

Viking Series

10/100Base-TX/FX, Auto MDI/MDIX,
Autonegotiable MIL-DTL-38999,
Unmanaged Ethernet Switch

5 Port (4+1), Flange Mounted

FEATURES

- 4x10/100Base-TX nonblocking wire speed copper Ethernet ports per IEEE 802.3:2005
- 1x100Base-FX fiber Ethernet ports per IEEE 802.3:2005
- Electrical cable links up to 100 Meters (EIA/TIA Cat-5E)
- Fiber optic link distances up to 2.0 Kilometers per IEEE 802.3
- Operating temperature range from -40°C to +85°C
- Full duplex flow control per IEEE Std 802.3x and half duplex back pressure, symmetric and asymmetric
- Shock and vibration per MIL-STD-810
- 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

APPLICATIONS

Viking series 4+1 port Ethernet switches enable high speed network communications in harsh environments.

- Civil and military vehicle networking
- Aerospace and naval platform networks
- Unmanaged Ethernet switch applications

The MIL-DTL-38999, Series III connectors provide a sealed interface that is water-tight to Mil-Std-810 when mated.

Enhanced Link Budget



D38999 In-Line 4+1 Port 10/100Base-TX / FX Ethernet Switch

DESCRIPTION

Viking series 10/100Base-TX/FX unmanaged Ethernet switches consist of 4x10/100Base-TX ports plus 1x100Base-FX ports in an inline 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 4x10/100Base-TX Ethernet ports compliant with IEEE-802.3U:2005 plus the 5VDC interface. The other interface is a D38999/19-11 with 1x100Base-FX Ethernet fiber optic ports per IEEE-802.3U:2005.

The Viking 4+1 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 4+1 port Ethernet switches are vibration isolated, environmentally hardened components designed for use in harsh environment applications.

- Shock and vibration resistant

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ORDERING INFORMATION

Application	Product Number
10/100Base-TX/FX - 5VDC	V42F-5LCU-FW-S483

See Appendix A2 for more part number options

Five Port (4+1) Viking Series D38999,
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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}	+4.5	+5.0	+5.5	V
Power Supply Noise (p-p)	N_p			200	mV

MATERIALS

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

Five Port (4+1) Viking Series D38999,
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TRANSMITTERS T_A = Operating Temperature Range

Parameter	Symbol	Minimum	Typical	Maximum	Unit
Optical Output Power	P_o	-15.0		-8.0	dBm
Optical Output Wavelength	λ_{OUT}	1260	1310	1380	nM

RECEIVERS T_A = Operating Temperature Range

Parameter	Symbol	Minimum	Typical	Maximum	Unit
Optical Sensitivity	P_i	-34.0		-8.0	dBm
Optical Wavelength	λ_{IN}	1100		1590	nM

SUPPLY CURRENT T_A = Operating Temperature Range

Parameter	Symbol	Minimum	Typical	Maximum	Unit
Supply Current	I_{CCT}		1.3	1.8	A

OPTICAL FIBER LINK DISTANCES

Application	Fiber Specification	Distance
Fast Ethernet - IEEE 802.3u	62.5/125 μ - 500MHz*Km	2.0Km
FDDI PMD ISO / IEC 9314-3	50/125 μ - 500MHz*Km	2.0Km

COPPER CABLE LINK DISTANCES

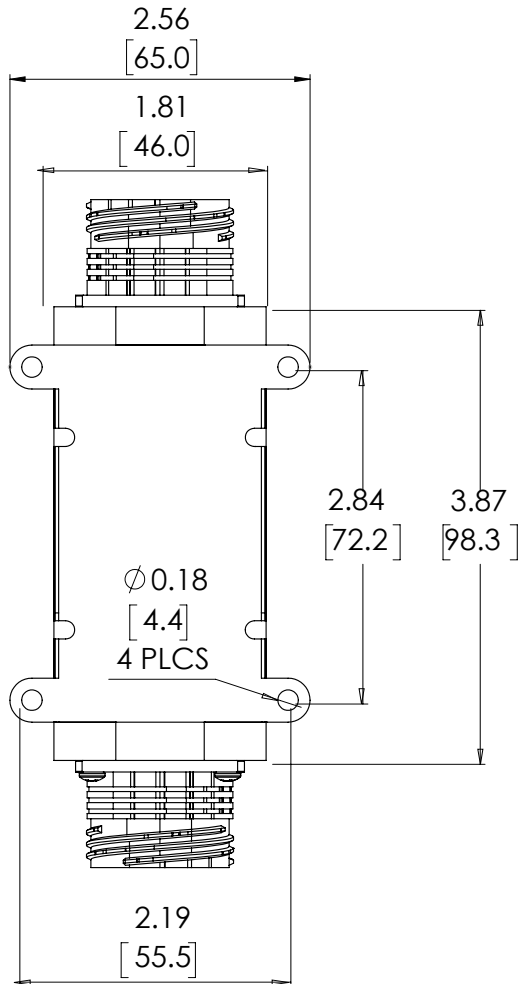
Application	Cable Specification	Distance
Fast Ethernet - IEEE 802.3u	TIA/EIA-568-B Cat 5*	100M

