

# Safety Instructions


## Proline Promass 100

Modbus RS485

ATEX: II2G, II1/2G  
II2D

IECEX: Zone 1, Zone 0/1  
Zone 21



Document: XA00159D  
Safety instructions for electrical apparatus for explosion-hazardous areas according →  5

- BG - Правила за техниката на безопасност за електрически средства за производство във взривоопасни зони. Ако не разбирате езика на това ръководство има възможност да спорьчате при нас едно ръководство, преведено на езика на Вашата страна.  
**ЕС декларация за съответствие**  
Производителят Endress+Hauser декларира с това заявление за съответствие и с предявяването на сертификата CE, че този продукт отговаря на изискванията на съответните европейски директиви. Прилаганите директиви, норми и документи са указани в заявлението за съответствие.
- CS - Bezpečnostní pokyny pro elektrické přístroje v místech s nebezpečím výbuchu. Pokud nemáte možnost přečíst si tento návod, můžete si u nás objednat návod přeložený do svého jazyka.  
**EU prohlášení o shodě**  
Společnost Endress+Hauser prohlašuje prostřednictvím tohoto prohlášení a použitím značky CE, že tento výrobek vyhovuje příslušným evropským směrnícím. Zmíněné směrnice, normy a dokumenty jsou uvedeny v Prohlášení o shodě.
- DA - Sikkerhedsforskrifter for elektriske apparater certificeret til brug i eksplosionsfarlige områder. Hvis du ikke forstår denne manual, kan en oversat kopi af den på dit eget sprog bestilles fra os.  
**EU-overensstemmelseserklæring**  
Med denne overensstemmelseserklæring og tilføjelsen af CE-mærket sikrer producenten Endress+Hauser, at produktet er i overensstemmelse med relevante europæiske direktiver. Dokumentation for overensstemmelsen gives i de anførte direktiver, standarder og dokumenter.
- EL - Οδηγίες ασφαλείας ηλεκτρικών συσκευών για επικίνδυνες για έκρηξη περιοχές. Σε περίπτωση που δεν μπορείτε να διαβάσετε αυτές τις οδηγίες, τότε μπορείτε να παραγγείλετε ένα αντίτυπο μεταφρασμένο στη γλώσσα σας.  
**Δήλωση συμμόρφωσης ΕΕ**  
Με αυτή τη δήλωση πιστότητας και την τοποθέτηση του σήματος CE ο κατασκευαστής Endress+Hauser δηλώνει, ότι αυτό το προϊόν συμμορφώνεται με τις ευρωπαϊκές οδηγίες που πρέπει να εφαρμοστούν. Οι οδηγίες, τα πρότυπα και τα έγγραφα που εφαρμόστηκαν αναφέρονται στη δήλωση πιστότητας.
- ES - Instrucciones de seguridad de aparatos eléctricos homologados para su utilización en áreas expuestas a riesgos de deflagración. Si no entiende este manual, puede pedir un ejemplar en su idioma.  
**Declaración UE de conformidad**  
Por la presente declaración y la inclusión de la marca CE, el fabricante Endress+Hauser, declara que el producto cumple con las directivas europeas pertinentes. Las directivas, normas y documentos de aplicación se indican en la declaración de conformidad.
- ET - Ohutusjuhised plahvatusohtlikus keskkonnas kasutatavate elektriseadmete kohta. Kui Te ei saa käesolevast juhendist aru, võite meilt tellida Teie riigikeelde tõlgitud juhendi.  
**EL i vastavusdeklaratsioon**  
Tootja Endress+Hauser kinnitab juurdelisatud vastavusdeklaratsiooni esitamisega ja CE-märgise kandmisega tootele, et käesolev toode vastab kohaldatavale Euroopa Liidu direktiivide nõuetele. Kohaldatavad direktiivid, standardid ja dokumendid on ära toodud vastavusdeklaratsioonis.
- FI - Turvallisuusohjeita sähkölaitteille, jotka on vahvistettu käytettäväksi räjähdysvaarallisilla alueilla. Jos et ymmärrä tätä käsikirjaa, voit tilata meiltä käännöksen omalla kansallisella kielelläsi.  
**EU-vaatimustenmukaisuusvakuutus**  
Valmistaja Endress+Hauser vakuuttaa täällä vaatimustenmukaisuustodistuksella ja CE-merkin kiinnittämisellä, että tämä tuote täyttää sovellettavien EU-direktiivien määräykset. Sovellettavat direktiivit, normit ja dokumentit on merkitty vaatimustenmukaisuustodistukseen.
- HR - Sigurnosni naputci za elektromaterijal u sredini u kojoj prijete opasnost od eksplozije. Ako Vam nije moguće čitati ovaj naputak, onda imate mogućnost da kod nas naručite naputak sastavljen na Vašem materninskom jeziku.  
**EU izjava o sukladnosti**  
Dobavljajući Endress+Hauser jamči ovom izjavom i stavljanjem oznake CE da ovaj proizvod udovoljava zahtjevima europskih direktiva koje su na snazi. U izjavi o usuglašenosti se navode direktive, norme i dokumenti koji su na snazi.
- HU - Biztonsági információk robbanásveszélyes területre való elektromos eszközökhöz. Amennyiben nem tudja elolvasni ezt az útmutatót, akkor megrendelheti az Ön anyanyelvére lefordítva is.  
**EU-megfelelőségi nyilatkozat**  
Az Endress+Hauser mint gyártó jelen megfeleléségi nyilatkozattal és a CE-jelzés felhelyezésével kijelenti, hogy ez a termék megfelel az alkalmazandó európai irányelveknek. Az alkalmazott irányelvek, szabványok és dokumentumok a megfeleléségi nyilatkozatban fel vannak tüntetve.

