5350

PROFIBUS® PA / FOUNDATION™ Fieldbus Transmitter

No. 5350V111-IN (1003)
From ser. no.090659001

SIGNALS THE BEST

DK PR electronics A/S tilbyder et bredt program af analoge og digitale signalbehandlingsmoduler til industriel automation. Programmet består af Isolatorer, Displays, Ex-barrierer, Temperaturtransmittere, Universaltransmittere mfl. Vi har modulerne, du kan stole på i selv barske miljøer med elektrisk støj, vibrationer og temperaturudsving, og alle produkter opfylder de strengeste internationale standarder. Vores motto »Signals the Best« er indbegrebet af denne filosofi – og din garanti for kvalitet.

UK PR electronics A/S offers a wide range of analogue and digital signal conditioning modules for industrial automation. The product range includes Isolators, Displays, Ex Interfaces, Temperature Transmitters, and Universal Modules. You can trust our products in the most extreme environments with electrical noise, vibrations and temperature fluctuations, and all products comply with the most exacting international standards. »Signals the Best« is the epitome of our philosophy – and your guarantee for quality.

FR PR electronics A/S offre une large gamme de produits pour le traitement des signaux analogiques et numériques dans tous les domaines industriels. La gamme de produits s'étend des transmetteurs de température aux afficheurs, des isolateurs aux interfaces SI, jusqu'aux modules universels. Vous pouvez compter sur nos produits même dans les conditions d'utilisation sévères, p.ex. bruit électrique, vibrations et fluctuations de température. Tous nos produits sont conformes aux normes internationales les plus strictes. Notre devise »SIGNALS the BEST« c'est notre ligne de conduite - et pour vous l'assurance de la meilleure qualité.

DE PR electronics A/S verfügt über ein breites Produktprogramm an analogen und digitalen Signalverarbeitungsmodule für die industrielle Automatisierung. Dieses Programm umfasst Displays, Temperaturtransmitter, Ex- und galvanische Signaltrenner, und Universalgeräte. Sie können unsere Geräte auch unter extremen Einsatzbedingungen wie elektrisches Rauschen, Erschütterungen und Temperaturschwingungen vertrauen, und alle Produkte von PR electronics werden in Übereinstimmung mit den strengsten internationalen Normen produziert. »Signals the Best« ist Ihre Garantie für Qualität!

PROFIBUS® PA / FOUNDATION™ FIELDBUS TRANSMITTER

PRetrans 5350

Indholdsfortegnelse

EF-OVERENSSTEMMELSESERKLÆRING

Som producent erklærer

PR electronics A/S
Lerbakken 10
DK-8410 Rønde

hermed at følgende produkt:

Type: 5350
Navn: PROFIBUS® PA/FOUNDATION™ Fieldbus transmitter

er i overensstemmelse med følgende direktiver og standarder:

EMC-direktivet 2004/108/EF og senere tilføjelser

EN 61326-1 : 2006

For specifikation af det acceptable EMC-niveau henvises til modulets elektriske specifikationer.

ATEX-direktivet 94/9/EF og senere tilføjelser

EN 60079-0 : 2006, EN 60079-11 : 2007,
EN 60079-15 : 2005, EN 60079-26: 2007,
EN 60079-27 : 2006, EN 60079-27 : 2008
EN 61241-0 : 2006 og EN 61241-11 : 2006
ATEX-certifikat: KEMA 03ATEX1011 X (5350A)
ATEX-certifikat: KEMA 02ATEX1318 (5350B)

Bemyndiget organ:

KEMA Quality B.V. (0344)
Utrechtseweg 310, 6812 AR Arnhem
P.O. Box 5185, 6802 ED Arnhem
The Netherlands

Rønde, 21. december 2009

Kim Rasmussen
Producentens underskrift

PROFIBUS® PA / FOUNDATION™ FIELDBUS TRANSMITTER - PRetop 5350

- *PROFIBUS® PA ver. 3.0*
- *FOUNDATION™ Fieldbus ver. ITK 4.6*
- *Automatisk switchfunktion*
- *FISCO-certificeret*
- *Basic funktionalitet med F.F.*

Anvendelse:

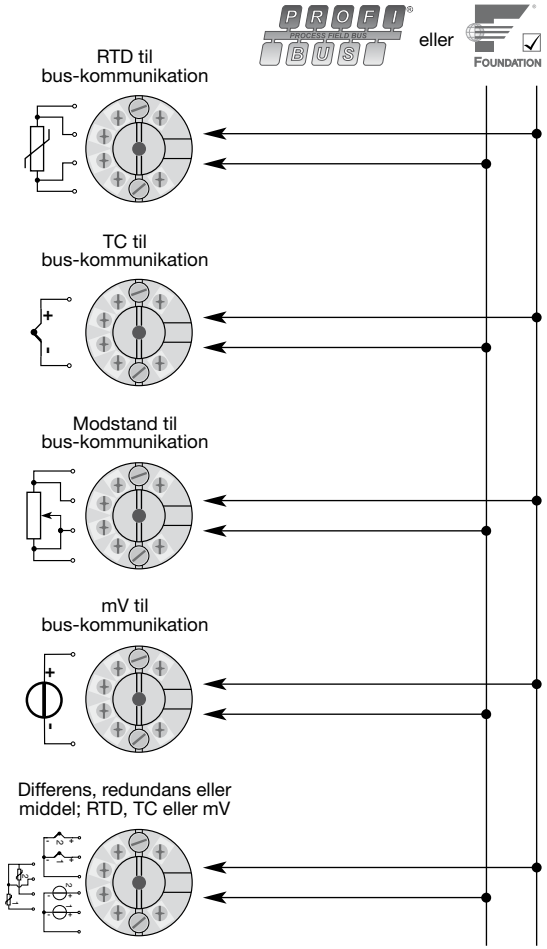
- Temperaturlinearisered måling med RTD- eller termoelementføler.
- Differens-, redundans- eller gennemsnitstemperaturmåling med RTD- eller termoelementføler.
- Lineær modstand, potentiometer og bipolær mV-måling.

Teknisk karakteristik:

- Bustransmitter med både PROFIBUS® PA og FOUNDATION™ Fieldbus kommunikation. En unik switchfunktion sørger for automatisk skift mellem protokollerne.
- Opsætning til PROFIBUS® PA kan ske via Siemens Simatic® PDM®, ABB Melody / Harmony og Metso DNA XD software og til FOUNDATION™ Fieldbus via Emerson DeltaV, Yokogawa CS 1000 / CS 3000, ABB Melody / Harmony og Honeywell Experion software.
- Simulation mode-funktion kan aktiveres via magnet.
- Polaritetsuafhængig busforsyning.
- 24 bit A/D konverter sikrer høj opløsning.
- PROFIBUS® PA funktionsblokke: 2 analoge.
- FOUNDATION™ Fieldbus funktionsblokke: 2 analoge og 1 PID.
- FOUNDATION™ Fieldbus funktionalitet: Basic eller LAS.

Montage / installation:

- Kan monteres i DIN form B følerhoved. I ikke-eksplosionsfarlige områder kan 5350 monteres på en DIN-skinne med PR-beslag type 8421.



Bestillingsskema: 5350

Type	Version	
5350	Standard	: A
	ATEX, FM og CSA	: B

***NB!** Husk at bestille PR sim pin type 8422, hvis „simulation mode"-funktionen ønskes benyttet.

Elektriske specifikationer:

Specifikationsområde:

-40°C til +85°C

Fælles specifikationer:

Forsyningsspænding DC:
- Standard ..... 9,0...32 V
- ATEX, FM og CSA..... 9,0...30 V
- I FISCO-installationer..... 9...17,5 V

Egetforbrug..... < 11 mA
Max. stigning i strømforbrug
i tilfælde af en fejl..... < 7 mA
Isolationsspænding, test ..... 1,5 kVAC i 60 s
Isolationsspænding, drift..... 50 VRMS / 75 VDC
Opvarmningstid..... 30 s
Signal- / støjforhold..... Min. 60 dB
Reaktionstid (programmerbar) ..... 1...60 s
Opdateringstid..... < 400 ms
Eksekveringstid, analog indgang ..... < 50 ms
Signaldynamik, indgang..... 24 bit
Kalibreringstemperatur..... 20...28°C
Nøjagtighed, størst af generelle og basisværdier:

Generelle værdier		
Indgangstype	Absolut nøjagtighed	Temperatur-koefficient
Alle	≤ ±0,05% af visning	≤ ±0,002% af visning / °C

Basisværdier		
Indgangstype	Basis-nøjagtighed	Temperatur-koefficient
Pt100 og Pt1000	≤ ±0,1°C	≤ ±0,002°C / °C
Ni100	≤ ±0,15°C	≤ ±0,002°C / °C
Cu10	≤ ±1,3°C	≤ ±0,02°C / °C
Lin. R	≤ ±0,05 Ω	≤ ±0,002 Ω / °C
Volt	≤ ±10 µV	≤ ±0,2 µV / °C
TC-type: E, J, K, L, N, T, U	≤ ±0,5°C	≤ ±0,010°C / °C
TC-type: B, R, S, W3, W5	≤ ±1°C	≤ ±0,025°C / °C

EMC-immunitetspåvirkning ..... < ±0,1% af visning
Udvidet EMC-immunitet:
NAMUR NE 21, A kriterium, gniststøj ..... < ±1% af visning

Vibration (DIN class B) ..... IEC 60068-2-6 og IEC 60068-2-64
4 g / 2...100 Hz
Luftfugtighed ..... < 95% RH (ikke kond.)
Mål ..... Ø 44 x 20,2 mm
Kapslingsklasse (hus / klemme) ..... IP68 / IP00
Vægt ..... 55 g

Elektriske specifikationer, indgang:

RTD- og lineær modstandsindgang:

RTD-type	Min. værdi	Max. værdi	Standard
Pt25...Pt1000	-200°C	+850°C	IEC60751/JIS C 1604
Ni25...Ni1000	-60°C	+250°C	DIN 43760
Cu10...Cu1000	-50°C	+200°C	α = 0,00427
Lin. modstand	0 Ω	10 kΩ	-
Potentiometer	0 Ω	100 kΩ	-

Kabelmodstand pr. leder ..... 50 Ω
Følerstrøm ..... Nom. 0,2 mA
Virkning af følerkabelmodstand (3- / 4-leder) .. < 0,002 Ω / Ω
Følerfejlsdetektering ..... Ja
Kortslutningsdetektering ..... < 15 Ω

TC-indgang:

Type	Min. værdi	Max. værdi	Standard
B	+400°C	+1820°C	IEC 60584-1
E	-100°C	+1000°C	IEC 60584-1
J	-100°C	+1200°C	IEC 60584-1
K	-180°C	+1372°C	IEC 60584-1
L	-200°C	+900°C	DIN 43710
N	-180°C	+1300°C	IEC 60584-1
R	-50°C	+1760°C	IEC 60584-1
S	-50°C	+1760°C	IEC 60584-1
T	-200°C	+400°C	IEC 60584-1
U	-200°C	+600°C	DIN 43710
W3	0°C	+2300°C	ASTM E988-90
W5	0°C	+2300°C	ASTM E988-90
Ekst. CJC	-40°C	+135°C	IEC60751

Koldt loddestedskomp. (CJC) ..... < ±0,5 °C
Følerfejlsdetektering ..... Ja
Følerfejlsstrøm:
under detektering ..... Nom. 4 µA
ellers ..... 0 µA
Kortslutningsdetektering ..... < 3 mV

Spændingsindgang:

Måleområde ..... -800...+800 mV
Indgangsmodstand ..... 10 MΩ

Udgang:

PROFIBUS® PA tilslutning:

PROFIBUS® PA protokol ..... Profil A&B, ver. 3.0
PROFIBUS® PA protokolstandard ..... EN 50170 vol. 2
PROFIBUS® PA adresse (ved levering) 126
PROFIBUS® PA funktionsblokke ..... 2 analoge

FOUNDATION™ Fieldbus tilslutning:

FOUNDATION™ Fieldbus protokol ..... FF protokol
FOUNDATION™ Fieldbus protokolstandard ... FF designspecifikationer
FOUNDATION™ Fieldbus funktionalitet ..... LAS eller Basic
FOUNDATION™ Fieldbus version ..... ITK 4.6
FOUNDATION™ Fieldbus funktionsblokke ..... 2 analoge og 1 PID

Ex-godkendelse - 5350A:

KEMA 03ATEX1011 X	II 3 GD Ex nA [nL] IIC T4...T6 eller II 3 GD Ex nL IIC T4...T6 eller II 3 GD Ex nA [ic] IIC T4...T6 eller II 3 GD Ex ic IIC T4...T6
ATEX Installation Drawing No.	5350QE01
FM og CSA	IS, Class I, Div. 2, Group A, B, C, D IS, Class I, Zone 2, Group IIC
NEPSI	GYJ0091289U Ex nA [L] IIC T4~T6

Ex- / I.S.-godkendelse - 5350B:

KEMA 02ATEX1318	II 1 G Ex ia IIC T4...T6 eller II 2 (1) G Ex ib [ia] IIC T4...T6 II1 D Ex iaD
Må anvendes i zone	0, 1, 2, 20, 21 eller 22
ATEX Installation Drawing No.	5350QE01
FM og CSA	IS, Class I, Div. 1, Group A, B, C, D IS, Class I, Zone 0/1, Group IIC IS, Class I, Div. 2, Group A, B, C, D
FM og CSA Installation Drawing No.	5350QE01
INMETRO 08/UL-BRCO-0019	BR-Ex ia IIC T4, T5, T6 eller BR-Ex ib [ia] IIC T4, T5, T6
INMETRO Installation Drawing No	5350QE01
NEPSI	GYJ091290X Ex ia IIC T4~T6 Ex ib [ia] IIC T4~T6
NEPSI Installation Drawing No.	5350QE01

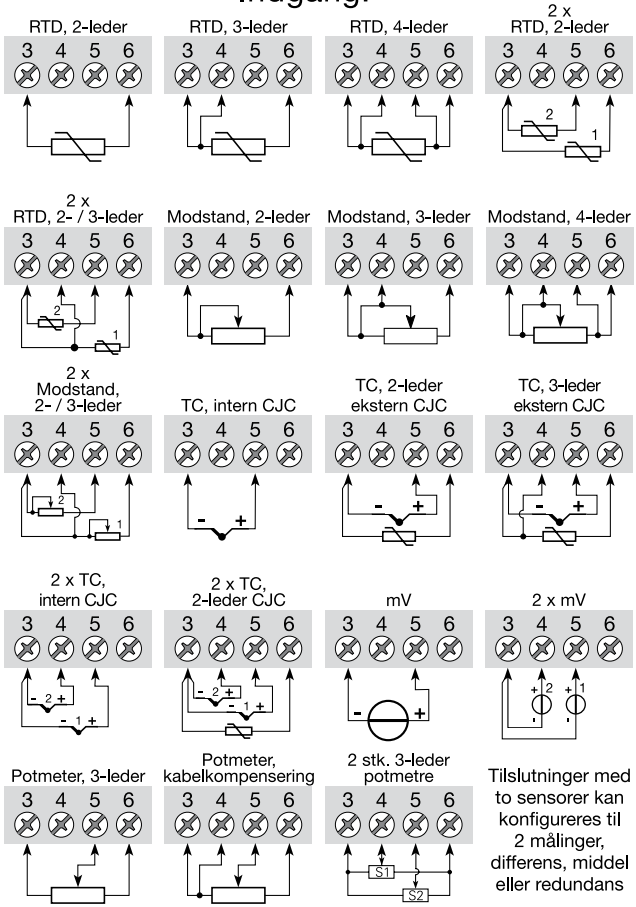
GOST R godkendelse:

VNIIM & VNIIFTRI, Cert. no.	Se www.prelectronics.dk

Overholdte myndighedskrav:	**Standard:**
EMC 2004/108/EF	EN 61326-1
ATEX 94/9/EF	EN 60079-0, EN 60079-11, EN 60079-15, EN 60079-26, EN 60079-27, EN 61241-0 og EN 61241-11
FM	3600, 3610, 3611
CSA, CAN / CSA	C22.2 No. 142, No. 157, No. 213,
CAN / CSA	E79-0, -11, -15
ANSI / UL	UL 60079-0, -11, -15
INMETRO	IEC 60079-0 : IEC 60079-11
NEPSI	GB3836.1-2000, GB3836.4-2000, GB3836.8-2003

