Gas Analysis

Moisture detector controllers

Type FF-

Installation and Operation Instructions

Original instructions

BE410002
02/2021

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Read this instruction carefully prior to installation and/or use. Pay attention particularly to all advises and safety instructions to prevent injuries. Bühler Technologies can not be held responsible for misusing the product or unreliable function due to unauthorised modifications.

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Contents

1 Introduction

1.1 Intended use

A moisture detector is a device which signals moisture in the gas flow of a sample gas treatment system. Here the electrodes separated by a gap are located inside the Gas flow.

The circuit devices Type FF analyse the moisture detector FF-3-N and FF-40. These devices allow the analysis of moisture ingress in the sample gas detected by the moisture detector, and to trigger an alarm.

1.2 Types

These operating instructions apply to the following devices. Please refer to the nameplate to identify your model.

Moisture detector and mounting adapter

FF-3-N moisture detector with cable break detection

FF-40 moisture detector with cable break detection, max. pressure 40 bar

Type G flowcell in PVDF

Type S flowcell in stainless steel

Controllers		Voltage	Connectible moisture detectors
FF-HM-230	for rail mounting	230/115 V AC	for one FF-3-N moisture detector or FF-40
FF-HM-24	for rail mounting	24 V DC	for one FF-3-N moisture detector or FF-40
FF-19	19" rack	24 V DC	for one FF-3-N moisture detector or FF-40
FF-1-U	inside small casing	230/115 V AC	for one or two moisture detectors FF-1
FF-3-U	inside small casing	230/115 V AC	for one FF-3-N moisture detector or FF-40
FF-3-U-2	inside small casing	230/115 V AC	for two separate FF-3-N or FF-40

The functionality and operability is identical for all controllers. Differences in the pin assignment are indicated accordingly.

Please note: proper functionality can only be guaranteed when using the specified moisture detectors with the controllers.

1.3 Contents

- Product documentation
- Optional (varies by order)

2 Safety instructions

2.1 Important advice

Operation of the device is only valid if:

- the product is used under the conditions described in the installation- and operation instruction, the intended application according to the type plate and the intended use. In case of unauthorized modifications done by the user Bühler Technologies GmbH can not be held responsible for any damage,
- when complying with the specifications and markings on the nameplates.
- the performance limits given in the datasheets and in the installation- and operation instruction are obeyed,
- monitoring devices and safety devices are installed properly,
- service and repair is carried out by Bühler Technologies GmbH,
- only original spare parts are used.

This manual is part of the equipment. The manufacturer keeps the right to modify specifications without advanced notice. Keep this manual for later use.

Signal words for warnings

DANGER	Signal word for an imminent danger with high risk, resulting in severe injuries or death if not avoided.
WARNING	Signal word for a hazardous situation with medium risk, possibly resulting in severe injuries or death if not avoided.
CAUTION	Signal word for a hazardous situation with low risk, resulting in damaged to the device or the property or minor or medium injuries if not avoided.
NOTICE	Signal word for important information to the product.

Warning signs

These instructions use the following warning signs:

	Warns of a general hazard		General information
	Warns of voltage		Unplug from mains
	Warns not to inhale toxic gasses		Wear respiratory equipment
	Warns of corrosive liquids		Wear a safety mask
	Warns of explosive areas		Wear gloves

2.2 General hazard warnings

The equipment must be installed by a professional familiar with the safety requirements and risks.

Be sure to observe the safety regulations and generally applicable rules of technology relevant for the installation site. Prevent malfunctions and avoid personal injuries and property damage.

The operator of the system must ensure:

- Safety notices and operating instructions are available and observed,
- The respective national accident prevention regulations are observed,
- The permissible data and operational conditions are maintained,
- Safety guards are used and mandatory maintenance is performed,
- Legal regulations are observed during disposal,
- compliance with national installation regulations.

Maintenance, Repair

Please note during maintenance and repairs:

- Repairs to the unit must be performed by Bühler authorised personnel.
- Only perform conversion-, maintenance or installation work described in these operating and installation instructions.
- Always use genuine spare parts.
- Do not install damaged or defective spare part. If necessary, visually inspect prior to installation to determine any obvious damage to the spare parts.

Always observe the applicable safety and operating regulations in the respective country of use when performing any type of maintenance.

DANGER

Electrical voltage

Electrocution hazard.

a) Disconnect the device from power supply.

b) Make sure that the equipment cannot be reconnected to mains unintentionally.

c) The device must be opened by trained staff only.

d) Regard correct mains voltage.

DANGER

Toxic, corrosive gases

The measuring gas led through the equipment can be hazardous when breathing or touching it.

a) Check tightness of the measuring system before putting it into operation.

b) Take care that harmful gases are exhausted to a save place.

c) Before maintenance turn off the gas supply and make sure that it cannot be turned on unintentionally.

d) Protect yourself during maintenance against toxic / corrosive gases. Use suitable protective equipment.

DANGER

Potentially explosive atmosphere

Explosion hazard when used in explosive areas
The equipment is not suitable for use in explosive areas.
Never operate moisture detectors located in flammable or explosive gas mixtures on the device.

3 Transport and storage

The device should be only transported in the original case or in appropriate packing.

If the device is not used for some time, protect it against heat and humidity. Store the device in a roofed, dry, and dust free room. Temperature should be between –20 °C and 40 °C (-4 °F and 104 °F).

4 Installation and connection

4.1 Mounting

4.1.1 Mounting of moisture detector and adapter

The flow adapter is equipped with internal threading, G1/4 or NPT1/4 (flow adaptor marked with NPT), for the gas connections and G1/4 for the moisture sensor. The drawing you find on the backside of the attached data sheet. As well the fittings as the moisture detector must be used with Teflon sealing or an O-ring to assure proper sealing of the sample stream. Please assure that the wires are guided tension free.

If there's particulate or aerosols in the sample gas, a filter has to be installed upstream the detector. Otherwise the particulate or aerosols can build a layer on the detectors surface inhibiting its function.

The wire should NOT be put into one cable channel with power switching cords. The function can be influenced otherwise.

It might be necessary to adjust the position of the humidity sensor in strongly fluctuating ambient or component temperatures in order to ensure the necessary tightness in the system.

