

1 Introduction and assembly

1.1 Introduction

Analog Scale-ID7 is an additional scale connection for the METTLER TOLEDO ID7... weighing terminal for connecting analog weighing platforms. A maximum of 2 analog weighing platforms can be connected to the ID7... weighing terminal.

Note

Either a 2nd analog weighing platform connection Analog Scale-ID7 or an Alibi Memory-ID7 can be installed.

Documentation

The ID7... weighing terminal is provided with operating instructions and installation information for the original configuration of the weighing terminal. Please see these operating and installation instructions for basic information on working with the ID7... weighing terminal.

1.2 Safety precautions

1.2.1 Installation in explosion protected ID7xx-... weighing terminal



EXPLOSION HAZARD

The ID7xx-... weighing terminal may only be opened by METTLER TOLEDO service technicians.

→ To install the Analog Scale-ID7 application software, please contact METTLER TOLEDO Service.

1.2.2 Installing in ID7-... weighing terminal



▲ Only authorized personnel may open the ID7... weighing terminal and install the Analog Scale-ID7 module.

▲ Before opening the terminal, pull the power plug or switch off the power supply for terminals with a fixed connection.

1.3 Installation

1.3.1 Opening ID7... weighing terminal

Desk unit

1. Unscrew the screws on the underside of the cover.
2. Lay down the cover toward the front. When doing so, make sure that the cables are not damaged.

Wall unit

1. Unscrew the screws on the underside of the cover and fold the cover toward the front. When doing so, make sure that the cables are not damaged.
2. Fold open the mounting plate.

Panel unit

1. Unscrew the 10 hex bolts on cut-out on the inside of the switch cabinet.
2. Remove the cover from the switch cabinet and fold toward the front. When doing so, make sure that the cables are not damaged.
3. Fold open the mounting plate.

1.3.2 Setting DIP switches

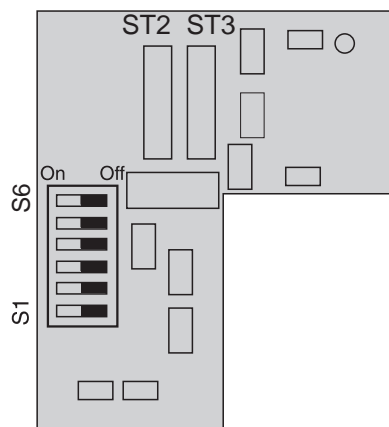
→ Before the new weighing platform connection is installed, the following DIP switches must be set in accordance with the table below.

- S1 to S6 on the ID7 socket PCB,
- S1 and S2 on the IDNet PCB (if present).

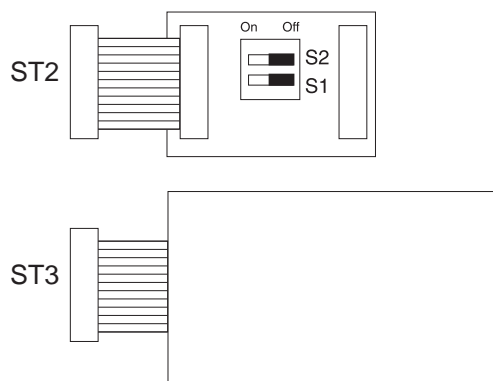
Note

If you want to put **two** new weighing platform connections into operation simultaneously, please contact METTLER TOLEDO Service.

