Quick Guide

Vaisala Surge Protector WSP152
WSP152

Overview

Vaisala Surge Protector WSP152 is a compact transient overvoltage suppressor. You can use it with Vaisala WXT transmitters to protect the host computer against surges entering through the USB port. A nearby lightning strike can induce high-voltage surge not tolerable by the protection of the USB cable or the port itself. Additional protection is needed in regions with severe thunderstorms, especially when long line cables (>30 m) are used.

Vaisala recommends using a surge protector in installations on top of high buildings or masts and on open grounds, and in all sites with an elevated risk of a lightning strike.

The surge protector provides additional filtering for blocking the HF-conducted interference induced into the cables in installations.

The surge protector has four channels: two dedicated for power lines and two for data lines. Each channel uses a 3-stage protection scheme with gas discharge tubes, voltage-dependent resistors, and transient zener diodes. Both differential and common-mode protection is provided for each channel: across the wire pair, against the operating voltage ground, and against earth.

WSP152 has a plastic housing with metal reinforcement. You can mount it on a wall, on a table edge, or to Ø 30 mm ... 102 mm (1.18 ... 4.02 in) pole masts with the provided adjustable mounting clamp. A cable gland is provided for the optional heating power cable (HTG).

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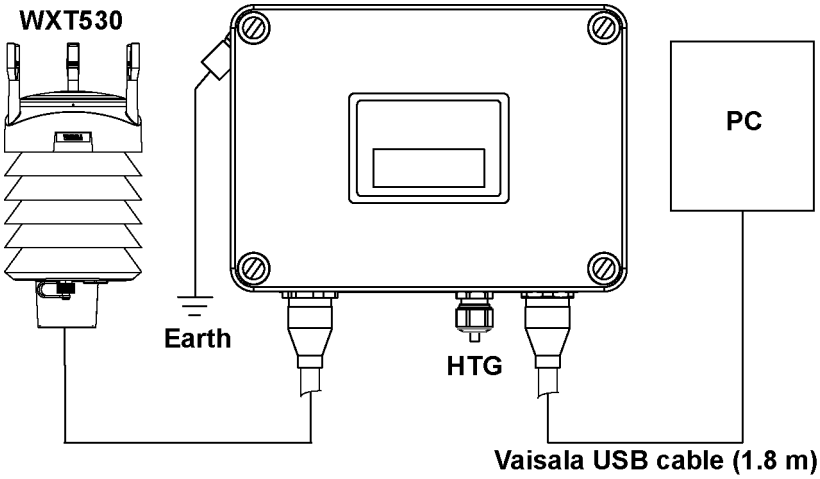
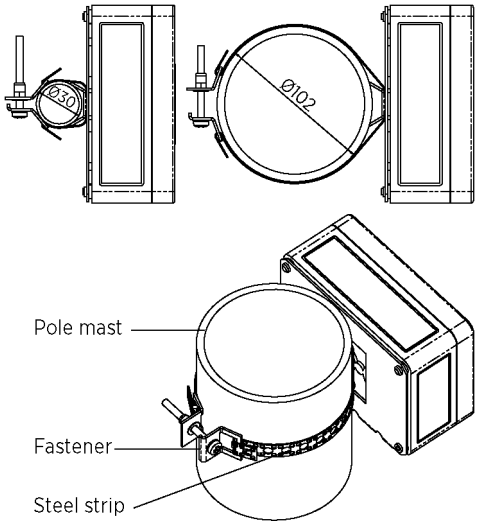


Figure 1 Operation Principle

Mounting WSP152 on Pole Mast

CAUTION! Do not place WSP152 further than 1.8 m (5.91 ft) from the PC. Do not extend the cable.

1. Disconnect all live voltages.
2. Attach the unit to the mast close to the protected device with the adjustable mounting clamp. Set the steel strip beneath the latch at the back of the enclosure



3. Fix the steel strip around the pole mast. You can shorten the strip to a suitable length.
4. Attach the strip ends to the fastener and secure the unit to the mast by tightening the fastener screw.
5. Lead the optional heating power cable through the HTG cable gland and connect the wires to host terminals 1 and 2. See the wiring layout. Tighten the cable gland.
6. Connect the USB cable to the male connector on the right and the line cable to the female connector on the left.
7. Connect a grounding cable with the provided crimp connector and M5 nut to the grounding screw on the rear upper left corner of WSP152. The best grounding point is in the PE terminal of the same plug or the outlet the PC line cord is connected to.

