

VIKING SERIES

10/100/1000/10GBASE-T/SR, AUTO MDI/MDIX, AUTONEGOTIABLE, MIL-DTL-38999, MANAGED ETHERNET SWITCH



Viking series 10/100/1000/10GBase-T/SR managed Ethernet switches consist of 4x 10/100/1000Base-T ports plus 2x 10GBase-SR ports in a wall or floor mounted in-line MIL-DTL-38999 connector assembly.

The Viking series Ethernet switch offers two separate D38999 Ethernet connector interfaces. One interface is a D38999/19-35 with 4x 10/100/1000Base-T Ethernet ports compliant with IEEE-802.3U:2005 plus the 28 VDC interface. The other interface is a D38999/19-11 with 2x 10GBase-SR Ethernet fiber optic ports per IEEE-802.3U:2005.

The Viking 4+2 port Ethernet switch is a highly integrated and extremely rugged solution for vehicle and mobile networking applications. Its small size, light weight and low power requirements make it an excellent fit for next generation networks.

Viking series 10/100/1000/10GBase-T/SR Ethernet switches are vibration isolated, environmentally hardened components designed for use in harsh environment applications.

SIX PORT (4+2) VIKING SERIES D38999, 10/100/1000BASE-T/SR MANAGED ETHERNET SWITCH

6 Port (4 + 2), Flange Mounted

FEATURES

- Up to 4x 10/100/1000Base-T non-blocking wire speed copper Ethernet ports per IEEE 802.3(1000Base-T1/TX options)
- Up to 2x 10GBase-SR fiber Ethernet ports per IEEE 802.3
- Electrical cable links up to 100 meters (EIA/TIA Cat-5E)
- Fiber optic link distances up to 300 meters (50 / 125µ 2,000 MHz*Km MMF)
- Operating temperature range from -40° to +85° C
- Jumbo frame support in all speeds (10/100/1000 Mbps & 10Gbps)
- Full duplex flow control per IEEE Std 802.3x and half duplex back pressure, symmetric and asymmetric
- OD-CD, NI or ZN-NI plating options for enhanced corrosion resistance
- Aluminum connector shells and housing are strong, durable and light weight
- Auto sensing of half or full duplex operation
- Polysulfide treated for moisture resistance

APPLICATIONS

Viking series 4+2 port Ethernet switches enable high speed network communications in harsh environments.

- Civil and military vehicle networking
- Aerospace and naval platform networks
- Managed Ethernet switch applications
- The MIL-DTL-38999, series III connectors provide a sealed interface that is water-tight to MIL-STD-810 when mated.

ORDERING INFORMATION

Application	Part Number
10/100/1000BASE-T/SR- 28 VDC	VX42F-6SAT-FW

See Appendix A2 for more part number options

SIX PORT (4+2) VIKING SERIES D38999, 10/100/1000/10GBASE-T/SR MANAGED ETHERNET SWITCH

ABSOLUTE MAXIMUM RATINGS

Absolute maximum limits mean that no catastrophic damage will occur if the product is subjected to these ratings for short periods, provided each limiting parameter is in isolation and all other parameters have values within the performance specification. It should not be assumed that limiting values of more than one parameter can be applied to the product at the same time.

Parameter	Symbol	Minimum	Typical	Maximum	Unit
Storage Temperature	T_s	-55		+100	°C

RECOMMENDED OPERATING CONDITIONS

Parameter	Symbol	Minimum	Typical	Maximum	Unit
Operating Temperature	T_A	-40		+85	°C
Supply Voltage	V_{CC}	+18.0	28.0	+36.0	V
Power Supply Noise (p-p)	N_p			200	mV

