SN7501 _112 (2302)

7501

DK

ADVARSEL

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.

Udskiftning af komponenter kan forringe egensikkerheden.

Reparation af modulet må kun foretages af PR electronics A/S.

Transmitterdækslet må ikke fjernes i eksplosionsfarligt område, når kredsløbet er strømførende.

Transmitterdækslet skal være helt lukket for at overholde kravene til eksplosionssikring.

Hvis transmitteren er installeret i områder med kraftige vibrationer, kan det være nødvendigt med ekstra befæstning.

Ved installation i eksplosionsfarligt område skal den tilhørende installationstegning følges nøje.

Vær opmærksom på ikke at frembringe mekaniske gnister, når instrumentet og tilhørende enheder tilgås i eksplosionsfarligt område.

Elektriske specifikationer

Driftstemperatur
- med silikone O-ring ... -40°C til +85°C
- med FKM O-ring ... -20°C til +85°
- Reduceret LCD-ydeevne under -20°C og over +70 °C

Opbevaringstemperatur ... -40°C til +85°C
Kalibreringstemperatur ... 20...28°C
Relativ luftfugtighed ... 0...100% RF (kond.)
Kapslingsklasse ... IP54 / IP66 / IP68, type 4X

Mekaniske specifikationer

Diameter ... Ø 110 mm
Dimensioner, H x B x D:
- Aluminium ADC3 (AL) ... 109,3x145x126 mm
- Rustfrit stål 316 (RF) ... 107,4x145x124 mm

Vægt, ca.:
- Aluminium (AL) ... 1,3 kg
- Rustfrit stål (RF) ... 2,8 kg

Ledningskvadrat ... 0,13...1,5 mm² / AWG 26...16 flerkoret ledning
Klemskruetilspændingsmoment ... 0,4 Nm
Vibration ... IEC 60068-2-6 : 2007
- 2...25 Hz ... ±1,6 mm
- 25...100 Hz ... ±4 g

Fælles specifikationer

Forsyningsspænding, DC
- Ex: ia, egensikker ... 10...30 VDC (12...30 VDC med baggrundsbelysning)
- Øvrige ... 10...35 VDC (12...35 VDC med baggrundsbelysning)

Isolationsspænd., test/oper. ... 1,5 kVAC / 50 VAC
Langtidsstabilitet ... 0,1% af span / år

Indgangsspecifikationer

Indgang for RTD-typer

Pt50, Pt100, Pt200, Pt500, Pt1000, Ni50, Ni100, Ni120, Ni1000
Kabelmodstand pr. leder (max.) ... 5 Ω
Følerstrøm ... Nom. 0,2 mA

Indgang for TC-typer

B, E, J, K, L, N, R, S, T, U, W3, W5, Lr

mV-indgang

Måleområde, spænding ... -800...+800 mV
Min. span ... 2,5 mV
Indgangsmodstand ... 10 MΩ

Strømudgang

Signalområde ... 4...20 mA
Min. signalområde ... 16 mA
Belastningsmodstand ... ≤ (Vforsyn. - 10) / 0,023 [Ω]
- med baggrundsbelysning ... ≤ (Vforsyn. - 12) / 0,023 [Ω]

Følerfejlsdetektering, programmerbar ... 3,5...23 mA
NAMUR NE43 Upscale ... 23 mA
NAMUR NE43 Downscale ... 3,5 mA
HART-protokolrevisioner ... HART 7 og HART 5

Godkendelser

EU RO marine ... MRA0000009

Overholdte myndighedskrav

EMC ... 2014/30/EU & UK SI 2016/1091
ATEX ... 2014/34/EU & UK SI 2016/1107
RoHS ... 2011/65/EU & UK SI 2012/3032
EAC ... TR-CU 020/2011
EAC Ex ... TR-CU 012/2011

UK

WARNING

Only technicians, who are familiar with the technical terms, warnings, and instructions in the manual 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 PR electronics A/S.

Mounting and connection of the device should comply with national legislation for mounting of electric materials.

Substitution of components may impair intrinsic safety.

Repair of the device must be done by PR electronics A/S only.

Do not remove the transmitter cover in explosive atmospheres when the circuit is alive.

The transmitter cover must be fully engaged to meet the explosion proof requirements.

If installed under high-vibration conditions, the transmitter may require supplementary support.

For installation in hazardous area the corresponding installation drawing must be followed in detail.

Take care not to generate mechanical sparking when accessing the instrument and peripheral devices in a hazardous location.

Electrical specifications

Operating tempeature
- with silicone O-ring ... -40°C to +85°C
- with FKM O-ring ... -20°C to +85°C
- Reduced LCD performance below -20°C and above +70°C

Storage temperature ... -40°C to +85°C
Calibration temperature ... 20...28°C
Relative humidity ... 0...100% RH (cond.)
Protection degree ... IP54 / IP66 / IP68, type 4X

Mechanical specifications

Dimensions ... Ø 110 mm
Dimensions, H x W x D:
- Aluminum (AL) ... 109.3x145x126 mm
- Stainless steel (RF) ... 107.4x145x124 mm

Weight approx.:
- Aluminum ADC3 (AL) ... 1.3 kg
- Stainless steel 316 (RF) ... 2.8 kg

Wire size ... 0.13...1.5 mm² / AWG 26...16 stranded wire
Screw terminal torque ... 0.4 Nm
Vibration ... IEC 60068-2-6 : 2007
- 2...25 Hz ... ±1.6 mm
- 25...100 Hz ... ±4 g

Common electrical specifications

Supply voltage, DC:
- Ex ia, intrinsically safe ... 10...30 VDC (12...30 VDC with backlight)
- Other ... 10...35 VDC (12...35 VDC with backlight)

Isolation - test / working ... 1.5 kVAC / 50 VAC
Long term stability ... 0.1% of span / year

Input specifications

RTD input types

Pt50, Pt100, Pt200, Pt500, Pt1000, Ni50, Ni100, Ni120, Ni1000
Cable resistance per wire (max.) ... 5 Ω
Sensor current ... Nom. 0.2 mA

TC input types

B, E, J, K, L, N, R, S, T, U, W3, W5, Lr

mV input:

Voltage input range ... -800...+800 mV
Min. span ... 2.5 mV
Input resistance ... 10 MΩ

Output specifications

Signal range ... 4...20 mA
Min. signal range ... 16 mA
Load resistance ... ≤ (Vsupply - 10) / 0.023 [Ω]
- with backlight ... ≤ (Vsupply - 12) / 0.023 [Ω]

Sensor error detection, programmable ... 3.5...23 mA
NAMUR NE43 Upscale ... 23 mA
NAMUR NE43 Downscale ... 3.5 mA
HART protocol revisions ... HART 7 and HART 5

Approvals

EU RO marine ... MRA0000009

Observed authority requirements

EMC ... 2014/30/EU & UK SI 2016/1091
ATEX ... 2014/34/EU & UK SI 2016/1107
RoHS ... 2011/65/EU & UK SI 2012/3032
EAC ... TR-CU 020/2011
EAC Ex ... TR-CU 012/2011

FR

AVERTISSEMENT

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.

La substitution de composants peut compromettre la sécurité intrinsèque.

Seule PR electronics SARL est autorisée à réparer le module.

Ne retirez pas le couvercle du transmetteur en atmosphère explosive lorsque l'appareil est sous tension.

Le couvercle du transmetteur doit être serré à fond pour être conforme aux exigences d'antidéflagrance.

Dans le cas où le transmetteur est exposé à des fortes vibrations, il peut être nécessaire d'installer un soutien supplémentaire.

