Smart Point Machine

Adaptive monitoring and diagnostics catalyst

Problem description

Adaptive monitoring and diagnostics catalyst

Point machine failures lead to costly downtime and unplanned repairs.

Solution description

Enabling failures detection

Smart Point Machine solution is a Condition Monitoring solution that's continuously monitors the condition of point machines.

High-performance sensors collect in real-time data of various parameters such as electrical. This data is analyzed to provide indicators.

The solution can be programmed and configured remotely, allowing for easy and secure adjustments and updates.

Point machine monitoring solutions can be integrated with other railway systems, such as SCADA, signaling systems or SIEM, to streamline raw data or events.

Instant alarms are generated when specific conditions occur on the point machine parameters, or on devices that compose the acquisition system.

Smart point machine acquisition architectures are scalable and can be adapted to different point machine models and types, making them versatile for various railway networks.

Prepares for condition-based maintenance, which helps prevent breakdowns, reduce service interruptions and the number of necessary inspections.

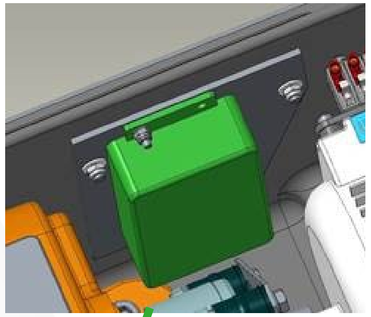
How it works

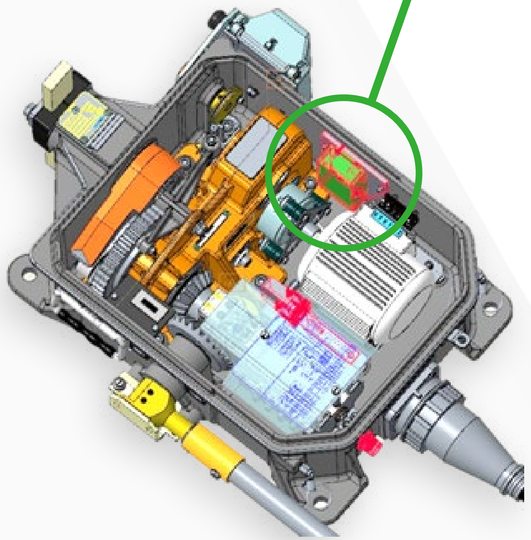
Main Features

- For each phase of the switch operation indicators are calculated by off-loaded post-processing from the acquired data.
- Alarm settings on the calculated indicators on each point machine.
- Field data acquisition equipment (current, voltage, active power), integrated into the railway system, with no impact on safety, meeting its constraints, and proven.
- Highly flexible deployment architecture of the SPM solution, "Egde computing", "Cloud" hosting or "On premise".
- Hot swapping of equipment.
- Cybersecurity is handled by design.

Hardware

- Continuous and real time based on acquisition device, sensors, data concentrator and server application
- Data acquisition on track and/or in signaling room
- Real-time monitoring
- CE compliant
- EMC compliant with : EN 50121-4, EN 61000-6-2, EN 61000-6-4





vossloh

enabling green mobility

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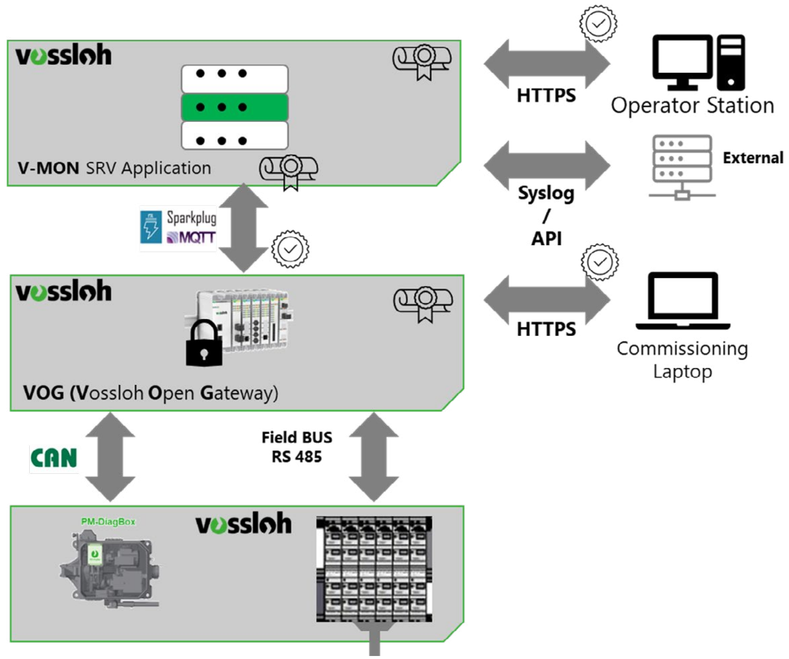
Additional highlights

VOSSLOH Open Gateway:

- Data Gateway: OT/IT converter,
- Large type of data: serial links (RS485, RS232), CAN BUS, digital inputs, analog inputs,
- Easy deployed and modular: hot swapped module,
- Remotely managed,
- Cybersecurity by design: secure data transfer, secure boot.



Point machine motor power measurement sensor

Measurement parameters	Point machine motor power measurement: current, voltage, active power
Wiring impact	Small impact on existing motor wiring: hall effect sensor
Installation	Daisy chained installation: less wiring
Format	Compact format factory and rail Omega installation
Protection	Input and power supply protected by fuse
Status indication	Status LED: for easy troubleshooting

Point machine DiagBox

Embedded sensor	Embedded motor power sensor: current, voltage, active power
Installation	Installed into the motor case in factory, no safety study needed
Interface	Monitoring interface (connector) segregates from the signaling interface
Management	Remotely managed