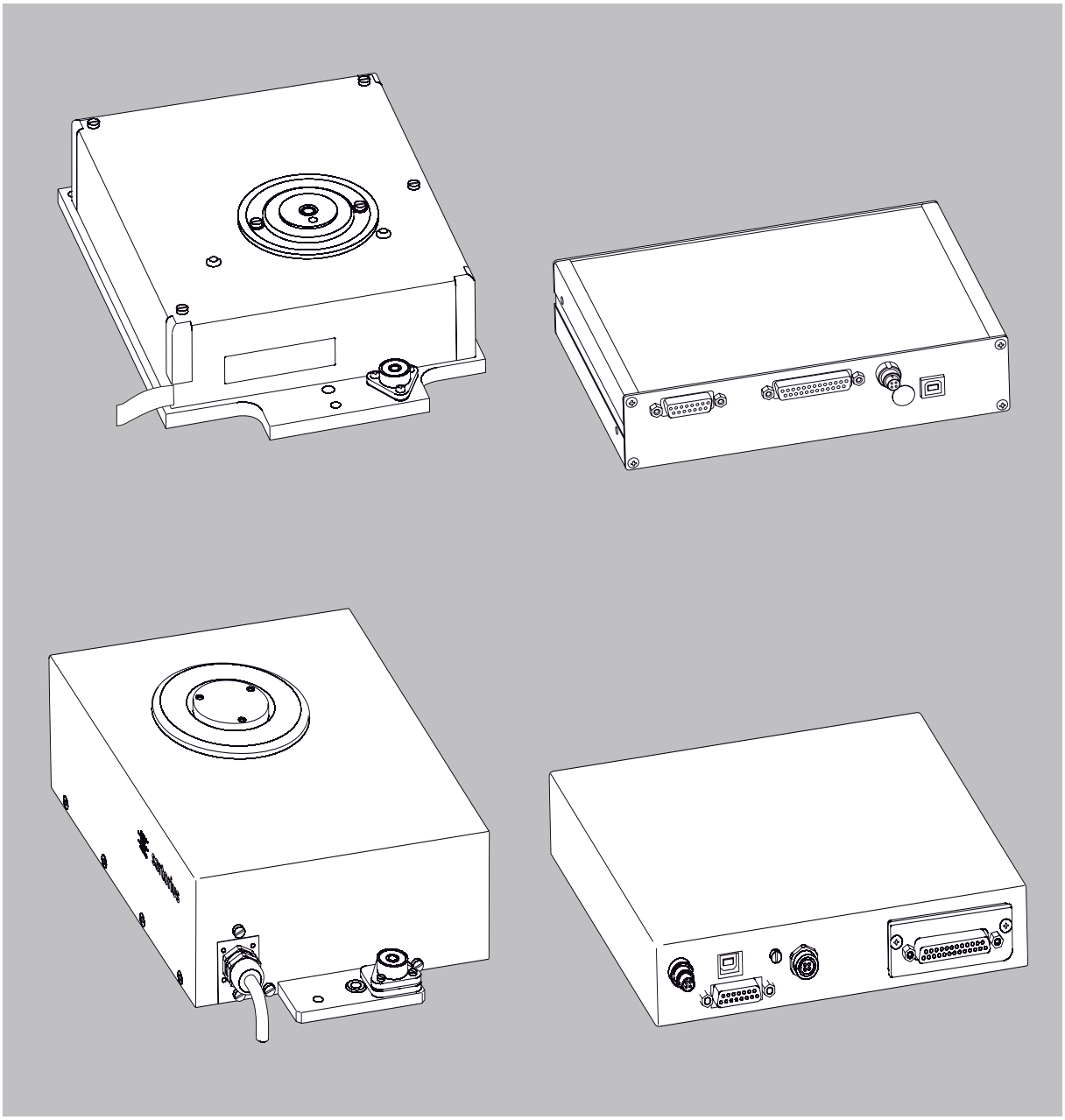
Installation Instructions

Sartorius Weigh Cells

Models WZA614-NC, WZA215-LC, WZA245-NC, WZA26-NC



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Contents

Intended Use

Weigh cells have been developed for
- Use in measuring devices and production machinery
- High-precision weighing within limited space
- Precise weight determination on active production lines

⚠ **Model WZA215-LC: This device is a module designed for installation in a weighing system and thus cannot be used directly without additional provisions. The direct sale to end customers is not permitted due to the lack of a CE marking.**

System Description

The products are comprised of two components:
- A compact weigh cell that must be secured at three points
- Electronics unit
- These compact weigh cells can be used to determine weights within restricted space.

Warning and Safety Instructions

Safety

● The user of the weigh cell should take into account at least the following points with regards to the complete product with the installed weigh cell:
- Compliance with directives and standards for electrical equipment
- Electromagnetic compatibility of the complete device
- Compliance with mandatory safety regulations.

● Read these installation instructions thoroughly before using your weigh cell. That way you will prevent damage to the equipment.

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

⚠ Always make sure that the equipment is disconnected from power before performing any work on it.

Installation

⚠ Do not use this equipment in hazardous areas, zones exposed to explosive gases or dusts, or areas exposed to potentially explosive materials.

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

⚠ Do not mix and match weigh cells and electronics units:
Only connect devices that are made to be operated together. Make sure that the serial numbers match.

⚠ Any improper handling, modifications, or installation work will result in forfeiture of all claims under the warranty.

⚠ The requirements pertaining to applicable installation regulations must be followed when using electrical equipment in systems and ambient conditions with increased safety requirements.

- Warning when using RS-232 cables purchased from other manufacturers:
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 this manual 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 and for any connections of cables or equipment not supplied by Sartorius and must check and, if necessary, correct these modifications and connections.

○ If there is visible damage to the components: Disconnect from the supply voltage and replace the weigh cell and electronics unit.

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

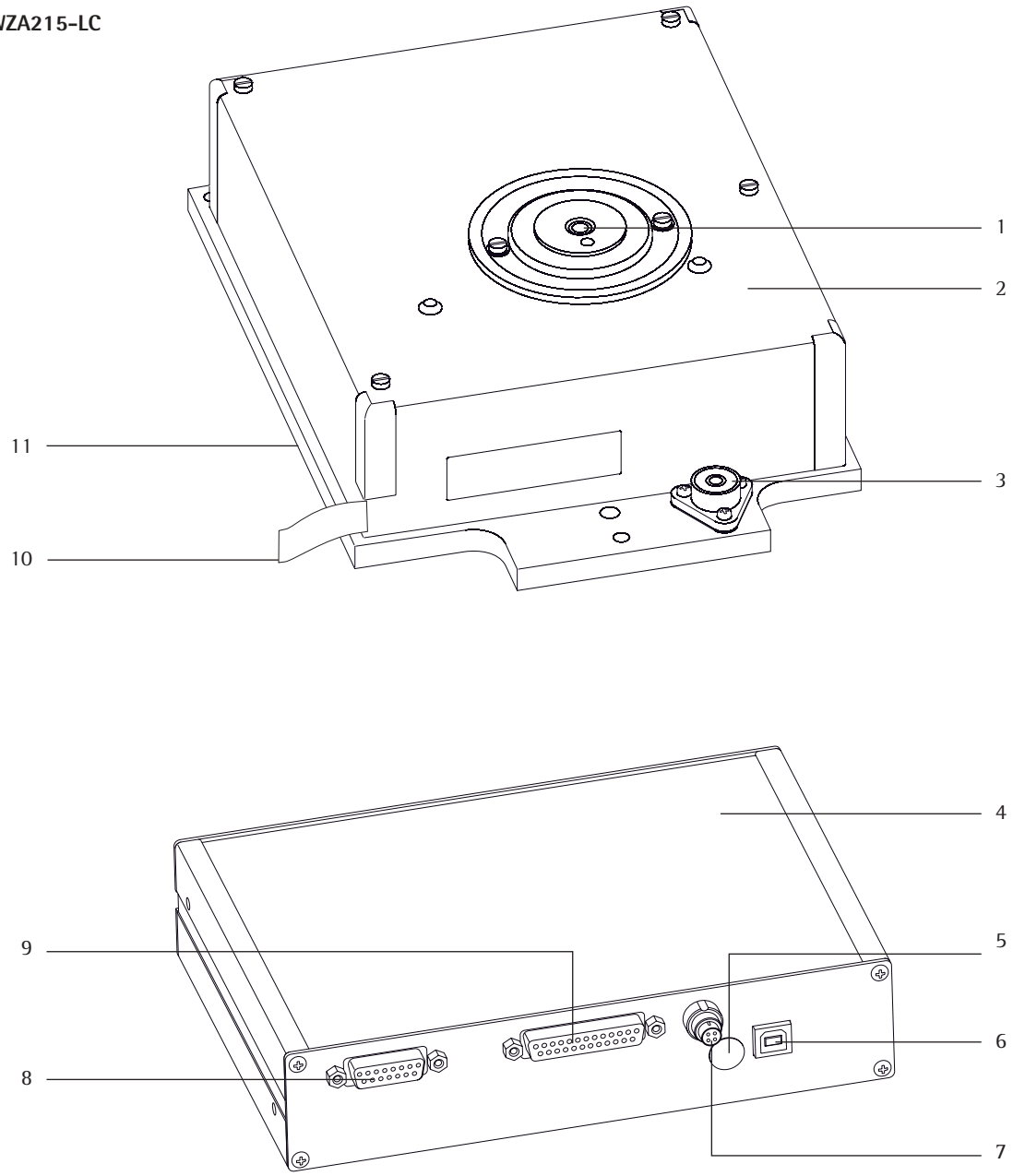
○ If you have any problems with your device:
Contact your local Sartorius office, dealer, or service center.

Hotline

● Please direct technical questions on design, specifications, and installation to your dealer or directly to Sartorius by calling our hotline:
Phone: +49 (0) 551/308-4440
Phone: +49 (0) 551/308-4449

General View of the Equipment

Model WZA215-LC



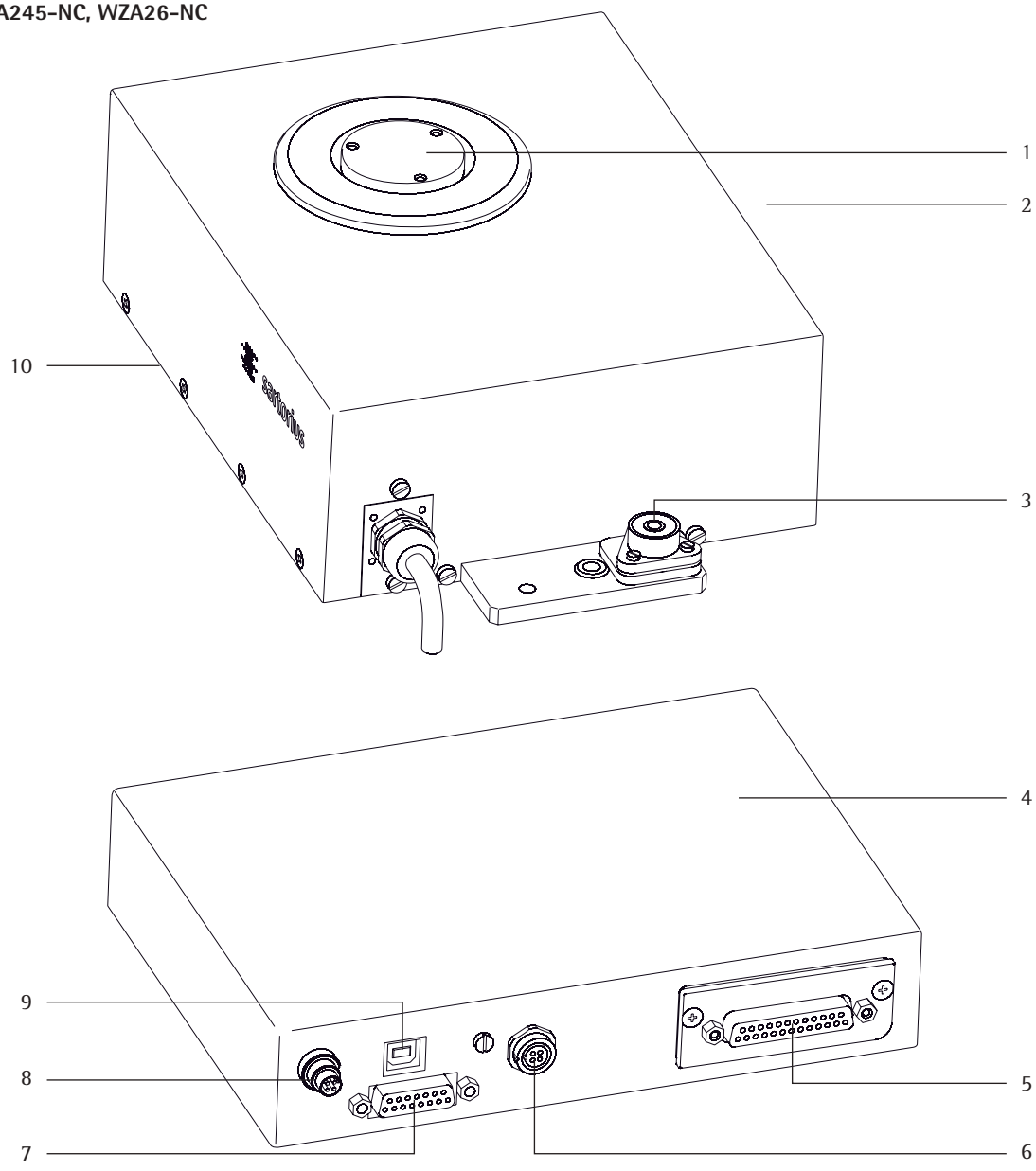
Item	Description
1	Load receptor
2	Weigh cell
3	Level indicator
4	Electronics unit
5	Menu access switch
6	USB socket for PC connection

Item	Description
7	DC jack
8	Weigh cell connector
9	Data interface
10	Connecting cable
11	Hook for below-cell weighing

⚠ Users should never change any other screws!

General View of the Equipment

Model WZA245-NC, WZA26-NC



Item	Description
1	Load receptor
2	Weigh cell
3	Level indicator
4	Electronics unit
5	Data interface

Item	Description
6	Optional display unit connector
7	Weigh cell connector
8	DC jack
9	USB socket for PC connection
10	Hook for below-cell weighing

⚠ Users should never change any other screws!

