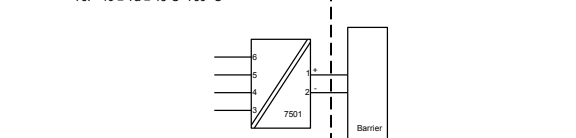


7501 ICEX Installation
For safe installation of 7501 the following must be observed. The module shall only be installed by qualified personnel who are familiar with the national and international laws, directives and standards (IEC60079-14) that apply to this area.
Year of manufacture can be taken from the first two digits in the serial number.

Ex ia installation:
Certificate IECEx DEK 15.0039 X
Marking Ex ia IIC T6, T4 Gc
Ex ia IIC 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



Sensor Terminal: 3,4,5,6
Uo: 9.6 VDC
Io: 28 mA
Pi: 67 mW
Li: 35 mH
Ll: 0 µH
Co: 3.5 µF

Supply Terminal: 1,2
Uo: 30 VDC
Io: 120 mA
Pi: 0.84 W
Li: 0 µH
Co: 2 nF

Revision date:	Version Revision	Page:
2021-04-12	V4R0	16

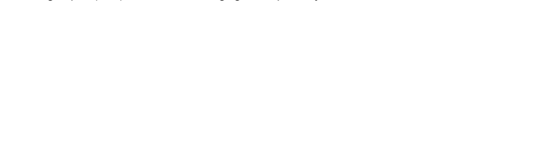
Ex ia installation

General installation instructions
The sensor circuit is not intrinsically 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.



Sensor Terminal: 3,4,5,6
Uo: 9.6 VDC
Io: 28 mA
Pi: 67 mW
Li: 35 mH
Ll: 0 µH
Co: 3.5 µF

Supply Terminal: 1,2
Uo: 30 VDC
Io: 120 mA
Pi: 0.84 W
Li: 0 µH
Co: 2 nF

Revision date:	Version Revision	Page:
2021-04-12	V4R0	28

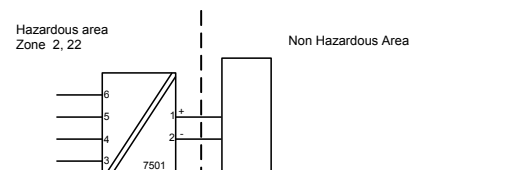
Ex ec, ic installation:

Certificate IECEx DEK 15.0039 X
Marking Ex ec IIC T6, T4 Gc
Ex ic IIC T6, T4 Gc
Ex ic IIC T100°C Dc

Standards: IEC 60079-0: 2017, IEC 60079-11: 2011, IEC 60079-31: 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 ≤ 50°C Umax 24V
T6: -40 ≤ 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



Sensor Terminal: 3,4,5,6
Ex ic
Uo: 9.6 VDC
Io: 28 mA
Pi: 67 mW
Li: 35 mH
Ll: 0 µH
Co: 28 µF

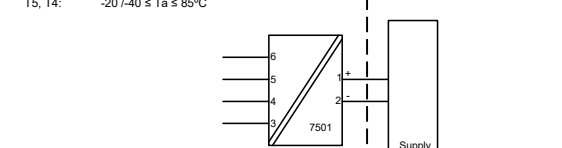
Supply Terminal: 1,2
Ex ec
Uo: 35 VDC
Io: 0 µA
Co: 2 nF

Revision date:	Version Revision	Page:
2021-04-12	V4R0	3/6

Explosion proof / Dust ignition proof installation

Hazardous area Class I, II, III Division 1, Groups ABCDEFG
Class I Zone 1, Ex/iaEx I IC T6

Non Hazardous Area
T6: -20/40 ≤ Ta ≤ 70°C
T5, T4: -20/40 ≤ Ta ≤ 85°C



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

Terminal: 1,2
Umux: 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 IP68

Revision date:	Version Revision	Page:
2016-08-03	V5R0	4/5

Explosion proof / Dust ignition proof installation

The enclosure must be sealed 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 temperature 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 68 or IP 70 TYPE EX 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.
For non open display cover unless area is known to be safe.
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.