4.1.2 Mounting of detector-controller

Controller type FF-19

This type is designed as an insert for 19"-housings. The bus connector is a DIN 41612 type B. Used pins of columns a and c are plated through.

Before inserting the FF-19 into the housing, set the jumpers.

Controller types FF-HM

The type FF-HM is designed for standard 35 mm rail mounting according to DIN EN 50022.

Controller types type FF-..-U

For mounting disassemble the cover by loosening the 4 black screws. The holes for the mounting screws are below the black screws. Mounting dimensions are 165 mm x 79 mm (6.5" x 3.1"). They are made for screws M4, the screws head should be at least 6 mm (0.24") in diameter.

4.2 Electrical connections

WARNING

Hazardous electrical voltage

The device must be installed by trained staff only.

CAUTION

Wrong mains voltage

Wrong mains voltage may damage the device.
Regard the correct mains voltage as given on the type plate.

WARNING

High voltage

Damage to the device in case of insulation testing
Do not proceed insulation tests with high voltage to the device as a whole!

Insulation test

The device is equipped with extensive EMC protection. If insulation tests are carried out the electronic filter devices will be damaged. All necessary tests have been carried out for all concerned groups of components at the factory (test voltage 1 kV or 1.5 kV respectively, depending on the device).

Moisture and broken-wire alarms are signaled via two independent dry contacts.

They are made fail-safe in the FF-HM and FF-19 types: The relays switch when power is turned on and no moisture is detected, they fall off when power fails, moisture or a broken wire is detected. Relays are used in the opposite logic with the types FF-..-U (switched in the alarm case).

The devices have three LEDs (FF-3-U-2: five LEDs) for POWER, BROKEN WIRE and MOISTURE.

Alarms are monostable; they switch back after the cause for the alarm is removed.

Using the FF-HM or FF-19 type a **hold function** can be chosen by setting/wiring a jumper. The alarm will stay until the internal or externally connected reset button is pressed.

4.2.1 Controller type FF-19

Note the drawing **47/075-06-4**.

This type can only be used with a 24 V DC power supply. **NOTICE! The grounding to PE has always to be attached!**

The detector FF-40 is connected to PIN 30 and 31, the shield to PIN 2.

Connect the cable to the FF-3-N. Root strands white and brown to PIN 30 and 31, and shielding to PIN 2.

For FF-3-N and FF-40 the jumper J2 is set to 2-3.

When using older models (FF-1) jumper J2 has to be set to 1-2. Otherwise the controller would signal a broken wire.

Alarm hold function:

To select this function, jumper J1 has to be set to 2-3. An external reset switch or contact can be connected to PIN 26 and 27 of the bus connector.

NOTICE! When using a detector without broken wire-detection, the broken wire alarm is not used. The relay contact may then be used to look for power supply failure.

When installing the FF-3-N or FF-40 detector, both relays are used. A power supply failure may be seen by combining both alarm outputs with an AND function since in working condition EITHER moisture alarm OR broken wire alarm is given.

4.2.2 Controller type FF-HM

Note the drawing **41/073-01-4** and **41/074-01-4**.

On the upper terminal are the connections for power supply and alarm relay outputs, on the lower terminal the moisture detector and the external reset switch are connected.

The type FF-HM-230 is suitable for 230 V AC and 115 V AC. **The jumpers are factory set to 230 V AC.** To change it to 115 V AC disconnect the jumper between terminals 9-10 and set jumpers to terminals 8-9 and 10-11. The power supply is connected to terminals 12-13 (PE is 7).

The type FF-HM-24 is only suitable for 24 V DC. The power supply is connected to terminals 12-13. **NOTICE! Even with this controller, PE has always to be connected to terminal 7!**

Connecting the moisture detector:

The detector FF-40 is connected to terminals 25-26, the shield to 24.

Connect the cable to the FF-3-N. Root strands white and brown to terminals 25-26, and shielding to terminal 24.

When using models FF-3-N and FF-40, terminals 22 and 23 stay open to ensure broken wire detection.

When using older models (FF-1), a jumper must be set between terminals 22 and 23.

Hold function:

To enable this function, a jumper has to be set between terminals 20 and 21. An external reset switch or contact may be connected to terminals 14 and 15. The shield of this wire is connected to terminal 16.

NOTICE

To prevent **malfunction**, the wires to the reset switch **have to be shielded!**

4.2.3 Controller type FF-..-U

Note the drawing **41/065-07-4**.

After opening the housing you will see the switch for the voltage adjustment next to the fuses, which must first be set to your voltage.

The power supply is connected directly next to the switch (refer to board labelling).

The moisture detector for protective elements FF-3-U-2 and FF-1-U attach to the 5-pin terminal X3 with the white and brown conductors according to the connection diagram. On protective element type FF-3-U the moisture detector attaches to the 3-pin terminal X3. Connect the shielding with care.

The signal relay for Type FF-3-U and FF-1-U connect to the 6-pin terminal above the switch, on Type FF-3-U-2 they connect to a 12-pin terminal. Please also refer to the connection plans FF-U in the appendix.

Please be sure to sufficiently tighten the screw connections.

NOTICE! With these types both output relays will trigger in the event of a cable break, so also that of the moisture alarm.

5 Operation and control

NOTICE

The device must not be operated beyond its specifications.

It might be necessary to adjust the position of the humidity sensor in strongly fluctuating ambient or component temperatures in order to ensure the necessary tightness in the system.

5.1 Adjusting the sensitivity

NOTICE

If the moisture detector controller works in combination with a sample gas cooler, please wait for at least 5 minutes until the cooler has reached its working temperature.

At the moisture detector controllers FF-HM 230 (24), FF-19 and ER-145/A/Ex sensitivity is reduced by turning the potentiometer counter clockwise. Turn until the alarm turns off. (We recommend disabling the hold function during adjustment. Otherwise the reset switch has to be pressed during the whole procedure).

At the FF-..-U the setting of sensitivity is quite the same. But first the enclosure must be opened. The potentiometer is on the upper right, next to the terminal block for the moisture detector.

The FF-3-U-2 has for the second moisture detector a Potentiometer on the upper left.

When switching on the power supply the alarm may happen to come on. This has to be taken into account for the design of the whole system's control. No other settings need to be done.

