PR electronics A/S
Lerbakken 10
DK-8410 Rønde

Tel. +45 8637 2677
Fax +45 8637 3085
www.prelectronics.com

SN5350_110 (1824)

DK

ADVARSEL

Følgende operationer bør kun udføres på modulet i spændingsløs tilstand og under ESD-sikre forhold. Installation, ledningsmontage og -demontage.
Fejlfinding på modulet. Reparation af modulet må kun foretages af PR electronics A/S.

ADVARSEL

PR Loop Link programmeringsenheden må ikke benyttes til kommunikation med moduler installeret i Ex-område.
Enhederne skal installeres i henhold til den tilhørende installations vejledning ved montering i eksplosionfarlig område.

SIKKERHEDSREGLER

Modtagelse og udpakning

Udpak modulet uden at beskadige det. Kontrollér ved modtagelsen, at modultypen svarer til den bestilte. Indpakningen bør følge modulet, indtil dette er monteret på blivende plads.

Miljøforhold

Undgå direkte sollys, kraftigt støv eller varme, mekaniske rystelser og stød, og udsæt ikke modulet for regn eller kraftig fugt. Om nødvendigt skal opvarmning, ud over de opgivne grænser for omgivelsestemperatur, forhindres ved hjælp af ventilation.

Installation

Modulet må kun tilsluttes af kvalificerede teknikere, som er bekendte med de tekniske udtryk, advarsler og instruktioner i installationsvejledningen, og som vil følge disse.
Hvis der er tvivl om modulets rette håndtering, skal der rettes henvendelse til den lokale forhandler eller alternativt direkte til **PR electronics A/S.**
Installation og tilslutning af modulet skal følge landets gældende regler for installation af elektrisk materiel bl.a. med hensyn til ledningstværsnit, for-sikring og placering.
Beskrivelse af indgang/udgang og forsyningsforbindelser findes i produktmanualen, som kan hentes på www.prelectronics.dk.

Kalibrering og justering

Under kalibrering og justering skal måling og tilslutning af eksterne spændinger udføres i henhold til denne installationsvejledning, og teknikeren skal benytte sikkerhedsmæssigt korrekte værktøjer og instrumenter.

Rengøring

Modulet må, i spændingsløs tilstand, rengøres med en klud let fugtet med destilleret vand.

Elektriske specifikationer

Specifikationsområde	-40°C til +85°C
Forsyningsspænding, 5350A	9,0...32 VDC
Forsyningsspænding, 5350B	9,0...30 VDC
Forsyningsspænding i FISCO-installationer	9...17,5 V
Max. forbrug	< 350 mW
Hvilestrøm	< 11 mA
Isolationsspænd., test/oper.	1,5 kVAC / 50 VAC
Kalibreringstemperatur	20...28°C
Relativ fugtighed	< 95% RH (ikke kond.)
Mål	Ø44 x 20,2 mm
Kapslingsklasse (hus/klemme)	IP68 / IP00

Indgangstyper:

Pt25...Pt1000	-200°C...+850°C
Ni25...Ni1000	-60°C...+250°C
Cu10...Cu1000	-50°C...+200°C
TC	B, E, J, K, L, N, R, S, T, U, W3, W5
Lin. R	0 Ω...10 kΩ
Potentiometer	0 Ω...10 kΩ
Spænding	-800...+800 mV

Udgang:

Bus-tilslutning	PROFIBUS PA / FOUNDATION Fieldbus

Godkendelser:

EAC	TR-CU 020/2011
EAC Ex	TR-CU 012/2011

Overholdte myndighedskrav:

EMC	2014/30/EU
ATEX	2014/34/EU
RoHS	2011/65/EU

UK

WARNING

The following operations should only be carried out on a disconnected device and under ESD safe conditions:
General mounting, connection and disconnection of wires. Troubleshooting the device.
Repair of the device must be done by PR electronics A/S only.

WARNING

Do not use the Loop Link programming interface to program the units in Ex area.
For installation in classified area the modules must be installed according to the appropriate installation drawings.

SAFETY INSTRUCTIONS

Receipt and unpacking

Unpack the device without damaging it. The packing should always follow the device until this has been permanently mounted. Check at the receipt of the device whether the type corresponds to the one ordered.

Environment

Avoid direct sunlight, dust, high temperatures, mechanical vibrations and shock, as well as rain and heavy moisture. If necessary, heating in excess of the stated limits for ambient temperatures should be avoided by way of ventilation.

Mounting

Only qualified technicians who are familiar with the technical terms, warnings, and instructions in this installation guide and who are able to follow these should connect the device.
Should there be any doubt as to the correct handling of the device, please contact your local distributor or, alternatively, **PR electronics A/S.**
Mounting and connection of the device should comply with national legislation for mounting of electric materials, i.e. wire cross section, protective fuse, and location. Descriptions of input / output and supply connections are shown in the product manual found on www.prelectronics.com.

