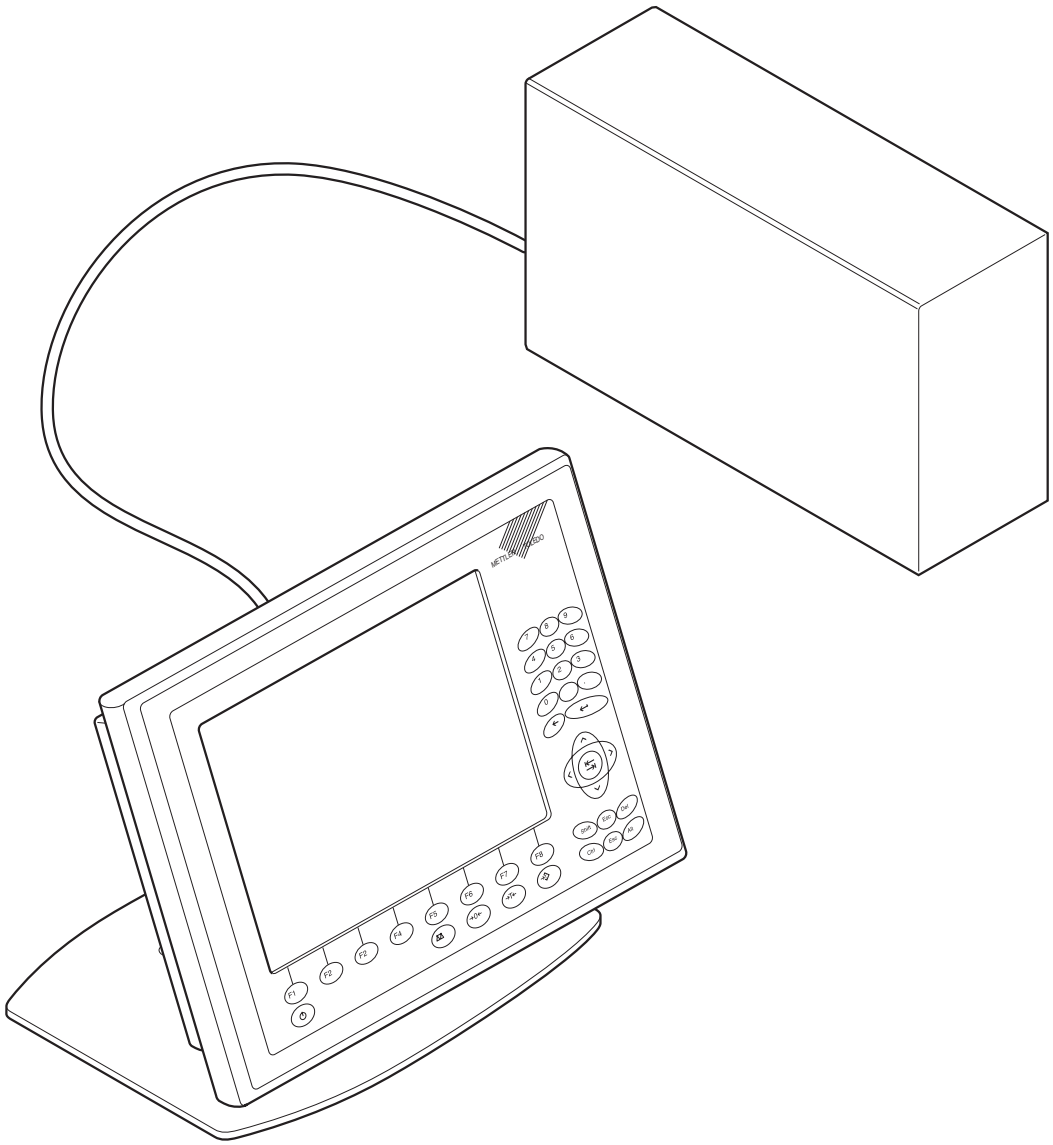
Operating instructions
Installation information

METTLER TOLEDO MultiRange ID30 weighing terminals



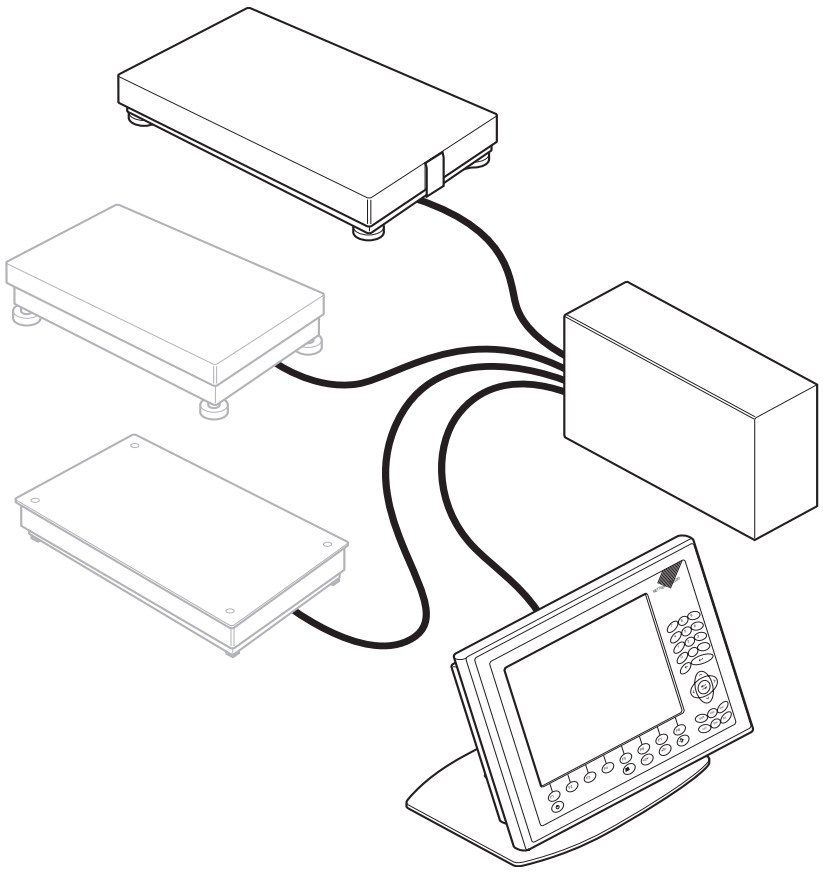
Contents

1 General information

1.1 ID30 weighing terminals

The ID30 weighing terminals are freely programmable weighing terminals suitable for use in industrial applications. It offers you the flexible possibilities for use of a PC in a dust- and splash-proof housing conforming to IP67.
In conjunction with the extensive line of accessories, you can put together a weighing system ideally suited to your company's needs.

ID30 weighing terminals always consist of the two components HMI-Box and Elo-Box.
The **HMI-Box** is the operating unit with TFT colour display and membrane keypad. The **HMI-Box** is optionally also available with a **TouchScreen**.
The **Elo-Box** contains a powerful industrial PC and the weighing electronic equipment. The industrial PC can be upgraded easily (CPU, RAM). Up to 3 weighing platforms can be connected by installing corresponding interface modules.
Up to 10 interface modules can be installed in the Elo-Box.
The HMI-Box and Elo-Box are connected by means of a cable up to 5 m long.



Documentation

These instructions contain all the information on the ID30 weighing terminals including the information on all the interface modules, irrespective of the configuration ordered by you.

In addition to these instructions, you will also receive additional documentation for the operating system used and for certain accessories.

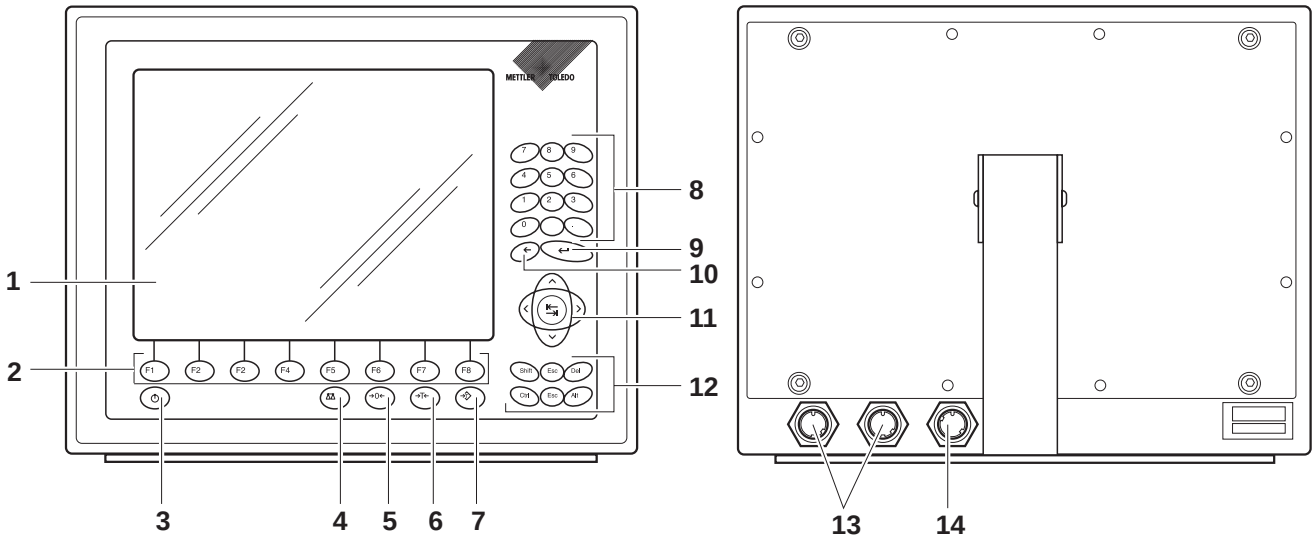
If you want to program the weighing terminals yourself, you will find the required information in the "ID30 Programming Manual" (Order No. 22007427). This description also contains further details, e.g. on testing the weighing functions.

1.2 Safety instructions

- ▲ Do not operate the ID30 weighing terminals in hazardous areas.
- ▲ The display unit of the ID30 TouchScreen terminals does not consist of break-proof glass, but rather of touch-sensitive plastic. Therefore avoid blows and bumps and observe the cleaning instructions.
- ▲ In order to prevent accidents the device may only be opened by specially trained customer service personnel.
- ▲ Only transport the device when switched off, as the hard disk may otherwise be damaged.
- ▲ **Elo-Box and HMI-Box may only be connected or disconnected if the plug is pulled.**

1.3 Design

1.3.1 HMI-Box



1 Display

2 Function keys

3 On/Off key

Caution
Shut down the operating system before switch-off!

4 Scales changeover key

5 Set to zero key

6 Tare key

7 Tare specification key

8 Numeric keypad with decimal point and space key

9 ENTER key

10 Backspace key

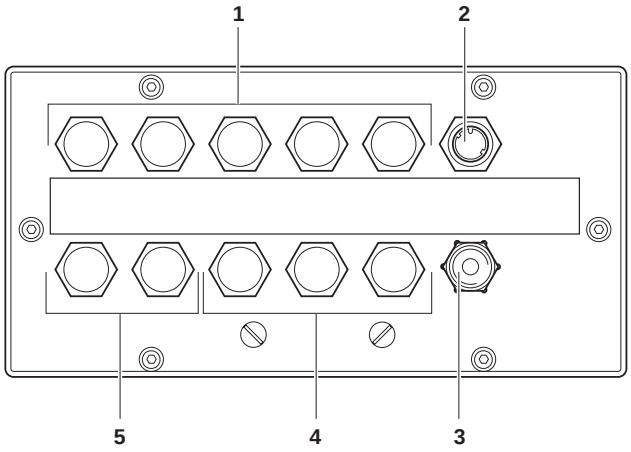
11 Cursor keys and tab key

12 Command keys

13 USB connections

14 Elo-Box connection

1.3.2 Elo-Box



1 X1 – X5: PC interface connections

2 HMI-Box connection

3 Power cable

4 X6 – X8: Weighing platform connections or interface connections to weighing electronics

5 X9 – X10: Interface connections to weighing electronics

1.4 Maintenance / Cleaning

CAUTION

▲ Do not use concentrated acids, alkaline solutions or aggressive solvents.

▲ Unused interface sockets must be sealed off with cover caps during wet cleaning.

▲ Caution! Cleaning with compressed water (e.g. washing down with water hose or high-pressure cleaner) is not permitted at protection type IP67!

▲ The display unit of the ID30 TouchScreen weighing terminal does not consist of break-proof glass, but rather of touch-sensitive plastic. Therefore do not clean with an abrasive sponge.

Cleaning

➜ Remove grease spots and stubborn dirt deposits with commercially available washing up liquids or glass cleaning agents.

2 Commissioning

2.1 Setting up the ID30 weighing terminal

CAUTION
Risk of permanent damage!

➜ Disconnect/connect Elo-Box and HMI-Box only while switched off.

2.1.1 Desk version

➜ Set up the HMI-Box and Elo-Box at the desired site and connect them with the supplied cable.

2.1.2 Wall version

If the HMI-Box is to be mounted on the wall, the housing of the HMI-Box has to be mounted rotated by 180°.

1. Place the HMI-Box on its front onto a soft surface.
2. Loosen the 12 screws and remove the rear panel with seal.
3. Turn the rear panel by 180° and place it back onto the housing rear and align it.
4. Close the HMI-Box with the 12 screws.
5. Mount the stand on the wall. For the drill hole dimensions refer to the dimensional drawings on page 89.
6. Set up the Elo-Box at the desired site and connect it with the supplied cable to the HMI-Box.

2.2 Scale connection

Note
To start up the ID30 weighing terminal with several weighing platforms, please contact METTLER TOLEDO Service.

2.2.1 Connecting weighing platforms of the series D, K, M and N

Condition
The **interface module IDNet/DigiNet** is required in order to connect weighing platforms of the series D, K, M and N, refer to section 7.1.
If no interface module IDNet/DigiNet is installed, refer to section 8.3.2.

Procedure

1. Set up the weighing platform, refer to the weighing platform installation instructions.
2. Lay the weighing platform cable to the Elo-Box.
3. Plug the weighing platform plug into the scales interface (IDNet/DigiNet) of the Elo-Box.

2.2.2 Connecting scales of the series B, AG, SG, PR and SR

Condition

The connection set **LC-IDNet-B** or **LC-IDNet-R/G** and the **interface module IDNet/ DigiNet** are required in order to connect scales of the series B, AG, SG, PR and SR, refer to section 7.1.
If no interface module IDNet/DigiNet is installed, refer to section 8.3.2.

Procedure

1. Set up the scale, refer to the scale operating instructions.
2. Connect the connecting set to the scale and lay the interface cable to the Elo-Box.
3. Plug the interface cable into the scales interface (IDNet/DigiNet) of the Elo-Box.

2.2.3 Connecting scales of the series Viper, AB-S, PB-S, SB, PG-S, AX, MX and UMX

Condition

The **interface module RS232** is required to connect scales of the series Viper, AB-S, PB-S, SB, PG-S, AX, MX and UMX, refer to section 7.1.
If no interface module RS232 is installed, refer to section 8.3.2.

Procedure

1. Set up the scale, refer to the scale operating instructions.
2. Lay the interface cable to the Elo-Box.
3. Plug the interface plug into the serial interface (RS232) of the Elo-Box.

2.2.4 Connecting analog weighing platforms

Condition

The interface module **Analog Scale** is required to connect analog weighing platforms, refer to section 7.1.
A max. of 2 analog weighing platforms can be connected to the Elo-Box.
If no interface module Analog Scale is installed, refer to section 8.3.3.

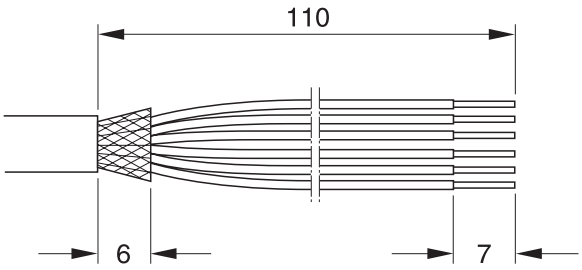
CAUTION

➜ Remove the power plug before beginning with connecting.

Setting up the weighing platform

1. Set up the weighing platform, refer to the installation instructions of the weighing platform.
2. Lay the weighing platform cable to the Elo-Box.

Preparing the weighing platform connection cable



1. Strip the cable ends by approx. 110 mm and shorten the cable shield to 6 mm.
2. Strip the core ends approx. 7 mm and twist them.
3. Push on the wire end ferrules and press them on firmly with a pair of crimping pliers. The cable ends may not project over the wire end ferrules.

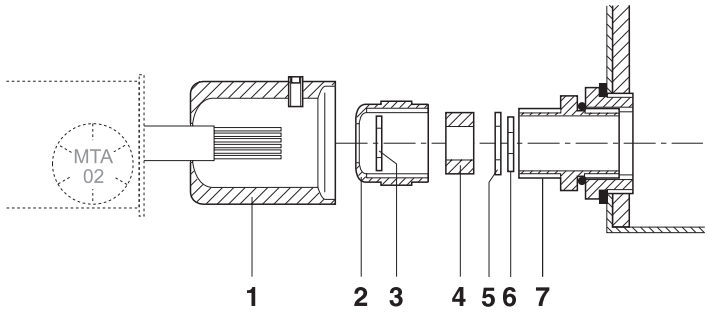
Connecting the cable gland to the weighing platform cable

CE conformity

With longer connection cables, shielding measures against radiation and irradiation of interference are particularly important.
The required interference immunity classes will only be achieved with careful installation and wiring of all connected peripherals, weighing platforms and weighing cells. For this purpose the shielding must be connected properly on both ends.
The CE conformity of the entire system is the responsibility of the person commissioning the device.

Verified weighing platforms

Verified weighing platforms require the ID card which has to be mounted via the connection cable before connection to the weighing terminal. The AnalogScale PCB furthermore has to be sealed.
Please contact the METTLER TOLEDO Service for labelling and verification of your weighing system.

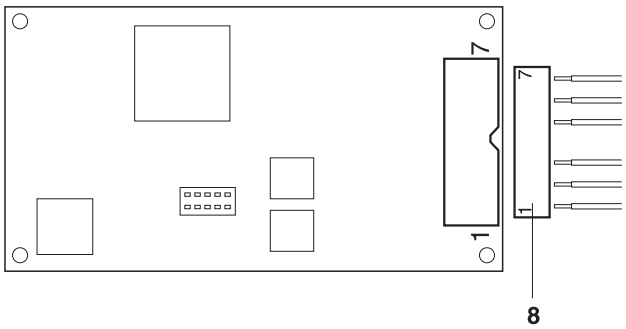


1. Slide the sealing sleeve (1), union nut (2), washer (3), moulded seal (4) and contact washer with large bore size (5) over the cable sheathing. If any braided screen cores loosen in the process, these may not contact any conductive system parts!

2. Unbraid the exposed screen.
3. Slide the moulded seal (4) and contact washer (5) forwards to the edge of the cable sheathing and apply the screen.
4. Slide the contact washer with small bore size (6) over the cores so that the screen is positioned between the two contact washers.
5. If the screen cores are longer than the diameter of the contact washer, shorten the screen cores to the diameter of the contact washers.
6. Insert the moulded seal with the cable into the anti-twist guard of the metal housing (7).
7. Screw the union nut onto the metal housing, but do not tighten it.

Connecting the cable

1. Open the Elo-Box, refer to section 8.3.1.



2. Pull the connector (8) from the analog PCB and terminate the cores of the weighing platform cable at the connector as follows:

Pin	Assignmen	Colour at METTLER TOLEDO analog weighing platforms			
		Several weighing cells	One weighing cell		
		D...-T, N...-T, RWM, SPIDER floor	DB...-T, DCC...-T, HBM cell	SPIDER bench, TEDEA cell	MTSP 785/795/ 805
1	+ EXC	Grey	Blue	Green	Green
2	+ SEN	Yellow	Green	Blue	Blue
3	+ SIG	White	White	Red	White
4	–	–	–	–	–
5	– SIG	Brown	Red	White	Red
6	– SEN	Green	Grey	Brown	Brown
7	– EXC	Blue	Black	Black	Black

Note

➜ If the cable of the weighting platform to be connected has only 4 cores, connect the following terminal pairs by means of a wire jumper.

- Terminal 1 and 2 (+ EXC and + SEN)
- Terminal 6 and 7 (– SEN and – ECX)

3. Plug in the connector at the analog PCB and tighten the screwed cable gland.
4. Plug the cable in at the socket PCB and at the analog PCB.
5. Push on the sealing sleeve and secure with the locking pin. It must be easy to turn the sealing sleeve.
6. Seal analog PCB with slide marks on the plug fastening bracket.
7. Close the Elo-Box, refer to section 8.3.6.

2.3 Connecting the Profibus-DP

Condition

The interface module **Profibus-DP** is required to connect the Profibus, refer to section 7.1.
If no interface module Profibus-DP is installed, refer to section 8.3.4.

CAUTION

➜ Remove the power plug before beginning with connecting.

Connecting the Profibus cable

CE conformity

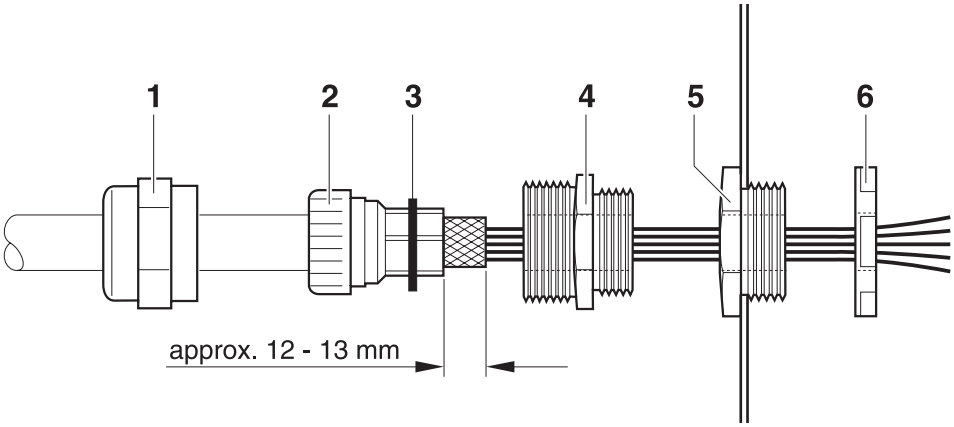
With longer connection cables, shielding measures against radiation and irradiation of interference are particularly important.
The required interference immunity classes will only be achieved with careful installation and wiring of all connected peripherals, weighing platforms and weighing cells. For this purpose the shielding must be connected properly on both ends.
The CE conformity of the entire system is the responsibility of the person commissioning the device.

Cable specifications

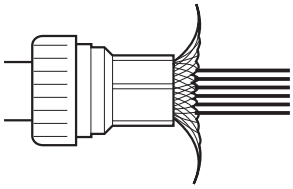
Only use special bus cables with shielding and with a diameter ≥ 7 mm. Recommended wire cross-section ≥ 0.34 mm^2.

Connecting the Profibus cable to the cable gland

1. Open the Elo-Box, refer to section 8.3.1.
2. Strip the cable ends by 270 mm and shorten the cable shield to approx. 12–13 mm.
3. Strip the core ends approx. 7 mm and twist them.