Tilslutninger:

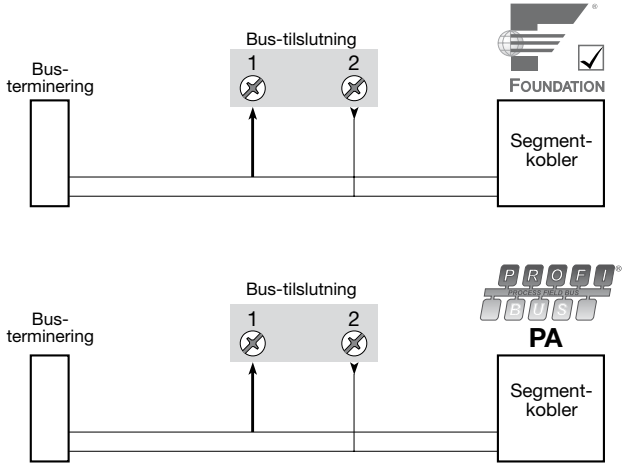
Indgang:



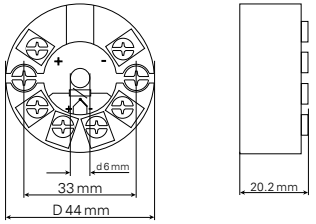
Tilslutninger med to sensorer kan konfigureres til 2 målinger, differens, middel eller redundans

Tilslutninger:

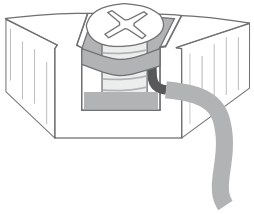
Udgang:



Mekaniske specifikationer:

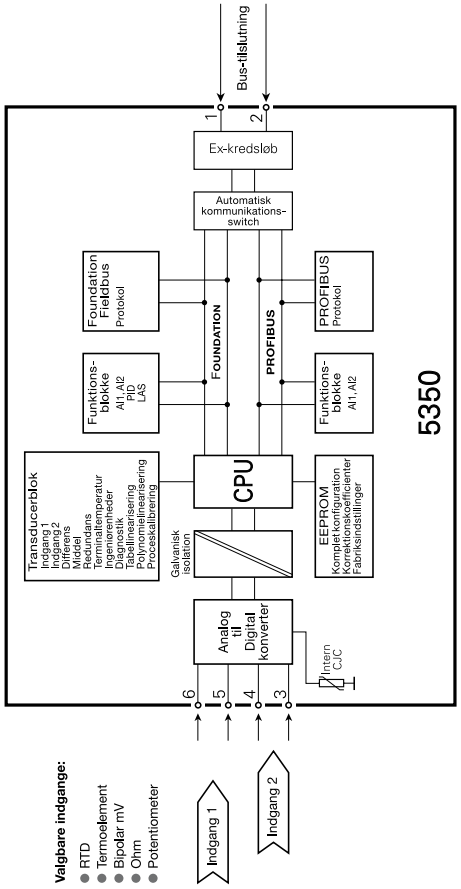


Montering af følerledninger:

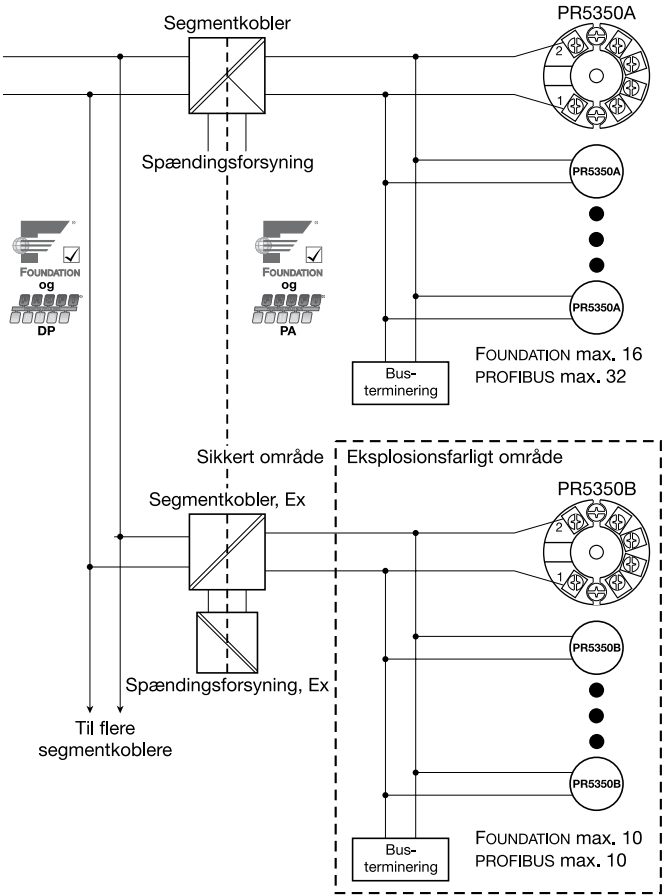


Ledninger monteres mellem metalpladerne

Blokdiagram:



Bus-installation:



PROFIBUS® PA / FOUNDATION™ FIELDBUS TRANSMITTER

PRetrans 5350

Contents

EC DECLARATION OF CONFORMITY

As manufacturer

PR electronics A/S
Lerbakken 10
DK-8410 Rønde

hereby declares that the following product:

Type: 5350
Name: PROFIBUS® PA/FOUNDATION™ Fieldbus transmitter

is in conformity with the following directives and standards:

The EMC Directive 2004/108/EC and later amendments

EN 61326-1 : 2006

For specification of the acceptable EMC performance level, refer to the electrical specifications for the module.

The ATEX Directive 94/9/EC and later amendments

EN 60079-0 : 2006, EN 60079-11 : 2007,
EN 60079-15 : 2005, EN 60079-26: 2007,
EN 60079-27 : 2006, EN 60079-27 : 2008
EN 61241-0 : 2006 and EN 61241-11 : 2006
ATEX certificate: KEMA 03ATEX1011 X (5350A)
ATEX certificate: KEMA 02ATEX1318 (5350B)

Notified body

KEMA Quality B.V. (0344)
Utrechtseweg 310, 6812 AR Arnhem
P.O. Box 5185, 6802 ED Arnhem
The Netherlands

Rønde, 21 December 2009

Kim Rasmussen
Manufacturer's signature

PROFIBUS® PA / FOUNDATION™ FIELDBUS TRANSMITTER - PRetop 5350

- *PROFIBUS® PA ver. 3.0*
- *FOUNDATION™ Fieldbus ver. ITK 4.6*
- *Automatic switch between protocols*
- *FISCO-certified*
- *Basic capability with F.F.*

Application:

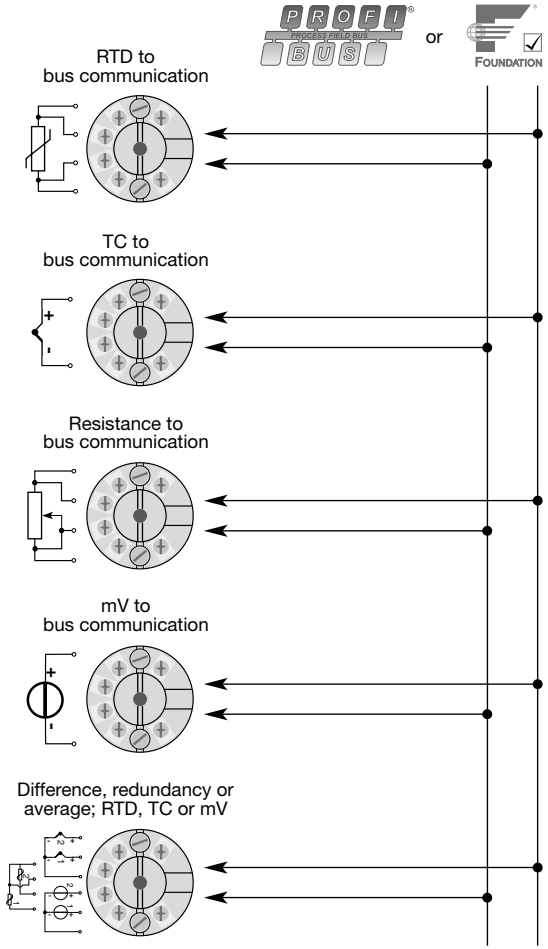
- Linearised temperature measurement with RTD or TC sensor.
- Difference, average or redundancy temperature measurement with RTD or TC sensor.
- Linear resistance, potentiometer and bipolar mV measurement.

Technical characteristics:

- Bus transmitter with both PROFIBUS® PA and FOUNDATION™ Fieldbus communication. A unique switch function ensures automatic shift between the two protocols.
- Set-up for PROFIBUS® PA can be done via Siemens Simatic® PDM®, ABB Melody / Harmony and Metso DNA software and for FOUNDATION™ Fieldbus via Emerson DeltaV, Yokogawa CS 1000 / CS 3000, ABB Melody / Harmony and Honeywell Experion software.
- The simulation mode function can be activated by way of a magnet.
- Polarity-independent bus connection.
- 24 bit A/D converter ensures high resolution.
- PROFIBUS® PA function blocks: 2 analogue.
- FOUNDATION™ Fieldbus function blocks: 2 analogue and 1 PID.
- FOUNDATION™ Fieldbus capability: Basic or LAS.

Mounting / installation:

- For DIN form B sensor head mounting. In non-hazardous areas the 5350 can be mounted on a DIN rail with the PR fitting type 8421.



Order: 5350

Type	Version	
5350	Standard ATEX, FM and CSA	: A : B

***NB!** Please remember to order PR sim pin type 8422 if the simulation mode function is to be used.

Electrical specifications:

Specifications range:
-40°C to +85°C

Common specifications:

Supply voltage, DC
- Standard ..... 9.0...32 V
- ATEX, FM and CSA ..... 9.0...30 V
- In FISCO installations ..... 9.0...17.5 V

Consumption ..... < 11 mA
Max. current increase in the event of an error ..... < 7 mA
Isolation voltage, test ..... 1.5 kVAC for 60 s
Isolation voltage, operation ..... 50 VRMS / 75 VDC
Warm-up time ..... 30 s
Signal / noise ratio ..... Min. 60 dB
Response time (programmable) ..... 1...60 s
Updating time ..... < 400 ms
Execution time, analogue input ..... < 50 ms
Signal dynamics, input ..... 24 bit
Calibration temperature ..... 20...28°C
Accuracy, the greater of general and basic values:

General values		
Input type	Absolute accuracy	Temperature coefficient
All	≤ ±0.05% of reading	≤ ±0.002% of reading / °C

Basic values		
Input type	Basic accuracy	Temperature coefficient
Pt100 and Pt1000	≤ ±0.1°C	≤ ±0.002°C / °C
Ni100	≤ ±0.15°C	≤ ±0.002°C / °C
Cu10	≤ ±1.3°C	≤ ±0.02°C / °C
Lin. R	≤ ±0.05 Ω	≤ ±0.002 Ω / °C
Volt	≤ ±10 µV	≤ ±0.2 µV / °C
TC type: E, J, K, L, N, T, U	≤ ±0.5°C	≤ ±0.010°C / °C
TC type: B, R, S, W3, W5	≤ ±1°C	≤ ±0.025°C / °C

EMC immunity influence ..... < ±0.1% of reading
Extended EMC immunity:
NAMUR NE 21, A criterion, burst ..... < ±1% of reading

Vibration (DIN class B) ..... IEC 60068-2-6 and IEC 60068-2-64
4 g / 2...100 Hz
Humidity ..... < 95% RH (non cond.)
Dimensions ..... Ø 44 x 20.2 mm
Protection degree (enclosure / terminal) ..... IP68 / IP00
Weight ..... 55 g

Electrical specifications, input:

RTD and linear resistance input:

RTD type	Min. value	Max. value	Standard
Pt25...Pt1000	-200°C	+850°C	IEC60751/JIS C 1604
Ni25...Ni1000	-60°C	+250°C	DIN 43760
Cu10...Cu1000	-50°C	+200°C	α = 0.00427
Lin. resistance	0 Ω	10 kΩ	-
Potentiometer	0 Ω	100 kΩ	-

Cable resistance per wire ..... 50 Ω
Sensor current ..... Nom. 0.2 mA
Effect of sensor cable resistance (3- / 4-wire) < 0.002 Ω / Ω
Sensor error detection ..... Yes
Short circuit detection ..... < 15 Ω

TC input:

Type	Min. value	Max. value	Standard
B	+400°C	+1820°C	IEC584
E	-100°C	+1000°C	IEC584
J	-100°C	+1200°C	IEC584
K	-180°C	+1372°C	IEC584
L	-200°C	+900°C	DIN 43710
N	-180°C	+1300°C	IEC584
R	-50°C	+1760°C	IEC584
S	-50°C	+1760°C	IEC584
T	-200°C	+400°C	IEC584
U	-200°C	+600°C	DIN 43710
W3	0°C	+2300°C	ASTM E988-90
W5	0°C	+2300°C	ASTM E988-90
Ext. CJC	-40°C	+135°C	IEC6075

Cold junction compensation (CJC) ..... < ±0.5 °C
Sensor error detection ..... Yes
Sensor error current:
when detecting ..... Nom. 4 µA
else ..... 0 µA
Short circuit detection ..... < 3 mV

Voltage input:

Measurement range ..... -800...+800 mV
Input resistance ..... 10 MΩ

Output:

PROFIBUS® PA connection:

PROFIBUS® PA protocol ..... Profile A&B, ver. 3.0
PROFIBUS® PA protocol standard ..... EN 50170 vol. 2
PROFIBUS® PA address (at delivery) 126
PROFIBUS® PA function blocks ..... 2 analogue

FOUNDATION™ Fieldbus connection:

FOUNDATION™ Fieldbus protocol ..... FF protocol
FOUNDATION™ Fieldbus protocol standard .. FF design specifications
FOUNDATION™ Fieldbus capability ..... Basic or LAS
FOUNDATION™ Fieldbus version ..... ITK 4.6
FOUNDATION™ Fieldbus function blocks ..... 2 analogue and 1 PID

Ex approval - 5350A:

KEMA 03ATEX1011 X	II 3 GD Ex nA [nL] IIC T4...T6 or II 3 GD Ex nL IIC T4...T6 or II 3 GD Ex nA [ic] IIC T4...T6 or II 3 GD Ex ic IIC T4...T6
ATEX Installation Drawing No.	5350QE01
FM and CSA	IS, Class I, Div. 2, Group A, B, C, D IS, Class I, Zone 2, Group IIC
NEPSI	GYJ0091289U Ex nA [L] IIC T4~T6

Ex / I.S. approval - 5350B:

KEMA 02ATEX1318	II 1 G Ex ia IIC T4...T6 or II 2 (1) G Ex ib [ia] IIC T4...T6 II1 D Ex iaD
Applicable in zone	0, 1, 2, 20, 21 or 22
ATEX Installation Drawing No.	5350QE01
FM and CSA	IS, Class I, Div. 1, Group A, B, C, D IS, Class I, Zone 0/1, Group IIC IS, Class I, Div. 2, Group A, B, C, D
FM and CSA Installation Drawing No.	5350QE01
INMETRO 08/UL-BRCO-0019	BR-Ex ia IIC T4, T5, T6 or BR-Ex ib [ia] IIC T4, T5, T6
INMETRO Installation Drawing No	5350QE01
NEPSI	GYJ091290X Ex ia IIC T4~T6 Ex ib [ia] IIC T4~T6
NEPSI Installation Drawing No.	5350QE01

