



by **ENOVATION** CONTROLS



PowerView™ PVM20 & PVM35 Series Gages

Installation Instructions

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Section 78

In order to consistently bring you the highest quality, full featured products, we reserve the right to change our specifications and designs at any time. The latest version of this manual can be found at www.fwmurphy.com.

Warranty - A limited warranty on materials and workmanship for one year is given with this Murphy product. A copy of the warranty may be viewed or printed by going to www.fwmurphy.com/support/warranty.htm



Please read the following information before installing.

BEFORE BEGINNING INSTALLATION OF THIS MURPHY PRODUCT:

A visual inspection of this product for damage during shipping is recommended before mounting.

It is your responsibility to have a qualified person install this unit.

Read and follow all installation instructions.

Disconnect all electrical power to the machine.

Make sure the machine cannot operate during installation.

Follow all safety warnings of the machine manufacturer.

Please contact ENOVATION CONTROLS immediately if you have any questions.

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Product Description

The PowerView™ PVM Series gages are intelligent gages designed to display easy-to-read information transmitted by the PowerView. The PVM gages communicate with the PowerView via a single RS485 twisted pair MODBUS® RTU serial link. The gages can be daisy-chained using quick-connect harnesses.

The major feature of the PVM gages is their balance between design and functionality. These modern gages offer a selection of bezel styles and colors.

The PVM gages also include features such as a smooth stepper motor operation for the 270° sweep pointer, an environmentally sealed case with two Amp Mini Universal Mate-N-Lok connectors molded into the casing, and green LED back lighting. They are available for standard 2-1/16 in. (52 mm) and 3-3/8 in. (86 mm) diameter hole sizes. In addition, their plastic cases incorporate a “D” shape allowing panel cutouts that eliminate gage rotation during installation.

PVM20 Series Models

- PVM20-A = Engine Oil Pressure
- PVM20-B = Coolant Temperature
- PVM20-C = Voltmeter
- PVM20-D = Percent Load at current RPM
- PVM20-E = Transmission Oil Pressure
- PVM20-F = Transmission Oil Temperature
- PVM20-G = Engine Oil Temperature
- PVM20-H = Hydraulic Oil Temperature
- PVM20-J = Percent Fuel Level
- PVM20-K = Boost Pressure
- PVM20-L = Exhaust Gas Temperature
- PVM20-M = Intake Manifold Temperature
- PVM20-N = Auxiliary Temperature
- PVM20-P = Auxiliary Pressure
- PVM20-T = Tachometer

