

Operating Instructions

# PMA.Evolution | PMA.HD


EV01Y | LAB1Y

Paint-mixing scales for use in potentially explosive atmospheres of zone 2





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# 1 About This Document

## 1.1 Validity

These operating instructions apply to color-mixing scale models:

- EVO1Y
- LAB1Y

## 1.2 Symbols Used

As a means of instruction and direct warning of hazards, all especially important text statements to be observed in these installation instructions will be marked as follows:



This instruction denotes a possible danger with medium risk of death or severe injury if not avoided.



This symbol denotes a possible danger with moderate or minor risk of injury if not avoided.



This symbol denotes a danger with low risk of damage to property if not avoided.



This symbol:

- is an indication of a function or setting on the device
- indicates that caution should be exercised while working
- identifies useful information.



This symbol provides information for the sale of scales verified for use in legal metrology.  
In the following, the term "verified" is used to mean "verified for use in legal metrology" or "conformity-assessed."

The following symbols are also used:

- Texts that follow this symbol are lists.
- ▶ Texts that follow this symbol describe activities which are to be performed in the specified order.
- ▷ Texts that following this symbol describe the result of an action.

## 2 Safety

### 2.1 General Safety Instructions

- The scale meets the relevant EU Directives and applicable harmonized standards (see "EC Type Examination Certificate" in the Appendix).
- Improper use or handling, however, can result in damage and/or injury. Any improper use or operation of the scale will result in forfeiture of all claims under the manufacturer's warranty.
- Personnel need to have read and understood these installation instructions, including the safety instructions.
- If the scale is used in systems and under ambient conditions with higher safety requirements, you must observe the requirements and provisions applicable in your country.
- Always keep the equipment and scale freely accessible.



Make sure that the voltage rating printed on the AC adapter is identical to your local mains voltage.



The IP protection rating of the scale is IP40 in accordance with EN 60529. The device must be handled carefully according to the IP protection rating. The environment must be suitably secured.

#### Ex Zone 2 (Category 3 Equipment)

- In accordance with Directive 94/9/EC, the EVO1Y | LAB1Y model is a category 3 device, suitable for use in Zone 2 potentially explosive areas.  
EC Type Examination Certificates: FM15ATEX0008X  
Identification: II 3G Ex ic nA IIB T4 Gc



If the device is used in Zone 2 potentially explosive areas outside the Federal Republic of Germany, the relevant national electrical codes and safety regulations must be observed. Ask your dealer or Sartorius Service Center about the guidelines that apply in their country.

### 2.2 Installation Instructions



Do not operate the scale if its housing, AC adapter, or any connections are damaged. Immediately disconnect the damaged device from the power.



Do not expose the scale, the AC adapter or the accessories supplied by Sartorius to extreme temperatures, aggressive chemical vapors, moisture, shocks, vibrations, or strong electromagnetic fields. Observe the conditions of operation described in the Specifications.

The casing on all connection cables as well as the casing on the wires inside the equipment housing is made of PVC. Chemicals that corrode this material must be kept away from these cables.



The operator shall be solely responsible for any modifications to the equipment and for connecting any cables or equipment not supplied by Sartorius! Information on operational quality is available upon request from Sartorius.  
Only use original Sartorius accessories!



Note the IP protection class of the scale and the AC adapter. Do not allow liquid penetration. The protection class specifies the suitability of equipment for various environmental conditions (moisture, foreign bodies).



Before cleaning the AC adapter or the scale:  
Disconnect all devices from the power.



The scale should only be opened by Sartorius-trained personnel with the power disconnected.  
Do not open the AC adapter.



Avoid generating static electricity on the glass panel of the touch screen and plastic casing. The equipotential bonding conductor of the devices must be connected properly, according to commonly accepted technical standards.  
Only clean the device as stipulated in the cleaning instructions.



Take care that the glass panel of the touch screen is not damaged (e.g., by falling objects, impact, or extreme pressure).  
If the glass panel is damaged, disconnect the device from the power supply immediately.



The surface of the touch screen should not be touched with pointed, sharp, hard, or rough objects. You should only use the touch pen provided or your fingertips. Do not use parts of clothing (e.g., sleeves) or sponges for cleaning because these can scratch the surface (e.g., due to rivets, buttons in the sleeve or sand in the sponge).  
The device must be protected from unnecessarily extreme temperatures, aggressive chemical vapors, moisture, shocks, and vibrations. Note the connection data (see EC Type Examination Certificates for the device and/or the safety instructions, drawing no. 2021460).

**Warnings Concerning Installation and Operation:**



The equipment must only be used indoors. Avoid generating static electricity on glass and plastic parts. Connect the scale to the equipotential bonding conductor using a suitable low-resistance method. All electrical circuits are grounded and electrically connected to the metal parts of the device.

- The installation must be checked for correct function and safety by trained and qualified personnel at appropriate intervals (e.g., checking the cable for damage).
- Operating personnel must be trained to recognize faulty operating states and be able to initiate the necessary safety measures.



Lay the cables where they pose no risk of causing someone to trip.



**Danger of Scale Damage!**

Never close a paint can using a hammer while it is still on the weighing pan.  
When closing, place the paint can on a firm, stable surface.

Observe the additional safety precautions and danger descriptions in subsequent chapters.

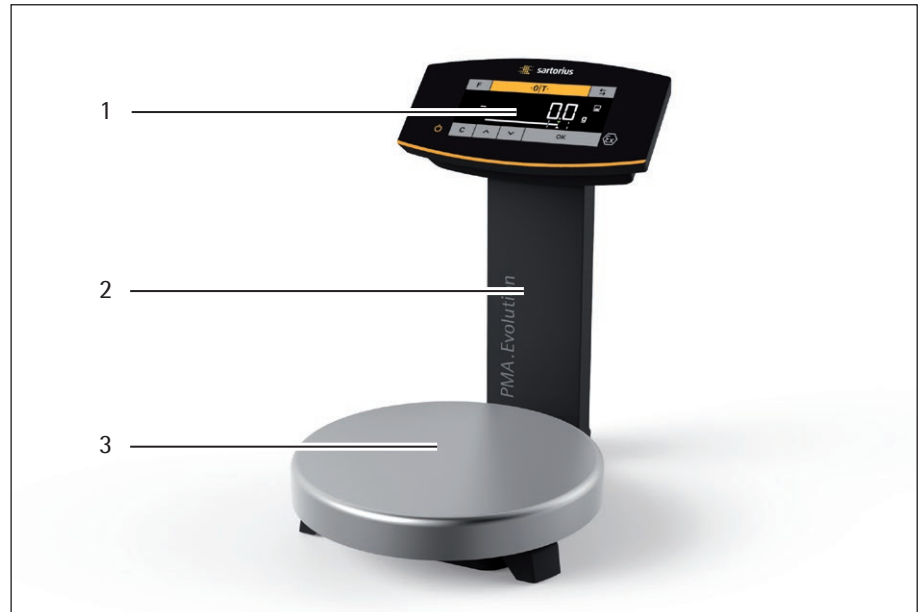
### 2.3 Intended Use

This scale is only intended for mixing colors and paints. The scale is used in Zone 2 potentially explosive areas. Appropriate containers must be used for each type of material.

The scale can be operated via the keypad as a stand-alone device or using application software (e.g., a paint-mixing program from a paint manufacturer) installed on a connected PC. The scale is connected to the PC/notebook installed outside of the potentially explosive area via a USB cable.

## 3 Device Overview

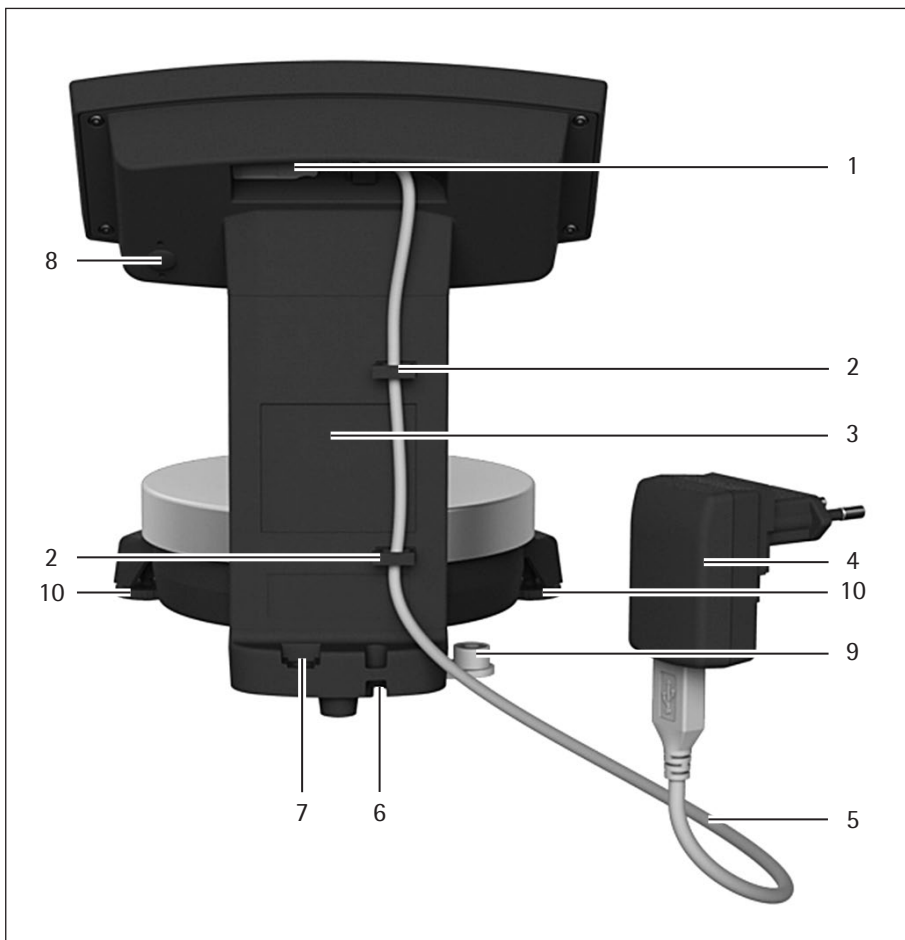
### 3.1 Front View



Item	Description
1	Operating and display elements (see also Chapter 3.3, page 10)
2	Stand
3	Weighing pan



### 3.2 Rear View

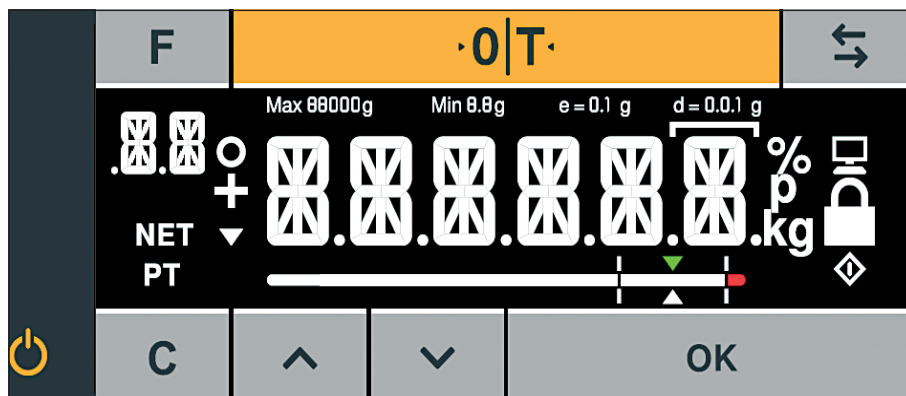


Item	Description
1	USB port
2	Cable holders
3	Stand
4	AC adapter with country-specific mains adapter (optional) (Figure may deviate from product)
5	USB connection cable
6	Anti-theft locking device
7	Grounding terminal for equipotential bonding
8	Menu access switch
9	Leveling (verified models only)
10	Leveling feet (verified models only)

