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Page	Туре	Resolution (mm)	min.	max.	Output
			Ind. lenght	Ind. lenght	
2	XM/XT-800E	5 +/- 2	400 mm	3000 mm	current/voltage
6	XM/XT-825E	2.5 +/- 1	200 mm	1500 mm	current/voltage
10	XM/XT-800E-PVDF	5 +/- 2	400 mm	3000 mm	current/voltage
14	XT-800R	5 +/- 2	400 mm	3000 mm	current
18	XT-800R-Ex	5 +/- 2	400 mm	3000 mm	current

TLI

# Transmitter Series XM-800E (XT-800E)

Application Area: Resolution: Min. Mounting Length: Max. Mounting Length: Industry, Chemical Industry 5 +/- 2 mm 400 mm 3000 mm

Transmitters of the series XM-800E (XT-800E) provide reliable measurement and control for liquid levels. Additionally they can be used as position sensors for vertical displacements. The transmitters are built according to user-specific requirements. They have proved successful in a wide range of different industrial applications as well as in many special applications.

Depending on liquid level or displacement a magnet equipped float actuates some reed switches located in the stem. The transmitter works according to the principle of a voltage divider. Output signals can be a voltage (XM-800E) or a current (XT-800E) proportional to the float displacement. Such signals can be processed to drive analog or digital displays, give optical or acoustical alarms, or be fed into computers.

# XM-800E (XT-800E)



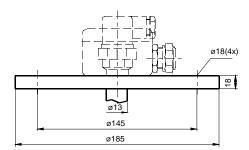


-2.



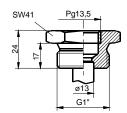
-3-

#### Mounting



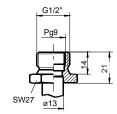
#### Flange DN65/PN16 EN1092-1 \*

- BCCC 316/316L
- BM brass
- Other flanges on request. Min. DN65 od. 2 1/2" ANSI



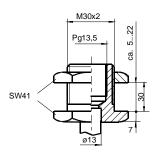
- Tank screw fixing 1" • TC 1 316/316L
- TM 1 brass





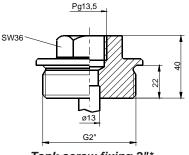
#### Inside screw fixing 1/2"

- EC 1/2 316/316L
- EM 1/2 brass

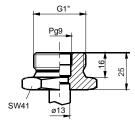


## Bulkhead fitting

- AC 316/316L
- AM brass

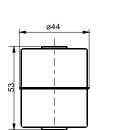


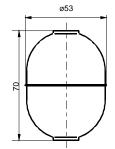




Inside screw fixing 1" • EC 1 316/316L • EM 1 brass

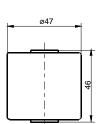
Floats





Туре • C44 \* Material 316/316L Max. pressure 12 bar Operating temp. -20 °C...150 °C Minimum density of 0.85 g/cm3 the liquid Immersion depth at 40 +/- 2mm density =  $1 \text{ g/cm}^3$ 

• C53 \* 316/316L 20bar -20 °C...150 °C 0.75 g/cm3 42 +/- 2mm



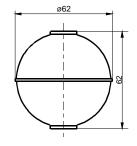
• N47 \*

Buna N

0.65 g/cm3

19 +/- 2mm

10bar



• Ti62 Titanium 15 bar -20 °C...80 °C H<sub>2</sub>0 -20 °C...150 °C -20 °C...100 °C Öl 0.60 g/cm3

32 +/- 2 mm

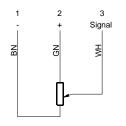
\* Versions with protection tube (damping tube) on request



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# Electrical connection XM-800E (3-wire) Electrical connection XT-800E (2-wire) • S Plug connector K6 Junction box ca.48 64x58 Ø 7...12mm Brass; Nickel plated SW21 • K11 Junction box · P Cable gland K11 Junction box 75x80 75x80 ø5 10 A 1 Ø 7...12mm Brass; Nickel plated SW21 Ø 7...12mm Brass; Nickel plated SW21

## Wiring diagram XM-800E with voltage signal



#### Note

TLI

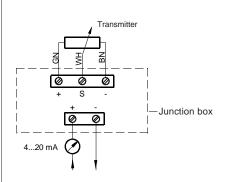
Because of the internal wiring of the transmitter, the output voltage and not the transmitter resistance has to be measured when a test is taken.

