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.

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

Ex barriers 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. Feature options such as mathematical functions and 2 wire transmitter interfaces.

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.

Backplane Flexible motherboard solutions for system 5000 modules. Our backplane range features flexible 8 and 16 module solutions with configuration via PReplan 8470 – a PC program with drop-down menus.

PR electronics

5333

2-Wire Programmable Transmitter

No. 5333V108-IN (0546)
From ser. no. 040179475

SIGNALS THE BEST

2-TRÅDS
PROGRAMMERBAR TRANSMITTER

PRetop 5333

Indholdsfortegnelse

Sikkerhedsinstruktion

Ex-installation:

For sikker installation af 5333B, C og D i eksplosionsfarligt område skal følgende overholdes. Installation må kun foretages af kvalificeret personale, der er bekendt med de nationale og internationale love, direktiver og standarder, der gælder for området.

Produktionsår fremgår af de to første cifre i serienummeret.

For installationsanvisninger og Ex-data henvises til ATEX-certifikat.

OVERENSSTEMMELSESERKLÆRING

Som producent erklærer

PR electronics A/S
Lerbakken 10
DK-8410 Rønde

hermed at følgende produkt:

Type: 5333
Navn: 2-Tråds programmerbar transmitter

er i overensstemmelse med følgende direktiver og standarder:

EMC-direktivet 2004/108/EF og senere tilføjelser

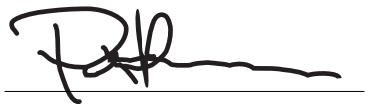
EN 61326

Denne erklæring er udgivet i overensstemmelse med EMC-direktivets paragraf 10, stk. 1. For specifikation af det acceptable EMC-niveau henvises til modulets elektriske specifikationer.

ATEX-direktivet 94/9/EF og senere tilføjelser

EN 50014, EN 50020,
EN 50281-1-1 og EN 50284
ATEX-certifikat: KEMA 03ATEX1535 X

Bemyndiget organ for CENELEC / ATEX: **UL International Demko A/S 0539**



Rønde, 17. nov. 2005

Peter Rasmussen
Producentens underskrift

2-TRÅDS PROGRAMMERBAR TRANSMITTER
PRetop 5333

- *Indgang for RTD eller Ohm*
- *Høj målenøjagtighed*
- *3-leder tilslutning*
- *Programmerbar følerfejlsværdi*
- *Kan monteres i DIN form B følerhoved*

Anvendelse:

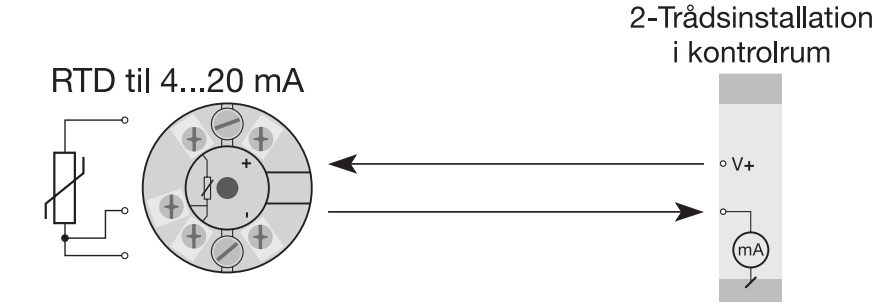
- Temperaturlineariseret måling med Pt100...Pt1000 eller Ni100...Ni1000 føler.
- Omsætning af lineær modstandsændring til standard analogt strømsignal, f.eks. fra ventiler eller ohmske niveaustave.

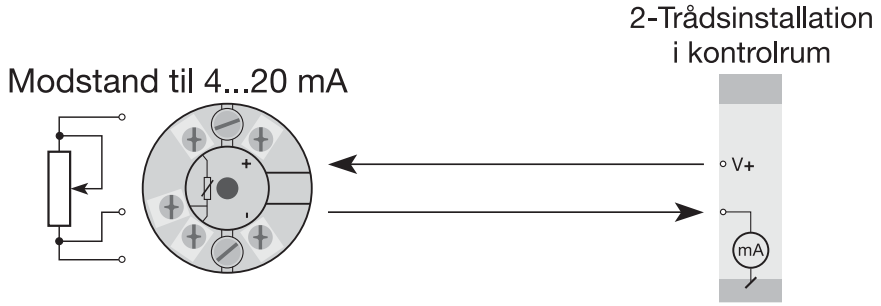
Teknisk karakteristik:

- PR5333 kan af brugeren i løbet af få sekunder programmeres til at måle inden for alle normerede RTD-temperaturområder.
- RTD- og modstandsindgangen har kabelkompensering for 3-leder tilslutning.

Montage / installation:

- Kan monteres i DIN form B følerhoved. I ikke-eksplosionsfarlige områder kan 5333 monteres på en DIN-skinne med et specielt beslag..
- **NB:** Som Ex-barriere for 5333B, C og D anbefaler vi 5104B, 5114B eller 5116B.





Bestillingsskema: 5333 __

Type	Version	
5333	Standard	: A
	ATEX	: B
	FM og ATEX	: C
	CSA, FM og ATEX	: D

Elektriske specifikationer:

Specifikationsområde:

-40°C til +85°C

Fælles specifikationer:

Forsyningsspænding DC
- Standard, 5333A ..... 8...35 V
- ATEX, 5333B ..... 8...30 V
- FM og CSA, 5333C og D ..... 8...28 V

Egetforbrug ..... 25 mW...0,8 W
Spændingsdrop ..... 8 VDC
Opvarmningstid ..... 5 min.
Kommunikationsinterface ..... Loop Link
Signal- / støjforhold ..... Min. 60 dB
Reaktionstid (programmerbar) ..... 0,33...60 s
Signaldynamik, indgang ..... 19 bit
Signaldynamik, udgang ..... 16 bit
Kalibreringstemperatur ..... 20...28°C

Nøjagtighed, størst af generelle og basisværdier:

Generelle værdier		
Indgangstype	Absolut nøjagtighed	Temperatur-koefficient
Alle	≤ ±0,1% af span	≤ ±0,01% af span / °C

Basisværdier		
Indgangstype	Basis-nøjagtighed	Temperatur-koefficient
RTD	≤ ±0,3°C	≤ ±0,01°C / °C
Lin. R	≤ ±0,2 Ω	≤ ±20 mΩ / °C

EMC-immunitetspåvirkning ..... ≤ ±0,5% af span

Virkning af forsyningsspændings-ændring ..... ≤ 0,005% af span / VDC
Vibration ..... IEC 60068-2-6 Test FC
Lloyd's specifikation nr. 1 ..... 4 g / 2...100 Hz
Max. ledningskvadrat ..... 1 x 1,5 mm^2 flerkoret ledning
Luftfugtighed ..... < 95% RH (ikke kond.)
Mål ..... Ø 44 x 20,2 mm
Tæthedsgrad (hus / klemme) ..... IP68 / IP00
Vægt ..... 50 g

Elektriske specifikationer indgang:

RTD- og lineær mod standsindgang:

RTD-type	Min. værdi	Max. værdi	Min. span
Pt100	-200°C	+850°C	25°C
Ni100	-60°C	+250°C	25°C
Lin. R	0 Ω	10000 Ω	30 Ω

Max. nulpunktsforskydning (offset) ..... 50% af valgt max. værdi
Kabelmodstand pr. leder (max.) ..... 10 Ω
Følerstrøm ..... > 0,2 mA, < 0,4 mA
Virkning af følerkabelmodstand (3-leder) ..... < 0,002 Ω / Ω
Følerfejlsdetektering ..... Ja

Udgang:

Strømudgang:

Signalområde ..... 4...20 mA
Min. signalområde ..... 16 mA
Opdateringstid ..... 135 ms
Belastningsmodstand ..... ≤ ($V_{forsyn.}$ - 8) / 0,023 [Ω]
Belastningsstabilitet ..... < ±0,01% af span / 100 Ω

Følerfejlsdetektering:

Programmerbar ..... 3,5...23 mA

NAMUR NE43 Upscale ..... 23 mA
NAMUR NE43 Downscale..... 3,5 mA

Ex- / I.S.-data:

Signaludgang / forsyning, terminal 1 og 2:

U_i..... : 30 VDC

I_i ..... : 120 mADC

P_i ..... : 0,84 W

L_i ..... : 10 µH

C_i..... : 1,0 nF

Følerindgang, terminal 3, 4 og 6:

U_o..... : 27 V

I_o..... : 7 mA

P_o ..... : 45 mW

L_o ..... : 35 mH

C_o..... : 90 nF

EEx- / I.S.-godkendelse 5333B, C og D:

KEMA 03ATEX1535 X..... ⟨Ex⟩ II 1 GD, T80°C...T105°C
EEx ia IIC T6 / T4

Max. omgivelsestemp. for T1...T4 ..... 85°C

Max. omgivelsestemp. for T5 og T6 ..... 60°C

ATEX, må anvendes i zone..... 0, 1, 2, 20, 21 eller 22

FM, må anvendes i..... IS, Class I, DIV. 1, Group A, B, C, D
IS, Class I, Zone 0, AEx ia IIC

