

TSP300, TSA101, TSP341-N, TTF200, TTF300

Temperature sensors and transmitters with INMETRO Flameproof enclosure

EN
English

Supplement / changes of the operating and commissioning instruction for TSP, TSA101, TSP341-N, TTF200 and TTF300, valid for the following models:

Use in potentially explosive atmospheres in accordance with INMETRO

- TSP311-C5, TSP321-C5, TSP331-C5 (INMETRO Flameproof enclosure)
- TSA101-C5 (INMETRO Flameproof enclosure)
- TSP341-N-C5 (INMETRO Flameproof enclosure)
- TTF200-C5, TTF300-C5 (INMETRO Flameproof enclosure)

Introduction

This supplement to the general operating instruction delivers additional information for temperature sensors and transmitters with flameproof enclosure, described in the appropriate type examination certificate INMETRO DNV 15.0115 X – Revision 01.

This supplement to the general operating instruction refers to the explosion protection aspect only.

Like the operating instruction itself, this document should be carefully read before beginning installation to guarantee device function, as well as for your own safety.

For further information on use in potentially explosive atmospheres, the notices in operating instruction OI/TSP or CI/TSP, OI/TSP341-N or CI/TSP341-N, OI/TTF200 or CI/TTF200 and OI/TTF300 or CI/TTF300 should be complied with!

Contact ABB Automation Products GmbH as the manufacturer if anything is unclear. This supplement is valid only in conjunction with the general operating instruction.

Device Identification

The related type coding of a device covered by the INMETRO certification for flameproof enclosure is shown on the additional plates for sensors TSP300 and TSP341-N. Transmitters TTF (TTF200 and TTF300) have their type coding on the device's name plate, see subsequent chapter Name plate TTF.

Name plate TTF

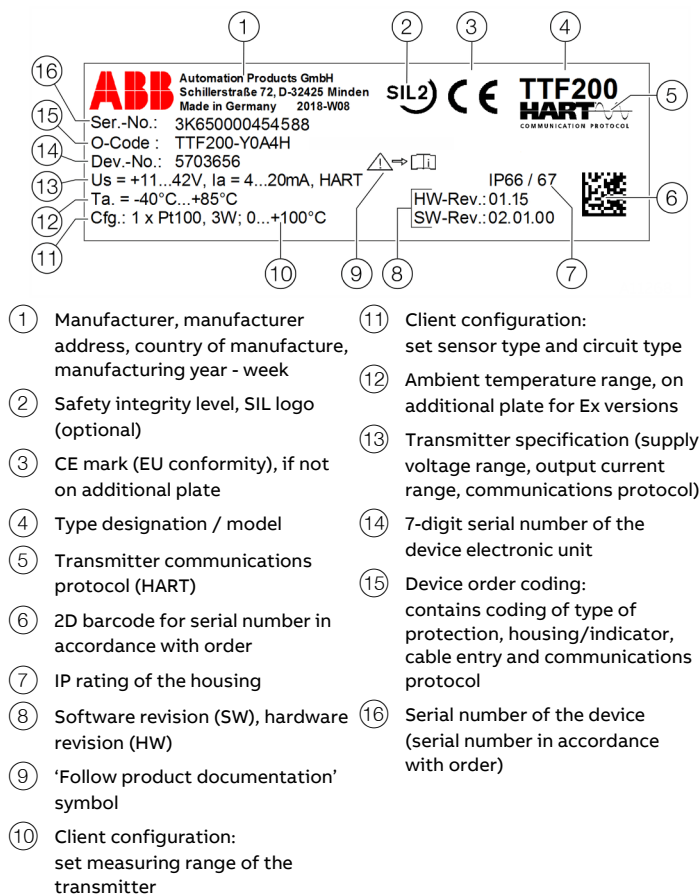


Figure 1: Name plate TTF200, TTF300 (general example, TTF200)

Explosion protection marking

Devices with an explosion-proof design are marked with additional plates.