Calibration and adjustment

During calibration and adjustment, the measuring and connection of external voltages must be carried out according to the specifications of this installation guide. The technician must use tools and instruments that are safe to use.

Cleaning

When disconnected, the device may be cleaned with a cloth moistened with distilled water.

Electrical specifications

Specifications range	-40°C to +85°C
Supply voltage, 5350A	9.0...32 VDC
Supply voltage, 5350B	9.0...30 VDC
Supply voltage in FISCO installations	9.0...17.5 V
Max. required power	< 350 mW
Quiescent current	< 11 mA
Isolation voltage, test/oper.	1.5 kVAC / 50 VAC
Calibration temperature	20...28°C
Relative humidity	< 95% RH (non-cond.)
Dimensions	Ø44 x 20.2 mm
Protection degree (encl./terminal)	IP68 / IP00

Input types:

Pt25...Pt1000	-200°C...+850°C
Ni25...Ni1000	-60°C...+250°C
Cu10...Cu1000	-50°C...+200°C
TC	B, E, J, K, L, N, R, S, T, U, W3, W5
Lin. R	0 Ω...10 kΩ
Potentiometer	0 Ω...100 kΩ
Voltage	-800...+800 mV

Output:

Bus connection	PROFIBUS PA / FOUNDATION Fieldbus

Approvals:

EAC	TR-CU 020/2011
EAC Ex	TR-CU 012/2011

Observed aothority requirements:

EMC	2014/30/EU
ATEX	2014/34/EU
RoHS	2011/65/EU

FR

AVERTISSEMENT

Les opérations suivantes doivent être effectuées avec le module débranché et dans un environnement exempt de décharges électrostatiques (ESD): montage général, raccordement et débranchement de fils et recherche de pannes sur le module.
Seule PR electronics SARL est autorisée à réparer le module.

AVERTISSEMENT

Ne pas utiliser le kit de programmation "Loop Link" en zone classée dangereuse Ex.
Pour des installations en zone classée, les modules doivent être monté conformément aux plans appropriés.

CONSIGNES DE SECURITE

Réception et déballage

Déballez le module sans l'endommager. Il est recommandé de conserver l'emballage du module tant que ce dernier n'est pas définitivement monté. A la réception du module, vérifiez que le type de module reçu correspond à celui que vous avez commandé.

Environnement

N'exposez pas votre module aux rayons directs du soleil et choisissez un endroit à humidité modérée et à l'abri de la poussière, des températures élevées, des chocs et des vibrations mécaniques et de la pluie. Le cas échéant, des systèmes de ventilation permettent d'éviter qu'une pièce soit chauffée au-delà des limites prescrites pour les températures ambiantes.

Montage

Il est conseillé de réserver le raccordement du module aux techniciens qualifiés qui connaissent les termes techniques, les avertissements et les instructions de ce guide et qui sont capables d'appliquer ces dernières.
Si vous avez un doute quelconque quant à la manipulation du module, veuillez contacter votre distributeur local. Vous pouvez également vous adresser à **PR electronics SARL.**
Le montage et le raccordement du module doivent être conformes à la législation nationale en vigueur pour le montage de matériaux électriques, par exemple, diamètres des fils, fusibles de protection et implantation des modules. Les connexions des alimentations et des entrées / sorties sont décrites dans le manuel du produit sur www.prelectronics.fr.

Etalonnage et réglage

Lors des opérations d'étalonnage et de réglage, il convient d'effectuer les mesures et les connexions des tensions externes en respectant les spécifications mentionnées dans ce guide. Les techniciens doivent utiliser des outils et des instruments pouvant être manipulés en toute sécurité.

Maintenance et entretien

Une fois le module hors tension, prenez un chiffon imbibé d'eau distillée pour le nettoyer.

Spécifications

Plage de température	-40°C à +85°C
Tension d'alimentation, 5350A	9,0...32 Vcc
Tension d'alimentation, 5350B	9,0...30 Vcc
Tension d'alimentation dans les installations FISCO	9,0...17,5 V
Puissance maximale requise	< 350 mW
Courant de repos	< 11 mA
Tension d'iso. test/opér.	1,5 kVca / 50 Vca
Température d'étalonnage	20...28°C
Humidité relative	< 95% HR (sans cond.)
Dimensions	Ø44 x 20,2 mm
Degré de protection (boîtier/bornier)	IP68 / IP00

Types d'entrée:

Pt25...Pt1000	-200°C...+850°C
Ni25...Ni1000	-60°C...+250°C
Cu10...Cu1000	-50°C...+200°C
TC	B, E, J, K, L, N, R, S, T, U, W3, W5
Résistance linéaire	0 Ω...10 kΩ
Potentiomètre	0 Ω...100 kΩ
Tension	-800...+800 mV

