

Safety instructions

IPT-2*, CPT-2*

GB

Intrinsic safety

4 ... 20 mA

4 ... 20 mA/HART

4 ... 20 mA/HART SIL

Profibus PA

Foundation Fieldbus

Secondary Sensor for electronic differential pressure measurement (SIL)

Additional current output



CE 0158



IPT-2*, CPT-2*



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Supplementary documentation:

- Operating Instructions IPT-2*, CPT-2*
- Short Operating Instructions IPT-2*, CPT-2*
- EU-type approval certificate TÜV 18 ATEX 217855 X (Document ID: 57431)
- SIL Safety Manual (Document ID: 56038)

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DE	Sicherheitshinweise für den Einsatz in explosionsgefährdeten Bereichen
EN	Safety instructions for the use in hazardous areas
FR	Consignes de sécurité pour une application en atmosphères explosibles
IT	Normative di sicurezza per l'impiego in luoghi con pericolo di esplosione
ES	Instrucciones de seguridad para el empleo en áreas con riesgo de explosión
PT	Normas de segurança para utilização em zonas sujeitas a explosão
NL	Veiligheidsaanwijzingen voor gebruik op plaatsen waar ontploffingsgevaar kan heersen
SV	Säkerhetsanvisningar för användning i explosionsfarliga områden
DA	Sikkerhedsforskrifter til anvendelse i explosionsfarlig atmosfære
FI	Turvallisuusohjeet räjähdyksvaarallisissa tiloissa käyttööä varten
EL	Υποδείξεις ασφαλείας για τη χρησιμοποίηση σε περιοχές που υπάρχει κίνδυνος έκρηξης

DE	Die vorliegenden Sicherheitshinweise sind in den Sprachen deutsch, englisch, französisch und spanisch verfügbar. Weitere EU-Landessprachen stellt der Hersteller nach Anforderungen zur Verfügung.
EN	The present safety instructions are available in German, English, French and Spanish. Further EU languages will be provided by the manufacturer upon request.
FR	Les présentes consignes de sécurité sont disponibles dans les langues allemand, anglais, français et espagnol. Le fabricant met d'autres langues de l'Union Européenne à disposition en fonction des demandes.
ES	Las presentes instrucciones de seguridad están disponibles en los idiomas alemán, inglés, francés y español. El fabricante pone a disposición según demanda otros idiomas nacionales de la UE.

1 Area of applicability

These safety instructions apply to the process transmitters IPT-2*-*/1/2* und CPT-2*-*/1/2* with integrated output signal IPT-2* oder CPT-2*-***-****Z-A/H/S/P/F/R/T-*****-*****-***-**, A (4 ... 20 mA), H (4 ... 20 mA/HART), S (4 ... 20 mA/HART with SIL qualification), P (Profibus PA), F (Foundation Fieldbus), R, T (differential pressure measurement) without supplementary electronics (Z) according to EU type approval certificate TÜV 18 ATEX 217855 X (certificate number on the type label) and for all instruments with the number of the safety instruction (57430) on the type label.

2 General information

The pressure-based measuring instruments IPT-2*-*/1/2*, CPT-2*-*/1/2* are also used for pressure and level measurement in hazardous areas.

The measured products can also be combustible liquids, gases, mist or vapour.

The IPT-2*-*/1/2*, CPT-2*-*/1/2* consist of an electronics housing with integrated electronics module, a process connection element and a sensor, the pressure measuring cell with optionally connected chemical seal. As an option, the display and adjustment module can also be mounted.

The IPT-2*-*/1/2*, CPT-2*-*/1/2* are suitable for use in hazardous atmospheres of all combustible materials of explosion group IIA, IIB and IIC for applications requiring instruments of category 1G, category 1/2G or category 2G.

If the IPT-2*-*/1/2*, CPT-2*-*/1/2* are installed and operated in hazardous areas, the general Ex installation regulations EN 60079-14 as well as these safety instructions must be observed.

The operating instructions as well as the installation regulations and standards that apply for explosion protection of electrical systems must always be observed.

The installation of explosion-endangered systems must always be carried out by qualified personnel.

Category 1G instrument (EPL Ga instrument)

The IPT-2*-*/1/2*, CPT-2*-*/1/2* are installed in hazardous areas requiring instruments of category 1G.

Category 1/2G instrument (EPL Ga/Gb instrument)

The process connection element is installed in the separating wall, which separates areas in which instruments of category 2G or 1G are required. The electronics housing is installed in hazardous areas requiring instruments of category 2G. The sensor is installed in hazardous areas requiring instruments of category 1G.

Category 2G instrument (EPL Gb instrument)

The IPT-2*-*/1/2*, CPT-2*-*/1/2* are installed in hazardous areas requiring instruments of category 2G.

Type of protection marking:

II 1G, 1/2G, 2G Ex ia IIC T6 ... T1 Ga, Ga/Gb, Gb

3 Specific conditions of use ("X" identification)

- There is a risk of ignition due to electrostatic discharge on the plastic parts of the process transmitters, see also chapter "*Protection against the risk of static electricity*".
- For EPL Ga or EPL Ga/Gb applications, there is a risk of ignition due to impact or friction on the metallic parts of the process transmitters made of light metal, see also chapter "*Impact and friction sparks*".
- For EPL Ga or EPL Ga/Gb applications and in case of hazards due to swinging or oscillation, the corresponding parts of the process transmitters must be effectively secured against these hazards, see also chapter "*Installation/Mounting*".

- For EPL Ga or EPL Ga/Gb applications the wetted materials of the process transmitters must be resistant against these media, see also chapter "*Material resistance*".
- For the version with separate housing of the process transmitter, potential equalisation must exist in the entire area of the installation of the connecting cable between the electronics housing and the sensor housing, see also chapter "*Installation of the IPT-2* and CPT-2* with separate housing*".