Additional plate for TTF200 and TTF300 with flameproof enclosure in accordance with INMETRO:

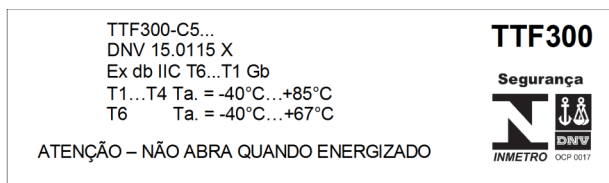


Figure 2: Additional plate for TTF200 and TTF300 (example TTF300)

Additional plate for TSP300 and TSP341-N with flameproof enclosure in accordance with INMETRO:

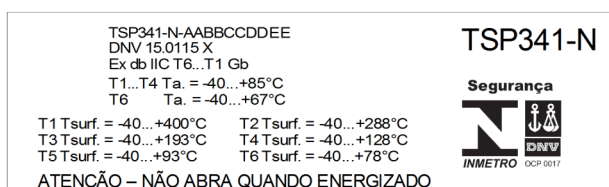


Figure 3: Additional plate for TSP300 and TSP341-N (example TSP341-N)

The additional plates include

- Type designation in accordance with INMETRO approval (C5)
- Approval number (DNV 15.0115 X)
- Explosion protection marking
- Temperature class and corresponding ambient temperature T_a of the explosion-proof design

Additional information for TSP341-N (non-invasive temperature sensor)

- Related type coding of the device, covered by the INMETRO certificate for flameproof enclosure
- Temperature class and corresponding surface temperature $T_{surf.}$ of the explosion-proof design

Additional information for TSP300 (TSP311, TSP321, TSP331)

- Related type coding of the device, covered by the INMETRO certificate for flameproof enclosure
- Temperature class and corresponding media/process temperature T_p of the explosion-proof design
- Explosion protection marking for TSP300:

Ex dB IIC T6...T1 Ga/Gb

Note

- For more information see type examination certificate INMETRO DNV 15.0115 X.
- Further information on the approval of devices for use in potentially explosive atmospheres can be found in the type examination certificates at www.abb.com/temperature.

Notes on assembly, installation, operation and repair of devices in the 'Flameproof enclosure' type of protection

The following requirements for assembly, installation, operation and repair of devices in the 'Flameproof enclosure' type of protection should be complied with.

The supplements are in line with the type examination certificate INMETRO DNV 15.0115 X – Revision 01.

Electrical data

Transmitter

Supply circuit

Maximum voltage	$U_s = 30\text{ V}$
Maximum current	$I_s = 32\text{ mA}$, limited by the upstream fuse (rated fuse current 32 mA)

Measurement current circuit

Maximum voltage	$U_o = 6.5\text{ V}$
Maximum current	$I_o = 17.8\text{ mA}$
Maximum power	$P_o = 29\text{ mW}$ (TTF200, TTH200*) $P_o = 39\text{ mW}$ (TTF300, TTH300*)

* TTH200 or TTH300 integrated in TSP300

Max output power P_o bases on max. temperature rise of 8 K, see chapter 'Thermal resistance' in manual. For higher output power, temperature rise must be recalculated.

Electrical connections - TTF200 and TTF300

Flameproof (enclosure) - Zone 1

Marking: Ex db IIC T6...T1 Gb

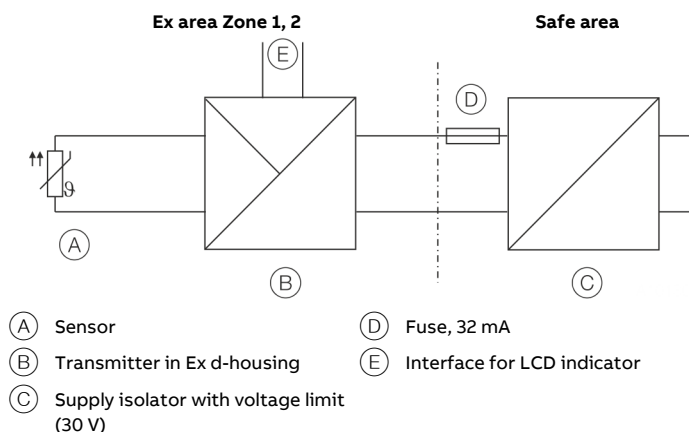


Figure 4: TTF200, TTF300, hookup in Zone 1 'flameproof (enclosure)' type of protection)

For installation and mounting of TTF200 and TTF300 study carefully the type examination certificate INMETRO DNV 15.0115 X and the operating instructions of TTF200 or TTF300.

