<LF>

<id>	String	Connection. Connection List.1.CharSet	Char Set
<typ>	String	i4	Type of the datum
<val>	String	0	ANSI/WIN
		1	IBM/DOS

Parameters for Ethernet option

Name	Type	Values	Meaning
<id>	String	System.Infos. SerialNumber	Serial number (read only)
<typ>	String	string	
<val>	String	0 … 10 characters	

<id>	String	Interface.DHCP	DHCP
<typ>	String	i4	Type of the datum
<val>	String	0	Off
		1	On

<id>	String	Interface.IPAdress	IP Address
<typ>	String	string	Type of the datum
<val>	String	0 … 15 characters	

<id>	String	Interface. SubnetMask	End of Line
<typ>	String	string	Type of the datum
<val>	String	0 … 15 characters	

<id>	String	Interface.Standard Gateway	Standard Gateway
<typ>	String	string	Type of the datum
<val>	String	0 … 15 characters	

<id>	String	Interface. DomainName Server	Domain Name Server
<typ>	String	string	Type of the datum
<val>	String	0 … 15 characters	

<id>	String	Interface.HostName	Host Name
<typ>	String	string	Type of the datum
<val>	String	0 … 41 characters	

<id>	String	Interface.Apply	This function has to be called for changes in parameters with an identifier starting with "Interface" to take effect. This command must be called to make the previous interface parameters permanent.
<typ>	String		Two quotes with no space between.
<val>	String		Two quotes with no space between.

<id>	String	Connection.Connection List.1.Client	Connection to Client
<typ>	String	i4	Type of the datum
<val>	String	0	Off
		1	On

<id>	String	Connection.Connection List.1.Client Address	Client Address
<typ>	String	string	Type of the datum
<val>	String	0 … 40 characters	

<id>	String	Connection.Connection List.1.ClientPort	Client Port
<typ>	String	string	Type of the datum
<val>	String	1 … 65535	Increment 1

<id>	String	Connection.Connection List.1.Server	Server
<typ>	String	i4	Type of the datum
<val>	String	0	Off
		1	On

<id>	String	Connection.Connection List.1.ServerPort	Server Port
<typ>	String	i4	Type of the datum

<val>	String	1 … 65535	Increment 1

<id>	String	Connection. Connection List.1.EndOfLine	End of Line
<typ>	String	i4	Type of the datum
<val>	String	0	<CR>
		1	<LF>
		2	<CR><LF>

<id>	String	Devices.Host.MuxID	Mux ID
<typ>	String	string	Type of the datum
<val>	String	0 … 6 characters	

Comments

- This command is only available if an interface option is present.
- If no interface option is present, balance response will be ES.

Examples

Example for all options

↓	COPT␣"get"␣"System.Infos. DeviceName"	Get device name
↑	COPT␣A␣"Value='Ethernet Option'"	Device name = Ethernet Option
↓	COPT␣"get"␣"System.Infos.Status"	Get system status
↑	COPT␣A␣"Value='0'"	System is ready

Example for Ethernet option

↓	COPT␣"start"	Starts configuration. Host connection is suspended
↑	COPT␣A␣""	Command executed successfully
↓	COPT␣"set"␣"Interface.DHCP"␣"i4"␣ "0"	Set DHCP off
↑	COPT␣A␣""	Command executed successfully
↓	COPT␣"set"␣"Interface.IPAddress"␣ "string"␣"172.24.113.7"	Set IP address to 172.24.113.7
↑	COPT␣A␣""	Command executed successfully
↓	COPT␣"set"␣"Interface.SubnetMask"␣ "string"␣"255.255.248.0"	Set subnet mask to 255.255.248.0
↑	COPT␣A␣""	Command executed successfully
↓	COPT␣"set"␣"Interface. StandardGateway"␣"string"␣ "172.24.112.1"	Set standard gateway to 172.24.112.1
↑	COPT␣A␣""	Command executed successfully
↓	COPT␣"set"␣"Interface.Apply"␣""␣""	Apply interface parameters
↑	COPT␣A␣""	Command executed successfully
↓	COPT␣"set"␣"Connection. ConnectionList.1.ServerPort"␣"i4"␣ "8001"	Set Server port to 8001
↑	COPT␣A␣""	Command executed successfully

↓	COPT␣"set"␣"Connection. ConnectionList.1.Server"␣"i4"␣"1"	Set server visible to client
↑	COPT␣A␣""	Command executed successfully
↓	COPT␣"end"	Ends the configuration. Host connection is resumed
↑	COPT␣A␣""	Command executed successfully
↓	COPT␣"get"␣"System.Infos.Status"	Get system status
↑	COPT␣A␣"Value='0'"	System is ready

Example for RS232 option

↓	COPT␣"start"	Starts configuration. Host connection is suspended
↑	COPT␣A␣""	Command executed successfully
↓	COPT␣"set"␣"Connection. ConnectionList.1.Baudrate"␣"i4"␣ "5"	Set baud rate to 4800 baud
↑	COPT␣A␣""	Command executed successfully
↓	COPT␣"set"␣"Connection. ConnectionList.1.Parity"␣"i4"␣"1"	Set format to 7 Bit odd parity
↑	COPT␣A␣""	Command executed successfully
↓	COPT␣"end"	Ends the configuration. Host connection is resumed
↑	COPT␣A␣""	Command executed successfully
↓	COPT␣"get"␣"System.Infos.Status"	Get system status
↑	COPT␣A␣"Value='0'"	System is ready

Example for Factory reset

↓	COPT␣"start"	Starts configuration. Host connection is suspended
↑	COPT␣A␣""	Command executed successfully
↓	COPT␣"set"␣"System.FactoryReset"␣ "i4"␣"1"	Restore factory settings
↑	COPT␣A␣""	Command executed successfully
↓	COPT␣"end"	Ends the configuration. The host connection is resumed
↑	COPT␣A␣""	Command executed successfully

D – Display: Write Text to Display

Description

Use D to write text to the balance display.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
✓	✓		✓		✓	✓	✓

Syntax

Command

D␣"<DisplayText>"	Write text into the balance display.

Responses

D␣A	Command understood and executed successfully: Text appears left-aligned in the balance display marked by a symbol, e.g. *.
D␣I	Command understood but currently not executable.
D␣L	Command understood but not executable (incorrect parameter or balance with no display).

Parameter

Name	Type	Values	Meaning
<DisplayText>	String		Text on the balance display

Comments

- A symbol in the display, e.g. * indicates that the balance is not displaying a weight value.
- The maximum number of characters of "text" visible in the display depends on the balance type. If the maximum number of characters is exceeded, the text disappears on the right side.
- Quotation marks can be displayed as indicated in chapter 1.1.3 (page 17).

Examples

↓	D␣"HELLO"	Write "HELLO" into the balance display
↑	D␣A	The full text HELLO appears in the balance display

↓	D␣" "	Clear the balance display
↑	D␣A	Balance display cleared, marked by a symbol, e. g. *

See also

DW – Display: Show Weight (page 58)

DAT – Query/Set Date

Description

Set/Query the balance system date.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
✓	✓	✓	✓	✓	✓	✓	✓

Syntax

Commands

DAT	Query of the current date of the balance.
DAT␣<dd>␣<mm>␣<yyyy>	Set the date of the balance.

Responses

DAT␣A␣<dd>␣<mm>␣<yyyy>	Current date of the balance.
DAT␣A	Command understood and executed successfully.
DAT␣I	Command understood but currently not executable (balance is currently executing another command).
DAT␣L	Command understood but not executable (incorrect parameter).

Parameters

Name	Type	Values	Meaning
<dd>	Integer	01 … 31	Day
<mm>	Integer	01 … 12	Month
<yyyy>	Integer	2000 … 2099	Year

Comment

- The set date is retained even after the Cancel-command @ (page 18).

Example

↓	DAT	Query of the current date of the balance
↑	DAT␣A␣01␣04␣2011	Current date of the balance is 1st April 2011

DIN – Query/Set Configuration for Digital Inputs

Description

Set/Query the configuration for the digital inputs.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
	✓						

Syntax

Commands

DIN	Query of the configuration for the digital inputs.
DIN␣<Input>␣<"Command">␣<Transition>␣<Interface>	Set the configuration for the digital input.

Responses

DIN␣B␣<Input>␣<"Command">␣<Transition>␣<Interface> DIN␣B… DIN␣A␣<Input>␣<"Command">␣<Transition>␣<Interface>	Current configuration for the digital input.
DIN␣A	Command understood and executed successfully.
DIN␣I	Command understood but currently not executable.
DIN␣L	Command understood but not executable (incorrect parameter).

Parameters

Name	Type	Values	Meaning
<Input>	Integer	1 … n	Number of digital input
<"Command">	String	max. 64 characters	MT-SICS Command
<Transition>	Integer	0: risingedge	Transition of the input signal
		1: fallingedge	
<Interface>	integer	0 … n	Number of Interface, Interface number, **see** COM (page 42)

Comments

- Only one event can be programmed on each digital input.
- Nonsense "Command" leads to an ES on the specified interface.

Example

↓	DIN	Query the current configuration for the digital input
↑	DIN␣A␣2␣"SI"␣1␣1	The command "SI" will be executed on the interface 1 by falling edge on digital input number 2

DOT – Query/Set Configuration for Digital Outputs

Description

Set/Query the configuration for the digital outputs.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
	✓						

Syntax

Commands

DOT	Query of the current configuration for the digital outputs.
DOT␣<Output>␣<Duration>␣<Delay>	Set the configuration for the digital outputs.

Responses

DOT␣B␣<Output>␣<Duration>␣<Delay> DOT␣B… DOT␣A␣<Output>␣<Duration>␣<Delay>	Current configuration for the digital output.
DOT␣A	Command understood and executed successfully.
DOT␣I	Command understood but currently not executable.
DOT␣L	Command understood but not executable (incorrect parameter).

Parameters

Name	Type	Values	Meaning
<Output>	Integer	1 … n	Number of digital output
<Duration>	String	10 … 65535 ms	Duration time in ms
<Delay>	Integer	0 … 65535 ms	Delay time in ms

Comments

- Only one event can be programmed on each digital output.
- The timing resolution: Duration and Delay are rounded up to the system resolution (usually 8 or 10 ms).

Example

↓	DOT	Query the current configuration for the digital output
↑	DOT␣A␣2␣500␣100	The digital output number 2 will increase the voltage for a duration of 500 ms with a delay of 100 ms. Digital outputs can be set with the commands: DOTC (page 54), DOTP (page 56) and WMCF (page 253).

Also see:

- DOTC – Query/Set Digital Outputs – Weight Monitor (page 54)
- DOTP – Query/Set Digital Outputs – Command Response Parser (page 56)
- WMCF – Query/Set Configuration of the Weight Monitoring Functions (page 253)

DOTC – Query/Set Digital Outputs – Weight Monitor

Description

Use DOTC for weight monitoring functionality for dosing or check weighing application. Benefit is that this function works without a PC or PLC.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
	✓						

Syntax

Commands

DOTC	Query of the current configuration for the weight monitor.
DOTC␣<Output>␣<Active>	Set the configuration for the weight monitor.
DOTC␣<Output>␣<Active>␣<Interface>␣<TargetValue>␣<TargetUnit>␣<Tol->␣<TolUnit>␣<Tol+>␣<TolUnit>␣<State>	Set the configuration for the weight monitor.

Responses

DOTC␣B␣<Output>␣<Active> DOTC␣B… DOTC␣A␣<Output>␣<Active>	Current configuration for the weight monitor.
DOTC␣B␣<Output>␣<Active>␣<Interface>␣<TargetValue>␣<TargetUnit>␣<Tol->␣<TolUnit>␣<Tol+>␣<TolUnit>␣<State> DOTC␣B… DOTC␣A␣<Output>␣<Active>␣<Interface>␣<TargetValue>␣<TargetUnit>␣<Tol->␣<TolUnit>␣<Tol+>␣<TolUnit>␣<State>	Current configuration for the weight monitor.
DOTC␣A	Command understood and executed successfully.
DOTC␣I	Command understood but currently not executable.
DOTC␣L	Command understood but not executable (incorrect parameter).

Parameters

Name	Type	Values	Meaning
<Output>	Integer	1 … n	Number of digital output
<Active>	Boolean	1 = on	Command on DOT (n) active
		0 = off	
<Interface>	Integer	0 … n	Observed interface, Interface number, **see** COM (page 42)
<TargetValue>	Float		Target value
<TargetUnit>	String		Target unit, only available units permitted
<Tol-> <Tol+>	Float		Tolerance
<TolUnit>	String		Tolerance unit, available units and % permitted
<State>	String	S = only stable values	Trigger for the value state
		D = only dynamic values	
		A = all values, S and D	

Comments

- Digital output must be available.
- Only one command DOTC(n), DOTP (page 56)(n) or WMCF (page 253) can be configured for the same digital output.
- Duration and Delay from the digital output must be defined with the command DOT (page 53).

Also see:

- DOT – Query/Set Configuration for Digital Outputs (page 53)
- DOTP – Query/Set Digital Outputs – Command Response Parser (page 56)
- WMCF – Query/Set Configuration of the Weight Monitoring Functions (page 253)

- TargetValue will be rounded to the defined resolution from the load cell.
- TragetUnit only allowed units are permitted.
- The weight value monitoring function works only with a weight value command (e.g. SI, SIR).
- The update rate depends on the defined UPD rate.
- Tol- and Tol+ defined as % reference to the Target Value.
- Only allowed units are permitted, **see** M21 (page 117).

Examples

↓	DOTC␣2	Query the current configuration for the weight monitor on the second digital output (DOT␣2)
↑	DOTC␣A␣2␣1␣0␣100␣g␣5␣%␣10␣g␣S	DOT␣2 will be set on every stable weight value on Interface 0 between 100 g – 5 % +10 g

↓	DOTC␣3␣1␣1␣300␣g␣5␣mg␣1␣g␣A	Set the following configuration for the third digital output (DOT␣3): DOT␣3 will be set on every value (stable and unstable) on Interface 1 between 300 g -5 mg +1 g
↑	DOTC␣A	Command understood and executed successfully

↓	DOTC␣1␣0	Deactivate DOTC on digital output 1 (DOT␣1). Other settings like interface, TargetValue,... will be unchanged
↑	DOTC␣A	Command understood and executed successfully

↓	DOTC␣1␣1	Activate DOTC on digital output 1 (DOT␣1). Old settings will be used or default if newer defined
↑	DOTC␣A	Command understood and executed successfully

Also see:

- DOT – Query/Set Configuration for Digital Outputs (page 53)
- DOTP – Query/Set Digital Outputs – Command Response Parser (page 56)
- WMCF – Query/Set Configuration of the Weight Monitoring Functions (page 253)

DOTP – Query/Set Digital Outputs – Command Response Parser

Description

Use DOTP to parse the interface to set digital output when a defined string was send from the balance to a PC or PLC.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
	✓						

Syntax

Commands

DOTP	Query of the current configuration for the command response parser.
DOTP␣<Output>␣<Active>	Set the configuration for the command response parser.
DOTP␣<Output>␣<Active>␣<Interface>␣<"String">	Set the configuration for the command response parser.

Responses

DOTP␣B␣<Output>␣<Active>␣<Interface>␣<"String"> DOTP␣B… DOTP␣A␣<Output>␣<Active>␣<Interface>␣<"String">	Current configuration for the command response parser.
DOTP␣A	Command understood and executed successfully.
DOTP␣I	Command understood but currently not executable.
DOTP␣L	Command understood but not executable (incorrect parameter).

Parameters

Name	Type	Values	Meaning
<Output>	Integer	1 … n	Number of digital output
<Active>	Boolean	1 = on	Command on DOT (n) active
		0 = off	
<Interface>	Integer	0 … n	Observed interface, Interface number, **see** COM (page 42)
<String>	String	max. 24 characters	String to parse (use * for additional characters, only at the end)

Comments

- Digital output must be available.
- Only one command DOTC(n), DOTP (page 56)(n) or WMCF (page 253) can be configured for the same digital output.
- Duration and Delay from the digital output must be defined with the command DOT (page 53).

Also see:

- DOT – Query/Set Configuration for Digital Outputs (page 53)
- DOTP – Query/Set Digital Outputs – Command Response Parser (page 56)
- WMCF – Query/Set Configuration of the Weight Monitoring Functions (page 253)

Examples

↓	DOTP␣1	Query the current configuration for the command response parser on the first digital output (DOT␣1)
↑	DOTP␣A␣1␣1␣0␣"S␣S*"	DOT␣1 will be set TRUE if the response on interface 0 begins with "S␣S"
↓	DOTP␣A␣2␣1␣1␣"C3␣A"	Set the following configuration for the second digital output (DOT␣2): DOT␣2 will be set TRUE if the response "C3␣A" is sending on the interface 1
↑	DOTP␣A	Command understood and executed successfully

↓	DOTP␣3␣0	Deactivate DOTP on digital output 3 (DOT␣3). Other settings like interface and string will be unchanged
↑	DOTP␣A	Command understood and executed successfully

↓	DOTP␣3␣1	Activate DOTP on digital output 3 (DOT␣3). Old settings will be used or default if newer defined
↑	DOTP␣A	Command understood and executed successfully

Also see:

- DOT – Query/Set Configuration for Digital Outputs (page 53)
- DOTP – Query/Set Digital Outputs – Command Response Parser (page 56)
- WMCF – Query/Set Configuration of the Weight Monitoring Functions (page 253)

DW – Display: Show Weight

Description

Writes the current weight value to the balance display using the set unit. This command is used to reset the display after using the D (page 50) command.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
✓	✓		✓		✓	✓	✓

Syntax

Command

DW	Switch the main display to weight mode.

Responses

DW␣A	Command understood and executed successfully: Main display shows the current weight value.
DW␣I	Command understood but currently not executable.

Comment

- DW resets the balance display following a D (page 50) command.

Example

↓	DW	Switch the main display to weight mode
↑	DW␣A	Main display shows the current weight value

Also see:

- D – Display: Write Text to Display (page 50)

E01 – Query of Current System Error State

Description

This command queries severe and fatal system errors.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
✓							

Syntax

Command

E01	Query of the current system error state.

Responses

E01␣ErrorCode␣"ErrorMessage"	Current error code and message.
E01␣I	Command understood but currently not executable.

Parameters

Name	Type	Values	Meaning
<ErrorCode>	Integer	0	No error
		4	EEPROM error
		5	Wrong cell data
		6	No standard calibration
		7	Program memory defect
		9	Temperature sensor defect
		16	Wrong load cell brand
		17	Wrong type data set
		100	Memory full
		101	Battery backup lost
<"ErrorMessage">	String	128 char	Error text message in UTF-8

Comments

- UTF-8 is ASCII compatible if only the code of the first 127 characters is used.
- The ErrorMessage is language dependent and can be switched by M15 (page 110).
- The error code and message will change as soon as the device detects an other state i.e. after a restart or reset.
- If the device is able to detect multiple error s in parallel then only the most critical error (lowest error number) is stated.

Example

↓	E01	Query of the current system error state
↑	E01␣101␣"БАТАРЕЯ␣СЕЛА␣- ␣ПРОВЕРЬ␣ДАТУ␣И␣ВРЕМЯ"	The last device error is "BATTERY BACKUP LOST - CHECK DATE TIME SETTINGS". The selected language is Russian.

FCUT – Query/Set Filter Characteristics (Limit Frequency)

Description

Use FCUT to set the cut-off frequency of the fixed filter.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
	✓	✓		✓			

Syntax

Commands

FCUT	Query cut-off frequency.
FCUT␣<Frequency>	Set cut-off frequency.

Responses

FCUT␣A␣<Frequency>	Current cut-off frequency.
FCUT␣A	Command understood and executed successfully.
FCUT␣I	Command understood but currently not executable.
FCUT␣L	Command understood but not executable (incorrect parameter).

Parameter

Name	Type	Values	Meaning
<Frequency>	Float	0 or < 0.001 Hz	not active (M02 active)
		0.001 Hz – 20.0 Hz	Cut-off frequency

Comments

- To use the command FCUT you have to set M01 (page 94) to 2 and <Frequency> ≥ 0.001 Hz.
- If FCUT is activated (<Frequency> ≥ 0.001 Hz), it will override any settings for ambient conditions (M02 (page 95)) in sensor mode.

Examples

↓	FCUT	Query actual cut-off frequency
↑	FCUT␣A␣0.1	Actual cut-off frequency is 0.1 Hz

↓	M01␣2	Change weighing mode to sensor mode to enable FCUT
↑	M01␣A	Command understood and executed successfully
↓	FCUT␣3.0	Set cut-off frequency to 3.0 Hz
↑	FCUT␣A	Command understood and executed successfully.

Also see:

- M01 – Query/Set Weighing Mode (page 94)
- M02 – Query/Set Environment (page 95)

FSET – Reset all Settings to Factory Defaults

Description

Use FSET to reset all settings to factory defaults.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
	✓	✓		✓			

Syntax

Command

FSET␣<Exclusion>	Resets all user and interface settings as well as the customer calibration to factory settings.

Responses

FSET␣A	Command understood and executed successfully.
FSET␣L	Command understood but not executable (incorrect parameter).

Parameters

Name	Type	Values	Meaning
<Exclusion>	Integer	0	Communication parameters are not reset
		1	Resets all settings
		2	Communication parameters and adjustment (C0 (page 35), C1 (page 37), C2 (page 38), C3 (page 39) and C4 (page 40)) are not reset

Comments

- The FSET command cannot be canceled by @ (page 18).
- All user settings except date (DAT (page 51)) and time (TIM (page 243)) are reset to factory values.
- In case resetting of the interface parameters is included (FSET␣1), the answer is returned with the current interface settings and the interface parameters are reset afterwards.
- After the response FSET␣A, the weigh module restarts and issues I4 (page 66) when it's ready again.
- **See** COPT (page 44) command to reset all settings on the optional interface.

Example

↓	FSET␣1	Reset all settings to factory values
↑	FSET␣A	Command understood and executed successfully
↑	I4␣A␣"B123456789"	Restart, I4 shows the serial number: B123456789

Also see:

- I4 – Query Serial Number (page 66)

I0 – List All Implemented MT-SICS Commands

Description

The I0 command lists all commands implemented in the present software. Thus, there is no need of the supplement sheet delivered with the previous versions of this manual.

All level 0 commands are listed in alphabetical order before all commands of level 1 etc.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
✓	✓	✓	✓	✓	✓	✓	✓

Syntax

Command

I0	Send list of all implemented MT-SICS commands.

Responses

I0␣B␣<Level>␣"<Command>" I0␣B␣<Level>␣"<Command>" I0␣B... I0␣A␣<Level>␣"<Command>"	Number of the MT-SICS level where the command belongs to 2nd (next) command implemented. ... Last command implemented.
I0␣I	Command understood but currently not executable (balance is currently executing another command).

Parameters

Name	Type	Values	Meaning
<Level>	Integer	0	MT-SICS level 0 (Basic set)
		1	MT-SICS level 1 (Elementary commands)
		2	MT-SICS level 2 (Extended command list)
		3	MT-SICS level 3 (Application specific command set)
<Command>	String		MT-SICS command

Comments

- If a terminal and a weigh module, weighing platform are being used, the command list of the terminal is output. If only a weigh module, platform is being used, the command list of the weigh module, platform is shown.
- If I0 lists commands that cannot be found in the manual, these are reserved commands "for internal use" or "for future use", and should not be used or altered in any way.

Example

↓	I0	Send list of commands
↑	I0␣B␣0␣"I0"	Level 0 command I0 implemented
↑	I0␣B...	...
↑	I0␣B␣0␣"@"	Level 0 command @ (page 18) (cancel) implemented
↑	I0␣B␣1␣"D"	Level 1 command D (page 44) implemented
↑	I0␣B...	...
↑	I0␣A␣3␣"SM4"	Level 3 command SM4 implemented

I1 – Query MT-SICS Level and MT-SICS Versions

Description

Query MT-SICS level and versions.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
✓	✓	✓	✓	✓	✓	✓	✓

Syntax

Command

I1	Query of MT-SICS level and MT-SICS versions.

Responses

I1␣A␣"<Level>"␣"<V0>"␣"<V1>"␣"<V2>"␣"<V3>"	Current MT-SICS level and MT-SICS versions.
I1␣I	Command understood but currently not executable.

Parameters

Name	Type	Values	Meaning
<Level>	String	0	MT-SICS level 0
		01	MT-SICS level 0 and 1
		012	MT-SICS level 0, 1 and 2
		03	MT-SICS level 0 and 3
		013	MT-SICS level 0, 1 and 3
		0123	MT-SICS level 0, 1, 2, and 3
		3	Application device with MT-SICS level 3
<V0>..<V3>	String		MT-SICS versions of the related level (0 to 3)

Comment

- The command I14 (page 70) provides more comprehensive and detailed information.

Example

↓	I1	Query the current MT-SICS level and version
↑	I1␣A␣"0123"␣"2.00"␣"2.20"␣"1.00"␣"1.50"	Level 0-3 is implemented and the according version numbers are shown

Also see:

- I14 – Query Balance Information (page 70)

I2 – Query Balance Data (Type and Capacity)

Description

Use `I2` to query the balance data (type and capacity), including the weighing capacity. The response is output as a whole string.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
✓	✓	✓	✓	✓	✓	✓	✓

Syntax

Command

`I2`	Query of the balance data.

Responses

`I2␣A␣"<Type>␣<Capacity>␣<Unit>"`	Balance type and capacity.
`I2␣I`	Command understood but currently not executable (balance is currently executing another command, e.g. taring) .

Parameters

Name	Type	Values	Meaning
`<Type>`	String		Type of balance or weigh module
`<Capacity>`	String		Capacity of balance or weigh module
`<Unit>`	String		Weight unit

Comments

- With DeltaRange balances, the last decimal place is available only in the fine range.
- The number of characters of "text" depends on the balance type and capacity.

Example

↓	`I2`	Query of the balance data
↑	`I2␣A␣"WMS404C-L␣WMS-Bridge␣ 410.0090␣g"`	Balance type and capacity

Also see:

- I14 – Query Balance Information (page 70)

I3 – Query Balance Software Version and Type Definition Number

Description

Provides the software version and the type definition number.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
✓	✓	✓	✓	✓	✓	✓	✓

Syntax

Command

I3	Query of the balance Software version and type definition number.

Responses

I3␣A␣"<Software>␣<TDNR>"	Balance Software version and type definition number.
I3␣I	Command understood but currently not executable (balance is currently executing another command, e.g. taring).

Parameters

Name	Type	Values	Meaning
<Software>	String		Software (Firmware) version
<TDNR>	String		TDNR = Type Definition Number

Comments

- Only the software version of the terminal software is issued.
- If no terminal is present, the bridge software is issued instead.
- More detailed information is available with I14 (page 70).

Example

↓	I3	Query of the Software version number(s) and type definition number
↑	I3␣A␣"4.10␣10.28.0.493.142"	4.10: Software version number 10.28.0.493.142: Type definition number

Also see:

- I14 – Query Balance Information (page 70)

I4 – Query Serial Number

Description

Use I4 to query the serial number of the balance. In the case of balances, the serial number of the terminal is output.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
✓	✓	✓	✓	✓	✓	✓	✓

Syntax

Command

I4	Query of the serial number.

Responses

I4␣A␣"<SNR>"	Serial number.
I4␣I	Command not understood, not executable at present Command understood but currently not executable (balance is currently executing another command, e.g. initial zero setting).

Parameter

Name	Type	Values	Meaning
<SNR>	String		Serial number

Comments

- The serial number agrees with that on the model plate and is different for every balance.
- The serial number can be used, for example, as a device address in a network solution.
- The balance response to I4 appears unsolicited after switching on and after the cancel command @ (page 18).
- Only the serial number of the terminal is issued.
- If no terminal is present, the serial number of the bridge is issued instead.
- More detailed information is available with I14 (page 70).

Example

↓	I4	Query of the serial number
↑	I4␣A␣"B021002593"	The serial number is: B021002593

Also see:

- @ – Cancel (page 18)
- I14 – Query Balance Information (page 70)

I5 – Query SW-Identification Number

Description

Use `I5` to query the software identification number.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
✓	✓	✓	✓	✓	✓	✓	✓

Syntax

Command

`I5`	Query of the SW-identification number.

Responses

`I5␣A␣"<SWID>"`	SW-identification number with index.
`I5␣I`	Command understood but currently not executable (balance is currently executing another command, e.g. taring).

Parameter

Name	Type	Values	Meaning
`<SWID>`	String		SW-Identification number with index

Comments

- The SW-Identification number is unique for every Software. It consists of a 8 digit number and an alphabetic character as an index
- Only the software identification number of the terminal is issued.
- If no terminal is present, the software identification number of the bridge is issued instead.
- More detailed information is available with I14 (page 70).

Example

↓	`I5`	Query of the SW-identification number
↑	`I5␣A␣"12121306C"`	12121306C: SW-identification number with index

Also see:

- I14 – Query Balance Information (page 70)

I10 – Query/Set Balance ID

Description

You can use I10 to query the balance ID or define it. This allows an individual name to be assigned to a balance.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
✓	✓	✓	✓	✓	✓	✓	✓

Syntax

Commands

I10	Query of the current balance identification.
I10␣"<ID>"	Set the balance identification.

Responses

I10␣A␣"<ID>"	Current balance identification.
I10␣A	Balance identification has been set.
I10␣I	Balance identification can not be set at present as another operation is taking place.
I10␣L	Command not executed as the name is too long (max. 20 characters).

Parameter

Name	Type	Values	Meaning
<ID>	String		Balance or weigh module identification

Comments

- A sequence of maximum 20 alphanumeric characters are possible as <ID>.
- The set balance identification is retained even after the cancel command @ (page 18).

Example

↓	I10	Query of the current balance identification
↑	I10␣A␣"My␣Balance"	Current balance identification is "My Balance"

I11 – Query Balance Type

Description

You can use I11 to obtain the precise type designation of a balance or weigh module.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
✓	✓	✓	✓	✓	✓	✓	✓

Syntax

Command

I11	Query of the current balance or weigh module type.

Responses

I11␣A␣"<Type>"	Current balance or weigh module type.
I11␣I	Type can not be transferred at present as another operation is taking place.

Parameter

Name	Type	Values	Meaning
<Type>	String		Balance or weigh module type

Comments

- A sequence of maximum 20 alphanumeric characters is possible as <Type>.
- The following abbreviations used in type designations are relevant to MT-SICS:
  DR = Delta Range.
  DU = Dual Range.
  /M, /A = Approved balance or weigh module.

Example

↓	I11	Query of the current weigh module type
↑	I11␣A␣"WMS404C-L/10"	The weigh module is an WMS404C-L/10

I14 – Query Balance Information

Description

You can use I14 to query detailed information about the balance. All components – including optional accessories – are taken into account and the associated data is output.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
✓	✓	✓	✓	✓	✓	✓	✓

Syntax

Command

I14␣<No>	Query of the current balance information.

Responses

I14␣A␣<No>␣<Index>␣"<Info>"	Current balance information.
I14␣I	Command understood but currently not executable.
I14␣L	Command understood but not executable (incorrect parameter).

Parameters

Name	Type	Values	Meaning
<No>	Integer	0	Instrument configuration
		1	Instrument description
		2	SW-identification number
		3	SW version
		4	Serial number
		5	TDNR number
<Index>	Integer		Index of instrument module
<Info>	String	<Bridge>	Weighing bridge information corresponding to <No>
		<Terminal>	Balance terminal information corresponding to <No>
		<Option>	Balance option information corresponding to <No>
		<Balance>	Balance information corresponding to <No>
		<Printer>	Printer information corresponding to <No>
		<Second Display>	Second Display information corresponding to <No>

Comments

- The response to the query of instrument configuration can comprise one or more lines (compact balances, bridges with/without terminal etc.)
- The description of an option is the language-independent product name, e.g. "RS232-Option".
- If there are several modules of the same kind, the descriptions have an appendix, comprising of a hyphen and a number. Examples: <Option-1>, <Option-2>.

Examples

↓	I14␣0	Query of the current balance information
↑	I14␣B␣0␣1␣"Bridge"	Bridge
↑	I14␣B␣0␣2␣"Terminal"	Terminal
↑	I14␣A␣0␣3␣"Option"	Option

↓	I14␣1	Query of the current instrument descriptions
↑	I14␣B␣1␣1␣"X205T"	Bridge is a X205T
↑	I14␣B␣1␣2␣"PAT"	Excellence Plus Terminal
↑	I14␣A␣1␣3␣"RS232␣Option"	RS232 Option

↓	I14␣2	Query of the current SW-identification numbers
↑	I14␣B␣2␣1␣"11670123A"	SW-identification number of the bridge is 11680123A
↑	I14␣B␣2␣2␣"11670456B"	SW-identification number of the terminal is 11680456B
↑	I14␣A␣2␣3␣"11670789B"	SW-identification number of the option is 11680789B

↓	I14␣3	Query of the current software versions
↑	I14␣B␣3␣1␣"4.23"	Version of the bridge software is 4.23
↑	I14␣B␣3␣2␣"4.10"	Version of the terminal software is 4.10
↑	I14␣A␣3␣3␣"1.01"	Version of the RS232 option software is 1.01

↓	I14␣4	Query of the serial numbers
↑	I14␣B␣4␣1␣"0123456789"	Serial number of the bridge
↑	I14␣B␣4␣2␣"1234567890"	Serial number of the terminal
↑	I14␣A␣4␣3␣"2345678901"	Serial number of the RS232 option

↓	I14␣5	Query of the type definition numbers
↑	I14␣B␣5␣1␣"1.2.3.4.5"	type definition number of the bridge
↑	I14␣B␣5␣2␣"1.2.3.4.5"	type definition number of the terminal
↑	I14␣A␣5␣3␣"1.2.3.4.5"	type definition number of the RS232 option

I15 – Query "Power On" Time

Description

Use `I15` to query the "Power On" time of the balance.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
✓	✓	✓	✓	✓	✓	✓	✓

Syntax

Command

`I15`	Query "Power On" Time.

Responses

`I15␣A␣"<Minutes>"`	Time in minutes since "Power On", accuracy +/-5%.
`I15␣I`	Power On Time can not be transferred at present as another operation is taking place.

Parameter

Name	Type	Values	Meaning
`<Minutes>`	String		Time in minutes since "Power On"

Example

↓	`I15`	Query "Power On" Time
↑	`I15␣A␣123014`	The balance was switched on approx.123014 minutes ago

I16 – Query Date of Next Service

Description

You can use `I16` to query the date when the balance is next due to be serviced.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
✓	✓	✓	✓	✓	✓	✓	✓

Syntax

Command

`I16`	Query Date of Next Service.

Responses

`I16␣A␣<dd>␣<mm>␣<yyyy>`	Current Date of Next Service.
`I16␣I`	Date of Next Service can not be transferred at present as another operation is taking place.

Parameters

Name	Type	Values	Meaning
`<dd>`	Integer	`01 … 31`	Day
`<mm>`	Integer	`01 … 12`	Month
`<yyyy>`	Integer	`2000 … 2099`	Year

Example

↓	`I16`	Query Date of Next Service
↑	`I16␣A␣19␣07␣2011`	Date of Next Service is July 19, 2011

I17 – MinWeigh: Query Date of Next Test

Description

You can use `I17` to query the date when the balance's next MinWeigh test is due to be performed.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
							✓

Syntax

Command

`I17`	Query of the current next Date of MinWeigh Test.