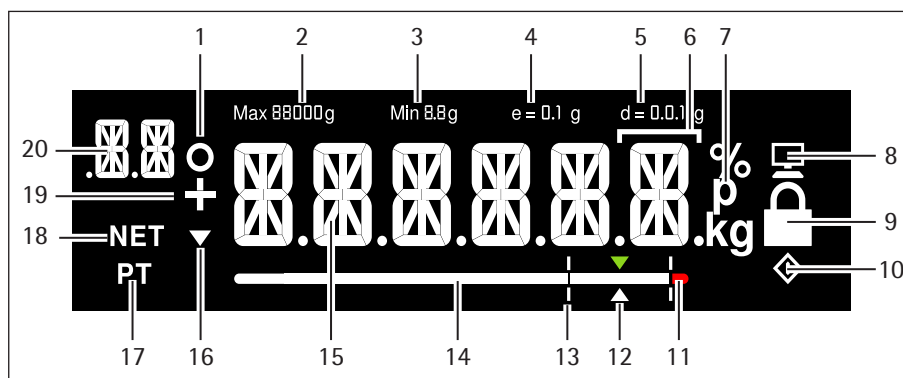
### 3.3 Operating and Display Elements



**Sharp or pointed instruments (such as ballpoint pens) can damage the device!**  
 – The touch screen should only be operated by lightly pressing it using the tips of your fingers.



Key	Function
<b>F</b>	Factor key for paint-mixing applications
<b>·0 T·</b>	Zeroing/taring
<b>↔</b>	Toggle key: Toggles the decimal places and/or unit Depends on the menu setting
<b>⏻</b>	On/standby
<b>C</b>	Clear key/display of correction factor for paint-mixing applications
<b>^</b>	Up
<b>v</b>	Down
<b>OK</b>	ENTER key/MEM key for paint-mixing applications



Item	Function
1	Activated function in the menu list (see Chapter 3.4, page 12)
2	Maximum weighing range
3	Minimum load Min (verified models only)
4	Verification scale interval e (verified models only)
5	Readability of the scale (scale interval d)
6	In verified mode for devices where $e \neq d$ : The frame indicates a scale interval (standard scale interval d is smaller than verification scale interval e)
7	Weight unit and stability indicator
8	Communication with the PC
9	Activate "LOCK" function, or function activated
10	◆ symbol: indicates that an internal process is in progress Verified models: indicates an invalid weight value
11	Tolerance range has been exceeded
12	Target value for bar graph
13	Tolerance range
14	Bar graph: scaled display showing capacity usage (in percent)
15	Fourteen segment display
16	Trend display
17	Info on weight entry via application keypad (preset tare)
18	Net value
19	Plus (or minus) sign of the weight
20	Display: <ul style="list-style-type: none"> <li>– SETUP level</li> <li>– Component/factor for paint-mixing applications</li> </ul>

### 3.4 Menu List

The "o" in the active column indicates the activated function in the respective menu.

Level 1	Level 2	Level 3	Active	Level 4	Function	CODE
SETUP						1.
	----- SCALE					1.1
		---- AMBIEN.			Setup location	1.1.1
				V-STABL.	Very stable ambient conditions	1.1.1.1
			o	STABLE	Stable ambient conditions	1.1.1.2
				UNSTAB.	Unstable ambient conditions	1.1.1.3
				V-UNSTB.	Very unstable ambient conditions	1.1.1.4
		---- FILTER			Application filter	1.1.2
				FIN.RD.	Final readout	1.1.2.1
			o	FILL.WT.	Filling weight	1.1.2.2
		---- STAB.RG.			Stability range/stability	1.1.3
				1/2-DIG.	1/2 digit/good	1.1.3.2
				1-DIG.	1 digit/normal	1.1.3.3
			o	2-DIG.	2 digits/sufficient	1.1.3.4
				4-DIG.	4 digits/low	1.1.3.5
		---- AUTOZ.			Automatic zero/drift correction	1.1.6
				ON	On	1.1.6.1
			o	OFF	Off	1.1.6.2
		---- WT.UNIT			Weight units	1.1.7
			o	GRAMS	Grams	1.1.7.2
				PT.P.LB	Parts per pound <sup>1)</sup>	1.1.7.14
		---- DSP.DEC.			Accuracy <sup>1)</sup>	1.1.8
			o	ALL	Show all decimal places	1.1.8.1
				POLYR.	Multi-interval lab	1.1.8.13
		---- CAL.ADJ.			Calibration/adjustment	1.1.9
			o	CAL.EXT.	External calibration/adjustment with default weight	1.1.9.1
				LOCKED	CAL key/command locked	1.1.9.10
	APP.PRG.					1.3
		---- UNIT 2			Unit 2 <sup>1)</sup>	1.3.1
			o	GRAMS	Grams	1.3.1.2
				PT.P.LB	Parts per pound	1.3.1.14
		---- DEC 2			Accuracy of unit 2 <sup>1)</sup>	1.3.2
				ALL	Show all decimal places	1.3.2.1
			o	POLYR.	Multi-interval lab	1.3.2.13
		---- TOGGLE			Toggle key on/off <sup>1)</sup>	1.3.3
			o	OFF	Toggle key off	1.3.3.1
				ON	Toggle key on	1.3.3.2

Continued on next page

<sup>1)</sup> Not available on scales verified for use in legal metrology

Level 1	Level 2	Level 3	Active	Level 4	Function	CODE
(SETUP)	---	REC.MOD.			Recalculation	1.3.4
		----	o	TOTAL	Gross weight	1.3.4.1
		----		INDIV.	Individual	1.3.4.2
	GEN.SRV.					1.9
	---	MEN.RES.			Menu reset	1.9.1
		----		DEFAULT.	Load default menu	1.9.1.1
		----	o	NO	Stand-by	1.9.1.2
DEVICE						2.
----	EXTRAS					2.1
	---	MENU			Menu	2.1.1
		----	o	ENABLE	Menu can be edited	2.1.1.1
		----		RD.ONLY.	Menu read only	2.1.1.2
	---	KEYS			Key function enabled/locked	2.1.3
		----	o	ENABLE	Keypad enabled	2.1.3.1
		----		LOCKED	Keypad locked	2.1.3.2
	---	BACKLT.			Background light	2.1.4
		----		10 PCT.		2.1.4.1
		----		20 PCT.		2.1.4.2
		----		30 PCT.		2.1.4.3
		----		40 PCT.		2.1.4.4
		----		50 PCT.		2.1.4.5
		----		60 PCT.		2.1.4.6
		----	o	70 PCT.		2.1.4.7
		----		80 PCT.		2.1.4.8
		----		90 PCT.		2.1.4.9
		----		100PCT.		2.1.4.10
	---	BARGR.			Bar graph on/off	2.1.5
		----		OFF	Display without bar graph	2.1.5.1
		----	o	ON	Display with bar graph	2.1.5.2
	---	ON.MODE			Switch-on behavior	2.1.6
		----	o	ON/STB.	On/standby	2.1.6.3
		----		AUTO.ON	Automatic on	2.1.6.4
	---	LOCK			Lock weight display	2.1.9
		----	o	OFF	Display on	2.1.9.1
		----		ON	Display off	2.1.9.2
	---	BAR.MOD			Bar graph mode	2.1.10
		----	o	NORMAL	Normal width	2.1.10.1
		----		WIDE	Extra wide	2.1.10.2

Continued on next page

Level 1	Level 2	Level 3	Active	Level 4	Function	CODE
(DEVICE)	INTERF.					2.2
	---	PROT.			Data transfer protocol	2.2.1
		----	o	SBI	SBI protocol	2.2.1.1
		----		XBPI	XBPI protocol	2.2.1.2
	---	BAUD			Baud rate	2.2.2
		----		600	600 baud	2.2.2.3
		----		1200	1200 baud	2.2.2.4
		----	o	2400	2400 baud	2.2.2.5
		----		4800	4800 baud	2.2.2.6
		----		9600	9600 baud	2.2.2.7
		----		19200	19200 baud	2.2.2.8
		----		38400	38400 baud	2.2.2.9
		----		57600	57600 baud	2.2.2.10
	---	PARITY			Parity bit	2.2.3
		----	o	ODD	Odd	2.2.3.3
		----		EVEN	Even	2.2.3.4
		----		NONE	No parity check	2.2.3.5
	---	STOPBT.			Number of stop bits	2.2.4
		----	o	1 BIT		2.2.4.1
		----		2 BITS		2.2.4.2
	---	HANDSH.			Type of handshake	2.2.5
		----		SOFTW.	Software handshake (X-On/X-Off)	2.2.5.1
		----		HARDW.	Hardware handshake (RTS/CTS)	2.2.5.2
		----	o	NONE	No handshake	2.2.5.3
	---	DATA BT.			Number of data bits	2.2.6
		----	o	7 BITS	7 data bits	2.2.6.1
		----		8 BITS	8 data bits	2.2.6.2
COMMUN.					Communication parameters	3.
	----	SBI			SBI communication parameter	3.1
	---	MAN.AUT.			Output	3.1.1
		----		MAN.W/O	Print individual value without stability	3.1.1.1
		----		MAN.W/	Print individual value after stability	3.1.1.2
		----	o	AUT.W/O	Print automatically without stability	3.1.1.4
		----		AUT.W/	Print automatically after stability	3.1.1.5
	---	CANCEL			Cancel automatic output	3.1.2
		----	o	OFF	Cancelation not possible	3.1.2.1
		----		ON	Cancel by pressing Print key	3.1.2.2
	---	FORMAT				3.1.3
		----	o	16 CHR.		3.1.3.1
		----		22 CHR.		3.1.3.2

Continued on next page

Level 1	Level 2	Level 3	Active	Level 4	Function	CODE
INPUT						4.
	----	PASSWD.			Password	4.1.
		----			Change/enter password	4.1.1
INFO					Information	5.
	----	VER.NO.			Version number (firmware)	5.1
	----	SER.NO.			Serial number	5.2
	----	MODEL			Model designation	5.3
	----	TYPE			Name/type information	5.4
	----	INTRO			Intro text (if available)	5.5
LANG.					Language selection	6.
	----	D			German	6.1
	----	UK/US	o		English	6.2
	----	F			French	6.4
	----	I			Italian	6.5
	----	E			Spanish	6.6
	----	NL			Dutch	6.7
	----	P/BR			Portuguese	6.8
	----	PL			Polish	6.9
	----	TR			Turkish	6.10
	----	PYC			Russian/Cyrillic	6.11
	----	SLO			Slovenian	6.12
	----	SRB			Serbian	6.13
	----	CODES			Number codes	6.25

## 4 Installation

### 4.1 Unpacking and Equipment Supplied

- ▶ Open the packaging, making sure to remove all parts carefully.
- ▶ After unpacking the device, check it immediately for any external damage.
- ▶ If you detect any damage, proceed as directed in Chapter "7 Care and Maintenance," page 31.
- ▶ Save the box and all parts of the packaging for any future transport. All cables should be unplugged when transporting.