INTERFACE SPECIFICATIONS COMPLIANCE

Requirement	Feature	Condition	Notes
MIL-STD-883	ESD	Class II	2200 V
MIL-STD-810	Vibration	3.8g ² /Hz	43G rms
MIL-STD-810	Shock	40.0g	6-9 mS
MIL-STD-810	Immersion	1.0 meter	2.0 Hours
MIL-STD-1344	Flame Resistance	Method 1012	30 Seconds
MIL-STD-1344	Damp Heat	10 Cycles	24 Hours
FDA / CDRH / IEC-825-1	Eye Safety	Class 1	No Safety Interlocks Required

MATERIALS

Item	Detail	Notes
Shell and Housing	Aluminum Alloy	
Plating	OD-CD, NI or ZN-NI	
Insert	Thermoplastic	
Interfacial Seal	Elastomer	
Alignment Sleeve	Composite Polymer	

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OPTICAL TRANSMITTERS T_A = OPERATING TEMPERATURE RANGE

Parameter	Symbol	Minimum	Typical	Maximum	Unit
Optical Output Power	P_o	-7.3		-1.0	dBm
Optical Output Wavelength	λ_{OUT}	830	850	860	nM
Extinction Ratio	ER	3.0	5.0		dB

OPTICAL RECEIVERS T_A = OPERATING TEMPERATURE RANGE

Parameter	Symbol	Minimum	Typical	Maximum	Unit
Optical Sensitivity	P_i	-11.1		1.0	dBm
Optical Wavelength	λ_{IN}	770		860	nM

POWER SUPPLY CURRENT T_A = OPERATING TEMPERATURE RANGE

Parameter	Symbol	Minimum	Typical	Maximum	Unit
Supply Current per Port @ 28VDC	I_{CCT}		350	450	mA

OPTICAL LINK DISTANCES

Application	Cable Specification	Distance
Gigabit Ethernet - IEEE 802.3 - 10GBASE-SR	50/125 μ - 500 MHz*Km	82 M
	50/125 μ - 2000 MHz*Km	300 M

