TRANBERG THERMO CONNECT (TTC)

	TTC/C Controller	TTC/CL Controller Limiter
TTC	8150 2351	8150 2352
TTC w/ Switch	8150 2353	8150 2354
TTC Double	8150 2355	8150 2356
TTC 2	81502371	81502372
TTC 2 w/ Switch	81502373	81502374

Zone 1, Zone 2 & Safe Area

Document properties (TUM7511)

Revision	Comment	Revision date	Approved
B	Including TTC 2	15.11.2024	MOD
C	Updated Ex Code	03.03.2025	TBH
4	Updated Ex Code	24.04.2026	TBH

R. STAHL TRANBERG AS
Main office | Strandsvingen 6 | N-4032 Stavanger, Norway | T +47 51 57 89 00 | E info.no-st@r-stahl.com | stahl-tranberg.com

Installation and operating manual

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Warnings and risk levels

DANGER
Non-compliance with the instruction results in risk of severe or fatal injuries to persons

WARNING
Non-compliance with the instruction may result in risk of severe or fatal injuries to persons

CAUTION
Non-compliance with the instruction may result in risk of injuries or damage to equipment

NOTICE
Non-compliance with the instruction may result in reduced lifetime of equipment, malfunctions etc.

General information

Before installation, make sure to read and understand this installation and operating manual.

Observe national assembly and installation regulations.

Always contact the manufacturer if anything is unclear, or if you notice any faults on the product or in this document.

This installation and operating manual shall be available to anyone operating, installing, inspecting, modifying or repairing the equipment.

Safety precautions

Note that changes made to the product and/or installation of components which do not conform to the approval, may be a safety violation. The manufacturer will in no circumstances be held responsible for such activity.

For your health and safety, always use safety gear suited for the task. Be certain to follow codes, regulations and/or specific procedures that are related to the installation.

Only qualified personnel are allowed to perform installation and maintenance tasks to this equipment.

The junction box is equipped for termination of heat tracing and is ready for installation when leaving the production facilities of R. Stahl Tranberg AS. Changes made to the product, which do not confirm to the approvals of this equipment, is a safety violation. The manufacturer is under no circumstances responsible for personal injuries, death or any other damage caused by such activities. Any damage done to the equipment during transportation is not the responsibility of R. Stahl Tranberg AS. If the content is not complete, file a claim to the producer immediately.

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Marking and intended use

DANGER
Not for use in Zone 0

CE-marking: CE 0102

ATEX Certificate: PTB 09 ATEX 1109 8150/5

Ex Protection marking: Ⓔx II 2(2) G Ex db eb ib mb [ib] IIC T4 Gb

For use in Explosive Atmospheres Zone 1, Zone 2 & Safe Area

For use in marine/industrial/onshore/offshore environments.

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Special conditions for safe use

DANGER

Special conditions for safe use are critical conditions to maintain the explosion protection of the equipment. These shall be adhered to in all cases and under all circumstances.

- According to this manual
- Observe EN 60079-30-2 if connected to heat tracing cables

Technical data

Property	Value
Type designation:	Stahl 8150/5
Explosion protection:	Ⓔx II 2(2) G Ex db eb ib mb [ib] IIC T4 Gb
Certificates:	PTB 09 ATEX 1109 8150/5
Ambient temperature:	-40°C to +40°C
Ingress protection:	IP66
Material housing:	AISI 316L / EN 1.4404
Nominal voltage:	230 VAC
Finish:	Brushed stainless steel
Max. switching capacity:	815023-51/52 20A Resistive load 815023-53/5416A Resistive load 815023-55/56 20A Resistive load 815023-71-74 16A Resistive load
Max. wire termination (with end sleeve):	Power in: Max. 6mm^2
	Heating cable (power out): Max 4mm^2
	Earth terminals: Max. 10mm^2
Lamp indication:	Green: Thermostat powered on, heat tracing cable off.
	Yellow: Thermostat powered on, heat-tracing cable on.
	Red flashing: Sensor failure – controller in fail-safe mode.

Product description

The TTC, TTC/w Switch, TTC Double, TTC 2 and TTC 2 w/ Switch are smart thermostat control units used in various environments such as hazardous areas, chemical and petrochemical industries, and industrial plants (for frost protection or temperature maintenance). It can be mounted outdoor or indoor and is suitable for use in hazardous areas Zone 1, Zone 2 and Safe Area.

