

TLI Data Sheet Overview -1-

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





Application Area: Industry, Chemical Industry

**Resolution:** 5 +/- 2 mm **Min. Mounting Length:** 400 mm **Max. Mounting Length:** 3000 mm

TLI

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.

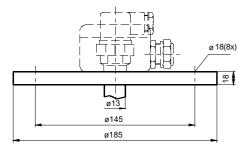
#### XM-800E (XT-800E)





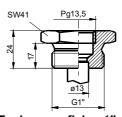


# Mounting



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

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



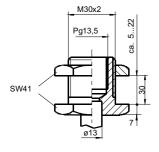
# Tank screw fixing 1"

- TC 1 316/316L
- TM 1 brass



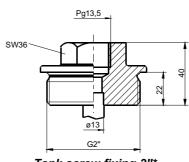
### Inside screw fixing 1/2"

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



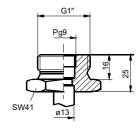
# **Bulkhead fitting**

- AC 316/316L
- AM brass



# Tank screw fixing 2"\*

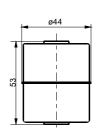
- TC 2 316/316L
- TM 2 brass

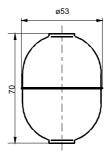


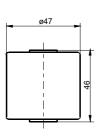
### Inside screw fixing 1"

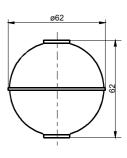
- EC 1 316/316L
- EM 1 brass

# Floats









Туре
Material
Max. pressure
Operating temp.

• C44 \* 316/316L 12 bar -20 °C...150 °C • C53 \* 316/316L 20bar -20 °C...150 °C

Buna N 10bar -20 °C...80 °C H<sub>2</sub>0 -20 °C...100 °C ÖI 0.65 g/cm<sup>3</sup>

• N47 \*

• Ti62 Titanium 15 bar -20 °C...150 °C

Minimum density of the liquid Immersion depth at density = 1 g/cm<sup>3</sup> 0.85 g/cm<sup>3</sup> 40 +/- 2mm

42 +/- 2mm

0.75 g/cm<sup>3</sup>

19 +/- 2mm

0.60 g/cm<sup>3</sup> 32 +/- 2 mm

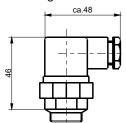
Tli E/09.2013 Modifications reserved WEKA AG - Schürlistrasse 8 - CH-8344 Bäretswil
Phone +41 43 833 43 43 - Fax +41 43 833 43 49
www.weka-ag.ch; info@weka-ag.ch

<sup>\*</sup> Versions with protection tube (damping tube) on request

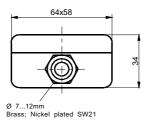


#### Electrical connection XM-800E (3-wire)

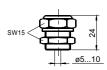
#### · S Plug connector



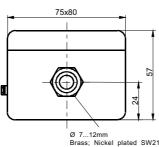
### K6 Junction box



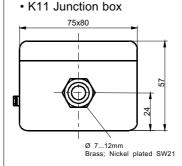
#### · P Cable gland



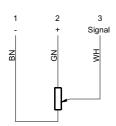
#### K11 Junction box



Electrical connection XT-800E (2-wire)



### Wiring diagram XM-800E with voltage signal



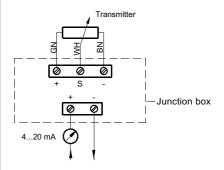
#### Note

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.

# 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

Operating temperature depending on float 10...24 V DC Supply voltage Internal resistance 700  $\Omega$  ...2800  $\Omega$ **IP 65** 

Enclosure

#### Technical data

Operating temperature 0 °C...60 °C Supply voltage 10...40 V DC

Output signal 4...20 mA; current sink

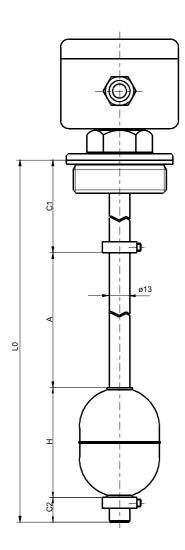
Max. load

100 Ω (10 V) 1.2 kΩ (40 V)

