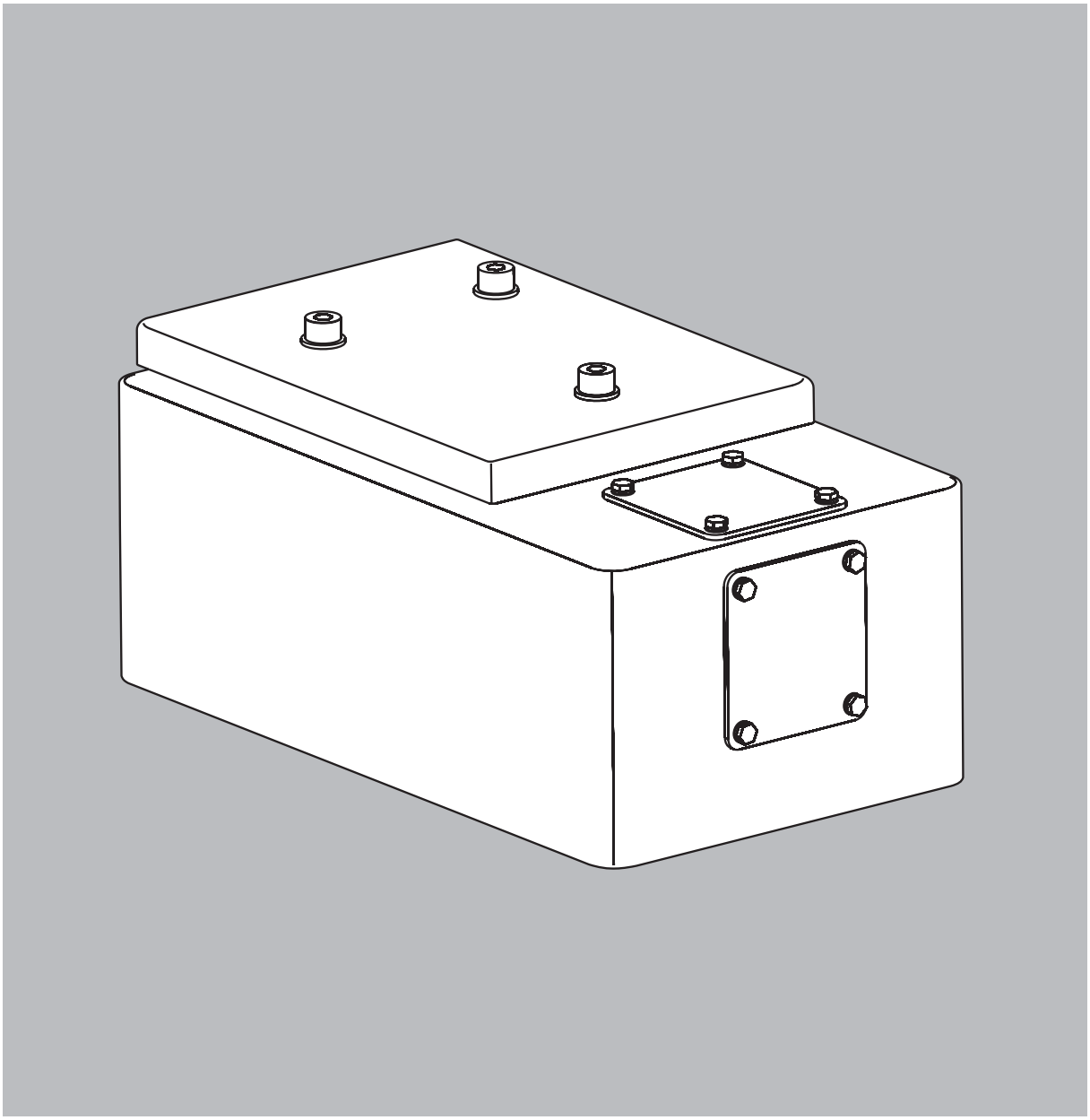
sartorius

Operating Instructions

Sartorius WZG

WZG Weigh Cells



98648-013-54

Contents: CD ROM

– **WZConf Program:**
Configuration Software for WZG Weigh Cells

Documents:
– Installation Instructions for WZG Weigh Cells (this document)

– Operating Instructions: WZConf Configuration Software
(in English)

– CANopen Interface

– xBPI interface
RS-232 Interface with Sartorius xBPI Protocol (in English)

Contents

Intended Use and System Description

The WZ weigh cells have been developed for:
- Installation in measuring devices and production machinery
- Installation in automated production and testing systems
- High-precision weighing within limited space
- Precise weight determination on active production lines

These compact weigh cells can be used to determine weights within restricted space.
The housing is made of stainless steel and is easy to clean.

The weigh cells are available in various versions which cover the capacity range of 1 kg to 20 kg.

The weigh cells function according to the principle of electromagnetic force compensation and feature a patented, cutting-edge, completely monolithic design. This rugged technology delivers the highest weight resolution along with the greatest accuracy and shortest response times.

Signal processing is completely internal via a high-performance microprocessor within the weigh cell, which also handles digital filtering, control and communication.

The regulator and digital filters enable the weigh cell to be adapted to the production conditions at the location where the unit is used.

An auto-zero function that can be deactivated is a standard feature on all weigh cells.
All weigh cells can be equipped with an optional motor decoupling device.

The weigh cell is equipped with the following interface:
- RS-232 with the Sartorius xBPI protocol
- Optional:
  Fieldbus interface (CAN bus)

Technical Features
- Maximum load capacity from 1 kg to 20 kg
- Dead load range from 0 kg to 40 kg (depending on model)
- Internal processing speed: 2 kHz
- 24 VDC supply
- Configurable dynamic filter
- Auto-zero function can be switched off
- Stainless steel housing

Warnings and Safety Precautions

● Once it has been installed, the weigh cell must be checked for the following:
– Compliance with directives and standards for electrical apparatus
– Electromagnetic compatibility of the complete weighing instrument
– Compliance with mandatory safety regulations

● To prevent damage to the equipment, read these installation instructions thoroughly before using your weigh cell.

● These installation instructions describe only the technological specifications of the weigh cell and the conditions that must be observed during installation.

⚠ Always make sure the equipment is disconnected from power before performing any installation, maintenance or repair work.

⚠ The equipment may be opened only by authorized service technicians who have been trained by Sartorius and who follow Sartorius' standard operating procedures for maintenance and repair work.

⚠ Make absolutely sure to disconnect the electronics module from power before you connect or disconnect any electronic peripheral devices (e.g., PC or SPS) to or from the data interfaces.

⚠ Do not use this equipment in hazardous areas, zones exposed to explosive gases or dusts, nor areas exposed to potentially explosive materials.

⚠ Avoid exposing the weigh cell to any forces that could adversely affect weighing results or damage the equipment.

⚠ Use of the weigh cell in areas where medical equipment is operated is not permitted.

⚠ Any incoming inspection or installation work that does not conform to the instructions in this manual will result in forfeiture of all claims under the manufacturer's warranty.

⚠ If you use electrical equipment in installations and under ambient conditions subject to stricter safety standards, you must comply with the provisions as specified in the applicable regulations for installation in your country.