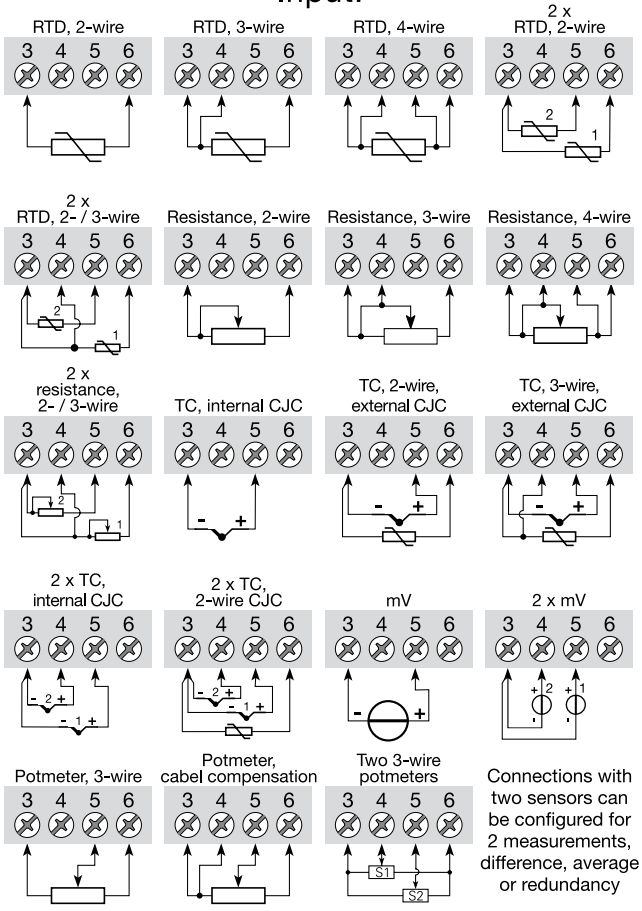
GOST R approval:

VNIIM & VNIIFTRI, Cert. no.	See www.prelectronics.com

Observed authority requirements:	**Standard:**
EMC 2004/108/EC	EN 61326-1
ATEX 94/9/EC	EN 60079-0, EN 60079-11, EN 60079-15, EN 60079-26, EN 60079-27, EN 61241-0 and EN 61241-11
FM	3600, 3610, 3611
CSA, CAN / CSA	C22.2 No. 142, No. 157, No. 213,
CAN / CSA	E79-0, -11, -15
ANSI / UL	UL 60079-0, -11, -15
INMETRO	IEC 60079-0 and IEC 60079-11
NEPSI	GB3836.1-2000, GB3836.4-2000, GB3836.8-2003

Connections:

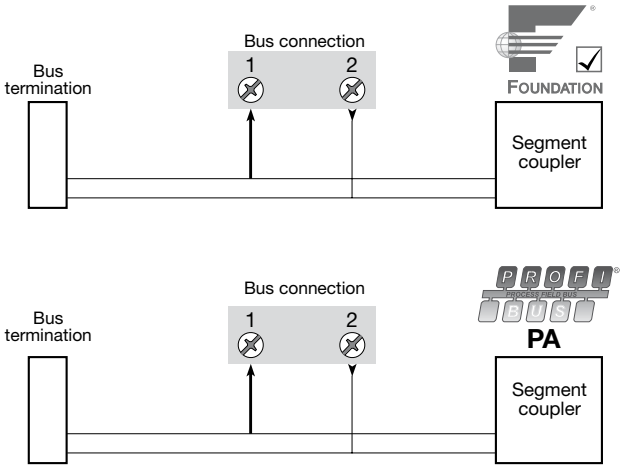
Input:



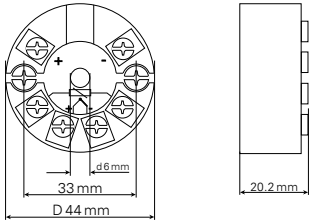
Connections with two sensors can be configured for 2 measurements, difference, average or redundancy

Connections:

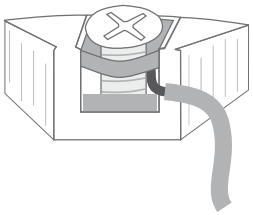
Output:



Mechanical specifications:

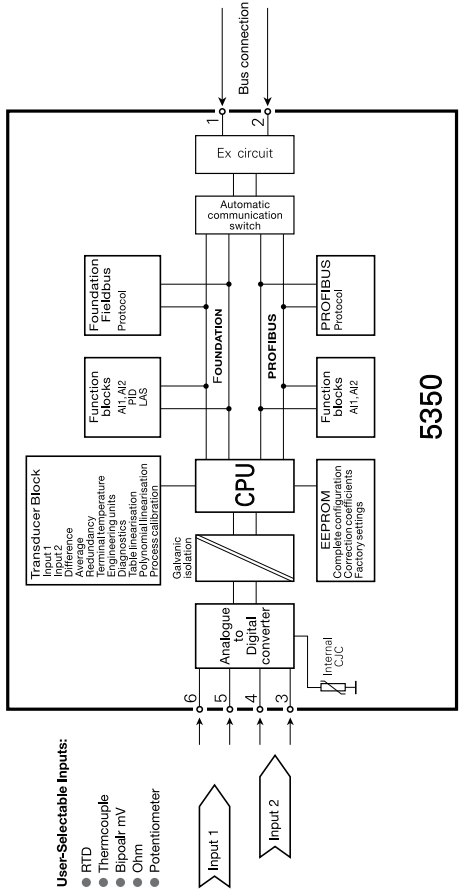


Mounting of sensor wires

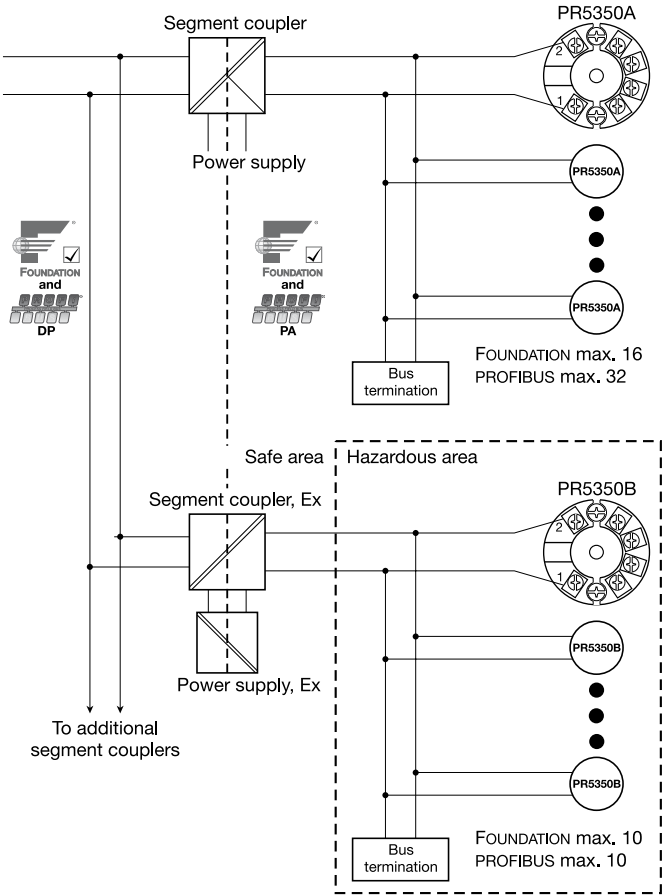


Wires must be mounted between the metal plates.

Block diagram:



Bus installation:



TRANSMETTEUR PROFIBUS® PA / FIELDBUS FOUNDATION™

PRetrans 5350

Sommaire

DECLARATION DE CONFORMITE CE

En tant que fabricant

PR electronics A/S
Lerbakken 10
DK-8410 Rønde

déclare que le produit suivant :

Type: 5350
Nom: Transmetteur PROFIBUS® PA / Fieldbus FOUNDATION™

correspond aux directives et normes suivantes :

La directive CEM (EMC) 2004/108/CE et les modifications subséquentes

EN 61326-1 : 2006

Pour une spécification du niveau de rendement acceptable CEM (EMC), renvoyer aux spécifications électriques du module.

La directive ATEX 94/9/CE et les modifications subséquentes

EN 60079-0 : 2006, EN 60079-11 : 2007,
EN 60079-15 : 2005, EN 60079-26: 2007,
EN 60079-27 : 2006, EN 60079-27 : 2008
EN 61241-0 : 2006 et EN 61241-11 : 2006
Certificat ATEX : KEMA 03ATEX1011 X (5350A)
Certificat ATEX : KEMA 02ATEX1318 (5350B)

Organisme notifié :

KEMA Quality B.V. (0344)
Utrechtseweg 310, 6812 AR Arnhem
P.O. Box 5185, 6802 ED Arnhem
The Netherlands

Rønde, le 21 décembre 2009

Kim Rasmussen
Signature du fabricant

TRANSMETTEUR PROFIBUS® PA / FIELDBUS FOUNDATION™ - PRetop 5350

- *PROFIBUS® PA ver. 3.0*
- *Fieldbus FOUNDATION™ ver. ITK 4.6*
- *Commutation automatique entre protocoles*
- *Certifié aux normes FISCO*
- *Basic en Fieldbus Foundation™*

Application :

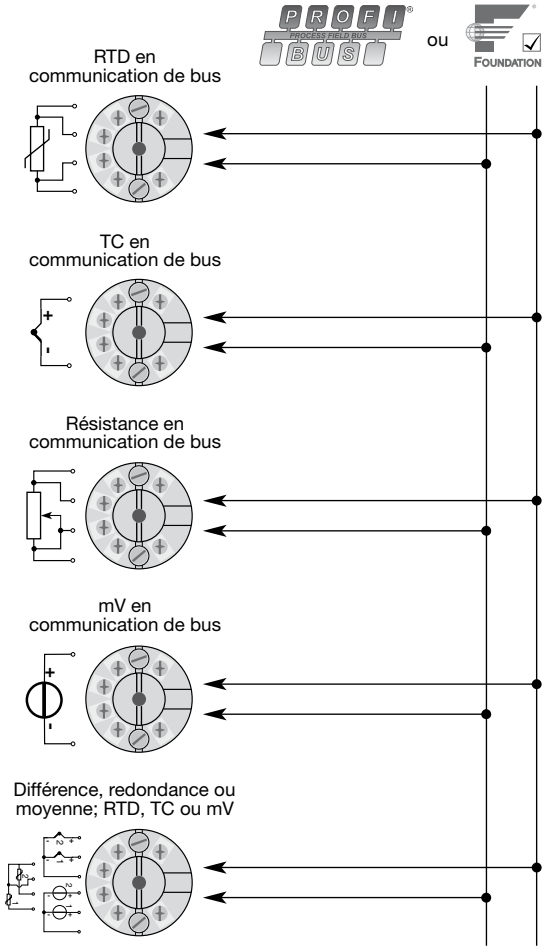
- Mesure linéarisée de la température avec sonde résistive ou thermocouple.
- Mesure de la température différentielle, moyenne ou redondance avec sonde résistive ou thermocouple.
- Résistance linéaire, potentiomètre et mesure de tension bipolaire (mV).

Caractéristiques techniques :

- Transmetteur de bus avec communication PROFIBUS® PA et Fieldbus FOUNDATION™. Une fonction de commutation unique assure le passage d'un protocole à l'autre de manière automatique.
- Configuration PROFIBUS® PA avec les logiciels Siemens Simatic® PDM®, ABB Melody / Harmony et Metso DNA et Fieldbus FOUNDATION™ avec les logiciels Emerson DeltaV, Yokogawa CS 1000 / CS 3000, ABB Melody / Harmony et Honeywell Experion.
- Le mode de simulation peut être activé à l'aide d'un aimant.
- La connexion du bus est indépendante de la polarité.
- Le convertisseur A/D de 24 bit assure une très haute résolution du signal.
- Blocs de fonctions PROFIBUS® PA : 2 blocs analogiques.
- Blocs de fonctions Fieldbus FOUNDATION™ : 2 blocs analogiques et 1 bloc PID.
- Fonctionnalités en Fieldbus FOUNDATION™ : Basic. ou LAS.

Montage / installation :

- Pour tête de sonde DIN B. En zone non-dangereuse le 5350 peut être monté sur rail DIN avec le support PR type 8421.



Référence : 5350

Type	Version	
5350	Standard ATEX, FM et CSA	: A : B

***N.B. !** Si le mode de simulation doit être activé, rappellez-vous de commander le PR sim pin type 8422.

Spécifications électriques :

Plage des spécifications :

-40°C à +85°C

Spécifications communes :

Tension d'alimentation, cc
- Standard ..... 9,0...32 V
- ATEX, FM et CSA..... 9,0...30 V
- Dans les installations FISCO ..... 9,0...17,5 V

Consommation..... < 11 mA
Augmentation max. de la consommation
lors d'une erreur..... < 7 mA
Tension d'isolation, test..... 1,5 kVca pendant 60 s
Tension d'isolation, opération ..... 50 VRMS / 75 Vcc
Temps de chauffe..... 30 s
Rapport signal / bruit ..... Min. 60 dB
Temps de réponse (programmable) ..... 1...60 s
Temps de scrutation..... < 400 ms
Temps d'exécution, entrée analogique..... < 50 ms
Dynamique du signal d'entrée ..... 24 bit
Température d'étalonnage ..... 20...28°C
Précision, la plus grande des valeurs générales et de base :

Valeurs générales		
Type d'entrée	Précision absolue	Coefficient de température
Tous	≤ ±0,05% de la valeur	≤ ±0,002% de la valeur / °C

Valeurs de base		
Type d'entrée	Précision de base	Coefficient de température
Pt100 et Pt1000	≤ ±0,1°C	≤ ±0,002°C / °C
Ni100	≤ ±0,15°C	≤ ±0,002°C / °C
Cu10	≤ ±1,3°C	≤ ±0,02°C / °C
R. lin.	≤ ±0,05 Ω	≤ ±0,002 Ω / °C
Volt	≤ ±10 µV	≤ ±0,2 µV / °C
Type TC : E, J, K, L, N, T, U	≤ ±0,5°C	≤ ±0,010°C / °C
Type TC : B, R, S, W3, W5	≤ ±1°C	≤ ±0,025°C / °C

Immunité CEM..... < ±0,1% d. la valeur
Immunité CEM améliorée :
NAMUR NE 21, critère A, burst ..... < ±1% de la valeur

Vibration (DIN class B) ..... IEC 60068-2-6 et IEC 60068-2-64
4 g / 2...100 Hz
Humidité ..... < 95% RH (sans cond.)
Dimensions ..... Ø 44 x 20,2 mm
Degré de protection (boîtier / bornier) ..... IP68 / IP00
Poids ..... 55 g

Spécifications électriques, entrée :

Entrée résistance linéaire et RTD :

Type RTD	Valeur min.	Valeur max.	Standard
Pt25...Pt1000	-200°C	+850°C	IEC60751/JIS C 1604
Ni25...Ni1000	-60°C	+250°C	DIN 43760
Cu10...Cu1000	-50°C	+200°C	α = 0,00427
Résistance lin.	0 Ω	10 kΩ	-
Potentiomètre	0 Ω	100 kΩ	-

Résistance de ligne par fil..... 50 Ω
Courant de sonde ..... Nom. 0,2 mA
Effet de la résistance de ligne (3- / 4-fils) ... < 0,002 Ω / Ω
Détection de rupture sonde ..... Oui
Détection de court-circuit ..... < 15 Ω

Entrée TC :

Type	Valeur min.	Valeur max.	Standard
B	+400°C	+1820°C	IEC584
E	-100°C	+1000°C	IEC584
J	-100°C	+1200°C	IEC584
K	-180°C	+1372°C	IEC584
L	-200°C	+900°C	DIN 43710
N	-180°C	+1300°C	IEC584
R	-50°C	+1760°C	IEC584
S	-50°C	+1760°C	IEC584
T	-200°C	+400°C	IEC584
U	-200°C	+600°C	DIN 43710
W3	0°C	+2300°C	ASTM E988-90
W5	0°C	+2300°C	ASTM E988-90
CSF ext.	-40°C	+135°C	IEC60751

Compensation de soudure froide (CSF)..... < ±0,5 °C
Détection de rupture sonde ..... Oui
Courant de sonde:
pendant la détection ..... Nom. 4 µA
si non ..... 0 µA
Détection de court-circuit ..... < 3 mV

Entrée tension :

Gamme de mesure..... -800...+800 mV
Résistance d'entrée ..... 10 MΩ

Sortie :

