

HTM

TSTB Three Stage Transient Barrier

INTRODUCTION

During lightning strikes, large electrical surges are induced in long instrument cables as a result of the collapse of electric field in the vicinity. These surges may be of the magnitude of several thousand amperes and the voltage between the lines and ground may be several thousand volts. Any equipment connected to the lines unprotected will be invariably damaged.

HTM TSTB Three Stage Transient Barriers are compact Transient Barriers designed for the protection of solid state components in instruments which employ overhead or underground cables for signal transmission against these lightning surges. Standard units are housed in compact housings and are suitable for DIN rail mounting to achieve space saving in instrument panels. HTM TSTB Three Stage Transient Barriers are particularly suitable for the protection of 4-20mA instrument signals & DC power supplies for instruments.

PRINCIPLE OF OPERATION

HTM TSTB consists of a total of three stages of surge protection devices. When lightning surge occurs to the lines connected, a three element Gas Discharge Tube (GDT) will conduct and divert major part of the lightning surge to the earth connected to the unit. In addition, three high speed metal oxide varistors connected between the lines & earth will clamp the voltages across the lines & earth to a safe voltage. The residual voltage of the lines will then be further clamped by a Transient Voltage Suppressor across the lines to a very safe voltage which will not damage the instruments connected to the unit. This effectively protects the instruments from external surges. However, since Inductors are used as surge limiting device between the 3 stages, HTM TSTB are not suitable for AC applications.



APPLICATIONS

HTM TSTB are suitable for the protection of all solid state instruments operating at a continuous DC voltage not exceeding 33 volts. They are particularly suitable for the protection of level sensors, transmitters, flowmeters, indicators, PLC etc where electrical signal transmission is used.

FEATURES

20kA Surge rating for 8/20μs pulse

The first stage of the HTM TSTB is designed to divert a surge current of up to 10kA which is the normal magnitude of lightning surges in tropical countries.

Compact & Low cost

HTM TSTB are constructed from robust and compact housing for mounting on DIN rails. It can be mounted together with terminal blocks for greater cost effectiveness.

Self Resetting

HTM TSTB are Self Resetting Transient Barriers, no replacement of fuse or manual resetting of switches is required.

Dual Mode Protection

HTM TSTB provides both Common mode & Differential mode protection during lightning surges. This means more comprehensive protection is achieved.

Low Loop Resistance

HTM TSTB has practically zero ohm across the terminals. Only inductors are used between the different stages in the unit.