Socket board



IDNet board scale 2

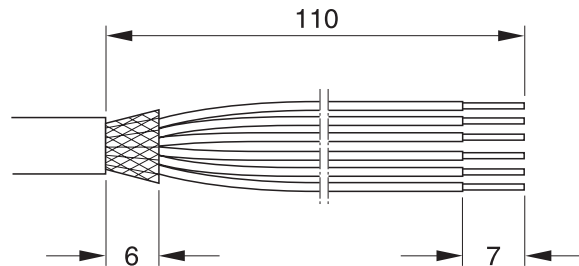


Scale connections 1 ... 3			Socket board						IDNet 2	
Scale 1	Scale 2	Scale 3	S1	S2	S3	S4	S5	S6	S1	S2
IDNet	Analog	–	off	off	off	off	on	on	–	–
IDNet	IDNet	Analog	off	off	off	off	on	on	off	off
IDNet *	Analog	–	off	off	on	on	on	on	–	–
IDNet *	IDNet *	Analog	off	off	on	on	on	on	off **	off
IDNet	Analog	Analog	off	off	off	off	off	off	–	–
IDNet *	Analog	Analog	off	off	on	on	off	off	–	–
IDNet	Analog	Analog *	off	off	off	off	on	on	–	–
IDNet *	Analog	Analog *	off	off	on	on	on	on	–	–

- No connection present
- * Connection present, but not in use
- ** In this configuration the external connection plug 00 504 241 is also required on scale connection 2.

1.3.3 Install Analog Scale-ID7

Prepare weighing platform connection cable



1. Strip the ends of the cable to approx. 110 mm and shorten the cable shielding to 6 mm.
2. Strip the wire ends to approx. 7 mm and twist.
3. Push on wire end ferrules and press on with a crimping tool. The cable ends may not extend beyond the wire end ferrules when doing so.

Connect screw cable gland to weighing platform cable

CE conformity

For longer connection cables, screening measures against absorbed and emitted radiation of interference are particularly important.

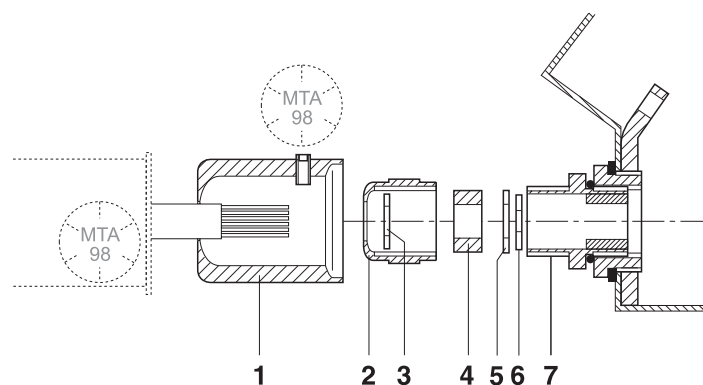
The required interference immunity classes are only achieved when all connected peripheral devices, weighing platforms and weighing cells are installed and wired carefully. To do this the screening must be properly connected at both ends.

The CE conformity of the entire system is the responsibility of the person(s) commissioning the system.

Certified weighing platforms

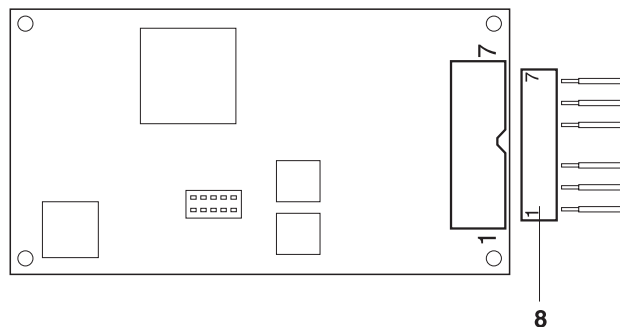
Certified weighing platforms require the ID card, which must be mounted over the connection cable prior to connection to the weighing terminal. In addition, the PCB Analog Scale ID7 must be lead-sealed.

Please contact METTLER TOLEDO Service for marking and certification of your weighing system.