Installation

Storage and Shipping Conditions

- Once the equipment has been removed from the packaging, it may lose accuracy if subjected to strong vibration.
- Do not expose the equipment to unnecessarily extreme temperatures, moisture, shocks, blows, or vibration.

○ It is a good idea to save the box and all parts of the packaging. Only the original packaging provides the best protection for shipment.

○ Before packing your equipment for shipping, unplug all connected cables to prevent unnecessary damage.

○ Do not exceed gravitational acceleration of ≙ 300 m/s² (without additional superstructure on the load receptor).

Inspecting the Equipment

The customer shall inspect the product and packaging immediately 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 or service. 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 there was no damage during transport. Sartorius PC configuration software can be used as a tool for this.

Equipment Supplied

- Weigh cell
- Electronics unit
- Installation instructions (this manual)
- AC adapter
- Any special accessories as listed on the bill of delivery or in accordance with any customer-specific agreement

○ An extension cord (weigh cell – electronics) is not included in the equipment supplied. If required, order separately or follow the notes on creating an extension cord connection.

Setup Instructions

The weigh cell is delivered in antistatic packaging along with its associated analog electronics.

The other electronic components are packaged separately on a base plate in an antistatic bag.

Before operating, always make sure that the serial numbers of the weigh cell and the electronics match.

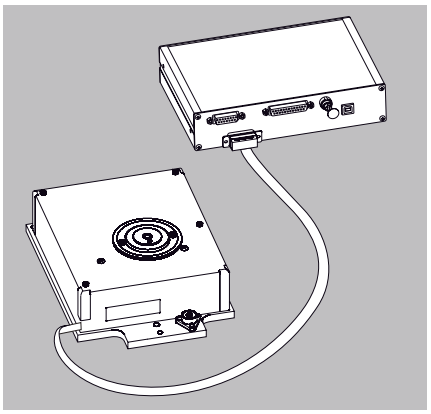
The corresponding cable must be securely inserted into the electronics before initial startup.

The device is designed to delivery reliable weighing results when installed properly.

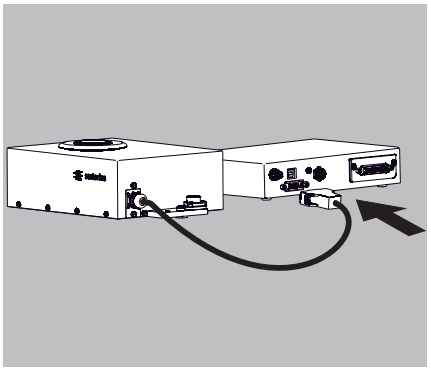
If you have any questions or difficulties when developing your weighing system, please contact the specialists at Sartorius. When designing and setting up your weighing system, please observe the following so that you will be able to work with added speed and accuracy:

- 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 direct drafts that come from open windows or doors.

WZA215-LC:



WZA245-NC, WZA26-NC, WZA614-NC:



- 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 analyzer to extreme moisture.
- Switch the system to Standby mode when not in use.
- Avoid the effects of magnetism.

⚠ Always calibrate/adjust the weigh cells after transport.

- Equipment installed on the load receptor can interfere with weigh cell functions.

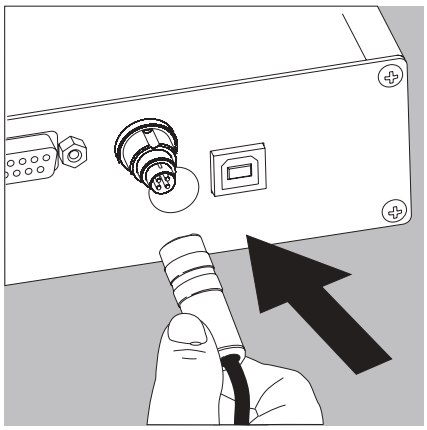
  The user accepts all liability for production release and the specifications of the entire equipment. The specifications attained by your system may differ from those listed in the “Specifications” chapter.

  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 two hours at room temperature, leaving it unplugged from AC power.

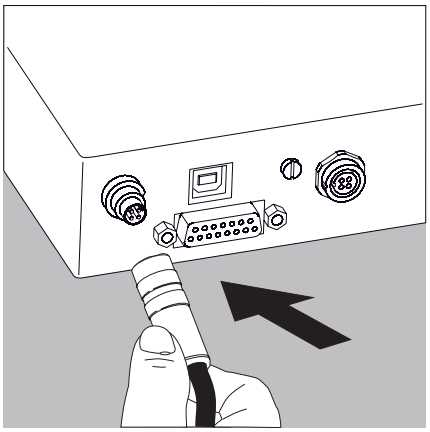
Connecting the Weigh Cell to the Electronics Unit

- Plug the male connector of the connecting cable into the socket of the electronics unit

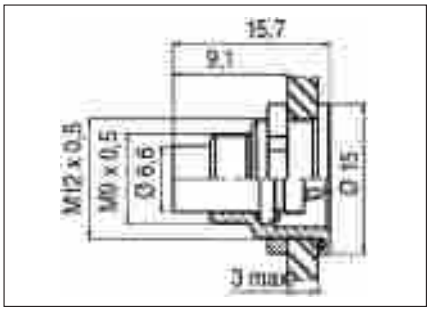
WZA215-LC:



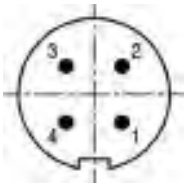
WZA245-NC, WZA26-NC, WZA614-NC:



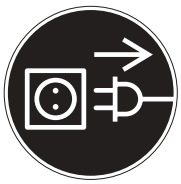
Flange plug:



Dimensions in millimeters



Pin 1: +15 V
Pin 2: GND



Power Connection

- ● Check the voltage rating and the plug design.
  If they do not match your local rating or standard: Contact your supplier
  Use only
- – Genuine AC adapters
- – AC adapters approved by specialist technicians
- ● Insert the DC supply lead plug from the AC adapter into the electronics unit and screw it on.
- ● Connect the equipment to power:
  Plug the AC adapter into the wall outlet (mains)
- ○ Power is supplied through the DC jack.
  If the stated supply voltage or the plug design of the power cord does not comply with your country's standard, please inform the nearest Sartorius representative or your dealer.
- ○ Using an AC adapter other than that supplied with the equipment:
  The weigh cell can be operated with a voltage of 15 V (+15% to –10%).

⚠ The power must be connected 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, Part 1, Section 6: Protection Against Shock Current. Please also refer to the specifications for classification of electrically operated equipment in EN 61010-1.

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

EMC requirements:
The connector is designed for DC connections between equipment/systems that are 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 EN 61326. The following standards apply:

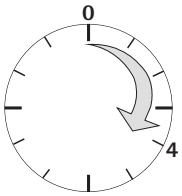
Fast transients	IEC 61000-4-4
Surge voltages	IEC 61000-4-5
Conductive HF signals	IEC 61000-4-6

Built-in connector on electronics unit	Type: Binder 4-pin flange plug 094118004
Socket for the above connector	
Name:	Female cable connector, 4-pole
Range:	M9
Series:	712
Order number:	9904100004

http://www.binder-connector.de/en/products/839/839?variant=3630

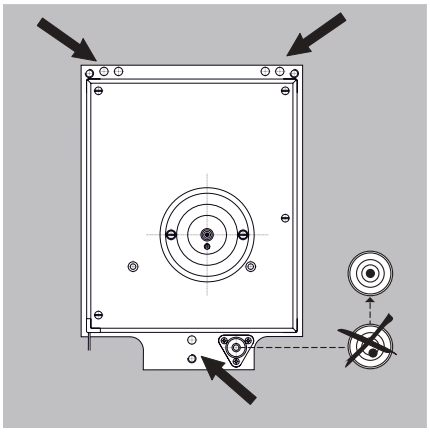
Connecting Electronic Devices (Peripherals)

- ● Make absolutely sure to unplug the weigh cell from AC power before you connect or disconnect a peripheral device (e.g., PC) to or from the interface port.



Warm-up Time
The amount of warm-up time required depends in part on the system used.
The guideline for these weigh cells is approx. 4 hours. However, this guideline must be verified by the user for the respective system/application.

WZA215-LC:

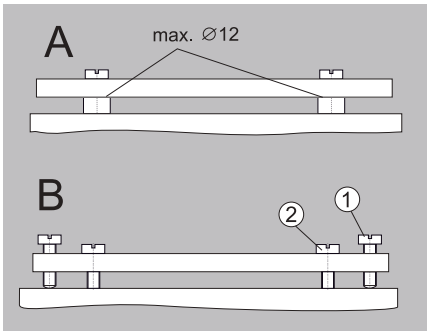


Leveling the Weigh Cell in a Portable Weighing System

WZA215-LC:

– Install the weigh cell level for optimal operation.

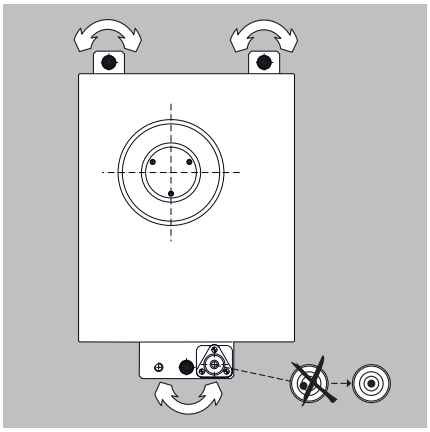
● The weigh cell should be secured to the system fastening frame via the three drill holes.



Securing the Weigh Cell
A: Use spacer sleeves with a maximum diameter of 12 mm as a contact surface.

Leveling the Weigh Cell
B: Level the weigh cell with screws M6 (1) on the system fastening frame and secure with screws (2):
Torque 2.5 Nm

WZA614-NC, WZA245-NC, WZA26-NC:



WZA614-NC, WZA245-NC, WZA26-NC:

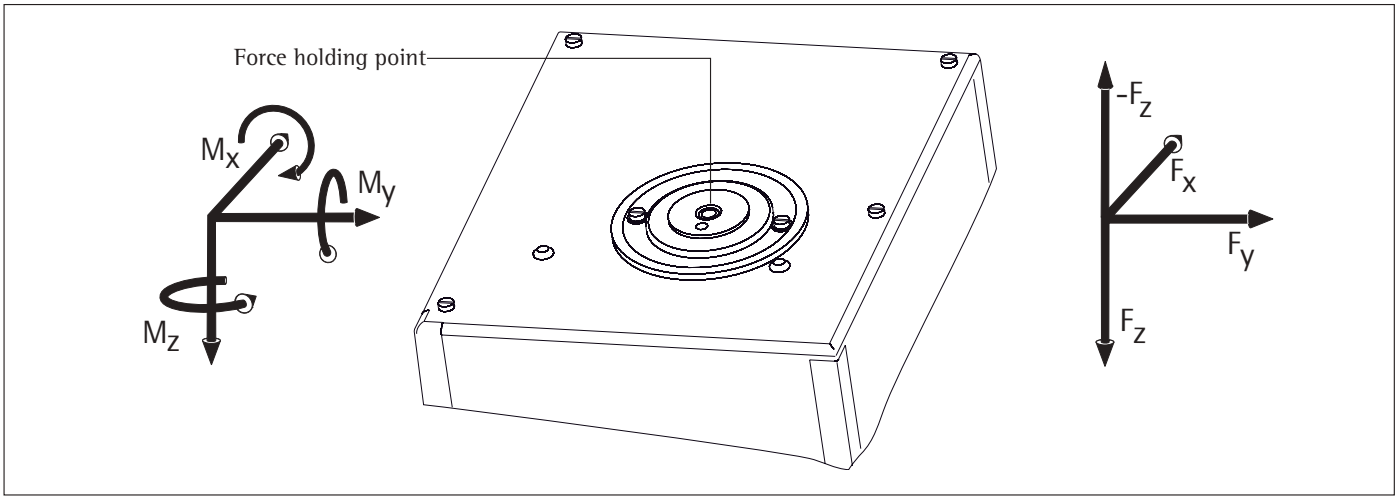
Purpose:
– To compensate for unevenness at the place of installation.
– To ensure that the weigh cell is placed in a perfectly horizontal position for consistently reproducible weighing results.
– Always level the weigh cell again any time after it has been moved to a different location.

● Adjust the leveling feet until the air bubble is centered within the circle on the level indicator.

or

● The weigh cell should be secured to the system fastening frame via the three threaded holes.

Maximum Permissible Load on Load Receptor:



Model	Max. torque	Torque forces	+ F_z	Max. force for below-cell weighing (F_z)	Max. forces at force holding point F_x, F_y
WZA215-LC	0.5 Nm	1 Nm	10 N	3 N	5 N
WZA245-NC	0.5 Nm	1 Nm	10 N	3 N*	5 N
WZA26-NC	0.25 Nm	0.5 Nm	10 N	1 N*	3 N
Model	Max. torque	Torque forces	+ F_z	Max. force opposite to direction of load ($-F_z$)	Max. forces on force holding point F_x, F_y
WZA614-NC	2 Nm	1 Nm	20 N	3 N	20 N

* Pan not fitted

You can either have the maximum force or the maximum torque. If forces and torque occur simultaneously, then the sum of the percentage loads cannot exceed 100%.
Higher loads may result in damage to the weigh cell.

Example:
Weigh cell with hook projecting out to the front.
Torque M_y is the sum of the torque from the force of the weight W_{load}, the torque of any overload being exerted W_{over}, and the torque created by the intrinsic weight W_{hook} of the hook holding the weight.
The force is F_z is equal to weight force F_{load}, plus the weight force of hook F_{hook} and the overload force F_{over}.

What is the maximum off-center overload force F_{over} for a WZA215-LC with a load of M_{load} = 100 g and a hook length L of 100 mm for a standard weight of M_{hook} = 60 g?

The sum of the percentage weighing capacity of the forces and torques occurring may not exceed 100%.

$1 = F_z/F_{zMax} + M_y/M_{Max}$

$F_z = F_{load} + F_{hook}/F_{over}$
$F_z = 1.57\ N + F_{over}$

$M_y = M_{load} + M_{hook} + M_{over}$
$M_y = 1.27\ Nm + F_{over} \times 0.1\ m$

$1 = (1.57\ N + F_{over}/20\ N + (0.127\ Nm + F_{over} \times 0.1\ m/0.8\ Nm$
$F_{over} = 4.36\ N$

However, even very small forces can trigger the overload protection mechanism.