4 Technical data

Version with single chamber housing A, K, V or 8, IPT-2*-*I/2*, CPT-2*-*I/2* with selected output signal IPT-2* or CPT-2*-*A/K/V/8**-A/H/S*-*-----*-*-**, A (4 ... 20 mA), H (4 ... 20 mA/HART) or S (4 ... 20 mA/HART with SIL qualification)**

Supply and signal circuit: (terminals 1[+], 2[-] in the "Ex i" electronics compartment or plug connection)	In type of protection intrinsic safety Ex ia IIC/IIB Only for connection to a certified, intrinsically safe circuit. Maximum values: • $U_i = 30 \text{ V}$ • $I_i = 131 \text{ mA}$ • $P_i = 983 \text{ mW}$ The effective internal capacitance C_i is negligibly small. In the version with permanently mounted connection cable, $C_{i \text{ wire/wire}} = 150 \text{ pF/m}$ and $C_{i \text{ wire/screen}} = 270 \text{ pF/m}$ must be taken into account. The effective inner inductance L_i is $L_i \leq 5 \mu\text{H}$. In the version with permanently mounted connection cable, $L_i = 0.62 \mu\text{H/m}$ must also be taken into account.
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Version with double chamber housing D, W or R, IPT-2*-*I/2*, CPT-2*-*I/2* with selected output signal IPT-2* or CPT-2*-*D/W/R**-A/H/S*-*-----*-*-**, A (4 ... 20 mA), H (4 ... 20 mA/HART) or S (4 ... 20 mA/HART with SIL qualification)**

Power supply and signal circuit: (terminal 1[+], 2[-] in the "Ex i" connection compartment)	In type of protection intrinsic safety Ex ia IIC/IIB Only for connection to a certified, intrinsically safe circuit. Maximum values: • $U_i = 30 \text{ V}$ • $I_i = 131 \text{ mA}$ • $P_i = 983 \text{ mW}$ The effective internal capacitance C_i is negligibly small. In the version with permanently mounted connection cable, $C_{i \text{ wire/wire}} = 150 \text{ pF/m}$ and $C_{i \text{ wire/screen}} = 270 \text{ pF/m}$ must be taken into account. The effective inner inductance L_i with the double chamber version is $L_i \leq 10 \mu\text{H}$. In the version with permanently mounted connection cable, $L_i = 0.62 \mu\text{H/m}$ must also be taken into account.
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IPT-2*-*/I/2*, CPT-2*-*/I/2*selected output signal IPT-2* or CPT-2*-*-*****-A/
H/S*-*****-*****-***-**, A (4 ... 20 mA), H (4 ... 20 mA/HART) or S (4 ... 20 mA/HART with
SIL qualification)**

Indicating and adjustment circuit: (terminals 5, 6, 7, 8)¹⁾²⁾³⁾

In type of protection intrinsic safety Ex ia IIC

For connection to the intrinsically safe circuit of the corresponding external display and adjustment unit DI-PT-E* or for connection of a IPT-2* or CPT-2* with selected output signal IPT-2* or CPT-2*-***-*****-R/T*-*****-*****-***-**, R or T for differential pressure measurement.

The rules for the interconnection of intrinsically safe circuits between IPT-2*-*/I/2*, CPT-2*-*/I/2* and the external display and adjustment unit DI-PT-E* or IPT-2* or CPT-2* with selected output signal IPT-2* or CPT-2*-***-*****-R/T*-*****-*****-***-**, R or T are fulfilled, provided that the total inductance and total capacitance of the connection cable between IPT-2*-*/I/2*, CPT-2*-*/I/2* and the external display and adjustment unit DI-PT-E* or IPT-2* oder CPT-2* with selected output signal IPT-2* or CPT-2*-***-*****-R/T*-*****-*****-***-**, R or T $L_{\text{cable}} = 330 \mu\text{H}$ and $C_{\text{cable}} = 1.98 \mu\text{F}$ are not exceeded.

When using the delivered connection cable between IPT-2*-*/I/2*, CPT-2*-*/I/2* and the external display and adjustment unit DI-PT-E* or IPT-2* or CPT-2* with selected output signal IPT-2* or CPT-2*-***-*****-R/T*-*****-*****-***-**, R or T, the following listed cable inductances L_i and cable capacitances C_i must be taken into account.

- $L_i = 0.62 \mu\text{H/m}$
- $C_{i \text{ wire/wire}} = 150 \text{ pF/m}$
- $C_{i \text{ wire/screen}} = 270 \text{ pF/m}$

- ¹⁾ In the "Ex i" electronics compartment with IPT-2* or CPT-2*-***-A/K/V/8*-*****-*****-*****-***-** in version with single chamber housing A, K, V or 8.
- ²⁾ In the "Ex i" connection compartment with IPT-2* or CPT-2*-***-D/W/R*-*****-*****-*****-***-** in version with double chamber housing D, W or R.
- ³⁾ Additional plug connection with IPT-2* or CPT-2*-***-D/W/R*-*****-*****-*****-***-** in version with double chamber housing D, W, R and housing version/protection P, IPT-2* or CPT-2*-***-D/W/RP*-*****-*****-*****-***-**, (with M12 x 1 for DI-PT-E*).

Intrinsically safe circuit for the display and adjustment module

Version with single chamber housing A, K, V or 8, IPT-2*-I/2*, CPT-2*-I/2* with selected output signal IPT-2* or IPT-2*.-*-A/K/V/8****-A/H/S*.-*****-*****-***-**, A (4 ... 20 mA), H (4 ... 20 mA/HART) or S (4 ... 20 mA/HART with SIL qualification)**

Circuit for the display and adjustment module: (spring contacts in the "Ex i" electronics compartment)

In type of protection intrinsic safety Ex ia IIC

Only for connection to the display and adjustment module DI-PT-A.

Version with double chamber housing D, W or R, IPT-2*-I/2*, CPT-2*-I/2* with selected output signal IPT-2* or IPT-2*.-*-D/W/R****-A/H/S*.-*****-*****-***-**, A (4 ... 20 mA), H (4 ... 20 mA/HART) or S (4 ... 20 mA/HART with SIL qualification)**

Circuit for the display and adjustment module: (spring contacts in the "Ex i" connection compartment)

In type of protection intrinsic safety Ex ia IIC

Only for connection to the display and adjustment module DI-PT-A.

or

Circuit for the display and adjustment module: (spring contacts in the "Ex i" electronics compartment)

In type of protection intrinsic safety Ex ia IIC

Only for connection to the display and adjustment module DI-PT-A.

In the double chamber version, the display and adjustment module DI-PT-A must only be equipped in the connection compartment, if there is no external display and adjustment unit DI-PT-E* or IPT-E* or CPT-E* with selected output signal IPT-2* or CPT-2*.-***-*****-R/T*.-*****-*****-***-**, R, T connected.