Mounting WSP152 with Mounting Screws

Mount WSP152 on a wall or a table edge with mounting screws.

1. Open the 4 plastic screws and remove the enclosure cover.
2. Insert the mounting screws (not included) in the holes behind the two lowermost plastic screws, and secure the unit to the desired mounting point.
   Select the screws according to the material of the mounting surface. The WSP152 rear plate has threaded M4 holes. Use either smaller screws or enter the screws from the rear using the M4 threads instead of nuts.
3. Reattach the enclosure cover with the 4 plastic screws.
4. Lead the optional heating power cable through the HTG cable gland and connect the wires to host terminals 1 and 2. See Wiring WSP152 (page 3). Tighten the cable gland.
5. Connect the USB cable to the male connector on the right and the line cable to the female connector on the left.
6. Connect the grounding cable with the provided crimp connector and an M5 nut to the grounding screw on the rear upper left corner of WSP152.
   The best grounding point is in the PE (Protective Earth) terminal of the same plug or outlet where the PC line cord is connected to.

Wiring WSP152

The following figure shows the factory-made wiring inside WSP152. You can use either RS-232 or RS-485 without any need of wiring changes on either side. The USB adapter will automatically adapt to the RS-232 or RS-485 selection in the WXT configuration.

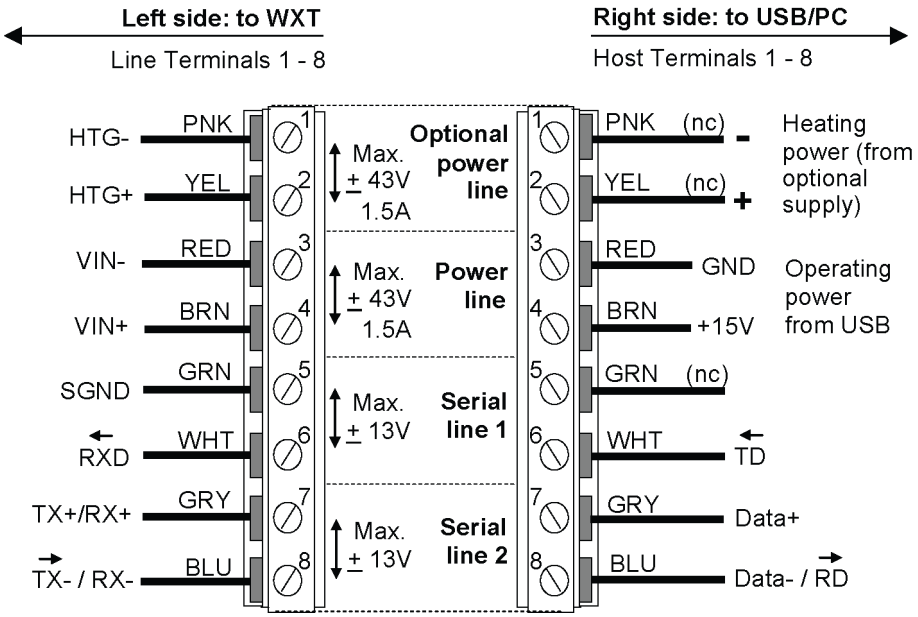


Figure 2 Wiring Layout of Component Board

The USB cable does not provide heating power for the device, only the operating power (max. 150 mA). If heating is required, lead the power cable from a separate supply through the HTG cable gland and connect the wires to host terminals 1 and 2 on the right hand side. You can leave the existing PNK and YEL wires there or disconnect them. If you disconnect them, cut and/or insulate them to prevent any short circuits.

Technical Data

Table 1 Inputs and Outputs

Property	Description/Value
Input voltage [1)]	Power channels: max. ±43 V Data channels: max. ±13 V
Input common mode voltage	Any line to earth: max. ±72 V
Throughput current	Power lines: max. 1.5 A Data lines: max. 0.16 A
Throughput resistance (per line)	Power lines: max. 0.3 Ω Data lines: max. 15 Ω
Turn-on voltage	Power channels: max. ±60 V Data channels: max. ±16 V
Surge current	To earth: max. 10 kA Differential: max. 5 kA

1) Across channel line pair and from line to GND, terminals #3

Table 2 Mechanical Specifications

Property	Description/Value
Weight	0.65 kg (1.43 lb)
Housing material	Polycarbonate, stainless steel
Housing dimensions (H × W × D)	94 × 130 × 58 mm (3.7 × 5.12 × 2.28 in)
Dimensions with cable glands and mounting assembly (H × W × D)	112 × 130 × 69 mm (4.41 × 5.12 × 2.72 in)
Cables (Ø)	4 … 8 mm (0.16 … 0.31 in)
Wires (Ø)	0.4 … 1.7 mm (0.016 … 0.067 in) (AWG 26 … 14)