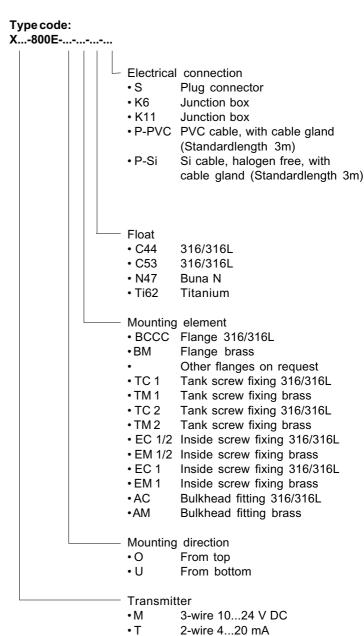
Max. current 20 mA IP 65 Enclosure







#### 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 XM-800E-O-TC2-C53-K11 (example)

LO	Mounting length 740 mm
Α	Indication length 600 mm
C1	Upper deadline 60 mm
C2	Lower deadline 10 mm
0	Top mounting
TC 2	Tank screw 316/316L 2"
C53	Float H=70 mm



Industry, Chemical Industry



**Resolution:** 2.5 +/- 1 mm Min. Mounting Length: 200 mm Max. Mounting Length: 1500 mm

TLI

**Application Area:** 

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)

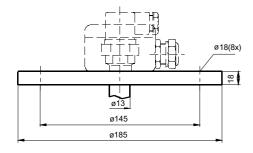


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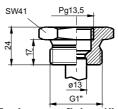
#### Mounting

TLI



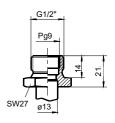
### Flange DN65/PN16 EN1092-1 \*

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



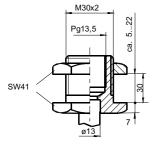
### Tank screw fixing 1"

- TC 1 316/316L
- TM 1 brass



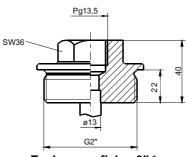
### Inside screw fixing 1/2"

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



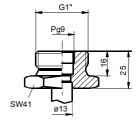
# **Bulkhead fitting**

- AC 316/316L
- AM brass



# Tank screw fixing 2" \*

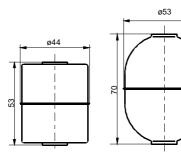
- TC 2 316/316L
- TM 2 brass

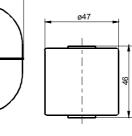


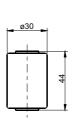
### Inside screw fixing 1"

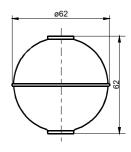
- EC 1 316/316L
- EM 1 brass

#### Floats









Type Material	
Max. pressure	
Operating temp.	

• C44 \* 316/316L 12 bar

• C53 \* 316/316L 20bar -20 °C...150 °C

• N47 \* Buna N 10bar -20 °C...80 °C H<sub>2</sub>0

• N30 \* Buna N 10bar -20 °C...80 °C H<sub>2</sub>0

• Ti62 Titanium 15 bar -20 °C...150 °C

-20 °C...150 °C

0.75 g/cm<sup>3</sup>

-20 °C...100 °C Öl -20 °C...100 °C Öl 0.65 g/cm<sup>3</sup> 0.65 g/cm<sup>3</sup>

Minimum density of 0.85 g/cm<sup>3</sup> the liquid Immersion depth at 35 +/- 2mm

40 +/- 2mm

19 +/- 2mm

25 +/- 2mm

0.60 g/cm<sup>3</sup> 32 +/- 2 mm

density = 1 g/cm<sup>3</sup>

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www.weka-ag.ch; info@weka-ag.ch

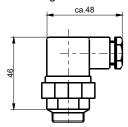
<sup>\*</sup> Versions with protection tube (damping tube) on request



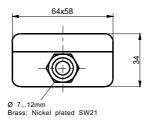


#### Electrical connection XM-825E (3-wire)

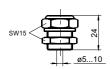
### · S Plug connector



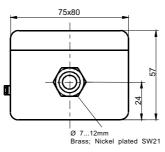
### K6 Junction box



#### · P Cable gland

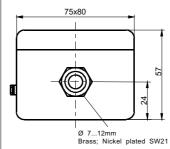


#### K11 Junction box

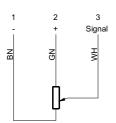


K11 Junction box

Electrical connection XT-825E (2-wire)



### Wiring diagram XM-825E with voltage signal



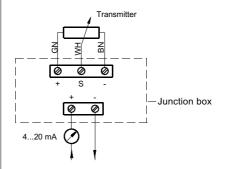
#### Note

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:

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



10...24 V DC, stabilized.