Entity, FM Installation Drawing No. 5300Q502

CSA, må anvendes i..... IS, Class I, DIV. 1, Group A, B, C, D,
Ex ia IIC
IS, Class I, Zone 0, AEx ia IIC

Installation Drawing No. 533XQC03

Marinegodkendelse:

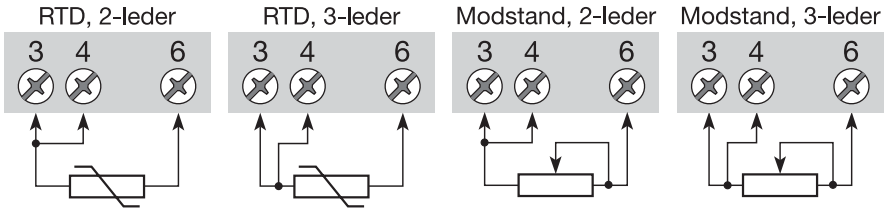
Det Norske Veritas, Ships & Offshore ..... Standard for Certification No. 2.4

Overholdte myndighedskrav:	**Standard:**
EMC 2004/108/EF	
Emission og immunitet	EN 61326
ATEX 94/9/EF	EN 50014, EN 50020, EN 50281-1-1 og EN 50284
FM, ASCN	3600, 3611, 3610
CSA, CAN / CSA.....	C22.2 No. 157, E60079-11, UL 913

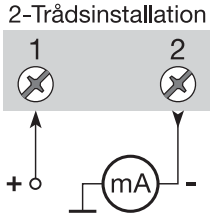
Af span = Af det aktuelt valgte område

Tilslutninger:

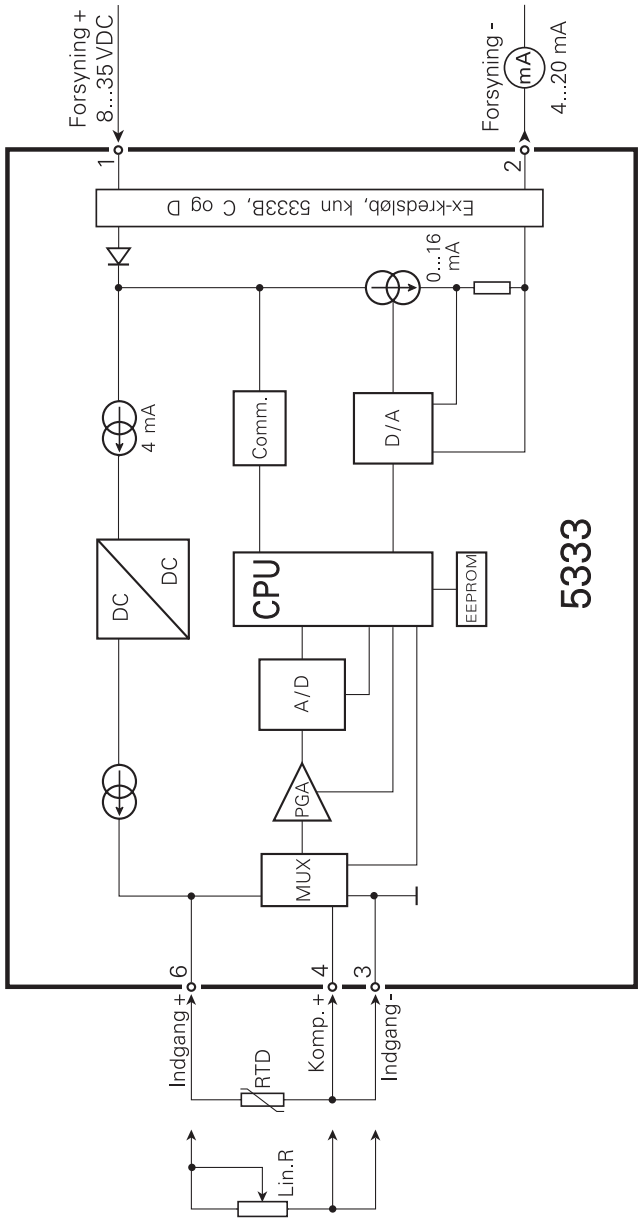
Indgang:



Udgang:



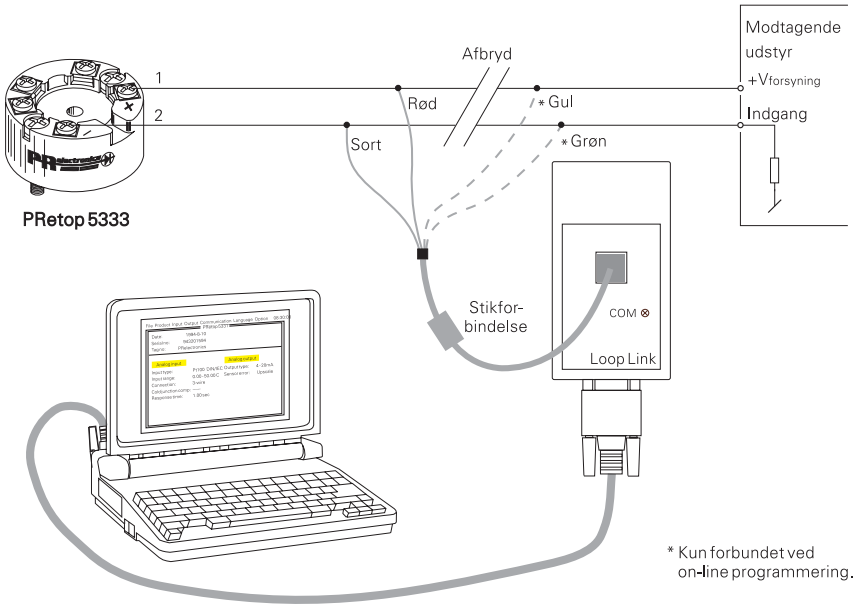
BLOKDIAGRAM:



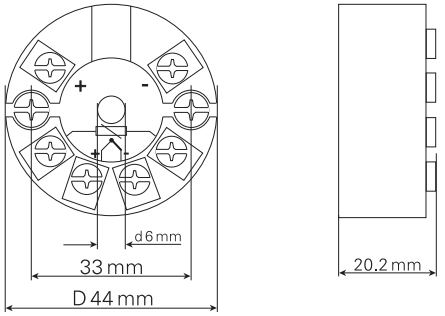
Programmering:

- Loop Link er et batteridrevet kommunikationsinterface, der er nødvendigt for programmering af PRetop 5333.
- Ved programmering henvises til tegningen nedenfor og hjælpefunktionen i PReset programmet.
- Loop Link må ikke benyttes til kommunkation med moduler installeret i Ex-område.

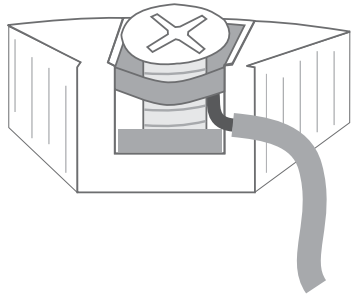
Bestilling: Loop Link



Mekaniske specifikationer:



Montering af følerledninger:



Ledninger monteres mellem metalpladerne

2-WIRE
PROGRAMMABLE TRANSMITTER

PRetop 5333

Contents

Safety instructions

Ex installation:

For a safe installation of 5333B, C and D in A hazardous area the following must be observed. The module must 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.

For installation requirements see ATEX certificate.

DECLARATION OF CONFORMITY

As manufacturer

PR electronics A/S
Lerbakken 10
DK-8410 Rønde

hererby declares that the following product:

Type: 5333
Name: 2-Wire programmable transmitter

is in conformity with the following directives and standards:

EMC directive 2004/108/EC and later amendments

EN 61326

This declaration is issued in compliance with article 10, subclause 1 of the EMC directive. 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 50014, EN 50020,
EN 50281-1-1 and EN 50284
ATEX certificate: KEMA 03ATEX1535 X

Notified body for CENELEC/ATEX: UL International Demko A/S 0539

Rønde, 17 Nov. 2005

Peter Rasmussen
Manufacturer's signature

2-WIRE PROGRAMMABLE TRANSMITTER
PRetop 5333

- *RTD or Ohm input*
- *High measurement accuracy*
- *3-wire connection*
- *Programmable sensor error value*
- *For DIN form B sensor head mounting*

Application:

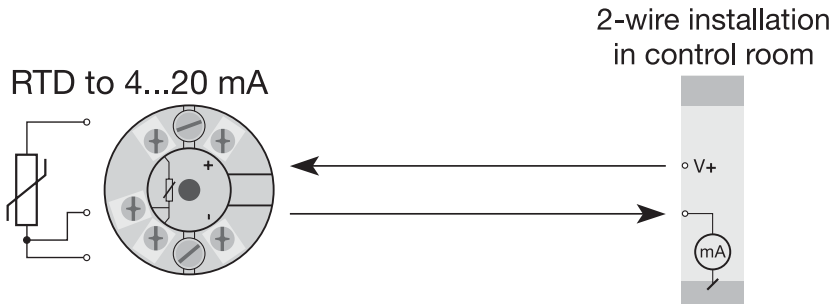
- Linearised temperature measurement with Pt100...Pt1000 or Ni100...Ni1000 sensor.
- Conversion of linear resistance variation to a standard analogue current signal, for instance from valves or Ohmic level sensors.