Connexion PROFIBUS® PA :

Protocole PROFIBUS® PA ..... Profile A&B, ver. 3.0
Standard protocole PROFIBUS® PA ..... EN 50170 vol. 2
Adresse PROFIBUS® PA (à la livraison)..... 126
Blocs de fonctions PROFIBUS® PA ..... 2 bloc analogiques

Connexion Fieldbus FOUNDATION™ :

Protocole Fieldbus FOUNDATION™..... Protocole FF
Std protocole Fieldbus FOUNDATION™ ..... Spécifications au design FF
Fonctionnalités Fieldbus FOUNDATION™..... Basic ou LAS
Version Fieldbus FOUNDATION™ ..... ITK 4.6
Blocs de fonctions Fieldbus FOUNDATION™.. 2 blocs analogiques et 1 bloc PID

Approbation S.I. - 5350A:

KEMA 03ATEX1011 X	II 3 GD Ex nA [nL] IIC T4...T6 ou II 3 GD Ex nL IIC T4...T6 ou II 3 GD Ex nA [ic] IIC T4...T6 ou II 3 GD Ex ic IIC T4...T6
ATEX Installation Drawing No.	5350QE01
FM et CSA	IS, Class I, Div. 2, Group A, B, C, D IS, Class I, Zone 2, Group IIC
NEPSI	GYJ0091289U Ex nA [L] IIC T4~T6

Approbation S.I - 5350B:

KEMA 02ATEX1318	II 1 G Ex ia IIC T4...T6 ou II 2 (1) G Ex ib [ia] IIC T4...T6 II1 D Ex iaD
Applicable en zone	0, 1, 2, 20, 21 ou 22
ATEX Installation Drawing No.	5350QE01
FM et CSA	IS, Class I, Div. 1, Group A, B, C, D IS, Class I, Zone 0/1, Group IIC IS, Class I, Div. 2, Group A, B, C, D
FM et CSA Installation Drawing No.	5350QE01
INMETRO 08/UL-BRCO-0019	BR-Ex ia IIC T4, T5, T6 ou BR-Ex ib [ia] IIC T4, T5, T6
INMETRO Installation Drawing No	5350QE01
NEPSI	GYJ091290X Ex ia IIC T4~T6 Ex ib [ia] IIC T4~T6
NEPSI Installation Drawing No.	5350QE01

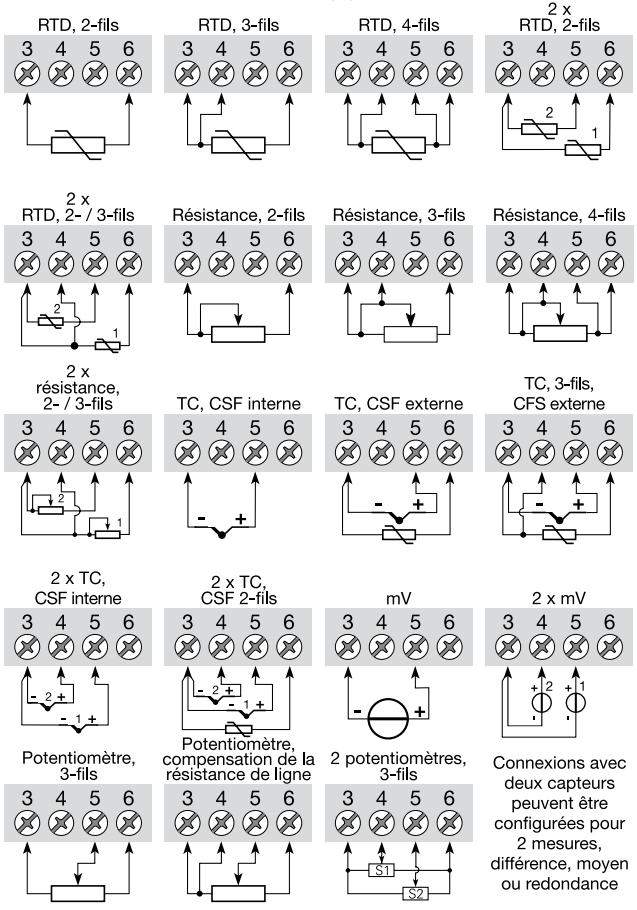
Approbation GOST R :

VNIIM & VNIIFTRI, Cert. no.	Voir www.prelectronics.fr

Agréments et homologations :	**Standard :**
CEM (EMC) 2004/108/CE	EN 61326-1
ATEX 94/9/CE	EN 60079-0, EN 60079-11, EN 60079-15, EN 60079-26, EN 60079-27, EN 61241-0 et EN 61241-11
FM	3600, 3610, 3611
CSA, CAN / CSA	C22.2 No. 142, No. 157, No. 213,
CAN / CSA	E79-0, -11, -15
ANSI / UL	UL 60079-0, -11, -15
INMETRO	IEC 60079-0 et IEC 60079-11
NEPSI	GB3836.1-2000, GB3836.4-2000, GB3836.8-2003

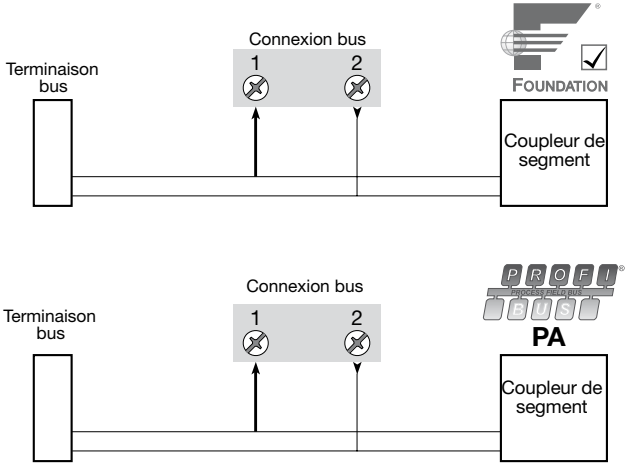
Connexions :

Entrée :

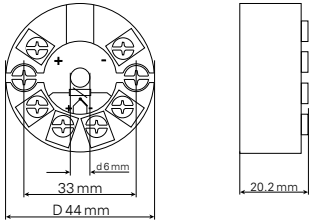


Connexions :

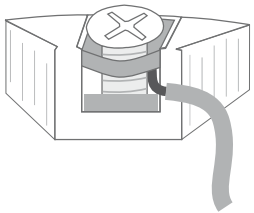
Sortie :



Dimensions mécaniques :

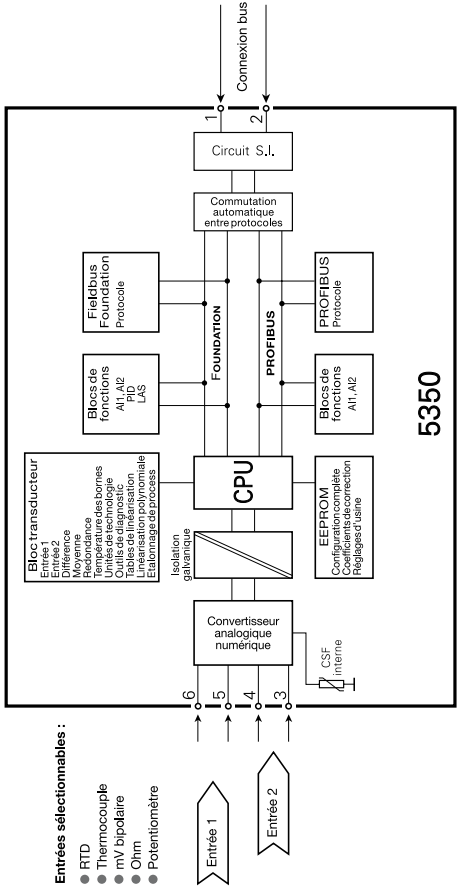


Montage des fils du capteur

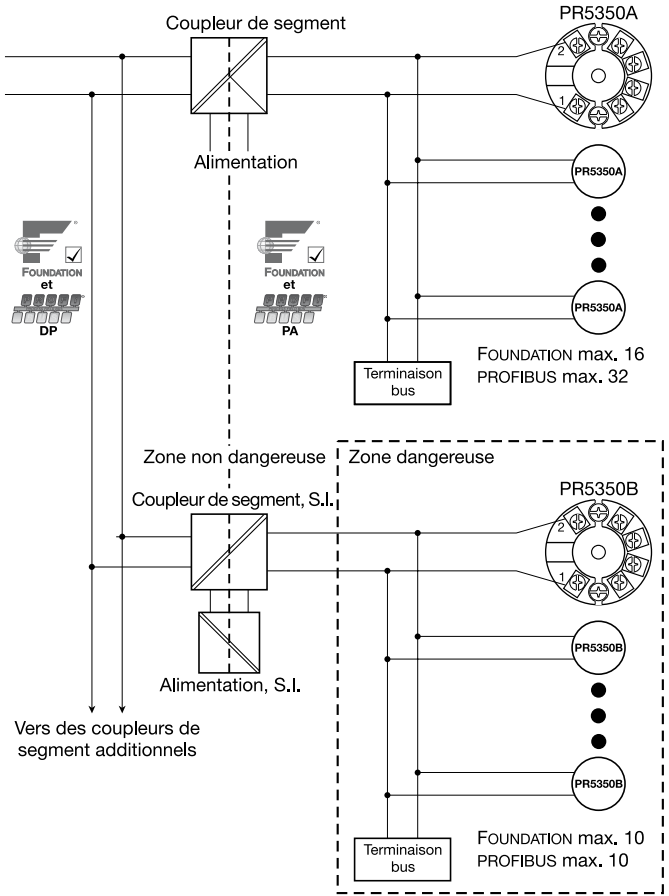


Les fils doivent être montés entre les plaques métalliques.

Schema de principe :



Installation bus :



PROFIBUS® PA / FOUNDATION™ FIELDBUS MESSUMFORMER

PRetrans 5350

Inhaltsverzeichnis

EG-KONFORMITÄTSERKLÄRUNG

Als Hersteller bescheinigt

PR electronics A/S
Lerbakken 10
DK-8410 Rønde

hiermit für das folgende Produkt:

Typ: 5350
Name: PROFIBUS® PA / FOUNDATION™ Fieldbus Messumformer

die Konformität mit folgenden Richtlinien und Normen:

Die EMV Richtlinien 2004/108/EG und nachfolgende Änderungen

EN 61326-1 : 2006

Zur Spezifikation des zulässigen Erfüllungsgrades, siehe die Elektrische Daten des Moduls.

Die ATEX Richtlinien 94/9/EG und nachfolgende Änderungen

EN 60079-0 : 2006, EN 60079-11 : 2007,
EN 60079-15 : 2005, EN 60079-26: 2007,
EN 60079-27 : 2006, EN 60079-27 : 2008
EN 61241-0 : 2006 und EN 61241-11 : 2006
ATEX-Zertifikat: KEMA 03ATEX1011 X (5350A)
ATEX-Zertifikat: KEMA 02ATEX1318 (5350B)

Zulassungsstelle:

KEMA Quality B.V. (0344)
Utrechtseweg 310, 6812 AR Arnhem
P.O. Box 5185, 6802 ED Arnhem
The Netherlands

Rønde, 21. Dezember 2009

Kim Rasmussen
Unterschrift des Herstellers

PROFIBUS® PA / FOUNDATION™ FIELDBUS MESSUMFORMER - PRetop 5350

- *PROFIBUS® PA Version 3.0*
- *FOUNDATION™ Fieldbus Version ITK 4.6*
- *Automatische Protokoll-Umschaltung*
- *FISCO-zertifiziert*
- *F.F. mit Basic-Funktionalität*

Anwendungen:

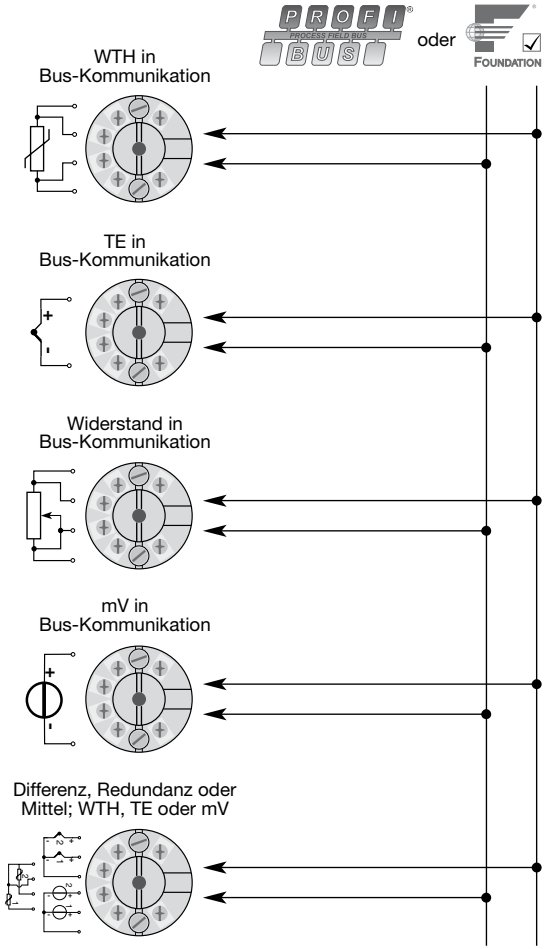
- Linearisierte Temperaturmessungen mit Widerstandsthermometer oder Thermoelement.
- Differenz-, Mittelwert- oder redundante Temperaturmessungen mit Widerstandsthermometer oder Thermoelement.
- Lineare Widerstands-, Kompensator- und bipolare mV-Messungen.

Technische Merkmale:

- Bus-Messumformer mit PROFIBUS® PA und FOUNDATION™ Fieldbus-Kommunikation. Die einzigartige Umschaltfunktion ermöglicht eine automatische Umschaltung zwischen den beiden Protokollen.
- Konfiguration über PROFIBUS® PA mit Siemens Simatic® PDM®, ABB Melody / Harmony und Metso DNA Software und über FOUNDATION™ Fieldbus mit Emerson DeltaV, Yokogawa CS 1000 / CS 3000, ABB Melody / Harmony und Honeywell Experion Software.
- Der Simulationsmodus kann mittels eines Magneten aktiviert werden.
- Polaritätsunabhängige Busanschluss.
- Der 24 Bit A/D-Wandler garantiert eine hohe Auflösung.
- PROFIBUS® PA Funktionsblöcke: 2 Analoge.
- FOUNDATION™ Fieldbus Funktionsblöcke: 2 Analoge und 1 PID.
- FOUNDATION™ Fieldbus Funktionalität: Basic oder LAS.

Montage / Installation:

- Für DIN Form B Sensorkopf Montage. Im sicheren Bereich kann der 5350 auf einer DIN-Schiene mittels der PR-Armatur Typ 8421 montiert werden.



Bestellangaben: 5350

Typ	Version	
5350	Standard	: A
	ATEX, FM und CSA	: B

***Zu beachten!** Wenn der Simulationsmodus aktiviert werden soll, ist der PR Sim Pin Typ 8422 zu bestellen.

Elektrische Daten:

Spezifikationsbereich:

-40°C bis +85°C

Allgemeine Daten:

Versorgungsspannung, DC
- Standard ..... 9,0...32 V
- ATEX, FM und CSA..... 9,0...30 V
- In FISCO-Installationen..... 9,0...17,5 V

Stromverbrauch..... < 11 mA
Max. Steigerung des Stromverbrauchs
- im Falle einer Fehler..... < 7 mA

Isolationsspannung, Test..... 1,5 kVAC für 60 s
Isolationsspannung, Betrieb..... 50 VRMS / 75 VDC
Aufwärmzeit..... 30 s
Signal-Störabstand ..... Min. 60 dB
Ansprechzeit (programmierbar)..... 1...60 s
Aktualisierungszeit..... < 400 ms
Ausführungszeit, analoger Eingang..... < 50 ms
Signaldynamik, Eingang..... 24 Bit
Kalibrierungstemperatur..... 20...28°C
Genauigkeit, höherer Wert von allgemeinen und Grundwerten:

Allgemeine Werte		
Eingangsart	Absolute Genauigkeit	Temperatur-koeffizient
Alle	≤ ±0,05% v. Messw.	≤ ±0,002% v. Messw. / °C

Grundwerte		
Eingangsart	Grund-Genauigkeit	Temperatur-koeffizient
Pt100 und Pt1000	≤ ±0,1°C	≤ ±0,002°C / °C
Ni100	≤ ±0,15°C	≤ ±0,002°C / °C
Cu10	≤ ±1,3°C	≤ ±0,02°C / °C
Lin. R	≤ ±0,05 Ω	≤ ±0,002 Ω / °C
Volt	≤ ±10 µV	≤ ±0,2 µV / °C
TC-Typ: E, J, K, L, N, T, U	≤ ±0,5°C	≤ ±0,010°C / °C
TC-Typ: B, R, S, W3, W5	≤ ±1°C	≤ ±0,025°C / °C

EMV Störspannungseinfluss ..... < ±0,1% v. Messw.
Erweiterte EMV-Störfestigkeit:
NAMUR NE 21, Kriterium A, Burst..... < ±1% v. Messw.

