

High Power 3-Stage Weatherproof RS-485 Lightning Surge Protector - Model: AL-D3W-05

Applications

- RS-485 serial communications
- Modbus, Profibus and DMX applications
- 5 Volt differential or single ended data or control lines
- Industrial and building automation
- AISG control lines

Features

- Protection for up to three pair of lines plus provisions for shielded cables
- High power 3-stage surge protection, superior to diode or TVS only based designs
- Gasketed cover and concealed mounting holes
- Removable screw terminals
- Ground clamp provided on outside of enclosure



(Shown with cover removed)

Description

The AL-D3W-05 is a high power 3-stage lightning and surge protector that provides superior protection of differential / balanced digital or analog lines from transients and surges. The unit will protect up to three pairs of lines or six single ended data, analog or control lines. Provisions for use with shielded cable are provided.

The first stage is comprised of a differential gas discharge tube. Stage two is a pair of current limiting series resistors and the final stage is a low capacitance diode array. The use of three terminal differential gas discharge tubes provides superior common and differential mode protection against conducted transients versus the use of lower cost two terminal tubes. The second stage series resistance limits the power dissipation of the fast diode clamp array in the third stage. This allows time for the slower but higher power gas tubes to flash over. The diode array clamps the leading edge of fast transients to safe levels until the high power gas tubes turn on. This eliminates the damaging leading edge spike that single stage gas tube protectors let leak through. The diode array's low capacitance assures that the suppressor will not degrade the high-speed signals. The 3-stage design can handle higher-level transients than a protector that uses only diodes.

Failsafe Feature

The AL-D3W-05 is designed to convert into a failsafe mode in the rare case of a catastrophic surge or lightning event. For this mode, the resistors in the second stage will fuse and portions of the diode array will short. This effectively disconnects the line from sensitive equipment thus limiting damage. The units are factory repairable.

This protector features a weatherproof ABS enclosure with gasketed cover and concealed mounting holes. Removable screw terminal strips are provided on the input and output for convenience. To ease installation, the terminal strips can be removed. A ground clamp provides a tie point for earth ground.



Specifications

Electrical Specifications

Connections	(2) Removable Screw Terminals
Stage 1 Clamping Voltage	± 90 volts
Stage 2 Resistance	3.3 ohms
Stage 3 Clamping Voltage	± 7.5 volts

Mechanical Specifications

Enclosure Material	Dark Gray ABS
Ground Lug	10 AWG Max.
Operating Temperature	-40 C (-40 F) to +80 C (+176 F)
Weight	.38 lbs. (.17 kg)
Dimensions	6.3 x 3.15 x 2.17 (in) 160 x 80 x 55 (mm)
RoHS Compliant	Yes

