

Weighing system



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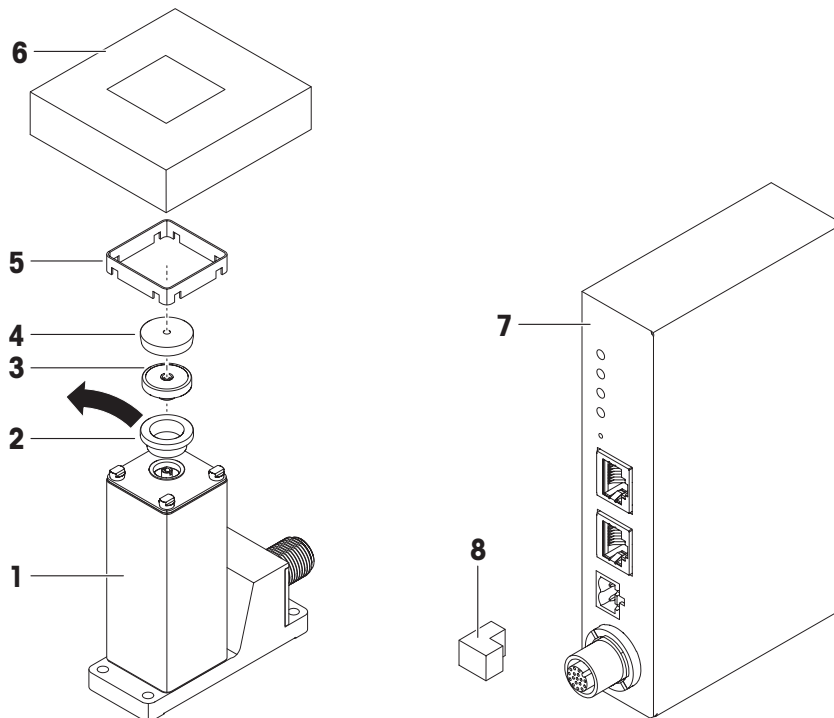
1 This document

This installation manual contains all information needed to install and operate the SPC weighing system. In addition to this installation manual, more information is available in the following documents which can be downloaded from <https://www.mt.com/ind-spc-documents>.

- SPC User manual 30551627 (SPC usage reference)
- SPC Datasheet (technical datasheet)
- MT-SICS Manual 11781363 (description of all MT-SICS commands)
- SAI User Guide (generic "Standard Automation Interface" description)
- SAI Manual - APW Products (product specific "Standard Automation Interface" command description)
- APW Handbook (tips and tricks for the weighing process)

2 Scope of delivery

The SPC weighing system is delivered with the following items:



- 1 Weight sensor
 - 2 Transport cover / cap
 - 3 Adapter weighing pan
 - 4 Weighing pan
 - 5 Draft shield
 - 6 Foam protection
 - 7 Electronic unit
 - 8 2-way screw plug
- User Manual

Note

The sensor cable must be ordered separately. Different lengths and connector angles are available.

- 1 Check the completeness of the delivery.
- 2 Immediately inform your METTLER TOLEDO representative if you have any complaints or parts are missing.

3 Weight sensor installation

The weighing system was designed to record weights very quickly and accurately under normal conditions and communicate the result using the integrated interface to a PC or PLC. Obey the following installation notes to achieve the best weighing performance.

3.1 Ambient conditions

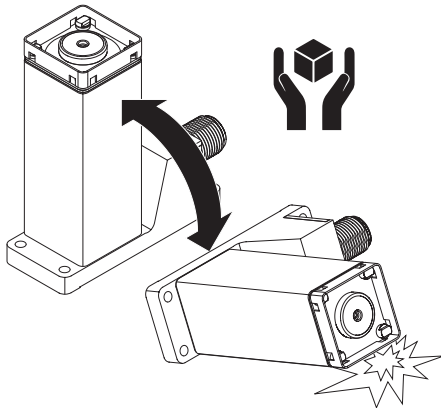
In practice, ambient conditions (vibration, oscillations, shocks, air movements and temperature changes) affect weighing time and achievable accuracy. Therefore, be sure to note the following:

- The location of the weight sensor should not be in areas that are exposed to drafts, direct sunlight, or temperature fluctuations.
- Make sure that any vibrations in the building are not transferred through the floor and to the weight sensor.
- The weighing object must not be electrostatically charged.

You can adjust various parameters on your weighing system. We recommend that you adjust the settings to the levels needed for your application; higher accuracy requirements increase the weighing time (period between the placement of the weight and the availability of a stable result). Filter settings must be stricter to compensate for unfavorable ambient conditions, this also has a negative impact on weighing time, see [Weighing parameters ▶ Page 16].

If your requirements are extremely demanding (short weighing time, high accuracy), we recommend that you try a test setup first and test the entire system under real-world conditions using various settings. This will allow you to tweak the system and optimize it bit by bit.

3.2 Mechanical installation



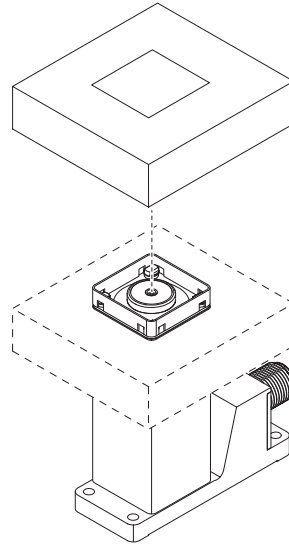
NOTICE

Damage to the weight sensor!

The weight sensor can be damaged even by tipping over.

- The weight sensor must not fall over!

- 1 Put the weight sensor on a stable surface and use the foam protection if the sensor is not fixed.
- 2 Mount the weight sensor on a base that is mechanically decoupled from the system and therefore free of shocks and vibration.

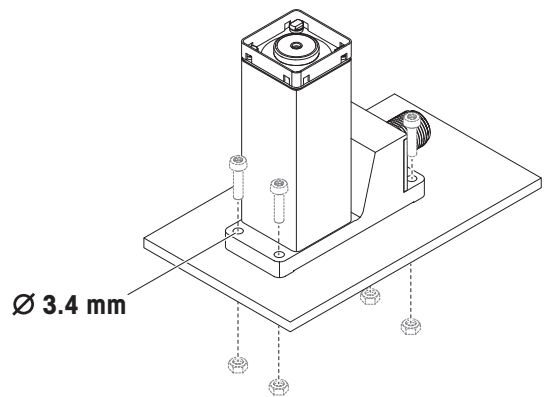


- 3 Make sure that vibrations cannot be transferred across the connector cable between the weight sensor and the electronic unit.
- 4 Make sure that the weight sensor is as perfectly horizontal as possible.

Note

It is acceptable to have a weight sensor that is not perfectly horizontal if its position is not altered after it has been adjusted, e.g., if it is mounted in a fixed position in the system.

- 5 Make sure that the base is perfectly flat to avoid putting tension on the weight sensor base plate.
- 6 Attach the weight sensor to the base across as wide an area as possible. Use the appropriate holes in the weight sensor base plate (4 × M3 screws, tightening torque 1.3 – 2 Nm).



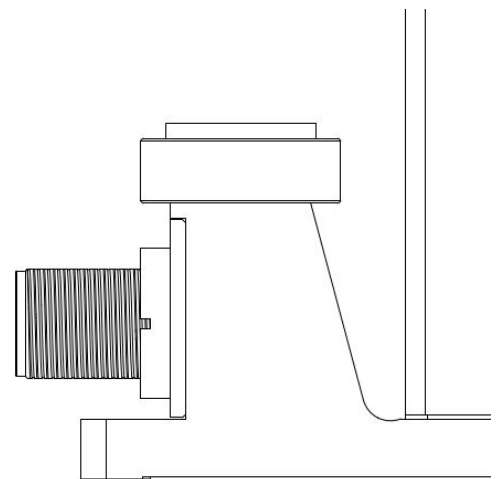
Note

If you are using a bubble level for leveling the weight sensor, place the bubble level on the weight sensor connector housing.

- 7 Remove the white plastic cover (2) from the weight sensor.

Note

- ➔ Keep the cover in a safe place!
- ➔ The cover protects the weight sensor from damage during transport.
- ➔ The cover keeps liquid from penetrating into the weight sensor during cleaning.

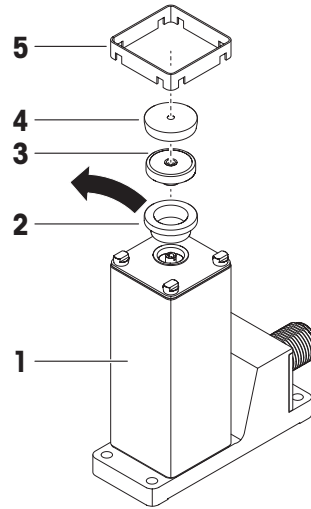


- 8 Push the adapter weighing pan (3) carefully onto the load application pin (no thread between load application pin and adapter weighing pan).
- 9 Put the weighing pan (4) carefully onto the adapter weighing pan (3).

Note:

If you wish to use your own setup, place it directly on the adapter weighing pan (3). The weighing pan (4) is not needed in this case. More details in chapter [Custom weighing pan ▶ Page 6].

- 10 Slide the draft shield (5) onto the weight sensor (1). Press down on the two opposite corners until it engages with an audible "click".



3.3 Custom weighing pan

Custom weighing pans can either be placed on the adapter weighing pan (3) or directly be screwed into the load application pin.

The load application pin comes with a concentric M2 thread to attach a custom weighing pan. Note the following conditions not to damage the weight sensor:

- The tightening torque of the screw must not exceed 30 Ncm / 2.65 in lbs. Use Indicating Type Torque Screwdriver (do **not** use click type). Observe also the tensile strength of the screw used. This is valid only for metallic counterparts.
- The screw must penetrate approx. 3 mm.
- Use only non-magnetic material for your custom weighing pan (e.g. nickel-chromium steel, titanium, brass, aluminum etc.).
- Switch off the weighing system before installing the custom weighing pan.

