

ADVARSEL Modulet må kun tilsluttes af kvalificerede teknikere... Only technicians, who are familiar with the technical terms, warnings, and instructions in the manual...

AVERTISSEMENT Il est conseillé de réserver le raccordement du module aux techniciens qualifiés qui connaissent les termes techniques... Only technicians, who are familiar with the technical terms, warnings, and instructions in the manual...

WARNUNG Das Gerät darf nur von qualifizierten Technikern angeschlossen werden... Vor Ort Kontakt aufnehmen. Sie können aber auch direkt mit PR electronics GmbH Kontakt aufnehmen.

Segurança O módulo deve ser instalado apenas por técnicos qualificados... O módulo deve ser instalado apenas por técnicos qualificados que conheçam os termos técnicos...

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

Spécifications électriques Température de fonctionnement -40°C à +85°C avec joint en silicone... Réduction des performances de l'écran LCD

Elektrische Daten Anwendungstemperatur mit Silikon-O-Ring... Reduzierte LCD Leistung unter -20°C und über +70°C

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Mekaniske specifikationer Diameter 110 mm... Dimensioner, H x B x D: 109,3x145x126 mm

Spécifications mécaniques Dimensions, H x B x D: 110 mm... Dimensions, H x B x D: 109,3x145x126 mm

Mechanische Spezifikationen Durchmesser 110 mm... Abmessungen, H x B x D: 109,3x145x126 mm

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Fælles specifikationer Forsyningsspænding DC... Ex ia, egeniskret 10...30 VDC

Spécifications communes Tension d'alimentation, cc: Ex ia, intrinsèquement sûr... 10...30 Vcc

Allgemeine Daten Versorgungsspannung, DC... Ex ia, eigensicher 10...30 VDC

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Indgangsspecifikationer Indgang for RTD-type... P510, P1100, P2100, P5100, N1000, N1100, N1200, N1000

Spécifications d'entrée Entrée pour types RTD... P510, P1100, P2100, P5100, N1000, N1100, N1200, N1000

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Indgang for TC-type... B, E, J, K, L, N, R, S, T, U, W3, W5, Lr

Spécifications de sortie Entrée pour types TC... B, E, J, K, L, N, R, S, T, U, W3, W5, Lr

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Observed authority requirements EMC... 2014/30/EU & UK SI 2016/1091

Spécifications d'entrée Entrée pour types TC... B, E, J, K, L, N, R, S, T, U, W3, W5, Lr

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Godkendelser EU RO marine... MRA0000009

Spécifications d'entrée Entrée pour types TC... B, E, J, K, L, N, R, S, T, U, W3, W5, Lr

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Overholdte myndighedskrav EMC... 2014/30/EU & UK SI 2016/1091

Spécifications d'entrée Entrée pour types TC... B, E, J, K, L, N, R, S, T, U, W3, W5, Lr

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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:

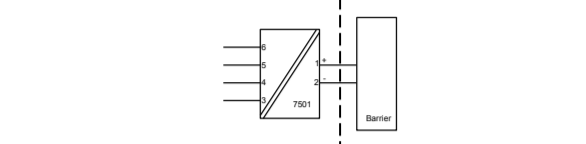
Certificate IECEx DEK 15.0039 X
Marking Ex ia IIC T6, T4 Gc
Ex ia IIC T100°C Db
Ex ia I Ma (7501B)

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

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

Non Hazardous Area

T4: -40 ≤ Ta ≤ 85°C T100°C (7501A)
T4: -40 ≤ Ta ≤ 85°C T100°C (7501B)
T4: -40 ≤ Ta ≤ 85°C T100°C (7501B)
T6: -40 ≤ Ta ≤ 45°C T85°C



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

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

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 60079-2:2017

Type of protection Ex ec
O-ring Sealing: Silicone
T4: -40 ≤ Ta ≤ 85°C Umax 35V (7501A)
T4: -40 ≤ Ta ≤ 85°C Umax 35V (7501B)
T4: -40 ≤ Ta ≤ 85°C Umax 35V (7501B)
T6: -40 ≤ Ta ≤ 45°C Umax 35V

Type of protection Ex ic
T4: -40 ≤ Ta ≤ 85°C T100°C (7501A)
T4: -40 ≤ Ta ≤ 85°C T100°C (7501B)
T4: -40 ≤ Ta ≤ 85°C T100°C (7501B)
T6: -40 ≤ Ta ≤ 45°C T85°C



Sensor
Terminal: 3,4,5,6
Uo: 9.6 VDC
Io: 28 mA
Po: 67 mW
Li: 35 mH
Ll: 0 μH
Co: 2 nF

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

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.

