

# FlexTop 2221 HART

## Operating instructions


**HART**  
 COMMUNICATION FOUNDATION

### Description

The FlexTop universal temperature transmitter type 2221 is suitable for input from RTD sensors, T/C sensors plus potentiometer or resistance signals.

The FlexTop 2221 features a 4 ... 20 mA / HART output signal.

### Environment

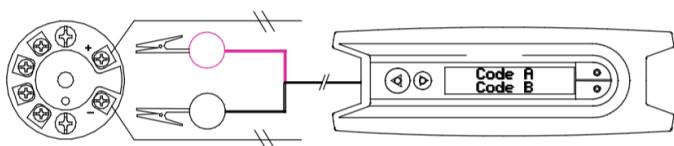
Humidity	<98 % RH, condensing
Ambient temperature	-40 ... 85°C
Storage temperature	-55 ... 90 °C
Protection class	IP10, terminals IP55, housing
Vibrations	GL, test 2

### Configuring with FlexProgrammer 9701

The FlexTop 2221 can be configured, using the 4...20 mA cable. The maximum distance depends on the cable type, resistance and capacity. We recommend to use shielded cables.

To be able to configure the FlexTop 2221 with the FlexProgrammer 9701 the dedicated software, Flex-program, must be loaded on the PC.

During the configuration the new data are, by means of the FlexProgrammer 9701, transferred from the PC to the FlexTop 2221, where they are stored in the internal memory.



The indication for a correct configuration sequence is:

- 1) The LED on the FlexTop 2221 lights up constantly.

Error indications during configuration:

- 1) The LED on the FlexTop 2221 is not lighting.
- 2) An error message comes up on the PC.

Note: During the first power-up after a configuration the power-on time increases to approx. 10 sec.

### Field of application

FlexTop universal temperature transmitter type 2221 is a compact temperature transmitter, designed to be built into the housing of a temperature sensor like the Baumer CombiTemp. The FlexTop 2221 features HART communication.

### Safety instruction

This instrument is built and tested according to the current EU-directives and packed in technically safe condition. In order to maintain this condition and to ensure safe operation, the user must follow the hints and warnings given in this instruction.

During the installation the valid national rules have to be observed. Ignoring the warnings may lead to severe personal injury or substantial damage to property.

The product must be operated by trained staff. Correct and safe operation of this equipment is dependent on proper transport, storage, installation and operation.

All electrical wiring must conform to local standards. In order to prevent stray electrical radiation, we recommend twisted and shielded input cables, as also to keep power supply cables separated from the input cables. The connection must be made according to the connecting diagrams.

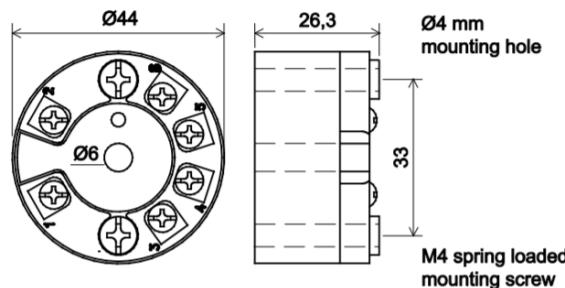
Before switching on the power supply take care that other equipment is not affected. Ensure that the supply voltage and the conditions in the environment comply with the specification of the device.

Before switching off the supply voltage check the possible effects on other equipment and the processing system.

### WARNING

For electrical installation and commissioning of explosion protected devices, the data given in the conformity certificate as also the local regulations for installation of electrical apparatus within explosion protected areas must be considered. The intrinsically safe versions can be mounted in the explosion hazarded area according to its specification only connected to a certified intrinsically safe supply loop with the corresponding electrical values.

### Dimensions



### WARNING

This product contains no replaceable parts.

