# Model 777-HVR-LR-P2



SymCom's Model 777-HVR-LR-P2 is a fully programmable electronic overload relay. It is designed to monitor and protect any 3-phase, 340-480VAC motor drawing 1-800 full load amps (external CTs are required above 9 amps). This unit's Form C contacts are pilot duty rated at 470VA @ 600VAC for applications where a control power transformer (CPT) is not used on a 480V system. The unit provides unsurpassed protection from faulty voltage, underload and overload conditions.

The 777-HVR-LR-P2 incorporates a 3-digit LED display that is used for programming, providing real-time operational information and displaying diagnostic codes to aid in troubleshooting a fault condition.

The 777-HVR-LR-P2 Series can be used as stand-alone products or used in a network to communicate with a PC, PLC, SCADA system, or SymCom's Solutions Software with the help of its built-in RS-485 communications port. The 777-HVR-LR-P2, in conjunction with SymCom's CIO modules, supports several communication protocols including Modbus/RTU, Modbus/TCP, DeviceNet and Profibus. The units can also be connected to SymCom's remote monitors for a simple, cost-effective way to meet new requirements for arc-flash safety.

The unit's many features include enhanced trip classes beyond the NEMA standard trip classes. The settable trip class range is 2-60, with or without jam protection, and a secondary linear trip delay can be set with a range of 0-60 seconds. If both the trip class and linear trip delay are set, the 777-HVR-LR-P2 will follow the faster trip time. Another feature is the automatic dry-well recovery timer that allows the unit to automatically select a restart delay based on the last cycle's run time. This allows the 777-HVR-LR-P2 to optimize restart delay times.

The 777-HVR-LR-P2 can be pre-programmed with a 9-volt battery prior to actual installation. This can save a lot of time during initial installations and avoid subsequent service calls when commissioning new projects.

Common applications include conveyor systems, HVAC equipment, saws and grinders, fan motors and almost any pumping application, to save the cost and extra wiring associated with a CPT. The -LR (low range) model allows for easier installation in low amperage applications.



### **Features:**

- Protects 3-phase motors from:
  - High voltage
  - Low voltage
  - Voltage unbalance
  - Reverse-phase
  - Overcurrent
  - Undercurrent
  - Current unbalance
  - Single-phase
  - Ground fault, Class II
- Network programmable
- Programmable with 9-volt battery prior to installation
- Automatic reset with three separate restart delay timers, or manual reset
- Tamper guard
- RS-485 communications port (communications module sold separately)
- 3-digit LED diagnostic display
- Last fault memory
- UL and ULC listed
- CE compliant
- CSA approved
- Surface or DIN rail mount
- 5-year warranty
- Made in USA

#### **Auxiliary Products:**

- Remote Displays (RM-1000/RM-2000)
- Communication Modules
- Remote Manual Reset Kit
- Solutions Software

