

STT700 Temperature Transmitter Lightning Protection Device Specifications

34-TT-03-20, June 2017



Introduction

The STT700 lightning protection device is designed to provide the Smart Temperature Transmitter maximum protection against surges such as those generated by lightning strikes. It mounts right on the top of the STT700 terminal block, providing easy field wiring and also protection for the integral meter if used. The compact mounting allows the use of a variety of housings including the popular Honeywell explosion proof field mount housing (Table II selection "E - "). The device can be used in both intrinsic safety and flame/explosion proof applications, refer to the STT700 safety certificates for the detailed specifications.

Specifications

The STT700 lightning protection device is based on a gas-filled discharge tube and solid state electronics. It does not affect the transmitter wiring, since less than 1 ohm is added to the loop resistance. The protection circuit is designed to limit the surge voltage that can occur between lines and between lines and earth. Be aware that di-electric testing that exceeds the specified limit of the protection circuit will trigger the circuit and clamp the voltage.

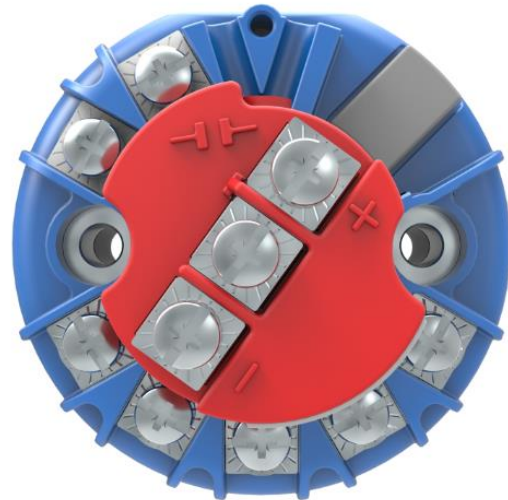


Figure 1 -
STT700 Module with Lightning Protection



Figure 2 - Lightning Protection Module

Parameter *	Reference Condition	Rated Condition	Operative Limits	Transportation And Storage
Ambient temperature °C	23 ± 2	-40 to +85	-40 to +85	-50 to +85
Humidity % RH	10 to 55	5 to 95	5 to 100	5 to 100
Supply voltage	Up to 35 Vdc at the lightning protection terminals (30Vdc for Intrinsically Safe installations)			
Series resistance	Less than 1Ω			
Vibration	Maximum of 4g over 15 to 200Hz			
Shock	Maximum of 40g.			
Leakage current	0.1 microAmp (0.3 microAmp over full temperature range)			
Impulse rating				
8/20 us waveform	10000 Amps (10 strikes)	20,000 Amps (single strike)		
Material	Red coloured PC+PBT, all electronic part are encapsulated in polyurethane potting material			
Connection screws	M3 Nickel-plated brass washer			
Weight	20 g			
Honeywell Part Number	50133588-501			

