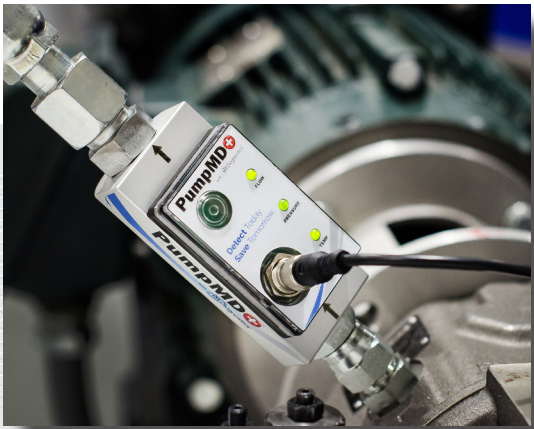
PumpMD™

with IoT Diagnostics™

Product Manual & Data Sheet



This is a product manual for the PumpMD.
The IoT monitoring device for axial piston pumps.

INSTALL ON CASE DRAIN ONLY!

V1.2

THANK YOU

Welcome to your new PumpMD! The PumpMD is patented, designed, and engineered to monitor the flow, temperature, and pressure of the oil coming out of the case drain on hydraulic axial piston pumps. This helps you determine when a pump needs to be replaced and repaired before a catastrophic failure occurs creating unplanned machine downtime. We believe the PumpMD will enhance your operating efficiency and production uptime. Let's get connected!

TABLE OF CONTENTS

FEATURES

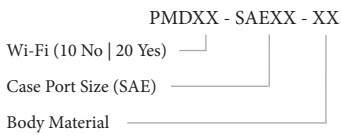
PumpMD Device Features

- Designed to monitor the flow, pressure, and temperature of oil coming out of hydraulic axial piston pumps case drain.
- Three preprogrammed trip points indicated by red and green LED's.
- Enclosed electronics allowing for NEMA 4 wash down.
- Integrate to PLC or enable Wi-Fi for remote notifications and data tracking through web app.

PumpMD Web App Features

- Compare current and historical data of all your PumpMD's.
- Receive remote notifications on pump health, schedule repairs, and access technical support.
- Access your pump's data 24/7 from any device.
- Determine staff to receive alarms and reports.
- Discover the power of Decision Data™ with our Efficiency AI machine learning program.

MODEL CODE BREAKDOWN



WARNING

To reduce the risk of SERIOUS INJURY, DEATH, or PROPERTY DAMAGE:

- ONLY install on case drain port of axial piston pumps and motors..
- NEVER install on pump output or other high pressure service. Pressure over 200 PSI will cause housing to fail.
- For additional information, see "engineering notes" section of this manual.

FUNCTIONAL DESCRIPTION

The PumpMD™ is a low pressure device used to monitor the case drain leakage of a hydraulic axial piston pump. There are three points of interest the unit is monitoring: flow, pressure, and temperature. Each trip point is preprogrammed into the device from the factory. Please see the model code breakdown to see trip points for your PumpMD. If any value of flow, pressure, and temperature exceeds the preprogrammed trip points of the device, it will give a visual fault notification with red/green LED lights.

Wi-Fi Not Enabled

For units where Wi-Fi is has not been enabled, when a trip point is exceeded, the LED lights on the faceplate will change from green to red. Also, PumpMD's that are not Wi-Fi enabled can be completely integrated into a machines PLC as the three outputs of flow, pressure, and temperature are NPN open collectors.

Each time the PumpMD is powered up, the unit will cycle through each LED. It will then go into a self-test mode for up to four minutes. The unit will not start to monitor the preprogrammed trips points until the oil temperature reaches 100°F/38°C. If power is interrupted or supply voltage falls below 9VDC, the PumpMD will reset. Once power is at least 9VDC, the unit will cycle through the entire startup process again.

Wi-Fi Enabled

For units where Wi-Fi has been enabled, when a trip point is exceeded, the three LED's on the faceplate will change from green to red, and a notification from the web app will be sent to the user via text or email.

Each time the PumpMD is powered up, the unit will cycle through each LED. It will then go into a self-test mode for up to four minutes. During this the PumpMD will either broadcast its SSID or try to connect to the last known access point. If it is the first time powering up the unit, or the last known access point has been disabled, the three LED's will flash red. Once the Wi-Fi has been configured or the last known access point has been enabled, the device will stop flashing three red LED's.

The unit will not start to monitor the preprogrammed trip points until the oil temperature reaches 100°F/38°C. If power is interrupted or supply voltage falls below 9VDC, the PumpMD will reset. Once power is at least 9VDC, the unit will cycle through the entire startup process again. It is not necessary to reconfigure the Wi-Fi if power has been interrupted. If the PumpMD has been configured to the Wi-Fi once before, the unit will reconnect to the last known access point automatically.

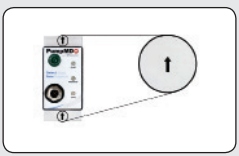
CONNECTION/PIN OUT ASSIGNMENT

Wire Color	Pin Configuration (Analog Output for PLC)
Brown	Pin 1; Supply In 24VDC
White	Pin 2; Analog Out; 0-10VDC (Temperature)
Blue	Pin 3; Supply 0VDC
Black	Pin 4; Analog Out; 0-10VDC (Flow)
Gray	Pin 5; Analog Out; 0-10VDC (Pressure)

INSTALLATION INSTRUCTIONS

Note: Make Sure Device Is Flooded

Make sure that the installation is maintaining a full volume of oil in the PumpMD at all times, as described in the engineering notes of this manual.