– Warning regarding commercially available interface cables:
RS-232 cables purchased from other manufacturers often have incorrect pin assignments for use with Sartorius equipment. Be sure to check the pin assignments against the chart in these instructions before connecting the cable, and disconnect any lines identified differently from those specified by Sartorius.

– Note on installation:
The operator shall be responsible for any modifications to Sartorius equipment or connections of cables not supplied by Sartorius and must check and, if necessary, correct these modifications. On request, Sartorius will provide information on the minimum operating specifications (in accordance with the standards for defined immunity to interference).

○ If there is visible damage to the equipment or power cord, disconnect the equipment from power and contact your Sartorius dealer to replace the weigh cell and electronics module.

– Do not expose the equipment unnecessarily to extreme temperatures, aggressive chemical vapors, moisture, shocks, or vibration.

○ If you have any problems with the equipment, contact your local Sartorius office, dealer or service center.
For OEM customers, the general Sartorius OEM service guidelines apply.

Hotline

● For technical advice regarding the construction, specifications or installation of these weigh cells, please contact your local Sartorius office or the Sartorius Hotline directly:
Phone: +49 (0) 551 /308-4440
Fax: +49 (0) 551 /308-4449

Key to Model Numbers

○ The model number printed on the manufacturer's label indicates the features with which the weigh cell has been equipped. Below is an example of how to interpret the model number:

Order information Weigh cell: **WZG-10S AN2 T10 Mo2 P10 I65 TR1 U0 A27** (Example)

Maximum load	
1S:	1 kg
2S:	2 kg
10S:	10 kg
20S:	20 kg

Application	
AN2:	Weighing: static

Dead load range [kg]				
	WZG-1S	WZG-2S	WZG-10S	WZG-20S
T0:	0 – 4	0 – 4	T10: 0 – 13	T20: 0 – 13
T1:	4 – 6.2	4 – 6.2	T11: 13 – 17	T21: 26 – 40
T2:		6.2 – 8	T12: 17 – 20	
T3:		8 – 10.2	T13: 20 – 25	
T4:		10.2 – 12.2		
T5:		12.2 – 14		
T6:		14 – 16		

Motor decoupling device	
Mo0:	Without motor decoupling device
Mo2:	With motor decoupling device

Length of interface cable	
P10:	3 meters
P11:	6 meters
P12:	9 meters

IP protection rating	
I44:	IP44
I65:	IP65

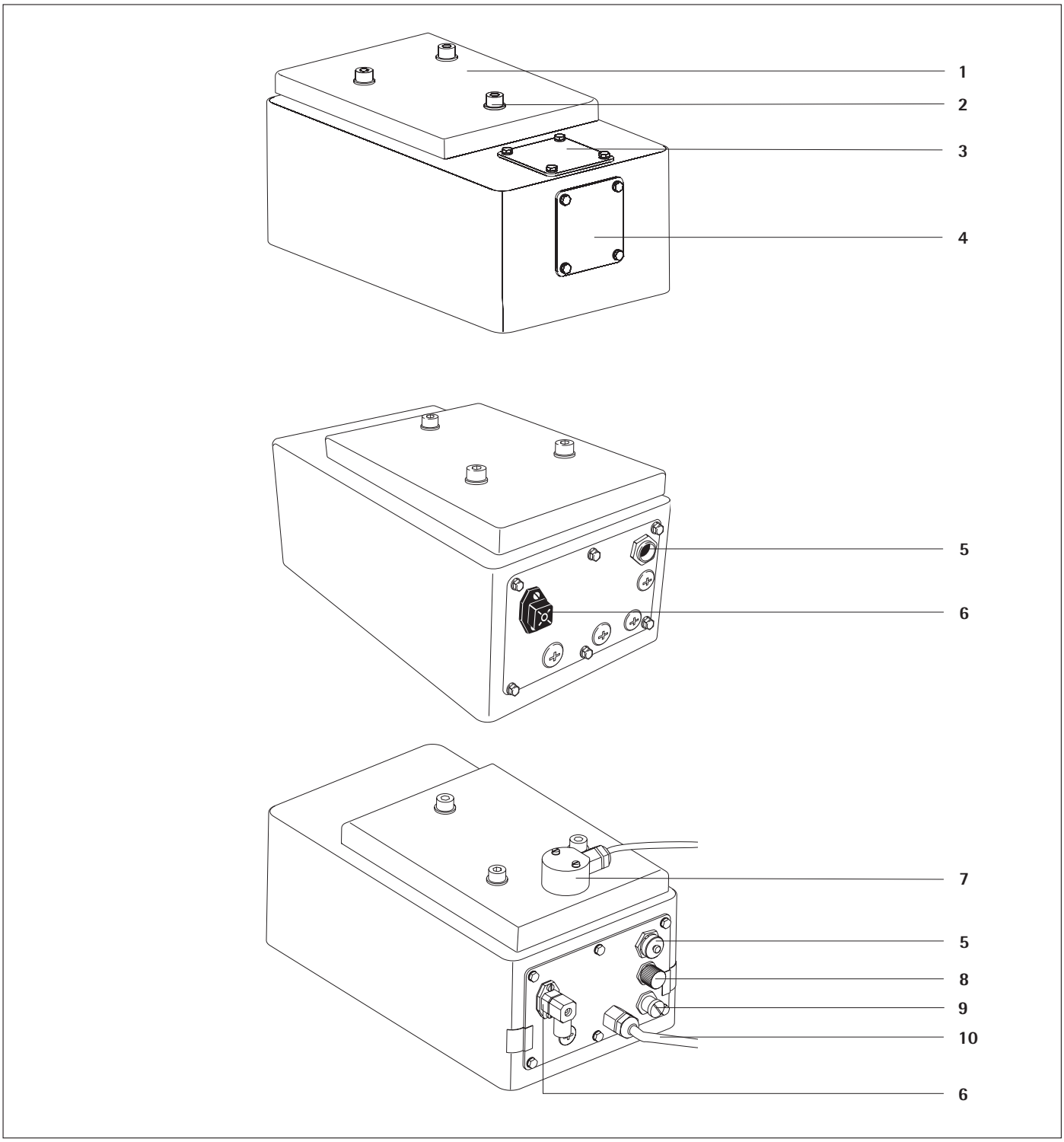
Transport locking device	
TR0:	Without transport locking device
TR1*:	With transport locking device

Port for below-cell weighing	
U0:	Without port
U1*:	With port

Interfaces	
A27:	RS-232
A28:	RS-232 & CANopen

* = Please note: Options TR1 and U1 cannot be combined.

General View of the Equipment



Pos.	Designation
1	Load receptor
2	Screws for load receptor
3	Only for service technicians: preload setting
4	Transport locking device
5	Data interface: RS-232

Pos.	Designation
6	DC jack
7	Motor decoupling device
8	Optional: CANopen bus interface: male connector
9	Optional: CANopen bus interface: female connector
10	Optional: Control for motor decoupling device

Installation

The weigh cells are available in various versions. If you have ordered special options, the weigh cells are equipped with the specified features at the factory. The model label indicates which features have been configured (see the section entitled “Key to Model Numbers”).