Pour l'installation dans les atmosphères explosives, le schéma d'installation correspondant doit être suivi en détail.

Prenez soin de ne pas générer des étincelles mécaniques lors de l'accès à l'appareil et instruments périphériques dans une atmosphère explosive.

Spécifications

Plage d'utilisation
- avec joint en silicone ... -40°C à +85°C
- avec joint en FKM ... -20°C à +85°C
- Performance LCD réduit au dessous de -20°C et au dessus de + 70°C

Température de stockage ... -40°C à +85°C
Température de calibration ... 20...28°C
Humidité relative ... 0...100% HR (cond.)
Degré de protection ... IP54 / IP66 / IP68, type 4X

Spécifications méchaniques

Diamètre ... Ø 110 mm
Dimensions, H x L x P :
- Aluminium ADC3 (AL) ... 109,3x145x126 mm
- Acier inoxydable 316 (RF) ... 107,4x145x124 mm

Poids, env. :
- Aluminium (AL) ... 1,3 kg
- Acier inoxydable (RF) ... 2,8 kg

Taille des fils ... 0,13...1,5 mm² / AWG 26...16 fil multibrins
Pression max. avant déformation de la vis ... 0,4 Nm
Vibration ... IEC 60068-2-6 : 2007
- 2...25 Hz ... ±1.6 mm
- 25...100 Hz ... ±4 g

Spécifications communes

Tension d'alimentation, cc :
- Ex ia, intrinsèquement sûr ... 10...30 Vcc (12...30 Vcc avec rétro-éclairage)
- Autres ... 10...35 Vcc (12...35 Vcc avec rétro-éclairage)

Tension d'iso. test/opér. ... 1,5 kVca / 50 Vca
Stabilité à long terme ... 0,1% de l'EC / an

Spécifications d'entrée

Entrée pour types RTD

Pt50, Pt100, Pt200, Pt500, Pt1000, Ni50, Ni100, Ni120, Ni1000
Résistance de ligne max. par fil ... 5 Ω
Courant de sonde ... nom. 0,2 mA

Entrée pour types TC

B, E, J, K, L, N, R, S, T, U, W3, W5, Lr

Entrée mV

Gamme de mesure, tension ... -800...+800 mV
Plage de mesure min. ... 2,5 mV
Résistance d'entrée ... 10 MΩ

Sortie courant

Gamme de signal ... 4...20 mA
Plage de signal min. ... 16 mA
Résistance de charge ... ≤ (Valim. - 10) / 0,023 [Ω]
- avec rétro-éclairage ... ≤ (Valim. - 12) / 0,023 [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
Protocoles HART ... HART 7 et HART 5

Approbations

EU RO marine ... MRA0000009

Compatibilité avec les normes

CEM ... 2014/30/UE & UK SI 2016/1091
ATEX ... 2014/34/EU & UK SI 2016/1107
RoHS ... 2011/65/UE & UK SI 2012/3032
EAC ... TR-CU 020/2011
EAC Ex ... TR-CU 012/2011

DE

WARNUNG

Das Gerät darf nur von qualifizierten Technikern angeschlossen werden, die mit den technischen Ausdrücken, Warnungen und Anweisungen in dieser Installationsanleitung v ertraut 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.

Austausch von Komponenten kann die Eigensicherheit beeinträchtigen.

Reparaturen des Gerätes dürfen nur von PR electronics A/S vorgenommen werden.

In explosionsgefährdeten Atmosphären den Deckel nicht abnehmen, wenn der Stromkreis unter Spannung steht.

Der Gehäusedeckel muss vollständig geschlossen sein, um die Ex-Schutz-Anforderungen zu erfüllen.

Bei der Installation in Bereichen mit starken Schwingungen, kann das Gerät zusätzliche Unter-stützung benötigen.

Bei der Installation in explosionsgefährdeten Bereichen muss die entsprechende Installations-zeichnung im Detail beachtet werden.

Vermeiden Sie bei der Arbeit am Gerät und dessen Peripheriegeräte in explosionsgefährdeten Bereichen Funkenbildung durch mechanische Einwirkungen.

Elektrische Daten

Anwendungstemperatur
- mit Silikon-O-Ring ... -40°C bis +85°C
- mit FKM-O-Ring ... -20°C bis +85°C
- Reduzierte LCD Leistung unter -20°C und über +70°C

Lagertemperatur ... -40°C bis +85°C
Kalibrierungstemperatur ... 20...28°C
Luftfeutigkeit ... 0...100% RF (kond.)
Schutzart ... IP54 / IP66 / IP68, Typ 4X

Mechanische Spezifikationen

Durchmesser ... Ø 110 mm
Abmessungen, H x B x T:
- Aluminium ADC3 (AL) ... 109,3x145x126 mm
- Rostfreier Stahl 316 (RF) ... 107,4x145x124 mm

Gewicht, ca.:
- Aluminium (AL) ... 1,3 kg
- Edelstahl (RF) ... 2,8 kg

Leitungsquerschnitt ... 0,13..1,5 mm² / AWG 26...16 Litzendraht
Klemmschrauben-anzugsmoment ... 0,4 Nm
Schwingungen ... IEC 60068-2-6 : 2007
- 2...25 Hz ... ±1,6 mm
- 25...100 Hz ... ±4 g

Allgemeine Daten

Versorgungsspannung, DC
- Ex ia, eigensicher ... 10...30 VDC (12...30 VDC mit Hintergrundbeleucht.)
- Übrige ... 10...35 VDC (12...35 VDC mit Hintergrundbeleucht.)

Isolationsspannung, Test / Betrieb ... 1,5 kVAC / 50 VAC
Langzeitstabilität ... 0,1% d. Messsp. / Jahr

Elektrische Daten, Eingang

Eingang für WTH-Typen

Pt50, Pt100, Pt200, Pt500, Pt1000, Ni50, Ni100, Ni120, Ni1000
Leitungswiderstand pro Leiter (Max.) ... 5 Ω
Sensorstrom ... nom. 0,2 mA

Eingang für TE-Typen

B, E, J, K, L, N, R, S, T, U, W3, W5, Lr

mV-Eingang

Messbereich, Spannung ... -800...+800 mV
Min. Messbereich (Spanne) ... 2,5 mV
Eingangswiderstand ... 10 MΩ

Stromausgang

Signalbereich ... 4...20 mA
Min. Signalbereich ... 16 mA
Belastungswiderstand ... ≤ (VVersorg. - 10) / 0,023 [Ω]
- mit Hintergrundbeleucht. ... ≤ (VVersorg. - 12) / 0,023 [Ω]

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

Zulassungen

EU RO Marine ... MRA0000009

Eingehaltene Behördesvorschriften

EMV ... 2014/30/EU & UK SI 2016/1091
ATEX ... 2014/34/EU & UK SI 2016/1107
RoHS ... 2011/65/EU & UK SI 2012/3032
EAC ... TR-CU 020/2011
EAC Ex ... TR-CU 012/2011

Segurança
DEKRA OCP 0089 Compulsório INMETRO

EU DECLARATION OF CONFORMITY

(7501D0C_104)

As manufacturer
PR electronics A/S, Lerbakken 10, DK-8410 Rønde
hereby declares that the following product:
Type: 7501
Name: Field mounted HART temperature transmitter
From serial no: 210816497
is in conformity with the following directives and standards:

The EMC Directive 2014/30/EU and later amendments
EN 61326-1 : 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 IEC 60079-0 : 2018, EN 60079-1 : 2014, EN 60079-7 : 2015 + A1 : 2018
EN 60079-11 : 2012 and EN 60079-31 : 2014
ATEX certificate: DEKRA 15ATEX0058 X (7501xxxxxx2)
ATEX notified body (type approval)
DEKRA Certification B.V.
Meander 1051, 6825 MJ Arnhem
P.O. Box 5185, 6802 ED Arnhem
The Netherlands

The RoHS2 Directive 2011/65/EU and later amendments
EN IEC 63000 : 2018

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

This declaration of conformity is issued under the sole responsibility of the manufacturer.

