



## Surge Protective Device

### Paperless Datasheet

Going green and protecting environment is manufacturers' responsibility. Each WatchfulEyE product has a link of downloading data sheet on its enclosure:  
<http://datasheet.watchfuleyesolutions.com/US121009.html>

### Model & Ordering Code

Model	Ordering Code	UPC/EAN Code
WTH-SG/TER	US121009	(0) 811914030072
WTH-SG/TER-S	US121006	(0) 811914030089
WTH-SG/TER-XS	US121005	(0) 811914030096



WTH-SG/TER



WTH-SG/TER-S



WTH-SG/TER-XS

### Product Feature Comparison

Model	Product Width	PE/GND	Features
WTH-SG/TER	Standard (24mm/0.95")	A/B (terminal)	Plug-in terminal
WTH-SG/TER-S	Slim (13.5mm/0.5")	A/B (terminal)	Plug-in module
WTH-SG/TER-XS	Ultra Slim (7.5mm/0.3")	A (terminal), B (Din-rail)	Compact design

### Certificates of Products

CE RoHS IEC61643-11



## Surge Protective Device

### Description

WTH-SG/TER DIN rail surge protective devices for control signal are applied to the surge protection of 4~20mA control signal and twisted data pair (RS232, RS422, RS485 etc.), which can prevent various dialing equipment from permanent damage or transient interruption arising from inductive overvoltage, over current and other transient surge voltage caused by surge and industrial noise, etc.

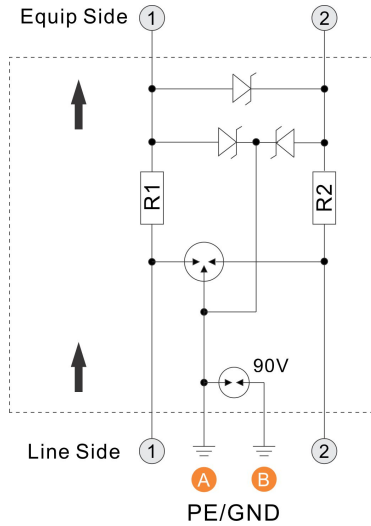
### WTH-SG/TER Series Technical Data

Nominal operating voltage (Un)	3-18VAC, 5-24VDC
Max. continuous operating voltage (UC)	23VAC, 33VDC
Nominal Discharge Current (In @8/20μs)	3kA (line-line)
Max. Discharge Current (Imax @8/20μs)	20kA
Voltage protection level (Up @line-line, line-A)	85V @3kV (1.2/50)
Voltage protection level (Up @line-B)	600V @ 3kV (1.2/50)
Max Line Current	800mA (per line)
Insertion Loss	<0.5dB @10MHz
Protective Element	GDT, TVS
Decoupling Resistor	2.0Ω
Response Time (tA)	<100ns (GDT), <1ns (TVS)
Protect mode	Difference mode & Common mode
Connection mode	Wiring terminal
Temperature Range	- 40° to 176°F (-40° to 80°C)
Relative Humidity	0% to 95% noncondensing
Maximum Operating Altitude	10,000 feet (3000m)
Protection Rating (IP Code)	IP 20
Surge Life at 0.5kA (8/20μs)	>2000 events
DIN Rail EN60715	35mm top-hat rail
Housing Material	Thermoplastic, UL94 V-0

