sartorius

Operating Instructions

PMA.Evolution | PMA.HD

EVO1X | LAB1X

Paint-Mixing Scales for Use in Potentially Explosive Atmospheres of Zone 1

98648-020-50

Contents

1 About this Document

1.1 Validity

These operating instructions apply to color-mixing scale models:

– EVO1X
– LAB1X

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.

The following means of representation 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 follow this symbol describe the result of an action.

1.3 User Information

The illustrations in these instructions are based on the PMA.Evolution (EVO1X) model.

2 Safety

2.1 General Safety Instructions

- The scale and the ex-link converter meet 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 or of the ex-link converter 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.

IMPORTANT

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 and the ex-link converter YCO14-Z is IP40 as per EN 60529. The device must be handled carefully according to the IP protection rating. The environment must be suitably secured.

Ex Zone 1 (Category 2 Equipment)

- In accordance with Directive 94/9/EC, the EVO1X/LAB1X model is a category 2 device, suitable for use in Zone 1 potentially explosive areas.
  EC Type Examination Certificates: FM14ATEX0085X
  ID: II 2G Ex ib IIB T4 Gb
- The ex-link converter is only suitable for installation as an electrical apparatus with the following ID code outside of the potentially explosive area:
  II (2)G [Ex ib Gb]IIB
  as per EC Type Examination Certificate no. FM14ATEX0084X

IMPORTANT

If the device is used in Zone 1 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, the ex-link converter, or the AC adapter including all connections are damaged.
Immediately disconnect the damaged device from the power.

IMPORTANT

Do not expose the scale, the ex-link converter, 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.

IMPORTANT

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 rating of the scale, the ex-link converter, and its 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, ex-link converter, or the scale:
Disconnect all devices from the power.

IMPORTANT

The scale and ex-link converter should only be opened by personnel trained by Sartorius 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. 2023040).

Warnings Concerning Installation and Operation:

The equipment must only be used indoors. Avoid generating static electricity on glass and plastic parts. Connect the scale and the ex-link converter (YCO14-Z) 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 to be able to initiate the necessary safety measures (e.g., disconnecting the ex-link converter from the power supply).

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

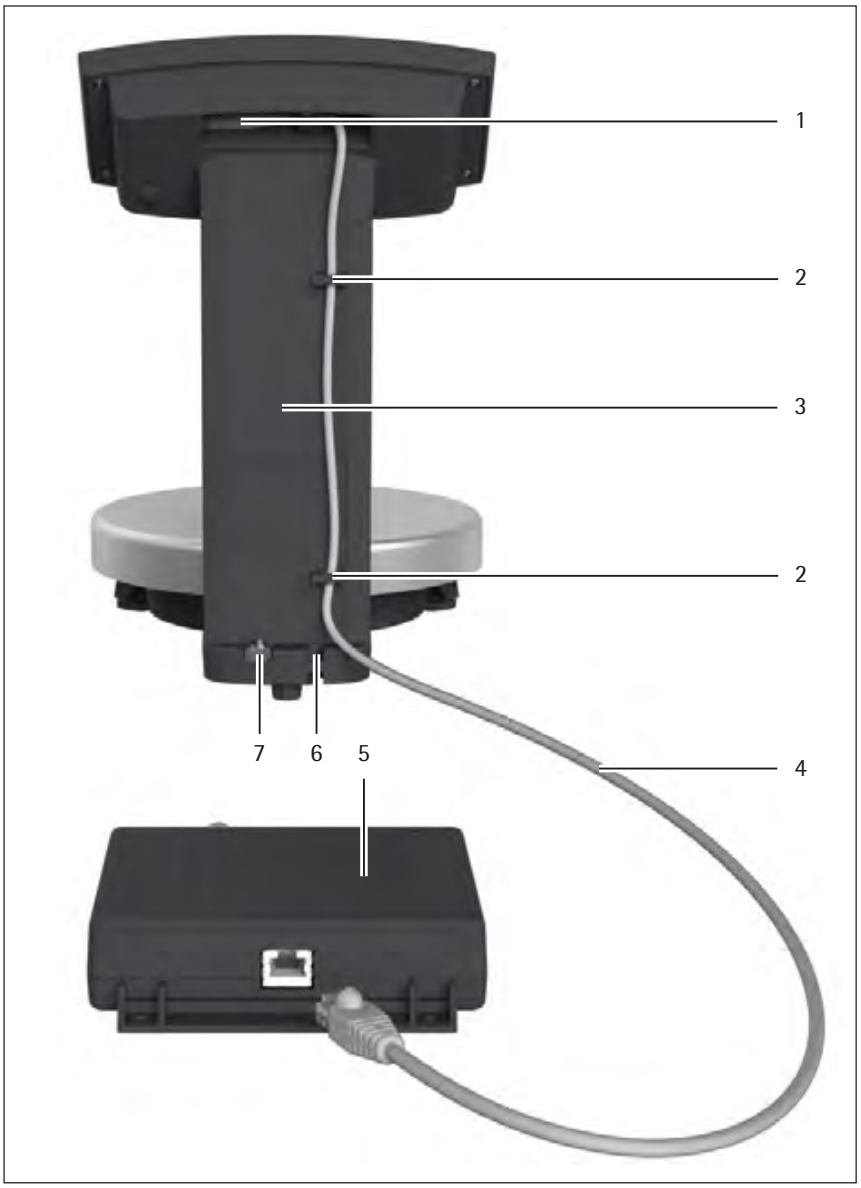
This scale is only intended for mixing colors and paints. The scale is connected to the ex-link converter installed outside of the potentially explosive area only using the supplied link cable. The scale is used in Zone 1 potentially explosive areas.
Appropriate containers must be used for each type 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 PC is connected to the ex-link converter installed outside of the potentially explosive area via a USB cable.

3 Device Overview

3.1 Front View

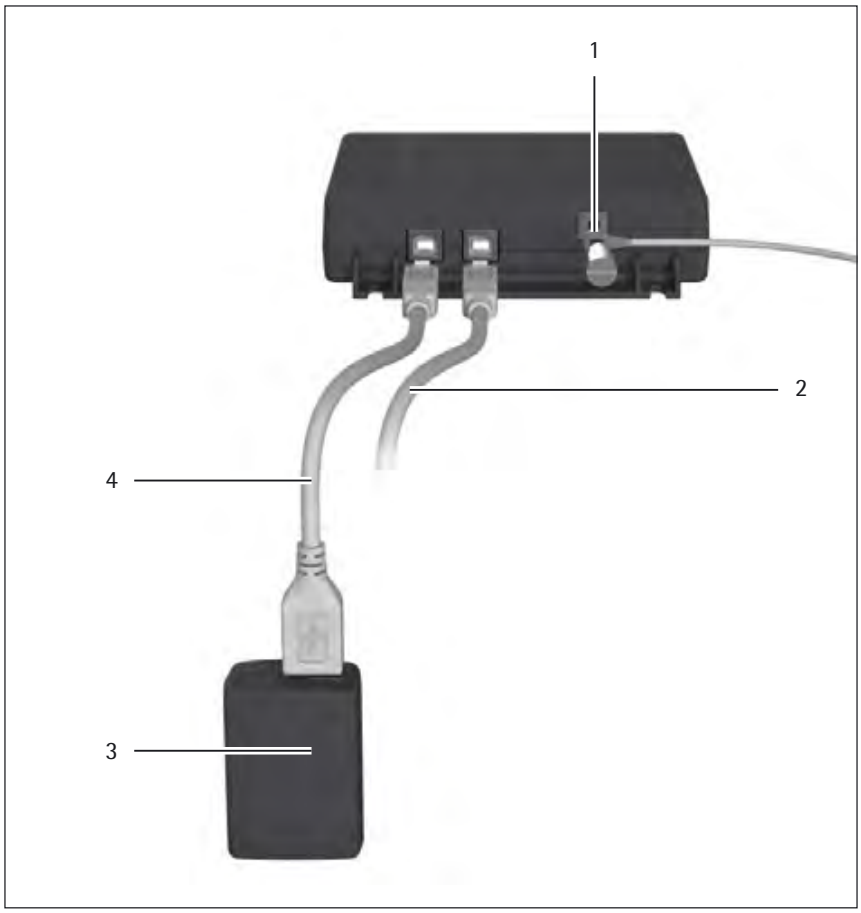
Item	Description
1	Operating and display elements (see also Chapter 3.4, page 11)
2	Stand
3	Weighing pan