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

Terminal do sensor: 3,4,5,6
Uo: 9.6 VDC
Io: 28 mA
Pi: 67 mW
Li: 35 mH
Ll: 0 µH
Co: 3.5 µF

Terminal de alimentação: 1,2
Uo: 30 VDC
Io: 120 mA
Pi: 0.84 W
Li: 0 µH
Co: 2 nF

Revision date:	Version Revision	Page:
2016-08-03	V5R0	5/5

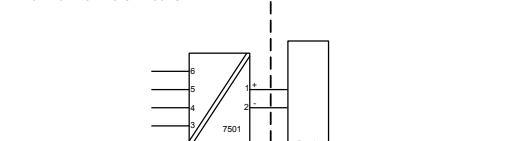
7501 Desenho de Instalação INMETRO

Para instalação segura do 7501 a 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 IEC 60079-14) que se aplicam a esta área. O ano de fabricação pode ser obtido a partir dos dois primeiros dígitos do número de série.

Instalação Segura do Ex ia instalação:
Certificado DEKRA 23.0012X
Marca Ex ia IIC T6, T4 Ga
Ex ia IIC T100°C Dc
Ex ia I Ma (apenas para Tipo 7501B...)

Normas: **ABNT NBR IEC 60079-0:2020 Versão Corrigida:2023**
ABNT NBR IEC 60079-11:2013 Versão Corrigida:2017

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



Terminal do sensor: 3,4,5,6
Uo: 9.6 VDC
Io: 28 mA
Pi: 67 mW
Li: 35 mH
Ll: 0 µH
Co: 3.5 µF

Terminal de alimentação: 1,2
Uo: 30 VDC
Io: 120 mA
Pi: 0.84 W
Li: 0 µH
Co: 2 nF

Revision date:	Version Revision	Prepared by	Page:
2023-10-03	V5R0	TORO	16

Ex ec, ic installation:

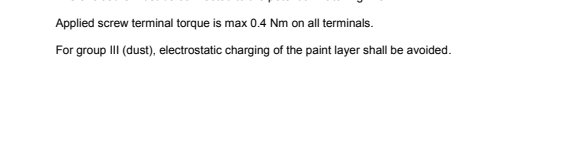
Installation of equipment shall take place under dry and clean conditions and the equipment may not be opened for maintenance in uncontrolled environment.
For Ex ic installation in uncontrolled environment the module must be installed with a protection degree of IP54.

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 this 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.



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

Terminal: 1,2
Umux: 35 VDC

Revision date:	Version Revision	Page:
2021-04-12	V4R0	4/6

Ex db, tb installation:

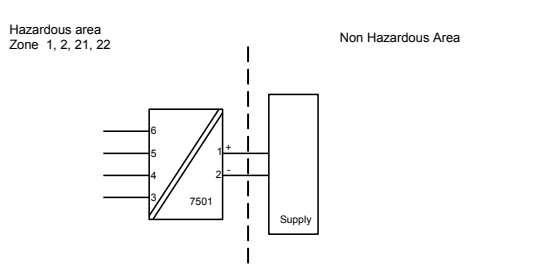
Certificate IEC DEK 15.0039 X
Marking Ex db IIC T6, T4 Gb
Ex tb IIC T100°C Db

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
T4: -40 ≤ Ta ≤ 85°C Umax 35V (7501A)
T4: -40 ≤ Ta ≤ 80°C Umax 35V (7501B)
T6: -40 ≤ Ta ≤ 70°C T85°C

O-ring Sealing - FKM
T4: -20 ≤ Ta ≤ 85°C Umax 35V (7501A)
T4: -20 ≤ Ta ≤ 80°C Umax 35V (7501B)
T6: -20 ≤ Ta ≤ 70°C T85°C



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

Terminal: 1,2
Umux: 35 VDC

Revision date:	Version Revision	Page:
2021-04-12	V4R0	5/6

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 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.

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

Terminal: 1,2
Umux: 35 VDC

Revision date:	Version Revision	Page:
2021-04-12	V4R0	6/6

Instalação do Ex ia

Instruções de instalação gerais
O circuito do sensor não é intrinsecamente galvanicamente isolado do circuito de saída de alimentação. Contudo, a isolamento galvanica entre os circuitos é capaz de resistir a teste de tensão de 500Vdc 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 a aplicação e instalados 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 condutite 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 condutite são usados e adequados para a aplicação e instalados corretamente.
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.