Sortie:

Connexion bus	PROFIBUS PA / Fieldbus FOUNDATION

Approbations:

EAC	TR-CU 020/2011
EAC Ex	TR-CU 012/2011

Compatibilité avec les normes:

CEM	2014/30/EU
ATEX	2014/34/EU
RoHS	2011/65/EU

DE

WARNUNG

Folgende Maßnahmen sollten nur in spannungslosem Zustand des Gerätes und unter ESD-sicheren Verhältnisse durchgeführt werden: Installation, Montage und Demontage von Leitungen. Fehlersuche im Gerät. und Reparaturen des Gerätes dürfen nur von PR electronics A/S vorgenommen werden.

WARNUNG

Benutzen Sie die Programmierschnittstelle Loop Link nicht im Ex Bereich
Zur Montage in klassifizierten Zonen müssen die Geräte nach den dazugehörigen Einbauzeichnungen installiert werden.

SICHERHEITSREGELN

Empfang und Auspacken

Packen Sie das Gerät aus, ohne es zu beschädigen, und kontrollieren Sie beim Empfang, ob der Gerätetyp Ihrer Bestellung entspricht. Die Verpackung sollte beim Gerät bleiben, bis dieses am endgültigen Platz montiert ist.

Umgebungsbedingungen

Direkte Sonneneinstrahlung, starke Staubentwicklung oder Hitze, mechanische Erschütterungen und Stöße sind zu vermeiden; das Gerät darf nicht Regen oder starker Feuchtigkeit ausgesetzt werden. Bei Bedarf muss eine Erwärmung, welche die angegebenen Grenzen für die Umgebungstemperatur überschreitet, mit Hilfe eines Kühlgebläses verhindert werden.

Installation

Das Gerät darf nur von qualifizierten Technikern angeschlossen werden, die mit den technischen Ausdrücken, Warnungen und Anweisungen in dieser Installationsanleitung vertraut sind und diese befolgen.
Sollten Zweifel bezüglich der richtigen Handhabung des Gerätes bestehen, sollte man mit dem Händler vor Ort Kontakt aufnehmen. Sie können aber auch direkt mit **PR electronics GmbH** Kontakt aufnehmen.

Die Installation und der Anschluss des Gerätes haben in Übereinstimmung mit den geltenden Regeln des jeweiligen Landes bez. der Installation elektrischer Apparaturen zu erfolgen, u.a. bezüglich Leitungsquerschnitt, (elektrischer) Vor-Absicherung und Positionierung.
Eine Beschreibung von Eingangs- / Ausgangs- und Versorgungsanschlüssen befindet sich im Produkthandbuch, das unter www.prelectronics.de gefunden und abgerufen werden kann.

Kalibrierung und Justierung

Während der Kalibrierung und Justierung sind die Messung und der Anschluss externer Spannungen entsprechend dieser Installationsanleitung auszuführen, und der Techniker muss hierbei sicherheitsmäßig einwandfreie Werkzeuge und Instrumente benutzen.

Reinigung

Das Gerät darf in spannungslosem Zustand mit einem Lappen gereinigt werden, der mit destilliertem Wasser leicht angefeuchtet ist.

Elektrische Daten

Spezifikationsbereich	-40°C bis +85°C
Versorgungsspannung, 5350A	9,0...32 VDC
Versorgungsspannung, 5350B	9,0...30 VDC
Versorgungsspannung in FISCO-Installationen	9,0...17,5 V
Leistungsbedarf, max.	< 350 mW
Ruhestrom	< 11 mA
Isolationsspannung, Test / Betrieb	1,5 kVAC / 50 VAC
Kalibrierungstemperatur	20...28°C
Luftfeutigkeit	< 95% RF (nicht kond.)
Maß	Ø44 x 20,2 mm
Schutzart (Gehäuse / Anschluss)	IP68 / IP00

Eingangs-Typen:

Pt25...Pt1000	-200°C...+850°C
Ni25...Ni1000	-60°C...+250°C
Cu10...Cu1000	-50°C...+200°C
TE	B, E, J, K, L, N, R, S, T, U, W3, W5
Lin. R	0 Ω...10 kΩ
Potentiometer	0 Ω...100 kΩ
Spannung	-800...+800 mV

Ausgang:

Bus-Verbindung	PROFIBUS PA / FOUNDATION Fieldbus

Zulassungen:

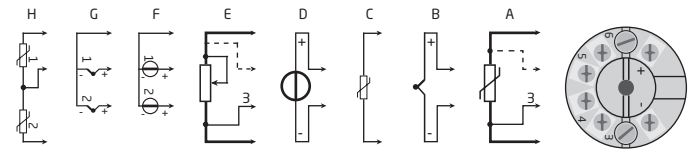
EAC	TR-CU 020/2011
EAC Ex	TR-CU 012/2011