The following parts are included in the equipment supplied:

Model	PMA.Evolution	PMA.HD
Large weighing pan: Ø 233 mm	x	-
Small weighing pan: Ø 180 mm	-	x
USB cable	x	x
AC adapter with country-specific mains adapter	Optional	Optional
Installation instructions	x	x

### 4.2 Selecting a Setup Location

Select the right setup location:

- Set up the device on a stable, even surface that is not exposed to vibrations.
- Maintain free access to the device at all times.

Choose a location that is not subject to the following negative influences:

- Heat (heater or direct sunlight)
- Drafts from open windows, AC systems and doors
- Extreme vibrations during weighing
- Heavy "traffic areas" (personnel)

#### Acclimatization

Condensation from humidity can form on the surfaces of a cold device when it is brought into a warmer area. You should therefore let a device acclimatize for approximately two hours disconnected from its power source before reconnecting it to the supply voltage.

M

#### Seal on Scales Verified for Use in Legal Metrology:

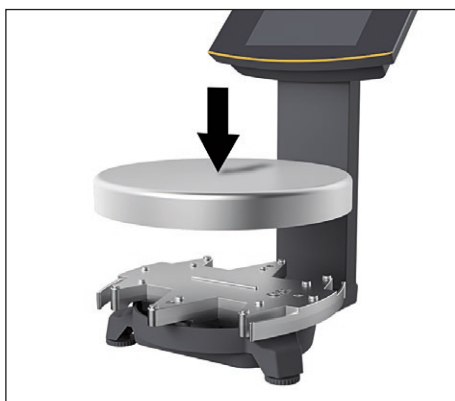
Legislation requires that a seal be affixed to verified scales. On Sartorius devices, this seal takes the form of a sticker with the "Sartorius" logo. If the seal is removed, the validity of verification will become void and you must have your scale re-verified. The declaration of conformity supplied here is for conformity-assessed (verified) weighing instruments for use in the EEA. Please keep it in a safe place.



### 4.3 Installing the Scale

**IMPORTANT**

The scale must be disconnected from the power supply for all assembly work.



#### Inserting the Weighing Pan

- ▶ Place the weighing pan onto the scale from above.

### 4.4 Power Supply

The scale is connected to the power supply via a PC/notebook or using the optional AC adapter YEPS01-USB (see Chapter "13 Accessories," page 38), which is supplied with mains adapters for use in various countries.

Power supply via the AC adapter is only required:

- When no PC or notebook is available.
- In exceptional cases, when the output power of the USB interface of the PC or notebook is not sufficient.

The assembly is described in the following.

#### 4.4.1 Power Supply Assembly

If using a power supply, it will need to be assembled.



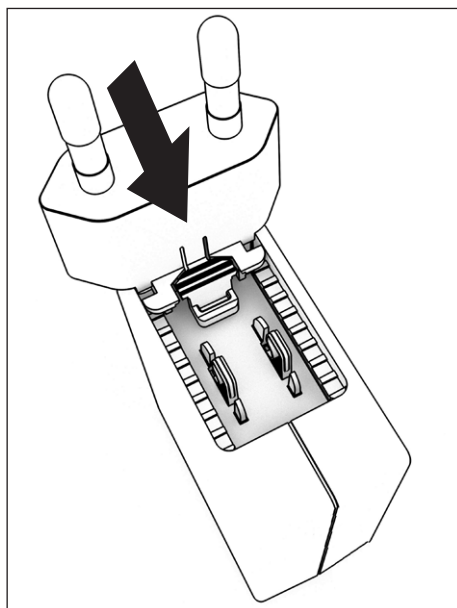
**Using the wrong mains adapter may cause fatal electric shock and damage the equipment.**

Never plug the mains adapter into the socket when it is disconnected from the AC adapter (danger of electrical shock).

- ▶ Select the correct mains adapter for your mains power supply. The mains adapter must be suitable for use with the wall outlet at the installation site.

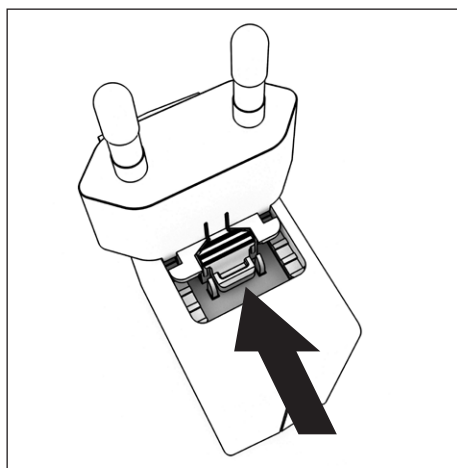
#### Mains adapter sets

Bag	Region/country
YEPS01-PS1	<ul style="list-style-type: none"> <li>– USA and Japan (US+JP)</li> <li>– Europe (EU)</li> <li>– United Kingdom (GB)</li> </ul>
YEPS01-PS6	<ul style="list-style-type: none"> <li>– Argentina (AR)</li> <li>– Brazil (BR)</li> <li>– Australia (AU)</li> <li>– South Africa (ZA)</li> </ul>
YEPS01-PS7	<ul style="list-style-type: none"> <li>– China (CN)</li> <li>– India (IN)</li> <li>– Korea (KR)</li> </ul>



- ▶ Insert the power plug adapter into the power supply. The grooved button must be facing upwards.
- ▶ Push the power plug adapter as far as you can until it clicks into place.
- ▶ Check whether the power plug adapter is securely locked in place by pulling it gently.
- ▷ If the power plug adapter does not move, it is locked in place.

#### Removing/Replacing the Mains Adapter



- ▶ Press the grooved button from above and pull back on the mains adapter.
- ▶ Push the power plug adapter out of the power supply and remove it.

#### Power Connection/Safety Precautions

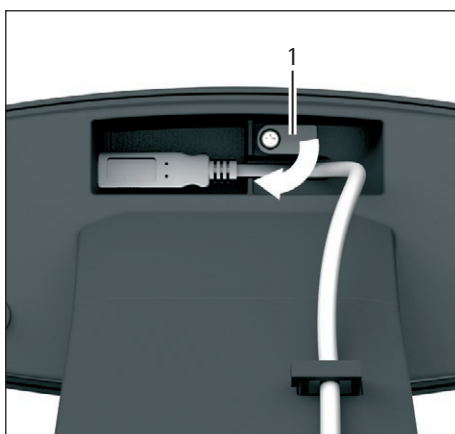
- Only use original Sartorius AC adapters.  
The AC adapter has an IP rating of IP40 in accordance with EN60529 / IEC60529.
- Make sure that the voltage rating printed on this unit matches the voltage at the place of installation.
- If the stated supply voltage or the plug design of the AC adapter does not comply with your country's standard, please inform your nearest Sartorius representative.
- The power must be connected in accordance with the regulations applicable in your country.

#### 4.4.2 Connecting the Scale



##### Connecting the Scale

- ▶ Insert the USB cable plug into the USB socket on the back of the display.



- ▶ Loosen the screw (1) on the lock.
- ▶ Swivel the lock over the USB cable.
- ▶ Re-tighten the lock screw.



##### Laying the USB Cable

- ▶ Lay the USB cable through the cable holders on the back of the scale.

##### Connecting the Grounding Cable

This explosion-protected system should be set up according to commonly accepted technical standards. The applicable national electrical code and safety regulations for your particular country must be observed.

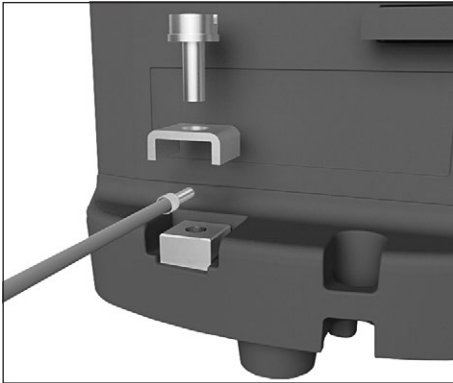
Before commissioning the scale, a check must be carried out by or under the supervision of a qualified electrician to ensure that the system is in good working order.

Check whether or not the competent authorities (e.g., industrial supervisory board) need to be informed. It is also necessary to carry out inspections of the system during operation.

Inspection intervals should be such that any significant defects that may occur can be identified in good time. Inspections should be carried out at least once every three years. The applicable requirements and guidelines should also be observed during operation.

Establish a low resistance connection from the scale to a customer-supplied equipotential bonding conductor connection via the equipotential bonding conductor connection on the device using a suitable grounding cable with a gauge of at least 4 mm<sup>2</sup> (not included).

Installation must be carried out properly by trained personnel and according to commonly accepted technical standards. The system should only be operated for the first time when it is certain that the area is not potentially explosive. If deviations are evident during startup due to transport damage (e.g., no display, no backlighting), disconnect the scale from the power supply and contact the Sartorius Service Center.



Connect the scale to the equipotential bonding conductor using an equipotential bonding cable with a gauge of at least 4 mm<sup>2</sup>.

- ▶ Connect the cable lug of the equipotential bonding cable to the grounding terminal of the scale.
- ▶ Connect the equipotential bonding cable to the customer-supplied equipotential bonding conductor.

#### Connecting a PC/Notebook

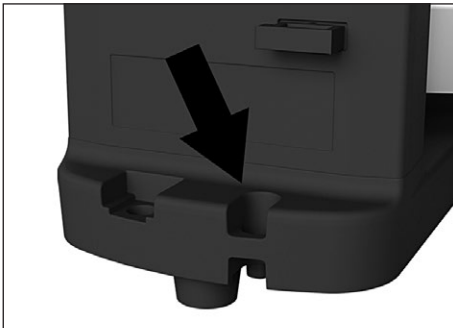
- ▶ Insert the USB cable into a USB socket (e.g., on a PC or laptop).

#### Connecting an AC Adapter (Optional)

- ▶ Insert the USB cable into the YEPS01-USB AC adapter.
- ▶ Plug the AC adapter into the wall outlet (supply voltage).

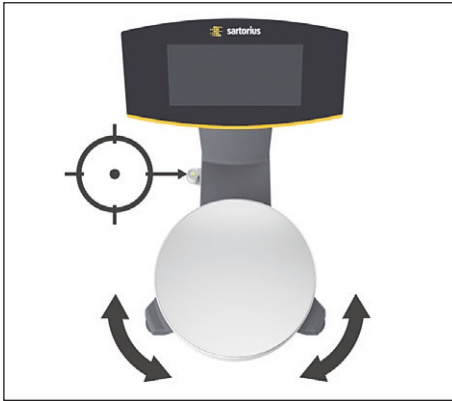
### 4.5 Anti-theft Locking Device

- ▶ If required, secure the scale at the back.



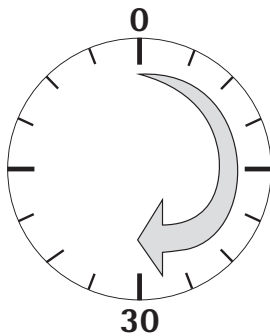
## 5 Commissioning

### 5.1 Leveling



#### Leveling for Models Verified for Use in Legal Metrology Only

- ▶ Turn the two feet as shown in the figure until the air bubble is centered within the circle of the level indicator.
- ▶ Air bubble at "12 o'clock:" Turn both feet clockwise.
- ▶ Air bubble at "3 o'clock:" Turn the left foot clockwise and the right foot counterclockwise.
- ▶ Air bubble at "6 o'clock:" Turn both feet counterclockwise.
- ▶ Air bubble at "9 o'clock:" Turn the left foot counterclockwise and the right foot clockwise.