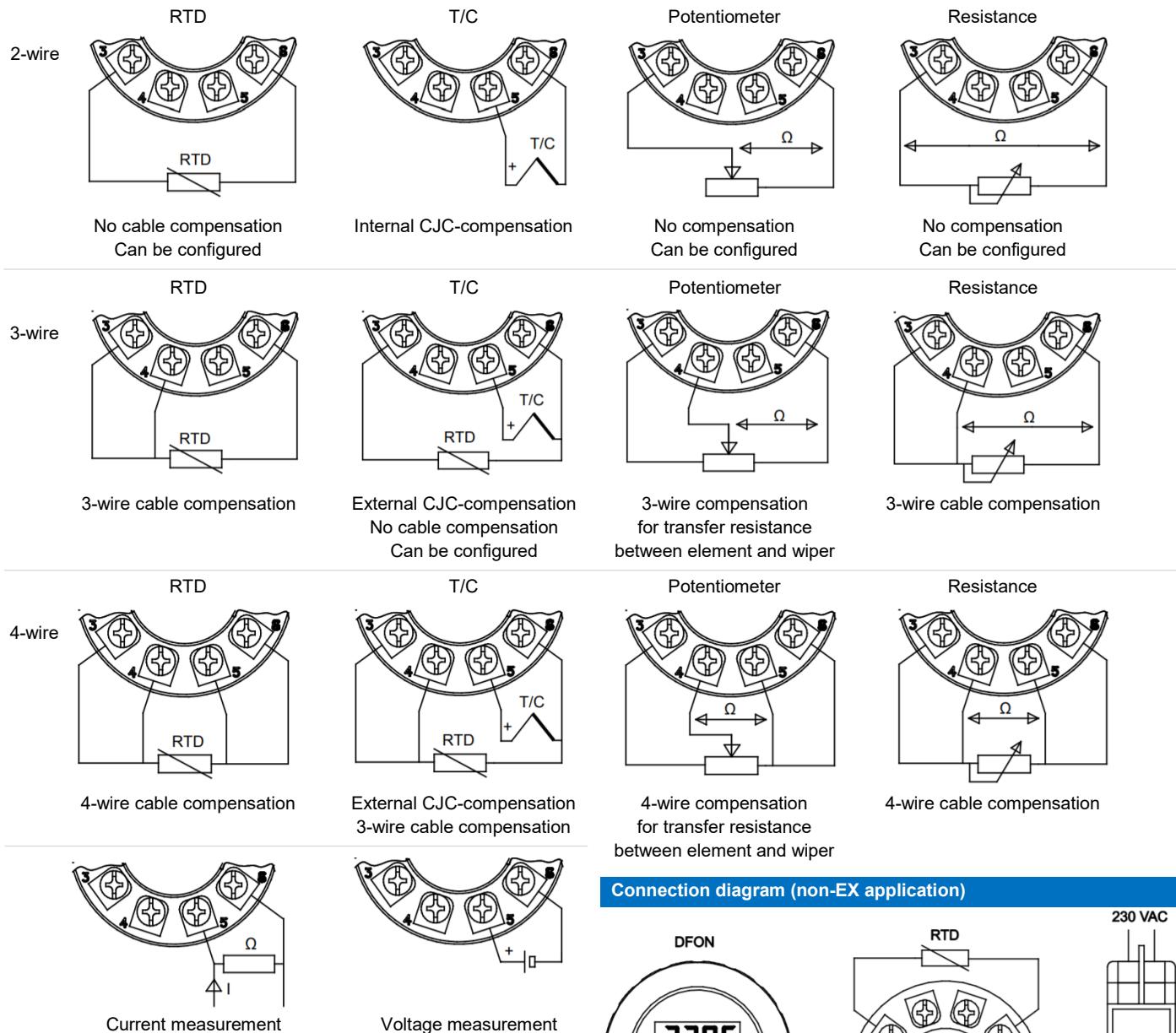
In case of malfunction the product must be shipped to Baumer for repair

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English

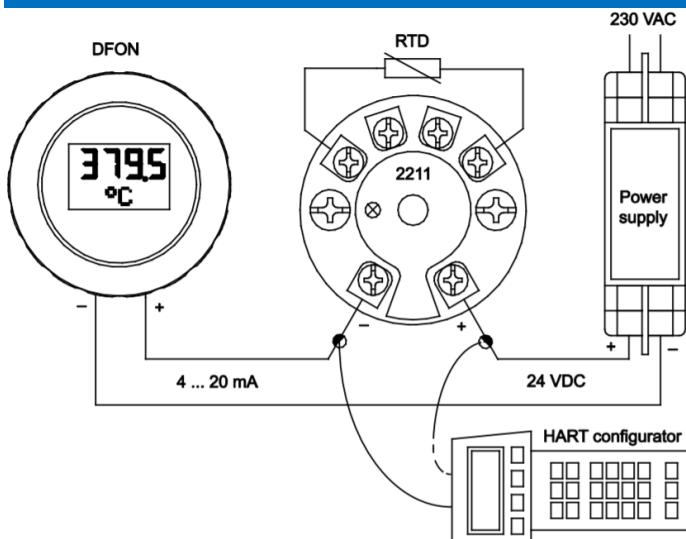
### Electrical installation



### LED function

The LED of the FlexTop indicate the actual status of the measured value. The LED will be turned on continuously as long as the measured value result in an output current between 4 and 20 mA. If the output current is higher than 20 mA or lower than 4 mA the LED will flash with 1Hz. The same flashing behaviour will occur if a sensor break error is detected.