1. For one Analog Scale-ID7 connection remove blind plugs from scale connection 3. For two Analog Scale-ID7 connections remove blind plugs from scale connections 2 and 3.
2. Push lead sealing sleeve (1), union nut (2), washer (3), molded seal (4) and contact washer with large hole (5) over cable sheath. If screen braiding wires are loosened in the process, these must not contact any electrically conductive system parts!
3. Unbraid exposed screen.
4. Push molded seal (4) and contact washer (5) up to edge of cable sheath and connect screen.
5. Push contact washer with small hole (6) over wires so that screen is positioned between two contact washers.
6. If screen wires are longer than diameter of contact washers, shorten screen wires to diameter of contact washers.
7. Guide molded seal with cable into anti-twist element of metal housing (7).
8. Screw union nut onto metal housing, but do not tighten yet.

Connect cable

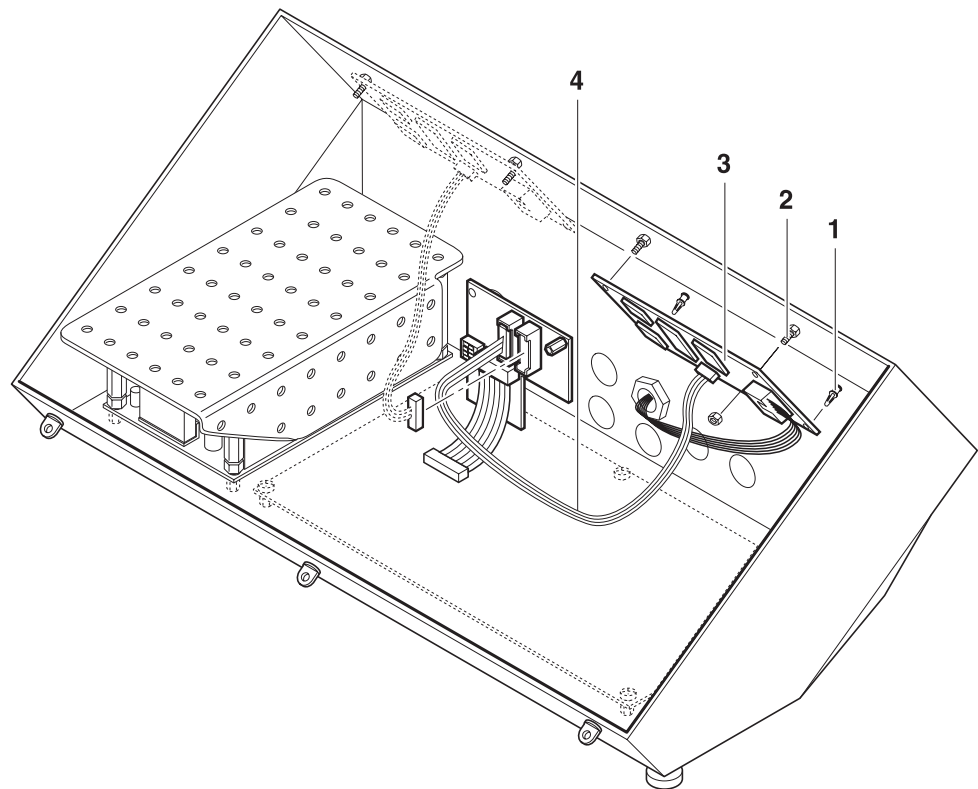


1. Pull test cable off PCB of Analog Scale-ID7.
2. Pull plug (8) off analog board and connect wires of weighing platform cable to plug as follows:

Pin	Assign-ment	Color for METTLER TOLEDO analog weighing platforms		
		several weighing cells D...-T, N...-T, RWM, SPIDER large	one weighing cell DB...-T, DCC...-T, HBM cell	SPIDER small, TEDEA cell
1	+ EXC	gray	blue	green
2	+ SEN	yellow	green	blue
3	+ SIG	white	white	red
4	–	–	–	–
5	– SIG	brown	red	white
6	– SEN	green	gray	brown
7	– EXC	blue	black	black

Note

- If the cable of the weighing platform to be connected has only 4 wires, connect the following terminal pairs with a wire jumper:
- Terminal 1 and 2 (+ EXC and + SEN)
 - Terminal 6 and 7 (– SEN and – EXC)
3. Push in plug (8) on the Analog Scale-ID7 board.

