

## High Power 3-Stage Weatherproof Load Cell, RTD Surge Protector - Model: AL-LC-30

### Applications

- Load cells
- Weighbridges
- 3 and 4 wire RTD sensors
- Strain gauge sensors
- Truck stop weigh stations

### Features

- Protects signal, supply and shield lines
- High power 3-stage surge protection
- Gasketed cover and concealed mounting holes
- Removable screw terminals
- Ground clamp provided on outside of enclosure



(Shown with cover removed)

### Description

The AL-LC-30 is a high power 3-stage lightning and surge protector that provides superior protection for devices such as load cells, weighbridges, resistance temperature detectors (RTD) and strain gage sensors. These types of devices contain sensitive and fragile components that can be easily damaged by lightning and power surges. The AL-LC-30 provides maximum protection to the signal lines, excitation, sense lines and a shield line.

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-LC-30 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.



**Application Note:** If remote sensing of the excitation signal is not done as the case of a 4 wire load cell, then you must calibrate out the series resistance.

**Specifications**

**Electrical Specifications**

|                                 |                               |
|---------------------------------|-------------------------------|
| <b>Connections</b>              | (2) Removable Screw Terminals |
| <b>Stage 1 Clamping Voltage</b> | ± 90 volts                    |
| <b>Stage 2 Resistance</b>       | 3.3 ohms                      |
| <b>Stage 3 Clamping Voltage</b> | ± 30 volts                    |

**Mechanical Specifications**

|  |   |
|--|---|
| <b>Enclosure Material</b>  | Dark Gray ABS                             |
| <b>Ground Lug</b>  | 10 AWG Max.                               |
| <b>Operating Temperature</b>   | -40 C (-40 F) to +80 C (+176 F)           |
| <b>Weight</b>  | .38 lbs. (.17 kg)                         |
| <b>Dimensions</b>  | 6.3 x 3.15 x 2.17 (in) 160 x 80 x 55 (mm) |
| <b>RoHS Compliant</b>  | Yes                                       |
| Please call for other clamping voltages in the case of 5V or 10V excitation voltage. |   |

