

**Protection Relays**  
Voltage Monitoring Relays



# 350 SERIES

## 3-phase voltage/phase monitor



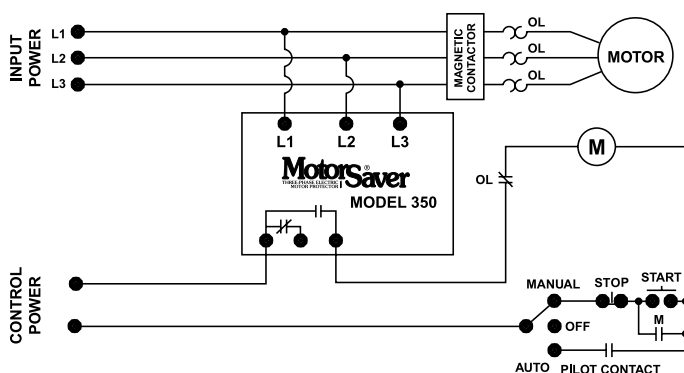
### Description

The 350 Series is a heavy-duty voltage monitor. This product should be used when high current relays or dual contacts are required, or 480V controls are used. Since the 350 Series uses heavy-duty relays, it comes in fixed voltage range models rather than a dual auto-ranging version like the Model 250.

The 350200 has a 15A general purpose contact. The 350400 provides a SPDT (Form C) relay rated to switch up to 600V, allowing the use of 480V controls, eliminating the need for a control power transformer to step the voltage down to 120-240V. Several DPDT (two Form C contacts) relay models are also available.

The 350 microcontroller-based family of products are low cost yet highly advanced solutions to heavy-duty problems. The 350 includes advanced single LED diagnostics. Five different light patterns distinguish faults and normal operating conditions. Other options such as high voltage trip and adjustable restart delay are available.

### Wiring Diagram



### Features & Benefits

FEATURES	BENEFITS
<b>Proprietary microcontroller based circuitry</b>	Constantly monitors 3 phase voltage to protect against harmful line conditions, even before the motor is started
<b>Advanced LED indication</b>	Provides diagnostics which can be used for troubleshooting and to determine relay status
<b>Adjustable restart delay (-2 models) settings</b>	Allows staggered start up of multiple motors, after a fault, to prevent a low voltage condition
<b>600V rated relay contacts available on some models</b>	Eliminates the need for a control transformer to step voltage down to 120 - 240V for a control circuit

### Ordering Information

MODEL	LINE VOTAGE	DESCRIPTION	MODEL	LINE VOTAGE	DESCRIPTION
350200	190-240VAC	SPDT, fixed trip and restart delay	35040026	380-480VAC	DPDT, 2 relays (1)10a. (1) 15A; fixed trip and variable restart delay (manual, 2-300s)
3502002	190-240VAC	SPDT, fixed trip and variable restart delay (manual, 2-300s)	35040028**	380-480VAC	DPDT, 2 relays 15A; variable restart delay (no manual reset)
35020026	190-240VAC	DPDT, 2 relays (1)10a. (1) 15A; fixed trip and variable restart delay (manual, 2-300s)	35040029	380-480VAC	SPDT, fixed trip and variable restart delay (manual, 2-300s), plus high voltage detection
35020028**	190-240VAC	DPDT, 2 relays 15A; variable restart delay (no manual reset)	350600	475-600VAC	SPDT, fixed trip and restart delay
35020029	190-240VAC	SPDT, fixed trip and variable restart delay (manual, 2-300s), plus high voltage detection	3506002	475-600VAC	SPDT, fixed trip and restart delay (manual, 2-300s)
350400	380-480VAC	SPDT, fixed trip and restart delay	35060026	475-600VAC	DPDT, 2 relays (1)10a. (1) 15A; fixed trip and variable restart delay (manual, 2-300s)
3504002	380-480VAC	SPDT, fixed trip and variable restart delay (manual, 2-300s)	35060028**	475-600VAC	DPDT, 2 relays 15A; variable restart delay (no manual reset)
35040025	380-480VAC	DPDT, fixed trip and variable restart delay (manual, 2-300s)	35060029	475-600VAC	SPDT, fixed trip and variable restart delay (manual, 2-300s), plus high voltage detection

\*\* These units are not equipped with Manual Reset.