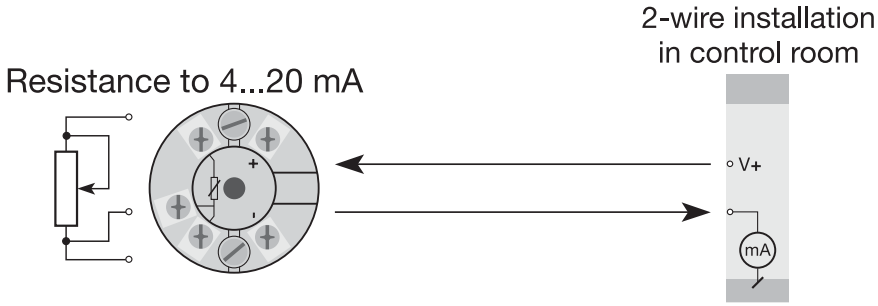
Technical characteristics:

- Within a few seconds the user can program PR5333 to measure temperatures within all RTD ranges defined by the norms.
- The RTD and resistance inputs have cable compensation for 3-wire connection.

Mounting / installation:

- For DIN form B sensor head mounting. In non-hazardous areas the 5333 can be mounted on a DIN rail with a special fitting.
- **NB:** As Ex barrier for 5333B, C og D we recommend 5104B, 5114B, or 5116B.





Order: 5333 ___

Type	Version	
5333	Standard	: A
	ATEX	: B
	FM and ATEX	: C
	CSA, FM and ATEX	: D

Electrical specifications:

Specifications range:

-40°C to +85°C

Common specifications:

Supply voltage, DC
- Standard, 5333A ..... 8...35 V
- ATEX, 5333B ..... 8...30 V
- FM and CSA, 5333C and D ..... 8...28 V

Internal consumption ..... 25 mW...0.8 W
Voltage drop ..... 8 VDC
Warm-up time ..... 5 min.
Communications interface ..... Loop Link
Signal / noise ratio ..... Min. 60 dB
Response time (programmable) ..... 0.33...60 s
Signal dynamics, input ..... 19 bit
Signal dynamics, output ..... 16 bit
Calibration temperature ..... 20...28°C

Accuracy, the greater of general and basic values:

General values		
Input type	Absolute accuracy	Temperature coefficient
All	≤ ±0.1% of span	≤ ±0.01% of span / °C

Basic values		
Input type	Basic accuracy	Temperature coefficient
RTD	≤ ±0.3°C	≤ ±0.01°C / °C
Lin. R	≤ ±0.2 Ω	≤ ±20 mΩ / °C

EMC immunity influence ..... ≤ ±0.5% of span

Effect of supply voltage variation ..... ≤ 0,005% of span / VDC
Vibration ..... IEC 60068-2-6 Test FC
Lloyd's specification no. 1 ..... 4 g / 2...100 Hz
Max. wire size ..... 1 x 1.5 mm^2 stranded wire
Humidity ..... < 95% RH (non-cond.)
Dimensions ..... Ø 44 x 20.2 mm
Tightness (enclosure / terminal) ..... IP68 / IP00
Weight ..... 50 g

Electrical specifications, input:

RTD and linear resistance input:

RTD type	Min. value	Max. value	Min. span
Pt100	-200°C	+850°C	25°C
Ni100	-60°C	+250°C	25°C
Lin. R	0 Ω	10000 Ω	30 Ω

Max. offset ..... 50% of selec. max. value
Cable resistance per wire (max.) ..... 10 Ω
Sensor current ..... > 0.2 mA, < 0.4 mA
Effect of sensor cable resistance (3-wire) ..... < 0.002 Ω / Ω
Sensor error detection ..... Yes

Output:

Current output:

Signal range ..... 4...20 mA
Min. signal range ..... 16 mA
Updating time ..... 135 ms
Load resistance ..... ≤ (V_{supply} - 8) / 0.023 [Ω]
Load stability ..... < ±0.01% of span / 100 Ω

Sensor error detection:

Programmable ..... 3.5...23 mA

NAMUR NE43 Upscale ..... 23 mA
NAMUR NE43 Downscale..... 3.5 mA

Ex / I.S. data:

Signal output / supply, terminal 1 and 2:

U_i..... : 30 VDC

I_i ..... : 120 mADC

P_i ..... : 0.84 W

L_i ..... : 10 µH

C_i..... : 1.0 nF

Sensor input, terminal 3, 4 and 6:

U_o..... : 27 V

I_o..... : 7 mA

P_o ..... : 45 mW

L_o ..... : 35 mH

C_o..... : 90 nF

EEx / I.S. approval 5333B, C og D:

KEMA 03ATEX1535 X..... ⟨Ex⟩ II 1 GD, T80°C...T105°C
EEx ia IIC T6 / T4

Max. amb. temperature for T1...T4 ..... 85°C

Max. amb. temperature for T5 and T6 ..... 60°C

ATEX, applicable in zone..... 0, 1, 2, 20, 21 or 22

FM, applicable in..... IS, Class I, DIV. 1, Group A, B, C, D
IS, Class I, Zone 0, AEx ia IIC

Entity, FM Installation Drawing No. 5300Q502

CSA, applicable in..... IS, Class I, DIV. 1, Group A, B, C, D,
Ex ia IIC
IS, Class I, Zone 0, AEx ia IIC

Installation Drawing No. 533XQC03

Marine approval:

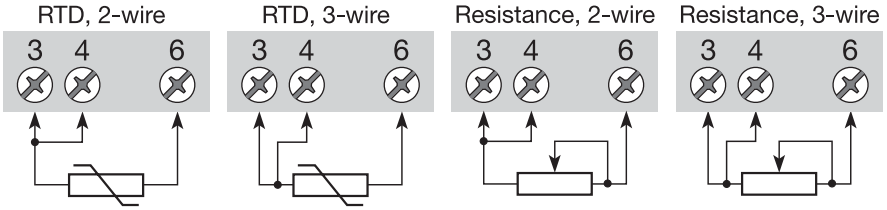
Det Norske Veritas, Ships & Offshore ..... Standard for Certification No. 2.4

Observed authority requirements:	**Standard:**
EMC 2004/108/EC	
Emission and immunity	EN 61326
ATEX 94/9/EC.....	EN 50014, EN 50020, EN 50281-1-1 and EN 50284
FM, ASCN	3600, 3611, 3610
CSA, CAN / CSA.....	C22.2 No. 157, E60079-11, UL 913

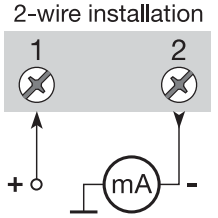
Of span = Of the presently selected range

Connections:

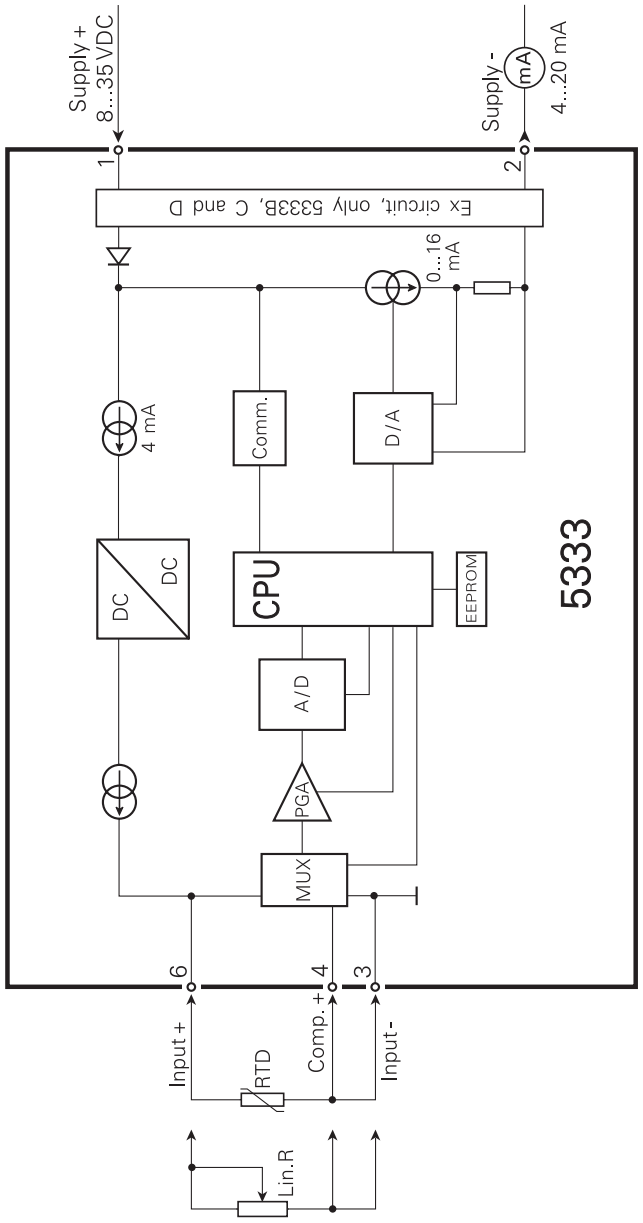
Input:



Output:



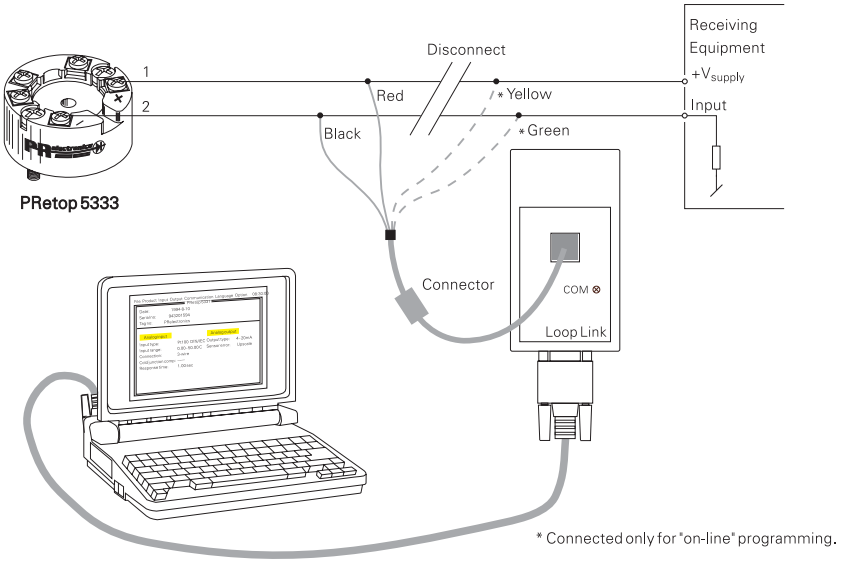
BLOCK DIAGRAM:



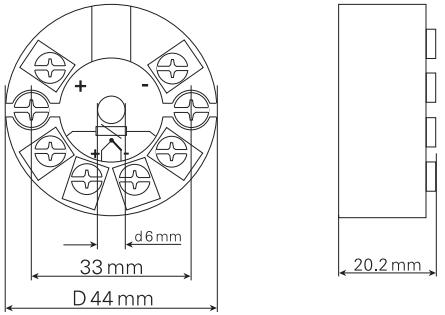
Programming:

- Loop Link is a communications interface that is needed for programming PRetop 5333.
- For programming please refer to the drawing below and the help functions in PReset.
- Loop Link is not approved for communication with modules installed in hazardous (Ex) areas.

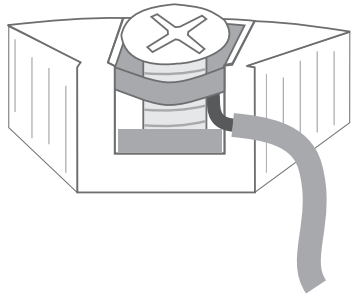
Order: Loop Link



Mechanical specifications:



Mounting of sensor wires



Wires must be mounted between the metal plates.

TRANSMETTEUR 2-FILS PROGRAMMABLE (Pt100)

PRetop 5333

Sommaire

Consigne de sécurité

Installation S.I. :

Pour l'installation de 5333B, C et D dans les zones dangereuses, conformez-vous aux consignes de sécurité suivantes : l'installation ne doit être réalisée que par du personnel qualifié connaissant la législation nationale et internationale ainsi que les directives et standards régissant ce domaine.

L'année de production ressort des deux premiers chiffres du numéro de série.

Pour les conditions d'installation et les données de sécurité intrinsèque, voir le certificat ATEX.

DECLARATION DE CONFORMITE

En tant que fabricant

PR electronics A/S
Lerbakken 10
DK-8410 Rønde

déclare que le produit suivant :

Type : 5333
Nom : Transmetteur 2-fils programmable

correspond aux directives et normes suivantes :

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

EN 61326

Cette déclaration est délivrée en correspondance à l'article 10, alinéa 1 de la directive CEM. 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 50014, EN 50020,
EN 50281-1-1 et EN 50284
Certificat ATEX : KEMA 03ATEX1535 X

Organisme notifié pour CENELEC/ATEX: **UL International Demko A/S 0539**

Rønde, le 17 novembre 2005

Peter Rasmussen
Signature du fabricant

TRANSMETTEUR 2-FILS PROGRAMMABLE (Pt100) PRetop 5333

- *Entrée RTD ou résistance*
- *Grande précision de mesure*
- *Connexion aux sondes à 3 fils*
- *Sécurité programmable*
- *Pour tête de sonde DIN B*

Application :

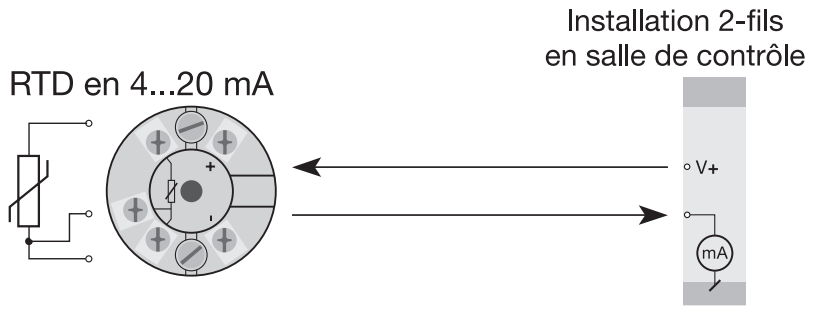
- Mesure linéarisée de la température avec un capteur Pt100...Pt1000 ou Ni100...Ni1000.
- Conversion d'une résistance linéaire en un signal courant standard analogique pour mesurer par exemple le niveau ou la position d'une vanne.

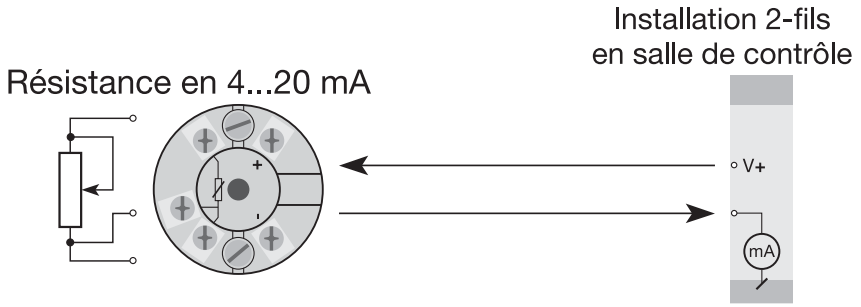
Caractéristiques techniques :

- Le PR5333 peut être programmé de manière simple et rapide.
- Compensation de ligne pour des entrées RTD et résistance avec un raccordement à 3 fils.

Montage / installation :

- Pour tête de sonde DIN B. En zone non-dangereuse le 5333 peut être monté sur rail DIN avec un support spécifique.
- **N.B. :** Comme barrière S.I. pour les 5333B, C et D nous recommandons le PR5104B, 5114B ou 5116B.





Référence : 5333

Type	Version	
5333	Standard	: A
	ATEX	: B
	FM et ATEX	: C
	CSA, FM et ATEX	: D

Spécifications électriques :

Plage des spécifications :

-40°C à +85°C

Spécifications communes :

Tension d'alimentation cc
- Standard, 5333A ..... 8...35 V
- ATEX, 5333B ..... 8...30 V
- FM et CSA, 5333C et D ..... 8...28 V

Consommation interne ..... 25 mW...0,8 W
Chute de tension ..... 8 Vcc
Temps de chauffe ..... 5 min.
Kit de programmation ..... Loop Link
Rapport signal / bruit ..... Min. 60 dB
Temps de réponse (programmable) ..... 0,33...60 s
Dynamique du signal d'entrée ..... 19 bit
Dynamique du signal de sortie ..... 16 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	≤ ±0,1% de l'EC	≤ ±0,01% de l'EC / °C

Valeurs de base		
Type d'entrée	Précision de base	Coefficient de température
RTD	≤ ±0,3°C	≤ ±0,01°C / °C
R. Lin.	≤ ±0,2 Ω	≤ ±20 mΩ / °C