#### Warm-up Time

To ensure accurate results are delivered, the scale must warm up for at least 30 minutes after initial connection to the power supply. Only after this time will the scale have reached the required operating temperature.

### M


#### Using a Scale Verified for Use in Legal Metrology:

- Ensure that there is a warm-up time of at least 24 hours after initial connection to the power supply.


## 6 Operation

### 6.1 Switching the Device On/Off

#### Switching On




- ▶ Briefly press the  key (on/standby).
- ▷ The automatic self-test runs. This ends when the display shows 0.0 g.
- ▶ If another value is displayed: Set the scale to zero via the **·0|T·** key.

#### Switching Off


- ▶ Press and hold the  key for several seconds (on/standby).
- ▷ The scale switches to standby mode.

### 6.2 Locking the Keypad/Weight Display

#### Locking

- ▶ Briefly press the  key (on/standby) to lock the keypad and turn off the weight display.
- ▷ The padlock symbol  flashes for several seconds.
- ▶ Press the padlock symbol  while flashing to activate the lock.
- ▷ The keypad/weight display is locked and the padlock symbol lights up continually.

#### Unlocking

- ▶ Press the padlock symbol  to deactivate the lock.
- ▶ Enter the password (if set) (see Chapter 6.7.2.6, page 29).
- ▷ The lock is deactivated.

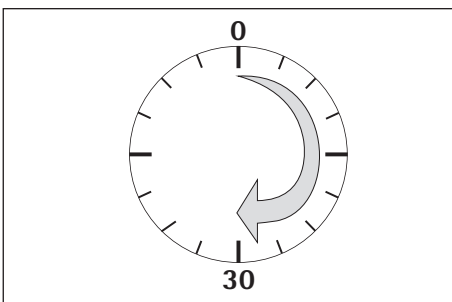
### 6.3 Zeroing/Taring

- ▶ Briefly press the **·0|T·** key.

### 6.4 Adjustment



The scale needs to be re-leveled and then adjusted each time its setup location is changed.



#### Warm-up Time

To ensure accurate results are delivered, the scale must warm up for at least 30 minutes after initial connection to the power supply. Only after this time will the scale have reached the required operating temperature.

- ▶ Wait approx. 30 minutes after connecting the scale to the power supply before adjusting the scale and weighing.






#### Using a Scale Verified for Use in Legal Metrology:

- Ensure that there is a warm-up time of at least 24 hours after initial connection to the power supply.

## 6.4.1 Calibration

### External Calibration/Adjustment for Verified Scales

Scale for use in legal metrology must be externally calibrated before being verified at the location of use.

- When the scale is used in legal metrology, external calibration is locked as follows:
  - The menu access switch is locked
  - The menu access switch cap is sealed
- ▶ Press and hold the  key for several seconds (on/standby).
- ▷ The scale switches to standby mode.
- ▷ Press the **·0|T·** key for approx. two seconds.
- ▷ The preset calibration weight appears in the display (e.g., 5000 g)
- ▶ If required, select a different calibration weight via the  /  keys.
- ▶ Confirm the displayed calibration weight via the **OK** key.
- ▷ **CAL.EXT.** appears on the display and the negative calibration weight.
- ▶ Center the calibration weight on the weighing pan.
- ▷ The calibration is performed. The calibration is complete when **CAL.DON** appears in the display.
- ▶ Remove the calibration weight from the weighing pan.

## 6.5 Weighing


# M

### Using a Scale Verified for Use in Legal Metrology:

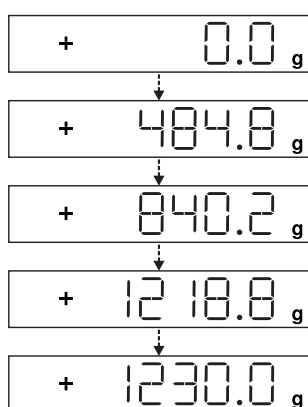
The Type-Approval Certificate for verified scales is only valid for non-automatic weighing instruments. For automatic operation with or without additional integrated equipment, please follow the applicable national regulations for the installation location.

- The temperature range (°C) listed on the ID label should not be exceeded during operation.

Example:

 +10...+30°C

### 6.5.1 Weighing with One Decimal Place



- ▶ Place the empty paint can on the weighing pan.
- ▶ Briefly press the **·0|T·** key to zero.
- ▷ The display shows "0.0 g."
- ▶ Add the first component "484.8 g."
- ▶ Read off the weight when the stability symbol (in this example) "g" is displayed.
- ▶ Add the other components until the desired weight (formula) is reached.
- ▶ Remove the filled paint can from the weighing pan.



### Danger of Scale Damage!

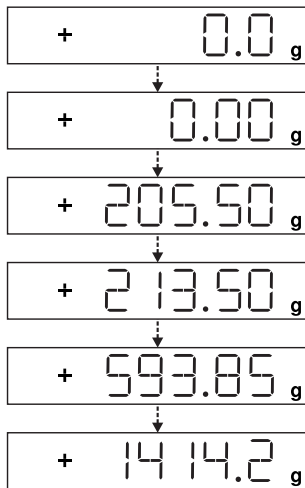
Never close a paint can using a hammer while it is still on the weighing pan.

- ▶ When closing the paint can, place it on a firm, stable surface.

### 6.5.2 Weighing with Two Decimal Places (Not for Models Verified for Use in Legal Metrology)



A menu setting is required for weighing with two decimal places (see Chapter "6.7.2.4 Activating the Toggle Key (Not for Models Verified for Use in Legal Metrology)," page 28).



- ▶ Place the empty paint can on the weighing pan.
- ▶ Briefly press the **0/T** key to zero.
  - ▷ The display shows "0.0 g."
- ▶ Press the toggle key **↔**.
  - ▷ The display shows "0.00 g."
- ▶ Add the first component "205.50 g."
- ▶ Read off the weight when the stability symbol (in this example) "g" is displayed.
- ▶ Add the other components until the desired weight (formula) is reached.
- ▶ Remove the filled paint can from the weighing pan.



When the scale is tared and the second decimal place with a resolution of 0.05 g is activated via the toggle key **↔**, then weighing up to 999.95 g with two decimal places can be performed. Values over 999.95 g can only be weighed using one decimal place.



#### Danger of Scale Damage!

- Never close a paint can using a hammer while it is still on the weighing pan.
- ▶ When closing the paint can, place it on a firm, stable surface.

## 6.6 Applications



#### Note for Scales Verified for Use in Legal Metrology:

All application programs can be selected on scales verified for use in legal metrology. Calculated values can be marked using the following characters:

- Percent = %
- Computed values = o, **◇** symbol

### 6.6.1 Calculation by a Factor

This function enables you to weigh in amounts that are smaller or larger than that of your basic formula for a specific paint color (e.g., 250 ml of a 1 l formula).

The factors (amounts) can be set via the factor key **↵** and **↕/↖** in a range of 0.1 to 6.0.

The following factors can be set directly via the factor key **↵**:

0.25 0.5 0.75 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0.

Using the keys **↗** (up) and **↘** (down), the factor can be changed

- in the range 0.10 to 1.0 in increments of 0.01
- in the range 1.0 to 6.0 in increments of 0.1



### Factor Calculation Example

As you add the components of your formula, the weight is displayed in "g."

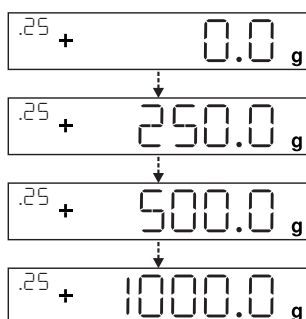


For models verified for use in legal metrology, the displayed value is marked with a  $\diamond$  symbol to indicated computed values.

Suppose you want to weigh 250 ml for a basic formula that has a total of 1 l, and you don't want to have to manually recalculate the individual components of the formula.

The basic formula for 1 liter:

	250 g	1. Component
+	250 g	2. Component
+	500 g	3. Component
<b>Total:</b>	<b>1000 g</b>	



- ▶ Place the empty container on the weighing pan.
- ▶ Briefly press the  $\cdot 0|T \cdot$  key to tare.
- ▶ Press the factor key  $\boxed{\cdot 25}$  several times until the factor ".25" is displayed below the factor key.
- ▶ Slowly add the first component "250 g" until the display shows "250 g."
- ▶ Add the second color component "250 g" until the display shows "500 g."
- ▶ Add the third component "500 g" until the display shows "1000 g."

This concludes the calculation example. According to the display, exactly 1000 g was poured in, but the paint can actually contains 250 g by weight in accordance with the factor you selected.

The procedure is the same for any other conversion factor.

#### 6.6.2 Weighing Using the Recalculation Function

Suppose that you poured in too much of one color component for a given formula (in this example, a four-component recipe).

This example further assumes that you previously poured in all of the other amounts exactly according to each of the values you entered and saved them by pressing the MEM key  $\boxed{OK}$ .

- ▶ Press the  $\boxed{\downarrow}$  key to start the recalculation program.
- ▶ "C" flashes on the display.
- ▶ Correct the value using the  $\boxed{\uparrow}$ / $\boxed{\downarrow}$  keys to match the specified formula value.
- ▶ Press the MEM key  $\boxed{OK}$ .
- ▶ The scale calculates the amount to be added for each of the components that were already poured. The display shows the amounts required to correct the formula up to the point at which the overpour occurred.
- ▶ After the correction has been completed, you can continue filling the remaining components.



You can correct overpours as often as needed, as long as the total weight of the formula does not exceed the scale's maximum weight.

Keep in mind that the total quantity of paint (liter) at the conclusion of filling increases each time you correct a component. Press the  $\boxed{C}$  key to display the correction factor of the fill quantity. "C" = correction factor

## Recalculation Example (Gross Weight)



For models verified for use in legal metrology, the displayed value is marked with a  $\diamond$  symbol to indicate computed values.



- ▶ Place the empty container on the weighing pan.
- ▷ The scale shows the weight of the empty paint can.
- ▶ Briefly press the  $\cdot 0|T \cdot$  key to tare.




- ▶ Slowly add the first component (50 g) of the formula until the display shows "50 g."



- ▶ Briefly press the  $\square$  key to save the value.



- ▷ "STO 01" appears on the display, the first value is saved.



- ▷ "02" appears in the top left of the display (second color component).
- ▶ Add the second color component "60 g" until the display shows "110 g."



- ▶ Briefly press the  $\square$  key to save the value.

- ▷ "STO 02" appears on the display, the second value is saved.

- ▷ "03" appears in the top left of the display (third color component).

- ▶ Add the third color component (90 g) until the display shows "200 g."

**Oops! You poured in too much (203 g). The correct value for the formula is 200.0 g.**

- ▶ Press the  $\square$  key.



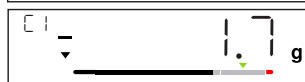
- ▷ The recalculation is started. "C" flashes in the top left of the display.

- ▶ Press the  $\square$  key until the correct weight value "200" is displayed.

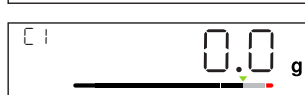
- ▶ Briefly press the  $\square$  key to confirm the corrected value.



- ▷ "COR 01" flashes briefly on the display (correction of the first color component).



- ▷ "C1" appears in the top left and the weight value to be corrected "- 1.7."

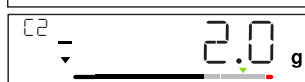


- ▶ Add 1.7 g of the first color component until the display shows "0.0" or the bar graph stops below the green arrow.