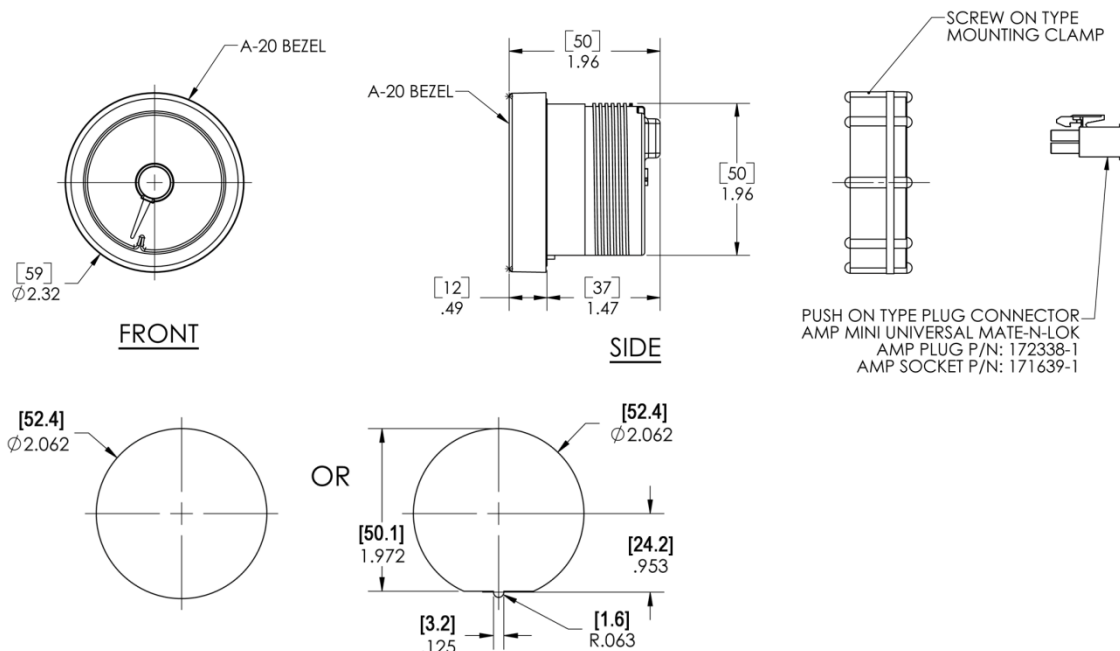
PVM35 Series Models

- PVM35-T = Tachometer
- PVM35-S = Speedometer

Dimensions and Mounting

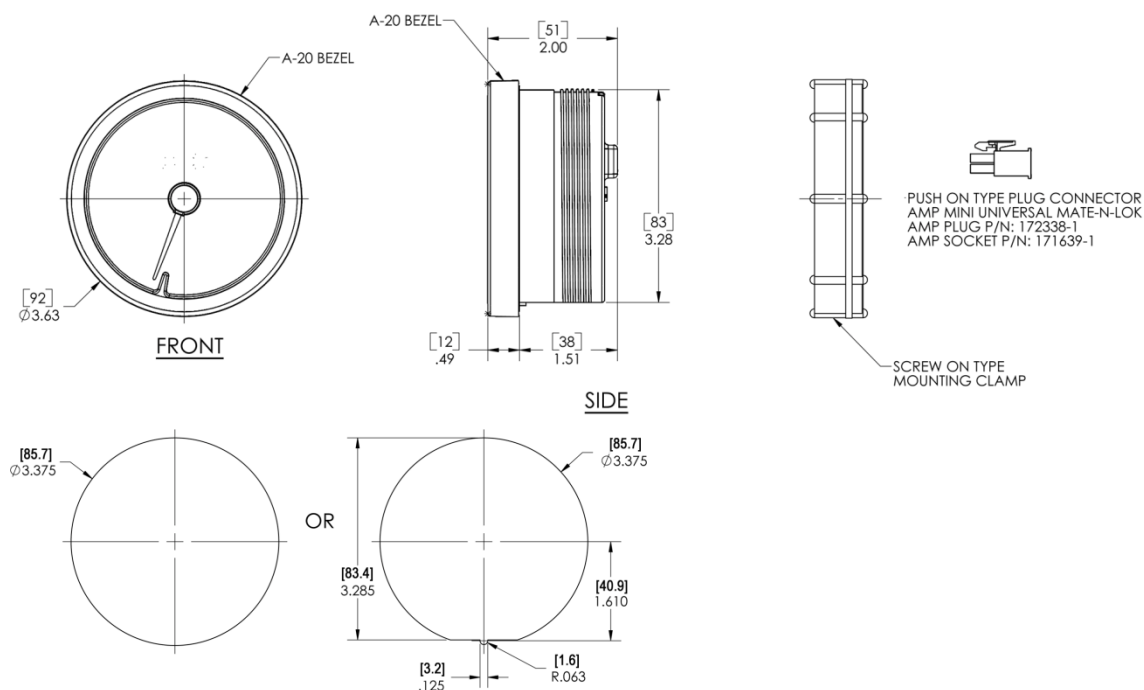
PVM20 Series Typical Installation and Mounting Dimensions