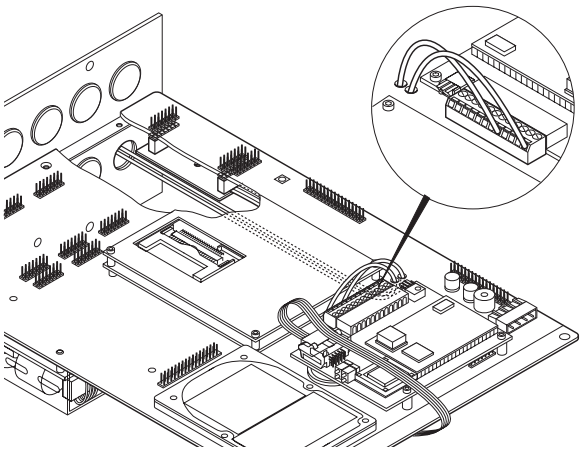
4. Push pressure nut (1) and sealing insert (2) onto cable.
5. Bend over the exposed screen and slide it over the O-ring (3).

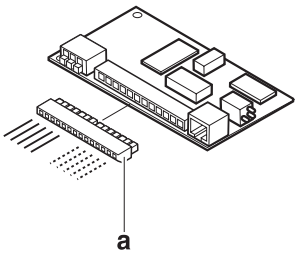


6. Push the sealing insert up to the screen.
7. Remove the blind plugs from the interface connection X9. If necessary, remove another blind plug (X4) for further routing of the Profibus-DP.
8. Mount the reducing ring (4) with the sealing nut (6) on the housing.
9. Screw the lower section of the screwed cable gland (4) into the reducing ring.
10. Insert the cable into the housing.
11. Insert the sealing insert into the lower section until it is flush.
12. Screw the pressure nut onto the lower section. The cable gland must be tightened so that a strain relief ≥ 100 N is ensured.

Terminating the Profibus cable

1. Introduce the Profibus data cables from X9 from the bottom of the base board through the two holes to the Profibus card.





2. Pull the Mini-Combicon terminal strip (a) off the Profibus card and connect the Profibus cable to the terminal strip in accordance with the following table:

Terminal	Assignment	Note
1	Repeater controller RTS	5-V request-to-send (RTS) signal
2	Data Ground	Reference potential for RS485 level
3	Output data signal B	Positive RS485 signal level, to next node
4	+5 V, insulated	Insulated 5-V supply, e.g. for fibre-optics adapter
5	Output data signal A	Negative RS485 signal level, to next node
6	–	–
7	–	–
8	Input data signal B	Positive RS485 signal level, from last node
9	Repeater controller RTS	5-V request-to-send (RTS) signal
10	+5 V, insulated	5-V supply, e.g. for fibre-optics adapter
11	Data Ground	Reference potential for RS485 level
12	Input data signal A	Negative RS485 signal level from last node

➜ Close the Elo-Box, refer to section 8.3.6.

2.4 Connecting the ID30 weighing terminal to the power supply

CAUTION
The ID30 weighing terminal only operates properly with a mains voltage of 100 V AC to 240 V AC.

➜ Ensure that the supply voltage at the installation site lies within in this range.

➜ Ensure that the mains outlet is earthed and is easily accessible since the ID30 weighing terminal can only be separated from the power supply completely by pulling the plug.

➜ Connect all the Elo-Box connections before connecting the mains plug!

Connecting

➜ Plug the mains plug of the ID30 weighing terminal into the mains outlet.

After being connected Windows and ScaleXPlorer is started.

2.5 Switching ID30 on/off

2.5.1 Switching off

CAUTION
Risk of permanent damage!

➜ Do not press the On/Off key until the prompt to do so appears.

1. Exit application(s) and shut down operation system.
2. When the prompt "It is now safe to turn off your computer" appears, press and hold the On/Off button until the screen goes dark.

2.5.2 Switching off from ScaleXPlorer

1. In the navigation window, select "Shut Down -> System" and confirm with **YES**. ScaleXPlorer is exited and the operating system is shut down.
2. When the prompt "It is now safe to turn off your computer" appears, press and hold the On/Off key until the screen goes dark.

2.5.3 Switching on

➜ Press and hold the On/Off key until a beep is emitted from the Elo-Box.

The operating system is loaded and ScaleXPlorer is started.

2.6 Marking and sealing on verified weighing platforms

ID code

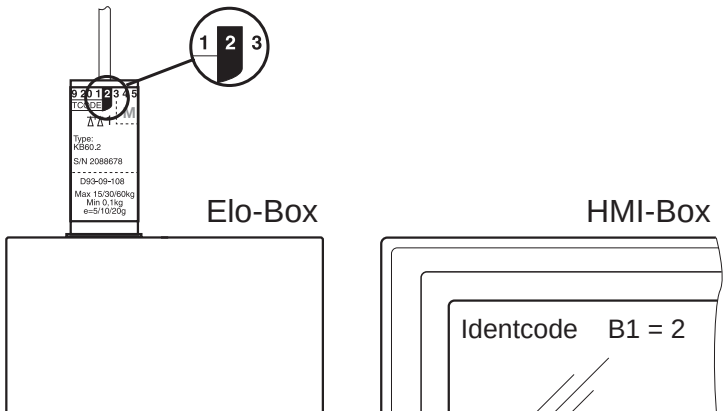
With the ID code you can check on verified weighing platforms whether the weighing platform has been tampered with since the last verification. The ID code can be displayed on the terminal at any time, see section 3.2.10.
During verification the currently displayed ID code is saved and sealed.
Each time the configuration is changed, the displayed ID code increases. It then no longer matches the sealed ID code; the verification is no longer valid.

Verification

For marking and verification of your weighing system, please contact METTLER TOLEDO Service or your local Weights and Measurements Office.

Checking the verification

1. Display the ID code, see page 23. On weighing platforms that cannot be verified, no value is displayed, but instead: CODE ===.
2. Compare the ID code with the sealed ID code on the ID card.
   The verification of the weighing system is only valid when both values are identical.



3 ScaleXPlorer weighing program

With the ScaleXPlorer weighing program you can use the ID30 weighing terminals with weighing platform(s) for simple weighing. Here the basic functions Set to Zero, Tare and Tare Specification, as well as 4 ID keys are available to you.
The Gross / Net / Tare weight values are saved with identification data, the date and time on the hard disk of the weighing terminal. These data can, for example, be displayed via the network and integrated in your merchandise information system.
The analog DeltaTrac display makes it easier to read the weighing results.

3.1 Operating the ScaleXPlorer

ScaleXPlorer is controlled via a navigation bar at the left edge of the screen.
ScaleXPlorer starts in application mode (weighing mode) with the navigation bar hidden.

3.1.1 Starting ScaleXPlorer

ScaleXPlorer starts automatically when the ID30 is switched on. If ScaleXPlorer was exited at some point, proceed as follows.

Operation via mouse

➜ Double-click on the "ScaleXPlorer" link on the desktop.

– or –

➜ Select "START -> ScaleXPlorer".

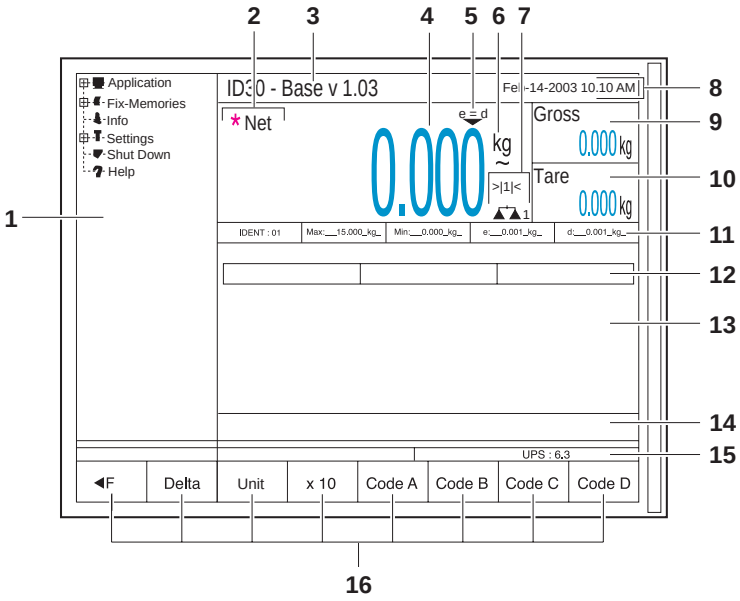
ScaleXPlorer starts in application mode and the application window fills the screen.

Operation at the HMI-Box

1. Press the Windows key;
   the Windows start-up screen appears.
2. Select "ScaleXPlorer" with the cursor keys and confirm with ↵.

ScaleXPlorer starts in application mode and the application window fills the screen.

3.1.2 Application window with navigation bar in ScaleXPlorer



1 Navigation bar

2 * symbol for higher-resolution values or values in the second unit
"Net" appears when a tare value is saved

3 Version display

4 (Net) weight display

5 Verification value display

6 Unit of weight
~ appears, as long as the weight value is not yet stable

7 Scale number and range number

8 Date and time

9 Gross weight display

10 Tare weight display

11 Verification data

12 DeltaTrac display

13 Field for additional displays, input prompts

14 Status message line

15 UPS (updates per second) display

16 Assignment of function keys F1 through F8

3.1.3 Opening navigation bar

➜ In application mode, press the **F** (F1) key;
the navigation bar appears at the left edge of the screen.

3.1.4 Closing navigation bar

1. Select application mode.
2. Press the **F** (F1) key;
   the navigation bar disappears and the application window fills the entire screen again.

3.1.5 Switching between navigation bar and input windows

To switch between the navigation bar and input windows, use the F1 (**F** or **F**) key.

3.1.6 Navigation in ScaleXPlorer

Key	Function in the navigation bar	Function in input windows
<	Switch to one level higher Close fold-out window	Select from the possible parameter values
>	Switch to one level lower Open fold-out window	
∧	Switch to one entry higher	
∨	Switch to one entry lower	
	–	Switch to next parameter
↵	–	Confirm (alpha-) numeric input

3.1.7 Help function in ScaleXPlorer

These Operating instructions/installation information are stored in .PDF format in ScaleXPlorer.

Calling up help

➜ Select "Help" in the navigation bar and press the **Open** button.
Acrobat Reader starts and opens the selected document with the bookmarks displayed.

Navigation in Acrobat Reader

Function		**Key(s)**
Navigation in the document window	Scroll back/forward	<, >
	Scroll up/down	∧, ∨
	Show links	
	Jump to selected link destination	↵
Hide bookmarks / Switch to bookmark bar		F5
Navigation in the bookmark bar	Corresponding to ScaleXPlorer	<, >, ∧, ∨, ↵
Switch between Acrobat Reader and ScaleXPlorer		Alt +

Exiting help

➜ Switch to ScaleXPlorer with **Alt** + and press the **Close** button.
Acrobat Reader is exited and ScaleXPlorer switches to application mode.

3.2 Weighing with ScaleXPlorer (application mode)

3.2.1 Setting to zero

The set to zero function makes corrections for the influence of light soiling on the load plate.
If excessive soiling is present, which cannot be compensated for via setting to zero, the display shows OUT OF RANGE.

Manual setting to zero

1. Unload weighing platform.
2. Press the set to zero key.
   The display shows 0.000 kg.

Automatic setting to zero

With verified weighing platforms, the zero point of the scale is automatically corrected with the weighing platforms unloaded.
The automatic setting to zero (AutoZero) can be deactivated on non-verifiable weighing platforms under "Settings -> Scale -> Scale 1 (2, 3)".

3.2.2 Taring

Manual taring

1. Place empty container on weighing platform.
2. Press Tare key.
   The tare weight is saved and the net weight display is set to zero.
   Gross and tare weights are displayed smaller and to the side.

Notes

- For the unloaded weighing platform, the saved tare weight is displayed with a minus sign.
- The weighing platform saves only one tare value.

Automatic taring

Condition
Automatic taring (AutoTare) must be activated under "Settings -> Scale -> Scale 1 (2, 3)".

➜ Place empty container on weighing platform.
The container weight is automatically saved and the net weight display is set to zero.
Gross and tare weights are displayed smaller and to the side.

Note
For an unloaded weighing platform, the saved tare weight is cleared.

3.2.3 Specifying tare weight

Direct input

1. Press Tare specification key
2. Enter tare weight (container weight).
3. Confirm tare value in the displayed unit with ↵.
   – or –
   – switch to unit with ,
   – open the menu for selecting the unit with the **List** key,
   – select unit and confirm with ↵.

The net weight is displayed based on the specified tare weight.
Gross and tare weights are displayed smaller and to the side.

Note
For the unloaded weighing platform, the entered tare weight is displayed with a minus sign.

Accepting fixed tare
The ID30 has 999 memory tare positions for often-used tare weights which can be programmed under "Fix-Memories -> Fixed Tare".

1. Enter memory position number: 1 through 999.
2. Press Tare specification key.
   The net weight is displayed based on the called up tare weight.
   Gross and tare weights are displayed smaller and to the side.

Clearing tare weight

➜ Unload and tare weighing platform.

– or –

➜ Specify tare weight 0.

– or –

➜ Press Tare specification key and then the **Esc** key.

3.2.4 Switching between weighing platforms

Up to 3 weighing platforms can be connected to the ID30.
The currently selected weighing platform is displayed on the information line above the function key assignment.

➜ Press Scales changeover key.
The next weighing platform is selected.

– or –

➜ Enter weighing platform number and press Scales changeover key.
The desired weighing platform is selected.

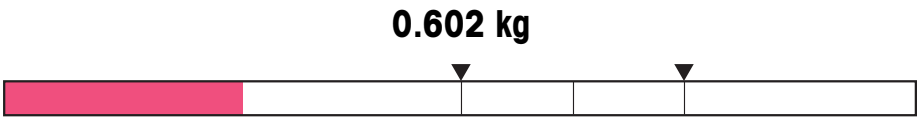
3.2.5 Weighing with the DeltaTrac

The DeltaTrac is an analog display, which makes the reading of weighing results easier.
Under "Settings -> Terminal -> DeltaTrac", the weighing task (dispensing, classification or checking) of the DeltaTrac which is to be presented can be selected for each weighing platform.

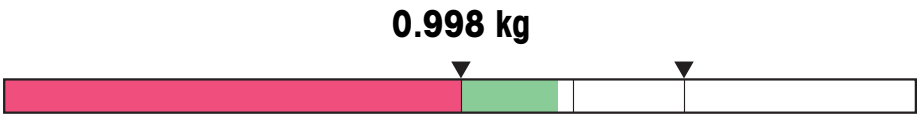
Dispensing application

Weighing in to a target weight with a tolerance check.
Example: target weight 1.000 kg, tolerance 1 %

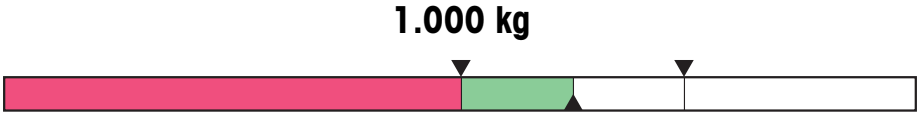
Target weight not yet reached



Weight within tolerance limits



Target weight reached exactly

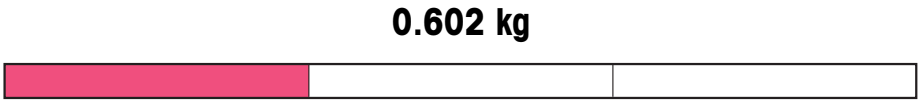


Classification application

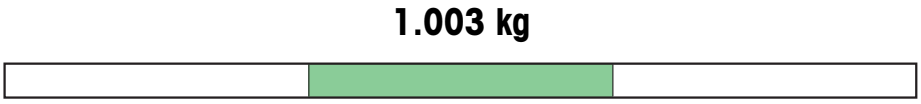
Judgement of samples as GOOD, TOO LIGHT or TOO HEAVY, based on a target value and specified +/– tolerances.

Example: target weight 1.000 kg, tolerance 1 %

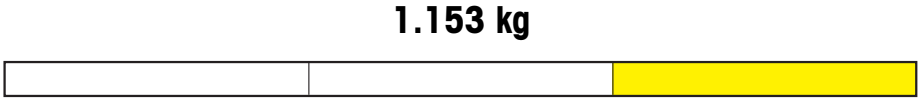
Too light, weight under tolerance limit



Good, weight within tolerance limit



Too heavy, weight over tolerance limit



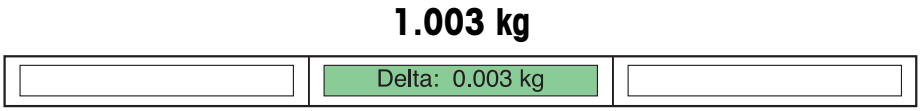
Checking application

Determination of the deviation between target and actual values.

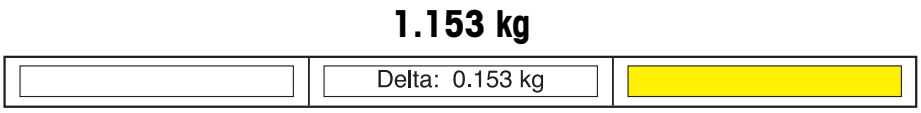
Example: target weight 1.000 kg, tolerance 1 %

Under tolerance limit Difference: -0.398 kg

Within tolerance Difference: 0.003 kg



Over tolerance limit Difference: 0.153 kg



Specifying DeltaTrac target values

Direct input of DeltaTrac target values

1. Press **Delta** key.
2. Enter DeltaTrac target value.
3. Confirm the DeltaTrac target value in the displayed unit and tolerance with ↵.
   – or –
   - switch to weight unit with ,
   - open the menu for selecting the unit with the **List** key and select the unit,
   - switch to tolerance with ,
   - enter tolerance
   - switch to tolerance unit with and select the unit,
   - confirm with ↵.

Calling up fixed delta

The ID30 has 999 memory DeltaTrac positions for often-used DeltaTrac target values which can be programmed under "Fix-Memories -> Fixed Delta".

1. Enter memory position number: 1 through 999.
2. Press **Delta** key.

Limit values

Minimum target value	40 digits
Maximum target value	configured max. load
Minimum tolerance value	1 digit
Maximum tolerance value	10 % for dispensing and checking applications
	50 % for classification application

Note
If the limit values are not heeded, a message appears in the display, e.g. MIN-DEL = ... for a target value which is too small.

Clearing DeltaTrac target value

➜ Press the **Delta** key and then the **Esc** key.

3.2.6 Changing weight unit

If a second unit is configured under "Settings -> Scale -> Scale 1 (2, 3)", you can switch between the two units.

➜ Press **Unit** key.
The weight display is presented in red in the second unit. It is also identified with a * in the top left-hand corner.

3.2.7 Working in a higher resolution

Depending on the setting under "Terminal -> Control Mode", the weight value can be displayed in higher resolution continuously or upon being called up.
Weight values in higher resolution are presented in red and are additionally identified with a * in the top left-hand corner.

For non-verified scales

➜ Press the x10 key.
The weight value is displayed in at least a 10x higher resolution.
The higher resolution is displayed until the x10 key is pressed again.

For verified scales

➜ Press and hold the x10 key.
The weight value is displayed in at least a 10x higher resolution while the x10 key is pressed.

3.2.8 IDs

The ID30 has 4 ID memory positions for saving ID data Code A through Code D.
The memory positions have a name, e.g. Item No., and contents identified by the current weighing, e.g. 1234567.
The memory positions are named under "Settings -> Terminal". When the Code keys are pressed, the name appears in the display.

ID data Code A through Code D can be entered or called up for each weighing and are printed immediately by the connected GA46 printer.

Entering ID

1. Press the **Code A, Code B, Code C** or **Code D** key.
2. Enter ID alphanumerically and confirm with ↵.

Calling up fixed text

The ID30 has 999 memory fixed text positions for often-used IDs which can be programmed under "Fix-Memories -> Fixed Text".

1. Enter memory position number: 1 through 999.
2. Press the **Code A, Code B, Code C** or **Code D** key.

3.2.9 Specifying dynamic switching points

Condition

- Interface module 4 I/O-ID30 connected.
- At least one dynamic switching point configured under "Settings -> Interfaces -> 4 I/O".

Procedure

1. Select "Start Application -> Dyna Setpoint" in the navigation bar.
2. Answer the "Edit Dynamic setpoint values?" prompt with **OK**.
3. Enter value for first dynamic switching point and confirm the displayed unit and tolerance with ↵.
   – or –
   - switch to weight unit with ,
   - open the menu for selecting the unit with the **List** key,
   - select unit and confirm with ↵.
4. Enter values for the additional dynamic switching points as well.
5. When all dynamic switching points are specified, select "Application" in the navigation bar.

3.2.10 Checking calibration

Displaying ID code

Each change of the weighing platform configuration increases the ID code counter by 1. For verified weighing platforms, the displayed ID code must match the ID code on the ID code sticker. Otherwise, the verification is no longer valid.

➜ Select "Start Application -> Check Calibration" in the navigation bar.
The ID code of the selected weighing platform is displayed.

Testing weighing platform

➜ Press **OK** key for displayed ID code
The connected weighing platform is checked. The display shows CHECKING SCALE and then SCALE IS OK after the test is completed.
If the weighing platform is faulty, the display shows SCALE ERROR.

3.3 Editing memories

ScaleXPlorer has 999 memory positions for each of the following: often-used tare values (Fixed Tare), DeltaTrac values (Fixed Delta) and IDs (Fixed Text).

3.3.1 Editing fixed tare

1. Select "Fix-Memories -> Fixed Tare" in the navigation bar and switch to the application window with the **F** (F1) key.
   The list of fixed tare values appears on the screen.
2. Select the desired fixed tare memory position in the fixed tare list using the cursor keys or **Go to** and confirm with ↵.
3. Enter tare value.
4. Confirm tare value in the displayed unit with ↵.
   – or –
   – switch to unit with ,
   – open the menu for selecting the unit with the **List** key,
   – select unit and confirm with ↵.
5. Repeat Steps 2 through 4 for editing additional fixed tare values.

3.3.2 Editing fixed delta

1. Select "Fix-Memories -> Fixed Delta" in the navigation bar and switch to the application window with the **F** (F1) key.
   The list of fixed delta values appears on the screen.
2. Select the desired fixed delta memory position in the fixed delta list using the cursor keys or **Go to** and confirm with ↵.
3. Input DeltaTrac target weight and change to weight unit with .
4. Open the menu for selecting the unit with the **List** key.
5. Select unit and confirm with ↵.
6. Switch to tolerance with and input tolerance.
7. Switch to tolerance unit with .
8. Open the menu for selecting the unit with the **List** key.
9. Select unit and confirm with ↵.
10. Repeat Steps 2 through 9 for editing additional fixed delta values.

3.3.3 Editing fixed text

1. Select "Fix-Memories -> Fixed Text" in the navigation bar and switch to the application window with the **F** (F1) key.
   The list of fixed texts appears on the screen.
2. Select the desired fixed text memory position in the fixed text list using the cursor keys or **Go to** and confirm with ↵.
3. Enter text and confirm with ↵.
4. Repeat Steps 2 and 3 for editing additional fixed texts.

3.4 Calling up info

➜ Select **Info** in the navigation bar.
A list of the installed components is displayed on the screen.

➜ Call up detailed information on the connected weighing platforms with **+** in the information window.

➜ Call up the assignment of connections on the back of the Elo-Box with **Next**.

3.5 Editing terminal settings

3.5.1 Basic procedure

1. Select "Settings -> Terminal" in the navigation bar.
2. Make the desired settings in the terminal window and save with **Save**.

Notes

- If necessary, a selection window can be opened by pressing the **List** key.
- All settings can be reset to the default values with the **Default** button.
- Pressing the **Cancel** button retains the last saved setting.

3.5.2 DeltaTrac

➜ Make the DeltaTrac settings for each connected scale.