# Technical data

Operating temperature depending on float 10...24 V DC Supply signal Internal resistance 700  $\Omega$  ...2800  $\Omega$ **IP 65** Enclosure

#### **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

Operating temperature 0 °C...60 °C Supply signal 10...40 V DC

4...20 mA; current sink Output signal

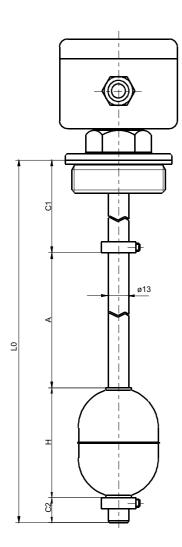
Max. load

100 Ω (10 V) 1.2 kΩ (40 V)

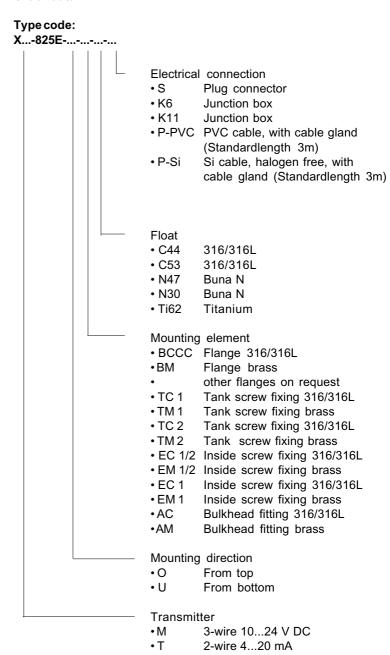
Max. current 20 mA IP 65 Enclosure







#### Order data



#### **Dimensions**

LO Mounting length (LO max. = 1500 mm)
A Indication length (float displacement)

A Indication length (float C1 Upper deadline

C2 Lower deadline min. 10 mm

H Float height

LO = A + C1 + C2 + H

20 7( 01 02 01

For versions with an upper set collar:

C1 = minimum measure\* + set collar thickness (8mm)

\* minimum measure see below mounting elements

# Typical order data XM-825E-O-TC2-C53-K11 (example)

LO	Mounting length 740 mm
Α	Indication length 600 mm
C1	Upper deadline 60 mm
C2	Lower deadline 10 mm
0	Top mounting
TC 2	Tank screw 316/316L 2"
C53	Float H=70 mm





TLI

**Application Area:** 

Industry, Chemical Industry

Resolution: 5 +/- 2 mm
Min. Mounting Length: 400 mm
Max. Mounting Length: 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
Flange: PVDF
Set collars: 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)



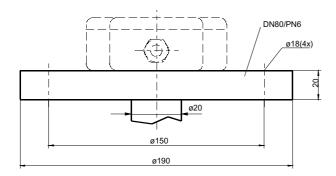




TLI

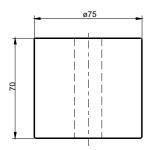
-11-

### Mounting



Flange DN80/PN6 EN1092-1
• BF PVDF

#### Float



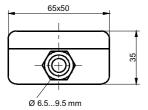
Type
Material
Max. pressure
Operating temperature
Minimum density of the
liquid
Immersion depth at density =
1 g/cm³

PVDF
3bar
-30 °C...100 °C
0.77 g/cm³
47 +/- 3 mm

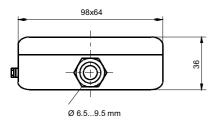


#### Electrical connection XM-800E-PVDF (3-wire)

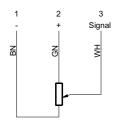
### • K6 Junction box (ABS)



#### • K11 Junction box (ABS)



#### 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

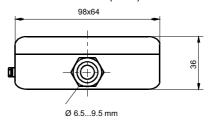
Operation of the transmitter in connection with signal processing units; In this mode of operation voltage supply is provided by the processing units. Operation of the transmitter in connection with other signal processing units: 10...24 V DC, stabilized.

#### Technical data

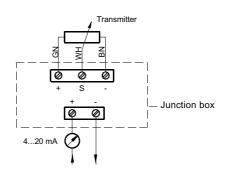
 $\begin{array}{lll} \text{Operating temperature} & \text{Depending on float} \\ \text{Input signal} & 10...24 \text{ V DC} \\ \text{Internal resistance} & 700 \ \Omega \ ...2800 \ \Omega \\ \text{Enclosure} & \text{IP 65} \end{array}$ 