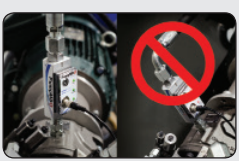


1. Flow Orientation Arrow

Pay close attention to the orientation arrows on the PumpMD. **Flow of oil is to go with the direction of the arrows during installation. The unit will not function correctly facing the opposite direction of oil flow.**

2. Attach Fittings

Connect fittings to the input and output port of the PumpMD, and to the case drain of the pump. Then connect the unit to the fitting on the case drain.



3. Connect To Tank Line

Now connect the hose going back to the oil tank to the PumpMD. **Do not use a 90° on the output port of the PumpMD, this could cause an inaccurate reading.**

4. Power the Device

Wire the power cord provided with the unit to electrical supply. Contact your local distributor if a longer power cord is needed. Refer to Connection Diagram/Pin Out Assignments section for power and PLC integration.

WI-FI SETUP INSTRUCTIONS
(IT DEPARTMENT SUPPORT RECOMMENDED)

1. Use Computer or Mobile Device

For Wi-Fi setup please have a computer or mobile device handy that is connected to Wi-Fi.

2. Power PumpMD

Once PumpMD is powered, it will broadcast its unique SSID.

3. Connect to SSID Broadcast

The SSID will be contained where the list of other available Wi-Fi networks are found. The SSID starts with "PumpMD" and contains the last 4 digits of the MAC address (located underneath the product code on bottom/back of PumpMD and on the box). Please connect to this.

4. Open Web Browser

Next, please open a web browser in either Internet Explorer or Google Chrome.

5. Go To Device Configuration Page

In the URL field in your web browser please enter: **192.168.4.1**

6. Channel Search

Once at the configuration screen, click on "Select Channel" drop down button and choose "Search All Channels".

7. Choose Network

Click the "View Available Wireless Networks" button. Choose the network you wish the PumpMD to be connected to. If network is not visible, you can manually enter it into the SSID field. (NOTE: The name of your network CANNOT contain any spaces.

8. Enter Password

Type in the password for your selected network.

WI-FI SETUP INSTRUCTIONS

9. Select Auto-Join to “Enable”

Next, please open a web browser in either Internet Explorer or Google Chrome.

10. Once Fields are Completed, Click “Enter”

In the URL field in your web browser please enter: http://192.168.254.1:2000/index.html.

11. Access Point Reconfigured; Now Connected!

After clicking “Enter” you should be redirected to a page that says: “Access point has been reconfigured”. Your PumpMD should now be connected to your network and sending data to the official PumpMD web app. If you have any questions or issues please contact your PumpMD distributor or the manufacturer directly.

WEB APP INSTRUCTIONS

1. Open Order Confirmation Email

After purchasing the product you should have received an order confirmation email.

2. Join Code and Password

Click on the “join code” provided in the order confirmation email. Use the password provided.

3. Change Password

Once in the web app, under “settings” click on “change password”. You can now create a new password of your own.

4. You Are Now Connected

You have now connected your PumpMD to the web app. You are now able to remotely monitor your hydraulic axial piston pump! Please navigate through the app and utilize the many features /benefits it has to offer.

TECHNICAL DATA

Operating Voltage	12 - 24VDC
Upper Limit Value	28VDC
Lower Limit Value	9VDC
Current Consumption	<0.25A
Operating Temperature	32°F - 200°F
Wi-Fi	Wi-Fi 802.11 b/g/n | Wi-Fi channel 2.5GHz
Security	WPA/WPA2/WPA2-Enterprise
Networking	Unique MAC address
Sensitivity	-98dBm
Power Output	Up to 20.5dBm
Flow Trip Point Tolerance	10%
Pressure Trip Point Tolerance	5%
Temp Trip Point Tolerance	2%
Enclosure Type	NEMA 4/IP66
Max Pressure	100PSI

ENGINEERING NOTES

The PumpMD is equipped with three LEDs to indicate a trip point has been reached. This is indicated by the unit as a true reading and does not mean that the device is picking up nuances of the system. The PumpMD was designed to allow for nuances to occur within the system due to demand changes relative to the applications without tripping.

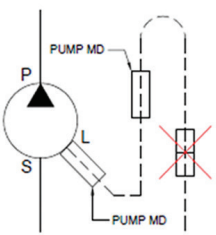
This is accomplished by the PumpMD taking many readings during cycle times. When the device is picking up consistent variation of either flow, pressure, or temperature outside of its parameters, the PumpMD will signal a trip. This prevents the device to signal inaccurate trips or variations due to demand changes relative to the application.

The PumpMD is engineered using solid state electronics and has no moving parts, achieving a close to zero pressure drop. The unit is manufactured with a NEMA 4 rating, with the ability to be installed where wash downs are required that meet IP66. Only light degreasers and rags are to be used to clean the device.

The PumpMD is ONLY to be installed on the case drain of axial piston pumps. The device is not intended to be used on any pressure ports of any hydraulic pumps. The materials used in the manufacturing of the PumpMD make the device suitable for a wide variety of hydraulic fluids, with proper device calibration. Please contact manufacturer for specifications.

Always make sure the power supply is turned off and your hydraulic unit has come to a complete stop before disconnecting or installing the PumpMD.

The PumpMD was designed to be installed in a near vertical orientation to maintain a full volume of oil in the device at all times. Failure to maintain a full volume could result in false trips due to possible inaccurate readings. See schematic below.



CUSTOMER NOTES

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Questions about the product?
Phone: 844-786-7631
Email: help@mypumpmd.com

A Product Of:

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www.iotdiag.com

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