

# Voltage Monitoring Relays

## 601-CS-D-P1 Series

Monitors a zero-sequence CT for high accuracy ground fault protection



### Description

The 601-CS-D-P1 series is a fully programmable, electronic, three-phase, power monitor designed to monitor three-phase systems. This unit has a single relay that can be configured as a general purpose network output or to trip on ground faults. The 601-CS-D-P1 monitors ground-fault current, phase currents, phase voltages, power factor, and frequency. The RS485MS-2W communications module allows the 601-CS-D-P1 to communicate using the Modbus RTU protocol. The Modbus connection can be used to monitor power parameters, set up the device or control the fault relay. A DeviceNet\* communications I/O module (CIO-601CS-DN-P1) is also available. This CIO module only works with the 601-CS-D-P1 unit. It is used for sending the information from the 601-CS-D-P1 over a DeviceNet\* network. It also provides I/O capabilities and the ability to set the parameters of the 601-CS-D-P1.

The 601-CS-D-P1 includes a built-in display that offers a visual indication for programming and viewing real-time parameters for nominal voltage, voltage unbalance, current, current unbalance, ground-fault warning, ground-fault trip, and ground-fault motor acceleration.

Note: This product must be used with an external zero-sequence CT (not included) for proper operation.

### Features & Benefits

FEATURES	BENEFITS
<b>Built-in display</b>	Visual indication for programming and viewing real-time parameters such as nominal voltage, voltage unbalance, current unbalance, ground-fault warning
<b>15 programmable parameters to control operations</b>	Allows the user to customize the protection required for a specific system
<b>Two programmable trip delay timers</b>	Program separate trip delay time for motor acceleration and ground fault
<b>Network communications capability</b>	Compatible with Modbus RTU and DeviceNet* protocols with the use of separate communications module

### Applications

- For monitoring a zero-sequence current transformer for ground-fault protection

\*DeviceNet is a trademark of its respective owner.

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### Specifications

#### Input Characteristics

Line Voltage	200–480 V ac
Frequency	50/60 Hz
Motor Full Load Amp Range	0.5–175 A (direct) 176–800 A (CTs required)
Input Ground Fault Current	0.5–10 A

#### Functional Characteristics

Output Contact Rating (SPDT)	Pilot Duty 480 VA @ 240 V ac
General Purpose	10 A @ 240 V ac
Expected Life	
Mechanical	1 x 10 <sup>6</sup> operations
Electrical	1 x 10 <sup>5</sup> operations at rated load

#### General Characteristics

Ambient Temperature Range	
Operating	-20° to 70 °C (-4° to 158 °F)
Storage	-40° to 80 °C (-40° to 176 °F)
Accuracy at 25 °C (77 °F)	
Voltage	+/-1%
Current	+/-3% (<175 A direct)
GF Current	+/-3%
Repeatability	
Voltage	+/-0.5% of nominal voltage
Current	+/-1% (<175 A direct)
Maximum Input Power	10 W
Pollution Degree	3
Class of Protection	IP20
Relative Humidity	10–95%, non-condensing per IEC 68-2-3
Terminal Torque	7in.-lbs.

#### Standards Passed

Electrostatic Discharge (ESD)	IEC 61000-4-2, Level 3, 6 kV contact, 8 kV air
Radio Frequency Immunity Conducted	IEC 61000-4-6, Level 3 10 V
Radio Frequency Immunity, Radiated	IEC 61000-4-3, Level 3, 10 V/m
Fast Transient Burst	IEC 61000-4-4, Level 3, 3.5 kV input power
Short Circuit Rating	100 kA rms, SYM, 600 V ac max.
Surge	
Immunity	IEC IEC 61000-4-5, Level 3, 2 kV line-to-line; Level 4, 4 kV line-to-ground
ANSI/IEEE	C62.41 Surge and Ring Wave Compliance to a level of 6 kV line-to-line
High Potential Test	Meets UL508 (2 x rated V +1000V for 1 minute)
Max Conductor Size (with insulation)	0.65"
Dimensions	<b>H</b> 77.47 mm (3.05"); <b>W</b> 97.79 mm (3.85"); <b>D</b> 128.27 mm (5.05")
Weight	1.2 lbs. (19.2 oz., 544.31 g)
Mounting Method	Surface mount (4 - #8 screws) or DIN-rail mount

### Certification & Compliance

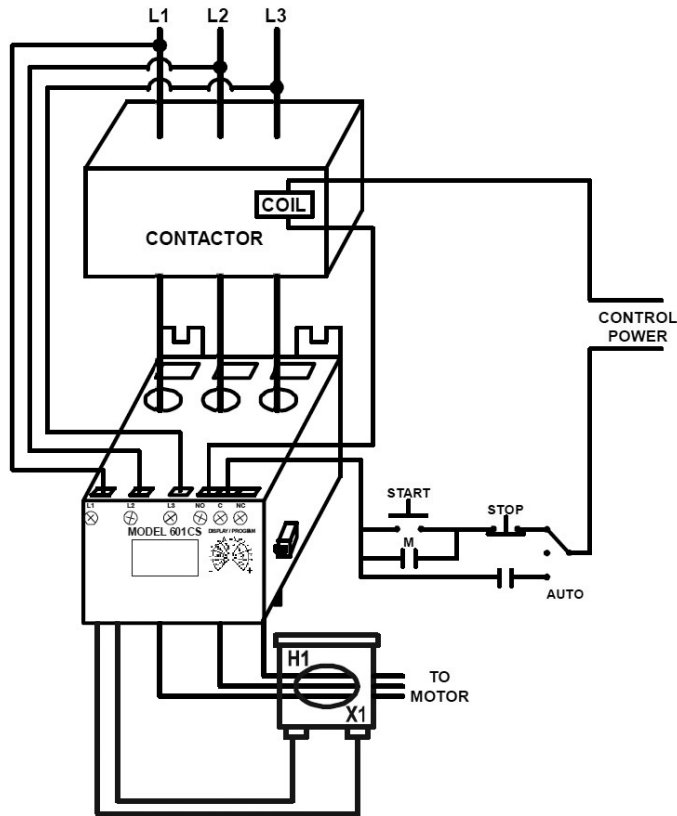
UL	UL508 (File #E68520)
CE	IEC 60947-1, IEC 60947-5-1



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## Wiring Diagram



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