Eingehaltene Behördenvorschriften:

EMV	2014/30/EU
ATEX	2014/34/EU
RoHS	2011/65/EU

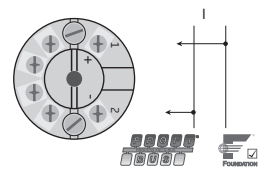
DK Installationsvejledningen for teknikere omfatter følgende produkter: 5350A og 5350B.
UK This installation guide for technical personnel covers the following products: 5350A and 5350B.
FR Ce guide d'installation pour le personnel qualifié couvre les produits suivants: 5350A et 5350B.
DE Diese Installationsanleitung für Techniker umfasst die folgenden Produkte: 5350A und 5350B.

DK Indgangssignaler UK Input signals FR Signaux d'entrée DE Eingangssignale

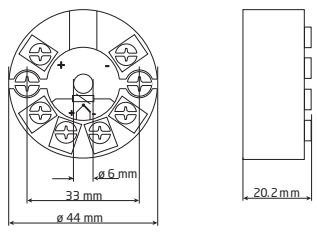


	DK	UK	FR	DE
A	RTD	RTD	RTD	WTH
B	TC	TC	TC	TE
C	CJC	CJC	CSF	CJC
D	Spænding	Voltage	Tension	Spannung
E	Lin R	Lin R	Lin R	Lin R
F	mV, differens eller middel	mV, difference or average	mV, différence ou moyen	mV, Differenz oder Mittel
G	TC, differens eller middel, med intern CJC	TC, difference or average, with internal CJC	TC, différence ou moyen avec CSF interne	TE, Differenz oder Mittel, mit interner CJC
H	RTD, differens eller middel	RTD, difference or average	RTD, différence ou moyen	WTH, Differenz oder Mittel

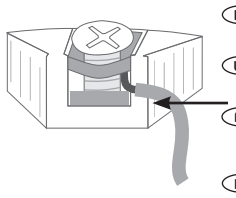
DK Udgangssignaler UK Output signals FR Signaux de sortie DE Ausgangssignale



	DK	UK	FR	DE
I	PROFIBUS eller FOUNDATION FIELDBUS	PROFIBUS or FOUNDATION FIELDBUS	PROFIBUS ou FIELDBUS FOUNDATION	PROFIBUS oder FOUNDATION FIELDBUS



DK Mekaniske specifikationer.
UK Mechanical specifications.
FR Dimensions mécaniques.
DE Abmessungen.



DK Montering af føleledninger
Ledninger monteres mellem metalpladerne. Ledningskvadrat (max.) 1 x 1,5 mm² flerkoret ledning. Klemskruetilspændingsmoment 0,4 Nm.

UK Mounting of sensor wires
Wires must be mounted between the metal plates. Max. wire size 1 x 1.5 mm² stranded wire. Screw terminal torque 0.4 Nm.

FR Montage des fils du capteur
Les fils doivent être montés entre les plaques métalliques. Taille max. des fils 1 x 1,5 mm² fils multibrins. Pression max. avant déformation de la vis 0,4 Nm.

DE Montage von Fühlerleitungen
Die Leitungen müssen zwischen den Metallplatten montiert werden. Leitungsquerschnitt (max.) 1 x 1,5 mm² Litzendraht. Klemmschraubenanzugsmoment 0,4 Nm.

DK Sideskilt
UK Side label
FR Etiquette
DE Typenschild

DK Godkendelser UK Approvals FR Homologations DE Zulassungen

DK Typenr.
UK Type no.
FR No. de type.
DE Typennr.

DK Produktionsår fremgår af de to første cifre i serienummeret.
UK Year of manufacture can be taken from the first two digits in the serial number.
FR L'année de production est définie grace aux deux premiers chiffres du numéro de série.
DE Die ersten beiden Ziffern der Seriennummer geben das Produktionsjahr an.

EU DECLARATION OF CONFORMITY

(5350DoC_103)

As manufacturer
PR electronics A/S, Lerbakken 10, DK-8410 Rønde
hereby declares that the following products:
Type: **5350**
Name: **PROFIBUS PA / FOUNDATION Fieldbus transmitter**
From serial no.: **161771433**
is in conformity with the following directives and standards:

The EMC Directive 2014/30/EU and later amendments
EN 61326-1 : 2013 and EN 61326-2-3 : 2013
Immunity test requirements for equipment intended to be used in an industrial electromagnetic environment. For specification of the acceptable EMC performance level, refer to the electrical specifications for the device.