3.2 Rear View



Item	Description
1	RJ-45 socket for link cable
2	Cable holders
3	Stand
4	Link cable (blue)
5	Ex-link converter
6	Anti-theft locking device
7	Grounding terminal for equipotential bonding

3.3 Ex Link Converter/AC Adapter



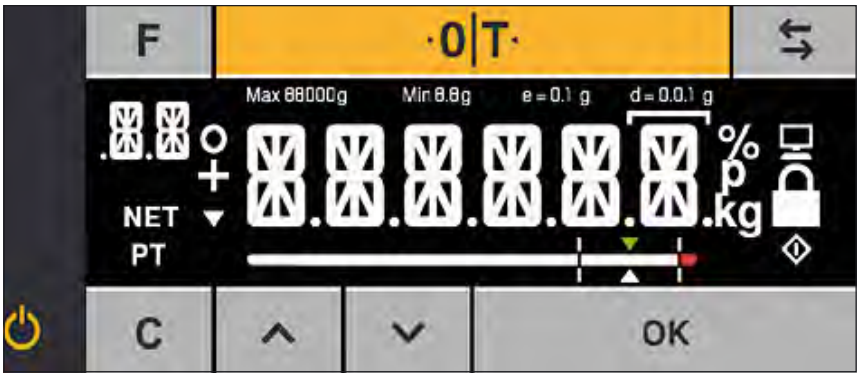
Item	Description
1	Grounding terminal for equipotential bonding
2	USB cable for connecting to PC or notebook
3	AC adapter (optional)
4	USB cable for connecting to AC adapter (optional)

3.4 Operating and Display Elements

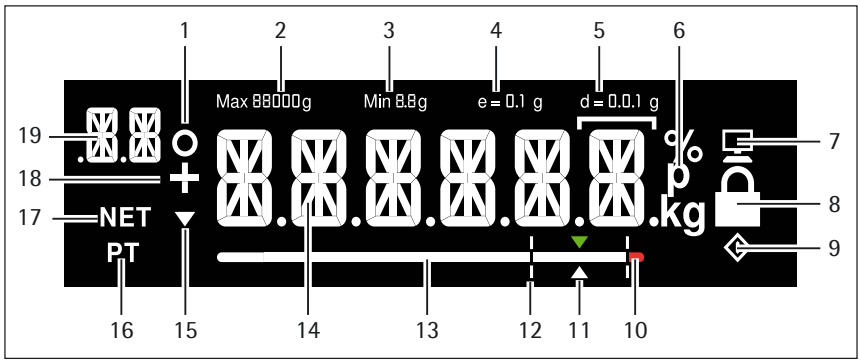
CAUTION

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
F	Factor key for paint-mixing applications
·0|T·	Zeroing / Taring
⇆	Toggle key: Toggles the decimal places and/or unit Depending on the menu setting
⏻	On / Standby
C	Clear key / Display of correction factor for paint-mixing applications
^	Up
v	Down
OK	ENTER key / MEM key paint-mixing applications



Item	Function
1	Activated function in the menu list (see Chapter 3.5, page 13)
2	Maximum weighing range
3	Minimum load Min (for verified models only)
4	Verification scale intervals (verified models only)
5	Readability of the scale (scale interval d)
6	Weight unit and stability indicator
7	Communication with the PC
8	Activating the "LOCK" function/function activated
9	Busy symbol indicates that an internal process is in progress
10	Tolerance range has been exceeded
11	Target value for bar graph
12	Tolerance range
13	Bar graph: Scaled display showing capacity usage (in percent)
14	Fourteen segment display
15	Trend display
16	Info on weight entry via application keypad (preset tare)
17	Net value
18	Plus (or minus) sign of the weight
19	Display: – Level setup level – Component/factor for paint-mixing applications

3.5 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	1.1.7.14
|	|---	DSP.DEC.			Accuracy	1.1.8
|	|	|----	o	ALL	Show all decimal places	1.1.8.1
|	|	|----		POLYR.	Multi-interval lab	1.1.8.13
|	|---	CAL.JST.			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	1.3.1
|	|	|----	o	GRAMS	Grams	1.3.1.2
|	|	|----		PT.P.LB	Parts per pound	1.3.1.14
|	|---	DEC 2			Second unit accuracy	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	1.3.3
|		|----	o	OFF	Toggle key off	1.3.3.1
|		|----		ON	Toggle key on	1.3.3.2
|						

Continued on next page

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
				DEFAUL.	Loads 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/STD.	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
	---	DATABT.			Number of stop 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	Cancel 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.
|	|---	NEW PW		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
|----	RUS			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: ∅ 233 mm	x	–
Small weighing pan: ∅ 180 mm	–	x
USB cable	x	x
Ex-link converter	x	x
Potential equalization cable	x	x
Link cable from converter to scale	x	x
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, A/C 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 warm area. You should therefore let a device acclimatize for approximately two hours disconnected from its power source before reconnecting it to the supply voltage.

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 YPS06-USB (see Chapter 12 “Accessories,” page 37), 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.

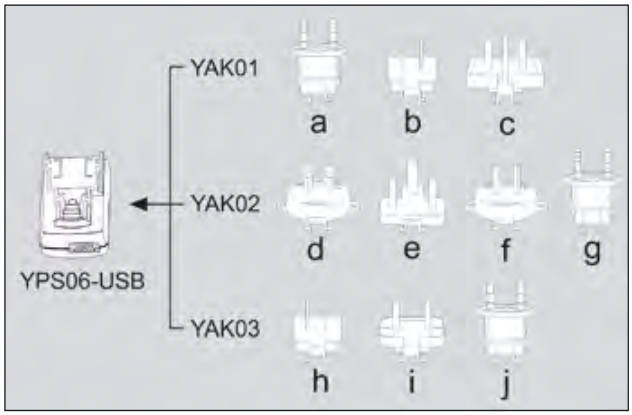
The assembly is described in the following.

4.4.1 AC Adapter Assembly (Optional)

WARNING

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).

▶ Use the right mains adapter for your mains power supply.



Mains adapter set YAK01

Bag	Region/Country
a) transparent	Europe/EU (except United Kingdom)
b) blue	USA
c) yellow	United Kingdom

Mains adapter set YAK02

d) red	Australia
e) turquoise	South Africa
f) white	Argentina
g) pink	Brazil

Mains adapter set YAK03

h) light brown	China
i) black	India
j) green	Korea

▶ Push (1) and slide (2) the mains adapter required for your power supply into the opening of the AC adapter module.
When doing this, the mains adapter needs to lock into position.

Removing/Replacing the Mains Adapter

▶ Unlock (1) and then remove the mains adapter (2).

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 link cable plug into the RJ-45 socket on the back of the display.

Laying the Link Cable

▶ Lay the link cable (blue) through the cable holders on the back of the scale.

▶ Connect the link cable to the ex-link converter.

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.

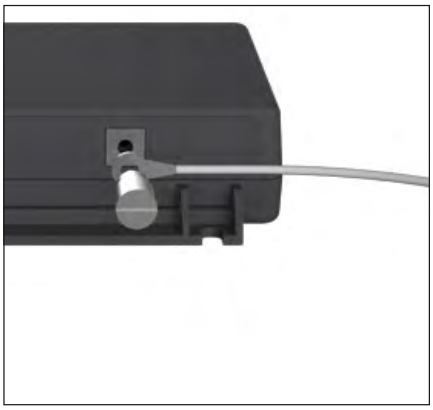
Check whether or not the competent authorities (e.g., industrial supervisory board) need to be informed. It is also necessary to carry out inspections of the system during operation.
Inspection intervals should be such that any significant defects that may occur can be identified in good time. Inspections 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 and the ex-link converter YCO14-Z to a customer-supplied equipotential bonding conductor connection via the equipotential bonding conductor connections (PA) on the device using a suitable grounding cable with a gage of at least 4 mm^2.

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 gage of at least 4 mm².