Custom weighing pan design notes

- To ensure proper startup of the weighing system, the preload must not exceed 80% of the weighing range. The weighing range will hence be reduced by the amount of the preload weight.
- If the entire weighing range is required, the preload may not exceed 4 g (starting from standard weighing pan).
Weight of the adapter weighing pan: approx. 0.2 g
Weight of the standard weighing pan: approx. 1.1 g

Note

With high preload, the adjusting weight must be chosen accordingly. For adjusting purposes, it is preferable to convert the weight sensor back to its original state.

See chapters [Weighing pan ▶ Page 24] and following for dimensions of your custom weighing pan.

3.4 Overload protection

The SPC weight sensors have overload protection. The following limit values must not be exceeded:

- Vertical load: 1 kg (static load)
- Lateral load: 200 g (static load)
- Torsion: 0.3 Nm

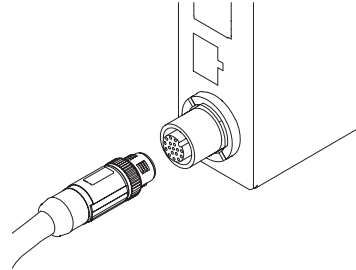
3.5 Electrical installation

NOTICE

Damage to the weighing system

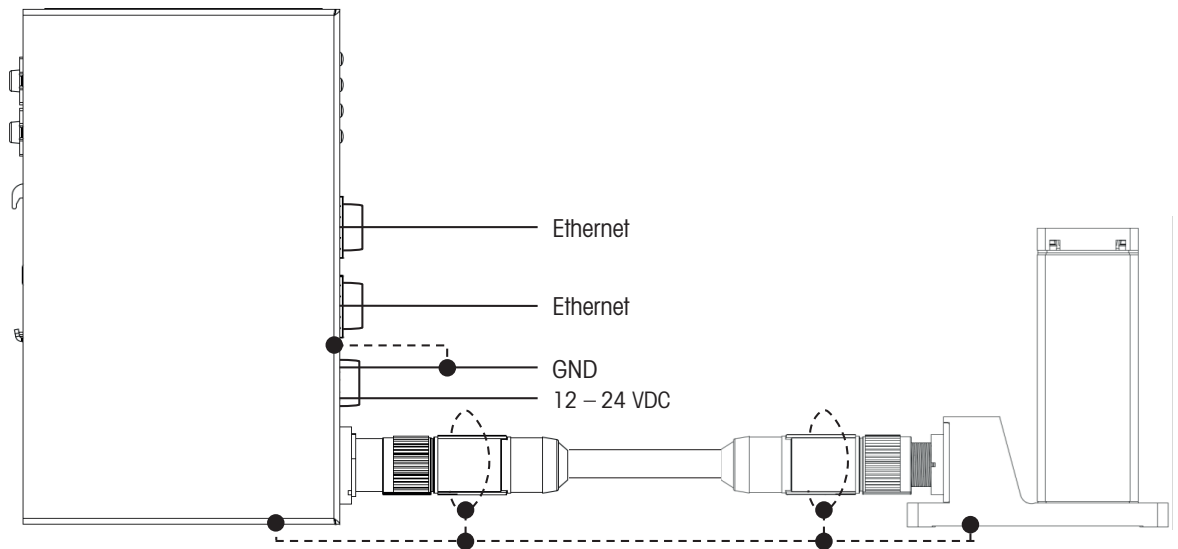
- Be careful when connecting the sensor cable.

- 1 Search the sensor connector coding pin visually and align the sensor cable respectively. Do **not** turn the sensor cable while plugging in. Pins might bend.
- 2 Push the sensor cable until the mechanical stop.
- 3 Turn the coupling nut until resistance increases.
- 4 Push the sensor cable until the mechanical stop.
- 5 Repeat this process until the sensor cable is properly connected.



Note

The weight sensor housing is connected to the electronic unit housing and thereby connected with the DC GND through the sensor cable.



4 Electronic unit installation

4.1 Mechanical installation

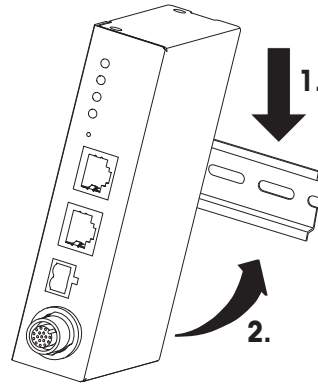
NOTICE

Damage to the weighing system due to heat dissipation!

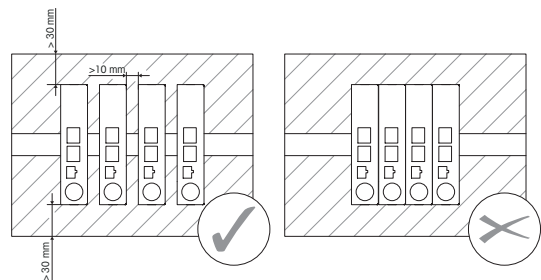
- Strictly obey the following mounting options. Any other mounting position will not comply with heat dissipation requirements.

4.1.1 DIN rail installation (option 1)

- 1 Snap the upper DIN rail clip and pull the electronic unit downwards until the lower clip can be snapped onto the DIN rail (no tools needed).

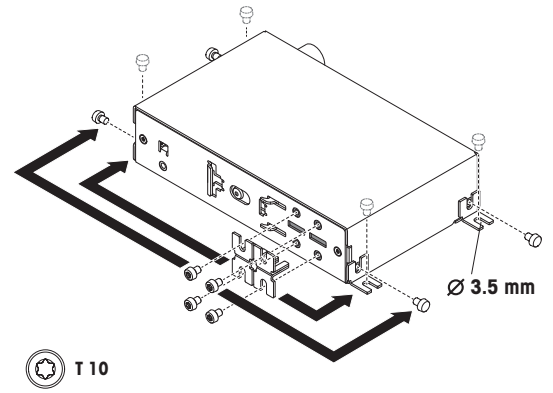


- 2 Make sure that at least 30 mm free space for heat dissipation is available above and below the electronic unit. Make sure that at least 10 mm free space for heat dissipation is available on the electronic unit sides.

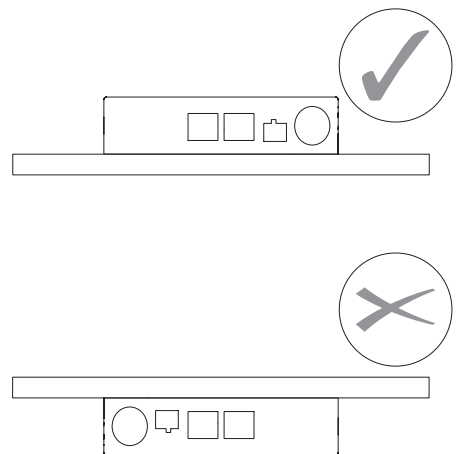


4.1.2 Screw installation (option 2)

- 1 Remove the 4 mounting clips on the back of the electronic unit and screw them on the side (Torx T10 screws).



- 2 Make sure that at least 30 mm free space for heat dissipation is available above the electronic unit. Make sure that at least 10 mm free space for heat dissipation is available on the electronic unit sides.



4.2 Electrical installation

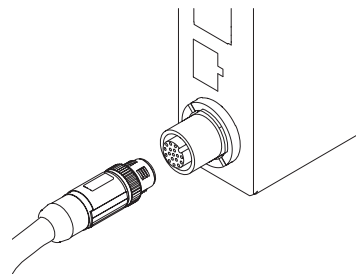
4.2.1 Sensor cable

NOTICE

Damage to the weighing system

- Be careful when connecting the sensor cable.

- 1 Search the sensor connector coding pin visually and align the sensor cable respectively. Do **not** turn the sensor cable while plugging in. Pins might bend.
- 2 Push the sensor cable until the mechanical stop.
- 3 Turn the coupling nut until resistance increases.
- 4 Push the sensor cable until the mechanical stop.
- 5 Repeat this process until the sensor cable is properly connected.



4.2.2 Power with Power over Ethernet (option 1)

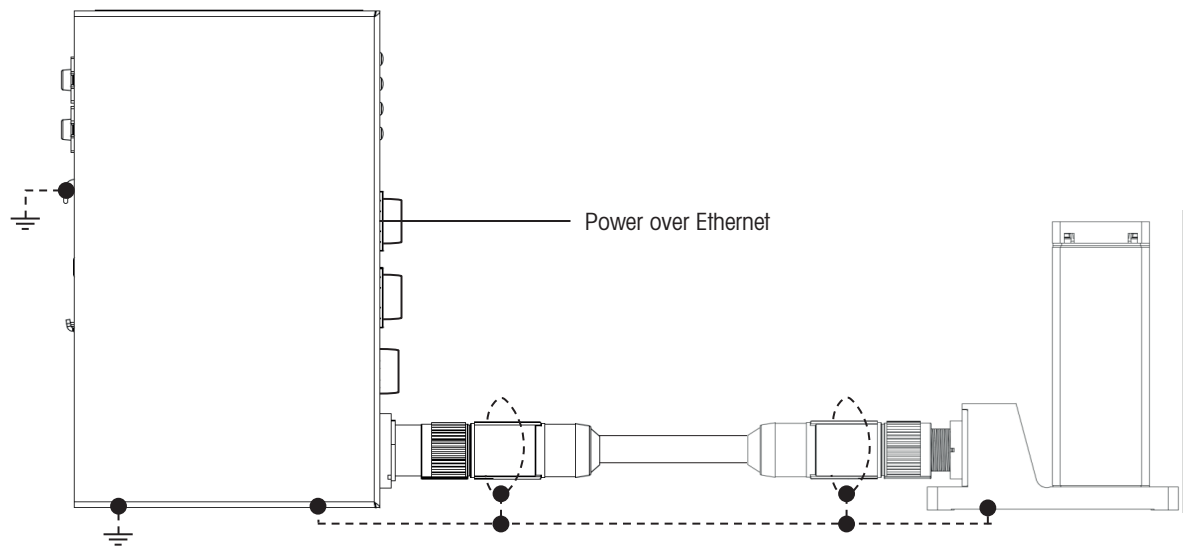
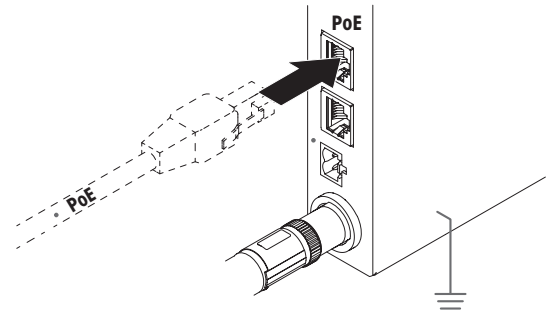
The electronic unit was developed in accordance with the IEEE 802.3af standard (permissible PoE input voltage range = 37.0 – 57.0 V).