In general, load receptors should be constructed to be rigid to bending and twisting. We recommend testing to avoid unwanted feedback effects in the control loop. You should also take into account the effects of drafts and observe all instructions for analytical weighing.

Notes on Analytical Weighing with Weigh Cells

Handling of Samples and Containers
Samples should be acclimatized to the temperature of the weigh cell.
This is the only way to avoid measurement errors caused by air buoyancy and fluctuations 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 tare container should be appropriate for the sample.

Samples and containers should not be touched by the operator's hands. This is because the hygroscopic effect of fingerprints and the effect of the hand´s temperature can influence the measurement results.

Samples must be carefully placed on the pan, either manually (using forceps) or automatically (by a robot or filling system).

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 and Containers
Significant measuring errors can occur when electrostatically charged objects are weighed. This problem particularly involves samples that have extremely poor conductivity (glass, plastic, filters) since they can discharge electrostatic – i.e., friction-induced – charges through the weighing pan over a relatively long period of time only.

The result is a force acting 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 sample), 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, like plastic parts, can also contain charges that negatively affect the accuracy of weighing results. Appropriate steps (grounding) taken in the design of a draft shield device can counteract such effects.

The weigh cell base plate and the electronics base plate should be grounded via the screw connections.

Weighing Magnetic or Magnetizable Samples
It is technically impossible to avoid using magnetizable materials for the production of weigh cells. This is 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 the above-mentioned parts inside the weigh cell may have a distorting effect on 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.

Magnetizable or magnetized samples and the weigh cell itself interact with magnetic fields and magnetizable or magnetized parts in the area surrounding the weighing system. The system can be shielded from external magnetic fields to some extent using (soft magnetic) plates.

Effects of Drafts
Depending on the size of the load receptor and the sample, the effects of drafts may occur.
To minimize this effect, install a draft shield for protection.
Protect the weigh cell from drafts.

Adjustment

Calibration/adjustment can be performed as follows:
- Via control commands with Sartorius CAS-Suite configuration software installed on a computer: See page 29, for example.

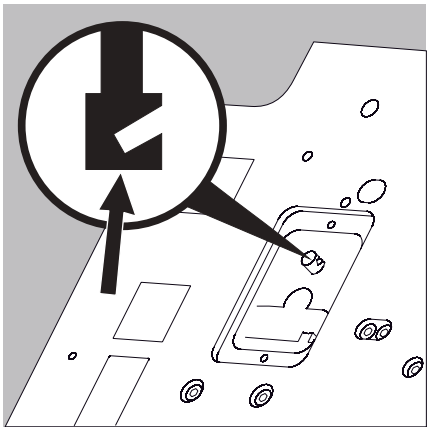
or

○ Using the appropriate optional YAC01... display unit

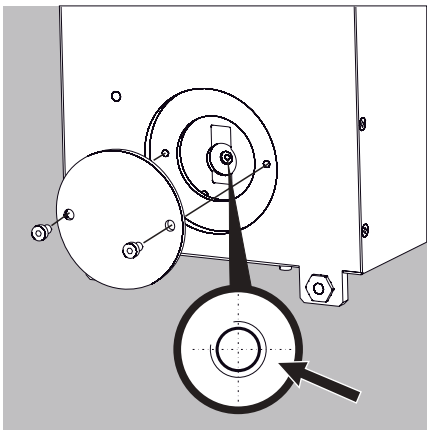
Below-cell Weighing

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

WZA215-LC:



WZA245-NC, WZA26-NC:



Models WZA215-LC, WZA245-NC, WZA26-NC:

● Hang the customer-specific below-cell weighing hook in the holder.
Threaded fastener for hook: M3
Maximum torque: max. 0.5 Nm

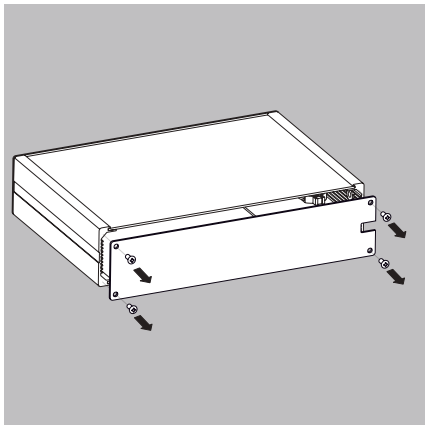
⚠ Screw-in depth: do not exceed 5 mm!

⚠ No overload and underweight protection available.

○ Install a draft shield if necessary.

Model WZA614-NC: This model does not feature a below-cell weighing port.

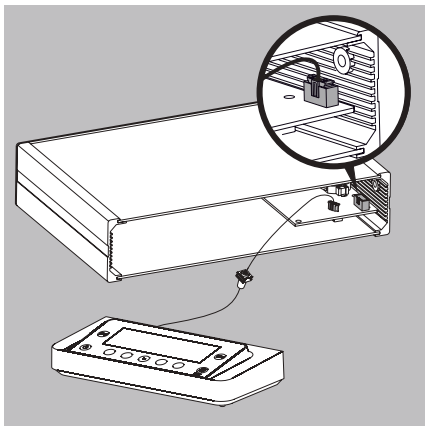
Operation with the optional YAC01..



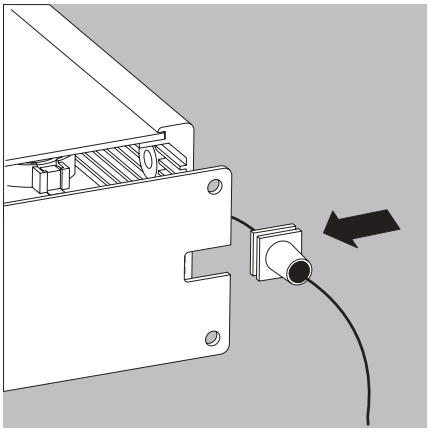
Connecting the Control Unit

WZA215-LC with YAC01MSE:

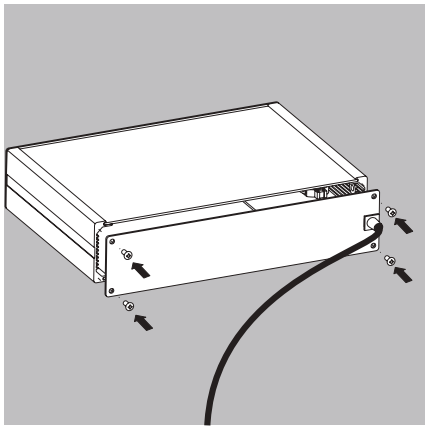
1. Open the electronics unit on the back.



2. Plug the male connector of the control unit into the PCB of the electronics unit.



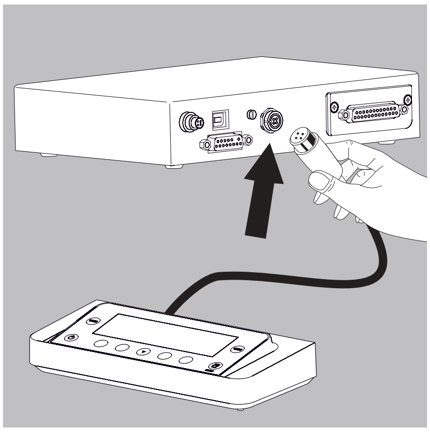
3. Feed the cable through the opening of the cover plate. During this process, fasten the cable to the cover plate using the cable opening.



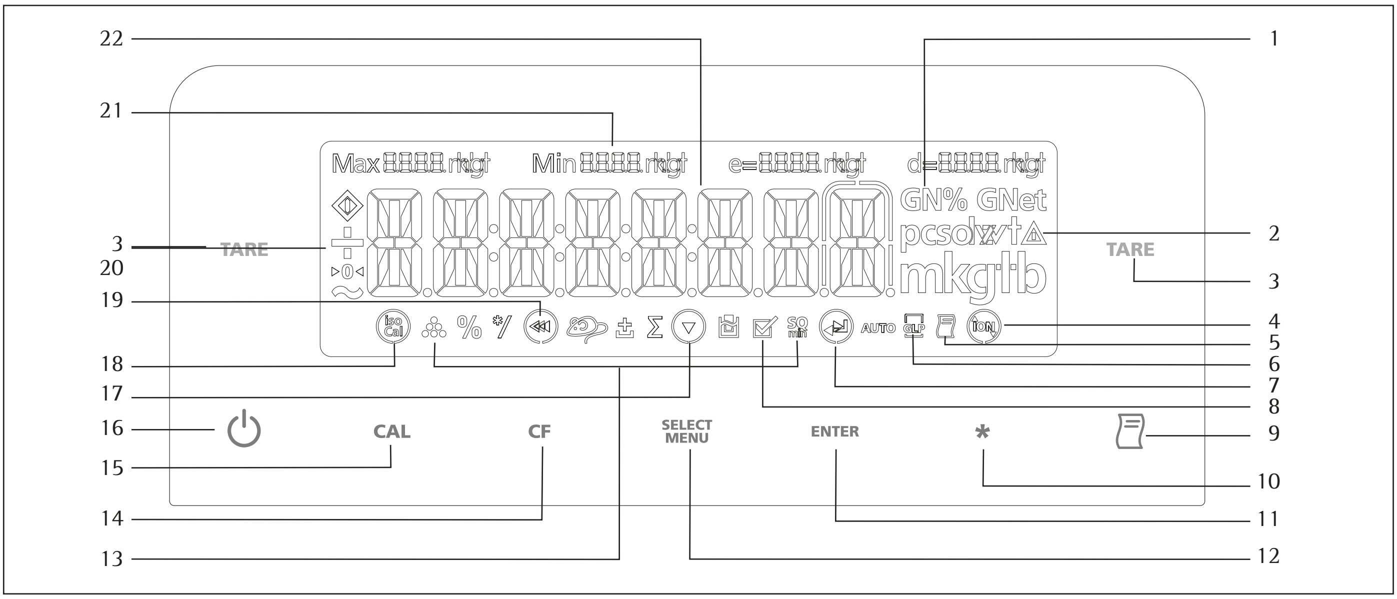
4. Close the electronics unit.

Operation with the Optional YAC01.. Display and Control Unit

WZA614-NC, WZA245-NC or WZA26-NC with YAC01CU:



Connect the display and control unit to the weigh cell electronic unit using the supplied cable.



Overview of Display and Control Panel

Item	Description
1	Weight units
2	Calculated-value indicator: not a weight value
3	Tare | Zero
4	Symbol ◯ flashes: balance is not level, leveling is required; (i i): open/close draft shield using key (*); (ION): ionizer active
5	Symbol for “Printing mode active”
6	Symbol for “GLP printing mode active”
8	Symbol for “Application program active”
9	Data output: Press this key to send readout values to the built-in data interfaces.
10	Level balance, open/close draft shield or turn on/off ionizer
11	Start the application program
12	Select an application program | access the menu
13	Symbols for active application (⁂, %, ☁, ±, */, ☑, SQ min)

Item	Description
14	Clear Function This key is generally used as a Cancel key: – Quit application program – Cancel calibration/adjustment routine | Exit menu – GLP-compliant printout
15	Start calibration/adjustment routine
16	On/Off
18	Display: isoCAL calibration/adjustment function
20	Symbols for zero range (verified models only)
21	Metrological data
22	Weight value displayed in selected weight unit

Symbol:

19	◀◀	Exit menu
19	◀	Go back to previous menu level
17	▼	Select menu item
7	▶	Select next item in current menu level
7	↲	Confirm menu item

Basic Weighing Function

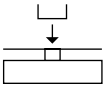
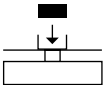
Features
- Tare balance
- Print weight value

Preparation
- ● Turn balance on: Press the (⏻) key
- ● Level the balance if necessary
- ● Tare the balance if necessary: Press the (TARE) key

- ○ Change configuration settings if necessary: See “Configuration Settings” chapter
- ○ Change factory settings if necessary: see “Configuration Settings” chapter

Additional functions:
- ○ Turn balance off: Press the (⏻) key

Quick Guide: First Weighing

Step	Press key	Display/Printout
1. Switch on the balance Self-test runs. Then the balance performs an automatic initial tare.	(⏻)	0.0 g
2. Place container on weighing pan (in this example: 11.5 g). Close the draft shield (if available).		+ 11.5 g
3. Tare the balance The balance is tared if the displayed value is zero.	(TARE)	0.0 g
4. Open the draft shield (if available). Carefully place the sample onto the weighing pan (in a suitable container if necessary). In this example: 132 g. Close the draft shield (if available). You can read the measured value as soon as the weight value stops changing and the unit is displayed.		+ 132.0 g
5. Press weight value	(⎙)	N + 132.0 g

Configuration Settings (Operating Menu)

Purpose
The weigh cell is configured at the factory. In Setup, you can configure the weigh cell, i.e., adapt it to individual requirements.

Features
Parameters are combined into the following groups
(1st menu level):
1. Setup: Balance parameters
2. Device parameters
3. Data Output
4. Application program[1])
5. Input
6. Information
7. Language setting

Factory Settings for the Parameters
Factory-set configurations are are marked with "o". **Customer-specific settings can be configured on request.**

Preparation
○ The following operating menu functions can be carried out using the Sartorius CAS-Suite configuration software installed on a PC:
– Read
– Change
– Print
– Save

or

○ With one of the optional YAC01... control units

You can configure the balance; i.e., adapt it to individual requirements.

Functions of the Keys in the Menu:

Display symbol	Key	Function
▼	(SELECT MENU)	Scroll through menu items
▶	(ENTER)	Select next item in current menu level (with right cursor to scroll through up to four menu levels)
↲	(ENTER)	Confirm menu item
	(CF) (Press and hold)	Save settings and exit menu from any position
◀◀	(CF)	Save settings and exit menu
◀	(CF)	Go back to previous menu level (left cursor)
2. 3. 1. 1		Indicates menu level

Menu Navigation
Example: Setting the Language

Step	Press key	Display/Printout
1. **Open the menu**: Display the 1st menu item in weighing mode	(SELECT MENU) Hold	APPLIC.
2. Scroll through the menu level; after the last menu item, the first menu item is displayed again (scroll)	Press repeatedly (SELECT MENU)	INPUT ... LANGUAGE
3. Select the next menu levels (scrolls to the right)	Press repeatedly (ENTER)	ENGLISH o
5. **Change setting:** Scroll to the menu item	(SELECT MENU)	DEUTSCH
6. **Confirm setting**: "o" indicates the set menu item	(ENTER)	DEUTSCH o
7. Go back to the previous menu level (from menu level 4)	(CF)	LANGUAGE
○ Change more settings if required	(SELECT MENU), (ENTER)	
8. **Save setting** and exit the menu	Press repeatedly (CF)	
> Restart the application		0.0 g

[1]) Detailed instructions on the available application programs can be found in the operating instructions for the Cubis Series, MSE Models, which can be downloaded online : Go to www.sartorius.com – Service Center → Downloads.