6 Maintenance

During maintenance, remember:

- The equipment must be maintained by a professional familiar with the safety requirements and risks.
- Only perform maintenance work described in these operating and installation instructions.
- When performing maintenance of any type, observe the respective safety and operation regulations.

DANGER **Electrical voltage**

Electrocution hazard.

a) Disconnect the device from power supply.

b) Make sure that the equipment cannot be reconnected to mains unintentionally.

c) The device must be opened by trained staff only.

d) Regard correct mains voltage.

DANGER **Toxic, corrosive gases**

The measuring gas led through the equipment can be hazardous when breathing or touching it.

a) Check tightness of the measuring system before putting it into operation.

b) Take care that harmful gases are exhausted to a save place.

c) Before maintenance turn off the gas supply and make sure that it cannot be turned on unintentionally.

d) Protect yourself during maintenance against toxic / corrosive gases. Use suitable protective equipment.

The devices work free of maintenance. In case of failure see the table in chapter Troubleshooting [> page 11].

The controllers are internally fused by Ø5x20 fuses. To replace the fuses, turn off the power supply (see chapter Troubleshooting [> page 11]). The fuses have to be replaced by the same type.

The following fuses are used:

Controller type	Quantity	Value	Dimensions	Part number
FF-19 and FF-HM-24	1	100 mA slow	Ø 5 x 20 mm	91 10 0000 44
FF-..-U and F-HM-230	2	32 mA slow	Ø 5 x 20 mm	91 10 0000 37

6.1 Replacement of fuses

Replacement of fuses at types FF-19 and FF-..-U

- Disconnect power supply and disassemble insert / open housing.
- Disassemble fuse cover; take fuse out.
- Insert new fuse and reassemble fuse cover.
- Insert FF-19 again / close housing

Replacement of fuses at types FF-HM

- Disconnect power supply.
- With a matching tool press the lashes on the sides away from the sides carefully. Take the front away from the housing.
- Below the upper PCB there are the fuses (one for the FF-HM-24, two for the FF-HM-230).
- Press the front against the housing for reassembling until it fits in.

7 Service and repair

This chapter contains information on troubleshooting and correction should an error occur during operation.

Repairs to the unit must be performed by Bühler authorised personnel.

Please contact our Service Department with any questions:

Tel.: +49-(0)2102-498955 or your agent

If the equipment is not functioning properly after correcting any malfunctions and switching on the power, it must be inspected by the manufacturer. Please send the equipment inside suitable packaging to:

Bühler Technologies GmbH

- Reparatur/Service -

Harkortstraße 29

40880 Ratingen

Germany

Please also attach the completed and signed RMA decontamination statement to the packaging. We will otherwise be unable to process your repair order.

You will find the form in the appendix of these instructions, or simply request it by e-mail:

service@buehler-technologies.com.

7.1 Spare parts and accessories

Item no.	Description
41 11 100	FF-3-N moisture detector (without cable)
41 11 1000	FF-3-N moisture detector (with cable)
41 89 699	FF-40 moisture detector
40 11 000	Mounting adapter type G (PVDF)
40 11 000I	Mounting adapter type NPT (PVDF)
40 11 005	Mounting adapter type S-G (stainless steel)
40 11 005I	Mounting adapter type S-NPT (stainless steel)
41 11 020	Controller FF-HM-230
41 11 030	Controller FF-HM-24
41 11 017	Controller FF-1-U
41 11 015	Controller FF-3-U
41 11 016	Controller FF-3-U-2
41 11 012	Controller ER-145/A, 230 V
41 11 014	Controller ER-145/A, 115 V
41 11 040	Controller FF-19

7.2 Troubleshooting

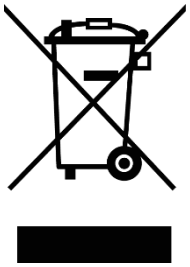
Problem / Failure	Possible cause	Solution
No display	– no power	– check power supply; check connections
	– fuse blown	– check fuse and change it if necessary
No moisture detection	– sensitivity too low	– set sensitivity
	– moisture detector dirty	– disassemble and clean detector
Alarm cannot be reset	– sensitivity too high	– set sensitivity
	– moisture detector completely drowned	– disassemble and dry detector or flush with clean dry air

Tab. 1: Troubleshooting

8 Disposal

The applicable national laws must be observed when disposing of the products. Disposal must not result in a danger to health and environment.

The crossed out wheelie bin symbol on Bühler Technologies GmbH electrical and electronic products indicates special disposal notices within the European Union (EU).



The crossed out wheelie bin symbol indicates the electric and electronic products bearing the symbol must be disposed of separate from household waste. They must be properly disposed of as waste electrical and electronic equipment.

Bühler Technologies GmbH will gladly dispose of your device bearing this mark. Please send your device to the address below for this purpose.

We are obligated by law to protect our employees from hazards posed by contaminated devices. Therefore please understand that we can only dispose of your waste equipment if the device is free from any aggressive, corrosive or other operating fluids dangerous to health or environment. **Please complete the "RMA Form and Decontamination Statement", available on our website, for every waste electrical and electronic equipment. The form must be applied to the packaging so it is visible from the outside.**

Please return waste electrical and electronic equipment to the following address:

Bühler Technologies GmbH
WEEE
Harkortstr. 29
40880 Ratingen
Germany

Please also observe data protection regulations and remember you are personally responsible for the returned waste equipment not bearing any personal data. Therefore please be sure to delete your personal data before returning your waste equipment.