Immunité CEM ..... ≤ ±0,5% de l'EC

Effet d'une variation de
la tension d'alimentation ..... ≤ 0,005% de l'EC / Vcc
Vibration ..... IEC 60068-2-6 Test FC
Lloyd, spécification no 1 ..... 4 g / 2...100 Hz
Taille max. des fils ..... 1 x 1,5 mm^2 càble multiconducteurs
Humidité ..... < 95% HR (sans cond.)
Dimensions ..... Ø 44 x 20,2 mm
Etanchéité (boîtier / bornier) ..... IP68 / IP00
Poids ..... 50 g

Spécifications électriques, entrée :

Entrée RTD et entrée résistance linéaire :

Type RTD	Valeur min.	Valeur max.	Plage min.
Pt100	-200°C	+850°C	25°C
Ni100	-60°C	+250°C	25°C
R. Lin.	0 Ω	10000 Ω	30 Ω

Décalage max. ..... 50% de la valeur max. sélectionnée
Résistance de ligne max. par fil ..... 10 Ω
Courant de sonde ..... > 0,2 mA, < 0,4 mA
Effet de la résistance de ligne
(3-fils) ..... < 0,002 Ω / Ω
Détection de rupture sonde ..... Oui

Sortie :

Sortie courant :

Gamme de mesure ..... 4...20 mA
Plage de mesure min. ..... 16 mA
Temps de scrutation ..... 135 ms
Résistance de charge ..... ≤ ($V_{alim.}$ - 8) / 0,023 [Ω]
Stabilité de charge ..... < ±0,01% de l'EC / 100 Ω

Détection de rupture de sonde :

Programmable ..... 3,5...23 mA

NAMUR NE43 Haut d'échelle ..... 23 mA
NAMUR NE43 Bas d'échelle..... 3,5 mA

Caractéristiques S.I. :

Signal de sortie / alimentation, borne 1 et 2 :

U_i ..... : 30 Vcc

I_i ..... : 120 mAcc

P_i ..... : 0,84 W

L_i ..... : 10 µH

C_i ..... : 1,0 nF

Entrée de capteur, borne 3, 4 et 6 :

U_o ..... : 27 V

I_o ..... : 7 mA

P_o ..... : 45 mW

L_o ..... : 35 mH

C_o ..... : 90 nF

Approbation EEx / S.I. 5333B, C et D :

KEMA 03ATEX1535 X..... ⟨Ex⟩ II 1 GD, T80°C...T105°C
EEx ia IIC T6 / T4
Température amb. max. (T1...T4) ..... 85°C
Température amb. max. (T5 et T6) ..... 60°C
ATEX, applicable en zone..... 0, 1, 2, 20, 21 ou 22
FM, applicable en..... IS, Class I, DIV. 1, Group A, B, C, D
IS, Class I, Zone 0, AEx ia IIC
Entity, FM Installation Drawing No. 5300Q502
CSA, applicable en..... IS, Class I, DIV. 1, Group A, B, C, D,
Ex ia IIC
IS, Class I, Zone 0, AEx ia IIC
Installation Drawing No. 533XQC03

Approbation marine:

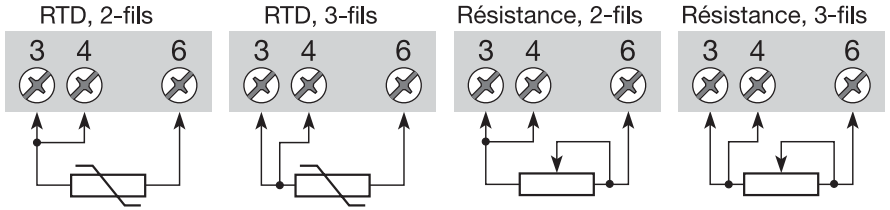
Det Norske Veritas, Ships & Offshore ..... Standard for Certification No. 2.4

Agréments et homologations :	**Standard :**
EMC 2004/108/CE	
Emission et immunité	EN 61326
ATEX 94/9/CE.....	EN 50014, EN 50020, EN 50281-1-1 et EN 50284
FM, ASCN	3600, 3611, 3610
CSA, CAN / CSA.....	C22.2 No. 157, E60079-11, UL 913

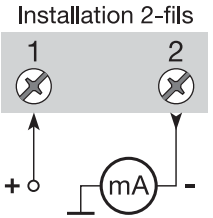
EC = Echelle configurée

Connexions :

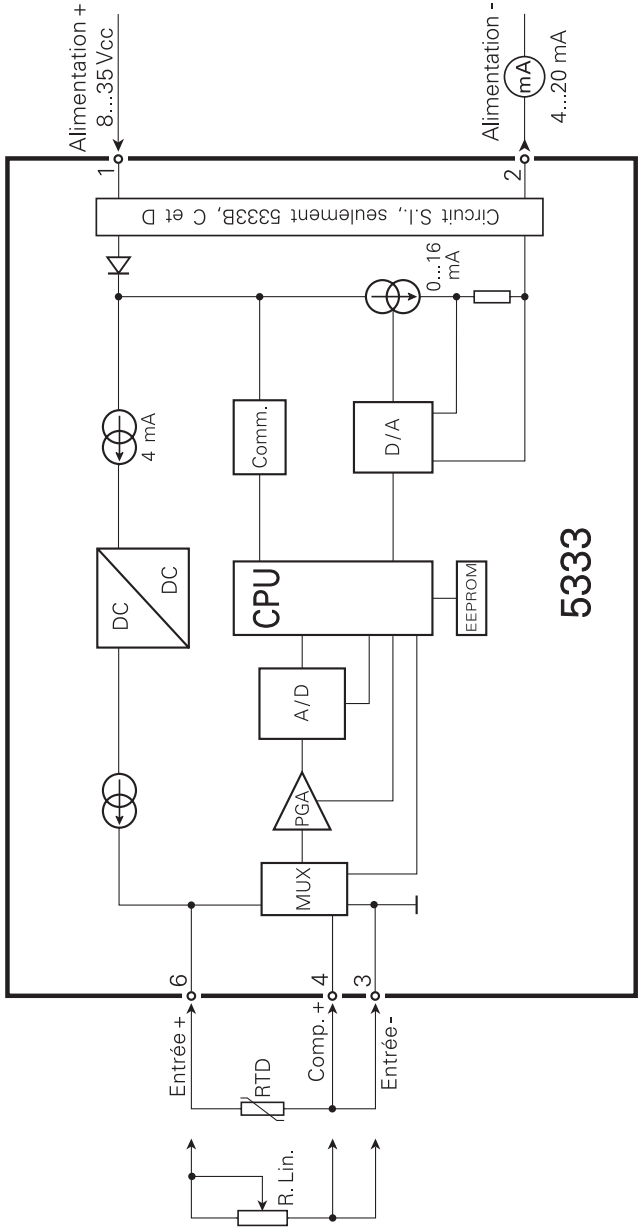
Entrée :



Sortie :



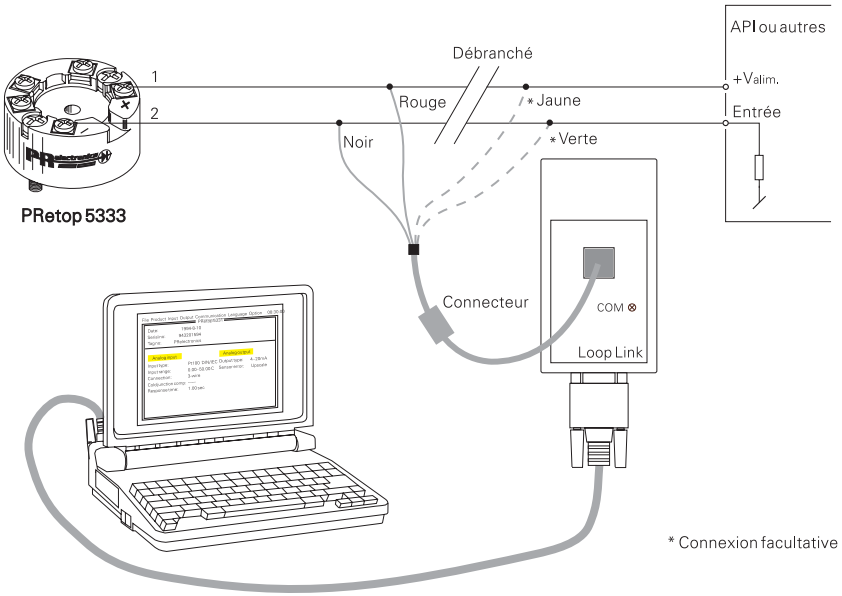
SCHEMA DE PRINCIPE :



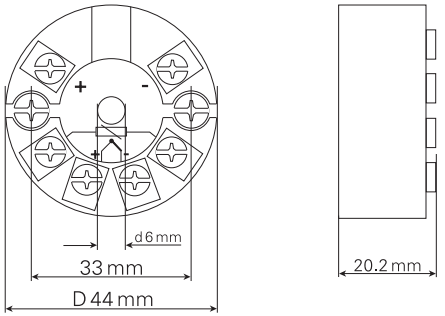
Programmation :

- Loop Link est un kit de programmation permettant de programmer le PRetop 5333.
- Pour le raccordement du Loop Link, veuillez vous reporter au schéma ci-dessous et à l'aide en ligne du logiciel PReset.
- Loop Link ne doit pas être utilisé pour communication avec des modules installés en zone dangereuse.