Dimensions

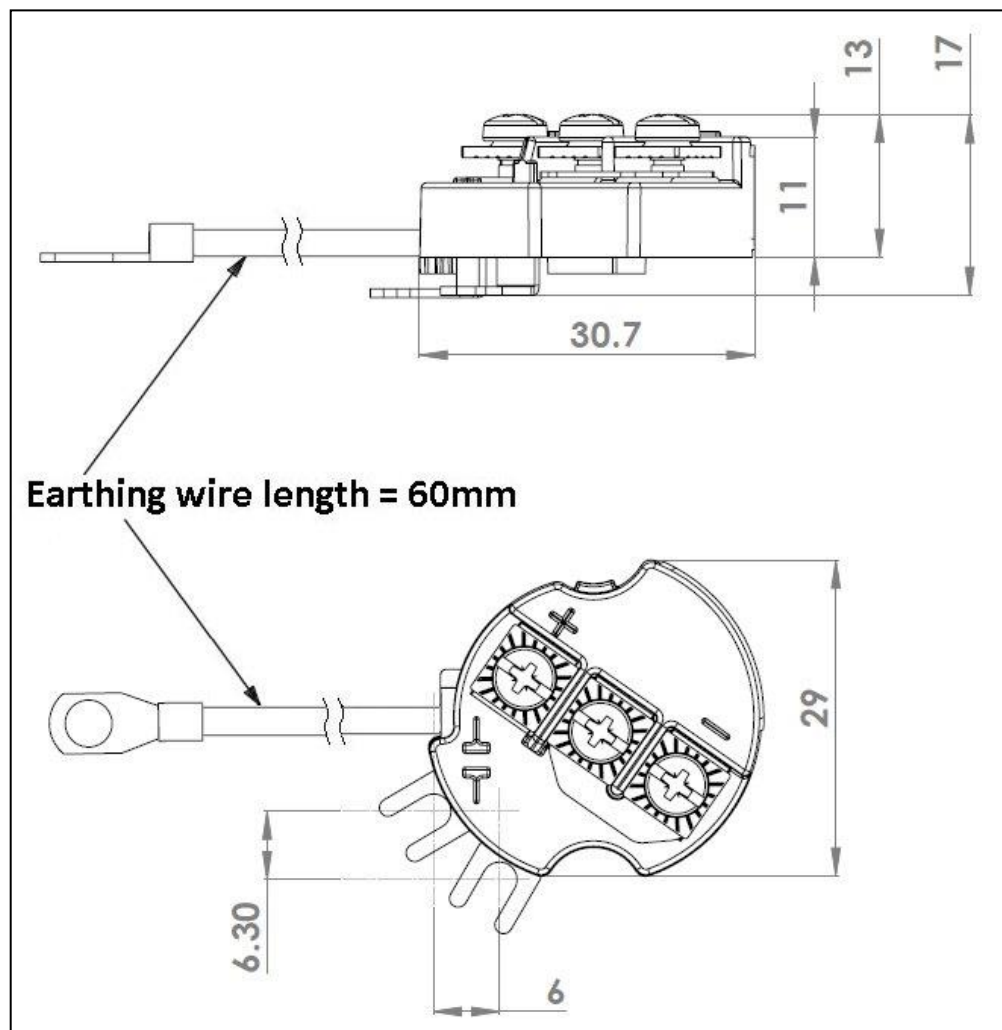


Figure 3 - Lightning Protector Dimensions

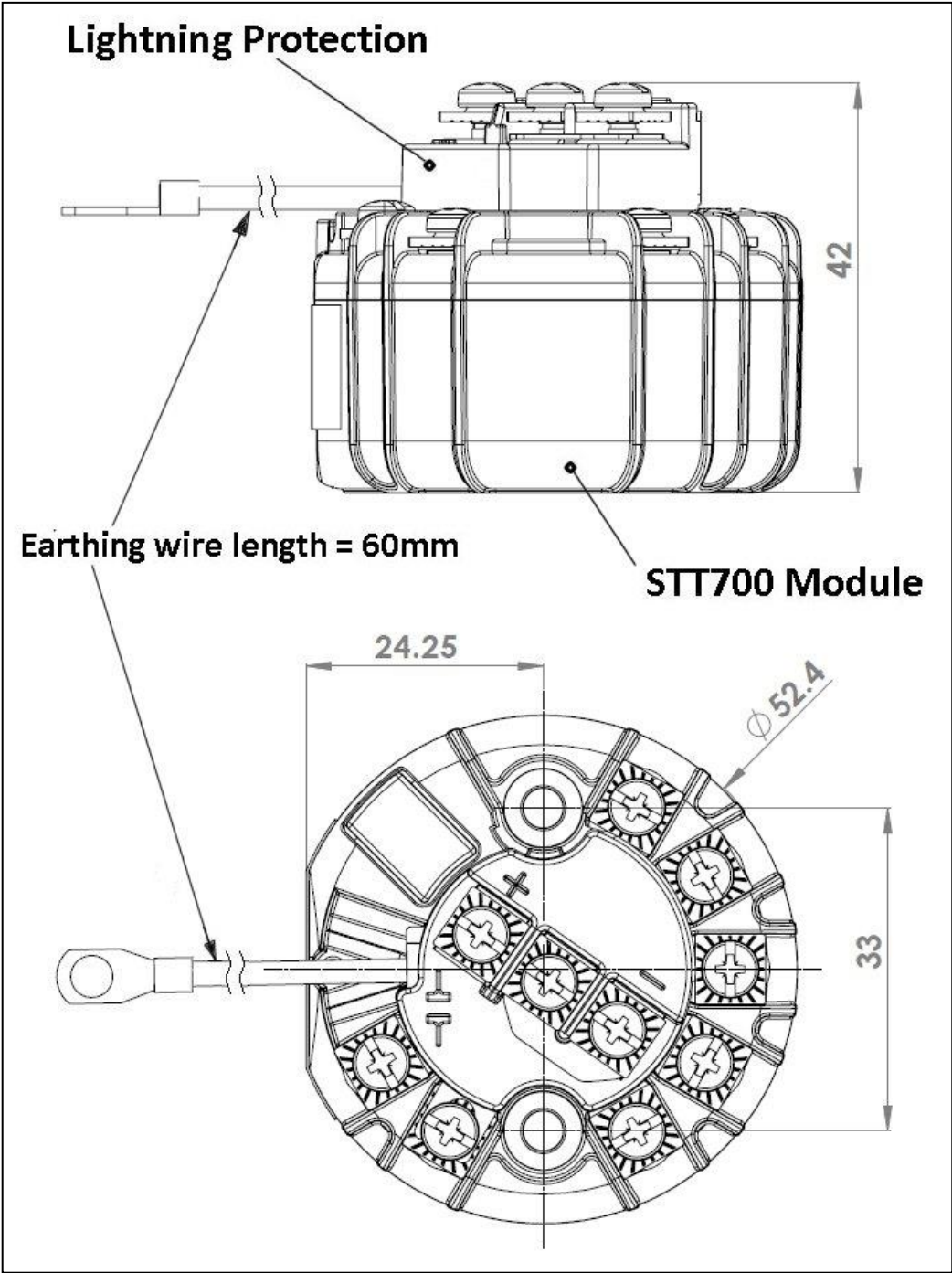
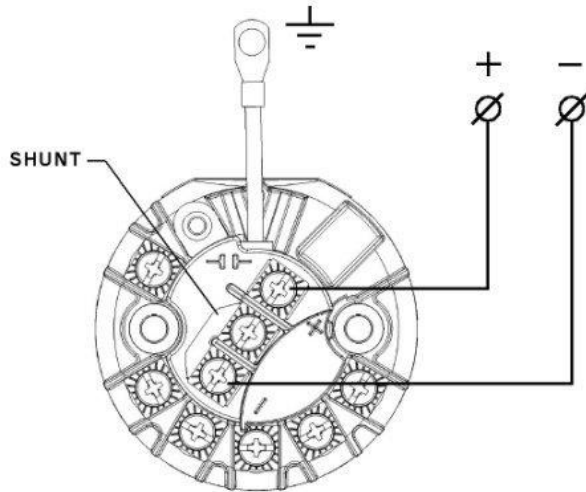


