Model 829R Linesensor

Description

The Model 829R Linesensor is designed specifically for monitoring the AC line voltage. It is used as a window comparator; if the line voltage rises above the high set point or drops below the low set point, the output is switched. With the Model 829R, a heavy-duty relay is activated when the input is inside the window determined by the HI and LO set pots.

The relay output can drive logic circuits, lamps, relays, or other controls, and is fully isolated from the AC line voltage being monitored.

The Model 829R relay contacts are rated for resistive loads of 1 Amp at 26 VDC or 0.5 Amp at 115 VAC.

Connections are easily made via barrier strip connections and the module is epoxy-potted for ruggedness.

Features

Self-Contained and Safe

- Operates from AC line voltage
- Fully isolated
- Fail-safe logic

Easy to Use

- Barrier-strip connections
- Mounting bolts provided with each unit

Fast Response

- 100 ms average
- 20 ms on drop-out

SPDT Relay Output

Applications

Medical Instruments

Protects against potentially dangerous analytical data errors due to excessive line voltage variations.

Computers

Protects memory by signalling line drop out in just over one cycle and protects computer circuits from damaging high line voltages.

Instruments

Protects expensive instruments against high voltage damage due to sustained line transients.
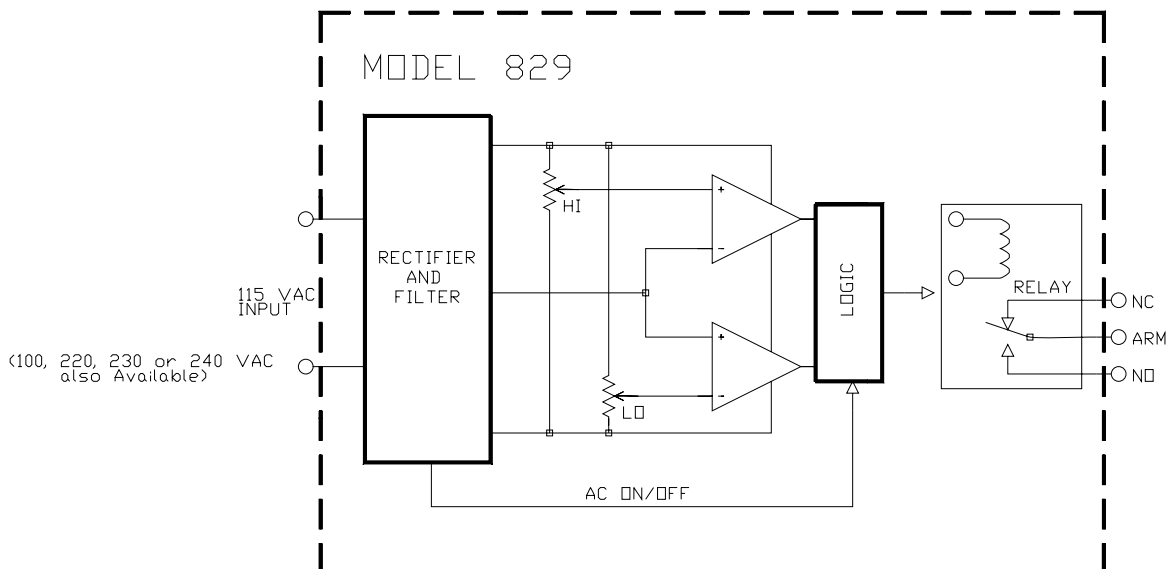
Auxiliary Power

Senses line power loss and starts auxiliary generator. Acts as an over-under alarm for generator output voltage.

Motors

Protects against motor burn up due to excessive current draw from low line voltage conditions.

Model 829R Block Diagram

Model 829R Linesensor

Specifications

Input

Input	
Nominal	115 VAC 50 to 440 Hz (100, 220, 230, or 240 VAC available. Specify by adding voltage "829R-220")
Trip Point Adj. Range	100V - 104V to 122V (HI) 　　　　 78V to 96V (LO) 115V - 120V to 140V (HI) 　　　　 90V to 110V (LO) 220V - 229V to 268V (HI) 　　　　172V to 211V (LO) 230V - 240V to 280V (HI) 　　　　180V to 220V (LO) 240V - 250V to 293V (HI) 　　　　187V to 230V (LO)

Accuracy

Accuracy	
Trip Point Stability	±0.03%/°C
Sensitivity & Repeatability	0.5 VAC, RMS
Hysteresis	1 VAC, RMS 100 & 115V models 2 VAC, RMS 220, 230 & 240V models

Response Time

Response Time	
to Change in Avg.	100 ms max.
to Line Drop-Out from 115 VAC (±10%)	20 ms max.

Output

Output	
Output	Relay, SPDT
Output Rating	Contact Rating: 1A at 26 VDC or 0.5A at 115 VAC
Isolation From Line	500 VRMS
Insulation Impedance	100 megohm
Output Relay Logic	Energized when inside of window (FAIL SAFE)

Power Requirements

Power Requirements	
AC Power	3 Watts max. from AC Line
DC Power	Not Required
Temperature	0°C to +70°C

Environment

Environment	
Size	3.75" x 1" x 2.7" 95.3mm x 25.4mm x 68.6mm
Weight	9.0 oz. (277 gms)

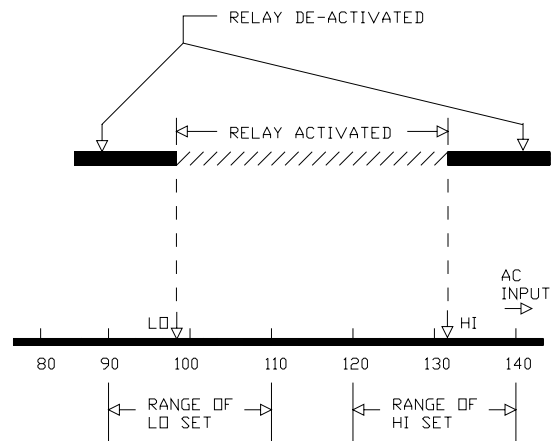NOTE: Mounting hardware is supplied with each unit.

Response Time

Response time with 2% overdrive is a maximum of 100 milliseconds due to the average filter. A small amount of hysteresis, approximately 1%, is used to prevent false triggering on the ripple voltage. A separate circuit path bypasses the averaging filter and peak-detects the line voltage during each cycle. If the AC line voltage suddenly drops, then the "drop-out" circuit takes control and will switch the output state within a maximum of 20 milliseconds (25ms for 50 Hz).

Operation

The operation is shown below in diagram form. For the relay to be energized (N.O. contacts closed to arm of relay), two conditions must be met:

(1) The AC line voltage must maintain an average value within the window set by the HI set and LO set potentiometers. This protects against brownout and continuous overvoltage conditions.

(2) The AC line voltage must be present for at least 16 milliseconds (one cycle at 60 Hz) out of each cycle. If the AC line voltage suddenly drops out then the Model 829 will sense this sudden drop even though the average is still above the LO setpoint. This provides rapid response in the event of complete power failure.

These two conditions assure fail-safe operation.

Mechanical Specifications