An appropriate power supply must be used.

- Connect the Power over Ethernet supply to the corresponding Ethernet socket (NW1 / PoE)

Note

There is no grounding via the Ethernet cable. The housing of the electronic unit must either be connected to the GND via the mounting clips or via the DIN rail.

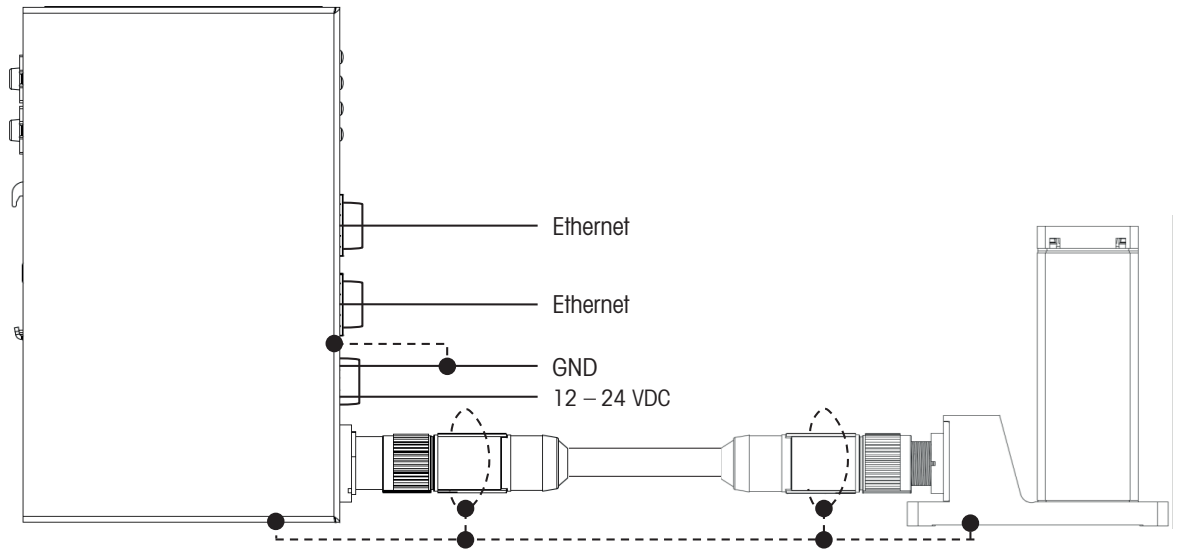
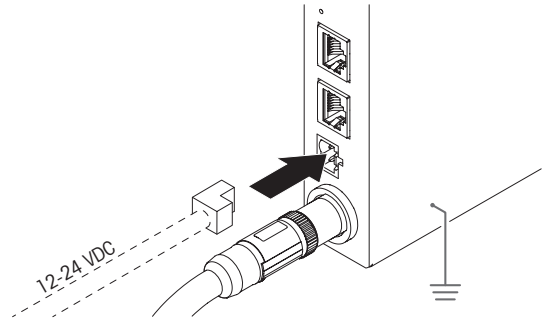


4.2.3 Power with 12-24 V DC power supply (option 2)

- Connect an external power supply (12 – 24 V DC, +/- 10 %, 5 W) to the DC screw plug.
- ➔ DC screw plug label
 - 1 = GND
 - 2 = 12 – 24 V DC

Note:

The GND of the DC power supply is connected to the housing of the electronic unit and the weight sensor.



4.2.4 Data connection

Use the two Ethernet sockets as desired for a data connection using TCP/IP or Industrial Ethernet.

Note

Do not connect both Ethernet sockets to the same switch, as this will lead to an IP address conflict.

5 Establish connection

The SPC weighing system must be connected to a computer or a PLC. The following chapters show how to communicate with the weighing system.

5.1 IP address factory settings

The SPC weighing systems are delivered with the following factory settings:


- IP address: 192.168.0.55
- Port number 1: 23
- Port number 2: 80 (recommended for web server usage)

Note

Certain customer types have a different IP address and port number as factory setting.

5.2 Temporarily activate the service IP address

If the customer IP (set via MT-SICS command: M70) is not known, the service IP (192.168.0.55; port 23) can be activated at any time to connect to the weighing system. The temporary service IP remains active until the next restart of the weighing system (MT-SICS: R01) or until the power supply is disconnected. Then the customer settings are active again.

- 1 Use a thin object to reach the button "Set / Reset" on the electronic unit.
- 2 Press and hold the button "Set / Reset" until the LED "System Status" flashes green. 
- 3 Release the button "Set / Reset".
- 4 Wait at least 5 seconds.

Note

- The SPC IP address can be managed by the SPC weighing system itself or by the customer PLC. See the M109 command in the MT-SICS Manual for more information.
- Pay attention to this setting if you cannot connect to the user IP address after a power cycle.

5.3 TCP ports / TCP communication

The SPC weighing system has TCP ports which can be used in parallel.

TCP port number	Description
23	Primary MT-SICS port (use this port for APW-Link) The connection type is "raw TCP/IP".
80	Secondary MT-SICS port Use this port for web communication (Web server).

Update rate

The SPC weighing system supports weight update rates of up to 91.5 weight values per second via TCP/IP ports.

The SPC weighing system supports the "Fast Weight Update Channel", in which data can be read via Industrial Ethernet with up to 366 weight values per second.

Note

- If data-intensive commands are used in parallel on both ports (e.g. SIR command to permanently retrieve the weight values), the update rate on both ports can be reduced.
- A weighing system response delay of up to 100 ms can occur between closing and reopening a TCP/IP connection.
- After each SPC weighing system reboot, the MT-SICS command "I4" must be handled.

Important implementation note

TCP packet segmentation may occur. An MT-SICS command line is completed once a carriage return and line feed is sent (<CR><LF>). See MT-SICS manual for more details

5.4 Web server

The SPC weighing system has an integrated web server where the actual weight value as well as system parameters are displayed.

- Enter the weighing system IP (factory settings: 192.168.0.55; port 80) in the web browser to call up the web server.

Note

Firewall and proxy settings as well as connections to other networks can block the connection to the web server. If the connection to the web server is not possible, switch off the proxy server and disconnect all open network connections such as WLAN or LAN.

6 Configuration

After installing the weighing system, it must be configured according to the weighing process needs.

The METTLER TOLEDO software APW-Link (Version 2.7 or higher) is the easiest way to configure the SPC weighing system.

APW-Link can be downloaded free of charge from <https://www.mt.com/apw-link>.

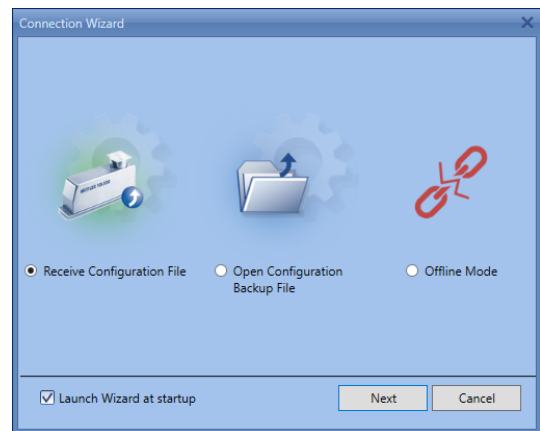
Alternatively, the configuration can be carried out via the interface with MT-SICS commands (TCP/IP mode) or SAI command (Industrial Ethernet mode).

This chapter explains how to establish a connection with APW-Link and explains the basic functions that are often used.

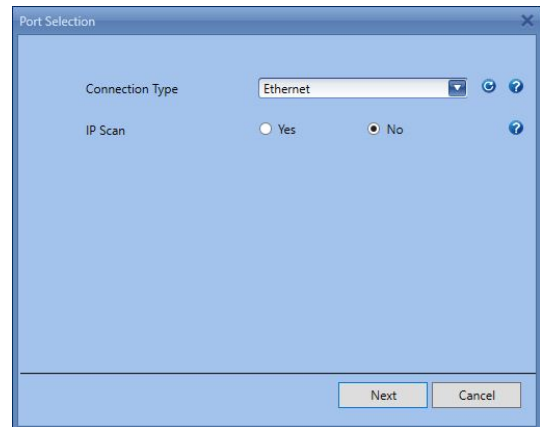
Further information on the configuration options can be found in the MT-SICS and SAI manuals. All documents can be downloaded from <https://www.mt.com/ind-spc-documents>, see [This document ▶ Page 3].