Figure 4 – STT700 with Lightning Protector

Installation

If an EU meter is used, remove the shunt on the lightning protection. In all other cases, the shunt must be present.

- Remove the cover/cap of the housing (if applicable). The device fits on the top of the transmitter module terminal block and the transmitter output screws (+ and -) mechanically fix the device.
- Attach the grounding wire to the ground screw in the housing. Connect a wire from the transmitter enclosure to local earth ground. Use size 14 AWG or 2.0mm² bare or green covered wire.
- If an EU meter is used, wire according to the second drawing below.
- Connect the 4 – 20mA loop to the + and – terminal screws of the surge protection and close the cap of the housing.



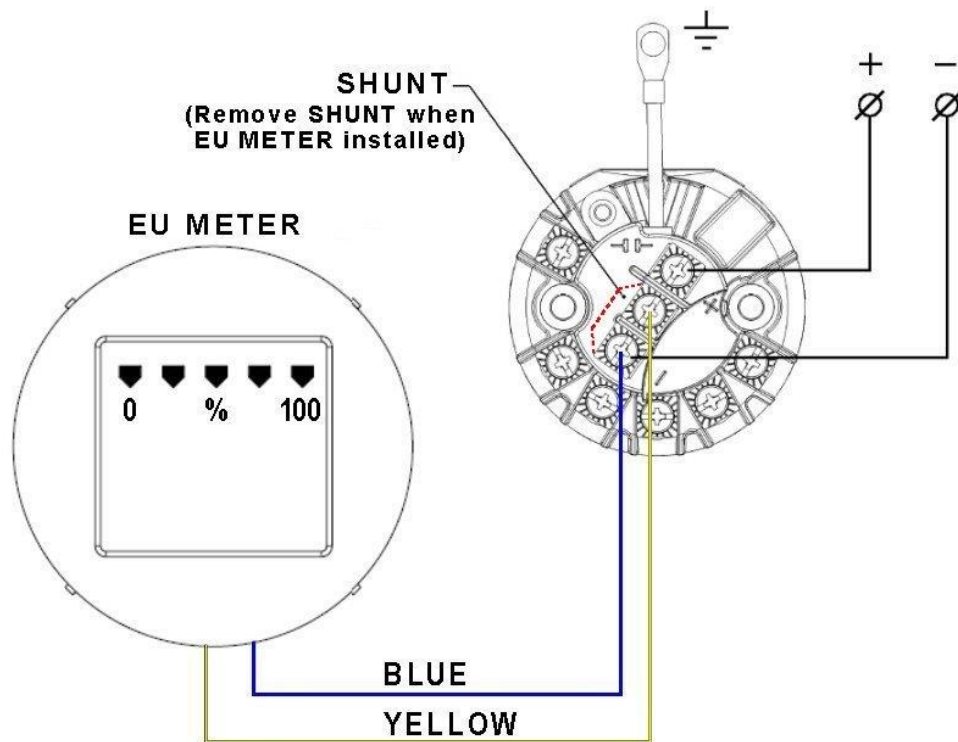
Without EU Meter

Maintenance

The unit is designed to give a long service life. However, if exposed to a large number of high energy transients beyond the capability of the unit, it may fail. The unit has been designed so that, under excessive surge conditions (more than 10 KA), it should fail, thus protecting the transmitter.

If the unit has failed, it can be replaced in the field and the process for removal in the reserve of that for installing the unit.

If a replacement is not immediately available (50133588-501), it is possible to bypass the unit by wiring directly to the transmitter; however, it should be noted that, in this case, the transmitter will be unprotected from surges.



With EU Meter

Sales and Service

For application assistance, current specifications, ordering, pricing, and name of the nearest Authorized Distributor, contact one of the offices below.

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Specifications are subject to change without notice.

For more information

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