Menu Structure (Overview)

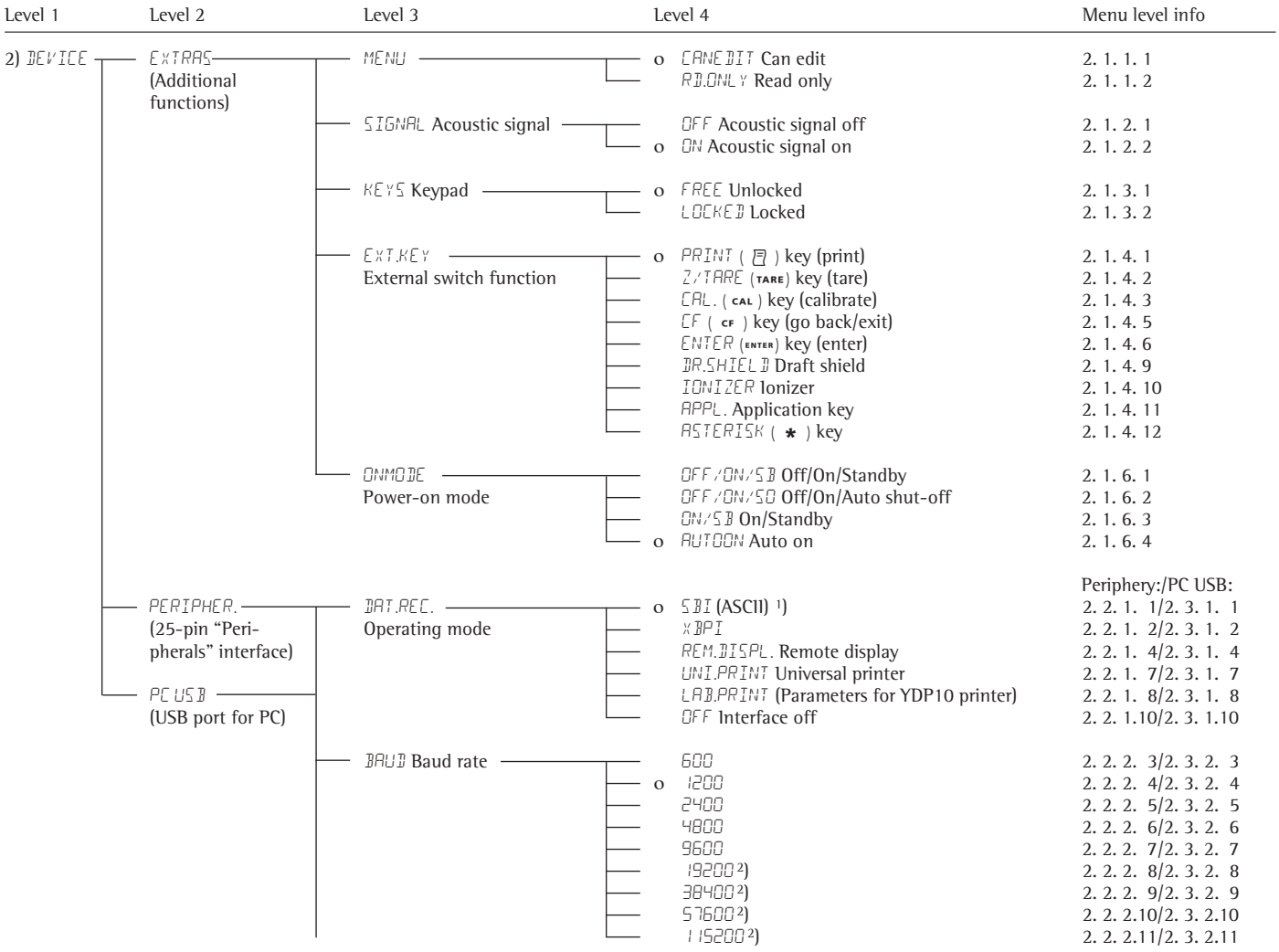
Level 1	Level 2	Level 3	Menu level info
1) SETUP	BAL.SCAL. (Weigh cell functions)	AMBIENT Ambient conditions	1. 1. 1.
		APP.FILT. Application filter	1. 1. 2.
		STAB.RNG. Stability range	1. 1. 3.
		STAB.DLY Stability delay	1. 1. 4.
		TARING Taring [1])	1. 1. 5.
		AUTOZER. Auto zero	1. 1. 6.
		WT.UNIT Basic weight unit	1. 1. 7.
		DISPLAY Display accuracy [1])	1. 1. 8.
		CAL./ADJ. Function of the (CAL) key	1. 1. 9.
		CAL.ROUTINE Calibration/adjustment routine	1. 1. 10.
		ZERORNG. Zero range	1. 1. 11.
		ZERO.ON Zero at power on	1. 1. 12.
		ON.TARE Tare/zero at power on	1. 1. 13.
		CYC.RATE Output rate	1. 1. 14.
		ISOCAL Auto calibration/adjustment	1. 1. 15.
		EXT.CAL. External adjustment	1. 1. 16.
		CAL.UNIT Weight unit for calibration [1])	1. 1. 17.
	GEN.SERV. General service	MEN.RESET Factory settings	1. 9. 1.
2) DEVICE	EXTRAS (Additional functions)	MENU Menu read only/can edit	2. 1. 1.
		SIGNAL Acoustic signal	2. 1. 2.
		KEYS (Keypad)	2. 1. 3.
		EXT.KEY External switch function	2. 1. 4.
		ONMODE Power-on mode	2. 1. 6.
	PERIPHER. (25-pin “Peripherals” interface)	BAT.REC. Communication mode	2. 2. 1./2. 3. 1.
		BAUD Baud rate	2. 2. 2./2. 3. 2.
		PARITY Parity	2. 2. 3./2. 3. 3.
		STOPBIT Number of stop bits	2. 2. 4./2. 3. 4.
		HANDSHK. Handshake mode	2. 2. 5./2. 3. 5.
		DATABIT Number of data bits	2. 2. 6./2. 3. 6.
	PC-USB (USB port “PC”)		
3) DATAOUT (Data output)	COM.SBI (PC communication)	COM.OUT Communications output	3. 1. 1.
		STOP Stop automatic output	3. 1. 2.
		AUT.CYCL. Time-dependent automatic data output	3. 1. 3.
		FORMAT (Line format)	3. 1. 4.
		AUTO.TARE Auto taring after data output	3. 1. 5.
	PRINT.PARA Parameters for printing	RES. Print resolution (manual/automatic)	3. 2. 1.
		FORMAT Line format for printout	3. 2. 2.
		PRT.INIT. Printout of appl. parameters	3. 2. 3.
		GLP ISO/GLP-compliant printout	3. 2. 4.
		TAR./PRT. Tare bal./scale after ind. print	3. 2. 5.
		TIME: 12 h/24 h	3. 2. 6.
		DATE Date format	3. 2. 7.
4) APPLIC.ation programs	WEIGH		4. 1.
	UNIT Toggle		4. 2.
	COUNTING	RESOLUT. Resolution	4. 3. 1.
		REF.UPDT. Auto reference updating	4. 3. 2.
	PERCENT Percent weighing	DEC.PLCS Decimal places	4. 4. 1.
	NET.TOT. Net total	COMP.PRT. Printout of components	4. 5. 1.
	TOTAL Totalizing	COMP.PRT. Printout of components	4. 6. 1.
	ANIMALW. Animal weighing	ACTIVTY. Animal activity	4. 7. 1.
		START	4. 7. 2.
	CALC. Calculation	METHOD (Operator)	4. 8. 1.
		DEC.PLCS Decimal places	4. 8. 2.
	DENSITY Density determination	DEC.PLCS Decimal places	4. 9. 1.
5) INPUT Input	ID. ID input; max. 7 characters		5. 1.
	DATE Set date		5. 2.
	TIME Set time		5. 3.
	PASSWORD Password entry (for service)		5. 4.
	CAL.WT. Enter weight value		5. 5.
6) INFOrmation	VERSION, SER.NO., MODEL, LOBS, KDCVERS, BR.SHIELD, if OPT.MOD	Display of software version, serial no., model	6. 1. to 6. 6.
7) LANGUAGE	ENGLISH English (factory setting)		7. 1.
	DEUTSCH German		7. 2.
	FRANC. French		7. 3.
	ITAL. Italian		7. 4.
	ESPANOL Spanish		7. 5.
	РУССКИЙ Russian		7. 6.
	POLSKI Polish		7. 7.

[1]) Not available on balances verified for use in legal metrology

Parameter Settings: Overview

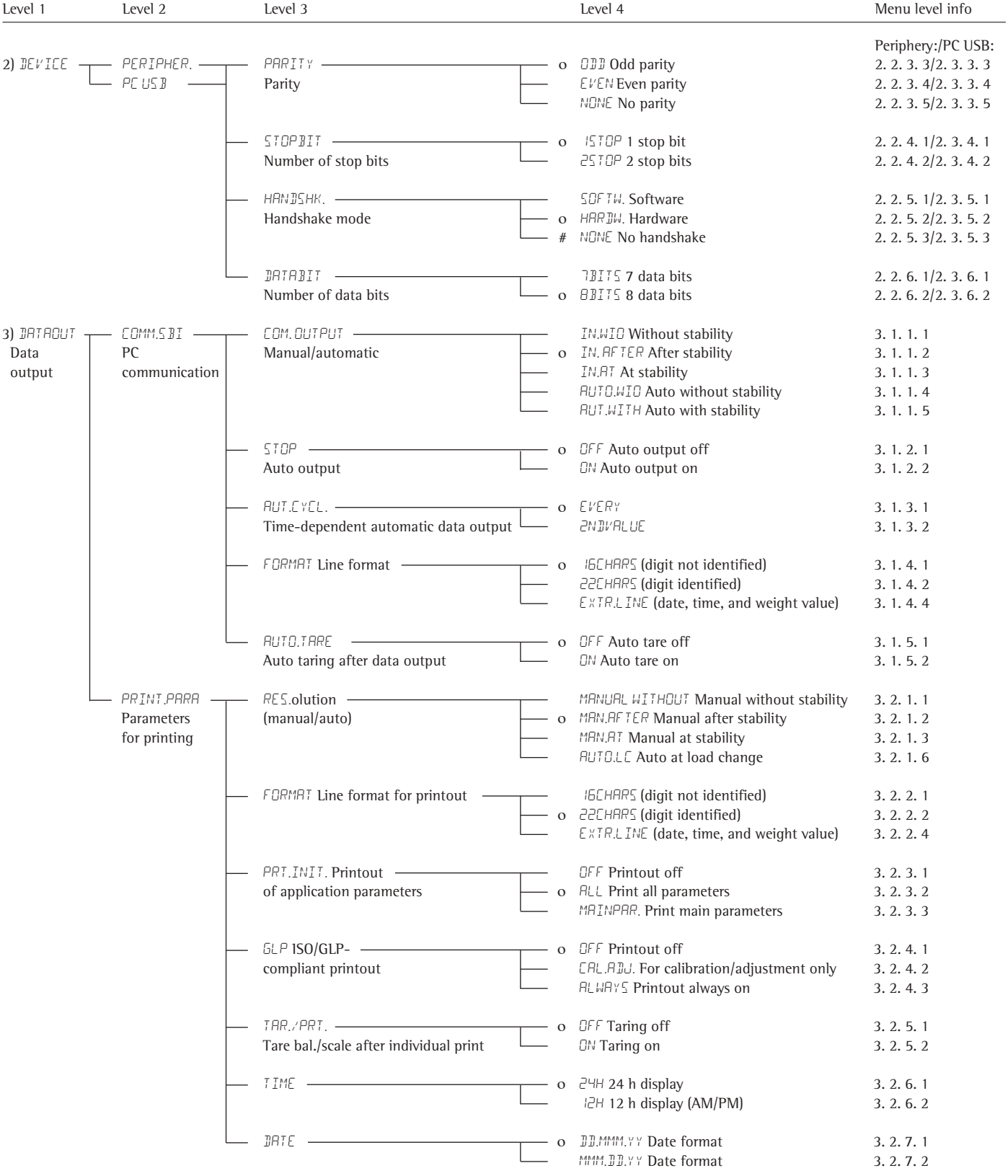
o = factory setting; √ = user-defined setting

