IND690xx

Application terminal

The extensive expansion options of the IND690 can also be used with the IND690xx:

– 8 application pacs (software modules) for totalising, formulation, filling, etc.
– Alibi memory
– Profibus® interface
– Ethernet connection
– 2 types of housing
– Up to 9 serial interfaces
– Certification according to ATEX Directive 94/9/EC
– Cat. 3, Zones 2/22

According to ATEX Directive 94/9/EC

Zone 2

Zone 22

Powerful IND690 technology
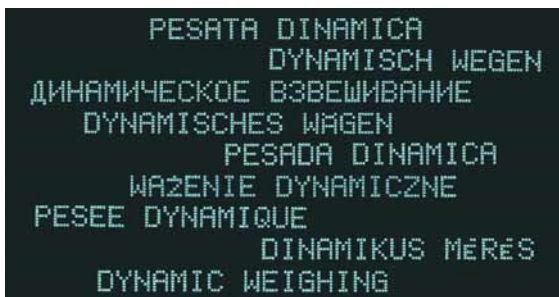# for hazardous areas

METTLER TOLEDO

Tough but sensitive – even in hazardous areas

- Complies with ATEX Directive 94/9/EC for potentially explosive atmospheres
- Protection class IP69K – ideal for the toughest working conditions
- BIG WEIGHT® display – bright, with graphics capability, even in poorly lit areas
- Excellent performance – with software pacs to enhance further
- Easily integrated

To see and be seen – BIG WEIGHT® display.
Bright, fast and clear, this active dot matrix display shows the result of the weighing operation. Readable from a distance, the BIG WEIGHT® display is ideal for professional users. Protected behind scratch-proof safety glass the display will not dim over time.

1 terminal, 2 models, 3 types of installation
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 – the best protection against dirt and damage. The built-in model is also uncompromi-sing, featuring fast, universal installation, and maximum accessi-bility. Front side also IP69K + stainless steel.

Keypad has a nice, substantial feel
The generous, easy-to-clean membrane with smooth surface and raised, embossed buttons meets all requirements related to ergonomics, hygiene and durability.
A connectable PC keyboard (MFII/PS2) or barcode reader makes data entry even faster and easier.

Interfaces for secure connectivity
The basic version is ready to go with an RS232 data interface (e.g. to connect a printer). Up to 8 more interfaces can be added easily and inexpensively for still greater modularity and flexibility.

IND690 displays say it loud and clear. Available in many langua-ges, to guide the user easily and reliably.

100% leakproof and yet open on all sides. Data and pulses for other devices.

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

Relationship between categories and zones

Hazardous areas are frequently subdivided into different zones according to the degree of the hazard. Depending on the zone, different categories of electrical equipment must be used.

Category	Specified type of hazardous atmosphere	Permitted for use in Zone	Also permitted for use in Zone	IND690xx permitted for use
3	Gas/air mixture Or vapor/air mixture or mist	2		•
3	Dust/air mixture	22		•

EN 1127-1:1997

Since 1998 METTLER TOLEDO has operated an approved quality assurance system according to ATEX Directive 94/9/EC for the production of instruments intended for use in hazardous areas.

The frequency of occurrence of an explosive mixture

How frequently is an explosive atmosphere expected? The answer to this question is used to define separate zones in a factory or plant:

Hazardous, explosive atomospheres are present

	rarely and briefly
Due to gases, vapors, mists	Zone 2
Due to dusts	Zone 22

The more frequently an explosion hazard is expected to occur, the higher the safety requirements for instruments used. The ATEX Directive 94/9/EC defines categories for the various safety levels.

Safety level of instrument	Category	For use in Zones
Very high level of safety	1	0, 1, 2, 20, 21, 22
High level of safety	2	1, 2, 21, 22
Normal level of safety	3	2, 22

Connection to the scale by weight

Bench and stand scales
Weighing ranges from 3kg/0.1g to 600kg/50 g. Certifiable Class II and III with resolution up to 32,000 verification scale intervals or 3x3000e multi-interval

Pallet scales
Weighing ranges from 300kg/50g to 3000kg/500 g. Certifiable Class III with resolution of 6000 verification scale intervals.

Low profile scales
Weighing ranges from 300kg/50g to 1,500kg/500g. Certifiable Class III with resolution of 6000 verification scale intervals. Height of guides 35mm or 45mm

Floor scales
Weighing ranges from 300kg/20g to 12t/2kg. Certifiable Class II and III with resolution of up to 6000 verification scale intervals or 3x3000e multi-interval

Floor scales with folding load plate
Weighing ranges from 1500kg/ 200g to 3000kg/500g. Certifiable Class III with a max. resolution of 7500 verification scale intervals or 3x3000e multi-interval

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 to +40° C for accuracy class III 0 to 40° C for accuracy class II
For dimensions for all of IND690 housing, please refer to the dimensional diagrams	