Application	Dispensing	Weigh in a target weight within a tolerance range.
	Classification	Use target weight and tolerance to judge the sample as good, too light or too heavy.
	Checking	Determine deviation between target and actual weight.
View	Standard	Only the DeltaTrac bar is displayed.
	Expanded	Target value and tolerance are displayed in addition to the DeltaTrac bar.
Title	A	Code A is displayed over DeltaTrac.
	A+B	Code A and Code B are displayed over DeltaTrac.

3.5.3 Format for date and time

➜ Select format for date and time.

Note
The system date is displayed.

3.5.4 Personal code

If a personal code is specified, a password prompt appears each time the **Settings** are called up in the future.

3.5.5 Control Mode

➜ Make settings for working in higher resolution (Control Mode).

On	The weighing terminal always operates with the higher resolution. This setting is only possible for non-verified weighing platforms.
x10 key	Activation of Control Mode via the x10 key.

3.5.6 Language

➜ Select language.

Possible settings:
English, German, French, Dutch, Italian, Spanish.

3.5.7 Display duration

➜ Set duration of display of information and error displays.

Possible settings: 0 to 9 seconds

3.5.8 Code A, Code B, Code C, Code D

➜ Enter name and maximum permissible data length of ID Code A through Code D.

Note
An ID can consist of up to 30 characters.

3.6 Editing scale settings

3.6.1 Basic procedure

1. Select "Settings -> Scale -> Scale 1 (2, 3)" in the navigation bar.
2. Make the desired settings in the scale window and save with **Save**.

Notes

- If necessary, a selection window can be opened by pressing the **List** key.
- All settings can be reset to the default values with the **Default** button.
- Pressing the **Cancel** button retains the last saved setting.

3.6.2 Weighing Process Adapter

➜ Adapt weighing platform to weighing sample.

Universal Weighing	For solid bodies, coarse filling or checkweighing.
Static Weighing	For solid bodies and weighing under extreme conditions, e.g. strong vibrations or weighing animals.
Fine Filling	For liquid or powdered weighing samples.

3.6.3 Vibration Adapter

➜ Adapt weighing platform to the vibration influences of the environment.

Average Conditions	Factory setting
Extreme Conditions	The weighing platform operates more slowly, however is less sensitive, e.g. suitable with building vibrations and vibrations at the weighing location.
Ideal Conditions	The weighing platform operates very quickly, however is very sensitive, e.g. suitable with very calm and stabile weighing location.

3.6.4 Stability Detector

➜ Adapt automatic stability detector.

ASD = 0	Stability detector switched off (only possible with non-certified weighing platforms)	
ASD = 1	fast display	good reproducibility
ASD = 2	▲	▼
ASD = 3	▲	▼
ASD = 4	slow display	very good reproducibility

3.6.5 Auto Zero

The automatic zero-point correction corrects the weight of minor dirt with the weighing platform unloaded.

➜ Switch automatic zero-point correction on or off.

Note

On certified weighing platforms the zero-point correction is always switched on.

3.6.6 Auto Tare

➜ Switch automatic taring on or off.

3.6.7 Restart

When RESTART is set, the zero point and tare value remain stored after the power supply is interrupted. When the weighing platform is switched on again, the terminal shows the current weight.

➜ Switch restart function on or off.

3.6.8 Second Unit

➜ Select second weight unit.

Possible units: g, kg, lb, oz, ozt, dwt

Note
On certified weighing platforms only the units permitted by certification appear.

3.6.9 Update Rate

➜ Select number of updates per second (UPS) for the weight display.

Possible settings: 6, 10, 15, 20, 30, 40 UPS

Notes

- This block only appears when the Update Rate function is supported by the connected weighing platform.
- The possible settings are dependent on the connected weighing platform.

3.7 Editing interface settings

3.7.1 Basic procedure

1. Select "Settings -> Interface -> X1 (2, 3, …, 10)" with the desired assignment in the navigation bar.
2. Make the desired settings in the interface window and save with the **Save** button.

Notes

- If necessary, a selection window can be opened by pressing the **List** key.
- If necessary, the **Next** button can be used to change to an additional screen page, and the **Back** button takes you back to the main screen.
- All settings can be reset to the default values with the **Default** button.
- Buttons can be activated and checkboxes filled in with the **OK** button.
- Pressing the **Cancel** button retains the last saved setting.

3.7.2 RS232 / RS422 / RS485 / CL20mA

➜ Select operating mode: RS232, RS422, RS485, CL20mA, Scale-SICS, GA46 or Barcode

Depending on the selected operating mode a selection of the following paramters can be adjusted:

GA46

Automatic Printout — On/Off, deflection 10 d

Format EAN 128

- 01 - EAN — Printout of identification data Code A
  possible settings:
  01<N14>,01<N13><C1>,010<N12><C1>,010<N13>
- 310 - EAN — Printout of identification data Code A and net value
  possible settings:
  019<N12><C1>310x<N6>, 019<N13>310x<N6>,
  Number of decimal places
- 330 - GROSS — Printout of gross value in the format 330x<N6>
  possible settings:
  Number of decimal places
- Legend
  - Nxx Identication data Code A, xx places
  - C1 Check character, 1 digit, calculated by ID30
  - N6 Weight value, 6 places

Service

- GA46 On/Off
- Reset GA46 — All data still stored in the receiving buffer are deleted.
- Contrast — Set contrast value of thermal bar.
  0 = low contrast, 8 = high contrast
- Resistance — After replacing the thermal bar or control electronics, the resistance value must be reset.

  Determine resistance class

  Open printer cover and read the resistance value in the working position of the thermal bar off the label.

< 650	Class 0	750 – 800	Class 3
650 – 700	Class 1	> 800	Class 4
700 – 750	Class 2		

- Character Set — Possible character sets:
  USA, POLISH, GERMAN, RUSSIAN
- Test Print — Trigger a test printout with the above settings.

Operating Mode (RS485)

1:1 Connecton — Weighing terminal and peripheral are directly connected.

Bus-Slave — For operating the weighing terminal in a bus system.
The PC is the master, the terminals act as slaves and only transmit when requested to do so by the master. The master must also wait until after sending out a command until the slave's answer is received
Each terminal must be assigned a unique address.

Mode

MMR	Dialog mode with the MMR command set, see section 4.1.
SICS	Dialog mode with the Standard Interface Command Set (SICS), see section 4.2.
Print Mode	To print weighing data, e.g. on a form printer.
Toledo Continuous	For the continuous transmission of net and tare values to METTLER TOLEDO devices, e.g. to a second display. For a description, see section 4.3.
Toledo Short Continuous	For the continuous transmission of net values to METTLER TOLEDO devices, e.g. to a second display. For a description, see section 4.3.

Port Settings

BaudRate	300, 600, 1200, 2400, 4800, 9600 oder 19200 Baud
Parity	None, Even, Odd, Space, Mark
Data bits	7, 8
Stop bits	1, 2

Options

Handshake	None, CL Handshake, XON-XOFF For additional information on the CL handshake, see below.	
Auto Repeat	None	
	Auto-SIR	after each measuring cycle a stabilized or dynamic weight is transmitted
	Auto-DIR	weight values are transmitted as with AUTO SIR and additionally, the special characters in the display are transmitted for a second display
	Auto-SR	after each weight change which is greater than the set value, a motionless weight value and then a dynamic weight value are sent
Transfer String	Standard, Option 082/083 User Defined: Press the **Next** button and select the application blocks for this.	
String Framing	CR, CRLF, Block Check Char, <STX> <ETX>	
Report-Typ	Typ A, e.g. for barcode printer Typ B, e.g. for A4 printer	
Auto Printout	On/Off, deflection 1 ... 255 Digits	
Checksum	On/Off, Checksum byte inactive, the transfer format is shortened by 1 character.	

CL handshake

With the CL handshake 3 types of interface control are possible:
Handshake in receiving direction, in transmitting direction and in both directions.
After switch-on and after each interruption, the ID30 attempts to establish the handshake in both directions.

CL handshake in receiving direction

This type of CL handshake is suitable for data transmission from the ID30 to the computer.

1. The ID30 transmits SYN after switch-on.
2. The computer transmits the character ACK after switch-on or after receiving SYN.
3. ID30 then sends the response to a command or to a key actuation after each ACK.

CL handshake in transmission direction

This type of CL handshake is suitable for data transmission from the computer to the ID30.

1. The ID30 transmits SYN after switch-on.
2. The computer transmits the character SYN after switch-on or after receiving SYN.
3. ID30 acknowledges the receipt of SYN again with SYN and signals its readiness to receive with ACK.
4. Then the computer can transmit a command after each ACK.

CL handshake in both directions

1. The ID30 transmits SYN after switch-on.
2. The computer transmits the character SYN after switch-on or after receiving SYN.
3. ID30 acknowledges the receipt of SYN again with SYN and signals its readiness to receive with ACK.
4. The computer signals its readiness to receive with ACK.
5. During operation the ID30 receives data and transmits ACK when it is ready to receive data again.
   The computer receives data and transmits ACK when it is ready to receive data again.

3.7.3 4 I/O / RS485 with Relay box 8-ID30

Configuring inputs

Internal	The assignment of the inputs is controlled by the ID30/ ScaleXPlorer in accordance with the setting under **Input configuration**.
External	The inputs are independent of the weighing functions. Read status of the inputs via the command AR707, see page 84, or control via ScaleEngine.

Configuring outputs

Internal	The assignment of the outputs is controlled by the ID30/ ScaleXPlorer in accordance with the setting under **Output configuration**.
External	The outputs are independent of the weighing functions. Set outputs via the command AW707, see page 84, or control via ScaleEngine.
Setpoint Mode	If Setpoint Mode is activated when outputs are operated internally, 4 configurable switching points are available.

Configuring setpoints

Type	Fixed-Asc	Fixed switching point, ascending
	Fixed-Des	Fixed switching point, descending
	Dynamic-Asc	Dynamic switching point, ascending
	Dynamic-Des	Dynamic switching point, descending
AB	Weight value to which the switching point refers. All application blocks with a valid weight unit are possible. Factory setting: AB 012, net weight.	
Scale	Select scale for which this switching point is to apply.	
Value	Enter the weight value for the switching point, but only for fixed switching points. For dynamic switching points, the weight value is entered under "Start Application -> Dyna Setpoint", see page 23.	

Input configuration

➜ Select the desired assignment for each input of the 4 I/O interface module or the first 8-ID30 relay box.

➜ If several 8-ID30 relay boxes are connected, switch to the next 8-ID30 relay box with the **Next** button and configure the other inputs.

Output configuration

➜ Select the desired assignment for each output of the 4 I/O interface module or the first 8-ID30 relay box.

➜ If several 8-ID30 relay boxes are connected, switch to the next 8-ID30 relay box with the **Next** button and configure the other outputs.

I/O test

Testing inputs

➜ Energise each input.
The field for the corresponding input must be marked in red on the screen.

➜ If several 8-ID30 relay boxes are connected, switch to the next 8-ID30 relay box with the **Next** button and test the other inputs.

Testing outputs

➜ Click on outputs of the next row or press the relevant number key.
The relevant output must switch and the field for this input must be marked in green on the screen.

➜ If several 8-ID30 relay boxes are connected, switch to the next 8-ID30 relay box with the **Next** button and test the other outputs.

3.7.4 Profibus

Node Address Select desired node address in range 001 to 126.

Operating Mode

16-Bit-Integer/2 Words
Consistent over 2 words, valid module pair in GSD file:
16-BIT-INTEGER 2(+2)W AI
16-BIT-INTEGER 2(+2)W AO

16-Bit-Integer/4 Words
Consistent over 2 words, valid module pair in GSD file:
16-BIT-INTEGER 2(+2)W AI (use 2x)
16-BIT-INTEGER 2(+2)W AO (use 2x)

32-Bit Floating Point
Consistent over 4 words, valid module pair in GSD file:
32-BIT-FLOATING-POINT 4W AI
32-BIT-FLOATING-POINT 4W AO

Setpoint Mode

Universal	Each setpoint can be set and read independently of others.
Checkweighing	As soon as setpoints 1 and 2 are set, DeltaTrac CHECKWEIGHING will be activated with SP1 = setpoint and SP2 = tolerance (in %, in 16-bit integer mode with 2 decimal places). In read table current state BELOW (SP1), GOOD (SP2) or ABOVE (SP3) can be read off.
Filling	As soon as setpoints 1 and 2 are set, DeltaTrac CHECKWEIGHING will be activated with SP1 = setpoint and SP2 = tolerance (in %, in 16-bit integer mode with 2 decimal places). In addition, SP3 and SP4 can also be loaded as any desired setpoints. In read table current state GOOD (SP1), ABOVE (SP2), SP3 REACHED (SP3) or SP4 REACHED (SP4) can be read off.

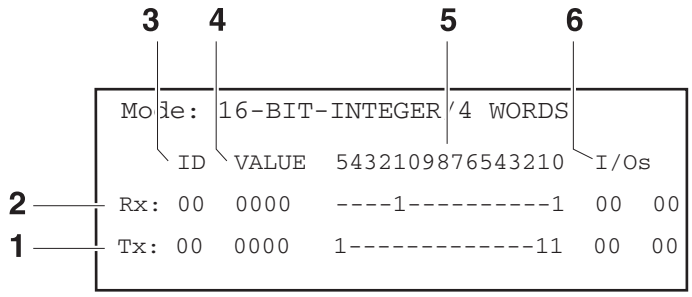
Input Mode Set request for identification data in Input mode.
After setting the user data command INPUT MODE in the write table, the selected request for input is automatically carried out and the entries are saved in the application blocks 094 to 097.
The user data response INPUT MODE RUNNING remains set while the input mode is active.

A,	Code A is requested
A+B,	Code B and Code A are always requested
A+B+C	Code C, Code B and Code A are always requested
A+B+C+D	Code D, Code C, Code B and Code A are always requested

Expanded AB Area Input of up to three expanded application blocks for constants which can be accessed when writing applications blocks.

Example input	**enables access to**
021	application blocks 021_001 to 021_999
046	application blocks 046_001 bis 046_999

Test Mode Activation of the information display. In line 3 and 4 write and read tables are displayed as follows:



1 Read table

2 Write table

3 Operating mode (internal)

4 Value (hexadecimal)

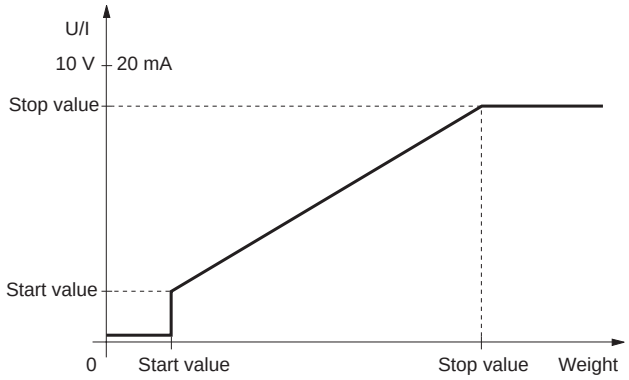
5 Command/response bits

6 Inputs/outputs (hexadecimal)

3.7.5 AnalogOut

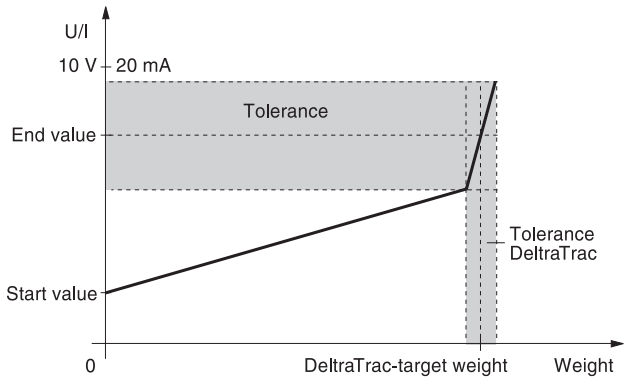
Mode **Start-Stop**

When the selected weight value is within the specified start and stop values, a current/voltage signal in the specified range will be output at the AnalogOut interface.



DeltaTrac

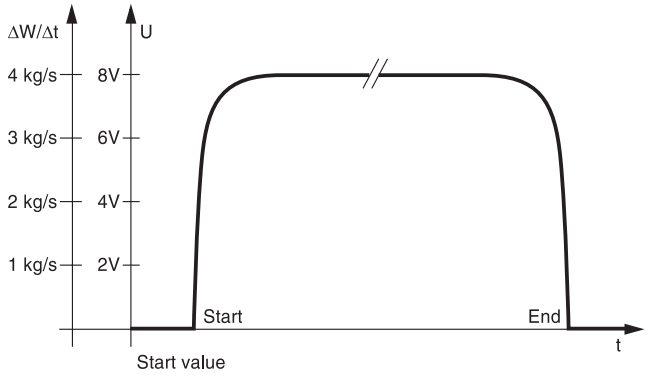
In this operating mode the net weight value on the AnalogOut interface is output in the factory setting, provided DeltaTrac is active.
If no DeltaTrac target value is entered, 0 V / 0 mA are output.



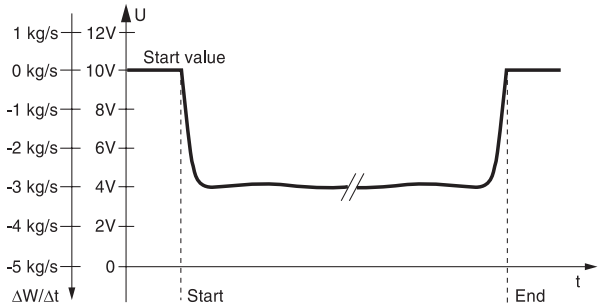
dW-dT

In this operating mode flows are measured via the weight change per time in the supply or catch container.

Example 1: Weighing in with a flow rate of 4 kg/sec.



Example 2: Subtractive weighing with a flow rate of 3 kg/sec. starting value of the analog voltage signal: 10 V.



In both cases a change in the flow rate of 1 kg/sec. results in a change in the analog voltage signal of 2 V.

Scale

All Scales	Weight values can be output by all connected weighing platforms at the AnalogOut interface. The assignment of a weighing platform to the AnalogOut interface module can be changed with the key SCALE or the command AW010…
Scale 1, 2, 3	Only weight signals of the selected weighing platform can be output via the AnalogOut interface module.

Options

AB — Application block number for the weight value to be output at the AnalogOut interface.
Factory setting: Application block 012, net weight

Options for Start Stop mode

VALUE	Start	Starting value of the analog output signal
	Stop	Stop value of the analog output signal
	Possible settings: 0 V – 10 V or 0 mA – 20 mA	
WEIGHT	Start	Weight value at which the analog output is to start.
	Stop	Weight value from which the maximum value of the analog signal is to be output.

Options for DeltaTrac mode

V / mA AT ZERO	Starting value of the analog output signal Possible settings: 0 V – 10 V or 0 mA – 20 mA
V / mA AT TARGET	Stop value of the analog output signal Possible settings: 0 V – 10 V or 0 mA – 20 mA
TOLERANCE	+/– deviation from stop value of analog signal when the target weight tolerance is reached

Options for dW-dT-MODE

dW-dT	Value for the change in the analog output signal in the case of a weight change of one unit per second.
START	Starting value of the analog output signal Possible settings: 0 V – 10 V or 0 mA – 20 mA

3.7.6 Adjusting AnalogScale – Service Mode

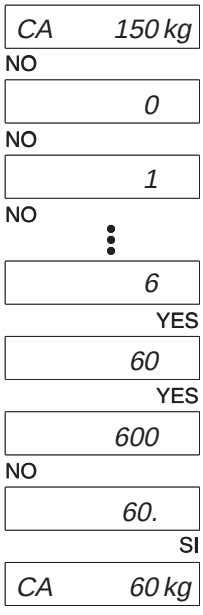
CAUTION
The parameters which can be changed in the service mode are protected by certification. If the scale is set to certified (APPROVE in the program block SCALE), the identcode (identification code) counter will be incremented by one when the altered parameters are stored. In the case of a certified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

Procedure

1. Select "Service" in the navigation bar.
2. Enter password: 2481632.
3. Select "Scale -> Scale 1 (2, 3)" with AnalogScale in the navigation bar.
   The prompt "Start Service Mode?" appears in the display.

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

Example1: Entry of the maximum capacity 60 kg



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

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

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

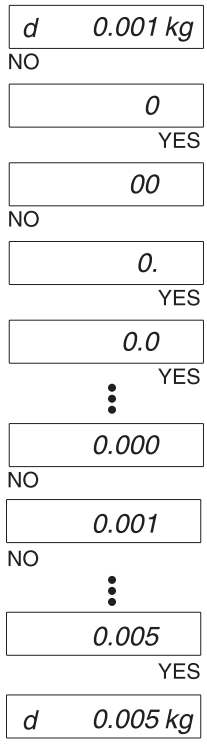
The digit 0 appears at the 2nd place. 60 is the desired value, confirm with YES.

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.

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.

3.7.7 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
	1. Select certification capability
NO W+M APPROVAL	• Noncertified scale
W+M APPROVE	• Certified scale
	2. Selecting multi-range or multi-increment scale
MULTI-RANGE	• Multi-range (fixed ranges)
MULTI-INTERVAL	• Multi-increment (ranges can be shifted with tare function)
	3. Select number of weighing ranges
1 RANGE / 1 INTERVAL	• Same resolution over entire weighing range
2 RANGES / 2 INTERVALS	• Two ranges with different resolution
3 RANGES / 3 INTERVALS	• Three ranges with different resolution

SCALE PARAMETERS	Selecting the parameters specific to the weighing platform
	4. Select unit
UNIT = kg	• Display in kg
UNIT = lb	• Display in lb, if allowed by metrological regulations
UNIT = g	• Display in g
	5. Select maximum capacity
CA XXX kg	• Maximum capacity currently set
0	• Enter desired maximum capacity and confirm
	6. Define weighing ranges (with multirange or multi-increment scales only)
CAP1	• Display for information: Weighing range 1
CA XXX kg	• Value currently set for the first weighing range
0	• Enter desired value for the first weighing range
	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.
	7. Select resolution
D X.XXXX kg	• 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.
0	• 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
	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.
	1. Select linearization weight
ENTER LINCAP	• Display for information: Linearization weight.
XX.XXX kg	• Linearization weight currently set, e.g. half load.
0	• Enter desired linearization weight.

LINEARITY	**Entering linearity**
RESET LINEARITY	**2. Reset linearity compensation**
	3. Linearization
	by entry of the linearity
ENTER DISPL CAP	• Display for information: Enter linearization weight.
XX.XXX kg	• Accept displayed weight value if it matches the weight value displayed when the linearization weight was loaded.
0	• Enter weight value displayed when the linearization weight was loaded.
CAL LINEARITY	**by loading the linearization weight**
SET PRELOAD	• Unload scale and load preload, if used, confirm with YES.
SET LINCAP	• Load linearization weight selected in step 1, confirm with YES.
UNLOAD	• Unload scale, confirm with YES.

CALIBRATION	**Calibrating weighing platform – using geo value**
	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. 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.
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

Country		Geo value	Country		Geo value
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	• 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).
--CALIBRATION--	• The scale calibrates with preload if PRELOAD was confirmed with YES.
SET FULLCAP	• Display for information: Maximum capacity.
CA XXX KG	• Prompt to load and confirm the displayed maximum capacity.
– or –	– or –
0	• Enter desired maximum capacity.
--CALIBRATION--	• The scale calibrates with maximum capacity.
UNLOAD	• 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.
--CALIBRATION--	• The scale calibrates with preload.