#### Function

Operation of the transmitter in connection with signal processing units; In this mode of operation voltage supply is provided by the processing units. Operation of the transmitter in connection with other signal processing units: 10...24 V DC, stabilized.

#### Technical data

Operating temperature Supply voltage Internal resistance Enclosure depending on float 10...24 V DC 700 Ω ...2800 Ω IP 65



Wiring diagram XT-800E with current signal

## Function

The mode of operation of the transmitter XT-800E is basically the same as the mode of operation of the XM-800E. The XT-800E provides an output signal of 4...20 mA (2-wire technique; current sink) not a voltage. The same technical data is valid for mounting elements, floats and dimensions as for the transmitter XM-800E. The electrical wiring is made via the junction box which houses the signal converter.

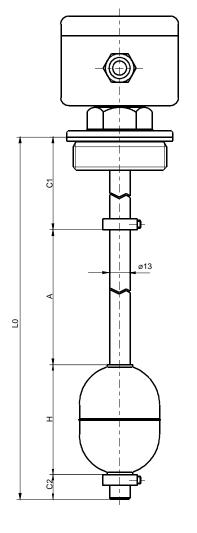
## Technical data

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Operating temperature	0 °C60 °C
Supply voltage	1040 V DC
Output signal	420 mA; current sink
Max. load	100 Ω (10 V)
	1.2 kΩ (40 V)
Max. current	20 mA
Enclosure	IP 65



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Order data



#### Type code: X...-800E-...-... Electrical connection Plug connector • S Junction box • K6 • K11 Junction box • P-PVC PVC cable, with cable gland (Standardlength 3m) • P-Si Si cable, halogen free, with cable gland (Standardlength 3m) Float • C44 316/316L • C53 316/316L • N47 Buna N • Ti62 Titanium Mounting element • BCCC Flange 316/316L •BM Flange brass Other flanges on request • TC 1 Tank screw fixing 316/316L • TM 1 Tank screw fixing brass • TC 2 Tank screw fixing 316/316L • TM 2 Tank screw fixing brass • EC 1/2 Inside screw fixing 316/316L • EM 1/2 Inside screw fixing brass Inside screw fixing 316/316L • EC 1 Inside screw fixing brass • EM 1 • AC Bulkhead fitting 316/316L Bulkhead fitting brass •AM Mounting direction • O From top ۰U From bottom Transmitter ۰M 3-wire 10...24 V DC • T 2-wire 4...20 mA

# Dimensions

- LO Mounting length (LO max. = 3000 mm)
- A Indication length (float displacement)
- C1 Upper deadline
- C2 Lower deadline min. 10 mm
- H Float height

LO = A + C1 + C2 + H

For versions with an upper set collar:

C1 = minimum measure\* + set collar thickness (8mm) \* minimum measure see below mounting elements LO Mounting length 740 mm

Typical order data XM-800E-O-TC1-C53-K11 (example)

- A Indication length 600 mm
- C1 Upper deadline 60 mm
- C2 Lower deadline 10 mm
- O Top mounting
- TC 1 Tank screw 316/316L 1"
- C53 Float H=70 mm

# Transmitter Series XM-825E (XT-825E)

Application Area: Resolution: Min. Mounting Length: Max. Mounting Length: Industry, Chemical Industry 2.5 +/- 1 mm 200 mm 1500 mm

Transmitters of the series XM-825E (XT-825E) provide reliable measurement and control for liquid levels. These are developed from the XM-800E (XT-800E) series with double resolution and a well-tried mechanism. Additionally they can be used as position sensors for vertical displacements. The transmitters are built according to user-specific requirements. They have proved successful in a wide range of different industrial applications as well as in many special applications.

Depending on liquid level or displacement a magnet equipped float actuates some reed switches located in the stem. The transmitter works according to the principle of a voltage divider. Output signals can be a voltage (XM-825E) or a current (XT-825E) proportional to the float displacement. Such signals can be processed to drive analog or digital displays, give optical or acoustical alarms, or be fed into computers.