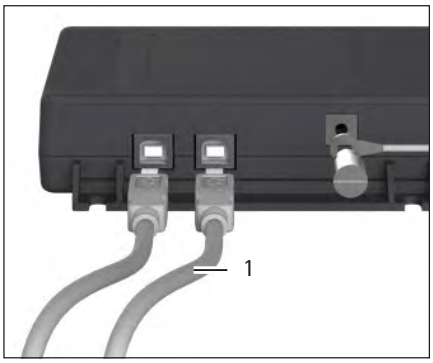
- ▶ Connect the cable lug of the equipotential bonding cable to the grounding terminal of the scale.
- ▶ Connect the equipotential bonding cable to the customer-supplied equipotential bonding conductor.



Connect the ex-link converter to the equipotential bonding conductor using another equipotential bonding cable with a gage of at least 4 mm².

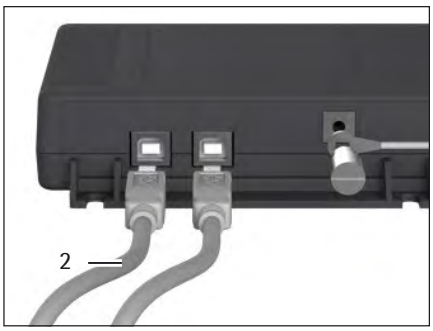
- ▶ Connect the cable lug of the equipotential bonding cable to the grounding terminal of the ex-link converter.
- ▶ Connect the equipotential bonding cable to the customer-supplied equipotential bonding conductor.

Connecting a PC/Notebook

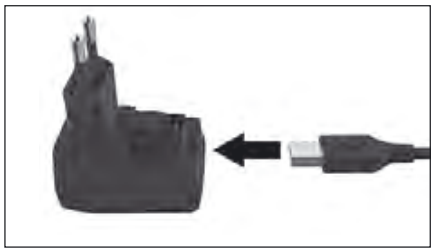


- ▶ Insert a USB cable (1) into the right-hand socket on the ex-link converter and connect the cable to a PC or notebook.

Connecting an AC Adapter (Optional)



- ▶ Insert an additional USB cable (2) into the ex-link converter.
- ▶ Insert the USB cable into the YPS06-USB AC adapter.
- ▶ Plug the AC adapter into the wall outlet (supply voltage).



- Insert the USB cable into the YPS06-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

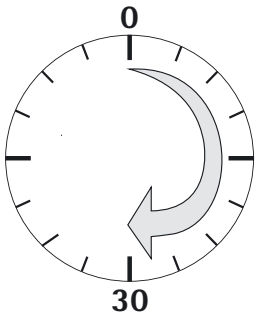
Leveling the PMA.HD Model

Leveling the scale compensates for slant or unevenness at the place of installation. The scale must be perfectly horizontal to ensure consistent, reproducible weighing results.

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

- Turn the two leveling feet as shown in the illustration 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.

5.2 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.

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 Lock Keyboard/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

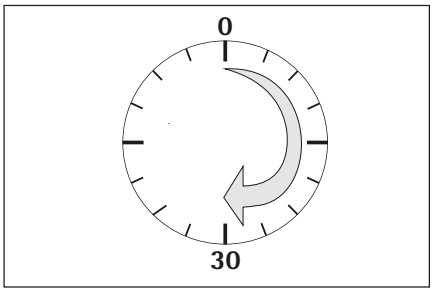
▶ Press the padlock symbol 🔒 to deactivate the lock.
▶ Enter the password (if set) (see Chapter 6.7.2.6, page 29).
▷ The lock is deactivated.

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.

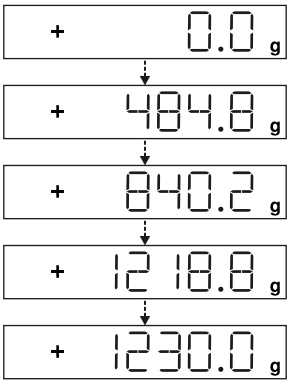
6.4.1 Calibration

▶ Press the ·**0**|**T**· key for approx. two seconds.
▷ The pre-set calibration weight appears in the display (e.g. 5000 g).
▶ If required, select a different calibration weight via the ⌃/⌄ key.
▶ 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

6.5.1 Weighing with One Decimal Place

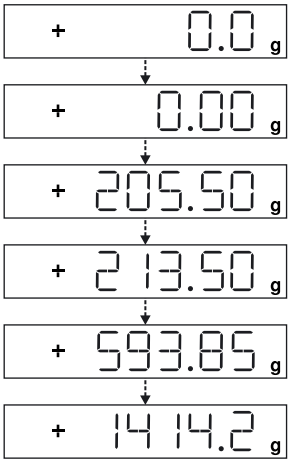


▶ Place the empty paint can on the weighing pan.
▶ Briefly press the ·**0**|**T**· key to zero.
▷ The display shows "0.0 g."
▶ Add the first component "484.8 g."
▶ Read off the weight when the stability symbol (in this example) "g" is displayed.
▶ Add the other components until the desired weight (formula)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

A menu setting is required for weighing with two decimal places (see Chapter 6.7.2.4 "Activating the Toggle Key," 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

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 ^/v 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.

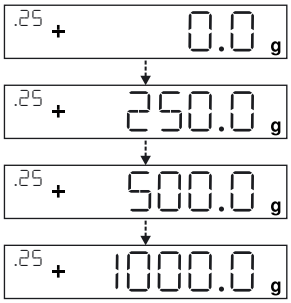
Using the keys ^ (up) and v (down), the factor can be changed:
– in the range 0.10 to 1.0 in increments of 0.01
– in the range 1.0 to 6.0 in increments of 0.1
.

Factor Calculation Example

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

Let's 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	Component 1
+	250 g	Component 2
+	500 g	Component 3
Total:	**1000 g**	



▶ Place the empty container on the weighing pan.
▶ Briefly press the ·0|T· key to tare.
▶ Press the factor key 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 recalculation 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

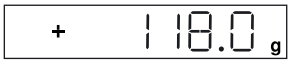
Let's suppose that you poured in too much of one color component for a given formula (in this example, a four-component recipe).

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 [OK].

- ▶ Press the [v] key to start the recalculation program.
- ▷ "C" flashes on the display.
- ▶ Correct the value using the [^]/[v] key to match the specified formula value.
- ▶ Press the MEM key [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 [C] key to display the correction factor of the fill quantity: "C" = correction factor.

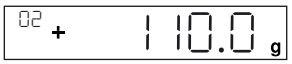
Recalculation Example (Gross Weight)



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

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

- ▶ Briefly press the [OK] 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 [OK] 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).

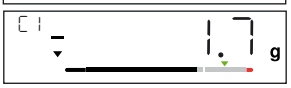
- ▶ Add the third color component (90 g) until the display shows "200 g."

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

- ▶ Press the [v] key.

- ▷ The recalculation is started. "C" flashes in the top left of the display.
- ▶ Press the [v] key until the correct weight value "200 g" is displayed.
- ▶ Briefly press the [OK] key to confirm the corrected value.

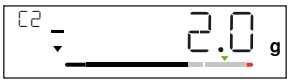
- ▷ "C0R 01" flashes briefly on the display (correction of the first color component).



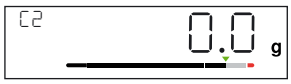
- ▷ "C1" appears in the top left and the weight value to be corrected "- 1.7 g."

- ▶ Add 1.7 g of the first color component until the display shows "0.0 g" or the bar graph stops below the green arrow.
- ▶ Confirm the correction for the first color component by pressing the [OK] key.

- ▷ "C0R 02" flashes briefly on the display (correction of the second color component).



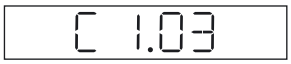
- ▷ "C2" appears in the top left and the weight value to be corrected "- 2.0 g."



▶ Add 2.0 g of the second color component until the display shows “0.0 g” 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 [C] 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 [^] / [v] keys.
▶ Press the [OK] key.
▷ Level 2 of the SETUP menu is displayed.
▶ Select the SCALE menu item of the second level using the [^] / [v] keys.
▶ Press the [OK] key.
▷ Level 3 of the SETUP menu is displayed.
▶ Select the AMBIEN. menu item of the third level using the [^] / [v] keys.
▶ Press the [OK] key.
▷ Level 4 of the SETUP menu is displayed.
▶ Select the desired setting using the [^] / [v] 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 3.5 “Menu List,” page 13.