IT - Istruzioni di sicurezza per apparecchiature elettriche certificate per l'utilizzo in aree con pericolo di esplosione. Se il presente manuale non risulta comprensibile potete ordinarne una copia tradotta nella vostra lingua.

#### Dichiarazione di conformità UE

Con questa dichiarazione e con l'applicazione del marchio CE, il costruttore Endress+Hauser, assicura che il prodotto è conforme alle direttive europee vigenti. Prova della conformità è fornita dall'osservanza delle direttive, delle norme e dei documenti elencati.

LT - Elektros įrenginio saugumo nurodymai, susiję su sprogimo zonomis. Jeigu negalite perskaityti šios instrukcijos, kreipkitės į mus, kad užsisakytumėte į jūsų gimtąją kalbą išverstą instrukciją.

#### ES atitikties deklaracija

Gamintojas Endress+Hauser šia atitikties deklaracija ir CE ženkliniu patvirtina, kad gaminys atitinka taikytinas ES direktyvas. Taikomos direktyvos, normos ir dokumentai yra pateikiami atitikties deklaracijoje.

LV - Drošības norādījumi elektrisko darba instrumentu lietošanai apgabalos, kas pakļauti sprādzienbīstamībai. Ja Jums nav iespēju izlasīt šos norādījumus, Jūs varat pasūtīt pie mums tulkojumus Jūsu valsts valodā.

#### ES atbilstības deklarācija

Ražotājs Endress+Hauser ar šo atbilstības apliecinājumu un CE zīmola lietojumu apstiprina, ka produkts izgatavots saskaņā ar atbilstošajām Eiropas vadlīnijām. Piemērotās vadlīnijas, normas un dokumenti atrunāti atbilstības apliecinājumā.

NL - Veiligheidsinstructies voor elektrisch materieel in explosiegevaarlijke omgeving. Wanneer u deze handleiding niet kunt lezen, kunt u een in uw landstaal vertaalde handleiding bij ons bestellen.

#### EU-conformiteitsverklaring

De leverancier Endress+Hauser waarborgt met deze verklaring en het aanbrengen van het CE-teken, dat dit product overeenstemt met de geldende Europese richtlijnen. De geldende richtlijnen, normen en documenten zijn aangegeven in de conformiteitsverklaring.

PL - Wskazówki dot. bezpieczeństwa dla urządzeń elektrycznych stosowanych w obszarze zagrożonym wybuchem. Jeśli niniejsza instrukcja napisana jest w języku, którym się nie posługujesz, możesz zamówić u nas przetłumaczony dokument.