Table 3 Operating Environment

Property	Description/Value
Operating temperature	-52 … +70 °C (-60 … +158 °F)
Storage temperature	-52 … +70 °C (-60 … +158 °F)
Installation temperature	-40 … +70 °C (-40 … +158 °F)
Maintenance work temperature	-40 … +70 °C (-40 … +158 °F)

Table 4 Compliance

Property	Description/Value
EMC surge tolerance	EN 61000-4-5 (4 kV, 2 kA) IEEE C62.45 (6 kV, 3 kA)
IP rating	IP66 (NEMA 4X)

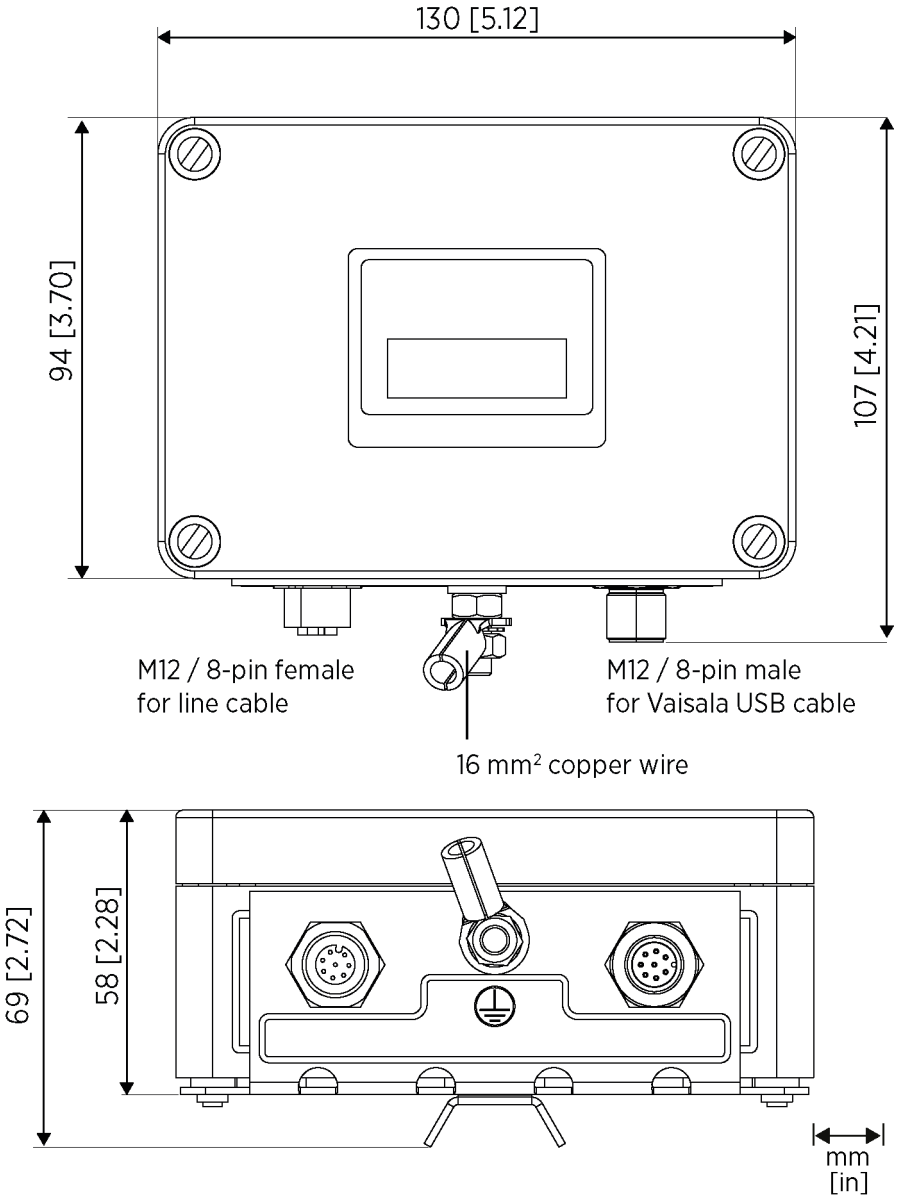


Figure 3 Dimensions in mm [in]