### Connection diagram (non-EX application)



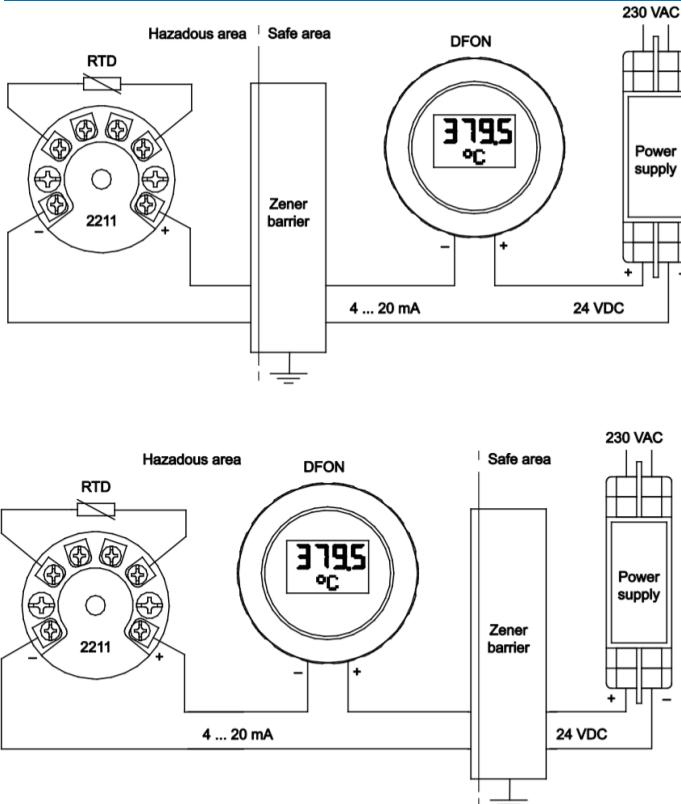
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English

### Hazardous area - ATEX

#### Connection diagram ATEX



#### ATEX data for FlexTop™ 2221 Ex ia (2221-0002)

Approval	ATEX II 1G, Ex ia IIC T5/T6
Voltage supply range	8...30 V DC
Internal inductivity	$L_i \leq 15 \mu\text{H}$
Internal capacity	$C_i \leq 5 \text{nF}$
Temperature class	T1...T5: -40 < Tamb < 85°C T6: -40 < Tamb < 50°C
Barrier data	$U_i: \leq 28 \text{ VDC}$ $I_i: \leq 0,1 \text{A}$ $P_i: \leq 0,7 \text{ W}$

The installation of FlexTop 2221 must be done in accordance with prevailing guidelines for zones 0 or 1.

Sensor circuit parameters (terminals 3 to 6):

VDC < 6.6 V; IDC < 17 mA; Pout < 30m W; La < 99 mH; Ca < 3μF.

The FlexTop 2221 must be connected in the 4...20 mA loop circuit only.

FlexTop 2221 must be mounted in a housing, e.g. ø80mm stainless steel housing or DIN-B housing.

#### ATEX data for FlexTop™ 2221 Ex nA (2221-0003)

Approval	ATEX II 3G, Ex nA II T4/T5
Voltage supply range	$U_i: 8...30 \text{ V DC}$ , $I_i: <100 \text{ mA}$
Temperature class	T4: -20 < Tamb < 70°C T5: -20 < Tamb < 60°C

A FlexTop 2221-0003 may be mounted in hazardous areas in accordance with the current EU-directives.

The product must be mounted in a suitable enclosures fulfilling relevant requirement in EN 60 079-0 among these minimum IP54 ingress protection.

#### ATEX configuration with FlexProgrammer 9701

The FlexProgrammer 9701 configuring unit must be connected to the FlexTop 2221 or DFON outside the hazardous area.

Configuring procedure:

- Disconnect mains from the 4...20 mA loop circuit.
- Disconnect the FlexTop 2221 from the circuitry within the hazardous area.
- Bring the FlexTop 2221 to the safe area.
- Connect the FlexProgrammer 9701 and perform the configuring session.
- Reinstall the FlexTop 2221 in the hazardous area.
- Connect the power supply to the circuit.