Version with double chamber housing D, W or R with housing version/protection P (with M12 x 1 for DI-PT-E), IPT-2*-I/2*, CPT-2*-I/2* with selected output signal CPT-2* or IPT-2*.-*-D/W/R****-A/H/S*.-*****-*****-***-**, A (4 ... 20 mA), H (4 ... 20 mA/HART) or S (4 ... 20 mA/HART with SIL qualification)**

Circuit for the display and adjustment module: (spring contacts in the "Ex i" connection compartment)

In type of protection intrinsic safety Ex ia IIC

Only for connection to the display and adjustment module DI-PT-A.

In the double chamber version, the display and adjustment module DI-PT-A must only be equipped in the connection compartment, if there is no external display and adjustment unit DI-PT-E* or IPT-E* or CPT-E* with selected output signal IPT-2* or CPT-2*.-***-*****-R/T*.-*****-*****-***-**, R, T connected.

Version with single chamber housing A, K, V or 8, IPT-2*-1/2*, CPT-2*-1/2* with selected output signal IPT-2* or CPT-2*-*-A/K/V/8****-P/F*-*****-***-**, P (Profibus PA), F (Foundation Fieldbus)**

Supply and signal circuit: (terminals 1[+], 2[-] in the "Ex i" electronics compartment or plug connection)

In type of protection intrinsic safety Ex ia IIC/IIB

Only for connection to a certified, intrinsically safe circuit.

Maximum values:

- $U_i = 17.5 \text{ V}$
- $I_i = 500 \text{ mA}$
- $P_i = 5.5 \text{ W}$

The instrument is suitable for connection to a Fieldbus system according to the FISCO model (EN 60079-11), e.g. Profibus PA.

or

- $U_i = 24 \text{ V}$
- $I_i = 250 \text{ mA}$
- $P_i = 1.2 \text{ W}$

The effective internal capacitance C_i is negligibly small.

In the version with permanently mounted connection cable, $C_{i \text{ wire/wire}} = 150 \text{ pF/m}$ and $C_{i \text{ wire/screen}} = 270 \text{ pF/m}$ must be taken into account.

The effective internal inductance L_i is negligibly small.

In the version with fix mounted connection cable, $L_i = 0.62 \text{ } \mu\text{H/m}$ must be taken into consideration.

Version with double chamber housing D, W or R, IPT-2*-*/2*, CPT-2*-*/2* with selected output signal CPT-2* or IPT-2*-*-*****-P/F*-*****-*****-***-*, P (Profibus PA), F (Foundation Fieldbus)**

Power supply and signal circuit: (terminal 1[+], 2[-] in the "Ex i" connection compartment)

In ignition protection type intrinsic safety Ex ia IIC/IIB for instruments of category 1G or 1/2G and Ex ia IIC/IIB resp. Ex ib IIC/IIB for instruments of category 2G.

Only for connection to a certified, intrinsically safe circuit.

Maximum values:

- $U_i = 17.5 \text{ V}$
- $I_i = 500 \text{ mA}$
- $P_i = 5.5 \text{ W}$

The instrument is suitable for connection to a Fieldbus system according to the FISCO model (EN 60079-11), e.g. Profibus PA.

or

- $U_i = 24 \text{ V}$
- $I_i = 250 \text{ mA}$
- $P_i = 1.2 \text{ W}$

The effective internal capacitance C_i is negligibly small.

In the version with permanently mounted connection cable, $C_{i \text{ wire/wire}} = 150 \text{ pF/m}$ and $C_{i \text{ wire/screen}} = 270 \text{ pF/m}$ must be taken into account.

The effective internal inductance is $L_i \leq 5 \text{ } \mu\text{H}$.

In the version with fix mounted connection cable, also $L_i = 0.62 \text{ } \mu\text{H/m}$ must be taken into consideration.

IPT-2*-*/2*, CPT-2*-*/2* with selected output signal IPT-2* or CPT-2*-*-*****-
P/F*-*****-*****-***-**, P (Profibus PA), F (Foundation Fieldbus)**

Indicating and adjustment circuit: (terminals 5, 6, 7, 8)⁴⁾⁵⁾⁶⁾

In type of protection intrinsic safety Ex ia IIC

For connection to the intrinsically safe circuit of the corresponding external display and adjustment unit DI-PT-E* or for connection of a IPT-2* or CPT-2* with selected output signal IPT-2* or CPT-2*-***-*****-R/T*-*****-*****-***-**, R or T for differential pressure measurement.

The rules for the interconnection of intrinsically safe circuits between IPT-2*-*/2*, CPT-2*-*/2* and the external display and adjustment unit DI-PT-E* or IPT-2* or CPT-2* with selected output signal IPT-2* or CPT-2*-***-*****-R/T*-*****-*****-***-**, R or T are fulfilled, provided that the total inductance and total capacitance of the connection cable between IPT-2*-*/2*, CPT-2*-*/2* and the external display and adjustment unit DI-PT-E* or IPT-2* or CPT-2* with selected output signal IPT-2* or CPT-2* with selected output signal IPT-2* or CPT-2*-***-*****-R/T*-*****-*****-***-** R or T $L_{\text{cable}} = 330 \mu\text{H}$ and $C_{\text{cable}} = 1.98 \mu\text{F}$ are not exceeded.

When using the delivered connection cable between IPT-2*-*/2*, CPT-2*-*/2* and the external display and adjustment unit DI-PT-E* or IPT-2* or CPT-2* with selected output signal IPT-2* or CPT-2* or IPT-2*-***-*****-R/T*-*****-*****-***-**, R or T, the following listed cable inductances L_i and cable capacitances C_i must be taken into account.

- $L_i = 0.62 \mu\text{H/m}$
- $C_{i \text{ wire/wire}} = 150 \text{ pF/m}$
- $C_{i \text{ wire/screen}} = 270 \text{ pF/m}$

⁴⁾ In the "Ex i" electronics compartment with IPT-2* or CPT-2*-***-A/K/V/8***-***-*****-*****-***-** in version with single chamber housing A, K, V or 8.

⁵⁾ In the "Ex i" connection compartment with IPT-2* or CPT-2*-***-D/W/R***-***-*****-*****-***-** in version with double chamber housing D, W or R.

