Electronic pressure measurement

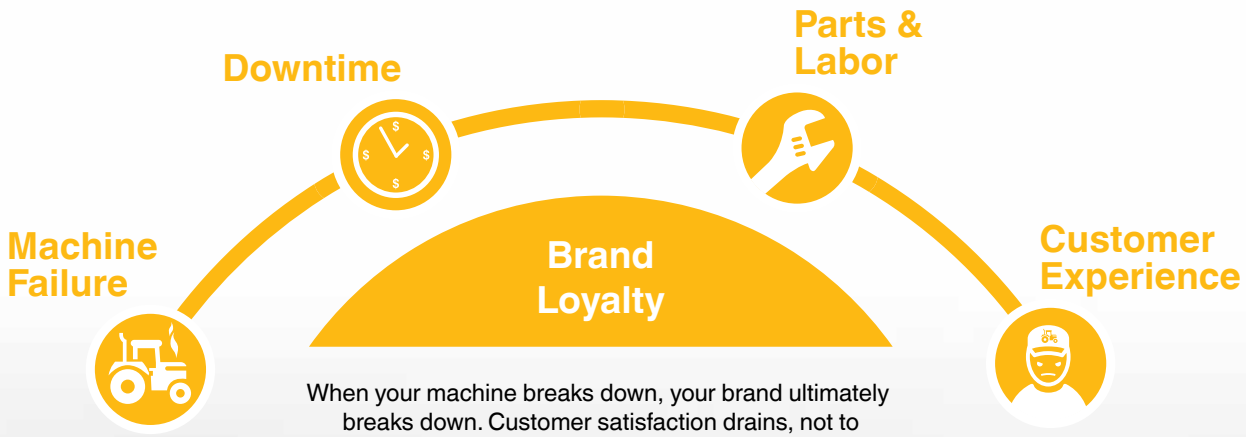
OEM pressure transmitter MH-3 for mobile working machines

WIKA®

Part of your business

Your reputation is on the line.

WIKA knows your business. We know that if your machine breaks down during high peak usage, it costs your customers money, and puts your reputation on the line. That's why WIKA developed the MH-3 pressure transmitter for mobile working machines. Not only does this pressure transmitter eliminate common sensor failure associated with mobile machinery, it also reduces the time it takes field technicians to diagnose and repair the machine to get it back into service in the field. WIKA's new MH-3 pressure transmitter for mobile working machines is here to protect your reputation and ensure brand loyalty.



When your machine breaks down, your brand ultimately breaks down. Customer satisfaction drains, not to mention time and profits lost during this downtime. Don't leave your brand loyalty to chance.

WIKA's MH-3 can help protect your brand.

WIKA partnered with industry leading companies to develop the next generation pressure sensor for mobile working machines. Incorporating the latest in state-of-the-art electronics, this sensor includes features such as signal clamping and built-in diagnostic functionality. This simple, yet robust and field proven design keeps machines running longer by reducing downtime and maintenance costs.

Diagnostic Function

Allows field repair technicians to quickly and accurately identify problems.

Save on Warranty Costs

Reduce the amount of "No Fault Found" claims with the ability to check the health of a sensor in the field.

Signal Clamping

Helps to prevent a momentary shutdown, or worse—erratic machine operation.

Diagnostics

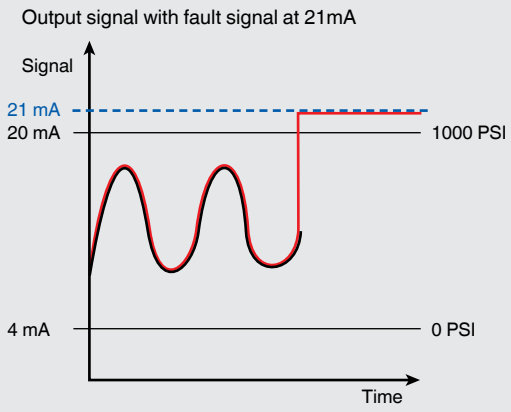
To provide manufacturers greater flexibility, the MH-3 pressure transmitter is designed to allow the diagnostic signal to be set within the parameters of any signal range necessary. The diagnostic signal can be set to any level in minimum increments of 1/10 signal levels.

Permanent failures

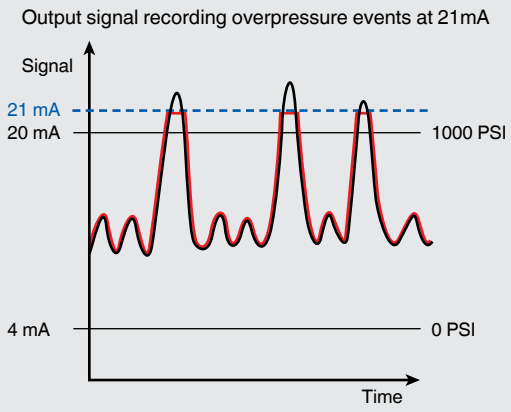
The optimal situation for sensor failure would be for the output signal to go directly to a predefined signal level and remain there. At that point, the field technician could quickly determine that the pressure sensor had failed. Realizing that if the pressure sensor did not show the predefined signal level, then the problem is elsewhere on the machine.