Rønde, 16 January 2023

Stig Lindemann, CTO
Manufacturer's signature

UKCA DECLARATION OF CONFORMITY

(7501DoC_UKCA_100)

As manufacturer
PR electronics A/S, Lerbakken 10, DK-8410 Rønde
hereby declares that the following product:
Type: 7501
Name: Field mounted HART temperature transmitter
From serial no.: 210816497
is in conformity with the following statutory requirements:

The Electromagnetic Compatibility Regulations 2016 (UK SI 2010/1091) and later amendments
EN 61326-1 : 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 Equipment and Protective Systems Intended for use in Potentially Explosive Atmospheres Regulations 2016 (UK SI 2016/1107) and later amendments
EN IEC 60079-0 : 2018, EN 60079-1 : 2014, EN 60079-7 : 2015 + A1 : 2018
EN 60079-11 : 2012 and EN 60079-31 : 2014

The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012 (UK SI 2010/3032) and later amendments
EN IEC 63000 : 2018

The conformity declared by this document is based on the EU standards covered by 7501DoC_EU_104 and the ATEX certificates:

DEKRA 15ATEX0058 X (7501xxxxxx2)

This declaration of conformity is issued under the sole responsibility of the manufacturer.

Rønde, 8 December 2022

Stig Lindemann, CTO
Manufacturer's signature

7501 ATEX Installation

For safe installation of 7501 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 (EN 60079-14) that apply to this area.
Year of manufacture can be taken from the first two digits in the serial number.

Ex ia installation:

ATEX Certificate DEKRA 15ATEX0058 X

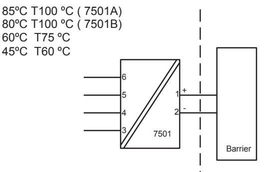
Marking
II 1G Ex ia IIC T6...T4 Ga
II 2D Ex ia IIIC T100°C Db
I M1 Ex ia I Ma (7501B)

Standards: EN 60079-0: 2018, EN 60079-11: 2012

Hazardous area
Zone 0, 1, 2, 21, 22, (Mines)

Non Hazardous Area

T4: -40 ≤ Ta ≤ 85°C T100 °C (7501A)
T4: -40 ≤ Ta ≤ 80°C T100 °C (7501B)
T5: -40 ≤ Ta ≤ 60°C T75 °C
T6: -40 ≤ Ta ≤ 45°C T60 °C



Sensor
Terminal: 3,4,5,6
Uo: 9.6 VDC
Io: 28 mA
Po: 67 mW
Lo: 35 mH
Co: 3.5 µF

Supply
Terminal: 1,2
Ui: 30 VDC
Ii: 120 mA
Pi: 0.84 W
Li: 0 µH
Ci: 2 nF

Ex ia installation
General installation instructions

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

The enclosure must be connected to the potential matching line.

If the transmitter is physically connected to a possible source of heating or cooling, e.g. by mounting to a process pipe or a temperature sensor, the temperature at the point of connection shall be within the ambient temperature range as given in the certificate or this manual.

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

For installalation of 7501A in zone 0 / EPL Ga, the transmitter must be installed such, that even in the event of rare incidents, ignition sources due to impact and friction, sparks are excluded.

Protection degree of IP 54 according to EN 60529 is achieved if certified cable glands or conduit entry devices are used that are suitable for the application and correctly installed.

Protection degree of IP 68 according to EN 60529 is only achieved if certified cable glands or conduit entry devices are used that are suitable for the application and correctly installed with sealing washers or Loctite sealant added to the threads of the sensor, blanking elements and cable glands.

For group III (dust), electrostatic charging of the paint layer shall be avoided.

Ex ec, ic installation:

Certificate DEKRA 15ATEX0058 X

Marking
II 3 G Ex ec IIC T6…T4 Gc
II 3 G Ex ic IIC T6...T4 Gc
II 3 D Ex ic IIIC T100°C Dc

Standards: EN 60079-0:2018, EN 60079-11:2012, EN60079-7:2015+A1:2018

Type of protection Ex ec

O-ring Sealing : Silicone
T4: -40 ≤ Ta ≤ 85ºC Umax 35V (7501A)
T4: -40 ≤ Ta ≤ 80ºC Umax 35V (7501B)
T6: -40 ≤ Ta ≤ 55ºC Umax 24V
T6: -40 ≤ Ta ≤ 43ºC Umax 35V

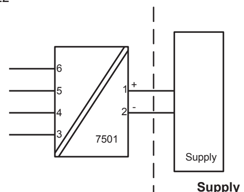
O-ring Sealing : FKM
T4: -20 ≤ Ta ≤ 85ºC Umax 35V (7501A)
T4: -20 ≤ Ta ≤ 80ºC Umax 35V (7501B)
T6: -20 ≤ Ta ≤ 55ºC Umax 24V
T6: -20 ≤ Ta ≤ 43ºC Umax 35V

Type of protection Ex ic

T4: -40 ≤ Ta ≤ 85ºC T100ºC (7501A)
T4; -40 ≤ Ta ≤ 80ºC T100ºC (7501B)
T6: -40 ≤ Ta ≤ 60ºC T85 ºC

Hazardous area
Zone 2, 22

Non Hazardous Area



Sensor
Terminal: 3,4,5,6
Ex ic
Uo: 9.6 VDC
Io: 28 mA
Po: 67 mW
Lo: 45 mH
Co: 28 µF

Supply
Terminal: 1,2
Ex ic
Ui: 35 VDC
Li: 0 µH
Ci: 2 nF

Supply
Terminal: 1,2
Ex ec
U : 35 VDC

Ex ec, ic installation:

Installation of equipment shall take place under dry and clean conditions and the equipment may not be opened for maintenance in uncontrolled environment.

For Ex ic installation in uncontrolled environment the module must be installed with a protection degree of IP54.

For Ex ec installation in a pollution degree 2 environment the module must be installed with a minimum protection degree of IP54.

Protection degree of IP 54 according to EN 60529 is achieved if certified cable glands or conduit entry devices are used that are suitable for the application and correctly installed.

For Ex ec installation in an uncontrolled environment the module must be installed with a minimum protection of IP68.

Protection degree of IP 68 according to EN 60529 is only achieved if certified cable glands or conduit entry devices are used that are suitable for the application and correctly installed with sealing washers or Loctite sealant added to the threads of the sensor, blanking elements and cable glands.

For an ambient temperature exceeding 70°C, heat resistant cables and cable glands suitable for at least 90°C shall be used.

If the transmitter is physically connected to a possible source of heating or cooling, e.g. by mounting to a process pipe or a temperature sensor, the temperature at the point of connection shall be within the ambient temperature range as given in the certificate.

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

The enclosure must be connected to the potential matching line.

Applied screw terminal torque is max 0.4 Nm on all terminals.

For group III (dust), electrostatic charging of the paint layer shall be avoided.