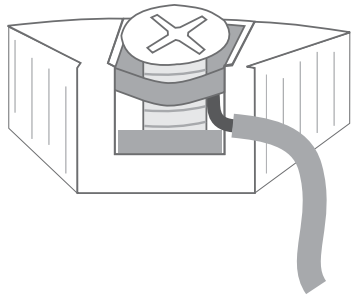
Numéro de référence : Loop Link



Dimensions mécaniques :



Montage des fils du capteur



Les fils doivent être montés entre les plaques métalliques.

2-DRAHT
PROGRAMMIERBARER MESSUMFORMER

PRetop 5333

Inhaltsverzeichnis

Sicherheitsinstruktion

Ex-Installation:

Für sichere Installation von 5333B, C und D in explosionsgefährdeter Umgebung muss folgendes beobachtet werden. Die Installation muss nur von qualifizierten Personen, die mit den nationalen und internationalen Gesetze, Direktiven und Standards des Gebiets bekannt sind, vorgenommen werden.

Die ersten beiden Ziffern der Seriennummer geben das Produktionsjahr an.

Für Einbauvorschriften und Ex-Daten siehe das ATEX-zertifikat.

KONFORMITÄTSERKLÄRUNG

Als Hersteller bescheinigt

PR electronics A/S
Lerbakken 10
DK-8410 Rønde

hiermit für das folgende Produkt:

Typ: 5333
Name: 2-Draht programmierbarer Messumformer

die Konformität mit folgenden Richtlinien und Normen:

EMV Richtlinien 2004/108/EG und nachfolgende Änderungen

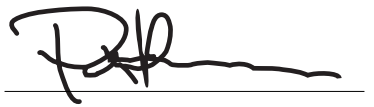
EN 61326

Diese Erklärung ist in Übereinstimmung mit Artikel 10, Unterklausel 1 der EMV Richtlinie ausgestellt. Zur Spezifikation des zulässigen Erfüllungsgrades, siehe die Elektrische Daten des Moduls.

Die ATEX Richtlinien 94/9/EG und nachfolgende Änderungen

EN 50014, EN 50020,
EN 50281-1-1 und EN 50284
ATEX-Zertifikat: KEMA 03ATEX1535 X

Zulassungsstelle für CENELEC/ATEX: **UL International Demko A/S 0539**



Rønde, 17. Nov. 2005

Peter Rasmussen
Unterschrift des Herstellers

2-DRAHT
PROGRAMMIERBARER MESSUMFORMER
PRetop 5333

- *Eingang für WTH oder Ω*
- *Hohe Messgenauigkeit*
- *3-Leiter-Anschluss*
- *Programmierbare Sensorfehlanzeige*
- *Für Einbau in Anschlusskopf DIN Form B*

Verwendung:

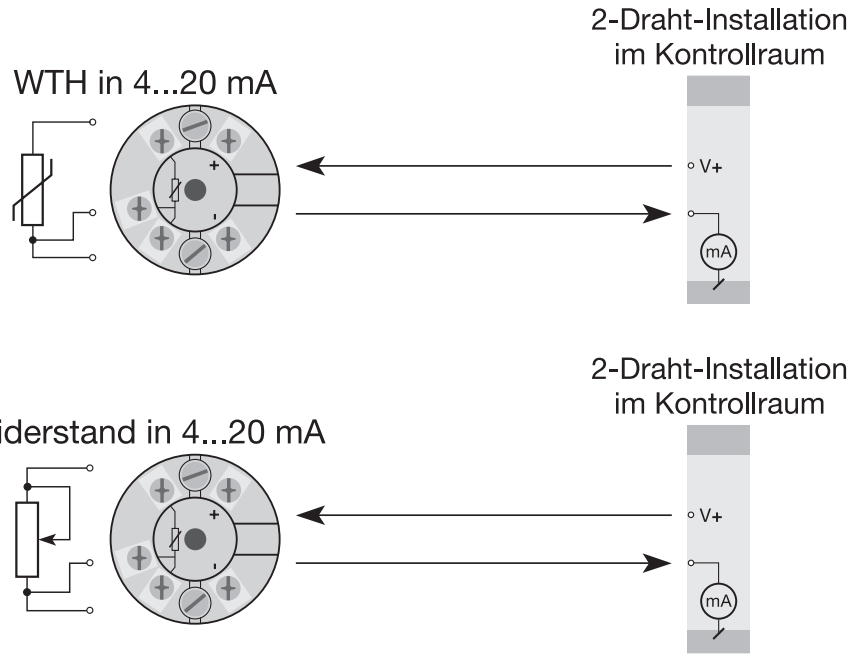
- Linearisierte Temperaturmessung mit Pt100...Pt1000, Ni100...Ni1000 Sensor.
- Umwandlung von linearer Widerstandsänderung in ein analoges Standard-Stromsignal, z.B. von Ventilen oder Niveau-Messwertgeber.

Technische Merkmale:

- PR5333 kann vom Benutzer innerhalb von wenigen Sekunden zur Messung in allen genormten WTH-Temperaturbereiche programmiert werden.
- Der WTH- und Widerstandseingang haben Leitungskompensation bei 3-Leiter-Anschluss.

Montage / Installation:

- Für DIN Form B Sensorkopf Montage. Im sicheren Bereich kann der 5333 auf einer DIN-Schiene mittels einer spezieller Armatur montiert werden.
- **NB:** Als Ex-Sicherheitsbarriere für 5333B, C und D empfehlen wir 5104B, 5114B oder 5116B.



Bestellangaben: 5333

Typ	Version	
5333	Standard	: A
	ATEX	: B
	FM und ATEX	: C
	CSA, FM und ATEX	: D

Elektrische Daten:

Spezifikationsbereich:

-40°C bis +85°C

Gemeinsame Daten:

Versorgungsspannung DC
- Standard, 5333A ..... 8...35 V
- ATEX, 5333B ..... 8...30 V
- FM und CSA, 5333C und D ..... 8...28 V

Eigenverbrauch ..... 25 mW...0,8 W
Spannungsabfall ..... 8 VDC
Aufwärmzeit ..... 5 Min.
Kommunikationsschnittstelle ..... Loop Link
Signal- / Rauschverhältnis ..... Min. 60 dB
Ansprechzeit (programmierbar) ..... 0,33...60 s
Signaldynamik, Eingang ..... 19 Bit
Signaldynamik, Ausgang ..... 16 Bit
Kalibrierungstemperatur ..... 20...28 °C

Genauigkeit, höherer Wert von allgemeinen und Grundwerten:

Allgemeine Werte		
Eingangsart	Absolute Genauigkeit	Temperatur-koeffizient
Alle	≤ ±0,1% d. Messsp.	≤ ±0,01% d. Messsp./°C

Grundwerte		
Eingangsart	Grund-genauigkeit	Temperatur-koeffizient
WTH	≤ ±0,3°C	≤ ±0,01°C / °C
Lin. R	≤ ±0,2 Ω	≤ ±20 mΩ / °C

EMV-Immunitätseinwirkung ..... ≤ ±0,5% d. Messsp.

Einfluss von Änderung der
Versorgungsspannung ..... ≤ 0,005% d. Messsp. / VDC
Vibration ..... IEC 60068-2-6 Test FC
Lloyd's Spezifikation Nr. 1 ..... 4 g / 2...100 Hz
Max. Leitungsquerschnitt ..... 1 x 1,5 mm^2 Litzendraht
Luftfeuchtigkeit ..... < 95% RF (nicht kond.)
Maß ..... Ø 44 x 20,2 mm
Schutzart (Gehäuse / Anschluss) ..... IP68 / IP00
Gewicht ..... 50 g

Elektrische Daten, Eingang:

WTH- und linearer Widerstandseingang:

WTH-Typ	Min. Wert	Max. Wert	Min. Spanne
Pt100	-200°C	+850°C	25°C
Ni100	-60°C	+250°C	25°C
Lin. R	0 Ω	10000 Ω	30 Ω

Max. Nullpunktverschiebung (Offset) ..... 50% des gewählten Max.-Wertes
Leitungswiderstand pro Leiter (Max.) ..... 10 Ω
Fühlerstrom ..... > 0,2 mA, < 0,4 mA
Wirkung des Fühlerkabelwiderstandes
(3-Leiter) ..... < 0,002 Ω / Ω
Fühlerfehlererkennung ..... Ja

Ausgang:

Stromausgang:

Signalbereich ..... 4...20 mA
Min. Signalbereich ..... 16 mA
Aktualisierungszeit ..... 135 ms
Belastungswiderstand ..... ≤ ($U_{Vers.}$ - 8) / 0,023 [Ω]
Belastungsstabilität ..... < ±0,01% d. Messsp. / 100 Ω

Fühlerfehlererkennung:

Programmierbar ..... 3,5...23 mA

NAMUR NE43 aufsteuernd ..... 23 mA
NAMUR NE43 zusteuernd ..... 3,5 mA

Ex- / I.S-Daten:

Signalausgang / Versorgung, Klemme 1 und 2:

U_i ..... : 30 VDC
I_i ..... : 120 mADC
P_i ..... : 0,84 W
L_i ..... : 10 µH
C_i ..... : 1,0 nF

Fühlereingang, Klemme 3, 4 und 6:

U_o ..... : 27 V
I_o ..... : 7 mA
P_o ..... : 45 mW
L_o ..... : 35 mH
C_o ..... : 90 nF

EEx- / I.S.-Zulassung 5333B, C und D:

KEMA 03ATEX1535 X..... ⟨Ex⟩ II 1 GD, T80°C...T105°C
EEx ia IIC T6 / T4
Max. Umgebungstemp. für T1...T4 ..... 85°C
Max. Umgebungstemp. für T5 und T6 ..... 60°C
ATEX, für Anwendung in Zone ..... 0, 1, 2, 20, 21 oder 22
FM, für Anwendung in..... IS, Class I, DIV. 1, Group A, B, C, D
IS, Class I, Zone 0, AEx ia IIC
Entity, FM Installation Drawing No. 5300Q502
CSA, für Anwendung in..... IS, Class I, DIV. 1, Group A, B, C, D,
Ex ia IIC
IS, Class I, Zone 0, AEx ia IIC
Installation Drawing No. 533XQC03

Marine-Zulassung:

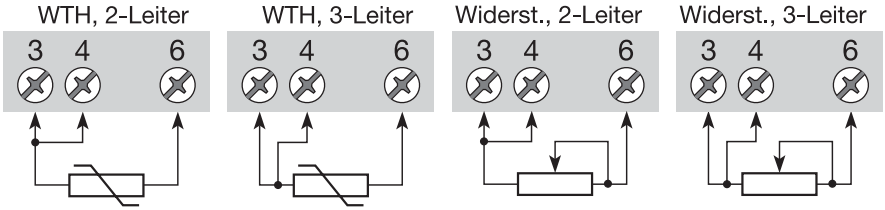
Det Norske Veritas, Ships & Offshore ..... Standard for Certification No. 2.4

Eingehaltene Behördenvorschriften:	**Norm:**
EMC 2004/108/EG	
Emission und immunität	EN 61326
ATEX 94/9/EG.....	EN 50014, EN 50020, EN 50281-1-1 und EN 50284
FM, ASCN	3600, 3611, 3610
CSA, CAN / CSA.....	C22.2 No. 157, E60079-11, UL 913

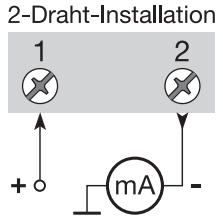
d. Messspanne = der gewählten Messspanne

Anschlüsse:

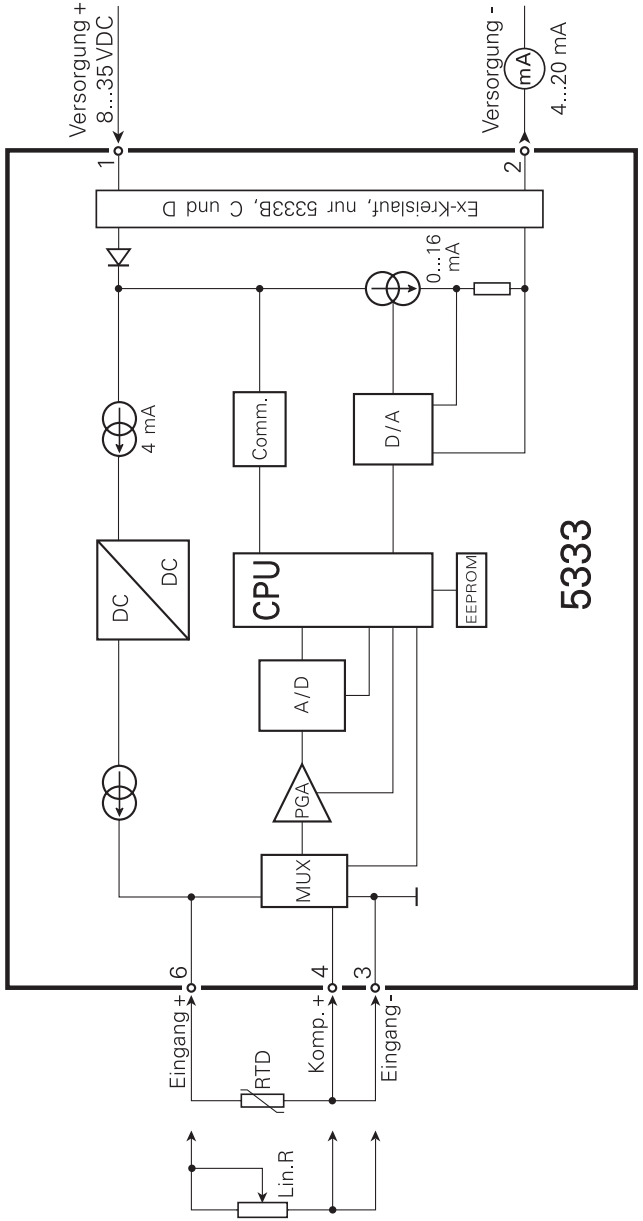
Eingang:



Ausgang:



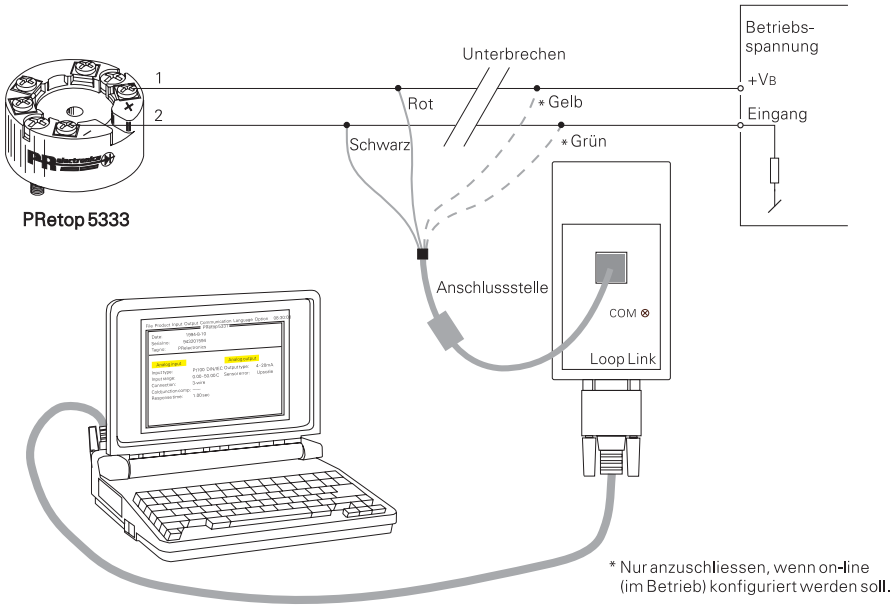
BLOCKDIAGRAMM:



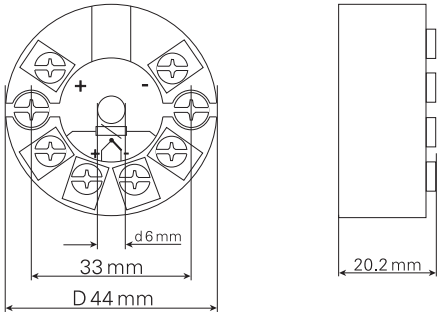
Programmierung:

- Loop Link ist eine batteriegespeiste Schnittstelle zur Programmierung des PRetop 5333.
- Bezüglich Programmierung verweisen wir auf die nachfolgende Zeichnung und die “Hilfe”-Funktion im PReset-Programm.
- Loop Link darf nicht zur Kommunikation mit Modulen, die in Ex-gefährdeten Bereichen installiert sind, benutzt werden.

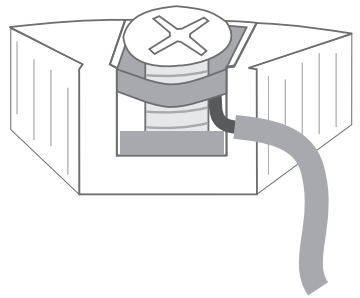
Bestellangaben: Loop Link



Abmessungen:



Montage von Fühlerleitungen:



Die Leitungen müssen zwischen den Metallplatten montiert werden.

APPENDIX

FM Installation Drawing No. 5300Q502

CSA Installation Drawing No. 533XQC03

Installation Drawing 5300Q502.