#### Deklaracja zgodności UE

Producent Endress+Hauser w niniejszej deklaracji zgodności wraz z nadaniem znaku CE oświadcza, że produkt ten jest zgodny z obowiązującą Europejską Dyrektywą. Zastosowane wytyczne, normy oraz dokumenty podane są w deklaracji zgodności.

PT - Instruções de segurança para dispositivos eléctricos certificados para utilização em áreas de risco de incêndio. Se não compreender este manual, pode encomendar-nos directamente uma cópia na sua língua.

#### Declaração UE de conformidade

Com esta declaração de conformidade e a aplicação da marca CE, o fabricante Endress+Hauser, garante que o produto obedece às directivas europeias a aplicar. As directivas, normas e documentos são apresentadas na declaração de conformidade.

RO - Indicații de siguranță pentru mijloacele de producție electrice pentru zonele periclitare de explozie. Dacă nu puteți citi aceste instrucțiuni, atunci puteți comanda la noi instrucțiunile traduse în limba țării dumneavoastră.

#### Declarația UE de conformitate

Producătorul Endress+Hauser declară prin declarația de conformitate alăturată și prin aplicarea semnelui CE că acest produs corespunde directivelor europene aplicabile. Directivele, normele aplicate și documentele sunt menționate în declarația de conformitate.

SK - Bezpečnostné pokyny pre elektrické zariadenie prevádzkované v priestoroch s nebezpečenstvom výbuchu. Ak nemáte možnosť 'prečítať' si tento návod, môžete si u nás objednať 'návod preložený do svojho jazyka.

#### EÚ vyhlásenie o zhode

Spoločnosť Endress+Hauser vyhlasuje prostredníctvom tohto vyhlásenia o konformite a použitím značky CE, že tento výrobok vyhovuje príslušným európskym smerniciam. Zmieňované smernice, normy a dokumenty sú uvedené vo Vyhlásení o konformite.

SL - Varnostni napotki glede električne opreme, namenjene za uporabo v eksplozivnih območjih. Če teh navodil ne morete razumeti, lahko pri nas naročite prevod v vaš jezik.

#### Izjava EU o skladnosti

Proizvajalec Endress+Hauser s to izjavo o skladnosti in navedbo oznake CE izjavlja, da je ta izdelek skladen s predpisanimi evropskimi smernicami. Upoštewane smernice, standardi in dokumenti so navedeni v izjavi o skladnosti.

SV - Säkerhetsföreskrifter för elektrisk utrustning certifierad för användning i explosionsfarliga områden. Om du inte förstår denna manual, kan en översatt kopia på ditt eget språk beställas från oss.

#### EU-försäkran om överensstämmelse

Endress+Hauser försäkras med vidstående försäkran om överensstämmelse och med CE-märkningen att denna produkt överensstämmer med de tillämpbara europeiska riktlinjerna. De tillämpade riktlinjerna, normerna och dokumenten anges i försäkran om överensstämmelse.



# Proline Promass 100

Modbus RS485

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## Associated documentation

All documentation is available:

- On the CD-ROM supplied (not included in the delivery for all device versions).
- Available for all device versions via:
  - Internet: [www.endress.com/deviceviewer](http://www.endress.com/deviceviewer)
  - Smart phone/tablet: *Endress+Hauser Operations App*
- In the Download Area of the Endress+Hauser web site: [www.endress.com](http://www.endress.com) → Download

This document is an integral part of the following Operating Instructions:

Measuring device	Modbus RS485
Promass A 100	BA01179D
Promass E 100 (8E1B**-...)	BA01056D
Promass E 100 (8E1C**-...)	BA01711D
Promass F 100	BA01057D
Promass G 100	BA01345D
Promass H 100	BA01177D
Promass I 100	BA01058D
Promass O 100	BA01180D
Promass P 100	BA01059D
Promass S 100	BA01060D
Promass X 100	BA01181D

### Additional documentation

Contents	Document type	Documentation code
Explosion Protection	Brochure	CP00021Z/11

Please note the documentation associated with the device.