ADAPTION	Entry of application-specific parameters
PU DELAY XX sec	**1. Delay time** Depending on the environmental conditions and loading of the scale, the system requires additional time for an exact zero-point determination. • Enter additional delay time when switching on, max. 600 sec. factory setting: 0 sec.
PU ZERO RANGE OFF ON – XX % + XX %	**2. Zero-set range** • 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. – certified: max. 20 % of weighing range factory setting: –2 % ... +18 % – noncertified over entire weighing range factory setting: –50 % ... +50 %
AUTO ZERO OFF ON GROSS ONLY GROSS+NET AZM x.x d	**3. Automatic zero-point correction** • Switch off automatic zero-point correction, only with noncertified scales. • Switch on automatic zero-point correction (factory setting) – 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** • Zero-point shift with manual entry. • Enter weight value for zero-point shift. **via measuring in of pre-load** • 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** • 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.

3.7.8 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.

4 Interface description

The ID30 weighing terminal can be equipped with up to 5 serial interfaces at interface connections X6 through X10 for the purposes of data exchange with a computer.
These interfaces, connected directly to the weighing electronics, work independently of each other. They can be used simultaneously and can be set individually. See section 3.7.2.
One of the following METTLER TOLEDO command sets must be selected in the interface settings for operation of the serial interface in **Dialog mode**:

- MMR command set, see section 4.1.
- METTLER TOLEDO SICS command set, see section 4.2.
- METTLER TOLEDO Continuous mode, see section 4.3.

4.1 MMR command set

4.1.1 Syntax and formats of communication

Command format when transmitting weight formats

Identification	_	Weight value	_	Unit	Framing
Character sequence for specification of command (1 … 4 characters)		1 … 8 digits, number of digits variable		1 … 3 characters, number of characters variable	Definable in master mode, factory setting: C_RL_F

Response format when transmitting weight formats

Identification	_	Weight value	_	Unit	Framing
Character sequence for specification of response (2 … 3 characters)		10 digits, right-justified, filled out with blank spaces		3 characters, left-justified, filled out with blank spaces	definable in master mode, factory setting: C_RL_F

Example

Command Tare specification `T _ 1 3 . 2 9 5 _ k g`
Response Tare specification `T B H _ _ _ _ _ 1 3 . 2 9 5 _ k g _`

Data formats

- The following symbols are used in the following command description:

Weight value	10 characters with sign and decimal point, right-justified (with preceding blank spaces)
Unit	3 characters, left-justified (with following blank spaces)
Text_n	maximum of n characters, left-justified

- The string framing is mandatory, however it is **not** contained in the following command description!
- Enter commands as ASCII characters. The following ASCII characters are available: 20 hex/32 deci … 7F hex/127 deci.

BUS SLAVE operating mode for interface module RS422/485-G

In the BUS SLAVE operating mode each command and each response begins with a code for the terminal address.

Terminal address 1 … 9	Code "1" … "9"	(31H … 39H)
Terminal address 10 … 31	Code "a" … "v"	(61H … 76H)

Example

Command to terminal 3: 3 S

Response from terminal 3: 3 S _ _ _ _ _ _ 1 2 . 7 6 5 _ k g _

4.1.2 Command overview

Command	Meaning	Page
Z	Set weight display to zero after weighing platform stabilization	47
U_…	Change over terminal to a different weight unit	47
T	Tare	48
T_…	Specify tare weight	48
DY_…	Specify DeltaTrac target value	49
S	Transmit in case of weighing platform stabilization	49
SI	Transmit independent of weighing platform stabilization	49
SIR	Transmit repeatedly independent of weighing platform stabilization	49
SR	Transmit stabilized weight values repeatedly depending on a weight change	49
SR_…	Transmit repeatedly depending on weighing platform stabilization with specification of an excursion value	49
SX	Transmit data record after weighing platform stabilization	50
SXI	Transmit data record independent of weighing platform stabilization	50
SXIR	Transmit data record repeatedly independent of weighing platform stabilization	50
ARNo.	Read information of application block	51
AWNo._…	Write to application block	51
D_…	Write to display	51
P_…	Print alphanumeric characters or barcodes on the GA46	52
DS	Trigger acoustic signal	52
ID	Interrogate terminal identification	52
W_…	Actuating digital outputs	53

4.1.3 Command description

Set zero

Command	Z	Set gross weight display to zero after weighing platform stabilization, effect as when ZERO-SET key is pressed.
Response	Z B	Weighing platform set to zero
	Z -	Command cannot be executed: Zero-set range dropped below
	Z +	Command cannot be executed: Zero-set range exceeded
Comments	• Setting to zero is not possible when the weighing platform stabilizes in the zero-set range. • With some weighing platform types setting to zero deletes a saved tare weight. This is indicated with the message TA, see page 54.	

Changing over to different weight unit

Command	U _ Unit	Change over weight display to different weight unit
	U	Change over weight display to first weight unit
Response	U B	Weight display changed over to different weight unit
Comment	Possible units: g, kg, lb, ozt, oz, dwt	

Tare

Command	`T` Tare weighing platform: After the weighing platform stabilizes, the current weight value is saved as the tare weight and the weight display is set to zero with the weight placed on the platform. Effect as when TARE key is pressed. `T` `_` `Tare weight (weight value)` `_` `Unit` Specify tare weight: The content of the tare memory is overwritten with the specified tare weight and the net weight is displayed. Effect as when TARE ENTRY, 0 … 9, ↵ sequence is pressed. `T` `_` Delete tare weight.
Response	`T` `B` `_` `_` `Tare weight (weight value)` `_` `Unit` Weighing platform is tared `T` `B` `H` `_` `Tare weight (weight value)` `_` `Unit` Weighing platform is tared with specified weight `T` `-` Command cannot be executed: Tare range dropped below `T` `+` Command cannot be executed: Tare range exceeded
Comments	• Taring is only possible when the weighing platform stabilizes within the tare range. • The tare weight is always transmitted in the first weight unit. • Each taring command overwrites the content of the tare memory with the new tare weight. • Taring with an unloaded weighing platform deletes the tare memory. On some weighing platform types a zero set is carried out in the unloaded state. This is displayed with the message ZA, see page 54. • On not certified weighing systems the tare weight is automatically rounded to the current increment. • On certified weighing systems: Tare range for MultiRange only in first increment range.
Example	Command: `T` Response: `T` `B` `_` `_` `_` `_` `_` `_` `1` `2` `.` `6` `5` `0` `_` `k` `g` `_`

Specify DeltaTrac target value

Command	D Y _ Target weight (weight value) _ Unit _ Tolerance _ % Specify DeltaTrac target value D Y Delete DeltaTrac target value
Response	D B DeltaTrac target value loaded/deleted
Comments	• Observe limit values, see page 22 • Also possible: A W 0 2 0 ..., see page 79
Example	Command: D Y _ 4 . 5 _ k g _ 5 _ % Response: D B

Transmit content of display

Command	S Transmit a stabilized weight when weighing platform is stabilized. S I Transmit a stabilized or dynamic weight independent of weighing platform stabilization.
Response	S _ _ Weight value _ Unit Stabilized weight value transmitted S D _ Weight value _ Unit Dynamic weight value transmitted S I Invalid weight S I - Weighing platform in underload range S I + Weighing platform in overload range

Transmit content of display repeatedly

Command	S I R Transmit stabilized or dynamic weight values after each measuring cycle independent of weighing platform stabilization. S R Transmit the next stabilized weight value after a weight change (e.g. different item) and one dynamic and the next stabilized weight value after each deflection > 30 d. S R _ Deflection weight (weight value) _ Unit Transmit the next stabilized weight value and, depending on the specified deflection, a dynamic weight value after a weight change greater than the specified deflection value.
Response	S _ _ Weight value _ Unit Transmit stabilized weight value repeatedly S D _ Weight value _ Unit Transmit dynamic weight value repeatedly
Comment	Stop command with S, S I command or by interrupting the interface
Example	Command: S R _ 1 4 0 _ k g Responses: S _ _ _ _ _ _ 2 0 0 . 0 0 _ k g 1st item S D _ _ _ _ _ 3 4 5 . 8 5 _ k g S _ _ _ _ _ _ 4 1 0 . 5 0 _ k g 2nd item

Transmit data record

Command	`S X` Transmit a data record with stabilized weight values after weighing platform stabilization. Effect as if ↵ is pressed. `S X I` Transmit a data record with stabilized or dynamic weight values independent of weighing platform stabilization. `S X I R` Transmit data records with stabilized or dynamic weight values repeatedly independent of weighing platform stabilization.
Response	`S X _ _` Application block `_ _` Application block ... `A` No. `_` Data record Data record with stabilized weight values transmitted `S X D _` Application block `_ _` Application block ... `A` No. `_` Data record Data record with dynamic weight values transmitted `S X I` Invalid value `S X I -` Weighing platform in underload range `S X I +` Weighing platform in overload range

Comments	• Number of application block: three-digit with leading zeros.
	• The content of the corresponding application block is contained in data record, see chapter 5. Standard data record consists of 3 blocks:
	`S X _ _ A 0 1 1 _` Gross weight (weight value) `_` Unit `_ _`
	`A 0 1 2 _` Net weight (weight value) `_` Unit `_ _`
	`A 0 1 3 _` Tare weight (weight value) `_` Unit
	The continuous transmission of data records started with the `S X I R` command can be stopped with the `S X` or `S X I` command.

Example	Command: `S X I`
	Response: Standard data record
	`S X D _ A 0 1 1 _ _ _ _ _ 2 3 . 6 5 0 _ k g _`
	`_ _ A 0 1 2 _ _ _ _ _ 2 1 . 6 5 0 _ k g _`
	`_ _ A 0 1 3 _ _ _ _ _ _ 2 . 0 0 0 _ k g _`

Read application block

Command	A R No.	Read content of application block
Response	A B _ Information	Content of application block transmitted
Comments	• Transmitted information is dependent on application block, see chapter 5. • Number of application block must be entered as 3 digits with preceding zeros.	

Write to application block

Command	A W No. _ Information A W No. A W No. _	Write to application block Reset application block Delete application block
Response	A B	Written to application block
Comments	• Information to be entered is dependent on target block, see chapter 5. • Deleting and resetting have same effect.	

Write to display

Command	D _ Text_20 D _ D	Write to display Switch display to dark Set display to normal status
Response	D B	Written to display
Comments	• Character stock: ASCII characters 20 hex/32 deci … 7F hex/127 deci. • Watch capitalization.	

Alphanumeric printout on GA46 printer

Command	P _ Text_48	Print text as per setting
	P _ $! 1 Text_48	Print text in small type
	P _ $! 2 Text_48	Print text in normal type
	P _ $! 3 Text_48	Print text in large type
	P _ $! A Text_48	Print text in small type and bold print
	P _ $! B Text_48	Print text in normal type and bold print
	P _ $! C Text_48	Print text in large type and bold print
	P _	Print blank line
Response	P B	Alphanumeric characters printed
Comments	• Character stock: ASCII characters 20 hex/32 deci … 7F hex/127 deci. • Text is printed in last selected type size. • Watch capitalization.	

Barcode printout on GA46 printer

Command	P _ $ # 1 Text_20, barcode-specific	Print Code 39
	P _ $ # 2 Text_8, barcode-specific	Print EAN 8
	P _ $ # 3 Text_13, barcode-specific	Print EAN 13
	P _ $ # 4 Text_20, barcode-specific	Print EAN 128
	P _ $ # 5 Text_20, barcode-specific	Print Code 2 of 5
	P _ $ # 6 Text_20, barcode-specific	Print Code 2 of 5 interleaved
	P _ $ # 7 Text_20, barcode-specific	Print Code 128
	P _ $ # 8 Text_20, barcode-specific	Print EAN 128
	P _	Print blank line
Response	P B	Barcode printed
Comments	• Character stock: ASCII characters 20 hex/32 deci … 7F hex/127 deci. • With Code 39, 3 barcodes can be printed next to each other. Separating characters: $$ or H_T (ASCII character 09 hex/9 deci). Arrangement of barcodes: Barcode 2, Barcode 1, Barcode 3.	

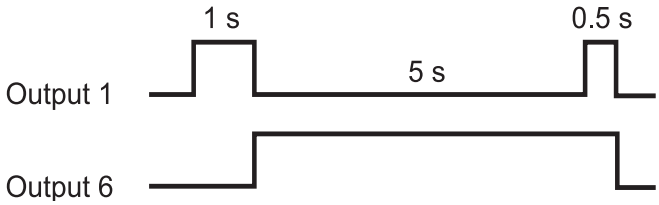
Acoustic signal

Command	D S	Generate short acoustic signal (beep tone) in terminal
Response	D B	Acoustic signal generated in terminal

Identification

Command	I D	Interrogate identification of terminal
Response	I D 3 0 _ I W S 0 - 0 - 0 1 0 3	

Actuating digital outputs

Command	W _ Status — Switch individual digital outputs on or off W _ Status 1 _ Time 1 _ Status 2 _ Time 2 _ ... Status 4 _ Time 4 _ Status 5 — Trigger time sequence of status changes of digital outputs W , W _ — Reset all outputs to logical 0 Status: Each output is assigned a value. The total of the values of those outputs which are to be closed is indicated as the "Status". Digital output 1 — 1 Digital output 2 — 2 Digital output 3 — 4 Digital output 4 — 8 Digital output 5 — 16 Digital output 6 — 32 Digital output 7 — 64 Digital output 8 — 128 All outputs open — 0 All outputs closed — 255 Time: 1 ... 99999 ms
Response	W B — Digital outputs set
Comments	• Max. 5 statuses "Status" and 4 intervals "Time" are possible. After sequence has been run, digital outputs freeze in last status "Status". • A break in the port has no effect on the outputs. • If terminal receives a new W command before time sequence has been run, ongoing sequence will be aborted immediately. • If limits for "Status" and "Time" are not adhered to, error message EL appears on 4 I/O interface or 8-ID30 relay box.
Examples	Command: W _ 5 Digital outputs 1 and 3 are closed, all others opened Command: W _ 1 _ 1 0 0 0 _ 3 2 _ 5 0 0 0 _ 3 3 _ 5 0 0 _ 0 triggers following sequence: 

4.1.4 Terminal messages – only with RS232, RS422 or C20mA

In the dialog mode the ID30 weighing terminal transmits an acknowledgement to the computer each time a key is pressed.
When this pressing of a key is replaced with an interface command, the acknowledgement only differs in the second character in the response format which is part of the command:

Function	Key	Acknowledgement
Set zero		Z A
Tare		T A ... (see command T)
Specify tare weight		T A H ... (see command T_ ...)
Change over unit		U A _ Unit
Transmit data record in case of weighing platform stabilization		S T _ _ ... (see command SX)
Switch over weighing platform		S A _ _ n n = weighing platform 1 ... 3
Dynamic weighing		A A 0 1 6 _ Weight value _ Unit
Identification A ... D	A ... D	K x _ Identification x = A, B, C, D 20 characters, right-justified
Function keys	F1 ... F6	K F _ x x = I, J, K, L, M, N

4.1.5 Fault messages

Fault messages always consist of 2 characters and a string frame.
The string frame can be defined under "Options" (page 30).

E T **Transmission error**
The terminal transmits a transmission error for errors in the received bit sequence, e.g. parity errors, missing stop bit.

E S **Syntax error**
The terminal transmits a syntax error when the received characters cannot be processed, e.g. command does not exist.

E L **Logic error**
The terminal transmits a logic error when a command cannot be executed, e.g. when an attempt is made to write to a write-protected application block.

4.2 METTLER TOLEDO SICS command set

4.2.1 Communication syntax and formats

Command format when transmitting weight values

Identification	_	Weight value	_	Unit	Framing
String of characters for specification of command (1 … 4 characters)		1 … 10 characters		1 … 3 characters, number of characters variable	C_RL_F

Response format when transmitting weight values

Identification	_	Status	_	Weight value	_	Unit	Framing
String of characters for specification of response (1 … 2 char.)		1 char.		10 char., right-justified, filled in with blank char.		3 char., left-justified, filled in with blank char.	C_RL_F

Example

Tare specification command `TA_13.295_kg`

Tare specification response `TA_A_____13.295_kg_`

Data formats

- The following symbols are used in the command description:

  `Weight value` 10 numbers with sign and decimal point, right-justified (with preceding blank spaces)

  `Unit` 3 characters, left-justified (with following blank spaces)

  `"Text_n"` maximum of n characters, left-justified

- The string framing is mandatory, however it is **not** listed in the following command description!
- Enter commands as upper-case letters.
- Text to be entered must always be placed in inverted commas.

4.2.2 Command overview

Command	Meaning	Page
Level 0		
I0	Transmit list of all available SICS commands	57
I1	Transmit SICS level and SICS versions	57
I2	Transmit scale data (terminal, platform)	57
I3	Transmit scale software version (program number)	58
I4	Transmit serial number	58
S, SI, SIR	Transmit display contents	58
Z	Set to zero	59
@	Reset	59
Level 1		
D	Write display	59
DW	Weight display	59
SR	Transmit stabile weight values repeatedly depending on a weight change	60
T	Taring	60
TI	Tare immediately	61
TA	Specify tare weight	61
TAC	Delete tare weight	62
Level 2		
SX, SXI, SXIR	Transmit data record	62
U	Change over to different weight unit	63
DS	Acoustic signal	63
Level 3		
AR	Read application block	63
AW	Write application block	63
DY	Specify DeltaTrack target value	64
P	Print text or barcode	64
W	Actuating digital outputs	65

4.2.3 Command description

Transmit SICS commands

Command	I 0 Transmit SICS commands
Response	I 0 _ B I 0 _ 0 _ "I0" I 0 _ 0 _ "I1" … I 0 _ 1 _ "D" … I 0 _ 2 _ "SX" … I 0 _ 3 _ "AR" … I 0 _ A

Transmit SICS levels and SICS versions

Command	I 1 Transmit SICS levels and SICS versions
Response	I 1 _ A _ "x1" _ "x2" _ "x3" _ "x4" _ "x5" x1 = 0123 Scale with SICS levels 0, 1, 2 and 3 x2 Version or implemented SICS0 commands x3 Version or implemented SICS1 commands x4 Version or implemented SICS2 commands x5 Version or implemented SICS3 commands I 1 _ I Command understood, cannot be executed at this time
Comments	• On the SICS level only fully implemented levels are executed. • With the SICS version all levels are specified.

Transmit scale data

Command	I 2 Transmit data from weighing terminal and weighing platform(s)
Response	I 2 _ A _ "text"
Example	I 2 _ A _ "ID30/Base IZ18 32.000 kg"

Transmit scale software version

Command	I 3 Transmit software version from weighing terminal and weighing platform(s)
Response	I 3 _ A _ "text"
Example	I 3 _ A _ "IWS-0-0102_IZ05-0-0301 IZ10-0-0221"

Transmit serial number

Command	I 4 Transmit serial number of weighing terminal
Response	I 4 _ A _ "text"
Example	I 4 _ A _ "1234567"
Comment	The response to I4 appears automatically following switch-on and after the Reset command (@).

Transmit display contents

Command	S Transmit a stabile weight value when the weighing platform is at a standstill. S I Transmit a stabile or a dynamic weight value, regardless of whether the weighing platform is at a standstill. S I R Transmit a stabile or a dynamic weight value after each measuring cycle, regardless of whether the weighing platform is at a standstill.
Response	S _ S _ Weight value _ Unit Stabile weight value transmitted S _ D _ Weight value _ Unit Dynamic weight value transmitted S _ I Invalid value S _ - Weighing platform in underload range S _ + Weighing platform in overload range
Comment	Stop S I R command with S, S I, S R, @ command or disconnect port.

Set to zero

Command	Z	Set gross weight display to zero after weighing platform comes to a standstill, effect as when ZERO-SET key is pressed
Response	Z _ A	Weighing platform set to zero
	Z _ I	Command cannot be executed: e.g. standstill not achieved or another command is currently being executed
	Z _ -	Command cannot be executed: Zero-set range dropped below
	Z _ +	Command cannot be executed: Zero-set range exceeded
Comment	Can only be set to zero when the weighing platform comes to a standstill in the zero-set range.	

Reset

Command	@	Reset weighing terminal to the state maintained after Power On
Response	I 4 _ A _ "text"	Serial number
	@ _ I	Command cannot be executed, e.g. an input is active
Comments	• All running applications and functions are cancelled. • The tare memory is reset to zero.	

Write display

Command	D _ "Text_20"	Write display
	D _ ""	Darken display
Response	D _ A	Display written; the complete text appears left-justified in the display, marked with a symbol, e.g. with *
	D _ R	Display written; the end of the text appears left-justified in the display with the beginning cut off, marked with a symbol, e.g. with *
	D _ I	Command cannot be executed
	D _ L	Command understood, parameters defective
Comment	A symbol in the display, e.g. *, indicates that an invalid weight value is displayed.	

Weight display

Command	D W	Switch over main display into the weight mode
Response	D W _ A	The main display shows the current weight value
	D W _ I	Command understood, but cannot be executed

Transmit stabile weight values repeatedly depending on a weight change

Command	S R _ Excursion weight (weight value) _ Unit After a weight change greater than the specified excursion weight, transmit alternately the next stabile weight value and a dynamic weight value depending on the specified excursion. S R If no excursion weight is entered, the weight change must be at least 12.5 % of the last stabile weight value, however at least 30 d.
Response	S _ S _ Weight value _ Unit Current stabile weight value transmitted Weight change S _ D _ Weight value _ Unit Dynamic weight value transmitted S _ I Command cannot be executed S _ L Command understood, parameters defective S _ - Weighing platform in underload range S _ + Weighing platform in overload range
Comment	Stop command with command S, S I, S I R, @ or disconnect the port.
Example	Command: S R _ 1 4 0 _ k g Responses: S _ S _ _ _ _ _ 2 0 0 . 0 0 _ k g 1st item S _ D _ _ _ _ _ 3 4 5 . 8 5 _ k g S _ S _ _ _ _ _ 4 1 0 . 5 0 _ k g 2nd item

Taring

Command	T Tare weighing platform: After the weighing platform comes to a standstill, the current weight value is saved as a tare weight and the weight display set to zero with the weight on the platform. Effect as when TARE key is pressed.
Response	T _ S _ Tare weight (weight value) _ Unit Weighing platform tared, stabile tare value T _ I Taring not carried out T _ - Command cannot be executed: Tare range dropped below T _ + Command cannot be executed: Tare range exceeded
Comments	• Each taring command overwrites the contents of the tare memory with the new tare weight. • Taring with unloaded weighing platform clears the tare memory. On some weighing platform models, setting to zero is carried out in the unloaded state. • On non-certified weighing systems the tare weight is automatically rounded off to the current increment. • On certified weighing systems: Tare range with MultiRange only in first increment range.

Tare immediately

Command	T I Tare weighing platform immediately.
Response	T I _ S _ Tare weight (weight value) _ Unit Weighing platform tared, stabile tare value T I _ D _ Tare weight (weight value) _ Unit Weighing platform tared, dynamic tare value T I _ I Taring not carried out T I _ L Command cannot be executed T I _ - Command cannot be executed: Tare range dropped below T I _ + Command cannot be executed: Tare range exceeded
Comments	• Each taring command overwrites the contents of the tare memory with the new tare weight. • Following a dynamic tare value, a stabile weight value can be specified. However, this value is not exact.