6.7.2 Configuring the Main Menu Settings

6.7.2.1 Accessing the Setup Menu

▶ Press and hold the [OK] key approx. 2 sec.
▷ SETUP (level 1) appears on the display.

6.7.2.2 Language Setting

Level 1	Level 2		
LANG.			▶ Press [^]. select LANG.
			▶ Press [OK].
	D	o German	▶ Press [^]/[v], select language.
	UK/US	English	▶ Press [OK], “o” appears.
	F	French	▷ The desired setting is applied.
	I	Italian	▶ Press [C] several times to exit the menu.
	etc.		

6.7.2.3 Standard Default Settings (0.1g)/Polyrange (0.05g/0.1g) and Grams/PT./PD.

The default settings which are active when the scale is switched on can be found under “SETUP > SCALE > UNIT” and “SETUP-SCALE - DECIMALS”:

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

Level 1	Level 2	Level 3	Level 4	
SETUP				▶ Press [OK].
|---	SCALE			▶ Press [OK].
	|---	WT.UNIT	Units	▶ Press [^]/[v], e. g. select DECIMALS.
	|	|--- o	GRAMS	▶ Press [OK].
	|	|---	PT.P.LB	▶ Press [^]/[v], e. g. select ALL.
	|---	DSP.DEC.	ACCURACY	▶ Press [OK], “o” appears.
		|--- o	ALL	▷ The new code is set.
		|---	POLYR.	▶ Press [C] several times to exit the menu.

6.7.2.4 Activating the Toggle Key

When the toggle key [⇆] is active, you can use it to toggle the unit between, e.g. grams, PT.P.LB., or the decimal point. 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 [OK].
|---	APP.PRG.			▶ Press [^]/[v], e. g. select APP.PRG.
	|---	TOGGLE.		▶ Press [OK].
		|--- o	ON	▶ Press [^]/[v], e. g. select ON.
		|---	OFF	▶ Press [OK], “o” appears.
				▷ Toggle key [⇆] is activated.
				▶ Press [C] several times to exit the menu.

Configuring the Toggle Key [⇆] Function

Pressing the toggle key [⇆] toggles the scale between the default settings (see page Chapter 6.7.2.3, page 28) and settings defined in “SETUP - APPLICATION - UNIT” and “SETUP - APPLICATION - DECIMALS.”

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

Level 1	Level 2	Level 3	Level 4	
SETUP				▶ Press [OK].
|---	APP.PRG.			▶ Press [^]/[v], select APP.PRG.
	|---	UNIT 2		▶ Press [OK], press [^]/[v], select UNIT 2.
	|	|--- o	GRAMS	▶ Press [OK], press [^]/[v], select setting (e.g. GRAMS).
	|	|---	PT.P.LB	▶ Press [OK], "o" appears indicating the desired setting is applied.
	|---	DEC 2		▶ Press [C].
		|---	ALL	▶ Press [^]/[v], select DEC 2.
		|--- o	POLYR.	▶ Press [OK], press [^]/[v], select setting.
				▶ Press [OK], "o" appears indicating the desired setting is applied.
				▶ Press [C] 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 [^]/[v], select DEVICE, press [OK].
|---	EXTRAS			▶ Press [^]/[v], select EXTRAS, press [OK].
	|---	LOCK		▶ Press [^]/[v], select LOCK, press [OK].
		|--- o	ON	▶ Press [^]/[v], e. g. select ON.
		|---	OFF	▶ Press [OK], "o" appears.
				▷ The "LOCK " function 🔒 is activated.
				▶ Press [C] several times to exit the menu.

6.7.2.6 Password Request

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 is requested, 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 [^]/[v] keys.
▶ Enter the password by entering the individual numbers on the display.
▷ When you enter the correct password, the "LOCK" function will be disabled.

Changing Passwords

The password is numeric and can have up to six digits. Entering six spaces deletes the password, which deactivates the password function. This restores the device to its original setting (scale is not password-protected).

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

Level 1	Level 2	Level 3	
INPUT			▶ Press ^ / v, select INPUT, press OK.
|---	PASSWD.		▶ Press ^ / v, select PASSWD., press OK.
	|---	OLD PW	▷ When an old password is active, OLD PW appears briefly so that you can enter the old password.
		|---	▷ This appears "_ _ _ _ _ _."
		|---	▷ The first line flashes.
		|---	▶ Make the following inputs: – ^ / v keys: Selects numbers 0 to 9. – C: Goes back to the previous number. – OK: Confirms entry or goes to the next number.
		|---	▶ Repeat to enter the remaining numbers.
		|---	▷ If you make an incorrect entry, NOT OK appears. Press OK and reenter the old password.
		|---	
		NEW PW	▷ When you make a correct entry, NEW PW appears briefly so that you can enter the new password. ▷ This appears "_ _ _ _ _ _." ▷ The first line flashes. ▶ Make the following inputs: – ^ / v keys: Selects numbers 0 to 9. – C: Goes back to the previous number. – You can enter spaces to delete the number/password. – OK: Confirms entry or goes to the next number. ▶ Repeat to enter the remaining numbers. ▷ The password has been changed. ▶ Press C several times to exit the menu.

6.7.2.7 Resetting the Scale: "RESET"

If required, you can restore the scale to its factory settings.
Note:
If you have activated the password function, this feature is password-protected.

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

Level 1	Level 2	Level 3	Level 4	
SETUP				▶ Press ^ / v, select SETUP, press OK.
|---	GEN.SRV.			▶ Press ^ / v, select GEN.SRV., press OK.
	|---	MEN.RES.		▶ Press ^ / v, select MEN.RES., press OK.
		|---	DEFAUL.	▶ Press ^ / v, select DEFAUL.
		|---	o NO	▶ Press OK, "o" appears.
				▷ The factory settings are loaded.
				▶ Press C several times to exit the menu.

7 Care and Maintenance

7.1 Cleaning

Electrical Hazard from Voltage or Current!
Disconnect the AC adapter (if connected) from the mains. Unplug any connected data cables from the ex-link converter. Never open the scale, the AC adapter or the ex-link converter. 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, the AC adapter or the ex-link converter.
- 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 13.1, page 37).

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	– No AC power is available	– Check power supply
The weight readout shows "LOW"	– No weighing pan on the scale	– Position the weighing pan
The weight readout shows "HIGH"	– Weighing capacity exceeded	– Unload the scale
The weight readout changes constantly	– Unstable ambient conditions – Excessive vibration or draft – Weighing pan is being affected at some point by outside influences	– Set up scale in another area – Adjust the scale settings (see Chapter 3.5 “Menu List,” page 13)
The weight readout is obviously incorrect	– The sample is not stable – Scale not tared before weighing	– Tare before weighing
No weight value is shown and the padlock symbol 🔒 is displayed	– PC connection to the scale has been interrupted activating the “LOCK” function – Manual “LOCK” function is active	– Access the menu to make the necessary adjustment and switch off the “LOCK” function – Check the connection – Switch off the manual “LOCK” function

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.

IMPORTANT

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 from 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).

11 Technical Specifications

11.1 General Data

Specification	Unit	Value
Scale		
ID code (explosion protection)		II 2G Ex ib IIB T4 Gb as per EC Type Examination Certificate no. FM14A-TEX0085X
Power Supply		Only via USB interface or Sartorius AC adapter YPS06-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
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
Ex-Link Converter Interface Connection		USB, type B
Electromagnetic Compatibility		In accordance with EN 61326-1/IEC61326-1 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
Available Application Programs		Recalculation, factor calculation, formula

AC Adapter YPS06-USB		
USB power plug (5 V/900 mA)		Type FW7712 (manufacturer's certificate)
Primary		100–240 V~, -10%/+10%, 50–60 Hz, 0.125 A
Secondary		5 V_{DC}, ±5%, 900 mA (max.)
Other data		Protection class II IP40 in accordance with EN 60529/IEC 60529
Ex-Link Converter YCO14-Z		
ID code (explosion protection)		II (2)G [Ex ib Gb]IIB as per EC Type Examination Certificate no. FM14ATEX0084X
Other data		IP40 in accordance with EN 60529/IEC 60529

11.2 Model-Specific Data

Specification	Unit	Value	Value
Model		**PMA.Evolution**	**PMA.HD**
		EVO1X	LAB1X
Weighing capacity	g	7500/999.95	2200
Readability	g	0.1/0.05	0.01
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 USB Port (PC Connection)

11.3.1 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.