## Manufacturer's certificates

### EU Declaration of conformity

Documentation code: EC\_00241

### EU type-examination certificate

Certificate number:

DEKRA 12ATEX0148

## IEC Certificate of Conformity

Certificate number:

IECEX DEK 12.0041

Affixing the certificate number certifies conformity with the standards under [www.IECEX.com](http://www.IECEX.com) (depending on the device version).

- IEC 60079-0: 2011
- IEC 60079-11: 2011
- IEC 60079-15: 2010
- IEC 60079-26: 2014
- IEC 60079-31: 2013

### Manufacturer address

Endress+Hauser Flowtec AG  
Kägenstrasse 7  
4153 Reinach BL  
Switzerland

### Extended order code

The extended order code is indicated on the nameplate, which is affixed to the device in such a way that it is clearly visible. Additional information about the nameplate is provided in the associated Operating Instructions.

### Structure of the extended order code

*****	-	***** ... *****	+	A*B*C*D*E*F*G*...
<i>(Device type)</i>		<i>(Basic specifications)</i>		<i>(Optional specifications)</i>

\* = Placeholder  
At this position, an option (number or letter) selected from the specification is displayed instead of the placeholders.

#### *Device type*

The device and the device design is defined in the "Device type" section (Product root).

#### *Basic specifications*

The features that are absolutely essential for the device (mandatory features) are specified in the basic specifications. The number of positions depends on the number of features available. The selected option of a feature can consist of several positions.

### *Optional specifications*

The optional specifications describe additional features for the device (optional features). The number of positions depends on the number of features available. The features have a 2-digit structure to aid identification (e.g. JA). The first digit (ID) stands for the feature group and consists of a number or a letter (e.g. J = Test, Certificate). The second digit constitutes the value that stands for the feature within the group (e.g. A = 3.1 material (wetted parts), inspection certificate).

More detailed information about the device is provided in the following tables. These tables describe the individual positions and IDs in the extended order code which are relevant to hazardous locations.

### **Device type**

Position	Order code for	Option selected	Description
1	Instrument family	8	Coriolis flowmeter
2	Sensor	A, E, F, G, H, I, O, P, S, X	Sensor type
3	Transmitter	1	Transmitter type: 4-wire, compact version
4	Generation index	B, C	Platform generation
5, 6	Nominal diameter	DN 1 ... 350 DN 1: 01 DN 2: 02 ... DN 350: 3E, 3F, 3R	Nominal diameter of sensor



### Basic specifications

Position	Order code for	Option selected	Device type		Type of protection		
			Position 2 Sensor	Position 5, 6 Nominal diameter	Transmitter Sensor	Safety Barrier Promass 100	
1, 2	Approval	BM, 85	A	01, 02, 04	Ex ia IIC T6...T1 Gb Ex tb IIIC Txx °C Db	Ex nA  ia Ga  IIC T4 Gc	
			E, F	08, 15, 25, 40, 50			
			G	08, 15, 25			
			H, S, P	08, 15, 25, 40			
			I	08, 15, 16, 25, 26, 40			
			E	80			Ex ia IIB T6...T1 Gb Ex tb IIIC Txx °C Db
			F, O	80, 1H, 1F, 2F			
			H, P, S	50			
			I	41, 50, 51, 80			
			X	3F			
		BN, 84	E	80	Ex ia IIC T6...T1 Gb Ex tb IIIC Txx °C Db		
			F, O	80, 1H, 1F, 2F			
			H, P, S	50			
			I	41, 50, 51, 80			
			X	3F			
		BU	A	01, 02, 04	Ex ia IIC T6...T1 Gb		
				E, F			08, 15, 25, 40, 50
				G			08, 15, 25
				H, S, P			08, 15, 25, 40
				I			08, 15, 16, 25, 26, 40
			E	80	Ex ia IIB T6...T1 Gb		
				F, O			80, 1H, 1F, 2F
				H, P, S			50
				I			41, 50, 51, 80
X	3F						