Storage and Shipping Conditions

– Once the equipment has been removed from the packaging, it may lose accuracy if subjected to strong vibration. Excessively strong vibration may compromise the safety features of the equipment.
– Do not expose the equipment unnecessarily to extreme temperatures, moisture, shocks, or vibration.
○ It is a good idea to save the box and all parts of the packaging until you have successfully installed your equipment. Only the original packaging provides the best protection for shipment.
○ Before packing your equipment for shipment, unplug all connected cables to prevent damage.
⚠ The equipment must be packed in the original packaging for relatively long-distance shipping. Use of other packaging will void the Sartorius warranty.
○ Do not expose the equipment to gravitational acceleration in excess of ≙ 300 m/s² (unless additional equipment is installed on the load receptor that enables it to withstand this force). Please keep in mind that this level of acceleration can be caused just by firmly placing the weigh cell on a rigid surface.

Incoming Inspection

The customer shall inspect the product and packaging, without undue delay, upon delivery for proper functioning, completeness, and absence of defects. This is to be performed in an incoming inspection within 10 days of delivery of the product. The incoming inspection must take place before the equipment is installed. Any obvious defects, errors, or incorrect delivery must be reported in writing. Defects detected at a later date must be reported in writing immediately upon detection.
Be sure to perform the following as part of the incoming inspection:

– We recommend performing a repeatability test using an auxiliary draft shield to make sure the weigh cells were not damaged in transport. You can use the configuration software included with the weigh cell as an aid for this test.

Equipment Supplied

– Weigh cell
– DC jack (Hirschmann)
– Configuration software
– Interface: RS-232
– Interface cable: weigh cell to PC
– Installation instructions (this document)
– Special accessories as listed on the bill of delivery, if ordered, or in accordance with specific arrangement.

Installation Instructions

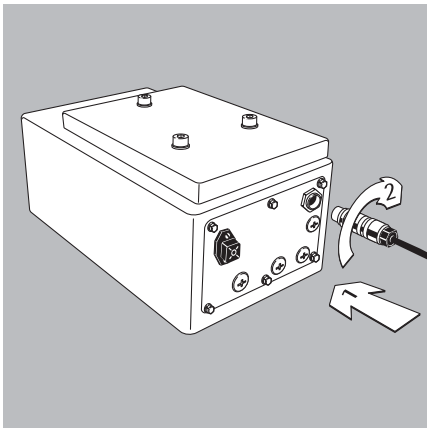
The equipment is designed to provide reliable results under normal ambient conditions. If you have any questions or difficulties when developing your weighing system, please contact the specialists at Sartorius. When designing and setting up your weighing system, please observe the following so that you will be able to work with added speed and accuracy:

– Avoid exposing the equipment to the effects of extremely high temperatures; for example, caused by other electronic components, heaters or direct sunlight.
– Protect the equipment from drafts that come from open windows or doors.
– Avoid exposing the equipment to excessive vibrations during weighing; for example, caused by motors or valves.
– Protect the equipment from aggressive chemical vapors.
– Do not expose the equipment to extreme moisture.
Switch the system to the standby mode when not in use.

⚠ Always calibrate the weigh cell after transport.

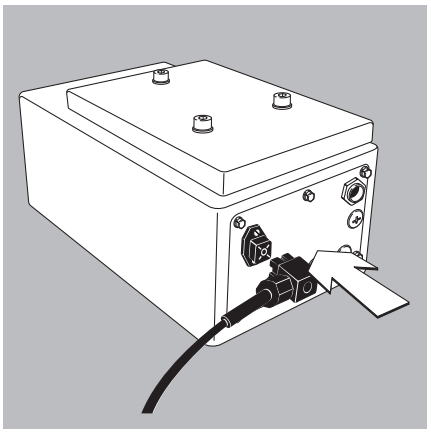
– Equipment installed on the load receptor can interfere with the weigh cell functions. The operator of the equipment accepts all liability for production release and the overall specifications of the particular system. The overall specifications attained by your system may differ from the specifications listed for the weigh cell in these instructions.

Conditioning the Equipment:
Moisture in the air can condense on the surface of a cold weighing instrument or other device whenever it is moved to a substantially warmer place. If you transfer the equipment to a warmer area, make sure to condition it for about 2 hours at room temperature, leaving it unplugged from AC power.



Connecting the Weigh Cell to a PC

– Plug in the male connector on the interface cable supplied as follows:
12-pin round connector in RS-232 interface on the weigh cell and
9-contact D-SUB in COM interface on the PC



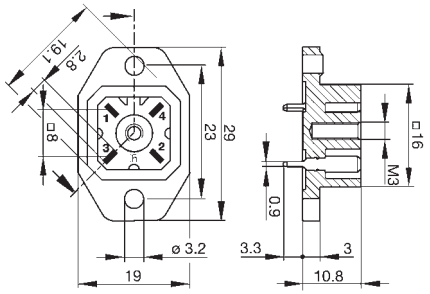
Connecting the Weigh Cell to AC Power

- ● Check the voltage rating and the plug design.
  If they do not match your local rating or standard, contact your supplier.
  Use only:
- – Genuine Sartorius AC adapters or power supplies, or
- – AC adapters or power supplies approved by an authorized technician

- ○ Power is supplied over the DC jack (Hirschmann connector).
  If the voltage specified on the label or the plug design of the AC adapter does not match your local rating or standard, please contact your nearest Sartorius office or dealer.
- ○ Supply voltage:
  The weigh cell can be operated with a supply voltage of 12V to max. 26V.
- ⚠ The power connection must be made in accordance with the regulations applicable in your country.

Safety requirements for operation of the evaluation electronics connected to a safety extra low voltage (SELV) source:
The external power supply must meet the requirements of EN 61010-1, Section 6: "Protection Against Shock Current." Please also refer to the specifications for classification of electrically operated equipment in EN 61010-1, Appendix H.

Safety Precautions:
The power supply must be rated to safety extra low voltage (SELV) or grounded (earthed) safety extra low voltage (SELV-E).
An AC adapter rated to Class 2 can be plugged into any wall outlet with no additional safety precautions required. The ground terminal is connected to the weigh cell housing. The electronics module must be grounded for operation. The data interface is also electrically connected (grounded) to the weigh cell housing.



Dimensions in mm

Pin assignment for the connector:
Pin 1: "plus"
Pin 2: "minus"

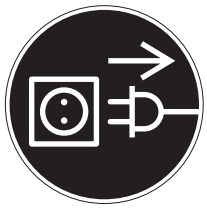
EMC requirements:
The connector is designed for DC connections between equipment that is not connected to a DC power supply. The cable length must not exceed 3 m.