⁶⁾ Additional plug connection with IPT-2* or CPT-2*-***-D/W/R***-***-*****-*****-***-** in version with double chamber housing D, W, R and housing version/protection P, IPT-2* or CPT-2*-***-D/W/RP***-***-*****-*****-***-**, (with M12 x 1 for DI-PT-E*).

Intrinsically safe circuit for the display and adjustment module

Version with single chamber housing A, K, V or 8, IPT-2*-1/2*, CPT-2*-1/2* with selected output signal IPT-2* or CPT-2*.-*-A/K/V/8****-P/F*-*****-*****-***-**, P (Profibus PA), F (Foundation Fieldbus)**

Circuit for the display and adjustment module: (spring contacts in the "Ex i" electronics compartment)

In type of protection intrinsic safety Ex ia IIC

Only for connection to the display and adjustment module DI-PT-A.

Version with double chamber housing D, W or R, IPT-2*-1/2*, CPT-2*-1/2* with selected output signal CPT-2* or IPT-2*.-*-D/W/R****-P/F*-*****-*****-***-**, P (Profibus PA), F (Foundation Fieldbus)**

Circuit for the display and adjustment module: (spring contacts in the "Ex i" connection compartment)

In type of protection intrinsic safety Ex ia IIC

Only for connection to the display and adjustment module DI-PT-A.

or

Circuit for the display and adjustment module: (spring contacts in the "Ex i" electronics compartment)

In type of protection intrinsic safety Ex ia IIC

Only for connection to the display and adjustment module DI-PT-A.

In the double chamber version, the display and adjustment module DI-PT-A must only be equipped in the connection compartment, if there is no external display and adjustment unit DI-PT-E* or IPT-E* or CPT-E* with selected output signal IPT-2* or CPT-2*.-***-*****-R/T*-*****-*****-***-**, R, T connected.

Version with double chamber housing D, W or R with housing version/protection P (with M12 x 1 for DI-PT-E*), IPT-2*-1/2*, CPT-2*-1/2* with selected output signal CPT-2* or IPT-2*.-*-D/W/RP****-A/H/S*-*****-*****-***-**, A (4 ... 20 mA), H (4 ... 20 mA/HART) or S (4 ... 20 mA/HART with SIL qualification)**

Circuit for the display and adjustment module: (spring contacts in the "Ex i" connection compartment)

In type of protection intrinsic safety Ex ia IIC

Only for connection to the display and adjustment module DI-PT-A.

In the double chamber version, the display and adjustment module DI-PT-A must only be equipped in the connection compartment, if there is no external display and adjustment unit DI-PT-E* or IPT-E* or CPT-E* with selected output signal IPT-2* or CPT-2*.-***-*****-R/T*-*****-*****-***-**, R, T connected.

Only version single chamber housing, IPT-2*-*1/2*, CPT-2*-*1/2* with selected output signal CPT-2* or IPT-2*-*A/K/V/8**-R/T*-******-***-**, R or T**

Power supply and signal circuit: (terminals 5, 6, 7, 8 in the electronics compartment)

In type of protection intrinsic safety Ex ia IIC

For connection to the intrinsically safe circuit of a IPT-2*-*1/2*, CPT-2*-*1/2* with selected output signal CPT-2* or IPT-2*-*A/K/V/8****-R/T*-******-***-**, H, S, P, F for differential pressure measurement.

The rules for the interconnection of intrinsically safe circuits between IPT-2* or CPT-2* with selected output signal CPT-2* or IPT-2*-*A/K/V/8****-R/T*-******-***-**, R or T and the IPT-2*-*1/2*, CPT-2*-*1/2* with electronics H, S, P or F are fulfilled, provided that the total inductance and total capacitance of the connection cable between IPT-2*-*1/2*, CPT-2*-*1/2* and IPT-2* or CPT-2* with selected output signal CPT-2* or IPT-2*-*A/K/V/8****-R/T*-******-***-**, R or T $L_{\text{cable}} = 330 \mu\text{H}$ and $C_{\text{cable}} = 2.00 \mu\text{F}$ are not exceeded.

When using the delivered connection cable between IPT-2*-*1/2*, CPT-2*-*1/2* and the external display and adjustment unit DI-PT-E* or IPT-2* or CPT-2* with electronics R or T, the following listed cable inductances L_i and cable capacitances C_i must be taken into account.

- $L_i = 0.62 \mu\text{H/m}$
- $C_{i \text{ wire/wire}} = 150 \text{ pF/m}$
- $C_{i \text{ wire/screen}} = 270 \text{ pF/m}$

IPT-2*-*1/2*, CPT-2*-*1/2* selected output signal CPT-2* or IPT-2*-*A/K/V/8**-R/T*-******-***-**, H (4 ... 20 mA/HART) or S (4 ... 20 mA/HART with SIL qualification) and with supplementary electronics (B)**

Supply and signal circuit I: (terminals 1[+], 2[-] in the "Ex i" connection compartment or plug connection)

In type of protection intrinsic safety Ex ia IIC/IIB

Only for connection to a certified, intrinsically safe circuit.

Maximum values:

- $U_i = 30 \text{ V}$
- $I_i = 131 \text{ mA}$
- $P_i = 983 \text{ mW}$

The effective internal capacitance C_i is negligibly small.

In the version with permanently mounted connection cable, $C_{i \text{ wire/wire}} = 150 \text{ pF/m}$ and $C_{i \text{ wire/screen}} = 270 \text{ pF/m}$ must be taken into account.

The effective inner inductance L_i is $L_i \leq 5 \mu\text{H}$. In the version with permanently mounted connection cable, $L_i = 0.62 \mu\text{H/m}$ must also be taken into account.

Power supply and signal circuit II: (terminal 7[+], 8[-] in the "Ex i" connection compartment)

In type of protection intrinsic safety Ex ia IIC/IIB

Only for connection to a certified, intrinsically safe circuit.

Maximum values:

- $U_i = 30 \text{ V}$
- $I_i = 131 \text{ mA}$
- $P_i = 983 \text{ mW}$

The effective internal capacitance C_i is negligibly small.

In the version with permanently mounted connection cable, $C_{i \text{ wire/wire}} = 150 \text{ pF/m}$ and $C_{i \text{ wire/screen}} = 270 \text{ pF/m}$ must be taken into account.