9 Appendices

9.1 Technical Data

Moisture detector	FF-3-N	FF-40
Material:	PVDF,1.4571, epoxy resin, 1.4576, PTFE	PE, 1.4571, epoxy resin, 1.4576
Cord length:	Standard 4 m, 4 x 0.34²	Standard 4 m, 2 x 0.25²
Max. operating pressure:	2 bar	40 bar
Operating temperature:	3 °C to 50 °C	3 °C to 50 °C
Cable break detection:	yes	yes

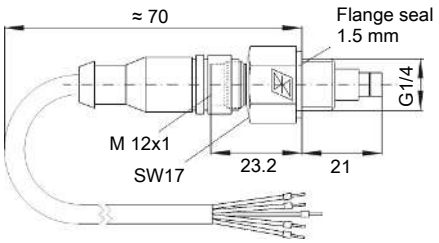
Type FF-3-N is suitable for ATEX areas (II 2G Ex ib IIC T5 T_{amb} 3...50 °C)
(Only when using ER-145/A/Ex, refer to operating instructions)

Adapters	Type G	Type S
Material:	PVDF	1.4571

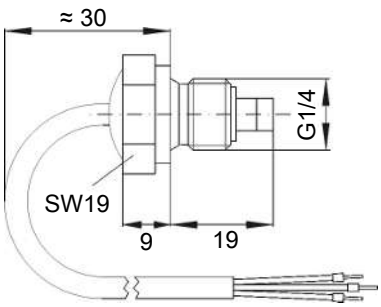
Controllers	FF-HM-230	FF-HM 24	FF-19	FF-x-U	ER-145/A/Ex
Supply voltage:	230/115 V AC 50/60 Hz ±10 %	24 V DC ±10 %	24 V DC ±10 %	230/115 V AC 50/60 Hz ±10 %	230/115 V AC 48/62 Hz ±10 %
Max. switching output current:	230 V/2 A	24 V AC/DC 2 A	24 V AC/DC 2 A	230 V/2 A	AC: 250 V/5 A DC: 150 V/5 A
Protection class:	IP 40 Terminals IP 20	IP 40 Terminals IP 20	IP 20 when built-in	IP 65	IP 40 Terminals IP 20
Ex protection class:	-	-	-	-	II(1)G [EEx ia Ga] IIC
Max. lead length:	4 m	4 m	4 m	4 m	70 m
Dimensions (WxHxD/mm)	70 x 75 x 109	70 x 75 x 109	8TE x 3HE x 170	94 x 180 x 81	22.5 x 99 x 120
Connection:	Terminals	Terminals	Multi-pole connector DIN 41612 style B	Terminals	Terminals