6.1 Establish an APW-Link connection

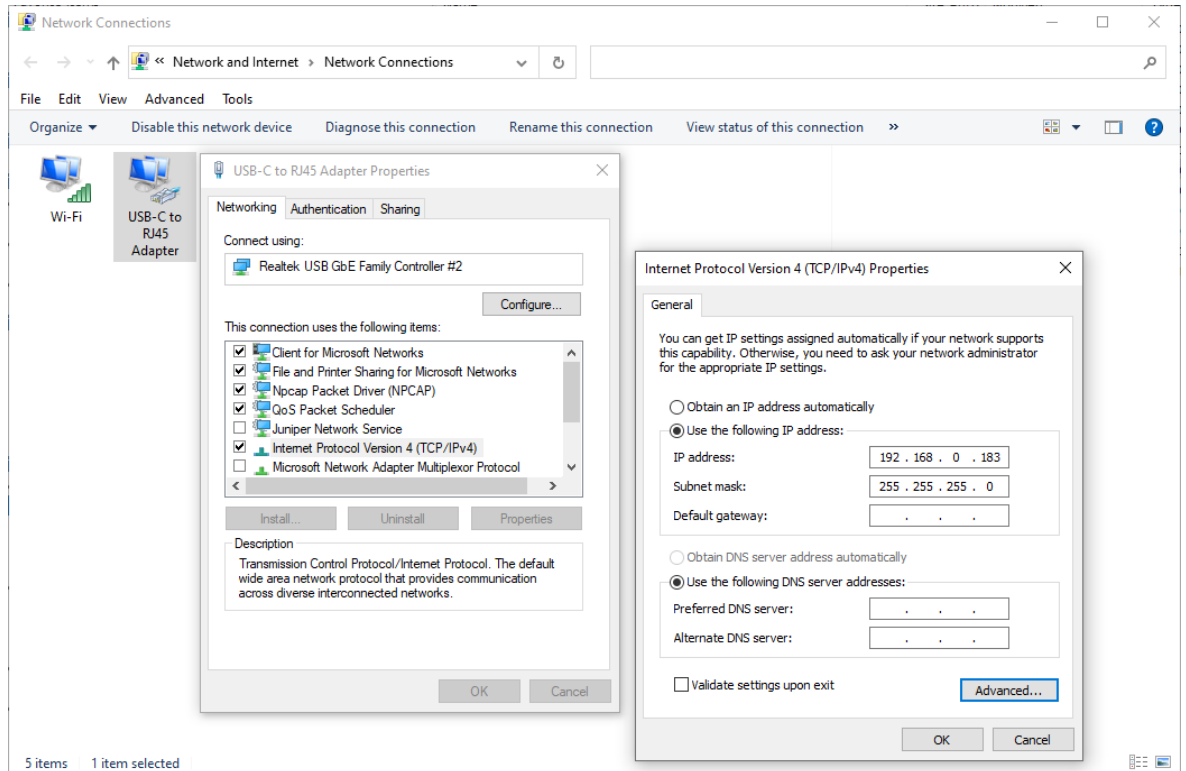
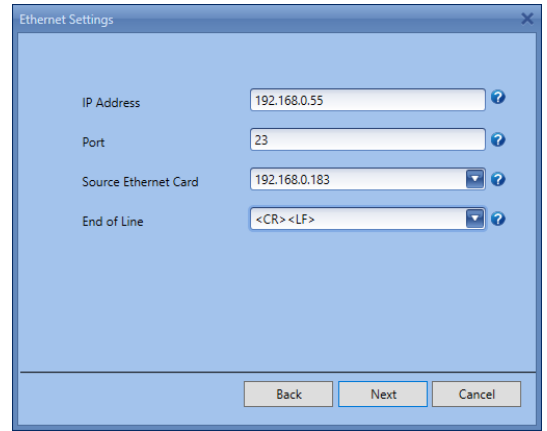
- 1 Open APW-Link (Version 2.7 or higher) and select "Receive Configuration File".



- 2 Select the Connection Type "Ethernet".
 - ➔ An IP scan is not needed if you know the IP address of your weighing system.



- 3 Enter the SPC weighing system IP (factory settings: 192.168.0.55) and port 23.
- 4 Select the "Source Ethernet Card" in the same IP range (e.g. 192.168.0.xxx)
 - ➔ If no "Source Ethernet Card" in the same IP range is available, configure your computer Ethernet port accordingly with a fixed IP.
- ➔ The connection will be established. In case you encounter connection problems, see [IP address factory settings ▶ Page 12] and [Temporarily activate the service IP address ▶ Page 12].



6.2 Weighing parameters

In the APW-Link tab "Weighing" you will find the most important setting to adapt the behavior of your SPC weighing system. The most important settings are explained below.

Weighing Mode – Normal Weighing

If "Normal Weighing" is selected, an adaptive weighing signal filter is active. The adaptive filter can be adjusted in 5 levels from "very stable" (little filtering, fast) to "very unstable" (a lot of filtering, slower) using the "Environment" setting.

"Normal weighing" is recommended for processes in which the weighing result should be output as quickly as possible and no linear filter behavior is required.

Weighing Mode – Sensor Mode

If "Sensor Mode" is selected, a low pass filter with a selectable cut-off (limit) frequency is applied on the weighing signal. The limit frequency can be selected between 0.001 and 20.0 Hz.

Note

If the limit frequency is set to <0.001 Hz, a predefined limit frequency from the "environment" setting is used.

The "Sensor Mode" is particularly recommended for processes that require a linear filter behavior (for example controlled filling applications).

6.3 Industrial Ethernet protocol

In the APW-Link tab "Communication", the Industrial Ethernet Protocol can be selected.

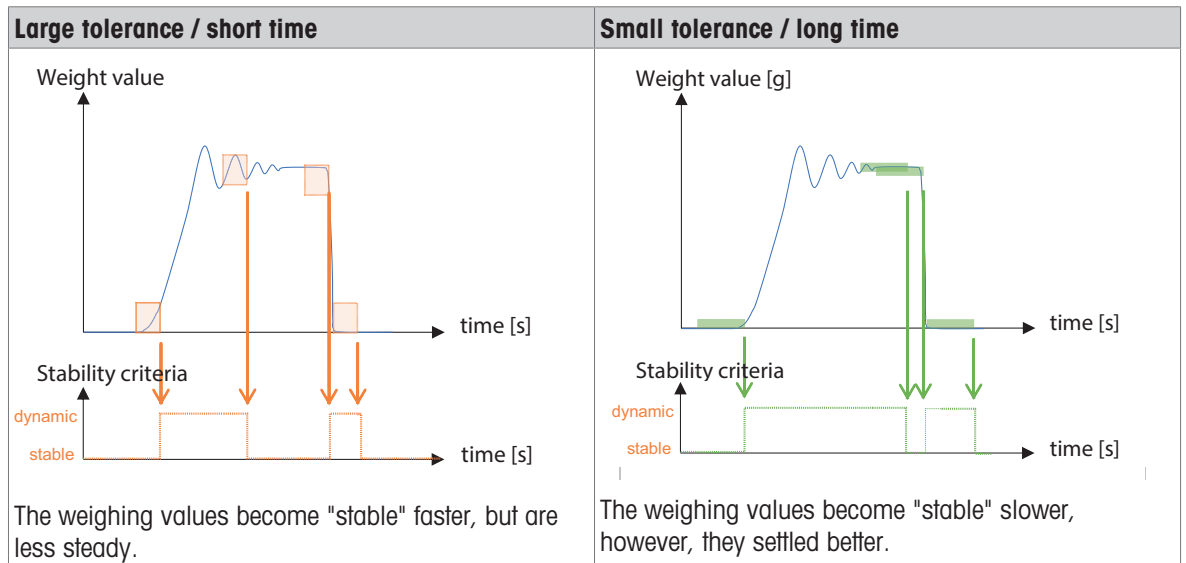
Factory default setting is PROFINET.

6.4 Stability criteria

In the APW-Link tab "Weighing" you will find the settings for "Stability Criteria".

The stability criteria is an additional information that can be used in combination with the weight value. The behavior of the stability criteria can be parameterized via the "tolerance" (in digits) and the "time" (in seconds). The weighing value is interpreted as "stable" as soon as the weighing value no longer leaves the defined "tolerance-time tunnel".

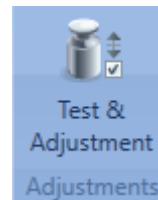
Examples



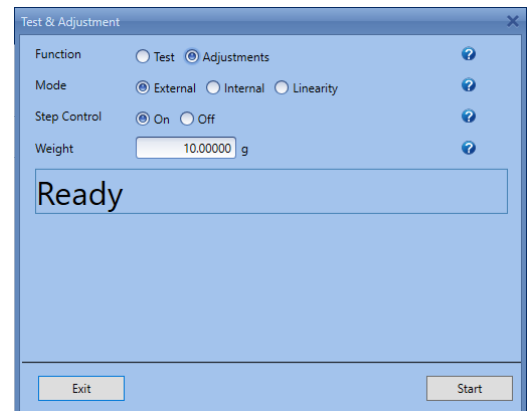
The stability criteria can be defined individually for weighing, taring, zero and adjustment (MT-SICS command: USTB).

6.5 External adjustment

- 1 Select "Test & Adjustments" in the APW-Link "Home" menu.
- 2 Make the following settings:



Function	Select "Adjustments"
Mode	Select "External" (the SPC weight sensor does not support internal adjustment)
Step Control	Select "On"
Weight	Enter the weight value of your test weight



Place and remove the test weight on the SPC weight sensor according to APW-Link's guidance.

7 Wash-down module (accessory)

With the wash-down module the IP rating is increased to IP54 in operation and to IP56 for cleaning. Thus you can process dusty weighing goods or clean the weight sensor with a water jet. In order to achieve the higher IP rating, an air flow is directed through the wash-down head.