*for other transmission media, please consult the factory

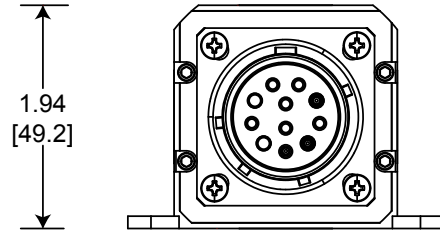
Five Port (4+1) Viking Series D38999,
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OUTLINE DRAWING

Dimensions are shown as: inches (mm)

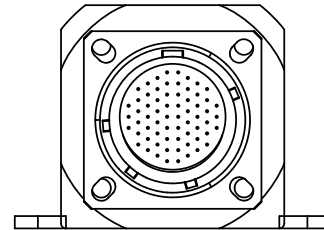


J2
D38999/20xF11SN Equiv.



x = Finish Code

J1
D38999/20xF35PN

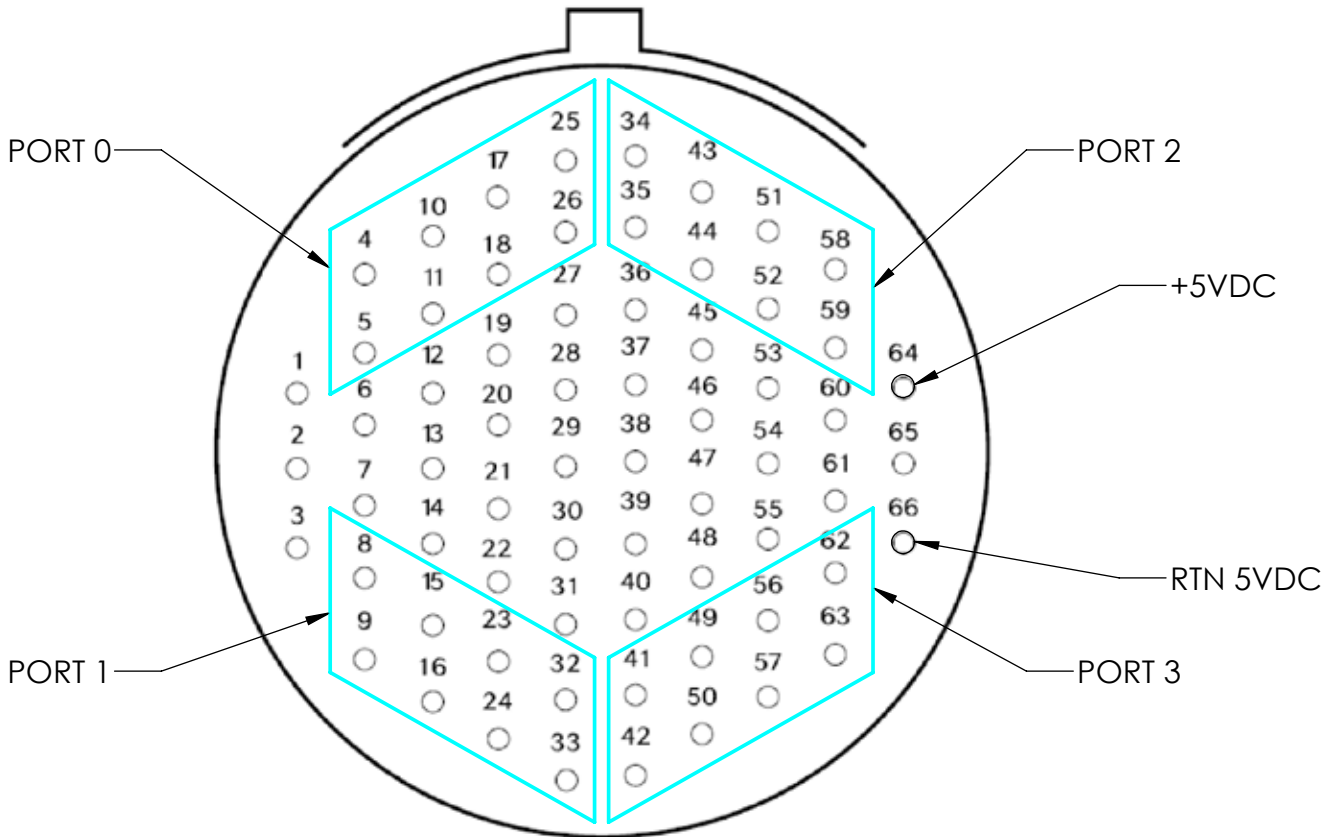


PORT / FUNCTION ASSIGNMENTS

Port #	Function
J1	4x10/100Base-T + 5VDC
J2	1x100Base-FX

Five Port (4+1) Viking Series D38999,
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J1 PIN FUNCTIONS
ETHERNET PORT AND PIN ASSIGNMENTS
TOP



Front view of the J1 connector shown
- mating cable plug opposite - see J1 D38999 Pin
Function Chart for details

PORT #	PIN #	FUNCTION	PORT #	PIN #	FUNCTION
0	26	TXD+	2	35	TXD+
	25	TXD-		34	TXD-
	18	RXD+		44	RXD+
	17	RXD-		43	RXD-
1	32	TXD-	3	42	TXD-
	33	TXD+		41	TXD+
	23	RXD-		50	RXD-
	24	RXD+		49	RXD+

Five Port (4+1) Viking Series D38999,
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J1 / D38999/20xF35PN ELECTRICAL PIN FUNCTIONS - Continued on next page

Pin #	Port #	Function	RJ-45 Eq. Pin #	Logic Family
1	N/A	N/C	N/A	Do Not Connect - Factory Use Only
2	N/A	N/C	N/A	Do Not Connect - Factory Use Only
3	N/A	N/C	N/A	Do Not Connect - Factory Use Only
4	N/A	N/C	N/A	Do Not Connect - Factory Use Only
5	N/A	N/C	N/A	Do Not Connect - Factory Use Only
6	N/A	N/C	N/A	Do Not Connect - Factory Use Only
