

SWS Series Transient Voltage Protection

Power

The power lines of the sensor are protected by a series inductance followed by a combination of slow and fast acting overvoltage protection devices. The series inductance is largely included to protect against unwanted high frequency signals but also serves to limit the rise time of currents produced by an ESD pulse. The fast acting protection devices conduct energy to ground providing protection against short rise time events. The slower acting protection devices also conduct the energy to ground but have higher energy handling capacity than the fast acting devices. These devices take over from the fast acting devices for longer transient events often observed on power lines.

The power lines of the sensor have been independently tested to the following standards:

IEC 61000-4-2 Electrostatic Discharge
IEC 61000-4-4 Electrical fast transient
IEC 61000-4-5 Surge 1kV

Communication

The serial communication lines are protected by a series inductance followed by a fast acting overvoltage protection device. This is followed by a series resistance and a line driver circuit. The series inductance is largely included to protect against unwanted high frequency signals but also serves to limit the rise time of currents

produced by an ESD pulse. The fast acting protection devices conduct energy to ground providing protection against short rise time ESD events. The overvoltage protection devices are specified to provide protection according to EN 61000-4-2 8KV air and 4KV contact. The series resistance to the line driver circuit provides a further level of protection by limiting any residual voltage rise at the line driver input or output.

The communication lines of the sensor have been independently tested to the following standards:

IEC 61000-4-2 Electrostatic Discharge
IEC 61000-4-4 Electrical fast transient
IEC 61000-4-5 Surge 1kV

Analogue Outputs

The analogue outputs are protected by a π arrangement consisting of a slow response high energy overvoltage protection device, a series resistance and a fast acting overvoltage protection device. A series inductance further isolates the drive circuit outputs.

The analogue outputs of the sensor have been independently tested to the following standards:

IEC 61000-4-2 Electrostatic Discharge
IEC 61000-4-4 Electrical fast transient
IEC 61000-4-5 Surge 1kV