The ATEX Directive 2014/34/EU and later amendments
EN 60079-0 : 2012 + A11 : 2013, EN 60079-11 : 2012, EN 60079-15 : 2010
ATEX certificate: KEMA 02ATEX1318 X
ATEX notified body (type approval)
DEKRA Certification B.V.
Meander 1051, 6825 MJ Arnhem
P.O. Box 5185, 6802 ED Arnhem
The Netherlands

The RoHS-II Directive 2011/65/EU and later amendments
EN 50581 : 2012

Notified body 0344
DEKRA Certification B.V.
Meander 1051, 6825 MJ Arnhem
P.O. Box 5185, 6802 ED Arnhem
The Netherlands

Rønde, 13 June 2018

Stig Lindemann, CTO
Manufacturer's signature

DK Kina RoHS UK China RoHS FR RoHS chinois DE China-RoHS

Part Name	Hazardous Substances					
	Lead (Pb)	Mercury (Hg)	Cadmium (Cd)	Hexavalent Chromium (Cr (VI))	Polybrominated biphenyls (PBB)	Polybrominated diphenyl ethers (PBDE)
Printed circuit board	X	O	O	O	O	O

This table is prepared in accordance with the provisions of SJ/T 11364
O: Indicates that said hazardous substance contained in all of the homogeneous materials for this part is below the limit requirement of GB/T 26572.
X: Indicates that said hazardous substance contained in at least one of the homogeneous materials used for this part is above the limit requirement of GB/T 26572.

The product's Environmentally Friendly Use Period (EFUP) is 50 years

DK Godkendelser UK Approvals FR Approbations DE Zulassungen BR Aprovações

	ATEX	Area / Zone	Installation drawing	IECEx	Area / Zone	Installation drawing	FM	Zone / Div.	Installation drawing	CSA	Zone / Div.	Installation drawing	INMETRO	Area	Installation drawing	NEPSI
5350A	KEMA 02ATEX1318 X	2, 22	5350QE01				3015609	2 / Div 2	5350QE01	1418937	2 / Div 2	5350QE01				GYJ14.1100U
5350B	KEMA 02ATEX1318 X	0, 1, 2, 20, 21, 22, M1	5350QE01	BVS 12.0035X	0, 1, 2, 20, 21, 22, M	5350QE01	3015609	0, 1, 2 / Div 1, 2	5350QE01	1418937	0, 1, 2 / Div 1, 2	5350QE01	NCC 12.1009 X	0, 1, 2, 20, 21, 22, M	5350QE01	GYJ14.1101X

DK
Dokumentation, godkendelser og yderligere information findes på internettet på **www.prelectronics.dk**

UK
Documentation, permits and other information can be found on the internet at **www.prelectronics.com**

FR
La documentation et toute autre information peuvent être trouvées sur l'Internet sur notre site: **www.prelectronics.fr**

DE
Dokumentationen, Zulassungen und andere Informationen können auf unserer Internet-Seite unter **www.prelectronics.de** gefunden und abgerufen werden.

BR
Documentações, licenças e outras informações podem ser encontradas no site **www.prelectronics.com**

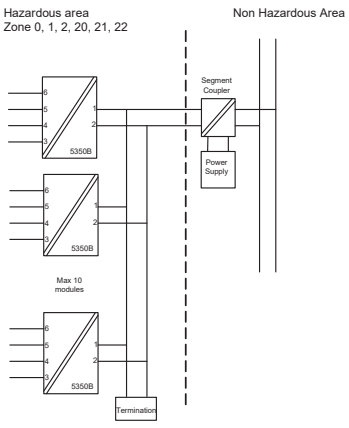
ATEX Installation drawing 5350QA01-V3R0

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 1318X

Marking
II 1 G Ex ia IIC T6…T4 Ga
II 2 (1) G Ex ib [ia Ga] IIC T6..T4 Gb
II 1 D Ex ia IIIC Da
I M 1 Ex ia I Ma

Standards EN 60079-0 : 2012+A11, EN 60079-11 : 2012



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

Supply, terminal 1,2 for Ex ib IIC		
Unit	Barrier where P_o < 5.32 W	FISCO segment coupler
U_i	30 VDC	17.5 VDC
I_i	250 mADC	any
P_i	5.32 W	any
L_i	1 µH	1 µH
C_i	2 nF	2 nF
T1..T4	$T_{amb.}$< 85°C	$T_{amb.}$< 85°C
T5	$T_{amb.}$< 75°C	$T_{amb.}$< 75°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

General installation instructions

The Sensor Circuit is not infallibly galvanic isolated from the Fieldbus circuit. However, the galvanic isolation is capable of withstanding a test voltage of 500Vac during 1 minute.

If the transmitter is installed in an explosive atmosphere requiring the use of equipment of category 1G, and if the enclosure is made of aluminum, it must be installed such, that ignition sources due to impact and friction sparks are excluded.