Position	Order code for	Option selected	Device type		Type of protection				
			Position 2 Sensor	Position 5, 6 Nominal diameter	Transmitter Sensor	Safety Barrier Promass 100			
		BV	E	80	Ex ia IIC T6...T1 Gb				
			F, O	80, 1H, 1F, 2F					
			H, P, S	50					
			I	41, 50, 51, 80					
			X	3F					
		BO	F	08, 15, 25, 40, 50	Ex ia IIC T6...T1 Ga/Gb Ex tb IIIC Txx °C Db				
			F, O	80, 1H, 1F, 2F	Ex ia IIB T6...T1 Ga/Gb Ex tb IIIC Txx °C Db				
			X	3F					
		BP	F, O	80, 1H, 1F, 2F	Ex ia IIC T6...T1 Ga/Gb Ex tb IIIC Txx °C Db				
			X	3F					
		BQ	F	08, 15, 25, 40, 50	Ex ia IIC T6...T1 Ga/Gb				
			F, O	80, 1H, 1F, 2F	Ex ia IIB T6...T1 Ga/Gb				
			X	3F					
		BR	F, O	80, 1H, 1F, 2F	Ex ia IIC T6...T1 Ga/Gb				
			X	3F					
		Txx °C für Gruppe IIIC (Staub) → 13							

Position	Order code for	Option selected	Description
3	Output, input	M	Modbus RS485
4	Display; Operation	A	W/o; via communication
5	Housing	A	Compact, alu, coated
		B	Compact hygienic, stainless
		C	Ultra compact hygienic, stainless
13, 14	Device Model <sup>1)</sup>	A1	1

1) Order code for "Device model" only for measuring devices with product code 8E1C

### Optional specifications

ID	Order code for	Option selected	Description
Jx	Test, certificate	JM	Ambient temperature, transmitter-50 °C

**Safety instructions:**  
**General**

- Staff must meet the following conditions for mounting, electrical installation, commissioning and maintenance of the device:
  - Be suitably qualified for their role and the tasks they perform
  - Be trained in explosion protection
  - Be familiar with national regulations or guidelines (e.g. IEC/EN 60079-14 )
- Install the device according to the manufacturer's instructions and national regulations.
- Do not operate the device outside the specified electrical, thermal and mechanical parameters.
- Only use the device in media to which the wetted materials have sufficient durability.
- Refer to the temperature tables for the relationship between the permitted ambient temperature for the sensor and/or transmitter, depending on the range of application, and the temperature classes.
- Modifications to the device can affect the explosion protection and must be carried out by staff authorized to perform such work by Endress+Hauser.
- When using in hybrid mixtures (gas and dust occurring simultaneously), observe additional measures for explosion protection.
- Observe all the technical data of the device (see nameplate).
- Avoid electrostatic charge (e.g. caused by friction, cleaning, maintenance, strong currents in the medium):  
on the attached stainless steel nameplate and on painted metallic housings that are not integrated into the local potential equalization system

**Safety instructions:**  
**Installation**

In the event of potentially explosive vapor/air mixtures, only operate the device under atmospheric conditions.

- Temperature: -20 to +60 °C
- Pressure: 80 to 110 kPa (0.8 to 1.1 bar)
- Air with normal oxygen content, usually 21 % (V/V)

If no potentially explosive mixtures are present, or if additional protective measures have been taken according to EN 1127-1, the device may also be operated under non-atmospheric conditions in accordance with the manufacturer's specifications.

- Safety Barrier Promass 100
  - The device may only be used with the safety barrier supplied.
  - The safety barrier may only be installed in a non-hazardous area or Zone 2. If the safety barrier is installed in Zone 2, it must be installed in a housing. The housing must meet the requirements of IEC/EN 60079-15.
  - The connecting cable and installation between the safety barrier and device must meet the requirements of IEC/EN 60079-14.
- Only use certified cable entries and connection plugs M12×1 suitable for the application. Please comply with the selection criteria as defined in IEC/EN 60079-14.
- Continuous service temperature of the connecting cable:
  - 40 to +80 °C (–50 to +80 °C for optional specifications, ID Jx (test, certificate) = JM); however, at least in accordance with the range of service temperature taking into account additional influences of the process conditions ( $T_{a,min}$  and  $T_{a,max} + 20$  K).
- Supplied cable glands M20 × 1.5 are only suitable for fixed installation of cables and connections. In the installation, a strain relief must be provided.