Ex db, tb installation:

ATEX Certificate DEKRA 15ATEX0058 X

Marking
II 2 G Ex db IIC T6…T4 Gb
II 2 D Ex tb IIIC T100°C Db

Standards: EN 60079-0:2018, EN 60079-1:2014, EN60079-31:2014

Type of protection Ex db

T4,T5: -40 ≤ Ta ≤ 85ºC (7501A)
T4,T5: -40 ≤ Ta ≤ 80ºC (7501B)
T6: -40 ≤ Ta ≤ 70ºC

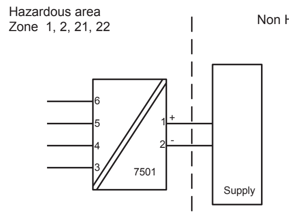
Type of protection Ex tb

O-ring Sealing : Silicone
-40 ≤ Ta ≤ 85ºC T100°C (7501A)
-40 ≤ Ta ≤ 80ºC T100°C (7501B)
-40 ≤ Ta ≤ 70ºC T85°C

O-ring Sealing : FKM
-20 ≤ Ta ≤ 85ºC T100°C (7501A)
-20 ≤ Ta ≤ 80ºC T100°C (7501B)
-20 ≤ Ta ≤ 70ºC T85°C

Hazardous area
Zone 1, 2, 21, 22

Non Hazardous Area



Terminal: 3,4,5,6
Sensor: RTD or TC

Terminal: 1,2
Umax: 35 VDC

Ex db, tb installation:

No modification to the enclosure is allowed by the customer except as mentioned in the manual or installation drawing.

Flame proof joints are not intended to be repaired.

The transmitter is intended either to be connected via a cable, or to be mounted directly onto a temperature sensing probe.
Only ATEX/IECEx equipment certified sensors, suitable for the application and correctly installed, may be mounted directly onto the transmitter without additional certification of the combination.

If the transmitter is physically connected to a possible source of heating or cooling, e.g. by mounting to a process pipe or a temperature sensor, the temperature at the point of connection shall be within the ambient temperature range as given in the certificate. The sensor shall be suitable for use as entry device on an Ex d enclosure and shall not add volume to the 7501 enclosure. The thread of the sensor must be in compliance with EN60079-1 / EN60079-31.

Unused cable entries must be sealed by the blanking elements 8550-xxx and 8551-xxx supplied with the 7501 or other Ex d and / or Ex tb certified blanking elements suitable for the application.

Only Ex d and / or Ex tb certified cable and cable glands shall be used that are suitable for the application and correctly installed.

Protection degree of IP 54 according to EN 60529 is achieved if Ex d certified cable glands or conduit entry devices are used that are suitable for the application and correctly installed.

Protection degree of IP 68 according to EN 60529 is only achieved if Ex d certified cable glands or conduit entry devices are used that are suitable for the application and correctly installed with sealing washers or Loctite sealant added to the threads of the sensor, blanking elements and cable glands.

The display cover must be screwed all the way in and the safety catch must be fastened before putting into service. Do not open display cover until 30 minutes after disconnecting power to the equipment allowing internal capacitors to discharge, or do not open display cover unless area is known to be safe.

For an ambient temperature exceeding 70°C, heat resistant cables and cable glands suitable for at least 90°C shall be used.

The enclosure must be connected to the potential matching line.

When the process temperature range exceeds the service temperature range it shall be verified by on-site temperature measurements, taking the worst case conditions into account, that the service temperature does not exceed the range of the module.

For group III (dust), electrostatic charging of the paint layer shall be avoided.

DK Sideskilt / mærkning UK Side label / marking
FR Etiquette / marquage DE Typenschild / Markierung

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.

DK Godkendelser UK Approvals FR Approbations DE Zulassungen

DK Når modulet installeres som Ex ia, ic, db, ec eller tb, skal der på topskiltet sættes en kørnerprik til markering af den anvendte installationstype.

FR Lorsque ce produit a été installé comme Ex ia, ic, db, ec ou tb W, utiliser un poinçon à marquer dans la case appropriée pour indiquer le type d'installation sur l'étiquette.

UK When this product has been installed as Ex ia, ic, db, ec or tb, use a punch marker in the appropriate box to indicate the type of installation on the top label.

DE Wenn dieses Produkt als Ex ia, ic, db, ec oder tb installiert ist, nutzen Sie bitte die entsprechenden Felder auf dem Top-Label, um die Art der Installation zu kennzeichnen.

DK Ex-godkendelser UK I.S. approvals FR Approbations S.I.
DE Ex-Zulassungen BR Aprovações S.I.

	ATEX	Area / Zone	Installation drawing	NEPSI
7501xxxxxx2	DEKRA 15ATEX0058 X	0, 1, 2, 21, 22 M1 (stainless steel only)	7501QA01	GYJ20.1630X
	IECEx	Area / Zone	Installation drawing	EAC Ex
7501xxxxxx2	DEK 15.0039 X	0, 1, 2, 21, 22 M1 (stainless steel only)	7501QI01	RU C-DK. HA65.B.00355/19
	CSA	Zone / Div.	Installation drawing	
7501xxxxxx2	70024231	0, 1, 2 / Div. 1/ 2	7501QC01	
	FM	Zone / Div.	Installation drawing	
7501xxxxxx2	FM16US0009X FM16CA0010X	0, 1, 2 / Div. 1/ 2	7501QF01	
	INMETRO	Area / Zone	Installation drawing	
7501xxxxxx2	DEKRA 15.0014 X	0, 1, 2, 20, 21, 22 M1 (stainless steel only)	7501QB01	

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**

7501 CSA Installation

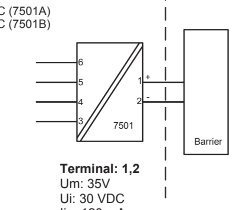
For safe installation of 7501 the following must be observed. The module shall only be installed by qualified personnel who are familiar with the national and international laws, directives and standards that apply to this area.

Intrinsic Safe Installation / SÉCURITÉ INTRINSÈQUE, Exia
Applicable for (7501A…. and 7501B….).

Non classified Location

Hazardous classified Location
Class I,Division1, Groups, ABCD;
Class II,Division 1, Groups EFG; Class III.
Ex ia IIC T6...T4 Ga
Class I, Zone 0, AEx ia IIC T6...T4 Ga

T4: -40 ≤ Ta ≤ 85ºC T100 ºC (7501A)
T4: -40 ≤ Ta ≤ 80ºC T100 ºC (7501B)
T5: -40 ≤ Ta ≤ 60ºC T75 ºC
T6: -40 ≤ Ta ≤ 45ºC T60 ºC



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

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

Terminal: 3,4,5,6
Uo: 9.6 VDC
Io: 28 mA
Po: 67 mW
Lo: 35 mH
Co: 3.5 µF

Terminal: 1,2
Um: 35V
Ui: 30 VDC
Ii: 120 mA
Pi: 0.84 W
Li: 0 µH
Ci: 2 nF

Intrinsically safe when installed per PR Electronics control drawing #7501QC01.

Warning
Substitution of components may impair intrinsic safety.

AVERTISSEMENT
LA SUBSTITUTION DE COMPOSANTS PEUT COMPROMETTRE LA SÉCURITÉ INTRINSÈQUE

The module must be installed according to the installation codes stipulated in the Canadian Electrical Code (CEC) or for US the National Electrical Code (NEC).

Conditions of Acceptability:

This is a partial assembly certified as a component and is intended to be assembled with a third-party sensor where the final assembly is subject to investigation by CSA and the local Authority Having Jurisdiction at the time of installation.

For Class II (dust) installations, electrostatic charging of the paint layer shall be avoided.

Must be installed such that ignition sources due to impact and friction sparks are excluded.

Third party sensors shall be rated with enclosure type rating 4X and IP rating of at least IP68 to maintain the ratings of this equipment.