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

### • K11 Junction box (ABS)



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



#### 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 °C...60 °C Input signal 10...40 V DC

Output signal 4...20 mA; current sink

Max. load  $100 \Omega (10 \text{ V})$ 

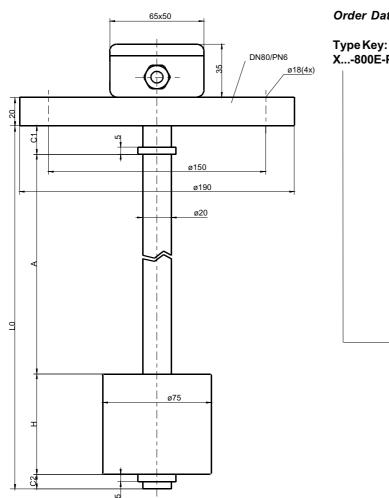
1.2 kΩ (40 V)

Max. current 20 mA Enclosure IP 65

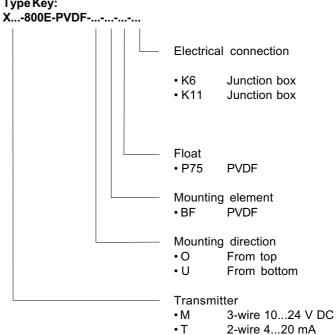
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### Order Data



#### **Dimensions**

Indication length (float displacement)

C1 Upper deadline

Lower deadline min. 15 mm C2

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
Α	Indication length 620 mm
C1	Upper deadline 100 mm
C2	Lower deadline 10 mm
0	Top mounting

BF Flange DN80/PN6

P75 Float H=70 mm





Application Area: Industry, Chemical Industry

**Resolution:** 5 +/- 2 mm **Min. Mounting Length:** 400 mm **Max. Mounting Length:** 3000 mm

TLI

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.

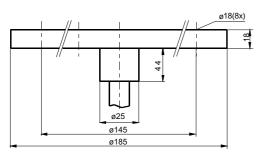






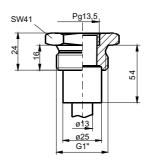


#### Mounting



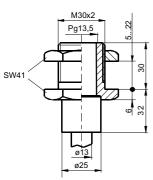
### Flange DN65/PN16 EN1092-1 \*

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

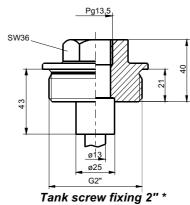


Tank screw fixing 1"

• TC 1 316/316L

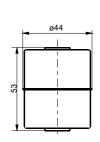


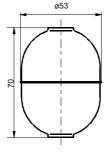
Bulkhead fitting
• AC 316/316L

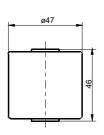


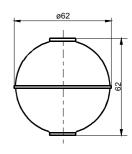
• TC 2 316/316L

# Floats









Type
Material
Max. pressure
Operating temp.

• C44 \* 316/316L 12 bar -20 °C...150 °C • C53 \* 316/316L 20bar -20 °C...150 °C • N47 \*
Buna N
10bar
-20 °C...80 °C H<sub>2</sub>0
-20 °C...100 °C ÖI
0.65 g/cm<sup>3</sup>

• Ti62 Titanium 15 bar -20 °C...150 °C

Minimum density of the liquid Immersion depth at density = 1 g/cm<sup>3</sup> 0.85 g/cm<sup>3</sup> 40 +/- 2mm 0.75 g/cm<sup>3</sup> 42 +/- 2mm

19 +/- 2mm

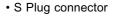
0.60 g/cm<sup>3</sup> 32 +/- 2 mm

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

Tli E/09.2013 Modifications reserved WEKA AG - Schürlistrasse 8 - CH-8344 Bäretswil Phone +41 43 833 43 43 - Fax +41 43 833 43 49 www.weka-ag.ch; info@weka-ag.ch



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



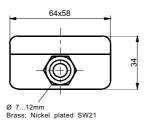
ca.48

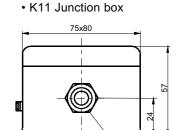
TLI



· P Cable gland

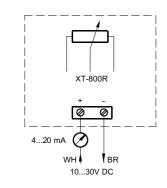
#### · K6 Junction box

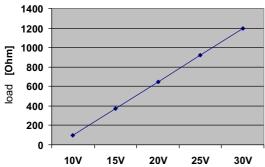


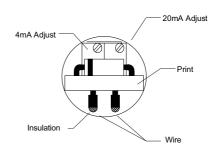


Ø 7...12mm Brass; Nickel plated SW21

#### Wiring diagram XT-800R with voltage signal







#### **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

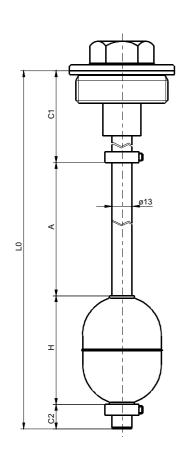
0 °C...70 °C Operating temperature 10...30 V DC Supply signal

