

# MODEL 29

## Frequency Monitor



- User selectable relay operation options
- Low or High Trip with independent delays or disabled
- User programmable
- Can be restored to factory settings
- Model 27SG has silver with gold flash contacts for low current.



### DESCRIPTION

**Model 29 Frequency Monitor** has a display that shows the frequency with an accuracy of +/- 0.5%. The display is updated every second and re-initialized every 30 seconds.

Model 29 has a rotary encoder with switch on the unit. By pressing the encoder switch for more than 5 seconds, the unit will enter the setup mode.

This unit has a user selectable relay option for High-Low or DPDT. It can also be user-selected to energize on fault or de-energize on fault. The user can select automatic or manual restart on the Model 29. The SG version of the Model 29 has silver with gold flash contacts for low current applications

**Model 29 Frequency Monitor** can be restored to factory defaults.

### UL SPECIFICATIONS

Model	29 and 29SG
<b>Input</b>	
Voltage (VAC)	80-550 Volts
Amps	1mA
Frequency	50/60Hz nominal
DC Power	24 Volts, 2 watts
<b>Output</b>	240V AC, 10A, Resistive 120V AC, 4A, General Use 240V AC, 2A, General Use C300, Pilot Duty

### SPECIFICATIONS

Model	29 and 29SG
Start-up Delay	5 secs. Min. or Automatic reset delay setting (to allow for solid lock)
Frequency Range	40Hz to 70Hz 320Hz to 560Hz with 400Hz jumper
Output Contacts	SPDT x 2 10 Amps @ 240VAC
Repeat Accuracy	± 0.5 % (fixed conditions)
Reset Type	Manual or Automatic
Expected Relay Life	Mech: 10 million operations Elec: 100,000 min. at rated load
Operating Temp	-20°F to +130°F
Humidity Tolerance	0-97% w/o condensation
Enclosure Material	Lexan Polycarbonate
Mounting	Din Rail 35mm
Weight	8.5 oz.

Main (918) 438-1220  
Sales (800) 862-2875



**TIME MARK**  
CORPORATION

# MODEL 29

# Frequency Monitor

READ ALL INSTRUCTIONS BEFORE INSTALLING, OPERATING OR SERVICING THIS DEVICE.  
KEEP THIS DATA SHEET FOR FUTURE REFERENCE.

## GENERAL SAFETY

POTENTIALLY HAZARDOUS VOLTAGES ARE PRESENT AT THE TERMINALS OF THE MODEL 29.  
ALL ELECTRICAL POWER SHOULD BE REMOVED WHEN CONNECTING OR DISCONNECTING WIRING.  
THIS DEVICE SHOULD BE INSTALLED AND SERVICED BY QUALIFIED PERSONNEL.

## Installation Instructions

### INSTALLATION AND SETUP

#### Controls:

Rotary encoder with switch. Pressing the encoder switch will display the set points. Pressing the encoder switch for more than 5 seconds will enter the setup mode. Pressing switch displays the next menu item. Holding down the switch during setup mode will sequence through menus with 1 second intervals. Rotating the knob clockwise increases the value and counter-clockwise will decrease value.

For non-value options, rotating the knob either way will change the options on the display.

#### Setup Options:

(Press encoder for at least 5 seconds to enter setup)

#### Frequency range select—\*Default 50/60Hz

50/60Hz

400Hz

\*Note: For 400Hz—Check Jumper under top left terminal cover.

#### High frequency: ( Factory Enabled, Set point = 70Hz, Delay =5S)

Enable/Disable: (If disabled set point and delay are skipped)

Set point Range:

Low Set +1% to 600Hz in 0.5Hz steps

High trip delay:

0 to 20.0 seconds in 0.1Sec steps

#### Low frequency: ( Factory Enabled, Set point = 40Hz, Delay = 5S)

Enable/Disable (If disabled set point and delay are skipped)