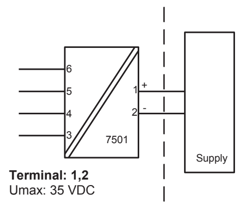
Third party sensors shall be rated Class I, Division 1, Groups A, B, C, and D T6…T4; Class II, Division 1, Groups E, F, and G; Class III; Ex ia IIC T6...T4 Ga; Class I, Zone 0, AEx ia IIC T6…T4 Ga; Ex ic IIC T6…T4 Gc; Class I, Zone 2 AEx ic IIC T6…T4 Gc, as appropriate for the application, and be connected using the entity parameters defined on control drawing 7501QC01.

Explosion proof installation:
Applicable for (7501A and 7501B)

Explosion proof for Hazardous area
Class I, Division 1, Groups ABCD T6…T4;
Class II, Division 1, Groups EFG; Class III.
Ex db IIC T6…T4 Gb
Class I, Zone 1, AEx db IIC T6…T4 Gb

Non Hazardous Area

T4,T5 -20/-40 ≤ Ta ≤ 85ºC (7501A)
T4,T5 -20/-40 ≤ Ta ≤ 80ºC (7501B)
T6: -20/-40 ≤ Ta ≤ 70ºC (7501A, 7501B)



Terminal: 3,4,5,6
Sensor: RTD or TC

Terminal: 1,2
Umax: 35 VDC

O-ring Sealing
Silicone rubber:-40°C ≤Ta ≤ +85°C
FKM rubber: -20°C ≤Ta ≤ +85°C

Conditions of Acceptability::
This partial assembly is certified as a component and is intended to be assembled with a sensor where the final assembly is subject to investigation by CSA and the local Authority Having Jurisdiction at the time of installation.

May only be used with sensors that are Certified Class I, Division 1, Groups A, B, C D; Class II, Division 1, Groups E, F, G, and Ex db IIC, with enclosure type rating 4X and IP rating of at least IP68. Sensors installed at the enclosure shall be demonstrated to withstand a Peak Explosion Pressure 3.62 bar (52.5 psi / 362 kPa).

The Maximum Power Dissipation of the complete assembly of transmitter and sensor shall not exceed 1W.

When installed with remote sensor and cable in conduit a seal must be installed at the enclosure.

For Class II (dust) installations, electrostatic charging of the paint layer shall be avoided.

Must be installed such, that ignition sources due to impact and friction sparks are excluded.

Only Blind Plugs type 8550-xxx and 8551-xxx supplied with the 7501, or third party certified Blind Plugs suitable for Class I, Division 1, Groups A, B, C D; Class II, Division 1, Groups E, F, G, and Ex db IIC, with enclosure type rating 4X and IP rating of at least IP68 and correctly installed may be used.

Conduit and sensor connections must be in NPT modified threads.

For Class I Group A installation and Class I Zone 1 installation, conduit seal is required within 18 inches of enclosure.

For an ambient temperature exceeding 70°C, heat resistant cables and cables suitable for at least 90°C shall be used.

The display cover must be screwed all the way in and the safety catch must be fastened before putting the module into service.
Do not open / remove front cover unless area is known to be safe.

The remote temperature sensor must comply with the requirements for installation in hazardous locations "Class I, Division 1 / Zone 1, Groups ABCD / IIC"

The remote temperature sensor must comply with the requirements for Ex db installation

Only certified cable and cable glands shall be used that are suitable for the application and correctly installed.

For protection according to Type 4X / IP66 use Loctite 577 on threads of sensor and cable glands.

The enclosure must be connected to the potential matching line.

Unused cable entries must be sealed by the blanking elements supplied with the 7501 or other Ex certified blanking elements.

If the transmitter is physically connected to a possible source of heating or cooling, e.g. by mounting to a process pipe or a temperature sensor, the temperature at the point of connection shall be within the ambient temperature range as given in the certificate.

When the process temperature range exceeds the service temperature range it shall be verified by on-site temperature measurements, taking the worst case conditions into account, that the service temperature does not exceed the range of the module.

For Class II, III, electrostatic charging of the paint layer shall be avoided.

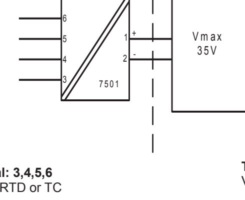
No modification to the enclosure is allowed by the customer except as mentioned in the manual or installation drawing.

Non Incendive installation:

Hazardous classified Location
Class I,Division 2, Groups, ABCD T6-T4.
Ex ic IIC T6…T4 Gc.
or Class I, Zone 2, AEx ic IIC T6…T4 Gc

Non classified Location

T4: -20/-40 ≤ Ta ≤ 85ºC
T6: -20/-40 ≤ Ta ≤ 60ºC



Terminal: 3,4,5,6
Sensor: RTD or TC

Terminal: 1,2
Vmax: 35 VDC

O-ring Sealings
Silicone rubber:-40°C ≤Ta ≤ +85°C
FKM rubber: -20°C ≤Ta ≤ +85°C

Protection: Indoor and Outdoor TYPE 4X or IP66

The Non Incendive installation must conform to the CEC

The remote temperature sensor must comply with the requirements for installation in hazardous locations "Class I, Division 2 Groups ABCDEFG

For an ambient temperature exceeding 70°C, heat resistant cables and cables suitable for at least 90°C shall be used.

The display cover must be screwed all the way in and the safety catch must be fastened before putting the module into service. Do not open / remove front cover unless area is known to be safe.

Only certified cable and cable glands shall be used that are suitable for the application and correctly installed.

For protection according to Type 4X / IP66 use Loctite 577 on threads of sensor and cable glands.

The enclosure must be connected to the potential matching line

Unused cable entries must be sealed by the blanking elements supplied with the 7501 or other Ex certified blanking elements.

If the transmitter is physically connected to a possible source of heating or cooling, e.g. by mounting to a process pipe or a temperature sensor, the temperature at the point of connection shall be within the ambient temperature range as given in the certificate.

When the process temperature range exceeds the service temperature range it shall be verified by on-site temperature measurements, taking the worst case conditions into account, that the service temperature does not exceed the range of the module.

Electrostatic charging of the paint layer shall be avoided.

No modification to the enclosure is allowed by the customer except as mentioned in the manual or installation drawing.

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

7501 IECEx Installation

For safe installation of 7501 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 (IEC60079-14) that apply to this area.
Year of manufacture can be taken from the first two digits in the serial number.

Ex ia installation:

Certificate IECEx DEK 15.0039 X

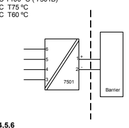
Marking Ex ia IIC T6...T4 Ga
Ex ia IIIC T100°C Db
Ex ia I Ma (7501B)

Standards: IEC 60079-0: 2017, IEC 60079-11: 2011

Hazardous area
Zone 0, 1, 2, 21, 22, Mines

Non Hazardous Area

T4: -40 ≤ Ta ≤ 85°C T100 °C (7501A)
T4: -40 ≤ Ta ≤ 80°C T100 °C (7501B)
T5: -40 ≤ Ta ≤ 60°C T75 °C
T6: -40 ≤ Ta ≤ 45°C T60 °C



Sensor
Terminal: 3,4,5,6
Uo: 9.6 VDC
Io: 28 mA
Po: 67 mW
Lo: 35 mH
Co: 3.5 µF

Supply
Terminal: 1,2
Ui: 30 VDC
Ii: 120 mA
Pi: 0.84 W
Li: 0 µH
Ci: 2 nF

Ex ia installation

General installation instructions
The sensor circuit is not infallibly galvanic isolated from the supply output circuit. However, the galvanic isolation between the circuits is capable of withstanding a test voltage of 500 VAC during 1 minute.