If the enclosure is made of non-metallic material or of metal having a paint layer thicker of more than 0.2mm (group IIC) or 2mm for (group IIB, IIA, I), electrostatic charging shall be avoided.

For installation in a potential explosive gas atmosphere .
The transmitter shall be mounted in an enclosure form B according to DIN43729 or equivalent that provides a degree of protection of at least IP20 according to EN/IEC 60529, that is suitable for the application and correctly installed.

For installation in a potential explosive dust atmosphere.
The transmitter shall be mounted in an enclosure form B according to DIN43729 or equivalent that provides a degree of protection of at least IP6X according to EN/IEC 60529, 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. The surface temperature of the enclosure is equal to the ambient temperature +20 K.
If the enclosure is made of non-metallic material or of metal having a paint layer, electrostatic charging shall be avoided.

For installation in mines.
The transmitter shall be mounted in a steel or non-metallic enclosure that provides a degree of protection of at least IP6X according to EN/IEC 60529, and 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.
If the enclosure is made of non-metallic materials or painted metals electrostatic charging shall be avoided.

5350A: For safe installation 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.

Marking
II 3 G Ex nA [ic] IIC T6..T4 Gc T4: -40 ≤ Ta ≤ 85ºC
II 3 G Ex ic IIC T6..T4 Gc T5: -40 ≤ Ta ≤ 75ºC
II 3 D Ex ic IIIC Dc T6: -40 ≤ Ta ≤ 60ºC

Standards EN 60079-0 : 2012+A11, EN 60079-11 : 2012, EN 60079-15 : 2010

General installation instructions:
The Sensor Circuit is not infallibly galvanic isolated from the Fieldbus circuit. However, the galvanic isolation is capable of withstanding a test voltage of 500Vac during 1 minute.
If the enclosure is made of non-metallic material or of metal having a paint layer thicker of more than 0.2mm (group IIC) or 2mm for (group IIB, IIA), electrostatic charging shall be avoided.
For an ambient temperature above 60°C, heat resistant cables shall be used with a rating of at least 20K above the ambient temperature.

For installation in a potential explosive gas atmosphere:
For Ex ic installation, the transmitter shall be mounted in an enclosure that provides a degree of protection of at least IP20 according to EN/IEC 60529 and that is suitable for the application and correctly installed.
For Ex nA installation the transmitter shall be installed in an enclosure providing a degree of protection of at least IP54, according to EN/IEC 50529 that is suitable for the application and correctly installed, e.g. an enclosure with protection Ex n or Ex e. Cable entry devices and blanking elements shall fulfill the same requirements.

For installation in a potential explosive dust atmosphere:
For Ex ic installation interfacing intrinsically safe signal "ic" (e.g. a passive device), the transmitter shall be mounted in a metal enclosure form B according to DIN 43729 or equivalent, that provides a degree of protection of at least IP6X according to EN/IEC 60529, that is suitable for the application. Cable entry devices and blanking elements shall fulfill the same requirements.
For non intrinsically safe installation the transmitter shall be mounted in an enclosure that provides a degree of protection of at least IP6X according to EN/IEC 60529, and in conformance with type of protection EX t that is suitable for the application and correctly installed. Cable entry devices and blanking elements shall fulfill the same requirements.
If the enclosure is made of non-metallic material or of metal having a paint layer, electrostatic charging shall be avoided.
The surface temperature of the enclosure is equal to the ambient temperature +20 K.

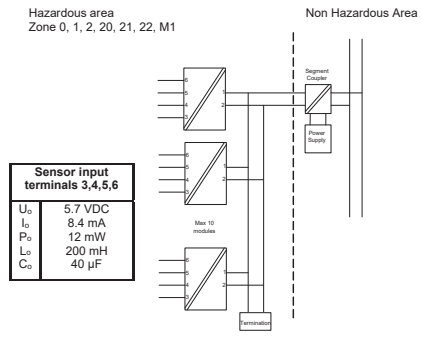
IECEx Installation drawing 5350QI01-V2R0

For safe installation of 5350 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.

IECEx Certificate BVS 12.0035X

Marking
Ex ia IIC T6..T4 Ga
Ex ib [ia Ga] IIC T6..T4 Gb
Ex ia IIIC T135°C Da
Ex ia I Ma
Ex nA [ic] IIC T6..T4 Gc
Ex ic IIC T6..T4 Gc

Standards IEC60079-11:2011, IEC60079-0: 2011, IEC60079-15: 2010



Sensor input terminals 3,4,5,6	
U_o	5.7 VDC
I_o	8.4 mA
P_o	12 mW
L_o	200 mH
C_o	40 µF