7	N/A	N/C	N/A	Do Not Connect - Factory Use Only
8	N/A	N/C	N/A	Do Not Connect - Factory Use Only
9	N/A	N/C	N/A	Do Not Connect - Factory Use Only
10	N/A	N/C	N/A	Do Not Connect - Factory Use Only
11	N/A	N/C	N/A	Do Not Connect - Factory Use Only
12	N/A	N/C	N/A	Do Not Connect - Factory Use Only
13	N/A	N/C	N/A	Do Not Connect - Factory Use Only
14	N/A	N/C	N/A	Do Not Connect - Factory Use Only
15	N/A	N/C	N/A	Do Not Connect - Factory Use Only
16	N/A	N/C	N/A	Do Not Connect - Factory Use Only
17	0	RXD-	6	IEEE-802.3.2005 10/100Base-TX
18	0	RXD+	3	IEEE-802.3.2005 10/100Base-TX
19	N/A	N/C	N/A	Do Not Connect - Factory Use Only
20	N/A	N/C	N/A	Do Not Connect - Factory Use Only
21	N/A	N/C	N/A	Do Not Connect - Factory Use Only
22	N/A	N/C	N/A	Do Not Connect - Factory Use Only
23	1	RXD-	6	IEEE-802.3.2005 10/100Base-TX
24	1	RXD+	3	IEEE-802.3.2005 10/100Base-TX
25	0	TXD-	2	IEEE-802.3.2005 10/100Base-TX
26	0	TXD+	1	IEEE-802.3.2005 10/100Base-TX Do
27	N/A	N/C	N/A	Not Connect - Factory Use Only Do
28	N/A	N/C	N/A	Not Connect - Factory Use Only Do
29	N/A	N/C	N/A	Not Connect - Factory Use Only Do
30	N/A	N/C	N/A	Not Connect - Factory Use Only Do
31	N/A	N/C	N/A	Not Connect - Factory Use Only
32	1	TXD-	2	IEEE-802.3.2005 10/100Base-TX
33	1	TXD+	1	IEEE-802.3.2005 10/100Base-TX
34	2	TXD-	2	IEEE-802.3.2005 10/100Base-TX

Five Port (4+1) Viking Series D38999,
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J1 / D38999/20xF35PN ELECTRICAL PIN FUNCTIONS - Continued from previous page