Model 5331C,5331D, 5333C and 5333D

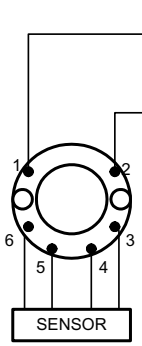
Hazardous (Classified) Location

Class I,Division1, Groups, A,B,C,D
Class II Division 1 Groups E,F,G or
Class I, Zone 0, IIC

Ambient temperature limits
T4: -40 to + 85 deg. Celcius
T6: -40 to + 60 deg. Celcius

Terminal 1 , 2
Vmax or Ui: 28 V
Imax or Ii: 120 mA
Pmax or Pi: 0.84 W
Ci: 1 nF
Li:10 uH

Terminal 3,4,5,6
Only passive, or non-energy storing devices such as RTD's and Thermocouples may be connected.



Non Hazardous Location

Associated Apparatus
or Barrier
with
entity Parameters:

UM ≤ 250V
Voc or Uo ≤ Vmax or Ui
Isc or Io ≤ Imax or Ii
Po ≤ Pi
Ca or Co ≥ Ci + Ccable
La or Lo ≥ Li + Lcable

This device must not be connected to any associated apparatus which uses or generates more than 250 VRMS

Model 5335C, 5335D.

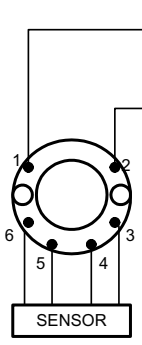
Hazardous (Classified) Location

Class I,Division1, Groups, A,B,C,D
Class II Division 1 Groups E,F,G or
Class I, Zone 0, IIC

Ambient temperature limits
T4: -40 to + 85 deg. Celcius
T6: -40 to + 60 deg. Celcius

Terminal 1 , 2
Vmax or Ui: 28 V
Imax or Ii: 120 mA
Pmax or Pi: 0.84 W
Ci: 1 nF
Li:10 uH

Terminal 3,4,5,6
Vt or Uo: 9.6 V
It or Io: 28 mA
Pt or Po: 67.2 mW
Ca or Co: 3.5 uF
La or Lo: 35 mH



Non Hazardous Location

Associated Apparatus
or Barrier
with
entity Parameters:

UM ≤ 250V
Voc or Uo ≤ Vmax or Ui
Isc or Io ≤ Imax or Ii
Po ≤ Pi
Ca or Co ≥ Ci + Ccable
La or Lo ≥ Li + Lcable

This device must not be connected to any associated apparatus which uses or generates more than 250 VRMS

The entity concept.

The Transmitter must be installed according to National Electrical Code (ANSI-NFPA 70).

When installed in Class II locations the Transmitter shall be installed in an enclosure with a specified ingress protections of IP6X according to IEC60529 and Dust-tight conduit seals must be used.

Equipment that is FM-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, provided that the agency's criteria are met. The combination is then 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.

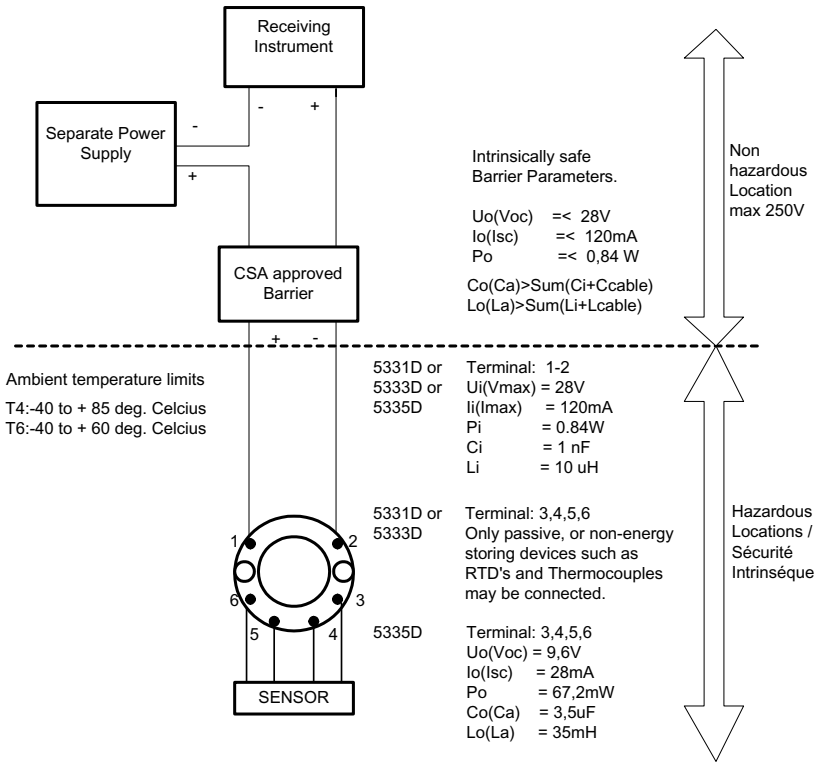
The sum of the maximum unprotected inductance (L_i) for each intrinsically device and the interconnecting wiring must be less than the inductance (L_a) which can be safely connected to the barrier.

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.

CSA Intrinsic Safety Installation Drawing.

5331D, 5333D and 5335D transmitters are approved as intrinsically safe in Zone 0 Group IIC or Class I,Division1,Group A,B,C,D when installed according to Installation Drawing.

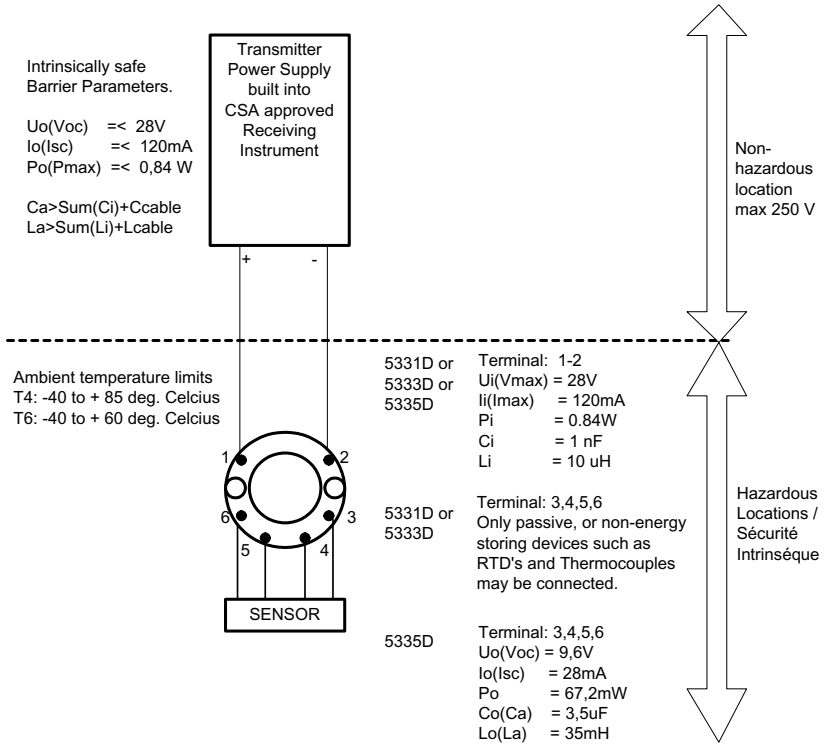
1. Connections with separate power supply and receiver.
Output: Standard 4 - 20mA loop



Warning:
Substitution of components may impair intrinsic safety.

The transmitters must be installed in a suitable enclosure to meet installation codes stipulated in the Canadian Electrical Code (CEC).

2. Connection with power supply and barrier built into receiver.
Output: Standard 4 - 20mA loop



Warning:
Substitution of components may impair intrinsic safety.

The Transmitters must be installed in a suitable enclosure to meet installation codes stipulated in the Canadian Electrical Code (CEC).

DK PR electronics A/S tilbyder et bredt program af analoge og digitale signalbehandlingsmoduler til industriel automation. Vores kompetenceområder omfatter: Isolation, Displays, Ex-barrierer, Temperatur samt Backplanes. Alle produkter opfylder de strengeste internationale standarder, og størstedelen integrerer den patenterede STREAM-SHIELD teknologi, der sikrer driftsikkerhed i selv de værste omgivelser. 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. Our areas of competence include: Isolation, Displays, Ex barriers, Temperature, and Backplanes. All products comply with the most exacting international standards and the majority feature our patented STREAM-SHIELD technology ensuring reliability in even the worst of conditions. »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. Nos compétences s'étendent des transmetteurs de température aux afficheurs, des isolateurs aux barrières SI, jusqu'aux platines de montage. Tous nos produits sont conformes aux normes internationales les plus strictes et la majorité d'entre eux répondent même à la technologie brevetée STREAM-SHEILD qui garantie un fonctionnement fiable sous les conditions les plus défavorables. 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. Unsere Kompetenzbereiche umfassen: Displays, Temperaturtransmitter, Ex- und galvanische Signaltrenner. Alle Produkte von PR electronics werden in Übereinstimmung mit den strengsten internationalen Normen produziert. Für die Mehrzahl aller Produkte garantiert die patentierte STREAM-SHIELD Technologie höchste Zuverlässigkeit auch unter schwierigsten Einsatzbedingungen. »Signals the Best« ist Ihre Garantie für Qualität!

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