The effective inner inductance L_i is $L_i \leq 5 \mu\text{H}$. In the version with permanently mounted connection cable, $L_i = 0.62 \mu\text{H/m}$ must also be taken into account.

Display and adjustment circuit: (plug connection of the double chamber housing)

In type of protection intrinsic safety Ex ia IIC

For connection to the intrinsically safe circuit of the corresponding external display and adjustment unit DI-PT-E*.

The rules for the interconnection of intrinsically safe circuits between IPT-2*-*I/2*, CPT-2*-*I/2* and the external display and adjustment unit DI-PT-E* are fulfilled, provided that the total inductance and total capacity of the connection cable between IPT-2*-*I/2*, CPT-2*-*I/2* and the external display and adjustment unit DI-PT-E* $L_{\text{cable}} = 330 \mu\text{H}$ and $C_{\text{cable}} = 1.98 \mu\text{F}$ is not exceeded.

When using the delivered connection cable between IPT-2*-*I/2*, CPT-2*-*I/2* and the external display and adjustment unit DI-PT-E*, the following listed cable inductances L_i and cable capacitances C_i must be taken into account.

- $L_i = 0.62 \mu\text{H/m}$
- $C_{i \text{ wire/wire}} = 150 \text{ pF/m}$
- $C_{i \text{ wire/screen}} = 270 \text{ pF/m}$

Circuit for the display and adjustment module: (spring contacts in the "Ex i" electronics compartment)

In type of protection intrinsic safety Ex ia IIC

Only for connection to the display and adjustment module DI-PT-A.

IPT-2*-*I/2*, CPT-2*-*I/2* Version with separate cable outlet (all electronics)

Circuit between sensor unit and external electronics (terminal 1 - yellow, terminal 2 - white, terminal 3 - red, terminal 4 - black)

In type of protection intrinsic safety Ex ia IIC

With IPT-2*-*I/2*, CPT-2*-*I/2* in the version with fix mounted cable on the sensor unit and external electronics, the supplied cable between the external housing and the sensor unit must not exceed a length of 180 m.

The intrinsically safe circuits are electrically separated from parts which can be grounded.

The metallic parts of IPT-2*-*I/2*, CPT-2*-*I/2* are electrically connected with the earth terminals.

For applications requiring instruments of category 1G or 1/2G, the intrinsically safe power supply and signal circuit must correspond to protection class ia.

For applications requiring instruments of category 1G or 1/2G the IPT-2*-*I/2*, CPT-2*-*I/2* is preferably connected to appropriate equipment with galvanically isolated, intrinsically safe circuits.

5 Application conditions

IPT-2*-*I/2*, CPT-2*-*I/2* with selected output signal CPT-2* or IPT-2*-*A/H/S/R/T/P/F*-*A (4 ... 20 mA), H (4 ... 20 mA/HART) or S (4 ... 20 mA/HART with SIL qualification), R, T (electronic differential pressure measurement), P (Profibus PA), F (Foundation Fieldbus)

The max. permissible ambient temperatures depending on the temperature classes are specified in the following tables.

Category 1G instrument (EPL Ga instrument)

Temperature class	Ambient temperature on the sensor and electronics
T6	-20 ... +23 °C
T5, T4, T3, T2, T1	-20 ... +60 °C

For applications requiring instruments of category 1G (EPL Ga instruments), the process pressure of the media must be between 0.8 ... 1.1 bar. With the stated permissible ambient temperatures, the 80 % consideration of section 6.4.2/EN 1127-1 is taken into account. The application conditions during operation in areas with no explosive mixtures are stated in the manufacturer information (operating instructions).

Category 1/2G instrument (EPL Ga/Gb instrument)

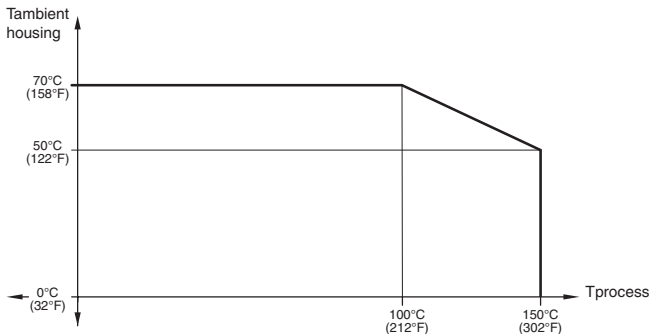
Temperature class	Ambient temperature on the electronics (Zone 1)	Product temperature range (sensor, zone 0)
T6	-50 ... +39 °C	-20 ... +23 °C
T5, T4, T3, T2, T1	-50 ... +70 °C	-20 ... +60 °C

For applications requiring instruments of category 1/2G (EPL Ga/Gb instrument) the process pressure of the media must be between 0.8 ... 1.1 bar. The 80 % consideration of Sect. 6.4.2/EN 1127-1 is taken into account with the permissible ambient temperatures. If the IPT-2*-*I/2*, CPT-2*-*I/2* are operated at temperatures higher than those specified in the above table, please make sure by means of appropriate measures that there is no danger of ignition from the hot surfaces. The maximum temperature on the electronics/housing should not exceed the values stated in the above table. The application conditions in areas without hazardous mixtures are specified in the manufacturer information (operating instructions).

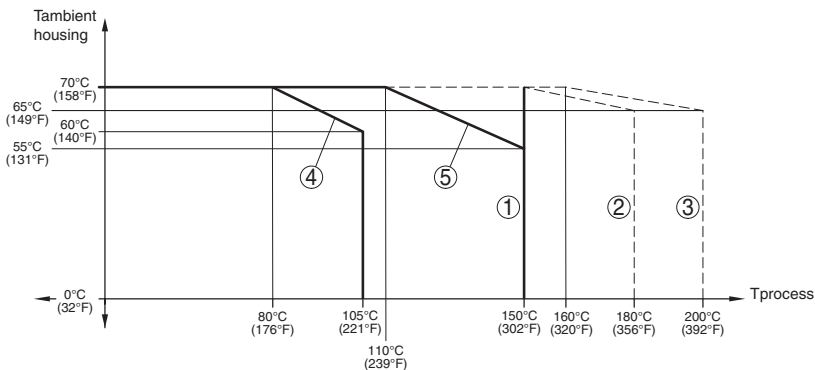
Category 2G instrument (EPL Gb instrument), IPT-2* and CPT 2* with high temperature version, selection via sealing IPT-2* or CPT-2*-*A/H/S/R/T/P/F*-*H/T*-***; H without sealing, -12 ... +180 °C; T without sealing, without heat shield -12 ... +200 °C**