Schwingungen (DIN class B)..... IEC 60068-2-6 und IEC 60068-2-64
4 g / 2...100 Hz
Feuchtigkeit..... < 95% RF (nicht kond.)
Abmessungen ..... Ø 44 x 20,2 mm
Schutzart (Gehäuse / Klemmen) ..... IP68 / IP00
Gewicht ..... 55 g

Elektrische Daten, Eingang:

WTH- und linearer Widerstandseingang:

WTH-Typ	Min. Wert	Max. Wert	Norm
Pt25...Pt1000	-200°C	+850°C	IEC60751/JIS C 1604
Ni25...Ni1000	-60°C	+250°C	DIN 43760
Cu10...Cu1000	-50°C	+200°C	α = 0,00427
Linearer Widerst.	0 Ω	10 kΩ	-
Potentiometer	0 Ω	100 kΩ	-

Leitungswiderstand pro Leiter..... 50 Ω
Fühlerstrom ..... Nom. 0,2 mA
Wirkung des Fühlerkabelwiderst. (3-/4-Leiter) < 0,002 Ω / Ω
Fühlerfehlererkennung..... Ja
Kurzschlusserkennung ..... < 15 Ω

TE-Eingang:

Typ	Min. Wert	Max. Wert	Norm
B	+400°C	+1820°C	IEC584
E	-100°C	+1000°C	IEC584
J	-100°C	+1200°C	IEC584
K	-180°C	+1372°C	IEC584
L	-200°C	+900°C	DIN 43710
N	-180°C	+1300°C	IEC584
R	-50°C	+1760°C	IEC584
S	-50°C	+1760°C	IEC584
T	-200°C	+400°C	IEC584
U	-200°C	+600°C	DIN 43710
W3	0°C	+2300°C	ASTM E988-90
W5	0°C	+2300°C	ASTM E988-90
Ext. CJC	-40°C	+135°C	IEC60751

Vergleichstellungskompensation (CJC) ..... < ±0,5 °C
Fühlerfehlererkennung..... Ja
Fühlerfehlerstrom:
Bei Erkennung..... Nom. 4 µA
Sonst..... 0 µA
Kurzschlusserkennung ..... < 3 mV

Spannungseingang:

Messbereich..... -800...+800 mV
Eingangswiderstand..... 10 MΩ

Ausgang:

PROFIBUS® PA-Verbindung:

PROFIBUS® PA Protokoll ..... Profil A&B, Ver. 3.0
PROFIBUS® PA Protokollnorm..... EN 50170 Vol. 2
PROFIBUS® PA Adresse (bei Lieferung)..... 126
PROFIBUS® PA Funktionsblöcke ..... 2 Analoge

FOUNDATION™ Fieldbus-Verbindung:

FOUNDATION™ Fieldbus Protokoll..... FF Protokoll
FOUNDATION™ Fieldbus Protokollnorm..... FF Auslegungsbestimmungen
FOUNDATION™ Fieldbus Funktionalität..... Basic oder LAS
FOUNDATION™ Fieldbus Version..... ITK 4.6
FOUNDATION™ Fieldbus Funktionsblöcke.... 2 Analoge and 1 PID

Ex-Zulassung - 5350A:

KEMA 03ATEX1011 X	II 3 GD Ex nA [nL] IIC T4...T6 oder II 3 GD Ex nL IIC T4...T6 oder II 3 GD Ex nA [ic] IIC T4...T6 oder II 3 GD Ex ic IIC T4...T6
ATEX Installation Drawing No.	5350QE01
FM und CSA	IS, Class I, Div. 2, Group A, B, C, D IS, Class I, Zone 2, Group IIC
NEPSI	GYJ0091289U Ex nA [L] IIC T4~T6

Ex- / I.S.-Zulassung - 5350B:

KEMA 02ATEX1318	II 1 G Ex ia IIC T4...T6 oder II 2 (1) G Ex ib [ia] IIC T4...T6 II1 D Ex iaD
Für Anwendung in Zone	0, 1, 2, 20, 21 oder 22
ATEX Installation Drawing No.	5350QE01
FM und CSA	IS, Class I, Div. 1, Group A, B, C, D IS, Class I, Zone 0/1, Group IIC IS, Class I, Div. 2, Group A, B, C, D
FM und CSA Installation Drawing No.	5350QE01
INMETRO 08/UL-BRCO-0019	BR-Ex ia IIC T4, T5, T6 oder BR-Ex ib [ia] IIC T4, T5, T6
INMETRO Installation Drawing No	5350QE01
NEPSI	GYJ091290X Ex ia IIC T4~T6 Ex ib [ia] IIC T4~T6
NEPSI Installation Drawing No.	5350QE01

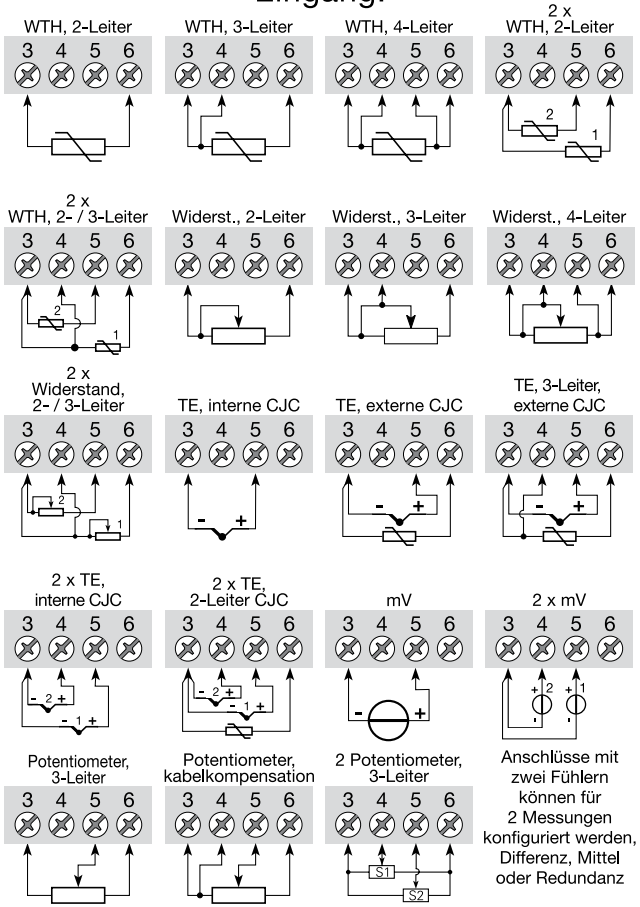
GOST R Zulassung:

VNIIM & VNIIFTRI, Cert. no.	Siehe www.prelectronics.de

Eingehaltene Richtlinien:	**Norm:**
EMV 2004/108/EG	EN 61326-1
ATEX 94/9/EG	EN 60079-0, EN 60079-11, EN 60079-15, EN 60079-26, EN 60079-27, EN 61241-0 und EN 61241-11
FM	3600, 3610, 3611
CSA, CAN / CSA	C22.2 No. 142, No. 157, No. 213,
CAN / CSA	E79-0, -11, -15
ANSI / UL	UL 60079-0, -11, -15
INMETRO	IEC 60079-0 : und IEC 60079-11
NEPSI	GB3836.1-2000, GB3836.4-2000, GB3836.8-2003

Anschlüsse:

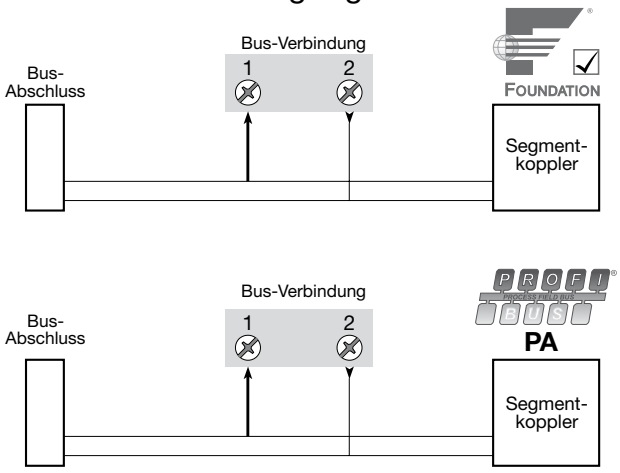
Eingang:



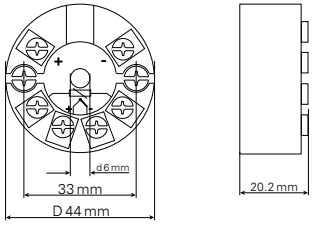
Anschlüsse mit zwei Fühlern können für 2 Messungen konfiguriert werden, Differenz, Mittel oder Redundanz

Anschlüsse:

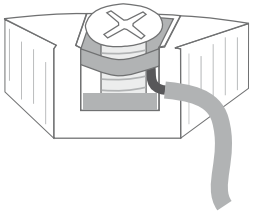
Ausgang:



Abmessungen:

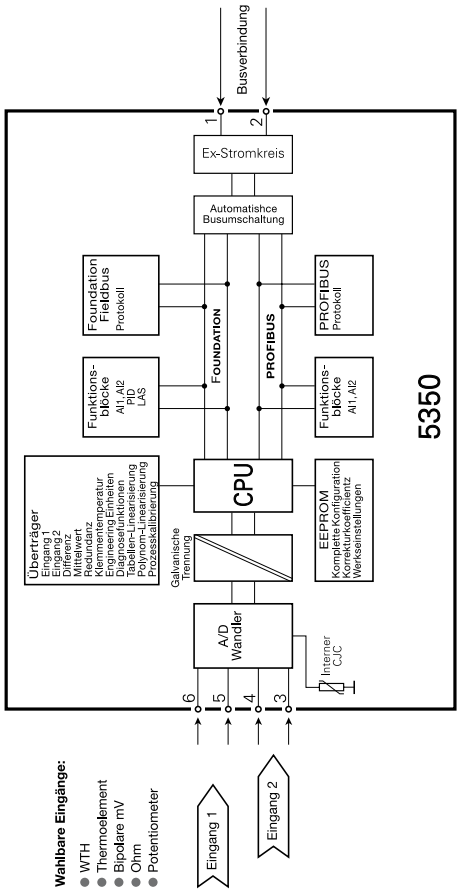


Montage von Fühlerleitungen:

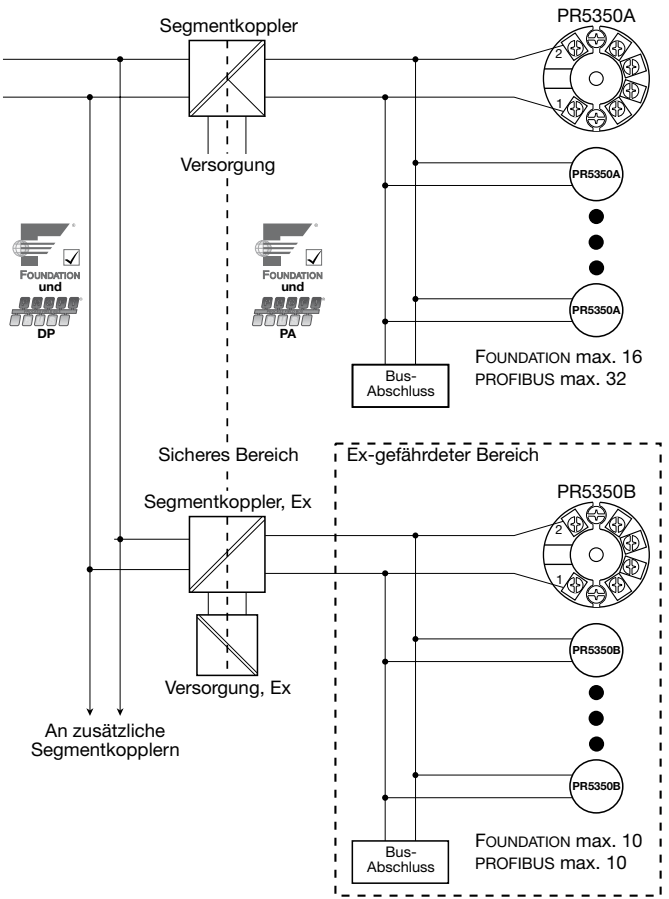


Die Leitungen müssen zwischen den Metallplatten montiert werden.

Blockdiagramm:



Businstallation:



APPENDIX

ATEX Installation Drawings - 5350A
UK, FR, DE, DK

ATEX Installation Drawings - 5350B
UK, FR, DE, DK

FM & CSA Installation Drawing No. 5350QE01

INMETRO Instruções de Segurança

NEPSI Installation Drawing

ATEX Installation drawing

5350

For safe installation of 5350A the following must be observed. The module shall only be installed by qualified personnel who are familiar with the national and international laws, directives and standards that apply to this area.
Year of manufacture can be taken from the first two digits in the serial number.

ATEX Certificate KEMA 03ATEX 1011X

Marking

II 3 GD Ex nA [nL] IIC T6..T4
II 3 GD Ex nL IIC T6..T4

T4: -40 ≤ Ta ≤ 85ºC
T6: -40 ≤ Ta ≤ 60ºC

II 3 GD Ex nA [ic] IIC T6..T4
II 3 GD Ex ic IIC T6..T4

Standards EN 60079-0 : 2006, EN 60079-11 : 2007,
EN 60079-15 : 2005, EN 60079-27 : 2006

Terminal: 3,4,5,6	**Terminal: 1,2** Ex nA	**Terminal: 1,2** Ex nL or Ex ic	**Terminal: 1,2** FNICO
Uo: 5.7 V Io: 8.4 mA Po: 12 mW Lo: 200 mH Co: 40 µF	U ≤ 32 VDC	Ui = 32 VDC Li = 1 µH Ci = 2.0 nF	Ui = 17.5 VDC Li = 1 µH Ci = 2.0 nF

Special conditions for safe use

For use in a potentially explosive atmosphere of flammable gasses, vapours or mists, the transmitter shall be mounted in an enclosure providing a degree of protection of at least IP54 in accordance to EN60529.

For use in the presence of combustible dusts the transmitter shall be mounted in an enclosure providing a degree of protection of at least IP6X in accordance with o EN60529. The surface temperature of the enclosure shall be determined after installation of the transmitter.

For an ambient temperature ≥ 60ºC, heat resistant cables shall be used with a rating of at least 20 K above the ambient temperature.

Schéma d'installation ATEX

5350

Pour une installation sûre du 5350A vous devez observer ce qui suit. Le module sera seulement installé par un personnel qualifié qui est informé des lois, des directives et des normes nationales et internationales qui s'appliquent à ce secteur.
L'année de la fabrication est indiquée dans les deux premiers chiffres dans le numéro de série.