To use an external power supply, the power source must meet the requirements of EN61326. The following standards apply:

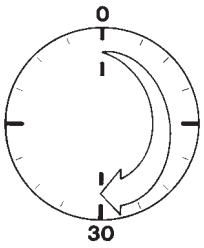
Fast transients	IEC61000-4-4
Surge voltage	IEC 61000-4-5
Conductive HF signals	IEC61000-4-6

Built-in connector on weigh cell	Type G 30 A 5 M
Socket for the above connector (supplied)	Type G 30 KW 3 F 2m, G 30 W 3 F

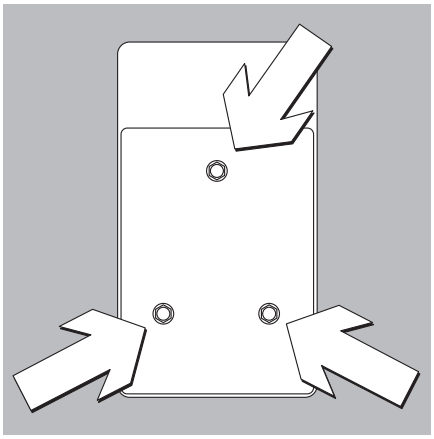
Available from:
Hirschmann Electronics GmbH & Co.
Stuttgarter Strasse 45-51
72654 Neckartenzlingen
Germany



Connecting Electronic Peripheral Devices
- ● Make absolutely sure to unplug the weigh cell from AC power before you connect or disconnect a peripheral device (display and control unit or PC) to or from the interface port.



Warm-up Time
The amount of warm-up time required depends in part on the system in which the weigh cell is installed. To deliver exact results, the weigh cell must warm up for at least 30 minutes after it is switched on. Only after this time will the device have reached the required operating temperature.

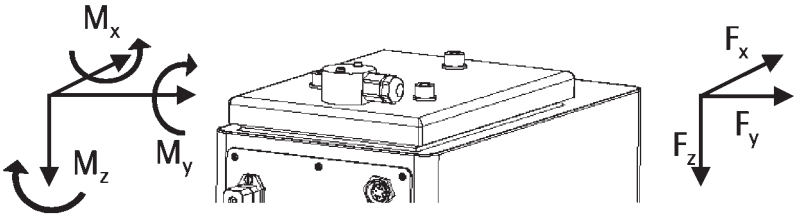


Attaching the User-Specific Transducer

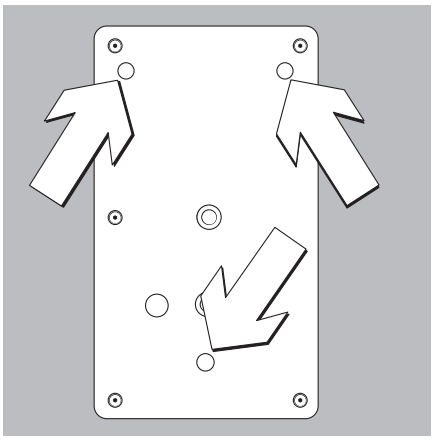
- Attach any user-specific transducer to the threaded fastener (M8) on the load receptor and tighten it as indicated in the table below listing the torque values.

⚠ Make sure the user-specific transducer is rigid and firmly attached to the load receptor.

Maximum torque for load receptor screws and user-specific transducer:



Model	M_x	M_y	M_z	F_x , approx.	F_y , approx.	F_z , approx.
WZG1, WZG2	40 Nm	50 Nm	46 Nm	400 N	400 N	300 N
WZG10	40 Nm	50 Nm	56 Nm	800 N	800 N	600 N
WZG20	40 Nm	50 Nm	56 Nm	1000 N	1000 N	1000 N

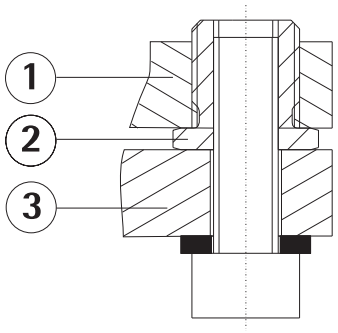


Permanently installed weigh cells

- Adjust the weigh cell after it has been installed in the system in its permanent location (see page 12).
  The weigh cell must be adjusted again any time the location or position of the weighing system is changed.

- For optimum operation, install the weigh cell in a horizontal position.

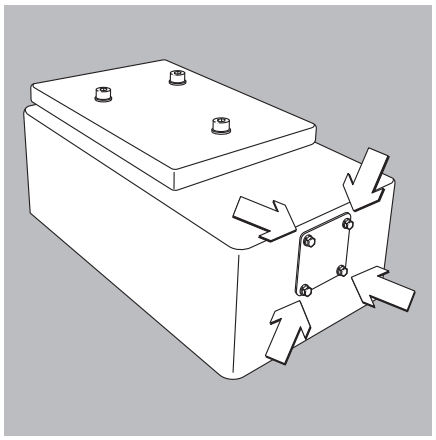
- 3 fastening screws (see arrows): 3x M12 and 12 mm deep



- The base plate should be separated from the fastening plate on the weigh cell by spacers on the screws.
- Placing the base plate flat onto the unit without spacers will cause mechanical tension and result in malfunction of the weigh cell.

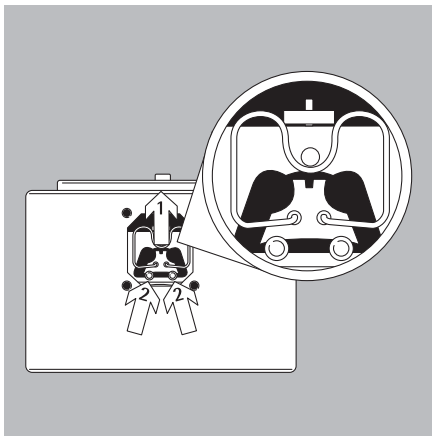
1) Base plate of the weigh cell
2) Spacers
3) Fastening device for the system

- How to attach the plate using M12 screws:
  Attach the plate to the threaded fasteners on the weigh cell: torque should be at least 24 Nm



Removing the Transport Locking Device on WZG-1 and WZG-2 Weigh Cells:

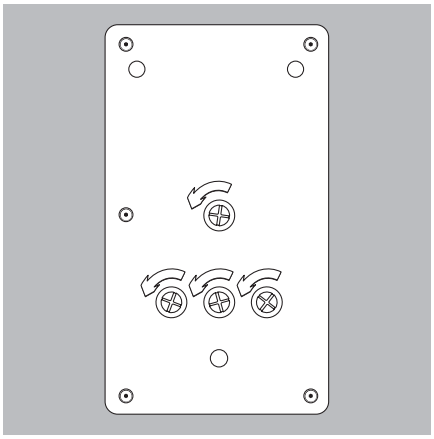
- To remove the plate, loosen and remove the screws.



- Hold the clamp **(1)** at the top and pull it outward.
- Pull out the 2 bolts **(2)**.
- Replace the plate and fasten it using the 4 screws.
- ○ Save the clamp and bolts, and place them inside the pocket located on the last page of these instructions.

Optional Transport Locking Device

- ○ **Purpose:** The optional transport locking device is used to secure the weigh cell for transport. This is useful if the unit is mounted on an anti-vibration balance table or if a device (such as a belt conveyor) is attached to the load plate.