Responses

`I11␣A␣<dd>␣<mm>␣<yyyy>`	Current next Date of MinWeigh Test.
`I11␣I`	Next Date of MinWeigh Test can not be transferred at present as another operation is taking place.

Parameters

Name	Type	Values	Meaning
`<dd>`	Integer	`01 … 31`	Day
`<mm>`	Integer	`01 … 12`	Month
`<yyyy>`	Integer	`2000 … 2099`	Year

Comments

- MinWeigh can only be activated by a service technician.
- For additional information on MinWeigh (Minimum Weight), **see** the Operating Instructions of the balance.

Example

↓	`I17`	Query of the current next Date of MinWeigh Test
↑	`I17␣A␣19␣07␣2011`	Date of Next MinWeigh Test is July 19, 2011

I18 – MinWeigh: Query Method

Description

You can use `I18` to query the methods defined for determining MinWeigh.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
							✓

Syntax

Command

`I18`	Query MinWeigh Methods.

Responses

`I18␣A␣<No>␣"<Method>"␣"<Parameter>"`	Current set MinWeigh Methods.
`I18␣I`	MinWeigh Method can not be transferred at present as another operation is taking place.

Parameters

Name	Type	Values	Meaning
`<No>`	Integer	`1 … n`	Number of defined method
`<Method>`	String		Name of method: The length is restricted up to 20 characters
`<Parameter>`	String		Test parameter: The length is restricted up to 20 characters

Comments

- MinWeigh can only be activated by a service technician.
- For additional information on MinWeigh (Minimum Weight), **see** the Operating Instructions of the balance.

Example

↓	`I18`	Query MinWeigh Methods
↑	`I18␣B␣1␣"USP"␣"3sd,␣0.1%"`	1st Method is a USP-Method with 3 x sd and ≤ 0.1% error
↑	`I18␣B␣2␣"SOP"␣"2sd,␣1%"`	2nd Method is a SOP-Method with 2 x sd and ≤1% error
↑	`I18␣A␣3␣""␣""`	3rd Method is not defined

I19 – MinWeigh: Query Limits

Description

Use `I19` to query the tares defined for the MinWeigh methods, along with their Minimum Weight limits.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
							✓

Syntax

Command

`I19`	Query of the current MinWeigh limits.

Responses

`I19␣A␣<MNo>␣<No>␣<MinWeigh>␣<Tare>`	Current MinWeigh limits.
`I19␣I`	MinWeigh limits can not be transferred at present as another operation is taking place.

Parameters

Name	Type	Values	Meaning
`<MNo>`	Integer	`1 … n`	Number of defined method
`<No>`	Integer	`0 … n`	Number of defined pair of limits
`<MinWeigh>`	Float		Determined Minimum Weight value depending on following Tare weight
`<Tare>`	Float		Tare weight used for MinWeigh determination

Comments

- MinWeigh can only be activated by a service technician.
- For additional information on MinWeigh (Minimum Weight), **see** the Operation Instructions of the balance.

Example

↓	`I19`	Query of the current MinWeigh Limits
↑	`I19␣B␣1␣0␣0.0100␣50.0000`	Method 1, value pair 0, MinWeigh is 10 mg with tare 50 g
↑	`I19␣B␣1␣1␣0.0200␣120.0000`	Method 1, value pair 1, MinWeigh is 20 mg with tare120 g
↑	`I19␣B␣1␣2␣0.1000␣500.0000`	Method 1, value pair 2, MinWeigh is 100 mg with tare 500 g
↑	`I19␣B␣2␣0␣0.0110␣51.0000`	Method 2, value pair 0, MinWeigh is 11 mg with tare 51 g
↑	`I19␣B␣2␣1␣0.0210␣121.0000`	Method 2, value pair 1, MinWeigh is 21 mg with tare 121 g
↑	`I19␣B␣2␣2␣0.1010␣501.0000`	Method 2, value pair 2, MinWeigh is 101 mg with tare 501 g
↑	`I19␣B␣3␣0␣0.0120␣52.0000`	Method 3, value pair 0, MinWeigh is 12 mg with tare 52 g
↑	`I19␣B␣3␣1␣0.0220␣122.0000`	Method 3, value pair 1, MinWeigh is 22 mg with tare122 g
↑	`I19␣A␣3␣2␣0.1020␣502.0000`	Method 3, value pair 2, MinWeigh is 102 mg with tare 502 g

I20 – Query MinWeigh Parameter

Description

Use I20 to query the balance parameter settings for the MinWeigh methods.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
							✓

Syntax

Command

I20	Query of the current MinWeigh Parameter.

Responses

I20␣A␣<Method>␣<Index>␣<Parameter>	Current balance type.
I20␣I	Balance type can not be transferred at present as another operation is taking place.

Parameters

Name	Type	Values	Meaning
<Method>	Integer	0 ... n	Number of defined method
<Index>	Integer	0	Weighing mode, **see** M01 (page 94)
		1	Environment, **see** M02 (page 95)
		2	Measured value release, **see** M29 (page 127)
		3	AutoZero, **see** M03 (page 97)
<Parameter>	Integer		Parameter for the corresponding weight setting

Comments

- The parameters correspond to the values provided for the corresponding MT-SICS commands:
  Weighing mode, **see** M01 (page 94).
  Environment, **see** M02 (page 95).
  Measured value release, **see** M29 (page 127).
  AutoZero, **see** M03 (page 97).

Example

↓	I20	Query of the current balance type
↑	I20␣B␣1␣0␣0	Method 1, Weighing mode "Universal"
↑	I20␣B␣1␣1␣2	Method 1, Environment "Standard"
↑	I20␣B␣1␣2␣1	Method 1, Measured value release "Quick"
↑	I20␣B␣1␣3␣1	Method 1, AutoZero "On"
↑	I20␣B␣2␣0␣1	Method 2, Weighing mode "Dispensing"
↑	I20␣B␣2␣1␣3	Method 2, Environment "Unstable"
↑	I20␣B␣2␣2␣0	Method 2, Measured value release "Very quick"
↑	I20␣A␣2␣3␣0	Method 2, AutoZero "Off"

I21 – Query Revision of Assortment Type Tolerances

Description

Use `I21` to query the revision of assortment type tolerances.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
	✓	✓	✓	✓	✓	✓	✓

Syntax

Command

`I21`	Query the revision of assortment type tolerances.

Responses

`I21␣A␣<Revision>`	Revision of assortment type tolerances.
`I21␣I`	Balance type can not be transferred at present as another operation is taking place.

Parameter

Name	Type	Values	Meaning
`<Revision>`	String		Revision: The length is restricted up to 30 characters.

Example

↓	`I21`	Query the revision of assortment type tolerances
↑	`I21␣A␣"5678"`	The revision is 5678

I22 – Query Linearity Tolerance

Description

Use `I22` to query the Linearity Tolerance.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
	✓	✓	✓	✓	✓	✓	✓

Syntax

Command

`I22`	Query of the Linearity Tolerance.

Responses

`I22␣A␣<Index>␣<Range>␣<Nom>␣<nTol>␣ <pTol>␣<"unit">`	Current balance type.
`I22␣I`	Balance type can not be transferred at present as another operation is taking place.

Parameters

Name	Type	Values	Meaning
`<Index>`	Integer	`0 … 4`	Range numbering 0 = highest range (range with highest capacity) 4 = smallest range (range with smallest capacity)
`<Range>`	Float		Range (unit)
`<Nom>`	Float		Nominal value (unit)
`<nTol>`	Float		Negative tolerance from nominal value (unit)
`<pTol>`	Float		Positive tolerance from nominal value (unit)
`<"unit">`	String		Unit of values

Example

↓	`I22`	Query of the Linearity Tolerance.
↑	`I22␣B␣0␣2.10000000E+02␣ 5.00000000E+01␣2.00000000E-04␣ 2.00000000E-04␣"g"`	Highest range
↑	`I22␣B␣1␣8.10000000E+02␣ 2.00000000E+01␣5.00000000E-05␣ 5.00000000E-05␣"g"`	Middle range
↑	`I22␣B␣2␣4.10000000E+01␣ 5.00000000E+00␣2.00000000E-05␣ 2.00000000E-05␣"g"`	Smallest range
↑	`I22␣B␣3␣0.00000000E+00␣ 0.00000000E+00␣0.00000000E-00␣ 0.00000000E-00␣""`	Empty range
↑	`I22␣B␣4␣0.00000000E+00␣ 0.00000000E+00␣0.00000000E-00␣ 0.00000000E-00␣""`	Empty range

I23 – Query Repeatability Tolerance

Description

Use `I23` to query the Repeatability Tolerance.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
	✓	✓	✓	✓	✓	✓	✓

Syntax

Command

`I23`	Query of the Repeatability Tolerance.

Responses

`I23␣A␣<Index>␣<Range>␣<Nom>␣<nTol>␣<pTol>␣<"unit">`	Current balance type.
`I23␣I`	Balance type can not be transferred at present as another operation is taking place.

Parameters

Name	Type	Values	Meaning
`<Index>`	Integer	`0 … 4`	Range numbering 0 = highest range (range with highest capacity) 4 = smallest range (range with smallest capacity)
`<Range>`	Float		Range (unit)
`<Nom>`	Float		Nominal value (unit)
`<nTol>`	Float		Negative tolerance from nominal value (unit)
`<pTol>`	Float		Positive tolerance from nominal value (unit)
`<"unit">`	String		Unit of values

Example

↓	`I23`	Query of the Linearity Tolerance.
↑	`I23␣B␣0␣2.10000000E+02␣5.00000000E+01␣2.00000000E-04␣2.00000000E-04␣"g"`	Highest range
↑	`I23␣B␣1␣8.10000000E+02␣2.00000000E+01␣5.00000000E-05␣5.00000000E-05␣"g"`	Middle range
↑	`I23␣B␣2␣4.10000000E+01␣5.00000000E+00␣2.00000000E-05␣2.00000000E-05␣"g"`	Smallest range
↑	`I23␣B␣3␣0.00000000E+00␣0.00000000E+00␣0.00000000E-00␣0.00000000E-00␣""`	Empty range
↑	`I23␣B␣4␣0.00000000E+00␣0.00000000E+00␣0.00000000E-00␣0.00000000E-00␣""`	Empty range

I24 – Query Sensitivity Tolerance

Description

Use `I24` to query the Sensitivity Tolerance.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
	✓	✓	✓	✓	✓	✓	✓

Syntax

Command

`I24`	Query of the Sensitivity Tolerance.

Responses

`I24␣A␣<Index>␣<Range>␣<Nom>␣<nTol>␣<pTol>␣<"unit">`	Current balance type.
`I24␣I`	Balance type can not be transferred at present as another operation is taking place.

Parameters

Name	Type	Values	Meaning
`<Index>`	Integer	`0 … 4`	Range numbering 0 = highest range (range with highest capacity) 4 = smallest range (range with smallest capacity)
`<Range>`	Float		Range (unit)
`<Nom>`	Float		Nominal value (unit)
`<nTol>`	Float		Negative tolerance from nominal value (unit)
`<pTol>`	Float		Positive tolerance from nominal value (unit)
`<"unit">`	String		Unit of values

Example

↓	`I24`	Query of the Linearity Tolerance.
↑	`I24␣B␣0␣2.10000000E+02␣5.00000000E+01␣2.00000000E-04␣2.00000000E-04␣"g"`	Highest range
↑	`I24␣B␣1␣8.10000000E+02␣2.00000000E+01␣5.00000000E-05␣5.00000000E-05␣"g"`	Middle range
↑	`I24␣B␣2␣4.10000000E+01␣5.00000000E+00␣2.00000000E-05␣2.00000000E-05␣"g"`	Smallest range
↑	`I24␣B␣3␣0.00000000E+00␣0.00000000E+00␣0.00000000E-00␣0.00000000E-00␣""`	Empty range
↑	`I24␣B␣4␣0.00000000E+00␣0.00000000E+00␣0.00000000E-00␣0.00000000E-00␣""`	Empty range

I25 – Query Corner Load Tolerance

Description

Use `I25` to query the Corner Load Tolerance.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
	✓	✓	✓	✓	✓	✓	✓

Syntax

Command

`I25`	Query of the Corner Load Tolerance.

Responses

`I25␣A␣<Index>␣<Range>␣<Nom>␣<nTol>␣<pTol>␣<"unit">`	Current balance type.
`I25␣I`	Balance type can not be transferred at present as another operation is taking place.

Parameters

Name	Type	Values	Meaning
`<Index>`	Integer	`0 … 4`	Range numbering 0 = highest range (range with highest capacity) 4 = smallest range (range with smallest capacity)
`<Range>`	Float		Range (unit)
`<Nom>`	Float		Nominal value (unit)
`<nTol>`	Float		Negative tolerance from nominal value (unit)
`<pTol>`	Float		Positive tolerance from nominal value (unit)
`<"unit">`	String		Unit of values

Example

↓	`I25`	Query of the Linearity Tolerance.
↑	`I25␣B␣0␣2.10000000E+02␣5.00000000E+01␣2.00000000E-04␣2.00000000E-04␣"g"`	Highest range
↑	`I25␣B␣1␣8.10000000E+02␣2.00000000E+01␣5.00000000E-05␣5.00000000E-05␣"g"`	Middle range
↑	`I25␣B␣2␣4.10000000E+01␣5.00000000E+00␣2.00000000E-05␣2.00000000E-05␣"g"`	Smallest range
↑	`I25␣B␣3␣0.00000000E+00␣0.00000000E+00␣0.00000000E-00␣0.00000000E-00␣""`	Empty range
↑	`I25␣B␣4␣0.00000000E+00␣0.00000000E+00␣0.00000000E-00␣0.00000000E-00␣""`	Empty range

I26 – Query Operating Mode

Description

Use `I26` to query the Operating Mode.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
✓	✓	✓	✓	✓	✓	✓	✓

Syntax

Command

`I26`	Query of the Operating Mode.

Responses

`I26␣A␣<Mode>`	Operating Mode
`I26␣I`	Operating Mode can not be transferred at present as another operation is taking place.

Parameters

Name	Type	Values	Meaning
`<Mode>`	Integer	`0`	User mode
		`1`	Production mode
		`2`	Service mode
		`3`	Diagnostic mode

Example

↓	`I26`	Query of the Operating Mode
↑	`I26␣A␣0`	Operation mode is: User mode

I27 – Query Change History

Description

Use I27 to query the change history from the parameter settings.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
							✓

Syntax

Command

I27	Query the change history.

Responses

I27␣B␣<Nr>␣<dd>␣<mm>␣<yyyy>␣<hh>␣<mm>␣"<name>"␣"<id>"␣"<what>"␣"<old>"␣"<new>" I27␣B␣... I27␣A␣<Nr>␣<tt>␣<mm>␣<yyyy>␣<hh>␣<mm>␣"<name>"␣"<id>"␣"<what>"␣"<old>"␣"<new>"	Get change history.
I27␣A	No data, empty change history.
I27␣I	Command understood but currently not executable.

Parameters

Name	Type	Values	Meaning
<Nr>	Integer	1 … max	Number of change
<tt>	Integer	01–31	Day
<mm>	Integer	01–12	Month
<yyyy>	Integer	2000–2099	Year
<hh>	Integer	01–23	Hour
<mm>	String	00–50	Minute
<id>	String		User name
<what>	String		Title of changed parameter
<old>	String		Old value
<new>	String		New value

Example

↓	I27	Query change history
↑	I27␣B␣1␣12␣12␣2009␣12␣00␣"User␣1"␣"1"␣"Number␣of␣users"␣"User␣6␣Off"␣"User␣6␣On"	Last change: Number of users -> User 6 from off to on
↑	I27␣A␣2␣01␣12␣2009␣10␣22␣"User␣1"␣"1"␣"Passw.␣Change␣Date"␣"Off"␣"On"	Password change date from off to on

I29 – Query Filter Configuration

Description

Query actual filter configuration.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
			✓		✓	✓	✓

Syntax

Command

I29	Query filter configuration.

Responses

I29␣A␣<WeighingMode>␣<Environment>	Current filter configuration.
I29␣I	Command understood but currently not executable.

Parameters

Name	Type	Values	Meaning
<WeighingMode>	Integer	0	Normal weighing / Universal
		1	Dosing
		2	Sensor mode
		3	Check weighing
		4	Dynamic weighing
<Environment>	Integer	0	Very stable
		1	Stable
		2	Standard
		3	Unstable
		4	Very unstable

Comment

- **See** M01 (page 94) and M02 (page 95) to change Filter settings.

Example

↓	I29	Query of the current state of the level sensor
↑	I29␣A␣0␣2	The actual filter setting is: Normal weighing / Standard

Also see:

- M01 – Query/Set Weighing Mode (page 94)
- M02 – Query/Set Environment (page 95)

I50 – Inquiry of the Remaining Weighing Ranges

Description

You can use `I50` to query the remaining weighing ranges.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
	✓	✓		✓			

Syntax

Command

`I50`	Query of the remaining weighing ranges.

Responses

`I50␣B␣<RangeNo>␣<Range>␣<Unit>`
…
`I50␣A␣<RangeNo>␣<Range>␣<Unit>`
	List of remaining weighing ranges.

`I50␣L`	Command understood but not executable (incorrect or no parameter).
`I50␣I`	Command understood but currently not executable.

Parameters

Name	Type	Values	Meaning
`<RangeNo>`	Integer	`0`	Remaining maximum weighing range
		`1`	Remaining range in which internal or initial adjustment are still possible
		`2`	Remaining range in which external adjustment is still possible
`<Range>`	Float		This number indicates the remaining range. A value with a preceding negative sign indicates the amount by which the range is exceeded
`<Unit>`	String		Returns the range in the currently set weight unit

Comments

- The range values relate to the sum of all loads on the weighing platform (pre, tare, net load) and are to be understood as reference values. If a range is shown as being exceeded, the preload, or possibly only the tare or net load, can be reduced.
- If there is no internal weight available, the remaining range (value 1) is zero.
- The remaining range in which an external adjustment is still possible depends on the setting from M19 (page 115).

Example

↓	`I50`	Query of the current state of the level sensor

↑	`I50␣B␣0␣␣␣␣535.141␣kg`
	`I50␣B␣1␣␣␣␣-18.973␣kg`
	`I50␣A␣2␣␣␣␣335.465␣kg`
		With the given preload, a remaining weighing range of about 535 kg is available.
		An internal adjustment by the user is not possible because the total load of approximately 19 kg is too heavy. An external adjustment is still possible up to a further additional load of 335 kg

Also see:

- M19 – Query/Set Adjustment Weight (page 115)

I59 – Get Initial Zero Information

Description

If a weighing device is starting up it is supposed to perform an initial zero operation before any weight values can be obtained from the device. st he wants to obtain weight values before the initial zero operation has been successfully performed the device refuses to send weight values. In order to successfully perform the initial zero operation the load on the weight receptor must be within the switch on range limits. In the case where the initial zero operation can't be performed successfully the user gets no information if the switch on range limits are exceeded or not. This command is used to determine if currently an initial zero operation is in progress and if the switch on range limits are exceeded or not.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
✓							

Syntax

Command

I59	Request the initial zero information.

Response

I59␣A␣<InitZero>␣<LoadState>	Current Initial information.

Parameters

Name	Type	Values	Meaning
<InitZero>	Integer	0 … 2	Indicates whether an initial zero operation is in progress or not
		0	Undefined e.g. If initial zero operation not started
		1	Initial zero operation in progress
		2	Initial zero operation done
<LoadState>	Integer	+	Load above upper switch on range limit
		–	Load below lower switch on range limit
		S	Load within switch on range limits and stable
		D	Load within switch on range limits and unstable
		0	Undefined – If the parameter "InitZero" equals to 0 or 2 the parameter "LoadState" always equals to undefined

Comment

- If a zero value and an initial zero value has been saved with the M35 (page 132) command the initial zero value is restored from the saved initial zero value. The answer in this case will be I59␣A␣2␣0.

Examples

↓	I59	Request the initial zero information
↑	I59␣A␣1␣+	The initial zero operation is in progress and the load is above the upper switch on range limit

↓	I59	Request the initial zero information
↑	I59␣A␣1␣-	The initial zero operation is in progress and the load is below the lower switch on range limit

↓	I59	Request the initial zero information
↑	I59␣A␣1␣D	The initial zero operation is in progress, the load is within the switch on range limits and unstable

↓	I59	Request the initial zero information
↑	I59␣A␣0␣0	The initial zero state is undefined

↓	I59	Request the initial zero information
↑	I59␣A␣2␣0	The initial zero operation has been successfully performed

K – Keys: Set Configuration

Description

With the K command, the behavior of the terminal keys may be configured: first, the K command controls whether a key invokes its corresponding function or not and second, it configures whether an indication of which key has been pressed or released is sent to the host interface or not.

Using this functionality, an application running on a connected system (e.g. a PC or PLC) may make use of the balance terminal to interact with the balance operator.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
✓			✓		✓	✓	✓

Syntax

Command

K␣<Mode>	Set configuration.

Responses

K␣A[␣<FuncNr>]	Command understood and executed successfully. Mode 4: Function with <FuncNr> was invoked by pressing the corresponding key and executed successfully.
K␣I[␣<FuncNr>]	Command understood but currently not executable (balance is actually in menu or input mode). Mode 4: Function with <FuncNr> by pressing the corresponding key, but it could not be successfully executed (e.g. calibration was aborted by user or a negative value was tared).
K␣L	Command understood but not executable (incorrect or no parameter).

Additional Responses in Mode 3:

K␣<Event>␣<KeyNr>	Key <KeyNr> has issued an <Event>.

Additional Responses in Mode 4:

K␣B␣<FuncNr>	Function with <FuncNr> was invoked and started; the execution needs time to complete.

Parameters

Name	Type	Values	Meaning
<Mode>	Integer	1	Functions are executed, no indications are sent (factory setting)
		2	Functions are not executed, no indications are sent
		3	Functions are not executed, indications are sent
		4	Functions are executed, indications are sent
<Event>	Char	R	Key was pressed and held around 2 seconds
		C	Key was released (after being pressed shortly or for 2 second)

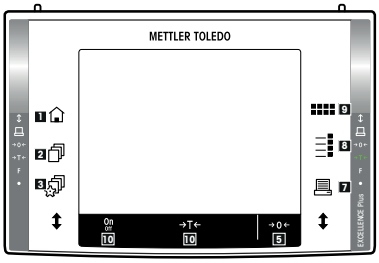
Name	Type	Values	Meaning
<FuncNr>	Integer	0	Adjustment
		1	Tare
		2	Zero
		3	Data transfer to printing device
		4 ... 6	Reserved for future use
		7	Test

<KeyNr>	Integer	**1**	⌂	Home
		2		User profile (XP balances or PWT terminal only)
		3		Settings (XP balances or PWT terminal only)
		4	reserved	
		5	→0←	Zero
		6	reserved	
		7		Transfer
		8		Configure actual applications
		9		Applications
		10	→T←	Tare On/Off

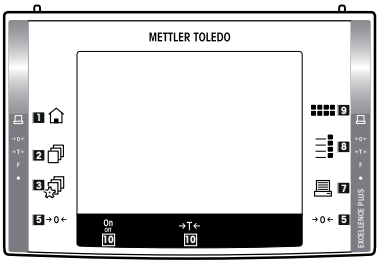
Comments

- There is no key number assigned to the door keys; therefore, no response is invoked upon pressing one of these keys.
- K␣1 is the factory setting (default value).
- K␣1 active after balance switched on and after the cancel command @ (page 18).
- K␣2 door function is not disabled.
- Only one K mode is active at one time.
- The mapping of the key numbers on the different terminals are displayed below:

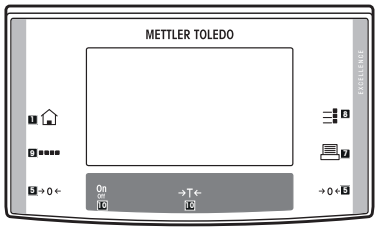
PWT terminal
(e.g. XP Analytical Balances)



PWT terminal
(e.g. WXTP Weigh Module)



SWT terminal
(e.g. WXTS Weigh Module)



Example

When a code with a long press is sent, new key commands will not be accepted.

↓	K␣4	Set mode 4: when a key is pressed, execute the corresponding function and send the function number as a response
↑	K␣A	Command executed successfully
↑	K␣B␣1	The taring function has been started → taring active
↑	K␣A␣1	Taring completed successfully
↑	K␣B␣1	The taring function has been started → taring active

↑	K␣I␣1	Taring not completed successfully, taring aborted (e.g. tried to tare a negative value)

LST – List all Current User Settings

Description

Use the LST command to listing of general module data and current settings which can be changed by the user.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
	✓	✓		✓			

Syntax

Command

LST	Listing of general module data and current settings which can be changed by the user.

Responses

LST␣B␣I2␣"WMS204-L␣Standard␣ 410.0090␣g"	Returns the module data (header).
LST␣B␣I3␣"1.0␣1.23.4.567.890"	Returns the firmware version and the type definition number (header).
LST␣B␣I4␣"1234567890"	Returns the serial number (header).
LST␣B␣C4␣"0"	Returns whether an initial adjustment by the user was performed ("1") or not ("0") (header).
LST␣B␣Cx␣"0"	Returns whether internal or external adjustment by the user was performed ("1") or not ("0") (header).
LST␣B␣C0␣0␣0	Sets the adjustment settings (calibration settings) (first command of the user settings).
...	
LST␣A␣WMCF␣0	Inquires the configuration of the weight monitoring function (last command of the user settings).

Comments

- The general module data are output in a five-line header ("I2" to "Cx"). This is followed by the current user settings in alphabetical sequence.
- The foregoing responses are examples. The actual responses depend on the current settings.

Examples

↓	LST	Query of the list of all current user settings
↑	LST␣B␣I2␣"WMS204-L␣410.0090␣g"	Returns the module data (header)
↑	LST␣B␣I3␣"1.0␣1.23.4.567.890"	Returns the firmware version and the type definition number (header)
↑	LST␣B␣I4␣"1234567890"	Returns the serial number (header)
↑	LST␣B␣C4␣"0"	Initial adjustment information (header)
↑	LST␣B␣Cx␣"0"	Internal or external adjustment information (header)
↑	LST␣B␣C0␣0␣0	First command of the user settings...
↑	...	
↑	LST␣A␣WMCF␣0	Last command of the user settings

M01 – Query/Set Weighing Mode

Description

You can use M01 to set the weighing mode or query the current setting.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
✓	✓	✓	✓	✓	✓	✓	✓

Syntax

Commands

M01	Query of the current weighing mode.
M01␣<WeighingMode>	Set the weighing mode.

Responses

M01␣A␣<WeighingMode>	Current weighing mode.
M01␣A	Command understood and executed successfully.
M01␣I	Command understood but currently not executable.
M01␣L	Command understood but not executable (incorrect parameter).

Parameter

Name	Type	Values	Meaning
<WeighingMode>	Integer	0	Normal weighing/Universal
		1	Dosing
		2	Sensor mode
		3	Check weighing

Comments

- The parameter setting will be saved and the only way to reset the default value will be via MT-SICS or by means of a factory reset, FSET (page 61) or via terminal not @ (page 18).
- Please check possible settings with product specific Operating Instructions.

Example

↓	M01␣0	Set the weighing mode to normal
↑	M01␣A	Weighing mode is set

Also see:

- M02 – Query/Set Environment (page 95)
- FCUT – Query/Set Filter Characteristics (Limit Frequency) (page 60)

M02 – Query/Set Environment

Description

You can use M02 to adjust the balance so that it is optimized for the local ambient conditions, or to query the current value.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
✓	✓	✓	✓	✓	✓	✓	✓

Syntax

Commands

M02	Query of the current environment.
M02␣<Environment>	Set the environment.

Responses

M02␣A␣<Environment>	Current environment.
M02␣A	Command understood and executed successfully.
M02␣I	Command understood but currently not executable.
M02␣L	Command understood but not executable (incorrect parameter).

Parameter

Name	Type	Values	Meaning
<Environment>	Integer	0	Very stable
		1	Stable
		2	Standard
		3	Unstable
		4	Very unstable

Comments

- The parameter setting will be saved and the only way to reset the default value will be via MT-SICS or by means of a factory reset, FSET (page 61) or via terminal not @ (page 18).
- If FCUT (page 60) is activated (<Frequency> ≥ 0.001 Hz) and weighing mode, **see** M01 (page 94) is 2 (sensor mode), it will override any settings for ambient conditions (M02) in sensor mode.

Also see:

- M01 – Query/Set Weighing Mode (page 94)
- FCUT – Query/Set Filter Characteristics (Limit Frequency) (page 60)

- Not all balances offer the complete range of settings. If a setting is made that is not supported by the balance, an error massage is issued (M02␣L).
- If FCUT (page 60) is activated (<Frequency> ≥ 0.001 Hz) and weighing mode, **see** M01 (page 94) is 2 (sensor mode), it will override any settings for ambient conditions (M02) in sensor mode.

Also see:

- M01 – Query/Set Weighing Mode (page 94)
- FCUT – Query/Set Filter Characteristics (Limit Frequency) (page 60)

Example

↓	M02␣3	Set the environment to unstable
↑	M02␣A	Environment is set

Also see:

- M01 – Query/Set Weighing Mode (page 94)
- FCUT – Query/Set Filter Characteristics (Limit Frequency) (page 60)

M03 – Query/Set AutoZero

Description

Use M03 to switch the AutoZero function on or off and query its current status.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
✓	✓	✓	✓	✓	✓	✓	✓

Syntax

Commands

M03	Query of the current AutoZero function.
M03␣<AutoZero>	Set the AutoZero function.

Responses

M03␣A␣<AutoZero>	Current AutoZero function
M03␣A	Command understood and executed successfully.
M03␣I	Command understood but currently not executable.
M03␣L	Command understood but not executable (incorrect parameter).

Parameter

Name	Type	Values	Meaning
<AutoZero>	Integer	0	AutoZero is switched off (is not supported by approved balances)
		1	AutoZero is switched on

Comment

- The parameter setting will be saved and the only way to reset the default value will be via MT-SICS or by means of a factory reset, FSET (page 61) or via terminal not @ (page 18).

Example

↓	M03␣1	Switch on the AutoZero function
↑	M03␣A	AutoZero function is activated

M04 – Query/Set SmartSens Functions

Description

You can use M04 to assign functions to the contact-free sensors (SmartSens) in the top left and right-hand corners of the terminal and/or the external sensors available as an option (ErgoSens), or to call up the function settings.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
							✓

Syntax

Commands

M04	Query of the current SmartSens functions.
M04␣<No>␣<Function>	Set the SmartSens function.

Responses

M04␣B␣<No>␣<Function> M04␣B… M04␣A␣<No>␣<Function>	Current setting of the first SmartSens function. … Current setting of the last SmartSens or ErgoSens function.
M04␣A	Command understood and executed successfully.
M04␣I	Command understood but currently not executable.
M04␣L	Command understood but not executable (incorrect parameter).

Parameters

Name	Type	Values	Meaning
<No>	Integer	0, 1	Left SmartSens, right SmartSens
		2, 3	ErgoSense 1 (Aux 1), ErgoSense 2 (Aux 2)
<Function>	Integer	0	Off
		1	Door
		2	Left Door
		3	Right Door
		4	Zero
		5	Tare
		6	Print
		7	ID1
		8	ID2
		9	ID3
		10	ID4
		11	ID5
		12	ID6
		13	Header
		14	Footer
		15	PreTare
		16	1/10d
		17	1/100d
		18	1/1000d
		19	MPlus
		20	Result

Name	Type	Values	Meaning
<Function>	Integer	21	OK
		22	Set 100 percent
		23	Set variable reference percent
		24	Fix pieces
		25	Start density
		26	Start dynamic weighing
		27	Ioniser
		28	1/2d
		29	1/5d
		30	Transfer

Comment

- The parameter setting will be saved and the only way to reset the default value will be via MT-SICS or by means of a factory reset, FSET (page 61) or via terminal not @ (page 18).

Examples

↓	M04␣0␣2	Set the left SmartSens to 2nd function (e.g. door)
↑	M04␣A	Left SmartSens function set

↓	M04	Query of the current SmartSens functions
↑	M04␣B␣0␣0	Left SmartSens: No function
↑	M04␣B␣1␣4	Right SmartSens: Zero
↑	M04␣B␣2␣0	ErgoSens Aux 1: No function
↑	M04␣A␣3␣0	ErgoSens Aux 2: No function

M05 – Query User Profile

Description

You can use M05 to query the user profile name.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
							✓

Syntax

Command

M05	Query of the available user profiles.

Responses

M05␣B␣<No>␣"<Profile>" M05␣B… M05␣A␣<No>␣"<Profile>"	First user profile. … Last user profile.
M05␣I	Command understood but currently not executable.
M05␣L	Command understood but not executable (incorrect parameter).

Parameters

Name	Type	Values	Meaning
<No>	Integer	0 … max. user profiles	User profile number
<Profile>	String		User profile name

Example

↓	M05	Query of the available user profiles
↑	M05␣B␣0␣"Home"	Default user profile is called Home
↑	M05␣B␣1␣"Julie Evans"	1st user profile is called Julie Evans
↑	M05␣B␣2␣"Method 1"	2nd user profile is called Method 1
↑	M05␣B␣3␣"Statistics 1"	3rd user profile is called Statistics 1
↑	M05␣B␣4␣"User 4"	4th user profile is called User 4
↑	M05␣B␣5␣"User 5"	5th user profile is called User 5
↑	M05␣B␣6␣"User 6"	6th user profile is called User 6
↑	M05␣A␣7␣"User 7"	7th user profile is called User 7

M06 – Query/Set Current User Profile

Description

You can use M06 to define which user profile the balance should user, or to query the current profile setting.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
							✓

Syntax

Commands

M06	Query of the current user profile.
M06␣<No>	Set the user profile.

Responses

M06␣A␣<No>	Current user profile.
M06␣A	Command understood and executed successfully.
M06␣I	Command understood but currently not executable.
M06␣L	Command understood but not executable (incorrect parameter).

Parameter

Name	Type	Values	Meaning
<No>	Integer	0 … max. user profiles	User profile number

Comment

- The parameter setting will be saved and the only way to reset the default value will be via MT-SICS or by means of a factory reset, FSET (page 61) or via terminal not @ (page 18).

Example

↓	M06␣3	Activate the 3rd user profile
↑	M06␣A␣3	3rd user profile is set

M08 – Display: Query/Set Brightness

Description

You can use M08 to set the brightness of the terminal display or query the current setting.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
✓				✓	✓	✓	✓

Syntax

Commands

M08	Query of the current display brightness.
M08␣<Brightness>	Set the display brightness.

Responses

M08␣A␣<Brightness>	Current display brightness.
M08␣A	Command understood and executed successfully.
M08␣I	Command understood but currently not executable.
M08␣L	Command understood but not executable (incorrect parameter).

Parameter

Name	Type	Values	Meaning
<Brightness>	Integer	20 … 100	Display brightness in %

Comments

- The parameter setting will be saved and the only way to reset the default value will be via MT-SICS or by means of a factory reset, FSET (page 61) or via terminal not @ (page 18).
- Technically speaking, it is possible to enter values with decimal places, but the balance will omit these and will only store the integer value.