Level 1	Level 2	Level 3		Level 4	Info about menu level
1) SETUP	BAL.SCAL. Balance parameters	AMBIENT Ambient conditions (filter adjustment)		V.STABLE Very stable	1. 1. 1. 1
			o	STABLE Stable	1. 1. 1. 2
				UNSTABL Unstable	1. 1. 1. 3
				V.UNSTBL. Very unstable	1. 1. 1. 4
		APP.FILT. Application filter	o	FINAL.RD. Final readout mode	1. 1. 2. 1
				FILLING Filling mode	1. 1. 2. 2
				REDUC. Reduced	1. 1. 2. 3
				OFF Off	1. 1. 2. 4
		STAB.RNG. Stability range		MAX.ACC. Maximum accuracy	1. 1. 3. 1
				V.ACC. Very accurate	1. 1. 3. 2
				ACC. Accurate	1. 1. 3. 3
			o	FAST Fast	1. 1. 3. 4
				V.FAST Very fast	1. 1. 3. 5
				MAX.FAST Maximum speed	1. 1. 3. 6
		ST.DEL. Stability delay		NO No delay	1. 1. 4. 1
			o	SHORT Short delay	1. 1. 4. 2
				AVERG. Average delay	1. 1. 4. 3
				LONG Long delay	1. 1. 4. 4
		TARE Tare		WIOSTB. Without stability	1. 1. 5. 1
			o	WISTB. After stability	1. 1. 5. 2
				ATSTAB. At stability	1. 1. 5. 3
		AUT.ZERO Auto zero	o	ON Automatic zeroing on	1. 1. 6. 1
				OFF Automatic zeroing off	1. 1. 6. 2
		WT.UNIT Basic weight unit		For list of units, see "Toggling between weight units"	1. 1. 7. 1 to 1. 1. 7.24
		DISP.DIG. Display accuracy	o	ALL Display all digits	1. 1. 8. 1
				LP.ON.OFF Last digit after load change	1. 1. 8. 2
				Increment of measured values one level lower	1. 1. 8. 3
				Increment of measured values two levels lower	1. 1. 8. 4
				Increment of measured values three levels lower	1. 1. 8. 5
				INCRM. 1 Last digit single increment	1. 1. 8. 6
				MINUS 1 Reduced by one digit	1. 1. 8. 7
				Resolution by a factor of 10	1. 1. 8.14
		CAL./ADJ. Function of (CAL) key		EXT.CAL. External calibr./adjustment with factory-set weight	1. 1. 9. 1
				CAL.E.USR. External calibr./adjustment with user-defined weight	1. 1. 9. 3
			o	CAL.INT. Internal calibr./adjustment	1. 1. 9. 4
				LIN.INT. Internal linearization (on analytical balances only)	1. 1. 9. 5
				LIN.EXT. External linearization with factory-set weights	1. 1. 9. 6
				LIN.USR. External linearization with user-defined weights	1. 1. 9. 7
				SET.PREL. Set the preload	1. 1. 9. 8
				CLR.PREL. Delete the preload	1. 1. 9. 9
				BLOCKED (CAL) locked	1. 1. 9.10
				SELECT Select	1. 1. 9.12
				SET.EXT.W. Determine ext. calibration weight for CAL.E.USR	1. 1. 9.17
				Determine internal weight	1. 1. 9.18
		CAL./ADJ. Calibration/adjustment	o	SEQUENCE Sequence adjustment	1. 1.10. 1
				CAL/ADJ. Adjustment as needed	1. 1.10. 2
		ZERORNG. Zero range		1PERC. 1 percent of max. load	1. 1.11. 1
			o	2PERC. 2 percent of max. load	1. 1.11. 2
				5PERC. 5 percent of max. load	1. 1.11. 3
				10PERC. 10 percent	1. 1.11. 4
				DEFAULT (factory-set)	1. 1.11. 5
		INIT.ZERO Zero at power on	o	DEFAULT (factory-set)	1. 1.12. 1
				2PERC. Initial zero 2 percent	1. 1.12. 2
		ON.TARE Tare/zero at power on	o	ON Init. tare/zero on	1. 1.13. 1
				OFF Init. tare/zero off	1. 1.13. 2
				5PERC. 5 percent	1. 1.13. 3
				10PERC. 10 percent	1. 1.13. 4
				20PERC. 20 percent	1. 1.13. 5
				50PERC. 50 percent	1. 1.13. 3
				100PERC. 100 percent	1. 1.13. 7
		CYC.RATE Output rate	o	NORMAL Normal output	1. 1.14. 1
				HIGHVAR. High var. output	1. 1.14. 2
				SLOW Slow output	1. 1.14. 3
				MEDIUM Medium output	1. 1.14. 4
				FAST Fast output	1. 1.14. 5
				VERYFAST Very fast output	1. 1.14. 6
				MAXIMUM Max. output	1. 1.14. 7
		ISOCAL Auto calibration/adjustment	o	OFF Auto cal./adj. off	1. 1.15. 1
				NOTE Info	1. 1.15. 2
				ON Auto cal./adj. on	1. 1.15. 3
		EXT.CAL. External calibration	o	FREE Unlocked	1. 1.16. 1
				LOCKED Locked	1. 1.16. 2
		CAL.UNIT Unit for calibration weight	o	GRAM Grams	1. 1.17. 1
				KILOGR. Kilograms	1. 1.17. 2
				USERDEF. User-defined unit (factory setting: pounds)	1. 1.17. 4
	GEN.SERV. General service	MEN.RESET Menu reset (factory settings)		YES Restore factory settings	1. 9. 1. 1
			o	NO Do not restore factory settings	1. 9. 1. 2
				STANDARD Standard settings	1. 9. 1. 3
				VERIFIABLE Verifiable settings	1. 9. 1. 4



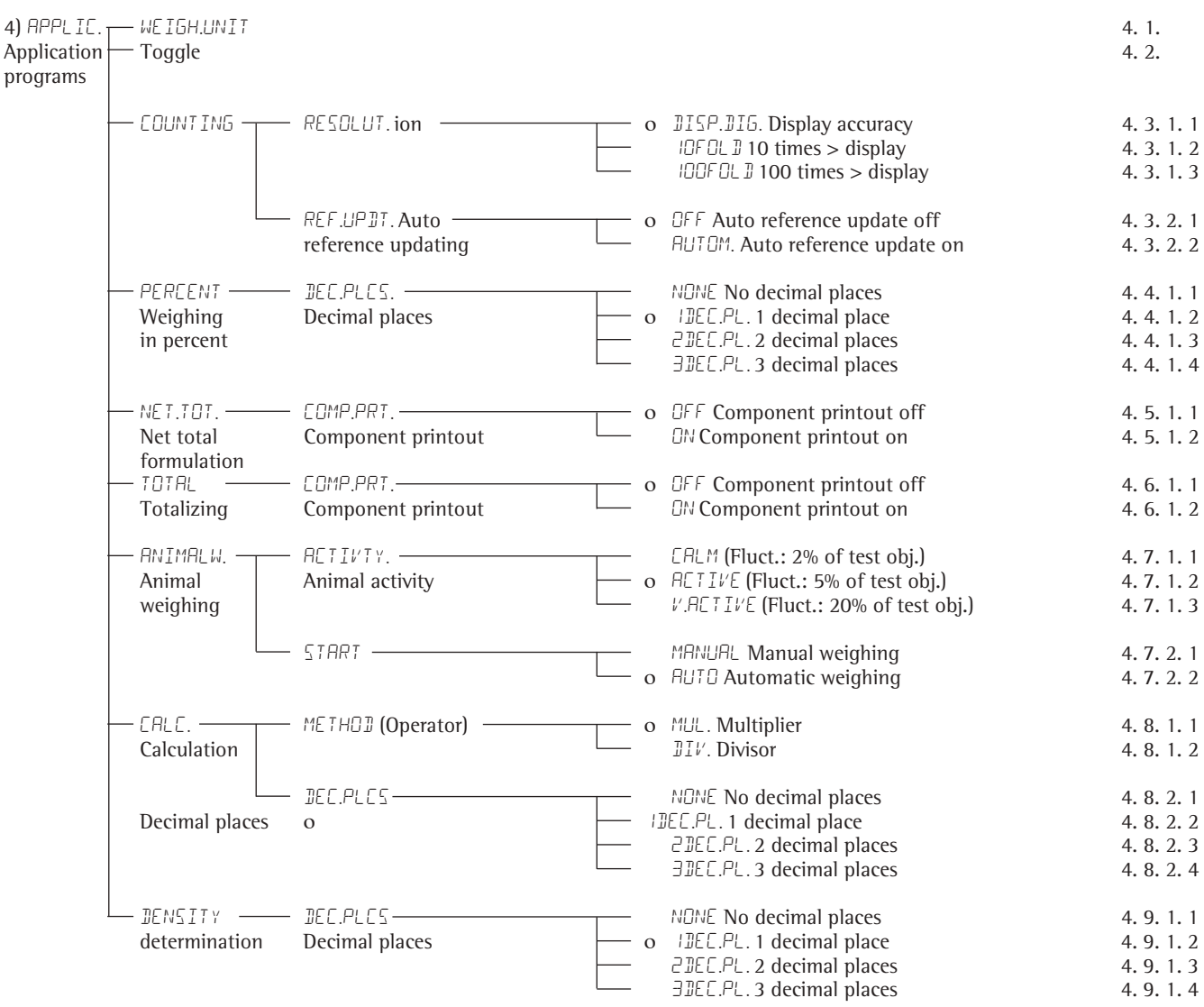
1) Note concerning verified balances/scales as legal measuring instruments in the EU*: In the "SBI" setting, the non-verified display digit is not automatically identified.
Please take the corresponding measures or adjust the settings on the peripheral device (see "Interfaces").

2) Only one of the two interfaces can be used.



= Factory setting for “PC-USB” interface

Configuration of Application Programs
With YAC01MSE or YAC01CU control units only.

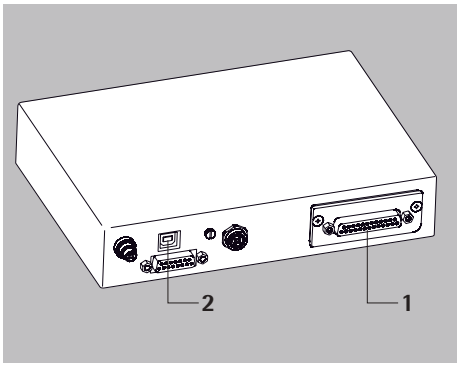


Data Interfaces

Purpose
Interfaces are used to exchange data with connected peripheral devices: Measured values and calculated values can be output to a printer or PC; conversely, control commands and data inputs can be sent to connected devices (PC, keyboard, foot switch, barcode scanner).

Each interface has to be configured according to the peripheral device and desired function. No error messages are generated when no devices are connected to an interface port (open data port).

Features
The weigh cell has at least two interfaces:



1 Peripheral port (25-pin interface)
2 USB socket for PC connection

Protocols
For data exchange, the interfaces are configured with the following protocols:

- **Printer Output**

- **SBI** (Sartorius Balance Interface): Sartorius standard protocol for output to a PC or control unit. This simple ASCII-based protocol allows you to use ESC commands from your PC to control the basic weighing functions.

- **xBPI** (eXtended Balance Processor Interface, also known as X-Bus): Binary protocol with extended scope of commands. This protocol lets you control numerous weighing functions. For further information on this, please contact Sartorius.
  To use the protocols, application software must be installed on the PC.

Synchronization
During data communication between balance and PC, messages consisting of ASCII or binary characters are transmitted via the interface. For error-free data exchange, parameters for baud rate, parity, handshake mode, and character format must be identical for both units.

You can configure the respective settings in System Settings (menu). In addition to these settings, data output for the balance can also be made dependent on several conditions that are defined in the individual tasks. These conditions are described under each of the tasks.

USB Interface (PC Port)

Purpose

The weigh cell can be connected to a PC equipped with a USB port.
A virtual serial interface (virtual COM port) is set up as a device type at the USB port.
This virtual serial interface is identified and operated by the application program.

The protocols xBPI, SBI, and SICS can be transmitted via the USB port.

The USB port is designed for the laboratory environment and is not suitable for use in rough industrial environments. Full IP protection is only guaranteed when the USB cover is closed.

System Requirements

- Computer (PC) with Windows 98SE®, Windows ME®, Windows 2000®, Windows XP®, Windows Vista®, or Windows 7®
- Available USB port on the PC
- USB cable

Software Driver and Installation Guides

The VCP driver, used to set up the virtual interface on the computer, can be downloaded online: http://www.ftdichip.com/FTDrivers.htm

The installation guides for the drivers can be found at
http://www.ftdichip.com/Documents/InstallGuides.htm

Connecting the Balance via USB

The current USB port for the computer is established when the software driver is installed.
The driver must be re-installed every time you wish to change the port.
Therefore, choose one USB port that can permanently or regularly be used to connect the balance.

▶ Switch off the balance.

▶ Unplug the balance from the mains by removing the plug from the socket.

▶ Connect the USB cable to the balance and to the USB port on the computer.

▶ Plug the balance into the mains again and switch it on.

▷ Windows detects the device connected to the USB port.
If the device is being connected for the first time, the Windows Installation Wizard will run.

Installing Software Drivers

▶ Run the Installation Wizard for the driver.

▶ Follow the instructions that appear.

▶ To complete the installation, click on **Finish**.

▷ The virtual interface is now ready for operation.

Windows® usually adds the virtual port in the position following your highest-numbered COM port.

Example:

For a PC with up to four COM ports, the new virtual port would then be COM5 (see Device Manager).

Installation Guides for Windows XP®, Windows Vista®, and Windows 7®

Changing Ports

If the USB interface is used with a program that limits the number of COM ports (e.g., COM1, COM2, COM3, and COM4 only), you may have to assign one of these port numbers to the new virtual port.

▶ Open the setting for the **USB serial port** in the Windows® Control Panel:
  – START > My Computer > Control Panel
  – System > Hardware > Device Manager

▶ Open the **Ports** submenu.

▶ Double-click on **USB Serial Port**.

▶ Select **Port Settings** > **Advanced**.

Changing Latency

▶ Open the settings for the USB serial port, following the above instructions.

▶ For a faster rate of communication, change the setting for the **Latency Timer** to 1msec.

Plug & Play Mode in Auto Print (SBI)

▶ Open the settings for the USB serial port, following the above instructions.

▶ Stop the **Plug & Play mode** from running.

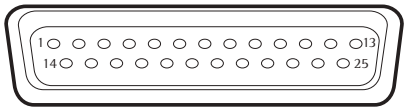
Uninstalling the Driver

The software driver for the USB connection can be uninstalled with the Windows® Uninstaller.

Pin Assignment Chart

“Peripherals” Interface and optional RS-232 Interface (25-pin)

Interface Socket:



Pin Assignment for 25-Pin RS-232 Socket:
Pin 1: Signal ground
Pin 2: Data output (TxD)
Pin 3: Data input (RxD)
Pin 4: Internal ground (GND)
Pin 5: Clear to send (CTS)
Pin 6: Not assigned
Pin 7: Internal ground (GND)
Pin 8: Internal ground (GND)
Pin 9: Not assigned
Pin 10: Not assigned
Pin 11: +12 V output
Pin 12: Reset_Out [1])
Pin 13: +5 V output
Pin 14: Internal ground (GND)
Pin 15: Universal switch
Pin 16: Internally assigned
Pin 17: Internally assigned
Pin 18: Internally assigned
Pin 19: Internally assigned
Pin 20: Data terminal ready (DTR)
Pin 21: No function
Pin 22: No function
Pin 23: No function
Pin 24: No function
Pin 25: +5 V output

Connection for switch [2])

[1]) = Hardware restart
[2]) = External switch function can be programmed via device:
“Setup” menu item > EXTRAS > EXT. key (2.1.4.x)

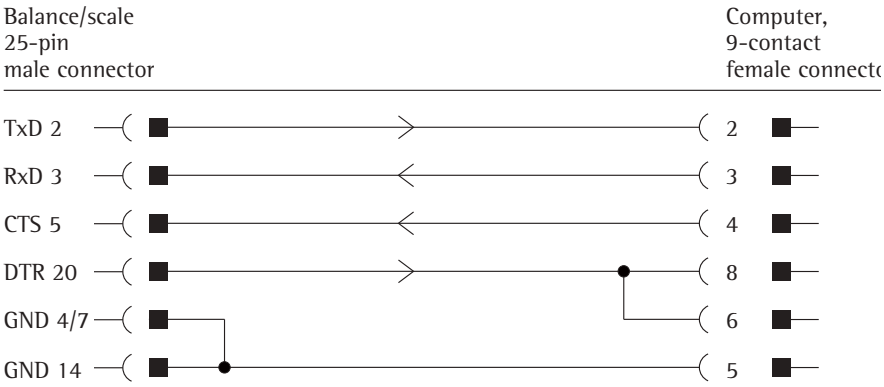
Preparation
You can set these parameters for other devices in the Setup menu:
See “Configuration Settings.”