- ○ If the weigh cell is installed in a system with an anti-vibration balance table: Ensure that these screws are easily accessible throughout the entire system configuration.

To loosen the transport locking device:

- Unscrew the 4 yellow plastic plugs.
- Remove the 4 hexagon socket screws (M6 x 30).
- Afterwards, replace the 4 plastic plugs.

Information on Using Weigh Cells

Handling of Samples and Containers
Samples should be acclimatized to the temperature of the weigh cell to avoid negative effects on results, such as measurement errors and fluctuations caused by air buoyancy resulting from convection currents across the surface of the sample.

These negative effects increase as the volume and/or surface area of the sample increases. For this reason, the size of the container should be appropriate for the sample.

When designing a draft shield device, steps must be taken to keep the increase in temperature within the weighing chamber to a minimum (e.g., using a bypass).

Weighing Electrostatically Charged Samples or Containers
If a sample or container is electrostatically charged, significant errors may result during weighing. Materials with low conductivity, such as glass, plastic or filters, are particularly susceptible to static electricity (resulting, e.g., from friction) because the weighing pan can discharge the static electricity only very slowly.

The result is a force action between the charge on the sample and the permanently installed parts of the weigh cell. This causes the readout to fluctuate constantly.

Ionization can be applied to make the air around the sample conductive. This allows the charge to be compensated through the air or discharged through the ground (grounded).

Aside from purely mechanical solutions (e.g., using a special weighing pan to shield the system), bombarding the sample with ions of opposing polarity to neutralize the surface charge is one of the most effective methods for eliminating static electricity. Sartorius can provide ionization devices for installation in weighing systems.

The area around the weigh cell can also contain charges that negatively affect the accuracy of weighing results. Appropriate steps taken in the design of a draft shield device can counteract such effects.

Weighing Magnetic or Magnetizable Samples
For technical reasons, the use of magnetizable materials in the manufacture of weigh cells is unavoidable, primarily because the operating principle of high-resolution weigh cells is based on compensation of the load through magnetic forces.

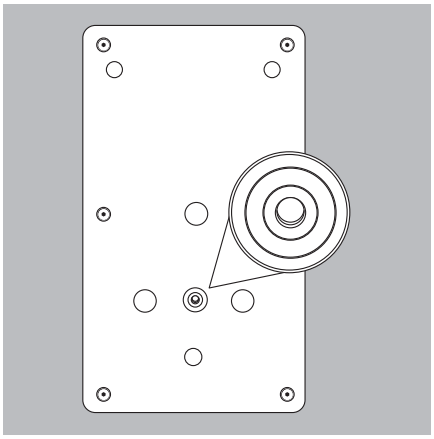
When weighing magnetic or magnetizable samples or containers, interaction between the sample or container and certain parts inside the weigh cell may distort the weighing results.

To keep such effects to a minimum, we recommend increasing the distance between the sample/container and the weighing system using a non-magnetic material. The force is reduced quadratically with the increase in distance.

Calibration/Adjustment

Calibration/adjustment can be performed as follows:

– Using control commands sent in xBPI mode by the WZConf configuration software from Sartorius installed on a computer (see page 15 for the commands).



Optional Below-Cell Weighing

Purpose
A port for a below-cell weighing is located on the bottom of the weigh cell.

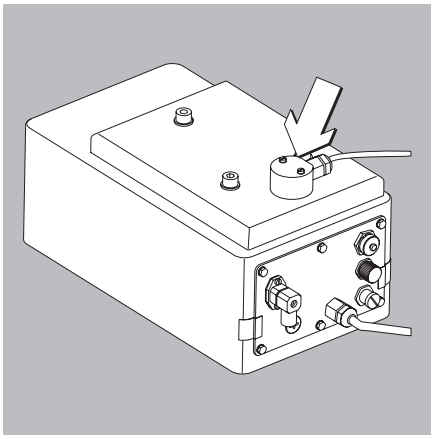
● Remove the cover plate. Threaded fastener for hook: M6

● Carefully install the spacing bolts included with the weigh cell: max. torque: 3 Nm

● Carefully install the hook included as standard equipment: max. torque: 3 Nm

○ If necessary, install a shield for protection against drafts.

⚠ This reduces the IP protection rating to IP32.



Optional Motor Drive Connection

Purpose
If you wish to install a transport device on the load plate, you can have the weigh cell equipped at the factory with a connection for an asynchronous drive motor by indicating your requirements when you place your order. With this option, the supply voltage for the motor does not affect the weighing system.

Specification

– Connection values: asynchronous motor power supply and drive

For each phase: L1 (black)/L2 (black)
L3 (brown)

I_{nom}	625 mA_{eff}
I_{max}	2A_{eff} (for at least 3 sec)
U_{max}	400V_{eff}
P	< 0.75 kW

Signal and control lines

S1 (white)/S2 (white)

I_{max}	50 mA
U_{max}	42 V

Protective grounding conductor (protective earth; PE) (green and yellow)

I_{max}	2 A

Impedance: < 0.3 ohms

Provide fuse protection for the connected motor with max. 16A as described in EN 6010

– Connecting cable: SI-TPE, highly flexible, black; oil resistant, ozone resistant, 6 x 0.5 mm^2 (copper tinned)

RAL color-coded wires: 2 white (S1/S2), 2 black (L1/L2), 1 brown (L3); 1 green and yellow (PE)
The wires for the junction box are connected to the wires for the motor drive inside the weigh cell.

Wire outer diameter:	2.2 mm
Ohmic resistance at 20°C max.	40.1 ohms/km (as described in DIN VDE* 0812)
Nominal voltage	300/500V

– If the connected motor is powered via a frequency converter, interference may be caused by emission of electromagnetic radiation. Please observe the recommendations of the manufacturer or supplier of the frequency converter. The person or persons responsible for installation shall be responsible for the elimination of any interference.

* VDE = Association for Electrical, Electronic & Information Technologies

Factory Settings (Setup)

Purpose
The weigh cell is configured at the factory. The factory settings can be adapted to your special requirements with the "WZConf" configuration software.

Factory Settings for Menu Parameters
The factory-set configurations are identified by an "o" in the list below.