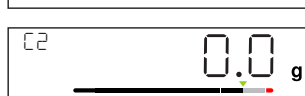
- ▶ Confirm the correction for the first color component by pressing the  $\square$  key.



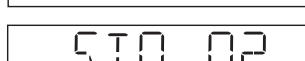
- ▷ "COR 02" flashes briefly on the display (correction of the second color component).



- ▷ "C2" appears in the top left and the weight value to be corrected "- 2.0."



- ▶ Add 2.0 g of the second color component until the display shows "0.0" or the bar graph stops below the green arrow.



- ▷ "STO 02" appears on the display, the second (corrected) value is saved.

- ▷ You are returned to the formulation program automatically.



- ▷ "04" appears in the top left of the display (fourth color component).



- ▶ Press the  $\square$  key to check the amount of the total weight.

- ▷ The correction factor "C 1.03" appears on the display for several seconds.

Total weight = weight of specified formula x correction factor.



- ▷ "04" appears again in the top left of the display after the correction factor is displayed (fourth color component).

- ▶ Add additional color components of the formula as described above.

This concludes the recalculation example.

## 6.7 Menu Settings

### 6.7.1 Accessing the SETUP Menu

Accessing the SETUP menu and settings is described in the following using "Adapting the scale to ambient conditions" as an example (SETUP -> SCALE -> AMBIEN.):

- ▶ Press the **OK** key for approx. two seconds.
- ▷ Level 1 of the SETUP menu is displayed.
- ▶ Select the **SETUP** menu item of the first level using the **▲**/**▼** keys.
- ▶ Press the **OK** key.
- ▷ Level 2 of the SETUP menu is displayed.
- ▶ Select the **SCALE** menu item of the second level using the **▲**/**▼** keys.
- ▶ Press the **OK** key.
- ▷ Level 3 of the SETUP menu is displayed.
- ▶ Select the **AMBIEN.** menu item of the third level using the **▲**/**▼** keys.
- ▶ Press the **OK** key.
- ▷ Level 4 of the SETUP menu is displayed.
- ▶ Select the desired setting using the **▲**/**▼** keys.
- ▶ Press the **OK** key.
- ▷ The setting is applied; "o" appears on the display.  
(This concludes the example.)
- ▶ Press the **C** key several times to exit the menu.



A detailed list of possible settings can be found in Chapter "3.4 Menu List," page 12.

### 6.7.2 Configuring the Main Menu Settings

#### 6.7.2.1 Accessing the Setup Menu

- ▶ Press and hold the **OK** key for approx. 2 sec.
- ▷ **SETUP (LEVEL 1)** appears on the display.

### 6.7.2.2 Language Setting

#### Level 1    Level 2

---

LANG.		▶ Press <b>[^]</b> . SELECT LANG.
		▶ Press <b>[OK]</b>
D	o German	▶ Press <b>[^]/[v]</b> , select language
UK/US	English	▶ Press <b>[OK]</b> , "o" appears
F	French	▶ The desired setting is applied.
I	Italian	▶ Press <b>[C]</b> several times to exit the menu
etc.		

### 6.7.2.3 Standard Default Settings (0.1 g)/Polyrange (0.05 g/0.1 g) and Grams/Parts per Pound (Not for Models Verified for Use in Legal Metrology)

The default settings which are active when the scale is switched on can be found under "SETUP > SCALE > WT.UNIT" and "SETUP > SCALE > DSP.DEC.:"

▶ Access the Setup menu (see Chapter 6.7.2.1, page 27).

#### Level 1    Level 2    Level 3    Level 4

---

SETUP			▶ Press <b>[OK]</b>
--- SCALE			▶ Press <b>[OK]</b>
--- WT.UNIT	Units		▶ Press <b>[^]/[v]</b> , e.g., select DSP.DEC.
--- o GRAMS			▶ Press <b>[OK]</b>
--- PT.PLB			▶ Press <b>[^]/[v]</b> , e.g., select ALL
--- DSP.DEC.	Accuracy		▶ Press <b>[OK]</b> , "o" appears
--- o ALL			▶ The new code is set
--- POLYR.			▶ Press <b>[C]</b> several times to exit the menu

### 6.7.2.4 Activating the Toggle Key (Not for Models Verified for Use in Legal Metrology)

When the toggle key **[S]** is active, you can use it to toggle the unit between, e.g., grams, parts per pound or the decimal place. The unit and/or decimal place is toggled when the key is pressed:

▶ Access the Setup menu (see Chapter 6.7.2.1, page 27).

#### Level 1    Level 2    Level 3    Level 4

---

SETUP			▶ Press <b>[OK]</b>
--- APP.PRG.			▶ Press <b>[^]/[v]</b> , select APP.PRG.
--- TOGGLE			▶ Press <b>[OK]</b>
--- o ON			▶ Press <b>[^]/[v]</b> , select ON
--- OFF			▶ Press <b>[OK]</b> , "o" appears
			▶ Toggle key <b>[S]</b> is activated
			▶ Press <b>[C]</b> several times to exit the menu

### Configuring the Toggle Key **[S]** Function

Pressing the toggle key **[S]** toggles the scale between the default settings (see page Chapter 6.7.2.3, page 28) and settings defined in "SETUP > APP.PRG. > UNIT" and "SETUP > APP.PRG. > DSP.DEC."


▶ Access the Setup menu (see Chapter 6.7.2.1, page 27).

Level 1	Level 2	Level 3	Level 4
SETUP			▶ Press <b>OK</b>
	--- APP.PRG.		▶ Press <b>▲</b> / <b>▼</b> , select APP.PRG.
		--- UNIT 2	▶ Press <b>OK</b> , press <b>▲</b> / <b>▼</b> , select UNIT 2
		--- o GRAMS	▶ Press <b>OK</b> , press <b>▲</b> / <b>▼</b> , select setting (e.g., GRAMS)
		--- PT.P.LB	▶ Press <b>OK</b> , "o" appears indicating the desired setting is applied
		--- DEC 2	▶ Press <b>C</b>
		--- ALL	▶ Press <b>▲</b> / <b>▼</b> , select DEC 2
		--- o POLYR.	▶ Press <b>OK</b> , press <b>▲</b> / <b>▼</b> , select setting
			▶ Press <b>OK</b> , "o" appears indicating the desired setting is applied
			▶ Press <b>C</b> several times to exit the menu

### 6.7.2.5 Activating the "LOCK" Function

The "LOCK" function protects the scale from unauthorized use. When this function is active, the scale readout shows weight values only when there is active communication between the scale and a PC. If communication is interrupted, the readout goes blank and the display shows a padlock symbol. Activation of the LOCK function is configured under "EXTRAS."

- ▶ Access the Setup menu (see Chapter 6.7.2.1, page 27).

Level 1	Level 2	Level 3	Level 4
DEVICE			▶ Press <b>▲</b> / <b>▼</b> , select DEVICE, press <b>OK</b>
	--- EXTRAS		▶ Press <b>▲</b> / <b>▼</b> , select EXTRAS, press <b>OK</b>
		--- LOCK	▶ Press <b>▲</b> / <b>▼</b> , select LOCK, press <b>OK</b>
		--- o ON	▶ Press <b>▲</b> / <b>▼</b> , select ON
		--- OFF	▶ Press <b>OK</b> , "o" appears
			▶ The "LOCK" function  is activated
			▶ Press <b>C</b> several times to exit the menu

### 6.7.2.6 Password Prompt

In addition to the "LOCK" function, you can also configure password protection for additional security. With this feature, the "LOCK" function can only be deactivated "OFF" by entering the password you configure.

#### Entering the Password

When the password prompt appears, the numbers 1 2 3 4 5 6 appear on the display. You can switch to the numbers 7 8 9 0 and back again via the **▲**/**▼** keys.

- ▶ Enter the password by entering the individual numbers on the display.
- ▶ When you enter the correct password, the "LOCK" function will be disabled.



## 7 Care and Maintenance

### 7.1 Cleaning



#### Electrical Hazard from Voltage or Current!

Disconnect the AC adapter from the power supply. If necessary, disconnect the data cable if connected to the scale. Never open the scale or the AC adapter. The parts contained in these cannot be cleaned, repaired, or replaced by the operator.

- Make sure that no liquid or dust gets into the scale or the AC adapter.
- Only use soft brushes and cloths for cleaning.
- Never use cleaning agents that contain solvents or abrasive ingredients (e.g., scouring cream, steel wool), which can ultimately damage the equipment.



Do not clean the following parts with acetone or aggressive cleaning agents: mains socket, data interface, labels, and all other plastic parts.

#### Cleaning the Control Panel

- ▶ Turn off the device before cleaning the control panel since touching the screen could trigger unwanted inputs.

#### Cleaning the Scale Housing

- ▶ Clean the device.
- ▶ Use a soft cloth to dry the device.

### 7.2 Maintenance



#### Electrical Hazard from Voltage or Current!

Repair work on the (optional) AC adapter must only be carried out by trained service technicians. Contact Sartorius Service for proper repairs (see Chapter 14, page 39).


To ensure the continued accuracy of your scale, we recommend scheduling regular servicing at least once a year.

The Sartorius Service Center offers different service contracts with maintenance intervals that are tailored to your needs.

A calibration certificate should always be issued as part of every maintenance session.

Safety inspections of the AC adapter and its connections must be performed at appropriate intervals by a qualified electrician (e.g., every two years).

## 8 Faults

Problem	Cause	Remedy
No segments appear on the weight display	<ul style="list-style-type: none"> <li>– No AC power is available</li> </ul>	<ul style="list-style-type: none"> <li>– Check power supply</li> </ul>
The weight readout shows "LOW"	<ul style="list-style-type: none"> <li>– No weighing pan on the scale</li> </ul>	<ul style="list-style-type: none"> <li>– Position the weighing pan</li> </ul>
The weight readout shows "HIGH"	<ul style="list-style-type: none"> <li>– Weighing capacity exceeded</li> </ul>	<ul style="list-style-type: none"> <li>– Unload the scale</li> </ul>
The weight readout changes constantly	<ul style="list-style-type: none"> <li>– Unstable ambient conditions</li> <li>– Excessive vibration or draft</li> <li>– Weighing pan is being affected at some point by outside influences</li> </ul>	<ul style="list-style-type: none"> <li>– Set up scale in another area</li> <li>– Adjust the scale settings (see Chapter "3.4 Menu List," page 12)</li> </ul>
The weight readout is obviously incorrect	<ul style="list-style-type: none"> <li>– The sample is not stable</li> <li>– Scale not tared before weighing</li> </ul>	<ul style="list-style-type: none"> <li>– Tare before weighing</li> </ul>
No weight value is shown and the padlock symbol  is displayed	<ul style="list-style-type: none"> <li>– PC connection to the scale has been interrupted activating the "LOCK" function</li> <li>– Manual "LOCK" function is active</li> </ul>	<ul style="list-style-type: none"> <li>– Access the menu to make the necessary adjustment and switch off the "LOCK" function</li> <li>– Check the connection</li> <li>– Switch off the manual "LOCK" function</li> </ul>



## 9 Storage

If the device is not set up immediately after delivery, or will not be used temporarily, the ambient conditions listed in Chapter "11 Technical Specifications," page 34 must be observed for storage.



Only store the device in dry buildings and do not leave the device outdoors.

In case of improper storage, no liability will be assumed for resulting damage.

## 10 Disposal

### Packaging

The packaging is made of environmentally friendly materials that can be used as secondary raw materials. The packaging is to be taken to a local waste disposal site if no longer required.