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

Supply, terminal 1,2 Ex ib [ia Ga] IIC T6..T4 Gb		
Unit	Barrier where P_o < 5.32 W	FISCO segment coupler
U_i	30 VDC	17.5 VDC
I_i	250 mADC	any
P_i	5.32 W	any
L_i	1 µH	1 µH
C_i	2 nF	2 nF
T1..T4	$T_{amb.}$< 85°C	$T_{amb.}$< 85ºC
T5	$T_{amb.}$< 75°C	$T_{amb.}$< 75ºC
T6	$T_{amb.}$< 60°C	$T_{amb.}$< 60ºC

Supply, terminal 1,2 Ex nA [ic] IIC T6..T4 Gc or Ex ic IIC T6..T4 Gc	
U_i	Max 32 VDC
L_i	1 µH
C_i	2 nF
T1..T4	$T_{amb.}$< 85ºC
T5	$T_{amb.}$< 75ºC
T6	$T_{amb.}$< 60ºC

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.

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

For installation in a potentially explosive gas atmosphere requiring EPL Ga or EPL Gb, the following instructions apply:
The transmitter shall be mounted in an enclosure that is providing a degree of protection of at least IP54 according to IEC 60529 that is suitable for the application and correctly installed.

For installation in a potentially explosive dust atmosphere requiring EPL Da or EPL Db, the following instructions apply:
The transmitter shall be mounted in an Form B enclosure according to DIN 43729, that is providing a degree of protection of at least IP6X according to IEC 60079-0 and IEC 60079-31"Equipment dust ignition protection by enclosure tD" 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.
Maximum surface temperature with a 5 mm layer of dust is T 135°C.

For installation in mines the following instructions apply:
The transmitter shall be mounted in a metal enclosure that is providing a degree of protection of at least IP6X according to IEC 60529, and 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 installation in a potentially explosive gas atmosphere requiring EPL Gc the following instructions apply:
The transmitter shall be mounted in an enclosure according to IEC 60079-15, that is suitable for the application and correctly installed.

NEPSI Installation drawing 5350QN1-V2R0

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, GB3836.1-2010 "Electrical equipement using in the Explosive gas Environment" and the specified requirements for "n" series in Article IX, GB3836.8-2003. The symbol of explosive protection applied should be Ex nA(L) II C T4~T6 while the Certificate No. is GYJ14.1100U.

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=5.7 V Io=8.4 V Po=12 mW Co=40 µ F IO=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.

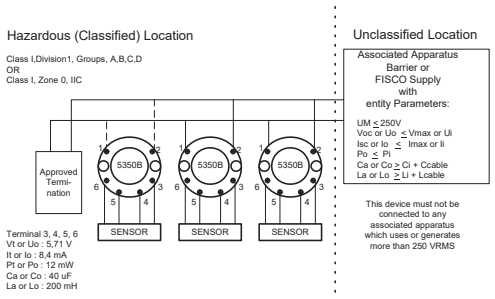
Tranmsitter with Bus technology of Series 5350B manufactured by PR Electronics A/S via the test made by NEPSI (National Supervision and Inspection Center for Explosion Protection and Safety of Instrumentation) have been proved that they are fulfilling the General Requirements according to, GB 3836.1-2010, GB3836.4-2010, GB3836.20-2010. The symbol of explosive protection are EX ia IIC T4~T6 or Ex ib(ia) IIC T4~T6 while the Certificate No. is GYJ14.1101X.

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, GB3836.1-2010; the nonmetallic case must accord to item 7.3, GB3836.1-2010.
2. The relationship of the explosive protection ingress, the temperature Code, ambient temperature and max. output parameter is indicated as follows:

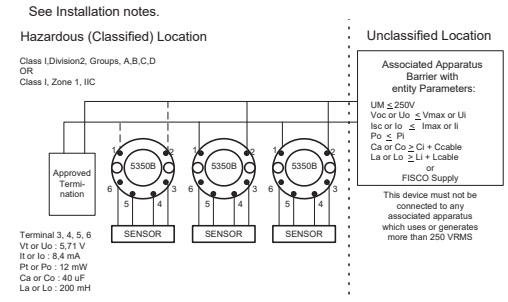
Ex ia IIC				Ex ib(ia) II C
T4:	-40°C~+85°C	-40°C~+75°C	-40°C~+85°C	-40°C~+85°C
T5	-40°C~+70°C	-40°C~+65°C	-40°C~+60°C	-40°C~+75°C
T6:	-40°C~+60°C	-40°C~+45°C	-40°C~+45°C	-40°C~+60°C
Ui	30 V	30 V	17.5 V	30 V
Li	120 mA	300 mA	250 mA	250 mA
Pi	0.84W	1.3W	2.0 W	5.32 W
Ci= 2 nF, Li=1 µH				

FM/CSA Installation drawing 5350QFC1-V2R0



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 ≤ +85°C	Ta ≤ +75°C	Ta ≤ +85°C	Ta ≤ +85°C
T5:	Ta ≤ +70°C	Ta ≤ +65°C	Ta ≤ +60°C	Ta ≤ +60°C
T6:	Ta ≤ +60°C	Ta ≤ +45°C	Ta ≤ +45°C	Ta ≤ +45°C
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

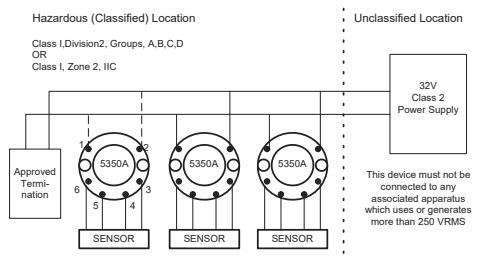
See Installation notes.