## XM-825E (XT-825E)



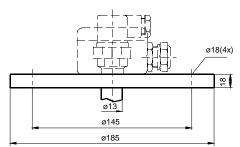
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#### Mounting

TLI

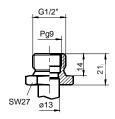


#### Flange DN65/PN16 EN1092-1 \*

- BCCC 316/316L
- BM brass
- other flanges on request Min. DN65 od. 2 1/2" ANSI

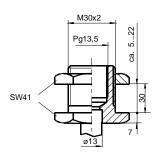


- TC 1 316/316L
- TM 1 brass



#### Inside screw fixing 1/2"

- EC 1/2 316/316L
- EM 1/2 brass



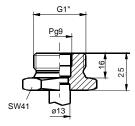
Bulkhead fitting

• AC 316/316L

• AM brass



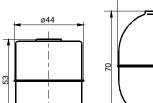
• TC 2 316/316L • TM 2 brass

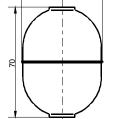


Inside screw fixing 1" • EC 1 316/316L

• EM 1 brass

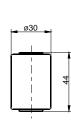
Floats

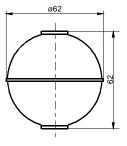




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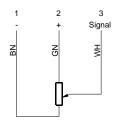
Type	• C44 *	• C53 *	• N47 *	• N30 *	• Ti62
Material	316/316L	316/316L	Buna N	Buna N	Titanium
Max. pressure	12 bar	20bar	10bar	10bar	15 bar
Operating temp.	-20 °C150 °C	-20 °C150 °C	-20 °C80 °C H <sub>2</sub> 0 -20 °C100 °C Öl	-20 °C80 °C H₂0 -20 °C100 °C Öl	-20 °C150 °C
Minimum density of the liquid	0.85 g/cm <sup>3</sup>	0.75 g/cm <sup>3</sup>	0.65 g/cm <sup>3</sup>	0.65 g/cm <sup>3</sup>	0.60 g/cm <sup>3</sup>
Immersion depth at density = $1 \text{ g/cm}^3$	35 +/- 2mm	40 +/- 2mm	19 +/- 2mm	25 +/- 2mm	32 +/- 2 mm

\* Versions with protection tube (damping tube) on request



# Electrical connection XM-825E (3-wire) Electrical connection XT-825E (2-wire) • S Plug connector K6 Junction box ca.48 64x58 Ø 7...12mm Brass: Nickel plated SW21 • K11 Junction box · P Cable gland K11 Junction box 75x80 75x80 10 A 1 Ø 7...12mm Brass; Nickel plated SW21

## Wiring diagram XM-825E with voltage signal



#### Note

Because of the internal wiring of the transmitter, the output voltage and not the transmitter resistance has to be measured when a test is taken.

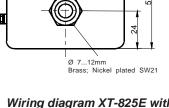
#### **Function**

Operation of the transmitter in connection with signal processing units; In this mode of operation voltage supply is provided by the processing units. Operation of the transmitter in connection with other signal processing units: 10...24 V DC, stabilized.

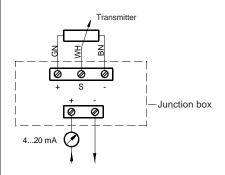
#### Technical data

Operating temperature Supply signal Internal resistance Enclosure

depending on float 10...24 V DC 700 Ω ...2800 Ω IP 65



#### Wiring diagram XT-825E with current signal



#### **Function**

The mode of operation of the transmitter XT-825E is basically the same as the mode of operation of the XM-825E. The XT-825E provides an output signal of 4...20 mA (2-wire technique; current sink) not a voltage. The same technical data is valid for mounting elements, floats and dimensions as for the transmitter XM-825E. The electrical wiring is made via the junction box which houses the signal converter.