11.3.2 Installing the Software Driver

11.3.2.1 Installing the Software Driver (Windows Update)

- ▶ Connect the scale to the USB port of the computer (see Chapter 4.3 "Installing the Scale," page 18).
- ▷ 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.

11.3.2.2 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 4.3 "Installing the Scale," page 18).

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).

11.3.2.3 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 Accessories

Accessories	Order Number
AC adapter (5 V/900 mA)	YPS06-USB
USB connection cable	YCC01-0040M5
Mains adapter set YPS06-USB – USA and Japan – Europe/EU – United Kingdom	YAK01
Mains adapter set YPS06-USB – Australia – South Africa – Argentina – Brazil	YAK02
Mains adapter set YPS06-USB – India – Korea – China	YAK03
Ex-link converter	YCO14-Z
Link cable	
from converter to scale, 10 m	YCC01-0052M10
from converter to scale, 20 m	YCC01-0052M20
from converter to scale, 30 m	YCC01-0052M30
Equipotential bonding cable, 2 m	YCC01-X046M2
In-use dust cover	
for control panel, pack of 10	YDC03PMA10
for support arm, PMA.Evolution, pack of 10	YDC03PMA-CO10
for weighing pan, PMA.Evolution, pack of 10	YDC03PMA-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

13 Conformity & Licenses

13.1 EC Declaration of Conformity

The attached EC declaration of conformity confirms the compliance of the paint-mixing scale, models/series EVO1X and LAB1X, with the directives cited.

sartorius

CE EG-/EU-Konformitätserklärung
EC / EU Declaration of Conformity

Hersteller *Manufacturer*	**Sartorius Lab Instruments GmbH & Co. KG** **Weender Landstrasse 94 – 108, D-37075 Goettingen, Germany**

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

Geräteart *Device type*	**Farbmischwaage / Ex-Link-Box** *Paint mixing scale / Ex-link-box*
Baureihe *Type series*	**EVO1X, LAB1X / YCO14-Z**

in der von uns in Verkehr gebrachten Ausführung mit den grundlegenden Anforderungen der folgenden Europäischen Richtlinien übereinstimmt und die anwendbaren Anforderungen der im Anhang 1 aufgelisteten harmonisierten Europäischen Normen erfüllt:

in the form as delivered complies with the essential requirements of the following European Directives and meets the applicable requirements of the harmonized European Standards listed in the Annex 1:

2004/108/EG *2004/108/EC*	Elektromagnetische Verträglichkeit *Electromagnetic compatibility*
2011/65/EU *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)*
94/9/EG *94/9/EC*	Geräte und Schutzsysteme zur bestimmungsgemäßen Verwendung in explosionsgefährdeten Bereichen *Equipment and protective systems intended for use in potentially explosive atmospheres*

Jahreszahl der CE-Kennzeichenvergabe / *Year of the CE mark assignment:* 15

Sartorius Lab Instruments GmbH & Co. KG
Goettingen, 2015-05-07

i. V. [illegible]

Dr. Reinhard Baumfalk
Vice President R&D

i. V. [illegible]

Dr. Dieter Klausgrete
Head of International Certification Management

Diese Erklärung bescheinigt die Übereinstimmung mit den genannten EG- und 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 EC and 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.

sartorius

EG-/EU-Konformitätserklärung
EC / EU Declaration of Conformity

Anhang 1 / *Annex 1*

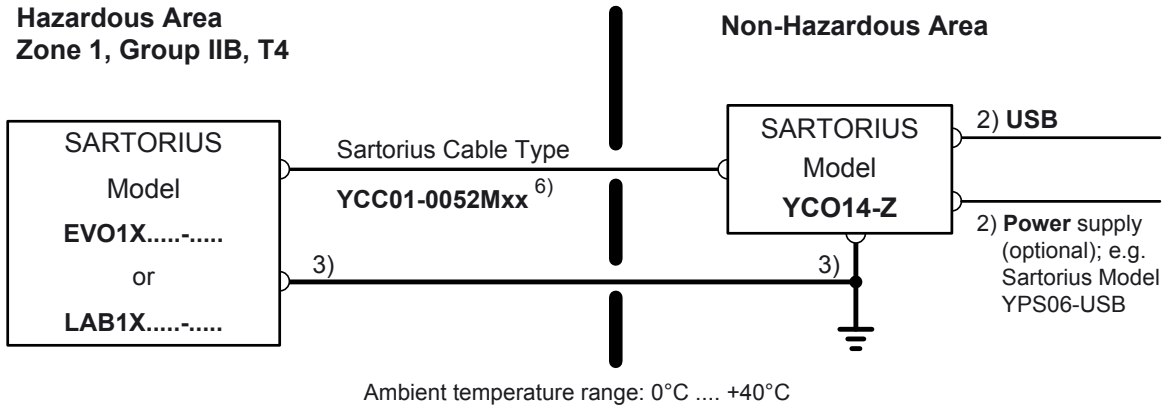
Liste der angewendeten harmonisierten Europäischen Normen
List of the applied harmonized European Standards

2004/108/EG *2004/108/EC*	EN 61326-1:2013 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*
2011/65/EU *2011/65/EU*	EN 50581:2012 Technische Dokumentation zur Beurteilung von Elektro- und Elektronikgeräten hinsichtlich der Beschränkung gefährlicher Stoffe *Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances*
94/9/EG *94/9/EC*	EN 60079-0:2012 Explosionsfähige Atmosphäre – Teil 0: Geräte - Allgemeine Anforderungen *Explosive atmospheres - Part 0: Equipment - General requirements* EN 60079-11:2012 Explosionsfähige Atmosphäre - Teil 11: Geräteschutz durch Eigensicherheit „i" *Explosive atmospheres – Part 11: Equipment protection by intrinsic safety „i"*

Anhang 2 / *Annex 2*

Angaben zur Richtlinie 94/9/EG
Specifications regarding Directive 94/9/EC

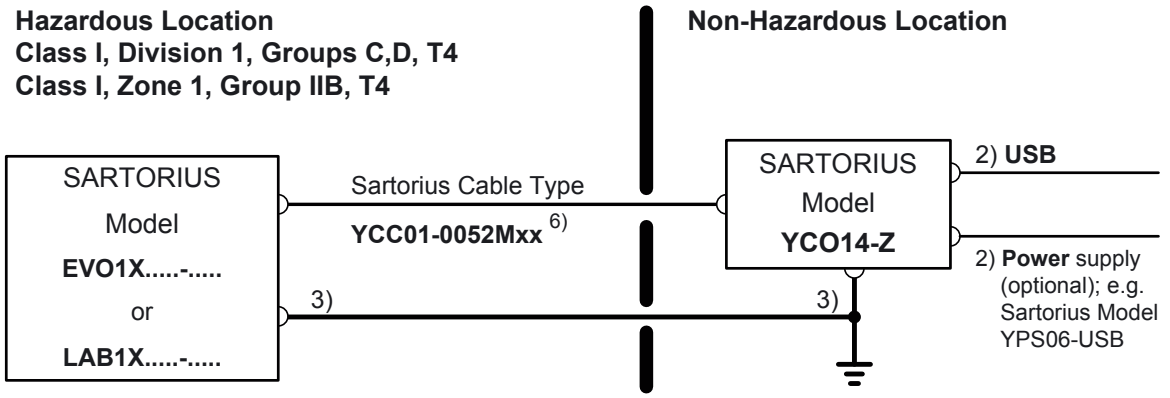
Kennzeichnung *Marking*	II 2 G Ex ib IIB T4 Gb II (2)G [Ex ib] IIB	für/for EVO1X, LAB1X für/for YCO14-Z
Zertifizierung *Certification*	EG-Baumusterprüfbescheinigung Nummer: *EC-Type Examination Certificate number:*	**FM14ATEX0084X** für/for YCO14-Z **FM14ATEX0085X** für/for EVO1X, LAB1X
QAN	Anerkennung der Qualitätssicherung (Produktion) ***Quality Assurance Notification** (production)*	
	durch FM Approvals Ltd, benannte Stelle Nr. 1725 für Anhang IV nach Artikel 9 der Richtlinie 94/9/EG: *by FM Approvals Ltd, notified body number 1725 in accordance with Article 9 of Directive 94/9/EC:*	**FM13ATEXQ0092**