Specify tare weight

Command	T A _ Tare weight (weight value) _ Unit Specify tare weight: The contents of the tare memory are overwritten with the specified tare weight and the net weight is displayed. Effect as when the key sequence TARE ENTRY, 0 ... 9, ↵ is pressed.
Response	T A _ A _ Tare weight (weight value) _ Unit Weighing platform tared with the specified value T A _ I Command not carried out T A _ L Command understood, parameters defective T _ - Command cannot be executed: Tare range dropped below T _ + Command cannot be executed: Tare range exceeded
Comments	• The contents of the tare memory are overwritten with the specified tare value. • On non-certified weighing systems the tare weight is automatically rounded off to the current increment. • On certified weighing systems: Tare range with MultiRange only in first increment range.
Example	Command: T A _ 1 2 . 6 5 0 _ k g Response: T A _ A _ _ _ _ 1 2 . 6 5 0 _ k g _

Delete tare weight

Command	T A C	Delete tare weight.
Response	T A C _ A T A C _ I	Weighing platform tared with the specified weight Command not carried out

Transmit data record

Command	S X	After the weighing platform comes to a standstill, transmit a data record with stabile weight values. Effect as when ENTER key is pressed.
	S X I	Transmit a data record with stabile or dynamic weight values, regardless of whether the weighing platform is at a standstill.
	S X I R	Repeatedly transmit a data record with stabile or dynamic weight values, regardless of whether the weighing platform is at a standstill.
Response	S X _ S _ Application block _ _ Application block ... A No. _ Data record Data record with stabile weight values transmitted S X _ D _ Application block _ _ Application block ... A No. _ Data record Data record with dynamic weight values transmitted S X _ I S X _ - S X _ +	Command cannot be executed Weighing platform in underload range Weighing platform in overload range
Comments	• Number of application blocks: three-place with preceding zeros. • The contents of the corresponding application block is contained in the data record, see chapter 5. The standard data record consists of 3 blocks: S X _ S _ A 0 1 1 _ Gross weight (weight value) _ Unit _ _ A 0 1 2 _ Net weight (weight value) _ Unit _ _ A 0 1 3 _ Tare weight (weight value) _ Unit The continuous transmission of data records started with the S X I R command can be stopped with the commands S X or S X I .	
Example	Command: S X I Response: Default data record S X _ D _ A 0 1 1 _ _ _ _ _ 2 3 . 6 5 0 _ k g _ _ _ A 0 1 2 _ _ _ _ _ 2 1 . 6 5 0 _ k g _ _ _ A 0 1 3 _ _ _ _ _ _ 2 . 0 0 0 _ k g _	

Changing over to different weight unit

Command	U _ Unit	Change over weight display to different weight unit
	U	Change over weight display to the first weight unit
Response	U _ A	Weight display switched over to another weight unit
	U _ I	Impermissible weight unit
Comment	Possible units: g, kg, lb, ozt, oz, dwt	

Acoustic signal

Command	D S	Generate short acoustic signal (beep) in the terminal
Response	D S _ A	Acoustic signal generated in the terminal

Read application block

Command	A R _ No.	Read contents of the application block
Response	A R _ A _ Information	Contents of the application block transmitted
Comments	• The transmitted information is dependent on the application block, see chapter 5. • The number of the application block must be entered as a three-place number with preceding zeros.	

Write application block

Command	A W _ No. _ Information	Write application block
	A W _ No.	Reset application block
	A W _ No. _	Delete application block
Response	A W _ A	Application block written
	A W _ I	Application block not present
	A W _ L	Application block cannot be written
Comments	• The information to be entered is dependent on the target block, see chapter 5. • Deleting and resetting have the same effect.	

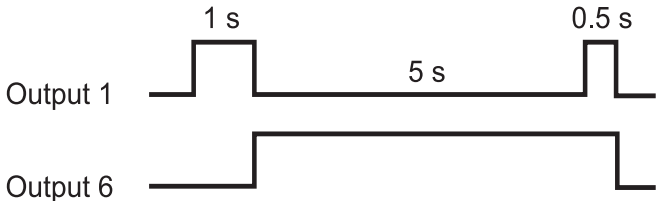
Specify DeltaTrac target value

Command	D Y _ Target weight (weight value) _ Unit _ Tolerance _ % Specify DeltaTrac target value D Y Delete DeltaTrac target value
Response	D Y _ A DeltaTrac target value loaded/deleted
Comments	• Observe limit values, see page 22 • Also possible: A W _ 0 2 0 . . ., see page 79
Example	Command: D Y _ 4 . 5 _ k g _ 5 _ % Response: D Y _ A

Print text or barcode with GA46 printer

Command	P _ Text_48 Print text as per setting P _ $! 1 Text_48 Print text in small print P _ $! 2 Text_48 Print text in normal print P _ $! 3 Text_48 Print text in large print P _ $! A Text_48 Print text in small type and bold print P _ $! B Text_48 Print text in normal type and bold print P _ $! C Text_48 Print text in large type and bold print P _ $ # 1 Text_20, barcode-specific Print code 39 P _ $ # 2 Text_8, barcode-specific Print EAN 8 P _ $ # 3 Text_13, barcode-specific Print EAN 13 P _ $ # 4 Text_20, barcode-specific Print code 128 P _ $ # 5 Text_20, barcode-specific Print code 2 of 5 P _ $ # 6 Text_20, barcode-specific Print code 2 of 5 interleaved P _ $ # 7 Text_20, barcode-specific Print code 128 P _ $ # 8 Text_20, barcode-specific Print EAN 128 P _ Print blank line
Response	P _ A Alphanumeric characters printed P _ L no GA46 present
Comments	• Character stock: ASCII character 20 hex/32 dec ... 7F hex/127 dec. • Printing is carried out in the font size last selected. • Watch uppercase and lowercase letters.

Actuating digital outputs

Command	W _ Status — Switch individual digital outputs on or off W _ Status 1 _ Time 1 _ Status 2 _ Time 2 _ ... Status 4 _ Time 4 _ Status 5 — Trigger time sequence of status changes of digital outputs W , W _ — Reset all outputs to logical 0 Status: Each output is assigned a value. The total of the values of those outputs which are to be closed is indicated as the "Status". Digital output 1 — 1 Digital output 2 — 2 Digital output 3 — 4 Digital output 4 — 8 Digital output 5 — 16 Digital output 6 — 32 Digital output 7 — 64 Digital output 8 — 128 All outputs open — 0 All outputs closed — 255 Time: 1 ... 99999 ms
Response	W _ A — Digital outputs set
Comments	• Max. 5 statuses "Status" and 4 intervals "Time" are possible. After sequence has been run, digital outputs freeze in last status "Status". • A break in the port has no effect on the outputs. • If terminal receives a new W command before time sequence has been run, ongoing sequence will be aborted immediately. • If the limits for "Status" and "Time" are not adhered to when operating the interface types 4 I/O or relay box 8-ID30, the fault message EL appears.
Examples	Command: W _ 5 Digital outputs 1 and 3 are closed, all others opened Command: W _ 1 _ 1 0 0 0 _ 3 2 _ 5 0 0 0 _ 3 3 _ 5 0 0 _ 0 triggers following sequence: 

4.2.4 Error messages

Error messages always consist of 2 characters and a string limit.
The string limit can be defined under "Options" (page 30).

`E T` **Transmission error**
The terminal transmits a transmission error for errors in the received bit sequence, e.g. parity error, missing stop bit.

`E S` **Syntax error**
The terminal transmits a syntax error when it cannot process the received characters, e.g. command not present.

`E L` **Logic error**
The terminal transmits a logic error, when a command cannot be executed, e.g. when an attempt is made to write an non-writeable application block.

4.3 METTLER TOLEDO continuous mode

These operating modes are suitable for continuous data transmission in real time from the ID30 to METTLER TOLEDO devices, e.g. to a second display.
The data are even transmitted when the weighing platform is moving or the gross weight = 0.
Commands can also be sent to the ID30 weighing terminal, permitting remote control of certain keys on the terminal.
There are 2 different continuous modes:

- Continuous mode – net and tare values are continuously transmitted.
- Short continuous mode – only net values are continuously transmitted.

4.3.1 Data output from ID30

Output format Weight values are always transmitted in the following format:

STX	SB1	SB2	SB3	DF1	DF2	CR	CHK

STX ASCII characters 02 hex/2 deci, character for "start of text" is required by some printers
SB... For status bytes, see below
DF1 Data field with 6 digits for the weight value transmitted without a decimal point and unit
DF2 Data field with 6 digits for the tare weight; is not transmitted in the short continuous mode
CR Carriage return (ASCII character 0D hex/13 deci)
CHK Checksum (2-part complement of binary sum of 7 lower bits of all previously transmitted characters, including STX and CR)

Status byte SB1

Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
0	1	Rounding / Increment		Decimal position		

Bit 4	Bit 3	Rounding/ Increment
0	1	1
1	0	2
1	1	5

Bit 2	Bit 1	Bit 0	Decimal position
0	0	0	XXXX00
0	0	1	XXXXX0
0	1	0	XXXXXX
0	1	1	XXXXX.X
1	0	0	XXXX.XX
1	0	1	XXX.XXX
1	1	0	XX.XXXX
1	1	1	X.XXXXX

Status byte SB2

Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
0	1	0 lb	0 Stabiliza-tion	0 Normal status	0 Positive sign	0 Gross value
		1 kg	1 Movement	1 Underload/ overload	1 Negative sign	1 Net value

Status byte SB3

Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
0	1	0	0 Basic state 1 Print request	Weight value		

Bit 2	Bit 1	Bit 0	Weight value
0	0	0	kg / lb (SB2 Bit 4)
0	0	1	g
0	1	0	t
0	1	1	oz
1	0	0	ozt
1	0	1	dwt
1	1	0	ton
1	1	1	free unit

4.3.2 Commands to ID30

Individual command characters can be transmitted to the ID30 in the text format. One function each on the terminal is assigned to these command characters.
After a command character is received, the following functions are executed:

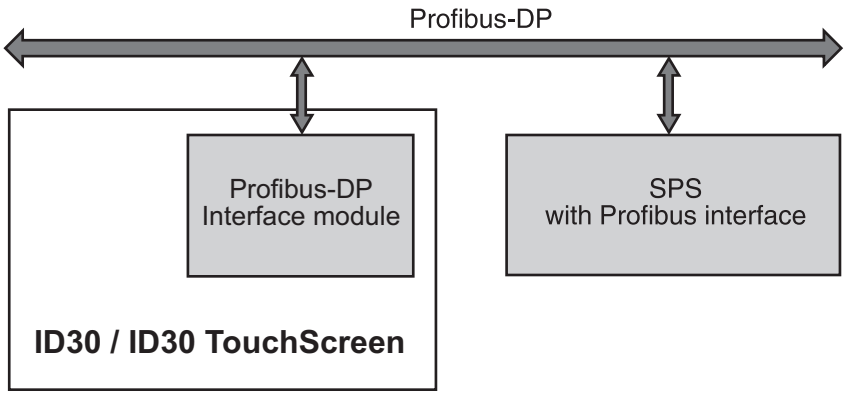
Command	Function
C	Clear tare
P	Print or transmit transfer string
T	Tare
Z	Set zero

4.4 Profibus-DP communication with a PLC

4.4.1 Overview

The Profibus-DP interface module is designed for operation as a slave on the Profibus-DP. This provides the following possibilities with a master PLC also connected to the Profibus-DP:

- Access to the weight values of the weighing platform connected to the weighing terminal
- Operation of the weighing platforms connected to the weighing terminal (zero-set, taring, setting specified tare values, etc.)
- Triggering key presses, transmitting data strings or display of texts



4.4.2 Data formats

All user data are transmitted in a compressed, up to 4-word long format.

Write table Format for transmitting user data from the PLC to the ID30.

Read table Format for the transmission of user data from ID30 to the PLC.

Structure of the write and read table

The write and read table are similarly structured and contain the following sections:

- Value (16-bit integer or 32-bit floating point) for the transmission of weight values, application block numbers, etc.
- Commands or the corresponding responses with a total of 16 bits
- Control of 16 digital I/Os

4.4.3 Handshake

As certain commands can not always be executed immediately by the scale, e.g. taring with a restless weighing platform, 3 handshake bits of the PLC allow clear monitoring of the success of its commands:

1. The PLC starts a command by setting the corresponding command bit and also toggles COMMAND VALID in the write table. All other command bits are 0.
2. The weighing terminal responds with the current data of the read table. If it was possible to completely process the command, the COMMAND EXECUTED bit is toggled. Otherwise COMMAND EXECUTED remains unchanged.
3. The PLC recognises whether it can transmit the next command or must repeat the last one from COMMAND EXECUTED and transmits the write table to the weighing terminal.
4. The weighing terminal recognises from the status change of the COMMAND VALID bit that it should carry out the next command. In addition, the weighing terminal also detects whether the last command has been executed or is still running. If the PLC attempts to start new commands before the previous one has been confirmed by the weighing terminal with a status change of COMMAND VALID, the weighing terminal ignores this new command.

4.4.4 Commands and responses

All commands available to the PLC and the corresponding responses are shown in the following two tables.

Data direction PLC -> ID30	Write table
Data direction ID30 -> PLC	Read table

Write table

16-Bit Integer 2 Words	**Word 0**			**Word 1**		
16-Bit Integer 4 Words	**Word 0**			**Word 1**	**Word 2**	**Word 3**
32-Bit Floating Point		**Word 0**	**Word 1**	**Word 2**	**Word 3**	
Bit	**Value** 16-Bit	**Value** 32-Bit Floating Point		**Command**	**16 Digital I/O**	**AB data**
0		Sign		Command valid Toggle-bit for all commands		
1				Bits 1/2/3: Selection of read-table value, read/write AB 0/0/0 = Display 1/0/0 = Net 0/0/1 = Not in use 1/0/1 = Read AB 0/1/0 = Gross 1/1/0 = Tare 0/1/1 = Write AB 1/1/1 = Not in use		
2						
3						
4		Exponent		Bits 4/5/6: Selection of write-table value 0/0/0 = Empty 1/0/0 = Tare specification 0/0/1 = Setpoint 1 1/0/1 = Setpoint 2 0/1/0 = Not in use 1/1/0 = Not in use 0/1/1 = Setpoint 3 1/1/1 = Setpoint 4	Setting of ID30 outputs or Displaying or evaluating inputs of external I/O module	Data for writing an application block Tolerance specifications are handled in % if the sign is set to 1.
5						
6						
7			Mantissa	Taring		
8				Delete tare		
9		Mantissa		Set to zero		
10				ENTER key		
11				Reserved		
12				Reserved		
13				Reserved		
14				Bits 14/15: Selection of weighing platform 0/0 = None 1/0 = Scale 1 0/1 = Scale 2 1/1 = Scale 3		
15	Sign					Sign

Read table

16-Bit Integer 2 words	**Word 0**			**Word 1**		
16-Bit Integer 4 words	**Word 0**			**Word 1**	**Word 2**	**Word 3**
32-Bit Floating Point		**Word 0**	**Word 1**	**Word 2**	**Word 3**	
Bit	**Value** 16-Bit	**Value** 32-Bit Floating Point		**Command**	**16 Digital I/O**	**Not in Use**
0		Sign	Mantissa	Command executed Toggle-bit for all commands	Showing or reading of ID30 inputs or Displaying or setting outputs of external I/O module	
1		Exponent		Error command		
2				Movement		
3				Net		
4				Error scale (overload/underload...)		
5				Reserved		
6				Reserved		
7				Setpoint 1 reached		
8				Setpoint 2 reached		
9		Mantissa		Setpoint 3 reached		
10				Setpoint 4 reached		
11				Reserved		
12				Reserved		
13				Reserved		
14				Bits 14/15: Current weighing platform 0/0 = None 1/0 = Scale 1 0/1 = Scale 2 1/1 = Scale 3		
15	Sign					

Notes on commands

If the command requires parameters, they will be transmitted either as an integer value or as a floating point value depending on the operating mode set.

Exception: The commands READ/WRITE APPLICATION BLOCK and PRESS KEY always expect integer values as parameters.

Read commands

- The read commands Display value, Net, Gross, Tare, Key and Application block overwrite the cyclically transmitted display values with the required data. The data are transmitted as 16-bit integers or 32-bit floating points. As soon as the COMMAND EXECUTED bit is toggled, these values must be evaluated immediately by the PLC, as in the next cycle the value in the read table is overwritten again with the current weight value.

Reading and writing application blocks

- When writing an application block, the desired data are simultaneously transferred with Word 3. For this reason, writing application blocks is only possible in 16-bit integer/4-word mode.
- Only application blocks with the formats "numeric" or "weight value" can be read or written. When writing, certain tolerance (sub-)blocks (e.g. with DeltaTrac) can be intentionally written with the format "percent" by setting the sign to "1".
- If a non-existent block or an alphanumeric block is selected, the ID30 responds with ERROR COMMAND.
  The requested data are supplied in the 16-bit integer mode in the same format as the weight value, and in the 32-bit floating point mode floating point values are always transmitted.

The **application block number** in the write table must be entered as a value (Word 0 in 16-bit integer mode, Word 1 in 32-bit floating point mode) in the following format for the READ APPLICATION BLOCK and WRITE APPLICATION BLOCK commands:

"Basic" application block

	Sub-block no.				**Exp.**		**Application block number**									
Bit / **Example**	**15** **SS**	**14** **SS**	**13** **SS**	**12** **SS**	**11** **EE**	**10** **EE**	**9** **AA**	**8** **AA**	**7** **AA**	**6** **AA**	**5** **AA**	**4** **AA**	**3** **AA**	**2** **AA**	**1** **AA**	**0** **AA**
AB 10	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0
AB 20, sub-block 2	0	0	1	0	0	0	0	0	0	0	0	1	0	1	0	0

Expanded application block

Condition
One or more expanded application blocks are selected under "Settings".

Example
Application block 21 is selected as the 1st expanded application block,
application block 46 is selected as the 2nd expanded application block.

Example / Bit	Sub-block no.				Exp.		Index of the expanded AB									
	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
	SS	SS	SS	SS	EE	EE	AA	AA	AA	AA	AA	AA	AA	AA	AA	AA
AB 21_007	0	0	0	0	0	1	0	0	0	0	0	0	0	1	1	1
AB 46_005, SB 1	0	0	0	1	1	0	0	0	0	0	0	0	0	1	0	1

Input of tolerances in %
If the sign (bit 15) in Word 3 is set to 1, tolerance specifications can be written accurately down to one decimal place in %.
This rule applies in the same way for Word 0 (16-bit integer) and Word 1 (32-bit floating point) when reading.

Example	Decimal	Binary															
		15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
100.0 %	–1000	1	0	0	0	0	0	1	1	1	1	1	0	1	0	0	0
1 %	–10	1	0	0	1	1	0	0	0	0	0	0	0	1	0	1	0
0.1 %	–1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1

Write commands

- The setpoints loaded via the WRITE SETPOINT X commands (e.g. Setpoint 1: write table bits 4/5/6 = 0/0/1) are deleted after switch-on.

Digital I/Os

The operating mode of an I/O interface (4 I/O or a relay box 8-ID30) installed on the ID30 is dependent on where the I/Os are located (directly on the ID30 or externally on the Profibus) and on the parameters CONTROL INPUTS, CONTROL OUTPUTS.

	Outputs	**Inputs**
No I/Os on ID30	The ID30 controls external outputs via the read table.	The ID30 reads external inputs from the write table and executes predefined actions.
I/Os on ID30, CONTROL INTERNAL	The ID30 controls internal outputs and displays these in the read table.	The ID30 reads internal inputs and executes predefined actions; the PLC has no access.
I/Os on ID30, CONTROL EXTERNAL	The PLC controls the outputs of the ID30 via the write table.	The ID30 reads internal inputs and displays these in the read table.

4.4.5 Messages in display

The following messages may appear briefly in the display:

Message	**Meaning**
PROFIBUS NOT ACTIVE!	• Initialisation processes are still running on Profibus-DP. • The ID30 is not yet connected to the Profibus-DP.
PROFIBUS ACTIVE	• Readiness restored, e.g. after switch-on, exiting mastermode or following a bus interruption.
PROFIBUS – ERROR BCC RX PROFIBUS – ERROR BCC TX	• ID30 or field bus module have detected a BCC error.
PROFIBUS – ERROR DATA RX PROFIBUS – ERROR DATA TX	• Communication error ID30 <–> Field bus module: e.g. not ETX, Uart error, etc.
PROFIBUS – TIMEOUT ID7	• Communication error ID30 <–> Field bus module: The ID30 does not respond within the defined time.
PROFIBUS – ERROR CONF.	• The field bus module has not received the configuration data properly.

4.4.6 GSD file

The GSD file required for communication with the Profibus-DP (ID30053C.gsd) is available from METTLER TOLEDO Service or can be downloaded from the Profibus GSD Library at **http://www.profibus.com**.

5 Application blocks

Application blocks are internal information memories in which weighing data, calculated quantities, configuration data or character sequences entered with the keypad are stored. The content of the application blocks can be read out or written to with a computer.
When the GA46 printer is connected, the assignment of the application blocks can be printed out, see operating instructions for the GA46 printer.

5.1 Syntax and formats

The syntax and formats are dependent on the command set selected, see page 30.

5.1.1 Read application block

Read

`A R No.`
`A R _ No.`

MMR command set
SICS command set
The weighing terminal receives the command from the computer to read out the content of the "No." application block. Possible formats for "No." are:

xxx	Entire application block
xxx.zz	Sub-block of an application block
xxx_yyy	Memory
xxx_yyy.zz	Sub-block of a memory

This read command is **not** contained in the following description of the application blocks.

Response

`A B _ Information`
`A R _ A _Information`

MMR command set
SICS command set
As a response the weighing terminal transmits the content of the "No." application block to the computer.
This response is contained in the following description of the application blocks in the MMR version.

Example

Command MMR `A R 0 2 1 _ 0 0 1`
Command SICS `A R _ 0 2 1 _ 0 0 1`
Read out tare memory 1.

Response MMR `A B _ _ _ _ _ _ _ 1 0 . 5 _ k g _`
Response SICS `A R _ A _ _ _ _ _ _ 1 0 . 5 _ k g _`

Note

If an application block is not in use, the weighing terminal transmits the corresponding number of blank spaces in place of the data.

For example, when Tare Memory 1 is not in use, the weighing terminal transmits the following response:

`A B _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _` (MMR) resp.

`A W _ A _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _` (SICS)

5.1.2 Write to application block

Write

`A W No. _ Information` MMR command set

`A W _ No. _ Information` SICS command set

The weighing terminal receives the command from the computer to write to the "No." application block.

This command is contained in the following description of the application blocks in the MMR version.

Response

`A B` MMR command set

`A W _ A` SICS command set

The weighing terminal transmits a confirmation to the computer.

This response is **not** contained in the following description of the application blocks.

Example

Command MMR `A W 0 2 1 _ 0 0 1 _ 1 2 . 0 _ k g _`

Command SICS `A W _ 0 2 1 _ 0 0 1 _ 1 2 . 0 _ k g _`

Write to tare memory 1.

Response MMR `A B`

Response SICS `A W _ A`

Notes

- Only those application blocks can be written to for which the corresponding AW command is listed in the following description.
- An application block can consist of one or more sub-blocks, and the numbering of the sub-blocks begins with 1.
- The sub-blocks of an application block can each contain a maximum of 20 characters.
- The sub-blocks are separated with $$ or H_T (ASCII character 09 hex/9 deci):
  `A W No. _ Sub-block 1 $ $ Sub-block 2 $ $ ... Sub-block n` (MMR) resp.
  `A W _ No. _ Sub-block 1 $ $ Sub-block 2 $ $ ... Sub-block n` (SICS)
- Extensive application blocks are displayed so that each sub-block begins in a new line.
- To write to individual sub-blocks, enter the corresponding number of $ characters. If only sub-block 1 is written to, the $ characters are eliminated,
  e.g. sub-block 3 written to: `A W No. _ $ $ $ $ Sub-block 3` (MMR) resp.
  `A W _ No. _ $ $ $ $ Sub-block 3` (SICS).

