Product size and connectors may vary depending on configuration

TrainWise® Control and Monitoring Server

The TrainWise® Control and Monitoring Server (MS26) is a powerful and expandable rack based server that provides seamless management of onboard train electrical systems.

By employing additional I/O and CPU card slots, it can be configured to handle many different control and monitoring architectures including high availability and redundancy designs.

The MS26 integrates easily with Ethernet and legacy network-enabled systems throughout the train to support both new and modernization applications.

Technical compliance

Railway standards	Compliant with IEEE and IEC rail design standards (including IEEE 16 and IEC60571/ EN50155) IEC 61375-3-4 Electronic railway equipment – Train communication network (TCN) – Part 3-4: Ethernet Consist Network (ECN)
Fire, smoke and toxicity	Compliant to 49 CFR Part 238.103 guidelines and NFPA-130

Options

Expanded I/O	Digital and analog I/O capacity can be expanded by adding one or more I/O modules to the unit. Custom modules for specialized I/O and communication channels available on request.
Dual controller modules	For systems requiring high availability, dual Controller Modules can be installed in a hot-standby configuration.
Full or half width chassis	The Control and Monitoring Server is available in a 10-slot 6U 19'' rack-mount chassis. Alternately, if fewer card slots are required, a 5-slot half-width chassis is available for more compact installation.

Processor and storage

Processor	i.MX6 with ARM Cortex A9 processor
Operating system	Linux, QNX
OS memory	1 GB DRAM, 1 GB NAND flash
Data logging capacity	4 GB Solid State Flash Memory (Larger memory configurations available)
Real-time clock	Battery backup for up to 8 years

Communication

Ethernet ports[1]	2	IEEE 1473 (Type E) Ethernet, 100 Mbps, M12 D-Coded
USB ports[1]	2	1 x M8 USB 2.0: Supports connection to mass storage device (not supplied) 1 x Type C USB 2.0 On-The-Go (OTG)
Protocol support	✓	Protocols included in IEC 61375-3-4 Electronic railway equipment – Train communication network (TCN) – Part 3-4: Ethernet Consist Network for Standard End Devices
Secure web server	✓	Secure web server providing remote access for PTU, operations, and maintenance

Electrical interfaces

Power supply	1	Operating voltage range: 16VDC – 90VDC
Power consumption[1]		45 Watts (Max)
Status output[1]	1	Form A, 0.5 Amp, normally open, solid state output
Configuration input[1]	4	Self-powered, jumpered in vehicle interface connector cable plug to define unit location or other identification
Digital inputs[1]	112	Type I (grouped returns), wetting current, 2 kV protection
	4	Type II (independent returns), wetting current, 2 kV protection
Analog inputs[1]	8	4-20 mA, includes power supply for sensor
Discrete outputs[1]	20	Form A, 1 Amp, normally open, solid state outputs
Status LEDs	✓	Power, Health, Temperature, Network

Mechanical characteristics

Dimensions[1]	19.0 in x 10.5 in x 12.7 in (48.3 cm x 26.7 cm x 32.3 cm) (10-slot enclosure)
Weight[1]	17 lb (7.7 kg) (approximate)
Connectors[1]	Ethernet: 2 x M12 D-coded USB: 1 x M8, 1 x Type C Vehicle Interface: 1 x 24 pin MIL-DTL-5015 I/O: 6 x 32 pin high density dual-row clamp-style
Ingress protection	Front/Back/Top/Sides: IP20

[1]I/O quantity, number of ports, power consumption, dimensions, and weight are based on the 19” 10-slot chassis with 1x Controller Module and 2x I/O modules.

Environmental conditions

Operating temperature	-40°F to +158°F (-40°C to +70°C)
Storage temperature	-40°F to +185°F (-40°C to +85°C)
Shock and vibration	IEC 61373; Category 1, Class A
Dielectric withstand	1.15kVAC circuit to circuit and circuit to chassis

Electromagnetic compatibility

Surge immunity	IEC 62236-3-2, Table 7
Conducted emissions	IEC 62236-3-2, Table 3, 4, & 5
Conducted immunity	IEC 62236-3-2, Table 7 & 8
Radiated emissions	IEC 62236-3-2, Table 6
Radiated immunity	IEC 62236-3-2, Table 9 (with RF susceptibility verified to 6 GHz)
Electrical fast transient	IEC 62236-3-2, Table 7 & 8
Electrostatic discharge	IEC 62236-3-2, Table 9

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