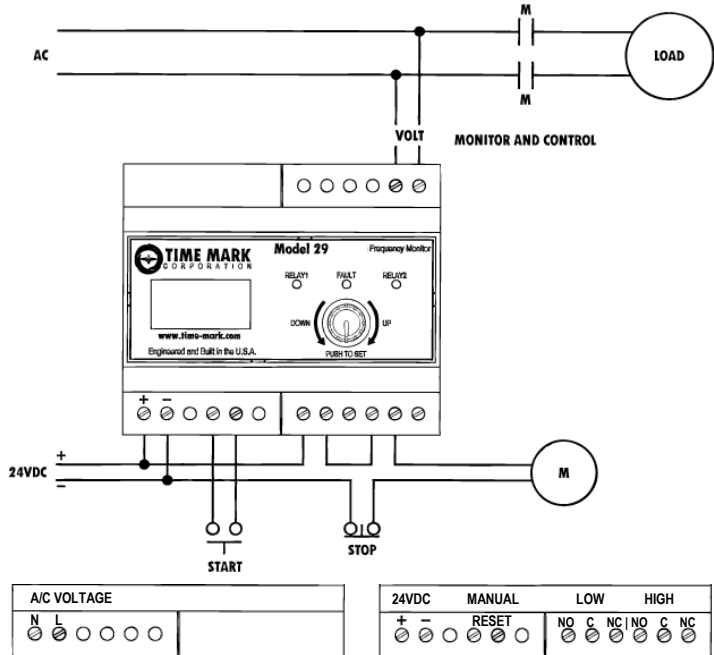
Set Range:

40 to High Set -1% in 0.5Hz steps

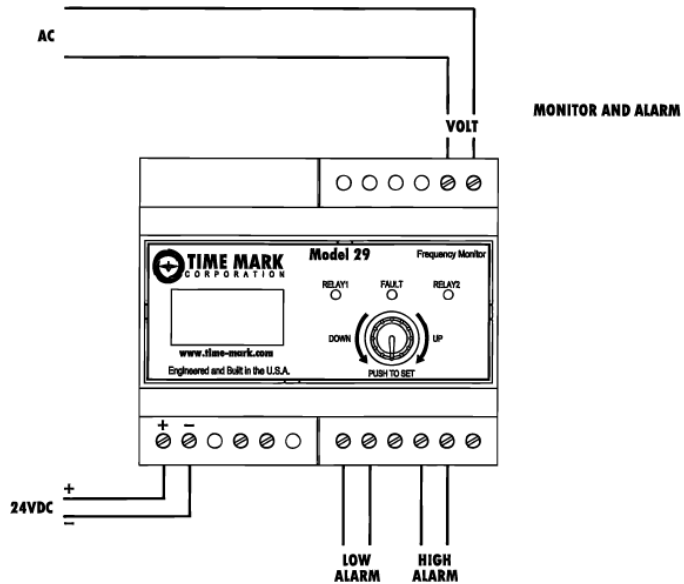
Low trip delay:

0 to 20.0 seconds in 0.1Sec steps

### TYPICAL APPLICATION—MONITOR AND CONTROL



### TYPICAL APPLICATION—MONITOR AND ALARMS



Main (918) 438-1220  
Sales (800) 862-2875



Page 2 of 4 11/2012  
© 2012 TIME MARK CORPORATION

TIME MARK is a division of AEMT, Inc.

**READ ALL INSTRUCTIONS BEFORE INSTALLING, OPERATING OR SERVICING THIS DEVICE.  
KEEP THIS DATA SHEET FOR FUTURE REFERENCE.**

### GENERAL SAFETY

**POTENTIALLY HAZARDOUS VOLTAGES ARE PRESENT AT THE TERMINALS OF THE MODEL 29.  
ALL ELECTRICAL POWER SHOULD BE REMOVED WHEN CONNECTING OR DISCONNECTING WIRING.  
THIS DEVICE SHOULD BE INSTALLED AND SERVICED BY QUALIFIED PERSONNEL.**

## Installation Instructions

### INSTALLATION AND SETUP (Continued)

#### Relay operation: (Factory = HI-LO)

Frequency High/Low option:  
Separate High/Low relays  
DPDT  
Other faults DPDT

#### Relay operation on fault: (Factory De-energize on fault)

De-energize on fault  
Energize on fault

#### High/Low Hysteresis range: (Factory Enabled, Factory = 5%)

As a % of set point 1 to 15% in 1% increments  
HSP=High Set Point  
LSP=Low Set Point  
Hy=Hysteresis  
High trip:  
Unit will trip at HSP and recover at HSP-(Hy\*HSP).  
Low trip:  
Unit will trip at LSP and recover at LSP+(Hy\*LSP).

#### Restart: ( Factory Automatic)

Automatic or Manual (in Manual rotating the knob or closing an external switch will reset the unit )

#### Automatic Restart Delay range: (Factory = 5S)

0 to 300.0 Seconds in 0.1Sec steps

#### Exit from Setup options

Repeat Setup  
Press encoder to begin setup from beginning. (High Enable)  
Exit & No Save  
Press encoder to exit setup. Any changes are discarded.  
Exit & Save  
Press encoder to exit setup and save changes.  
Unit will begin using new settings.