Examples

↓	M08␣55	Set the display brightness to 55%
↑	M08␣A	Display brightness is set

↓	M08	Query of the current display brightness
↑	M08␣A␣60	Current display brightness is set to 60%

M09 – Display: Query/Set Contrast

Description

You can use M09 to set the contrast of the terminal display or query the current setting.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
✓			✓		✓	✓	

Syntax

Commands

M09	Query of the current display contrast.
M09␣<Contrast>	Set the display contrast.

Responses

M09␣A␣<Contrast>	Current display contrast.
M09␣A	Command understood and executed successfully.
M09␣I	Command understood but currently not executable.
M09␣L	Command understood but not executable (incorrect parameter).

Parameter

Name	Type	Values	Meaning
<Contrast>	Integer	0 ... 100	Display contrast in %

Comments

- The parameter setting will be saved and the only way to reset the default value will be via MT-SICS or by means of a factory reset, FSET (page 61) or via terminal not @ (page 18).
- Technically speaking, it is possible to enter values with decimal places, but the balance will omit these and will only store the integer value.

Example

↓	M09	Query of the current display contrast
↑	M09␣A␣60	Current display contrast is set to 60%

M10 – Query/Set Display Mode

Description

You can use M10 to set or query the display mode of XS balances.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
			✓		✓	✓	

Syntax

Commands

M10	Query the actual display mode.
M10␣<DisplayMode>	Set the display mode.

Responses

M10␣A␣<DisplayMode>	Current display mode.
M10␣A	Command understood and executed successfully.
M10␣I	Command understood but currently not executable.
M10␣L	Command understood but not executable (incorrect parameter).

Parameters

Name	Type	Values	Meaning
<DisplayMode>	Integer	1	First mode: Display weight and SmartTrac
		2	Second mode: Display weight
		3	Third mode: Display weight, info fields and SmartTrac

Comments

- The parameter setting will be saved and the only way to reset the default value will be via MT-SICS or by means of a factory reset, FSET (page 61) or via terminal not @ (page 18).
- It is also possible to change the display mode by means of the display function key on the terminal. Please refer to the Operating Instructions for Excellence XS Balances.
- This command is only supported by XS balances.

Example

↓	M10	Query of the current display mode
↑	M10␣A␣3	Currently, the terminal displays weight and SmartTrac

M11 – Query/Set Key Beeper Volume

Description

You can use M11 to set the volume of the terminal key beeper or query the current setting.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
			✓		✓	✓	✓

Syntax

Commands

M11	Query of the current beeper volume.
M11␣<BeeperVolume>	Set the beeper volume.

Responses

M11␣A␣<BeeperVolume>	Current key beeper volume.
M11␣A	Command understood and executed successfully.
M11␣I	Command understood but currently not executable.
M11␣L	Command understood but not executable (incorrect parameter).

Parameter

Name	Type	Values	Meaning
<BeeperVolume>	Integer	0 … 100	Key beeper volume in %

Comments

- The parameter setting will be saved and the only way to reset the default value will be via MT-SICS or by means of a factory reset, FSET (page 61) or via terminal not @ (page 18).
- Technically speaking, it is possible to enter values with decimal places, but the balance will omit these and will only store the integer value.

Example

↓	M11	Query of the current key beeper volume
↑	M11␣A␣50	Current key beeper volume is set to 50%

M12 – Beeper: Beep

Description

This command triggers an acoustic beep signal.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
			✓		✓	✓	✓

Syntax

Command

M12␣<BeeperVariant>	Trigger beep.

Responses

M12␣A	Command understood and executed successfully.
M12␣I	Command understood but currently not executable.
M12␣L	Command understood but not executable (incorrect parameter).

Parameters

Name	Type	Values	Meaning
<BeeperVariant>	Integer	0	Beep variant 1 (e.g. 1x beep)
		1	Beep variant 2 (e.g. high sound)
		2	Beep variant 3 (e.g. deep sound)

Comment

- You can set the volume of the beeper using M11 (page 105). However, this setting will not necessarily work on all balances.

Example

↓	M12␣1	Trigger a beep variant 2
↑	M12␣A	Beep has been triggered

M13 – Query/Set Touch Function

Description

Use M13 to switch the display's touch function on and off, or query the current setting. The function keys and terminal keys, **see** K (page 90) command are not affected.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
			✓		✓	✓	✓

Syntax

Commands

M13	Query of the current touch function.
M13␣<TouchFunction>	Set the touch function.

Responses

M13␣A␣<TouchFunction>	Current touch function.
M13␣A	Command understood and executed successfully.
M13␣I	Command understood but currently not executable.
M13␣L	Command understood but not executable (incorrect parameter).

Parameters

Name	Type	Values	Meaning
<TouchFunction>	Integer	0	Touch function is reduced on function keys and keys beside of screen
		1	Touch function of screen is switched on

Comments

- For additional information on the terminal display, please **see** the Operating Instructions of the balances.
- The parameter setting will be saved and the only way to reset the default value will be via MT-SICS or by means of a factory reset, FSET (page 61) or via terminal not @ (page 18).

Example

↓	M13␣1	Switch on the touch function
↑	M13␣A	Touch function is activated

M14 – List Available Languages

Description

Lists all languages available on the balance.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
			✓		✓	✓	✓

Syntax

Command

M14	Query of the available languages.

Responses

M14␣B␣<No>␣"<Language>" M14␣B… M14␣A␣<No>␣"<Language>"	First language. … Last language.
M14␣I	Command understood but currently not executable.
M14␣L	Command understood but not executable (incorrect parameter).

Parameters

Name	Type	Values	Meaning
<No>	Integer	0 … max	Language number
<Language>	Integer	0	English
		1	Deutsch
		2	Français
		3	Español
		4	Italiano
		5	Russian
		6	Katakana
		7	Reserved
		8	Polski
		9	Reserved
		10	Cestina
		11	Magyar
		12	Slovak
		13	Slovenia
		14	Nederlands
		15	Portuguese
		16	Chinese
		17	Japanese
		18	Korean
		19	Brasilian Portuguese

Example

↓	M14	Query of the available languages
↑	M14␣B␣0␣"English"	No 0 language is English
↑	M14␣B␣1␣"Deutsch"	No 1 language is Deutsch
↑	M14␣B␣2␣"Français"	No 2 language is Français
↑	M14␣B␣3␣"Español"	No 3 language is Español

↑	M14␣B␣4␣"Italiano"	No 4 language is Italiano
↑	M14␣B␣5␣"Russian"	No 5 language is Russian
↑	M14␣B␣6␣"Katakana"	No 6 language is Katakana
↑	M14␣B␣8␣"Polski"	No 8 language is Polski
↑	M14␣B␣10␣"Cestina"	No 10 language is Cestina
↑	M14␣B␣11␣"Magyar"	No 11 language is Magyar
↑	M14␣B␣16␣"Chinese"	No 16 language is Chinese
↑	M14␣A␣17␣"Japanese"	No 17 language is Japanese

M15 – Query/Set Language

Description

Use M15 to set the required language for the terminal dialog boxes or to query the current language setting.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
			✓		✓	✓	✓

Syntax

Commands

M15	Query of the current language.
M15␣<No>	Set the language.

Responses

M15␣A␣<No>	Current language.
M15␣A	Command understood and executed successfully.
M15␣I	Command understood but currently not executable.

Parameter

Name	Type	Values	Meaning
<No>	Integer	0 … max. languages	Language number

Comments

- Language number: Number of the language according to the available languages **see** M14 (page 108).
- The parameter setting will be saved and the only way to reset the default value will be via MT-SICS or by means of a factory reset, FSET (page 61) or via terminal not @ (page 18).

Examples

↓	M15␣3	Set the language number 3
↑	M15␣A	Language 3 is set

↓	M15	Query of the current language
↑	M15␣A␣0	Language is set to the default language

Also see:

- M14 – List Available Languages (page 108)

M16 – Query/Set Standby Mode

Description

You can use M16 to set the delay for switching to standby mode, or to query the current setting.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
			✓		✓	✓	✓

Syntax

Commands

M16	Query of the current standby mode.
M16␣<StandbyMode>	Set the standby mode.

Responses

M16␣A␣<StandbyMode	Current standby mode.
M16␣A	Command understood and executed successfully.
M16␣I	Command understood but currently not executable.
M16␣L	Command understood but not executable (incorrect parameter).

Parameters

Name	Type	Values	Meaning
<StandbyMode>	Integer	0	Standby mode switched off
		3	Standby 30 min.
		4	Standby 60 min.
		5	Standby 120 min.
		6	Standby 240 min.

Comments

- The balance switches to standby mode if it is not operated within 15 min. Operating the balance includes pressing a key, significant changes in weight, item counter > 0 or interface commands.
- The parameter setting will be saved and the only way to reset the default value will be via MT-SICS or by means of a factory reset, FSET (page 61) or via terminal not @ (page 18).

Examples

↓	M16␣4	Set the standby mode to 60 min.
↑	M16␣A	Standby mode is set

↓	M16	Query of the current standby mode
↑	M16␣A␣0	Current standby mode is switched off

M17 – ProFACT: Query/Set Single Time Criteria

Description

Use M17 to set the time and days when a ProFACT adjustment should be executed automatically, or to query the current setting.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
	✓*			✓			✓

* Only modules with internal adjustment

Note: The settings ProFACT/FACT and days are model dependent.

Syntax

Commands

M17	Query of the current ProFACT time criteria.
M17␣<hh>␣<mm>␣<ss>␣<WeekDay>	Set the ProFACT time criteria.

Responses

M17␣A␣<hh>␣<mm>␣<ss>␣<WeekDay>	Current ProFACT time criteria.
M17␣A	Command understood and executed successfully.
M17␣I	Command understood but currently not executable.
M17␣L	Command understood but not executable (incorrect parameter).

Parameters

Name	Type	Values	Meaning
<hh>	Integer	00 … 23	Hours
<mm>	Integer	00 … 59	Minutes
<ss>	Integer	00 … 59	Seconds
<WeekDay>	Integer	0	Time criteria is switched off
		2^0 = 1	Monday
		2^1 = 2	Tuesday
		2^2 = 4	Wednesday
		2^3 = 8	Thursday
		2^4 = 16	Friday
		2^5 = 32	Saturday
		2^6 = 64	Sunday

Comments

- The days of the week are written in binary code (page 17). Combinations of different days are expressed as the sum of the individual days.
- Only one time criterion can be set using M17; all other times are deactivated. M32 (page 129) must be used if you wish to set several different times.
- If two or more times are set M32 (page 129) command, resulting in an M17 query, an M17␣I response is generated.
- The parameter setting will be saved and the only way to reset the default value will be via MT-SICS or by means of a factory reset, FSET (page 61) or via terminal not @ (page 18).

Examples

↓	M17␣12␣00␣00␣5	Set the ProFACT time criteria to Monday and Wednesday (5 = 1 + 4) at 12:00 h
↑	M17␣A	ProFACT time criteria is set:

↓	M17	Query of the current ProFACT time criteria
↑	M17␣A␣12␣00␣00␣127	The balance will currently be adjusted every day (127 = 1 + 2 + 4+ 8 + 16 + 32 + 64) at 12:00 h

M18 – ProFACT/FACT: Query/Set Temperature Criterion

Description

Use M18 to set the temperature criterion for triggering a ProFACT adjustment, or to query the current value.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
	✓*			✓	✓	✓	✓

* Only modules with internal adjustment

Syntax

Commands

M18	Query of the current ProFACT/FACT temperature criterion.
M18␣<TemperatureCriterion>	Set the ProFACT/FACT temperature criterion.

Responses

M18␣A␣<TemperatureCriterion>	Current standby mode.
M18␣A	Command understood and executed successfully.
M18␣I	Command understood but currently not executable.
M18␣L	Command understood but not executable (incorrect parameter).

Parameters

Name	Type	Values	Meaning
<Temperature Criterion>	Integer	0	Temperature criterion is switched off
		1	0.5 Kelvin
		2	1.0 Kelvin
		3	2.0 Kelvin

Comments

- Temperature difference (Δ temp.) is defined as the criterion. The balance is automatically adjusted if the temperature of the balance changes by the defined temperature difference.
- The parameter setting will be saved and the only way to reset the default value will be via MT-SICS or by means of a factory reset, FSET (page 61) or via terminal not @ (page 18).

Example

↓	M18␣1	Set the ProFACT/FACT temperature criterion to the 1st setting
↑	M18␣A	1st setting is activated

M19 – Query/Set Adjustment Weight

Description

You can use M19 to set your external adjustment weight, or to query the current weight setting.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
✓	✓	✓	✓	✓	✓	✓	✓

Syntax

Commands

M19	Query of the current adjustment weight.
M19␣<Value>␣<Unit>	Set the adjustment weight.

Responses

M19␣A␣<Value>␣<Unit>	Current adjustment weight.
M19␣A	Command understood and executed successfully.
M19␣I	Command understood but currently not executable.
M19␣L	Command understood but not executable (incorrect parameter) or adjustment weight is to low.

Parameters

Name	Type	Values	Meaning
<Value>	Float		Value of the adjustment weight, balance specific limitation
<Unit>	String		Weight unit of the adjustment weight = defined unit of the balance

Comments

- The adjustment weight must be entered in the defined unit of the balance. This unit can be found by entering a query command M19 without arguments.
- The reference weight should be greater than 10% of the balance capacity.
- Use C2 (page 38) to begin the adjustment procedure with the set weight.
- The parameter setting will be saved and the only way to reset the default value will be via MT-SICS or by means of a factory reset, FSET (page 61) or via terminal not @ (page 18).

Example

↓	M19	Query of the current adjustment weight
↑	M19␣A␣100.123␣g	Current adjustment weight is 100.123 g

M20 – Query/Set Test Weight

Description

You can use M20 to define your external test weight or query the currently weight setting.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
✓	✓	✓	✓	✓	✓	✓	✓

Syntax

Commands

M20	Query of the current external test weight.
M20␣<Value>␣<Unit>	Set the external test weight.

Responses

M20␣A␣<Value>␣<Unit>	Current external test weight.
M20␣A	Command understood and executed successfully.
M20␣I	Command understood but currently not executable.
M20␣L	Command understood but not executable (incorrect parameter).

Parameters

Name	Type	Values	Meaning
<Value>	Float	> 10 digits	Value of the external test weight
<Unit>	String		Weight unit of the external test weight = defined unit of the balance

Comments

- The test weight must be entered in the defined unit of the balance. This unit can be found by entering a query command M20 without arguments.
- Use TST2 (page 247) to begin the test procedure with the set weight.

Example

↓	M20	Query of the current external test weight
↑	M20␣A␣100.123␣g	Current external test weight is 100.123 g

M21 – Query/Set Unit

Description

Use M21 to set the required weighing unit or query the current setting.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
✓	✓	✓	✓	✓	✓	✓	✓

Syntax

Commands

M21	Query of the current unit.
M21␣<Des>␣<Unit>	Set the unit(s).

Responses

M21␣B␣<Des>␣<Unit> M21␣B… M21␣A␣<Des>␣<Unit>	Current first unit. … Current last unit.
M21␣A	Command understood and executed successfully.
M21␣I	Command understood but currently not executable.
M21␣L	Command understood but not executable (incorrect parameter).

Parameters

Name	Type	Values	Meaning		
<Des>	Integer	0	Host unit (page 17), to MT-SICS (volatile Memory)		
		1	Display unit, used on the terminal screen		
		2	Info unit, used in the info field on the terminal screen		
<Unit>	Integer	0	Gram	g	
		1	Kilogram	kg	
		2	reserved		
		3	Milligram	mg	
		4	Microgram	µg	
		5	Carat	ct	
		6	Newton	N	
		7	Pound avdp	lb	
		8	Ounce avdp	oz	
		9	Ounce troy	ozt	
		10	Grain	GN	
		11	Pennyweight	dwt	
		12	Momme	mom	
		13	Mesghal	msg	
		14	Tael Hongkong	tlh	
		15	Tael Singa-pore	tls	
		16	Tael Taiwan	tlt	
		17	Tical	tcl	
		18	Tola	tola	
		19	Baht	baht	
		20	lb	oz	

Name	Type	Values	Meaning		
<Unit>	Integer	25	no unit	--	
		26	Piece	PCS	available with application "Counting"
		27	Percent	%	available with application "Percent"
		28	Custom unit 1	cu1	available if custom unit 1 is switched on M22 (page 119)
		29	Custom unit 2	cu2	available if custom unit 2 is switched on M22 (page 119)

Comments

- All S commands (except SU) are given in Host unit (page 17) according to the definition of the MT-SICS. Only weight units are accepted as Host unit.
- In the event of a power failure, the host unit is lost and, following a restart, the weighing unit is displayed as "g".
- It is not possible to use "no unit" for the displayed unit.
- The units and/or their notation may be different in older software versions.
- The parameter setting will be saved and the only way to reset the default value will be via MT-SICS or by means of a factory reset, FSET (page 61) or via terminal not @ (page 18).

Examples

↓	M21␣0␣1	Set the unit to 1 kg
↑	M21␣A	Unit is set

↓	M21	Query of the current unit
↑	M21␣B␣0␣0 M21␣B␣1␣3 M21␣A␣2␣5	Current host unit (page 17) is "g" Current display unit is "mg" Current info unit is "carat"

M22 – Query/Set Custom Unit Definitions

Description

You can use M22 to set your own custom unit or query the currently defined custom unit.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
✓	✓	✓	✓	✓	✓	✓	✓

Syntax

Commands

M22	Query of the current custom unit definitions.
M22␣<No>␣<Formula>␣<Factor>␣"<Unit>"␣<Rounding>	Set the custom unit(s).

Responses

M22␣B␣<No>␣<Formula>␣<Factor>␣"<Unit>"␣<Rounding> M22␣B… M22␣A␣<No>␣<Formula>␣<Factor>␣"<Unit>"␣<Rounding>	Current first custom unit. … Current last custom unit.
M22␣A	Command understood and executed successfully.
M22␣I	Command understood but currently not executable.
M22␣L	Command understood but not executable (incorrect parameter).

Parameters

Name	Type	Values	Meaning
<No>	Integer	1 … max. units	Number of custom unit
<Formula>	Integer	0	(net weight) x factor
		1	factor/(net weight)
<Factor>	Float		Factor
<Unit>	String		Unit name (max. 4 characters)
<Rounding>	Float		Rounding step

Comments

- To query or define a custom unit, it must be switched on M21 (page 117).
- The parameter setting will be saved and the only way to reset the default value will be via MT-SICS or by means of a factory reset, FSET (page 61) or via terminal not @ (page 18).

Example

↓	M22	Query of the current custom unit definitions
↑	M22␣B␣1␣0␣15.5␣"sfr"␣0.05	Current first custom unit is (net weight) x 15.5 sfr, rounded to 0.05
	M22␣A␣2␣1␣25.4␣"h1"␣0.1	Current second custom unit is 25.4/(net weight) h1, rounded to 0.1

M23 – Query/Set Readability, 1d/xd

Description

Use M23 to set how many digits of the weighing result should be displayed or output and whether the value should be rounded, or to query the current value setting.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
✓	✓	✓	✓	✓	✓	✓	✓

Syntax

Commands

M23	Query of the current readability.
M23␣<Readability>	Set the readability.

Responses

M23␣A␣<Readability>	Current readability.
M23␣A	Command understood and executed successfully.
M23␣I	Command understood but currently not executable.
M23␣L	Command understood but not executable (incorrect parameter).

Parameters

Name	Type	Values	Meaning
<Readability>	Integer	0	1 d
		1	10 d
		2	100 d
		3	1000 d
		4	2 d
		5	5 d

Comments

- It is the balance model that determines which parameters can be changed.
- The readability is specified in d – this is the smallest increment a balance may display.
- The parameter setting will be saved and the only way to reset the default value will be via MT-SICS or by means of a balance master reset not @ (page 18).
- The parameter setting will be saved and the only way to reset the default value will be via MT-SICS or by means of a factory reset, FSET (page 61) or via terminal not @ (page 18).
- The stability criteria for the weight result (weighing commands) will be adapt to the selected readability based on the USTB setting.
- M23 has no influence of the stability criteria for the taring (page 237) and zeroing (page 256) commands.
- The customer unit M22 (page 119) will not be changed with the M23 command.

Example

↓	M23␣1	Set the readability to 10 d
↑	M23␣A	Readability is set

M24 – Query/Set Print Key Function

Description

Use M24 to set the print key function or query the current setting.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
			✓		✓	✓	✓

Syntax

Commands

M24	Query of the current print key function.
M24␣<PrintKeyFunction>	Set the print key function.

Responses

M24␣A␣<PrintKeyFunction>	Current print key function.
M24␣A	Command understood and executed successfully.
M24␣I	Command understood but currently not executable.
M24␣L	Command understood but not executable (incorrect parameter).

Parameters

Name	Type	Values	Meaning
<PrintKeyFunction>	Integer	0	Print stable weight
		1	Print weight immediately
		2	No print function

Comment

- The parameter setting will be saved and the only way to reset the default value will be via MT-SICS or by means of a factory reset, FSET (page 61) or via terminal not @ (page 18).

Example

↓	M24␣1	Set the print key function to "print weight immediately"
↑	M24␣A	Print key function is set

M25 – List Applications

Description

Use M25 to list all the applications available on the balance.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
			✓		✓	✓	✓

Syntax

Command

M25	Query of the available applications.

Responses

M25␣B␣<No>␣"<Application>" M25␣B… M25␣A␣<No>␣"<Application>"	First application. … Last application.
M25␣I	Command understood but currently not executable.
M25␣L	Command understood but not executable.

Parameters

Name	Type	Values	Meaning
<No>	Integer	0 … max. applications	Application number
		0	Weighing
		1	Counting
		2	Percent
		3	Formulation
		4	Dynamic
		5	Dynamic Manu.
		6	Textile
		7	Density
		8	MinWeigh
		9	DiffWeigh
		10	PipetteCheck
		11	Statistic
		12	Service
		13	Diagnosis
		14	Remote
<Application>	String		Application name

Comment

- It is the balance model that determines which parameters can be used.

Example

↓	M25	Query of the available applications
↑	M25␣B␣0␣"Weighing"	Default application is Weighing
↑	M25␣B␣1␣"Piececounting"	Application 1 is Counting
↑	M25␣B␣2␣"Percent"	Application 2 is Percent
↑	M25␣B␣3␣"Formulation"	Application 3 is Formulation
↑	M25␣B␣7␣"Density"	Application 7 is Density
↑	M25␣B␣9␣"Diff.weighing"	Application 9 is DiffWeigh

↑	M25␣B␣11␣"Statistic"	Application 11 is Statistic
↑	M25␣A␣17␣"LabX Client"	Application 17 is LabX Client

M26 – Query/Set Current Application

Description

Use M26 to select the required application or query the current selection.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
			✓		✓	✓	✓

Syntax

Commands

M26	Query of the current application selection.
M26␣<No>	Set the application number.

Responses

M26␣A␣<No>	Current application selection.
M26␣A	Command understood and executed successfully.
M26␣I	Command understood but currently not executable.
M26␣L	Command understood but not executable (incorrect parameter).

Parameter

Name	Type	Values	Meaning
<No>	Integer	0 … max. applications	Application number

Comment

- Application number: Number of the application according to the application list **see** M25 (page 122).

Example

↓	M26␣3	Set the application number 3
↑	M26␣A	Application 3 is set

Also see:

- M25 – List Applications (page 122)

M27 – Query Adjustment History

Description

Use M27 to call up the adjustment history.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
✓	✓	✓	✓	✓	✓	✓	✓

Syntax

Command

M27	Query of the adjustment history.

Responses

M27␣B␣<No>␣<DD>␣<MM>␣<YYYY>␣<hh>␣<mm>␣<Mode>␣"<Wgt>" M27␣B… M27␣A␣<No>␣<DD>␣<MM>␣<YYYY>␣<hh>␣<mm>␣<Mode>␣"<Wgt>"	1st adjustment entry. … last adjustment entry.
M27␣I	Command understood but currently not executable.
M27␣L	Command understood but not executable (incorrect parameter).

Parameters

Name	Type	Values	Meaning
<No>	Integer	0 … max. entries	Number of the adjustment entry
<DD>	Integer	1 … 31	Date, day
<MM>	Integer	1 … 12	Date, month
<YYYY>	Integer		Date, year
<hh>	Integer	0 … 23	Time, hour
<mm>	Integer	0 … 59	Time, minute
<Mode>	Integer	0	Internal adjustment
		1	External adjustment
<Wgt>	String		Weight of the adjustment weight used

Example

↓	M27	Query of the adjustment history
↑	M27␣B␣1␣1␣1␣2011␣08␣26␣0␣""	1st adjustment, performed at 1.1.2011, 08:26 h, internal adjustment
↑	M27␣B␣2␣14␣12␣2010␣14␣30␣1␣"200.1234␣g"	2nd adjustment, performed at 14.12.2010, 14.30 h, external adjustment, weight 200.1234 g
↑	M27␣A␣3␣14␣12␣2010␣8␣26␣1␣"200.1234␣g"	3rd adjustment, performed at 14.12.2010, 08:26 h, external adjustment, weight 200.1234 g

M28 – Query Temperature Value

Description

Use M28 to query the temperature value.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
✓	✓	✓	✓	✓	✓	✓	✓

Syntax

Command

M28	Query of the current temperature value.

Responses

M28␣B␣<No>␣<Temp> M28␣... M28␣A␣<No>␣<Temp>	1st temperature sensor. ... last temperature sensor.
M28␣A	Command understood and executed successfully.
M28␣I	Command understood but currently not executable.

Parameters

Name	Type	Values	Meaning
<No>	Integer	1 ... n	Number of temperature sensors
<Temp>	Float		Temperature sensor value in °C

Comments

- The number of temperature sensors depends on the product.
- There is no more Information available about the temperature offset and resolution.

Example

↓	M28	Query of the current temperature value
↑	M28␣A␣1␣22.5	There is only one temperature sensor available. The temperature value is 22.5 °C

M29 – Query/Set Value Release

Description

Use M29 to define the weight value release or query the current setting.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
			✓		✓	✓	✓

Syntax

Commands

M29	Query of the current value release setting.
M29␣<ValueRelease>	Set the value release.

Responses

M29␣A␣<ValueRelease>	Current value release.
M29␣A	Command understood and executed successfully.
M29␣I	Command understood but currently not executable.
M29␣L	Command understood but not executable (incorrect parameter).

Parameters

Name	Type	Values	Meaning
<ValueRelease>	Integer	0	Very fast
		1	Fast
		2	Reliable and fast
		3	Reliable
		4	Very reliable

Comments

- The parameter setting will be saved and the only way to reset the default value will be via MT-SICS or by means of a factory reset, FSET (page 61) or via terminal not @ (page 18).
- Not all balances offer the complete range of settings. If a setting is made that is not supported by the balance, an error massage is issued (M29␣L).

Example

↓	M29␣3	Set the value release to "reliable"
↑	M29␣A	Value release is set

M31 – Query/Set Operating Mode - Following Restart

Use M31 to set the operating mode of the weigh module/balance following restart.

Description

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
✓	✓	✓	✓	✓	✓	✓	✓

Syntax

Commands

M31	Query of the current operating mode following restart.
M31␣<Mode>	Set the operating mode following restart.

Responses

M31␣A␣<Mode>	Current settings of operating mode following restart.
M31␣A	Command understood and executed successfully.
M31␣L	Command understood but not executable (not permitted).

Parameters

Name	Type	Values	Meaning
<Mode>	Integer	0	User mode
		1	Production mode
		2	Service mode
		3	Diagnose mode

Comment

- Customer can only use the User- and Diagnose mode. All other settings will give a M31␣L response.

Example

↓	M31	Query of the current operating mode following restart
↑	M31␣A␣0	The current operating mode following restart is: User-mode

M32 – ProFACT: Query/Set Time Criteria

Description

You can use M32 to set several times at which an automatic ProFACT adjustment procedure should be carried out, or query the current settings. The days of the week are defined with M33 (page 129).

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
	✓*			✓			✓

* Only modules with internal adjustment

Syntax

Commands

M32	Query of the current ProFACT time criteria.
M32␣<No>␣<hh>␣<mm>␣<status>	Set the ProFACT time criteria.

Responses

M32␣B␣<No>␣<hh>␣<mm>␣<status> … M32␣A␣<No>␣<hh>␣<mm>␣<status>	Current ProFACT time criteria.
M32␣A	Command understood and executed successfully.
M32␣I	Command understood but currently not executable.
M32␣L	Command understood but not executable (incorrect parameter).

Parameters

Name	Type	Values	Meaning
<No>	Integer	0 … 3	FACT time index
<hh>	Integer	00 … 23	Hours
<mm>	Integer	00 … 59	Minutes
<status>	Integer	0	Time deactivated (off)
		1	Time activated (on)

Comments

- Only 1 time criterion can be set using M17 (page 112); all other times are permanently deactivated. M32 and M33 (page 130) must be used if you wish to set several different times.
- The parameter setting will be saved and the only way to reset the default value will be via MT-SICS or by means of a factory reset, FSET (page 61) or via terminal not @ (page 18).

Examples

↓	M32␣2␣12␣00␣1	ProFACT time 2 set to 12:00 and activated (on).
↑	M32␣A	ProFACT time criteria is set:

↓	M32	Query of the current ProFACT time criteria
↑	M32␣B␣1␣09␣00␣1	The balance will currently be adjusted at 9:00 h, 12:00 and 15:00 h
↑	M32␣B␣2␣12␣00␣1	
↑	M32␣A␣3␣15␣00␣1	

M33 – ProFACT: Query/Set Weekday

Description

You can use M33 to set the days of the week on which a ProFACT adjustment procedure should be carried out, or to query the current settings. The times for each are defined using M32 (page 129).

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
	✓*			✓			✓

* Only modules with internal adjustment

Syntax

Commands

M33	Query of the current ProFACT Weekday.
M33␣<Weekday>	Set the ProFACT Weekday.

Responses

M33␣A␣<Weekday>	Current ProFACT Weekday.
M33␣A	Command understood and executed successfully.
M33␣I	Command understood but currently not executable.
M33␣L	Command understood but not executable (incorrect parameter).

Parameters

Name	Type	Values	Meaning
<WeekDay>	Integer	0	Time criteria is switched off
		2^0 = 1	Monday
		2^1 = 2	Tuesday
		2^2 = 4	Wednesday
		2^3 = 8	Thursday
		2^4 = 16	Friday
		2^5 = 32	Saturday
		2^6 = 64	Sunday

Comments

- The days of the week are written in binary code (page 17). Combinations of different days are expressed as the sum of the individual days.
- Only 1 time criterion can be set using M17 (page 112); all other times are deactivated. M32 (page 129) and M33 must be used if you wish to set several different times.
- The parameter setting will be saved and the only way to reset the default value will be via MT-SICS or by means of a factory reset, FSET (page 61) or via terminal not @ (page 18).

Example

↓	M33␣5	Time adjustments are made on Mondays and Wednesdays (5 = 1 + 4)
↑	M33␣A	ProFACT Weekday is set.

M34 – MinWeigh: Query/Set Method

Description

Use M34 to select the MinWeigh method you wish to work with, or query the currently set MinWeigh method.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
							✓

Syntax

Commands

M34	Query of the current MinWeigh Method.
M34␣<Method>	Set the MinWeigh Method.

Responses

M34␣A␣<Method>	Current MinWeigh Method.
M34␣A	Command understood and executed successfully.
M34␣I	Command understood but currently not executable.
M34␣L	Command understood but not executable (incorrect parameter).

Parameters

Name	Type	Values	Meaning
<Method>	Integer	0	MinWeigh deactivated
		1	Method 1 activated
		2	Method 2 activated
		3	Method 3 activated

Comments

- MinWeigh can only be activated by a service technician.
- For additional information on Minimum Weight (MinWeigh), **see** the Operating Instructions of the balance.
- The parameter setting will be saved and the only way to reset the default value will be via MT-SICS or by means of a factory reset, FSET (page 61) or via terminal not @ (page 18).

Example

↓	M34␣1	Set the MinWeigh Method to 1
↑	M34␣A	MinWeigh Method 1 is set

M35 – Query/Set Zeroing Mode at Start-Up

Description

You can use M35 to save the last zero. Following a power failure, the balance will resume operation with the saved zero. In normal mode M35␣0, the balance specifies a new zero reference point at start-up as soon as a stable condition has been achieved.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
	✓	✓	✓	✓		✓	✓

Syntax

Commands

M35	Query of the current Zeroing Mode at Start-Up.
M35␣<Mode>	Set the Zeroing Mode at Start-Up.

Responses

M35␣A␣<Mode>	Current Zeroing Mode at Start-Up.
M35␣A	Command understood and executed successfully.
M35␣I	Command understood but currently not executable.
M35␣L	Command understood but not executable (incorrect parameter).

Parameters

Name	Type	Values	Meaning
<Mode>	Integer	0	Normal mode
		1	Start with saved zero or save last zero

Comments

- If the mode is set to 1 when the balance is started up, the fail-safe, saved zero is used.
- For certification reasons, this command may only be executed on normal balances. Certifiable balances do not have this function.
- The parameter setting will be saved and the only way to reset the default value will be via MT-SICS or by means of a factory reset, FSET (page 61) or via terminal not @ (page 18).

Example

↓	M35␣1	Save the last zero and use it at following start-up
↑	M35␣A	Start-up Zeroing Mode is set

M38 – Execute Reset

Description

Use M38 to execute a reset.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
✓*			✓		✓	✓	✓

* Parameter <Reset Mode> 2 implemented

Syntax

Command

M38␣<ResetMode>	Execute Reset

Responses

M38␣A	Command understood and executed successfully.
M38␣I	Command understood but currently not executable.
M38␣L	Command understood but not executable (incorrect parameter).

Parameters

Name	Type	Values	Meaning
<ResetMode>	Integer	0	Actions-Reset, Clear Window
		1	Applications-Reset
		2	User-Reset
		3	Master-Reset

Comments

- After User- and Master-Reset the module performs a complete restart similar to startup after power up.
- <ResetMode> 1 to 3 not yet implemented.

Example

↓	M38␣0	Execute a Actions-Reset
↑	M38␣A	Command understood and executed successfully

Also see:

- FSET – Reset all Settings to Factory Defaults (page 61)

M39 – SmartTrac: Query/Set Graphic

Description

You can use M39 to set the type of SmartTrac graphic (used weighing range graphic) or query the current setting.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
							✓

Syntax

Commands

M39	Query of the current SmartTrac Graphic.
M39␣<SmartTrac>	Set the SmartTrac Graphic.

Responses

M39␣A␣<SmartTrac>	Current setting of the SmartTrac Graphic.
M39␣A	Command understood and executed successfully.
M39␣I	Command understood but currently not executable.
M39␣L	Command understood but not executable (incorrect parameter).