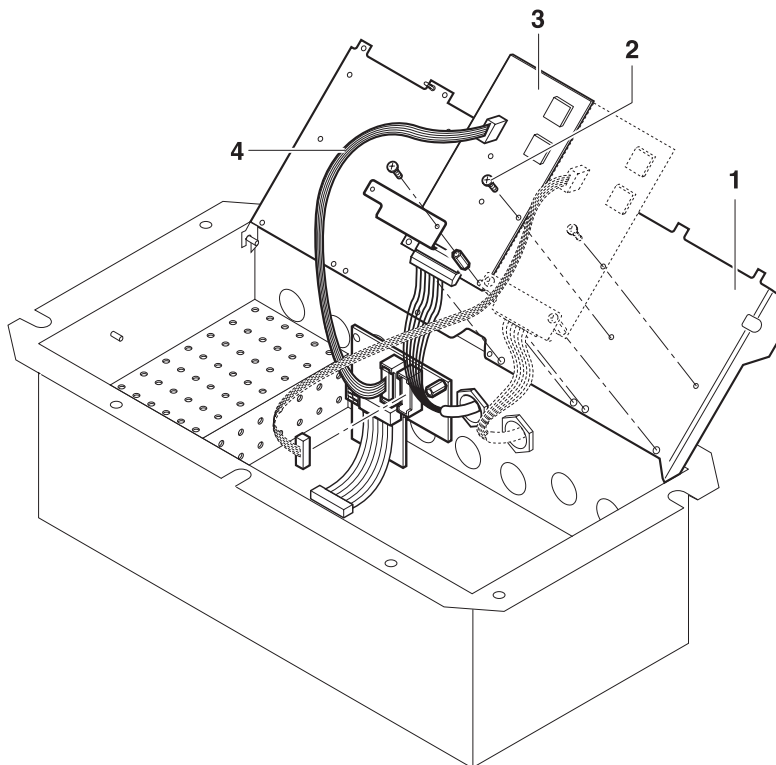
Mount PCB Analog Scale-ID7 in desk unit**First PCB
Analog Scale-ID7**

1. Insert second spacer (1) on PCB Analog Scale-ID7 (3).
2. Push first PCB Analog Scale-ID7 onto two upper right studs (2) on housing and screw on with a nut.

**Second PCB
Analog Scale- ID7
(if present)**

1. Insert two spacers on PCB Analog Scale-ID7.
2. Push second PCB Analog Scale-ID7 onto two upper left studs on housing and screw on with a nut.

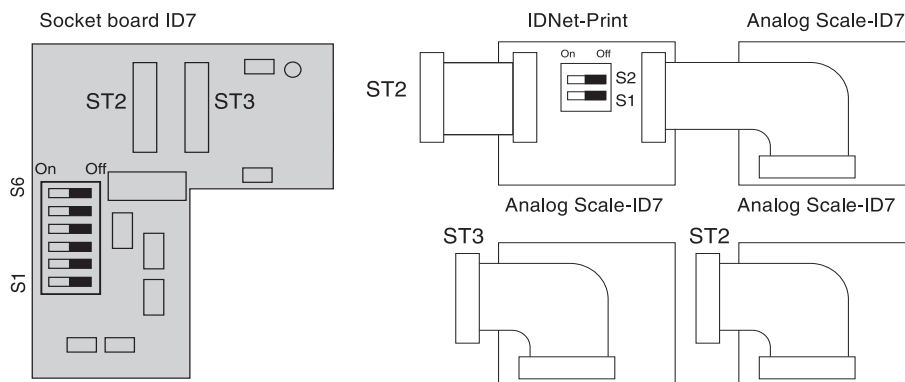
Mounting Analog Scale-ID7 PCB in wall or panel unit



→ Secure the Analog Scale-ID7 PCB (3) on the mounting plate (1) with 1 screw (2).