### Device



The equipment, including accessories and empty non-rechargeable and rechargeable batteries, does not belong in your regular household waste; this equipment is manufactured from high-grade materials which can be recycled and reused. European Directive 2002/96/EC on Waste Electrical and Electronic Equipment (WEEE) requires that electrical and electronic equipment be collected and disposed of separately from other unsorted municipal waste, with the aim of recycling it. The crossed-out waste bin symbol indicates that separate collection is required.

In Germany and several other countries, Sartorius itself assumes responsibility for the return and legally compliant disposal of its electronic and electrical products. These products may not be placed with household waste or brought to collection centers run by local public disposal operations – not even by small commercial operators. Please contact the Sartorius Service Center.

In countries that are not members of the European Economic Area (EEA) or where no Sartorius subsidiaries or dealerships are located, please contact your local authorities or a commercial disposal operator.

Prior to disposal and/or scrapping of the equipment, any batteries should be removed and disposed of at local collection points.

Sartorius will not take back equipment contaminated with hazardous materials (ABC contamination) either for repair or disposal.

### Addresses for Disposal

Detailed information with service addresses for the disposal of your device can be found on our website ([www.sartorius.com](http://www.sartorius.com)).

# 11 Technical Specifications

## 11.1 General Data

Specification	Unit	Value
ID code (explosion protection)		II 3G Ex ic nA IIB T4 Gc as per EC Type Examination Certificate no. FM15ATEX0008X
Power supply		Only via USB interface or Sartorius AC adapter YEPS01-USB
Input supply voltage	$V_{DC}$	+4.5 to 5.0
Power consumption	W	2.0 (typically)
Other data		IP40 in accordance with EN 60529 / IEC 60529

### Ambient Conditions

The specifications apply under the following ambient conditions:

Environment		For indoor use only
Ambient temperature*		+10°C to +30°C
Operational capability	°C	Guaranteed between +5 and +40
Storage and shipping	°C	-10 to +60
Relative humidity**	%	15% to 80% for temperatures up to 30°C non-condensing, decreasing linearly to 50% relative humidity at 40°C

### Electromagnetic Compatibility

Electromagnetic Compatibility		In accordance with EN 61326-1/IEC 61326-1 Electrical equipment for measurement, control and laboratory use – EMC requirements – Part 1: General requirements
Interference resistance		Basic requirements
Transient emissions		Class B Suitable for use in residential areas and areas that are connected to a low voltage network that also supplies residential buildings.



Verified scales in accordance with EU requirements comply with the requirements of Council Directive 2014/31/EC with EN 45501:2015 and OIML R76:2006.

\* For verified scales in accordance with EU requirements, refer to the information on the scale.

\*\* For verified scales in accordance with EU requirements, the legal regulations apply.

### Available Application Programs

Available Application Programs		Recalculation, factor calculation, formula
<b>Power supply YEPS01-USB</b>		
USB power plug		Type FSP007-P01P (manufacturer's designation)
Primary		100 – 240 V $\sim$ , $\pm 10\%$ , 50 – 60 Hz, $\pm 5\%$ , $\leq 0.2$ A
Secondary		5.2 $V_{DC}$ , $\pm 5\%$ , 1.4 A (max.)
Further data		Protection class II IP40 in accordance with EN 60529/IEC 60529

## 11.2 Model-specific Data

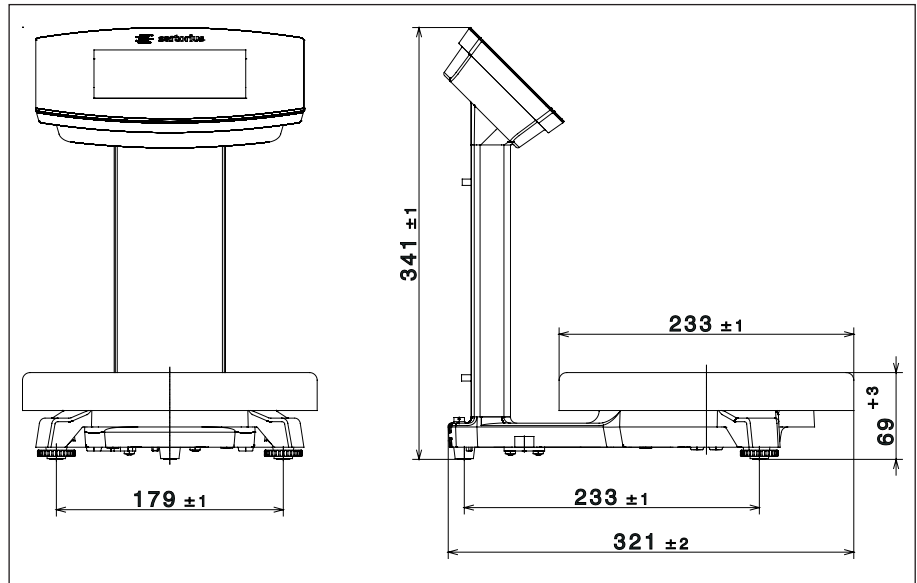
Specification	Unit	Value	Value
<b>Model</b>		PMA.Evolution, EVO1Y	PMA.HD, LAB1Y
Weighing capacity	g	7500/999.95	2200
Readability	g	0.1/0.05	0.01/0.1
Tare range (subtractive)	g	-7500	-2200
External adjustment weight / accuracy class	kg	1, 2, 5 / F2 or better	1, 2 / F1 or better
Size of weighing pan	∅ mm	233	180
Net weight	kg	2.4	2.3

## 11.3 Verified Models with EC Type Approval Certificate: Model-specific Specifications

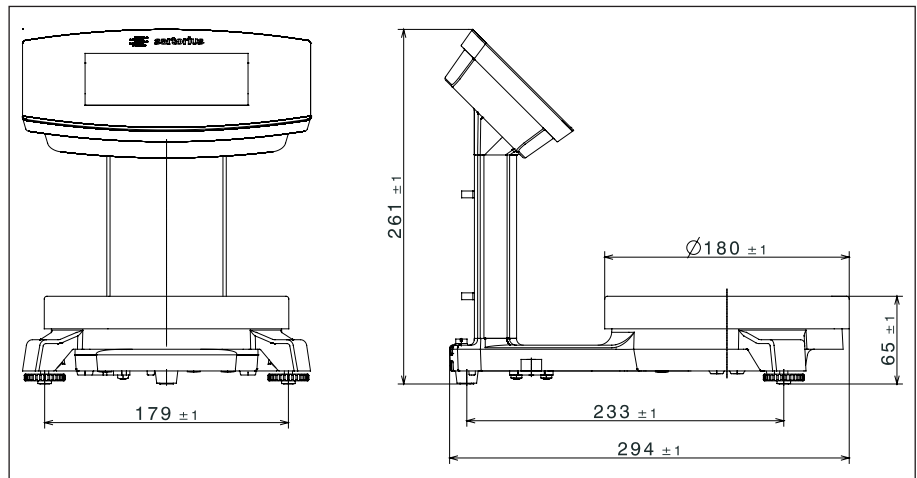
Specification	Unit	Value
<b>Model</b>		PMA.Evolution, EVO1Y
Accuracy class		II
Type		PMA-EV
Weighing capacity max	g	7500
Scale interval d	g	0.1
Verification scale interval e	g	1
Temperature range		+10°C to +30°C
Tare equalization range (subtractive)		≤ 100% of max. weighing capacity

## 11.4 Device Dimensions

### Model EV01Y



### Model LAB1Y



## 11.5 USB Interface (PC Port)

### 11.5.1 Purpose

This device can be connected to a PC via the USB interface.

A virtual serial interface (virtual COM port) is set up on the PC as a device type via the USB port. This virtual serial interface is identified and operated by the application program.

The xBPI and SBI protocols can be transmitted via the virtual serial interface.

### 11.5.2 Installing the Software Driver (Windows Update)

- ▶ Connect the scale to the USB port of the computer (see Chapter "4.4.2 Connecting the Scale," page 19).
- ▷ Windows will detect the scale connected to the USB port as a device. If the device is being connected for the first time, the Windows Installation Wizard will run automatically.
- ▶ Follow the instructions that appear.
- ▶ To complete the installation, click on Finish.
- ▷ The virtual interface is now ready for operation.

### 11.5.3 Installing the Software Driver (via CD)

- ▶ Ensure that the scale is not connected to the PC.
- ▶ Insert the supplied CD into the PC.
- ▶ If the Installation Wizard does not start automatically after you insert the CD, then manually start driver installation via Setup.bat located on the CD.
- ▶ Follow the instructions that appear.
- ▶ To complete the installation, click on Finish.
- ▷ The virtual interface is now ready for operation.
- ▶ Connect the scale to the USB port of the computer (see Chapter "4.4.2 Connecting the Scale," page 19).



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).

### 11.5.4 Installation Instructions for Windows XP® and Above

#### Changing the Port Number

If you use the USB interface with programs that limit the number of COM port designations (e.g., only COM1, 2, 3, 4), 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 Connections submenu.
- ▶ Double-click on USB Serial Port.
- ▶ Select Port Settings > Advanced.
  - Use the "COM Port Number" button to change the port number.

#### Uninstalling the Driver

You can uninstall the software driver for the USB port via the Device Manager (only if the scale is connected):

- ▶ Use the right mouse button to click on the respective port.
- ▶ Then select "uninstall" from the context menu that appears.

## 12 Serial Number Coding



The manufacture date of this device is encoded in the serial number.  
The format is as follows:

YMM x x x x x	
Y	Year
3	2014-2020
4	2021-2027
5	2028-2034, etc.

The Y column indicates the year group, which covers a period of 7 years.  
Within each year group, the months (M M) are counted up from 13.

Year:	2015	2016	2017	2018	2019	...
MM:	25-36	37-48	49-60	61-72	73-84	...

Example:

328xxxxx (April 2015). "xxxxx" is a consecutive number. Every month it starts with 1 and increases consecutively

## 13 Accessories

Accessories	Order Number
Power supply (5.2 V/1.4 A)	YEPS01-USB
USB connection cable	YCC01-0040M5
Mains adapter set for YEPS01-USB	YEPS01-PS1
<ul style="list-style-type: none"> <li>- USA and Japan (US+JP)</li> <li>- Europe (EU)</li> <li>- United Kingdom (GB)</li> </ul>	

Accessories	Order Number
Mains adapter set for YEPS01-USB	YEPS01-PS6
– Argentina (AR)	
– Brazil (BR)	
– Australia (AU)	
– South Africa (ZA)	
Mains adapter set for YEPS01-USB	YEPS01-PS7
– China (CN)	
– India (IN)	
– Korea (KR)	
Equipotential bonding cable, 2 m	YCC01-X046M2
In-use dust cover	
for control panel, pack of 10	YDC03PMA10
for stand, PMA.Evolution, pack of 10	YDC03PMA-CO10
for weighing pan, PMA.Evolution, pack of 10	YDC03PMA-WP10
for stand, PMA.HD, pack of 10	YDC04PMA-CO10
for weighing pan, PMA.HD, pack of 10	YDC04PMA-WP10
Calibration weights	
for PMA.Evolution:	
– 5 kg, accuracy class F2	YCW654-AC-00
– 2 kg, accuracy class F2	YCW624-AC-00
– 1 kg, accuracy class F2	YCW614-AC-00
for PMA.HD:	
– 2 kg, accuracy class F1	YCW623-AC-00
– 1 kg, accuracy class F1	YCW613-AC-00

## 14 Sartorius Service

Sartorius Service is at your disposal for queries regarding the device. For information about the service addresses, services provided or to contact a local representative, please visit the Sartorius website ([www.sartorius.com](http://www.sartorius.com)).