Parameters

Name	Type	Values	Meaning (Nominal =0)	Meaning (Nominal > 0)
<SmartTrac>	Integer	0	No SmartTrac	Weighing-in graphic
		1	Round SmartTrac	Round weighing in SmartTrac
		2	SmartTrac bar	Weighing-in SmartTrac bar
		3	SmartTrac measuring beaker	SmartTrac crosshairs

Comments

- If the application contains a nominal value that is > 0, the used weighing range graphics mentioned above are automatically displayed as weighing-in graphics listed in the left-most column.
- The parameter setting will be saved and the only way to reset the default value will be via MT-SICS or by means of a factory reset, FSET (page 61) or via terminal not @ (page 18).

Example

↓	M39␣2	Set the SmartTrac bar
↑	M39␣A	SmartTrac bar has been set

M43 – Custom Unit Activate/Deactivate

Description

Use M43 to activate or deactivate Custom Units (Custom Unit1, Custom Unit2).

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
			✓		✓	✓	✓

Syntax

Commands

M43	Query of the current custom unit setting.
M43␣<CustomUnitNumber>␣<Value>	Write new custom unit.

Responses

M43␣A	Command understood and executed successfully.
M43␣I	Command understood but currently not executable.
M43␣L	Command understood but not executable (incorrect parameter).

Parameters

Name	Type	Values	Meaning
<CustomUnitNumber >	Integer	1	Custom Unit1
		2	Custom Unit2
<Value>	Integer	0	Deactivate custom unit
		1	Activate custom unit

Comments

- Dependency: M21 (page 117) - Query/Set Units (Host-, Display- and Info-Unit)
  M22 (page 119) - Query/Set Custom Unit Definitions (Formula, Factor, Unit, Rounding)
- Custom Units cannot be fully defined or managed via Host.

Examples

↓	M43	Query of current custom unit settings
↑	M43␣B␣1␣1 M43␣A␣2␣0	Custom Unit1 is on Custom Unit2 is off

↓	M43␣1␣0	Deactivated Custom Unit1
↑	M43␣A	Command understood and executed successfully

M44 – Query/Set Command After Startup

Description

Use M44 to set the command executed after startup.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
	✓						

Syntax

Commands

M44	Query of the current startup command setting.
M44␣<Interface>␣<"Command">	Set the startup command.

Responses

M44␣B␣<Interface>␣<"Command"> M44␣B… M44␣A␣<Interface>␣<"Command">	Interface number 0. … Interface number n.
M44␣A	Command understood and executed successfully.
M44␣I	Command understood but currently not executable.
M44␣L	Command understood but not executable (incorrect parameter).

Parameters

Name	Type	Values	Meaning
<Interface>	Integer	0 … n	Interface number
<"Command">	String	max 64 characters	MT-SICS Command after startup

Comments

- Command executed after I4 (page 66) and after initial zero.
- An invalid command leads to ES after start up.

Examples

↓	M44	Query of the current startup command setting
↑	M44␣B␣0␣""	There is no command specified on interface 0
	M44␣A␣1␣"SIR"	Starts SIR after startup on interface 1

↓	M44␣0␣"SR␣1␣g"	Start SR command after startup on interface 0
	M44␣A	Command understood and executed successfully

M45 – Query/Set RS422 Bus Termination on / off

Description

Use `M45` to set the RS422 bus termination on / off.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
	✓						

Syntax

Commands

`M45`	Query of the current RS422 bus termination setting.
`M45␣<Interface>␣<OnOff>`	Set RS422 bus termination on or off.

Responses

`M45␣B␣<Interface>␣<OnOff>`
`M45␣B…`
`M45␣A␣<Interface>␣<OnOff>`
	Interface number 0.
	…
	Interface number n.

`M45␣A`	Command understood and executed successfully.
`M45␣I`	Command understood but currently not executable.
`M45␣L`	Command understood but not executable (incorrect parameter).

Parameters

Name	Type	Values	Meaning
`<Interface>`	Integer	`0 … n`	Interface number, **see** COM (page 42)
`<OnOff>`	Boolean	`ON = 1`	RS422 bus termination setting
		`Off = 0`	

Comments

- Only bus systems like RS422 will be shown in the list.
- Default setting is `M45␣0 = off`.

Examples

↓	`M45`	Query RS422 actual bus termination
↑	`M45␣A␣1␣1`	RS422 bus termination on interface 1 is on. There is only one bus interface available

↓	`M45␣1␣0`	Set RS422 bus termination to Off
	`M45␣A`	Command understood and executed successfully

M47 – Query/Set Frequently Changed Test Weight Settings

Description

Use M47 to read and write the frequently changed test weight settings, such as actual weight and next calibration date.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
			✓		✓	✓	✓

Syntax

Commands

M47	Query of the current test weight settings.
M47␣<TestWeightNr>	Query of the specific test weight setting.
M47␣<TestWeightNr>␣<"ActualWeight">␣<"Unit">␣<NextCalDay>␣<NextCalMonth>␣<NextCalYear>	Write new test weight settings for the specific test weight.

Responses

M47␣B␣<TestWeightNr>␣<"ActualWeight">␣<"Unit">␣<NextCalDay>␣<NextCalMonth>␣<NextCalYear> M47␣B␣… M47␣A␣<TestWeightNr>␣<"ActualWeight">␣<"Unit">␣<NextCalDay>␣<NextCalMonth>␣<NextCalYear>	Current test weight settings.
M47␣A	Command understood and executed successfully.
M47␣I	Command understood but currently not executable.
M47␣L	Command understood but not executable (incorrect parameter).

Parameters

Name	Type	Values	Meaning
<TestWeightNr >	Integer	1 … 12	Number of the test weight.
<ActualWeight>	String	Max 10 chars	Actual weight of the test weight.
<Unit>	String	Max 2 chars	Actual unit of the test weight.
<NextCalDay>	Integer	1 … 31	Day of the next calibration date.
<NextCalMonth>	Integer	1 … 12	Month of the next calibration date.
<NextCalYear>	Integer	2000 … 2099	Year of the next calibration date.

Comments

- These initial values are set by the GWP software on the weigh module, balance.
- The parameter "TestWeightNr" corresponds with the "TestWeightNr" of M48 (page 140) command.
- To write the infrequently changed parameters, the command "M48 (page 140)" is used.
- The following conditions must be met before a test weight is considered valid: if name is defined (max 20 characters), if weight value is defined (more than 0), and if unit is valid.
- This command is available only in XP and XS balances and is not supported in XA balances.

Examples

↓	M47	Query of the list for all test weight settings.
↑	M47␣B␣1␣"100.0"␣"g"␣12␣10␣2010 M47␣B␣2␣"9.9999"␣"g"␣19␣08␣2010 M47␣B␣3␣"20.0001"␣"g"␣10␣12␣2009 M47␣B␣4␣"0"␣"mg"␣12␣09␣2011 M47␣B␣5␣"0"␣"g"␣31␣12␣2099 M47␣B␣6␣"0"␣"g"␣31␣12␣2099 M47␣B␣7␣"0"␣"g"␣31␣12␣2099 M47␣B␣8␣"0"␣"g"␣31␣12␣2099 M47␣B␣9␣"0"␣"g"␣31␣12␣2099 M47␣B␣10␣"0"␣"g"␣31␣12␣2099 M47␣B␣11␣"0"␣"g"␣31␣12␣2099 M47␣A␣12␣"0"␣"g"␣31␣12␣2099	The first three test weight settings are defined correctly, the fourth weight is not completely defined (weight value is still 0) and the rest is not defined at all.

↓	M47␣1	The parameters of the first test weight are requested.
↑	M47␣A␣1␣"100.0"␣"g"␣10␣11␣2010	The requested test weight has an actual value of 100 grams and the next recalibration is on November 10th 2010.

↓	M47␣1␣"20.0"␣"g"␣10␣12␣2012	Parameters of the first test weight are changed.
↑	M47␣A	The test weight's actual weight is set to 20 grams and the next recalibration date to December 10th2012.

M48 – Query/Set Infrequently Changed Test Weight Settings

Description

Use M48 to read and write the infrequently changed test weight settings, such as actual weight and next calibration date.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
			✓		✓	✓	✓

Syntax

Commands

M48	Query of the infrequently used test weight settings.
M48␣<TestWeightNr>	Query of the specific infrequently used test weight setting.
M48␣<TestWeightNr>␣<"WeightName">␣<"WeightID">␣<"WeightClass">␣<"WeightCertificate">␣<"WeightSetNo">	Write new infrequently used test weight settings for the specific test weight.

Responses

M48␣A␣<TestWeightNr>␣<"WeightName">␣<"WeightID">␣<"WeightClass">␣<"WeightCertificate">␣<"WeightSetNo">	Current test weight settings.
M48␣A	Command understood and executed successfully.
M48␣I	Command understood but currently not executable.
M48␣L	Command understood but not executable (incorrect parameter).

Parameters

Name	Type	Values	Meaning
<TestWeightNr >	Integer	1 … 12	Number of the test weight.
<WeightName>	String	Max 20 chars	Name of the test weight.
<WeightID>	String	Max 20 chars	ID of the test weight.
<WeightClass>	String	See Comments	Class of the test weight.
<WeightCertificate>	String	Max 20 chars	Certificate of test weight.
<WeightSetNo>	String	Max 20 chars	Set number of test weight.

Comments

- The parameter "TestWeightNr" corresponds with the "TestWeightNr" of M47 (page 138) command.
- Examples for Weight classes: E1, E2, F1, F2, M1, M2, M3, ASTM1, ASTM2, ASTM3, ASTM4, ASTM5, ASTM6, ASTM7.
- The following conditions must be met before a test weight is considered valid: if name is defined (max 20 characters), if weight value is defined (more than 0), and if unit is valid.
- This command is available only in XP and XS balances and is not supported in XA balances.

Examples

↓	M48	Query of the list for all infrequently used test weight settings
↑	M48␣B␣1␣"50gQK"␣"798012"␣"E1"␣"1231"␣"4551" M48␣B␣2␣"55gQK"␣"798013"␣"E1"␣"1232"␣"4552" M48␣B␣3␣"60gQK"␣"798014"␣"E1"␣"1233"␣"4553" M48␣B␣4␣"Test/Adj. Weight 4"␣""␣"E1"␣""␣"" M48␣B␣5␣"Test/Adj. Weight 5"␣""␣"E1"␣""␣"" M48␣B␣6␣"Test/Adj. Weight 6"␣""␣"E1"␣""␣"" M48␣B␣7␣"Test/Adj. Weight 7"␣""␣"E1"␣""␣"" M48␣B␣8␣"Test/Adj. Weight 8"␣""␣"E1"␣""␣"" M48␣B␣9␣"Test/Adj. Weight 9"␣""␣"E1"␣""␣"" M48␣B␣10␣"Test/Adj. Weight 10"␣""␣"E1"␣""␣"" M48␣B␣11␣"Test/Adj. Weight 11"␣""␣"E1"␣""␣"" M48␣A␣12␣"Test/Adj. Weight 12"␣""␣"E1"␣""␣""	The first three test weight settings that are infrequently used are defined correctly, and the rest is not defined at all.

↓	M48␣1	The infrequently used parameters of the first test weight are requested.
↑	M48␣A␣1␣"50gQK"␣"798012"␣"E1"␣"5467"␣"4556"	The actual test weight name of the requested test weight is 50gQK, the weight ID is 798012, the weight class is E1, the weight certificate is 5467 and the weight set number is 4556.

↓	M48␣3␣"100gQK"␣"10988"␣"F1"␣"5991"␣"4111"	Parameters of the third test weight are changed.
↑	M48␣A	Command understood and executed successfully.

Also see:

- M47 – Query/Set Frequently Changed Test Weight Settings (page 138)

M50 – Query/Set GWP Test Sequence

Description

Use M50 command to read and write all parameters of a test sequence. The method parameters are not transmitted with this command. See comments about this command.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
			✓		✓	✓	✓

Syntax

Commands

M50	Query of the test sequences.
M50␣<TestSeqID>	Query of the specific test sequence.
M50␣<TestSeqID>␣<"Name">␣<PrepInstr>␣<Method>␣<ActionIfFail>␣<WarnMsg>␣<WarnInt>␣<NoOfWarn>␣<Attempts>␣<InstrIfFail>␣<"UnblockCode">␣<EntryInHistory>	Write new test sequence settings.

Responses

M50␣B␣<TestSeqID>␣<"Name">␣<PrepInstr>␣<Method>␣<ActionIfFail>␣<WarnMsg>␣<WarnInt>␣<NoOfWarn>␣<WarnInt>␣<NoOfWarn>␣<Attempts>␣<InstrIfFail>␣<"UnblockCode">␣<EntryInHistory> M50␣B␣… M50␣A␣<TestSeqID>␣<"Name">␣<PrepInstr>␣<Method>␣<ActionIfFail>␣<WarnMsg>␣<WarnInt>␣<NoOfWarn>␣<Attempts>␣<InstrIfFail>␣<"UnblockCode">␣<EntryInHistory>	Current settings of test sequences.
M50␣A␣Validity	Command understood and executed successfully.
M50␣I	Command understood but currently not executable.
M50␣L	Command understood but not executable (incorrect parameter).

Parameters

Name	Type	Values	Meaning
<TestSeqID>	Integer	1 … 12	ID of the test sequence.
<Name>	String	Max 20 chars	Name of the test sequence that can be freely defined.
<PrepInstr>	Integer		Defines if a preparation dialog is displayed and what kind of dialog it is.
		0	No dialog is displayed
		1	Standard dialog is displayed
<Method>	Integer	0 … 13	The method that is executed with this test sequence.

Name	Type	Values	Meaning
<ActionIfFail>	Integer		Defines the action that is executed, when the test sequence fails.
		0	No action
		1	Warning (a defined number of warnings are to redo the test sequence)
		2	Attempts (a defined number of trials is allowed to redo the test sequence)
<WarnMsg>	Integer		Defines whether a warning dialog is displayed and what kind of dialog it is.
		0	Standard dialog is displayed
		1	Advanced dialog is displayed
<WarnInt>	Integer		Defines the time (in hours) between two warning dialogs.
		0	Deactivated (this means that another action if failure than "Warning" is selected).
		1 ... 1000	Number of hours between two warnings.
<NoOfWarn>	Integer		Defines how many warnings are displayed before the test sequence is blocked.
		0	Deactivated (this means that another action if failure than "Warning" is selected).
		1 ... 1000	Number of warnings.
<Attempts>	Integer		The maximum allowed number of attempts.
		0	Deactivated (this means that another action if failure than "Attempts" is selected).
		1	One attempt
		2	Two attempts
		3	Three attempts
		4	Attempts until test sequence is passed.

Comments

- These initial values are set by the GWP Software on the balance. The initial test sequence name is language-dependent.
- Depending on which method the test sequence has assigned, the method must be defined with specific parameters. To set these parameters, the following commands are needed: M51 (page 145), M52 (page 147), M53 (page 149) and M54 (page 151)
- The following parameters must be defined before a test sequence is considered valid: name (max. 20 characters), method type, method parameters, action if failure, number of action, number of warning, and interval.
- This command is available only in XP and XS balances and is not supported in XA balances.

Examples

↓	M50	Query of list of all test sequences.
↑	M50␣B␣1␣"Sensitivity"␣1␣6␣1␣0␣24␣2␣0␣1␣"12345"␣1 M50␣B␣2␣"Test Sequence 2"␣0␣0␣0␣0␣0␣0␣0␣0␣"Z"␣0 M50␣B␣3␣"Test Sequence 3"␣0␣0␣0␣0␣0␣0␣0␣0␣"Z"␣0 M50␣B␣4␣"Test Sequence 4"␣0␣0␣0␣0␣0␣0␣0␣0␣"Z"␣0 M50␣B␣5␣"Test Sequence 5"␣0␣0␣0␣0␣0␣0␣0␣0␣"Z"␣0 M50␣B␣6␣"Test Sequence 6"␣0␣0␣0␣0␣0␣0␣0␣0␣"Z"␣0 M50␣B␣7␣"Test Sequence 7"␣0␣0␣0␣0␣0␣0␣0␣0␣"Z"␣0 M50␣B␣8␣"Test Sequence 8"␣0␣0␣0␣0␣0␣0␣0␣0␣"Z"␣0 M50␣B␣9␣"Test Sequence 9"␣0␣0␣0␣0␣0␣0␣0␣0␣"Z"␣0 M50␣B␣10␣"Test Sequence 10"␣0␣0␣0␣0␣0␣0␣0␣0␣"Z"␣0 M50␣B␣11␣"Test Sequence 11"␣0␣0␣0␣0␣0␣0␣0␣0␣"Z"␣0 M50␣A␣12␣"Test Sequence 12"␣0␣0␣0␣0␣0␣0␣0␣0␣"Z"␣0	The test sequence with ID 1 has already been configured, all other commands still have their initial values.
↓	M50␣1	Query of the test sequence with the ID 1.
↑	M50␣B␣1␣"Sensitivity"␣1␣5␣1␣0␣24␣2␣0␣1␣"12345"␣1	The first test sequence is called Sensitivity. Its method is SE1 and every time this method is executed, a standard preparation dialog is displayed. If the test sequence fails, a warning dialog is displayed for a period of 24 hours, and it asks the user to redo the test sequence. This warning is displayed two times before the test sequence is blocked. If the test sequence is blocked, it can be unblocked by using the password "12345".

↓	M50␣1␣"EC Test"␣1␣1␣2␣0␣0␣0␣3␣0␣"1234"␣1	Parameters of the third test sequence are changed.
↑	M50␣A␣1	The response indicates that the written test sequence is valid.

M51 – Query/Set GWP Method EC

Description

Use M51 to read and write the tolerances of the GWP method EC (Eccentricity).

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
			✓		✓	✓	✓

Syntax

Commands

M51␣<TestSeqID>	Request the text from test sequence 'TestSeqID' only.
M51␣<TestSeqID>␣<"ECT1">␣<"ECT1Unit">␣<"ECT1Name">␣<"ECT2">␣<"ECT2Unit">␣<"ECT2Name">	Write new test sequence settings.

Responses

M51␣A␣<TestSeqID>␣<"ECT1">␣<"ECT1 Unit">␣<"ECT1Name">␣<"ECT2">␣<"ECT2 Unit">␣<"ECT2Name">	Current test sequence ID settings.
M51␣A␣Validity	Command understood and executed successfully.
M51␣I	Command understood but currently not executable.
M51␣L	Command understood but not executable (incorrect parameter).

Parameters

Name	Type	Values	Meaning
<TestSeqID>	Integer	1 … 12	ID of the test sequence.
<ECT1>	String	Max 10 chars	Warn tolerance EC T1 for the eccentricity deviation.
<ECT1Unit>	String	Max 2 chars	Unit for the tolerance EC T1.
<ECT1Name>	String	Max 20 chars	Name of the tolerance EC T1.
<ECT2>	String	Max 10 chars	Warn tolerance EC T2 for the eccentricity deviation and its unit.
<ECT2Unit>	String	Max 2 chars	Unit for the tolerance EC T2.
<ECT2Name>	String	Max 20 chars	Name of the tolerance EC T2.
<Validity>	Integer		Displays if the written parameters are valid or not (e.g. EC T1 Name not empty).
		0	The written parameters are invalid.
		1	The written parameters are valid.

Comments

- These initial values are set by the GWP software on the balance. The initial values for the tolerance names (EC T1 Name and EC T2 Name) are language dependent.
- If you wish to check the validity of the test sequence where this EC method was assigned, the command GWP Test Sequence can be used.
- If the EC parameters are requested from an undefined test sequence or from a test sequence that has another method other than EC, the response will be M51␣L.

- The data type of the text is ASCII due to limitations in handling UTF-8.
- To check if the testsequence is valid, the command M50 (page 142) GWP Test Sequence is required.
- This command is available only in XP and XS balances and is not supported in XA balances.

Examples

↓	M51␣1	The EC parameters of the first test sequence are requested.
↑	M51␣A␣1␣"1.0"␣"mg"␣"Warning Tolerance"␣"4.0"␣"mg"␣"Control Tolerance"	The deviation tolerances are 1 and 4 mg and their tolerance names are Warning- and Control Tolerance.

↓	M51␣1␣"0.002"␣"g"␣"Warn Limit"␣"0.004"␣"g"␣"Control Limit"	The EC parameters of the first test sequence are written.
↑	M51␣A␣1	The response indicates that the written tolerances are valid.

M52 – Query/Set GWP RP1 and RPT1

Description

Use M52 to read and write the tolerances of the two GWP methods RP1 (Repeatability with one test weight) and RPT1 (Repeatability with a tare- and a test weight).

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
			✓		✓	✓	✓

Syntax

Commands

M52␣<TestSeqID>	Query of repeatability parameters from test sequence ID.
M52␣<TestSeqID>␣<Method>␣<NoOfRep>␣<CheckLevelling>␣<"ST1">␣<"ST1Unit">␣<"ST1Name">␣<"ST2">␣<"ST2Unit">␣<"ST2Name">	Write new test sequence settings.

Responses

M52␣A␣<TestSeqID>␣<Method>␣<NoOfRep>␣<CheckLevelling>␣<"ST1">␣<"ST1Unit">␣<"ST1Name">␣<"ST2">␣<"ST2Unit">␣<"ST2Name">	Current test sequence ID settings.
M52␣A␣Validity	Command understood and executed successfully.
M52␣I	Command understood but currently not executable.
M52␣L	Command understood but not executable (incorrect parameter).

Parameters

Name	Type	Values	Meaning
<TestSeqID>	Integer	1 … 12	The ID of the test sequence where these parameters have to be assigned.
<Method>	Integer		The method that is selected for the test sequence.
		2	Method RP1 (Repeatability with one test weight).
		3	Method RPT1 (Repeatability with a tare- and a test weight).
<NoOfRep>	Integer	2 … 15	Number of repetitions that are defined for this method 1.
<CheckLevelling>	Integer		Defines whether the level state is checked before the method is performed.
		0	Don not check the level state.
		1	Check the level state.
<ST1>	String	Max 10 chars	Tolerance s T1 for the standard deviation.
<ST1Unit>	String	Max 2 chars	Unit of the s T1 tolerance.
<ST1Name>	String	Max 20 chars	Name of the s T1 tolerance.
<ST2>	String	Max 10 chars	Tolerance s T2 for the standard deviation.
<ST2Unit>	String	Max 2 chars	Unit of the s T2 tolerance.

Name	Type	Values	Meaning
<ST2Name>	String	Max 20 chars	Name of the s T2 tolerance.
<Validity>	Integer		Indicates whether the written tolerances and number of repetitions are valid or not.
		0	The written tolerances and number of repetitions are invalid.
		1	The written tolerances and number of repetitions are valid.

Comments

- These initial values are set by the GWP software on the balance. The initial values of the tolerance names (ST1 Name and ST2 Name) are language dependent.
- If you wish to check if the method is valid after setting these tolerances, the validity of the test sequence can be checked with the command M50 (page 142) GWP Test Sequence.
- If the RP1 and RPT1 parameters are requested from an undefined test sequence or from a test sequence that has another method other than RP1 and RPT1, the response will be "M52␣L".
- This command is available only in XP and XS balances and is not supported in XA balances.

Examples

↓	M52␣1	Query of standard deviation tolerances of the first test sequence.
↑	M52␣A␣1␣2␣4␣0␣"0.001"␣"g"␣"Warn Limit"␣"0.002"␣"g"␣"Control Limit"	The received data displays that this method has 4 repetitions and tolerances of 0.001 and 0.002 gram. It is not obvious what method type it is, but this can be found out by requesting the test sequence parameters of the same test sequence.

↓	M52␣3␣2␣5␣1␣"2.0"␣"mg"␣"Warn Limit"␣"4.0"␣"mg"␣"Control Limit"	The parameters of a repeatability method are attached to the third test sequence. This repeatability method has 5 repetitions and tolerances of 2.0 and 4.0 mg. Before the method is started, the level state must be checked.
↑	M52␣A␣1	The written parameters are valid.

M53 – Query/Set GWP Service

Description

Use M53 to read and write the GWP service method.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
			✓		✓	✓	✓

Syntax

Commands

M53␣<TestSeqID>	Query of Service parameters from the test sequence ID.
M53␣<TestSeqID>␣<Status>␣<EarlyWarning>	Write new Service settings.

Responses

M53␣A␣<TestSeqID>␣<Status>␣<EarlyWarning>	Current settings of Service from test sequence ID.
M53␣A␣Validity	Command understood and executed successfully.
M53␣I	Command understood but currently not executable.
M53␣L	Command understood but not executable (incorrect parameter).

Parameters

Name	Type	Values	Meaning
<TestSeqID>	Integer	1 … 12	ID of the test sequence where this method is assigned.
<Status>	Binary		Defines which dates are monitored by this method.
		0	Status is not monitored
		1	Battery Change Date
		2	Next Service Date
		4	Next MinWeigh Date
		8	All Weight Calibration Dates
		16	Task 1
		32	Task 2
		64	Task 3
		128	Task 4
		256	Task 5
		512	Task 6
		1024	Task 7
		2048	Task 8
		4096	Task 9
		8192	Task 10
		16384	Task 11
		32768	Task 12
		…	…
<EarlyWarning>	Integer	1 … 365	The early warning alert defines how many days in advance the method warns.

Name	Type	Values	Meaning
<Validity>	Integer		Displays if the written parameters are valid or not.
		0	The written parameters are invalid.
		1	The written parameters are valid.

Comments

- These initial values are set by the GWP software on the balance. As standard there are no objects selected for being monitored and the early warning alert is 7 days.
- To check if the test sequence where this service method was assigned is valid, the command M50 (page 142) GWP Test Sequence has to be used.
  If the Service parameters are requested from an undefined test sequence or from a test sequence that has another method than Service, the response will be M53␣L.
- This command is available only in XP and XS balances and is not supported in XA balances.

Examples

↓	M53␣2	Query of service parameters of the second test sequence.
↑	M53␣A␣2␣27␣5	The method warns 5 days before a date expires. To find out which dates are monitored, the status parameter has to be analysed. In this example, the value is 27. The next lower bit significance from the different dates is 16 and applies to Task 1. This means that the execution date of Task 1 is monitored. The next step is to subtract the bit significance 16 from the value 27, so the new value is 11. The next lower bit significance is 8, which means that all weight calibration dates are monitored. Continue with these steps until the value of the status parameter is zero, then you have all dates that are monitored.

↓	M53␣1␣13␣7	The service method has to be assigned to the first test sequence, the early warning time should be 7 days and the monitored dates should be Battery Change, MinWeigh and Weight Calibration. To get the value for the status parameter, the significances of all monitored dates have to be added. In this example the bit significances are 1 (Battery Change), 4 (MinWeigh) and 8 (Weight Calibration). These three significances added, result in the value 13 that must be written as status parameter.
↑	M53␣A␣1	The response indicates that the written parameters are valid.

M54 – Query/Set GWP Weight Tolerances

Description

Use M54 to read and write the GWP weight tolerances.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
			✓		✓	✓	✓

Syntax

Commands

M54␣<TestSeqID>	Query of Weight ID and tolerances from a specific test sequence ID.
M54␣<TestSeqID>␣<Position>	Query of Weight ID and tolerances from a specific test sequence ID and position.
M54␣<TestSeqID>␣<Method>␣<Position>␣<TestweightID>␣"T1"␣"T1Unit"␣"T1Name"␣"T2"␣"T2Unit"␣"T2Name"	Write new settings of the Weight ID and the tolerances from a specific test sequence ID and position.

Responses

M54␣B␣<TestSeqID>␣<Method>␣<Position>␣<TestweightID>␣"T1"␣"T1Unit"␣"T1Name"␣"T2"␣"T2Unit"␣"T2Name" M54␣B␣… M54␣A␣<TestSeqID>␣<Method>␣<Position>␣<TestweightID>␣"T1"␣"T1Unit"␣"T1Name"␣"T2"␣"T2Unit"␣"T2Name"	Current settings of the Weight ID and the tolerances from a specific test sequence ID.
M54␣A␣Validity	Command understood and executed successfully.
M54␣I	Command understood but currently not executable.
M54␣L	Command understood but not executable (incorrect parameter).

Parameters

Name	Type	Values	Meaning
<TestSeqID>	Integer	1 … 12	The ID of the test sequence that has assigned the method with these tolerances.
<Method>	Integer		The method that is selected for the test sequence.
		1	EC Method
		2	RP1 Method
		3	RPT1 Method
		5	SE1 Method
		7	SE2 Method
		8	SET1 Method
		9	SET2 Method
		11	SERVICE Method
<Position>	Integer		Defines which tolerances are selected.
		0	Weight ID and tolerances of the tare weight (only available if the method uses a tare weight).
		1	Weight ID and tolerances of the first test weight.
		2	Weight ID and tolerances of the second test weight (only available if the method uses more than one test weight).

Name	Type	Values	Meaning
<TestweightID>	Integer		The ID of the test weight that is used in the method.
		0	No test weight selected.
		1 … 12	Test weight numbers defined.
<T1>	String	Max 10 chars	Warning tolerance T1.
<T1Unit>	String	Max 2 chars	Unit of the warning tolerance T1.
<T1Name>	String	Max 20 chars	Name of the T1 tolerance.
<T2>	String	Max 10 chars	Control tolerance T2.
<T2Unit>	String	Max 2 chars	Unit of the control tolerance T2.
<T2Name>	String	Max 20 chars	Name of the tolerance T2.
<Validity>	Integer		Displays if the selected test weight and the tolerances are valid or not.
		0	The test weight or the corresponding tolerances are invalid.
		1	The test weight and the corresponding tolerances are valid.

Comments

- These initial values are set from the GWP software on the balance. The initial names of the tolerances (`T1 Name` and `T2 Name`) are language-dependent.
- After writing the tolerance parameters, it is recommended to check if the test sequence is valid.
- If the `M54` parameters are requested from an undefined test sequence or from a test sequence that has no `M54` parameters, the response will be `M54␣L`.
- The data type of the text is ASCII due to limitations in handling UTF-8.
- Dependencies: If the selected test weight is invalid, it has to be configured correctly before the tolerances can be valid. To do this, the commands M47 (page 138) and M48 (page 140) can be used. If it is desired to check the validity of the test sequence after setting these tolerance parameters, the command M50 (page 142) GWP Test Sequence can be used.
- This command is available only in XP and XS balances and is not supported in XA balances.

Examples

↓	`M54␣1␣0`	Query of tolerances on the first position (tare weight tolerances) of the test sequence.
↑	`M54␣L`	The response displays that the first test sequence has no tare weight tolerances. This means that the test sequence uses a method without tare weight.

↓	`M54␣1␣1`	Query of tolerances of the first test weight of the test sequence.
↑	`M54␣A␣1␣5␣1␣2␣"0.001"␣"g"␣"Warn Limit"␣"0.002"␣"g"␣"Control Limit"`	The number 5 after the test sequence ID indicates that these tolerances pertain to SE1 method (for a list of all methods see GWP Intro). SE1 only uses one test weight, so no more tolerances need to be requested. The test weight that is used for this SE1 method is the weight with ID 2.

↓	M54␣2␣1	Query of tolerances of the second test sequence.
↑	M54␣A␣2␣6␣1␣1␣"0.001"␣"g"␣"Warn Limit"␣"0.002"␣"g"␣"Control Limit"	The number 6 after the test sequence ID indicates that these tolerances pertain to SE2 method (for a list of all methods see GWP Intro). SE2 uses two test weights, so the tolerances for the second test weight need to be requested also. The first test weight that is used for this SE2 method is the weight with ID 1.

↓	M54␣2␣2	Because the upper example uses the method SE2, the tolerances for the second test weight of the method have to be requested. Therefore, the position in the Query is set to 2.
↑	M54␣A␣2␣6␣2␣2␣"2.0"␣"mg"␣"Warn Limit"␣"4.0"␣"mg"␣"Control Limit"	The second test weight that is used for this SE2 method is the weight with ID 2. The tolerances for this test weight differ from those of the first test weight. They are now 2 and 4 mg.

↓	M54␣1	Query of all test weights and tolerances of the first test sequence.
↑	M54␣B␣2␣8␣1␣3␣"4.0"␣"mg"␣"Warn Limit"␣"8.0"␣"mg"␣"Control Limit"	The first test weight of this SET1 method has the ID 3 and tolerances of 4 and 8 mg.
	M54␣A␣2␣8␣2␣5␣"2.0"␣"mg"␣"Warn Limit"␣"4.0"␣"mg"␣"Control Limit"	The second test weight has the ID 5 and tolerances of 2 and 4 mg.

↓	M54␣1␣8␣0␣1␣"100.0"␣"%"␣"Warn Limit"␣"100.0"␣"%"␣"Control Limit"	Tolerances for the tare weight of a SET1 method are written. Method SET1 has the ID 8. It uses the weight with ID 1. Tolerances of the tare weight are set to 100%, so the measured weight of the tare weight does not affect the test result.
↑	M54␣A␣1	The response indicates that the written tolerances are valid.

M55 – Query/Set GWP Task

Description

Use M55 to read and write all parameters of a task, such as the ID of the used test sequence or the starting method.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
			✓		✓	✓	✓

Syntax

Commands

M55	Query of the whole list of entries.
M55␣<TaskID>	Request the text from TaskID only.
M55␣<TaskID>␣<TestSeqID>␣<Starting Method>␣<FirstDay>␣<FirstMonth>␣<FirstYear>␣<StartHour>␣<StartMinute>␣<Interval>␣<DefDays>␣<DefUsers>	Write new settings of specific task.

Responses

M55␣B␣<TaskID>␣<TestSeqID>␣<Starting Method>␣<FirstDay>␣<FirstMonth>␣<FirstYear>␣<StartHour>␣<StartMinute>␣<Interval>␣<DefDays>␣<DefUsers> M55␣B␣… M55␣A␣<TaskID>␣<TestSeqID>␣<Starting Method>␣<FirstDay>␣<FirstMonth>␣<FirstYear>␣<StartHour>␣<StartMinute>␣<Interval>␣<DefDays>␣<DefUsers>	Current settings of the list of entries.
M55␣A␣Validity	Command understood and executed successfully.
M55␣I	Command understood but currently not executable.
M55␣L	Command understood but not executable (incorrect parameter).

Parameters

Name	Type	Values	Meaning
<TaskID>	Integer	1 … 12	ID of the task.
<TestSeqID>	Integer	0 … 12	ID of the test sequence that is assigned to this task.
		0	No test sequence assigned.
<StartingMethod>	Integer		Defines how the task is started.
		0	Manual
		1	On User Change
		2	Interval
		3	On Power On
<FirstDay>	Integer	1 … 31	The first day that the task is executed (only effective if starting method is interval, e.g. 05 (Format: dd).
<FirstMonth>	Integer	1 … 12	The first month that the task is executed (only effective if starting method is interval), e.g. 06 for June.
<FirstYear>	Integer	2000 … 2099	The first year that the task is executed (only effective if starting method is interval), e.g. 2009 (Format: yyyy).
<StartHour>	Integer	0 … 23	Hour at which the task is executed (only effective if starting method is interval), e.g. 08 (Format: hh).