PVM20 Series

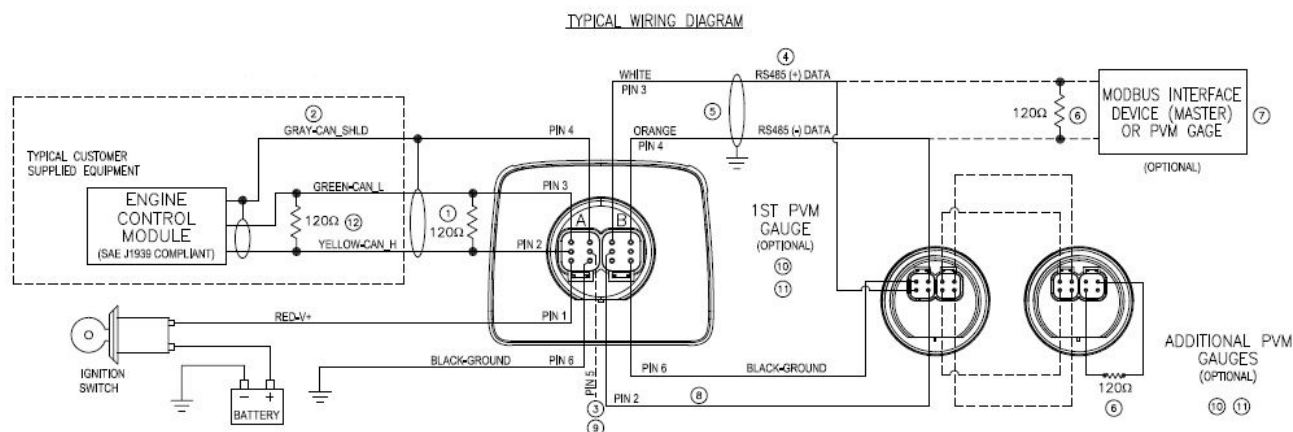


PVM35 Series Typical Installation and Mounting Dimensions

PVM35 Series



PowerView Gages Back View



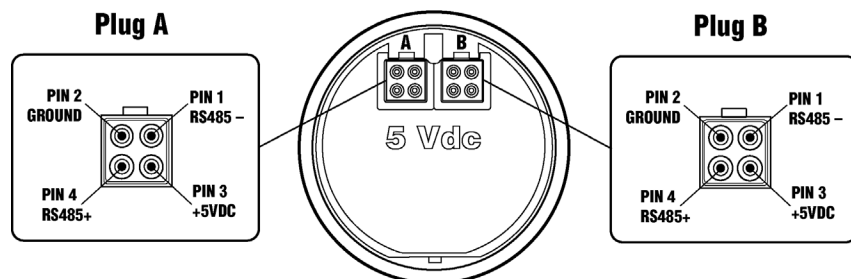
Wiring Notes

WIRING NOTES

- | | | | |
|---|--|---|---|
| ① | PLACE RESISTOR BETWEEN CAN_H AND CAN_L LINE NEAR POWERVIEW (INCLUDED IN PWV-P OR FACTORY PURCHASED PANELS). | ⑨ | OPTIONAL: USE FW MURPHY APPROVED FUEL SENDER ONLY. USE A TWO WIRE SENDER AND TERMINATE GROUND WIRE TO PORT A PIN 6. DO NOT CONNECT A POTENTIOMETER AND FUEL SENDER AT THE SAME TIME AS ERRATIC OPERATION WILL RESULT. |
| ② | USE SAE J1939 COMPLIANT WIRING. | ⑩ | TOTAL OF 5 PVM GAUGES MAY BE USED |
| ③ | OPTIONAL: POTENTIOMETER, 1000 OHM, 1/4W. TO USE INPUT AS A FUEL SENDER, SEE NOTE 9. | ⑪ | TOTAL DISTANCE FROM FIRST GAUGE TO PV101 NOT TO EXCEED 20 FEET (6 METERS). DISTANCE BETWEEN GAUGES NOT TO EXCEED 20 INCHES (.5 METERS). TOTAL LENGTH OF ALL HARNESSES NOT TO EXCEED 28 FEET (8.5 METERS). |
| ④ | ONLY USE 120 OHM CHARACTERISTIC IMPEDANCE CABLE, EX BELDEN 984. | ⑫ | TERMINATING RESISTOR AT ECU END OF HARNESS. WARNING: TWO 120 OHM RESISTORS SHOULD BE LOCATED AT OPPOSITE ENDS OF THE J1939 CAN BUS. FAILURE TO COMPLY WILL CAUSE BUS FAILURES. ONLY TWO 120 OHM RESISTORS ARE ALLOWED ON THE J1939 CAN BUS. ECU TERMINATING RESISTOR IS TYPICALLY LOCATED IN THE HARNESS, BUT CAN BE LOCATED INSIDE THE ECU'S. FOR ECU RESISTOR LOCATION CHECK WITH OEM, EQUIPMENT SUPPLIER, OR ECU SPECIFICATION. |
| ⑤ | RS485 SHIELD CONNECTED TO POWERVIEW END ONLY. | | |
| ⑥ | PLACE RESISTOR AT END OF LINE ON LAST PVM GAGE OR MODBUS INTERFACE DEVICE. (INCLUDED IN PVJR OR FACTORY PURCHASED PANELS). | | |
| ⑦ | PVM GAGES CAN NOT BE USED IN A SYSTEM UTILIZING AN OPTIONAL MODBUS MASTER DEVICE. | | |
| ⑧ | PVM GAUGES ONLY POWER CONNECTION IS PORT B PIN 2. DO NOT CONNECT TO BATTERY VOLTAGES PORT A PIN 1 OR PORT B PIN 1. DO NOT CONNECT EXTERNAL PVM POWER SUPPLY TO THIS PIN. | | |