## Protection Relays

### Voltage Monitoring Relays



# 350 SERIES

## Specifications

### Input Characteristics

#### Line Voltage

<b>350200</b>	190-240VAC
<b>350400</b>	380-480VAC
<b>350600</b>	475-600VAC
<b>Frequency</b>	50*/60Hz

### Functional Characteristics

#### Low Voltage (% of setpoint)

<b>Trip</b>	90%
<b>Reset</b>	93%

#### Voltage Unbalance (NEMA)

<b>Trip</b>	6%
<b>Reset</b>	4.5%

#### Trip Delay Time:

<b>Low Voltage</b>	4 seconds
--------------------	-----------

<b>Unbalance &amp; Phasing Faults</b>	2 seconds
---------------------------------------	-----------

#### Restart Delay Time

<b>After a Fault</b>	2 seconds
----------------------	-----------

<b>After a Complete Power Loss</b>	2 seconds
------------------------------------	-----------

### Output Characteristics

#### Output Contact Rating

##### SPDT (350200)

<b>Pilot Duty</b>	480VA @ 240VAC
-------------------	----------------

<b>General Purpose</b>	15A
------------------------	-----

<b>SPDT (350-400, 350-600)</b>	470VA @ 600VAC
--------------------------------	----------------

<b>DPDT (-6 Option)</b>	1-10A General Purpose
-------------------------	-----------------------

480VA @ 240VAC Pilot Duty

1-15A General Purpose

480VA @ 240VAC Pilot Duty

1hp @ 240VAC

##### DPDT (-8 Option)

2-15A General Purpose

480VA @ 240VAC Pilot Duty

1hp @ 240VAC

### General Characteristics

#### Ambient Temperature Range

<b>Operating</b>	-40° to 70°C (-40° to 158°F)
------------------	------------------------------

<b>Storage</b>	-40° to 80°C (-40° to 176°F)
----------------	------------------------------

<b>Trip &amp; Reset Accuracy</b>	±1%
----------------------------------	-----

<b>Maximum Input Power</b>	5 W
----------------------------	-----

#### Terminal

<b>Torque</b>	7 in.-lbs.
---------------	------------

<b>Wire Size</b>	12-18AWG
------------------	----------

#### Transient Protection

<b>(Internal)</b>	IEC 61000-4-5;1995 ±6kV
-------------------	-------------------------

#### Safety Marks

<b>UL</b>	UL508 (File #E68520)
-----------	----------------------

<b>CSA</b>	22.2 No. 14 (File #46510)
------------	---------------------------

<b>CE</b>	IEC 60947-6-2
-----------	---------------

<b>Dimensions</b>	<b>H</b> 74.42 mm (2.93"); <b>W</b> 133.86 mm (5.27");
-------------------	--

**D** 74.93 mm (2.95")

<b>Weight</b>	1.05 lbs. (16.8 oz., 476.27 g)
---------------	--------------------------------

<b>Mounting Method</b>	#8 screws
------------------------	-----------

### Special Options

<b>Opt. 2: Variable Restart Delay</b>	Manual, 2-300 seconds adj.
---------------------------------------	----------------------------

#### Opt. 5: DPDT Relay

#### Opt. 6: 2 Relays (1) 10A, (1) 15A

#### Opt. 8: 2 Relays (2) 15A

#### Opt. 9: High Voltage (% of setpoint)

<b>Trip</b>	110%
-------------	------

<b>Reset</b>	107%
--------------	------

\*Note: 50Hz will increase all delay timers by 20%.