Name	Type	Values	Meaning
<StartMinute>	Integer	0 … 59	Minute at which the task is executed (only effective if starting method is interval), e.g. 00 (Format: mm).
<Interval>	String	1 … 720	The interval in days in which the task is executed (only effective if starting method is interval).
<DefDays>	Binary		Defines on which days the task can be executed.
		0	No defined day
		1	Monday
		2	Tuesday
		4	Wednesday
		8	Thursday
		16	Friday
		32	Saturday
		64	Sunday
		...	
		127	All days are active
<DefUsers>	Binary		Defines which users are allowed to execute the task.
		0	User is deactivated
		1	Home
		2	User 1
		4	User 2
		8	User 3
		16	User 4
		32	User 5
		64	User 6
		128	User 7
		...	
		255	All users are active
<Validity>	Integer		Displays if the written task is valid or not. The task can, for example, be invalid when the assigned test sequence is not valid.
		0	Task is invalid (when the task is invalid, the task is automatically set to disabled).
		1	Task is valid (it is necessary that the assigned test sequence is valid, otherwise the task can not be valid).

Comments

- These initial values are set by the GWP software on the balance.
- After the parameters have been set (it does not matter if the task is valid or not), the task will be disabled automatically.
- If the assigned test sequence is invalid, the ID is set to 0.
- Dependencies: To enable or disable a task, the command M56 (page 157) is needed and a task can only be valid when the assigned test sequence M50 (page 142) is also valid.
- This command is available only in XP and XS balances and is not supported in XA balances.

Examples

↓	M55	All tasks and their parameters are read from the balance.
↑	M55␣B␣1␣3␣2␣02␣11␣2009␣09␣00␣31␣1␣31 M55␣B␣2␣2␣1␣31␣12␣2099␣08␣00␣1␣127␣255 M55␣B␣3␣0␣0␣31␣12␣2099␣08␣00␣1␣127␣255 M55␣B␣4␣0␣0␣31␣12␣2099␣08␣00␣1␣127␣255 M55␣B␣5␣0␣0␣31␣12␣2099␣08␣00␣1␣127␣255 M55␣B␣6␣0␣0␣31␣12␣2099␣08␣00␣1␣127␣255 M55␣B␣7␣0␣0␣31␣12␣2099␣08␣00␣1␣127␣255 M55␣B␣8␣0␣0␣31␣12␣2099␣08␣00␣1␣127␣255 M55␣B␣9␣0␣0␣31␣12␣2099␣08␣00␣1␣127␣255 M55␣B␣10␣0␣0␣31␣12␣2099␣08␣00␣1␣127␣255 M55␣B␣11␣0␣0␣31␣12␣2099␣08␣00␣1␣1-27␣ 255 M55␣A␣12␣0␣0␣31␣12␣2099␣08␣00␣1␣1-27␣ 255	Only two tasks are defined. The first task is an interval task that starts every 31 days at 9 o'clock. The first execution date of this task is on 02.11.2009 and it can only be executed by the first user from Monday until Friday.

↓	M55␣1	Query of the parameters of the first task.
↑	M55␣A␣1␣1␣1␣31␣12␣2099␣08␣00␣1␣127␣31	The first task has assigned the test sequence with the ID one. The task is executed on user change. Therefore, the first start date and the start time are not important. The task can be executed by every user on the days Monday until Friday.

↓	M55␣2␣1␣2␣31␣12␣2099␣06␣00␣1␣127␣255	An interval task is written on the balance. The task is executed every day at 6:00. It can be executed by every user.
↑	M55␣A␣1	The response says that the task is valid. This indicates that all parameters and the assigned test sequence are valid.

M56 – Query/Set GWP Task State

Description

Use M56 to read and write the GWP task state.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
			✓		✓	✓	✓

Syntax

Commands

M56	Query of the whole list of entries.
M56␣<TaskID>	Request the text from Task ID only.
M56␣<TaskID>␣<ActiveState>␣	Write new settings of the Weight ID and the tolerances from a specific test sequence ID and position.

Responses

M56␣B␣<TaskID>␣<ActiveState>␣<ToDo>␣<Mode>␣<Day>␣<Month>␣<Year>␣<Hour>␣<Minute>␣<Trials> M56␣B␣… M56␣A␣<TaskID>␣<ActiveState>␣<ToDo>␣<Mode>␣<Day>␣<Month>␣<Year>␣<Hour>␣<Minute>␣<Trials>	Current settings of the list of entries.
M56␣A␣ActiveState	Command understood and executed successfully.
M56␣I	Command understood but currently not executable.
M56␣L	Command understood but not executable (incorrect parameter).

Parameters

Name	Type	Values	Meaning
<TaskID>	Integer	1 … 12	ID of the task.
<ActiveState>	Integer		Indicates whether the task is enabled or not.
		0	Task is disabled.
		1	Task is enabled.
<ToDo>	Integer		Defines in which Todo-State the task is.
		0	is not executed
		1	waits to be executed
		2	is being executed at the moment
<Mode>	Integer		The mode setting of the task (warning mode, when the task failed or was aborted).
		0	Task is in normal mode.
		1	Task is in warning mode.
<Day>	Integer	1 … 31	The day when the task is executed the next time or when the next warning is displayed, e.g. 05 (Format: dd).
<Month>	String	1 … 12	The month when the task is executed the next time or when the next warning is displayed, e.g. 06 for June.
<Year>	Integer	2000 … 2099	The year when the task is executed the next time or when the next warning is displayed, e.g. 2009 (Format: yyyy).

Name	Type	Values	Meaning
<Hour>	Integer	0 … 23	The hour when the task is executed the next time or when the next warning is displayed, e.g. 08 (Format: hh).
<Minute>	Integer	0 … 59	The minute when the task is executed the next time or when the next warning is displayed, e.g. 00 (Format: mm).
<Trials>	Integer	0 … 1000	The number of trials (warnings) that were displayed.

Comments

- These initial values are set by the GWP Software on the weigh module, balance.
- When a task can not be set to be enabled, it is possible that the task is not valid. In order to check this, the command M55 (page 154) is necessary.
- This command is available only in XP and XS balances and is not supported in XA balances.

Examples

↓	M56	Query of the state of all twelve tasks.
↑	M56␣B␣1␣1␣2␣0␣21␣09␣2009␣08␣00␣0 M56␣B␣2␣1␣1␣1␣21␣09␣2009␣08␣00␣2 M56␣B␣3␣1␣0␣0␣22␣09␣2009␣16␣00␣0 M56␣B␣4␣0␣0␣0␣31␣12␣2099␣08␣00␣0 M56␣B␣5␣0␣0␣0␣31␣12␣2099␣08␣00␣0 M56␣B␣6␣0␣0␣0␣31␣12␣2099␣08␣00␣0 M56␣B␣7␣0␣0␣0␣31␣12␣2099␣08␣00␣0 M56␣B␣8␣0␣0␣0␣31␣12␣2099␣08␣00␣0 M56␣B␣9␣0␣0␣0␣31␣12␣2099␣08␣00␣0 M56␣B␣10␣0␣0␣0␣31␣12␣2099␣08␣00␣0 M56␣B␣11␣0␣0␣0␣31␣12␣2099␣08␣00␣0 M56␣A␣12␣0␣0␣0␣31␣12␣2099␣08␣00␣0	The tasks 1, 2 and 3 are enabled, all others are disabled. The task with ID 1 is being executed, while the second task is waiting to be executed. The second task is in warning mode, indicating that the task has failed at least once and the number of trials suggests that the task already failed twice.

↓	M56␣4	With this query command, the state of the fourth task is read from the balance.
↑	M56␣A␣4␣1␣0␣1␣01␣10␣2009␣06␣00␣1	The fourth task is enabled and its next execution date is 01.10.2009 at 06:00. The task already failed once and therefore is in warning mode.

↓	M56␣1␣0	This way, the active state of a task can be changed.
↑	M56␣A␣0	The first task is set to disabled.

↓	M56␣1␣1	The first task is set to enabled.
↑	M56␣A␣0	Although the task should be enabled, the response is that the task is disabled. This happens when the task that should be enabled is not valid, for example because it has no test sequence assigned. To find out more about the possible error, read the task parameters using the command GWP Task.

M57 – Query/Set GWP System State

Description

Use M57 to read the GWP system state. It provides information whether the system is blocked and if there are pending tasks to be executed.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
			✓		✓	✓	✓

Syntax

Command

M57	Query of the GWP system state.

Responses

M57␣A␣<GWPState>␣<RunningTaskID>␣<WaitingTasks>	Current state of GWP system.
M57␣I	Command understood but currently not executable.
M57␣L	Command understood but not executable (incorrect parameter).

Parameters

Name	Type	Values	Meaning
<GWPState>	Integer		Displays the current state of the system, for example that the system is in standby.
		0	System is in standby
		1	System is on
		2	Task is running
		3	Warm up is running
		4	System is blocked
<RunningTaskID>	Integer		ID of the task that is running.
		0	No task is running
		1 … 12	ID of the running Task
<WaitingTasks>	Integer	1 … 12	Number of tasks that are waiting to be executed.

Comments

- These initial values are set by the GWP software on the balance. There are two possibilities, because the system could be in standby or it could be on.
- This command is available only in XP and XS balances and is not supported in XA balances.

Examples

↓	M57	Query of the GWP system state.
↑	M57␣A␣4␣1␣2	The first parameter indicates that the system is blocked by a task with the ID 1. There are 2 other tasks that are waiting to be executed.

↓	M57	Query of the GWP system state.
↑	M57␣A␣3␣0␣1	The system is warming up and one task is waiting to be executed after the warm up.

M58 – Query GWP History Export

Description

Use M58 command to export the history from the balance to a computer. All history entries of a specific method can be read at one time. Therefore, the request must contain the method type that should be exported. It is not possible to read all history entries at one time, because every entry with another method has a different amount of parameters. It would be impossible to export all these entries in one readable table. When the command to request is used without the method parameter, the response will list how many entries of which method are available. Methods that have no entries in the history will not be listed.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
			✓		✓	✓	✓

Syntax

Commands

M58	Query of the number of history entries per method.
M58␣<Method>	Query of all history entries with method type "Method".

Responses

M58␣B␣<Index>␣<Method>␣<NoOfEntries>␣ "TestSeqName"␣"VersionNo"␣ "StartDate"␣"StartTime"␣"EndDate"␣ "EndTime"␣"Attempt"␣"Summary"␣M58␣B␣ <Method Specific> … M58␣B␣<Index>␣<Method>␣<NoOfEntries>␣ "TestSeqName"␣"VersionNo"␣"StartDate" ␣"StartTime"␣"EndDate"␣"EndTime"␣ "Attempt"␣"Summary"␣M58␣B␣ <Method Specific>	Current history entries with method type "Method".

Common Parameters to All Methods

Name	Type	Values	Meaning
<Index>	String	1 … 120	Each history entry has its own index, so it is easier to see which Common- and Specific parameters belong to the same history entry.
<Method>	Integer		Requested method type.
		1	EC Method
		2	RP1 Method
		3	RPT1 Method
		5	SE1 Method
		6	SE2 Method
		7	SE3 Method
		8	SET1 Method
		9	SET2 Method
		11	SERVICE Method
<NoOfEntries>	Integer	1 … 120	Number of history entries that exist from a method.
<TestSeqName>	String	Max 20 chars	Name of the test sequence.
<VersionNo>	String	Max 3 chars	Version number of the test sequence.
<StartDate>	String	Max 15 chars	Date when the test sequence was started. The date format is assumed from the balance's date format.

Name	Type	Values	Meaning
<StartTime>	String	Max 10 chars	Time when the test sequence was started. The time format is assumed from the balance's time format.
<EndDate>	String	Max 15 chars	Date when the test sequence was finished. The date format is assumed from the balance's date format.
<EndTime>	String	Max 10 chars	Time when the test sequence was finished. The time format is assumed from the balance's time format.
<Attempt>	String	Max 3 chars	Number of times that the test sequence was executed.
<Summary>	String	Max 30 chars	Summary of the test sequence result. The summary text is language dependent.

Comments

- When the history is initialized, it is empty. When the number of entries are requested and no entry exists, the balance response is M58␣L.
- This command is available only in XP and XS balances and is not supported in XA balances.

Common to all methods

- The odd lines always contain the common parameters that are the same for every history entry, no matter which method is requested. The even lines contain the method specific parameters **see** "Method Specific Parameters". The order of the history entries is defined as following: the newest entry is sent first and the oldest as last.

Example

↓	M58	Query of the number of history entries for each method.
↑	M58␣B␣1␣5␣4 M58␣B␣2␣3␣9 M58␣B␣3␣2␣6 M58␣B␣4␣7␣4 M58␣A␣5␣11␣2	There are entries for five methods. These methods are SE1, RPT1, RP1, SE3 and SERVICE. Each entry has its own index (1..5) and the last number in each line displays how many entries there are for the corresponding method.

Method Specific Parameters

The method specific parameters are sent in the even lines after the common parameters. Depending on which method is requested, the response sends the corresponding method specific parameters.

EC Method

Syntax

Command

M58␣1	Query of all history entries with method type EC.

Responses

M58␣B␣<Common Parameters (see 'Common Parameters to all Methods'> M58␣B␣<Index>␣<Method>␣"Temp"␣"Level State"␣"P1"␣"P1Unit"␣"P2"␣"P2Unit"␣"P3"␣"P3Unit"␣"P4"␣"P4Unit"␣"P5"␣"P5Unit" … M58␣B␣<Common Parameters (see 'Common Parameters to all Methods'> M58␣A␣<Index>␣<Method>␣"Temp"␣"Level State"␣"P1"␣"P1Unit"␣"P2"␣"P2Unit"␣"P3"␣"P3Unit"␣"P4"␣"P4Unit"␣"P5"␣"P5Unit"	Current history entries with method type EC.

EC Method Parameters

Name	Type	Values	Meaning
<Index>	String	1 … 120	**See** 'Common to all methods' for description.
<Method>	Integer	1 … 11	Requested method type. **See** 'Common to all methods' for list of of available methods. For a list of available methods, **see** GWP Intro.
<Temp>	String	Max 5 chars	Temperature during the test sequence execution (in °C).
<LevelState>	String		Indicates the level state of the balance during the test. For a list of all available level states, **see** GWP Intro.
<P1>	String	Max 15 chars	Value of the center weight.
<P1Unit>	String	Max 2 chars	Unit of the center weight. For a list of all available units, **see** GWP Intro.
<P2>	String	Max 15 chars	Eccentricity at P2 (left front).
<P2Unit>	String	Max 2 chars	Unit of the eccentricity at P2 (left front). For a list of all available units, **see** GWP Intro.
<P3>	String	Max 15 chars	Eccentricity at P3 (left rear).
<P3Unit>	String	Max 2 chars	Unit of the eccentricity at P3 (left rear). For a list of all available units, **see** GWP Intro.
<P4>	String	Max 15 chars	Eccentricity at P4 (right rear).
<P4Unit>	String	Max 2 chars	Unit of the eccentricity at P4 (right rear). For a list of all available units, **see** GWP Intro.
<P5>	String	Max 15 chars	Eccentricity at P5 (right front).

Name	Type	Values	Meaning
<P5Unit>	String	Max 2 chars	Unit of the eccentricity at P5 (right front). For a list of all available units, **see** GWP Intro.

Example

↓	M58␣1	Query of all entries with the EC method.
↑	M58␣B␣1␣1␣"Eccentricity"␣"2"␣ "27.10.2009"␣"08:00"␣"27.10.2009"␣ "08:04"␣"1"␣"Passed With Warning" M58␣B␣1␣1␣"23.2"␣"Levelled"␣ "200.0002"␣"g"␣"0.0000"␣"0.0000"␣ "g""␣"0.0000"␣"g""g"␣"0.0004"␣"g"␣ M58␣B␣2␣1␣"Eccentricity"␣"2"␣ "26.10.2009"␣"08:00"␣"26.10.2009"␣ "08:01"␣"1"␣"Aborted" M58␣A␣2␣1␣"23.2"␣"Levelled"␣""␣ ""␣""␣""␣""␣""␣""␣""""␣""␣""	There are two history entries for the EC method. Both are from the same test sequence "Eccentricity". On the first time, the method was aborted. However on the second time, the method passed with warning. Because the method was aborted, the entries for the eccentricities are empty.

RP1 Method

Syntax

Command

M58␣2	Query of all history entries with method type RP1.

Responses

M58␣B␣<Common Parameters (see 'Common Parameters to all Methods'> M58␣B␣<Index>␣<Method>␣"Temp"␣"Level State"␣"ActualRepetitions"␣"Repeatability"␣"RepUnit"␣"MeanValue"␣"MeanValueUnit" … M58␣B␣<Common Parameters (see 'Common Parameters to all Methods'> M58␣A␣<Index>␣<Method>␣"Temp"␣"Level State"␣"ActualRepetitions"␣"Repeatability"␣"RepUnit"␣"MeanValue"␣"MeanValueUnit"	Current history entries with method type RP1.

RP1 Method Parameters

Name	Type	Values	Meaning
<Index>	String	1 … 120	**See** 'Common to all methods' for description.
<Method>	Integer	1 … 11	Requested method type. **See** 'Common to all methods' for list of of available methods. For a list of available methods, **see** GWP Intro.
<Temp>	String	Max 5 chars	Temperature during the test sequence execution (in °C).
<LevelState>	String		Indicates the level state of the balance during the test. For a list of all available level states, **see** GWP Intro.
<ActualRepetitions>	String	Max 2 chars	Number of repetitions that have been performed.
<Repeatability>	String	Max 15 chars	Repeatability of the balance.
<RepUnit>	String	Max 2 chars	Unit of the repeatability. For a list of all available units, **see** GWP Intro.
<MeanValue>	String	Max 15 chars	Mean value of the measurements
<MeanValueUnit>	String	Max 2 chars	Unit of the mean value. For a list of all available units, **see** GWP Intro.

Example

↓	M58␣2	Query of all entries with the RP1 method.
↑	M58␣B␣1␣2␣"Rep. Test"␣"2"␣"26.10.2009"␣ "08:00"␣"26.10.2009"␣"08:04"␣"1"␣ "Passed With Warning" M58␣B␣1␣2␣"23.2"␣"Levelled"␣"4"␣ "0.00005"␣"g"␣"100.00020"␣"g" M58␣B␣2␣2␣"Monthly Rep."␣"5"␣ "23.10.2009"␣"06:00"␣"23.10.2009"␣ "06:10"␣"1"␣"Passed" M58␣B␣2␣2␣"23.2"␣"Levelled"␣"8"␣ "0.00004"␣"g"␣"100.00010"␣"g" M58␣B␣3␣2␣"Monthly Rep."␣"5"␣ "23.09.2009"␣"06:00"␣"23.09.2009"␣ "06:01"␣"1"␣"Passed" M58␣A␣3␣2␣"23.8"␣"Levelled"␣"4"␣ "0.00003"␣"g"␣"100.00009"␣"g"	There are three history entries for the RP1 method. Two are from the test sequence "Monthly Rep." and the third from "Rep. Test".

RPT1 Method

Syntax

Command

M58␣3	Query of all history entries with method type RPT1.

Responses

M58␣B␣<Common Parameters (see 'Common Parameters to all Methods'> M58␣B␣<Index>␣<Method>␣"Temp"␣"Level State"␣"ActualRepetitions"␣"Repeatability"␣"RepUnit"␣"MeanValue"␣"MeanValueUnit" … M58␣B␣<Common Parameters (see 'Common Parameters to all Methods'> M58␣A␣<Index>␣<Method>␣"Temp"␣"Level State"␣"ActualRepetitions"␣"Repeatability"␣"RepUnit"␣"MeanValue"␣"MeanValueUnit"	Current history entries with method type RPT1.

RPT1 Method Parameters

Name	Type	Values	Meaning
<Index>	String	1 … 120	**See** 'Common to all methods' for description.
<Method>	Integer	1 … 11	Requested method type. **See** 'Common to all methods' for list of of available methods. For a list of available methods, **see** GWP Intro.
<Temp>	String	Max 5 chars	Temperature during the test sequence execution (in °C).
<LevelState>	String		Indicates the level state of the balance during the test. For a list of all available level states, **see** GWP Intro.
<ActualRepetitions>	String	Max 2 chars	Number of repetitions that have been performed.
<Repeatability>	String	Max 15 chars	Actual repeatability of the balance.
<RepUnit>	String	Max 2 chars	Unit of the repeatability. For a list of all available units, **see** GWP Intro.
<MeanValue>	String	Max 15 chars	Mean value of the measurements
<MeanValueUnit>	String	Max 2 chars	Unit of the mean value. For a list of all available units, **see** GWP Intro.

Example

↓	M58␣3	Query of all entries with the RPT1 method.
↑	M58␣B␣1␣3␣"RPT1Test"␣"2"␣"26.10.2009"␣"08:00"␣"26.10.2009"␣"08:04"␣"1"␣"Passed With Warning" M58␣B␣1␣3␣"23.2"␣"Levelled"␣"4"␣"0.00003"␣"g"␣"50.00060"␣"g" M58␣B␣2␣3␣"Rep. with Tare"␣"5"␣"23.10.2009"␣"06:00"␣"23.10.2009"␣"06:10"␣"1"␣"Passed" M58␣A␣2␣3␣"23.8"␣"Levelled"␣"8"␣"0.00002"␣"g"␣"50.00040"␣"g"	There are two entries from different test sequences called "RPT1Test" and "Rep. with Tare".

SE1 Method

Syntax

Command

M58␣5	Query of all history entries with method type SE1.

Responses

M58␣B␣<Common Parameters (see 'Common Parameters to all Methods'> M58␣B␣<Index>␣<Method>␣"Temp"␣"Actual Weight"␣"Unit" … M58␣B␣<Common Parameters (see 'Common Parameters to all Methods'> M58␣A␣<Index>␣<Method>␣"Temp"␣"Actual Weight"␣"Unit"	Current history entries with method type SE1.

SE1 Method Parameters

Name	Type	Values	Meaning
<Index>	String	1 … 120	**See** 'Common to all methods' for description.
<Method>	Integer	1 … 11	Requested method type. **See** 'Common to all methods' for list of of available methods. For a list of available methods, **see** GWP Intro.
<Temp>	String	Max 5 chars	Temperature during the test sequence execution (in °C).
<LevelState>	String		Indicates the level state of the balance during the test. For a list of all available level states, **see** GWP Intro.
<ActualWeight>	String	Max 15 chars	Actual weight that was measured.
<Unit>	String	Max 2 chars	Unit of the actual weight. For a list of all available units, **see** GWP Intro.

Example

↓	M58␣5	Query of all entries with the SE1 method.
↑	M58␣B␣1␣5␣"Sensitivity"␣"2"␣"26.10.2009"␣"08:11"␣"26.10.2009"␣"08:12"␣"2"␣"Passed" M58␣B␣1␣5␣"23.2"␣"Levelled"␣"20.0001"␣"g" M58␣B␣2␣5␣"Sensitivity"␣"2"␣"26.10.2009"␣"08:00"␣"26.10.2009"␣"08:10"␣"1"␣"Failed" M58␣A␣2␣5␣"23.2"␣"Levelled"␣"20.00012"␣"g"	There are two entries from the test sequence called "Sensitivity". On the first time, the method failed. However, on the second time, it passed.

SE2 Method

Syntax

Command

M58␣6	Query of all history entries with method type SE2.

Responses

M58␣B␣<Common Parameters (see 'Common Parameters to all Methods'> M58␣B␣<Index>␣<Method>␣"Temp"␣"Level State"␣"ActualWeight1"␣"Weight1Unit"␣"ActualWeight2"␣"Weight2Unit" … M58␣B␣<Common Parameters (see 'Common Parameters to all Methods'> M58␣A␣<Index>␣<Method>␣"Temp"␣"Level State"␣"ActualWeight1"␣"Weight1Unit"␣"ActualWeight2"␣"Weight2Unit"	Current history entries with method type SE2.

SE2 Method Parameters

Name	Type	Values	Meaning
<Index>	String	1 … 120	**See** 'Common to all methods' for description.
<Method>	Integer	1 … 11	Requested method type. **See** 'Common to all methods' for list of of available methods. For a list of available methods, **see** GWP Intro.
<Temp>	String	Max 5 chars	Temperature during the test sequence execution (in °C).
<LevelState>	String		Indicates the level state of the balance during the test. For a list of all available level states, **see** GWP Intro.
<ActualWeight1>	String	Max 15 chars	Actual weight of the first test weight that was measured.
<Weight1Unit>	String	Max 2 chars	Unit of the first weight. For a list of all available units, **see** GWP Intro.
<ActualWeight2>	String	Max 15 chars	Actual weight of the second test weight that was measured.
<Weight2Unit>	String	Max 2 chars	Unit of the second weight. For a list of all available units, **see** GWP Intro.

Example

↓	M58␣6	Query of all entries with the SE2 method.
↑	M58␣B␣1␣6␣"SE2 Test"␣"2"␣"27.10.2009"␣"08:00"␣"27.10.2009"␣"08:05"␣"1"␣"Passed" M58␣B␣1␣6␣"23.2"␣"Levelled"␣"20.0001"␣"g"␣"99.9999"␣"g" M58␣A␣2␣6␣"SE2 Test"␣"2"␣"26.10.2009"␣"08:00"␣"23.10.2009"␣"08:10"␣"1"␣"Passed with Warning"	There are two entries from the test sequence called "SE2 Test".

SET1 Method

Syntax

Command

M58␣8	Query of all history entries with method type SET1.

Responses

M58␣B␣<Common Parameters (see 'Common Parameters to all Methods'> M58␣B␣<Index>␣<Method>␣"Temp"␣"Level State"␣"TareWeight"␣"TareUnit"␣"ActualWeight"␣"WeightUnit" … M58␣B␣<Common Parameters (see 'Common Parameters to all Methods'> M58␣A␣<Index>␣<Method>␣"Temp"␣"Level State"␣"TareWeight"␣"TareUnit"␣"ActualWeight"␣"WeightUnit"	Current history entries with method type SET1.

SET1 Method Parameters

Name	Type	Values	Meaning
<Index>	String	1 … 120	**See** 'Common to all methods' for description.
<Method>	Integer	1 … 11	Requested method type. **See** 'Common to all methods' for list of of available methods. For a list of available methods, **see** GWP Intro.
<Temp>	String	Max 5 chars	Temperature during the test sequence execution (in °C).
<LevelState>	String		Indicates the level state of the balance during the test. For a list of all available level states, **see** GWP Intro.
<TareWeight>	String	Max 15 chars	Value of the tare weight.
<TareUnit>	String	Max 2 chars	Unit of the tare weight. For a list of all available units, **see** GWP Intro.
<ActualWeight>	String	Max 15 chars	Actual weight of the test weight.
<WeightUnit>	String	Max 2 chars	Unit of the test weight. For a list of all available units, **see** GWP Intro.

Example

↓	M58␣8	Query of all entries with the SET1 method.
↑	M58␣B␣1␣8␣"Sensitivity + Tare"␣"11"␣"30.10.2009"␣"08:00"␣"30.10.2009"␣"08:02"␣"2"␣"Passed" M58␣B␣1␣8␣"23.2"␣"Levelled"␣"200.0001"␣"g"␣"19.9998"␣"g" M58␣B␣2␣8␣"Sensitivity + Tare"␣"11"␣"29.10.2009"␣"08:00"␣"29.10.2009"␣"08:01"␣"1"␣"Aborted" M58␣A␣2␣8␣"23.2"␣"Levelled"␣""␣""␣""␣""	The method was aborted the first time, so the weight values are undefined. However, it was successfully executed a day later.

SET2 Method

Syntax

Command

M58␣9	Query of all history entries with method type SET2.

Responses

M58␣B␣<Common Parameters (see 'Common Parameters to all Methods'> M58␣B␣<Index>␣<Method>␣"Temp"␣"Level State"␣"TareWeight"␣"TareUnit"␣"ActualWeight1"␣"Weight1Unit"␣"ActualWeight2"␣"Weight2Unit" … M58␣B␣<Common Parameters (see 'Common Parameters to all Methods'> M58␣A␣<Index>␣<Method>␣"Temp"␣"Level State"␣"TareWeight"␣"TareUnit"␣"ActualWeight1"␣"Weight1Unit"␣"ActualWeight2"␣"Weight2Unit"	Current history entries with method type SET2.

SET2 Method Parameters

Name	Type	Values	Meaning
<Index>	String	1 … 120	**See** 'Common to all methods' for description.
<Method>	Integer	1 … 11	Requested method type. **See** 'Common to all methods' for list of of available methods. For a list of available methods, **see** GWP Intro.
<Temp>	String	Max 5 chars	Temperature during the test sequence execution (in °C).
<LevelState>	String		Indicates the level state of the balance during the test. For a list of all available level states, **see** GWP Intro.
<TareWeight>	String	Max 15 chars	Value of the tare weight.
<TareUnit>	String	Max 2 chars	Unit of the tare weight. For a list of all available units, **see** GWP Intro.
<ActualWeight1>	String	Max 15 chars	Actual weight of the first test weight.
<Weight1Unit>	String	Max 2 chars	Unit of the first test weight. For a list of all available units, **see** GWP Intro.
<ActualWeight2>	String	Max 15 chars	Actual weight of the second test weight.
<Weight2Unit>	String	Max 2 chars	Unit of the second test weight. For a list of all available units, **see** GWP Intro.

Example

↓	M58␣9	Query of all entries with the SET2 method.
↑	M58␣B␣1␣9␣"Sensitivity + Tare"␣ "11"␣"30.10.2009"␣"08:00"␣ "30.10.2009"␣"08:03"␣"2"␣"Passed" M58␣B␣1␣9␣"23.2"␣"Levelled"␣ "200.0001"␣"g"␣"19.9998"␣"g"␣ "10.0000"␣"g" M58␣B␣2␣9␣"Sensitivity + Tare"␣ "11"␣"29.10.2009"␣"08:00"␣ "29.10.2009"␣"08:01"␣"1"␣"Aborted" M58␣A␣2␣9␣"23.2"␣"Levelled"␣""␣""␣ ""␣""␣""␣""	The method was aborted the first time, so the weight values are undefined. However, it was successfully executed a day later.

SERVICE Method

Syntax

Command

M58␣11	Query of all history entries with method type SERVICE.

Responses

M58␣B␣<Common Parameters (see 'Common Parameters to all Methods'> … M58␣A␣<Common Parameters (see 'Common Parameters to all Methods'>	Current history entries with method type SERVICE. Please note that the SERVICE method has no method specific parameters.

Example

↓	M58␣11	Query of all entries with the SERVICE method.
↑	M58␣B␣1␣11␣"Service"␣"2"␣"15.10.2009"␣"15:00"␣"15.10.2009"␣"15:05"␣"1"␣"Passed" M58␣B␣2␣11␣"Service"␣"2"␣"08.10.2009"␣"15:00"␣"08.10.2009"␣"15:15"␣"1"␣"Passed" M58␣A␣3␣11␣"Service"␣"2"␣"01.10.2009"␣"15:00"␣"01.10.2009"␣"15:01"␣"1"␣"Aborted"	The SERVICE method was executed three times. The first time it was aborted, but in the following two weeks it was executed correctly.

M64 – Query GWP Test Sequence Version

Description

Use M64 to read the GWP Test Sequence Version.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
			✓		✓	✓	✓

Syntax

Commands

M64	Query of the version of all test sequences.
M64␣TestsequenceID	Query for a version of a specific test sequence.

Responses

M64␣B␣<TestsequenceID>␣<VersionNo> M64␣B␣… M64␣A␣<TestsequenceID>␣<VersionNo>	Current version of all test sequences.
M64␣I	Command understood but currently not executable.
M64␣L	Command understood but not executable (incorrect parameter).

Parameters

Name	Type	Values	Meaning
<TestsequenceID>	Integer	1 … 12	Test Sequence ID
<VersionNo>	Integer		Test sequence version

Comments

- When a test sequence has not yet been modified, the version will be 0.
- This command is available only in XP and XS balances and is not supported in XA balances.

Examples

↓	M64	Query of all test sequence versions.
↑	M64␣B␣1␣5 M64␣B␣2␣3 M64␣B␣3␣7 M64␣B␣4␣3 M64␣B␣5␣0 M64␣B␣6␣0 M64␣B␣7␣0 M64␣B␣8␣0 M64␣B␣9␣0 M64␣B␣10␣0 M64␣B␣11␣0 M64␣A␣12␣0	The version number of all test sequences are shown.

↓	M64␣1	Query of the version number of one test sequence.
↑	M64␣A␣1␣5	The system is warming up and one task is waiting to be executed after the warm up.

M66 – Query/Set Certified Test Weight Settings

Description

Use M66 command to read and write the certified test weight settings. It is used primarily for the Matrix-Code of the weight certificate of METTLER TOLEDO. It allows directly import the settings of a certified weight from the certificate into the weigh module and thus eliminates any typing errors.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
			✓		✓	✓	✓

Syntax

Commands

M66	Query of the data from one weight only.
M66␣"WeightID"␣"WeightClass"␣"Weight Certificate"␣"ActualWeight"␣"Unit"␣ <NextCalDay>␣<NextCalMonth>␣ <NextCalYear>	Write data of one weight only.

Responses

M66␣A␣"WeightID"␣"WeightClass"␣ "WeightCertificate"␣"ActualWeight"␣ "Unit"␣<NextCalDay>␣<NextCalMonth>␣ <NextCalYear>	Current data from one weight only.
M66␣A	Command understood and executed successfully.
M66␣I	Command understood but currently not executable.
M66␣L	Command understood but not executable (incorrect parameter).

Parameters

Name	Type	Values	Meaning
<WeightID>	String	Max 20 chars	ID of the test weight
<WeightClass>	String	Max 20 chars	Class of the test weight
<WeightCertificate>	String	Max 20 chars	Certificate of test weight
<ActualWeight>	String	Max 10 chars	Actual weight of the test weight
<Unit>	String	Max 2 chars	Unit of the actual weight
<NextCalDay>	Integer	1 … 31	Day of the next calibration date, e.g. 05 (Format: dd)
<NextCalMonth>	String	1 … 12	Month of the next calibration date, e.g. 11 (Format: mm)
<NextCalYear>	Integer	2000 … 2099	Year of the next calibration date, e.g. 2009 (Format: yyyy)

Comments

- Query of whole list of entries is not possible. Use M47 (page 138) and M48 (page 140) to get information about all specific tests.
- The initial values are set by the software on the weigh module, balance.
- Examples for Weight classes: E1, E2, F1, F2, M1, M2, M3, ASTM1, ASTM2, ASTM3, ASTM4, ASTM5, ASTM6, ASTM7
- Please note that this command has a product specific implementation.

- This command is available only in XP and XS balances and is not supported in XA balances.

Examples

↓	M66	
↑	M66␣A␣"A-0926748"␣"E1"␣"MT-089987"␣"99.99807"␣"g"␣21␣07␣210	The query was uniquely defined for the balance, the balance responds with the inquired data.

↓	M66	
↑	M66␣I	The device is not ready to read the test/adj. weight settings. (e.g. there are more than one Test / Adj. Weight available, therefore the query could not be answered.

↓	M66␣"A-0926748"␣"E1"␣"MT-089987"␣"99.99807"␣"g"␣21␣07␣210	Write data on the balance.
↑	M66␣A	The received data are valid and has been stored on the balance.

↓	M66␣"A-0926748"␣"E1"␣"MT-089987"␣"99.99807"␣"g"␣21␣07␣210	Write data on the balance.
↑	M66␣I	The device is not ready to read the test/adj. weight settings. (e.g. there are more than one Test / Adj. Weight available, therefore the query could not be answered. **See** product specific implementation).