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. For ATEX: In particular, be sure to conform to the European Standards EN 60079-14 (Explosive atmospheres – Part 14: Electrical installations design, selection and erection). Be sure to follow the installation, operating, maintenance and servicing instructions given in the manuals supplied.
2) No connection to any device that uses or generates in excess of 250Vrms or 250Vdc.
3) 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 mm² (cross section) to the PA terminal located on the housing of the Ex-Link converter and 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.
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) Only the Sartorius cable type YCC01-0052Mxx (XX = 10 for 10m, 20 for 20m; 30 for 30m) may be used. Maximum cable length: 100ft (30.5m). The data cable connected to the scale (weighing unit) is considered as intrinsically safe circuit. Check the correct function of the data transfer before you use the equipment in a hazardous location. The equipment operator is responsible for any non-Sartorius cables used.
7) 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!
8) If the equipment does not operate properly, unplug it immediately from line power (mains supply)!
9) 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.
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) At reasonable intervals, have your equipment installation checked for proper functioning and safety by a trained and certified technician.
14) WARNING: SUBSTITUTION OF COMPONENTS MAY IMPAIR INTRINSIC SAFETY. If your equipment needs to be repaired, use only original spare parts supplied by the manufacturer!
15) 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.
16) Modifications, including those to be carried out by Sartorius employees, may be permitted only after the express written authorization has been obtained from Sartorius.

Ex	2014-08-08	sartorius	Safety Instructions	EVO1X.....-..... / LAB1X.....-..... + YCO14-Z	
	Dr. D. Klausgrete		2023040	Revision 00	Sheet



1) USA: The installation must be in accordance with the National Electrical Code®, NFPA 70, Article 504 or 505 and ANSI / ISA-RP 12.6.
   Canada: The installation must be in accordance with the Canadian Electrical Code®, Section 18.
2) No connection to any device that uses or generates in excess of 250Vrms or 250Vdc.
3) USA: The apparatus must be connected to a suitable ground electrode per National Electrical Code®, NFPA 70, Article 504 or 505. The resistance of the ground pad must be less than 1 ohm.
   Canada: The apparatus must be connected to a suitable ground electrode per Canadian Electrical Code®, Section 18. The resistance of the ground pad must be less than 1 ohm.
4) **Ambient temperature** range: 0°C .... +40°C (+32°F .... + 104°F)
5) WARNING: SUBSTITUTION OF COMPONENTS MAY IMPAIR INTRINSIC SAFETY.
   If your equipment needs to be repaired, use only original spare parts supplied by the manufacturer!
6) Only the Sartorius cable type YCC01-0052Mxx (XX = 10 for 10m, 20 for 20m; 30 for 30m) may be used. Maximum cable length: 100ft (30.5m). The equipment operator is responsible for any non-Sartorius cables used.
7) Be sure to follow the installation, operating, maintenance and servicing instructions given in the manuals supplied.
8) 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.
9) Exposure to UV radiation is not allowed!
10) The connecting cable of the display unit must be prevented against damage and stress caused by strain.
11) 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!
12) The data cable connected to the scale (weighing unit) is considered as intrinsically safe circuit. Check the correct function of the data transfer before you use the equipment in a hazardous location.
13) If the equipment does not operate properly, unplug it immediately from line power (mains supply)!
14) 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.
15) 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.
16) Use equipment only in the temperature ranges indicated. Avoid exposing the equipment to heat.
17) At reasonable intervals, have your equipment installation checked for proper functioning and safety by a trained and certified technician.
18) 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.
19) Modifications, including those to be carried out by Sartorius employees, may be permitted only after the express written authorization has been obtained from Sartorius.

Ex	2014-08-08	sartorius	Control Drawing	EVO1X.....-..... / LAB1X.....-..... + YCO14-Z	
	Dr. D. Klausgrete		2021459	Revision 00	Sheet

1 EC-TYPE EXAMINATION CERTIFICATE

2 **Equipment or Protective systems intended for use in Potentially Explosive Atmospheres - Directive 94/9/EC**

3 **EC-Type Examination Certificate No:** **FM14ATEX0085X**

4 **Equipment or protective system: (Type Reference and Name)** **PMA.Evolution EVO1Xab-c and LAB1Xab-c.**

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

6 **Address of Applicant:** **Weender Landstrasse 94-108**
Gottingen 37075
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 Ltd, notified body number 1725 in accordance with Article 9 of Directive 94/9/EC of 23 March 1994, 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:

3049987 dated 27th April 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 and EN 60079-11:2012

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 EC-Type Examination certificate relates only to the design, examination and tests of the specified equipment or protective system in accordance to the directive 94/9/EC. 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 2 G Ex ib IIB T4 Gb Ta = 0°C to 40°C

Digitally signed by Mick Gower
DN: cn=Mick Gower, o=FM Approvals, ou, email=mick.gower@fmapprovals.com, c=GB
Date: 2015.04.30 10:55:25 +01'00'

Mick Gower
Certification Manager, FM Approvals Ltd.

Issue date: 30th April 2015

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

FM Approvals Ltd. 1 Windsor Dials, Windsor, Berkshire, UK. SL4 1RS
T: +44 (0) 1753 750 000 F: +44 (0) 1753 868 700 E-mail: atex@fmapprovals.com www.fmapprovals.com

SCHEDULE

to EC-Type Examination Certificate No. FM14ATEX0085X

13 **Description of Equipment or Protective System:**

The PMA.Evolution EVO1Xab-c and LAB1Xab-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 to the non-hazardous location are provided via the YCO14-Z Ex-Link Converter (FM14ATEX0084X). All signal outputs to the Ex-Link Converter are in RS232 communications. The PMA.Evolution is housed within non-metallic enclosure. A dedicated potential equalization connection is provided on both the PMA.Evolution and the YCO14-Z Ex-Link Converter. Power and data connections between the YCO14-Z and the PMA.Evolution are made via a multi-conductor CAT6 cable.

The PMA.Evolution is available in two versions EVO1X and the LAB1X.

PMA.Evolution EVO1Xab-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 LAB1Xab-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 PMA.Evolution shall only be used with the YCO14-Z Ex-Link Converter (FM14ATEX0084X).
2. The protective ground connectors on the PMA.Evolution and the YCO14-Z Ex-Link Converter shall be connected together using a potential equalisation conductor with a cross-sectional area of at least 4 mm^2.
3. The CAT6 cable used between the PMA.Evolution and the YCO14-Z Ex-Link Converter shall be obtained from Sartorius.
4. The enclosure of the 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

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 EC-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 Ltd accepts no responsibility for the compliance of the equipment against all applicable Directives in all applications.

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

FM Approvals Ltd. 1 Windsor Dials, Windsor, Berkshire, UK. SL4 1RS
T: +44 (0) 1753 750 000 F: +44 (0) 1753 868 700 E-mail: atex@fmapprovals.com www.fmapprovals.com

SCHEDULE

to EC-Type Examination Certificate No. FM14ATEX0085X

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 the Notified Body.

18 **Certificate History**

Details of the supplements to this certificate are described below:

Date	Description
30th April 2015	Original Issue.

FM Approvals Ltd. 1 Windsor Dials, Windsor, Berkshire, UK. SL4 1RS
T: +44 (0) 1753 750 000 F: +44 (0) 1753 868 700 E-mail: atex@fmapprovals.com www.fmapprovals.com

1 EC-TYPE EXAMINATION CERTIFICATE

2 **Equipment or Protective systems intended for use in Potentially Explosive Atmospheres - Directive 94/9/EC**

3 **EC-Type Examination Certificate No:** **FM14ATEX0084X**

4 **Equipment or protective system: (Type Reference and Name)** **YCO14-Z Ex-Link Converter**

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

6 **Address of Applicant:** **Weender Landstrasse 94-108**
Gottingen 37075
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 Ltd, notified body number 1725 in accordance with Article 9 of Directive 94/9/EC of 23 March 1994, 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:

3049987 dated 27th April 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 and EN 60079-11:2012

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 EC-Type Examination certificate relates only to the design, examination and tests of the specified equipment or protective system in accordance to the directive 94/9/EC. 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 (2) G [Ex ib Gb] IIB

Digitally signed by Mick Gower
DN: cn=Mick Gower, o=FM Approvals, ou, email=mick.gower@fmapprovals.com, c=GB
Date: 2015.04.30 10:45:36 +01'00'

Mick Gower
Certification Manager, FM Approvals Ltd.