Temperature class	Ambient temperature on the electronics (Zone 1)	Product temperature range (sensor, zone 1)
T6	-50 ... +39 °C	-50 ... +39 °C
T5	-50 ... +70 °C	-50 ... +100 °C
T4	-50 ... +50 °C	-50 ... +135 °C
T3, T2, T1	-50 ... +50 °C	-50 ... +200 °C

CPT-2*-*-*****-**-*****-****B/S/E/G/K/U***-***-****



IPT-2*



- 2 Version: with high temperature version max. 180 °C, selection via sealing IPT-2*-***-*****-**-*****-
****H***-***-**
- 3 Version: with high temperature version with heat shield, max. 200 °C, selection via sealing IPT-2*-***-*****-**-
*****T***-***-**
- 4 Version: with normal process temperature, selection via sealing IPT-2*-***-*****-**-*****Y/J/K/P/5*-***-**
- 5 Version: with extended process temperature, selection via sealing IPT-2*-***-*****-**-*****E/F/O/A/
C/Q***-***-**

The temperature ranges for operation specified in the operating instruction must not be exceeded.

6 Protection against static electricity

The IPT-2*-1/2*, CPT-2*-1/2* in versions with electrostatically chargeable plastic parts, such as e.g. plastic housing, metal housing with inspection window, with plastic coated sensors, suspension cable or suspension hose, distance tube or connection cable with the separated version, a caution label points out the safety measures that must be taken with regard to electrostatic charges during operation.

**WARNING - POTENTIAL ELECTROSTATIC
CHARGING HAZARD - SEE INSTRUCTIONS**

Caution: Plastic parts! Danger of electrostatic charging!

- Avoid friction
- No dry cleaning
- Do not mount in areas with flowing, non-conductive products

7 Use of an overvoltage arrester

If necessary, a suitable overvoltage arrester can be connected in front of the IPT-2*-*1/2*, CPT-2*-*1/2*.

When used as category 1G or 1/2G instrument, as far as necessary analogue, a suitable overvoltage arrester must be connected in front as protection against voltage surges according to EN 60079-14.

8 Grounding

In order to avoid the danger of electrostatic charging of the metallic parts, the IPT-2*-*1/2*, CPT-2*-*1/2* must be electrostatically connected to the local potential equalisation (transfer resistance $\leq 1 \text{ M}\Omega$), e.g. via the ground terminal, when used as category 1G or 1/2G instruments.

9 Impact and friction sparks

When used as category 1G or 1/2G instruments, the IPT-2*-*1/2*, CPT-2*-*1/2* in aluminium/titanium versions must be mounted in such a way that sparks from impact and friction between aluminium/titanium and steel (except stainless steel, if the presence of rust particles can be excluded) cannot occur.

10 Material resistance

For applications requiring instruments of category 1G or category 1/2G the IPT-2*-*1/2*, CPT-2*-*1/2* must only be used in products against which the wetted materials are sufficiently resistant.

11 Mounting with external display and adjustment unit DI-PT-E

The intrinsically safe signal circuit between IPT-2*-*1/2*, CPT-2*-*1/2* and the external display and adjustment unit DI-PT-E should be set up without grounding. The required insulation voltage is $> 500 \text{ V AC}$. When using the connection cable included with the delivery, this requirement is fulfilled. If grounding of the cable screen is required, it must be carried out according to IEC 60079-14.

12 Installation/construction

The IPT-2*-*1/2*, CPT-2*-*1/2* have to be mounted such that the sensor is effectively secured against touching the vessel wall, under consideration of other vessel installations and flow conditions in the vessel. This applies especially to suspension process transmitters and versions with distance tube lengths over 3 m.

13 Installation of the IPT-2* and CPT-2* with separate housing

With the version with separate housing of the process transmitter IPT-2*-*1/2*, CPT-2*-*1/2*, the potential equalization must be provided in the complete range of the connection cable between electronics housing and transmitter housing.

14 EU declaration of conformity



EU-Konformitätserklärung
EU Declaration of Conformity

Dokument Nr.: 14238056
Document No.:

Revision 04
Issue

Wir erklären in alleiniger Verantwortung, dass die mit CE gekennzeichneten Produkte
We declare under our sole responsibility that the CE marked products

Typenbezeichnung IPT-2*-...⁽³⁾
Type Designation CPT-2*-...⁽³⁾
Beschreibung Prozesstransmitter
Description Process transmitter

gemäß gültigem Datenblatt
according to the valid data sheet PE 86.06, PE 86.07

mit den nachfolgenden relevanten Harmonisierungsvorschriften der
Union übereinstimmen
are in conformity with the following relevant Union harmonisation
legislation

Angewandte harmonisierte Normen oder
sonstige technische Spezifikationen:
Applied harmonised standards or other
technical specifications:

2011/65/EU	Gefährliche Stoffe (RoHS) Hazardous substances (RoHS)	EN IEC 63000:2018
2014/68/EU	Druckgeräterichtlinie (DGRL) ⁽¹⁾ Pressure Equipment Directive (PED) ⁽¹⁾	-
2014/30/EU	Elektromagnetische Verträglichkeit (EMV) Electromagnetic Compatibility (EMC)	EN 61326-1:2013 EN 61326-2-3:2013 EN 61326-2-5:2013 ⁽²⁾
2014/34/EU	Explosionsschutz (ATEX) ⁽³⁾ Explosion protection (ATEX) ⁽³⁾	

- (1) IPT-2* Series PS > 200 bar; Modul A, druckhaltendes Ausrüstungsteil
IPT-2* Series PS > 200 bar; Module A, pressure accessory
- (2) Profibus PA, Foundation Fieldbus
Profibus PA, Foundation Fieldbus
- (3) detaillierte Angaben siehe Anhang
detailed information refer to Annex

Unterzeichnet für und im Namen von / Signed for and on behalf of
WIKA Alexander Wiegand SE & Co. KG
Klingenberg, 2024-03-20

Matthias Kirch, Vice President
Center of Excellence Pressure

Roland Stapf, Head of Quality Assurance
Sensors & Instruments, Corporate Quality

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Amtsgericht Aschaffenburg HRA 1819