#### Start up delay:

5 Seconds Minimum or Automatic Restart Delay setting  
(To allow for solid lock)

#### Restart from setup:

Automatic Restart Delay setting

#### Restart from loss of lock:

5 Seconds Minimum or Automatic Restart Delay setting  
(To allow for solid lock)

#### Factory settings can be restored in field.

#### To enter calibration:

Press encoder while applying the DC voltage. Release encoder when TIMEMARK appears.

#### Restore factory settings: (Default = No)

No  
YES  
Press encoder after making selection.

### UNIT FIELD RESTORE FACTORY SETTINGS

- 1) From a powered down condition. Apply the AC voltage first.
- 2) Press and hold the Encoder switch while applying the DC power to the unit. As soon as the splash screen appears release the button. The display will show "No Rest Fac". Rotate encoder to change option to "Yes" to restore factory settings. Press the Encoder switch.
- 3) The unit will return to normal operation.

### WARRANTY

This product is warranted to be free from defects in materials and workmanship for one year. Should this device fail to operate, we will repair it for one year from the date of manufacture. For complete warranty details, see the *Terms and Conditions of Sales* page in the front section of the Time Mark catalog or contact Time Mark at 1-800-862-2875.

# MODEL 29

# Frequency Monitor

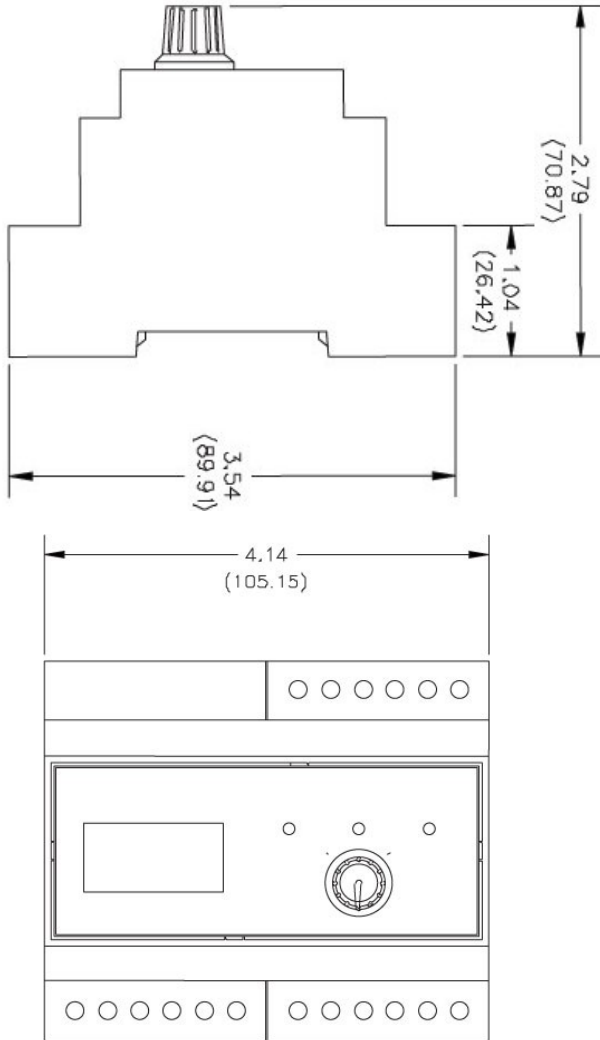
READ ALL INSTRUCTIONS BEFORE INSTALLING, OPERATING OR SERVICING THIS DEVICE.  
KEEP THIS DATA SHEET FOR FUTURE REFERENCE.

## GENERAL SAFETY

POTENTIALLY HAZARDOUS VOLTAGES ARE PRESENT AT THE TERMINALS OF THE MODEL 29.  
ALL ELECTRICAL POWER SHOULD BE REMOVED WHEN CONNECTING OR DISCONNECTING WIRING.  
THIS DEVICE SHOULD BE INSTALLED AND SERVICED BY QUALIFIED PERSONNEL.

## Installation Instructions

### DIMENSIONS



### WARRANTY

This product is warranted to be free from defects in materials and workmanship for one year. Should this device fail to operate, we will repair it for one year from the date of manufacture. For complete warranty details, see the *Terms and Conditions of Sales* page in the front section of the Time Mark catalog or contact Time Mark at 1-800-862-2875.

Main (918) 438-1220  
Sales (800) 862-2875



Page 4 of 4 11/2012  
© 2012 TIME MARK CORPORATION

TIME MARK is a division of  AEMT, Inc.