## 15 Conformity & Licenses

### 15.1 EU Declaration of Conformity

The attached Declaration of Conformity hereby confirms compliance of the device with the directives cited. The declaration of conformity supplied here is for conformity-assessed (verified) weighing instruments for use in the EEA. Please keep it in a safe place.



# CE EU-Konformitätserklärung EU Declaration of Conformity

Hersteller  
*Manufacturer* Sartorius Lab Instruments GmbH & Co. KG  
37070 Goettingen, Germany

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

Geräteart  
*Device type* Farbmischwaage  
*Paint mixing scale*

Baureihe  
*Type series* EVO1Y1, LAB1Y1

in der von uns in Verkehr gebrachten Ausführung allen einschlägigen Bestimmungen der folgenden Europäischen Richtlinien – einschließlich deren zum Zeitpunkt der Erklärung geltenden Änderungen – entspricht und die anwendbaren Anforderungen folgender harmonisierter Europäischer Normen erfüllt:  
*in the form as delivered fulfils all the relevant provisions of the following European Directives – including any amendments valid at the time this declaration was signed – and meets the applicable requirements of the harmonized European Standards listed below:*

2014/30/EU Elektromagnetische Verträglichkeit  
*Electromagnetic compatibility*  
EN 61326-1:2013

2011/65/EU Beschränkung der Verwendung bestimmter gefährlicher Stoffe in Elektro- und Elektronikgeräten (RoHS)  
*Restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS)*  
EN 50581:2012

2014/34/EU Geräte und Schutzsysteme zur bestimmungsgemäßen Verwendung in explosionsgefährdeten Bereichen  
*Equipment and protective systems intended for use in potentially explosive atmospheres*  
EN 60079-0:2012, EN 60079-11:2012, EN 60079-15:2010

Kennzeichnung II 3G Ex ic nA IIB T4 Gc  
*Marking*

EG-Baumusterprüfbescheinigung Nummer FM15ATEX0008X  
*EC-Type Examination Certificate number*

Jahreszahl der CE-Kennzeichenvergabe | *Year of the CE mark assignment:* 16

Sartorius Lab Instruments GmbH & Co. KG  
Goettingen, 2016-04-20

Dr. Reinhard Baumfalk  
Vice President R&D

Dr. Dieter Klausgrete  
Head of International Certification Management

Diese Erklärung bescheinigt die Übereinstimmung mit den genannten EU-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 EU 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.*

Doc: 2032888-01 SLI15CE004-01.de,en 1 / 1 PMF: 2032887 OP-113\_fo1\_2015.10.12



# FCC Supplier's Declaration of Conformity



**Device type** Paint mixing scale

**Type series** EVO1Y... , LAB1Y...

## Party issuing Supplier's Declaration of Conformity / Responsible Party – U.S. Contact Information

Sartorius Corporation  
5 Orville Dr Suite 200  
11716 Bohemia, NY  
USA  
Telephone: +1.631.254.4249

### FCC Compliance Statement

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

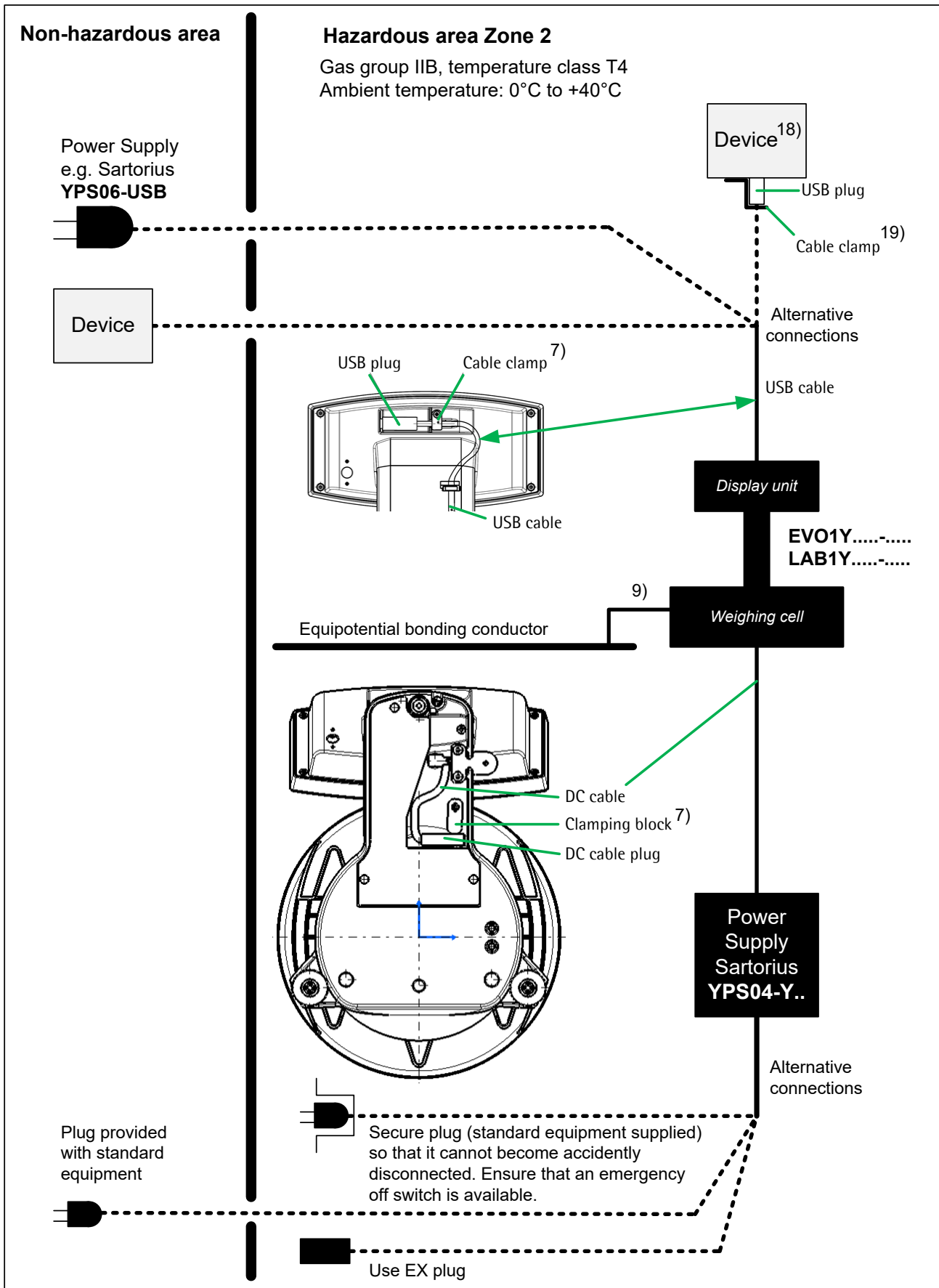
### Information to the user

Note: This equipment has been tested and found to comply with the limits for a **class B** digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Connections between the device and peripherals must be made using shielded cables in order to maintain compliance with FCC radio frequency emission limits.



Any modifications made to this device that are not approved by Sartorius may void the authority granted to the user by the FCC to operate this equipment.



	2015-11-11		Safety Instructions	EVO1Y.....-..... / LAB1Y.....-.....	
	Dr. D. Klausgrete		2021460	Revision 01	Sheet 1 of 2

### These safety instructions apply to the installation, operation, maintenance and repair of the equipment

- 1) Install the equipment in compliance with applicable laws, rules and regulations, ordinances and standards. In particular, be sure to conform to the European Standards EN 60079-14 (Explosive atmospheres – Part 14: Electrical installations design, selection and erection), or IEC 60079-14 as applicable.
- 2) Be sure to follow the installation, operating, maintenance and servicing instructions given in the manuals supplied.
- 3) The equipment shall be installed in such a way that it is protected against the entry of solid foreign objects or water capable of impairing the safety of the apparatus. Reduce the risk of mechanical damage to a minimum.
- 4) Exposure to UV radiation is not allowed!
- 5) The connecting cable of the display unit must be prevented against damage and stress caused by strain.
- 6) Prior to opening the equipment, disconnect the power supply or make sure that there is no potentially explosive atmosphere or any other explosion hazard in the surrounding area!
- 7) The data cable connected to the scale (weighing unit) is considered as non intrinsically safe circuit. The connection is secured against accidental disconnection and may only be plugged in or disconnected when the power is switched completely off. Check the correct function of the data transfer before you use the equipment in a hazardous location. Lock the USB plug of the USB cable by the cable clamp and in case of the option „additional power supply board“ lock the plug of the DC cable by the clamping block.
- 8) If the equipment does not operate properly, unplug it immediately from line power (mains supply)!
- 9) All metal parts must be electrically connected to the terminal for the equipotential bonding conductor (PA). The equipment operator is obligated to connect a lead with a gauge of at least 4 mm<sup>2</sup> (cross section) to the PA terminal located on the housing of the scale. The low resistance of this connection to the PA bus bar must be checked when the system is installed at the intended place of use. The shielding of the connecting cables may only be used for grounding when no impermissible difference in voltage is generated and, if necessary, the shielding is able to conduct the equipotential current.
- 10) Avoid generating static electricity. Use only a damp cloth to wipe down the equipment. The equipment operator shall be responsible for preventing any risks caused by static electricity.
- 11) Keep chemicals and other agents, which can corrode the housing seals and cable sheaths, away from the equipment. These agents include oil, grease, benzene, acetone and ozone. If you are not sure about the safety of a certain substance, please contact the manufacturer.
- 12) Use equipment only in the temperature ranges indicated. Avoid exposing the equipment to heat.
- 13) The equipment operator is responsible for any non-Sartorius cables used.
- 14) At reasonable intervals, have your equipment installation checked for proper functioning and safety by a trained and certified technician.
- 15) If your equipment needs to be repaired, use only original spare parts supplied by the manufacturer!
- 16) Any tampering with the equipment by anyone, other than repair work done by authorized Sartorius service technicians, will result in the loss of EX conformity and in the forfeiture of all claims under the manufacturer's warranty. Only authorized specialists may open the equipment.
- 17) Modifications, including those to be carried out by Sartorius employees, may be permitted only after the express written authorization has been obtained from Sartorius.
- 18) The USB port of any IECEx certified EPL Gc or ATEX Category II 3 G certified electrical equipment may be connected to the scale (weighing unit) via a standard USB cable.
- 19) The USB data cable connected to the scale (weighing unit) is considered as non intrinsically safe circuit. The connection is secured against accidental disconnection and may only be plugged in or disconnected when the power is switched completely off. Check the correct function of the data transfer before you use the equipment in a hazardous location. Lock the USB plug of the USB cable at the scale (weighing unit) and any note 18 device by a cable clamp or tool secured device.

	2015-11-11		Safety Instructions		EVO1Y.....-..... / LAB1Y.....-.....
	Dr. D. Klausgrete		2021460	Revision 01	Sheet 2 of 2

# 1 TYPE EXAMINATION CERTIFICATE



2 **Equipment or Protective systems intended for use in Potentially Explosive Atmospheres - Directive 2014/34/EU**

3 **Type Examination Certificate No:** FM15ATEX0008X

4 **Equipment or protective system:** PMA.Evolution EVO1Yab-c and LAB1Yab-c  
(Type Reference and Name)

5 **Name of Applicant:** Sartorius Lab Instruments GmbH & Co. KG

6 **Address of Applicant:** Otto-Brenner-Strasse 20  
Göttingen 37079  
Germany

7 This equipment or protective system and any acceptable variation thereto is specified in the schedule to this certificate and documents therein referred to.