7.1 Installation of the wash-down module

Note

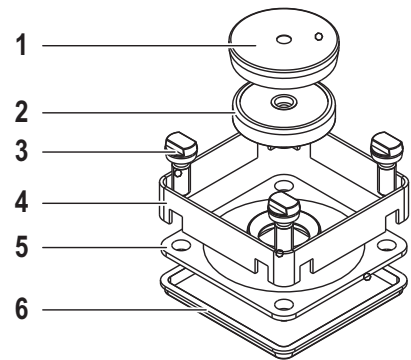
To ensure that your weight sensor will remain accurate, we recommend that the conversion is done by an authorized service technician.

Preconditions for a trouble-free conversion

- Clean and dust-free workbench
- Fastener to hold the weight sensor in place
- Special screw driver or open-ended spanner (2.5 mm)
- Screw driver Torx (T8)

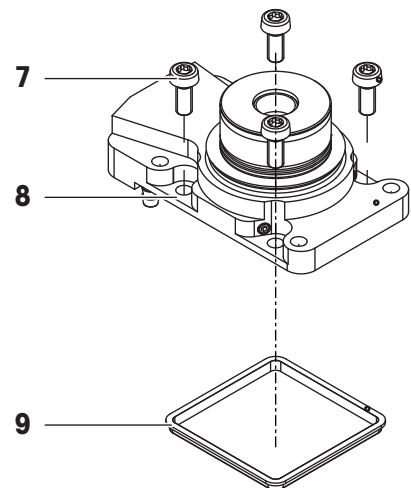
Removing the head of the SPC weight sensor

- 1 Remove the draft shield (4).
- 2 Take off the weighing pan (1) and the adapter weighing pan (2) from the load application pin.
- 3 Remove the 4 screws (3) with the special screw driver or open-ended spanner (2.5 mm) and take off the cover (5).
- 4 Remove the sealing gasket (6) and dispose of it.



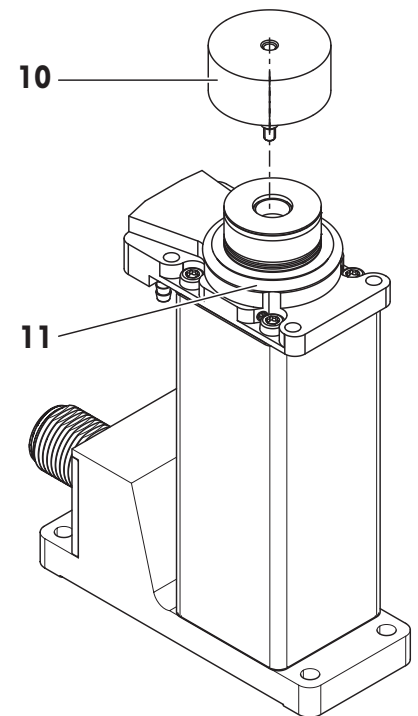
Installing the wash-down module

- 1 Place the new sealing gasket (9) delivered with the wash-down module on the weight sensor.
- 2 Carefully place the wash-down head (8) on the housing.
- 3 Use the 4 Torx T8 screws (7) delivered with the wash-down module to attach the wash-down module on the housing. Tighten the screws equally with a torque of 0.5 Nm.



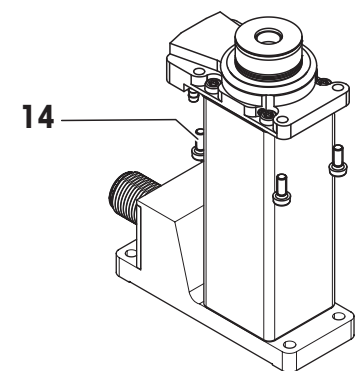
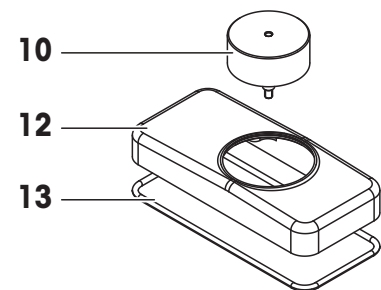
Installation without stainless steel cover

- 1 Ensure that the O-ring (11) is placed correctly on the wash-down head.
- 2 Screw in the wash-down adapter weighing pan (10) carefully as far as it will go.



Installation with stainless steel cover

- 1 Place the sealing (13) delivered with the stainless steel cover on the steel cover.
- 2 Place the stainless steel cover (12) on the wash-down head and mount it with the 4 screws (14).
- 3 Screw in the adapter weighing pan (10) carefully as far as it will go.

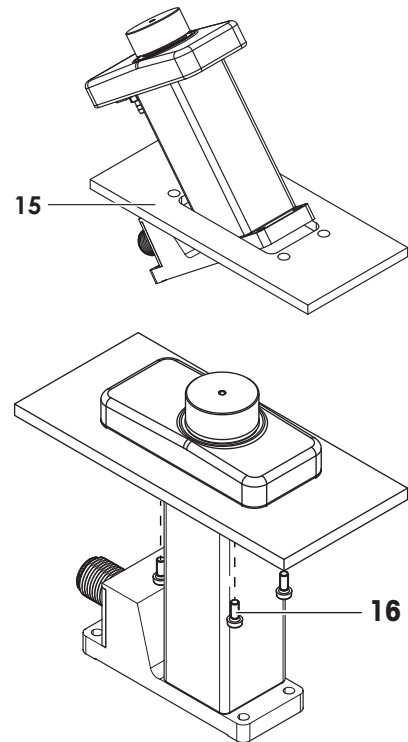


Single arrangement

In this installation the weight sensor is not standing on the base but is hanging on the separating plate (15) by means of the stainless steel cover. Thus you can separate the hygienic area from the non-hygienic area.

Installation

- Separating plate (15) prepared, see [Wash-down module (available as accessory) ▶ Page 27].
 - 4 screws (16) provided.
 - Wash-down module installed with stainless steel cover, see above.
- 1 Guide the weight sensor with wash-down head through the cutout of the spacer plate (15).
 - 2 Mount the stainless steel cover to the spacer plate using 4 screws (16).



Multiline arrangement

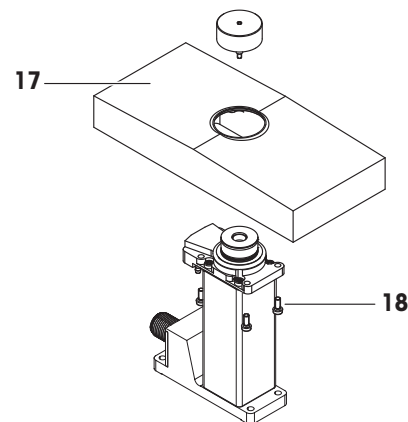
It is possible to array several weight sensors next to each other with a pitch of at least 25 mm.

A stainless steel cover that covers all the sensors and a respective sealing gasket have to be designed by the customer.

Weight sensor protection

To protect the weight sensor, e.g. from dust and soiling, a separating plate (17) can be mounted on top of the wash-down module.

- Separating plate (17) prepared, see [Wash-down module (available as accessory) ▶ Page 27].
 - 4 screws (18) provided.
 - Wash-down module installed without stainless steel cover, see above.
- 1 Mount the separating plate on the wash-down head with the 4 screws (18).
 - 2 Screw in the adapter weighing pan (10) carefully as far as it will go.

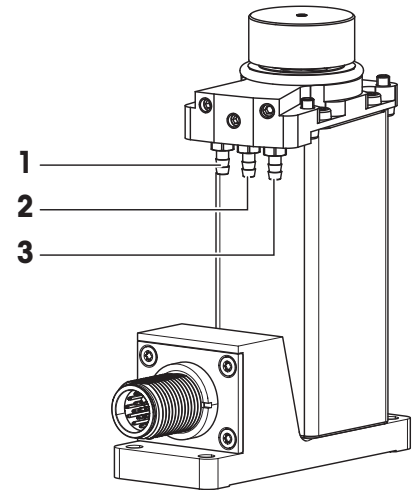


Air connection

On the bottom, the wash-down head has 3 connection fittings for compressed air.

It is recommended to use a pneumatic pipe with an inner diameter of 2.5 mm and an outer diameter of 4.0 mm.

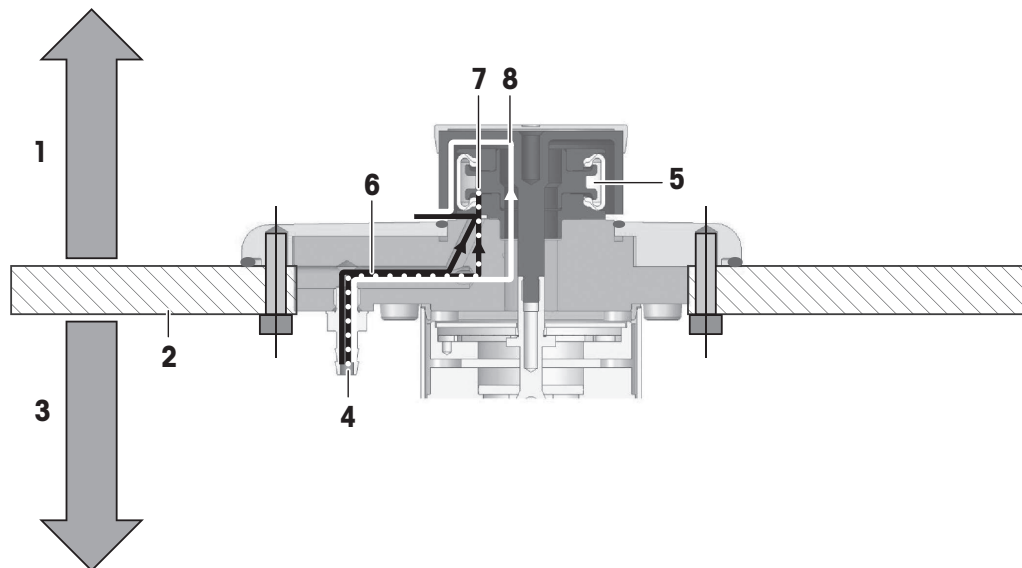
- | | | |
|----------|------------------|--|
| 1 | Bellow inflation | To inflate the bellows for cleaning. |
| 2 | Laminar flow | During operation the laminar flow ensures that no dust may ingress into the weight sensor. |
| 3 | Purge air | Purge the wash-down head after cleaning. |



7.2 Wash-down and ingress protection functionality

Functional diagram

When installing as single or multiline arrangement, the separating plate (customer interface) may work as separation of the hygienic area from the non-hygienic area.