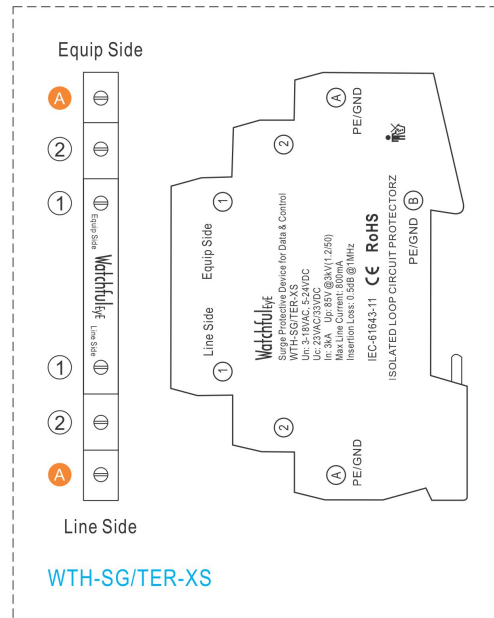
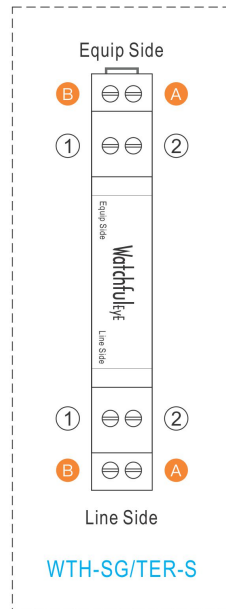
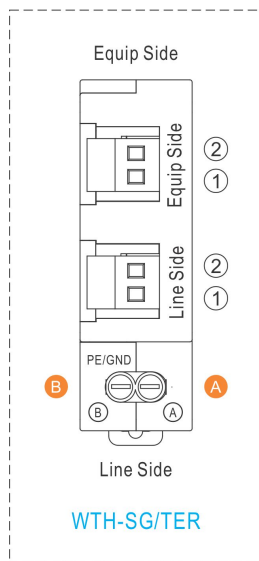
### Installation Instruction

The surge protective devices shall be employed in a Listed enclosure or closet that is only accessible to technicians or service personnels.

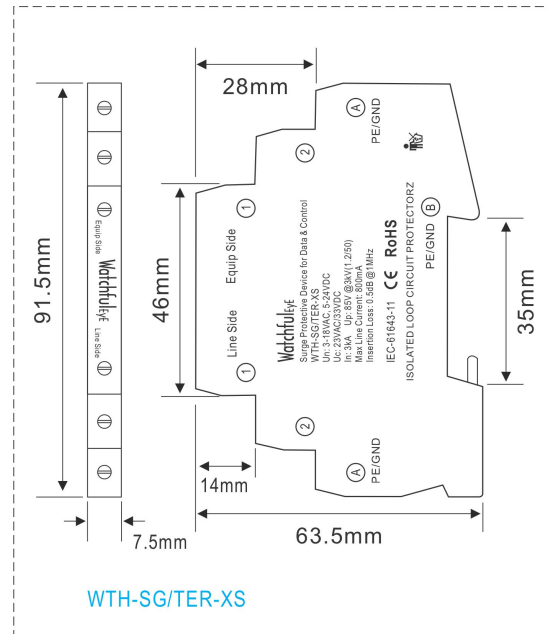
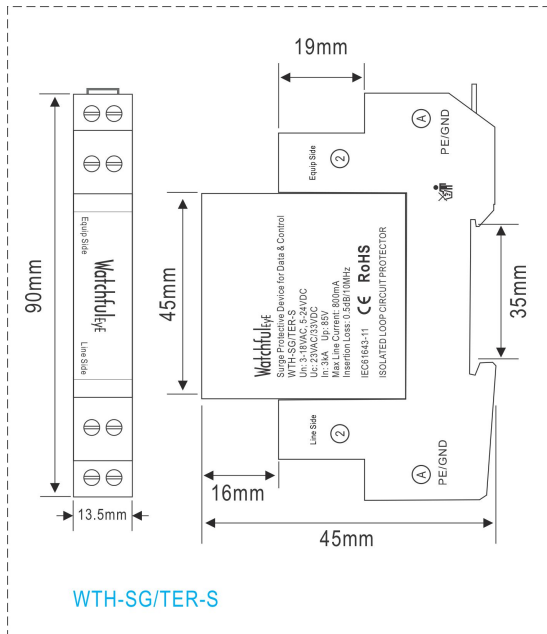
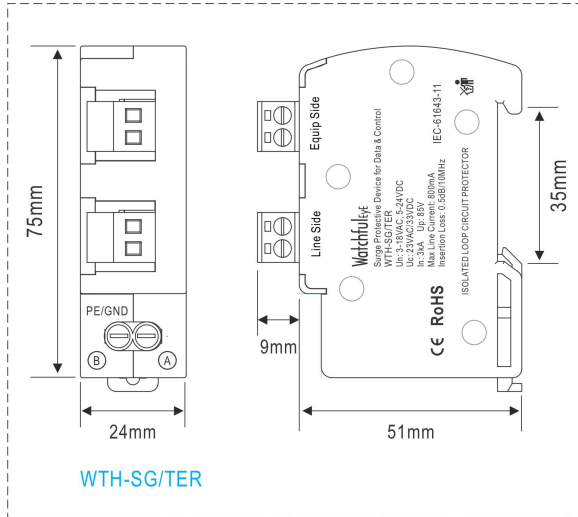
### WTH-SG/TER Series Surge Protection Connection Diagram



