

User Manual

60 Amp. SINGLE-PHASE
PUMP MONITOR
MODEL PM23



Over 50 Years
of Expertise

Junio-2026



PRECAUTIONS



- 1) The Pump-Monitor must be installed inside a CLOSED enclosure to protect it from dust, water, and high temperatures. NEVER INSTALL IT OUTDOORS OR EXPOSE IT TO THE WEATHER.
- 2) TO PREVENT DAMAGE TO THE PUMP-MONITOR, it must always be connected through fuses or a thermal-magnetic circuit breaker.
- 3) Before connecting the Pump-Monitor, make sure there is no voltage present on the power supply lines.

Electrical Connection

The PM-23 Pump-Monitor is designed for 220 V single-phase pumps with a current consumption ranging from 10 to 60 A. Connect the 220 V power supply to terminals **TC** and **T1**, as shown in the wiring diagram. Pass the **L1** conductor through the opening of the current transformer (CT), and connect the black and blue wires to terminals **C1** and **C2**, respectively.

C = Contactor

F = 5 A Control Fuse

IT = Thermal-Magnetic Circuit Breaker

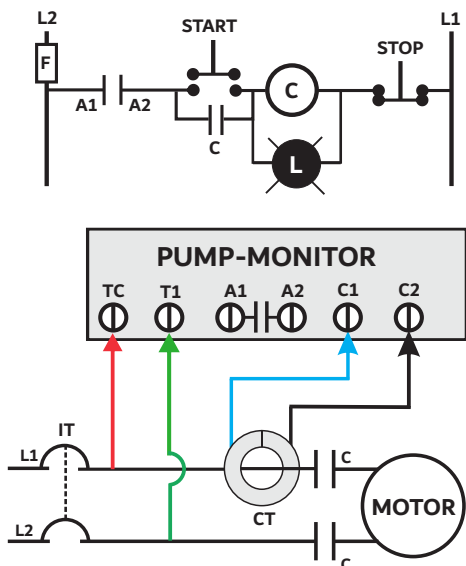
A1–A2 = PM-23 Normally Open Contact

L = Power Indicator Light

CT = Current Transformer

CONNECTION EXAMPLE

220 VCA



Current Transformer Reversed

If the display shows "CURRENT TRANSFORMER REVERSED" when the motor starts, turn OFF the Pump-Monitor. Then, **swap the blue and black** wires connected to terminals **C1** and **C2** to correct the connection.

**CURRENT TRANSFORMER
REVERSED**

After powering the Pump-Monitor back on, this message will no longer appear. The display will show the motor voltage and current consumption, confirming that the connection is correct.

**224 V 13.2 Amp.
3834 W**

Underload Protection (Dry Run)

The Pump-Monitor protects the motor when the pump runs dry (without water). When this occurs, the motor consumes less power. The Pump-Monitor detects this drop in power and automatically shuts down the motor. The Underload (UL) setting can be configured automatically or manually. In Automatic Mode, the underload trip point is calibrated to 65% of the motor's operating power (Watts).

If the motor experiences significant power fluctuations and its power drops below 65%, nuisance trips may occur. In this case, manually reduce the Underload trip setting. For more information, refer to page 4.

The underload trip delay is 5 seconds.

Overvoltage / Undervoltage Protection

If the voltage remains high or low for more than 5 seconds, the Pump-Monitor shuts off the pump.

From the factory, the trip values are set to 200 V for undervoltage and 250 V for overvoltage, which are the most recommended values.

To prevent oscillations, the unit has a 2% hysteresis. The overvoltage and undervoltage settings can be adjusted to other values. For more information, see page 4.

Rapid Cycling Protection

When the pump turns on and off too frequently, the motor heats up. This overheating can damage the motor, even if an overload does not occur.

If the Pump-Monitor detects that the pump starts more than 4 times per minute, it shuts the pump off to prevent motor damage.

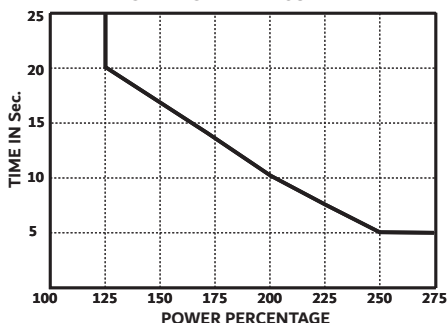
Overload Protection

When an overload occurs, the motor consumes more power. The Pump-Monitor detects this increase and shuts off the pump after a time period that depends on the overload level, as shown in Graph #1.