M67 – Query/Set Timeout

Description

Command M67 provides the possibility to configure the timeout used in commands like "S", "Z" etc to better meet the actual need.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
	✓	✓		✓			

Syntax

Command

M67	Query the actual timeout.
M67␣<Timeout>	Set the timeout in seconds.

Responses

M67␣A␣<Timeout>	Current timeout in seconds.
M67␣A	Command understood and executed successfully.
M67␣I	Command understood but currently not executable.
M67␣L	Command understood but not executable (incorrect parameter).

Parameter

Name	Type	Values	Meaning
<Timeout>	Integer	0 … 65535	Timeout in seconds

Comments

- This command affects the behavior of the commands S (page 212), Z (page 256), T (page 237) …C1 (page 37)… TST1 (page 245) … as well as the zeroing procedure at module startup.
- To specify the timeout, only integer numbers ranging from 0 to 65535 are allowed, any decimal places would be truncated.
- Choosing a too short timeout may cause other commands to response with "␣I" (e.g. "C3␣I" if the timeout is shorter than the time that is needed to place the internal load). Different commands under different conditions may ask different timeouts; therefore, the actual setting has to be approved under real conditions.
- After a FSET (page 61) command, the timeout will be reset to the factory default.
- METTLER TOLEDO recommends a minimal timeout of 40 seconds (factory default setting).

Example

↓	M67␣60	Set the timeout to 60 seconds
↑	M67␣A	Command understood and executed successfully. The timeout is now 60 seconds

M68 – Query/Set Behavior of the Serial Interfaces

Description

This command is used to set the behavior when querying or setting the parameters of the serial interfaces. The behavior can either be configured to store the parameters of the serial interfaces permanently or temporary. If the permanent mode is used the parameters remain in case of a system restart. If the temporary mode is selected the parameters do not remain in case of a system restart. Temporary parameters remain valid until the system is restarted.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
✓							

Syntax

Command

M68	Query the behavior of the serial interface.
M68␣<Mode>	Set the behavior of the serial interface.

Responses

M68␣A␣<Mode>	Current behavior of the serial interface.
M68␣A	Command understood and executed successfully.
M68␣I	Command understood but currently not executable.
M68␣L	Command understood but not executable (incorrect parameter).

Parameter

Name	Type	Values	Meaning
<Mode>	Integer	0	Permanent parameter storage
		1	Temporary parameter storage

Examples

↓	M68	Get current storage mode
↑	M68␣A␣0	The parameters of the serial interfaces are stored permanently

↓	M68␣1	Set storage mode to temporary
↑	M68␣A	The parameters of the serial interfaces are stored temporary

M73 – Query/Set Calibration Key Behavior

Description

This command queries and sets the calibration key setting.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
✓							

Syntax

Commands

M73	Query the calibration key setting.
M73␣Mode␣Weight	Set the calibration key behavior.

Responses

M73␣A␣Mode␣Weight␣"WeightValue␣Unit"	Current calibration key setting.
M73␣A	Command understood and executed successfully.
M73␣I	Command understood but currently not executable.
M73␣L	Command understood but not executable (incorrect parameter).

Parameters

Name	Type	Values	Meaning
<Mode>	Integer	0	Manual (The adjustment can be triggered manually)
		1	Off (The adjustment can not be triggered manually)
<Weight>	Integer	0	Internal weight (factory setting)
		1	External weight
<WeightValue>	String	Max 12 chars	The value of the weight for an external adjustment requested from the user via the display
<Unit>	String	Max 4 chars	The unit corresponds to the factory setting of the unit 1

Comments

- The value is model dependent.
- Setting <Mode> = 1 corresponds to the menu setting "Off" in the "Cal" Key Settings. <Weight> don't work when <Mode> = 1.
- The value of the external weight can be changed in the menu of the balance under "Calibration", **see** Operating Instructions or with M19 (page 115).
- Use C1 (page 37) to start the calibration defined with M73.
- M73 influences the function of the corresponded key which is used to activate calibration.

Examples

↓	M73	Query the calibration key setting
↑	M73␣A␣0␣1␣"100.000␣g"	The calibration key function is set to "Manual" with an "External weight" of 100.000 g

↓	M73␣1␣0	Disable the calibration key
↑	M73␣A	Command understood and executed successfully

M76 – Query/Set User Date Format

Description

This command queries and sets the user date format for display and printing.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
✓							

Syntax

Commands

M76	Query the date format setting.
M76␣Format	Set the date format setting.

Responses

M76␣A␣Format	Current date format setting.
M76␣A	Command understood and executed successfully.
M76␣I	Command understood but currently not executable.
M76␣L	Command understood but not executable (incorrect parameter).

Parameters

Name	Type	Values	Meaning
<Format>	Integer	0	D.MMM YYYY
		1	MMM D YYYY
		2	DD.MM.YYYY
		3	MM/DD/YYYY
		4	YYYY-MM-DD

Examples

↓	M76	Query the date format setting
↑	M76␣A␣0	The date format setting is "D.MMM YYYY"

↓	M76␣1	Set the date format setting as "MMM D YYYY"
↑	M76␣A	Command understood and executed successfully

M77 – Query/Set User Time Format

Description

This command queries and sets the user time format for display and printing.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
✓							

Syntax

Commands

M77	Query the time format setting.
M77␣Format	Set the time format.

Responses

M77␣A␣Format	Current time format setting.
M77␣A	Command understood and executed successfully.
M77␣I	Command understood but currently not executable.
M77␣L	Command understood but not executable (incorrect parameter).

Parameters

Name	Type	Values	Meaning
<Format>	Integer	0	24:MM 24 h format
		1	12:MM 12 h format
		2	24.MM 24 h format
		3	12.MM 12 h format

Examples

↓	M77	Query the time format setting
↑	M77␣A␣0	The time format setting is "24:MM"

↓	M77␣1	Set the time format setting as "12:MM"
↑	M77␣A	Command understood and executed successfully

M79 – Query/Set Balance Startup Mode

Description

This command queries and sets the startup mode from standby.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
✓							

Syntax

Commands

M79	Query the startup mode.
M79␣Mode	Set the startup mode.

Responses

M79␣A␣Mode	Current startup mode.
M79␣A	Command understood and executed successfully.
M79␣I	Command understood but currently not executable.
M79␣L	Command understood but not executable (incorrect parameter).

Parameters

Name	Type	Values	Meaning
<Mode>	Integer	0	Full (display test, SW version etc., initial zero, last active application)
		1	Quick (clear tare and activate last active application)

Comments

- The value is model dependent.
- The Startup behavior is model depend.

Examples

↓	M79	Query the startup mode
↑	M79␣A␣0	Startup mode is "Full"

↓	M79␣1	Set recall function to on
↑	M79␣A	Set the startup mode to "Quick"

M82 – Query/Set Actual Zero/Tare Key Zero Range Setting

Description

This command queries and sets the actual upper zero limit of the combined zero/tare key. Up and including the upper limit, the combined zero/tare key performs a zero. Above the upper limit the zero/tare key performs a tare.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
✓							

Syntax

Commands

M82	Query the upper limit of the zero/tare key zero range.
M82␣Max	Set the upper limit of the zero/tare key zero range.

Responses

M82␣A␣Max	Current upper limit of the zero/tare key zero range.
M82␣A	Command understood and executed successfully.
M82␣I	Command understood but currently not executable.
M82␣L	Command understood but not executable (incorrect parameter).

Parameter

Name	Type	Values	Meaning
<Max>	Float		Upper limit in the definition unit

Comment

- The zero boolean relatively to the effective switching on zero point defined.

Examples

↓	M82	Query the upper limit of the zero/tare key zero range
↑	M82␣A␣1000.00	The upper limit of the zero/tare key zero range is 1000 times the definition unit

↓	M82␣100	Set upper limit of the zero/tare key zero range to 100 times the definition unit
↑	M82␣A	Command understood and executed successfully

M87 – Query/Set Send Mode for Logical Channels

Description

This command queries and sets the send mode of logical channels.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
✓							

Syntax

Commands

M87	Query the send modes of all logical channels.
M87␣No	Query of the specific logical channel.
M87␣No␣LogicalDevice␣Mode	Set the send mode of specific logical channel.

Responses

M87␣B␣No␣LogicalDevice␣Mode … M87␣A␣No␣LogicalDevice␣Mode	Current send mode of the first logical channel. Current send mode of the last logical channel.
M87␣A␣No␣LogicalDevice␣Mode	Current send mode of the logical channel.
M87␣A	Command understood and executed successfully.
M87␣I	Command understood but currently not executable.
M87␣L	Command understood but not executable (incorrect parameter).

Parameters

Name	Type	Values	Meaning
<No>	Integer	0	RS interface 1 (model dependent)
		1	RS interface 2 (model dependent)
		2	USB device (model dependent)
<LogicalDevice>	Integer	0	Host (model dependent)
		1	Printer 24 (model dependent)
		2	Secondary display (model dependent)
		3	PC-Direct (model dependent)
<Mode>	Integer	0	Send off
		1	Send stable weigh value S (page 212) / Print stable weight value
		2	Send continuous SIR (page 216)
		3	Send and repeat SR (page 228) / Print auto
		4	Send immediate SI (page 215) / Print all

Comments

- The value is model dependent.
- The Mode of the printer and PC-Direct is limited to "Print stable weight value", "Print auto" and "Print all".
- The LogicalDevice of the USB device is fixed to "Host".
- The Mode of the secondary display is fixed to "Send off".

Examples

↓	M87	Query the send modes of all logical channels
↑	M87␣B␣0␣1␣1	Serial interface "RS interface 1" is set to "Printer 24" with the mode set to "Print stable weight value"

↑	M87␣B␣1␣2␣0	Serial interface "RS interface 2" is set to "Secondary display" with the mode set to "Send off"
↑	M87␣A␣2␣0␣3	Serial interface "USB device" is set to "Host" with the mode set to "Send and repeat"

↓	M87␣1	Query the logical channel and mode of the serial interface "RS interface 2"
↑	M87␣A␣1␣2␣0	Serial interface "RS interface 2" is set to "Secondary display" with the mode set to "Send off"

↓	M87␣1␣1␣4	Set serial interface "RS interface 2" to printer with the mode "Print all"
↑	M87␣A	Command understood and executed successfully

M89 – Query/Set Interface Command Set

Description

This command queries and sets the interface command set.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
✓							

Syntax

Commands

M89	Query the command set of all available interfaces.
M89␣No	Query specific interface command set.
M89␣No␣CmdSet	Set the specific command set of interface.

Responses

M89␣B␣No␣CmdSet ... M89␣A␣No␣CmdSet	Current command set of the first available interface. Current command set of the last available interface.
M89␣A␣No␣CmdSet	Command set of specific interface.
M89␣A	Command understood and executed successfully.
M89␣I	Command understood but currently not executable.
M89␣L	Command understood but not executable (incorrect parameter).

Parameters

Name	Type	Values	Meaning
<No>	Integer	0	RS interface 1
		1	RS interface 2 (model dependent)
		2	USB device (model dependent)
<CmdSet>	Integer	0	MT-SICS
		1	MT-PM
		2	Sartorius

Comment

- The value is model dependent.

Examples

↓	M89	Query the command set of all available interfaces
↑	M89␣B␣0␣0	The RS interface 1 uses the MT-SICS command set
↑	M89␣A␣2␣1	The USB interface use the MT-PM command set. The balance does not have a RS interface 2

↓	M89␣1␣2	Set the RS interface 2 to use the Sartorius command set
↑	M89␣A	The RS Interface 2 uses the Sartorius command set

M90 – Query/Set Logical Channels

Description

This command queries and sets the connection parameters for logical channels.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
✓							

Syntax

Commands

M90	Query the connection parameters of all available logical channels.
M90␣No	Query settings of a single logical channel.
M90␣No␣LogicalDevice␣Baud␣DataBit␣Parity␣Stopbit␣DataFlow	Set the settings for a specified serial interface with device index.

Responses

M90␣B␣No␣LogicalDevice␣Baud␣DataBit␣Parity␣Stopbit␣DataFlow … M90␣A␣No␣LogicalDevice␣Baud␣DataBit␣Parity␣Stopbit␣DataFlow	Current connection parameters of the first available logical channel. Current connection parameters of the last available logical channel.
M90␣A␣No␣LogicalDevice␣Baud␣DataBit␣Parity␣Stopbit␣DataFlow	Current connections parameters of a single available logical channel.
M90␣A	Command understood and executed successfully.
M90␣I	Command understood but currently not executable.
M90␣L	Command understood but not executable (incorrect parameter).

Parameters

Name	Type	Values	Meaning
<No>	Integer	0	RS interface 1
		1	RS interface 2
<LogicalDevice>	Integer	0	Host
		1	Printer 24
		2	Secondary display
		3	PC-Direct
<Baud>	Integer	0	150 baud
		1	300 baud
		2	600 baud
		3	1200 baud
		4	2400 baud
		5	4800 baud
		6	9600 baud
		7	19200 baud
		8	38400 baud
		9	57600 baud
		10	115200 baud
<DataBit>	Integer	0	7 data bits
		1	8 data bits

Name	Type	Values	Meaning
<Parity>	Integer	0	No parity
		1	Even parity
		2	Odd parity
		3	Mark
		4	Space
<Stopbit>	Integer	0	1 stop bit
		1	2 stop bits
<DataFlow>	Integer	0	No data flow control
		1	Software (Xon / Xoff)
		2	Hardware (RTS / CTS)

Examples

↓	M90	Query the connection parameters of all available logical channels
↑	M90␣B␣0␣0␣6␣1␣0␣0␣1	RS Interface 1; Host: 9600 bd, 8 bits, no parity, 1 stop bits, software handshake
↑	M90␣B␣0␣1␣4␣0␣1␣1␣1	RS Interface 1; Printer 24: 2400 bd, 7 bit, even parity, 2 stop bits, software handshake
↑	M90␣B␣0␣2␣6␣1␣0␣0␣1	RS Interface 1; 2nd display: 9600 bd, 8 bits, no parity, 1 stop bits, software handshake
↑	M90␣B␣0␣3␣1␣1␣0␣0␣0	RS Interface 1; PC-Direct: 300 bd, 8 bits, no parity, 1 stop bits, no handshake
↑	M90␣B␣1␣0␣4␣0␣1␣1␣1	RS Interface 2; Host: 2400 bd, 7 bit, even parity, 2 stop bits, software handshake
↑	M90␣B␣1␣1␣6␣1␣0␣0␣1	RS Interface 2; Printer 24: 9600 bd, 8 bits, no parity, 1 stop bits, software handshake
↑	M90␣B␣1␣2␣6␣1␣0␣0␣1	RS Interface 2; 2nd display: 9600 bd, 8 bits, no parity, 1 stop bits, software handshake
↑	M90␣A␣1␣3␣4␣0␣1␣1␣1	RS Interface 2; PC-Direct: 2400 bd, 7 bit, even parity, 2 stop bits, software handshake

↓	M90␣0␣1␣3␣1␣0␣0␣1	Set the printer channel on RS interface 1 to 1200 baud, 8 data bits, No parity, 1 stop bit, Software (Xon / Xoff)
↑	M90␣A	Printer channel on RS interface 1 is set to 1200 bd, 8 bits, no parity, 1 stop bit, software handshake

M91 – Query/Set End of Line Settings for Logical Channels

Description

This command queries and sets end of line settings of logical channels.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
✓							

Syntax

Commands

M91	Query the end of line settings of all logical channels.
M91␣No	Query of the specific logical channels.
M91␣No␣LogicalDevice␣EOL	Set the settings for a specified serial interface with given device index.

Responses

M91␣B␣No␣LogicalDevice␣EOL … M91␣A␣No␣LogicalDevice␣EOL	Current the end of line setting of the first logical channel. Current the end of line setting of the last logical channel.
M91␣A␣No␣LogicalDevice␣EOL	Current the end of line setting of the specific logical channel.
M91␣A	Command understood and executed successfully.
M91␣I	Command understood but currently not executable.
M91␣L	Command understood but not executable (incorrect parameter).

Parameters

Name	Type	Values	Meaning
<No>	Integer	0	RS interface 1
		1	RS interface 2
		2	USB device
<LogicalDevice>	Integer	0	Host
		1	Printer 24
		2	Secondary display
		3	PC-Direct
<EOL>	Integer	0	<CR LF> carriage return, line feed
		1	<CR> carriage return
		2	<LF> line feed
		3	<TAB> tabulator

Comment

- All parameter settings are dependent on model.

Examples

↓	M91	Query the end of line settings of all logical channels
↑	M91␣B␣0␣0␣0	RS Interface 1; Host: <CR LF>
↑	M91␣B␣0␣1␣0	RS Interface 1; Printer 24: <CR LF>
↑	M91␣B␣0␣2␣0	RS Interface 1; 2nd display: <CR LF>
↑	M91␣B␣0␣3␣0	RS Interface 1; PC-Direct: <CR LF>

↑	M91␣B␣1␣0␣0	RS Interface 2; Host: <CR LF>
↑	M91␣B␣1␣1␣0	RS Interface 2; Printer 24: <CR LF>
↑	M91␣B␣1␣2␣0	RS Interface 2; 2nd display: <CR LF>
↑	M91␣B␣1␣3␣0	RS Interface 2; PC-Direct: <CR LF>
↑	M91␣B␣2␣0␣0	USB device; Host: <CR LF>
↑	M91␣B␣2␣1␣0	USB device; Printer 24: <CR LF>
↑	M91␣B␣2␣2␣0	USB device; 2nd display: <CR LF>
↑	M91␣A␣2␣3␣0	USB device; PC-Direct: <CR LF>

↓	M91␣1	Query the end of line settings of all specific logical channels
↑	M91␣B␣1␣0␣0	RS Interface 2; Host: <CR LF>
↑	M91␣B␣1␣1␣0	RS Interface 2; Printer 24: <CR LF>
↑	M91␣B␣1␣2␣0	RS Interface 2; 2nd display: <CR LF>
↑	M91␣A␣1␣3␣0	RS Interface 2; PC-Direct: <CR LF>

↓	M91␣0␣1␣0	Set the printer channel on RS interface 1 to <CR LF>
↑	M91␣A	Printer channel on RS interface 1 is set to <CR LF>

M92 – Query/Set Character Encodings for Logical Channels

Description

This command queries and sets the character encodings of logical channels.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
✓							

Syntax

Commands

M92	Query the character encodings of all logical channels.
M92␣No␣LogicalDevice␣Encoding	Set the settings of a specified serial interface with given device index.

Responses

M92␣B␣No␣LogicalDevice␣Encoding … M92␣A␣No␣LogicalDevice␣Encoding	Current the character encoding of the first logical channel. Current the character encoding of the last logical channel.
M92␣A	Command understood and executed successfully.
M92␣I	Command understood but currently not executable.
M92␣L	Command understood but not executable (incorrect parameter).

Parameters

Name	Type	Values	Meaning
<No>	Integer	0	RS interface 1
		1	RS interface 2
		2	USB device
<LogicalDevice>	Integer	0	Host
		1	Printer 24
		2	Secondary display
		3	PC-Direct
<Encoding>	Integer	0	IBM/DOS (Code page 437 + MT specific special characters)
		1	ANSI/WIN (Windows-1252 + MT specific special characters)
		2	UTF-8

Comments

- All parameter settings are dependent on model.
- It is possible that a device with more then one physical serial interface supports several logical devices of the same type at the same time. The encoding of those logical devices might be different.
  Example: RS interface1 and RS interface2 are both connected to a host. The encoding of the host on RS interface1 is set to IBM/DOS and the encoding of the host on RS interface2 is set to ANSI/WIN.

Examples

↓	M92	Query the character encodings of all logical channels
↑	M92␣B␣0␣0␣0	RS Interface 1; Host: IBM/DOS
↑	M92␣B␣0␣1␣0	RS Interface 1; Printer 24: IBM/DOS

↑	M92␣B␣0␣2␣0	RS Interface 1; 2nd display: IBM/DOS
↑	M92␣B␣0␣3␣0	RS Interface 1; PC-Direct: IBM/DOS
↑	M92␣B␣1␣0␣0	RS Interface 2; Host: IBM/DOS
↑	M92␣B␣1␣1␣0	Printer 24: IBM/DOS
↑	M92␣B␣1␣2␣0	2nd display: IBM/DOS
↑	M92␣A␣1␣3␣0	PC-Direct: IBM/DOS
↑	M92␣B␣2␣0␣0	USB device; Host: IBM/DOS
↑	M92␣B␣2␣1␣0	USB device; Printer 24: IBM/DOS
↑	M92␣B␣2␣2␣0	USB device; 2nd display: IBM/DOS
↑	M92␣A␣2␣3␣0	USB device; PC-Direct: IBM/DOS

↓	M92␣0␣1␣1	Set the printer channel on RS interface 1 to ANSI/WIN
↑	M92␣A	Printer channel on RS interface 1 is set to ANSI/WIN

MOD – Query/Set Various User Modes

Description

The MOD command can be used to activate a higher display resolution. The additionally displayed digit(s) or display increment is referred to as an auxiliary digit step. All specifications regarding weighing performance still relate to the nominal readability stated in the specifications.

The auxiliary digit step is a 'tendency display' that provides additional information which is especially valuable when dispensing small quantities. A maximum of 2 additional digits can be displayed.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
	✓*						

* Only available on request by your METTLER TOLEDO representative (only for specific weigh modules)

Syntax

Commands

MOD	Query the user modes.
MOD␣<Mode>	Set user mode by mode.
MOD␣<Mode>␣<Increment>␣<Unit>	Set user mode by increment.

Responses

MOD␣A␣<Mode>	Get the current user mode.
MOD␣A␣<Mode>␣<Increment>␣<Unit>	Get the current user mode with increments.
MOD␣A	Command understood and executed successfully.
MOD␣I	Command understood but currently not executable.
MOD␣L	Command understood but not executable (incorrect parameter).

Parameters

Name	Type	Values	Meaning
<Mode>	Boolean	0: Switch off all user modes	Switch user mode
		1: Increased display resolution	
<Increment>	Float	x2,x5,x10 form standard resolution	Define higher display resolution
<Unit>	String	Selectable units	Unit from the <Increment>

Comments

- The MOD command is only available on request by your METTLER TOLEDO contact person.
- Mode 1 affects all S commands: S (page 212), SI (page 215), SIR (page 216)… However, the syntax response of the S command remains unchanged: "S␣S␣<Weight>␣<Unit>". In addition: The rounding can be affected as follows: In control mode, 100.4 g can be displayed as 100.38 g.
- Activation of the increased display resolution has no effect on the stability criteria set under USTB (page 251). Note: The auxiliary digit step can be unstable (e.g. due to environmental effects) although the stability criterion (according to USTB (page 251)) is fulfilled.
- When taring and zeroing, although the auxiliary digit step is set to zero when the T (page 237) or Z (page 256) command is transmitted, depending on environmental conditions the additional decimal place may soon be different from zero.

Examples

↓	MOD	Query the current user mode
↑	MOD␣A␣0	The user mode is off

↓	MOD␣1	Set the user mode to Mode 1: "increased display resolution"
↑	MOD␣A	User mode is set to the desired value
↓	MOD	Query the current user mode
↑	MOD␣A␣1	The user mode is set to Mode 1: "increased display resolution"

↓	MOD␣1␣0.0001␣g	Set the user mode to Mode 1 by define increments
↑	MOD␣A	User mode is set to the desired value

↓	MOD	Query the current user mode
↑	MOD␣1␣0.0001␣g	The user mode is set to Mode 1 and shows defined increments

MONH – Query/Set Monitor on Interface

Description

The MONH command sent all telegrams (requests and responses) from the selected interface are sent in parallel to the interface from which the command is executed.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
	✓						

Syntax

Commands

MONH	Query the current monitor on interface setting.
MONH␣<OnOff>␣<Interface>	Set monitor on interface.
MONH␣<0	Set monitor interface off.

Responses

MONH␣A␣<OnOff>␣<Interface>	Get the current monitor on interface setting.
MONH␣A␣0	Monitor is "off".
MONH␣A	Command understood and executed successfully.
MONH␣I	Command understood but currently not executable.
MONH␣L	Command understood but not executable (incorrect parameter).

Parameters

Name	Type	Values	Meaning
<OnOff>	Boolean	On = 1	Set Monitor on Interface "On" or "Off"
		Off = 0	
<Interface>	Integer	0 … n	Interface number

Comments

- The monitored interface can be faster than the current one. In this case some telegrams might be discarded.
- SIR (page 216) or other repetitive commands are not locked and can lead to nonsense. MONH is locked against an SIR (page 216) on the monitoring interface, not on the monitored.
- On some systems the Baud rate of the monitoring interface is set to the same Baud rate as the monitored interface.
- The command @ (page 18) does not stop the MONH.

Examples

↓	MONH	Query the current monitor on interface setting
↑	MONH␣A␣0	The monitor on interface is "off"

↓	MONH	Query the current monitor on interface setting
↑	MONH␣A␣1␣0	The monitor on interface 0 is "on"

↓	MONH␣1␣1	Set the monitor on interface 1 to "on" (set from interface 1)
↑	MONH␣L	Not possible! This makes no sense!
↓	MONH␣1␣1	Set the monitor on interface 1 to "on" (set from interface 0)
↑	MONH␣A	The monitor on interface 1 is "on"

NID – Query/Set Module Address (Node ID for Network Protocols)

Description

This command is only available if an interface for addressed mode (e.g. RS422) is present.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
	✓						

Syntax

Commands

NID	Query the weigh module address.
NID␣<Address>	Set the weigh module address.

Responses

NID␣A␣<Address>	Current weigh module address.
NID␣A	Command understood and executed successfully.
NID␣L	Command understood but not executable (incorrect parameter).

Parameters

Name	Type	Values	Meaning
<Address>	Integer	1 … 31 (decimal)	Address (Node ID)

Comments

- In the addressed communication protocol, **see** PROT (page 206), the address (1 .. 31) is represented by a one-byte ASCII coded character starting at "1" (31 hex). The highest address (31) thus corresponds to 4F hex (ASCII character "O"). All commands must be sent to the module with preceding address byte. Consequently, the first byte of all responses is also the address:

dec.	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
hex.	30	31	32	33	34	35	36	37	38	39	3A	3B	3C	3D	3E	3F
ASCII	0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?

dec.	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
hex.	40	41	42	43	44	45	46	47	48	49	4A	4B	4C	4D	4E	4F
ASCII	@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O

- All commands sent to the module must have a leading address byte. Because of this, the first byte of all responses is also the address.
- The address 0 (30 hex) is a broadcast. All modules on the network will reply.

Examples

↓	NID	Query the current weigh module address
↑	NID␣A␣15	The address (Node ID) is 15 decimal = "?" ASCII

↓	NID␣12	Set the Node ID: 12 decimal = "<" ASCII to the weigh module
↑	NID␣A	Address (Node ID) set as desired

Also see:

- PROT – Query/Set Protocol Mode (Single or Addressed) (page 206)

P100 – Printer Interface: Send Text

Description

You can use P100 to send text to the printer.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
			✓		✓	✓	✓

Syntax

Command

P100␣"<PrintOutText>"	Send text to the printer.

Responses

P100␣A	Command understood and executed successfully.
P100␣I	Command understood but currently not executable (balance is currently executing another command, e.g. taring).
P100␣L	Command understood but not executable (e.g. printer is not switched on, not configured or not connected).

Parameter

Name	Type	Values	Meaning
<PrintOutText>	String		Print out "text" on the printer (24 characters/line)

Comments

- A sequence of maximum 24 characters is admissible as text.
- The command P100␣"<Text>" has no influence on the function of the printer as a record printer.
- The Printer has to be connected, switched on and configured.

Example

↓	P100␣"Hallo"	Print out "Hallo" on the printer
↑	P100␣A	Print out has been started

P101 – Printer Interface: Send Weight Value

Description

Use `P101` to send a stable weight value to the printer. This corresponds to the command S (page 212).

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
			✓		✓	✓	✓

Syntax

Command

`P101`	Send stable weight value to the printer, corresponds to the command S (page 212).

Responses

`P101␣A`	Command understood and executed successfully.
`P101␣I`	Command understood but currently not executable (balance is currently executing another command, e.g. taring).
`P101␣L`	Command understood but not executable (e.g. printer is not connected).

Comments

- The command `P101` has no influence on the function of the printer as a record printer.
- The draft shield closes with this command, when the "Door function" is set on "Automatic". It opens after sending a stable weight.
- The Printer has to be connected, switched on and configured.

Example

↓	`P101`	Send stable weight value to the printer
↑	`P101␣A`	Print out has been started

P102 – Printer Interface: Send Weight Value Immediately

Description

Use `P102` to send the weight value to the printer immediately. This corresponds to the command SI (page 215).

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
			✓		✓	✓	✓

Syntax

Command

`P102`	Send weight value to the printer immediately, corresponds to the command SI (page 215).

Responses

`P102␣A`	Command understood and executed successfully.
`P102␣I`	Command understood but currently not executable (balance is currently executing another command, e.g. taring).
`P102␣L`	Command understood but not executable (e.g. printer is not connected).

Comments

- The command `P102` has no influence on the function of the printer as a record printer.
- The draft shield does not close with this command.
- The Printer has to be connected, switched on and configured.

Example

↓	`P102`	Send weight value to the printer immediately
↑	`P102␣A`	Print out has been started

P120 – Reset SmartTrac According to Application

Description

Use `P120` to set the SmartTrac back to the according application.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
			✓		✓	✓	✓

Syntax

Command

`P120`	Set the SmartTrac back to the according application.

Responses

`P120␣A`	Command understood and executed successfully.
`P120␣I`	Command understood but currently not executable.
`P120␣L`	Command understood but not executable (e.g. printer is not connected).

Example

↓	`P120`	Set the SmartTrac back to the according application
↑	`P120␣A`	Command understood and executed successfully

P121 – Set DeltaTrac Plus / Minus Indicator

Description

Use P121 to set plus / minus indicator.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
			✓		✓	✓	✓

Syntax

Commands

P121␣<Target>␣<Unit>	Configure DeltaTrac plus / minus indicator with default tolerance value (± 2.5%).
P121␣<Target>␣<Unit>␣<Tol+>␣<Unit>	Configure DeltaTrac plus / minus indicator with same plus / minus tolerance.
P121␣<Target>␣<Unit>␣<Tol+>␣<Unit>␣<Tol->␣<Unit>	Configure DeltaTrac plus / minus indicator.

Responses

P121␣A	Command understood and executed successfully.
P121␣I	Command understood but currently not executable.
P121␣L	Command understood but not executable (e.g. printer is not connected).

Parameters

Name	Type	Values	Meaning
<Target>	Float		Target value
<Unit>	String		Unit, only available units permitted
<Tol+><Tol->	Float		Tolerance value

Comments

- Default value is ± 2.5%.
- Only allowed units are permitted, **see** M21 (page 117).

Examples

↓	P121␣100␣g␣10␣g␣20␣g	Set DeltaTrac to 100 g plus 10 g minus 20 g
↑	P121␣A	Command understood and executed successfully

↓	P121␣10␣kg␣100␣g	Set DeltaTrac to 10 kg plus / minus 100 g
↑	P121␣A	Command understood and executed successfully

↓	P121␣350␣g	Set DeltaTrac to 350 g plus / minus 2.5%
↑	P121␣A	Command understood and executed successfully

P122 – Set Individual Pointers of SmartTrac

Description

Use P122 to set individual pointers of SmartTrac.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
			✓		✓	✓	✓

Syntax

Commands

P122␣<ToleranceMarker>␣<Marker1>	Set single position cursor (minimum two parameters).
P122␣<ToleranceMarker>␣<Marker1>␣…␣<Marker9>	Set single position cursor (maximum nine parameters).

Responses

P122␣A	Command understood and executed successfully.
P122␣I	Command understood but currently not executable.
P122␣L	Command understood but not executable (e.g. printer is not connected).

Parameters

Name	Type	Values	Meaning
<ToleranceMarker>	Integer	0	Without tolerance marks
		1	With T1-tolerance marks (+ -5 minutes)
		2	With T2-tolerance marks (+ -10 min)
		3	With T1 and T2 tolerance marks
		4	With normal marks
		5	With nominal and T1-tolerance marks
		6	With nominal and T2-tolerance marks
		7	With nominal, T1- and T2-tolerance marks
<Marker1>... <Marker9>	Integer	0 … 59	Pointer position (minutes)

Comment

- The minimum of two parameters must be set.

Examples

↓	P122␣0␣0␣15␣30␣45	Set pointer at 0, 15, 30 and 45 minutes (Cross)
↑	P122␣A	Command understood and executed successfully

↓	P122␣4␣30	Set normal marks and pointer at 30 minutes
↑	P122␣A	Command understood and executed successfully

P123 – Set SmartTrac by Segments

Description

Use `P123` to set SmartTrac by segments.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
			✓		✓	✓	✓

Syntax

Commands

`P123␣<ToleranceMarker>␣<Seg1Start>␣<Seg1End>`	Set SmartTrac with one segment.
`P123␣<ToleranceMarker>␣<Seg1Start>␣<Seg1End>␣…␣<Seg4Start>␣<Seg4End>`	Set SmartTrac up to four segments.

Responses

`P123␣A`	Command understood and executed successfully.
`P123␣I`	Command understood but currently not executable.
`P123␣L`	Command understood but not executable (e.g. printer is not connected).

Parameters

Name	Type	Values	Meaning
`<ToleranceMarker>`	Integer	`0`	Without tolerance marks
		`1`	With T1-tolerance marks (+ -5 minutes)
		`2`	With T2-tolerance marks (+ -10 min)
		`3`	With T1 and T2 tolerance marks
		`4`	With normal marks
		`5`	With nominal and T1-tolerance marks
		`6`	With nominal and T2-tolerance marks
		`7`	With nominal, T1- and T2-tolerance marks
`<Seg1Start><Seg1End>…<Seg4Start><Seg4End>`	Integer		Entering and End of Segments up to four segments possible

Comment

- Minimum Tolerance Marker and one segment (start and end) must be set.

Examples

↓	`P123␣0␣5␣10␣15␣20␣30␣40␣45␣50`	Set pointer from 5 to 10, 15 to 20, 30 to 40 and 45 to 50
↑	`P123␣A`	Command understood and executed successfully

↓	`P123␣4␣30␣45`	Set normal marks and pointer from 30 to 45
↑	`P123␣A`	Command understood and executed successfully

P124 – Clear SmartTrac

Description

Use `P124` to clear the SmartTrac.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
			✓		✓	✓	✓

Syntax

Command

`P124`	Clear SmartTrac.

Responses

`P124␣A`	Command understood and executed successfully.
`P124␣I`	Command understood but currently not executable.
`P124␣L`	Command understood but not executable (e.g. printer is not connected).

Example

↓	`P124`	Clear SmartTrac
↑	`P124␣A`	Command understood and executed successfully

PROT – Query/Set Protocol Mode (Single or Addressed)

Description

This command is only available if an interface for addressed mode (e.g. RS422) is present.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
	✓						

Syntax

Command

PROT	Query the protocol mode.
PROT␣<Mode>	Set the protocol mode.