Mount the first Analog Scale-ID7 PCB on the second position from the right, and a second Analog Scale ID7 PCB (if present) on the outer right-hand position.

Connect PCB Analog Scale-ID7



1 PCB Analog Scale-D7

→ If the IDNet PCB for scale 2 is present, insert the ribbon cable (4) on the IDNet PCB.

– or –

If no IDNet PCB is present, insert the ribbon cable (4) in plug ST2 of the socket PCB.

**2 PCBs
Analog Scale-ID7**

1. Insert ribbon cable (4) of first (right) PCB Analog Scale-ID7 in plug ST2 on socket PCB.
2. Insert ribbon cable (4) of second (left) PCB Analog Scale-ID7 in plug ST3 on socket PCB.

**CAUTION**

- Connect external blind plugs to unused weighing platform connections.

1.3.4 Closing ID7... weighing terminal**Closing desk unit**

1. Lay the unit on cover and fix slightly in place with 3 screws.
2. Press the unit into cover so that 3 engaging springs engage.
3. Tighten screws.

**CAUTION**

The IP68 protection type can only be guaranteed when the weighing terminal is closed again properly.

- The 3 engaging springs must be completely engaged.
→ Make sure that the keypad cable is not pinched.

Closing wall unit

1. Fold in the mounting plate.
2. Position the cover and screw on again. When doing so, make sure that no cables are pinched.

Closing panel unit

1. Fold in the mounting plate and position the cover on the cut-out again.
2. Secure the cover on the switch cabinet from the inside with 10 screws. When doing so, make sure that no cables are pinched.

2 Settings in the master mode

2.1 SERVICE MODE master mode block

The service mode is used for

- entry of the parameters specific to the weighing platform,
- calibration of the scale,
- setting the linearity,
- resetting the measuring cell parameters to the factory setting.

CAUTION

The parameters which can be changed in the service mode are protected by certification. If the scale is set to certified (APPROVE in the program block SCALE), the identcode (identification code) counter will be incremented by one when the altered parameters are stored. In the case of a certified scale, this corresponds to destruction of the certification seal. Recertification of the scale is then necessary.

2.1.1 Overview of the SERVICE MODE master mode block

RETURN	Quit service mode without changing the set parameters and the identcode counter.
RESET	Reset weighing platform parameters to factory setting.
NATION	Selection of the country. This automatically takes the certification regulations of the particular country into account.
SCALE PARAMETERS	Entry of the parameters specific to the weighing platform: certifiability, type, maximum capacity and resolution.
LINEARITY	Enter or calibrate linearity.
CALIBRATION	Calibration of the weighing platform.
ADAPTION	Enter application-specific parameters.
SAVE PARAMETERS	Storage of the selected configuration.

2.1.2 Enter service mode

1. Activate master mode and select SERVICE MODE.
2. Enter code 2 4 8 16 32.

CAUTION

When the code is entered, the scale loses its calibration certification!

3. Select SCALE SERVICE MODE.
4. Select scale with analog signal output (Scale 2 or Scale 3).
The first service mode block RETURN appears.

2.1.3 Operating the service mode

Only the two keys for YES and NO are active in the service mode, the numeric keypad is not available.

Example 1: Entry of the maximum capacity 60 kg

The maximum capacity shown in the display does not correspond to the desired value. Reply with NO.

CA 150 kg

NO

0

NO

1

NO

⋮

6

YES

60

YES

600

NO

60.

SI

CA 60 kg

The digit 0 appears. Use NO to increment the first digit to the desired value.

6 is the desired 1st digit, confirm with YES.

The digit 0 appears at the 2nd place. 60 is the desired value, confirm with YES.

A further place appears, but is not needed. Reply with NO.

60. is the desired value, confirm with YES.

For a check, the value of the maximum capacity just set now reappears. Confirm with YES and proceed to the next program block.