Komplementärin:
WIKA International SE - Sitz Klingenberg -
Amtsgericht Aschaffenburg HRB 10505
Vorstand: Alexander Wiegand
Vorsitzender des Aufsichtsrats: Prof. Dr. Roderich C. Thümmel
22AR-0430

14238056.04, Anhang / Annex

Kennzeichnung Marking	Harmonisierte Normen Harmonized standards	Typenbezeichnung Type Designation	Zertifikat ⁽⁴⁾ Certificate ⁽⁴⁾
 II 1/2G Ex db ia IIC T6...T1 Ga/Gb II 2G Ex db ia IIC T6...T1 Gb	EN 60079-0:2012+A11:2013 Stimmt auch überein mit / also complies with EN IEC 60079-0:2018 EN 60079-1:2014 EN 60079-11:2012 EN 60079-26:2015	IP T-2*-D*-****-AH/IS/PI/RI/T*-****-S*Z*-**** CPT-2*-D*-****-AH/IS/PI/RI/T*-****-S*Z*-****	TÜV 17 ATEX 203304 X
 II 1G Ex ia IIC T6...T1 Ga II 1/2G Ex ia IIC T6...T1 Ga/Gb II 2G Ex ia IIC T6...T1 Gb	EN 60079-0:2012+A11:2013 Stimmt auch überein mit / also complies with EN IEC 60079-0:2018 EN 60079-11:2012 EN 60079-26:2015	IP T-2*-I*-****-AH/IS/PI/RI/T*-****-S*Z*-**** CPT-2*-I*-****-AH/IS/PI/RI/T*-****-S*Z*-****	TÜV 18 ATEX 217855 X
 II 1D Ex ia ta IIC TX °C Da II 1/2D Ex ia/tb IIC TX °C Da/Db II 1/3D Ex ia/tc IIC TX °C Da/Dc II 2D Ex ia/tb IIC TX °C Db II 1/2-D Ex ia/ta IIC TX °C Da/Da/Dc II 1/2D Ex ia/tb ia IIC TX °C Da/Da/Dc	EN 60079-0:2012+A11:2013 Stimmt auch überein mit / also complies with EN IEC 60079-0:2018 EN 60079-11:2012 EN 60079-31:2014	IP T-2*-T*-****-AH/IS/PI/RI/TU*-****-S*Z*-**** CPT-2*-T*-****-AH/IS/PI/RI/TU*-****-S*Z*-****	TÜV 18 ATEX 217856 X
 II 1/2G Ex db ia IIC T6...T1 Ga/Gb II 2G Ex db ia IIC T6...T1 Gb II 1/2D Ex ia/tb IIC TX °C Da/Da/Dc II 2D Ex ia/tb IIC TX °C Db II 1/2-D Ex ia/ta IIC TX °C Da/Da/Dc II 1/2D Ex ia/tb ia IIC TX °C Da/Da/Dc	EN 60079-0:2012+A11:2013 Stimmt auch überein mit / also complies with EN IEC 60079-0:2018 EN 60079-1:2014 EN 60079-11:2012 EN 60079-26:2015 EN 60079-31:2014	IP T-2*-4*-****-AH/IS/PI/RI/T*-****-S*Z*-**** CPT-2*-4*-****-AH/IS/PI/RI/T*-****-S*Z*-****	TÜV 17 ATEX 203304 X TÜV 18 ATEX 217856 X
 II 1G Ex ia IIC T6...T1 Ga II 1/2G Ex ia IIC T6...T1 Ga/Gb II 2G Ex ia IIC TX °C Da II 1D Ex ia ta IIC TX °C Da II 1/2D Ex ia/tb IIC TX °C Da/Da/Dc II 2D Ex ia/tb IIC TX °C Db II 1/2-D Ex ia/ta IIC TX °C Da/Da/Dc II 1/2D Ex ia/tb ia IIC TX °C Da/Da/Dc	EN 60079-0:2012+A11:2013 Stimmt auch überein mit / also complies with EN IEC 60079-0:2018 EN 60079-11:2012 EN 60079-26:2015 EN 60079-31:2014	IP T-2*-2*-****-AH/IS/PI/RI/T*-****-S*Z*-**** CPT-2*-2*-****-AH/IS/PI/RI/T*-****-S*Z*-****	TÜV 18 ATEX 217855 X TÜV 18 ATEX 217856 X

(4) EU-Baumusterprüfbescheinigungen von TÜV NORD CERT GmbH, D-45141 Essen (Reg.-Nr. 0044)
EU type examination certificates of TÜV NORD CERT GmbH, D-45141 Essen (Reg.-Nr. 0044)