*Basic specification, order code for "Housing", option B, C*

To protect the housing of stainless steel housings: Ensure that the housing gasket is flat and not bent when closing the housing cover. Replace bent gaskets.

### **Intrinsic safety**

- The device can be connected to the Endress+Hauser FXA291 service tool: refer to the Operating Instructions.
- Observe the guidelines for interconnecting intrinsically safe circuits (e.g. IEC/EN 60079-14 , Proof of Intrinsic Safety).
- Observe the connection values when selecting the connection cable between Safety Barrier Promass 100 and the measuring device .

### **Potential equalization**

- Integrate the device into the local potential equalization .
- If the ground connection has been established via the pipe as specified, it is also possible to integrate the sensor into the potential equalization system via the pipe.

### **Safety instructions: Zone 0**

*Basic specification, position 1, 2 (Approval) = BO, BP, BQ, BR*

The intrinsically safe version of the device can be used in the measuring pipe in Zone 0.

**Safety instructions:**  
**Zone 21**

- To ensure dust-tightness, securely seal the transmitter housing, cable entries and sealing plugs.
- Only open the transmitter housing briefly, ensuring that no dust or moisture enters the housing.
- The metal extensions and blind plugs supplied are tested and certified as part of the enclosure for explosion protection Ex tb IIIC. Plastic sealing plugs in extensions act as transport protection and have to be replaced by suitable, individually approved installation material. Supplied cable glands are separately certified and marked as components and meet device specification requirements.

**Temperature tables**

**Ambient temperature**

Minimum ambient temperature:

- $T_a = -40\text{ °C}$
- *Optional specification, ID Jx (Test, Certificate) = JM*  
 $T_a = -50\text{ °C}$

Maximum ambient temperature:

$T_a = +60\text{ °C}$  depending on the medium temperature and temperature class

**Medium temperature**


*Minimum medium temperature*

- Promass A, F, G, H, I, P, S, X:  
 $T_m = -50\text{ °C}$
- Promass E, O:  
 $T_m = -40\text{ °C}$

*Maximum medium temperature*

$T_m$  for T6...T1 depending on the maximum ambient temperature  $T_a$

**Compact version**

Temperature values in brackets | | correspond to  $T_{xx}\text{ °C}$  for Group IIIC (dust). →  14

*Basic specifications, position 5 (housing) = A, B*

T <sub>a</sub> [°C]	T6 [85 °C]	T5 [100 °C]	T4 [135 °C]	T3 [200 °C]	T2 [300 °C]	T1 [450 °C]
35	50	85	120	150 <sup>1) 2)</sup>	150 <sup>1) 3) 4)</sup>	150 <sup>1) 3) 4)</sup>
50	–	85	120	150 <sup>1) 2)</sup>	150 <sup>1) 3) 4)</sup>	150 <sup>1) 3) 4)</sup>
60	–	–	120	150 <sup>1) 2)</sup>	150 <sup>1) 3) 4)</sup>	150 <sup>1) 3) 4)</sup>

- 1) The medium temperature for Promass 8E1B\*\*... is limited to T<sub>m</sub> = 140 °C.
- 2) The following applies to specified sensors with a maximum medium temperature T<sub>m</sub> = 205 °C: T<sub>m</sub> = 170 °C
- 3) The following applies to specified sensors with a maximum medium temperature T<sub>m</sub> = 205 °C: T<sub>m</sub> = 205 °C
- 4) Maximum medium temperature = 240 °C for Promass F version with maximum T<sub>m</sub> = 240 °C. For medium temperature above 205 °C, the transmitter shall not be installed above the sensor.