Example 2: Entry of the resolution 0.005 kg

The resolution shown in the display does not correspond to the desired value. Reply with NO.

d 0.001 kg

NO

0

YES

00

NO

0.

YES

0.0

YES

⋮

0.000

NO

0.001

NO

⋮

0.005

YES

d 0.005 kg

The digit 0 appears, confirm with YES.

Another 0 appears before the point, but is not needed. Reply with NO.

The decimal point appears, confirm with YES.

Press YES for additional places until the number of desired decimal places is reached.

Select the desired resolution with NO.

0.005 is the desired value, confirm with YES.

For a check, the value of the resolution just set now reappears.. Confirm with YES and proceed to the next program block.

2.1.4 Settings in the service mode

RESET	Resetting to the factory setting
NO RESET	Quit the service mode block without resetting the parameters.
RESET ALL	Reset parameters specific to weighing platform to the factory setting.

SCALE PARAMETERS	Selecting the parameters specific to the weighing platform
NO W+M APPROVAL W+M APPROVE	1. Select certification capability <ul style="list-style-type: none"> • Noncertified scale • Certified scale
MULTI-RANGE MULTI-INTERVAL	2. Selecting multi-range or multi-increment scale <ul style="list-style-type: none"> • Multi-range (fixed ranges) • Multi-increment (ranges can be shifted with tare function)
1 RANGE / 1 INTERVAL 2 RANGES / 2 INTERVALS 3 RANGES / 3 INTERVALS	3. Select number of weighing ranges <ul style="list-style-type: none"> • Same resolution over entire weighing range • Two ranges with different resolution • Three ranges with different resolution
UNIT = kg UNIT = lb UNIT = g	4. Select unit <ul style="list-style-type: none"> • Display in kg • Display in lb, if allowed by metrological regulations • Display in g
CA XXX kg 0	5. Select maximum capacity <ul style="list-style-type: none"> • Maximum capacity currently set • Enter desired maximum capacity and confirm
CAP1 CA XXX kg 0	6. Define weighing ranges (with multirange or multi-increment scales only) <ul style="list-style-type: none"> • Display for information: Weighing range 1 • Value currently set for the first weighing range • Enter desired value for the first weighing range <p>With the setting 3 RANGES / 3 INTERVALS, the maximum load in the second weighing range is calculated as follows: Number of resolution points of the first area x number step of the 2nd range.</p>

SCALE PARAMETERS	Selecting the parameters specific to the weighing platform
D X.XXXX kg 0	<p>7. Select resolution</p> <ul style="list-style-type: none"> Resolution currently set for the first weighing range. With multi-range or multi-increment scales, the resolution of additional weighing ranges is determined automatically by the weighing terminal. Enter desired resolution for the first weighing range.
Comment	If one of the settings or their combination was inadmissible, the message ERR_Rx appears where x represents the weighing range. In this case, the program jumps back to step 1.

LINEARITY	Entering linearity
	<p>This service mode block can be used to compensate linearity errors. The linearity is usually checked with half the maximum capacity. When half the maximum capacity is loaded on the scale in normal operation, the scale should show exactly this value. If this is not the case, note the displayed value (linearity) so that it can be entered at the appropriate place in the service mode.</p>
ENTER LINCAP XX.XXX kg 0	<p>1. Select linearization weight</p> <ul style="list-style-type: none"> Display for information: Linearization weight. Linearization weight currently set, e.g. half load. Enter desired linearization weight.
RESET LINEARITY	<p>2. Reset linearity compensation</p>
ENTER DISPL CAP XX.XXX kg 0 CAL LINEARITY SET PRELOAD SET LINCAP UNLOAD	<p>3. Linearization</p> <p>by entry of the linearity</p> <ul style="list-style-type: none"> Display for information: Enter linearization weight. Accept displayed weight value if it matches the weight value displayed when the linearization weight was loaded. Enter weight value displayed when the linearization weight was loaded. <p>by loading the linearization weight</p> <ul style="list-style-type: none"> Unload scale and load preload, if used, confirm with YES. Load linearization weight selected in step 1, confirm with YES. Unload scale, confirm with YES.