5.1.3 Data formats

- In the following description of the application blocks the following data formats are used:

`Weight value`	10 digits with sign and decimal point, right-justified (with preceding blank space)
`Unit`	3 characters, left-justified (with following blank spaces)
`Number_n`	Number, n digits, right-justified (with preceding blank spaces)
`Text_n`	maximum of n characters If the SICS command set is used, "Text" must always be placed in inverted commas.

- Conclude commands and responses with the string frame C_RL_F (ASCII characters C_R = 0D hex/13 deci, L_F = 0A hex/10 deci).
  The string frame is **not** contained in the following description.

5.1.4 Read and write application blocks with the SICS command set

In the following description, the application blocks are shown in the syntax for the MMR command set. When used with the SICS command set, please observe the following SICS conventions, also see sections 5.1.1 to 5.1.3:

- A blank space must be entered between AR or AW and the application block number: e.g. `A R _ No.`
- The command identification is repeated in the response and a blank space and the character A added:
  `A R _ A _ Information` application block transmitted and
  `A W _ A` application block written.
- Texts entered or transmitted are always in inverted commas.

Example **Read application block for CODE A**

Command: `A R _ 0 9 4`
Response: `A R _ A _ "Article"`

Write application block for CODE A

Command: `A W _ 0 9 4 _ "Article"`
Response: `A W _ A`

5.2 TERMINAL, SCALE application blocks

No.	Content	Format
001	Terminal type	Response: AB_Mettler_Toledo_ID30
002	Program number	Response: AB_IWS0-0-0102_
004	Serial number	Response: AB_Device name (Text_20)_Serial number (Number_7)_Internal production number (Number_20)
006	Transfer key	Response: AB_Keys__24 Write: AW006_$$24
007	Current gross weight (2nd weight unit)	Response: AB_Weight value_Unit
008	Current net weight (2nd weight unit)	Response: AB_Weight value_Unit
009	Current tare weight (2nd weight unit)	Response: AB_Weight value_Unit Write: AW009_Weight value_Unit
010	Current weighing platform	Response: AB_Number_2 Write: AW010_Number_2 Switch over weighing platform
011	Current gross weight (1st weight unit)	Response: AB_Weight value_Unit
012	Current net weight (1st weight unit)	Response: AB_Weight value_Unit
013	Current tare weight (1st weight unit)	Response: AB_Weight value_Unit Write: AW013_Weight value_Unit
014	Content of display	Response: AB_Display Display = Text_20 or weight value
015	Date	Response: AB_Date Write: AW015_Date Date = DD/MM/YY or DD.MM.YY
016	Dynamic weighing	Response: AB_Weight value_Unit Write: AW016_No. of cycles Start weighing cycle Comment: No. of cycles = 1 … 255
018	Difference target/ actual weight	Response: AB_Weight value_Unit

No.	Content	Format
019	Date and time	Response: A B _ _ _ _ _ _ _ _ D D / M M / Y Y _ _ _ _ _ _ _ _ h h : m m : s s Europe A B _ _ _ _ _ _ _ _ M M / D D / Y Y _ _ _ _ _ A/P M _ h h : m m : s s USA Write: A W 0 1 9 _ D D / M M / Y Y $ $ h h : m m : s s Europe A W 0 1 9 _ M M / D D / Y Y $ $ A/P M h h : m m : s s USA Date: instead of "/" also "."; Time: instead of ":" also "/" or "."
020	Current DeltaTrac	Response: A B _ Target weight (weight value) _ Unit _ _ Tolerance value (number_2) _ % _ _ Write: A W 0 2 0 _ Target weight (weight value) _ Unit $ $ Tolerance value (number_2) _ % _ _
021_001 ... 021_999	Tare memory 1 ... 999	Response: A B _ Weight value _ Unit Write: A W 0 x x _ x x x _ Weight value _ Unit Comment: xx_xxx = 21_001 ... 21_999
021 ... 045	Tare memory 1 ... 25	Response: A B _ Weight value _ Unit Write: A W 0 x x _ Weight value _ Unit Comment: xx = 21 ... 45 The contents of the tare memories 1 ... 25 are identical to the contents of the tare memories 021_001 ... 021_025.
046_001 ... 046_999	DeltaTrac memory 1 ... 999	Response: A B _ Target value (weight value) _ Unit _ _ Tolerance value (number_2) _ % _ _ Write: A W 0 x x _ x x x _ Target value (weight value) _ Unit $ $ Tolerance value (number_2) _ % _ _ Comment: xx_xxx = 46_001 ... 46_999
046 ... 070	DeltaTrac memory 1 ... 25	Response: A B _ Target value (weight value) _ Unit _ _ Tolerance value (number_2) _ % _ _ Write: A W 0 x x _ Target value (weight value) _ Unit $ $ Tolerance value (number_2) _ % _ _ Comment: xx = 46 ... 70 The contents of the DeltaTrac memories 1 ... 25 are identical to the contents of the DeltaTrac memories 046_001 ... 046_025.
071_001 ... 071_999	Text memory 1 ... 999	Response: A B _ Text_20 Write: A W 0 x x _ x x x _ Text_20 Comment: xx = 71_001 ... 71_999
071 ... 090	Text memory 1 ... 20	Response: A B _ Text_20 Write: A W 0 x x _ Text_20 Comment: xx = 71 ... 90 The contents of the text memories 1 ... 20 are identical to the contents of the text memories 071_001 ... 071_020.

No.	Content	Format
091	Barcode EAN 28, EAN 128	Response: [A][B][_][EAN 28][_][_][EAN 128 01][_][_][EAN 128 310][_][_][EAN 128 330] EAN 28: [2][8][Article][Check digit][Weight] Article: 4-digit Article No. from memory Code A Check digit: 1-digit, calculated by ID30 for the weight Weight: 5-digit positive weight value with 3 decimal places between 00.000 kg - 99.999 kg EAN 128 01: [0][1][Article] or [0][1][Article][Check digit] or [0][1][0][Article][Check digit] or [0][1][0][Article] Article: Article No. from memory Code A, max. 14 digits Check digit: 1-digit, calculated by ID30 Length: total of max. 16 digits EAN 128 310: [0][1][9][Article][Check digit][3][1][0][x][Weight] or [0][1][9][Article][3][1][0][x][Weight] Article: Article No. from memory Code A max. 12 or 13 digits Check digit: 1-digit calculated by ID30 x: 0 ... 6, decimal places of weight value Weight: 6-digit net weight value EAN 128 330: [3][3][0][x][Weight] x: 0 ... 6, decimal places of weight value Weight: 6-digit gross weight value
092	Barcode EAN 29	Response: [A][B][_][2][9][Article][Check digit][Weight] Comment: Article: 4-digit article no. from memory Code A Check digit: 1-digit no., calculated from ID30 for the weight Weight: 5-digit positive weight value with 3 places to right of point between 00.000 kg … 99.999 kg
093	Barcode EAN 29 A	Response: [A][B][_][2][9][Article][Weight] Comment: Article: 5-digit article no. from memory Code A Weight: 5-digit positive weight value with 3 places to right of point between 00.000 kg … 99.999 kg
094 … 097	Identification data Code A … Code D	Response: [A][B][_][Name (text_20)][_][_][Identification (text_30)] Write: [A][W][0][x][x][_][Name (text_20)][$][$][Identification (text_30)] Comment: xx = 94 … 97

No.	Content	Format
601	Parameters for Scale 1	Response: A B _ Parameters for Scale 1 Note: For service information purposes the internal scale parameters can be read out/printed; the structure and content are scale-dependent
602	Parameters for Scale 2	Response: A B _ Parameters for Scale 2 Note: For service information purposes the internal scale parameters can be read out/printed; the structure and content are scale-dependent
603	Parameters for Scale 3	Response: A B _ Parameters for Scale 3 Note: For service information purposes the internal scale parameters can be read out/printed; the structure and content are scale-dependent

5.3 INTERFACE application blocks

Application blocks are reserved for the possible interface connections.
These application blocks can only be read and written to when an interface module is actually installed on the interface connection concerned.

5.3.1 Serial interfaces

No.	Content	Format
101	Description of application	Response: `A B _ ID30 Interfaces`
102	Program designation	Response: `A B _ IK30-0-0100`
104	Transmit buffer X6	Response: `A B _ Transmit buffer X6` Write*: `A W 1 0 4 _ Information`
201	Description of application	Response: `A B _ ID30 Interfaces`
202	Program designation	Response: `A B _ IK30-0-0100`
203	Transmit buffer X7	Response: `A B _ Transmit buffer X7` Write*: `A W 2 0 3 _ Information`
204	Transmit buffer X8	Response: `A B _ Transmit buffer X8` Write*: `A W 2 0 4 _ Information`
701	Description of application	Response: `A B _ ID30 Interfaces`
702	Program designation	Response: `A B _ IK30-0-0100`
703	Transmit buffer X9	Response: `A B _ Transmit buffer X9` Write*: `A W 7 0 3 _ Information`
704	Transmit buffer X10	Response: `A B _ Transmit buffer X10` Write*: `A W 7 0 4 _ Information`

* **Comments on the transmit buffers**

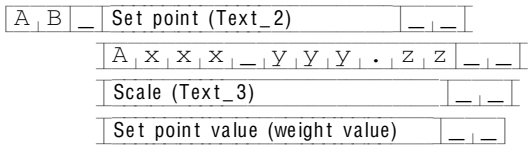
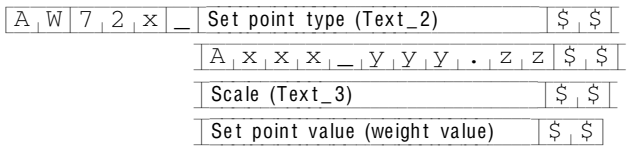
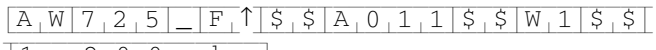
- The entered information is transmitted directly via the selected interface.
- A transmit buffer contains a maximum of 246 characters.

5.3.2 Digital inputs/outputs

The following application blocks are only available when interface module 4 I/O is installed on X9/X10 or interface module RS422/RS485-G with relay box 8-ID30 is installed.
When the weighing terminal checks the outputs, the blocks concerned cannot be written to, and the `E L` error message appears.

No.	Content	Format
706	Digital outputs 1 X9/X10	Response: A B _ 8-place binary value * Write: A W 7 0 6 _ 8-place binary value *
707	Digital inputs 1 X9/X10	Response: A B _ 8-place binary value *
708	Dig. outputs 2 X9/X10	Response: A B _ 8-place binary value * Write: A W 7 0 8 _ 8-place binary value *
709	Dig. inputs 2 X9/X10	Response: A B _ 8-place binary value *
710	Dig. outputs 3 X9/X10	Response: A B _ 8-place binary value * Write: A W 7 1 0 _ 8-place binary value *
711	Dig. inputs 3 X9/X10	Response: A B _ 8-place binary value *
712	Dig. outputs 4 X9/X10	Response: A B _ 8-place binary value * Write: A W 7 1 2 _ 8-place binary value *
713	Dig. inputs 4 X9/X10	Response: A B _ 8-place binary value *
714	Dig. outputs 5 X9/X10	Response: A B _ 8-place binary value * Write: A W 7 1 4 _ 8-place binary value *
715	Dig. inputs 5 X9/X10	Response: A B _ 8-place binary value *
716	Dig. outputs 6 X9/X10	Response: A B _ 8-place binary value * Write: A W 7 1 6 _ 8-place binary value *
717	Dig. inputs 6 X9/X10	Response: A B _ 8-place binary value *
718	Dig. outputs 7 X9/X10	Response: A B _ 8-place binary value * Write: A W 7 1 8 _ 8-place binary value *
719	Dig. inputs 7 X9/X10	Response: A B _ 8-place binary value *
720	Dig. outputs 8 X9/X10	Response: A B _ 8-place binary value * Write: A W 7 2 0 _ 8-place binary value *
721	Dig. inputs 8 X9/X10	Response: A B _ 8-place binary value *

* 8-place binary value: Bit8, Bit7 … Bit1
Bit8 = output/input 8 … Bit1 = output/input 1

No.	Content	Format
724	Set point 1	Response:  Write:  Note: x = 4 Set point type: F↑, F↓, D↑, D↓ Scale: W1, W2, W3, ALL ↑ Dec 24 = Hex 14 ↓ Dec 25 = Hex 15 Axxx_yyy.zz Application block Example:  fixed ascending switching point for the current gross weight on scale 1 at 1.200 kg
725	Set point 2	Response: equal to 724 Write: equal to 724, x = 5
726	Set point 3	Response: equal to 724 Write: equal to 724, x = 6
727	Set point 4	Response: equal to 724 Write: equal to 724, x = 7

5.3.3 Analog output

No.	Content	Format (ID7-2000)
722, 723	X9 analog output, X10 analog output	Response: Start-Stop mode A B _ A Application block for X9 (Number_3) _ _ Start value (weight value) _ Unit _ _ Stop value (weight value) _ Unit _ _ Start value voltage/current _ Unit _ _ Stop value voltage/current _ Unit * DeltaTrac mode A B _ A Application block for X9 (Number_3) _ _ Start value voltage/current _ Unit _ _ Stop value voltage/current _ Unit _ _ Tolerance voltage/current _ Unit * ΔW-ΔT mode A B _ A Application block for X9 (Number_3) _ _ Start value voltage/current _ Unit _ _ Delta voltage/current _ Weight unit/sec * Write: Start-Stop mode A W 7 x x _ A Application block for X9 (Number_3) $ $ Start value (weight value) _ Unit $ $ Stop value (weight value) _ Unit $ $ Start value voltage/current _ Unit $ $ Stop value voltage/current _ Unit * DeltaTrac mode A W 7 x x _ A Application block for X9 (Number_3) $ $ Start value voltage/current _ Unit $ $ Stop value voltage/current _ Unit $ $ Tolerance voltage/current _ Unit * ΔW-ΔT mode A W 7 x x _ A Application block for X9 (Number_3) $ $ Start value voltage/current _ Unit $ $ Delta voltage/current _ Weight unit/s * Note: xx = 22: X9 xx = 23: X10

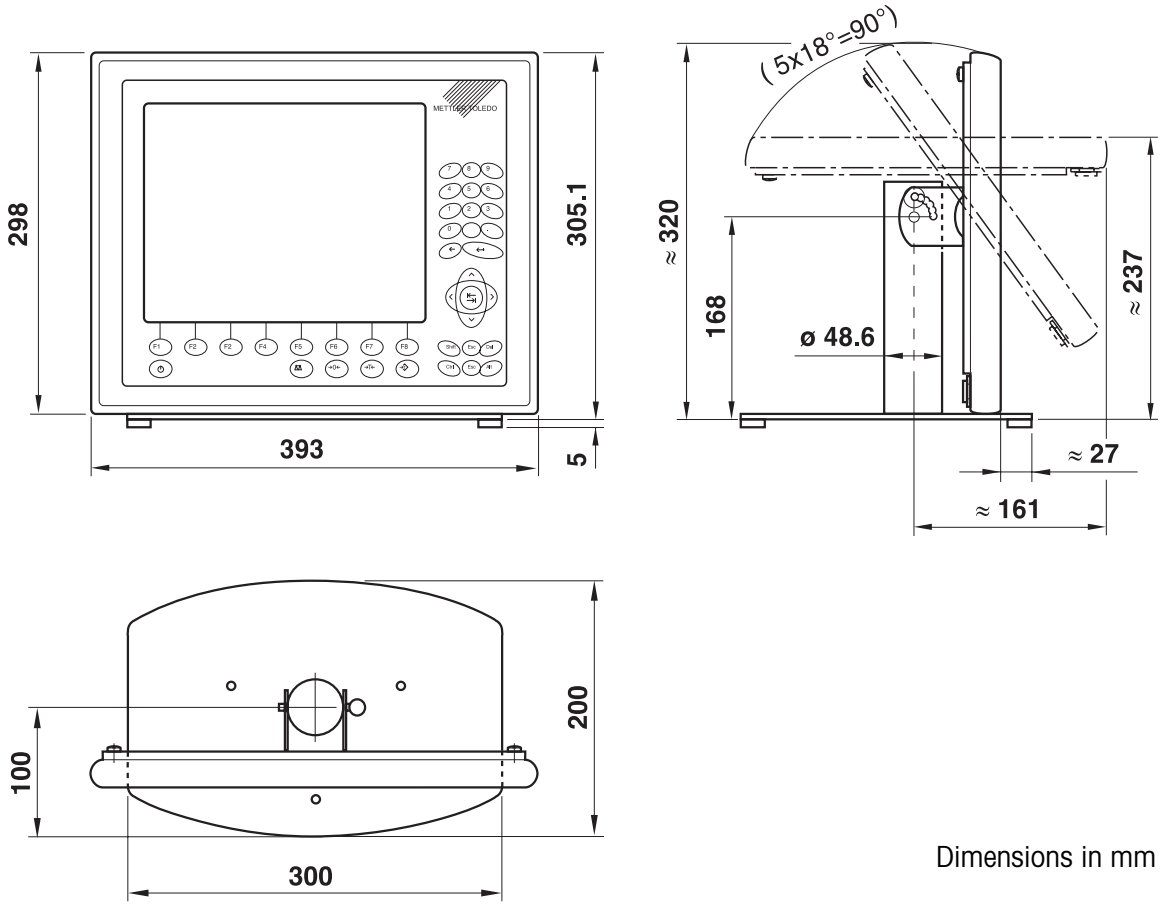
* Format for start value/stop value voltage/current: xx.xx ; Unit: V or mA

6 Technical data

6.1 Technical data of ID30 HMI-Box

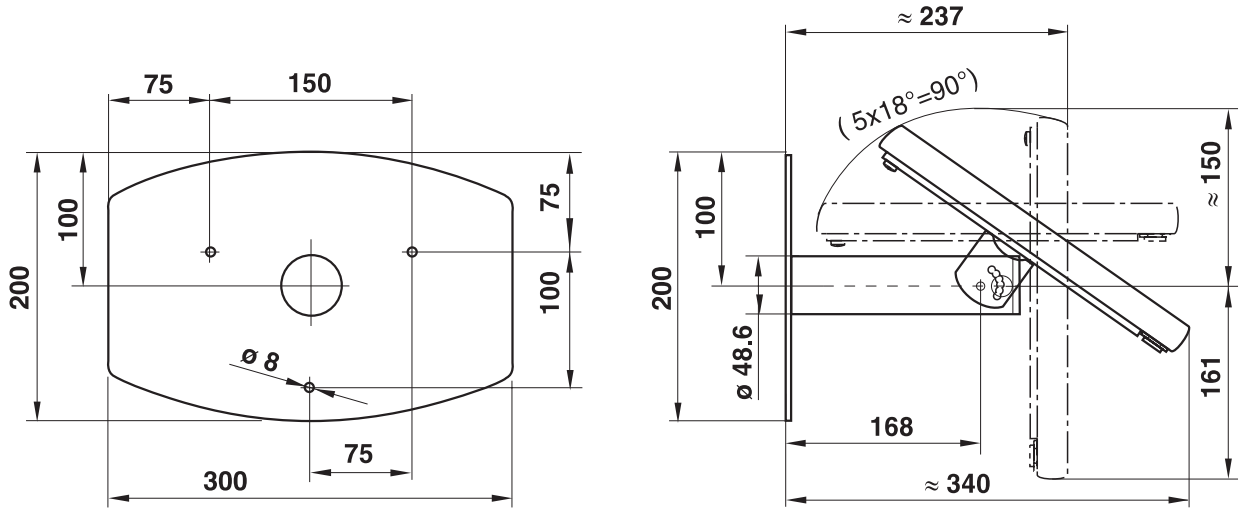
Housing	Completely chrome nickel steel DIN X5 CrNi 1810
Keypad	Tactile-touch membrane keypad
Protection type (EN40050)	Dust- and splash-protected and suitable for high-pressure and stream-jet cleaning pursuant to IP69K
Ambient temperature	During operation: –10 to +40 °C for scales of the verification class III 0 to +40 °C for scales of the verification class II Storage: –25 to +60 °C
Maximum relative humidity	80 % for temperatures up to 31 °C, linearly decreasing to 50 % at 40 °C
Ambient conditions as per EN 61010	• Pollution degree 2 • Overvoltage category II • Maximum operating elevation in m above sea level: 2000
Graphics display	Active colour TFT display
Interfaces	2 USB connections 1 connection for Elo-Box
Weight	ID30: 6.7 kg ID30 TouchScreen: 6.8 kg

Dimensional drawing – table stand



Dimensions in mm

Dimensional drawing – wall stand

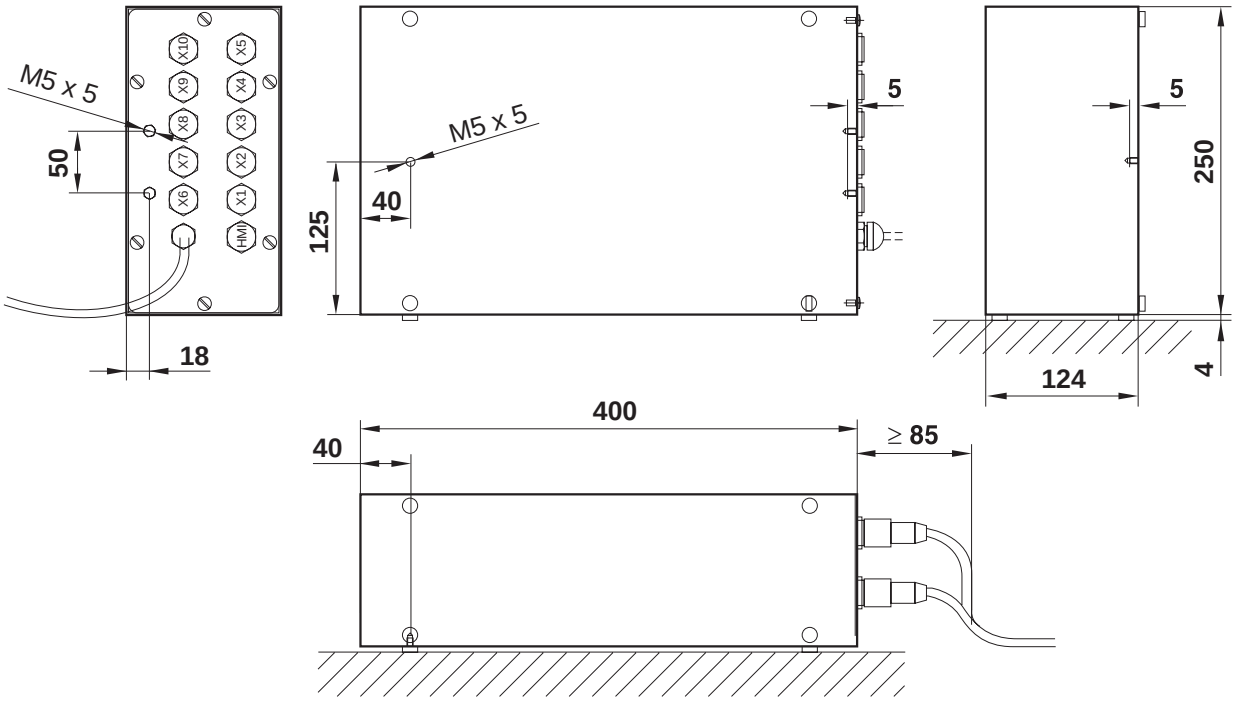


Dimensions in mm

6.2 Technical data of Elo-Box

Processor	Mobile Pentium P3-400 MHz Alternatively: Mobile Pentium P3-700 MHz
Main memory	128 Mbytes DRAM on board Alternatively: 256 Mbytes RAM
Hard disk	Min. 30 GBytes
Operating system	Windows XP Professional Alternatively: Windows 2000 Professional
Interfaces	10 slots, of which a max. of 3 weighing interfaces
Housing	Completely chrome nickel steel DIN X5 CrNi 1810
Protection type (EN40050)	Dust- and splash-protected and suitable for high-pressure and stream-jet cleaning pursuant to IP69K
Ambient temperature	During operation: –10 to +40 °C for scales of the verification class III 0 to +40 °C for scales of the verification class II Storage: –25 to +60 °C
Maximum relative humidity	80 % for temperatures up to 31 °C, linearly decreasing to 50 % at 40 °C
Ambient conditions as per EN 61010	• Pollution degree 2 • Overvoltage category II • Maximum operating elevation in m above sea level: 2000
Mains connection	100 V to 240 V AC, +10/–15 %; 50/60 Hz
Drawing of current	550 mA – 250 mA
Weight	5.3 kg