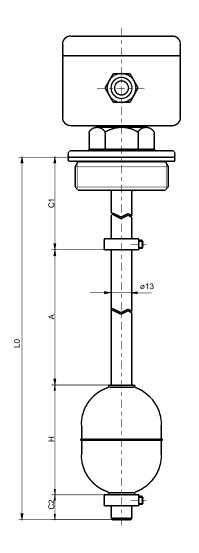
#### Technical data

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Operating temperature	0 °C60 °C
Supply signal	1040 V DC
Output signal	420 mA; current sink
Max. load	100 Ω (10 V)
	1.2 kΩ (40 V)
Max. current	20 mA
Enclosure	IP 65

TLL

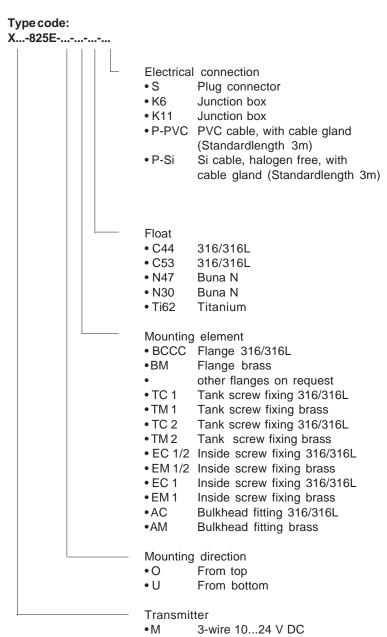


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TLI

Order data



#### Dimensions

- LO Mounting length (LO max. = 1500 mm)
- A Indication length (float displacement)
- C1 Upper deadline
- C2 Lower deadline min. 10 mm
- H Float height

LO = A + C1 + C2 + H

For versions with an upper set collar:

- C1 = minimum measure\* + set collar thickness (8mm)
- \* minimum measure see below mounting elements

- LO Mounting length 740 mm
- A Indication length 600 mm
- C1 Upper deadline 60 mm
- C2 Lower deadline 10 mm
- O Top mounting
- TC 1 Tank screw 316/316L 1"
- C53 Float H=70 mm

• T

Typical order data XM-825E-O-TC1-C53-K11 (example)

2-wire 4...20 mA

# Transmitter Series XM-800E-PVDF (Transmitter Series XT-800E-PVDF)



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Application Area: Resolution: Min. Mounting Length:

Max. Mounting Length:

Industry, Chemical Industry 5 +/- 2 mm 400 mm 3000 mm

Transmitters of the series XM-800E-PVDF (XT-800E-PVDF) provide reliable measurement and control for liquid levels. Additionally they can be used as position sensors for vertical displacements. The transmitters are built according to user-specific requirements. They have proved successful in a wide range of different industrial applications as well as in many special applications.

The PVDF series was specially developed for the foodstuffs industry, medical technology and other particularly exacting chemical applications. The transmitters are able to withstand acids, acidic compounds, bromines and pure media. They are not recommended for use with caustic soda or media having pH values >12.

#### Materials

Stem:	PVDF
Float:	PVDF
<ul> <li>Flange:</li> </ul>	PVDF
<ul> <li>Set collars:</li> </ul>	PTFE

Junction boxes: ABS

Depending on liquid level or displacement a magnet equipped float actuates some reed switches located in the stem. The transmitter works according to the principle of a voltage divider. Output signals can be a voltage (XM-800E-PVDF) or a current (XT-800E-PVDF) proportional to the float displacement. Such signals can be processed to drive analog or digital displays, give optical or acoustical alarms, or be fed into computers.

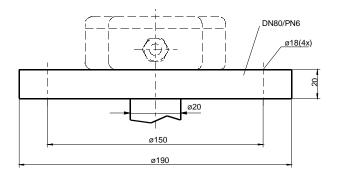
#### XM-800E-PVDF (XT-800E-PVDF)





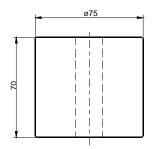
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## Mounting



Flange DN80/PN6 EN1092-1 • BF PVDF





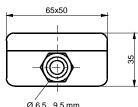
Туре	• P75
Material	PVDF
Max. pressure	3bar
Operating temperature	-30 °C100 °C
Minimum density of the	0.77 g/cm <sup>3</sup>
liquid	47 +/- 3 mm
Immersion depth at density =	
1 g/cm <sup>3</sup>	

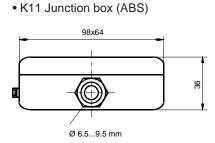


## Electrical connection XM-800E-PVDF (3-wire)

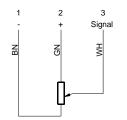
• K6 Junction box (ABS)

TLI





#### Electrical diagram XM-800E-PVDF with voltage signal



#### Hint

Because of the internal wiring of the transmitter, the output voltage and not the transmitter resistance has to be measured when a test is taken.

