

HD Video, Ethernet and Serial Data Multiplexer

Model 914-HDE

914-X Series Motherboard

Focal Technologies Corporation, a Moog Inc. company, has over 30 years of expertise in supplying standard and custom products for harsh environment applications and is a leading manufacturer of high performance and high quality multiplexers. Contact Focal for any assistance in selecting the best solution for your requirements.



Moog Focal's 914-HDE is an extremely compact, single card multiplexer for high definition video (3G/HD-SDI), Gigabit Ethernet and serial data. The 4 or 6 Gbaud optical interface provides extra capacity for replacing multiple media converters and multiplexers, thus reducing size, weight, power and cost. A suite of 914-X Series expansion cards offers more Ethernet and serial data channels, plus NTSC/PAL video, sonars, CAN Bus, responders, and hydrophones.

The 914-X Series supports many applications for Remotely Operated Vehicles (ROVs), HD video platforms, and electro-optical (EO) sensor pods. With its condensed size and modular expansion, via stacking connectors or harnesses, the 914-X Series system enables flexible installations in highly constrained spaces as well as distributed node-based topologies for larger systems, typically using optical multiplexing, such as CWDM.

Moog Focal's advanced FPGA-based design includes real-time diagnostics, field-upgradable firmware, and software configuration. User-configurable optical bandwidth provides system integrators with optimized, cost-effective solutions now that can be easily reconfigured or extended in future.

Features

- Supports SD-SDI, HD-SDI and 3G-SDI video
- Supports Fast Ethernet and Gigabit Ethernet
- Supports two configurable serial channels for camera controls and sensors
- 4 Gbps (standard) or 6 Gbps optical transceivers
- Expansion interfaces for
 - Multiple Gigabit Ethernet
 - Multiple NTSC/PAL video
 - Multiple isolated serial (RS-232 / 485 / 422)
 - CAN bus, hydrophone, TTL, sonar
- Real-time diagnostics and Graphical User Interface (GUI)
- Sub-millisecond latency
- LED header for enclosure diagnostics
- Reclocked video
- Software configuration
- Rugged design for harsh environment, including 6000 psi pressure tolerant version

Benefits

- Reduces cost and size of systems requiring HD video, SD video, Ethernet and serial interfaces
- Supports a wide range of optical options, including CWDM wavelengths and multi-mode configurations
- Simplifies troubleshooting with advanced diagnostics

Applications

- Remotely Operated Vehicles (ROVs)
- Pipe inspection robots
- Bomb disposal robots
- Camera / sonar add-ons for ROVs
- Remote video security platforms
- Remote video broadcast platforms
- EO pods

Specifications

HD Video	
No. of Channels	1
Format	3G-SDI SMPTE-424M-A (optional) HD-SDI SMPTE-292M SD-SDI SMPTE-259M-C
Data Rates	3G-SDI: 2.970 Gbps (optional) HD-SDI: 1.485 Gbps SD-SDI: 270 Mbps
Impedance	75 Ω
Latency	< 20 μs (not including fiber)
Ethernet	
No. of Channels	1
Format	10BASE-T, 100BASE-TX 1000BASE-T (optional)
Serial Data	
No. of Channels	2
Format	RS-232, RS-485, RS-422, configurable, non-isolated
Data Rate	RS-232: 230 kbps NRZ max. RS-422 / 485: 2.5 Mbps NRZ max.
Optical	
Optical Fiber	1 or 2 singlemode (9/125 μm)
Baud Rate	4.0 Gbaud standard 6.0 Gbaud optional
Wavelength	1310 / 1550 nm or CWDM
Optical Budget	> 20 dB
Options	Bidirectional transceivers, higher or lower optical budgets, multimode, higher optical data rates for 3G and GbE
Electrical	
Voltage	+4.5 to +13.5 VDC
Consumption	5 W typ., 7.5 W max. Expansion cards add additional power consumption
Protection	Overvoltage, reverse voltage, undervoltage, time delay fuse

Diagnostics	
LEDs	Power status, video status, optical status, serial activity, Ethernet status and activity
LED Header	Power status, video status, optical status, serial activity, Ethernet status and activity
RS-232 to PC	Diagnostics from remote and console through GUI for system status and configuration
Mechanical	
Weight	< 80 g (0.18 lb)
Dimensions	40.6 mm x 88.9 mm
Connectors	
Video	SMB, 75 Ω
Ethernet	RJ-45
Serial Data	Molex MicroFit, 8-pin
Power	Molex, 0.156" spacing, 2-pin
Diagnostics	Molex 1.2 mm W-T-B Connector, 3-pin
LED Header	FCI Minitek 127, 10-pin
Environmental	
Temperature	-10 °C to + 60 °C, operational -40 °C to + 85 °C, storage
Humidity	85% RH, non-condensing
Shock	30 g, 11 ms half sine, 3 axis
Vibration	5 g, 25 - 1000 Hz, 3 axis
ESD	±15 kV air/HBM, ± 8 kV contact
Options	Extended temperature
Expansion Cards	
914-VDX	2 analog video channels & 4 non-isolated serial channels (RS-232 / 422 / 485)
914-EX	2 Gigabit Ethernet Channels (non-switched)
914-AX	Focal AIB plugin module support: Hydrophone, CAN Bus, Isolated TTL, Analog Sonar Interfaces, Tritech® ARCNET, Isolated RS-232, Isolated RS-485, Isolated RS-422
914-DX	6 isolated serial channels (RS-232 / 485 / 422)

914-HDE supports up to 8 expansion cards, depending on unused optical bandwidth.
Contact factory for expansion options and configurations