

Transient Detector



The Transient Detector module is used to detect the occurrence of voltage transients on a continuous supply voltage. The supply voltage can be either AC or DC. The detection circuit has 3 pre-programmed voltages. It may also be user programmed to detect overvoltage transients of greater than a particular voltage and wider than a particular width.

The Transient Detector monitors the instantaneous voltage at the monitoring input terminals. When the voltage exceeds the programmed value a timer is activated. If voltage remains above the programmed value for longer than the programmed time period, the transient is detected. The module then produces two outputs - a pulsed output of programmable length and latched output. The latched output is reset by a pushbutton on the module. When a transient is detected, the LED on the module changes from green to red and this is also reset by the pushbutton.

The voltage being monitored is connected to the HI and LO terminals on the module. The voltage can be measured between + and - of DC sources, or line and neutral or line and ground of AC sources.

Features:

- AC/DC input
- programmable voltage and duration levels
- pulsed and latched outputs
- built-in reset button
- 3 port isolation
- detects positive or positive and negative voltage transients
- CSA approved

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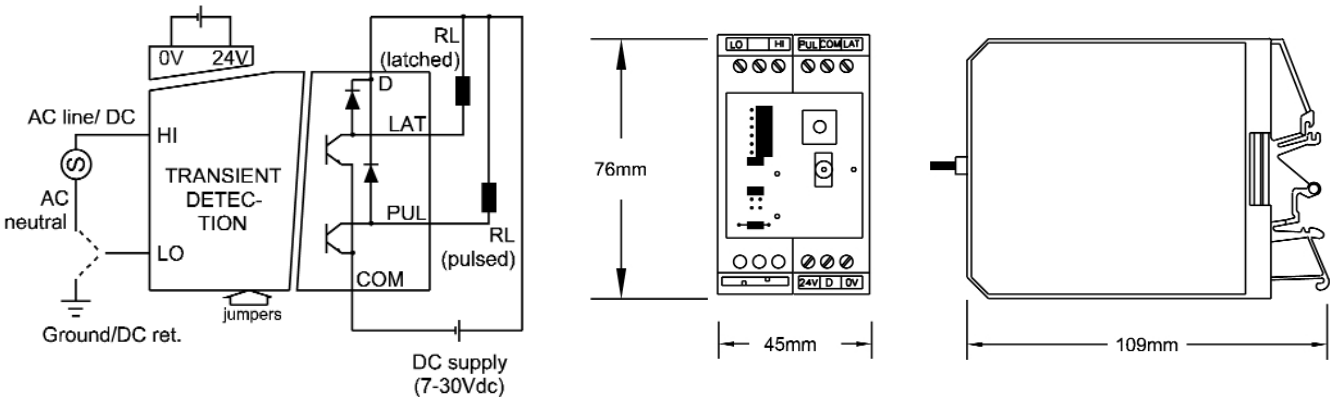
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deciPak Transient Detector

Technical Specifications:	
Input	
Voltage:	300Vac/dc continuous max.
Impedance:	360K Ω
Outputs	
Type:	optocoupler, open-collector Darlington
Voltage:	7-30Vdc max.
Drop across ON output:	1.5V @ 100mA
Output current:	100mA max. @ 25°C
Supply	
Supply voltage:	15-28Vdc
Supply current:	100mA @ 15Vdc, 70mA @ 24Vdc
General	
Accuracy:	+/- 10% of set threshold
Isolation	
- input / DC supply:	2k Vac
- input / output	2k Vac
- DC supply / output	2k Vac
Operation temperature	0-70°C
Thermal drift:	0.2V/°C
Wire size:	22 - 12AWG (0.5 - 4.0mm ²)
Ordering Data	
Catalog Number	991781

Dimensional drawing:



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Configuration:

Programming jumpers are accessed by removing the screw from the top of the module and then removing the plastic top plate. **Do not access the jumpers with the monitored voltage applied to the "HI" and "LO" input terminals - hazardous voltages may be present on the jumper headers.**

Voltage threshold: J1, J2 and J3 are used to select the voltage level that is considered a transient. Any voltage above the level selected will activate the pulsed and latched outputs. 3 standard thresholds are provided; 245V (approximately 100% over a nominal line voltage of 120V), 470V (approximately 100% over a nominal line voltage of 230V), and 1000V.

A fourth option is to use a fixed resistor to set a custom threshold. The resistor is mounted in sockets located near the jumpers. The resistor value is determined using the following:

$$R1 = (20000) / ((1116/V) - 1)$$

e.g. if V = 500V then R1 = 16.23K

If the calculated resistor value is not a standard (in the above example 16.2K is the nearest standard value) then the potentiometer R2 can be used to fine tune the threshold. Connect a voltmeter across TP1 and TP2 and adjust R2 to get a voltage reading as follows:

$$V_{tp} = (R1 / (20000 + R1)) \times 5$$

For the example above, V_{tp} would equal 2.24Vdc. To make this process easier a resistor/voltage worksheet in Microsoft Excel can be accessed on Weidmüller's web site www.weidmuller.ca.

There is also an option to monitor only for positive transients or for transients of either polarity. This is done using J4.

In the following table: x = jumper installed, blank = jumper removed
*indicates default factory settings.

Input Voltage	J1	J2	J3	J4
245V			x	
470V		x		
1000V	x			
Custom				
Bi-polar				x

Transient duration (pulse width): The duration of the voltage transient to be detected is set by selecting a clock resolution and the number of clock cycles. 4 resolutions and 4 cycle counts can be selected allowing transient durations as short as 1µs and as long as 8ms. The resolution times the number of cycles determines the duration threshold.

Number of clock cycles	J5	J6	Clock Resolution	J7	J8
1*	x	x	1µs	x	x
2		x	10µs	x	
4	x		100µs		x
8			1ms*		

