tracksense

Condition Monitoring Application Guide

Points/Switch Machines

System Overview

TrackSense is designed with your organisation in mind. Unlike expensive, rigid systems, it offers an affordable and modular solution with ongoing support to future-proof your investment. With powerful analytics, an intuitive interface for streamlined task management and compatibility with off-the-shelf sensors, TrackSense adapts to deliver the ideal solution for your requirements. TrackSense can monitor key performance data for any rail asset, including:

Point Machines | Power Supplies | Battery Banks | Axle Counting | Level Crossings | Safety Signals | Track | Track Circuits

Points/Switch Machine Monitoring

The most effective way to monitor Points Machines is by using a current sensor installed on the input to the motor to measure the current draw during operation. The waveform generated from this current draw provides a clear and visual representation of the machine's performance.

Changes in the waveform can signal various issues, such as increased resistance due to dry chairs, rust, or debris. It can also detect short movements caused by power failures, failure to lock, and obstructions within the mechanism.

Optional Additional Sensors

Monitoring can be further improved with the addition of any of the following sensors:

- Voltage
- Rail Temperature (especially in cold environments requiring rail heaters)
- Relay Detection Contacts

Wiring Block

Below is an example wiring block. Wiring in practice may vary depending on requirements.

Minimum Requirements

1x TS Logger Module
- Collects data for analysis

1x TS Analog Module
- 6 analog input channels

1x 4-20mA Current Sensor

NOTE: For AC points machines, either an additional 4-20mA Current Sensor or a TrackSense Digital Module (for Digital Detection Contacts) will be required in order to differentiate movement directions for waveform analysis.

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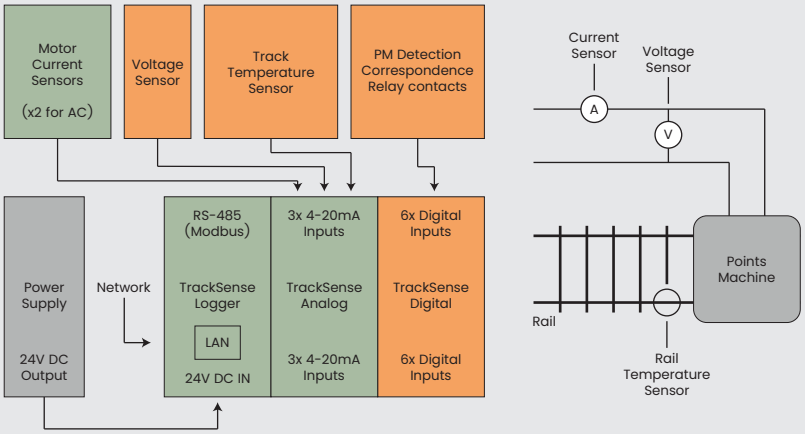
Modules and Sensors:



Note: Combining applications may require extra modules and sensors.

Notes:

Modules in green are required
Modules in orange are optional

Some sensors will be available with 4-20mA, Modbus, or digital outputs. You may select any option at your discretion.

For DC Machines, only one current sensor is necessary. For AC, either two current sensors OR detection relay contacts must be used to determine movement direction.