Certificat ATEX KEMA 03ATEX 1011X

Marquage

II 3 GD Ex nA [nL] IIC T6..T4
II 3 GD Ex nL IIC T6..T4

T4: -40 ≤ Ta ≤ 85ºC
T6: -40 ≤ Ta ≤ 60ºC

II 3 GD Ex nA [ic] IIC T6..T4
II 3 GD Ex ic IIC T6..T4

Standards EN 60079-0 : 2006, EN 60079-11 : 2007,
EN 60079-15 : 2005, EN 60079-27 : 2006

Bornes : 3,4,5,6	**Bornes : 1,2** Ex nA	**Bornes : 1,2** Ex nL ou Ex ic	**Bornes : 1,2** FNICO
Uo: 5,7 V Io: 8,4 mA Po: 12 mW Lo: 200 mH Co: 40 µF	U ≤ 32 Vcc	Ui = 32 Vcc Li = 1 µH Ci = 2,0 nF	Ui = 17,5 Vcc Li = 1 µH Ci = 2,0 nF

Conditions spécifiques à l'utilisation sûre :

Pour utilisation dans les atmosphères potentiellement explosibles dû à la présence de gaz, vapeurs ou brumes inflammables, le transmetteur doit être installé dans un boîtier de protection assurant un degré d'étanchéité d'au moins IP54 conformément à l'EN 60529.

Pour utilisation dans la présence de poussières combustibles, le transmetteur doit être installé dans un boîtier de protection assurant un degré d'étanchéité d'au moins IP6X conformément à l'EN 60529. La température de surface du boîtier doit être déterminée après l'installation des unités.

Pour une température ambiante ≥60°C, il faut utiliser des câbles résistant aux températures élevées avec une capacité nominale d'au moins 20 K au dessus de la température ambiante.

ATEX **Installationszeichnung**

5350
Für die sichere Installation von 5350A ist Folgendes zu beachten: Das Gerät darf nur von qualifiziertem Personal eingebaut werden, das mit den nationalen und internationalen Gesetzen, Richtlinien und Standards auf diesem Gebiet vertraut ist.
Das Baujahr kann aus den ersten beiden Ziffern der Seriennummer ersehen werden.

ATEX-Zertifikat KEMA 03ATEX 1011X

Markierung II 3 GD Ex nA [nL] IIC T6..T4 — T4: -40 ≤ Ta ≤ 85ºC
II 3 GD Ex nL IIC T6..T4 — T6: -40 ≤ Ta ≤ 60ºC
II 3 GD Ex nA [ic] IIC T6..T4
II 3 GD Ex ic IIC T6..T4

Richtlinien EN 60079-0 : 2006, EN 60079-11 : 2007, EN 60079-15 : 2005, EN 60079-27 : 2006

Klemme: 3,4,5,6	**Klemme: 1,2** Ex nA	**Klemme: 1,2** Ex nL oder Ex ic	**Klemme: 1,2** FNICO
Uo: 5,7 V	U ≤ 32 VDC	Ui = 32 VDC	Ui = 17,5 VDC
Io: 8,4 mA		Li = 1 µH	Li = 1 µH
Po: 12 mW		Ci = 2,0 nF	Ci = 2,0 nF
Lo: 200 mH			
Co: 40 µF			

Sonderbedingungen für sichere Anwendung:

Für Anwendung in einer potentiellen explosiven Atmosphäre - basierend auf entflammbaren Gas, Dämpfen, Nebeln - muss der Messumformer in einem Gehäuse, welcher einen Schutzgrad von mindestens IP 54 gemäß EN 60529 besitzt, eingebaut werden.

Für Anwendung in die Präsenz von entflammbaren Staub, muss der Messumformer in einem Gehäuse, welcher einen Schutzgrad von mindestens IP 6X gemäß EN 60529 besitzt, eingebaut werden. Die Oberflächentemperatur des Gehäuses muss nach der Installation der Einheiten festgestellt werden.

Bei einer Umgebungstemperatur ≥60°C müssen hitzebeständige Leitungen eingesetzt werden, welche für eine mindestens 20 K höhere Umgebungstemperatur zugelassen sind.

ATEX Installationstegning

5350
For sikker installation af 5350A skal følgende overholdes: Modulet må kun installeres af kvalificerede personer, som er bekendt med national og international lovgivning, direktiver og standarder i det land, hvor modulet skal installeres.
Produktionsår fremgår af de to første cifre i serienummeret.

ATEX-certifikat KEMA 03ATEX 1011X

Mærkning II 3 GD Ex nA [nL] IIC T6..T4 — T4: -40 ≤ Ta ≤ 85ºC
II 3 GD Ex nL IIC T6..T4 — T6: -40 ≤ Ta ≤ 60ºC
II 3 GD Ex nA [ic] IIC T6..T4
II 3 GD Ex ic IIC T6..T4

Standarder EN 60079-0 : 2006, EN 60079-11 : 2007, EN 60079-15 : 2005, EN 60079-27 : 2006

Klemme: 3,4,5,6	**Klemme: 1,2** Ex nA	**Klemme: 1,2** Ex nL eller Ex ic	**Klemme: 1,2** FNICO
Uo: 5,7 V	U ≤ 32 VDC	Ui = 32 VDC	Ui = 17,5 VDC
Io: 8,4 mA		Li = 1 µH	Li = 1 µH
Po: 12 mW		Ci = 2,0 nF	Ci = 2,0 nF
Lo: 200 mH			
Co: 40 µF			

Særlige betingelser for sikker anvendelse

Ved installationer i eksplosive atmosfærer forårsaget af gasser, dampe eller tåger, skal transmitteren monteres i et hus med en tæthedsgrad på mindst IP54 i overensstemmelse med EN 60529.

Ved installationer i områder med potentiel eksplosionsfare på grund af brændbart støv, skal transmitteren monteres i et hus med en tæthedsgrad på mindst IP6X i overensstemmelse med EN 60529. Husets overfladetemperatur bestemmes efter installation af enhederne.

Hvis omgivelsestemperaturen ≥ 60°C, skal der bruges varmebestandige kabler med specifikationer på mindst 20K over omgivelsestemperaturen.

ATEX Installation drawing

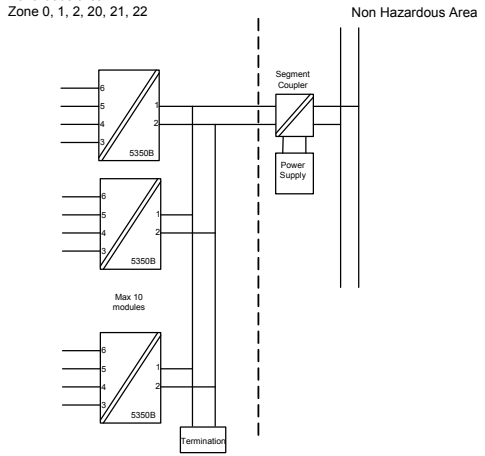
5350

For safe installation of 5350B the following must be observed. The module shall only be installed by qualified personnel who are familiar with the national and international laws, directives and standards that apply to this area.
Year of manufacture can be taken from the first two digits in the serial number.

ATEX Certificate KEMA 02ATEX 1318

Marking II 1 G Ex ia IIC T6..T4 or
II 2 (1) G Ex ib [ia] IIC T6..T4
II 1 D Ex iaD

Standards EN 60079-0 : 2006, EN 60079-11 : 2007, EN 60079-26 : 2007, EN 61241-0 : 2006, EN 61241-11 : 2006, EN 60079-27 : 2008



Supply, terminal 1,2 for Ex ia IIC					Supply, terminal 1,2 for Ex ib IIC		
Unit	**Barrier where P_o < 0.84 W**	**Barrier where P_o < 1.3 W**	**Suitable for FISCO systems**	**Suitable for FISCO systems**	**Unit**	**Barrier where P_o < 5.32 W**	**FISCO segment coupler**
U_i	30 VDC	30 VDC	17.5 VDC	15 VDC	U_i	30 VDC	17.5 VDC
I_i	120 mADC	300 mADC	250 mADC	900 mADC	I_i	250 mADC	any
P_i	0.84 W	1.3 W	2.0 W	5.32 W	P_i	5.32 W	any
L_i	1 µH	1 µH	1 µH	1 µH	L_i	1 µH	1 µH
C_i	2 nF	2 nF	2 nF	2 nF	C_i	2 nF	2 nF
T1..T4	$T_{amb.}$ < 85°C	$T_{amb.}$ < 75°C	$T_{amb.}$ < 85°C	$T_{amb.}$ < 85°C	T1..T4	$T_{amb.}$ < 85°C	$T_{amb.}$ < 85°C
T5	$T_{amb.}$ < 70°C	$T_{amb.}$ < 65°C	$T_{amb.}$ < 60°C	$T_{amb.}$ < 60°C	T5	$T_{amb.}$ < 75°C	$T_{amb.}$ < 75°C
T6	$T_{amb.}$ < 60°C	$T_{amb.}$ < 45°C	$T_{amb.}$ < 45°C	$T_{amb.}$ < 45°C	T6	$T_{amb.}$ < 60°C	$T_{amb.}$ < 60°C

Sensor input, terminal 3,4,5 and 6

Uo ..... : 5.7 VDC
Io ..... : 8.4 mA
Po ..... : 12 mW
Lo ..... : 200 mH
Co ..... : 40 µF

Installation notes.

The sensor circuit is not infallibly galvanic isolated from the input circuit. However, the galvanic isolation between the circuits is capable of withstanding a test voltage of 500Vac during 1 minute.

In a potentially explosive gas atmosphere, the transmitter shall be mounted in an enclosure in order to provide a degree of protection of at least IP20 according to EN60529.

If the transmitter is installed in an explosive atmosphere requiring the use of equipment of category 1G and if the enclosure is made of aluminium, it must be installed such, that even in the event of rare incidents, ignition sources due to impact and friction, sparks are excluded; if the enclosure is made of non-metallic materials, electrostatic charging shall be avoided.

For installation in a potentially explosive dust atmosphere, the following instructions apply:

The transmitter shall be mounted in a metal enclosure form B according to DIN43729 that is providing a degree of protection of at least IP6X according to EN60529, that is suitable for the application and correctly installed.

Cable entries and blanking elements shall be used that are suitable for the application and correctly installed.

For an ambient temperature ≥ 60ºC, heat resistant cables shall be used with a rating of at least 20 K above the ambient temperature.

The surface temperature of the enclosure is equal to the ambient temperature plus 20 K, for a dust layer with a thickness up to 5 mm

Schéma d'installation ATEX

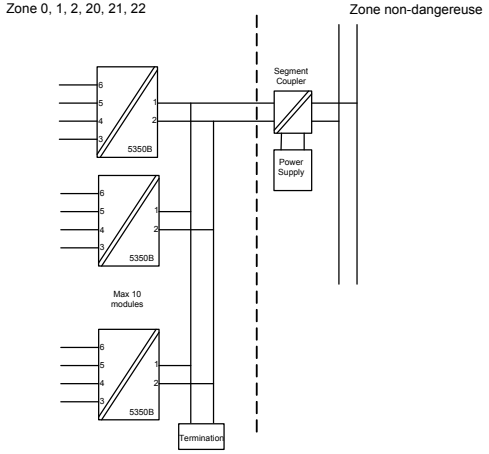
5350

Pour une installation sûre du 5350B vous devez observer ce qui suit. Le module sera seulement installé par un personnel qualifié qui est informé des lois, des directives et des normes nationales et internationales qui s'appliquent à ce secteur.
L'année de la fabrication est indiquée dans les deux premiers chiffres dans le numéro de série.

Certificat ATEX KEMA 02ATEX 1318

Marquage II 1 G Ex ia IIC T6..T4 ou
II 2 (1) G Ex ib [ia] IIC T6..T4
II 1 D Ex iaD

Standards EN 60079-0 : 2006, EN 60079-11 : 2007, EN 60079-26 : 2007,
EN 61241-0 : 2006, EN 61241-11 : 2006, EN 60079-27 : 2008



Alimentation, bornes 1,2 pour Ex ia IIC					Alimentation, bornes 1,2 pour Ex ib IIC		
Unité	**Barrière où P_o < 0,84 W**	**Barrière où P_o < 1,3 W**	**Peut être utilisé en systèmes FISCO**	**Peut être utilisé en systèmes FISCO**	**Unité**	**Barrière où P_o < 5,32 W**	**Coupleur de segment FISCO**
U_i	30 VccC	30 Vcc	17.5 Vcc	15 Vcc	U_i	30 Vcc	17,5 Vcc
I_i	120 mAcc	300 mAcc	250 mAcc	900 mAcc	I_i	250 mAcc	toutes
P_i	0,84 W	1,3 W	2,0 W	5,32 W	P_i	5,32 W	toutes
L_i	1 µH	1 µH	1 µH	1 µH	L_i	1 µH	1 µH
C_i	2 nF	2 nF	2 nF	2 nF	C_i	2 nF	2 nF
T1..T4	$T_{amb.}$ < 85°C	$T_{amb.}$ < 75°C	$T_{amb.}$ < 85°C	$T_{amb.}$ < 85°C	T1..T4	$T_{amb.}$ < 85°C	$T_{amb.}$ < 85°C
T5	$T_{amb.}$ < 70°C	$T_{amb.}$ < 65°C	$T_{amb.}$ < 60°C	$T_{amb.}$ < 60°C	T5	$T_{amb.}$ < 75°C	$T_{amb.}$ < 75°C
T6	$T_{amb.}$ < 60°C	$T_{amb.}$ < 45°C	$T_{amb.}$ < 45°C	$T_{amb.}$ < 45°C	T6	$T_{amb.}$ < 60°C	$T_{amb.}$ < 60°C

Entrée capteur, bornes 3,4,5 et 6

Uo ..... : 5,7 Vcc
Io ..... : 8,4 mA
Po ..... : 12 mW
Lo ..... : 200 mH
Co ..... : 40 µF

Notes d'installation

L'isolation galvanique entre le circuit du capteur et le circuit d'entrée n'est pas infaillible. Cependant, l'isolation galvanique entre les circuits est capable de résister à une tension de test de 500 Vca pendant 1 minute.

Dans les atmosphères potentiellement explosibles dû à la présence de gaz, le transmetteur doit être installé dans un boîtier de protection assurant un degré d'étanchéité d'au moins IP20 conformément à l'EN 60529.

Pour les installations dans les atmosphères explosibles exigeant des appareils de catégorie 1G, et dans le cas où le boîtier est fait d'aluminium, le boîtier doit être installé dans une telle manière que, même dans le cas d'incidents rares, les sources d'inflammation dûes aux impacts et aux étincelles de friction ne peuvent se produire; dans le cas où le boîtier est fait de matériaux non metalliques, les décharges électrostatiques sur le boîtier du transmetteur doivent être évitées.

Pour les installations dans les atmosphères potentiellement explosibles dû à la présence de poussières combustibles on doit observer ce qui suit :

Le transmetteur monté dans un boîtier métallique DIN B conformément à DIN 43729. Ce boîtier doit assurer un degré d'étanchéité d'au moins IP 6X conformément à l'EN 60529 et il doit convenir à l'application et être correctement installé.

Seulement des raccords de câble et des bouchons convenant à l'application et correctement installés doivent être utilisés.

Pour une température ambiante ≥60°C, il faut utiliser des câbles résistant aux températures élevées avec une capacité nominale d'au moins 20 K au dessus de la température ambiante.

La température superficielle du boîtier égale la température ambiante plus 20K, pour une couche de poussière d'un épaisseur jusqu'à 5 mm.

ATEX Installationszeichnung

5350

Für die sichere Installation von 5350B ist Folgendes zu beachten: Das Gerät darf nur von qualifiziertem Personal eingebaut werden, das mit den nationalen und internationalen Gesetzen, Richtlinien und Standards auf diesem Gebiet vertraut ist.
Das Baujahr kann aus den ersten beiden Ziffern der Seriennummer ersehen werden.