Issue date: 30th April 2015

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

FM Approvals Ltd. 1 Windsor Dials, Windsor, Berkshire, UK. SL4 1RS
T: +44 (0) 1753 750 000 F: +44 (0) 1753 868 700 E-mail: atex@fmapprovals.com www.fmapprovals.com

SCHEDULE

to EC-Type Examination Certificate No. FM14ATEX0084X

13 **Description of Equipment or Protective System:**

The YCO14-Z Ex-Link Converter is a dedicated device providing power and data to the PMA.Evolution EVO1X or LAB1X weighing platforms (FM14ATEX0085X). All signal outputs to the PMA.Evolution are available in RS232 communications. The YCO14-Z Ex-Link Converter is housed within non-metallic enclosure. A dedicated potential equalization connection is provided on both the PMA.Evolution and the YCO14-Z Ex-Link Converter. Power and data connections between the YCO14-Z and the PMA.Evolution are made via a multi-conductor CAT6 cable.

Electrical ratings
Um = 250 V

14 **Specific Conditions of Use:**

1. The YCO-14Z Ex-Link Converter shall only be used with the PMA.Evolution (FM14ATEX0085X).
2. The protective ground connectors on the PMA.Evolution and the YCO14-Z Ex-Link Converter shall be connected together using a potential equalisation conductor with a cross-sectional area of at least 4 mm^2.
3. The CAT6 cable used between the PMA.Evolution and the YCO14-Z Ex-Link Converter shall be obtained from Sartorius.

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 EC-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 Ltd accepts no responsibility for the compliance of the equipment against all applicable Directives in all applications.

This Certificate has been issued in accordance with FM Approvals 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 the Notified Body.

18 **Certificate History**

Details of the supplements to this certificate are described below:

Date	Description
30th April 2015	Original Issue.

FM Approvals Ltd. 1 Windsor Dials, Windsor, Berkshire, UK. SL4 1RS
T: +44 (0) 1753 750 000 F: +44 (0) 1753 868 700 E-mail: atex@fmapprovals.com www.fmapprovals.com

FM Approvals
1151 Boston Providence Turnpike
P.O. Box 9102 Norwood, MA 02062 USA
T: **781 762 4300** F: 781-762-9375 www.fmapprovals.com

CERTIFICATE OF COMPLIANCE

HAZARDOUS LOCATION ELECTRICAL EQUIPMENT PER CANADIAN REQUIREMENTS

This certificate is issued for the following equipment:

YCO14-Z Ex-Link Converter
AIS / I / 1 / CD Ta = 0°C to 40°C
[I / 1] / [Ex ib] IIB Ta = 0°C to 40°C

Specific Conditions of Use
1. The YCO-14Z Ex-Link Converter shall only be used with the PMA.Evolution.
2. The protective ground connectors on the PMA.Evolution and the YCO14-Z Ex-Link Converter shall be connected together using a potential equalisation conductor with a cross-sectional area of at least 4 mm^2.
3. The CAT6 cable used between the PMA.Evolution and the YCO14-Z Ex-link Converter shall be obtained from Sartorius.

PMA.Evolution EVO1Xab-c
IS / I / 1 / CD / T4 Ta = 0°C to 40°C
I / 1 / Ex ib IIB / T4 Ta = 0°C to 40°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)

Specific Conditions of Use
1. The PMA.Evolution shall only be used with the YCO-14Z Ex-Link Converter
2. The protective ground connectors on the PMA.Evolution and the YCO14-Z Ex-Link Converter shall be connected together using a potential equalisation conductor with a cross-sectional area of at least 4 mm^2.
3. The CAT6 cable used between the PMA.Evolution and the YCO14-Z Ex-Link Converter shall be obtained from Sartorius.
4. The enclosure of the 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.

To verify the availability of the Approved product, please refer to www.approvalguide.com

PMA.Evolution LAB1Xab-c
IS / I / 1 / CD / T4 Ta = 0°C to 40°C
I / 1 / Ex ib IIB / T4 Ta = 0°C to 40°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)

Specific Conditions of Use
1. The PMA.Evolution shall only be used with the YCO-14Z Ex-Link Converter
2. The protective ground connectors on the PMA.Evolution and the YCO14-Z Ex-Link Converter shall be connected together using a potential equalisation conductor with a cross-sectional area of at least 4 mm^2.
3. The CAT6 cable used between the PMA.Evolution and the YCO14-Z Ex-Link Converter shall be obtained from Sartorius.
4. The enclosure of the 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.

Equipment Ratings:

YCO14-Z Ex-Link Converter
Associated intrinsically safe apparatus for connection to Class I, Division 1, Groups C and D hazardous locations in accordance with drawing 2021459, Associated Intrinsically Safe for connection to Class I, Zone 1, Group IIB hazardous locations in accordance with drawing 2021459. Ambient temperature range 0°C to 40°C. Indoor locations only.

PMA.Evolution EVO1Xab-c
PMA.Evolution LAB1Xab-c
Intrinsically Safe for Class I, Division 1, Groups C and D, hazardous locations in accordance with drawing 2021459, Intrinsically Safe for Class I, Zone 1, Group IIB hazardous locations in accordance with drawing 2021459. Temperature class T4 at an ambient temperature of 0°C to 40°C. Indoor locations only.

FM Approved for:

Sartorius Lab Instruments GmbH & Co. KG
Goettingen, Germany

To verify the availability of the Approved product, please refer to www.approvalguide.com

This certifies that the equipment described has been found to comply with the following Approval Standards and other documents:

CAN/CSA C22.2 No. 142-M1987	2014
CAN C22.2 No.157-92	2012
CSA C22.2 No. 1010.1	2004
CAN/CSA-C22.2 No. 60079-0	2011
CAN/CSA-C22.2 No. 60079-11	2011

Original Project ID: 0003049987 Approval Granted: April 27, 2015

Subsequent Revision Reports / Date Approval Amended

Report Number	Date	Report Number	Date

FM Approvals LLC

J.E. Marquedant

J.E. Marquedant
Manager of Electrical Systems

27 April 2015
Date

To verify the availability of the Approved product, please refer to www.approvalguide.com

FM Approvals HLC 5/13 3049987
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FM Approvals
1151 Boston Providence Turnpike
P.O. Box 9102 Norwood, MA 02062 USA
T: **781 762 4300** F: 781-762-9375 www.fmapprovals.com

CERTIFICATE OF COMPLIANCE

HAZARDOUS (CLASSIFIED) LOCATION ELECTRICAL EQUIPMENT

This certificate is issued for the following equipment:

YCO14-Z Ex-Link Converter
AIS / I / 1 / CD Ta = 0°C to 40°C
[I / 1] / [AEx ib] IIB Ta = 0°C to 40°C

Specific Conditions of Use
1. The YCO-14Z Ex-Link Converter shall only be used with the PMA.Evolution.
2. The protective ground connectors on the PMA.Evolution and the YCO14-Z Ex-Link Converter shall be connected together using a potential equalisation conductor with a cross-sectional area of at least 4 mm^2.
3. The CAT6 cable used between the PMA.Evolution and the YCO14-Z Ex-link Converter shall be obtained from Sartorius.

PMA.Evolution EVO1Xab-c
IS / I / 1 / CD / T4 Ta = 0°C to 40°C
I / 1 / AEx ib IIB / T4 Ta = 0°C to 40°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)

Specific Conditions of Use
1. The PMA.Evolution shall only be used with the YCO-14Z Ex-Link Converter
2. The protective ground connectors on the PMA.Evolution and the YCO14-Z Ex-Link Converter shall be connected together using a potential equalisation conductor with a cross-sectional area of at least 4 mm^2.
3. The CAT6 cable used between the PMA.Evolution and the YCO14-Z Ex-Link Converter shall be obtained from Sartorius.
4. The enclosure of the 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.

