



# RELAY CONDITION MONITORING SYSTEM

## CONDITION-BASED MAINTENANCE AT EXACTLY THE RIGHT TIME

Railcar builders have been using relays to control equipment for years. During train maintenance, relays and devices such as lamps and push-buttons are often exchanged before their end of life or when they are no longer working. Moving from schedule-based to condition-based maintenance saves significant maintenance costs for train operators.

To address this need, Wabtec developed the Mors Smitt™ Relay Condition Monitoring System, which is used to analyze the condition of relays and connected devices in real-time and identify the accurate timing for part replacements. The result: reduced service costs and increased train control availability.



Data  
Handling Unit  
(DHU)

Relays Including a Voltage  
Measurement Module

Current  
Measurement  
Module

## THE RELAY CONDITION MONITORING SYSTEM CONSISTS OF

### Voltage Measurement Module (VMM)

VMM is an extra option for existing D and B relays to monitor the voltage of the relay coil and temperature inside the relay. A defect on VMM electronics has no effect on relay operation.

### Current Measurement Module (CMM)

CMM is an additional unit in a D or B relay housing to monitor the current per relay contact.

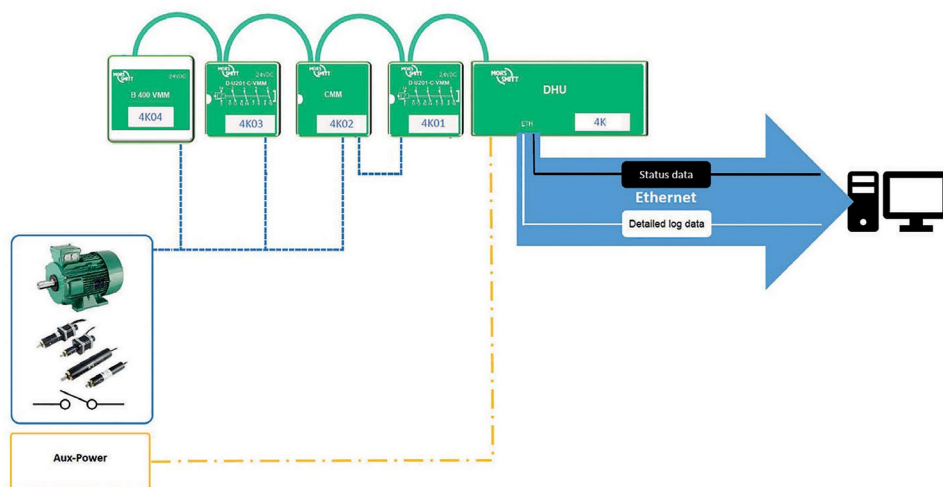
### Data Handling Unit (DHU)

Connect up to 50 relays/devices (daisy chaining possible).

At least seven days of data storage capacity to ensure health analyses of connected devices.

The serial bus configuration allows the DHU and any connected relays and modules to communicate with each other.

Data outputs are easily exportable to the train control management system or other computer devices in a variety of formats (.CSV, .SQL).



### KEY FEATURES

Determines remaining lifetime of relays and connected devices (in number of operations, months/years, percentage of total lifetime).

Condition-based maintenance optimizes relay usage and also devices switched by the relay.

Fault-finding during commissioning or an incident.

### SYSTEM DATA OUTPUTS

VMM: Device ID, number of operations, time on / time off, coil voltage, internal temperature

CMM: Device ID, 4 current measurement channels

DHU: Device ID, serial bus status

### CONTACT

#### Wabtec Corporation

Darwinstraat 10,  
6718 XR Ede, Netherlands  
Phone: +31 (0)88 600 4500  
Email: wnl\_salessupport@wabtec.com