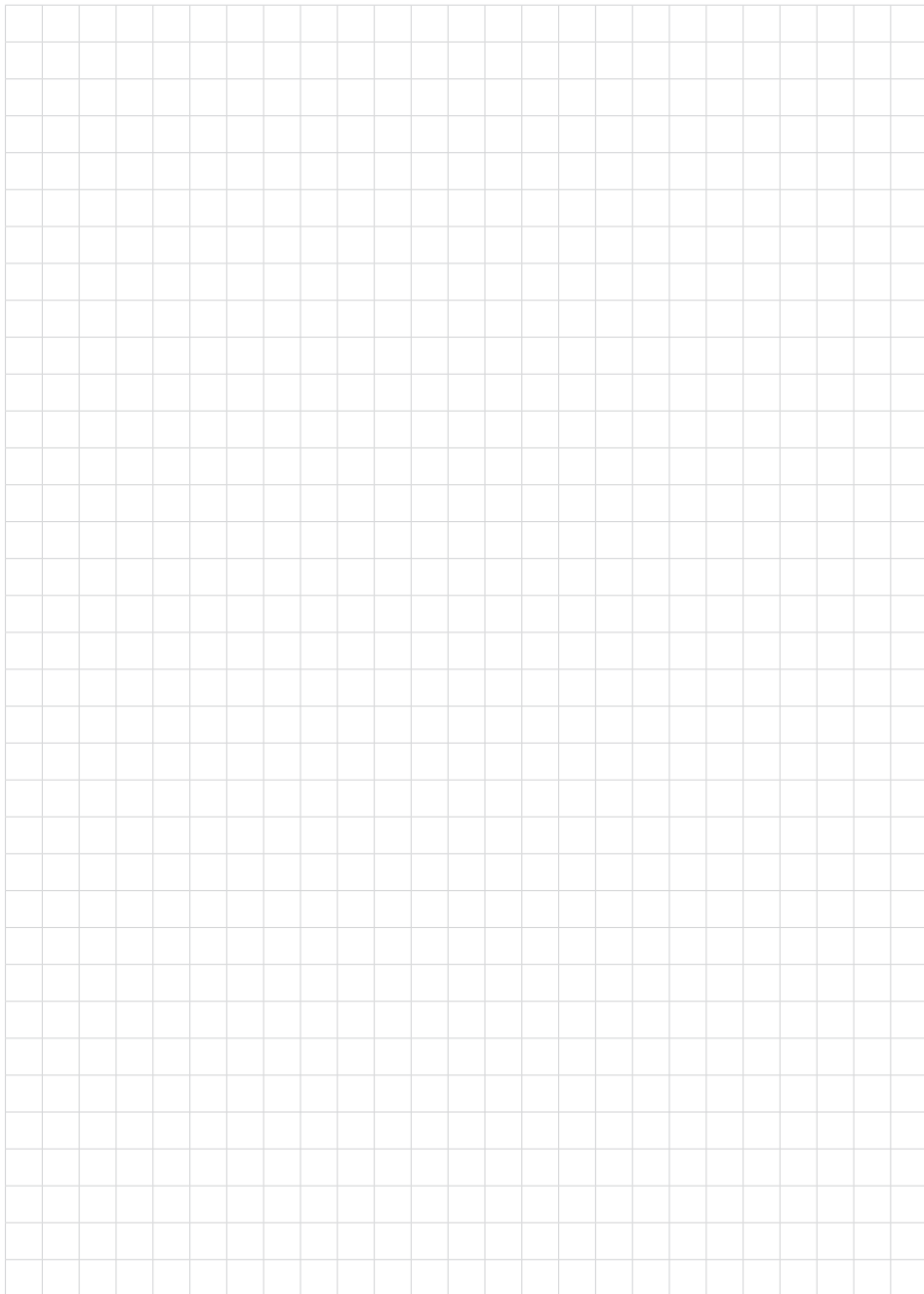
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09/2022

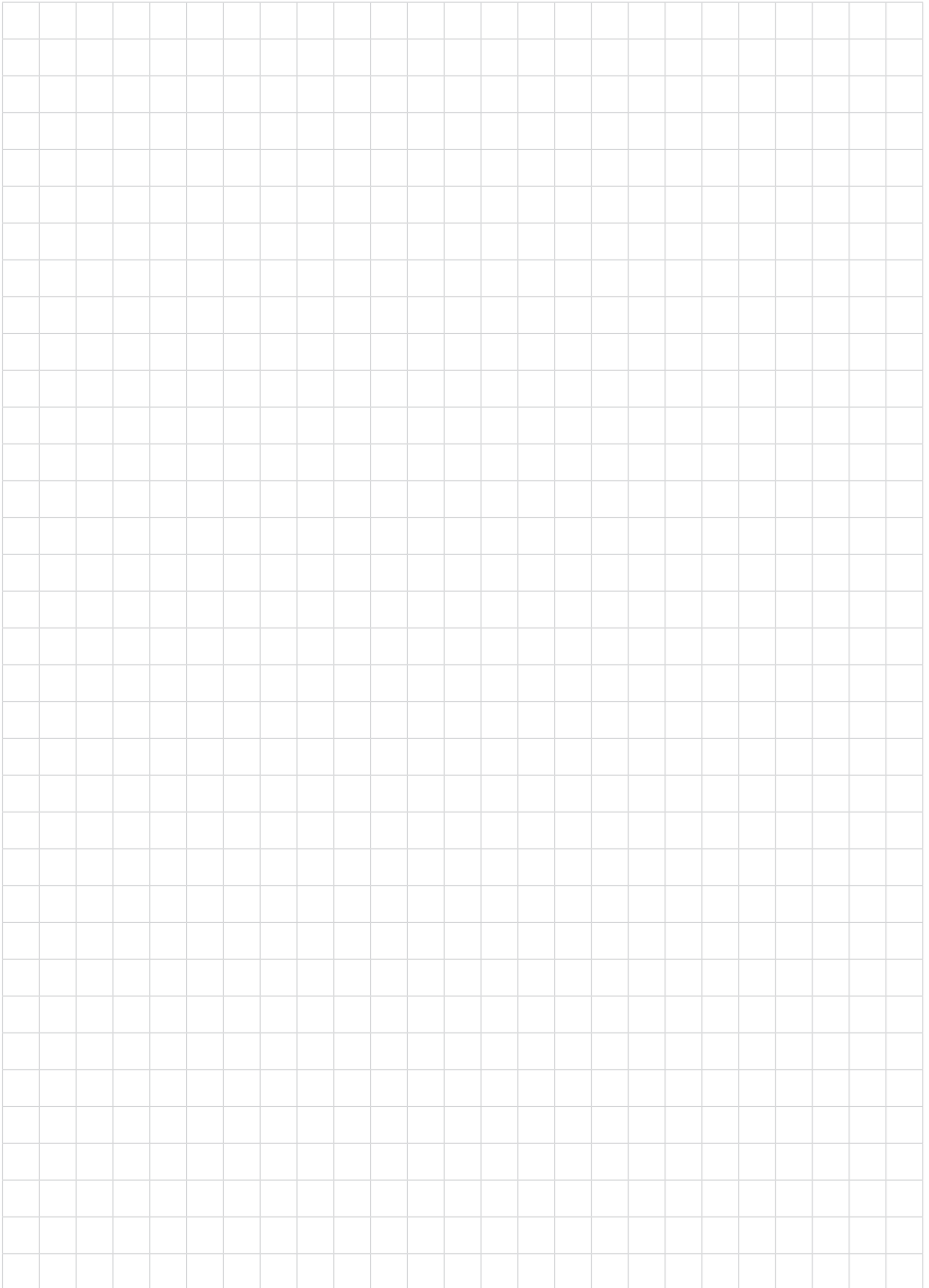
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All statements concerning scope of delivery, application, practical use and operating conditions of the sensors and processing systems correspond to the information available at the time of printing.



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