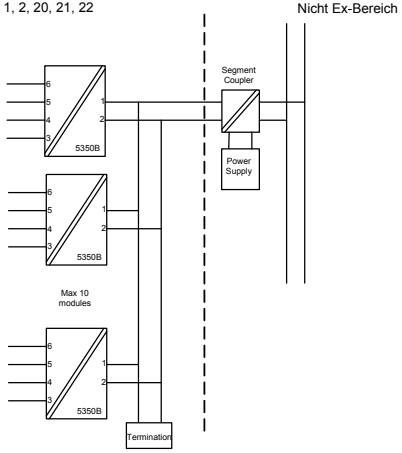
ATEX-Zertifikat KEMA 02ATEX 1318

Markierung II 1 G Ex ia IIC T6..T4 oder
II 2 (1) G Ex ib [ia] IIC T6..T4
II 1 D Ex iaD

Richtlinien EN 60079-0 : 2006, EN 60079-11 : 2007, EN 60079-26 : 2007, EN 61241-0 : 2006, EN 61241-11 : 2006, EN 60079-27 : 2008

Ex-Bereich
Zone 0, 1, 2, 20, 21, 22

Nicht Ex-Bereich



Versorgung, Klemme 1,2 für Ex ia IIC					Versorgung, Klemme 1,2 für Ex ib IIC		
Einheit	**Barriere mit P_o < 0,84 W**	**Barriere mit P_o < 1,3 W**	**Anwendung in FISCO Systeme**	**Anwendung in FISCO Systeme**	**Einheit**	**Barriere mit P_o < 5,32 W**	**FISCO Segment-koppler**
U_i	30 VDC	30 VDC	17.5 VDC	15 VDC	U_i	30 VDC	17,5 VDC
I_i	120 mADC	300 mADC	250 mADC	900 mADC	I_i	250 mADC	Alle
P_i	0,84 W	1,3 W	2,0 W	5,32 W	P_i	5,32 W	Alle
L_i	1 µH	1 µH	1 µH	1 µH	L_i	1 µH	1 µH
C_i	2 nF	2 nF	2 nF	2 nF	C_i	2 nF	2 nF
T1..T4	$T_{Umg.}$ < 85°C	$T_{Umg.}$ < 75°C	$T_{Umg.}$ < 85°C	$T_{Umg.}$ < 85°C	T1..T4	$T_{Umg.}$ < 85°C	$T_{Umg.}$ < 85°C
T5	$T_{Umg.}$ < 70°C	$T_{Umg.}$ < 65°C	$T_{Umg.}$ < 60°C	$T_{Umg.}$ < 60°C	T5	$T_{Umg.}$ < 75°C	$T_{Umg.}$ < 75°C
T6	$T_{Umg.}$ < 60°C	$T_{Umg.}$ < 45°C	$T_{Umg.}$ < 45°C	$T_{Umg.}$ < 45°C	T6	$T_{Umg.}$ < 60°C	$T_{Umg.}$ < 60°C

Fühlereingang, Klemme 3,4,5 und 6

Uo ..... : 5,7 VDC
Io ..... : 8,4 mA
Po ..... : 12 mW
Lo ..... : 200 mH
Co ..... : 40 µF

Installationsvorschriften

Die galvanische Trennung zwischen dem Sensorkreis und dem Eingangskreis ist nicht unfehlbar. Allerdings ist die galvanische Trennung zwischen den Kreisen so ausgelegt, dass diese eine Testspannung von 500 VAC für eine Minute aushält.

Für Anwendung in einer potentiellen explosiven Atmosphäre - basierend auf entflammbares Gas - muss der Messumformer in einem Gehäuse, welcher einen Schutzgrad von mindestens IP20 gemäß EN 60529 besitzt, eingebaut werden.

Für Applikationen in explosiver Atmosphäre, wo Kategorie 1G Geräte vorgeschrieben sind, und wenn das Gehäuse aus Aluminium ist, ist das Gehäuse so zu montieren, dass Zündquellen (Stöße und Reibungsfunken) selbst bei selten auftretenden Störungen vermieden werden; wenn das Gehäuse aus nichtmetallischen Bestandteile ist, muss die elektrostatische Ladung der Gehäuse vermieden werden.

Für Anwendung in einer potentiellen explosiven Atmosphäre - basierend auf entflammbaren Staub - ist Folgendes zu beachten:

Der Messumformer muss in einem Metallkopf Form B gemäß DIN 43729 montiert werden. Das Gehäuse muss einen Schutzgrad von mindestens IP 6X gemäß EN 60529 besitzen und für den dementsprechenden Einsatz zugelassen werden.

Es dürfen nur Kabeleinführungen und Abdeckungen eingesetzt werden, welche für die jeweilige Anwendung zugelassen sind.

Bei einer Umgebungstemperatur ≥60°C müssen hitzebeständige Leitungen eingesetzt werden, welche für eine mindestens 20 K höhere Umgebungstemperatur zugelassen sind.

Die Umgebungstemperatur der Gehäuse entspricht der Umgebungstemperatur plus 20K für eine Staubschicht mit einer Dicke von bis zu 5 mm.

ATEX Installationstegning

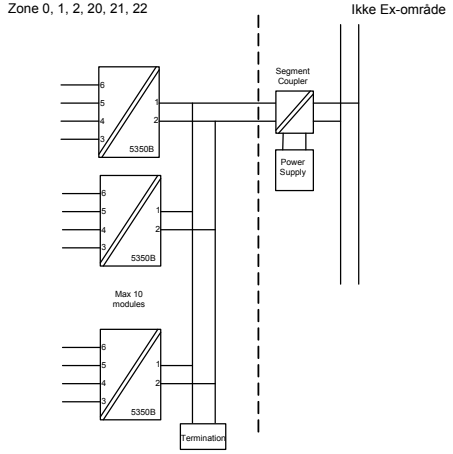
5350

For sikker installation af 5350B skal følgende overholdes: Modulet må kun installeres af kvalificerede personer, som er bekendt med national og international lovgivning, direktiver og standarder i det land, hvor modulet skal installeres.
Produktionsår fremgår af de to første cifre i serienummeret.

ATEX-certifikat KEMA 02ATEX 1318

Mærkning
II 1 G Ex ia IIC T6..T4 eller
II 2 (1) G Ex ib [ia] IIC T6..T4
II 1 D Ex iaD

Standarder EN 60079-0 : 2006, EN 60079-11 : 2007, EN 60079-26 : 2007, EN 61241-0 : 2006, EN 61241-11 : 2006, EN 60079-27 : 2008



Forsyning, klemme 1,2 for Ex ia IIC					Forsyning, klemme 1,2 for Ex ib IIC		
Enhed	**Barriere med P_o < 0,84 W**	**Barriere med P_o < 1,3 W**	**Kan anvendes i FISCO-systemer**	**Kan anvendes i FISCO-systemer**	**Enhed**	**Barriere med P_o < 5,32 W**	**FISCO segment-kobler**
U_i	30 VDC	30 VDC	17.5 VDC	15 VDC	U_i	30 VDC	17,5 VDC
I_i	120 mADC	300 mADC	250 mADC	900 mADC	I_i	250 mADC	alle
P_i	0,84 W	1,3 W	2,0 W	5,32 W	P_i	5,32 W	alle
L_i	1 µH	1 µH	1 µH	1 µH	L_i	1 µH	1 µH
C_i	2 nF	2 nF	2 nF	2 nF	C_i	2 nF	2 nF
T1..T4	$T_{omg.}$ < 85°C	$T_{omg.}$ < 75°C	$T_{omg.}$ < 85°C	$T_{omg.}$ < 85°C	T1..T4	$T_{omg.}$ < 85°C	$T_{omg.}$ < 85°C
T5	$T_{omg.}$ < 70°C	$T_{omg.}$ < 65°C	$T_{omg.}$ < 60°C	$T_{omg.}$ < 60°C	T5	$T_{omg.}$ < 75°C	$T_{omg.}$ < 75°C
T6	$T_{omg.}$ < 60°C	$T_{omg.}$ < 45°C	$T_{omg.}$ < 45°C	$T_{omg.}$ < 45°C	T6	$T_{omg.}$ < 60°C	$T_{omg.}$ < 60°C

Følerindgang, klemme 3,4,5 og 6

Uo ..... : 5,7 VDC
Io ..... : 8,4 mA
Po ..... : 12 mW
Lo ..... : 200 mH
Co ..... : 40 µF

Installationsforskrifter

Følerkredsløbet er ikke ufejlbarligt galvanisk isoleret fra indgangskredsløbet, men den galvaniske isolation mellem kredsene kan modstå en testspænding på 500 VAC i 1 minut.

I områder med potential eksplosionsfare på grund af brændbar gas skal transmitteren installeres i et hus med en kapslingsklasse på mindst IP20 i overensstemmelse med EN60529.

Hvis transmitteren installeres i eksplosive atmosfærer, hvor kategori 1G udstyr er krævet, og hvis huset er lavet af aluminium, skal det installeres således, at der selv ved sjældent opstående hændelser ikke er risiko for antændelse på grund af stød og friktionsgnister; hvis huset er lavet af ikke-metallisk materiale, skal elektrostatiske ladninger på transmitterens hus undgås.

For installation i områder med potentiel eksplosionsfare på grund af brændbart støv skal følgende overholdes:

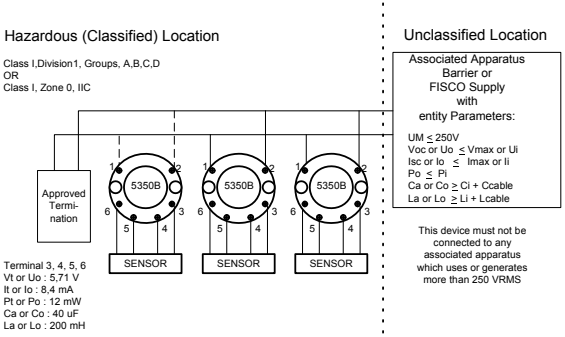
Transmitteren skal monteres i et form B metalhus i overensstemmelse med DIN 43729. Huset skal have en tæthedsgrad på mindst IP 6X i overensstemmelse med EN 60529 og skal være egnet til den pågældende applikation samt være installeret korrekt.

Der må kun anvendes kabelforskruninger og blindstik, som egner sig til den pågældende applikation og som installeres korrekt.

Hvis omgivelsestemperaturen ≥ 60°C, skal der bruges varmebestandige kabler med specifikationer på mindst 20K over omgivelsestemperaturen.

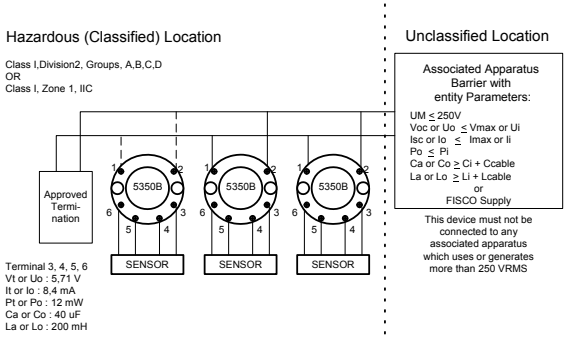
Husets overfladetemperatur er lig med den maksimale omgivelsestemperatur plus 20 K for støvlag med en tykkelse på op til 5 mm.

FM / CSA Installation drawing



Terminal 1,2				
Class I, Zone 0, Ex ia IIC, Entity / FISCO				
IS, Class I, Division 1, Group A, B, C, D Entity / FISCO				
Barrier type:	Linear barrier	Trapezoid barrier	Suitable for FISCO systems	Suitable for FISCO systems
T1..T4:	Ta ≤ +85ºC	Ta ≤ +75ºC	Ta ≤ +85ºC	Ta ≤ +85ºC
T5:	Ta ≤ +70ºC	Ta ≤ +65ºC	Ta ≤ +60ºC	Ta ≤ +60ºC
T6:	Ta ≤ +60ºC	Ta ≤ +45ºC	Ta ≤ +45ºC	Ta ≤ +45ºC
Vmax or Ui	30 V	30 V	17.5 V	15 V
Imax or Ii	120 mA	300 mA	250 mA	900 mA
Pi	0.84 W	1.3 W	2.0 W	5.32W
Ci	2.0 nF	2.0 nF	2.0 nF	2.0 nF
Li	1 µH	1 µH	1 µH	1 µH

See Installation notes.

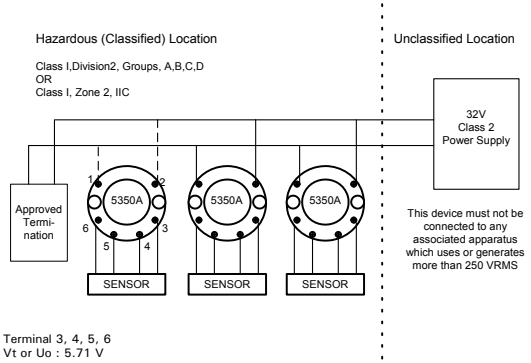


Entity Parameters		
Terminal 1, 2		
Class I, Zone 1, Ex ib IIC Entity / FISCO		
Barrier type:	Rectangular barrier	FISCO Segment coupler
T1..T4:	Ta ≤ +85ºC	Ta ≤ +85ºC
T5:	Ta ≤ +75ºC	Ta ≤ +75ºC
T6:	Ta ≤ +60ºC	Ta ≤ +60ºC
Vmax / Ui	30 V	17.5 V
Imax or Ii	250 mA	any
Pi	5.32 W	any
Ci	2.0 nF	2.0 nF
Li	1 µH	1 µH

See Installation notes.

Nonincendive Field Wiring parameters		
Terminal 1, 2		
NI, Class I, Division 2, Group A, B, C, D NIFW/ FNICO		
T1..T4:	Ta ≤ +85ºC	Ta ≤ +85ºC
T5:	Ta ≤ +75ºC	Ta ≤ +75ºC
T6:	Ta ≤ +60ºC	Ta ≤ +60ºC
Vmax / Ui	30 V	17.5 V
Pi	5.32 W	any
Ci	2.0 nF	2.0 nF
Li	1 µH	1 µH

For a current-controlled circuit the parameter Imax is not required and need not be aligned with the parameter Isc or It of the barrier or associated nonincendive field wiring apparatus.



Terminal 3, 4, 5, 6
Vt or Uo : 5.71 V
It or Io : 8.4 mA
Pt or Po : 12 mW
Ca or Co : 40 µF
La or Lo : 200 mH

Terminal 1.2
Ci: 2.0 nF
Li: 1 µH

T1..T4	-40°C ≤ Ta ≤ +85°C
T5	-40°C ≤ Ta ≤ +75°C
T6	-40°C ≤ Ta ≤ +60°C

See installation notes:

Installation notes:

FM / CSA:
For installation in the US the 5350 shall be installed according to the National Electrical Code (ANSI-NFPA 70).
For installation in Canada the transmitter shall be installed in a suitable enclosure to meet installation codes stipulated in the Canadian Electrical Code (CEC).

The entity concept:

Equipment that is FM / CSA-approved for intrinsic safety may be connected to barriers based on the ENTITY CONCEPT. This concept permits interconnection of approved transmitters, meters and other devices in combinations which have not been specifically examined by FM / CSA, provided that the agency's criteria are met. The combination is intrinsically safe, if the entity concept is acceptable to the authority having jurisdiction over the installation.
The entity concept criteria are as follows:
The intrinsically safe devices, other than barriers, must not be a source of power.
The maximum voltage Ui (V_{MAX}) and current Ii (I_{MAX}), and maximum power Pi (Pmax), which the device can receive and remain intrinsically safe, must be equal to or greater than the voltage (Uo or V_{OC} or V_t) and current (Io or I_{SC} or I_t) and the power Po which can be delivered by the barrier.
The sum of the maximum unprotected capacitance (C_i) for each intrinsically device and the interconnecting wiring must be less than the capacitance (C_a) which can be safely connected to the barrier.
The sum of the maximum unprotected inductance (L_i) for each intrinsically device and the interconnecting wiring must be less than the inductance (L_a) which can be safely connected to the barrier.
The entity parameters Uo,V_{OC} or V_t and Io,I_{SC} or I_t, and C_a and L_a for barriers are provided by the barrier manufacturer.