Content in box

- The product is fully assembled, and ready for installation.

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Mounting and installation

DANGER
Incorrect mounting and installation may lead to explosion risks, risk of falling objects, risk for electric shock and risk for equipment malfunction. In turn, this can lead to severe damage and/or injuries.

Mounting

Before installing the component, ensure that:

- The power is disconnected.
- Servicing the junction box is done be checking the intactness of the junction box, gasket and glands. If necessary, lubricate the lid bolt threads with grease type Renolit Unitemp 2 from Fuchs.
- Maintenance according to national regulations and company practice.
- If repair or overhaul is necessary, this may only be done with Tranberg spare parts.
- Modification of the JB or change of design are not permitted, except for installing additional glands and terminals according to the approval of the JB.

Installation

1. Mount the thermostat junction box by at least 4 pcs. M6 bolts placed diagonally on a wall or a proper supported rack.
2. Remove dust protection or stopping plugs and install glands. Holes not in use must be closed with stopping plugs. Only certified cable glands and blinds may be used. Glands has to be chosen according to cable diameter used.
3. Assemble accessories and equipment according to respective user manuals and as illustrated in fig. 1&2

Temperature sensor

The sensor must be strapped in good thermal contact with the pipe or equipment. In addition to general mechanical protection, the sensor must be protected so that the thermal insulation cannot be trapped between the sensor and the heated surface. The sensor is normally fixed to pipe or object by use of aluminum tape. Other methods could be thermowells suitable for the application. Observe EN 60079-30-2.

Termination

In order to maintain the mode of protection, the conductors have to be connected with special care. The isolation must reach up to the terminals and the conductor must not be damaged. Termination of heat tracing cables must be according to cable specification given by supplier of these. Tighten all terminals, also those not in use. Reinstall lid and tight bolts firmly with suitable tool by hand force. Over tightening may impair the protection category.

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Communication and networking

The TTC units can interface to external control systems by means of Modbus RTU protocol. There is also an option for wireless Modbus (Wireless HART or Trusted Wireless). Contact sales department for more information about the wireless options.

See TTD6512 for Modbus specifications and registers for use of TTC with Modbus RTU RS485

See TUM7148 for Wireless HART Repeater – Part no: 8150 2365

See TUM7149 for Trusted Wireless Repeater – Part no: 8150 2350

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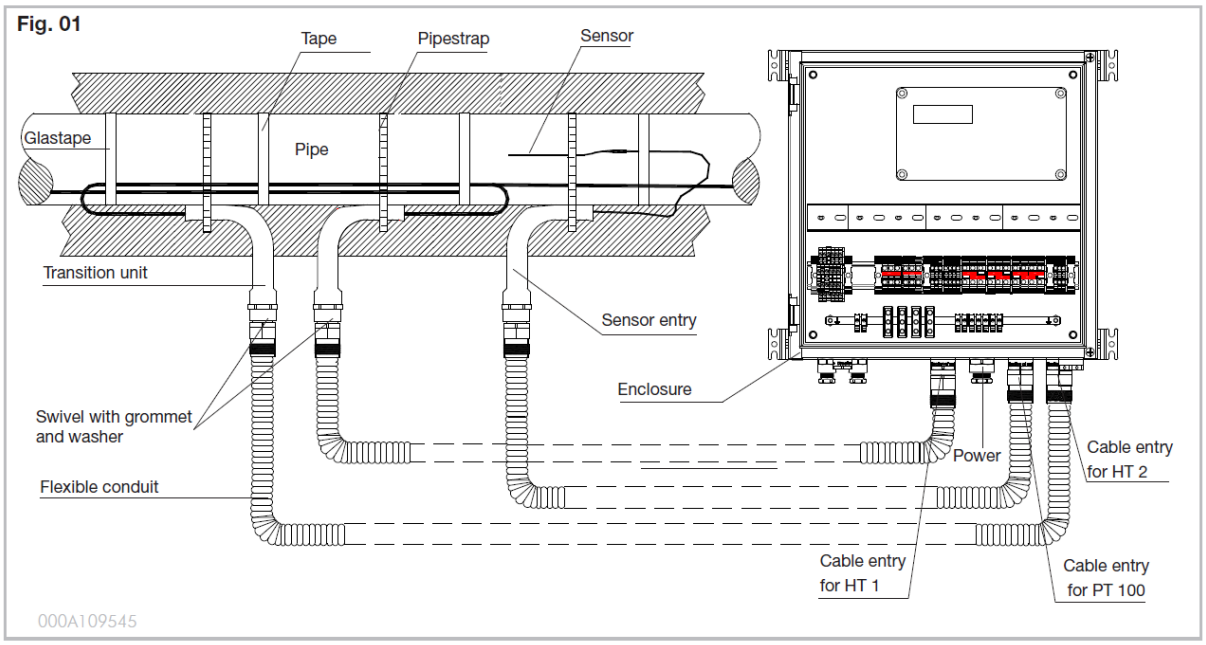
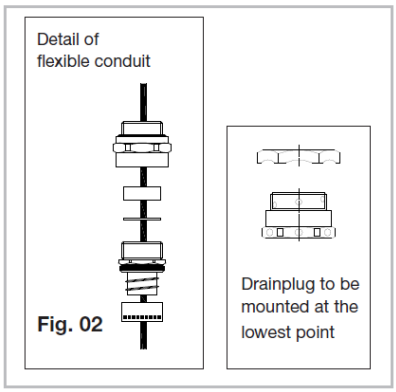