4...20 mA; current sink Output signal

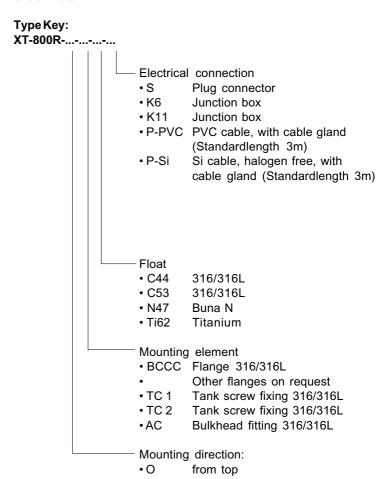
Max. Load 100  $\Omega$  (10 V) 1.2 kΩ (30 V)

20 mA Max. current 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-TC2-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 2 Tank screw 316/316L 2"

C53 Float H=70 mm

P Cable gland

PVC3 3 m PVC-cable



Application Area: Industry, Chemical Industry, Petrochemical Industry

**Resolution:** 5 +/- 2 mm **Min. Mounting Length:** 400 mm **Max. Mounting Length:** 3000 mm

TLI

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.

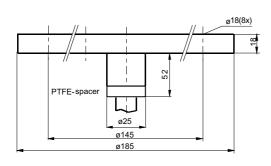


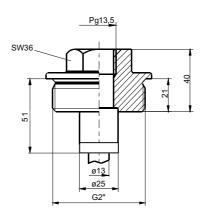




# Mounting

TLI





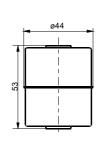
# Tank screw fixing 2" \*

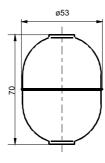
• TC 2 316/316L

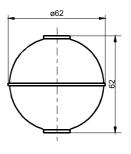
# Flange DN65/PN16 EN1092-1 \*

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

#### **Floats**







Type
Material
Max. pressure
Operating temp.
Minimum density of
the liquid

• C44 \* 316/316L 12 bar -20 °C...150 °C 0.85 g/cm³ • C53 \* 316/316L 20 bar -20 °C...150 °C 0.75 g/cm³

42 +/- 2mm

• Ti62 Titanium 15 bar -20 °C...150 °C 0.60 g/cm³

32 +/- 2 mm

Immersion depth at

density =  $1 \text{ g/cm}^3$ 

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

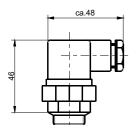
40 +/- 2mm



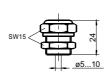


#### Electrical connection XT-800R-Ex (2-wire)

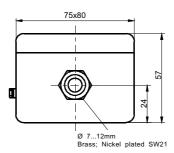
· S Plug connection



• P Cable gland

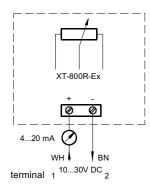


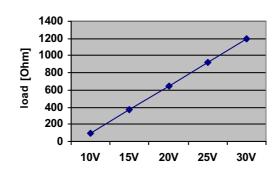
• K11 Junction box

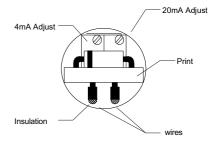


Cable (82667)
 PVC, blue 2x 0.75<sup>2</sup>, shielded
 WH = + / BN = -

#### 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

Max. ambient temperature70 °C Supply voltage 10...30 V DC

Output signal 4...20 mA; current sink Max. load 100  $\Omega$  (10 V)

1.2 kΩ (30 V )

Max. current 20 mA Enclosure IP 65 **EEx ia IIC T4** or U: 30 V

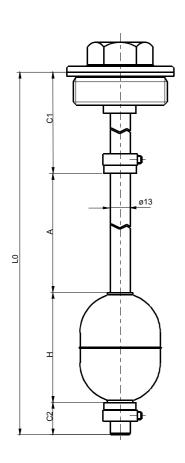
l: 150 mA P: 1.13 W C: 120 nF L: 0 mH EEx ib IIC T4

U: 30 V I: 150 mA P: 1.13 W

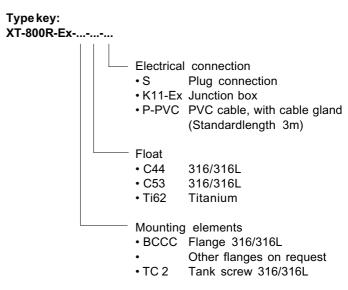
The effective internal inductance and capacitance are negligi-

bly small.





#### Order data



# **Dimensions**

TLI

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