8 FM Approvals Europe Ltd. certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in confidential report number:

3049975 dated 15<sup>th</sup> July 2015

9 Compliance with the Essential Health and Safety Requirements, with the exception of those identified in item 15 of the schedule to this certificate, has been assessed by compliance with the following documents:

EN 60079-0:2012+A11:2013, EN 60079-11:2012 and EN 60079-15:2010

10 If the sign 'X' is placed after the certificate number, it indicates that the equipment is subject to specific conditions of use specified in the schedule to this certificate.

11 This Type Examination certificate relates only to the design, examination and tests of the specified equipment or protective system in accordance to the directive 2014/34/EU. Further requirements of the Directive apply to the manufacturing process and supply of this equipment or protective system. These are not covered by this certificate.

12 The marking of the equipment or protective system shall include:



II 3 G Ex ic nA IIB T4 Gc 0 °C ≤ Ta ≤ 40 °C

Digitally signed by  
Richard Zammitt  
DN: cn=Richard Zammitt,  
o, ou=FM Approvals  
Europe Limited,  
email=richard.zammitt@f  
maprovals.com, c=IE

**Richard Zammitt**  
Certification Manager, FM Approvals Europe Ltd.

Issue date: 18<sup>th</sup> April 2019

**THIS CERTIFICATE MAY ONLY BE REPRODUCED IN ITS ENTIRETY AND WITHOUT CHANGE**

FM Approvals Europe Ltd. One Georges Quay Plaza, Dublin. Ireland. D02 E440  
T: +353 (0) 1761 4200 E-mail: [atex@fmaprovals.com](mailto:atex@fmaprovals.com) [www.fmaprovals.com](http://www.fmaprovals.com)

F ATEX 029 (Mar/2019)

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## SCHEDULE



to Type Examination Certificate No. FM15ATEX0008X

### 13 Description of Equipment or Protective System:

The PMA.Evolution EVO1Yab-c and LAB1Yab-c are designed for the measurement of weight in the hazardous location. The PMA.Evolution contains the processing circuitry and has a touch enable LCD display with backlight facility. Power and data are provided via a USB connection.

U<sub>in</sub> = +15Vdc / +5Vdc  
U<sub>m</sub> = 20 Vdc.

An optional power supply YPS04-Y.. (KEMA 09ATEX0121X) can be used to provide power if necessary.

The PMA.Evolution is available in two versions EVO1Yab-c and LAB1Yab-c.

#### **PMA.Evolution EVO1Yab-c**

a = Up to three letters and/or numbers or blank (not critical to safety)  
b = Up to two letters and/or numbers or blank (not critical to safety)  
c = Up to five letters and/or numbers or blank (not critical to safety)

#### **PMA.Evolution LAB1Yab-c**

a = Up to three letters and/or numbers or blank (not critical to safety)  
b = Up to two letters and/or numbers or blank (not critical to safety)  
c = Up to five letters and/or numbers or blank (not critical to safety)

### 14 Specific Conditions of Use:

1. The enclosure of the PMA.Evolution EVO1Yab-c and LAB1Yab-c are non-metallic and shall not be used where UV light or radiation may impinge on the enclosure.
2. The PMA.Evolution EVO1Yab-c and LAB1Yab-c shall be installed in such a way that it is protected against the entry of solid foreign objects or water capable of impairing the safety of the apparatus. Reduce the risk of mechanical damage to a minimum.
3. The enclosure of the PMA.Evolution EVO1Yab-c and LAB1Yab-c is non-conducting and may generate an ignition-capable level of electrostatic charges under certain extreme conditions. The user shall ensure that the equipment is not installed in a location where it may be subjected to external conditions that might cause a build-up of electrostatic charges on non-conducting surfaces, additionally, cleaning of the equipment should be done only with a damp cloth.

### 15 Essential Health and Safety Requirements:

The relevant EHSRs that have not been addressed by the standards listed in this certificate have been identified and assessed in the confidential report identified in item 8.

### 16 Test and Assessment Procedure and Conditions:

This Type Examination Certificate is the result of testing of a sample of the product submitted, in accordance with the provisions of the relevant specific standard(s), and assessment of supporting documentation. It does not imply an assessment of the whole production.

Whilst this certificate may be used in support of a manufacturer's claim for CE Marking, FM Approvals Europe Ltd accepts no responsibility for the compliance of the equipment against all applicable Directives in all applications.

### THIS CERTIFICATE MAY ONLY BE REPRODUCED IN ITS ENTIRETY AND WITHOUT CHANGE

FM Approvals Europe Ltd. One Georges Quay Plaza, Dublin. Ireland. D02 E440  
T: +353 (0) 1761 4200 E-mail: [atex@fmapprovals.com](mailto:atex@fmapprovals.com) [www.fmapprovals.com](http://www.fmapprovals.com)

F ATEX 029 (Mar/2019)

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## SCHEDULE



to Type Examination Certificate No. FM15ATEX0008X

This Certificate has been issued in accordance with FM Approvals Europe Ltd's ATEX Certification Scheme.

### 17 **Schedule Drawings**

A list of the significant parts of the technical documentation is annexed to this certificate and a copy has been kept by FM Approvals Europe Ltd.

### 18 **Certificate History**

Details of the supplements to this certificate are described below:

<b>Date</b>	<b>Description</b>
17 <sup>th</sup> July 2015	Original Issue.
18 <sup>th</sup> February 2016	<u>Supplement 1</u> Report Reference: RR203381 dated 17 <sup>th</sup> February 2016. Description of the Change: Update to Safety Instruction 2021460, allowing connection via USB to a certified device located in the Hazardous Area.
25 <sup>th</sup> July 2017	<u>Supplement 2</u> Report Reference: RR209731 dated 6 <sup>th</sup> June 2017 Description of the Change: Applicant address change and labeling address change. Minor related documentation updates. Update to the latest standards and Directive 2014/34/EU.
18 <sup>th</sup> April 2019	<u>Supplement 3</u> Report Reference: RR216229 dated 29 <sup>th</sup> March 2019 Description of the Change: Certificate transferred from FM Approvals Ltd., notified body no. 1725, to FM Approvals Europe Ltd., notified body no. 2809. Minor documentation updates.

**THIS CERTIFICATE MAY ONLY BE REPRODUCED IN ITS ENTIRETY AND WITHOUT CHANGE**

FM Approvals Europe Ltd. One Georges Quay Plaza, Dublin. Ireland. D02 E440  
T: +353 (0) 1761 4200 E-mail: [atex@fmapprovals.com](mailto:atex@fmapprovals.com) [www.fmapprovals.com](http://www.fmapprovals.com)

F ATEX 029 (Mar/2019)

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# IECEX Certificate of Conformity

## INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification Scheme for Explosive Atmospheres

for rules and details of the IECEx Scheme visit [www.iecex.com](http://www.iecex.com)

Certificate No.:	IECEX FME 15.0004X	Issue No: 2	Certificate history:
Status:	Current		Issue No. 2 (2017-07-25)
Date of Issue:	2017-07-25	Page 1 of 4	Issue No. 1 (2016-02-18)
			Issue No. 0 (2015-07-20)
Applicant:	Sartorius Lab Instruments GmbH & Co. KG Otto-Brenner-Straße 20 Göttingen 37079 Germany		
Equipment:	PMA.Evolution EVO1Y..... / LAB1Y.....		
Optional accessory:			
Type of Protection:	Intrinsic safety 'ic' & Type nA		
Marking:	Ex ic nA IIB T4 Gc 0°C ≤ Ta ≤ 40°C		
Approved for issue on behalf of the IECEx Certification Body:	Mick Gower		
Position:	Certification Manager		
Signature: (for printed version)	_____		
Date:	_____		

1. This certificate and schedule may only be reproduced in full.
2. This certificate is not transferable and remains the property of the issuing body.
3. The Status and authenticity of this certificate may be verified by visiting the Official IECEx Website.

Certificate issued by:

FM Approvals Ltd  
1 Windsor Dials  
SL4 1RS Windsor  
United Kingdom





# IECEx Certificate of Conformity

Certificate No: IECEx FME 15.0004X Issue No: 2  
 Date of Issue: 2017-07-25 Page 2 of 4  
 Manufacturer: Sartorius Lab Instruments GmbH & Co. KG  
 Otto-Brenner-Straße 20  
 Göttingen 37079  
 Germany

Additional Manufacturing location(s):

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements. This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended.

#### STANDARDS:

The electrical apparatus and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards:

IEC 60079-0 : 2011 Edition:6.0	Explosive atmospheres - Part 0: General requirements
IEC 60079-11 : 2011 Edition:6.0	Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
IEC 60079-15 : 2010 Edition:4	Explosive atmospheres - Part 15: Equipment protection by type of protection "n"

*This Certificate does not indicate compliance with electrical safety and performance requirements other than those expressly included in the Standards listed above.*

#### TEST & ASSESSMENT REPORTS:

*A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in*

#### Test Report:

GB/FME/ExTR15.0002/00	GB/FME/ExTR15.0002/01	GB/FME/ExTR15.0002/02
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#### Quality Assessment Report:

GB/FME/QAR13.0020/00	GB/FME/QAR13.0020/02
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## IECEx Certificate of Conformity

Certificate No: IECEx FME 15.0004X

Issue No: 2

Date of Issue: 2017-07-25

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### Schedule

#### EQUIPMENT:

*Equipment and systems covered by this certificate are as follows:*

The PMA.Evolution is designed for the measurement of weight in the hazardous location. The PMA.Evolution contains the processing circuitry and has a touch enable LCD display with backlight facility. Power and data are provided via a USB cable.

$U_{in} = +15V_{dc} / +5V_{dc}$

$U_m = 20 V_{dc}$ .

An optional power supply YPS04-Y.. (IECEx KEM 09.0065X) can be used to provide power if necessary.

#### SPECIFIC CONDITIONS OF USE: YES as shown below:

1. The enclosures of the Paint-mixing Scales PMA.Evolution are non-metallic and shall not be used where UV light or radiation may impinge on the enclosure.
2. The Paint-mixing Scales PMA.Evolution shall be installed in such a way that it is protected against the entry of solid foreign objects or water capable of impairing the safety of the apparatus. Reduce the risk of mechanical damage to a minimum.
3. The enclosures of the Paint-mixing Scales PMA.Evolution is non-conducting and may generate an ignition-capable level of electrostatic charges under certain extreme conditions. The user shall ensure that the equipment is not installed in a location where it may be subjected to external conditions that might cause a build-up of electrostatic charges on non-conducting surfaces, additionally, cleaning of the equipment should be done only with a damp cloth.



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**DETAILS OF CERTIFICATE CHANGES (for issues 1 and above):**

Minor documentation updates related to Applicant's address change from Weender Landstrasse 94-108, Gottingen 37075, Germany and implementation of Labeling Address: 37070 Goettingen, Germany.

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The information and figures contained in these instructions correspond to the version date specified below.

Sartorius reserves the right to make changes to the technology, features, specifications and design of the equipment without notice.

Masculine or feminine forms are used to facilitate legibility in these instructions and always simultaneously denote the other gender as well.

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