



# ICM492

## Single Phase Digital Line Voltage Monitor

Reliable protection of single phase systems against adverse line voltage conditions



**Constantly monitors and displays line voltage. Protects against Over and Under voltage, and Rapid Short Cycling caused by Transient Faults and Power Interruptions**

### FEATURES

- Universal Line Voltage Input
- Easy-view Backlit Digital Display
- RMS Voltage Monitoring
- 5-fault memory storage
- Adjustable Voltage Set Point
- Adjustable Over Voltage Set Point
- Adjustable Under Voltage Set Point
- Adjustable Anti-Short Cycle Time Delay
- Adjustable Response on Fault Time
- Control Mode
- 5-Fault Memory
- Universal Control Voltage Input
- Heavy Duty SPDT Relay Output

### DESCRIPTION

The **ICM492** is specifically designed to monitor line voltage and guard single phase equipment against damage caused by under and over line voltage conditions and rapid short cycling. Records last five faults.

### SPECIFICATIONS

#### User Adjustable Settings:

- **Voltage setpoint:** 95-280V
- **Anti-short cycle time delay:** 0-720 sec.
- **Over voltage setting:** 5-25%
- **Under voltage setting:** 5-25%
- **Control mode:** On and Off
- **Response time:** 0.1 to 10 seconds

#### Inputs:

- **Line voltage:** 80 to 300 VAC
- **Control voltage:** 24 to 240 VAC
- **Frequency:** 50/60 Hz
- **Accuracy:**  $\pm 2\%$
- **Low power consumption:** Max 50 mA @ 120V,  
Max 100 mA @ 240V

#### Output:

- **Type:** dry relay contacts
- **Form:** SPDT
- **Relay contact ratings:**
  - **N.C. Contacts:** 10A resistive @ 277 VAC
  - **N.O. Contacts:** 10A resistive @ 277 VAC
- **Connection Terminals:** 0.25" male fast-on

#### Mechanical:

- **Case dimensions:** 3"L x 3.2"W x 1.35"H
- **Unit weight:** 0.36 lbs.

#### Environmental:

- **Operating temp. range:** -30°C to +70°C
- **Storage temp. range:** -40°C to +85°C
- **Maximum operating/storage relative humidity:** 95% non-condensing

### MODE OF OPERATION

The **ICM492** continuously monitors incoming line voltage for faults and displays RMS voltage on the digital display. When line voltage is appropriate, **ICM492** closes the COM and N.O. relay contacts. When incoming line voltage is outside of user selected parameters, **ICM492** will close the COM and N.C. relay contacts and indicate a fault condition by flashing **FAULT** on display. The unit records the last five faults, storing the highest and lowest voltage readings that caused the fault. The UP, DOWN and SELECT buttons are pressed simultaneously to clear the faults from memory. The SELECT menu has the following user adjustable settings: voltage set point, time delay, over voltage percentage, under voltage percentage, control mode, and response time. Time delay prevents short cycling when fault no longer is present and rapid power interruptions. The response time on the fault condition can be adjusted to help reduce nuisance trips from transient faults. When Control Mode setting is selected ON then ICM492 will close COM and N.O. relay contacts only when control voltage is present at Control Voltage terminals and the line voltage is good. The relay contacts can be used to direct drive the load as long as current rating is not exceeded.

### !!! WARNING !!!

#### Electrical Shock Hazard

- *Verify power is disconnected by removing a fuse or opening a circuit breaker before making any connections.*
- *This control should be installed by a trained technician.*
- *Incorrect installation can cause personal injuries, property damage or death.*
- *Follow all local & national codes while installing control.*

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## INSTALLATION

**!!! DANGER !!!** Verify power is disconnected by removing a fuse or opening a circuit breaker before making any connections or injury or death can result.

1. Disconnect power.
2. Mount **ICM492** securely against the metal chaises of the system in a water proof environment.
3. If a contactor or a relay is used in the system (see Fig.1) to control power to the load then:
  - a. Make L1 and L2 connections.
  - b. Cut the wire that powers the contactor/relay coil, strip and place 1/4" female spade terminals on them.
  - c. Plug female spade terminals on COM and N.O. terminals of **ICM492**.
4. Should you choose to drive the load directly (see Fig.2) using relay contacts of **ICM492** then:
  - a. Make sure that load current rating does not exceed current rating of **ICM492** relay contacts.
  - b. Cut the line that powers the load, strip and place 1/4" female spade terminals on them.
  - c. Plug female spade terminals on COM and N.O. terminals of **ICM492**.
5. Should you choose to use a control signal at Control Voltage input terminals then:
  - a. Use two wires with 1/4" female spade terminals on them to plug on Control Voltage terminals of **ICM492**.
  - b. Tap into control signal with the other end of the wires.
6. Press SELECT button to enter the select menu.
  - a. Use Up and Down arrows to adjust feature settings.
  - b. Make sure that the Control Mode is ON if the control signal is used at Control Voltage terminals.

## SELECT MENU SETUP

Press SELECT to enter menu setup

- VOLTAGE SET POINT displays (95 – 280 VAC)
- Adjust this to match the voltage of your system.
- Use **up** or **down** button to adjust.

Press SELECT for next screen

- TIME DELAY (Lockout) displays (1-720 seconds)
- This is the amount of time your system will be locked out after a fault.
- Use **up** or **down** button to adjust.

Press SELECT for next screen

- OVER VOLT PERCENTAGE displays (5-25%)
- This is the percent the actual voltage must be above your Set Voltage for an over fault to occur.
- Use **up** or **down** button to adjust.

Press SELECT for next screen

- UNDER VOLT PERCENTAGE displays (5-25%)
- This is the percent the actual voltage must be below your Set Voltage for an under fault to occur.
- Use **up** or **down** button to adjust.

Press SELECT for next screen

- CONTROL MODE displays (OFF - ON)
- When set to ON, the relay contacts close only when line voltage conditions are good and voltage is present at the Control Voltage terminals.
- Use **up** or **down** button to adjust.

Press SELECT for next screen

- RESPONSE TIME displays (.01-10 seconds)
- This is the amount of time the fault condition must exist before your system is turned off.
- Use **up** or **down** button to adjust.

Press SELECT for next screen

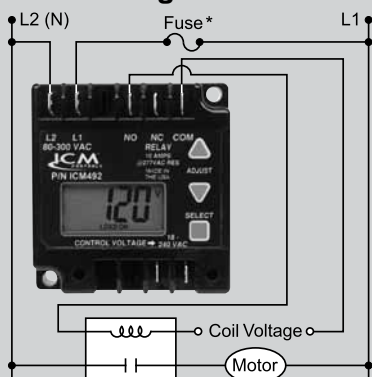
- FAULT 1 - 5 displays
- This is the voltage of the fault that has occurred.
- --- Indicates no fault is in memory

**NOTE:** Faults can be cleared by simultaneously pressing the UP, DOWN and SELECT buttons after exiting SELECT Menu Setup.

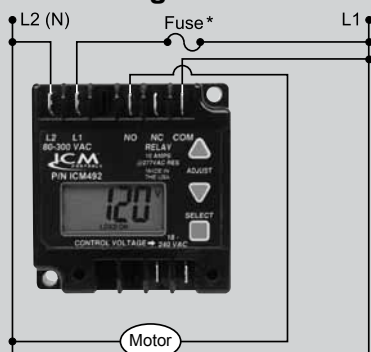
After 15 seconds of button inactivity, the control exits SELECT Menu Setup screen.

## WIRING DIAGRAMS

**Figure 1**



**Figure 2**



\* Not necessary but recommended 1 Amp fuse.