Dimensional drawing

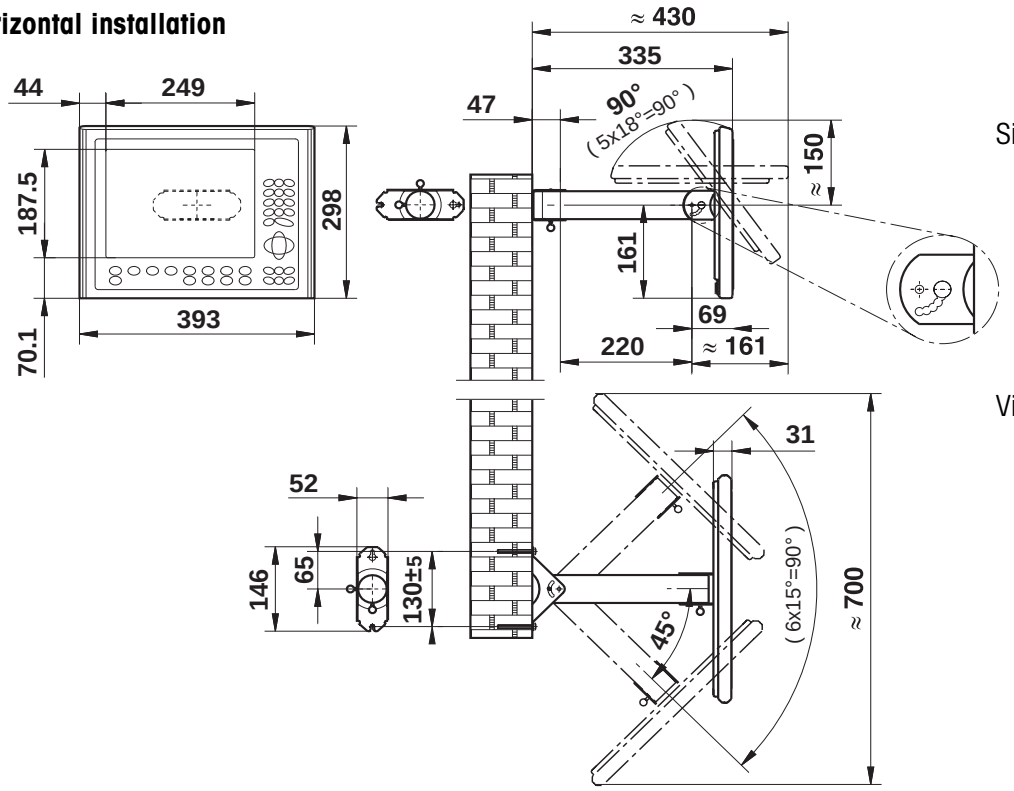


Dimensions in mm

6.3 Dimensional drawings mechanical accessories

6.3.1 Wall swivel head

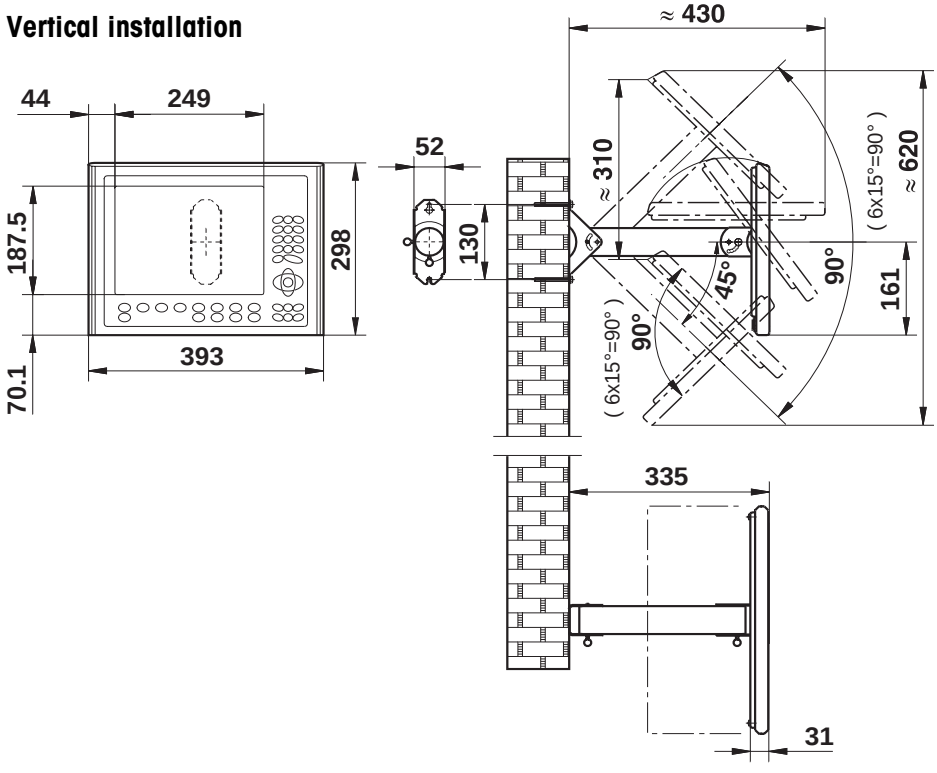
Horizontal installation



Side view

View from above

Vertical installation



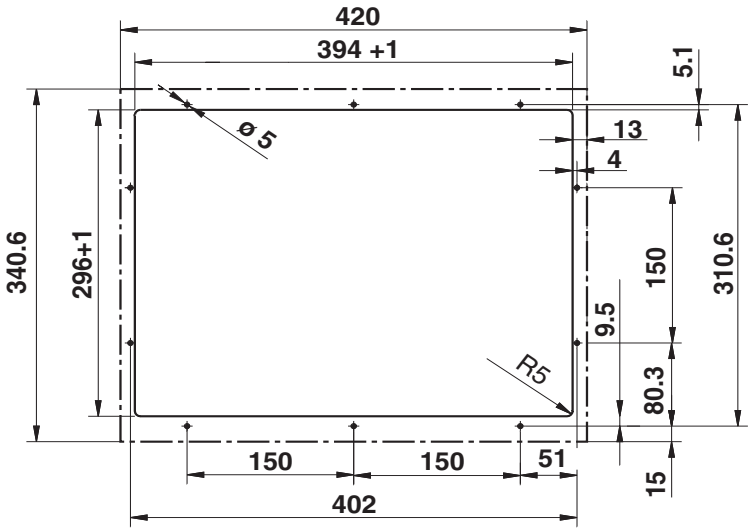
Side view

View from above

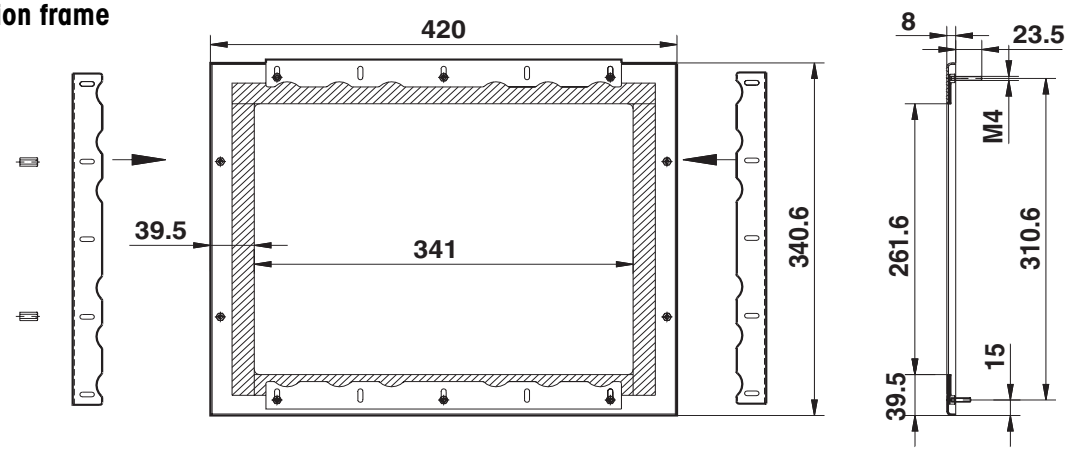
Dimensions in mm

6.3.2 HMI Panel-Mount-Kit

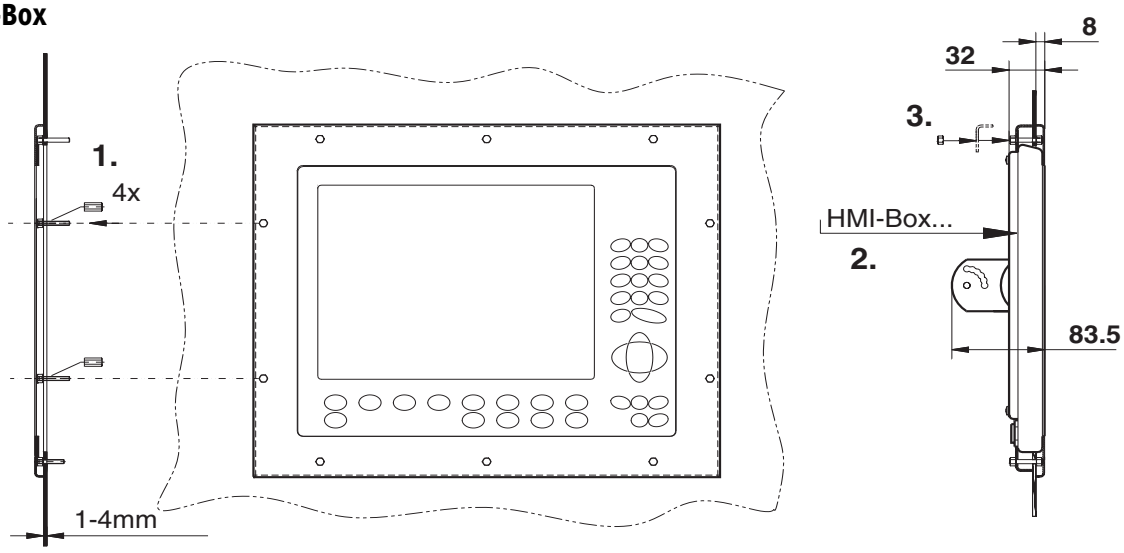
Cut-out dimensions



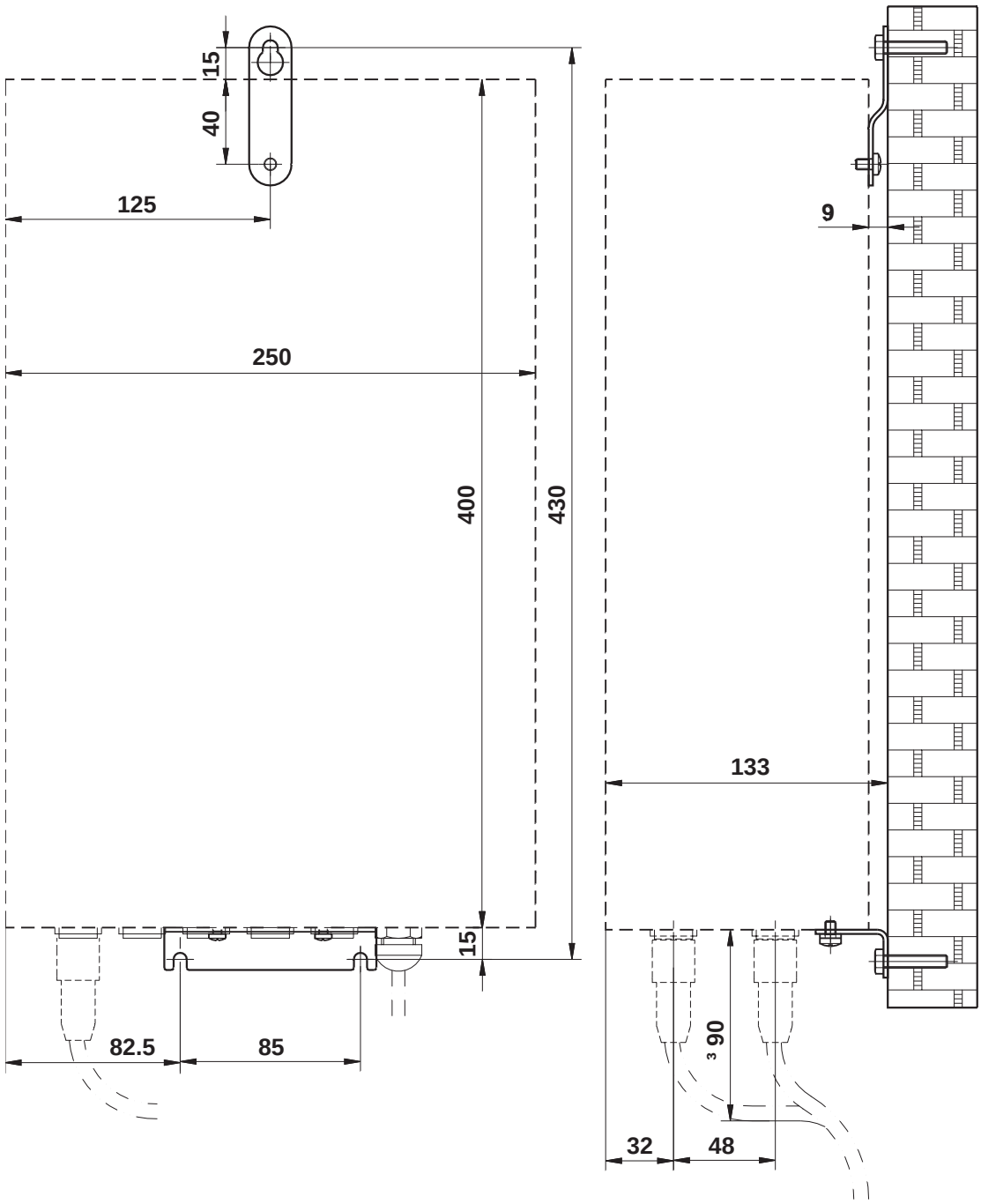
Installing installation frame



Installing HMI-Box



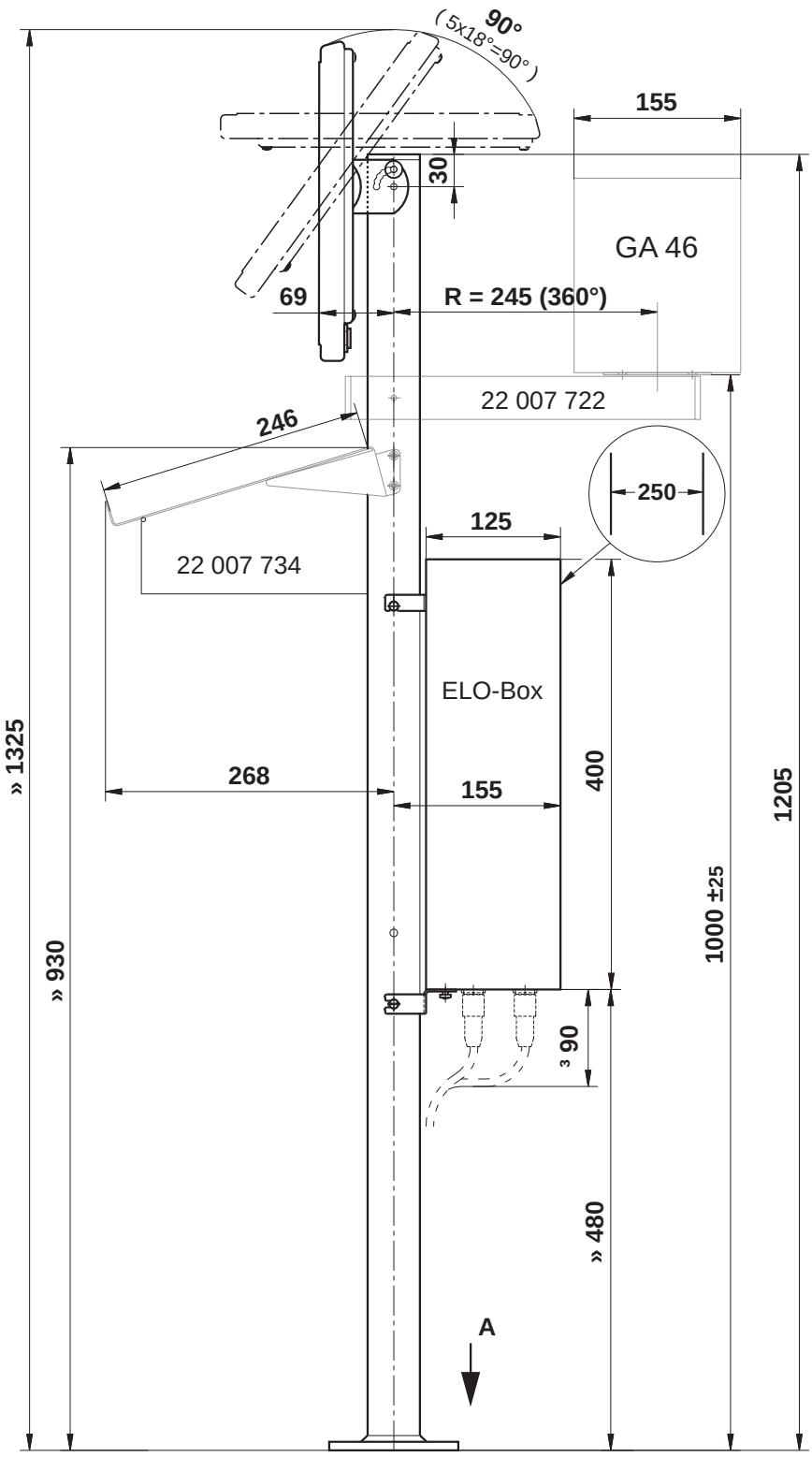
6.3.3 Wall bracket Elo-Box



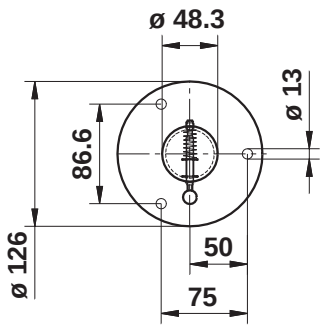
Dimensions in mm

6.3.4 Floor stand

GA46 adapter (22 007 722) and keyboard console (22 007 734) are optional!

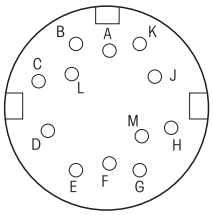


View in direction of arrow



6.4 Technical data of interface modules

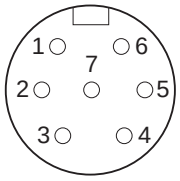
6.4.1 Interface module IDNet/DigiNet

Socket  External view	12-pin circular plug, socket A TXD+, transmission loop of weighing platform B VDIS 30 V C VNOR 12 V D RXD+, receiving loop of weighing platform F RXD–, receiving loop of weighing platform G Earth cable H Earth J TXD–, transmission loop of weighing platform

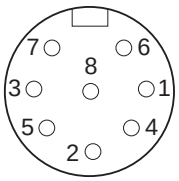
6.4.2 Interface module AnalogScale

Connectable weighing platforms	DMS weighing platforms METTLER TOLEDO MultiRange with Analog Scale interface Types DB, DCC, D…T, N…T, DMS load corners n RWM, SPIDER weighing platforms	
A/D converter	Resolution verifiable	Max. 7500 e
	Resolution non-verifiable	Max. 450000 d
	DMS supply voltage	8.75 V
	Minimum numerical increment (verifiable)	0.58 µV/e
	Minimum numerical increment (non-verifiable)	0.058 µV/d
	Max. cable length	100 m
	Settling time, typical	0.6 sec.
	Measured-value change	Selectable in steps, max. 20/s
Outside purchased scales	1–4 350-Ω weighing cells; 1–8 1000-Ω weighing cells Platform sensitivity 0.4 to 3 mV/V Platform resistance 80 to 1200 Ω	

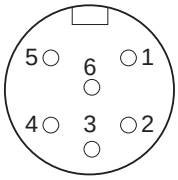
6.4.3 Interface module CL20mA

Type of interface	• 20 mA current loop, 2 transmission loops • Active or passive operation • Signal level 0: 20 mA • Signal level 1: 0 mA • Electrical isolation only in passive configuration and up to U = 30 VAC, Û = 42 V, U = 60 VDC
Interface parameters	Operating mode: Full duplex Transmission type: Bit serial, asynchronous Transmission code: ASCII Data bits: 7/8 Parity: Even, odd, zero, one, none Baud rate: 150, 300, 600, 1200, 2400, 4800, 9600, 19200
Transmission and/or reception loop passive	One external power source supplies the transmission and/or reception loop. I_{max}: 30 mA U_{max}: 27 V Voltage range: 15 V (+10 % / –0 %) Current level: 18 mA – 24 mA (high level) Edge steepness: 2 to 20 mA/µs To set operating mode, see section 8.2.1
Transmission and/or reception loop active	One internal power source supplies the transmission and/or reception loop. Voltage: 12 VDC Current: Adjusted to ±2 mA, for transmission and/or reception loop To set operating mode, see section 8.2.1
Socket  External view	7-pin circular plug, socket Pin 1: RXD+, receiver Pin 2: RXD–, receiver Pin 4: TXD+, transmitter Pin 5: TXD–, transmitter Pin 7: Protective earth
Cable	• Shielded, twisted pair • Line resistance ≤ 125 Ω/km • Line cross-section ≥ 0.14 mm^2 • Line capacity ≤ 130 nF/km • Max. 1000 m for baud rates up to 4800 baud • Max. 600 m for 9600 baud • Max. 300 m for 19200 baud

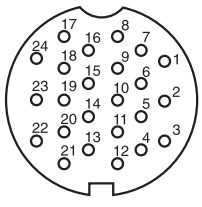
6.4.4 Interface module RS232

Type of interface	Voltage interface as per EIA RS232C/DIN 66020 (CCITT V.24/V.28)
Control signals DTR, DSR	• Signal level 0 (at R_L > 3 kΩ): –3 V to –25 V (low level) • Signal level 1 (at R_L > 3 kΩ): +3 V to +25 V (high level)
Data cables TXD, RXD	• Signal level 0 (at R_L > 3 kΩ): +3 V to +25 V (high level) • Signal level 1 (at R_L > 3 kΩ): –3 V to –25 V (low level)
Interface parameters	Operating mode: Full duplex Transmission mode: Bit serial, asynchronous Transmission code: ASCII Data bits: 7/8 Stop bits: 1/2 Parity: Parity even, Parity odd, Parity space, Parity mark, No parity Baud rate: 150, 300, 600, 1200, 2400, 4800, 9600, 19200 Baud
Socket  External view	8-pin circular plug, socket Pin 1: Earth Pin 2: TXD, scale transmission line Pin 3: RXD, scale reception line Pin 4: DTR, Data Terminal Ready Pin 5: +5 V, max. 100 mA (factory setting) – or – +12 V, max.100 mA Configuration of Pin 5, refer to section 8.2.2 Pin 6: Signal Ground Pin 8: DSR Data Set Ready
Cable	• Shielded, twisted pair, max. 15 m • Line resistance ≤ 125 Ω/km • Line cross-section ≥ 0.14 mm^2 • Line capacity ≤ 130 nF/km
Notes	The following are permissible: • Max. of 3 interface modules, which load to +5 V • Max. of 3 interface modules, which load to +12 V All installed RS232 interface modules may be loaded together with +5 V / +12 V, 300 mA at the max. each.