**Manufacturer****EU Declaration of Conformity (EN)**

The undersigned declares on behalf of the manufacturer, that the products to which this declaration relates comply with all relevant provisions of the listed EU directives and are based on the specified standards.

**EU-Konformit  skelektivit   (DE)**

Der Unterzeichner erk  rt im Namen des Herstellers, dass die Produkte, auf die sich diese Erkl  rung bezieht, allen einschlie  igen Bestimmungen der aufgeführten EU-Richtlinien entsprechen und den angegebenen Normen zugrunde liegen.

**EC Deklaracija za sъответствие (BG)**

Допускането на производителя от името на производителя, че продуктът, за когото се отнася настоящата декларация, отговаря на съответните запоръки на избрани(те) от предвидените(и) ЕС и се основава на определената(те) стандарт(и).

**EU Prohl  seni prohl  sie (CZ)**

N  z  e podlejsem prohl  sie jmenem v  roby, na kter   je v  roba, na kter   se toto prohl  seni vztahuje, jsem v souladu se vsemi pravidlymi stanovenimi uvedenimi EU sm  rnice(s) (smernici) a vych  zeji z stanovenych norm.

**EU-Konformit  skelektivit   (DK)**

Undertecknade erk  rater p   producentens regne, at produkter som denne erk  ringsmeddelanden, overhoder till alla g  ldande bestemmelsener i eller de anf  rte EU-direktiv(er) f  g de angivne standard(er).

**Declaraci   de conformidad de la UE (ES)**

El abajo firmante en nombre del fabricante que los productos a los que afecta esta declaraci   cumplen con todas las disposiciones de la directiva o las directrices de la UE enumeradas y que la norma o normas indicadas han sido tomadas como base.

**EU-vatvaiuksiuusvaraukuts (FI)**

Aleksi joittaan vakuuttaa valmistajan puolesta, et  t tulee t  m  n kokee ovat kaikkien lueteltujen EU-direktiivien m  ist  kuijuviin m  ist  kuijuviin mukaisia. ja et  t ne perustuvat m  ist  kuijuviin standardieniin.

**D  claration de conformit   UE (FR)**

Le signataire d  clare au nom du fabricant que les produits auxquels cette d  claration fait r  f  rence sont conformes 脿 toutes les dispositions applicables de lades directive(s) UE mentionn  e(s) et satisfont 脿 l'affix norme(s) indiqu  e(s).

**Atifalutuun sijaintipuoleksiin EU (GR)**

O unterzeichneten Betriebs f  r die erkl  rung zu konformit  t mit der EU-Richtlinie, da die in den EU-Richtlinien enthaltenen Anforderungen, entsprechend den von der EU-konformit  tserkl  rung festgestellten Anforderungen, erkl  rt.

**EU-megfelel  s  gi nyilatkozat (HU)**

Ajánlott a gy  rt茅 nevezett k  lent, hogy a jelen nyilatkozatban megjel  lt termek a hivatalos EU-harcolt, EU-harcoltaknak minden vonatkoz艤 rendelkez  s  nek megfelelnek   s a meghatott jogszab  lyok szerint k  rtik elhelyez  re.

**Baumer A/S****Directives:** 2014/30/EU, 2014/34/EU, 2011/65/EU (incl. EU 2015/863)**Regulations (if applicable):** -**Standards / Technical Specifications:** -**Remarks:** X: any figures or letter or character**Notified body (if applicable):****Type examination certificate (if applicable):****Product group:** Electronic temperature measurement**Type(s):** 2221-0002,X;

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## 2221-0003,X;

**Product group:** Electronic temperature measurement**Type(s):** TUV Nord 0044**Product group:** Am TUV 1**Type examination certificate (if applicable):** TUV 07 ATEX 347/151 X**Product group:** Electronic temperature measurement**Type(s):** X: any figures or letter or character**Notified body (if applicable):****Type examination certificate (if applicable):****Product group:** Electronic temperature measurement**Type(s):** X: any figures or letter or character**Notified body (if applicable):****Type examination certificate (if applicable):****Product group:** Electronic temperature measurement**Type(s):** X: any figures or letter or character**Notified body (if applicable):****Type examination certificate (if applicable):****Product group:** Electronic temperature measurement**Type(s):** X: any figures or letter or character**Notified body (if applicable):****Type examination certificate (if applicable):****Product group:** Electronic temperature measurement**Type(s):** X: any 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