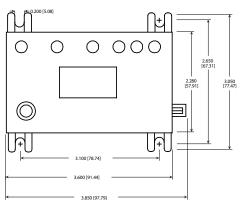


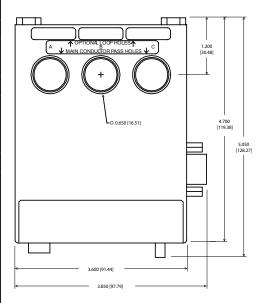
SS-777-HVR-LR-P2\_A

## Specifications

Functional SpecificationsProgrammable Operating Points LV-Low Voltage Threshold340-523VHV-High Voltage Threshold340-523VHV-High Voltage Threshold2-25% or 999 (disabled)MULT-# of Conductors or CT Ratio (xxx:5)1-2, 25, 50, 75, 100, 150, 200, 300, 400, 500, 600, 700, 800OC-Overcurrent Threshold(2-10A) + MULT or 40-140% of CT PrimaryUC-Undercurrent Threshold(0, 0.1-9.8A) + MULT or 40-140% of CT PrimaryUC-Undercurrent Trip Class and Linear Overcurrent02-60, J02-J60; L00-L60 or oFFTrip Delay0999 secondsRD1-Rapid-cycle Timer0-999 secondsRD2-Restart Delay after all faults except0.1, 2, 3, 4, A (automatic)undercurrent (motor cool-down timer)0, 1, 2, 3, 4, A (automatic)RD3-Restart Delay after all faults except0, 1, 2, 3, 4, A (automatic)mrecovery timer)(0, 1, 2, 2, 0, 2, 3, oc3, 4, oc4, A, ocA (automatic)wRF-Number of restarts after all faults except0, 1, 0, 1, 2, 0, 2, 3, oc3, 4, oc4, A, ocA (automatic)undercurrent(0, 3-2.0A) + MULT or 6-40% of CT Primary or oFFInput Characteristics2-999 seconds (standard)Supply Voltage340-480VACFrequency0, 4, 4, or 2, 10, 800A (external CTe required)
LV-Low Voltage Threshold340-523VHV-High Voltage Threshold341-528VVUB-Voltage Unbalance Threshold2-25% or 999 (disabled)MULT-# of Conductors or CT Ratio (xxx:5)1-2, 25, 50, 75, 100, 150, 200, 300, 400, 500, 600, 700, 800OC-Overcurrent Threshold(2-10A) + MULT of 80-140% of CT PrimaryUC-Undercurrent Threshold(2-10A) + MULT or 40-140% of CT PrimaryCUB-Current Unbalance Threshold2-50% or 999 (disabled)Tc-Overcurrent Trip Class and Linear Overcurrent02-60, J02-J60; L00-L60 or oFFTrip Delay0-999 secondsRD1-Rapid-cycle Timer0-999 secondsRD2-Restart Delay after all faults except2-500 minutesundercurrent (motor cool-down timer)2-500 minutesRD3-Restart Delay after all undercurrent faults0, 1, 2, 3, 4, A (automatic)ADDR-RS485 Address0, 1, oc1, 2, oc2, 3, oc3, 4, oc4, A, ocA (automatic)mdercurrentC00-C07UCTD-Undercurrent Trip DelayC00-C07UCTD-Undercurrent Threshold(0.3-2.0A) + MULT or 6-40% of CT Primary or oFFInput Characteristics340-480VACSupply Voltage340-480VACFrequency50/60Hz
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RD1-Rapid-cycle Timer0-999 secondsRD2-Restart Delay after all faults except2-500 minutesundercurrent (motor cool-down timer)2-500 minutesRD3-Restart Delay after undercurrent (dry-well2-500 minutes, A (automatic)recovery timer)#RU- Number of restarts after all undercurrent faultsADDR-RS485 Address0, 1, 2, 3, 4, A (automatic)MRF-Number of restarts after all faults except0, 1, 0, 1, 2, 0, 2, 3, oc3, 4, oc4, A, ocA (automatic)undercurrentCOM-Communications settingCOM-Communications settingC00-C07UCTD-Undercurrent Trip Delay2-999 seconds (standard)GF-Ground Fault Current Threshold(0.3-2.0A) + MULT or 6-40% of CT Primary or oFFInput Characteristics340-480VACSupply Voltage50/60Hz
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RD3-Restart Delay after undercurrent (dry-well recovery timer)2-500 minutes, A (automatic)#RU- Number of restarts after all undercurrent faults ADDR-RS485 Address0, 1, 2, 3, 4, A (automatic) A01-A99#RF-Number of restarts after all faults except undercurrent COM-Communications setting UCTD-Undercurrent Trip Delay GF-Ground Fault Current Threshold0, 1, oc1, 2, oc2, 3, oc3, 4, oc4, A, ocA (automatic) 2-999 seconds (standard) (0.3-2.0A) + MULT or 6-40% of CT Primary or oFFInput Characteristics340-480VAC 50/60Hz
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Input Characteristics   340-480VAC     Supply Voltage   340-480VAC     Frequency   50/60Hz
Supply Voltage   340-480VAC     Frequency   50/60Hz
Frequency 50/60Hz
Motor Full Load Amp Range 1-9A (direct), 10-800A (external CTs required)
Output Characteristics
Output Contact Rating - SPDT (Form C)
Pilot Duty 470VA@600VAC, B600 Expected Life
Mechanical 1 x 10 <sup>6</sup> operations
Electrical 1 x 10 <sup>5</sup> operations at rated load
General Characteristics
Operating Temperature
Ambient Operating -20° to 70° C (-4° to 158° F)
Ambient Storage       -40° to 80° C (-40° to 176° F)         Accuracy at 25° C (77° F)       -40° to 80° C (-40° to 176° F)
Voltage ±1%
Current $\pm 3\%$ (<100A direct)
Timing $\pm 0.5$ secondGround Fault $\pm 15\%$ (<100A)
Repeatability
Voltage ±0.5% of nominal voltage
Current ± 1% (<100A direct) Maximum Input Power 10 W
Pollution Degree 3
Class of Protection IP20
Relative Humidity10-95%, non-condensing per IEC 68-2-3Terminal Torque7 inlbs.
Standards Passed
Electrostatic Discharge (ESD) IEC 61000-4-2, Level 3, 6kV contact, 8kV air
Radio Frequency Immunity (RFI), ConductedIEC 61000-4-6, Level 3 10VRadio Frequency Immunity (RFI), RadiatedIEC 61000-4-3, Level 3 10 V/m
Fast Transient Burst IEC 61000-4-4, Level 3, 3.5 kV input power
Short Circuit 100kA
Surge   IEC   61000-4-5 Level 3, 2kV line-to-line; Level 4, 4kV line-to-ground
ANSI/IEEE C62.41 Surge and Ring Wave Compliance to a level of 6kV line-to-line
Hi-potential Test Meets UL508 (2 x rated V + 1000V for 1 minute)
Vibration IEC 68-2-6, 10-55Hz, 1mm peak-to-peak, 2 hours, 3 axis
Shock IEC 68-2-27, 30g, 3 axis, 11ms duration, half-sine pulse Safety Marks
UL UL508, UL1053
CE IEC 60947-1, IEC 60947-5-1
Max Conductor Size through 777-P2 0.65" with insulation Dimensions 3.05 H x 3.85 W x 5.05 D in (77.47 x 97.79 x 128.27 mm)
Dimensions       3.05 H x 3.85 W x 5.05 D in. (77.47 x 97.79 x 128.27 mm)         Weight       1.2 lbs. (544.31 g)
Mounting Method Surface mount (4 - #8 screws) or DIN Rail Mount

## **Enclosure Dimensions**





inches (millimeters)

## How to order:

Part Number: 777-HVR-LR-P2

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