- | | | | |
|----------|-------------------|----------|--|
| 1 | Hygienic area | 5 | Bellows |
| 2 | Separation plate | 6 | Laminar flow during weighing (IP54) |
| 3 | Non-hygienic area | 7 | Inflate bellows to activate the wash-down functionality (IP56) |
| 4 | Air supply | 8 | Purge air after wash-down process (IP56) |

Laminar flow (IP54)

The laminar flow can remain active all the time, even during weighing.

It must be ensured that the laminar flow is within the specification of 1.8 liter/minute at STP (standard process).

Wash-down (cleaning) process (IP56)

- 1 Inflate the bellows 0.6 ±0.1 bar.
 - 2 Start the cleaning process.
 - 3 When the cleaning process is finished, relieve the bellows.
 - 4 Activate the purge flow for about 1 minute.
- ➔ The weight sensor is ready for weighing.

Note

Please consider the time for the thermal stabilization.

7.3 Wash-down module technical data

Protections and standards with wash-down installation

Active laminar flow (weighing mode)	IP54
Sealed with bellows (cleaning mode)	IP56

Materials

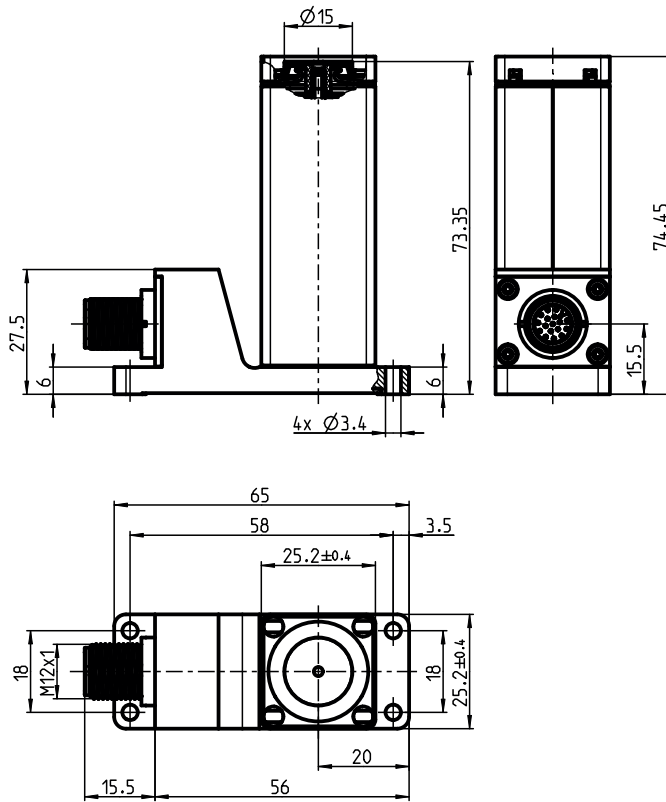
Wash-down head	PEEK CA30 Bio USP Class VI (adhesive Bio USP)
Bellows	Silicone 40 ShA (FDA approved)
Wash-down adapter weighing pan	PEEK CA30 Bio USP Class VI
Connection fitting	Stainless steel Class XX (Festo)
Stainless steel cover	X2CrNiMo17-12-2 (1.4404)

Compressed air specifications

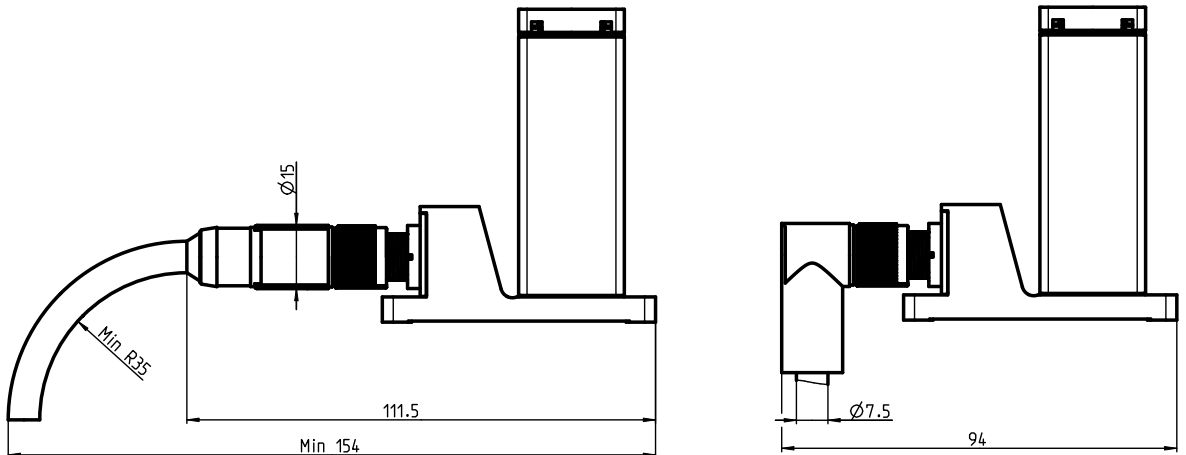
Primary air	0.6 ±0.1 bar
Purge air	1.8 l/min at STP
Laminar flow	
Bellow inflation	