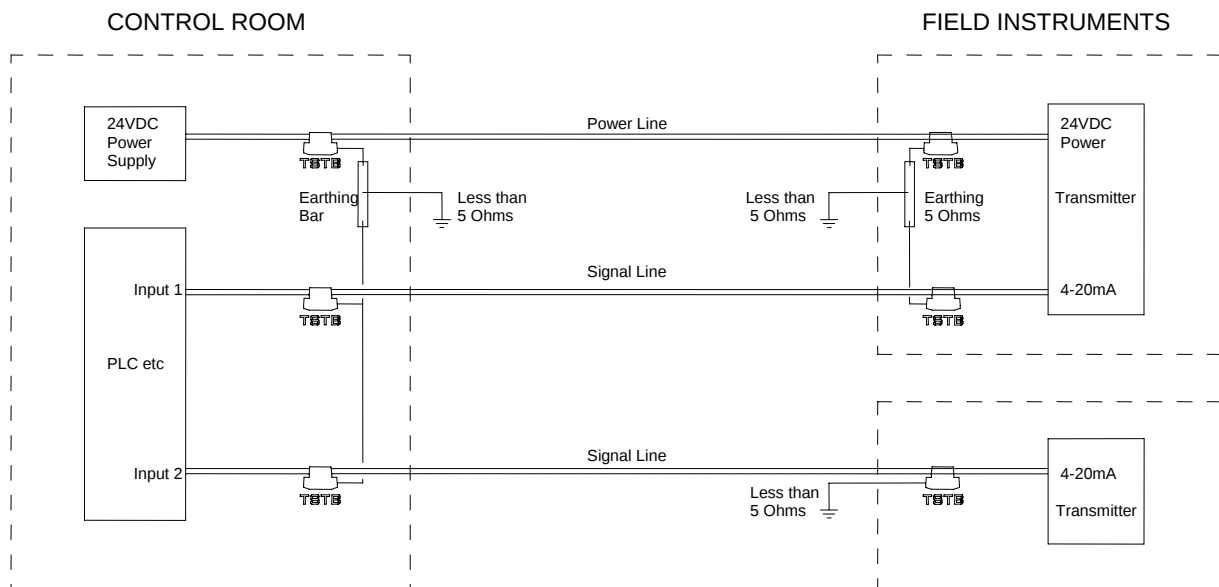
No external power required

HTM TSTB is a passive Transient Barrier & no external power supply is required.

SPECIFICATIONS

Rated surge current: 20kA (8/20 μ S)
Impulse spark-over voltage : 500V (100V/ μ S)
Compliance : ANSI/IEEE C62.41
Minimum insulation Resistance : 10^4 M Ω
Max Capacitance : 15nF
Dc loop resistance: Less than 0.5 Ohms
Nominal voltage : 24Vdc
Max. Continuous voltage : 33Vdc
Max. Continuous current : 1.2A
Clamping voltage : 48V
Response time : 10 nS
Inductance :20mH per phase
Materials of construction: ABS
Enclosure: IP45
Terminal size: 2.5mm² cable
Temperature: -10 to 60°C
Mounting: DIN rail or panel
Weight : 51g

TYPICAL WIRING DIAGRAM

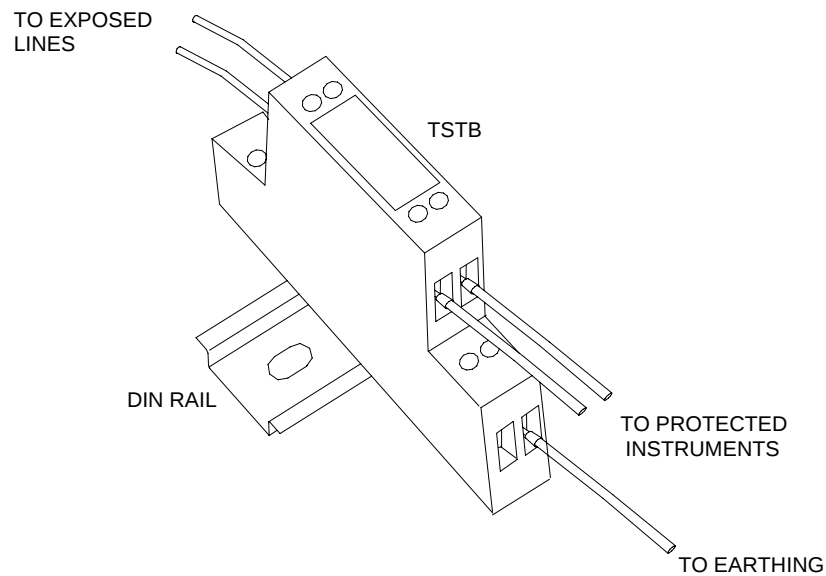


INSTALLATION REQUIREMENT

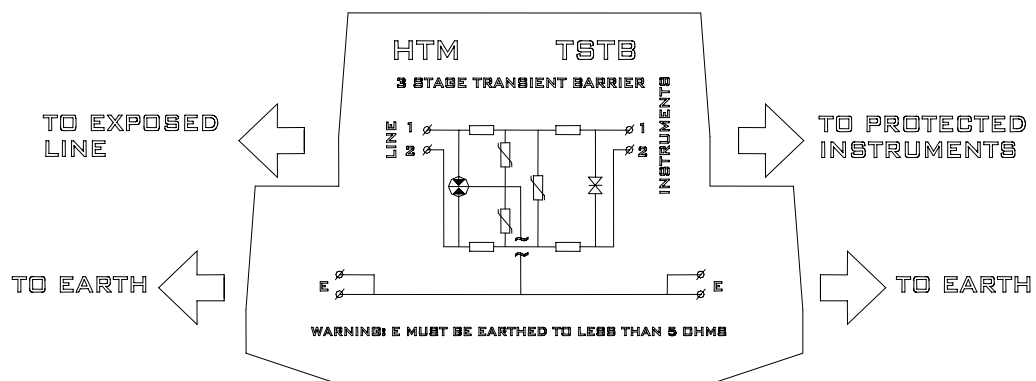
HTM TSTB are surge diverting type of transient barriers. Hence a good earthing of less than 5 ohms must be connected to one of the 4 earthing terminals located at the lower part of the unit. Protection will not be achieved if the earthing is not connected or is higher than 5 ohms.