9.2 Dimensions

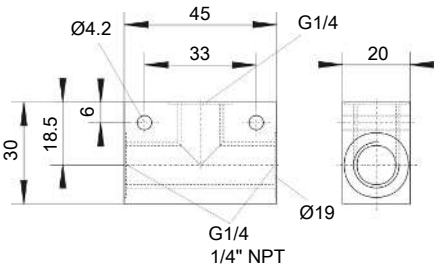
FF-3-N



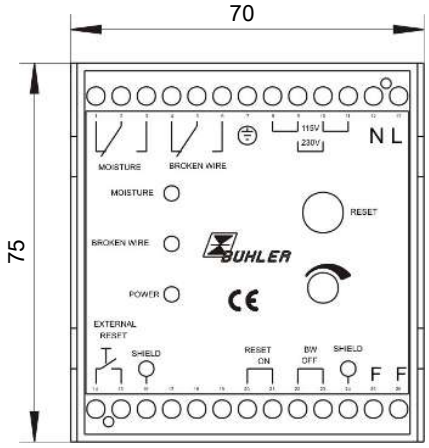
FF-40



Mounting adapter

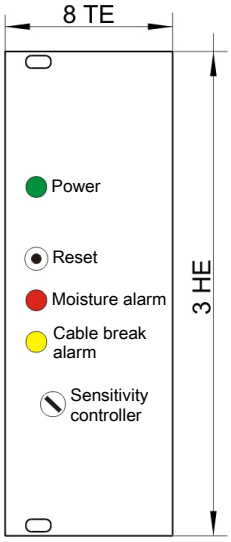


FF-HM230



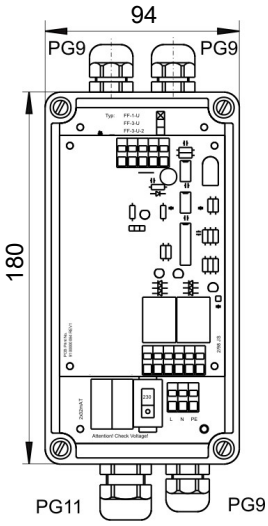
Housing depth 109

FF-19



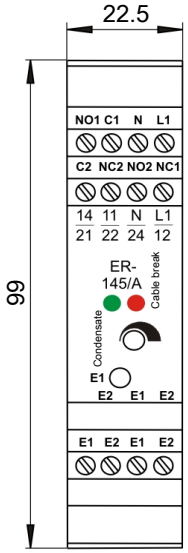
Housing depth 170

FF-x-U



Housing depth 81

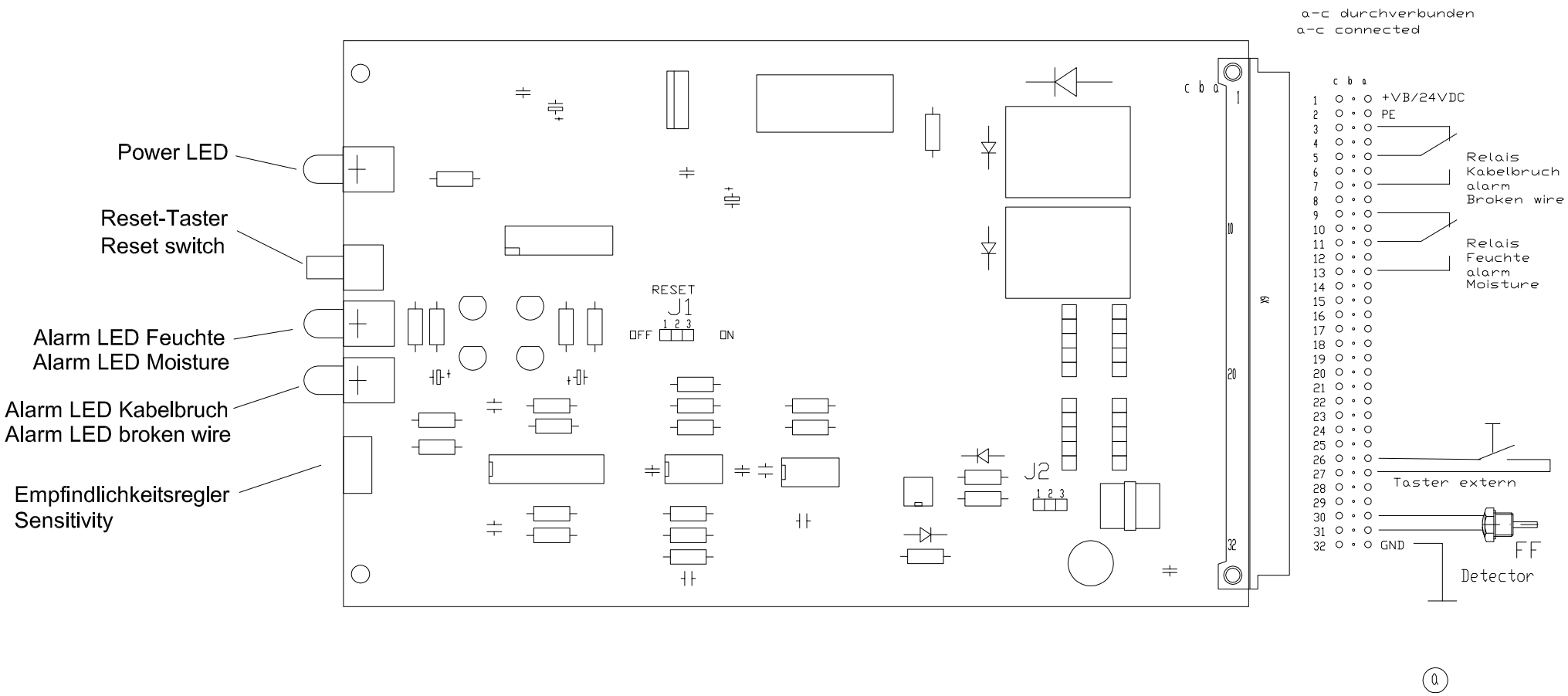
ER-145/A/Ex



Housing depth 120

10 Attached documents

- Connections diagrams:
  47/075-06-4 (type FF-19)
  41/073-01-4 (type FF-HM 230)
  41/074-01-4 (type FF-HM-24)
  41/065-07-4 (types FF-..-U)
- Declaration of Conformity KX410001
- RMA - Decontamination Statement



Jumperstellungen/Jumper settings
J1 Selbsthaltung mit Reset/Hold with RESET
1-2 = Selbsthaltung aus/Hold off
2-3 = Selbsthaltung an/Hold on
J2 Feuchtefühlertyp/Detector type
1-2 = FF3/FF-3-N angeschlossen/connected
2-3 = FF1 angeschlossen/connected

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Oberflächenbearbeitungszeichen

c	FF-3-N	03.05.12	Br
b	FF-Au	4.6.07	JS
a	1x	29.5.00	JS
Zust.	Änd.	Datum	Name

ALLE RECHTE VORBEHALTEN

Maße ohne Toleranzangabe nach ISO 2768-mK

	Datum	Name
Bearb.	3.1.2000	Schwelm
Gepr.		

BÜHLER Meß+Regeltechnik Ratingen

Ers für

Maßstab | (Gewicht)

Werkstoff:

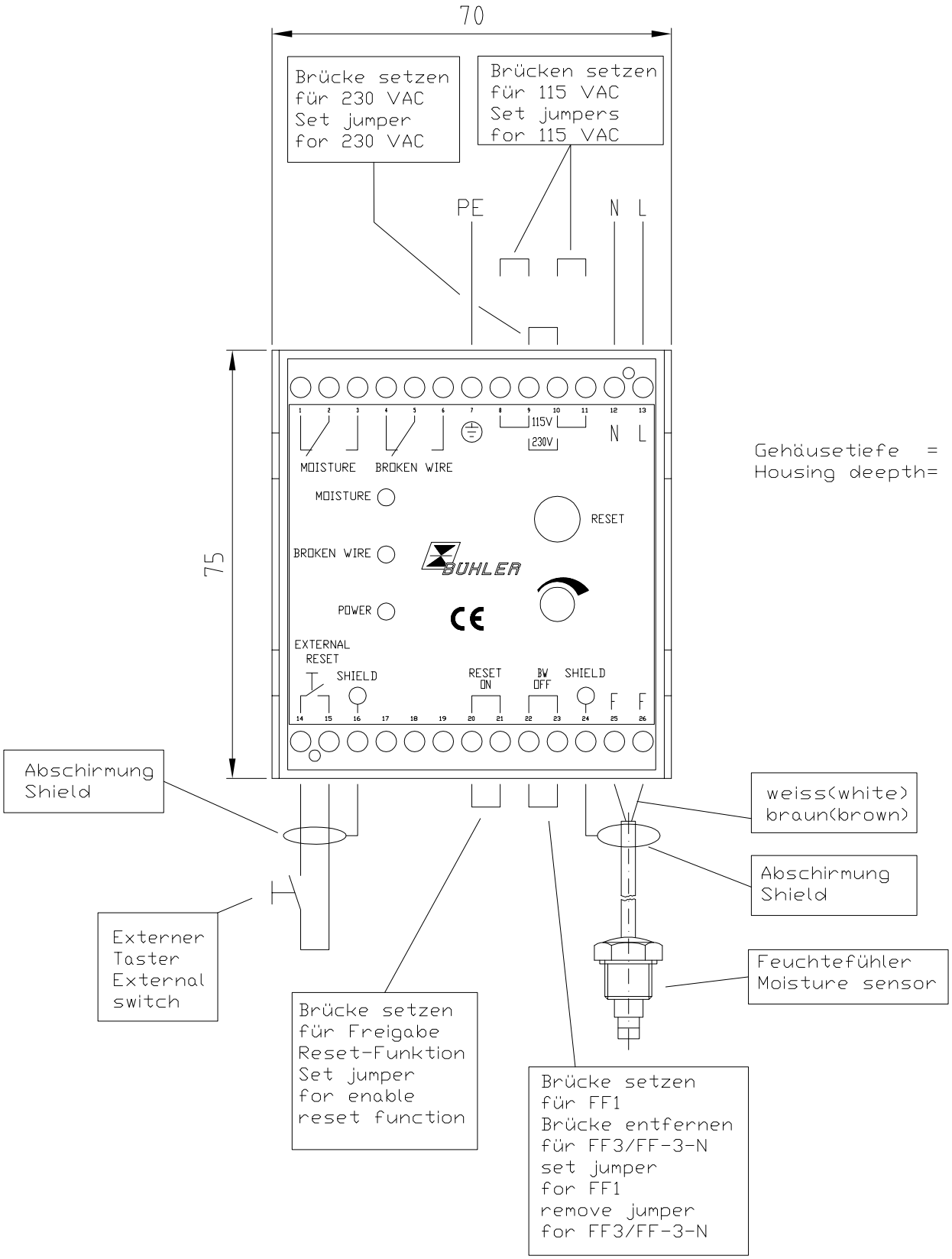
Benennung:

Jumperstellung und Anschlußbelegung FF19

Zeichng.-Nr. 47/075-06-4C

Art.-Nr.