8 Dimensions

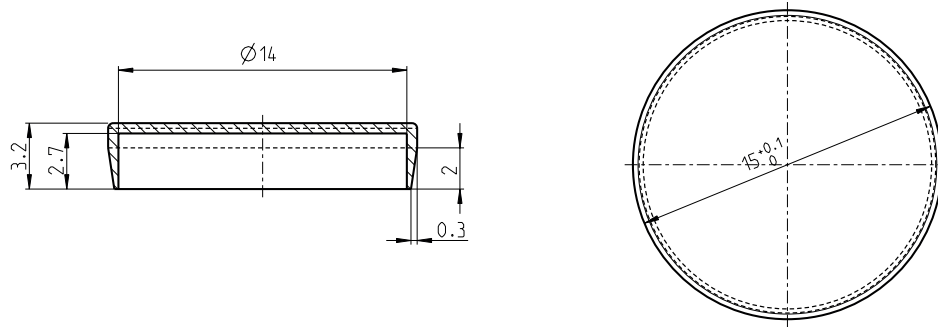
8.1 SPC weight sensor



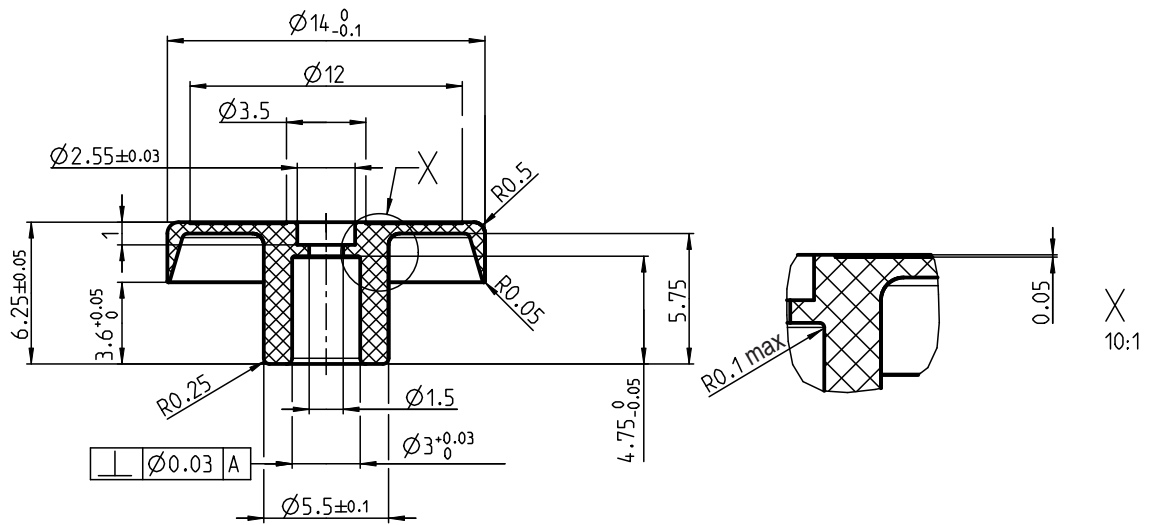
8.2 SPC weight sensor with cables



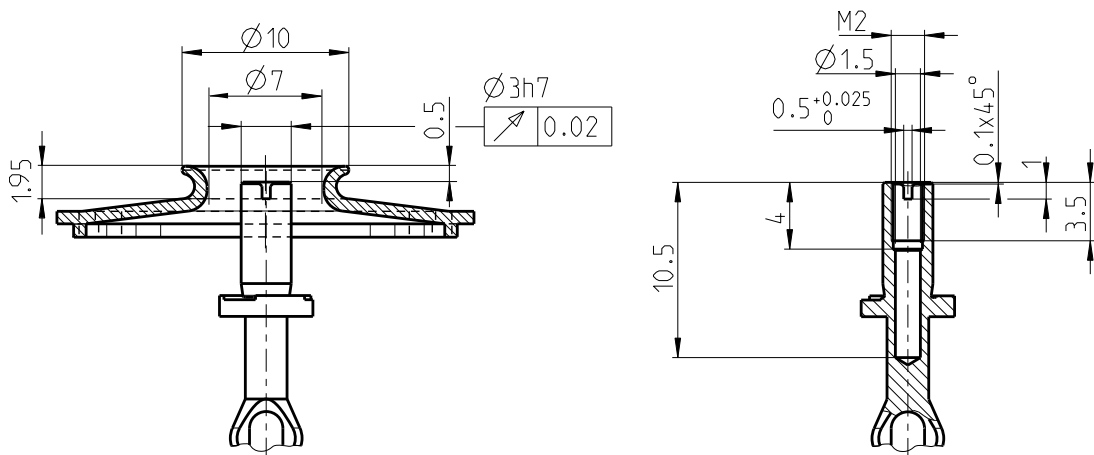
8.3 Weighing pan



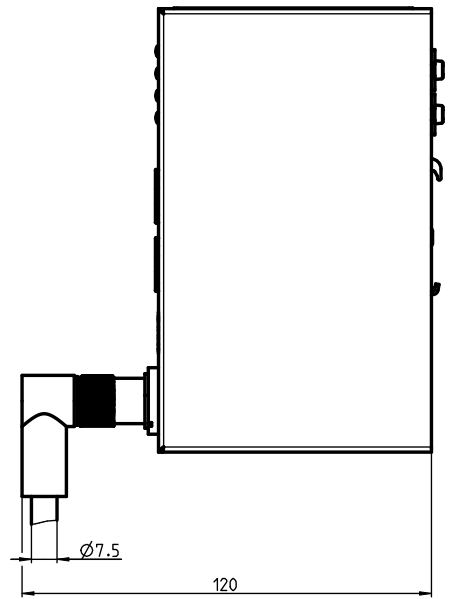
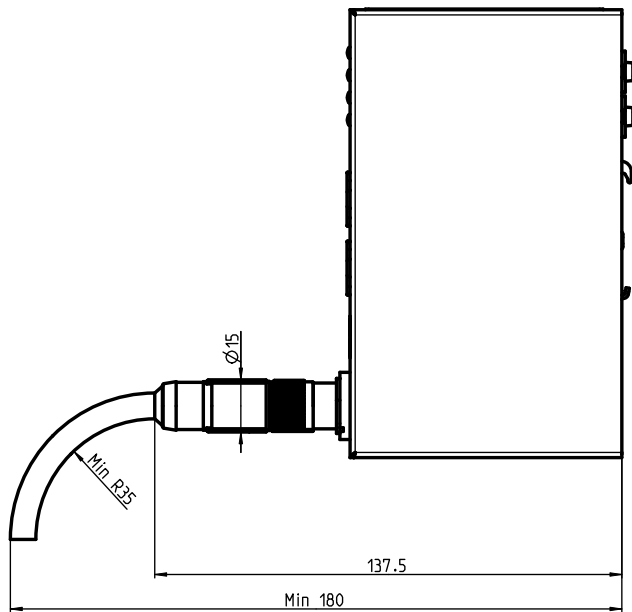
8.4 Adapter weighing pan



8.5 Load application pin

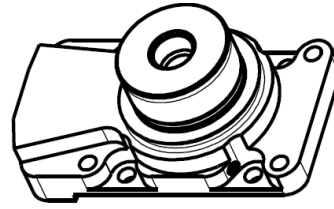
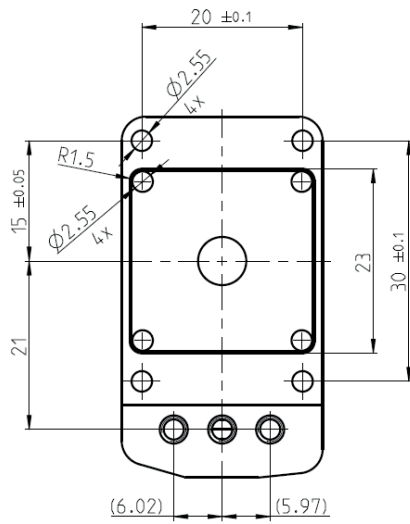


8.8 Electronic unit with cables

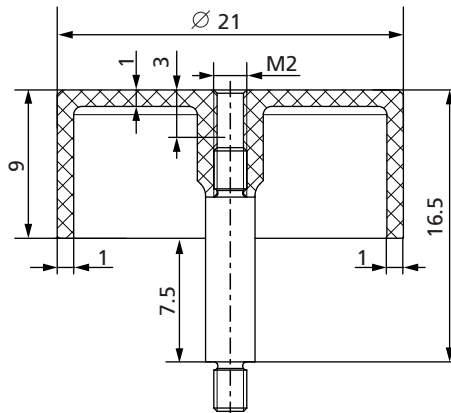


8.9 Wash-down module (available as accessory)

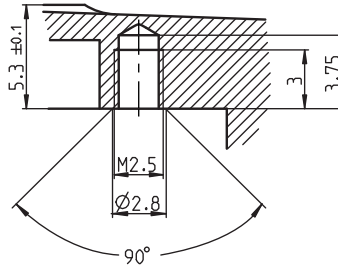
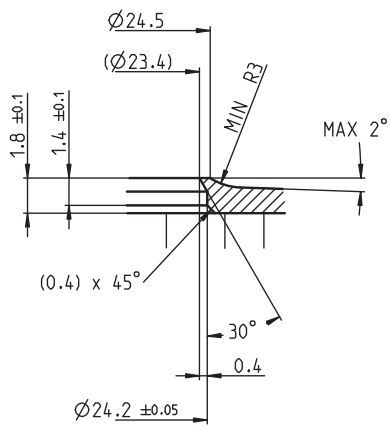
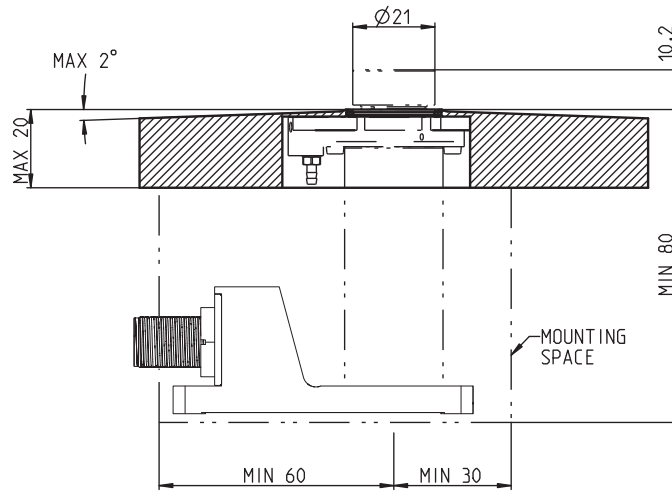
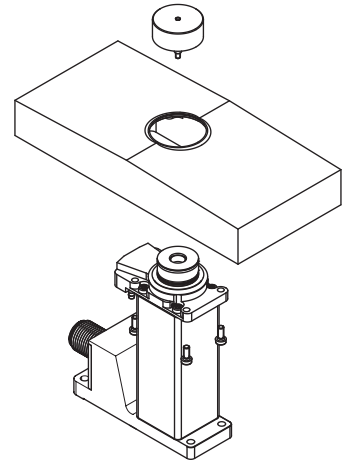
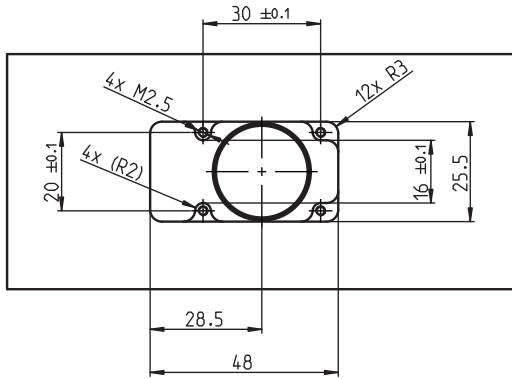
Wash-down head