*Basic specifications, position 5 (housing) = C*

T <sub>a</sub> [°C]	T6 [85 °C]	T5 [100 °C]	T4 [135 °C]	T3 [200 °C]	T2 [300 °C]	T1 [450 °C]
35	50	85	120	150 <sup>1) 2)</sup>	150 <sup>1) 3) 4)</sup>	150 <sup>1) 3) 4)</sup>
45	–	85	120	150 <sup>1) 2)</sup>	150 <sup>1) 3) 4)</sup>	150 <sup>1) 3) 4)</sup>
50	–	–	120	150 <sup>1) 2)</sup>	150 <sup>1) 3) 4)</sup>	150 <sup>1) 3) 4)</sup>

- 1) The medium temperature for Promass 8E1B\*\*... is limited to T<sub>m</sub> = 140 °C.
- 2) The following applies to specified sensors with a maximum medium temperature T<sub>m</sub> = 205 °C: T<sub>m</sub> = 170 °C
- 3) The following applies to specified sensors with a maximum medium temperature T<sub>m</sub> = 205 °C: T<sub>m</sub> = 205 °C
- 4) Maximum medium temperature = 240 °C for Promass F version with maximum T<sub>m</sub> = 240 °C. For medium temperature above 205 °C, the transmitter shall not be installed above the sensor.

### Explosion hazards arising from gas and dust

#### Determining the temperature class and surface temperature with the temperature table

- In the case of gas: Determine the temperature class as a function of the maximum ambient temperature T<sub>a</sub> and the maximum medium temperature T<sub>m</sub>.
- In the case of dust: Determine the maximum surface temperature as a function of the maximum ambient temperature T<sub>a</sub> and the maximum medium temperature T<sub>m</sub>.

#### Example

- Measured maximum ambient temperature: T<sub>ma</sub> = 47 °C
- Measured maximum medium temperature: T<sub>mm</sub> = 108 °C

	Ta [°C]	T6 [85°C]	T5 [100°C]	T4 [135°C]	T3 [200°C]	T2 [300°C]	T1 [450°C]
	35	50	85	120	140	140	140
	50	-	85	120	140	140	140
	60	-	-	120	140	140	140
	35	50	85	120	140	140	140
	45	-	85	120	140	140	140
	50	-	-	120	140	140	140

4.

1. 2. 3.

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1 Procedure for determining the temperature class and surface temperature

1. Select device (optional).
2. In the column for the maximum ambient temperature  $T_a$  select the temperature that is immediately greater than or equal to the maximum ambient temperature  $T_{ma}$  that is present.
  - ↳  $T_a = 50^\circ\text{C}$ .  
The row showing the maximum medium temperature is determined.
3. Select the maximum medium temperature  $T_m$  of this row, which is immediately greater than or equal to the maximum medium temperature  $T_{mm}$  that is present.
  - ↳ The column with the temperature class for gas is determined:  
 $108^\circ\text{C} \leq 120^\circ\text{C} \rightarrow T_4$ .
4. The maximum temperature of the temperature class determined corresponds to the maximum surface temperature for dust:  $T_4 = 135^\circ\text{C}$ .

**Connection  
values: Signal  
circuits**

The following tables contain specifications which are dependent on the transmitter type and its input and output assignment. Compare the following specifications with those on the nameplate of the transmitter.

**Terminal assignment***Transmitter*

The order code constitutes part of the extended order code. For detailed information on the device features and the structure of the extended order code →  7.



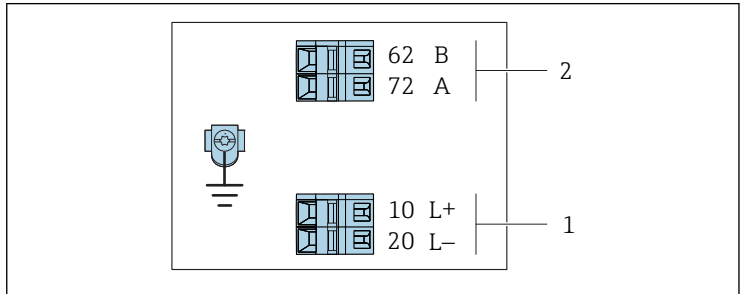
*Modbus RS485 connection version*



For use in the intrinsically safe area. Connection via Safety Barrier Promass 100.

Order code for "Output", option **M**

Depending on the housing version, the transmitters can be ordered with terminals or device plugs.