ARBEITSANWEISUNG:



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Oberflächenbearbeitungszeichen

√ = Roh

X √ = R_z 63

Y √ = R_z 16

Z √ = R_z 4

ALLE RECHTE VORBEHALTEN

Maße ohne Toleranzangabe nach ISO 2768-mk

					Datum	Name
				Bearb.	3.5.99	Schwelm
				Gepr.		
				Norm		
				BÜHLER Meß+Regeltechnik Ratingen		
b	FF-3-N	03.05.12	Br			
a	FF-Au	4.6.07	JS			
Zust.	Änd.	Datum	Name	Ers für		

Maßstab | (Gewicht)

Werkstoff:

Benennung:

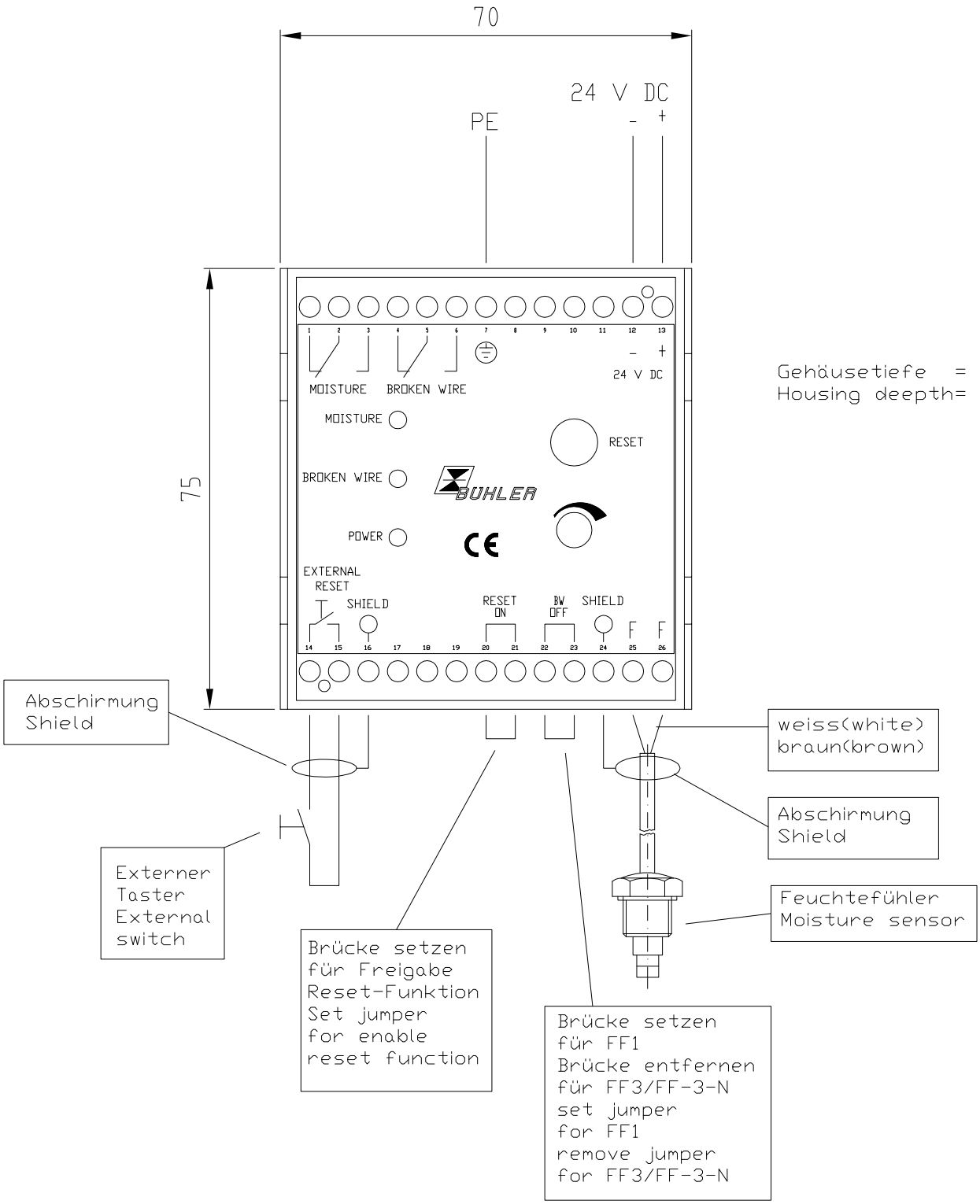
Beschaltungsgerät

FF-HM-230 für Feuchtefühler

Zeichng.-Nr. 41/073-01-4B

Art.-Nr. 4111020

ARBEITSANWEISUNG:



alle Kanten gratfrei	ALLE RECHTE VORBEHALTEN			Maße ohne Toleranzangabe nach ISO 2768-mk			Maßstab (Gewicht)
Oberflächenbearbeitungszeichen							Werkstoff:
					Datum	Name	Benennung:
				Bearb.	3.5.99	Schwelm	Beschaltungsgerät FF-HM-24 für Feuchtefühler
				Gepr.			
				Norm			
				BÜHLER Meß+Regeltechnik Ratingen			Zeichng.-Nr. 41/074-01-4B
b	FF-3-N	03.05.12	Br				Art.-Nr. 4111030
a	FF-AU	4.6.07	JS				
Zust.	Änd.	Datum	Name	Ers für			ARBEITSANWEISUNG:

√ = √ Roh

X √ = ▽ R_z 63

Y √ = ▽ R_z 16

Z √ = ▽ R_z 4

X3
Feuchtefühler FF1(1)
moisture detector
Abschirmung
Shield
1 2 3 4 5
Feuchtefühler FF1(2)
moisture detector
Anschlußwerte Alarmrelais
max. operating current
max. 230 VAC/max. 2 A/max. 460 VA
STEUERGERÄT FF-1-U
controller for moisture
detectors
X2
moisture(1+2)
Feuchtealarm (1+2(1))
moisture(1+2)
Feuchtealarm (1+2)
1 2 3 4 5 6
X1
L N PE
1 2 3
230
0
Spannungwähler
Voltage switch
Sicherung/ fuse
2 x 32MAT(slow)
Art.Nr.4111017
Anschlußbelegung
electrical connections

X3
Feuchtefühler FF3/FFAU
moisture detector
Abschirmung
Shield
1 2 3
Anschlußwerte Alarmrelais
max. operating current
max. 230 VAC/max. 2 A/max. 460 VA
STEUERGERÄT FF-3-U
controller for moisture
detectors
X2
moisture(1)
Feuchtealarm (1)
broken wire(1)
Kabelbruch (1)
1 2 3 4 5 6
X1
L N PE
1 2 3
230
0
Spannungwähler
Voltage switch
Sicherung/ fuse
2 x 32MAT(slow)
Art.Nr.4111015
Anschlußbelegung
electrical connections

X3
Feuchtefühler FF3/FF-AU(1)
moisture detector
Abschirmung
Shield
1 2 3 4 5
Feuchtefühler FF3/FF-AU(2)
moisture detector
Anschlußwerte Alarmrelais
max. operating current
max. 230 VAC/max. 2 A/max. 460 VA
STEUERGERÄT FF-3-U-2
controller for moisture
detectors
X2
broken wire (2)
Kabelbruch (2)
moisture (2)
Feuchtealarm (2)
moisture (1)
Feuchtealarm (1)
broken wire (1)
Kabelbruch (1)
1 2 3 4 5 6 7 8 9 10 11 12
X1
L N PE
1 2 3
230
0
Spannungwähler
Voltage switch
Sicherung/ fuse
2 x 32MAT(slow)
Art.Nr.4111016
Anschlußbelegung
electrical connections

EU-Konformitätserklärung
EU-declaration of conformity

Hiermit erklärt Bühler Technologies GmbH, dass die nachfolgenden Produkte den wesentlichen Anforderungen der genannten Richtlinien in ihrer aktuellen Fassung entsprechen.

Herewith declares Bühler Technologies GmbH that the following products correspond to the essential requirements of mentioned Directives in its actual version.

Für/for

Produkt/*products*:	Beschaltungsgerät für Feuchtefühler/Controller for moisture detectors
Typ/type:	FF-HM-230, FF-1-U, FF-3-U, FF-3-U-2 *auch in Kombination mit den Feuchtefühlern FF-1, FF-3, FF-40/* *also in combination with the moisture detectors FF-1, FF-3, FF-40*

Richtlinie/Directive	**2014/35/EU**	**(Niederspannungsrichtlinie/*low voltage directive*)**
Richtlinie/Directive	**2014/30/EU**	**(EMV/EMC)**

Für/for

Produkt/*products*:	Beschaltungsgerät für Feuchtefühler/Controller for moisture detectors
Typ/type:	FF-HM-24, FF-19

Directive(s)	**2014/30/EU**	**(EMV/EMC)**

Das oben beschriebene Produkt der Erklärung erfüllt die einschlägigen Harmonisierungsrechtsvorschriften der Union:
The object of the declaration described above is in conformity with the relevant Union harmonisation legislation:

EN 61326-1:2013 **EN 61010-1:2010/A1:2019/AC:2019-04**

Die alleinige Verantwortung für die Ausstellung dieser Konformitätserklärung trägt der Hersteller.
This declaration of conformity is issued under the sole responsibility of the manufacturer.

Dokumentationsverantwortlicher für diese Konformitätserklärung ist Herr Stefan Eschweiler mit Anschrift am Firmensitz.
The person authorized to compile the technical file is Mr. Stefan Eschweiler located at the company's address

Ratingen, den 17.02.2023

Stefan Eschweiler
Geschäftsführer – *Managing Director*

Frank Pospiech
Geschäftsführer – *Managing Director*

Bühler Technologies GmbH, Harkortstr. 29, D-40880 Ratingen,
Tel. +49 (0) 21 02 / 49 89-0, Fax. +49 (0) 21 02 / 49 89-20
Internet: www.buehler-technologies.com

UK Declaration of Conformity

The manufacturer Bühler Technologies GmbH declares, under the sole responsibility, that the product complies with the requirements of the following UK legislation:

Electrical Equipment Safety Regulations 2016
Electromagnetic Compatibility Regulations 2016

Products: Controller for moisture detectors
Types: FF-HM-230
FF-1-U
FF-3-U
FF-3-U-2

Electromagnetic Compatibility Regulations 2016

Products: Controller for moisture detectors
Types: FF-HM-24
FF-19

The object of the declaration described above is in conformity with the relevant designated standards:

EN 61010-1:2010/A1:2019/AC:2019-04

EN 61326-1:2013

Ratingen in Germany, 17.02.2023

Stefan Eschweiler
Managing Director

Frank Pospiech
Managing Director

Bühler Technologies GmbH, Harkortstr. 29, D-40880 Ratingen,
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RMA-Formular und Erklärung über Dekontaminierung
RMA-Form and explanation for decontamination

RMA-Nr./ RMA-No. _____

Die RMA-Nr. bekommen Sie von Ihrem Ansprechpartner im Vertrieb oder Service. Bei Rücksendung eines Altgeräts zur Entsorgung tragen Sie bitte in das Feld der RMA-Nr. "WEEE" ein./ You may obtain the RMA number from your sales or service representative. When returning an old appliance for disposal, please enter "WEEE" in the RMA number box.

Zu diesem Rücksendeschein gehört eine Dekontaminierungserklärung. Die gesetzlichen Vorschriften schreiben vor, dass Sie uns diese Dekontaminierungserklärung ausgefüllt und unterschrieben zurücksenden müssen. Bitte füllen Sie auch diese im Sinne der Gesundheit unserer Mitarbeiter vollständig aus./ This return form includes a decontamination statement. The law requires you to submit this completed and signed decontamination statement to us. Please complete the entire form, also in the interest of our employee health.