It is also important that the 'Line' and 'Instruments' sides of the TSTB are connected to exposed line & Instruments to be protected correctly. Reversed connection will result in damage of the TSTB and instruments during surge condition

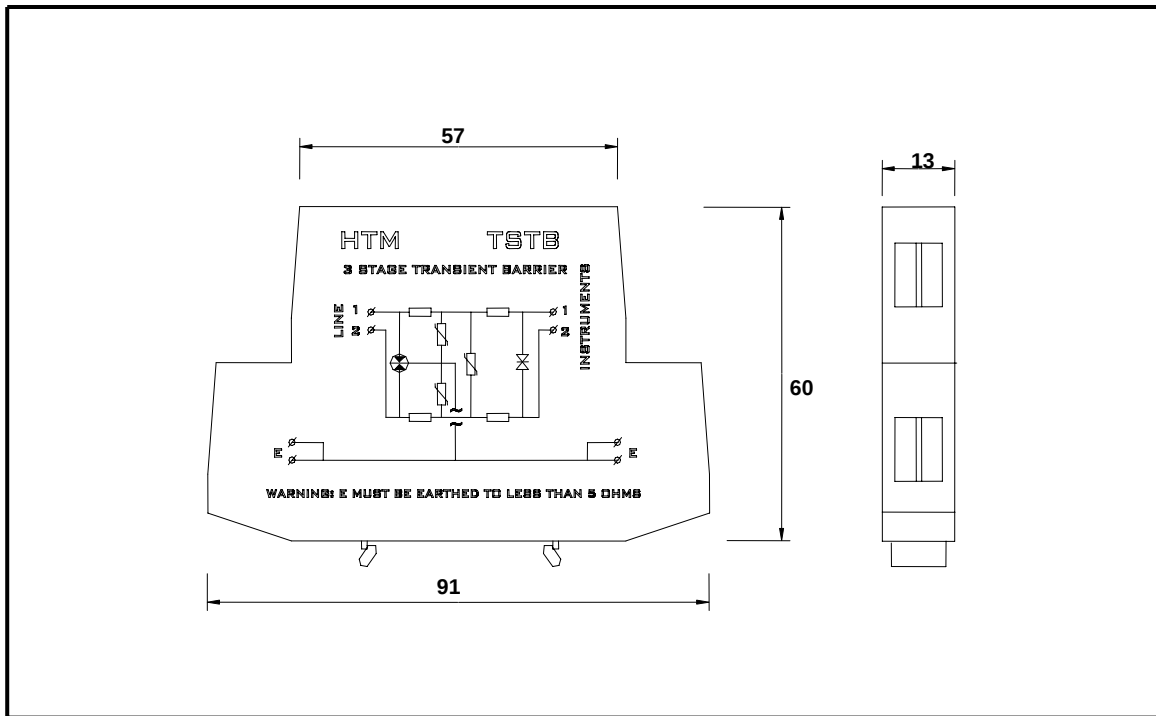
TYPICAL INSTALLATION



BLOCK DIAGRAM



DIMENSIONS



All dimensions in MM

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Manufactured by :

HTM Instruments Sdn Bhd (Company No 687564-T)
29, Jalan SG 10/4, Taman Seri Gombak,
68100 Batu Caves, Selangor, Malaysia.

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