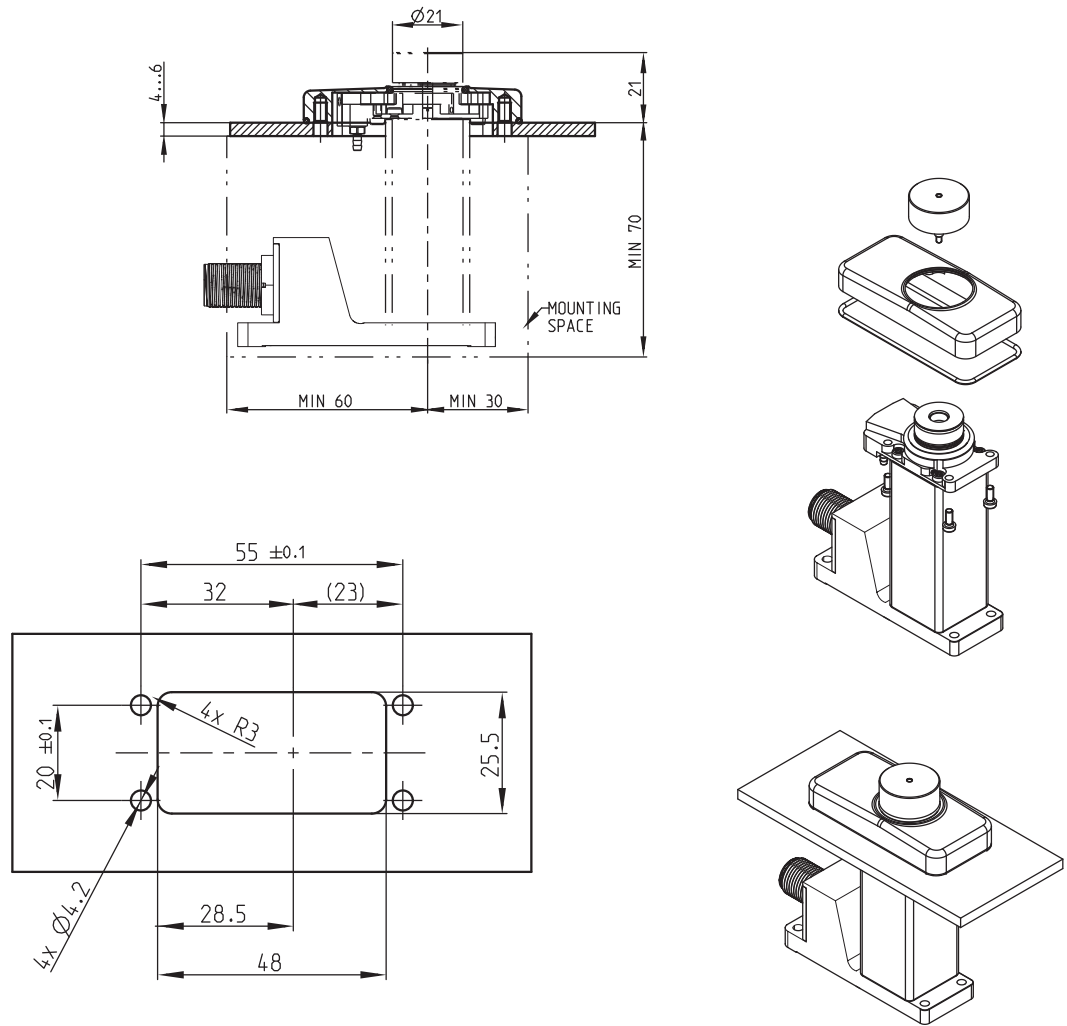
Wash-down adapter weighing pan



Installation without METTLER TOLEDO stainless steel cover



Installation with METTLER TOLEDO stainless steel cover



9 Exchanging weight sensor / electronic unit

As soon as the combination of weight sensor and electronic unit supplied by METTLER TOLEDO is changed, an external adjustment is necessary to make the system functional again.

Note

- The LED "Sensor Status" flashes red with 2 Hz as soon as the delivered combination of weight sensor and electronic unit is no longer recognized.
- To readjust the weighing system and make it functional again, carry out an external adjustment, see [External adjustment ▶ Page 17].
- A power cycle is necessary to reset the LED status.

10 Error handling

10.1 LED description

System Status LED		
Green permanent	No error	–
Green/red flashing (1 Hz)	The temperature of the electronic unit is out of the compensated range (10 ... 30 °C ambient temperature, the active temperature limits depend on the TDNR). Weighing values can no longer be guaranteed.	– Bring the electronic unit within the compensated temperature range.
Red flashing (1 Hz)	The temperature of the electronic unit is out of the permissible operating range (5 ... 40 °C ambient temperature, the active temperature limits depend on the TDNR). The electronic unit can be damaged.	– Bring the electronic unit within the permissible temperature range.
Red permanent	EEPROM read/write error, other error	1 Try to reboot the electronic unit. 2 Replace the electronic unit.
Off	The electronic unit is not powered or defect.	– Supply the electronic unit with power or replace it.

Sensor Status LED		
Green permanent	No error	–
Green/red flashing (1 Hz)	The temperature of the weight sensor is out of the compensated range (10 ... 30 °C ambient temperature, the active temperature limits depend on the TDNR). Weighing values can no longer be guaranteed.	– Bring the weight sensor within the compensated temperature range.
Red flashing (1 Hz)	The temperature of the weight sensor is out of the permissible operating range (5 ... 40 °C ambient temperature, the active temperature limits depend on the TDNR). The weight sensor can be damaged.	– Bring the weight sensor within the permissible temperature range.
	The weigh sensor is in an under- or overload state.	– Bring the weight sensor within the permissible weighing range.
Red flashing (2 Hz)	The weight sensor – electronic unit combination is not known (not paired).	– Perform an external adjustment.
Red permanent	Weight sensor not connected or defective	– Connect a working weight sensor.
	Sensor cable defective	– Check/replace the sensor cable.
Off	The electronic unit is not powered or defective.	– Supply the electronic unit with power or replace it.

NS (Network Status) / BF (Bus Failure) LED			
LED Status	Ethernet/IP mode (NS)	PROFINET mode (BF)	Note
Green-red-off (1x)	Self test The device is performing its power-up testing.	–	
Green flashing (1 Hz)	No connections An IP address is configured, but no CIP connections are established, and an Exclusive Owner connection has not timed out.	–	
Green permanent	Connected An IP address is configured, at least one CIP connection (any transport class) is established, and an Exclusive Owner connection has not timed out.	–	
Red flashing (1 Hz)	Connection timeout An IP address is configured, and an Exclusive Owner connection for which this device is the target has timed out.	–	
Red flashing (2 Hz)	–	No Industrial Ethernet data exchange	Normal status is PROFINET TCP/IP connection mode
Red permanent	Duplicate IP The device has detected that its IP address is already in use.	No configuration or low speed physical link or no physical link	
Off	Not powered, no IP address	Not powered No error	EtherNet/IP mode <ul style="list-style-type: none"> • Configure the IP address and establish a connection. • Make sure M109 is set to "...managed by this device".

MS (Module Status) / SF (System Failure) LED			
LED Status	Ethernet/IP mode (NS)	PROFINET mode (BF)	Note
Green-red-green (1x)	Self test The device is performing its power-up testing.	–	
Green flashing (1 Hz)	Standby The device has not been configured.	–	EtherNet/IP mode <ul style="list-style-type: none"> • Configure the IP address and establish a connection. • Make sure M109 is set to "...managed by this device".
Green permanent	Device operational the device is operating correctly.	–	
Red flashing (1 Hz)	Major recoverable fault (e.g. incorrect configuration)	–	
Red flashing (1 Hz, 3 s)	–	DCP signal service is initiated via the bus.	
Red permanent	Major unrecoverable fault	<ul style="list-style-type: none"> • Watchdog timeout • Channel, generic or extended diagnosis present • System error 	
Off	Not powered	Not powered No error	

10.2 MT-SICS error description

For MT-SICS error description, consult the MT-SICS Manual which can be found at

<https://www.mt.com/ind-spc-documents>

In case you cannot solve the problem causing the error, contact the helpdesk.

Use MT-SICS commands E02 to get more detailed information of the actual error or E03 for the list of the most recent errors since the last power cycle.

10.3 IP address unknown

If you do not know the IP address of your weighing system, you can activate the temporary service IP, see [Temporarily activate the service IP address ▶ Page 12]

10.4 Other connection problem

If the weighing system cannot connect to APW-Link (or other programs) despite the correct network settings:

- 1 Disconnect the weighing system from the power supply.
- 2 Wait 5 seconds and reconnect the weighing system.

10.5 Reset weighing system

All customer settings except the date and time are reset to the factory settings (**including the communication parameters and any customer adjustments**).

After resetting, the weighing system can be reached via the factory default IP address 192.168.0.55 and port 23 or the customer specific default address for customer specific types.

Note

The following process corresponds to the MT-SICS command FSET 1 for resetting the weighing system.

1 Use a thin object to reach the button "Set / Reset" on the electronic unit.

2 Press and hold the button "Set / Reset" until the LED "System Status" flashes green.



3 Release the button "Set / Reset".

4 Wait 2 seconds (min. 1 second, max. 5 seconds).

5 Press and hold the button "Set / Reset" until the LED "System Status" flashes red.



6 Release the button "Set / Reset".

7 Wait until the weighing system has rebooted with factory default settings.

11 Accessories

Picture	Part	Description	Part number
	Wash-down module	Incl. wash-down adapter weighing pan, O-ring, seal, 4 x M2.5 (Torx T8)	302 363 76
	Stainless steel cover	Incl. o-Ring, 4 x M2.5 (Torx T8) to mount the wash-down module	302 523 74
	Adapter weighing pan wash-down module		302 786 48
	Sensor cable M12f180° – M12m180°	17p 0.5 m	304 195 19
		17p 1.5 m	304 195 20
		17p 3.0 m	304 195 21
	Sensor cable M12f180° – M12m90°DN	17p 0.5 m	305 518 66
		17p 1.5 m	305 518 66
		17p 3.0 m	305 518 98
	Sensor cable M12f90°UP – M12m180°	17p 3.0 m	305 842 76

Picture	Part	Description	Part number
	Sensor cable	17p 3.0 m	305 866 98
	M12f90°DN – M12m180°	17p 1.5 m	305 866 99
		17p 0.5 m	305 861 00
	Level bubble		305 496 37
	Power supply 24 V DC	Input: 100 – 240 V AC, Output: 24 V DC 12W, incl. power plug types A/C/G/I	305 878 64
	PoE injector RJ45		303 261 11
	Converter TCP/IP to RS232		305 905 63

12 Spare Parts

The SPC weighing system cannot be repaired. In case of a defect we recommend to contact METTLER TOLEDO in order to check the system.

The following parts are available as spare parts:

Part	Description	Part number
Weighing pan	Diameter 15 mm (the adapter weighing pan is needed to connect)	300 053 70
Adapter weighing pan	Diameter 14 mm (plastic)	300 053 72
SPC215-100	Spare weight sensor for SPC215	305 862 14
SPC115-100	Spare weight sensor for SPC115	305 862 13
SPC214-100	Spare weight sensor for SPC214	305 862 12
SPC000-011	Spare electronic unit for all SPC weighing system types	305 506 38

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