Firma/ Company

Firma/ Company	
Straße/ Street	
PLZ, Ort/ Zip, City	
Land/ Country	

Ansprechpartner/ Person in charge

Name/ Name	
Abt./ Dept.	
Tel./ Phone	
E-Mail	

Gerät/ Device	
Anzahl/ Quantity	
Auftragsnr./ Order No.	

Serien-Nr./ Serial No.	
Artikel-Nr./ Item No.	

Grund der Rücksendung/ Reason for return

- ☐ Kalibrierung/ Calibration
- ☐ Modifikation/ Modification
- ☐ Reklamation/ Claim
- ☐ Reparatur/ Repair
- ☐ Elektroaltgerät/ Waste Electrical & Electronic Equipment (WEEE)
- ☐ andere/ other

bitte spezifizieren/ please specify

Ist das Gerät möglicherweise kontaminiert?/ Could the equipment be contaminated?

☐ Nein, da das Gerät nicht mit gesundheitsgefährdenden Stoffen betrieben wurde./ No, because the device was not operated with hazardous substances.

☐ Nein, da das Gerät ordnungsgemäß gereinigt und dekontaminiert wurde./ No, because the device has been properly cleaned and decontaminated.

☐ Ja, kontaminiert mit:/ Yes, contaminated with: _____

☐	☐	☐	☐	☐	☐	☐	☐	☐
explosiv/ explosive	entzündlich/ flammable	brandfördernd/ oxidizing	komprimierte Gase/ compressed gases	ätzend/ caustic	giftig, Lebensgefahr/ poisonous, risk of death	gesundheitsgefährdend/ harmful to health	gesundheitsschädlich/ health hazard	umweltgefährdend/ environmental hazard

Bitte Sicherheitsdatenblatt beilegen!/ Please enclose safety data sheet!

Das Gerät wurde gespült mit:/ The equipment was purged with: _____

Diese Erklärung wurde korrekt und vollständig ausgefüllt und von einer dazu befugten Person unterschrieben. Der Versand der (dekontaminierten) Geräte und Komponenten erfolgt gemäß den gesetzlichen Bestimmungen.

This declaration has been filled out correctly and completely, and signed by an authorized person. The dispatch of the (decontaminated) devices and components takes place according to the legal regulations.

Falls die Ware nicht gereinigt, also kontaminiert bei uns eintrifft, muss die Firma Bühler sich vorbehalten, diese durch einen externen Dienstleister reinigen zu lassen und Ihnen dies in Rechnung zu stellen.

Should the goods not arrive clean, but contaminated, Bühler reserves the right, to comission an external service provider to clean the goods and invoice it to your account.

Firmenstempel/ Company Sign

Datum/ Date _____

rechtsverbindliche Unterschrift/ Legally binding signature

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Vermeiden von Veränderung und Beschädigung der einzusendenden Baugruppe

Die Analyse defekter Baugruppen ist ein wesentlicher Bestandteil der Qualitätssicherung der Firma Bühler Technologies GmbH. Um eine aussagekräftige Analyse zu gewährleisten muss die Ware möglichst unverändert untersucht werden. Es dürfen keine Veränderungen oder weitere Beschädigungen auftreten, die Ursachen verdecken oder eine Analyse unmöglich machen.

Umgang mit elektrostatisch sensiblen Baugruppen

Bei elektronischen Baugruppen kann es sich um elektrostatisch sensible Baugruppen handeln. Es ist darauf zu achten, diese Baugruppen ESD-gerecht zu behandeln. Nach Möglichkeit sollten die Baugruppen an einem ESD-gerechten Arbeitsplatz getauscht werden. Ist dies nicht möglich sollten ESD-gerechte Maßnahmen beim Austausch getroffen werden. Der Transport darf nur in ESD-gerechten Behältnissen durchgeführt werden. Die Verpackung der Baugruppen muss ESD-konform sein. Verwenden Sie nach Möglichkeit die Verpackung des Ersatzteils oder wählen Sie selber eine ESD-gerechte Verpackung.

Einbau von Ersatzteilen

Beachten Sie beim Einbau des Ersatzteils die gleichen Vorgaben wie oben beschrieben. Achten Sie auf die ordnungsgemäße Montage des Bauteils und aller Komponenten. Versetzen Sie vor der Inbetriebnahme die Verkabelung wieder in den ursprünglichen Zustand. Fragen Sie im Zweifel beim Hersteller nach weiteren Informationen.

Einsenden von Elektroaltgeräten zur Entsorgung

Wollen Sie ein von Bühler Technologies GmbH stammendes Elektroprodukt zur fachgerechten Entsorgung einsenden, dann tragen Sie bitte in das Feld der RMA-Nr. „WEEE“ ein. Legen Sie dem Altgerät die vollständig ausgefüllte Dekontaminierungserklärung für den Transport von außen sichtbar bei. Weitere Informationen zur Entsorgung von Elektroaltgeräten finden Sie auf der Webseite unseres Unternehmens.

Avoiding alterations and damage to the components to be returned

Analysing defective assemblies is an essential part of quality assurance at Bühler Technologies GmbH. To ensure conclusive analysis the goods must be inspected unaltered, if possible. Modifications or other damages which may hide the cause or render it impossible to analyse are prohibited.

Handling electrostatically conductive components

Electronic assemblies may be sensitive to static electricity. Be sure to handle these assemblies in an ESD-safe manner. Where possible, the assembles should be replaced in an ESD-safe location. If unable to do so, take ESD-safe precautions when replacing these. Must be transported in ESD-safe containers. The packaging of the assemblies must be ESD-safe. If possible, use the packaging of the spare part or use ESD-safe packaging.

Fitting of spare parts

Observe the above specifications when installing the spare part. Ensure the part and all components are properly installed. Return the cables to the original state before putting into service. When in doubt, contact the manufacturer for additional information.

Returning old electrical appliances for disposal

If you wish to return an electrical product from Bühler Technologies GmbH for proper disposal, please enter "WEEE" in the RMA number box. Please attach the fully completed decontamination declaration form for transport to the old appliance so that it is visible from the outside. You can find more information on the disposal of old electrical appliances on our company’s website.

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