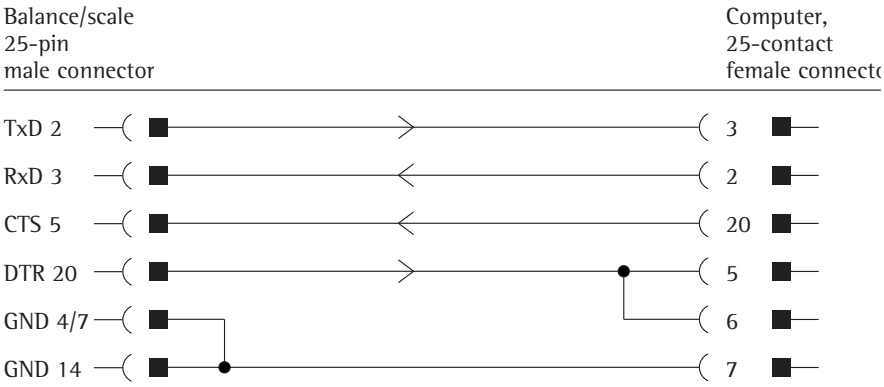
The many and versatile properties of these balances can be fully utilized for printing out records of the results when you connect your balance to a Sartorius data printer.
The recording capability for printouts makes it easy for you to work in compliance with GLP.

Cabling Diagram

For standard connection of computer or other peripheral device to the balance as per standard RS-232C/V24 for connection cables up to 15 m in length

Do not assign any other pins on this balance!





Cable type: AWG 24 specification

Data Output

You can define the data output parameter so that output is activated either when a print command is received or automatically synchronized with the display or at defined intervals (see application programs and autoprint settings).

Data Output following Print Command

The print command can be transmitted by pressing the (⎙) key or by a software command (EscP).

Automatic Data Output

In **Autoprint** mode, data is output to the data interface port without an extra print command. You can have synchronized data output automatically at defined display update intervals, with or without the stability parameter. The interval time depends on the balance operating status and balance type.

If the automatic data output is activated in the Device Configuration, it starts immediately after the balance is turned on. You can also configure whether the automatic data output can be stopped and started with the (⎙) key.

Data Output Formats

You can output the values displayed in the line for measured values and weight units with or without an ID code. Configure this output parameter in the Device Parameters menu (Menu > Device parameters > Configure data output > Line format).

Example: Output without Identification

`+  253 pcs` 16 characters are printed

Example: Output with Identification

`Qnt  +  253 pcs` 22 characters are printed

Data Output Format with 16 Characters

Display segments that are not activated are output as spaces.

The type of character that can be output depends on the character's position:

Position	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	+			A	A	A	A	A	A	A	*	E	E	E	CR	LF
or	–			.	.	.	.	.	.	.		*	*	*		
or	*		*	*	*	*	*	*	*	*						

*: Space
A: Displayed characters
E: Unit characters
CR: Carriage return
LF: Line feed
. : Decimal point

Special Outputs

Position	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	*	*	*	*	*	*	*	*	*	*	*	*	*	*	CR	LF
or						H	i	g	h							
or						L	o	w								
or				C	a	l	.	E	x	t	.					

*: Space
Cal. Ext.: Adjustment, external
High: Overload
Low: Underweight

Error Message

Position	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
				E	r	r	*	#	#	#	*	*	*	*	CR	LF
				A	P	P	.	E	R	R[1]	*	*	*	*	CR	LF
				D	I	S	.	E	R	R[1]	*	*	*	*	CR	LF
				P	R	T	.	E	R	R[1]	*	*	*	*	CR	LF

*: Space
#: Error code

[1]) For cause and solution, please refer to the "Troubleshooting Guide"

Example: Output of the weight value + 123.56 g

Position	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	+	*	*	*	1	2	3	.	5	6	*	g	*	*	CR	LF

Position 1: Plus or minus sign or space
Position 2: Space
Positions 3 – 10: Weight value with decimal point; leading zeros are output as spaces.
Position 11: Space
Position 12 – 14: Characters for unit of measure or space
Position 15: Carriage return
Position 16: Line feed

Data Output Format with 22 Characters
When data is output with an ID code, the 6-character code precedes the 16-character string described above.
These six characters identify the subsequent value.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
K	K	K	K	K	K	+	*	A	A	A	A	A	A	A	A	*	E	E	E	CR	LF
	*	*	*	*	*	–		.	.	.	.	.	.	.	.		*	*	*		
						*		*	*	*	*	*	*	*	*						

K: ID code character
*: Space
A: Displayed characters
E: Unit characters
CR: Carriage return
LF: Line feed

Example:

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
N						+				1	2	3	.	5	6	*	g	*	*	CR	LF

SBI Setting:
In the "SBI" setting (menu code 1. 5. 6. 1), the non-verified display digit is not automatically identified.
Please take the corresponding measures or adjust the settings on the peripheral device.

Special Outputs

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
S	t	a	t	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	CR	LF
											H	i	g	h							
											L	o	w								
									C	a	l	.	E	x	t	.					

*: Space
Cal. Ext.: Adjustment, external
High: Overload
Low: Underweight

Error Message

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
S	t	a	t	*	*	*	*	*	E	R	R	*	#	#	#	*	*	*	*	CR	LF
S	t	a	t	*	*	*	*	*	A	P	P	.	E	R	R [1]	*	*	*	*	CR	LF
S	t	a	t	*	*	*	*	*	D	I	S	.	E	R	R [1]	*	*	*	*	CR	LF
S	t	a	t	*	*	*	*	*	P	R	T	.	E	R	R [1]	*	*	*	*	CR	LF

*: Space
#: Error code

[1]) For cause and solution, please refer to the "Troubleshooting Guide"

Data Output Rates – Values per Second

Ambient Conditions (filter adjustment)	XBPI / SBI "Autoprint"	
Very stable (1.1.1.1)	20	20
Stable (1.1.1.2)	10	10
Unstable (1.1.1.3)	5	5
Very unstable (1.1.1.4)	2.5	2.5

Data Input (Compatibility with Current Weigh Cells)

SBI Commands (Data Input Format)

The computer connected via the data port can send control commands to the balance to control balance and application program functions.

These control commands may have different formats and contain up to 20 characters. Each of these characters must be sent based on the setup configuration for data transmission.

Formats for Control Commands (Syntax)

Format 1:	Esc	!	CR	LF		
Format 2:	Esc	!	#	_	CR	LF

Esc:	Escape
!:	Command character
#:	Number
&t:	Parameter (number or letter)
_:	Underscore (ASCII: 95)
CR:	Carriage return (optional)
LF:	Line feed (optional)

Examples:
Format 1: Esc P
Format 2: Esc x1_

Overview of SBI Commands

Format	Comment	Action/Function	Note
1	ESC P	Print at the interface sending the print request According to menu settings; with/without stability	
1	ESC T	"TARE" key; taring and zeroing	
1	ESC K	Filter "Very stable conditions"	
1	ESC L	Filter "Stable conditions"	
1	ESC M	Filter "Unstable conditions"	
1	ESC N	Filter "Very unstable conditions"	
1	ESC O	Lock keypad	
1	ESC Q	Acoustic signal	
1	ESC R	Unlock keypad	
1	ESC S	Restart	
1	ESC Z	Internal adjustment	According to menu settings; 1/2 step increments
1	ESC U	Taring	
1	ESC V	Zeroing	
1	ESC Z	External adjustment with standard weight	According to menu settings; 1/2 step increments
2	ESC f0_	(SELECT MENU) key	
2	ESC f1_	Start adjustment	
2	ESC f2_	(ENTER) key	
2	ESC kP_	Print as with "PRINT" key (e.g., at multiple interfaces)	
2	ESC s3_	(CF) key: Go back, exit, cancel	
2	ESC x1_	ESC x1_ Print model	
2	ESC x2_	Print serial no.	
2	ESC x3_	Print software version	

Example:
"Calibration/Adjustment" Function via RS-232 Interface

Purpose
Adjustment is the correction of the difference between the measured value displayed and the true weight of a sample, or the reduction of the difference to an allowable level within maximum permissible error limits.

Features
The adjustment routine should only be started when
- The weigh cell is not loaded
- The weigh cell is tared
- The weighing signal is stable

- The sensitivity of the balance can be corrected by max. 2%.

If these criteria are not met, error message "ERR 02" appears.

Error message "ERR02":
- Note ambient conditions
- Weigh cell needs stability
- If necessary, change the balance parameter settings:
  Select Ambient conditions menu item 1.1.1.4 (very unstable) or execute interface command ESC N

Adjustment can be made using different weight units:
CAL.UNIT > GRAM, KILOGR.

Internal Calibration
In the menu, the item CAL./ADJ. > CAL.INT. must be set.
The weigh cell housing has a built-in motorized calibration weight.

● Select calibration/adjustment: Command ESC Z
> The internal calibration weight is loaded automatically
> The balance is adjusted/calibrated
> The internal calibration weight is removed

Internal Calibration/Adjustment

Configuration:
SETUP > BAL.SCAL. > CAL./ADJ. > CAL.INT.

The weigh cell housing has a built-in motorized calibration/adjustment weight.

● Select calibration: Command ESC Z

> The internal calibration weight is automatically loaded
> The balance is calibrated
> When the setup is configured to "Calibration and adjustment in one," the balance will be adjusted automatically
> The internal calibration weight is removed

Performing Calibration and Adjustment Routines
The following settings can be configured:
– Always perform calibration and adjustment in one routine (factory setting)
– After calibration, the user has the option to quit the routine without correction or to adjust the balance.

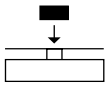
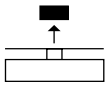
If no deviations are found during calibration, the calibration/adjustment routine can be exited after the calibration is completed. Two keys are now active:

– Start the adjustment: Command ESC f1_
– Exit the routine: Command ESC f3_

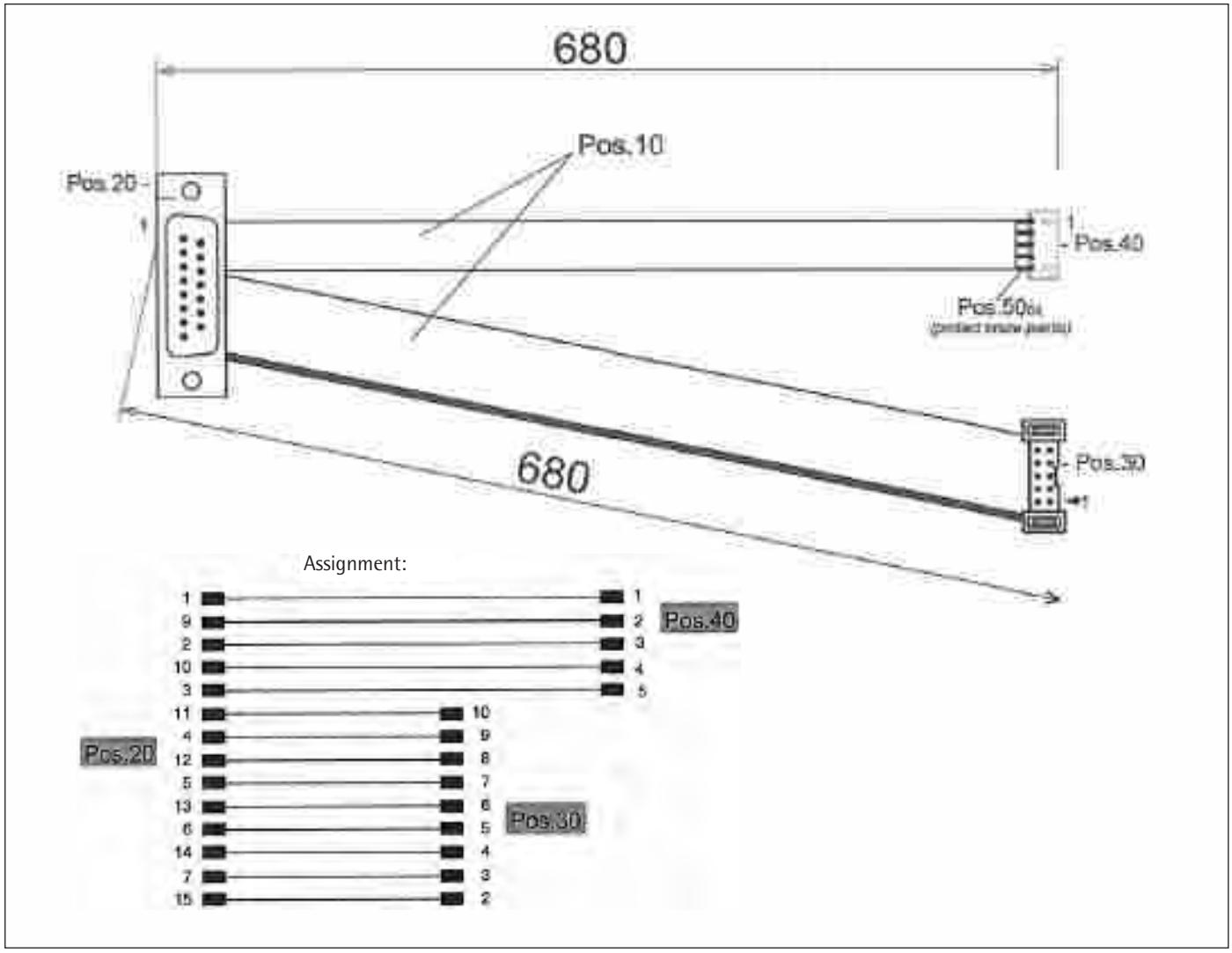
Step	Execute interface command	Display/ Output
1. Tare balance	ESC T	0.0000 g
2. Start adjustment routine	ESC Z	CAL.INT.
The internal calibration weight is loaded automatically.		CAL.RUN.
3. Adjustment carried out		CAL.END
4. Internal weight is removed from balance		0.0000 g

External Calibration

Configuration:
SETUP > BAL.SCAL. > CAL./ADJ. > EXT.CAL.
The balance has a factory-set calibration weight value (see "Specifications").