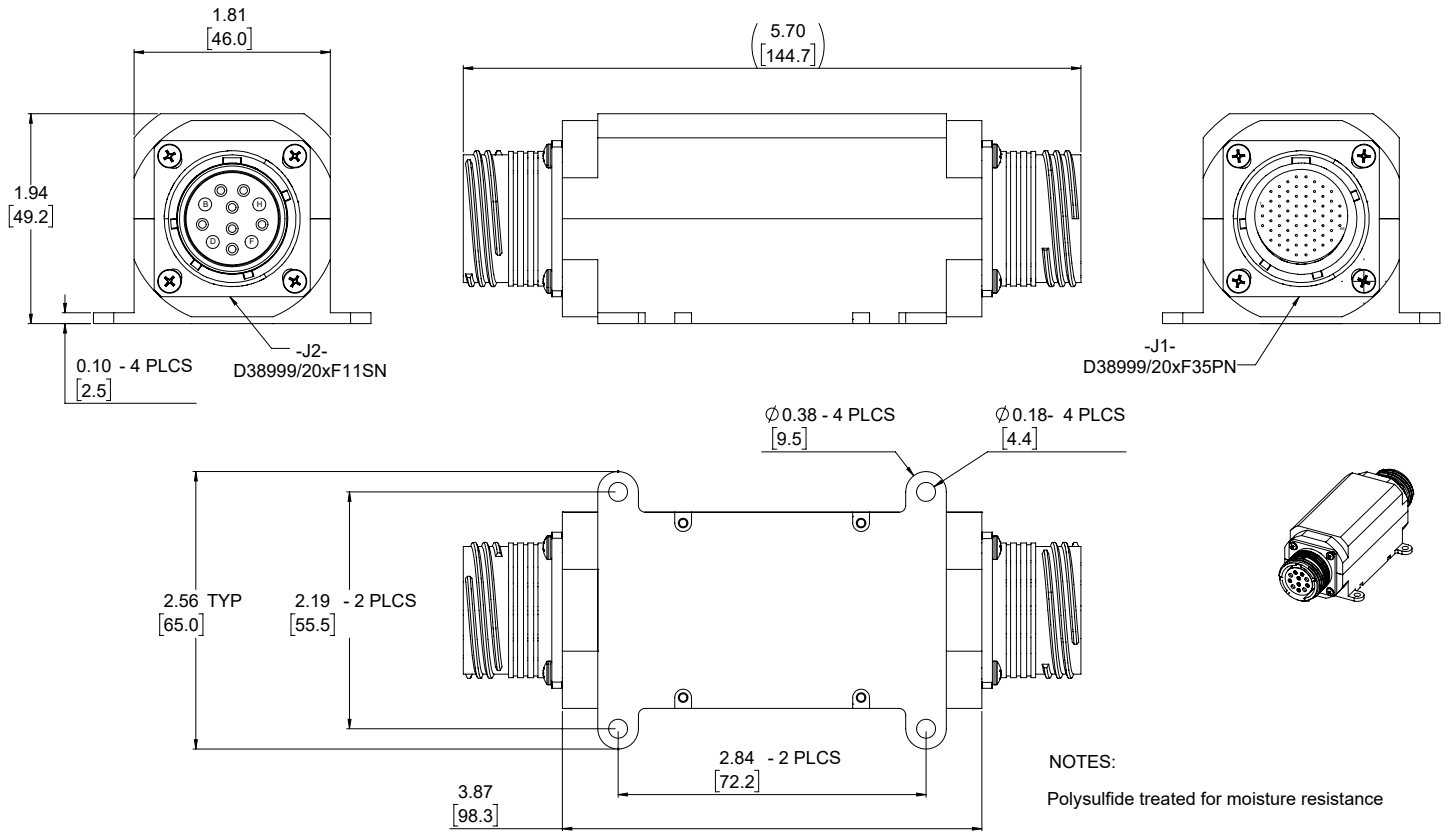
COPPER LINK DISTANCES

Application	Cable Specification	Distance
Gigabit Ethernet - IEEE 802.3 - 1000BASE-T	TIA/EIA-568-B Cat 5E - for other transmission media, please consult the factory	100 M

SIX PORT (4+2) VIKING SERIES D38999, 10/100/1000/10GBASE-T/SR MANAGED ETHERNET SWITCH

OUTLINE DRAWING

Dimensions are shown as: inches [mm]

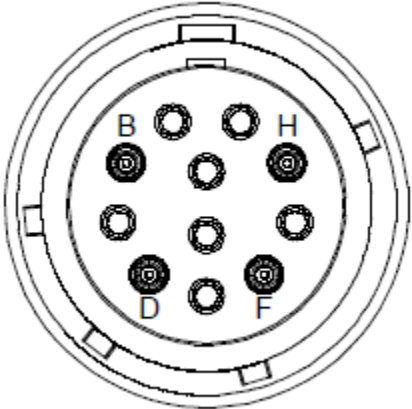


PORT / FUNCTION ASSIGNMENTS

Port Number	Function
J1	4x10/100/1000Base-T/T1/TX + 28 VDC
J2	2x10GBase-SR

SIX PORT (4+2) VIKING SERIES D38999, 10/100/1000/10GBASE-T/SR MANAGED ETHERNET SWITCH

J2 PIN FUNCTIONS ETHERNET PORT AND PIN ASSIGNMENTS TOP



Front view of the D38999 optical insert shown, fiber optic cable plug opposite - see Appendix A1 for details

MIL-DTL-38999 OPTICAL INTERFACE		
Port Number	TX	RX
4	H	F
5	B	D

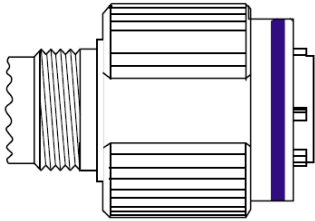
SIX PORT (4+2) VIKING SERIES D38999, 10/100/1000/10GBASE-T/SR MANAGED ETHERNET SWITCH