The enclosure must be connected to the potential matching line.

If the transmitter is physically connected to a possible source of heating or cooling, e.g. by mounting to a process pipe or a temperature sensor, the temperature at the point of connection shall be within the ambient temperature range as given in the certificate or in this manual.

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

For installation of 7501A in zone 0 / EPL Ga, the transmitter must be installed such, that even in the event of rare incidents, ignition sources due to impact and friction sparks are excluded.

Protection degree of IP 54 according to IEC 60529 is achieved if certified cable glands or conduit entry devices are used that are suitable for the application and correctly installed.

Protection degree of IP 68 according to IEC 60529 is only achieved if certified cable glands or conduit entry devices are used that are suitable for the application and correctly installed with sealing washers or Loctite sealant added to the threads of the sensor, blanking elements and cable glands.

For group III (dust), electrostatic charging of the paint layer shall be avoided.

Ex ec, ic installation:

Certificate IECEx DEK 15.0039 X

Marking Ex ec IIC T6...T4 Gc
Ex ic IIC T6...T4 Gc
Ex ic IIIC T100°C Dc

Standards: IEC 60079-0: 2017, IEC 60079-11: 2011, IEC 60079-7: 2017

Type of protection Ex ec

O-ring Sealing : Silicone
T4: -40 ≤ Ta ≤ 85°C Umax 35V (7501A)
T4: -40 ≤ Ta ≤ 80°C Umax 35V (7501B)
T6: -40 ≤ Ta ≤ 55°C Umax 24V
T6: -40 ≤ Ta ≤ 43°C Umax 35V

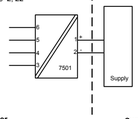
O-ring Sealing : FKM
T4: -20 ≤ Ta ≤ 85°C Umax 35V (7501A)
T4: -20 ≤ Ta ≤ 80°C Umax 35V (7501B)
T6: -20 ≤ Ta ≤ 55°C Umax 24V
T6: -20 ≤ Ta ≤ 43°C Umax 35V

Type of protection Ex ic

T4: -40 ≤ Ta ≤ 85°C T100°C (7501A)
T4: -40 ≤ Ta ≤ 80°C T100°C (7501B)
T6: -40 ≤ Ta ≤ 60°C T85 °C

Hazardous area
Zone 2, 22

Non Hazardous Area



Sensor
Terminal: 3,4,5,6
Ex ic
Uo: 9.6 VDC
Io: 28 mA
Po: 67 mW
Lo: 45 mH
Co: 28 µF

Supply
Terminal: 1,2
Ex ic
Ui: 35 VDC
Li: 0 µH
Ci: 2 nF

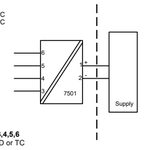
Supply
Terminal: 1,2
Ex ec
Umax : 35 VDC

Explosion proof / Dust ignition proof installation

Hazardous area
Class I, II, III Division 1, Groups ABCDEFG
Class I Zone 1, Ex/AEx d IIC T6

Non Hazardous Area

T6: -20 /-40 ≤ Ta ≤ 70ºC
T5, T4: -20 /-40 ≤ Ta ≤ 85ºC



Terminal: 3,4,5,6
Sensor: RTD or TC

Terminal: 1,2
Umax: 35 VDC

O-ring Sealings
Silicone rubber:-40°C ≤Ta ≤ +85°C
FKM rubber: -20°C ≤Ta ≤ +85°C

Protection: Indoor and Outdoor Type 4X or IP66

Explosion proof / Dust ignition proof installation

The enclosure must be installed such, that even in the event of rare incidents, ignition sources due to impact and friction, sparks are excluded.

Unused cable entries must be sealed by approved sealing plugs.

Certified cable and cable glands shall be used that are suitable for the application and correctly installed or the cables must be run in conduit.

For an ambient temperature exceeding 70 °C, heat resistant cables and cable glands suitable for at least 90°C shall be used.

For process temperatures above 85°C or below -20/-40°C installer must verify by measurements that the service temperature of the 7501 module is held within this range taking worst conditions into account.

The display cover must be screwed all the way in and the safety catch must be fastened before operation.

Protection degree of IP 66 or TYPE4X is only achieved if certified cable glands or conduit entry devices are used that are suitable for the application and correctly installed with sealing washers or Loctite sealant is added to the threads of the sensor, blanking elements and cable glands.

The enclosure must be connected to the potential matching line.

Warning.
Do not open display cover unless area is known to be safe.

For installation in Canada the following must be taken into account:
All openings for conduit and sensor connection must be in NPT threads.
For Class I Group A installation, conduit seal is required within 18 inches of the enclosure.
For Class I Zone I installation, conduit seal is required within 18 inches of the enclosure.

Attention.
Ne pas ouvrir le couvercle de l'afficheur tant que la zone n'est pas réputée non explosible.

Pour une mise en œuvre au Canada, les préconisations ci-dessous doivent être observées :
Toutes les ouvertures d'entrée process et connexion de capteur doivent être munies de filetage NPT.
Pour une mise en œuvre en Classe I, Groupe A, des joints d'étanchéité doivent être mises en place à moins de 18 pouces du bolter.
Pour une mise en œuvre en Classe I, Zone I, des joints d'étanchéité doivent être mises en place à moins de 18 pouces du bolter.

7501 Desenho de Instalação INMETRO

Para instalação segura do 7501 o seguinte deve ser observado. O módulo deve ser instalado, apenas por pessoas qualificadas as quais estão familiarizadas com as normas nacionais e internacionais, diretrizes e padrões (ABNT NBR IEC60079-14) que se aplicam a esta área.

Instalação Segura do Ex ia installation:

Certificado DEKRA 15.0014X

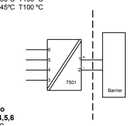
Marca Ex ia IIC T6...T4 Ga
Ex ia IIIC T100°C Da
Ex ia I Ma (apenas para Tipo 7501B....2.)

Normas : ABNT NBR IEC 60079-0: 2013, ABNT NBR IEC 60079-11: 2013
ABNT NBR IEC 60079-26: 2008

Áreas classificadas
Zona 0, 1, 2, 20, 21, 22, Minas

Áreas não classificadas

T4: -40 ≤ Ta ≤ 85°C T100 °C (7501A)
T4: -40 ≤ Ta ≤ 80°C T100 °C (7501B)
T5: -40 ≤ Ta ≤ 60°C T100 °C
T6: -40 ≤ Ta ≤ 45°C T100 °C



Terminal do sensor: 3,4,5,6
Uo: 9.6 VDC
Io: 28 mA
Po: 67 mW
Lo: 35 mH
Co: 3.5 µF

Terminal de alimentação: 1,2
Ui: 30 VDC
Ii: 120 mA
Pi: 0.84 W
Li: 0 µH
Ci: 2 nF

Ex ec, ic installation:

Installation of equipment shall take place under dry and clean conditions and the equipment may not be opened for maintenance in uncontrolled environment.

For Ex ic installation in uncontrolled environment the module must be installed with a protection degree of IP54.

For Ex ec installation in a pollution degree 2 environment the module must be installed with a minimum protection degree of IP54.

Protection degree of IP 54 according to EN 60529 is achieved if certified cable glands or conduit entry devices are used that are suitable for the application and correctly installed.

For Ex ec installation in an uncontrolled environment the module must be installed with a minimum protection of IP68.

Protection degree of IP 68 according to EN 60529 is only achieved if certified cable glands or conduit entry devices are used that are suitable for the application and correctly installed with sealing washers or Loctite sealant added to the threads of the sensor, blanking elements and cable glands.