Area of use for TTC and TTC 2

Safety temperature limiters are required in all areas where thermal processes need to be prevented from overheating. In case of temperature upset they will put the system into a safe operating condition. The safety function will invoke in the event of a fault, when the permissible temperature limit is reached or in case a fault occurs (such as probe break, probe short-circuit, component failure, or supply failure) even when the process conditions are within the permissible temperature range. In all these cases the equipment is immediately switched off. If the fault is no longer present, then the safety temperature function must be manually reset before the unit goes back to normal operation. The output of the unit will only be enabled when all conditions are safe; meaning that the temperature measured by the limiter RTD has dropped below the limiter set point and when there are no other faults being detected. In other words, the unit will only reset after the normal operating conditions have returned.

Insulation Resistance Test (Meggering)

Source: Nvent Raychem - Installation and maintenance manual for heating cable systems

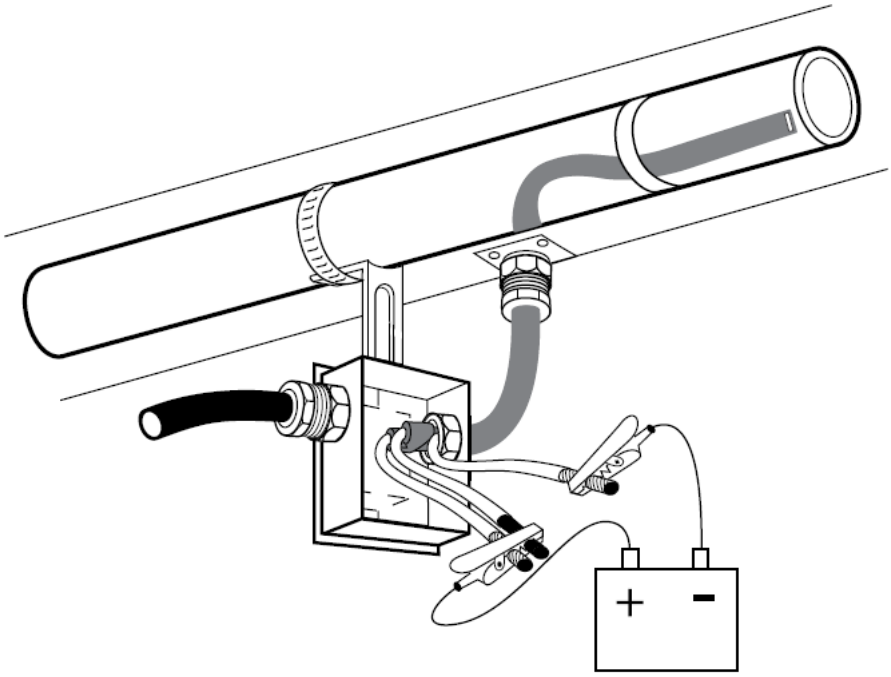
Recommendations

Nvent recommends insulation resistance test before installing heating cable; before installing thermal insulation; prior to initial start-up; and as part of the periodic maintenance.

