

# 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

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

### Functional Characteristics

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

### General Characteristics

<b>Ambient Temperature Range</b>	
<b>Operating</b>	-20° to 70 °C (-4° to 158 °F)
<b>Storage</b>	-40° to 80 °C (-40° to 176 °F)
<b>Accuracy at 25 °C (77 °F)</b>	
<b>Voltage</b>	+/-1%
<b>Current</b>	+/-3% (<175 A direct)
<b>GF Current</b>	+/-3%
<b>Repeatability</b>	
<b>Voltage</b>	+/-0.5% of nominal voltage
<b>Current</b>	+/-1% (<175 A direct)
<b>Maximum Input Power</b>	10 W
<b>Pollution Degree</b>	3
<b>Class of Protection</b>	IP20
<b>Relative Humidity</b>	10–95%, non-condensing per IEC 68-2-3
<b>Terminal Torque</b>	7in.-lbs.
<b>Standards Passed</b>	
<b>Electrostatic Discharge (ESD)</b>	IEC 61000-4-2, Level 3, 6 kV contact, 8 kV air
<b>Radio Frequency Immunity Conducted</b>	IEC 61000-4-6, Level 3 10 V
<b>Radio Frequency Immunity, Radiated</b>	IEC 61000-4-3, Level 3, 10 V/m
<b>Fast Transient Burst</b>	IEC 61000-4-4, Level 3, 3.5 kV input power
<b>Short Circuit Rating</b>	100 kA rms, SYM, 600 V ac max.
<b>Surge</b>	
<b>Immunity</b>	IEC IEC 61000-4-5, Level 3, 2 kV line-to-line; Level 4, 4 kV line-to-ground
<b>ANSI/IEEE</b>	C62.41 Surge and Ring Wave Compliance to a level of 6 kV line-to-line
<b>High Potential Test</b>	Meets UL508 (2 x rated V +1000V for 1 minute)
<b>Max Conductor Size (with insulation)</b>	0.65"
<b>Dimensions</b>	<b>H</b> 77.47 mm (3.05"); <b>W</b> 97.79 mm (3.85"); <b>D</b> 128.27 mm (5.05")
<b>Weight</b>	1.2 lbs. (19.2 oz., 544.31 g)
<b>Mounting Method</b>	Surface mount (4 - #8 screws) or DIN-rail mount

## Certification & Compliance

<b>UL</b>	UL508 (File #E68520)
<b>CE</b>	IEC 60947-1, IEC 60947-5-1

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### Accessories

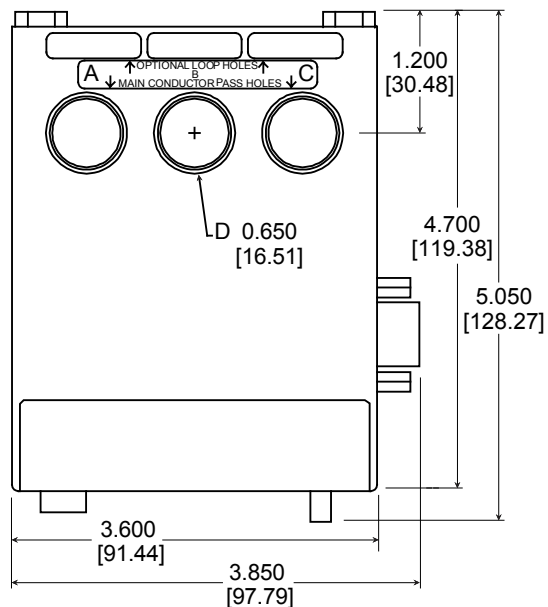
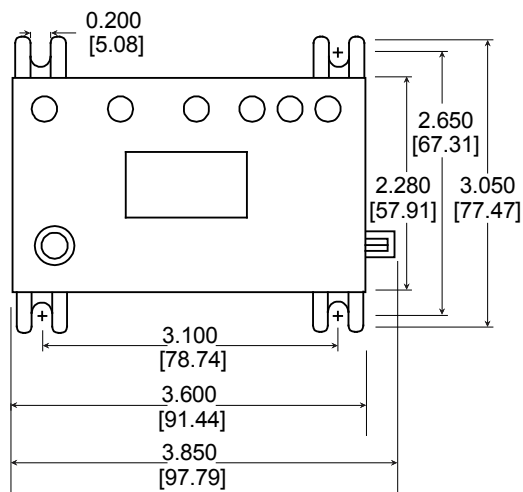
#### CIO-601CS-DN-P1 Module

Convenient, cost-effective DeviceNet\* interface device capable of providing discrete control and monitoring of motor starters, drives and other devices over a DeviceNet\* network.

### Ordering Information

MODEL	LINE VOLTAGE	DESCRIPTION
601-CS-D-P1	200–480 V ac	Fully programmable, electronic, three-phase, power monitor designed to monitor three-phase systems.

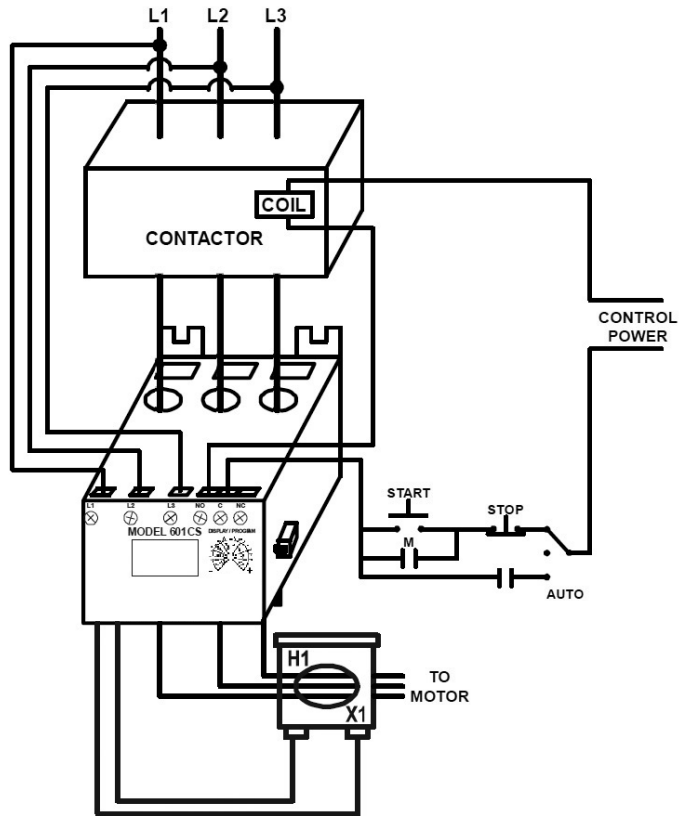
### Dimensions Inches (mm)



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### Wiring Diagram



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