Responses

PROT␣A␣<Mode>	Current protocol mode.
PROT␣A	Command understood and executed successfully.
PROT␣L	Command understood but not executable (incorrect parameter).

Parameters

Name	Type	Values	Meaning
<Mode>	Integer	0: Standard protocol without addressing (terminal mode)	Protocol mode
		1: Addressed protocol, suitable for network applications	
		2: Framed Protocol, see Appendix	

Comments

- The PROT command only changes the protocol of the interface that is suitable for addressed mode communication. Protocol via any other interface, such as RS232, is not affected.
- In the addressed communication protocol, the address (1 ... 31) is represented by a one-byte ASCII coded character starting at "1" (31 hex). The highest address (31) thus corresponds to 4F hex (ASCII character "O"). All commands must be sent to the module with a preceding address byte. Consequently, the first byte of all responses is also the address.
- To avoid bus conflicts, do not use repetitive commands (SIR (page 216), SNR (page 224), SR (page 228)) in addressed mode if more than one weigh module is connected to the network.
- It's better to set the node ID with NID (page 196) before selecting an addressed protocol. Otherwise, the current node ID has to precede the NID (page 196) command if it should be changed.

Example

↓	PROT	Query the current protocol mode
↑	PROT␣A␣0	The protocol mode is 0: Standard protocol

↓	NID␣18	Set module address to 18 (ASCII "B")
↑	NID␣A	Module address set as desired

↓	PROT␣1	Set the protocol mode to 1: Addressed protocol
↑	PROT␣A	Protocol set as desired
↓	BS	Request of stable weight value from the Module with address 18 (ASCII "B")
↑	BS␣S␣␣␣␣100.000␣g	Module with address 18 responds and sends the current value (100.000 g)

Also see:

- NID – Query/Set Module Address (Node ID for Network Protocols) (page 196)

PW – Piece Counting: Query/Set Piece Weight

Description

Use PW to set the reference weight of 1 piece, which you can then use for the piece counting application.

You can also use PW to query the reference weight that you have set using , , or PW.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
			✓		✓	✓	✓

Syntax

Commands

PW	Query of the piece weight for the piece counting application.
PW␣<PieceWeightValue>␣<Unit>	Set the piece weight for the according value. The unit should correspond to the unit actually set under Host unit (page 17).

Responses

PW␣A␣<PieceWeightValue>␣<Unit>	Current piece weight value in unit actually set under Host unit (page 17).
PW␣A	Command understood and executed successfully.
PW␣I	Command understood but currently not executable (e.g. piece counting application is not active or balance is currently executing another command).
PW␣L	Command understood but not executable (parameter is incorrect).

Comments

- This command can only be used with the application "Piece Counting". For details on available applications and how the activate them **see** M25 (page 122) and M26 (page 124).
- The range of the piece weight value is specified to the balance type.
- If a reference weight has been defined, the display unit automatically changes to PCS and can be queried with SU (page 233) commands.

Example

↓	PW␣20.00␣g	Set the piece weight of the piece counting application to 20.00 g
↑	PW␣A	Piece weight value is set

PWR – Power On/Off

Description

Use PWR to switch the balance on or off. When it is switched off, standby mode is activated.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
			✓		✓	✓	✓

Syntax

Command

PWR␣<OnOff>	Switch the balance on or off.

Responses

PWR␣A	Balance has been switched off successfully.
PWR␣A␣ I4␣A␣"<SNR>"	Balance with the serial number "SNR" has been switched on successfully **see** I4 (page 66).
PWR␣I	Command understood but currently not executable (balance is currently executing another command, e.g. taring).
PWR␣L	Command understood but not executable.

Parameters

Name	Type	Values	Meaning
<OnOff>	Integer	0	Set the balance to standby mode
		1	Switch the balance on

Comment

- The balance response to I4 (page 66) appears unsolicited after switching the balance on.

Example

↓	PWR␣1	Switch the balance on
↑	PWR␣A	The balance has been switched on successfully
↑	I4␣A␣"0123456789"	The serial number is shown

Also see:

- I4 – Query Serial Number (page 66)

RDB – Query/Set Readability

Description

Readability, e.g. 0.0001 g with a WMS404C-L weigh module, determines the smallest weight increment that can be measured and sent via interface to the system called 1 digit (1 d). It strongly affects weighing behavior, especially weighing speed, stability, and reproducibility. The RDB command makes the weigh module faster at the cost of the smallest weight increment that can be distinguished. Proper setting of this parameter is therefore important to the entire weighing application.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
	✓	✓		✓			

Syntax

Commands

RDB	Query the current readability.
RDB␣<DecPlaces>	Readability expressed as number of decimal places referring to weight unit g.

Responses

RDB␣A␣<DecPlaces>	Current readability.
RDB␣A	Command understood and executed successfully.
RDB␣L	Command understood but not executable (incorrect parameter).

Parameter

Name	Type	Values	Meaning
<DecPlaces>	Integer	0 … max. decimal places	Readability in weight unit g (Decimal places)

Comments

- Default factory setting for RDB is the maximum possible number of decimal places (highest accuracy) specific to the respective module, e.g. 4 decimal places with a WMS404C-L weigh module.
- The definition of the readability is always referring to the weight unit gram, regardless of the current used weighing unit.
- RDB enables reduction of the number of decimal places below the maximum; it cannot be increased above the maximum nor accept negative values. For more decimal places, **see** MOD (page 192).
- After acknowledgement "RDB␣A", the weigh module performs a complete restart similar to startup after power up. Weighing and communication can be resumed when the restart procedure is complete. Due to the restart procedure, new initial zero setting is performed and the tare memory is reset to 0. Nevertheless, all other settings (except readability) are not affected.
- The RDB command can be used for a complete firmware restart by leaving the parameter of RDB unchanged.
- Since the stability criterion for weighing, taring, and zero setting, as well as for adjustment and test is related to digits "d", **see** USTB (page 251), changing the readability will also change the absolute stability criteria for all functions including the adjustment (calibration) and test procedures.

Examples

↓	RDB	Query the current readability
↑	RDB␣A␣1	The readability is 1 = 0.1 g

↓	RDB␣2	Set the readability to 2 = 0.01 g
↑	RDB␣A	Readability set as desired
↑	I4␣A␣"B123456789"	Restart, I4 shows the serial number: B123456789

Also see:

- USTB – Query/Set Stability Criteria for Weighing, Taring and Zero Setting (page 251)

S – Send Stable Weight Value

Description

Use S to send a stable weight value, along with the host unit (page 17), from the balance to the connected communication partner via the interface.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
✓	✓	✓	✓	✓	✓	✓	✓

Syntax

Command

S	Send the current stable net weight value.

Responses

S␣S␣<WeightValue>␣<Unit>	Current stable weight value in unit actually set under host unit (page 17).
S␣I	Command understood but currently not executable (balance is currently executing another command, e.g. taring, or timeout as stability was not reached).
S␣L	Command understood but not executable (incorrect parameter).
S␣+	Balance in overload range.
S␣-	Balance in underload range.
S␣S␣<ErrorCode>	Error occurred, **see** Specific Error Messages on Weight Response (page 15)

Parameters

Name	Type	Values	Meaning
<WeightValue>	Float		Weight value
<Unit>	String		Currently displayed unit
<ErrorCode>	String		**see** Specific Error Messages on Weight Response (page 15)

Comments

- The duration of the timeout depends on the balance type.
- To send the stable weight value in actually displayed unit, **see** SU (page 233).
- The weight value is formatted as a right aligned string with 10 characters including the decimal point. For details, please refer to Format of Responses with Weight Value (page 12).
- The draft shield closes with this command, when the "Door function" is set on "Automatic". It opens after sending a stable weight.

Example

↓	S	Send a stable weight value
↑	S␣S␣␣␣␣100.00␣g	The current, stable ("S") weight value is 100.00 g

SC – Send Stable Weight Value or Dynamic Value After Timeout

Description

Command SC with configurable timeout is used for processes with defined time cycles.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
	✓	✓		✓			

Syntax

Command

SC␣<Time>	Send the current stable net weight value – or dynamic weight value immediately after timeout. Timeout defined in ms.

Responses

S␣S␣<WeightValue>␣<Unit>	Current stable weight value in unit actually set under host unit (page 17).
S␣D␣<WeightValue>␣<Unit>	Dynamic weight value in unit actually set under host unit (page 17) after timeout.
S␣I	Command understood but currently not executable (balance is currently executing another command, e.g. taring, or timeout as stability was not reached).
S␣L	Command understood but not executable (incorrect parameter).
S␣+	Balance in overload range.
S␣-	Balance in under load range.
S␣S␣<ErrorCode>	Error occurred, **see** Specific Error Messages on Weight Response (page 15)

Parameters

Name	Type	Values	Meaning
<Time>	Integer	0 … 65535 ms	Timeout in Milliseconds [ms]
<WeightValue>	Float		Weight value
<Unit>	String		Currently displayed unit
<ErrorCode>	String		**see** Specific Error Messages on Weight Response (page 15)

Comments

- <Time> will be rounded to the next possible interval (interval steps 8 ms)
- The M67 (page 176) command does not apply for the SC command.
- The criterion for the stability of the weight value is set by the USTB (page 251) command.
- The weight value is formatted as a right aligned string with 10 characters including the decimal point. For details, please refer to Format of Responses with Weight Value (page 12).

Example

↓	SC␣500	Send a stable weight value or within 500 ms a dynamic weight value
↑	S␣S␣␣␣␣100.00␣g	If the weigh module is able to determine a stable weight value within 500 ms, this value will be transmitted immediately; the weight is 100.00 g
or		

↑	S␣D␣␣␣␣103.04␣g	In case this is not possible (e.g. due to vibrations), a dynamic weight value will be transmitted immediately after timeout; in this example, a dynamic weight value (note the 'D' in the answer string) of 103.04 g was transmitted after 500 ms. The stability criterion for weighing was not met within 500 ms

SI – Send Weight Value Immediately

Description

Use SI to immediately send the current weight value, along with the host unit (page 17), from the balance to the connected communication partner via the interface.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
✓	✓	✓	✓	✓	✓	✓	✓

Syntax

Command

SI	Send the current net weight value, irrespective of balance stability.

Responses

S␣S␣<WeightValue>␣<Unit>	Stable weight value in unit actually set under host unit (page 17).
S␣D␣<WeightValue>␣<Unit>	Non-stable (dynamic) weight value in unit actually set under host unit (page 17).
S␣I	Command understood but currently not executable (balance is currently executing another command, e.g. taring).
S␣L	Command understood but not executable (incorrect parameter).
S␣+	Balance in overload range.
S␣-	Balance in underload range.
S␣S␣<ErrorCode>	Error occurred, **see** Specific Error Messages on Weight Response (page 15)

Parameters

Name	Type	Values	Meaning
<WeightValue>	Float		Weight value
<Unit>	String		Currently displayed unit
<ErrorCode>	String		**see** Specific Error Messages on Weight Response (page 15)

Comments

- The balance response to the command SI is the last internal weight value (stable or dynamic) before receipt of the command SI.
- To send weight value immediately in actually displayed unit, **see** SIU (page 221).
- The weight value is formatted as a right aligned string with 10 characters including the decimal point. For details, please refer to Format of Responses with Weight Value (page 12).

Example

↓	SI	Send current weight value
↑	S␣D␣␣␣␣129.07␣g	The weight value is unstable (dynamic, "D") and is currently 129.07 g

SIR – Send Weight Value Immediately and Repeat

Description

Use SIR to immediately send the current weight value, along with the host unit (page 17), from the balance to the connected communication partner via the interface, but this time on a continuous basis.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
✓	✓	✓	✓	✓	✓	✓	✓

Syntax

Command

SIR	Send the net weight values repeatedly, irrespective of balance stability.

Responses

S␣S␣<WeightValue>␣<Unit>	Stable weight value in unit actually set under host unit (page 17).
S␣D␣<WeightValue>␣<Unit>	Non-stable (dynamic) weight value in unit actually set under host unit (page 17).
S␣I	Command understood but currently not executable (balance is currently executing another command, e.g. taring).
S␣L	Command understood but not executable (incorrect parameter).
S␣+	Balance in overload range.
S␣-	Balance in underload range.
S␣S␣<ErrorCode>	Error occurred, **see** Specific Error Messages on Weight Response (page 15)

Parameters

Name	Type	Values	Meaning
<WeightValue>	Float		Weight value
<Unit>	String		Currently displayed unit
<ErrorCode>	String		**see** Specific Error Messages on Weight Response (page 15)

Comments

- SIR is overwritten by the commands S (page 212), SI (page 215), SR (page 228), @ (page 18) and hardware break and hence cancelled.
- The number of weight values per second can be configured using UPD (page 250).
- To send weight value in actually displayed unit, **see** SIRU (page 217).
- The weight value is formatted as a right aligned string with 10 characters including the decimal point. For details, please refer to Format of Responses with Weight Value (page 12).

Example

↓	SIR	Send current weight values at intervals
↑	S␣D␣␣␣␣129.07␣g	The balance sends stable ("S") or unstable ("D") weight values at intervals
↑	S␣D␣␣␣␣129.08␣g	
↑	S␣S␣␣␣␣129.09␣g	
↑	S␣S␣␣␣␣129.09␣g	
↑	S␣D␣␣␣␣114.87␣g	
↑	S␣…	

SIRU – Send Weight Value with Currently Displayed Unit Immediately and Repeat

Description

Use SIRU to immediately send the current weight value, along with the displayed unit, from the balance to the connected communication partner via the interface and on a continuous basis.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
✓			✓		✓	✓	✓

Syntax

Command

SIRU	Send the current net weight value with currently displayed unit, irrespective of balance stability and repeat.

Responses

S␣S␣<WeightValue>␣<Unit>	Stable weight value in currently displayed unit.
S␣D␣<WeightValue>␣<Unit>	Non-stable (dynamic) weight value in currently displayed unit.
S␣I	Command understood but currently not executable (balance is currently executing another command, e.g. taring).
S␣L	Command understood but not executable (incorrect parameter).
S␣+	Balance in overload range.
S␣-	Balance in underload range.
S␣S␣<ErrorCode>	Error occurred, **see** Specific Error Messages on Weight Response (page 15)

Parameters

Name	Type	Values	Meaning
<WeightValue>	Float		Weight value
<Unit>	String		Currently displayed unit
<ErrorCode>	String		**see** Specific Error Messages on Weight Response (page 15)

Comments

- As the SIR (page 216) command, but with currently displayed unit.
- The number of weight values per second can be configured using UPD (page 250).
- The weight value is formatted as a right aligned string with 10 characters including the decimal point. For details, please refer to Format of Responses with Weight Value (page 12).

Example

↓	SIRU	Query of the current weight value with currently displayed unit
↑	S␣D␣␣␣␣␣12.34␣lb	Non-stable (dynamic) weight value of 12.34 lb
↑	S␣D␣␣␣␣␣12.44␣lb	Non-stable (dynamic) weight value of 12.44 lb
↑	S␣D␣␣␣␣␣12.43␣lb	Non-stable (dynamic) weight value of 12.43 lb

SIS – Send NetWeight Value with Actual Unit and Weighing Status

Description

Use SIS to immediately send the current net weight value to the connected communication partner via the interface, along with the host unit (page 17) and other information regarding the weighing status.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
	✓	✓	✓	✓	✓	✓	✓

Syntax

Command

SIS	Send the current net weight value.

Responses

SIS␣A␣<Status>␣"<NetWeight>"␣<Unit1>␣<Readability>␣<Step>␣<Approv>␣<Info>	At status 0 to 3.
SIS␣A␣<Status>␣"<Error>"	At status 4 to 6.
SIS␣I	Command understood but currently not executable.
S␣L	Command understood but not executable (incorrect parameter).
S␣S␣<ErrorCode>	Error occurred, **see** Specific Error Messages on Weight Response (page 15)

Parameters

Name	Type	Values	Meaning	
<Status>	Integer	0	Stable weight value	
		1	Dynamic weight value	
		2	Stable inaccurate weight (MinWeigh)	
		3	Dynamic inaccurate weight (MinWeigh)	
		4	Overload	
		5	Underload	
		6	Error, not valid	
<Netweight>	Float		Net weight value	
<Unit1>	Integer	0	Gram	g
		1	Kilogram	kg
		2	reserved	
		3	Milligram	mg
		4	Microgram	µg
		5	Carat	ct
		6	reserved	
		7	Pound avdp	lb
		8	Ounce avdp	oz
		9	Ounce troy	ozt
		10	Grain	GN
		11	Pennyweight	dwt
		12	Momme	mom
		13	Mesghal	msg
		14	Tael Hongkong	tlh

Name	Type	Values	Meaning	
<Unit1>	Integer	15	Tael Singapore	tls
		16	Tael Taiwan	tlt
		17	reserved	
		18	Tola	tola
		20	Baht	baht
<Readability>	Integer	0 … 6	Amount of decimal places	
<Step>	Integer	1	"1" step	
		2	"2" step	
		5	"5" step	
		10	"10" step	
		20	"20" step	
		50	"50" step	
		100	"100" step	
<Approv>	Integer	0	Standard balance, Not approved	
		1	e = d (page 16)	
		10	e = 10 d (page 16)	
		100	e = 100 d (page 16)	
		-1	Unapproved with * in display	
<Info>	Integer	0	Without tare	
		1	Net with weighed tare	
		2	Net with stored tare	
<ErrorCode>	String		**see** Specific Error Messages on Weight Response (page 15)	

Comments

- Can not be used with custom unit, piece counting (PCS) or percent weighing (%).
- This command has **no** effect on the other S* commands.
- The units and/or their notation may be different in older software versions.
- Relates to the host output interfaces. The weight unit is the host unit (page 17), not the displayed unit.
- Also supplies a weigh value for zeroing, adjusting and taring, and in the menu.

Examples

↓	SIS	Query of the current weight value with actual host unit and weighing status
↑	SIS␣A␣0␣"100.00"␣0␣2␣1␣10␣0	100.0(0) g

↓	SIS	Query of the current weight value
↑	SIS␣A␣1␣"10.0"␣5␣2␣50␣0␣2	10.0 ct, carat value, with step 50, in coarse range, with stored tare and unstable

↓	SIS	Query of the current weight value
↑	SIS␣A␣6␣"Error7"	Error, not valid

↓	SIS	Query of the current weight value
↑	SIS␣A␣4␣""	Overload

SIU – Send Weight Value with Currently Displayed Unit Immediately

Description

Use SIU to immediately send the current weight value, along with the displayed unit, from the balance to the connected communication partner via the interface.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
✓			✓		✓	✓	✓

Syntax

Command

SIU	Send the current net weight value with currently displayed unit, irrespective of balance stability.

Responses

S␣S␣<WeightValue>␣<Unit>	Stable weight value in currently displayed unit.
S␣D␣<WeightValue>␣<Unit>	Non-stable (dynamic) weight value in currently displayed unit.
S␣I	Command understood but currently not executable (balance is currently executing another command, e.g. taring).
S␣L	Command understood but not executable (incorrect parameter).
S␣+	Balance in overload range.
S␣-	Balance in underload range.
S␣S␣<ErrorCode>	Error occurred, **see** Specific Error Messages on Weight Response (page 15)

Parameters

Name	Type	Values	Meaning
<WeightValue>	Float		Weight value
<Unit>	String		Currently displayed unit
<ErrorCode>	String		**see** Specific Error Messages on Weight Response (page 15)

Comments

- As the SI (page 215) command, but with currently displayed unit.
- The weight value is formatted as a right aligned string with 10 characters including the decimal point. For details, please refer to Format of Responses with Weight Value (page 12).

Example

↓	SIU	Query of the current weight value with currently displayed unit
↑	S␣D␣␣␣␣␣12.34␣lb	Non-stable (dynamic) weight value is 12.34 lb

SIUM – Send Weight Value with Currently Displayed Unit and MinWeigh Information Immediately

Description

Use SIUM to immediately send the current weight value, along with the displayed unit and MinWeigh information, from the balance to the connected communication partner via the interface.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
			✓		✓	✓	✓

Syntax

Command

SIUM	Send the current net weight value with currently displayed unit and MinWeigh Information, irrespective of balance stability.

Responses

S␣<Status>␣<WeightValue>␣<Unit>	Weight value in currently displayed unit.
S␣I	Command understood but currently not executable (balance is currently executing another command, e.g. taring).
S␣L	Command understood but not executable (incorrect parameter).
S␣+	Balance in overload range.
S␣-	Balance in underload range.
S␣S␣<ErrorCode>	Error occurred, **see** Specific Error Messages on Weight Response (page 15)

Parameters

Name	Type	Values	Meaning
<Status>	String	S	Stable, net >= MinWeigh limit
		D	Dynamic, net >= MW limit
		M	Stable, net < MinWeigh limit
		N	Dynamic, net < MW limit
<WeightValue>	Float		Weight value
<Unit>	String		Currently displayed unit
<ErrorCode>	String		**see** Specific Error Messages on Weight Response (page 15)

Comments

- As the SI (page 215) command, but with currently displayed unit and MinWeigh information.
- If the MinWeigh function is switched off, or is not available on the balance, it corresponds to the command SIU (page 221).
- The weight value is formatted as a right aligned string with 10 characters including the decimal point. For details, please refer to Format of Responses with Weight Value (page 12).

Examples

↓	SIUM	Query of the current weight value with currently displayed unit
↑	S␣D␣␣123.34␣mg	Dynamic net weight displayed, greater than MW limit

↓	SIUM	Query of the current weight value with currently displayed unit
↑	S␣M␣␣123.34␣mg	Stable net weight displayed, less than MinWeigh limit

↓	SIUM	Query of the current weight value with currently displayed unit
↑	S␣N␣␣123.34␣mg	Dynamic net weight displayed, less than MW limit

SNR – Send Stable Weight Value and Repeat on Weight Change

Description

Use SNR to send the current stable weight value following a predefined minimum change in weight and on a continuous basis. The weight value is sent, along with the host unit (page 17), from the balance to the connected communication partner via the interface.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
✓	✓	✓	✓	✓	✓	✓	✓

Syntax

Commands

SNR	Send the current stable weight value and repeat after each deflection (see comment).
SNR␣<PresetValue>␣<Unit>	Send the current stable weight value and repeat after each deflection greater or equal to the preset value (see comment).

Responses

S␣S␣<WeightValue>␣<Unit> S␣S␣<WeightValue>␣<Unit> ...	Current stable weight value (1st value). Next stable weight value after preset deflection (2nd value). ...
S␣I	Command understood but currently not executable (balance is currently executing another command, e.g. taring, or timeout as stability was not reached).
S␣L	Command understood but not executable (incorrect parameter).
S␣+	Balance in overload range.
S␣-	Balance in underload range.
S␣S␣<ErrorCode>	Error occurred, **see** Specific Error Messages on Weight Response (page 15)

Parameters

Name	Type	Values	Meaning
<PresetValue>	Float	1 digit … capacity	Preset minimum deflection load
<Unit>	String		Currently displayed unit
<ErrorCode>	String		**see** Specific Error Messages on Weight Response (page 15)

Comments

- The preset value is optional. If no value is defined, the deflection depends on balance readability as follows:

Readability	Min. Deflection
0.001 mg	0.001 g
0.01 mg	0.01 g
0.1 mg	0.1 g
0.001 g	1 g
0.01 g	1 g
0.1 g	1 g
1 g	5 g

- SNR is overwritten by the commands S (page 212), SI (page 215), SIR (page 216), @ (page 18) and hardware break and hence cancelled.
- The weight value is formatted as a right aligned string with 10 characters including the decimal point. For details, please refer to Format of Responses with Weight Value (page 12).

Example

↓	SNR␣50␣g	Send the current stable weight value and repeat after each deflection greater or equal to the preset value of 50 g
↑	S␣S␣␣␣␣␣12.34␣g	1st weight value is 12.34 g
↑	S␣S␣␣␣␣␣67.89␣g	2nd weight value is 67.89 g

SNRU – Send Stable Weight Value with Currently Displayed Unit and on Weight Change

Description

Use SNRU to send the current stable weight value following a predefined minimum change in weight and on a continuous basis. The weight value is sent, along with the displayed unit, from the balance to the connected communication partner via the interface.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
✓			✓		✓	✓	✓

Syntax

Commands

SNRU	Send the current stable weight value with the currently displayed unit and repeat after each deflection (see comment).
SNRU␣<PresetValue>␣<Unit>	Send the current stable weight value with the currently displayed unit and repeat after each deflection greater or equal to the preset value (see comment).

Responses

S␣S␣<WeightValue>␣<Unit> S␣S␣<WeightValue>␣<Unit> ...	Current stable weight value (1st value). Next stable weight value after preset deflection (2nd value). ...
S␣I	Command understood but currently not executable (balance is currently executing another command, e.g. taring, or timeout as stability was not reached).
S␣L	Command understood but not executable (incorrect parameter).
S␣+	Balance in overload range.
S␣-	Balance in underload range.
S␣S␣<ErrorCode>	Error occurred, **see** Specific Error Messages on Weight Response (page 15)

Parameters

Name	Type	Values	Meaning
<PresetValue>	Float	1 digit … capacity	Preset minimum deflection load
<Unit>	String		Currently displayed unit
<ErrorCode>	String		**see** Specific Error Messages on Weight Response (page 15)

Comments

- The preset value is optional. If no value is defined, the deflection depends on balance readability as follows:

Readability	Min. Deflection
0.001 mg	0.001 g
0.01 mg	0.01 g
0.1 mg	0.1 g
0.001 g	1 g
0.01 g	1 g
0.1 g	1 g
1 g	5 g

- As the SNR (page 224) command, but with current displayed unit.
- SNRU is overwritten by the commands S (page 212), SI (page 215), SIR (page 216), @ (page 18) and hardware break and hence cancelled.
- The weight value is formatted as a right aligned string with 10 characters including the decimal point. For details, please refer to Format of Responses with Weight Value (page 12).

Example

↓	SNRU␣50␣g	Send the current stable weight value with the currently displayed unit and repeat after each deflection greater or equal to the preset value of 50 g
↑	S␣S␣␣␣␣␣12.34␣g	1st weight value is 12.34 g
↑	S␣S␣␣␣␣␣67.89␣g	2nd weight value is 67.89 g

SR – Send Weight Value on Weight Change (Send and Repeat)

Description

Use SR to send the current weight values following a predefined minimum change in weight and on a continuous basis. The weight value is sent, along with the host unit (page 17), from the balance to the connected communication partner via the interface.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
✓	✓	✓	✓	✓	✓	✓	✓

Syntax

Commands

SR	Send the current stable weight value and then continuously after every weight change If no preset value is entered, the weight change must be at least 12.5% of the last stable weight value, minimum = 30 digit.
SR␣<PresetValue>␣<Unit>	Send the current stable weight value and then continuously after every weight change greater or equal to the preset value a non-stable (dynamic) value followed by the next stable value, range = 1 digit to maximal capacity.

Responses

S␣S␣<WeightValue>␣<Unit>	Current, stable weight value in unit actually set as host unit (page 17), 1st weight change.
S␣D␣<WeightValue>␣<Unit>	Dynamic weight value in unit actually set as host unit (page 17).
S␣S␣<WeightValue>␣<Unit>	Next stable weight value in unit actually set as host unit (page 17).
S␣I	Command understood but currently not executable (balance is currently executing another command, e.g. zero setting, or timeout as stability was not reached).
S␣L	Command understood but not executable (incorrect parameter).
S␣+	Balance in overload range.
S␣-	Balance in underload range.
S␣S␣<ErrorCode>	Error occurred, **see** Specific Error Messages on Weight Response (page 15)

Parameters

Name	Type	Values	Meaning
<WeightValue>	Float		Weight value
<Unit>	String		Unit, only available units permitted
<ErrorCode>	String		**see** Specific Error Messages on Weight Response (page 15)

Parameters

Name	Type	Values	Meaning
<WeightValue>	Float		Weight value
<Unit>	String		Unit, only available units permitted

Comments

- SR is overwritten by the commands S (page 212), SI (page 215), SIR (page 216), @ (page 18) and hardware break and hence cancelled.
- In contrast to SR, SNR (page 224) only sends stable weight values.
- If, following a non-stable (dynamic) weight value, stability has not been reached within the timeout interval, the response S␣I is sent and then a non-stable weight value. Timeout then starts again from the beginning.
- The preset value can be entered in any by the balance accepted unit.
- The weight value is formatted as a right aligned string with 10 characters including the decimal point. For details, please refer to Format of Responses with Weight Value (page 12).

Example

↓	SR␣10.00␣g	Send the current stable weight value followed by every load change of 10 g
↑	S␣S␣␣␣␣100.00␣g	Balance stable
↑	S␣D␣␣␣␣115.23␣g	100.00 g loaded
↑	S␣S␣␣␣␣200.00␣g	Balance again stable

Also see:

- S – Send Stable Weight Value (page 212)
- SI – Send Weight Value Immediately (page 215)
- SIR – Send Weight Value Immediately and Repeat (page 216)
- SNR – Send Stable Weight Value and Repeat on Weight Change (page 224)

SRU – Send Stable Weight Value with Currently Displayed Unit on Weight Change

Description

Use SRU to send the current weight values following a predefined minimum change in weight and on a continuous basis. The weight value is sent, along with the currently displayed unit, from the balance to the connected communication partner via the interface.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
✓			✓		✓	✓	✓

Syntax

Commands

SRU	Send the current stable weight value with the currently displayed unit and then continuously after every weight change. If no preset value is entered, the weight change must be at least 12.5% of the last stable weight value, minimum = 30 digit.
SRU␣<WeightValue>␣<Unit>	Send the current stable weight value with the currently displayed unit and then continuously after every weight change greater or equal to the preset value a non-stable (dynamic) value followed by the next stable value, range = 1 digit to maximal capacity.

Responses

S␣S␣<WeightValue>␣<Unit>	Current, stable weight value with the currently displayed unit until 1st weight change.
S␣D␣<WeightValue>␣<Unit>	Non-stable (dynamic) weight value with the currently displayed unit.
S␣I	Command understood but currently not executable (balance is currently executing another command, e.g. taring).
S␣L	Command understood but not executable (incorrect parameter).
S␣+	Balance in overload range.
S␣-	Balance in underload range.
S␣S␣<ErrorCode>	Error occurred, **see** Specific Error Messages on Weight Response (page 15)

Parameters

Name	Type	Values	Meaning
<WeightValue>	Float		Weight value
<Unit>	String		Unit, only available units permitted
<ErrorCode>	String		**see** Specific Error Messages on Weight Response (page 15)

Parameters

Name	Type	Values	Meaning
<WeightValue>	Float		Weight value
<Unit>	String		Unit, only available units permitted

Comments

- As the SR (page 228) command, but with currently displayed unit.
- SRU is overwritten by the commands S (page 212), SI (page 215), SIR (page 216), @ (page 18) and hardware break and hence cancelled.
- In contrast to SR (page 228), SNRU (page 226) only sends stable weight values.
- If, following a non-stable (dynamic) weight value, stability has not been reached within the timeout interval, the response S␣I is sent and then a non-stable weight value. Timeout then starts again from the beginning.
- The preset value can be entered in any by the balance accepted unit.
- The weight value is formatted as a right aligned string with 10 characters including the decimal point. For details, please refer to Format of Responses with Weight Value (page 12).

Example

↓	SRU	Send the current stable weight value followed by every default load change with current display unit
↑	S␣S␣␣␣␣␣12.34␣lb	1st weight value is stable and12.34 lb
↑	S␣D␣␣␣␣␣13.88␣lb	2nd weight value is non-stable and13.88 lb
↑	S␣S␣␣␣␣␣15.01␣lb	3rd weight value is stable and15.01 lb

ST – Send Stable Weight Value on Pressing (Transfer) Key

Description

Use ST to send the current stable weight value when the transfer key is pressed. The value is sent, along with the currently displayed unit, from the balance to the connected communication partner via the interface.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
✓			✓		✓	✓	✓

Syntax

Commands

ST	Query of the current status of the ST function.
ST␣1	Sent the current stable net weight value with Display unit each time when the transfer key is pressed.
ST␣0	Stop sending weight value when Print key is pressed.

Responses

ST␣A␣0	Function inactive, no weight value is sent when the transfer key is pressed.
ST␣A␣1	Function active, weight value is sent each time when the transfer key is pressed.
ST␣A	Command understood and executed successfully.
ST␣I	Command understood but currently not executable (balance is currently executing another command).
ST␣L	Command understood but not executable (incorrect parameter).

Comments

- ST␣0 is the factory setting (default value).
- ST function is not active after switching on and after reset command.
- The weight value is formatted as a right aligned string with 10 characters including the decimal point. For details, please refer to Format of Responses with Weight Value (page 12).

Example

↓	ST␣1	Activate ST function
↑	ST␣A	Command executed.
↑	S␣S␣␣␣␣123.456␣g	When transfer key pressed: current net weight is 123.456 g

SU – Send Stable Weight Value with Currently Displayed Unit

Description

Use SU to send a stable weight value, along with the currently displayed unit, from the balance to the connected communication partner via the interface.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
✓			✓		✓	✓	✓

Syntax

Command

SU	Send the current stable net weight value with the currently displayed unit.

Responses

S␣S␣<WeightValue>␣<Unit>	Current stable weight value with the currently displayed unit.
S␣I	Command understood but currently not executable (balance is currently executing another command, e.g. taring, or timeout as stability was not reached).
S␣L	Command understood but not executable (incorrect parameter).
S␣+	Balance in overload range.
S␣-	Balance in underload range.
S␣S␣<ErrorCode>	Error occurred, **see** Specific Error Messages on Weight Response (page 15)

Responses

S␣S␣<WeightValue>␣<Unit>	Current stable weight value with the currently displayed unit.
S␣I	Command understood but currently not executable (balance is currently executing another command, e.g. taring, or timeout as stability was not reached).
S␣+	Balance in overload range.
S␣-	Balance in underload range.

Parameters

Name	Type	Values	Meaning
<WeightValue>	Float		Weight value
<Unit>	String		Currently displayed unit
<ErrorCode>	String		**see** Specific Error Messages on Weight Response (page 15)

Comments

- As the S (page 212) command, but with currently displayed unit.
- The weight value is formatted as a right aligned string with 10 characters including the decimal point. For details, please refer to Format of Responses with Weight Value (page 12).
- The draft shield closes with this command, when the "Door function" is set on "Automatic". It opens after sending a stable weight.

Example

↓	SU	Send the stable weight value with the currently displayed unit
↑	S␣S␣␣␣␣␣␣12.34␣lb	The current, stable weight value is 12.34 lb

SUM – Send Stable Weight Value With Currently Displayed Unit and MinWeigh Information

Description

Use SUM to send the current stable weight value, along with the currently displayed unit and the MinWeigh information, from the balance to the connected communication partner via the interface.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
			✓		✓	✓	✓

Syntax

Command

SUM	Send the current stable net weight value with currently displayed unit and MinWeigh Information.