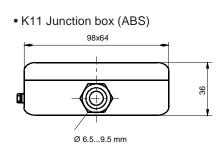
#### Function

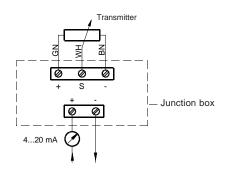
Operation of the transmitter in connection with signal processing units; In this mode of operation voltage supply is provided by the processing units. Operation of the transmitter in connection with other signal processing units: 10...24 V DC, stabilized.

## Technical data

Operating temperature Input signal Internal resistance Enclosure Depending on float 10...24 V DC 700 Ω ...2800 Ω IP 65

#### Electrical connection XT-800E-PVDF (2-wire)





## Function

The mode of operation of the transmitter XT-800E-PVDF is basically the same as the mode of operation of the XM-800E. The XT-800E-PVDF provides an output signal of 4...20 mA (2-wire technique; current sink) not a voltage. The same technical data is valid for mounting elements, floats and dimensions as for the transmitter XM-800E. The electrical connections are made via the cable box which houses the signal conversion electronics.

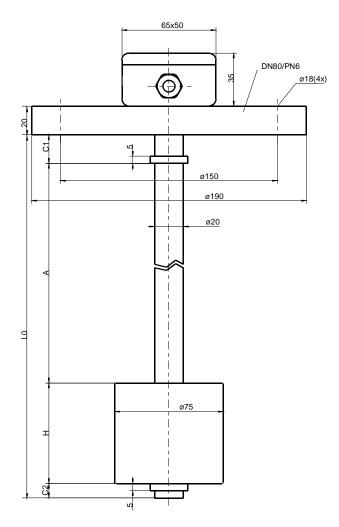
#### Technical data

Operating temperature	0 °C60 °C
Input signal	1040 V DC
Output signal	420 mA; current sink
Max. load	100 Ω (10 V)
	1.2 kΩ (40 V)
Max. current	20 mA
Enclosure	IP 65

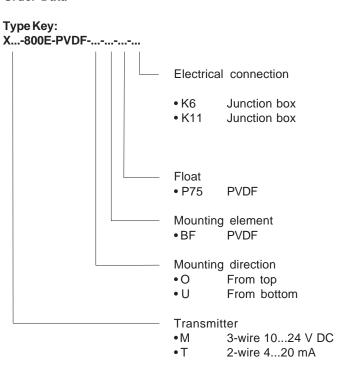
#### Electrical diagram XT-800E-PVDF with current signal



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## Order Data



#### Dimensions

- LO Mounting length (LO max. = 3000 mm)
- A Indication length (float displacement)
- C1 Upper deadline
- C2 Lower deadline min. 15 mm
- H Float height

LO = A + C1 + C2 + H

For versions with an upper set collar:

C1 = minimum measure\* + set collar thickness (5mm) \* minimum measure see below mounting elements

## Typical order data XM-800E-PVDF-O-BF-P75-K6 (example)

- LO Mounting length 800 mm
- A Indication length 620 mm
- C1 Upper deadline 100 mm
- C2 Lower deadline 10 mm O Top mounting
- O Top mounting BF Flange DN80/PN6
- P75 Float H=70 mm

# Transmitter Series XT-800R

Application Area: Resolution: Min. Mounting Length: Max. Mounting Length: Industry, Chemical Industry 5 +/- 2 mm 400 mm 3000 mm

Transmitters of the series XM-800R (XT-800R) provide reliable measurement and control for liquid levels. Additionally they can be used as position sensors for vertical displacements. These are developed from the standard series XM-800E. The signal-matching electronic system is integrated into the switching tube. This results in a functional 2wire transmitter with a 4...20mA output signal, offering all the variations of the standard series for applications where space is limited.