Typical Connector PIN Designation

PVM Gages Back View

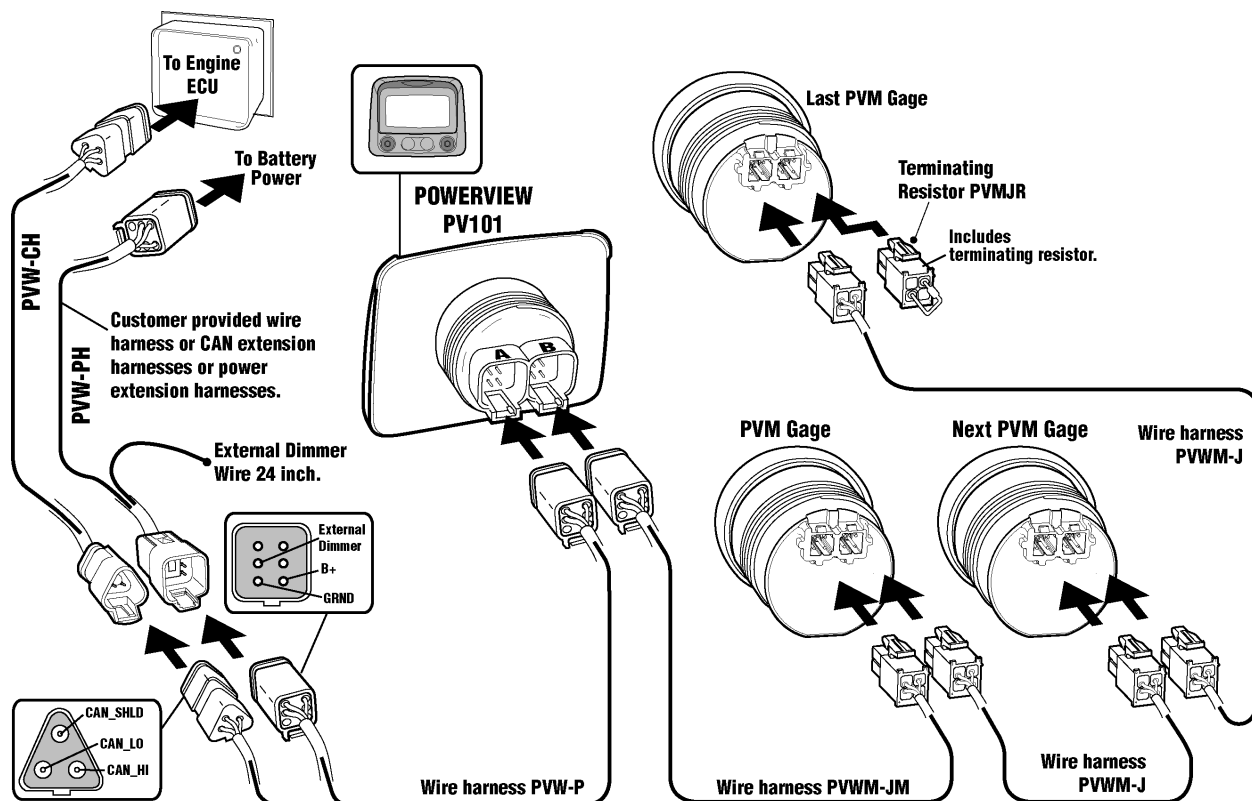


Recommended Connectors:

Housing: AMP 172338-1

PIN Contact: AMP 170362-1

Typical Quick-Connect Diagram



Specifications

PV101 Compatibility -

- **Maximum supported:** 5 PVM Gages
- **Maximum distance to last gage:** 8.5 Meters

Power Supply Input Voltage

- 5V (4.5-5.5 VDC minimum & maximum voltage)

Power Supply Operating Current (@ 5 VDC)

- PVM20, PVM35: 18 mA minimum; 80 mA maximum

Backlight Maximum Current: 60mA

Input: RS485 MODBUS® RTU data.

Output: Analog Readout.

Environmental -

Operating Temperature: -40 to 185°F (-40° to 85°C)

Storage Temperature: -67 to 185°F (-55° to 85°C)

Environmental Sealed Enclosure:

- Sealing: IP68, ±5 PSI (± 34.4 kPa)

Dial: White numerals over black background

Return-To-Zero Needle Movement: Not Available for PVM20 models.

Indicating Pointer: Stepper motor operation with 270° sweep

Gage Accuracy: Better than ± 1.0% of scale

Maximum Panel Thickness: 3/8 inch (9.6 mm)

Connectors -

- Amp Mini Universal Mate-N-Lok
- Amp Plug P/N: 172338-1
- Amp Socket P/N: 171639-1

Shipping Weight: 1 Lb. (450 g.)

Shipping Dimensions:

- 6 x 6 x 6 in. (153 x 153 x 153 mm)

NOTES

NOTES

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