Step	Execute interface command	Display/ Output
1. Tare balance	ESC T	0.0000 g
2. Start adjustment routine	ESC W	EXT.CAL.
Once you store the zero point, a prompt for the required calibration weight flashes on the display.		– 50.0000 g
3. Place displayed calibration weight on balance (in this example: 50 g). Weight too low: a minus sign "-" is shown Weight too high: a plus sign "+" is shown		50.0000 g
The display stops flashing as soon as the weight value is within the defined limit.		
4. Adjustment carried out; adjustment weight is displayed		CAL.END + 50.0000 g
5. Remove the adjustment weight		50.0000 g

Extension Cord between Weigh Cell and Electronics PCB



Pos.	Name	Manufacturer	Manufacturer	Internal article #	Cut length	Quantity	Approvals/Notes
10	Cable ribbon, AWG28 15-pin gray	3M	3365	57001-318-01	680 mm	1×	UL file no. E42769
20	Male connector, D-SUB 15-pin IDC			54101-020-01		1×	
30	Male connector, 10-pin IDC	3M	4610-6051	010800		1×	UL file no. E68080
40	Pin strip, 5-pin solder	JST	B5B-XH-A	57002-151-01		1×	or 57001-883-01 UL recognized E60389
50	Shrink tubing 2.4 × 12			31335-202-02		5×	

⚠ The user can create this cable himself/herself. The ambient conditions must be non-critical.

Error Messages

Error codes are displayed for about two seconds. The program then returns automatically to the weighing mode.

Problem	Cause	Solution
HIGH or ERR 55	Weighing capacity exceeded	Unload the weighing pan
LOW or ERR 54	Contact between load plate and environment; load on weighing pan too light	Weighing pan must not be in contact with surrounding parts
APP.ERR.	Cannot save data: Load on weighing pan too light or no sample on pan while application is active	Increase weight
DIS.ERR.	Data output not compatible with output format	Set the correct output format in the menu
PRT.ERR.	Data interface for printout locked	Reset menu factory settings or Contact your local Sartorius Service Center
ERR 02	Calibration parameter not met, e.g.: – Unstable – Tare – Load on weighing pan	 Correct the setup conditions Calibrate only when zero is displayed Unload the balance/scale
ERR 10	“Tare” function is locked for active application program “Net total” application program; only one tare function can be used at a time	Clear the tare memory to unlock the “Tare” function
ERR 11	Tare memory not allowed	Carry out “Tare” function
ERR 03	Zero point error at the end of calibration	Check installation conditions; observe warm-up time; repeat calibration
ERR 06	Int. calibration weight faulty or not available	Service
ERR 08 <> Zero range	Error during zeroing (value outside 2%)	Change process
ERR 09 < 0 not allowed	Error during taring (tare value ≤ 0)	Change process
ERR 19 Preload is too high	The preload to be applied is too high	Change the preload value
ERR 30	Balance/scale is in BPI mode	Use service tool and built-in “Close” function
ERR 50 or 53	TC converter failure	Service
ERR 241	Checksum error	Service
ERR 243	Checksum error	Carry out menu reset
ERR 245 or 247	Checksum error	Calibrate/adjust balance/scale
ERR 249	Checksum error	Service
Weight readout changes constantly	Unstable ambient conditions (excessive vibration or draft) Foreign body between weighing pan and housing	Change setup location Adjust Setup configuration Remove foreign body
The weight readout is obviously wrong	Balance/scale not calibrated/adjusted Balance/scale not tared before weighing	Adjust Tare
Weight data not output via the serial interface (ERR 294).	Initial connection of an optional YAC01...display and control unit	1) Move the lock switch back and forth (position see page 3 ff.). 2) Switch power off and then on again.

If any other errors occur, contact your local Sartorius Service Center.
Web address: http://www.sartorius.com

Overview

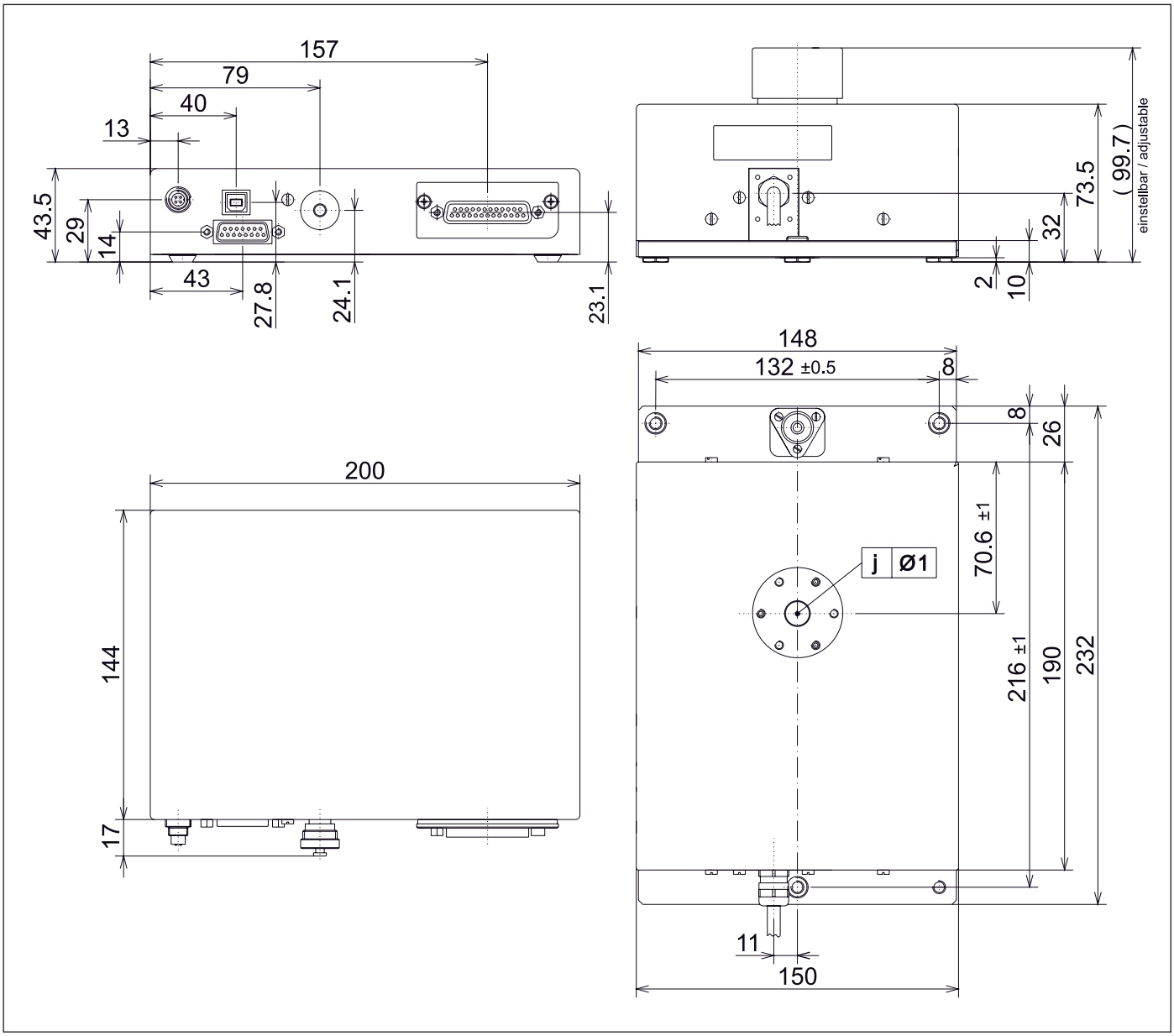
Specifications

		Standard Specifications				Customer-specific Modifications
Model		**WZA614-NC**	**WZA215-LC**	**WZA245-NC**	**WZA26-NC**	
Technology		EMK	EMK	EMK	EMK	
Weighing capacity	g	610	210	240	20	
Readability	µg	100	10	10	1	
Required preload on the load receptor	g	0	0	0	12.5	
Tare range (subtractive)	g	Over entire weighing range				
Reproducibility (standard deviation) 1)	<±µg	200	20	10	2	
Linearity deviation	<±µg	500	200	150	20	
Measurement time 3)	s	1.5 at ≤ ± 100 µg	2.5 at ≤ ± 20 µg	1.8 at ≤ ± 10 µg	1.8 at ≤ ± 1 µg	
Adaptation to ambient conditions		4 optimized filter levels				
Operating temperature range	°C		+10 to +30°C			
Permissible ambient operating temperature	°C	+5 to +40°C				
Sensitivity drift within +10 to +30°C	<±/K		1 · 10-6			
External calibration weight (min. accuracy class)	g	200 (E2)	50 (E2)	50 (E2)	5 (E2)	
Net weight, approx.	kg	2.25				
Power supply Ripple 50/60 Hz Power consumption	V DC V DC	15 V (+15% to –10%) using AC adapter 69 71987 0.1 Vpp (peak–peak) Typically 3.75 W Max. 7 W				

1) = Depends on system design
2) = For operation with greater preload setting, please send e-mail to fast.factory@sartorius.com in order to request PC configuration software. Larger preloads are possible if the weighing capacity is reduced.
3) = The measurement time is the time period in which the measured value oscillates within a range of ±3x the standard range of the static end value. Test weight approx. 25% of max.

Dimensions (Scale Drawings)

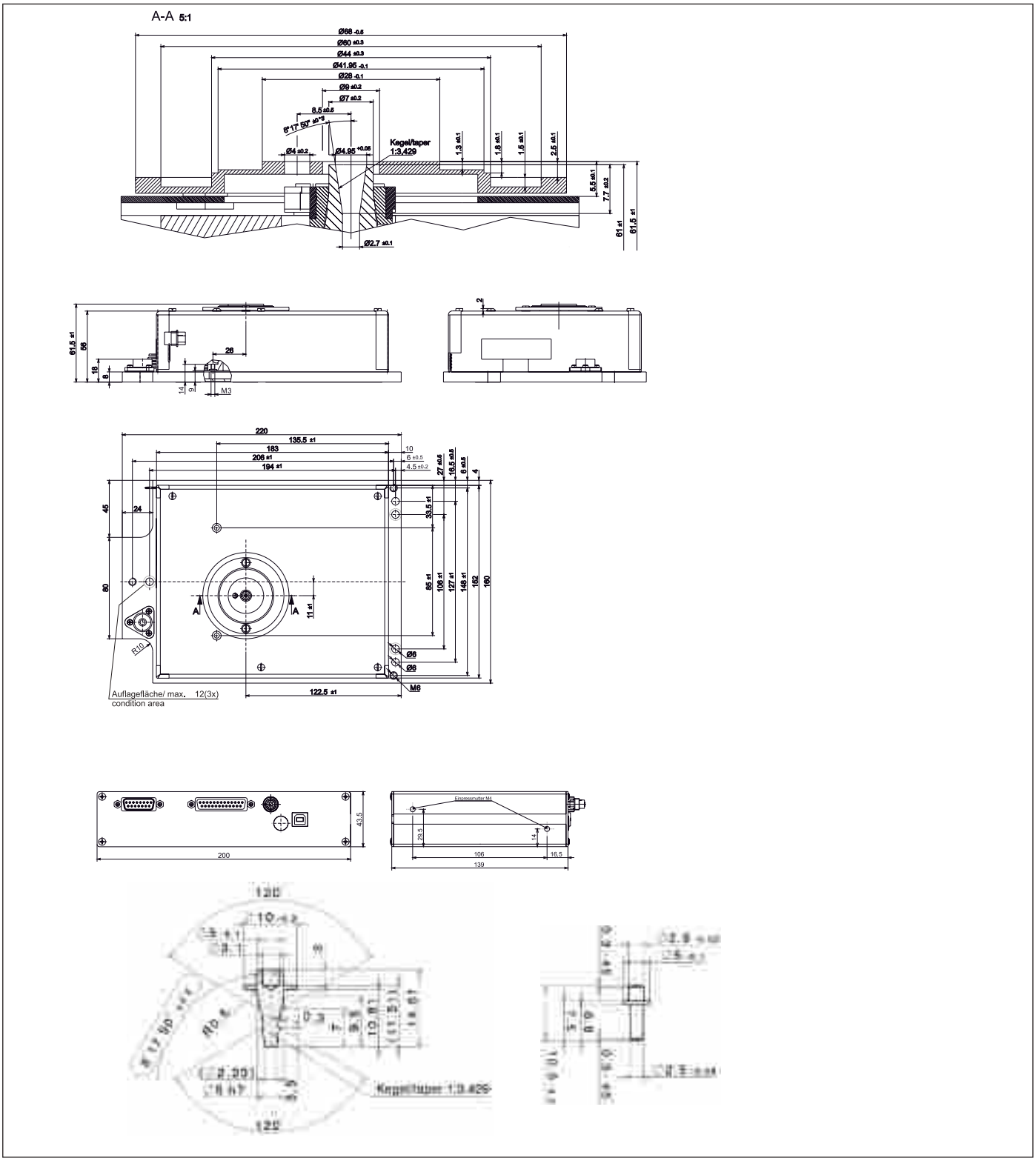
Weigh Cell Model:
WZA614-NC



All dimensions are given in millimeters

Dimensions (Scale Drawings)