Electrical connections - TSP341-N

Flameproof (enclosure) - Zone 1

Marking: Ex db IIC T6...T1 Gb

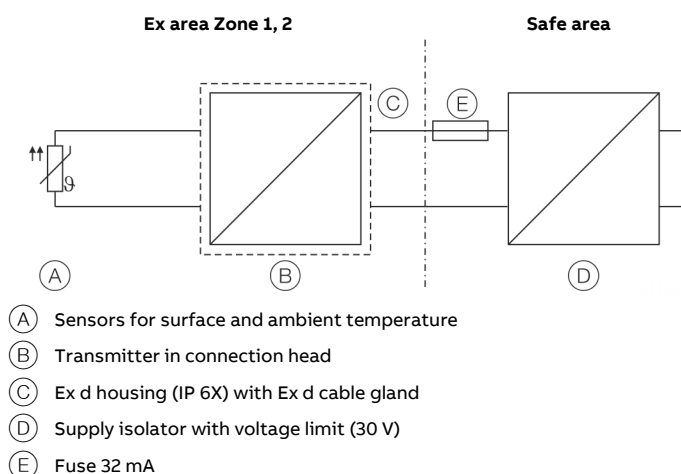


Figure 5: TSP341-N, interconnection in 'Ex d – flameproof (enclosure)' type of protection

The TSP341-N in Ex d – flameproof (enclosure) type of protection is supplied with a non-intrinsically safe transmitter.

For installation and mounting of TSP341-N study carefully the type examination certificate INMETRO DNV 15.0115 X and the operating instruction of TSP341-N.

Electrical connections – TSA101, TSP300 (TSP311, TSP321, TSP331)

Flameproof (enclosure) - Zone 0 by zone separation with thermowell, Zone 1

Marking: Ex dB IIC T6...T1 Ga/Gb

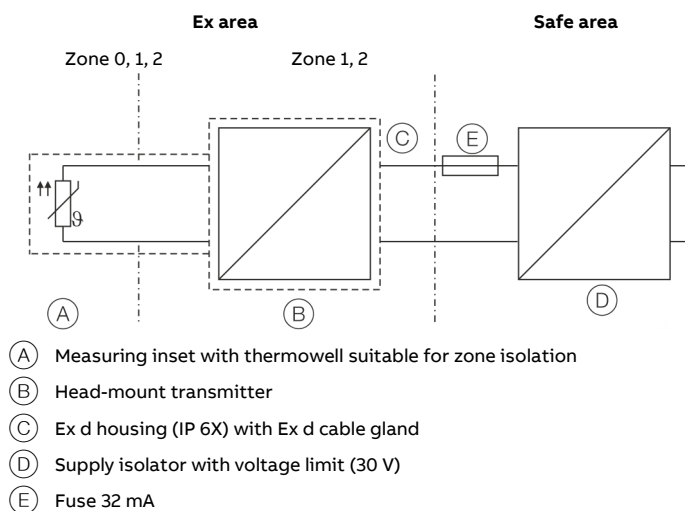


Figure 6: TSP300, interconnection in 'Ex d – flameproof (enclosure)' type of protection. Example: sensor with integrated transmitter

The TSP300 in Ex d – flameproof (enclosure) type of protection is supplied without transmitter or with a non-intrinsically safe transmitter.

For installation and mounting of TSP300 without or with transmitter study carefully the type examination certificate INMETRO DNV 15.0115 X and the operating instruction of TSP.

Operating instructions

⚠ DANGER

Risk of explosion due to hot parts

Hot parts inside the device pose an explosion hazard.

- Never open the device immediately after switch-off.
- A waiting time of at least four minutes should be observed before opening the device.

⚠ DANGER

Explosion hazard when opening the device

Explosion hazard when opening the device with activated power supply.

- Before opening the device, switch off the power supply.

Damage to the 'Flameproof (enclosure)– Ex d' type of protection

The cover thread is used as a flameproof joint for the 'Flameproof (enclosure) – Ex d' type of protection.

- During assembly / disassembly of the device, make sure that the cover thread does not get damaged.
- Devices with damaged threads must no longer be used in potentially explosive atmospheres.

Repair

⚠ DANGER

Explosion hazard

Explosion hazard due to improper repair of the device. Faulty devices must not be repaired by the operator.

- The device may only be repaired by the ABB Service Department.
- Repairs on flameproof joints are not permitted.