Responses

SUM␣<Status>␣<WeightValue>␣<Unit>	Weight value in currently displayed unit.
S␣I	Command understood but currently not executable (balance is currently executing another command, e.g. taring).
S␣L	Command understood but not executable (incorrect parameter).
S␣+	Balance in overload range.
S␣-	Balance in underload range.
S␣S␣<ErrorCode>	Error occurred, **see** Specific Error Messages on Weight Response (page 15)

Parameters

Name	Type	Values	Meaning
<Status>	String	S	Stable, >= MinWeigh limit
		M	Stable, < MinWeigh limit
<WeightValue>	Float		Weight value
<Unit>	String		Display-Unit
<ErrorCode>	String		**see** Specific Error Messages on Weight Response (page 15)

Comments

- As the S (page 212) command, but with currently displayed unit and MinWeigh information.
- If a weight other than the net weight is displayed, only the "S" index and the stable weight value displayed are output on the interface.
- If the MinWeigh function is switched off or not available on the balance, the corresponding command is SU (page 233).
- The weight value is formatted as a right aligned string with 10 characters including the decimal point. For details, please refer to Format of Responses with Weight Value (page 12).

Examples

↓	SUM	Query of the current weight value with currently displayed unit
↑	S␣M␣␣␣␣123.34␣mg	Stable weight displayed, less than MinWeigh limit

↓	SUM	Query of the current weight value with currently displayed unit
↑	S␣S␣␣␣␣␣123.34␣mg	Stable weight displayed, greater than MinWeigh limit

T – Tare

Description

Use T to tare the balance. The next stable weight value will be saved in the tare memory.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
✓	✓	✓	✓	✓	✓	✓	✓

Syntax

Command

T	Tare, i.e. store the next stable weight value as a new tare weight value.

Responses

T␣S␣<TareWeightValue>␣<Unit>	Taring successfully performed. The tare weight value returned corresponds to the weight change on the balance in the unit actually set under host unit (page 17) since the last zero setting.
T␣I	Command understood but currently not executable (balance is currently executing another command, e.g. zero setting, or timeout as stability was not reached).
S␣L	Command understood but not executable (incorrect parameter).
T␣+	Upper limit of taring range exceeded.
T␣-	Lower limit of taring range exceeded.

Parameters

Name	Type	Values	Meaning
<WeightValue>	Float		Weight value
<Unit>	String		Currently displayed unit

Comments

- The tare memory is overwritten by the new tare weight value.
- The duration of the timeout depends on the balance type.
- Clearing tare memory: **See** TAC (page 239).
- The weight value is formatted as a right aligned string with 10 characters including the decimal point. For details, please refer to Format of Responses with Weight Value (page 12).
- The draft shield closes with this command, when the "Door function" is set on "Automatic". It opens after sending a stable weight.

Example

↓	T	Tare
↑	T␣S␣␣␣␣100.00␣g	The balance is tared and has a value of 100.00 g in the tare memory

Also see:

- TAC – Clear Tare Value (page 239)

TA – Query/Preset Tare Weight Value

Description

Use TA to query the current tare value or preset a known tare value.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
✓	✓	✓	✓	✓	✓	✓	✓

Syntax

Commands

TA	Query of the current tare weight value.
TA␣<TarePresetValue>␣<Unit>	Preset of a tare value.

Responses

TA␣A␣<TareWeightValue>␣<Unit>	Query current tare weight value in tare memory, in unit actually set under host unit (page 17).
TA␣I	Command understood but currently not executable (balance is currently executing another command, e.g. zero setting, or timeout as stability was not reached).
TA␣L	Command understood but not executable (incorrect parameter).

Parameters

Name	Type	Values	Meaning
<TareWeightValue>	Float		Tare Weight value
<Unit>	String		Currently displayed unit

Comments

- The tare memory will be overwritten by the preset tare weight value.
- The inputted tare value will be automatically rounded by the balance to the current readability.
- The taring range is specified to the balance type.
- The weight value is formatted as a right aligned string with 10 characters including the decimal point. For details, please refer to Format of Responses with Weight Value (page 12).

Example

↓	TA␣100.00␣g	Preset a tare weight of 100 g
↑	TA␣A␣␣␣␣100.00␣g	The balance has a value of 100.00 g in the tare memory

Also see:

- TAC – Clear Tare Value (page 239)

TAC – Clear Tare Value

Description

Use TAC to clear the tare memory.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
✓	✓	✓	✓	✓	✓	✓	✓

Syntax

Command

TAC	Clear tare value.

Responses

TAC␣A	Tare value cleared, 0 is in the tare memory.
TAC␣I	Command understood but currently not executable (balance is currently executing another command, e.g. zero setting).
S␣L	Command understood but not executable (incorrect parameter).

Example

↓	TAC	Clear tare value
↑	TAC␣A	Tare value cleared, o is in the tare memory

TC – Tare or Tare Immediately After Timeout

Description

Command TC with configurable timeout is used for processes with defined time cycles.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
	✓	✓		✓			

Syntax

Command

TC␣<Time>	Tare, i.e. store the next stable weight value as a new tare weight value, and send this value back - or store and send dynamic value immediately after timeout. Timeout defined in ms.

Responses

TC␣S␣<TareWeightValue>␣<Unit>	Taring successfully performed. The tare weight value returned corresponds to the weight change on the balance in the unit actually set under host unit (page 17) since the last zero setting.
TC␣D␣<TareWeightValue>␣<Unit>	Taring performed using an unstable (status "D" for dynamic) tare value immediately after timeout. The tare weight value returned corresponds to the weight change on the balance in the unit actually set under host unit (page 17) since the last zero setting.
TC␣I	Command understood but currently not executable (balance is currently executing another command, e.g. zero setting, or timeout as stability was not reached).
TC␣L	Command understood but not executable (incorrect parameter).
TC␣+	Upper limit of taring range exceeded.
TC␣-	Lower limit of taring range exceeded.

Parameters

Name	Type	Values	Meaning
<Time>	Integer	1 … 65535 ms	Timeout in Milliseconds [ms]
<TareWeightValue>	Float		Tare Weight value
<Unit>	String		Currently displayed unit

Comments

- The tare memory is overwritten by the new tare weight value.
- <Time> will be rounded to the next possible interval (interval steps 8 ms).
- The M67 (page 176) command does not apply for the TC command.
- The criterion for the stability of the weight value is set by the USTB (page 251) command.
- The tare value can be inquired by using the TA (page 238) command.
- Clearing tare memory: **See** TAC (page 239).
- The weight value is formatted as a right aligned string with 10 characters including the decimal point. For details, please refer to Format of Responses with Weight Value (page 12).

Example

↓	TC␣500	Tare within a maximum time period of 500 ms
↑	TC␣S␣␣␣␣␣100.00␣g	The balance is tarred and has a value of 100.00 g in the tare memory
or		
↑	TC␣D␣␣␣␣␣105.46␣g	Taring performed upon timeout of 500 ms, an unstable (status "D" for dynamic) tare value of 105.46 g is stored in the tare memory. The stability criterion for taring was not met

Also see:

- TAC – Clear Tare Value (page 239)

TI – Tare Immediately

Description

Use TI to tare the balance immediately and independently of balance stability.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
✓	✓	✓	✓	✓		✓	✓

Syntax

Command

TI	Tare immediately, i.e. store the current weight value, which can be stable or non stable (dynamic), as tare weight value.

Responses

TI␣S␣<TareWeightValue>␣<Unit>	Taring performed, stable tare value. The new tare value corresponds to the weight change on the balance since the last zero setting.
TI␣D␣<TareWeightValue>␣<Unit>	Taring performed, non-stable (dynamic) tare value.
TI␣I	Command understood but currently not executable (balance is currently executing another command, e.g. zero setting).
TI␣L	Command understood but not executable (e.g. certified version of the balance).
TI␣+	Upper limit of taring range exceeded.
TI␣-	Lower limit of taring range exceeded.

Parameters

Name	Type	Values	Meaning
<TareWeightValue>	Float		Tare weight value
<Unit>	String		Currently displayed unit

Comments

- The tare memory will be overwritten by the new tare weight value.
- After a non-stable (dynamic) stored tare weight value, a stable weight value can be determined. However, the absolute value of the stable weight value determined in this manner is not accurate.
- This command is not supported by approved balances.
- The taring range is specified to the balance type.
- The weight value is formatted as a right aligned string with 10 characters including the decimal point. For details, please refer to Format of Responses with Weight Value (page 12).
- The stored tare weight value is sent in the unit actually set under host unit (page 17).

Example

↓	TI	Tare immediately
↑	TI␣D␣␣␣␣117.57␣g	The tare memory holds a non-stable (dynamic) weight value

Also see:

- TAC – Clear Tare Value (page 239)

TIM – Query/Set Time

Description

Set the system time of the balance or query the current time.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
✓	✓	✓	✓	✓	✓	✓	✓

Syntax

Commands

TIM	Query of the current time of the balance.
TIM␣<hh>␣<mm>␣<ss>	Set the time of the balance.

Responses

TIM␣A␣<hh>␣<mm>␣<ss>	Current time of the balance.
TIM␣A	Command understood and executed successfully.
TIM␣I	Command understood but currently not executable (balance is currently executing another command).
TIM␣L	Command understood but not executable (incorrect parameter, e.g. 22␣67␣25) or no clock is built in.

Parameters

Name	Type	Values	Meaning
<hh>	Integer	00 … 23	Hours
<mm>	Integer	00 … 59	Minutes
<ss>	Integer	00 … 59	Seconds

Comment

- The parameter setting will be saved and the only way to reset the default value will be via MT-SICS or by means of a factory reset, FSET (page 61) or via terminal not @ (page 18).

Example

↓	TIM	Query of the current time of the balance
↑	TIM␣A␣09␣56␣11	The current time of the balance is 9 hours, 56 minutes and 11 seconds

TST0 – Query/Set Test Function Settings

Description

Use TST0 to query the current setting for testing the balance, or to specify the type of testing (internal or external).

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
✓	✓	✓	✓	✓	✓	✓	✓

Syntax

Commands

TST0	Query of the setting for the test function.
TST0␣<Test>	Set the test configuration of the balance.

Responses

TST0␣A␣<Test>␣"<WeightValue>␣<Unit>"	Current setting for the test function.
TST0␣A	Command understood and executed successfully.
TST0␣I	Command understood but currently not executable (balance is currently executing another command).
TST0␣L	Command understood but not executable (incorrect parameter).

Parameters

Name	Type	Values	Meaning
<Test>	Integer	0	Test with internal weight
		1	Test with external weight
<WeightValue>	Float	10 char	Weight of the external weight currently set that is requested in the test from the balance user via the display
<Unit>	String	max. 9 char	Unit of the external weight currently set

Comments

- The current value of the external weight can be seen in the menu under "Test", **see** Operating Instructions.
- With an internal test, no weight value appears.
- For additional information on testing the adjustment, **see** the Operating instructions of the balance.
- The value of the external weight is set in the menu under "Test" or with M20 (page 116).

Example

↓	TST0	Query of the current setting for the test and the value of the external test weight
↑	TST0␣A␣1␣"␣␣␣2000.0␣g"	The current setting corresponds to the test with an external weight. For a test initiated with the TST2 (page 247) command, an external weight of 2000.0 g is needed.

Also see:

- C0 – Query/Set Adjustment Settings (page 35)

TST1 – Start Test Function According to Current Settings

Description

Use TST1 to start the balance test function using the preset parameter settings.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
✓	✓	✓	✓	✓	✓	✓	✓

Syntax

Command

TST1	Start test function in the current setting TST0 (page 244), M20 (page 116).

First Responses

TST1␣B	The test procedure has been started. Wait for next response, **see** Comment.
TST1␣I	Command understood but currently not executable (balance is currently executing another command). No second response follows.
TST1␣L	Command understood but not executable (incorrect parameter). No second response follows.

Further Responses

TST1␣"<WeightValue>␣<Unit>"	Prompt to unload and load the balance (only with external weight).
TST1␣A␣"<WeightValue>␣<Unit>"	Test procedure completed successfully. Weight value with unit corresponds to the deviation from the specified value displayed after the test. No unit is specified if the test has been performed with the internal weight.
TST1␣I	The test procedure has been aborted as, e.g. stability was not attained or wrong weights were loaded.

Parameters

Name	Type	Values	Meaning
<WeightValue>	Float		Weight value
<Unit>	String		Currently displayed unit

Comments

- Commands sent to the balance during the test procedure are not processed and responded to in the appropriate manner until the test procedure is at an end.
- Use @ (page 18) to abort a running test.
- For additional information on testing the adjustment, **see** the Operating Instructions of the balance.

Example

↓	TST1	Start test function in the current setting
↑	TST1␣B	The test procedure has been started
↑	TST1␣"␣␣␣0.00000␣g"	Clear weighing pan
↑	TST1␣"␣100.00000␣g"	Load 100 g external weight
↑	TST1␣"␣␣␣0.00000␣g"	Unload weight
↑	TST1␣A␣"␣␣␣0.00020␣g"	Test completed, current difference is 0.00020 g

Also see:

- TST0 – Query/Set Test Function Settings (page 244)
- M20 – Query/Set Test Weight (page 116)
- C1 – Start Adjustment According to Current Settings (page 37)

TST2 – Start Test Function with External Weight

Description

Use TST2 to start the balance test function using external test weights.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
✓	✓	✓	✓	✓	✓	✓	✓

Syntax

Command

TST2	Start test function with external weight.

First Responses

TST2␣B	The test procedure has been started. Wait for next response, **see** Comment.
TST2␣I	Command understood but currently not executable (balance is currently executing another command). No second response follows.
TST2␣L	Command understood but not executable (incorrect parameter). No second response follows.

Further Responses

TST2␣"<WeightValue>␣<Unit>"	Prompt to unload and load the balance.
TST2␣A␣"<WeightValue>␣<Unit>"	Test procedure completed successfully. Weight value with unit corresponds to the deviation from the specified value displayed in the top line after the test.
TST2␣I	The test procedure has been aborted as, e.g. stability was not attained or wrong weights were loaded.

Parameters

Name	Type	Values	Meaning
<WeightValue>	Float		Weight value
<Unit>	String		Currently displayed unit

Comments

- Commands sent to the balance during the test procedure are not processed and responded to in the appropriate manner until the test procedure is at an end.
- Use @ (page 18) to abort a running test.
- For additional information on testing the adjustment, **see** the Operating Instructions of the balance.
- The value of the external weight is set in the menu under "Test" or with M20 (page 116).

Example

↓	TST2	Start test with external weight
↑	TST2␣B	The test procedure has been started
↑	TST2␣"␣␣␣0.00␣g"	Prompt to unload the balance
↑	TST2␣"␣200.00␣g"	Prompt to load the test weight
↑	TST2␣"␣␣␣0.00␣g"	Prompt to unload the balance
↑	TST2␣A␣"␣␣␣0.01␣g"	External test completed successfully

Also see:

- M20 – Query/Set Test Weight (page 116)
- C2 – Start Adjustment with External Weight (page 38)

TST3 – Start Test Function with Internal Weight

Description

Use TST3 to start the balance test function using internal test weights.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
✓	✓			✓	✓	✓	✓

Syntax

Command

TST3	Start test function with built-in weight.

First Responses

TST3␣B	The test procedure has been started. Wait for next response, **see** Comment.
TST3␣I	Command understood but currently not executable (balance is currently executing another command). No second response follows.
TST3␣L	Command understood but not executable (incorrect parameter). No second response follows.

Further Responses

TST3␣A␣"<WeightValue>"	Test procedure completed successfully. Weight value corresponds to the deviation from the specified value displayed after the test.
TST3␣I	The test procedure has been aborted as, e.g. stability was not attained or wrong weights were loaded.

Parameter

Name	Type	Values	Meaning
<WeightValue>	Float		Difference to the specified value in definition unit of the balance

Comments

- The commands received immediately after the first response are not processed and responded to in the appropriate manner until after the second response.
- Use @ (page 18) to abort a running test.
- For additional information on testing the adjustment, **see** the Operating Instructions of the balance.
- The result from the TST3 is in % on the display and in digit on the host interface.

Example

↓	TST3	Start test with internal weight
↑	TST3␣B	The test procedure has been started
↑	TST3␣A␣"␣␣␣␣␣0.0002"	Test with internal weight completed successfully. The difference to the specified value is 0.0002 (= 2 digits from a weigh module/balance with an increment of 0.1 mg).

Also see:

- C3 – Start Adjustment with Internal Weight (page 39)

UPD – Query/Set Update Rate of the Host Interface

Description

Use UPD to set the update rate of the host interface or query the current setting.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
✓	✓	✓	✓	✓	✓	✓	✓

Syntax

Commands

UPD	Query of the update rate of the host interface.
UPD␣<UpdateRate>	Set the update rate of the host interface.

Responses

UPD␣A␣<UpdateRate>	Current setting of the update rate of the host interface.
UPD␣A	Command understood and executed successfully.
UPD␣I	Command understood but currently not executable (balance is currently executing another command).
UPD␣L	Command understood but not executable (incorrect parameter).

Parameter

Name	Type	Values	Meaning
<UpdateRate>	Float	1 … 1000	Update rate in values per second Terminal: 1..23, stand-alone bridge: 1..1000

Comments

- The parameter setting will be saved and the only way to reset the default value will be via MT-SICS or by means of a factory reset, FSET (page 61) or via terminal not @ (page 18).
- Use UPD to configure the update rate of SIR (page 216) and SIRU (page 217).
- The balance can not realize every arbitrary update rate. The specified update rate is therefore rounded to the next realizable update rate. Use UPD without parameter to query the actually configured update rate.
- An update rate less than 23 must be specified for weigh modules, balances with a terminal. Otherwise, unpredictable behavior may occur.

Examples

↓	UPD	Query of the update rate of the host interface
↑	UPD␣A␣20.2	The update rate of the interface is 20.2 values per second

↓	UPD␣20	Set the update rate of the host interface to 20 values per second
↑	UPD␣A	Command executed successfully
↓	UPD	Query of the exact update rate of the host interface
↑	UPD␣A␣18.311	The exact update rate is 18.311 values per second

USTB – Query/Set Stability Criteria for Weighing, Taring and Zero Setting

Description

Use USTB to define the stability criteria for weighing, taring and zero setting.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
✓*	✓	✓		✓			

* Parameter <Tol> and <Time> have default setting 0

Syntax

Commands

USTB	Query the current stability criteria for all functions: weighing, taring, and zero setting.
USTB␣<Function>␣<Tol>␣<Time>	Set the stability criteria.

Responses

USTB␣B␣<Function>␣<Tol>␣<Time> USTB␣B… USTB␣A␣<Function>␣<Tol>␣<Time>	Current settings of the stability criteria.
USTB␣A	Command understood and executed successfully.
USTB␣L	Command understood but not executable (incorrect parameter).

Parameters

Name	Type	Values	Meaning
<Function>	Integer	0	Stability criterion for weighing, **see** "S (page 212)", "SI (page 215)", "SIR (page 216)" … commands
		1	Stability criterion for taring, **see** "T (page 237)", "TI (page 242)", commands
		2	Stability criterion for zero setting, **see** "Z (page 256)", "ZI (page 258)", commands
<Tol>	Float	0.25 … 1000 digit	Specify tolerance in digits (smallest weight increment) within which the value must stay to be regarded as stable
<Time>	Float	0.1 … 4.0 seconds	Specify the observation time in seconds during which the value must stay within tolerance in order to be regarded as stable

Comments

- The observation time period is rolling.
  It restarts every time the current weight value exceeds the tolerance. Therefore, the actual time for stability determination depends on the current weight trend as well as on the history before sending an S (page 212), SR (page 228)…, T (page 237), or Z (page 256) command. Ideally, taring or zero setting can take just a few milliseconds, provided the weight value was stable for the observation time period before sending the appropriate command.
- During power up or restart, **see** RDB (page 210) command the zero point will only be determined if stability for zero setting is achieved. Otherwise, an undefined weight value will appear after the start up procedure is completed

Examples

↓	USTB	Query the current stability criteria for all functions: weighing, taring, and zero setting
↑	USTB␣B␣0␣1␣1	Stability criteria for weighing: 1 digit for at least 1 seconds
	USTB␣B␣1␣0.5␣2	Stability criteria for taring: 0.5 digit for at least 2 seconds
	USTB␣A␣2␣0.5␣2	Stability criteria for zeroing: 0.5 digit for at least 2 seconds

↓	USTB␣0␣1␣1.5	Set the stability criteria for weighing to 1 digit for at least 1.5 seconds
↑	USTB␣A	Command understood and executed successfully

WMCF – Query/Set Configuration of the Weight Monitoring Functions

Description

The WMCF command is used to configure a "Check weighing" or "Dispensing" function without a PC or PLC. The digital outputs DOT␣1...3 are used.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
	✓						

Syntax

Commands

WMCF	Query the current configuration of the weight monitoring functions.
WMCF␣<Function>	Set WMCF function.
WMCF␣1␣<TargetValue>␣<Unit>␣<Tol->␣<Unit>␣<Tol+>␣<Unit>	Set configuration for "Control Weighing" function. The digital output will be set if a stable weight value is: DOT␣1: below <TargetValue> - <Tol-> DOT␣2: between <TargetValue> - <Tol-> and <TargetValue> + <Tol+> DOT␣3: over <TargetValue> + <Tol+>
WMCF␣2␣<Limit1>␣<Unit>␣<Limit2>␣<Unit>␣<Limit3>␣<Unit>	Set configuration for "Dispensing" function. The digital output will be set if a any (stable and unstable) weight value reach: DOT␣1: <Limit1> DOT␣2: <Limit2> DOT␣3: <Limit3>

Responses

WMCF␣A␣0 or WMCF␣A␣1␣<TargetValue>␣<Unit>␣<Tol->␣<Unit>␣<Tol+>␣<Unit> or WMCF␣A␣2␣<Limit1>␣<Unit>␣<Limit2>␣<Unit>␣<Limit3>␣<Unit>	Current configurations for the weight monitor function.
WMCF␣A	Command understood and executed successfully.
WMCF␣I	Command understood but currently not executable.
WMCF␣L	Command understood but not executable (incorrect parameter).

Parameters

Name	Type	Values	Meaning
<Function>	Boolean	0 = off	WMCF function
		1 = "Control Weighing"	
		2 = "Dispensing"	
<TargetValue>	Float		Target value
<Tol-> <Tol+>	Float		Tolerance
<Limit1...3>	Float		Weight limit value
<Unit>	String		Target, Tolerance and Limit unit, only available units permitted

Comments

- Digital output must be available.
- Only one command DOTC (page 54) (n), DOTP (page 56) (n) or `WMCF` can be configured for the same digital output.
- `TargetValue` and `Limit1…3` will be rounded to the defined resolution from the load cell.
- Only allowed units are permitted, **see** M21 (page 117).
- The weight value monitoring function works only with a weight value command (e.g. SI (page 215), SIR (page 216)).
- The weight value monitoring function works only on the interface 1 (RS422), **see** COM (page 42).
- The update rate depends on the defined UPD (page 250) rate.
- `Tol-` and `Tol+` defined as % reference to the `Target Value`.
- Duration and Delay from the digital output must be defined with the command DOT (page 53).

Examples

↓	`WMCF`	Query the current configuration for the weight monitoring function
↑	`WMCF␣A␣0`	No weight monitoring function is activated
or		
↑	`WMCF␣A␣1␣100␣g␣3␣g␣5␣%`	The target weight for check weighing is 100 g. Weights which are equal to or greater than 97 g and less than or equal to 105 g (=100 g+5 %) are within the tolerance. The digital Output are TRUE, if weight value is stable and: `DOT␣1`: < 97 g `DOT␣2`: ≥ 97 g and ≤ 105 g `DOT␣3`: > 105 g
or		
↑	`WMCF␣A␣2␣70␣g␣75␣g␣76␣g`	The limits of the dispensing function are 70 g, 75 g, and 76 g. The digital Output are TRUE, if any (stable and unstable) weight values are `DOT␣1`: ≥ 70 g `DOT␣2`: ≥ 75 g `DOT␣3`: ≥ 76 g

↓	`WMCF␣A␣1`	Activate "Control Weighing" function with last used parameters
↑	`WMCF␣A␣1␣100␣g␣3␣g␣5␣%`	The last used parameters are activated, **see** example above

↓	`WMCF␣1␣300.00␣30␣mg␣0.1␣%`	When check weighing, the target weight of 300 g may be exceeded by a minimum of 299.70 g and by a maximum of 300.30 g (=300.00 g+0.1 %)
↑	`WMCF␣A`	Command understood and executed successfully

↓	`WMCF␣2␣150␣g␣165␣g␣167␣g`	When dosing, the first limit is 150 g, the second 165g and the third 167 g
↑	`WMCF␣A`	Command understood and executed successfully

Also see:

- DOT – Query/Set Configuration for Digital Outputs (page 53)
- DOTC – Query/Set Digital Outputs – Weight Monitor (page 54)
- DOTP – Query/Set Digital Outputs – Command Response Parser (page 56)

Z – Zero

Description

Use Z to set a new zero; all weight values (including the tare weight) will be measured relative to this zero. After zeroing has taken place, the following values apply: tare weight = 0; net weight (= gross weight) = 0.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
✓	✓	✓	✓	✓	✓	✓	✓

Syntax

Command

Z	Zero the balance.

Responses

Z␣A	Zero setting successfully performed. Gross, net and tare = 0.
Z␣I	Command understood but currently not executable (balance is currently executing another command, e.g. taring, or timeout as stability was not reached).
Z␣+	Upper limit of zero setting range exceeded.
Z␣–	Lower limit of zero setting range exceeded.

Comments

- The tare memory is cleared after zero setting.
- The zero point determined during switching on is not influenced by this command, the measurement ranges remain unchanged.
- The duration of the timeout depends on the balance type.
- The draft shield closes with this command, when the "Door function" is set on "Automatic". It opens after sending a stable weight.

Example

↓	Z	Zero
↑	Z␣A	Zero setting performed

ZC – Zero or Zero Immediately After Timeout

Description

Use Z to set a new zero; all weight values (including the tare weight) will be measured relative to this zero. After zeroing has taken place, the following values apply: tare weight = 0; net weight (= gross weight) = 0. The command ZC with configurable timeout is used for processes with defined time cycles.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
	✓	✓		✓			

Syntax

Command

ZC␣<Time>	Set next stable weight value as new zero weight (reference) point or set dynamic weight value immediately after timeout as new zero weight point. Timeout is specified in ms.

Responses

ZC␣S	Zero setting successfully performed. Gross, net and tare = 0.
ZC␣D	Zero setting successfully performed with dynamic weight value after timeout i.e. the stability criterion for zero setting was not met. Gross, net and tare = 0.
ZC␣I	Command understood but currently not executable (balance is currently executing another command, e.g. taring, or timeout as stability was not reached).
ZC␣L	Command understood but not executable (incorrect parameter).
ZC␣+	Upper limit of zero setting range exceeded.
ZC␣-	Lower limit of zero setting range exceeded.

Parameter

Name	Type	Values	Meaning
<Time>	Integer	1 … 65535 ms	Timeout in Milliseconds [ms]

Comments

- The tare memory is cleared after zero setting.
- <Time> will be rounded to the next possible interval (interval steps 8 ms).
- Zero point set under unstable conditions may not be considered as a true reference for further measurements.
- The tare memory is cleared after zero setting.
- The criterion that must be fulfilled to reach stability for zeroing can be set using the USTB (page 251) command.

Example

↓	ZC␣500	Set new zero point within maximum 500 ms
↑	ZC␣S	Zero setting performed, stability criterion for zero setting met
or		
↑	ZC␣D	Zero setting performed upon timeout of 500 ms under unstable conditions (stability criterion for zero setting not fulfilled)

ZI – Zero Immediately

Description

Use ZI to set a new zero immediately, regardless of balance stability. All weight values (including the tare weight) will be measured relative to this zero. After zeroing has taken place, the following values apply: tare weight = 0; net weight (= gross weight) = 0.

Supported Products

WKL, WKR	WMS	WMC		WXS, WXT			
		1	2	3	4	5	6
✓	✓	✓	✓	✓	✓	✓	✓

Syntax

Command

ZI	Zero the balance immediately regardless the stability of balance.

Responses

ZI␣D	Re-zero performed under non-stable (dynamic) conditions.
ZI␣S	Re-zero performed under stable conditions.
ZI␣I	Command understood but currently not executable (balance is currently executing another command, e.g. taring).
ZI␣+	Upper limit of zero setting range exceeded.
ZI␣-	Lower limit of zero setting range exceeded.

Comments

- The tare memory is cleared after zero setting.
- This command is not supported by approved balances.
- The zero point determined during switching on is not influenced by this command, the measurement ranges remain unchanged.

Example

↓	ZI	Zero immediately
↑	ZI␣D	Re-zero performed under non-stable (dynamic) conditions

4 What if...?

Tips from actual practice if the communication between the system (computer, PLC) and the balance is not working.

Establishing the communication

Switch the weigh module/balance off / on.

The balance must now send identification string I4 (page 66), e.g. `I4␣A␣"0123456789"`.

If this is not the case, check the following points.

Connection

For RS232 communication, at least three connecting lines are needed:

- Data line from the weigh module/balance (TxD signal).
- Data line to the weigh module/balance (RxD signal).
- Signal ground line (GNDINT).

For RS422 communication, at least four connecting lines are needed:

- Data line from the weigh module/balance (TX+ signal).
- Data line from the weigh module/balance (TX- signal).
- Data line to the weigh module/balance (RX+ signal).
- Data line to the weigh module/balance (RX- signal).

Make sure that all these connections are in order. Check the connector pin assignment of the connection cables.

Interface parameters

For the transmission to function properly, the settings of the following parameters must match at both the computer and the balance:

- Baud rate (send/receive rate)
- Number of data bits
- Parity bit

Check the settings at both devices.

Handshake

For control of the transmission, in part separate connection lines are used (CTS/DTR). If these lines are missing or wrongly connected, the computer or balance can not send or receive data.

Check whether the weigh module/balance is prevented from transmitting by handshake lines (CTS or DTR). Set the parameter "protocol" for the weigh module/balance and the peripheral device to "No Handshake" or "none". The handshake lines now have no influence on the communication.

Characters are not displayed correctly

In order to display ASCII characters >127 dec., ensure that 8-bit communication is taking place.

5 Examples

5.1 Weight Control with two or more WMS Weigh Modules via RS422

The following example explains how to setup the weigh module in a RS422 network.
Communication via service interface (RS232)

↓	FSET␣1	Restore factory settings
↑	I4␣A␣"1234567890"	Balance is reset. The serial number is 1234567890
↓	PROT␣1	Set address protocol mode
↑	PROT␣A	Command understood and executed successfully
↓	NID␣1	Set module address (e.g. for module 1 to 1)
↑	NID␣A	Command understood and executed successfully
↑	M45␣1␣1	Set RS422 bus termination on (only first and last module)
↓	M45␣A	Command understood and executed successfully
↑	I10␣"Module␣1"	Set module ID (e.g. for module 1: Module 1)
↓	I10␣A	Command understood and executed successfully
↑	TST0␣0	Configure the test function with internal weight
↑	TST0␣A	Command understood and executed successfully
↓	C0␣0␣0	Set Adjustment settings to manual with internal weight
↑	C0␣A	Command understood and executed successfully
↓	USTB␣0␣5␣0.3	Set the stability criteria for weighing to 5 digit for at least 0.3 seconds
↑	USTB␣A	Command understood and executed successfully
↓	USTB␣1␣1␣1	Set the stability criteria for taring to 1 digit for at least 1 second
↑	USTB␣A	Command understood and executed successfully
↓	USTB␣2␣1␣1	Set the stability criteria for zeroing to 1 digit for at least 1 second
↑	USTB␣A	Command understood and executed successfully

Communicate via RS422 network

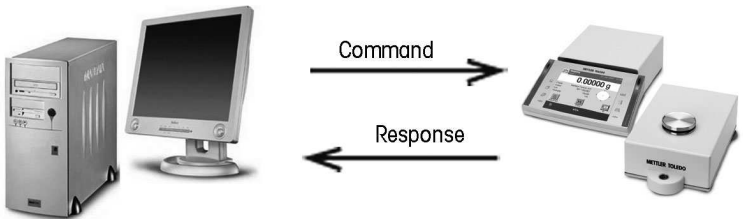
↓	0␣I10	Check module ID from all weigh modules on the network (broadcast)
↑	1␣I10␣Module␣01"	Module 01 (ASCII '1') is on the network
↑	-␣I10␣Module␣13"	Module 13 (ASCII '=') is on the network
↑	?␣I10␣Module␣15"	Module 15 (ASCII '?') is on the network
↓	0␣Z	Set all modules to zero (broadcast)
↑	1␣Z␣A	Module 01 has zero setting performed
↑	-␣Z␣A	Module 13 has zero setting performed
↑	?␣Z␣A	Module 15 has zero setting performed
↓	1␣SI	Ask Module 01 for the current weight value
↑	1␣S␣D␣␣␣129.0432␣g	The weight value is 129.0432 g

5.2 Formula weighing application

The following simple formula weighing application shows the data interchange between the computer with the formula weighing program and the balance.

A substance (S = 121 g) comprising components C1 = 100 g and C2 = 21 g needs to be weighed into a beaker.

If too much or too little of the first component is weighed in, the target weight of the second component should be adjusted so that the ratio of the two components remains the same. The user is guided by the balance display and acknowledges his actions with the tare key. In the end, the total weight of the substance is displayed.



↓	@	Cancel any running command
↑	I4␣A␣"1114350697"	Balance is reset. The serial number is 1114350697
↓	K␣3	Disable key function and report each keystroke
↑	K␣A	Command understood and executed successfully
↓	D␣"BEAKER"	Write "BEAKER" into the balance display to prompt loading the beaker
↑	D␣A	"BEAKER" appears in the balance display
↑	K␣C␣10	Acknowledges that the tare key has been pressed
↓	T	Tare weight on the balance
↑	T␣S␣␣␣70.0000␣g	The beaker weighs 70.0000 g
↓	D␣"C1␣100␣g"	Write "C1 100 g" into the balance display to prompt adding component C1 = 100 g
↑	D␣A	"C1 100 g" appears in the balance display
↑	K␣C␣10	Acknowledges that the tare key has been pressed
↓	S	Get actual weight of component 1
↑	S␣S␣␣␣105.0000␣g	Target weight of component 1 missed by 5 g → 5% to much
↓	T	Tare weight on the balance
↑	T␣S␣␣␣175.0000␣g	Contents of the tare memory, now corresponds to gross weight
↓	D␣"C2␣22.5␣g"	Write "C2 22.5 g" into the balance display to prompt adding component C2 = 21 g + 5% = 22.5 g
↑	D␣A	"C2 22.5 g" appears in the balance display
↑	K␣C␣10	Acknowledges that the tare key has been pressed
↓	TA␣70␣g	Preset the tare weight of the beaker (70 g)
↑	TA␣␣␣␣70.0000␣g	The balance acknowledges the tare weight of 70 g
↓	DW	Switch balance display to show the weight again
↑	DW␣A	127.5000 g appears in the balance display

6 Index

GWP® – Good Weighing Practice™

The global weighing guideline GWP® reduces risks associated with your weighing processes and helps to

- choose the appropriate balance
- reduce costs by optimizing testing procedures
- comply with the most common regulatory requirements

▶ www.mt.com/GWP

www.mt.com/APW

For more information

Mettler-Toledo AG, Laboratory & Weighing Technologies
CH-8606 Greifensee, Switzerland
Tel. +41 (0)44 944 22 11
Fax +41 (0)44 944 30 60
www.mt.com

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