IND690

Application terminal

Aggressive products to weigh? Harsh cleaning agents? In wet, corrosive or dust-laden surroundings? There's no reason not to expect reliably correct weighing results and trouble-free operation. IND690 application terminals are ideal for any industrial environment due to the stainless steel construction.

Reliable weighing data for industry – any time, any place
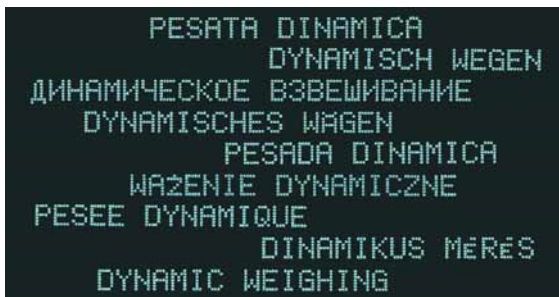
METTLER TOLEDO

Tough enough for harsh environments, sensitive enough to weigh and measure

- Reliable results for production – 24 hours a day, 7 days a week
- Protection class IP69K – a match for the toughest working conditions
- BIG WEIGHT® display – bright, with graphics capability, even in poorly lit areas
- Top performance right from the start – with software pacs to go even higher
- Easily integrated, easily added to, all ready for your application

To see and be seen – with the patented BIG WEIGHT® display*
Bright, fast and unmistakably clear, this active dot matrix display shows the result of the weighing operation. Readable from a distance, the amply sized **BIG WEIGHT**® display is a special feature for professional users. Protected behind scratch-proof safety glass, so the display will not dim with the years.

IND690 displays say it loud and clear. In many languages, to guide the user easily and reliably.

BIG WEIGHT® is a registered trademark of Mettler-Toledo (Albstadt) GmbH. German Patent 197 32 659. European Patent 0 895 071.

1 terminal, 2 models, 3 types of installation
One is sure to be just right for your purpose. Protected to Class IP69K and made of stainless steel, the bench model is also ideal for wall mounting, thanks to the adapter that allows it to be tilted and turned. Cables can be hidden underneath for the best protection against dirt and damage.
The built-in model is also uncompromising, featuring fast, universal installation, and maximum accessibility. Front side also IP69K and stainless steel.

Thick-skinned – but sensitive
The keypad's easy-clean membrane has a smooth surface and yet each entry is clearly felt. It meets every requirement of ergonomic design, hygiene and durability. Entering data is even simpler and quicker with the optional plug-in PC keyboard (MFII/PS2) or with a bar code reader.

Interfaces for secure connectivity
The basic version is ready to go with an RS232 data interface (e.g. to connect a printer). Up to eight more interfaces can be added easily and inexpensively for still greater modularity and flexibility.

IND690 – connection to the world of automation

The ProfibusDP-690 interface card enables the IND690 to be operated as a slave in Profibus-DP. Various functions are available to the user via the master PLC connected to the system. Here are a few examples:

• Access to weight values of the weighing platforms connected to the terminal and their operation (zeroing, taring, setting default tare value, etc.).
• Selection of keys and display of texts.
• Setting of threshold values, e.g. cut-off points when dispensing.

PLC/PC
e.g. Siemens S7

Profibus-DP field bus

Distributed slaves (sensors/actuators)

Applications made easy

Every weighing task has its own special features and requires specialist knowledge. This is where the application-specific software Pacs can help you. This software is the result of close cooperation between experts in the industry and our development department.

Checkweighing

Piece counting

Dispensing/formula weighing

Weighing

Powerful functions

All the usual weighing functions are just the beginning. Additional built-in functions such as auto tare, setpoint memory, test function, DeltaTrac, date/time or product identification data simplify and refine your weighing jobs - even when working with 3 interlinked scales.

Housings/Ambient conditions

Bench model

Housing	Angled desktop
Material	Chrome-nickel steel DIN X5 CrNi1810
Suitable for wall mounting with the wall adapter	

Built-in model

Housing	Compact housing design for front panel mounting
Material, front	Chrome-nickel steel DIN X5 CrNi1810

Ambient conditions

Protection	IP69K (DIN 40050): resistant to high-pressure/steam jet cleaning
Ambient temperature	– 10 ... +40 °C for accuracy class III, 0 ... 40 °C for accuracy class II
For dimensions for all of IND690 housing, please refer to the dimensional diagrams	

Display and data entry

Display

Screen size	Display field 195 x 46mm
Type	Active, high-luminance VFD dot matrix display, graphics capability, green
Displayed data	Weighing data, identification data, clear-text information (user guidance, error messages), graphic information, designation of function keys F1 to F6
BIG WEIGHT® display	Patented, large display, showing weight or other data, characters are up to 35mm high
Display cover	Scratch-proof, toughened safety glass For UK and USA: polycarbonate