For an ambient temperature exceeding 70°C, heat resistant cables and cable glands suitable for at least 90°C shall be used.

If the transmitter is physically connected to a possible source of heating or cooling, e.g. by mounting to a process pipe or a temperature sensor, the temperature at the point of connection shall be within the ambient temperature range as given in the certificate.

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

The enclosure must be connected to the potential matching line.

Applied screw terminal torque is max 0.4 Nm on all terminals.

For group III (dust), electrostatic charging of the paint layer shall be avoided.

Ex db, tb installation:

Certificate IEC DEK 15.0039 X

Marking Ex db IIC T6...T4 Gb
Ex tb IIIC T100°C Db

Standards:IEC 60079-0: 2017, IEC 60079-1: 2014, IEC 60079-31: 2013

Type of protection Ex db

T4,T5: -40 ≤ Ta ≤ 85°C (7501A)
T4,T5: -40 ≤ Ta ≤ 80°C (7501B)
T6: -40 ≤ Ta ≤ 70°C

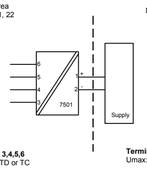
Type of protection Ex tb

O-ring Sealing : Silicone
-40 ≤ Ta ≤ 85°C T100°C (7501A)
-40 ≤ Ta ≤ 80°C T100°C (7501B)
-40 ≤ Ta ≤ 70°C T85°C

O-ring Sealing : FKM
-20 ≤ Ta ≤ 85°C T100°C (7501A)
-20 ≤ Ta ≤ 80°C T100°C (7501B)
-20 ≤ Ta ≤ 70°C T85°C

Hazardous area
Zone 1, 2, 21, 22

Non Hazardous Area



Terminal: 3,4,5,6
Sensor: RTD or TC

Terminal: 1,2
Umax: 35 VDC

Ex db, tb installation

No modification to the enclosure is allowed by the customer except as mentioned in the manual or installation drawing.

Flame proof joints are not intended to be repaired.

The transmitter is intended, either to be connected via a cable, or to be mounted directly onto a temperature sensing probe.
Only IECEx equipment certified sensors, suitable for the application and correctly installed, may be mounted directly onto the transmitter without additional certification of the combination.

If the transmitter is physically connected to a possible source of heating or cooling, e.g. by mounting to a process pipe or a temperature sensor, the temperature at the point of connection shall be within the ambient temperature range as given in the certificate. The sensor shall be suitable for use as entry device on an Ex d enclosure and shall not add volume to the 7501 enclosure. The thread of the sensor must be in compliance with IEC60079-1 / IEC60079-31.

Unused cable entries must be sealed by the blanking elements 8550-xxx and 8551-xxx supplied with the 7501 or other Ex d and / or Ex tb certified blanking elements suitable for the application.

Only Ex d and / or Ex tb certified cable and cable glands shall be used that are suitable for the application and correctly installed.

Protection degree of IP 54 according to IEC 60529 is achieved if Ex d certified cable glands or conduit entry devices are used that are suitable for the application and correctly installed.

Protection degree of IP 68 according to IEC 60529 is only achieved if Ex d certified cable glands or conduit entry devices are used that are suitable for the application and correctly installed with sealing washers or Loctite sealant added to the threads of the sensor, blanking elements and cable glands.

The display cover must be screwed all the way in and the safety catch must be fastened before putting into service. Do not open display cover until 30 minutes after disconnecting power to the equipment allowing internal capacitors to discharge, or do not open display cover unless area is known to be safe.

For an ambient temperature exceeding 70°C, heat resistant cables and cable glands suitable for at least 90°C shall be used.

The enclosure must be connected to the potential matching line.

When the process temperature range exceeds the service temperature range it shall be verified by on-site temperature measurements, taking the worst case conditions into account, that the service temperature does not exceed the range of the module.

For group III (dust), electrostatic charging of the paint layer shall be avoided.

Instalação do Ex ia
Instruções de instalação gerais
O circuito do sensor não é infalivelmente galvânico-isolado do circuito de saída de alimentação. Contudo, a isolação galvânica entre os circuitos é capaz de resistir a teste de tensão de 500Vac durante 1 minuto.

O equipamento deve ser conectado à linha potencial correspondente

Se o transmissor estiver fisicamente conectado a uma possível fonte de calor ou resfriamento, por exemplo, através da montagem de um tubo de processo ou sensor de temperatura, a temperatura no ponto de conexão deve estar entre a faixa de temperatura ambiente determinada no certificado ou neste manual.

As entradas dos cabos e elementos de supressão devem ser usadas adequadamente para aplicação INMETRO, aprovada e instalada corretamente.

Para instalação 7501A em zona 0 / EPL Ga, se aplicam as seguintes instruções:
O transmissor deve ser instalado de modo que, mesmo em um evento raro de incidente, fontes de ignição devido a impactos e fricção, faíscas sejam evitadas.

O grau de proteção do IP 54 de acordo com a ABNT NBR IEC 60529 é alcançado se o certificado prensa-cabos ou dispositivos de entrada de conduíte são usados e adequados para a aplicação e instalados corretamente.

O grau de proteção do IP 68 de acordo com a ABNT NBR IEC 60529 é apenas alcançado se o certificado prensa-cabos ou dispositivos de entrada de conduíte são usados e adequados para aplicação e instalados corretamente com selos de vedação ou selante Loctite adicionados para as linhas do sensor, elementos de supressão e prensa-cabos.

Para o grupo III (poeiras), deve ser evitada a carga eletrostática da camada de tinta.

Instalação Ex ic, Ex nA:

Certificado DEKRA 15.0014X

Marca Ex nA IIC T6...T4 Gc
Ex ic IIC T6...T4 Gc

Normas: ABNT NBR IEC 60079-0: 2013, ABNT NBR IEC 60079-15: 2012

Ex nA

Anel de vedação O : Silicone
T4: -40 ≤ Ta ≤ 85°C (7501A)
T4: -40 ≤ Ta ≤ 80°C (7501B)
T6: -40 ≤ Ta ≤ 60°C

Anel de vedação O : FKM
T4: -20 ≤ Ta ≤ 85°C (7501A)
T4: -20 ≤ Ta ≤ 80°C (7501B)
T6: -20 ≤ Ta ≤ 60°C

Ex ic

T4: -40 ≤ Ta ≤ 85°C (7501A)
T4: -40 ≤ Ta ≤ 80°C (7501B)
T6: -40 ≤ Ta ≤ 60°C

Áreas classificadas
Zona 2

Áreas não classificadas

Terminal do sensor: 3,4,5,6
Ex ic
Uo: 9.6 VDC
Io: 28 mA
Po: 67 mW
Lo: 45 mH
Co: 28 µF

Terminal de alimentação: 1,2
Ex ic
Ui: 35 VDC
Li: 0 µH
Ci: 2 nF

Terminal de alimentação: 1,2
Ex nA
U : 35 VDC

Instalação Ex ic, Ex nA:

Para uma temperatura ambiente excedendo 70 ºC, cabos resistentes ao calor e prensa-cabos adequados para pelo menos 90 ºC devem ser usados.

Se o transmissor estiver fisicamente conectado a uma possível fonte de calor ou resfriamento, por exemplo, através da montagem de um tubo de processo ou sensor de temperatura, a temperatura no ponto de conexão deve estar entre a faixa de temperatura ambiente determinada no certificado ou neste manual.

As entradas dos cabos e elementos de supressão devem ser usadas adequadamente para a aplicação e instaladas corretamente.