Preparation

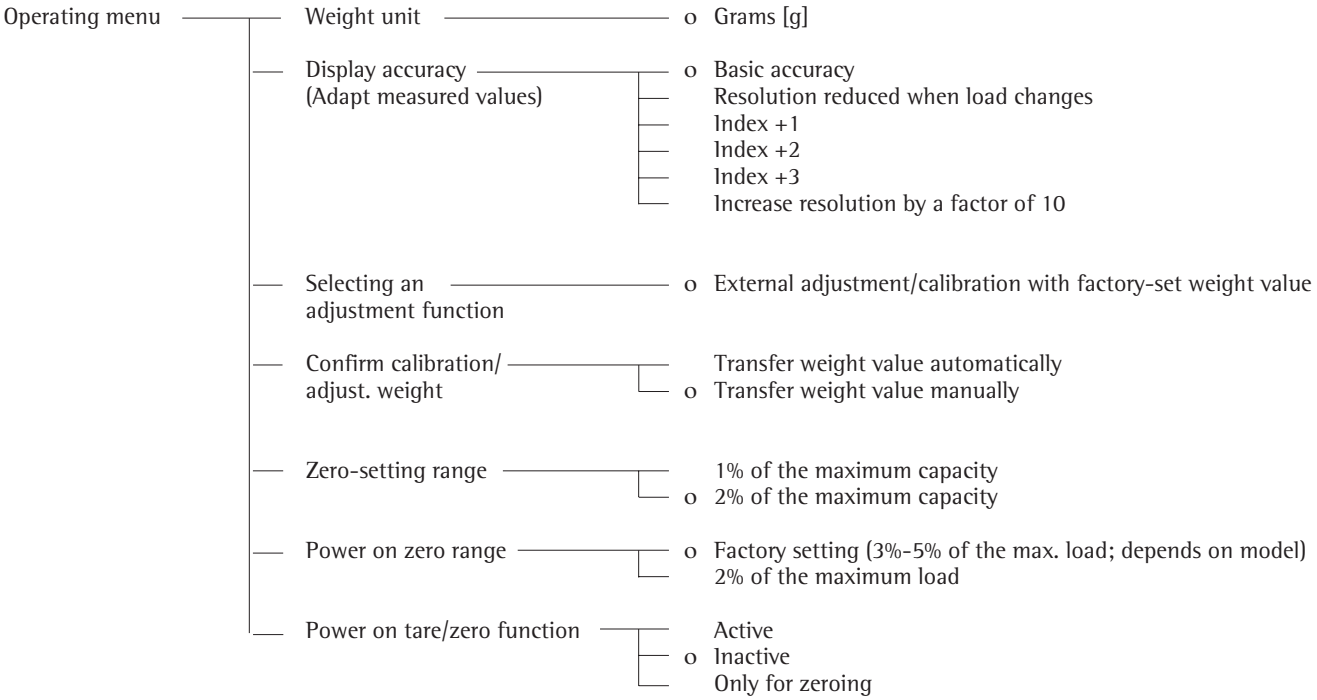
○ Using the WZConf configuration software from Sartorius installed on a computer, you can process the operating menu parameters as follows:
- read
- edit
- print
- save

○ The "Adapt filter to ambient conditions" option affects the speed with which the display is updated. To set the maximum weighing cycle, select "Very stable conditions."

Parameter Settings (Overview)

o Factory setting
√ User-defined setting

- Operating menu
  - Adaptation to ambient conditions
    - Very stable conditions
    - o Stable conditions
    - Unstable conditions
    - Very unstable conditions
  - Application filter (Adaptation to Application)
    - o Standard weighing mode (filter on)
    - Manual filling (filter with faster reaction to minor changes)
    - Weighing with computer-aided filling processes
    - Checkweighing mode
  - Stability range
    The stability symbol remains displayed when the value is stable in this range (+/–).
    - o 0.25 digit
    - 0.5 digit
    - 1 digit
    - 2 digits
    - 4 digits
    - 8 digits
  - Stability (symbol) delay
    - No delay
    - o Short delay
    - Long delay
    - Extremely long delay
  - Tare conditions
    - o At any time
    - Not until the readout is stable
  - Auto-zero function
    - o Auto zero on
    - Auto zero off


Operating menu
Weight unit
o Grams [g]
Display accuracy
(Adapt measured values)
o Basic accuracy
Resolution reduced when load changes
Index +1
Index +2
Index +3
Increase resolution by a factor of 10
Selecting an
adjustment function
o External adjustment/calibration with factory-set weight value
Confirm calibration/
adjust. weight
Transfer weight value automatically
o Transfer weight value manually
Zero-setting range
1% of the maximum capacity
o 2% of the maximum capacity
Power on zero range
o Factory setting (3%-5% of the max. load; depends on model)
2% of the maximum load
Power on tare/zero function
Active
o Inactive
Only for zeroing

RS-232 Interface Port

Purpose
The weigh cells are equipped with a data interface for connection to a computer or other peripheral device.

Computer
You can connect a computer to change, start and monitor weigh cell functions.

Preparation
- Please see the pin assignment chart and cabling diagram on page 17.

xBPI Operating Mode

For information on the basic functions of the interface in Sartorius xBPI mode, please see the enclosed CD-ROM. Please observe the detailed information about the individual commands. The available functions of this weigh cell and associated commands are listed in the following section:

Features

Type of interface:	Serial interface
Operating mode:	Full duplex
Standard:	RS-232
Transmission rate:	9600 baud
Parity:	Odd
Character format:	Start bit, 7-bit ASCII, parity, 1 stop bit
Handshake mode:	Hardware, 2 characters after CTS
Operating mode:	xBPI

xBPI Commands (Overview)

Command	Function no.	Selection
Device information:		
Read software version	0x00	
Read factory number	0x01	
Read weigh cell model	0x02	
Read user ID	0x03	
Write user ID	0x04	
Read OEM text	0x05	
Read manufacturer	0x07	
Read configuration data	0x0A	
Read balance info	0x0F	
Metrological data:		
Read max	0x0C	
Area 0		00
Area 1		01
Area 2		02
Area 3		03
Read increment D	0x0D	
Area 0		00
Area 1		01
Area 2		02
Area 3		03

Command	Function no.	Selection
Tare and zeroing functions:		
Delete tare	0x13	
Delete tare		00
Delete appl tare 1		01
Delete appl tare 2		02
Initiate combined tare function	0x14	
Abort combined tare function	0x15	
Initiate tare	0x16	
Abort tare	0x17	
Initiate zeroing	0x18	
Abort zeroing	0x19	
Initiate appl tare	0x1A	
Appl tare 1		01
Appl tare 2		02
Abort appl tare	0x1B	
Appl tare 1		01
Appl tare 2		02
Read appl tare	0x1C	
Appl tare 1		01
Appl tare 2		02
Write appl tare	0x1D	
Preset tare 1		01
Preset tare 2		02

Command	Function no.	Selection
Weight output:		
Read net weight with standard resolution	0x1E	
Read net weight with increased resolution	0x1F	
Net weight (Standard resolution)		00
Net weight (10x resolution)		01
Net weight (100x resolution)		02
Read gross weight with standard resolution	0x20	
Read gross weight with increased resolution	0x21	
Gross weight (Standard resolution)		00
Gross weight (10x resolution)		01
Gross weight (100x resolution)		02
Read tare	0x22	
Presettings:		
Read weighing mode	0x26	
Write weighing mode	0x2C	
Very stable conditions		01
Stable conditions		02
Unstable conditions		03
Very unstable conditions		04
Read menu from EEPROM	0x46	
Save menu in EEPROM	0x47	
Read user memory (ISI scratch)	0x4A	
Write user memory (ISI scratch)	0x4B	
Read stop flags	0x54	
timeless menu index		00
Read parameter table	0x55	
Timeless menu index		00
Write parameter table	0x56	
Timeless menu index		00
Value		00