Explosion protection

Instrument	Type of protection
IND690xx application terminal	G: II3G EEx nAL (L) IIC T4 D: II3D T70°C IP69K
D line weighing platforms	G: II3G EEx nA II T4 D: II3D T+50°C IP67
K line weighing platforms	G: II3G EEx nR T6 D: II3D T+45°C IP67
M line weighing platforms	G: II3G EEx nA IIC T6 D: II3D T+50°C IP67

Display and data entry

Display

Screen size	Display field 195x46 mm
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

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 Entry	• With keys F1 to F6, guided selection • 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 analogue 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

Data interfaces

RS232 (COM1)

Operating modes	– Dialog mode For devices with dialog 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
Barcode	Receptacle for barcode reader, power supply present
GA46	Receptacle for Printer GA46

Other interfaces

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

Display functions

Startup text	Text up to 20 characters, displayed briefly on startup, configured to choice
Tare indicator	NET appears when tare weight is stored
DeltaTrac	Analog 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, USA or free 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

General data

Power supply

Voltage	100 to 240V, +10/-15%, 50/60Hz
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 concurring, 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

Ordering information

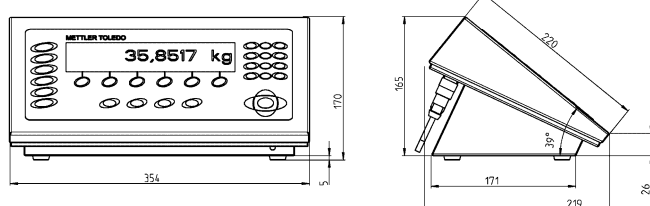| Model		Order-No.
IND690xx bench model		22 011 903
IND690xx built-in model		22 011 904
Packaging	Carton, approx. 440x330x260mm (bench)	
	Carton, approx. 550x450x280mm (built-in)	
Weight	Gross approx. 5kg, net approx. 4,2kg (bench)	
	Gross approx. 7kg, net approx. 4,7kg (built-in)	
Documentation	Full installation and operating instructions on CD-Rom	

Application Pacs

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

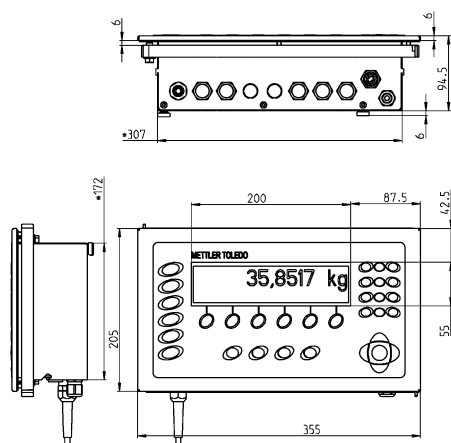| Pac designation	Function	Order No.
Count-690	Counting, totaling	22 011 941
Form-690	Formulating, totaling	22 011 942
Com-690	Computer dialog mode	22 011 943
Sum-690	Totaling on 3 levels	22 011 944
Fill-690	Dispensing	22 011 945
Batch-690	Multi-component dispensing	22 011 946
Control-690	Verifying, 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 IND690xx

Scale connections		Order-No.
A maximum of 4 IDNet, SICS or analogue scales can be connected		
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

Serielle Interfaces		
CL20mA-690	CL20mA interface, 7-pole fem. conn.	22 011 954
	CL cable, 3m	00 503 749
	Male connector, 7-pole	00 503 745
RS232-690	RS232 interface 8-pole fem. conn.	22 011 955
	RS232-Kabel/DTE, 3m	00 503 754
	RS232-Kabel/DCE, 3m	00 503 755
	RS232-Kabel/PC, 3m	00 504 374
	RS232-Kabel/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
	Male connector, 6-pole	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	2xPG11 cable gland for direct internal connection	22 011 963

Digital I/O interfaces outside hazardous areas

The 4-690 and 8-690 relay boxes are not designed for use in potentially explosive areas. They may only be used in non-hazardous areas, or in hazardous areas if additional safety measures are taken.

Digital I/O Interfaces		Order-No.
4I/O-690	4 input/4 output interface, 19-pole fem. conn.	22 011 965
Relay box 4-690	Relay box with 4 input/ 4 output, for connection to 4I/O-690	22 011 967
	Cable, 10m, for connecting 4I/O-690 with the relay box	00 504 458
	Male connector, 19-pole	00 504 461
Relay box 8-690	Relay box with 8 input/ 8 output for connection to RS485/422-690	22 011 968

Analogue output

Analogue Out-690	Analogue output 0-10V, 0-20mA, 4-20 mA, 5-pole fem. conn.	22 011 966
	Cable for analogue output, open end, 3m	00 204 930
	D/A male connector, 5-pole	00 205 538

Certifiable memory

AlibiMemory-690	Storage for 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

Sales and service:

Conformity

CE · OIML · NTEP · PROFIBUS

Bluetooth™

Quality certificates

ISO 9001 certified · CSA · UL

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