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



Terminal do sensor: 3,4,5,6
Ex ic
Uo: 9.6 VDC
Io: 28 mA
Pi: 67 mW
Li: 35 mH
Ll: 0 µH
Co: 28 µF

Terminal de alimentação: 1,2
Ex ec
Uo: 35 VDC
Io: 0 µA
Co: 2 nF

Terminal de alimentação: 1,2
Umux: 35 VDC

Revision date:	Version Revision	Prepared by	Page:
2023-10-03	V5R0	TORO	2/6

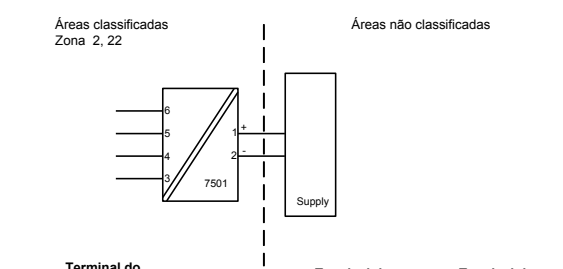
Instalação Ex ic, ec:

Certificado DEKRA 23.0012X
Marca Ex ec IIC T6, T4 Gc
Ex ic IIC T6, T4 Gc
Ex ic IIC T100°C Dc

Normas: **ABNT NBR IEC 60079-0:2020 Versão Corrigida:2023**
ABNT NBR IEC 60079-11:2013 Versão Corrigida:2017

Ex ec
Anel de vedação O - Silicone
T4: -40 ≤ Ta ≤ 85°C Umax 35V (7501A)
T4: -40 ≤ Ta ≤ 80°C Umax 35V (7501B)
T6: -40 ≤ Ta ≤ 50°C Umax 24V
T6: -40 ≤ Ta ≤ 43°C Umax 35V

Ex ic
T4: -40 ≤ Ta ≤ 85°C Umax 35V (7501A)
T4: -40 ≤ Ta ≤ 80°C Umax 35V (7501B)
T6: -20 ≤ Ta ≤ 85°C Umax 35V (7501B)
T6: -20 ≤ Ta ≤ 70°C Umax 35V



Terminal do sensor: 3,4,5,6
Ex ic
Uo: 9.6 VDC
Io: 28 mA
Pi: 67 mW
Li: 35 mH
Ll: 0 µH
Co: 28 µF

Terminal de alimentação: 1,2
Ex ec
Uo: 35 VDC
Io: 0 µA
Co: 2 nF

Terminal de alimentação: 1,2
Umux: 35 VDC

Revision date:	Version Revision	Prepared by	Page:
2023-10-03	V5R0	TORO	3/6

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.

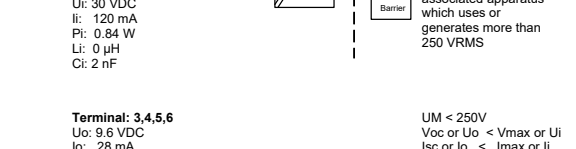
Pour une mise en œuvre de 7501 en toute sécurité, les préconisations ci-dessous doivent être observées. Le module doit être mis en œuvre par du personnel qualifié familier avec les Lois, Directives et Normes, nationales et internationales, qui s'appliquent à la zone d'installation.

Intrinsic safe installation:

Hazardous classified Location Class I,II,III Division 1, Groups, ABCDEFG
Class I, Zone 0, IIC, Zone 20
Non classified Location

T4: -40 ≤ Ta ≤ 85°C
T4: -40 ≤ Ta ≤ 80°C
T6: -40 ≤ Ta ≤ 40°C

Zone 20 Temperature Class:
-40 ≤ Ta ≤ 85°C T100 °C
-40 ≤ Ta ≤ 80°C T100 °C
-40 ≤ Ta ≤ 40°C T80 °C



Terminal: 1,2
Uo: 30 VDC
Io: 120 mA
Pi: 0.84 W
Li: 0 µH
Co: 3.5 µF

Terminal: 3,4,5,6
Uo: 9.6 VDC
Voc or Uo < Vmax or Uo
Io: 28 mA
Pi: 67 mW
Li: 35 mH
Co: 3.5 µF

UM < 250V
Voc or Uo < Vmax or Uo
Io or Io < Imax or Uo
Pi < Pi
Ca or Co > Ci + Ccable
La or Lo > Li + Lcable

Revision date:	Version Revision	Page:
2016-08-03	V5R0	1/5

The entry 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