CALIBRATION	Calibrating weighing platform – using geo value
	<p>If weighing platform and weighing terminal have already been matched to each other (calibrated) in the factory, the calibration can be corrected by the geo value up to a resolution of 3000 digit.</p> <p>If a higher resolution is required or if the weighing platform and weighing terminal have not been matched to each other, the calibration must be performed with external weights.</p>
GEO 00 ... GEO 31	Select appropriate geo value. You will find the value appropriate to your country in the following table.

Country		Geo value	Country		Geo value
A	Austria	19	MA	Morocco	13
AUS	Australia	12	MAL	Malaysia	5
B	Belgium	21	MEX	Mexiko	5
BR	Brazil	8	N	Norway	24
CDN	Canada	18	NL	Netherlands	21
CH	Switzerland	18	NZ	New Zealand	16
CO	Columbia	2	P	Portugal	15
D	Germany	20	PE	Peru	6
DK	Denmark	23	PRC	China	10
E	Spain	15	RA	Argentina	13
EC	Ecuador	1	RCH	Chile	12
ET	Egypt	11	RI	Indonesia	6
F	France	19	ROC	Taiwan	10
GB	Great Britain	21	ROK	South Korea	15
GR	Greece	15	S	Sweden	24
HK	Hong Kong	9	SA	Saudi Arabia	8
I	Italy	17	SF	Finland	24
IL	Israel	12	SGP	Singapore	5
IND	India	8	T	Thailand	6
IR	Iran	12	TA	Turkey	16
IRL	Ireland	22	USA	United States	16
IS	Iceland	26	YUG	Yugoslavia	18
J	Japan	14	YV	Venezuela	5
JOR	Jordan	11	ZA	South Afrika	12
KWT	Kuwait	11			

CALIBRATION	Calibrating weighing platform – with an external weight
CAL EXTERNAL	If you wish to calibrate with an external weight, confirm with YES.
SET PRELOAD --CALIBRATION--	<ul style="list-style-type: none"> • Load preload and confirm with YES. If you do not wish to calibrate the zero point, reply with NO (e.g. for the stepwise calibration of hopper scales). • The scale calibrates with preload if PRELOAD was confirmed with YES.
SET FULLCAP CA XXX KG – or – 0 --CALIBRATION--	<ul style="list-style-type: none"> • Display for information: Maximum capacity. • Prompt to load and confirm the displayed maximum capacity. – or – • Enter desired maximum capacity. • The scale calibrates with maximum capacity.
UNLOAD --CALIBRATION--	<ul style="list-style-type: none"> • Unload weighing platform and confirm with YES. This prompt appears only if PRELOAD was answered with YES. • The calibration can be aborted at this point with NO, the program then jumps to the service mode block SAVE PARAMETERS. • The scale calibrates with preload.

ADAPTION	Entry of application-specific parameters
PU DELAY XX sec	<p>1. Delay time</p> <p>Depending on the environmental conditions and loading of the scale, the system requires additional time for an exact zero-point determination.</p> <ul style="list-style-type: none"> • Enter additional delay time when switching on, max. 600 sec. factory setting: 0 sec.
PU ZERO RANGE OFF ON – XX % + XX %	<p>2. Zero-set range</p> <ul style="list-style-type: none"> • Switch off zero-set range, only for noncertified scales. With this the zero-set range can be shifted over the entire weighing range. • Activate zero-set range (factory setting) and enter limits. <ul style="list-style-type: none"> – certified: max. 20 % of weighing range factory setting: –2 % ... +18 % – noncertified over entire weighing range factory setting: –50 % ... +50 %