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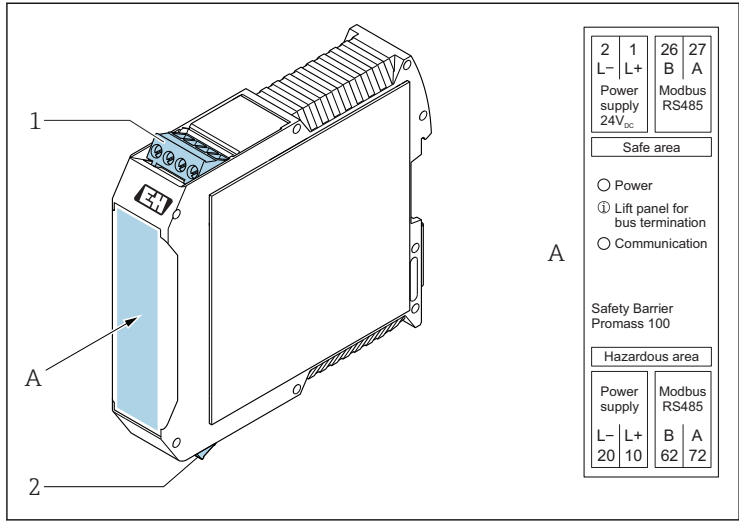
**2** *Modbus RS485 terminal assignment, connection version for use in intrinsically safe areas (connection via Safety Barrier Promass 100)*

**1** *Intrinsically safe power supply*

**2** *Modbus RS485*

Order code "Output"	10 (L+)	20 (L-)	62 (B)	72 (A)
Option <b>M</b>	Intrinsically safe supply voltage		Modbus RS485 intrinsically safe	
Order code for "Output": Option <b>M</b> : Modbus RS485, for use in the intrinsically safe area (connection via Safety Barrier Promass 100)				

Safety Barrier Promass 100



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3 Safety Barrier Promass 100 with terminals

- 1 Non-hazardous area, Zone 2
- 2 Intrinsically safe area

**Intrinsically safe values**

These values only apply for the following device version:  
 Order code for "Output", option M "Modbus RS485", for use in  
 intrinsically safe areas

Safety Barrier Promass 100

Safety-related values

Terminal numbers			
Supply voltage		Signal transmission	
2 (L-)	1 (L+)	26 (B)	27 (A)
$U_{nom} = DC\ 24\ V$ $U_{max} = AC\ 260\ V$		$U_{nom} = DC\ 5\ V$ $U_{max} = AC\ 260\ V$	

*Intrinsically safe values*

Terminal numbers			
Supply voltage		Signal transmission	
20 (L-)	10 (L+)	62 (B)	72 (A)
$U_o = 16.24 \text{ V}$ $I_o = 623 \text{ mA}$ $P_o = 2.45 \text{ W}$ With IIC <sup>1)</sup> : $L_o = 92.8 \text{ } \mu\text{H}$ , $C_o = 0.433 \text{ } \mu\text{F}$ , $L_o/R_o = 14.6 \text{ } \mu\text{H}/\Omega$ With IIB: $L_o = 372 \text{ } \mu\text{H}$ , $C_o = 2.57 \text{ } \mu\text{F}$ , $L_o/R_o = 58.3 \text{ } \mu\text{H}/\Omega$			

1) The gas group depends on the sensor and nominal diameter → 8ff.

*Transmitter*

*Intrinsically safe values*

Terminal numbers			
Supply voltage		Signal transmission	
20 (L-)	10 (L+)	62 (B)	72 (A)
$U_i = 16.24 \text{ V}$ $I_i = 623 \text{ mA}$ $P_i = 2.45 \text{ W}$ $L_i = 0 \text{ } \mu\text{H}$ $C_i = 6 \text{ nF}$			

**Pin assignment, device plug**

*Device plug for signal transmission with supply voltage (device side), MODBUS RS485 (intrinsically safe)*

<p style="text-align: center; font-size: small;">A0029042</p>	Pin	Assignment		
	1	L+	Supply voltage, intrinsically safe	
	2	A	Modbus RS485 intrinsically safe	
	3	B		
	4	L-	Supply voltage, intrinsically safe	
5		Grounding/shielding		
Coding	Plug/socket			
A	Plug			

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