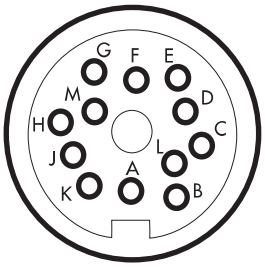
Command	Function no.	Selection
Calibration and adjustment functions:		
Start adjustment	0x28	
Set preload		112
Delete preload		113
Accept weight		114
Determine internal calibration weight		116
External adjustment with user-defined weight		117
External adjustment with default weight		119
Internal adjustment		120
External linearization with default weight		122
External linearization with user-defined weight		123
Abort adjustment	0x29	
Read temperature sensors	0x76	
Temp. sensor 0		00
Temp. sensor 1		01
Temp. sensor 2		02
Temp. sensor 3		03
Read adjustment unit	0x78	
Write adjustment unit	0x79	
Grams		02
Kilograms		03
Carats		04
Status of weigh cell:		
Read gross bar graph	0x2F	
Read balance status block	0x30	
Read balance status	0x32	
Read time stamp	0x35	
Read on/off status	0x36	
Read cycle time	0x57	
Basic functions:		
Reconfiguration	0x40	
Reset temporary errors	0x41	
Initiate reset	0x58	
Warm start / menu reset		00
Cold start / power-up reset		01
Data interface:		
Set baud rate	0x5c	
9600 baud		00
19200 baud		01
38400 baud		02
57600 baud		03
Read SBN address	0x71	
Write SBN address	0x72	

Pin Assignment Chart

Female interface connector:
12-contact, round female connector with screw-lock hardware

Compatible male connector:
Type C091D, 12-pin, round male connector with screw-lock hardware, Amphenol (IP65), Sartorius round male connector, order no.: 69QC0010

Pin Assignment Chart:



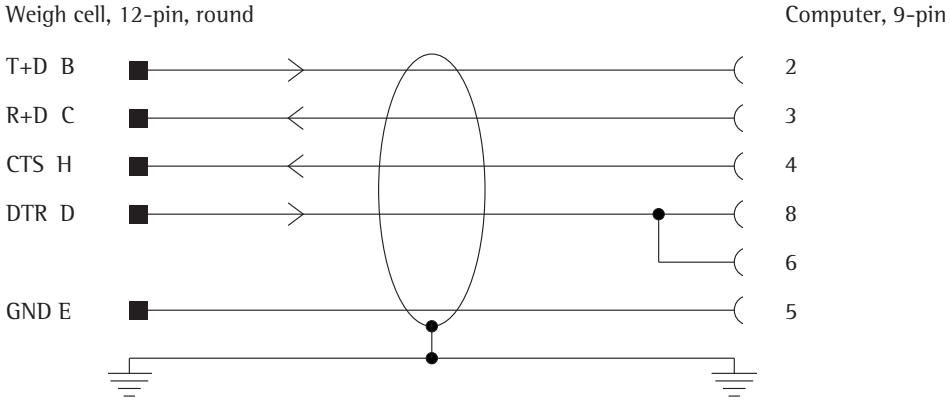
12-pin. round connector	Signal RS-232 Adapter xBPI)
A	Ext. GND
B	Data output (T+D)
C	Data input (R+D)
D	Data terminal ready (DTR)
E	Signal GND
F	Not connected
G	Not connected
H	Clear to send (CTS)
J	Not connected
K	Not connected
L	Not connected
M	Not connected

Provide a low-resistance connection between shield and connector casing.

Wiring Diagram

For connecting a computer or other peripheral device to the weigh cell using the RS-232C/V24 protocol and cable lengths of up to 15 m (approx. 49 ft.)

Important: Do not connect any other pins in the weigh cell.

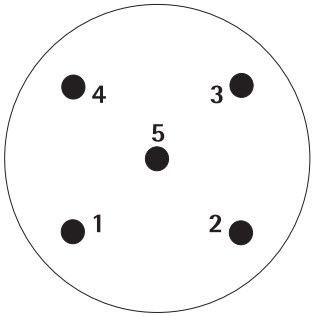


Cable type: AWG 24 specification
Provide a low-resistance connection between shield and connector casing.

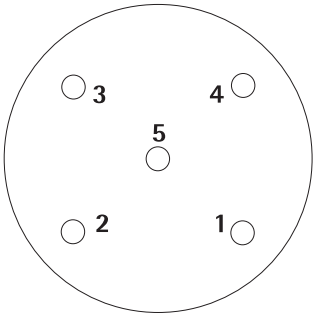
Optional Data Interface: CANopen

Interface:

5-contact, M12, A-coded



Male connector



Female connector

Pin Assignment Chart:

5-contact D-Submini:

Pin	Signal	Description
1	(CAN_SHLD)	Optional CAN shielding
2	(CAN_V+)	Optional external positive CAN supply (to supply tranceivers and optocouplers if bus nodes are electrically isolated)
3	CAN_GND	Ground / 0V V-
4	CAN_H	CAN_H bus line (dominant high)
5	CAN_L	CAN_L bus line (dominant low)

The plugs must be wired in accordance with IEC 60947-5-2.

CANopen Operating Mode

For information about the functions of the standard CANopen interface, please see the “WZG Weigh Cells” CD-ROM that is included with the weigh cell.

Care and Maintenance

Repairs
Repair work may be performed only by authorized Sartorius service technicians. Any attempt by untrained persons to perform repairs may result in considerable hazards for the user.

Cleaning
When cleaning the weigh cell, please observe the following and proceed with care as required:

⚠ Do not allow any substances or cleaning products to enter the weigh cell housing or come into contact with the electronic components of the weigh cell.

- Use only cleaning products that will not damage the materials comprising the weigh cell or its PCB or electronic components.

- During cleaning, the electronics of the weigh cell may not be connected to AC power (power supply).

- Disconnect the weigh cell from AC power and unplug the interface cable from the weigh cell, if applicable.

Safety Inspection
If there is any indication that safe operation of the weigh cell with the AC adapter is no longer warranted:

- Turn off the power and disconnect the equipment from AC power immediately.

> Lock the equipment in a secure place to ensure that it cannot be used for the time being.

Notify your nearest Sartorius Service Center or the International Technical Support Unit based in Goettingen, Germany. Maintenance and repair work may be performed only by authorized Sartorius service technicians who have access to the required maintenance manuals and have received the necessary training.

We recommend having the power supply inspected by a certified electrician at regular intervals according to the checklist below:
– Insulating resistance > 7 MOhm measured with a constant voltage of at least 500 V at a 500 kOhm load
– Leakage current < 0.05 mA measured with a properly calibrated multimeter

Instructions for Recycling

If you no longer need the packaging after successful installation of the equipment, you should return it for recycling. The packaging is made from environmentally friendly materials and is a valuable source of secondary raw material.

The equipment, including accessories and batteries, may not be disposed of as ordinary household waste. European Union regulations require electric and electronic devices to be disposed of separately from unsorted municipal waste so that they may be subsequently recycled.

In Germany and some other countries, Sartorius AG will take back electric and electronic equipment and packaging for disposal in accordance with the applicable laws. These products may not be disposed of as household waste or at collection points designated by local public waste disposal companies. This applies to small businesses as well.