The transmitters are built according to user-specific requirements. They have proved successful in a wide range of different industrial applications as well as in many special applications. Depending on liquid level or displacement a magnet equipped float actuates some reed switches located in the stem. The resulting signal will be converted into a current signal proportional to the float position. Such signals can be processed to drive analog or digital displays, give optical or acoustical alarms, or be fed into computers.

XT-800R



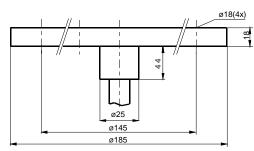
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-15-

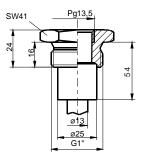
#### Mounting

TLI

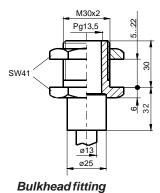


Flange DN65/PN16 DIN 2527 \*

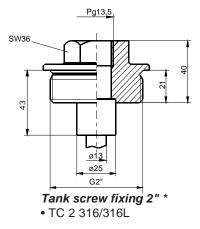
- BCCC 316/316L
- Other flanges on request Min. DN65 od. 2 1/2" ANSI



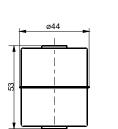
*Tank screw fixing 1*" • TC 1 316/316L

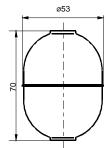


• AC 316/316L



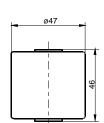
Floats





Type• C44 \*Material316/316LMax. pressure12 barOperating temp.-20 °C...150 °CMinimum density of<br/>the liquid<br/>Immersion depth at<br/>density = 1 g/cm³0.85 g/cm³

• C53 \* 316/316L 20bar -20 °C...150 °C 0.75 g/cm<sup>3</sup> 42 +/- 2mm



• N47 \*

Buna N

0.65 g/cm3

19 +/- 2mm

-20 °C...80 °C H<sub>2</sub>0

-20 °C...100 °C Öl

10bar

• Ti62 Titanium 15 bar -20 °C...150 °C 0.60 g/cm<sup>3</sup>

32 +/- 2 mm

\* Versions with protection tube (damping tube) on request



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## Electrical connection XT-800R (2-wire)

Wiring diagram XT-800R with voltage signal

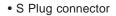
XT-800R

4...20 mA

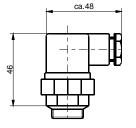
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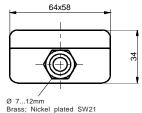


• P Cable gland

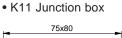


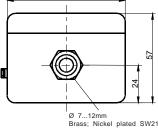
SW15





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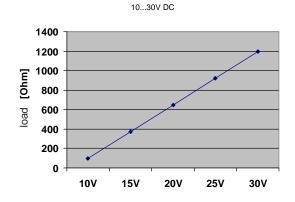


20mA Adjust

Print

Wire

4mA Adjust



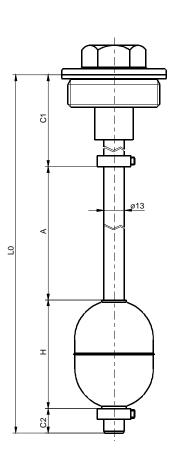
## Function

The fundamental operating principle of the XT-800R transmitter is the same as that for the XM-800E series. However, when it is connected to a voltage of 10... 30VDC, the XT-800R transmitter functions as a current sink, superimposing a 4 ... 20mA current analogous to the float position onto the signal. Two potentiometers are located in the top section of the tube and are visible when the tube is opened (see sketch above). These are used to adjust the upper and lower limiting values (4 and 20mA) within a range of 5%, based on the total length. This makes it possible to make readjustments if the set collar has to be moved slightly. The transmitter will have been adjusted before delivery and will not need to be reopened.