FISCO/FNICO rules:
The FISCO Concept allows the interconnection of intrinsically safe apparatus to associated apparatus not specifically examined in such combination. The criterion for such interconnection is that the voltage (Vmax), the current (Imax) and the power (Pi) which intrinsically safe apparatus can receive and remain intrinsically safe, considering faults, must be equal or greater than the voltage (Uo, Voc, Vt), the current (Io, Isc, It,) and the power (Po) which can be provided by the associated apparatus (supply unit). In addition, the maximum unprotected residual capacitance (Ci) and inductance (Li) of each apparatus (other than the terminators) connected to the Fieldbus must be less than or equal to:
FISCO: 5 nF and 10 µH.
FNICO: 5 nF and 20 µH

The Nonincendive Field Wiring concept allows the interconnection of nonincendive field wiring apparatus using any of the wiring methods permitted for unclassified locations.
Vmax > = Voc or Vt, Ca > = Ci +Ccable, La > = Li + Lcable"

The Nonincendive Field Wiring concept allows the interconnection of FM-approved nonincendive devices with FNICO parameters not specifically examined in combination as a system when: Uo or Voc or Vt < = Vmax, Po < = Pi

In each I.S. Fieldbus segment only one active source, normally the associated apparatus, is allowed to provide the necessary power for the Fieldbus system. The allowed voltage (Uo, Voc, Vt) of the associated apparatus used to supply the bus must be limited to the range of 14V d.c. to 24V d.c. All other equipment connected to the bus cable has to be passive, meaning that the apparatus is not allowed to provide energy to the system, except to a leakage current of 50 µA for each connected device. Separately powered equipment needs a galvanic isolation to insure that the intrinsically safe Fieldbus circuit remains passive.

The cable used to interconnect the devices needs to comply with the following parameters:

Loop resistance R': 15 ...150 Ω/Km
Inductance per unit length L': 0.4...1mH/km
Capacitance per unit length C': 80 ...200 nF/km
C' = C' line/line + 0.5 C' line/screen, if both lines are floating
or
C' = C' line/line + C' line/screen, if the screen is connected to one line
Length of spur Cable: max. 30 m
Length of trunk cable: max. 1 Km
Length of splice: max. 1 m

Terminators
At each end of the trunk cable an approved line terminator with the following parameters is suitable:
R = 90 ...100 Ω
C = 0 ...2.2 µF.

System evaluation
The number of passive devices like transmitters, actuators, connected to a single bus segment is not limited due to I.S. or N.I. reasons. Furthermore, if the above rules are respected, the inductance and capacitance of the cable need not to be considered and will not impair the intrinsic safety or nonincendive safety of the installation as applicable.
The sensor circuit is not infallibly galvanically isolated from the Fieldbus input circuit. However, the galvanic isolation between the circuits is capable of withstanding a test voltage of 500 Vac during 1 minute.

5350QE01
LERBAKKEN 10, 8410 RØNDE DENMARK. WWW.PRELECTRONICS.COM

Nonincendive Field Wiring Concept:
The Nonincendive Field Wiring concept allows for the interconnection of nonincendive field wiring apparatus using any of the wiring methods permitted for unclassified locations.
Vmax > = Voc or Vt, Ca > = Ci +Ccable, La > = Li + Lcable"

Installation Notes For FISCO and Entity Concepts:

1. The Intrinsic Safety Entity concept allows the interconnection of FM / UL / CSA-approved intrinsically safe devices (Div. 1 or Zone 0 or Zone1), with entity parameters not specifically examined in combination as a system when: Uo or Voc or Vt ≤ Vmax, Io or Isc or It ≤ Imax, Po ≤ Pi.
   Ca or Co ≥ ΣCi + ΣCcable, La or Lo ≥ ΣLi + ΣLcable, Po ≤ Pi.
2. The Intrinsic Safety FISCO concept allows the interconnection of FM / UL / CSA-approved intrinsically safe devices with FISCO parameters not specifically examined in combination as a system when:
   Uo or Voc or Vt ≤ Vmax, Io or Isc or It ≤ Imax, Po ≤ Pi.
3. Control equipment connected to the Associated Apparatus must not use or generate more than 250 Vrms or Vdc.
4. Intrinsically Safe Installation should be in accordance with ANSI/ISA RP12.6.01 (except chapter 5 for FISCO Installations) "Installation of Intrinsically Safe Systems for Hazardous (Classified) Locations" and the National Electrical Code® (ANSI/NFPA 70) Sections 504 and 505.
5. The configuration of associated Apparatus must be FM Approvals or UL / CSA Approved under the associated concept.
6. Associated Apparatus manufacturer's installation drawing must be followed when installing this equipment.
7. The 5350B is approved for Class I, Zone 0, applications. If connecting AEx[ib] associated Apparatus or AEx ib I.S. Apparatus to the 5350B the I.S. circuit is only suitable for Class I, Zone 1, or Class I, Zone 2, and is not suitable for Class I, Zone 0 or Class I, Division 1, Hazardous (Classified) Locations".
8. No revision to drawing without prior FM / UL / CSA Approval.
9. Simple Apparatus is defined as a device that neither generates nor stores more than 1.5 V, 0.1 A or 25 mW.
10. The termination must be NRTL-approved, and the resistor must be infallible.
11. **Warning**:
    For applications in Div. 2 or Zone 2 (Classified Locations) Explosion hazard: Except for nonincendive field circuits, do not disconnect the apparatus unless the area is known to be non hazardous.
12. **Warning:**
    Substitution of Components May Impair Safety.

INMETRO Instruções de Segurança.

Dados Ex: INMETRO 08/UL-BRCO-0019; BR-Ex ia IIC T4, T5, T6 ou BR-Ex ib [ia] IIC T4, T5, T6

Instalação Ex:

Para a instalação segura do transmissor 5350B em áreas classificadas, deve-se observar o seguinte: O módulo necessita ser instalado somente por pessoal qualificado e que tenham familiaridade com normas internacionais, diretivas e normalização aplicadas à estas áreas.

O ano de fabricação do instrumento pode ser obtido, observando-se os primeiros dois dígitos do seu número de série.

O circuito do sensor não está com isolação galvânica total em relação ao circuito de entrada. Todavia a isolação galvânica entre os circuitos é capaz de suportar teste de voltagem de 500Vac durante 1 minuto.

O transmissor precisa ser montado em um invólucro com um grau de proteção pelo menos IP-20.

Em atmosferas explosivas compostas por misturas de ar / poeira:

O transmissor somente poderá ser instalado em uma atmosfera potencialmente explosiva composta por poeira combustível se estiver montado no interior de um invólucro metálico forma B de acordo com a norma DIN 43729 com um grau de proteção pelo menos IP-6X de acordo com a norma IEC 60529, que seja adequado para esta aplicação e corretamente instalado.

As entradas dos cabos e outras barreiras a serem utilizadas devem ser adequadas e corretamente instaladas.

Onde a temperatura ambiente for ≥60ºC, devem ser utilizados cabos resistentes ao calor que resistam pelo menos 20K acima da temperatura ambiente.

Se o invólucro onde o transmissor está montado for feito de alumínio e instalado em Zona 0, 1 ou Zona 20,21 ou 22, este não deve conter mais do que 6% do seu peso total de magnésio e titânio.

Acessórios adicionais ao invólucro devem ser projetados e/ou instalados de tal modo que até mesmo eventos de rara incidência , fontes de ignição causadas por impactos e faíscas por fricção sejam excluídas.

Sinal de saída / alimentação , terminal 1 e 2 **Ex ia IIC T6 / T4 , FISCO** **Temp. ambiente max. depende de Po da barreira conectada.**					**Sinal de saída / alimentação , terminal 1 e 2** **Ex ib IIC T6 / T4 , FISCO** **Temp. ambiente max. depende de Po**		
Unidade	**Barreira onde P_o < 0.85 W**	**Barreira onde P_o < 1.3 W**	**Adequado parasistemas FISCO**	**Adequado parasistemas FISCO**	**Unidade**	**Barrier where P_o < 5.32 W**	**FISCO segment coupler**
U_i	30 VDC	30 VDC	17,5 VDC	15 VDC	U_i	30 VDC	17,5 VDC
I_i	120 mADC	300 mADC	250 mADC	900 mADC	I_i	250 mADC	Qualquer
P_i	0,84 W	1,3 W	2,0 W	5,32 W	P_i	5,32 W	Qualquer
L_i	1 µH	1 µH	1 µH	1 µH	L_i	1 µH	1 µH
C_i	2 nF	2 nF	2 nF	2 nF	C_i	2 nF	2 nF
T1..T4	$T_{amb.}$< 85ºC	$T_{amb.}$< 75ºC	$T_{amb.}$< 85ºC	$T_{amb.}$< 85ºC	T1..T4	$T_{amb.}$< 85ºC	$T_{amb.}$< 85ºC
T5	$T_{amb.}$< 70ºC	$T_{amb.}$< 65ºC	$T_{amb.}$< 60ºC	$T_{amb.}$< 60ºC	T5	$T_{amb.}$< 75ºC	$T_{amb.}$< 75ºC
T6	$T_{amb.}$< 60ºC	$T_{amb.}$< 45ºC	$T_{amb.}$< 45ºC	$T_{amb.}$< 45ºC	T6	$T_{amb.}$< 60ºC	$T_{amb.}$< 60ºC

Entrada do sensor, terminais 3, 4, 5 e 6:
Uo..... : 5,7 VDC Lo..... : 200 mH
Io..... : 8,4 mA Co..... : 40 µF
Po..... : 12 mW

NEPSI Installation drawing

Transmitter with Bus technology of Series 5350A manufactured by PR Electronics A/S via the test made by NEPSI (National Supervision and Inspection Center for Explosion Protection and Safety of Instrumentation have been proved that they are fulfilling the General Requirements according to Article I, GB3836.1-2000 “Electrical equipement using in the Explosive gas Environment” and the specified requirements for “n” series in Article IX, GB3836.8-2000. The symbol of explosive protection applied should be Ex nA(L) II C T4~T6 while the Certificate No. is GYJ00091289U.

Firstly, Note for the use of the products

1. The Symbol U applied after the Cert. No., indicates that this transmitter cannot be applied in explosive environment of danget until the Protection Grade of the box where the transmitter will later on be placed is not lower than IP54 (GB4208), and has been approved by the National Authorized Inspection Body.
2. The rated Voltage for the transmitter should be 32Vd.c. Proper measures should be applied to protect the working voltage from instantaneously jumping up to 40% of the rated Voltage caused by disturbance.
3. The relationship between the temperature Code and ambient temperature is indicated as follows:

Temperature Code	Ambient Temperature
T4	-40~+85
T5	-40~+75
T6	-40~+60

4. the parameters of the transmitter output which will be connected with the inputs of the Sensor (X3, X4, X5, X6) are as follows:
   Uo<5.7V Io=8.4V Po=12mW Co=40 µ F lO=200 mH
5. Only when the transmitter is combined with other power-restraint devices which have also been tested and approved by the National Authorized Inspection Body and met the requirements of GB3836.1-2000 and GB3836.8-2000 can the explosion protection system be applied in the explosive environment.
   Uo<Ui Io<Ii Po≤Pi Co≤Cc+Ci Lo≥Lc+Li
   Note: Cc, Lc indicated the parameters of distributed electric capacity of connecting cable.
   Ui, Ii, Pi indicted the parameters of the output of other power-restraint devices; Ci, Li indicated the maximum of the external parameter of the power-restraint devices.
6. Users are not allowed to replace the inner electrical parts with permission.
7. The installation, implementation and maintenance of the transmitter should strictly conformt to the Regulation of “Design Code for electricity Equipment used in explosive and flammable environment” in GB50058-1992 and “installation of Electrical Equipment in Dangerous Environment” the Article 15, Electrical Equipment of explosive gas Environment of GB3836.15-2000.

Tranmsitter with Bus technology of Series 5350B manufactured by PR Electronics A/S via the test made by NEPSI (National Supervision and Inspection Center for Explosion Protection and Safety of Instrumentation) have been proved that they are fulfilling the General Requirements according to Article I, GB 3836.1-2000 "Electrical equipment using in the Explosive gas Environment" and the specified requirements for "i." series in Article IX, GB3836.8-2000. The symbol of explosive protection are EX ia IIC T4~T6 or Ex ib(ia) IIC T4~T6 while the Certificate No. is GYJ091290X.

Note for the use of transmitter:

1. The Symbol "X" applied after the Cert. No., indicates that this transmitter cannot be applied in explosive environment of danger until the Protection Grade of the box where the transmitter will later on be placed is not lower thant IP20 (GB4208), and has been approved by the National Authorized Inspection Body. The metallic case must accord to item 8, GB3836.1-2000; the nonmetallic case must accord to item 7.3, GB3638.1-2000.

2. The relationship of the explosive protection ingress, the temperature Code, ambient temperature and max. output parameter is indicated as follows:

	Ex ia IIC			Ex ib(ia) II C
T4:	-40°C~+85°C	-40°C~+75°C	-40°C~+85°C	-40°C~+85°C
T5	-40°C~+70°C	-40°C~+65°C	-40°C~+60°C	-40°C~+75°C
T6:	-40°C~+60°C	-40°C~+45°C	-40°C~+45°C	-40°C~+60°C
Ui	30V	30V	17.5V	30V
Li	120mA	300mA	250mA	250mA
Pi	0.84W	1.3W	2.0W	5.32W

3.The max. inner capacitance and max. inner inductance of the transmitter are:

Ci=2nF Li=1 μ H

4. The transmitter in explosion protection system can only be applied in the explosive environment when it is combined with other Intrinsic safety devices which have also been tested and approved by the National Authorized Inspection Body and met the requirements of GB3836.1-2000 and GB3836.8-2000. And this explosion protection system meets the requirements belows:

Uo≤Ui Io≤Ii Po≤Pi Co≥Cc+Ci Lo≥Lc+Li

Note: Cc, Lc are distributed electric capacity parameters of connection cable.
Uo, Io, Po are maximum output parameters of relative devices; Co, Lo are maximum internal parameters of relative devices.

5. The connection cable between the transmitter and the intrinsically safe port of the associated equipment is 3-wires electric-shielded cable with the insulating jacket. The sectional acreage of wire > 0.5mm2. Its electric-shield jacket is grounded in non-dangerous area and is insulated with the house of the transmitter, the cable should be out of the electromagnetic interference.

Displays Programmable displays with a wide selection of inputs and outputs for display of temperature, volume and weight, etc. Feature linearisation, scaling, and difference measurement functions for programming via PReset software.

Ex interfaces Interfaces for analogue and digital signals as well as HART® signals between sensors / I/P converters / frequency signals and control systems in Ex zone 0, 1 & 2 and for some modules in zone 20, 21 & 22.

Isolation Galvanic isolators for analogue and digital signals as well as HART® signals. A wide product range with both loop-powered and universal isolators featuring linearisation, inversion, and scaling of output signals.

Temperature A wide selection of transmitters for DIN form B mounting and DIN rail modules with analogue and digital bus communication ranging from application-specific to universal transmitters.

Universal PC or front programmable modules with universal options for input, output and supply. This range offers a number of advanced features such as process calibration, linearisation and auto-diagnostics.

Subsidiaries

France
PR electronics Sarl
Zac du Chêne, Activillage
4, allée des Sorbiers
F-69673 Bron Cedex
sales@prelectronics.fr
tel. +33 (0) 4 72 14 06 07
fax +33 (0) 4 72 37 88 20

Germany
PR electronics GmbH
Im Erlengrund 26
D-46149 Oberhausen
sales@prelectronics.de
tel. +49 (0) 208 62 53 09-0
fax +49 (0) 208 62 53 09 99

Italy
PR electronics S.r.l.
Via Giulietti 8
IT-20132 Milano
sales@prelectronics.it
tel. +39 02 2630 6259
fax +39 02 2630 6283

Spain
PR electronics S.L.
Avda. Meridiana 354, 9º B
E-08027 Barcelona
sales@prelectronics.es
tel. +34 93 311 01 67
fax +34 93 311 08 17

Sweden
PR electronics AB
August Barks gata 6A
S-421 32 Västra Frölunda
sales@prelectronics.se
tel. +46 (0) 3149 9990
fax +46 (0) 3149 1590

UK
PR electronics UK Ltd
Middle Barn, Apuldram
Chichester
West Sussex, PO20 7FD
sales@prelectronics.co.uk
tel. +44 (0) 1243 776 450
fax +44 (0) 1243 774 065

USA
PR electronics Inc
11225 West Bernardo Court
Suite A
San Diego, California 92127
sales@prelectronics.com
tel. +1 858 521 0167
fax +1 858 521 0945

Head office

Denmark
PR electronics A/S
Lerbakken 10
DK-8410 Rønde
www.prelectronics.com
sales@prelectronics.dk
tel. +45 86 37 26 77
fax +45 86 37 30 85