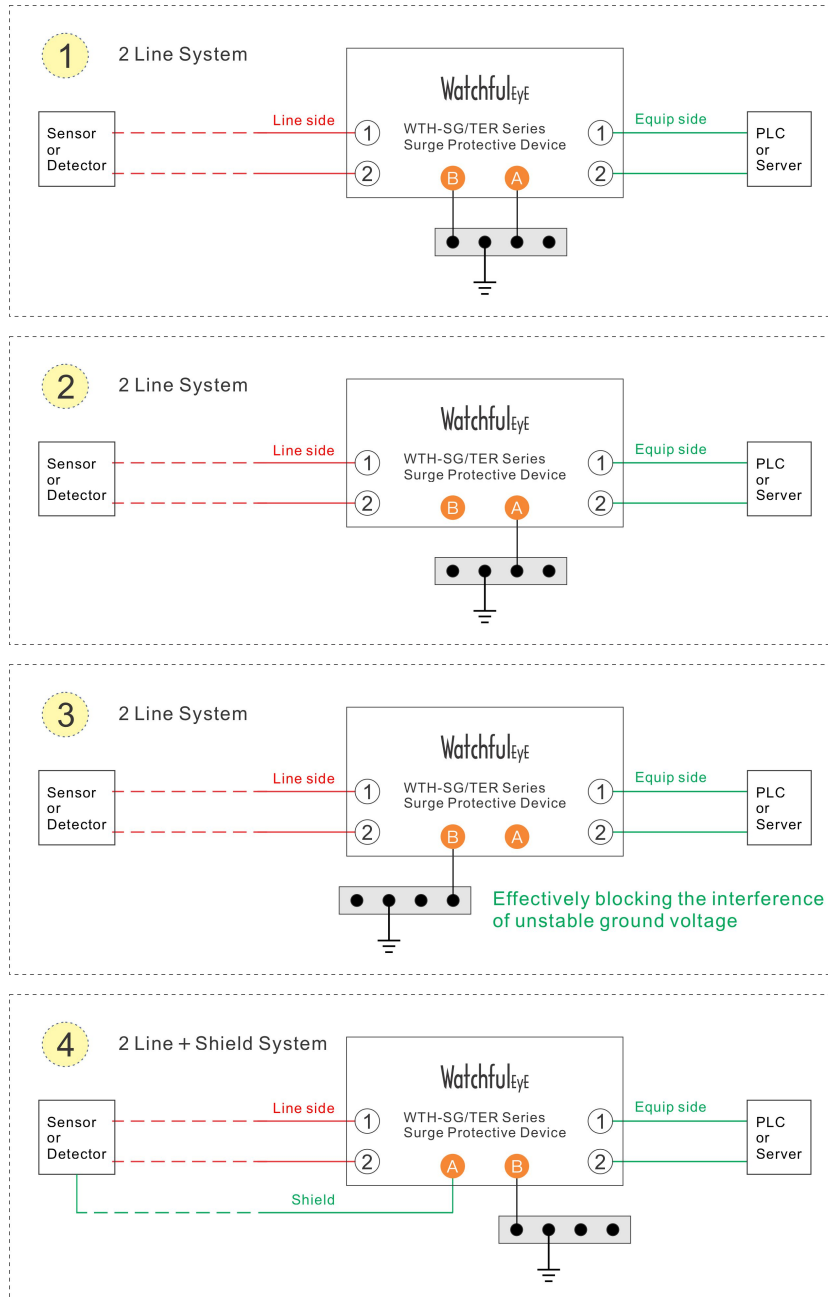
### WTH-SG/TER Series Installation Connection