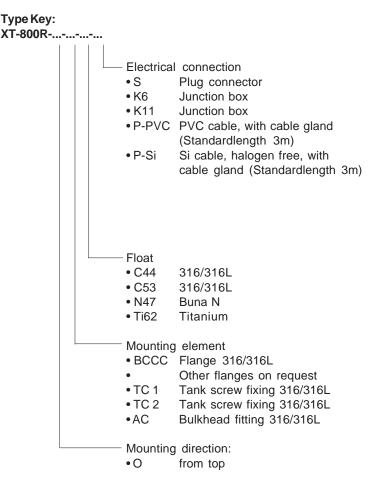
#### Technical Data

Operating temperature	0 °C70 °C
Supply signal	1030 V DC
Output signal	420 mA; current sink
Max. Load	100 Ω (10 V)
	1.2 kΩ (30 V )
Max. current	20 mA
Enclosure	IP 65





#### Order Data



#### Dimensions

- LO Mounting length (LO max. = 3000 mm)
- A Indication length (float displacement)
- C1 Upper deadline
- C2 Lower deadline min. 10 mm
- H Float height

LO = A + C1 + C2 + H

For versions with an upper set collar:

C1 = minimum measure\* + set collar thickness (8mm) \* minimum measure see below mounting elements

# Typical order data XT-800R-O-TC1-C53-P-PVC3 (example)

- LO Mounting length 740 mm
- A Indication length 600 mm
- C1 Upper deadline 60 mm
- C2 Lower deadline 10 mm
- O Top mounting
- TC 1 Tank screw 316/316L 1"
- C53 Float H=70 mm
- P Cable gland
- PVC3 3 m PVC-cable



# Transmitter Series XT-800R-Ex

Application Area: Resolution: Min. Mounting Length: Max. Mounting Length: Industry, Chemical Industry, Petrochemical Industry 5 +/- 2 mm 400 mm 3000 mm

XT-800R-Ex transmitters provide a reliable option for level supervision in tanks or containers containing explosive liquids. The transmitters are manufactured in accordance with customers' specifications and have proved to be successful for many years in a wide range of applications connected to the industrial and chemical sector, and in many special applications.

The float is fitted with magnets, and works by moving with the level of reed contacts located in the switching tube. The transmitter operates in accordance with the principle of voltage division. It provides a voltage proportional to the float position as an output signal, which is then converted by an integral converter to a standardised 4...20 mA signal.

PTFE spacers are placed in front of the set collars to prevent impact sparking.

The appropriate output devices can be connected to provide analogue or digital displays, optical and acoustic alarms and computer inputs. Safety instructions:

- •The transmitter may be used in Zone 0, 1 and 2 and with gas groups IIA, IIB and IIC that are at risk of explosion because of inflammable materials in the temperature classes T1 to T4.
- •The highest permitted ambient temperature is 70 °C.
- The transmitter may only be connected to a certified, intrinsically safe electrical circuit having the maximum values (e.g. Zener barriers).
- The equipment must be included in the routine pressure test of the tank.
  The transmitter must be electrically connected to the system's equipotential system.

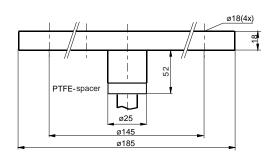


TLI



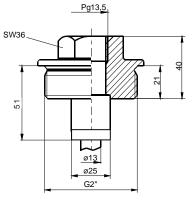
Mounting

TLI

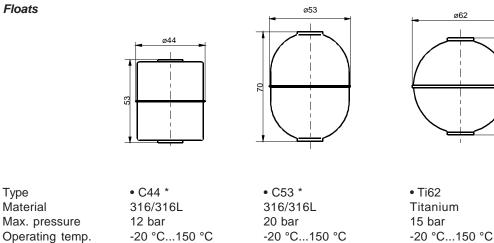




- BCCC 316/316L
- Other flanges on request Min. DN65 od. 2 1/2" ANSI



*Tank screw fixing 2" \** • TC 2 316/316L



Minimum density of $2.6 \text{ cm}^{-100} \text{ C}$  $2.6 \text{ cm}^{-100} \text{ C}$  $2.6 \text{ cm}^{-100} \text{ C}$ Minimum density of $0.85 \text{ g/cm}^3$  $0.75 \text{ g/cm}^3$  $0.60 \text{ g/cm}^3$ the liquidImmersion depth at40 +/- 2mm42 +/- 2mmdensity = 1 g/cm^332 +/- 2 mm