In Germany and in member nations of the European Economic Area, please contact your local Sartorius service provider or the Sartorius Service Center in Goettingen, Germany, if you need to recycle equipment or packaging material:

Sartorius AG
Service Center
Weender Landstrasse 94-108
37075 Goettingen
Germany

If you set up the equipment in a country that is not a member of the European Economic Area or does not have a Sartorius branch office, please contact your local waste disposal authorities or disposal company for information on similar services.

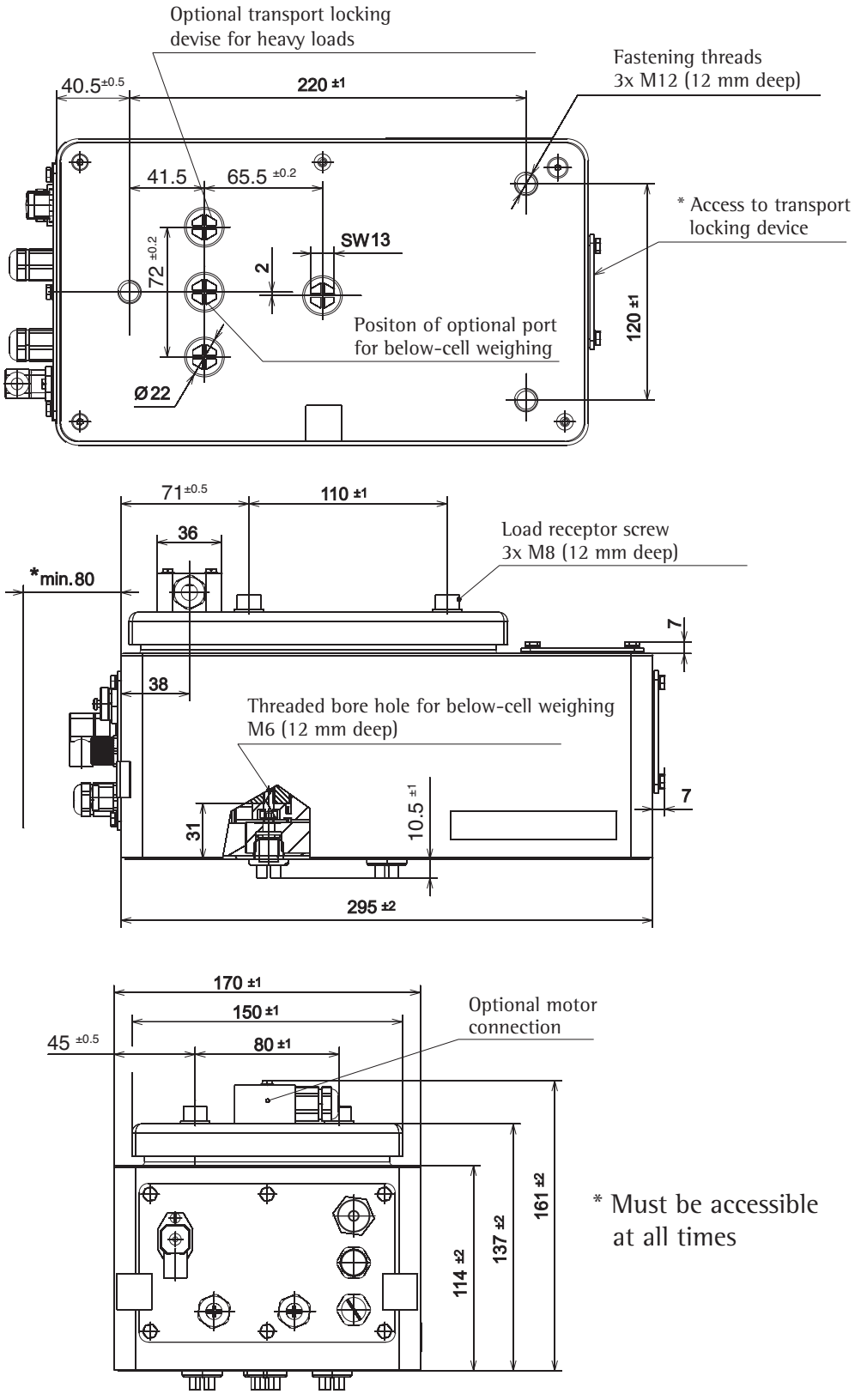
Equipment that has been contaminated with hazardous substances (ABC contamination) will not be accepted for repair or recycling. Please refer to our website (www.sartorius.com) for service addresses and extensive information on repairing or recycling your equipment. This information is also available from the Sartorius Service Center on request.

Specifications

	Standard data				User-specific modifications
Weigh cell (model)	**WZG-1**	**WZG-2**	**WZG-10**	**WZG-20**	
Maximum load capacity	1 kg	2 kg	10 kg	20 kg	
Dead load range, additive	0 – 6.2 kg	0 – 16 kg	0 – 25 kg	0 – 40 kg	
Recommended max. platform size [mm]	500 × 300	500 × 300	600 × 400	800 × 500	
Resolution d	0.01 g	0.01 g	0.1 g	0.1 g	
Repeatability (standard deviation) [1])	≤ ± 0.02 g	≤ ± 0.04 g	≤ ± 0.1 g	≤ ± 0.2 g	
Linearity	≤ ± 0.05 g	≤ ± 0.1 g	≤ ± 0.2 g	≤ ± 0.4 g	
Response time (typical) [1])	100 ms	100 ms	120 ms	150 ms	
Operating temperature	0 °C to +40 °C				
DC power supply [2])	12 – 26 VDC / ± 10%				
Power consumption	8 W max.				
Serial interface: RS-232	RS-232C-S/V24-V28; 7-bit; parity: even, mark, odd, space; transmission rates: 150 to 19,200 baud, 1 or 2 stop bits, software/hardware handshake				
Optional interface: CAN-Bus	ISO 11898-compatible (electrically separated)				
Max. insulating voltage	500 V				
Max. baud rate	1 Mbps				
Allowable cable length	≤ 20 m				
Other specifications:					
Options	Motor decoupling device, transport locking device				
Limitation of emissions	In accordance with EN61326+A1 Class B (IEC61326+A1)				
Defined immunity to interference	In accordance with EN61326+A1, industrial areas (IEC61326+A1)				
Protection rating against foreign objects and water	IP65 (IP44) in accordance with VDE 0470/ DIN EN 60529				
Weight	Approx. 12 kg				

1) Depends on system design
2) The plug is for DC connections between devices that are not linked to a DC network. The cable length may not exceed 3 meters.

Dimensions (Scale Drawings)



All dimensions given in millimeters.

Accessories (Options)

Product	Order No.
SartoConnect data transfer software (for loading weight values on a PC running Windows 95/98/NT and processing them directly with application programs such as MS Excel, Access, etc.) Incl. adapter cable (1.5 m) from weigh cell to PC (12-pin. to 9-pin.).	YSC011
Other data interfaces	Available on request
AC adapter: ING-2 IP65 protection rating in accordance with DIN VDE 0470/529	
– Europe	6971899
– US (120V, UL/CSA)	6971500
– UK	6971889

Additional options and accessories available on request

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