Temporary failures

The MH-3 pressure transmitter also has the capability to indicate temporary failures. These failures can be monitored by the machine's on-board software. The sensor will continue to operate normally, but will send a predefined signal to the machine software each time a specific temporary failure occurs. For privacy and security reasons, the sensor will only record the maximum value of the event. The temporary failure information can be retrieved for analysis at a later date if requested by the equipment manufacturer.



A manufacturer using a 4 – 20 mA pressure sensor may decide to set the diagnostic fault signal at 21 mA. When a failure occurs, the sensor stops providing a pressure reading (black). The output signal shifts and remains permanently locked at 21 mA (shown in red). In this example, the field technician servicing the machine knows that if the output signal is steady at 21 mA, the sensor has failed and needs replacement.



Some manufacturers prefer to record each time the pressure sensor is exposed to an overpressure condition. To accomplish this, the manufacturer needs to establish a predefined signal level for this specific event. Each time the pressure exceeds the maximum value of 1000 PSI, the sensor sends an output signal (in red) of 21 mA to the machine software. The data can then be accessed later when troubleshooting the machine or during periodic maintenance cycles.

The advantages of diagnostics:

- Field technicians can quickly identify problems and get machines back into service with minimum downtime.
- Field technicians will know that if the predefined diagnostic signal is not present, then the sensor is functioning normally. This eliminates guesswork and unnecessarily removing and replacing good sensors.
- Manufacturers reduce warranty claims by reducing the amount of good components that are sent back for replacement and the amount of time it takes to troubleshoot the machine.
- The pressure sensor includes a memory chip that is used to record the type of failure. This helps to better understand the machine's operating conditions.
- The pressure sensor can record temporary failure information that can be retrieved later for machine troubleshooting or during periodic maintenance.

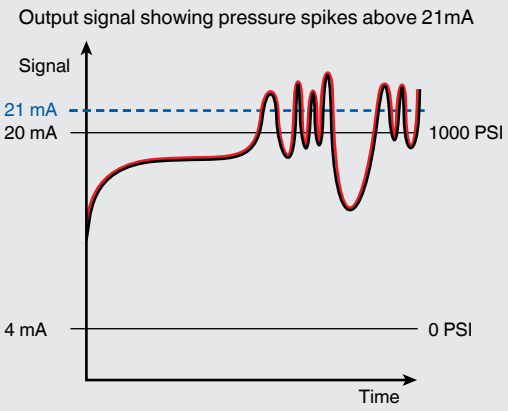
Did you know, more than half of pressure sensors returned for analysis on warranty claims have "No Fault Found" when tested?

Source: WIKA Market Research

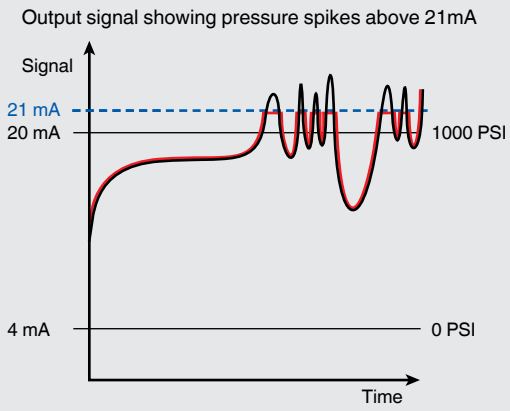
Signal clamping

The MH-3 signal clamping feature provides mobile machine manufacturers with a method to protect equipment from pressure sensor signals which may register outside of the normal range.

The equipment manufacturer can predefine the lower and upper ranges of the sensor output signal so that pressure spikes and overpressure conditions in the hydraulic system will not disrupt machine operation.



An equipment manufacturer using a 4 – 20 mA pressure sensor is experiencing occasional overpressures and pressure spikes from their hydraulic system. The pressure from the hydraulic system (in black) is generating an out of range output signal over 20 mA (in red), which causes the machine to act erratically.



The equipment manufacturer determined that limiting the signal output of the pressure sensor to a maximum of 20 mA will prevent the out of range condition and resulting erratic operation. When the output signal was “clamped” the machine would only see a maximum output signal (in red) of 20 mA even though the pressure sensor (in black) was exposed to overpressure and pressure spikes from the hydraulic system.

The advantages of signal clamping:

- The machine does not act erratically, cause premature component failure, or shutdown because of an out of range signal.
- The manufacturer does not have to create special software coding to handle undefined or out of range output signals from the sensors on the machine.
- Even though normal machine operation may cause momentary pressure spikes or overpressure conditions, those situations will not impact how the machine performs.
- Reduced warranty claims from service calls, especially from when field technicians have to troubleshoot intermittent abnormal machine operation.
- Improves machine operation by reducing unpredictable events. This provides a better user experience for the operator and greater confidence in your products.

WIKA, your partner for mobile working machines measurement solutions

- Electrical pressure
- Electrical temperature
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