Test method

After completing heating cable installation, the insulation resistance between the conductors and the braid should be checked using a 2.500 VDC megger. Minimum readings should be 10 Megaohms regardless of the heating cable length.

Test between heating cable and braid



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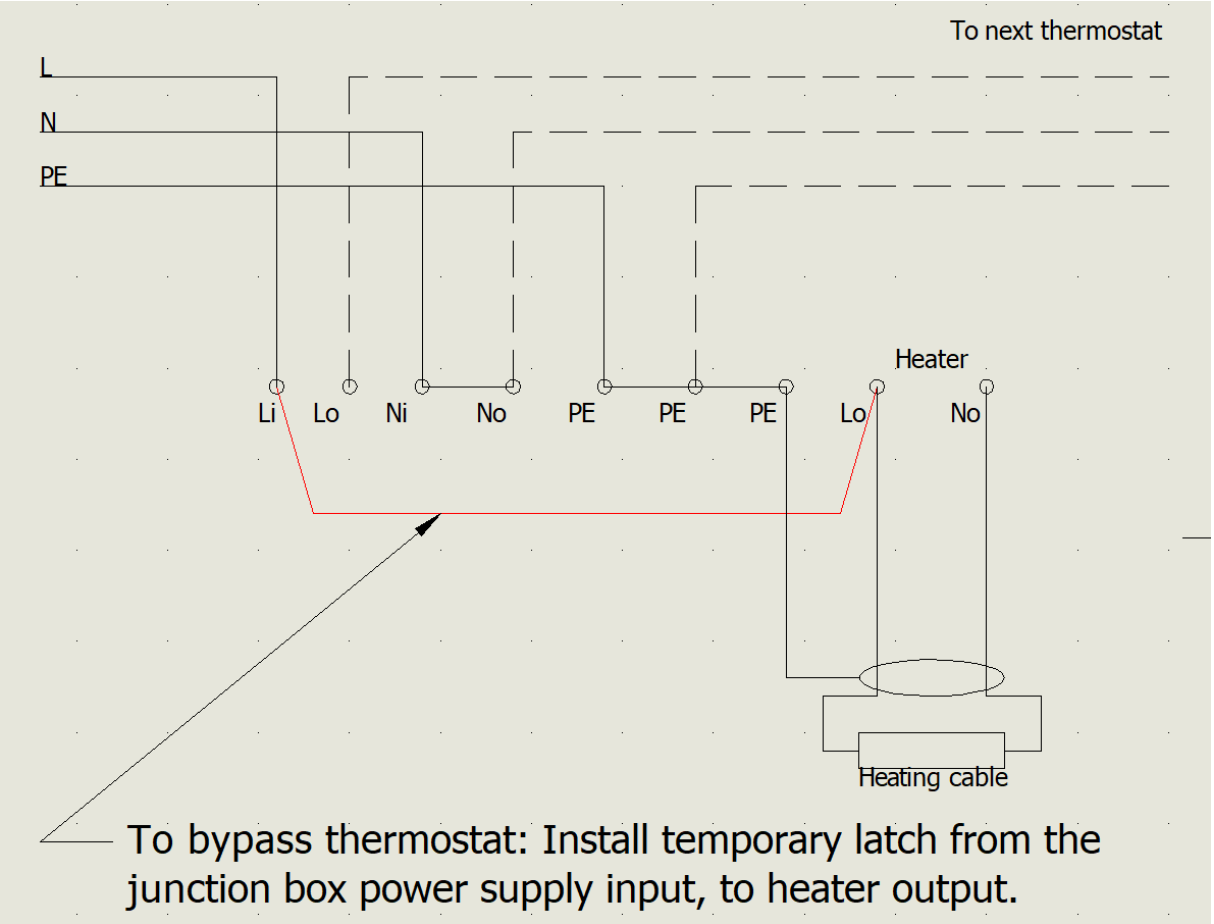
Bypass thermostat

When a thermostat is in use it should be bypassed as illustrated for continuous test.



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Maintenance and cleaning

The product should be inspected according to company routines and/or relevant to national regulations for your country.

CAUTION
This equipment or part of this equipment is considered EE-Waste, and shall be handled accordingly

Disposal

- Observe national and local regulations and statutory regulations regarding disposal
- Separate materials when sending it for recycling
- Ensure environmentally friendly disposal of all components
- No component or packaging shall end up in the ocean during any stage of the product's lifetime.

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