Ex db, tb installation:

Certificate IEC DEK 15.0039 X
Marking Ex db IIC T6, T4 Gb
Ex db 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 ≤ 85°C (7501B)
T6: -40 ≤ Ta ≤ 70°C

Type of protection Ex tb
O-ring Sealing: Silicone
T4: -40 ≤ Ta ≤ 85°C T100°C (7501A)
T4: -40 ≤ Ta ≤ 85°C T100°C (7501B)
T4: -40 ≤ Ta ≤ 85°C T100°C (7501B)
T6: -40 ≤ Ta ≤ 70°C T85°C

O-ring Sealing: FKM
T4: -20 ≤ Ta ≤ 85°C T100°C (7501A)
T4: -20 ≤ Ta ≤ 85°C T100°C (7501B)
T4: -20 ≤ Ta ≤ 85°C T100°C (7501B)
T6: -20 ≤ Ta ≤ 70°C T85°C



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

Terminal: 1,2
Umax: 35 VDC

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.

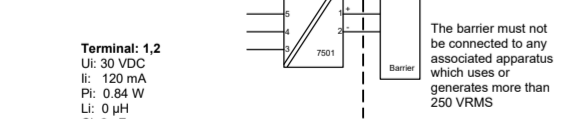
Intrinsic safe installation:

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 ≤ 85°C
T6: -40 ≤ Ta ≤ 45°C

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



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

Terminal: 3,4,5,6
Uo: 9.6 VDC
Voc or Uo < Vmax or Uo
Io: 28 mA
Po: 67 mW
Li: 35 mH
Ll: 0 μH
Co: 3.5 μF

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

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.

The entry concept
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 entry concept is acceptable to the authority having jurisdiction over the installation.

The entry concept criteria are as follows:
The intrinsically safe devices, other than barriers, must not be a source of power.
The maximum voltage (U_{IVmax}) and current (I_{IVmax}), and maximum power (P_{IVmax}), which the device can receive and remain intrinsically safe, must be equal to or greater than the voltage (U_o or V_o or V_i) and current (I_o or I_i or I_v) and the power (P_o) which can be delivered by the barrier.

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

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

The entry parameters U_o/V_o or V_i and I_o/I_i or I_v, and C_o and L_o 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.

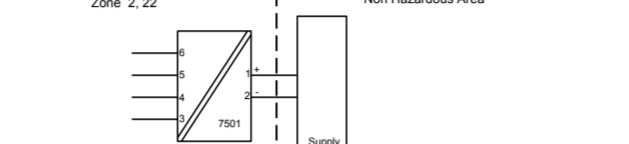
Ex ec, ic installation:

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 60079-2:2017

Type of protection Ex ec
O-ring Sealing: Silicone
T4: -40 ≤ Ta ≤ 85°C Umax 35V (7501A)
T4: -40 ≤ Ta ≤ 85°C Umax 35V (7501B)
T4: -40 ≤ Ta ≤ 85°C Umax 35V (7501B)
T6: -40 ≤ Ta ≤ 45°C Umax 35V

Type of protection Ex ic
T4: -40 ≤ Ta ≤ 85°C T100°C (7501A)
T4: -40 ≤ Ta ≤ 85°C T100°C (7501B)
T4: -40 ≤ Ta ≤ 85°C T100°C (7501B)
T6: -40 ≤ Ta ≤ 45°C T85°C



Sensor
Terminal: 3,4,5,6
Uo: 9.6 VDC
Io: 28 mA
Po: 67 mW
Li: 35 mH
Ll: 0 μH
Co: 2 nF

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

Ex db, tb installation:

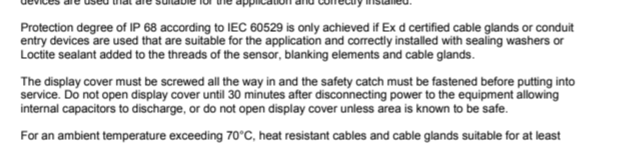
Certificate IEC DEK 15.0039 X
Marking Ex db IIC T6, T4 Gb
Ex db IIC T100°C Db

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 ≤ 85°C (7501B)
T6: -40 ≤ Ta ≤ 70°C

Type of protection Ex tb
O-ring Sealing: Silicone
T4: -40 ≤ Ta ≤ 85°C T100°C (7501A)
T4: -40 ≤ Ta ≤ 85°C T100°C (7501B)
T4: -40 ≤ Ta ≤ 85°C T100°C (7501B)
T6: -40 ≤ Ta ≤ 70°C T85°C

O-ring Sealing: FKM
T4: -20 ≤ Ta ≤ 85°C T100°C (7501A)
T4: -20 ≤ Ta ≤ 85°C T100°C (7501B)
T4: -20 ≤ Ta ≤ 85°C T100°C (7501B)
T6: -20 ≤ Ta ≤ 70°C T85°C



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

Terminal: 1,2
Umax: 35 VDC

Non Incendive installation:

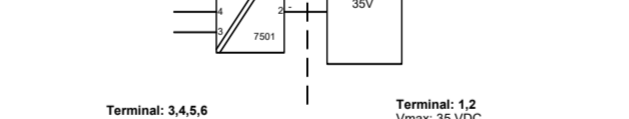
Certificate DEKRA 23.0012X
Marking Ex db IIC T6, T4 Gb
Ex db IIC T100°C Db

Normas
ABNT NBR IEC 60079-0:2020 Versão Corrigida:2023
ABNT NBR IEC 60079-1:2014 Versão Corrigida:2021
ABNT NBR IEC 60079-31:2014 Versão Corrigida:2021

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

Ex tb:
Anel de vedação O: Silicone
T4: -40 ≤ Ta ≤ 85°C T100°C (7501A)
T4: -40 ≤ Ta ≤ 85°C T100°C (7501B)
T4: -40 ≤ Ta ≤ 85°C T100°C (7501B)
T6: -40 ≤ Ta ≤ 70°C T85°C

Anel de vedação O: FKM
T4: -20 ≤ Ta ≤ 85°C T100°C (7501A)
T4: -20 ≤ Ta ≤ 85°C T100°C (7501B)
T4: -20 ≤ Ta ≤ 85°C T100°C (7501B)
T6: -20 ≤ Ta ≤ 70°C T85°C



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

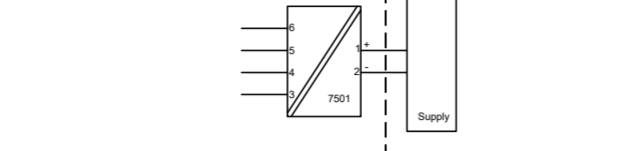
Protection: Indoor and Outdoor Type 4X or IP68

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
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 IP68

Instalação do Ex ia

Instruções de instalação gerais
O circuito do sensor não é intrinsecamente galvanico-isolado do circuito de saída de alimentação. Contudo, a instalação 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 Gc, 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 condutão 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 condutão são usados e adequados para a 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 tb, Ex db:

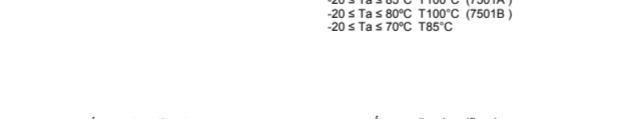
Certificate DEKRA 23.0012X
Marking Ex db IIC T6, T4 Gb
Ex db IIC T100°C Db

Normas
ABNT NBR IEC 60079-0:2020 Versão Corrigida:2023
ABNT NBR IEC 60079-1:2014 Versão Corrigida:2021
ABNT NBR IEC 60079-31:2014 Versão Corrigida:2021

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

Ex tb:
Anel de vedação O: Silicone
T4: -40 ≤ Ta ≤ 85°C T100°C (7501A)
T4: -40 ≤ Ta ≤ 85°C T100°C (7501B)
T4: -40 ≤ Ta ≤ 85°C T100°C (7501B)
T6: -40 ≤ Ta ≤ 70°C T85°C

Anel de vedação O: FKM
T4: -20 ≤ Ta ≤ 85°C T100°C (7501A)
T4: -20 ≤ Ta ≤ 85°C T100°C (7501B)
T4: -20 ≤ Ta ≤ 85°C T100°C (7501B)
T6: -20 ≤ Ta ≤ 70°C T85°C



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

Terminal: 1,2
Alimentação: 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

Explosion proof / Dust ignition proof installation

The enclosure must be sealed by approved sealing plugs.
Unseal 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 of 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.

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.

Attention:
Ne pas ouvrir le couvercle de l'affichage tant que la zone n'est pas réputée non explosible.
Pour une mise en oeuvre 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 oeuvre en Classe I, Groupe A, des joints d'étanchéité doivent être mis en place à moins de 18 pouces du boîtier.
Pour une mise en oeuvre en Classe I, Zone I, des joints d'étanchéité doivent être mis en place à moins de 18 pouces du boîtier.

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

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

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 60079-1:2014 Versão Corrigida:2021

Ex ec:
Anel de vedação O: Silicone
T4: -40 ≤ Ta ≤ 85°C Umax 35V (7501A)
T4: -40 ≤ Ta ≤ 85°C Umax 35V (7501B)
T4: -40 ≤ Ta ≤ 85°C Umax 35V (7501B)
T6: -40 ≤ Ta ≤ 45°C Umax 35V

Ex ic:
T4: -40 ≤ Ta ≤ 85°C T100°C (7501A)
T4: -40 ≤ Ta ≤ 85°C T100°C (7501B)
T4: -40 ≤ Ta ≤ 85°C T100°C (7501B)
T6: -40 ≤ Ta ≤ 45°C T85°C

