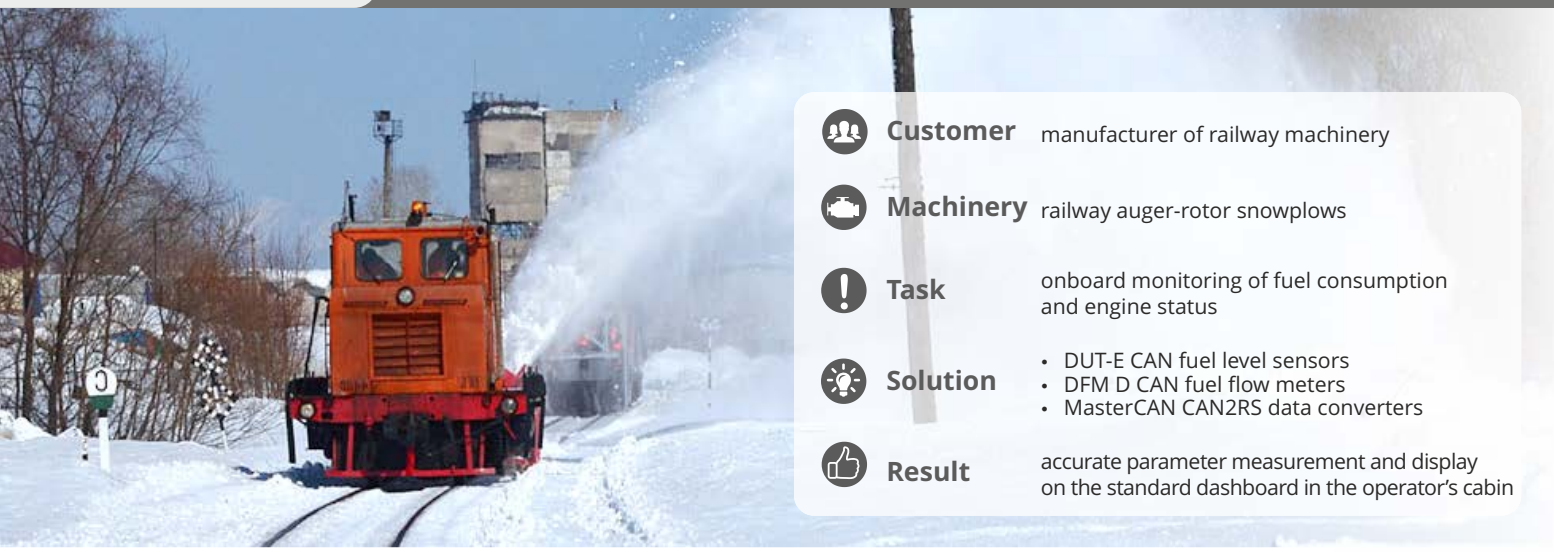
TECHNOTON

Fuel monitoring on a railway snowplow



Customer manufacturer of railway machinery

Machinery railway auger-rotor snowplows

Task onboard monitoring of fuel consumption and engine status

Solution
- DUT-E CAN fuel level sensors
- DFM D CAN fuel flow meters
- MasterCAN CAN2RS data converters

Result accurate parameter measurement and display on the standard dashboard in the operator's cabin

CUSTOMER

Multi-profile engineering company specializing in machinery manufacturing, ventilation system equipment, and industrial machinery production.

A key business focus is the development and manufacturing of locomotives and special rolling stock for railways and metro systems.

10 business areas **100+** employees **1,000** regular clients

MACHINERY

Auger-rotor snowplow in the production facility
❶ operator's cabin, ❷ diesel generator unit

Auger-rotor snowplow for railway applications. Designed for efficient removal of large volumes of snow from railway tracks. The auger gathers snow, while the rotor ejects it to a significant distance.

Both components are powered by a hydraulic station, which is in turn powered by a dedicated diesel generator.

Diesel generator power: 100 kW. Fuel tank capacity: 200 liters.

TASK

Operator monitors the diesel generator using a panel installed in the cabin. Panel receives key electrical parameters of the generator via the RS-485 (Modbus RTU) interface – line voltages, phase currents, frequency, and power consumption.

Fuel and engine data are critically important for generator operation monitoring. However, these parameters cannot be displayed on operator's panel when using only standard equipment and sensors.

The operator needs to monitor the following on the panel:
- ✓ **engine status – RPM, coolant temperature, oil pressure, battery voltage;**
- ✓ **fuel – instant consumption, remaining fuel in tank.**

Generator operation data is shown on operator's panel

SOLUTION

Technoton supplied the following equipment for collecting and processing fuel and engine data:

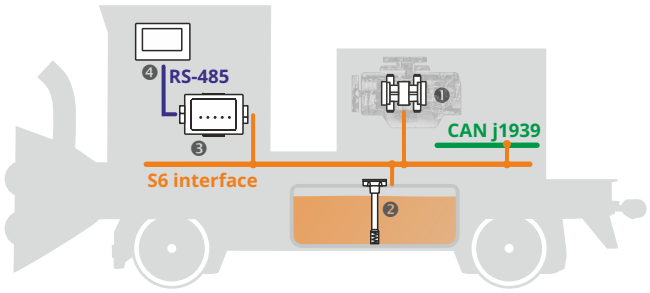
- ✓ **DUT-E CAN fuel level sensor;**
- ✓ **DFM D CAN fuel flow meter;**
- ✓ **MasterCAN CAN2RS data converter.**

DUT-E CAN fuel level sensor is installed in the fuel tank. It measures the fuel level and volume with high accuracy.

TDFM D CAN differential fuel flow meter is installed in the supply and return fuel lines of the engine without modifying the fuel system. It directly measures the instant fuel consumption.

Technoton equipment is connected via a cable system into an S6 telematics interface. Engine parameters from the generator's standard CAN J1939 bus are also transmitted into this interface.

MasterCAN CAN2RS converter collects fuel and engine data in CAN J1939 format, converts it into RS-485 messages, and sends them to operator's panel.



Monitoring system components:

- ❶ **DFM D CAN fuel flow meter in the fuel line**
- ❷ **DUT-E CAN fuel level sensor in the tank**
- ❸ **MasterCAN CAN2RS data converter**
- ❹ **Operator panel**

Fuel and engine data is displayed on the operator's panel.

Andrey Chernikov, sales engineer, Technoton

"The key feature of this project was the need to display fuel and engine data on the operator's panel via the RS-485 (Modbus RTU) interface. This was successfully implemented using the MasterCAN CAN2RS converter. All parameters are displayed on the standard operator panel.
The system is easily scalable. For example, a telematics gateway can be added for data processing and transmission to software for online monitoring of the snowplow's operation."

RESULT

The panel displays real-time generator parameters – fuel consumption, remaining fuel in the tank, engine performance data, and electricity generation parameters. Operator can monitor the entire process and respond quickly to any issues.

MasterCAN CAN2RS converters, DFM D flow meters, and DUT-E fuel level sensors have been included in the factory design documentation. Snowplows will be equipped with Technoton devices during production.

Lead specialist at the customer company

"All the required equipment was delivered in a short time. Thanks to Technoton's remote technical support, installation and setup of the level sensor, flow meter, and converter took only a few hours.All necessary data from the diesel generator's CAN bus was successfully converted into RS-485 messages.
As an engineer, I'd like to highlight the quick installation and the ease of integrating all components."