ADAPTION	Entry of application-specific parameters
AUTO ZERO OFF ON GROSS ONLY GROSS+NET AZM x.x d	3. Automatic zero-point correction <ul style="list-style-type: none"> • Switch off automatic zero-point correction, only with noncertified scales. • Switch on automatic zero-point correction (factory setting) <ul style="list-style-type: none"> – Automatic zero-point correction for gross value (factory setting) – Automatic zero-point correction for gross and net value – Enter range for automatic zero-point correction: 0.5 d for certified scales 0.5 d (factory setting), 1.0 d, 3.0 d for noncertified scales
ZERO ADJUST ENTER ZERO CAP XX.XXX kg CALIBRATE ZERO UNLOAD --CAL--	4. Zero-point shift via entry of weight value <ul style="list-style-type: none"> • Zero-point shift with manual entry. • Enter weight value for zero-point shift. via measuring in of pre-load <ul style="list-style-type: none"> • Zero-point shift with calibration. • Apply pre-load to scale and confirm with YES. • Scale specifies new zero point. Note Following a zero-point shift the weighing range must be checked again!
SPAN ADJ ENTER SPAN CAP XX.XXX kg ENTER SPAN DISP XX.XXX kg	5. Range adjustment <ul style="list-style-type: none"> • Prompt to enter test weight. • Enter test weight. • Prompt to enter read-off weight value. • Enter read-off weight value for test weight.

SAVE PARAMETERS	Storing the selected configuration
	The identcode counter is incremented by one. With certified scales, this corresponds to destruction of a certification seal. Recertification is then necessary.

2.1.5 Identcode counter at maximum

The identcode counter runs to 99. After this, additional certifiable configurations are not possible, the scale can be operated only in the noncertified configuration.

In this case, the following messages appear:

ERROR Acknowledge error message.

IDENT The error message then appears in clear text.

3 Technical data

Analog Scale-ID7 analog weighing platform connection																	
Connectable weighing platforms ID7-...	Strain gauge weighing platforms METTLER TOLEDO MultiRange with analog scale interface: Types DB, DCC, D...T, N...T, DMS load corners RWM, SPIDER weighing platforms																
Connectable weighing platforms ID7xx-...	Strain gauge weighing platforms with Analog Scale interface approved for use in Zone 2 and Zone 22																
A/D converter	<table> <tr> <td>Resolution certified</td> <td>max. 7500 e</td> </tr> <tr> <td>Resolution non-certified</td> <td>max. 450000 d</td> </tr> <tr> <td>Strain gauge supply voltage</td> <td>8.75 V</td> </tr> <tr> <td>Minimum numerical increment (certified)</td> <td>0.58 μV/e</td> </tr> <tr> <td>Minimum numerical increment (noncertified)</td> <td>0.058 μV/e</td> </tr> <tr> <td>Max. cable length</td> <td>100 m</td> </tr> <tr> <td>Response time, typ.</td> <td>0.6 s</td> </tr> <tr> <td>Measured value change selectable</td> <td>in steps, max. 20/s</td> </tr> </table>	Resolution certified	max. 7500 e	Resolution non-certified	max. 450000 d	Strain gauge supply voltage	8.75 V	Minimum numerical increment (certified)	0.58 μ V/e	Minimum numerical increment (noncertified)	0.058 μ V/e	Max. cable length	100 m	Response time, typ.	0.6 s	Measured value change selectable	in steps, max. 20/s
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Other scales	<table> <tr> <td>1 – 4 350-Ω-weighing cells; 1 – 8 1000-Ω-weighing cells</td> <td></td> </tr> <tr> <td>Platform sensitivity</td> <td>0.4 – 3 mV/V</td> </tr> <tr> <td>Platform resistance</td> <td>80 – 1200 Ω</td> </tr> </table>	1 – 4 350- Ω -weighing cells; 1 – 8 1000- Ω -weighing cells		Platform sensitivity	0.4 – 3 mV/V	Platform resistance	80 – 1200 Ω										
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