Keypad

Type	Three-point membrane keypad with sensed key action, acoustic acknowledgement
Surface	Closed, smooth surface of heavy duty polyester, with raised, embossed buttons
Markings/ key design	Scratch-proof, multi-color text/symbol markings, important keys enlarged
Key functions	• 6 keys A to F for identification data • 6 function keys F1 to F6, with function-change and info key • 4 weighing-function keys • Numeric entry pad
Durability	≥ 1 million keystrokes
Alphanumeric	• With keys F1 to F6, guided selection
Entry	• connection for external MFII/PS2 keypad, optional

Standard functions

Weighing functions

Taring	Key-operated, by subtraction
Auto tare	Automatic taring, on/off select
Tare preset	• Through keypad: • Through interface, e.g. from PC or barcode reader • 999 tare-setpoint memory for frequently used tare values
Taring functions	Tare addition, tare multiplication, provisional tare
Gross select	Gross displayed on pressing key
Zero set	Automatic or manual
Unit select	Key-operated selection of the following weight units: kg, g, lb, oz, ozt, dwt
Dynamic weighing	For weighing unsettled objects, e.g. animals Selectable cycle time and automatic printout
Stability detection	Adjustable in 4 stages, with movement indicator
Weighing process adapter	Adapts scale to weighing operation, choice of 3 levels
Vibration adapter	Damps the influence of vibration, choice of 3 levels
Test key	• Displays identity code (certification seal) • On K weighing platforms, to verify measuring accuracy (internal auto-calibration)
Check mode	Displays measured weight at higher resolution
Switching points	8 independent freely definable switching points for Base-, Form-, Count-, Sum- and Com-690

Scale connections

A maximum of 4 IDNet, SICS or analogue scales can be connected

IDNet connection

– For all weighing platforms with an IDNet connection
– Load mounts with system solution point

SICS connection

– Precision weighing with serial interface RS232
– Industrial scales BBA/BBK

Analogue connection

Connection method	Terminals inside
Connectable analog scales	METTLER TOLEDO scales type D..T, N..T, Spider, load mounts RWM with system solution analogue
Other connectable scales	Number: 1– 4 (350 Ω cells) Weighing cells: 1– 12 (1000 Ω cells) Sensitivity: 0.4...3mV/V

A/D converter

Max. resolution (certifiable) 7500e
Max. resolution (not certifiable) 450,000d
DMS supply voltage 8.75V
Min. numeral step (calibr.-ability) 0.58 _V/e
Min. numeral step (no calibr.-ability) 0.058 _V/d
Max. length of line 100m
Stabilization time typ. > =0.6s
Reading change-rate, adjustable max: 20/s

Display functions

Start-up text	Text up to 20 characters, displayed briefly on startup, configured to choice
Tare indicator	NET appears when tare weight is stored
DeltaTrac	Analogue display of dynamic readings, with markers for target value and plus/minus tolerances
Applications: dispensing, classifying, checking
999-value DeltaTrac setpoint memory
Date/time	Quartz-accurate, 12- or 24-hour clock, automatic calendar, Europe or USA format
Info functions	Recall capability for all current weighing data, stored data and identification data
For all displayed and data output data, choice of English, German, French, Spanish, Italian, Dutch or Polish. Other languages to order

Identification data

Quality/length	6 alphanumeric identifiers, 30 characters
Entry	On membrane keypad, external MFII/PS2 keyboard or interface (e.g. barcode reader)
Naming	Keys A–F with variable text field
Preset text	999-place memory for frequently used text and identification data, each 20 characters
Application Pacs	see Accessories

Data interfaces

RS232 (COM1)

Operating modes	– Dialogue mode
For devices with dialogue compatibility; extensive instruction set for exchanging data with the scale; able to transmit soft ware and data, e.g. for updating software or saving data
– Print mode
Free formatting for external strip printers (GA46) and form printers
Bar code	Receptacle for bar code reader, power supply present
GA46	Receptacle for GA46 printer

Other interfaces

COM2–COM9	Expandable to max. 9 interfaces (Accessories)

General data

Power supply

Voltage	100–240V, +10/-15%, 50/60 Hz
Power input	60VA approx.
Power cable	Length: 2.5m

Approvals and standards

EC conformity	CE mark and conformity declaration
Certification	EC Directive 90/384/EEC, 93/68/EEC, EN 45 501, OIML R76, NTEP conformity
Elec. safety	EC Directive 73/23/EEC, 93/68/EEC, EN 60 950, UL, CSA approved
EMC	EC Directive 89/336/EEC, 92/31/EEC, 93/68/EEC, EN 50 081-1, EN 50 082-2, EN 61 000-3-2