The Overload (OL) setting can be configured automatically or manually. In Automatic Mode, it is calibrated to 125% of the motor's operating power in Watts.

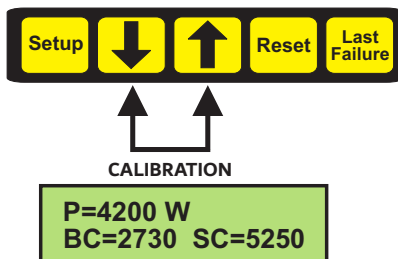
In the unlikely event that the motor experiences significant power fluctuations and its power consumption increases by more than 25%, nuisance trips may occur. If this happens, manually adjust the Overload trip setting, without exceeding the pump's rated values. For more information, see page 4.

Graph #1
OVERLOAD TRIP CURVE



Automatic Calibration

To facilitate calibration, the Pump Monitor can be calibrated automatically. This option is suitable for most applications. To do this, **the pump must be operating under normal conditions**. Once the pump has started under normal conditions, press both arrows simultaneously for more than 3 seconds. The Pump Monitor will measure the power consumed by the pump and automatically save the settings: underload at 65% and overload at 125%.



During calibration, the display will show the motor's power consumption in Watts and the saved settings: Underload (UL) and Overload (OL).

If the motor's power consumption exceeds the Overload setting for the time indicated in Graph #1, the Pump-Monitor shuts off the pump. The same occurs if the power consumption drops below the Underload setting for more than 5 seconds.

This calibration process can be repeated as many times as desired to ensure that the calibration was performed with the pump operating under normal conditions.

These settings are typical, but they can be adjusted manually if desired. When the pump operating conditions vary significantly, a more precise adjustment may be required. For more information, see page 4.

Operating Description

UNDER NORMAL OPERATING CONDITIONS

When the pump is running, the green "Pump" LED turns on. The display shows the voltage, current, and power consumption.

**224 V 13.2 Amp.
3834 W**

When a fault occurs, it is displayed on the screen, and the Failure LED turns on during the trip delay time

**VOLTAGE 224 V
PUMP OFF**

FAULT CONDITION

When a fault occurs, it is displayed on the screen, and the Failure LED turns on during the trip delay time.

**FAULT:
OVERLOAD**

AUTOMATIC RESET

Once the motor has been shut down, if the reset mode is set to Automatic and the fault is not caused by voltage, the Pump-Monitor begins counting the programmed reset time before reconnecting the pump.

The display indicates the remaining time before reconnection. If you do not wish to wait, press the RESET button to restart the motor immediately.

**RECONNECTION
IN 15 Min.**

MANUAL RESET:

The unit will not reset until the RESET button is pressed. When pressed, the internal A1-A2 contact closes, allowing the motor to start.

**MANUAL RESET
PRESS RESET**

FAULT MEMORY

When a fault occurs, it is permanently stored in the unit's memory. The display shows "F" on the right side, indicating that a fault has been saved

**224 V 13.2 Amp.
3834 W F**

VIEW AND CLEAR THE LAST STORED FAULT

Press "LAST FAILURE" to display the fault for 5 seconds. It will then be automatically cleared from memory. If you need to keep the record, write it down before the display time expires.

**LAST FAILURE
UNDERVOLTAGE**

Settings

NOTE: During setup, the Pump-Monitor turns off the "Pump" LED and prevents the pump from starting.

LANGUAGE SELECTION

Press the SETUP button. The language selection screen will appear.

**IDIOMA/LANGUAGE
ESPAÑOL**

Press the Down Arrow button for Spanish and the Up Arrow button for English.

RESET MODE

Press the SETUP button. The Reset Mode selection screen will appear. Use the Down Arrow button to select MANUAL and the Up Arrow button to select AUTOMATIC.

**MANUAL RESET
MODE**

RECONNECTION DELAY

Press the SETUP button. If Automatic Reset is selected, the Reconnection Delay setting will appear.

Use the arrow buttons to adjust the desired reconnection time from 1 to 120 minutes.

**RECONNECTION DELAY:
RECONNECTION = 60 Min.**

UNDERLOAD

Press the SETUP button. The Underload setting will appear on the display. This setting allows fine adjustment in case the automatic 65% calibration is not suitable for the application.

Use the arrow buttons to adjust the desired Underload setting.

**UNDERLOAD
SETTING BC = 745**

OVERLOAD

Press the SETUP button. The Overload setting will appear. This setting allows fine adjustment in case the automatic 125% calibration is not suitable for the application.