To verify the availability of the Approved product, please refer to www.approvalguide.com

PMA.Evolution LAB1Xab-c
IS / I / 1 / CD / T4 Ta = 0°C to 40°C
I / 1 / AEx ib IIB / T4 Ta = 0°C to 40°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)

Specific Conditions of Use
1. The PMA.Evolution shall only be used with the YCO-14Z Ex-Link Converter
2. The protective ground connectors on the PMA.Evolution and the YCO14-Z Ex-Link Converter shall be connected together using a potential equalisation conductor with a cross-sectional area of at least 4 mm^2.
3. The CAT6 cable used between the PMA.Evolution and the YCO14-Z Ex-Link Converter shall be obtained from Sartorius.
4. The enclosure of the 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.

Equipment Ratings:

YCO14-Z Ex-Link Converter
Associated intrinsically safe apparatus for connection to Class I, Division 1, Groups C and D hazardous (classified) locations in accordance with drawing 2021459, Associated Intrinsically Safe for connection to Class I, Zone 1, Group IIB hazardous (classified) locations in accordance with drawing 2021459. Ambient temperature range 0°C to 40°C. Indoor locations only

PMA.Evolution EVO1Xab-c
PMA.Evolution LAB1Xab-c
Intrinsically Safe for Class I, Division 1, Groups C and D, hazardous (classified) locations in accordance with drawing 2021459, Intrinsically Safe for Class I, Zone 1, Group IIB hazardous (classified) locations in accordance with drawing 2021459. Temperature class T4 at an ambient temperature of 0°C to 40°C. Indoor locations only.

FM Approved for:

Sartorius Lab Instruments GmbH & Co. KG
Goettingen, Germany

To verify the availability of the Approved product, please refer to www.approvalguide.com

This certifies that the equipment described has been found to comply with the following Approval Standards and other documents:

FM Class 3600	2011
FM Class 3610	2010
FM Class 3810	2005
ANSI/IEC 60529	2004

Original Project ID: 0003049987 Approval Granted: April 27, 2015

Subsequent Revision Reports / Date Approval Amended

Report Number	Date	Report Number	Date

FM Approvals LLC

J.E. Marquedant
Manager of Electrical Systems

27 April 2015
Date

To verify the availability of the Approved product, please refer to www.approvalguide.com

FM Approvals HLC 5/13 3049987

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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

Certificate No.:	IECEx FME 14.0008X issue No.:0	Certificate history:
Status:	Current	
Date of Issue:	2015-04-30 Page 1 of 3	
Applicant:	**Sartorius Lab Instruments GmbH & Co. KG** Weender Landstrasse 94-108 Goettingen **Germany**	
Electrical Apparatus: *Optional accessory:*	**PMA.Evolution Paint Mixing Scale and YCO14-Z Ex-Link Converter**	
Type of Protection:	**Intrinsic safety**	
Marking:	Ex ib IIB T4 Gb 0°C ≤ Ta ≤ 40°C – PMA.Evolution [Ex ib Gb] IIB 0°C ≤ Ta ≤ 40°C – YCO14-Z Ex-Link Converter	

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 14.0008X

Date of Issue: 2015-04-30 Issue No.: 0

Page 2 of 3

Manufacturer: **Sartorius Lab Instruments GmbH & Co. KG**
Weender Landstrasse 94-108
Goettingen
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"

*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/ExTR14.0009/00

Quality Assessment Report:

GB/FME/QAR13.0002/00

IECEx Certificate of Conformity

Certificate No.: IECEx FME 14.0008X

Date of Issue: 2015-04-30 Issue No.: 0

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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 to the non-hazardous location are provided via the YCO14-Z Ex-Link Converter. All signal outputs to the PMA.Evolution are available in RS232 communications. Both the PMA.Evolution and the YCO14-Z Ex-Link Converter are housed within non-metallic enclosures. A dedicated potential equalization connection is provided on both the PMA.Evolution and the YCO14-Z Ex-Link Converter. Power and data connections between the YCO14-Z and the PMA.Evolution are made via a multi-conductor CAT6 cable.
The PMA.Evolution is available in two versions the EVO1X and the LAB1X.

CONDITIONS OF CERTIFICATION: YES as shown below:

1. The PMA.Evolution shall only be used with the YCO-14Z Ex-Link Converter.
2. The protective ground connectors on the PMA.Evolution and the YCO14-Z Ex-Link Converter shall be connected together using a potential equalisation conductor with a cross-sectional area of at least 4 mm^2.
3. The CAT6 cable used between the PMA.Evolution and the YCO14-Z Ex-Link Converter shall be obtained from Sartorius.
4. The enclosure of the 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.

14 Appendix

14.1 Service

Repairs may be performed by authorized service personnel or by the responsible service representative.

Please contact Sartorius Service for all service needs, and in case of guarantee claims.

Returning Devices

You can send defective devices or parts to Sartorius.

Returned devices must be clean, in hygienically flawless condition and packed carefully.

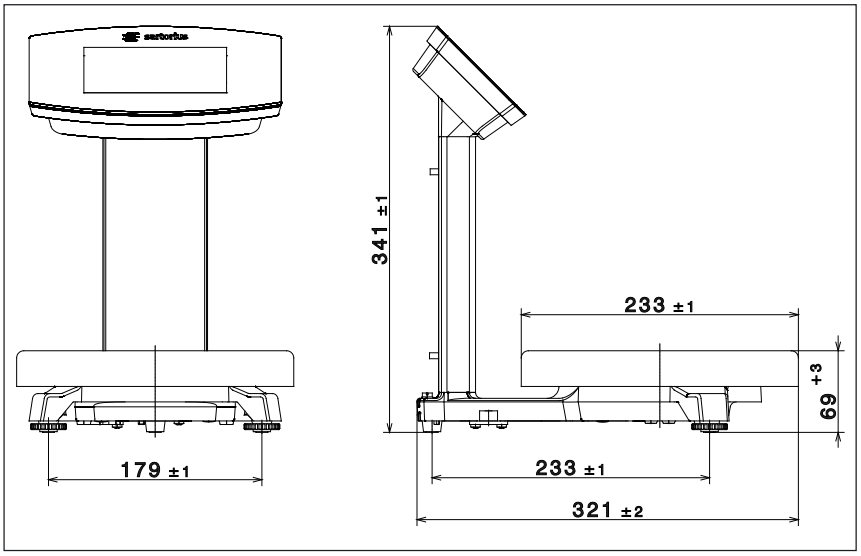
Transport damage as well as measures for subsequent cleaning and disinfection of the parts by Sartorius shall be charged to the sender.

Service Addresses

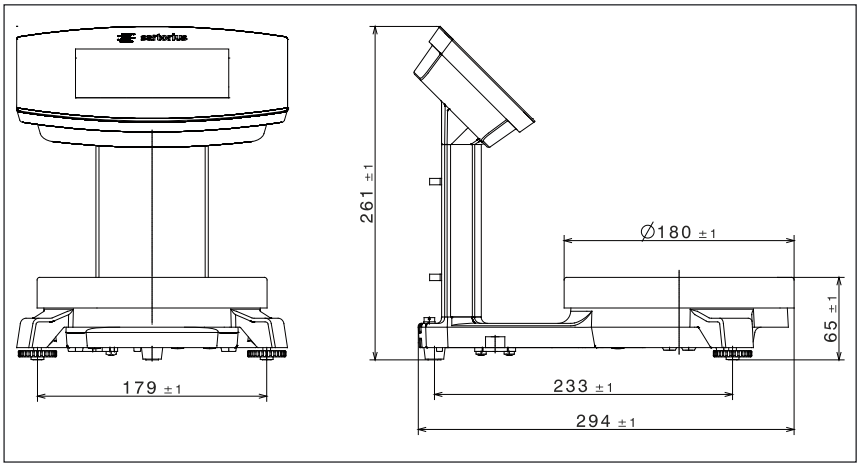
Detailed information with service addresses for returning your device for repair can be found on our website (www.sartorius.com).

14.2 Device Dimensions

14.2.1 Model EVO1X



14.2.2 Model LAB1X



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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.

Last updated:
12 | 2015

Printed in the EU on paper bleached without chlorine. | UB
Publication No.: WEV6008-e151201