Delivery information

Model	Order No.
IND690 bench model	22 011 901
IND690 built-in model	22 011 902
Packaging	Carton, approx. 440x330x260mm (bench)
Carton, approx. 550x450x280mm (built-in)
Weight	Gross approx. 5kg, net approx. 4,2kg (bench)
Gross approx. 7kg, net approx. 4,7kg (built-in)
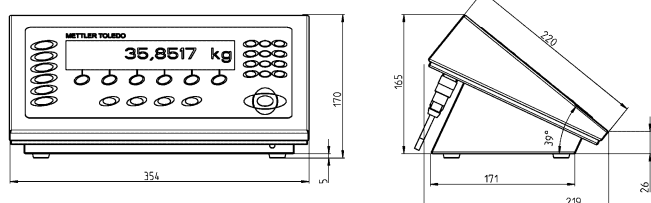| Documentation | Full installation and operating instructions on CD-Rom |

Application Pacs

A selection of high-performance Pacs are available for special weighing tasks:

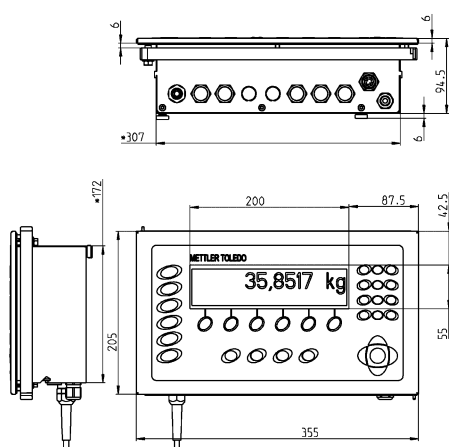| Pac name	Function	Order No.
Count-690	Counting, totaling	22 011 941
Form-690	Formulating, totaling	22 011 942
Com-690	Computer dialog mode	22 011 943
Sum-690	Totaling on 3 levels	22 011 944
Fill-690	Dispensing	22 011 945
Batch-690	Multi-component dispensing	22 011 946
Control-690	Verifying, classifying	22 011 947
FormXP-690	Convenient formulating with PC connection	22 011 948

For a description of performance features, see Pac data sheet

Dimensions (mm)

IND690 bench model

IND690 built-in model

Accessories Multi-Range application terminal IND690

Scale connections		Order No.
IDNet-690	Connection for IDNet scales	22 011 951
AnalogScale-690	Connection for analogue weighing platforms	22 011 952
SICS Scale-690	Connection for SICS scales	22 011 953
	Connection cable SICS scales, 3m	22 006 795

Serial interfaces		
CL20mA-690	CL20mA-690 CL20mA interface 7-pin receptacle	22 011 954
	CL cable, 3m	00 503 749
	Adapter, 7-pin	00 503 745
RS232-690	RS232 interface 8-pin receptacle	22 011 955
	RS232 cable/DTE, 3m	00 503 754
	RS232 cable/DCE, 3m	00 503 755
	RS232 cable/PC, 3m	00 504 374
	RS232 cable/9p, 3m	00 504 376
	Male connector, 8-pole	00 503 756
RS485/422-690	RS485/422 interface 6-pole fem. conn., galvanic separation	22 011 956
	RS422/485 cable, open end, 3m	00 204 933
	Extension cable for RS422/485, 10m	00 204 847
	Adapter, 8-pin	00 204 866
Bluetooth-690	Wireless serial Integrated antennae	22 011 958
USB-690	USB slave	22 011 959
	USB adapter cable, 0.2m	22 006 268
	USB adapter cable, 3m	22 007 713
PS2-690	MFII/PS2 keyboard connection	22 011 960

Network interfaces		
Ethernet-690	Ethernet – 10/100 Base T Twisted pair 8-pole fem. conn.	22 011 961
	Twisted pair cable, 8-pin, RJ45, 5m	00 205 247
	Twisted pair cable, 8-pin, RJ45, 20m	00 208 152
WLAN-690	Wireless network with stub antenna	22 011 962
ProfibusDP-690	2x PG11 cable gland for direct internal connection	22 011 963

Digitale I/O interfaces		
4I/O-690	4 in/4 out interface, 19-pin receptacle	22 011 965
4-690 relay box	Relay box with 4 inputs/ 4 outputs, for connecting to 4 I/O-690	22 011 967
	Cable, 10 m, for connecting 4 I/O-690 to relay box	00 504 458
	Adapter 19-pin	00 504 461
8-690 relay box	Relay box with 8 inputs/ 8 outputs, for connecting to RS485/422-690	22 011 968

Analogue output		Order No.
analogue Output-690	analogue output 0–10 V, 0–20 mA, 4–20 mA, 5-pin receptacle	22 011 966
	Cable for analogue output, open end, 3 m	00 204 930
	Adapter D/A, 5-pin	00 205 538
Certifiable memory		
AlibiMemory-690	Storage for 675 500 metrologically relevant records. Replaces the alibi printer in certifiable applications.	22 011 950
Mechanical accessories		
Wall bracket	For bench model, stainless steel	22 011 980
Floor stand	For bench model, stainless steel	22 011 981
Stand base	Stainless steel	22 011 982
Cover, for bench model, transparent PVC, set of 3		22 011 983

Conformity

Quality certificates

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