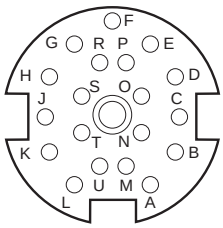
6.4.5 Interface module RS422/485

Type of interface	• Bidirectional differential-mode voltage interface • Electrical isolation by optocoupler • RS422/RS485, Configuration see section 8.2.3
Interface parameters	Operating mode: Full duplex, point-to-point connection, bus Transmission mode: Bit serial, asynchronous Transmission code: ASCII Data bits: 7/8 Parity: Even, odd, zero, one, none Baud rate: 150, 300, 600, 1200, 2400, 4800, 9600, 19200
Socket  External view	6-pin circular plug, socket **RS422** / **RS485** / **Cable 00 204 933** Pin 1: GND, Electrically isolated / GND, Electrically isolated / White Pin 2: +5 V, max. 100 mA, Electrically isolated / +5 V, max. 100 mA, Electrically isolated / Brown Pin 3: TXD+ / TXD+ / RXD+ / Green Pin 4: TXD– / TXD– / RXD– / Yellow Pin 5: RXD– / Not assigned / Pink Pin 6: RXD+ / Not assigned / Grey
Cable	• Shielded, twisted pair, max. 1200 m • Line resistance ≤ 125 Ω/km • Line cross-section ≥ 0.14 mm^2 • Line capacity ≤ 130 nF/km

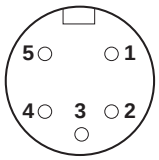
6.4.6 Interface module Centronics

Type of interface	I/O connection for a parallel interface device, as a rule for a printer
Socket  External view	24-pin circular plug, socket Pin 1 GND / Pin 13 – Autofeed Pin 2 – Acknowledge / Pin 14 Strobe Pin 3 GND / Pin 15 Data 2 Pin 4 Paper empty / Pin 16 Data 3 Pin 5 Busy / Pin 17 GND Pin 6 Data 7 / Pin 18 Data 1 Pin 7 Data 6 / Pin 19 Data 0 Pin 8 GND / Pin 20 – Error Pin 9 Data 4 / Pin 21 GND Pin 10 Data 5 / Pin 22 GND Pin 11 + Select / Pin 23 – Init paper Pin 12 GND / Pin 24 – Select input

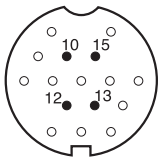
6.4.7 Interface module 4 I/O

Digital inputs/outputs	• 4 digital inputs, electrically isolated, I = 5 mA (internal current limiting) • 4 digital outputs, electrically isolated, Open Collector • I_{max} = 20 mA per output • $I_{max\ total}$ = 80 mA for the interface module 4I/O
Supply voltage	External 5 V – 36 V
Signal level	• Logic 0 = Not powered • Logic 1 = Powered
Socket  External view	19-pin circular plug, socket **Interface module 4 I/O** — **Cable 00 504 458** Pin B Output 1, max. 20 mA — White Pin C Output 2, max. 20 mA — Brown Pin D Output 3, max. 20 mA — Green Pin E Output 4, max. 20 mA — Yellow Pin M, U 0 V — Purple Pin N Input 1 — Grey/pink Pin O Input 2 — Red/blue Pin P Input 3 — White/green Pin R Input 4 — Brown/green
Total load of all output voltages	Max. 80 mA
Cable	• 16 conductors • Cross-section 0.25 mm^2 • Max. cable length 10 m

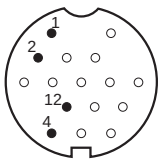
6.4.8 Interface module AnalogOut

Digital-Analog converter	For outputting analog direct voltage or DC current signals		
Analog voltage output	V_{out}	0–10 V (4096 steps) Start and stop value of output voltage and output weight value freely selectable	
	R_{Vout}	<10 kΩ	
	Cable	Max. 10 m	
Analog current output	I_{out}	0–20 mA (4096 steps) 4–20 mA (3275 steps) Start and stop value of output current and output weight value freely selectable	
	R_{Iout}	<250 Ω	
	Cable	Max. 50 m	
Characteristics	Resolution	12 bits	
	Fault	+/– 1 % (current/voltage)	
Application	All data present in a valid weight unit can be used as a data basis for the analog output.		
Socket  External view	5-pin circular plug, socket		
	Interface modul AnalogOut		**Core colours Cable 00 204 930**
	Pin 1	V out — Analog output voltage	Green
	Pin 2	0 V (V out) — Earth	Yellow
	Pin 3	I out + — Analog current output, positive	Brown
	Pin 4	I out – — Analog current output, negative	Pink
	Pin 5	0 V (V out) — Earth	White

6.4.9 Interface module USB

Type of interface	• USB, Universal Serial Bus • Standardized interface between PC and peripherals • Version 2.0
Interface parameters	• Transfer rate up to 480 Mbit/s • Connection during running operation
Socket  External view	16-pin circular plug, socket Pin 12 +5 V, max. 100 mA Pin 10 D– Pin 15 D+ Pin 13 GND

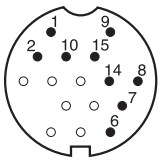
6.4.10 Interface module Ethernet

Type of interface	Ethernet 10/100 BaseT
Socket  External view	16-pin circular plug, socket Pin 1 TX+ Pin 2 TX– Pin 4 RX– Pin 12 RX+

6.4.11 Interface module Profibus

Connection to the field bus	• RS485-DP connection via removable Mini-Combicon terminal bar • 2 EMC cable entry fittings for incoming or outgoing field bus cable with a diameter of 7 to 10 mm
Baud rate	Up to 12 Mbit/s
Matching resistor	Connectable via 3 DIP switches
Node address	Adjustable between 1 and 126 Factory setting: 126
Date width	2/4 IN and 2/4 OUT words, consistent for 2 words at operating mode 16-bit integer or for 4 words at operating mode 32-bit floating point
Status displays	• 4 status LEDs provide information on operating state • Test operation shows user data on display

6.4.12 Interface module VGA

Type of interface	For connecting a VGA monitor
Socket  External view	16-pin circular plug, socket Pin 6 Red Pin 7 Green Pin 14 Blue Pin 15 H Sync Pin 1 V Sync Pin 2, Pin 9, Pin 10 — AGND Pin 8 GND

7 Accessories

7.1 Interface modules

Retrofit interface modules for installation in the Elo-Box.

		Order No.
Scale connection Interface module IDNet/DigiNet	For connecting METTLER TOLEDO MultiRange weighing platforms, max. of 3 connections possible Connection cable extension, 10 m, can be plugged in on both sides Connection set, consisting of two terminal boxes Special cable from a roll (100 m)	22 007 632 00 504 134 00 504 133 00 504 177
Scale connection Interface module AnalogScale	For connecting analog weighing platforms, max. of 2 connections possible	22 007 631
LC IDNet R/G	Connection set for connecting METTLER TOLEDO R/G scales to IDNet connection	00 229 110
LC IDNet B	Connection set for connecting METTLER TOLEDO B scales to IDNet connection	00 229 225
Interface module Ethernet	Ethernet-10/100 Base T (16-pin socket) Twisted pair-cable for Ethernet, 8 pin RJ45, 5 m Twisted pair-cable for Ethernet, 8 pin RJ45, 20 m	22 007 640 00 205 247 00 208 152
Wireless LAN	Wireless LAN 54 MBit, 2.4 GHz, 802.11b, 802.11g	22 011 647
Interface module Profibus	Profibus-DP module	22 007 639
Interface module VGA	For connecting an additional VGA monitor VGA cable, Sub-D 9-pin connector, 3 m VGA cable, Sub-D 15-pin socket, 3 m	22 007 642 00 208 483 00 506 797
Interface module CL20mA	7-pin socket CL cable, 3 m Mating plug, 7-pin	22 007 635 00 503 749 00 503 745
Interface module RS232	8-pin socket, 5 V or 12 V can be applied at Pin 5 (soldering jumper) RS232 cable/DTE, 3 m RS232 cable/DCE, 3 m RS232 cable/PC, 3 m RS232 cable/9-pin, 3 m Mating plug, 8-pin	22 007 633 00 503 754 00 503 755 00 504 374 00 504 376 00 503 756

		Order No.
Interface module RS422/485-G	6-pin socket, electrically isolated Cable with 6-pin connector and open end, 3 m Mating plug, 6-pin Extension for RS422/485, 10 m	22 007 634 00 204 933 00 204 866 00 504 847
Interface module Centronics	24-pin socket Centronics cable, 25-pin Sub-D, 3 m Centronics cable, 36 Pin Centronics, 3 m	22 007 637 00 205 682 22 002 886
Interface module USB	USB interface USB cable, 0.3 m USB cable, 3 m	22 007 641 22 006 268 22 007 713
Interface module AnalogOut	Analog output (0 to 10 V, 0 to 20 mA or 4 to 20 mA) Cable, 3 m, open end Mating plug, 5-pin	22 007 636 00 204 930 00 205 538
Interface module 4 I/O	4 outputs/4 inputs, 19-pin socket Relay box 4-ID30, 4 outputs/4 inputs 4 I/O connection cable, 10 m Mating plug, 19-pin	22 007 638 00 504 371 00 504 458 00 504 461
Relay box 8-ID30	8 outputs/8 inputs for RS485 (max. 8 relay boxes 8-ID30 connectable) Power supply 240 VAC to 24 VDC for relay box 8-ID30 Power supply 110 VAC to 24 VDC for relay box 8-ID30 Cable with 6-pin connector and open end, 3 m Mating plug, 6-pin Extension for RS422/485, 10 m	 22 007 719 00 505 544 22 003 712 00 204 933 00 204 866 00 504 847
PCI extension card	PCI extension card for installing an additional PCI card	22 007 630

7.2 Optional equipment

		Order No.
CPU boards	ETX Mobile Pentium P3-400 MHz (Standard) ETX Mobile Pentium P3-700 MHz	22 007 627 22 008 063
Memory	RAM 128 MB (standard) RAM 256 MB	22 007 628 22 007 629

7.3 Further accessories

		Order No.
Connection cable Elo-Box/HMI-Box	HMI cable, 1.5 m (standard) HMI cable, 2.5 m HMI cable, 5 m	22 006 261 22 006 262 22 006 263
Strip printer GA46	Strip printer in a separate desktop housing made of chrome nickel steel Printing of weighing data and barcodes on 62-mm wide temperature-sensitive paper Interface RS232, protection type IP21 For extensive technical details refer to the data sheet GA46 With cable approx. 2.5 m long With cable approx. 0.4 m long	 00 505 471 00 507 229
Strip printer GA46-W	As GA46. However with integrated paper take-up device and transparent PVC protective hood, protection type IP65 For extensive technical details refer to the data sheet GA46 With cable approx. 2.5 m long With cable approx. 0.4 m long	 00 505 799 00 507 230
Printer terminal adapter	For attaching the printer GA46 to the terminal, completely rustproof	22 007 722
Protective hood	for GA46	00 507 224
Wall swivel head	For HMI-Box, completely rustproof	22 007 731
Wall bracket	For Elo-Box, completely rustproof	22 007 729
Floor stand	Completely rustproof	22 007 723
Stand base	Completely rustproof	22 007 730
Panel mount kit	For HMI-Box, completely rustproof	22 007 724
Keyboard console	For external keyboard; for connection to floor stand	22 007 734

8 Mounting and configuring interface modules

8.1 Safety instructions

▲ Only authorized personnel may open the Elo-Box and install additional interfaces.

▲ Remove the power plug before opening the device.

8.2 Configuring interface modules

8.2.1 Setting the operating mode at the CL20mA interface module

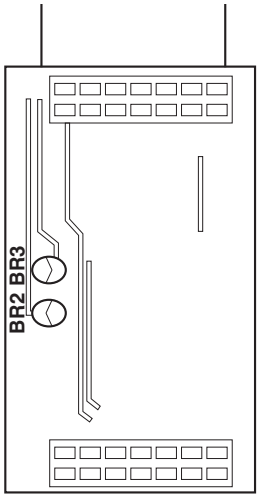
The CL20mA interface module can be operated with either an active or a passive transmission and reception loop.
Factory setting: Passive transmission and reception loop

➜ Set the desired operating mode with the switch SW1 to SW6 on the CL20mA interface module.

	SW2	**SW5**	**SW6**
Transmission loop active	Open	Closed	Closed
Transmission loop passive	Closed	Open	Open

	SW1	**SW3**	**SW4**
Reception loop active	Open	Closed	Closed
Reception loop passive	Closed	Open	Open

8.2.2 Configuring Pin 5 at the interface module RS232



Pin 5 of the RS232-interface module can be configured for connecting devices requiring a supply voltage of 12 V. Max. current carrying capacity 100 mA.
Default setting at the factory: +5 V

➜ Configure the soldering jumpers BR2 and BR3 on the RS232 interface module.

Pin 5	**BR2**	**BR3**
+5 V	Closed	Open
+12 V	Open	Closed

8.2.3 Configuring the interface type at the interface module RS422/485

The operating mode of the interface module RS422/RS485 is determined by the position of the switches SW1 – SW6.
Default setting at the factory: RS422

➜ Set the switches SW1 – SW6 on the interface PCB.

RS422	**Closed**	**Open**	**RS485**	**Closed**	**Open**	**RS485 / Relaisbox**	**Closed**	**Open**
SW1	x		SW1		x	SW1		x
SW2		x	SW2	x		SW2	x	
SW3		x	SW3	Pull-up resistor for TxD+/ RXD+ active	Pull-up resistor for TxD+/ RXD+ not active	SW3	x	
SW4		x	SW4	Matching resistor 150 Ω active	Matching resistor 150 Ω not active	SW4		x
SW5		x	SW5	Pull-down resistor for TxD–/RXD– active	Pull-down resistor for TxD–/RXD– not active	SW5	x	
SW6	x		SW6		x	SW6		x

Notes

- When a matching resistor is used the overall load impedance may not drop below 100 Ω.
- At RS485 the resistors activated with SW3 to SW5 ensure that levels defined at the receiver are applied when no station drives the cable.

8.3 Installing interface modules

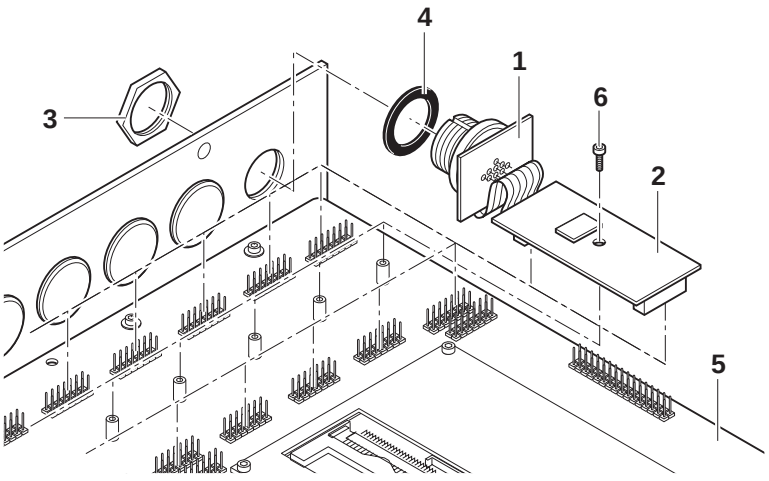
8.3.1 Opening the Elo-Box

1. Loosen the 6 screws on the device rear.
2. Remove the rear panel and base board from the housing.

8.3.2 Installing interface modules

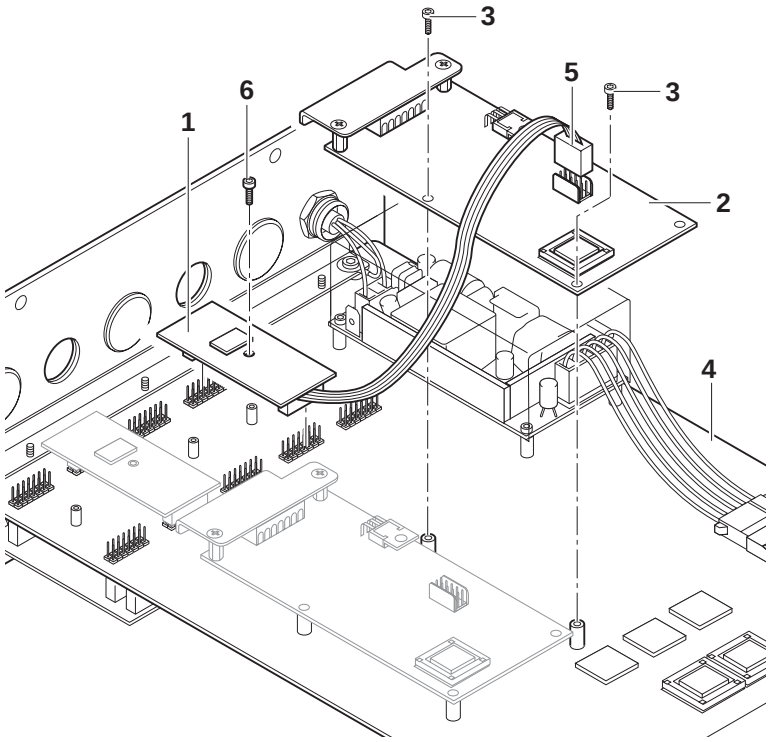
Installation of the following interface modules is identical:

- IDNet/DigiNet
- Ethernet
- VGA
- CL20mA
- RS232
- RS422/485-G
- Centronics
- USB
- AnalogOut
- 4 I/O



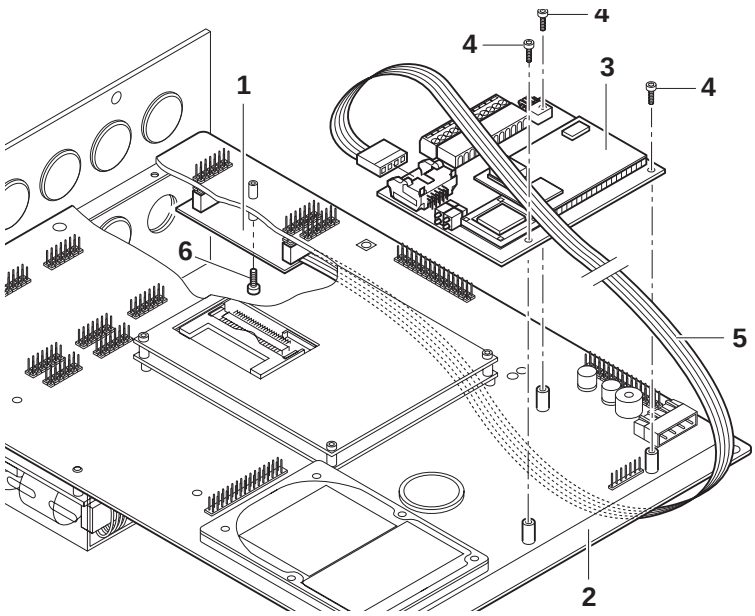
1. Remove the blind plug from the desired interface connection.
2. Break off the socket PCB (1) from the interface PCB (2).
3. Unscrew the ring nut (3) from the socket PCB.
4. Route the socket from the inside of the housing through the hole to the outside.
5. Screw on the ring nut from the outside and tighten it. Ensure proper seating of the rubber sealing ring (4) when doing so.
6. Unscrew screw (6) and push the interface module onto the base board (5). Ensure that the sockets of the interface module is aligned exactly to the pins of the base board.
7. Secure interface module with screw (6).

8.3.3 Installing the interface module AnalogScale



1. Remove the blind plug from the desired interface connection (X6, X7 or X8).
2. Unscrew screw (6) and plug the interface module AnalogScale (1) onto the desired slot.
3. Secure interface module AnalogScale with screw (6).
4. Fasten the AnalogScale card (2) on the base board (4) with 2 screws (3).
5. Insert the plug (5) into the socket on the AnalogScale card.
6. Connect the AnalogScale, refer to section 2.2.4.

8.3.4 Installing the interface module Profibus



1. Remove the blind plugs from the interface connection X9. If necessary, remove another blind plug (X4) for further routing of the Profibus-DP.
2. Unscrew screw (6) and insert the interface module Profibus (1) into the slot X9 on the bottom of the base board (2). Ensure proper poling of the PCB. The arrow on the PCB must point toward the holes for the interface connections.
3. Secure the Profibus interface module with screw (6).
4. Secure the Profibus card (3) on the top of the base board with 3 screws (4).
5. Lead the ribbon cable (5) as shown on the bottom of the base board forwards and to the top and plug it into the socket on the Profibus card.
6. Connect the Profibus, refer to section 2.3.

Earthing

The ID30 weighing terminal must be installed non-isolated. For this purpose an equipotential bonding terminal is included in the delivery scope.

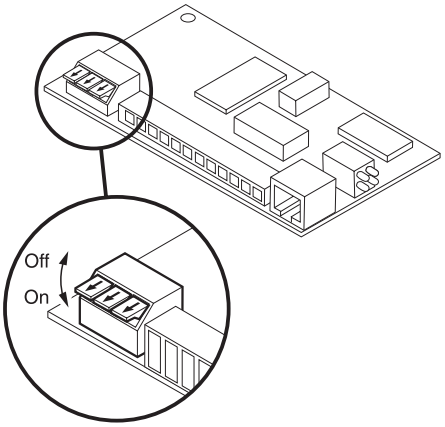
1. Mount the equipotential bonding terminal on the X9 socket.
2. Connect the ID30 weighing terminal to the equipotential bonding terminal via the earth potential.
3. Connect all other devices participating on the Profibus-DP to the earth potential.

Diagnostic LEDs

The 4 diagnostic LEDs on the Profibus card output the following states:

Yellow LED	Operating voltage switched on
Green LED	Profibus data cycles started
Red LED	Communication dialog faulty
Green LED	Sign of activity in secondary cycle

Setting the matching resistor



➜ If necessary, activate the matching resistor directly on the Profibus card. To do so, set all dip switches to ON.

8.3.5 Installing the PCI extension card

If a PCI extension card is installed on the base board, the ID30 can be extended by inserting any standard PCI card.

CAUTION

Danger of unacceptable heat development

➜ Ensure that the power dissipation of an additional PCI card does not cause unacceptable heating in the Elo-Box.

Installing the PCI extension card

1. Insert the PCI extension card into the 100-pin connector on the bottom of the base board, ensuring that the polarity is correct (Pin 1 is marked).
2. Fasten the PCI extension card with the supplied screws.

Installing the PCI card

➜ Insert the PCI card into the plug connector of the PCI extension card and retain it.

8.3.6 Closing the Elo-Box

1. Insert the base board with the rear panel carefully into the guide rails and slide them completely into the housing, ensuring that the seal is positioned correctly.
2. Fasten the rear panel to the housing with 6 screws.

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