### WTH-SG/TER Series Dimensions



### Application





## Surge Protective Device

### FAQ & Help (1/2)

1. What should I do if I can't find the paper manual in the product packaging?

Watchful Eye products is committed to going green with paperless data sheets. On the side of each product enclosure is an engraved link with URL for downloading paperless data sheet and QR code of the website. If you need the paper data sheet, you can open the link and print the data sheet by yourself.



2. Model WTH-SG/TER has no LED status indicator. What instruments can be used to test whether its surge protection function is normal or not?

Test with a Watchful Eye surge protector tester.

If a system failure occurs, first remove the surge protector and restore the system to the wiring status without the surge protector. If the system failure is solved, it shows the surge protector is faulty. Using Watchful Eye Surge Protective Tester can more easily test whether the WTH-SG/TER series is normal or not.

3. Can you list more applications of WTH-SG/TER series?

4-20mA industrial control system, 0-5V industrial monitoring system, RS485 system, industrial monitoring probe, video camera control PTZ, etc.

4. What are the advantages of the GDT+TVS type surge protection?

It provides a two-step surge protection mode: the first-stage GDT protection, releasing strong surge intrusion and reduce the strength of the surge; it is followed up the second-stage TVS fine protection, achieving a lower residual voltage value.

5. If the wires on the line side and the equipment side are connected reversely, will it affect surge protection?

When the wire is connected reversely, TVS becomes pre-stage protection, and GDT is post-stage protection. The nominal discharge current of TVS protection will be much lower than GDT. If it encounters a surge intrusion, it may cause damage to the TVS. The second-stage GDT protection will also play a role in surge protection, but the residual voltage value will increase, which is a risk to the protected equipment.

6. Is there any requirement on the wiring order of the line 1 and line 2 of control signal cable?

Line 1 and Line 2 can be interchangeable wired

7. Characteristics of wide voltage, rated working voltage ( $U_n$ ): What are the advantages of 3-18VAC and 5-24VDC?

If you don't know what kind of industrial control voltage system the system is, it is commonly used in systems below 24VDC, such as: RS485, 4-20mA, 0-5V, etc., to avoid confusion about your selection.

8. What are the advantages of the model of line-PE/GND parallel GDT+TVS?

Line-line and line-ground are in both complete GDT+TVS mode, while line-line has the lowest residual voltage ( $U_P$ ) value, line-PE/GND also obtains the lowest residual voltage ( $U_P$ ) value.



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### FAQ & Help (2/2)

9. The PE/GND of WTH-SG/TER series has two terminals, what's the use of a GDT connected in series between the two terminals?

When the local grid voltage is unstable and there's signal interference, it is recommended to ground the terminal on the B-point. If an additional 90V GDT is connected in series, the surge discharge voltage value can be increased by 90V, effectively blocking the interference of unstable ground voltage.

10. If the 2-wire signal cable has a shielded line, how should it be wired?

You can wire the shielded wire to A and the surge ground wire to B

For more complete multi-line signal line surge protection, please select the model: WTH-SG/TER-4 as in the following:



11. Can WTH-SG/TER series be installed outdoors?

The one for outdoor installation is WTH-SG/PIPE Series (waterproof pipe mount) as in the following:





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### Download WatchfulEyE Official App

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### After-sale Services

Watchful Eye provides a 5-year quality warranty globally.

[I have a question](#)