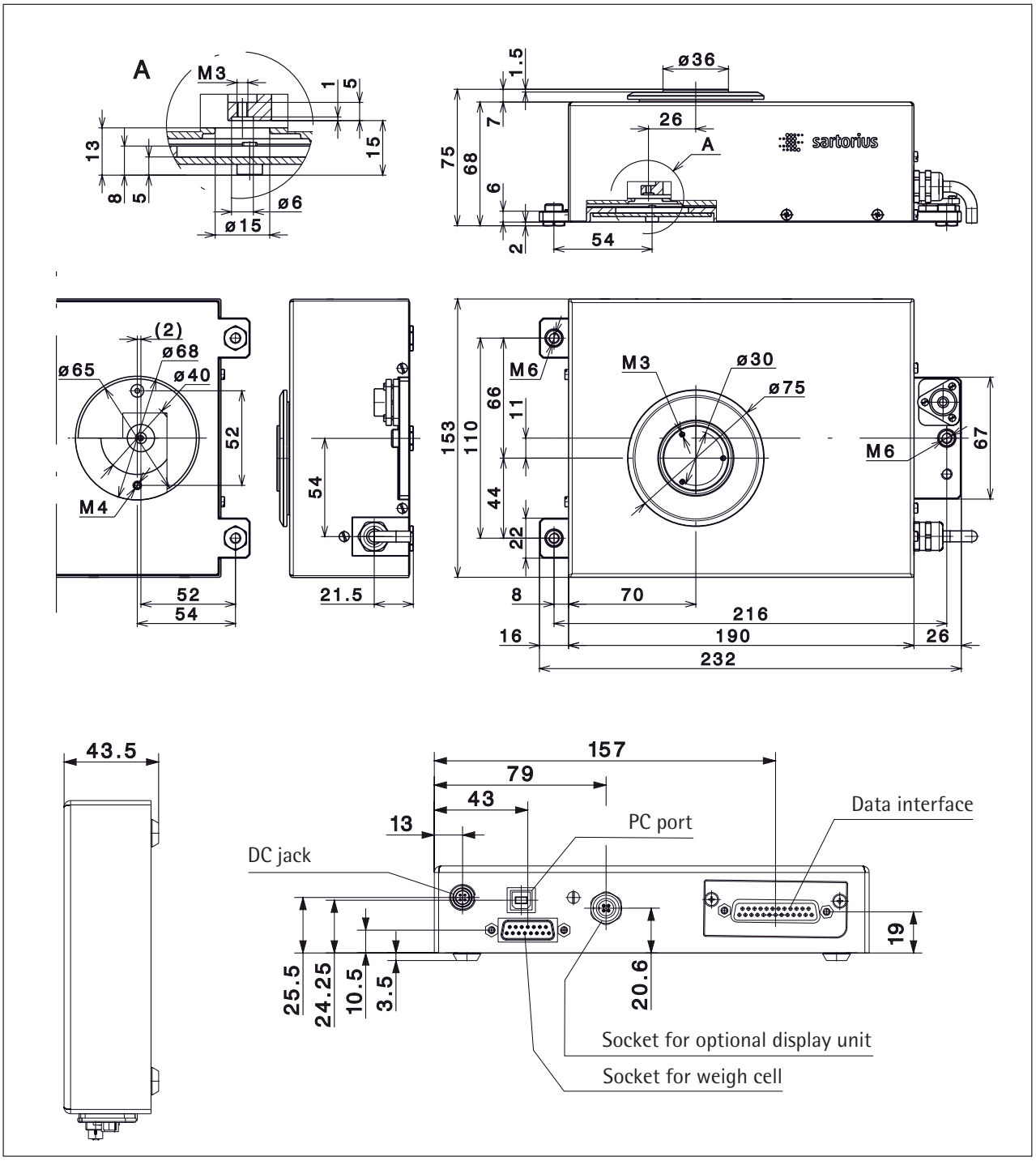
Weigh Cell Model:
WZA215-LC



All dimensions are given in millimeters

Dimensions (Scale Drawings)

Weigh Cell Model:
WZA245-NC, WZA26-NC



All dimensions are given in millimeters

Accessories

	Item	Order No.
	Display and control unit with cable (0.9 m) for connection to electronics unit	
–	WZA215-LC	YAC01MSE
–	WZA245-NC, WZA26-NC, WZA614-NC	YAC01CU
	Configuration software for settings, calibration/adjustment, and setting the preload	Sartorius CAS Suite
	SartoConnect data transfer software (for loading weight values onto a PC running Windows® 95/98/NT and directly processing them with application programs such as Excel, Access, etc.) incl. adapter cable (1.5 m) for connecting weigh cell to PC (12-pin/9-pin)	YSC011
	RS-232 data cables:	
–	for PC connection, 25-pin	7357312
–	for PC connection, 9-pin	7357314
	AC adapter IP40 protection in accordance with DIN VDE 0470/529*	6971987
	Mains supply cable:	6900900 (Europe) 6900901 (US/Canada) 6971945 (UK) 6971980 (Denmark) 6900905 (Australia) 6900902 (South Africa) 6971776 (Italy) 6971975 (Israel)

Additional options and accessories available on request.

* VDE = Verband der Elektrotechnik, Elektronik, Informationstechnik
(German Association for Electrical, Electronic & Information Technologies)

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CE EG-Konformitätserklärung
EC Declaration of Conformity

Sartorius Weighing Technology GmbH
Weender Landstrasse 94 – 108
D-37075 Goettingen, Germany

erklärt in alleiniger Verantwortung, dass das Betriebsmittel
declares under own responsibility that the equipment

Gerätetyp *Device type*	Wägezelle + Anzeigeeinheit *Weighing cell + display unit*
Baureihe / *type series*	**WZA26-NC, WZA245-NC, WZA614-NC + YAC01CU**

in der von uns in Verkehr gebrachten Ausführung mit den grundlegenden Anforderungen der folgenden Europäischen Richtlinien übereinstimmt
in the form as delivered complies with the basic requirements of the following European Directives

Richtlinie 2004/108/EG *Directive 2004/108/EC*	Elektromagnetische Verträglichkeit *Electromagnetic compatibility*
Richtlinie 2006/95/EG *Directive 2006/95/EC*	Elektrische Betriebsmittel zur Verwendung innerhalb bestimmter Spannungsgrenzen *Electrical equipment designed for use within certain voltage limits*

Das Gerät erfüllt die anwendbaren Anforderungen folgender harmonisierter Europäischer Normen
The apparatus meets the applicable requirements of the harmonised European Standards listed below

1. Richtlinie 2004/108/EG / *Directive 2004/108/EC*

EN 61326-1:2006	Elektrische Mess-, Steuer-, Regel- und Laborgeräte – EMV-Anforderungen – Teil 1: Allgemeine Anforderungen *Electrical equipment for measurement, control and laboratory use – EMC requirements – Part 1: General requirements*

2. Richtlinie 2006/95/EG / *Directive 2006/95/EC*

EN 61010-1:2010	Sicherheitsbestimmungen für elektrische Mess-, Steuer-, Regel- und Laborgeräte – Teil 1: Allgemeine Anforderungen *Safety requirements for electrical equipment for measurement, control, and laboratory use – Part 1: General requirements*

Jahr der Anbringung der CE-Kennzeichnung / *Year of attachment of CE marking:* 12

Sartorius Weighing Technology GmbH
Goettingen, 2012-09-27

i.V. i.V.

Dr. Reinhard Baumfalk
Vice President, R&D

Dr. Dieter Klausgrete
Head of International Certification Management

Diese Erklärung bescheinigt die Übereinstimmung mit den genannten EG-Richtlinien, ist jedoch keine Zusicherung von Eigenschaften. Bei einer mit uns nicht abgestimmten Änderung des Produktes verliert diese Erklärung ihre Gültigkeit. Die Sicherheitshinweise der zugehörigen Produktdokumentation sind zu beachten.
This declaration certifies conformity with the above mentioned EC Directives, but does not guarantee product attributes. Unauthorised product modifications make this declaration invalid. The safety information in the associated product documentation must be observed.

SWT12CE009_01 65232-000-50 SOP-3.00-045-fo7

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Konformitätserklärung
Declaration of Conformity

Sartorius Weighing Technology GmbH
Weender Landstr. 94 – 108
37075 Goettingen, Germany

erklärt in alleiniger Verantwortung, dass das Betriebsmittel
declares under own responsibility that the equipment

Geräteart *Device type*	**Wägeeinheit in Komponenten-Bauweise** *Weighing unit component design*
Baureihe / *Type series*	WZA...-L + YAC01ED

übereinstimmt mit den Regelungen der Europäischen Richtlinie (in der heute gültigen Fassung):
complies with the regulations of the European Directive (in the today valid version):

Richtlinie 2002/95/EG	Zur Beschränkung der Verwendung bestimmter gefährlicher Stoffe in Elektro- und Elektronikgeräten
Directive 2002/95/EC	*on the restriction of the use of certain hazardous substances in electrical and electronic equipment*

sofern das Betriebsmittel gekennzeichnet ist mit:
provided that the equipment is marked with:

RoHS EU

Sartorius Weighing Technology GmbH
Goettingen, 2012-10-14

Dr. Reinhard Baumfalk
Vice President R&D

Dr. Dieter Klausgrete
Head of International Certification Management

Diese Erklärung bescheinigt die Übereinstimmung mit den genannten EG-Richtlinien, ist jedoch keine Zusicherung von Eigenschaften. Bei einer mit uns nicht abgestimmten Änderung des Produktes verliert diese Erklärung ihre Gültigkeit. Die Sicherheitshinweise der zugehörigen Produktdokumentation sind zu beachten.

This declaration certifies conformity with the above mentioned EC Directives, but does not guarantee product attributes. Unauthorised product modifications make this declaration invalid. The safety information in the associated product documentation must be observed.

SWT12RoHS019_01 SDP-3.90-045-No3

Konformitätserklärung
Declaration of Conformity

Sartorius Weighing Technology GmbH
Weender Landstr. 94 - 108
37075 Goettingen, Germany

erklärt, dass das Betriebsmittel
declares that the equipment

Geräteart: *Device type:*	Präzisionswägezelle mit Anzeige- und Bedieneinheit *High Precision Load Cell with Display and Operating Unit*
Baureihe / *Type series:*	**WZA...-N. + YAC01ED**

übereinstimmt mit den Regelungen der Europäischen Richtlinie (in der heute gültigen Fassung):
complies with the regulations of the European Directive (in the today valid version):

Richtlinie 2002/95/EG	Zur Beschränkung der Verwendung bestimmter gefährlicher Stoffe in Elektro- und Elektronikgeräten
Directive 2002/95/EC	*on the restriction of the use of certain hazardous substances in electrical and electronic equipment*

sofern das Betriebsmittel gekennzeichnet ist mit:
provided that the equipment is marked with:

Sartorius Weighing Technology GmbH
Goettingen, 2011-08-17

Dr. Reinhard Baumfalk
Vice President R&D

Dr. Dieter Klausgrete
Leitung International Certification Management
Head of International Certification Management

Diese Erklärung bescheinigt die Übereinstimmung mit der genannten EG-Richtlinie, ist jedoch keine Zusicherung von Eigenschaften. Bei einer mit uns nicht abgestimmten Änderung des Produktes verliert diese Erklärung ihre Gültigkeit.
This declaration certifies conformity with the above mentioned EC Directive, but does not guarantee product attributes. Unauthorised product modifications make this declaration invalid.

SWT11069H-009 | 05805-000-58 | SOP-3 RD-046-fo3

Formular: Rücklieferung
Form: Return delivery

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Bitte dieses Formular dem Gerät beilegen
Please attach this form to the instrument being returned

Rücklieferungsnummer / Meldungsnummer Goods return number / Registration number

Zu beachten!
Um eine Gefährdung unserer Mitarbeiter durch Kontaminationen ausschließen zu können, ist eine Bearbeitung nur mit ausgefüllter Dekontaminationserklärung möglich.

Important Note!
To protect our employees from health hazards due to contamination, we will only accept return products if we have a completly filled Declaration of about Decontamination.

An | To:	Von | From:
Sartorius Weighing Technology GmbH **Servicezentrum Mechatronik / Geb. 15** **Weender Landstraße 94–108** **37070 Göttingen** **Germany**	
Typ | Model — Serien-Nr. | Serial no.	Kunden-Nr. | Customer no.
Zubehör | Accessories	Bestell-Nr. / Rechnungs-Nr. | Order no. / Invoice no

Informationen zur Rücksendung | Informations on return delivery

- ☐ Produkt defekt | Product defective:
- ☐ Lieferung unvollständig | Delivery incomplete:
- ☐ Falschlieferung | Wrong delivery:
- ☐ Konsignationsgerät | Goods on consignment:
- ☐ Anderer Grund | Other reason:

- ☐ Nach Reparatur ins Fertiglager
  Return to stock after repair
- ☐ Nach Reparatur zurück an Absender
  Return to sender after repair
- ☐ Kostenvoranschlag an | Quotation to:
- ☐ Weiterleiten an | Forward to:
- ☐ Information an | Information to:
- ☐ Sonstiges / Bemerkungen | Other / Remarks:
- ☐ Nach Reparatur ins 2.Wahl-Lager
  Return to second hand stock after repair
- ☐ Entsorgen | Scrap

Kontaktperson | Contact person — Tel.-Nr. | Phone no. — Fax-Nr. | Fax no. — Kostenstelle | Cost Center

Datum | Unterschrift (Kontaktperson)
Date | Signature (Contact person)

Genehmigt | Datum | Unterschrift
Approved | Date | Signature

Declaration
about decontamination

Declaration about decontamination and cleaning of equipment and components

To protect our personnel, we require all equipment or components be free of biological, chemical, or radio active contaminants. We will only accept such equipment or components when:

- the equipment or components have been adequately CLEANED and DECONTAMINATED.
- this declaring document has been completed, signed and returned by an authorized person.

Please help us in assuring a safe, hazard-free work environment.

Description of the Equipment or Component(s)

Description / Cat. No.:	
Serial no.:	
No. of invoice/delivery note	
Date of delivery:	

Contamination / Cleaning

Attention: Please specify exactly the biological, chemical, or radioisotopic contaminant.	**Attention: Please describe the cleaning and decontamination procedure/method.**
The equipment was contaminated with:	and it has been cleaned and decontaminated by

Legally binding declaration

I (we) certify that all information given in this form is correct and complete.
The equipment and components have been adequately decontaminated and cleaned according to the legal requirements. No chemical or biological or radio active risks remain that can endanger exposed persons' safety or health.

Company / Institute:			
Address / Country:			
Tel.:		**Fax** (with area code):	
Name of the authorized person:			
Position:			
Signature / Date:			

Please pack the equipment properly and send it to your local service representative or to Sartorius Weighing Technology GmbH, Germany.

Sartorius Weighing Technology GmbH
Servicezentrum Mechatronik
Weender Landstraße 94-108
37070 Göttingen
Deutschland

Sartorius Weighing Technology GmbH
Weender Landstrasse 94–108
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www.sartorius.com

Date:
February 2014,
Sartorius Weighing Technology GmbH,
Goettingen, Germany

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