APPENDIX A1

*D38999 PLUG - PIN INSERT

MIL-DTL-38999 Cable Plug

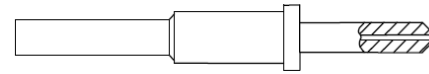
MS PLUG P/N	*D38999/26WF11PN
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*FIBER OPTIC PIN TERMINUS

MIL-T-29504 Pin Terminus

MS PIN TERMINUS P/N	*M29504/04-xxxx**
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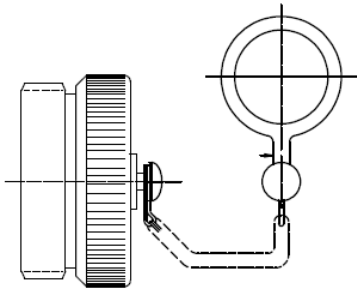


**defined by fiber optic cable configuration

*CABLE PROTECTION CAP

D38999/32 Plug Protection Cap

MS PLUG CAP P/N	*D38999/32W19N
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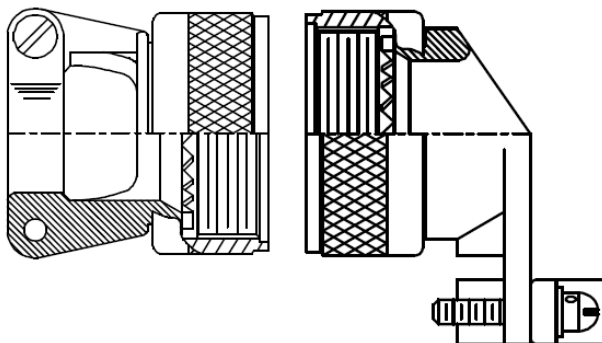
D38999 PLUG PORT FUNCTIONS

Port Number	TX	RX
4	H	F
5	B	D

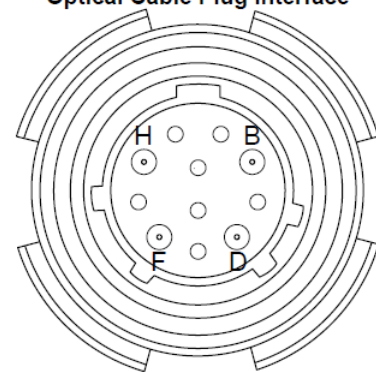
*CABLE BACKSHELL

MIL-C-85049 Cable Backshell

MS BACKSHELL P/N	*MS85049/xxxxxx**
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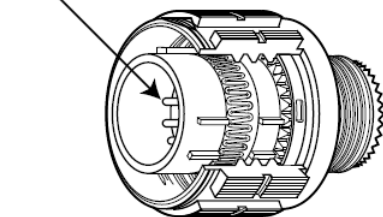


TOP Optical Cable Plug Interface



Front face of the optical cable plug pin insert shown. Transceiver insert opposite.

Pin Termini



**Straight or angled backshell - defined by application / mounting configuration

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APPENDIX A2 PART NUMBER OPTIONS

In-Line, Six Port, (4+2), 10/100/1000/10GBase-T/SR / SX, Managed Ethernet Switch

VX42 F - 6 A A T - F X

Product Function
VX42 = Inline Ethernet Switch

Shell Configuration
F = Flange Mount

J = Jam Nut

of Ports*

6 = 4 + 2

Optical Protocol
A = 10GBase-SR

Power Supply Voltage
A = EMI Filtered 28 VDC

Electrical Interface
T = 10/100/1000Base-T

1 = 1000Base-T1

X = 1000Base-TX

D38999 Shell Size

F = 19-35 / 11

ENCLOSURE FINISH

F = NI

W = OD CD / NI

Z = ZN / NI

*(consult factory for optional port configurations)



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