\* Versions with protection tube (damping tube) on request

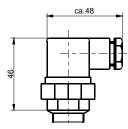


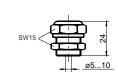
# Electrical connection XT-800R-Ex (2-wire)

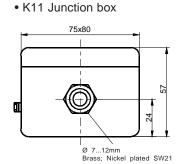
S Plug connection

TLI

• P Cable gland

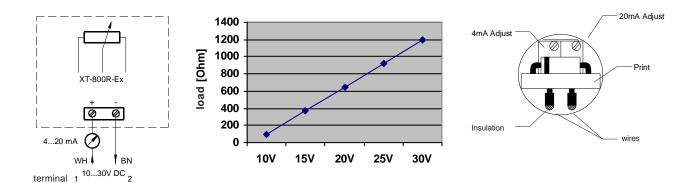






• Cable (82667) PVC, blue 2x 0.75<sup>2</sup>, shielded WH = + / BN = -

#### Wiring diagram XT-800R-Ex with voltage output



#### Function

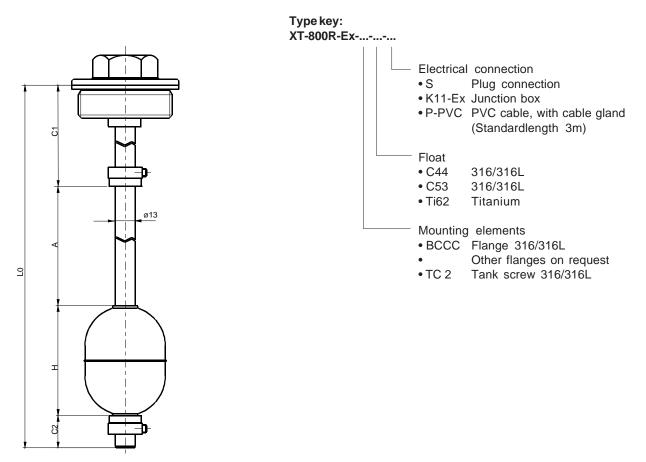
The fundamental operating principle of the XT-800R transmitter is the same as that for the XM-800E series. However, when it is connected to a voltage of 10... 30VDC, the XT-800R transmitter functions as a current sink, superimposing a 4 ... 20mA current analogous to the float position onto the signal. Two potentiometers are located in the top section of the tube and are visible when the tube is opened (see sketch above). These are used to adjust the upper and lower limiting values (4 and 20mA) within a range of 5%, based on the total length. This makes it possible to make readjustments if the set collar has to be moved slightly. The transmitter will have been adjusted before delivery and will not need to be reopened.

#### Technical data

l'oonnoan aata			
Max. ambient temperature70 °C		EEx ia IIC T4 or	EEx ib IIC T4
Supply voltage	1030 V DC	U: 30 V	U: 30 V
Output signal	420 mA; current sink	l: 150 mA	l: 150 mA
Max. load	100 Ω (10 V)	P: 1.13 W	P: 1.13 W
	1.2 kΩ (30 V )	C: 120 nF	The effective internal
Max. current	20 mA	L: 0 mH	inductance and ca-
Enclosure	IP 65		pacitance are negligi-
			bly small.



## Order data



#### Dimensions

- LO Mounting length (LO max. = 3000 mm)
- A Indication length (float displacement)
- C1 Upper deadline
- C2 Lower deadline min. 15 mm
- H Float height

LO = A + C1 + C2 + H

For versions with an upper set collar:

C1 = minimum measure\* + set collar thickness (8mm) \* minimum measure see below mounting elements

# Typical order data XT-800R-Ex-TC2-C53-P-PVC3 (example)

- LO Mounting length 740 mm
- A Indication length 590mm
- C1 Upper deadline 65mm
- C2 Lower deadline 15 mm
- TC 2 Tank screw 316/316L 2"
- C53 Float H=70 mm
- P cable gland
- PVC3 3 m PVC-cable