Use the arrow buttons to adjust the desired Overload setting.

**OVERLOAD
SETTING SC = 1456**

The Overload setting cannot be lower than the Underload setting. If this is attempted, the unit will display an error.

UNDERVOLTAGE

Press the SETUP button. The Undervoltage setting will appear. If the voltage drops below this limit, the motor will be disconnected.

Use the arrow buttons to adjust the desired voltage. Press the SETUP button again.

**UNDERVOLTAGE
SETTING = 200**

OVERVOLTAGE

Press the SETUP button. The Overvoltage setting will appear. If the voltage exceeds this limit, the motor will be disconnected.

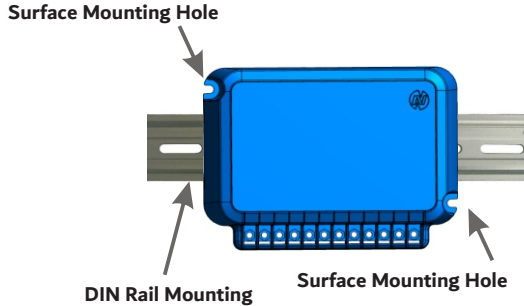
Use the arrow buttons to adjust the desired voltage.

**OVERVOLTAGE
SETTING = 250**

Press the SETUP button again to exit the configuration menu. The adjusted settings will be saved in permanent memory.

Screw-Mount and DIN Rail Mounting

The unit can be mounted on the back panel of an enclosure using the two side mounting screws provided. It can also be mounted on a DIN rail for easier installation and removal.



Front Panel Mounting

The unit can also be mounted on the front panel of an enclosure for easy viewing of the display and status indicators. To do so, the PMF-237 Front Panel Mounting Adapter Plate is required. When using front panel mounting, **the enclosure must not be installed outdoors.**



Specifications

OPERATING VOLTAGE	220 V $\pm$ 15 %, 50/60 Hz
VOLTAGE ACCURACY	0.7 % $\pm$ 1 DIGIT
CURRENT ACCURACY	0.7 % $\pm$ 1 DIGIT
UNDervOLTAGE SETTING	180-220 V
OVERVOLTAGE SETTING	220-260 V
RECONNECTION DELAY	Adjustable from 1 to 120 min.
CURRENT RANGE	10-60 Amp.
A1-A2 CONTACT	10 Amp. max @ 220 VCA
RESET MODE	Manual or Automatic
SERVICE LIFE	100,000 Operations
OPERATING TEMPERATURE	-10 a + 50 °C.
POWER CONSUMPTION	3 Watts Aprox.
DIMENSIONS	14.5 x 10.5 x 6 cm
SHIPPING WEIGHT	0.55 KG

*Specifications are subject to change without prior notice.

This product is certified by UL de México, S.A. de C.V.

**Representative samples of this product have been evaluated by UL de México, S.A. de C.V.
and comply with the applicable standards.**

WARRANTY

This product is warranted against defects in materials and workmanship for a period of 3 years from the date of purchase. Nassar Electronics, at its sole discretion, will repair or replace this product F.O.B. its manufacturing facility, provided that Nassar Electronics determines the product to be defective. This warranty does not cover repairs or replacements resulting from improper maintenance, normal wear and tear, improper supply voltage, unfavorable environmental conditions, accidents, misuse, operation outside the specified ratings, modifications, unauthorized repairs, use of unauthorized replacement parts, improper storage or handling, or any other cause beyond the responsibility of Nassar Electronics. In such cases, the purchaser shall be responsible for all repair costs. The purchaser/customer is responsible for all costs associated with product removal, reinstallation, and transportation.

LIMITATION OF LIABILITY

NASSAR ELECTRONICS' LIABILITY SHALL BE LIMITED TO BREACH OF CONTRACT, NEGLIGENCE, OR WILLFUL MISCONDUCT. IN NO EVENT SHALL THE LIABILITY OF NASSAR ELECTRONICS EXCEED THE PURCHASE PRICE OF THE PRODUCT PAID BY THE CUSTOMER. THE PURCHASER AGREES THAT NASSAR ELECTRONICS SHALL NOT BE LIABLE FOR INCIDENTAL, CONSEQUENTIAL, OR SPECIAL DAMAGES, DAMAGE TO OTHER EQUIPMENT OR THIRD PARTIES, OR LOSSES OF ANY KIND THAT ARE NOT COVERED BY THIS WARRANTY.