Entity Parameters		
Terminal 1, 2		
Class I, Zone 1, Ex ib IIC Entity / FISCO		
Barrier type:	Rectangular barrier	FISCO Segment coupler
T1..T4:	Ta ≤ +85°C	Ta ≤ +85°C
T5:	Ta ≤ +75°C	Ta ≤ +75°C
T6:	Ta ≤ +60°C	Ta ≤ +60°C
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

Nonincendive Field Wiring parameters		
Terminal 1, 2		
NI, Class I, Division 2, Group A, B, C, D NIFW/ FNICO		
T1..T4:	Ta ≤ +85°C	Ta ≤ +85°C
T5:	Ta ≤ +75°C	Ta ≤ +75°C
T6:	Ta ≤ +60°C	Ta ≤ +60°C
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.		

See Installation notes.



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 (VMAX) and current Ii (IMAX), 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 VOC or Vt) and current (Io or ISC or It) and the power Po which can be delivered by the barrier.
The sum of the maximum unprotected capacitance (Ci) for each intrinsically device and the interconnecting wiring must be less than the capacitance (Ca) which can be safely connected to the barrier.
The sum of the maximum unprotected inductance (Li) for each intrinsically device and the interconnecting wiring must be less than the inductance (La) which can be safely connected to the barrier.
The entity parameters Uo,VOC or Vt and Io,ISC or It, and Ca and La 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.

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 5350QB01-V2R0

Dados Ex:

Ex ia IIC T6…T4 Ga
Ex ib [ia Ga] IIC T6...T4 Gb
Ex ia IIIC T 135 °C Da
Ex ia I Ma
Ex nA [ic] T6 ... T4 Gc
Ex ic IIC T6...T4 Gc

Certificado:: NCC 12.1009 X

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 Ga FISCO Temp. ambiente max. depende de Po da barreira conectada.				
Unidade	Barreira onde Po < 0.85 W	Barreira onde Po < 1.3 W	Adequado parasistemas FISCO	Adequado parasistemas FISCO
Ui	30 VDC	30 VDC	17.5 VDC	15 VDC
Ii	120 mADC	300 mADC	250 mADC	900 mADC
Pi	0.84 W	1.3 W	2.0 W	5.32 W
Li	1 µH	1 µH	1 µH	1 µH
Ci	2 nF	2 nF	2 nF	2 nF
T1..T4	Tamb.< 85ºC	Tamb.< 75ºC	Tamb.< 85ºC	Tamb.< 85ºC
T5	Tamb.< 70ºC	Tamb.< 65ºC	Tamb.< 60ºC	Tamb.< 60ºC
T6	Tamb.< 60ºC	Tamb.< 45ºC	Tamb.< 45ºC	Tamb.< 45ºC
Group I	Tamb.< 85ºC	Tamb.< 85ºC	Tamb.< 85ºC	Tamb.< 85ºC

Sinal de saída / alimentação , terminal 1 e 2 Ex ib [ia Ga] IIC T6 ... T4 Gb FISCO Temp. ambiente max. depende de Po da barreira conectada.		
Unidade	Barreira onde Po < 5.32 W	FISCO segment coupler
Ui	30 VDC	17.5 VDC
Ii	250 mADC	Qualquer
Pi	5.32 W	Qualquer
Li	1 µH	1 µH
Ci	2 nF	2 nF
T1..T4	Tamb.< 85ºC	Tamb.< 85ºC
T5	Tamb.< 75ºC	Tamb.< 75ºC
T6	Tamb.< 60ºC	Tamb.< 60ºC
Group I	Tamb.< 85ºC	Tamb.< 85ºC

Sinal de saída / alimentação , terminal 1 e 2 Ex ic IIC T6 ... T4 Gc FISCO Temp. ambiente max. depende de Po da barreira conectada.		
Unidade		
Ui	32 VDC	
Ii	Qualquer	
Pi	Qualquer	
Li	1 µH	
Ci	2 nF	
T1..T4	Tamb.< 85ºC	
T5	Tamb.< 75ºC	
T6	Tamb.< 60ºC	
Group I	Tamb.< 85ºC	

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