O equipamento deve ser conectado à linha potencial correspondente

O torque aplicado no terminal de parafusos é no máximo 0.4 Nm em todos os terminais.

O grau de proteção do IP 54 de acordo com a ABNT NBR IEC 60529 é alcançado se o certificado prensa-cabos ou dispositivos de entrada de conduíte são usados e adequados para a aplicação e instalados corretamente.

O grau de proteção do IP 68 de acordo com a ABNT NBR IEC 60529 é apenas alcançado se o certificado prensa-cabos ou dispositivos de entrada de conduíte são usados e adequados para aplicação e instalados corretamente com selos de vedação ou selante Loctite adicionados para as linhas do sensor, elementos de supressão e prensa-cabos.

FM Installation drawing 7501

For safe installation of 7501 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.

Pour une mise en œuvre du 7501 en toute securité, les préconisations ci-dessous doivent être observées. Le module doit être mis en œuvre par du personnel qualifié familier avec les Lois, Directives et Normes, nationales et internationales, qui s'appliquent à la zone d'installation.

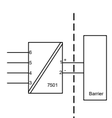
Intrinsic safe installation:

Hazardous classified Location
Class I,II,II Division1 Groups, ABCDEFG
Class I, Zone 0, IIC, Zone 20

Non classified Location

T4: -40 ≤ Ta ≤ 85ºC
T5: -40 ≤ Ta ≤ 60ºC
T6: -40 ≤ Ta ≤ 40ºC

Zone 20 Temperature Class:
-40 ≤ Ta ≤ 85ºC T100 ºC
-40 ≤ Ta ≤ 60ºC T75 ºC
-40 ≤ Ta ≤ 40ºC T60 ºC



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

Terminal: 1,2
Ui: 30 VDC
Ii: 120 mA
Pi: 0.84 W
Li: 0 µH
Ci: 2 nF

Terminal: 3,4,5,6
Uo: 9.6 VDC
Io: 28 mA
Po: 67 mW
Lo: 35 mH
Co: 3.5 µF

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

The entity concept
The Transmitter must be installed according to National Electrical Code (ANSI-NFPA 70) and shall be installed with the enclosure, mounting, and spacing segregation requirement of the ultimate application.

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 U_i(V_{max}) and current I_i(I_{max}), and maximum power P_i(P_{max}), which the device can receive and remain intrinsically safe, must be equal to or greater than the voltage (U_o or V_{oc} or V_t) and current (I_o 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 U_o,V_{OC} or V_t and I_o,I_{SC} or I_t, and C_a and L_a for barriers are provided by the barrier manufacturer.

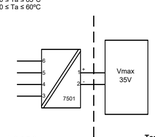
For Class II and Class III installations where rigid conduit is not used, seal cable entries against dust and fibres using a NRTL listed cable gland fitting.

Non Incendive installation:

Hazardous classified Location
Class I,II,III ,Division 2, Groups, ABCDFG
Class I, Zone 2, IIC

Non classified Location

T4: -20/-40 ≤ Ta ≤ 85ºC
T6: -20/-40 ≤ Ta ≤ 60ºC



Terminal: 3,4,5,6
Sensor: RTD or TC

Terminal: 1,2
Vmax: 35 VDC

O-ring Sealings
Silicone rubber:-40°C ≤Ta ≤ +85°C
FKM rubber: -20°C ≤Ta ≤ +85°C

Protection: Indoor and Outdoor TYPE 4X or IP66

Instalação Ex tb, Ex db:

Certificado DEKRA 15.0014X

Marca Ex db IIC T6...T4 Gb
Ex tb IIIC T100°C Db

Normas ABNT NBR IEC 60079-0: 2013, ABNT NBR IEC 60079-1: 2016,
ABNT NBR IEC 60079-31:2014

Ex db

T4,T5: -40 ≤ Ta ≤ 85ºC (7501A)
T4,T5: -40 ≤ Ta ≤ 80ºC (7501B)
T6: -40 ≤ Ta ≤ 70ºC

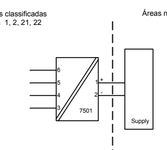
Ex tb

Anel de vedação O: Silicone
-40 ≤ Ta ≤ 85ºC T100ºC (7501A)
-40 ≤ Ta ≤ 80ºC T100ºC (7501B)
-40 ≤ Ta ≤ 70ºC T100ºC

Anel de vedação O: FKM
-20 ≤ Ta ≤ 85ºC T100ºC (7501A)
-20 ≤ Ta ≤ 80ºC T100ºC (7501B)
-20 ≤ Ta ≤ 70ºC T100ºC

Áreas classificadas
Zona 1, 2, 21, 22

Áreas não classificadas



Terminal: 3,4,5,6
Sensor: RTD ou TC

Terminal: 1,2
Alimentação: 35 VDC

Instalação Ex tb, Ex db:

O transmissor é destinado, quer para ser ligado através de um cabo, ou pode ser montado directamente sobre uma sonda de detecção de temperatura.
Sensores apenas INMETRO certificadas, apropriadas para a aplicação e instalado corretamente, pode ser montado diretamente sobre o transmissor sem certificação adicional da combinação.

Se o transmissor estiver fisicamente conectado a uma possível fonte de calor ou resfriamento, por exemplo, através da montagem de um tubo de processo ou sensor de temperatura, a temperatura no ponto de conexão deve estar entre a faixa de temperatura ambiente dada no certificado. O sensor deve ser adequado para ser usado como entrada de equipamento no equipamento Ex db e nenhum volume deve ser adicionado no enclosure do 7501.

Entradas de cabos não utilizadas devem ser selados pelas elementos de bloqueio 8550-xxx e 8551-xxx fornecidos com o 7501 ou seladas pelo INMETRO aprovou elementos adequados para a aplicação.

Prensa-cabos e cabos devem ser INMETRO Ex db / tb aprovado, adequado para a aplicação e corretamente instalados

O Sensor / Sonda aplicado deve ser adequado para a aplicação, instalado corretamente, e deve ser certificado pelo INMETRO.

O grau de proteção do IP 54 de acordo com a ABNT NBR IEC 60529 é alcançado se o certificado Ex db e prensa-cabos ou dispositivos de entrada de conduíte são usados e adequados para a aplicação e instalados corretamente.

O grau de proteção do IP 68 de acordo com a ABNT NBR IEC 60529 é apenas alcançado se o certificado Ex db e prensa-cabos ou dispositivos de entrada de conduíte são usados e adequados para aplicação e instalados corretamente com selos de vedação ou selante Loctite adicionados para as linhas do sensor, elementos de supressão e prensa-cabos.

A tampa do display deve ser parafusada em todos os pontos e o fecho de segurança deve ser ajustado antes de colocá-lo em serviço. Não abra a tampa do display até 30 minutos depois de desconectar a alimentação a fim de permitir que os capacitores internos descarreguem, ou não abra a tampa do display a menos que a área seja conhecida como segura.

Para uma temperatura ambiente que exceda 70 ºC, cabos resistentes a aquecimento e prensa-cabos adequados para pelo menos 90 ºC devem ser usados.

O equipamento deve ser conectado em uma linha potencial correspondente.

Quando a faixa de temperatura do processo excede a faixa de temperatura de serviço ela deve ser verificada através de medições de temperatura no local, levando a pior condição em conta, que a temperatura de serviço não exceda a faixa do módulo.

Para o grupo III (poeiras), deve ser evitada a carga electrostática da camada de tinta.

Nenhuma modificação no equipamento pelo cliente é permitida exceto o que é mencionado no manual ou no desenho de instalação.

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

Input: