TÜV NORD

Schedule to EU-Type Examination Certificate No. TÜV 19 ATEX 239657 X issue 00

(17) Specific Conditions for Use

1. Metallic process connection parts have to be included in the local potential equalization.
2. The level transducer type USE*-*/*-*-*-*-*-* resp. type XTi/XMi-*-* has to be installed in such a way that any ignition hazards caused by impact or friction can be excluded.
3. For EPL Ga/Gb applications a reverse heat flow from the process exceeding the permissible ambient temperature of the transmitter is not allowed and is to be avoided by a suitable thermal insulation.
4. For EPL Ga/Gb applications and at risks by pendulum or vibration the respective parts of the level transducer type USE*-*/*-KLS-*-*-*-* resp. type XTi-*-* have to be secured effectively against these dangers.
5. For EPL Ga/Gb applications the medium tangent materials of the level transducer type USE*-*/*-KLS-*-*-*-* resp. type XTi-*-* have to be resistant to the media.
6. For EPL Ga/Gb applications the whole device level transducer type USE*-*/*-KLS-*-*-*-* resp. type XTi-*-* shall be mounted in a way that allows an installation that results in a sufficient tight joint (IP66 or IP67) or a flameproof joint (IEC 60079-1) in the direction of the less endangered area.
7. The level transducer with the float type BN42 Buna-N float Ø42 mm is to be installed only in IIA Ga areas.

(18) Essential Health and Safety Requirements
No additional ones

- End of Certificate -

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Barksdale
CONTROL PRODUCTS

Operating Instructions

Level transmitters
USE3200, USE6200, USE15200, XM(i), XT(i) and MUEX

USE3200

USE6200

1	Intended Applications	2
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Barksdale
CONTROL PRODUCTS

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Specifications are subject to changes without notice!
Refer to data sheet for further technical data.

1 Intended Applications

The probes USE3200, USE6200, USE15200, XM(i) and XT(i) serve as sensors for level measuring of liquid media in potentially explosive areas and are allowed to be used only in accordance with ex approval TÜV 19 ATEX 239657 X.

The classification of ex devices is stated on the nameplate and the EC type examination certificate.

The designation ⟨Ex⟩ II 1/2 G permits use in potentially explosive gas atmosphere outside the equipment in zone 1; inside the equipment zone 0 is permitted.

The probes USE3200, USE6200 and USE15200 are installed in potentially explosive areas of category 1 (zone 0), whereas the terminal box is located in category 2 (zone 1).

The probes type XM(i) and XT(i) without float are used exclusively in potentially explosive areas of category 2 (zone 1).

The transducer MUEX transforms the level-dependent resistance signal of the probes for potentially explosive areas into an analog output signal of 4... 20 mA. It is mounted in the terminal box of the probe (KLS).

The transducer MU3L is not approved for use in potentially explosive areas.

The manufacturer assumes the responsibility for correct execution of the equipment according to the orderer's instructions. The orderer assumes the responsibility for the correct installation and use of the equipment subject to the applicable national regulations.

DANGER

Read the operating instructions and the safety instructions carefully before using the probes for potentially explosive atmospheres. Nonobservance may cause injuries to health or material damage.
Barksdale GmbH cannot be held liable for any damage resulting from incorrect use.

The probes for potentially explosive atmospheres must not be used in situations in which human life depends on proper functioning of the devices.

The probes for potentially explosive atmospheres may exclusively be used in the specified fields of application and with the permissible data (see nameplate). The temperature ranges must be within the permissible limits. The stated pressures and electrical load values must not be exceeded.

The orderer ensures that exothermic reactions or spontaneous gas-phase formation of the medium are impossible.

Observe also the applicable national safety instructions for assembly, commissioning and operation of the probes for potentially explosive atmospheres.

CAUTION

If the medium is water and there is a risk of icing the water must be discharged from the tank or heating must be provided to prevent damage to the float or the indicator tube.

The maximum speed of the float caused by level changes must not exceed 1 m/s. If necessary a suitable screen must be installed by the orderer in the connection to the tank.

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CAUTION

The probe must be suitable for the intended use according to its nameplate.

In case of use in zone 0, the maximum process temperatures according to the temperature class and the permissible pressure range in the tank of 0.8 to 1.1 bar in case of potentially explosive temperature must be observed. If the probe is used in a potentially explosive atmosphere outside the permissible pressure range and temperature range in the tank mentioned above, the type examination certificate serves only as a guideline.

Additional examinations for the specific operating conditions are recommended.

IMPORTANT

Unless agreed otherwise the probes are designed for static operating conditions. If any vibrations are to be expected, e.g. by pumps, compressors etc. the orderer must provide for adequate vibration absorption.

2 Safety Instructions

The safety instructions are intended to protect the user from dangerous situations and/or material damage.

In the operating instructions the seriousness of the potential risk is designated by the following signal words:

DANGER

Refers to imminent danger to men.

Nonobservance may result in fatal injuries.

WARNING

Refers to a recognizable danger.

Nonobservance may result in fatal injuries, and destroy the equipment or plant parts.

CAUTION

Refers to a danger.

Nonobservance may result in light injuries and material damage to the equipment and/or to the plant.

IMPORTANT

Refers to important information essential to the user.

Disposal

The probes and transducers must be disposed of correctly in accordance with the local regulations for electric/electronic equipment.

The probes and transducers must not be disposed of with the household garbage!

3 Standards

The standards applied during development, manufacture and configuration are listed in the CE conformity and manufacturer's declaration.

4 Warranty/Guaranty

Warranty

Our scope of delivery and services is governed by the legal warranties and warranty periods.

Terms of guaranty

We guaranty for function and material of the probes USE3200, USE6200, USE15200, XM(i), XT(i) and the transducer MUEX under normal operating and maintenance conditions in accordance with the statutory provisions.

Loss of guaranty

The agreed guaranty period will expire in case of:

- incorrect use
- modifications to the equipment
- incorrect installation
- incorrect handling or operation contrary to the provisions of these operating instructions

No liability is assumed for any damage resulting therefrom, or any consequential damage.

5 Principle of Operation

During operation the float on the probe moves up and down with the upper liquid level and produces a resistance/voltage divider signal proportional to the tank level. This signal can be evaluated directly or be transformed into a 2-wire 4 ... 20 mA current output signal.

A standard built-in wire-break protection reduces the output current to 3.5 mA in case of wire break. For level evaluation / display either Barksdale UAS / UAD units or the customer's evaluation equipment (e.g. PLC) are used.

Probe accuracy (without transducer)

Depending on requirements and model different screen sizes are available:

R12 - (1/4" = 6.4 mm), accuracy approx. 0.3 % at 3,000 mm - standard

R08 - (1/6" = 4.2 mm), accuracy approx. 0.1 % at 3,000 mm - on request

The accuracy of the probes can be determined by using the following formula according to the measuring length:

$$\pm \frac{(\text{screen} \div 2)}{\text{measuring length } L_m} \times 100\ \%$$

Example: $\pm \frac{(6{,}4\ \text{mm} \div 2)}{1000\ \text{mm}} \times 100\ \% = 0{,}32\ \%$

6 Installation/Commissioning

☞	**IMPORTANT**

Observe chapter 1 "Intended Applications“!

⚠	**DANGER**

The electrical connection may only be made by trained expert staff!

Prior to any work on electrical components disconnect them from power supply.

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⚠	**DANGER**

In ex areas, only equipment which is in conformity with ATEX may be used.
EN 60079-14 must be observed.

1) Metallic process connection parts have to be included in the local potential equalization.
2) The level transducer type USE*-*/*-*-*-*-*-* resp. type XTi/XMi-*-* has to be installed in such a way that any ignition hazards caused by impact or friction can be excluded.
3) For EPL Ga/Gb applications a reverse heat flow from the process exceeding the permissible ambient temperature of the transmitter is not allowed and is to be avoided by a suitable thermal insulation.
4) For EPL Ga/Gb applications and at risks by pendulum or vibration the respective parts of the level transducer type USE*-*/*-KLS-*-*-*-* resp. type XTi-*-* have to be secured effectively against these dangers.
5) For EPL Ga/Gb applications the medium tangent materials of the level transducer type USE*-*/*-KLS-*-*-*-* resp. type XTi-*-* have to be resistant to the media.
6) For EPL Ga/Gb applications the whole device level transducer type USE*-*/*-KLS-*-*-*-* resp. type XTi-*-* shall be mounted in a way that allows an installation that results in a sufficient tight joint (IP66 or IP67) or a flameproof joint (IEC 60079-1) in the direction of the less endangered area.
7) The level transducer with the float type BN42 Buna-N float Ø42 mm is to be installed only in IIA Ga areas.

☞	**IMPORTANT**

Before further steps are taken the orderer must check whether the operating conditions agreed in the order are still valid. The equipment must be suitable for the intended purpose. This applies in particular to:

- the pressure, temperature, medium characteristics
- possible additional loads

Mechanical installation

The probes USE3200, USE6200, USE15200, XM(i), XT(i) and the transducer MUEX are measuring devices. Proceed with care when carrying out work on the probes and on the transducer.

➢ Check that the probes/transducers supplied correspond to your order specification.
➢ Check whether all parts are available and that the connection flanges of tank and indicator match.

⚠	**DANGER**

Depressurize the system before carrying out any work on the tank with the probe!

☞	**IMPORTANT**

The operation of the probes is based on the magnetic field principle. No **magnetic iron parts** (e. g. screws, clamps etc.) must be used in the vicinity of the level tube.

Observe the data in chapter 8 „Technical Data“.

➢ Ensure that all flange attachment screws and screw connections are tightened or closed properly.

Electrical installation

⚠	**DANGER**
The orderer must ensure that all applicable regulations are observed for the use of electric probes.	

Commissioning

➢ Install the probes in the pressureless tank from outside through the tank top or tank bottom using a flange or mounting plug.
The maximum angle of inclination is 30°.

⚠	**WARNING**
The maximum operating pressure, which depends on the mounting elements and the float, must not be exceeded.	

Electrical connection must be in conformity with the connection scheme shown on the inner side of the terminal box cover.

⚠	**WARNING**
The supply voltage shown on the type label must not be exceeded.	

Please note the output signal shown on the type label.

☞	**IMPORTANT**
Comply with the torque values provided in the pipeline construction.	
It is recommended that the electrical connections are made in accordance with the relevant standards.	
Tightening torques for cable glands (which are delivered):	
PG 13,5, M20 x 1,5, blau	4,5 Nm
PG 13,5, M20 x 1,5, metal	10 Nm
Cover terminal box (aluminum)	2 Nm
Cover terminal box (Polycarbonate)	¼ rotation

7 Maintenance

⚠	**DANGER**
Depressurize the system before carrying out any work on the probe!	

⚠	**DANGER**
Maintenance must not be performed in a potentially explosive atmosphere.	

The probes USE3200, USE6200, USE15200, XM(i) and XT(i) are maintenance-free in non-depositing media.
When used in media with residues the probe and the float must be wiped off regularly depending on the degree of contamination.

The transducers MUEX require no maintenance.

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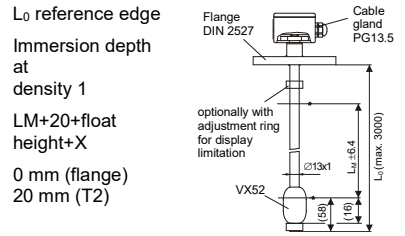
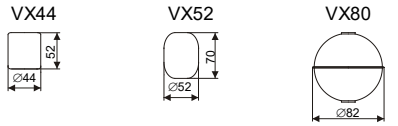
8 Technical Data

Model	USE3200			USE6200		USE15200		
Total length L_0	max. 3,000 mm			max. 6,000 mm		max. 15,000 mm		
Float	VX44	VX52	VX80	VX100, ball ∅ 105 mm	BN42 oval ∅ 42 mm	HY102	HY102t	VX120
Min. spec. gravity [g/cm³]	0,9	0,73	0,5	0,62	0,55	0,55	0,94	0,80
Max. operating pressure [bar]	15	25	16	32	15	90	90	16
Max. perm. temps (medium)	T1... T4 up to +100 °C T5 up to +75 °C T6 up to +60 °C			T1... T4 up to +100 °C T5 up to +75 °C T6 up to +60 °C		T1... T4 up to +100 °C T5 up to +75 °C T6 up to +60 °C		
Approvals	TÜV 19 ATEX 239657 X							

Dimensions, floats USE3200

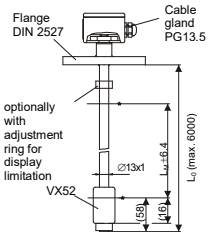
A: L_0 reference edge
B: Immersion depth at density 1
L_0: LM+20+float height+X
X: 0 mm (flange) 20 mm (T2)

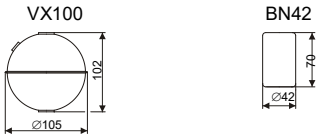




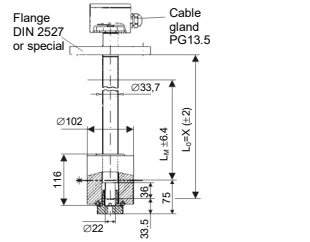
Dimensions, floats USE6200

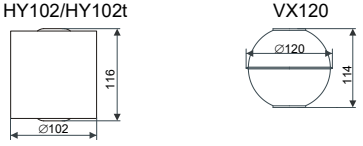
A: L_0 reference edge
B: Immersion depth at density 1
L_0: LM+26+float height+X
X: 0 mm (flange) 20 mm (T2)



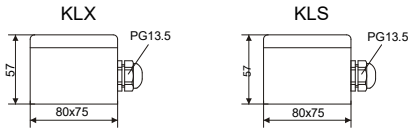


Dimensions, floats USE15200

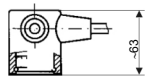




Electrical connections USE

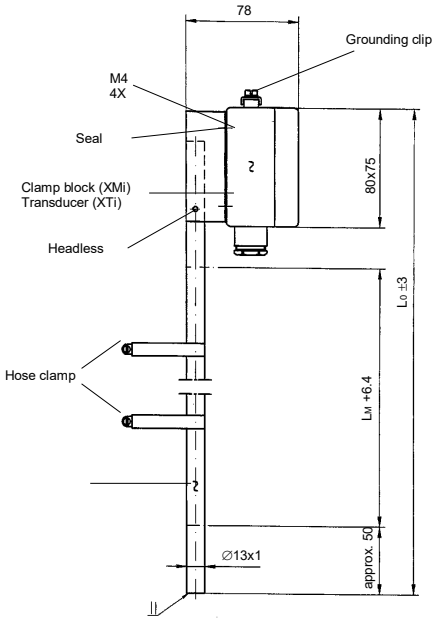


Special (only USE15200)

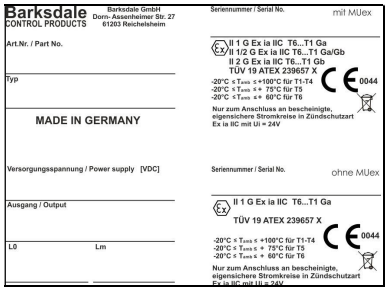


Model	XM(i) / XT(i)
Total length L_0	max. 6,000 mm
Max. perm. temp. (medium/ environment)	See EC type examination certificate
Approvals	TÜV 19 ATEX 239657 X

Dimensions XM(i) / XT(i)



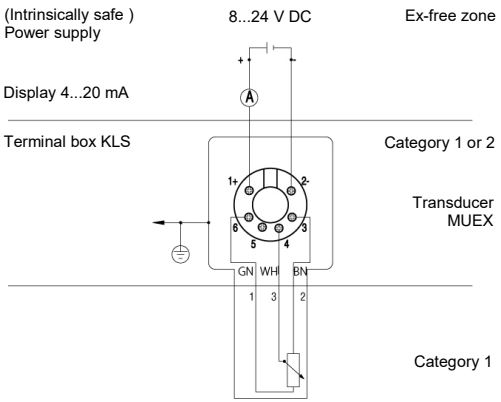
Nameplate



Model	MUEX
Power supply:	8... 24 V DC
intrinsically safe acc. to EN 60079-11:2012 or equal	
Output signal:	4...20 mA
Updating time:	135 ms
Load:	≤ (+UB-8) / 0.023 Ohm; < ±0.01 % f. s. / 100 Ohm
Signal at wire break:	3.5 mA
Delay:	0.33 s
Accuracy:	0.2 % f. s.
Level indication circuit:	3-wire potentiometer circuit
Approval:	Ex II 1 G Ex ia IIC T4 … T6 Ga II 1 D Ex ia IIIC Da II 1 M Ex ia I Ma
Certificate no.:	KEMA 03ATEX1538 X
Ex data:	U_i = 30 V DC; I_i = 120 mA DC P_i = 0.84 W; L_i 10 µH C_i = 1 nF

Ex-Data (without transmitter):
U_i = 24V; L_i = 120mA; P_i=0,84W

Connection scheme MUEX



Transmitter
USE3200 / USE6200 /
XM(i) / XT(i) / USE15200

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CONTROL PRODUCTS

9 EC type examination certificate

Ex equipment: observe the EC type examination certificate.

Translation

(1) **EU-Type Examination Certificate**

TÜV NORD

(2) Equipment and protective systems intended for use in potentially explosive atmospheres, **Directive 2014/34/EU**

(3) **Certificate Number** **TÜV 19 ATEX 239657 X** **issue:** 00

(4) for the product: Level transducer type USE*-*/*-*-*-*-*-* resp. type XTi/XMi-*-*

(5) of the manufacturer: **Barksdale GmbH**

(6) Address: Dorn-Assenheimer Str. 27
61203 Reichelsheim
Germany

Order number: 8003003177
Date of issue: 2019-04-08

(7) The design of this product and any acceptable variation thereto are specified in the schedule to this EU-Type Examination Certificate and the documents therein referred to.

(8) The TÜV NORD CERT GmbH, Notified Body No. 0044, in accordance with Article 17 of the Directive 2014/34/EU of the European Parliament and the Council of 26 February 2014, certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products intended for use in potentially explosive atmospheres given in Annex II to the Directive.
The examination and test results are recorded in the confidential ATEX Assessment Report No. 19 203 239657.

(9) Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN IEC 60079-0:2018 **EN 60079-11:2012** **EN 60079-26:2015**

except in respect of those requirements listed at item 18 of the schedule.

(10) If the sign "X" is placed after the certificate number, it indicates that the product is subject to the Specific Conditions for Use specified in the schedule to this certificate.

(11) This EU-Type Examination Certificate relates only to the design, and construction of the specified product. Further requirements of the Directive apply to the manufacturing process and supply of this equipment. These are not covered by this certificate.

(12) The marking of the product shall include the following:

Probe with transmitter type MUex:
USE*-*/*-KLS-*-*-*-* resp. XTi-*-*
II 1 G Ex ia IIC T6...T1 Ga
II 1/2 G Ex ia IIC T6...T1 Ga/Gb
II 2 G Ex ia IIC T6...T1 Gb

Probe without transmitter:
USE*-*/*-KX4-*-*-*-* resp. XMi-*-*
II 1 G Ex ia IIC T6...T1 Ga

TÜV NORD CERT GmbH, Langemarckstraße 20, 45141 Essen, notified by the central office of the countries for safety engineering (ZLS), Ident. Nr. 0044, legal successor of the TÜV NORD CERT GmbH & Co. KG Ident. Nr. 0032

The head of the notified body

Roder

Hanover office, Am TÜV 1, 30519 Hannover, Tel. +49 511 998-61455, Fax +49 511 998-61590

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TÜV NORD

(13) **SCHEDULE**

(14) **EU-Type Examination Certificate No. TÜV 19 ATEX 239657 X issue 00**

(15) Description of product:
The level transducer type USE*-*/*-*-*-*-*-* resp. type XTi/XMi-*-* is used for level detection in vessels for flammable and non-flammable media.

The sliding tube can be coated with "SAFECOAT 999-95/1-N" with a coating thickness of 500 µm ± 200 µm.

Type code:

USE * - * / * - * - * - * - * - *

- Options: DR damping tube; TM interface measurement
- Measuring length LM in mm
- Raster: R12 standard
- Float type:
  VX100 stainless steel float Ø105 mm
  BN42 Buna-N float Ø42 mm
  VX52 stainless steel float Ø52 mm
  VX44 stainless steel float Ø44 mm
  VX80 stainless steel float Ø82 mm
  VX120/VA120 stainless steel float Ø120 mm
  HY102 Hycel
- Electrical Connection:
  KX4 aluminium connection box, 3-polig
  KLS aluminium connection box incl: transmitter MUex
- Fastening element: G2 screw plug;
  FL4-FL7 DIN-Flanges
  FLS special flanges
- Material: VA stainless steel 1.4571/1.4408
- Serie: 3200; 6200; 15200

XTi/XMi - * - *

- LM Measuring length in mm
- R12 Raster
- XMi: Version without transmitter in connection box KX4
- XTi: Version with transmitter MUex in connection box KLS

Electrical Data:
Probe with transmitter type MUex:
Level transducer USE*-*/*-KLS-*-*-*-* resp. XTi-*-*

Power supply (Terminal 1 and 2)	In type of protection intrinsic safety Ex ia IIC only for the connection to certified intrinsically safe circuits Maximum values:
	U_i = 30 V
	I_i = 120 mA
	P_i = 0.84 W
Effective internal capacitance	C_i = 1 nF
Effective internal inductance	L_i = 10 µH

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CONTROL PRODUCTS

TÜV NORD

Schedule to EU-Type Examination Certificate No. TÜV 19 ATEX 239657 X issue 00

Probe without transmitter:
Level transducer USE*-*/*-KX4-*-*-*-* resp. XMi-*-*

Power supply (Cable confection)	In type of protection intrinsic safety Ex ia IIC only for the connection to certified intrinsically safe circuits Maximum values:
	U_i = 24 V
	I_i = 120 mA
	P_i = 0.84 W
Effective internal capacitance	C_i is negligibly small
Effective internal inductance	L_i is negligibly small

Thermal Data:
If the level transducer type USE*-*/*-KLS-*-*-*-* resp. type XTi-*-* is used in explosion hazardous areas for EPL Ga or EPL Ga/Gb or EPL Gb applications, the permissible temperature range in the area of the electronics of the transmitter type MUex as well as at the measuring sensor (measuring part, rod) dependent on the temperature class has to be taken from the following table:

Temperature class	Ambient temperature range in area of the electronics of the transmitter type MUex	Medium temperature range at measuring sensor (measuring part, rod)
T6	-40 °C ... +60 °C	-40°C ... +60 °C
T5	-40 °C ... +60 °C	-40°C ... +75 °C
T4-T1	-40 °C ... +85 °C	-40°C ... +100 °C

If the level transducer type USE*-*/*-KX4-*-*-*-* resp. type XMi-*-* is used in explosion hazardous areas for EPL Ga applications, the permissible temperature range at the measuring sensor (measuring part, rod) dependent on the temperature class has to be taken from the following table:

Temperature class	Ambient temperature range
T6	-40°C ... +60 °C
T5	-40°C ... +75 °C
T4-T1	-40°C ... +100 °C

(16) Drawings and documents are listed in the ATEX Assessment Report No. 19 203 239657

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