Product size and connectors may vary depending on configuration

TrainWise® Crew Display Computer

The TrainWise® Crew Display (DS15) is designed to be installed in the operator's cab and features a robust service-proven touchscreen with built in server and Ethernet communications capability.

The sunlight readable display has a wide viewing angle and is well protected behind an industrial hardened glass face well suited for high use operator equipment.

The DS15 user screens are customized to match client needs and ensure easy adoption of operating workflows for drivers and maintenance crew. It operates over a wide range of voltages for direct connection to the vehicle's low-voltage bus.

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 and communication interfaces	Interfaces to the DS15 can be expanded by adding additional I/O or communication channels such as RS-485 serial, CAN and LonWorks.
Audible alert	Piezoelectric, multi-tone buzzer available for operator alerts.

Display

Display	12.1" diagonal, LED Backlight, 60fps
Resolution	Spatial: 1024 x 768 Pixel; Color: 262,144 colors
Brightness	800 nit, Sunlight readable
Brightness adjustment	Manual via screen input or automatically via ambient light sensor
Viewing angle	50° Up | Down - 70° Left | Right
Contrast ratio	1000:1
Touch sensor	Projective capacitive, allows operation with gloved hands Robust chemically toughened edge-to-edge glass on front of display

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	2	IEEE 1473 (Type E) Ethernet, 100 Mbps, M12 D-Coded
USB ports	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		45 Watts (Max)
Status output	1	Form A, 0.5 Amp, normally open, solid state output
Digital inputs	4	Type II (independent returns), wetting current, 2 kV protection

Mechanical characteristics

Dimensions	12.5” x 10.3” x 2.5” (31.8 cm x 26.2 cm x 6.4 cm)
Weight	10 lbs | 4.6 Kg (Approximate)
Connectors	Ethernet: 2 x M12 D-coded USB: 1 x M8, 1 x Type C Vehicle Interface: 2 x 17 pin MIL-C-5015, 1 x 24 pin MIL-DTL-5015
Ingress protection	Front: IP51 - Back | Top | Bottom | Sides: IP30

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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