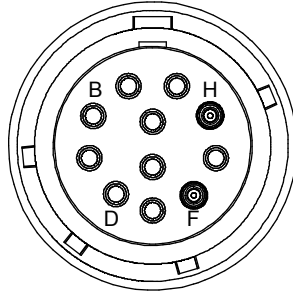
Pin #	Port #	Function	RJ-45 Eq. Pin #	Logic Family
35	2	TXD+	1	IEEE-802.3.2005 10/100Base-TX
36	N/A	N/C	N/A	Do Not Connect - Factory Use Only
37	N/A	N/C	N/A	Do Not Connect - Factory Use Only
38	N/A	N/C	N/A	Do Not Connect - Factory Use Only
39	N/A	N/C	N/A	Do Not Connect - Factory Use Only
40	N/A	N/C	N/A	Do Not Connect - Factory Use Only
41	3	TXD+	1	IEEE-802.3.2005 10/100Base-TX
42	3	TXD-	2	IEEE-802.3.2005 10/100Base-TX
43	2	RXD-	6	IEEE-802.3.2005 10/100Base-TX
44	2	RXD+	3	IEEE-802.3.2005 10/100Base-TX
45	N/A	N/C	N/A	Do Not Connect - Factory Use Only
46	N/A	N/C	N/A	Do Not Connect - Factory Use Only
47	N/A	N/C	N/A	Do Not Connect - Factory Use Only
48	N/A	N/C	N/A	Do Not Connect - Factory Use Only
49	3	RXD+	3	IEEE-802.3.2005 10/100Base-TX
50	3	RXD-	6	IEEE-802.3.2005 10/100Base-TX
51	N/A	N/C	N/A	Do Not Connect - Factory Use Only
52	N/A	N/C	N/A	Do Not Connect - Factory Use Only
53	N/A	N/C	N/A	Do Not Connect - Factory Use Only
54	N/A	N/C	N/A	Do Not Connect - Factory Use Only
55	N/A	N/C	N/A	Do Not Connect - Factory Use Only
56	N/A	N/C	N/A	Do Not Connect - Factory Use Only
57	N/A	N/C	N/A	Do Not Connect - Factory Use Only
58	N/A	N/C	N/A	Do Not Connect - Factory Use Only
59	N/A	N/C	N/A	Do Not Connect - Factory Use Only
60	N/A	N/C	N/A	Do Not Connect - Factory Use Only
61	N/A	N/C	N/A	Do Not Connect - Factory Use Only
62	N/A	N/C	N/A	Do Not Connect - Factory Use Only
63	N/A	N/C	N/A	Do Not Connect - Factory Use Only
64	ALL	V _{cc}	N/A	+5VDC
65	ALL	N/C	N/A	Do Not Connect - Factory Use Only
66	ALL	GND	N/A	RTN 5VDC, Isolated from Case

Five Port (4+1) Viking Series D38999,
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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

Five Port (4+1) Viking Series D38999,
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APPENDIX A1

MIL-DTL-38999 FIBER OPTIC CABLE PLUG / MIL-T-29504 PIN TERMINI

*See DSCC or SAE QPL for Approved Suppliers

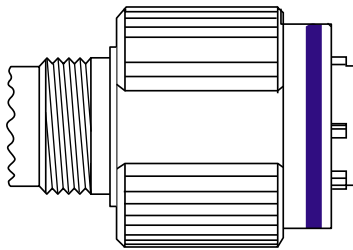
<http://www.dscclia.mil/programs/qmlqpl/QPLdetail.asp?QPL=38999>

*D38999 PLUG - PIN INSERT

MIL-DTL-38999 CABLE PLUG

MS PLUG P/N

*D38999/26WF11PN

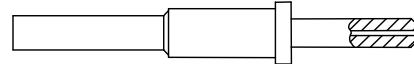


*FIBER OPTIC PIN TERMINUS

MIL-T-29504 PIN TERMINUS

MS PIN TERMINUS P/N

*M29504/04-xxxx**



**defined by fiber optic cable configuration

D38999 PLUG PORT FUNCTIONS

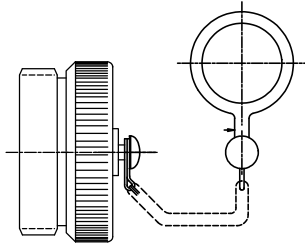
PORT NUMBER	TX	RX
4	H	F

*CABLE PROTECTION CAP

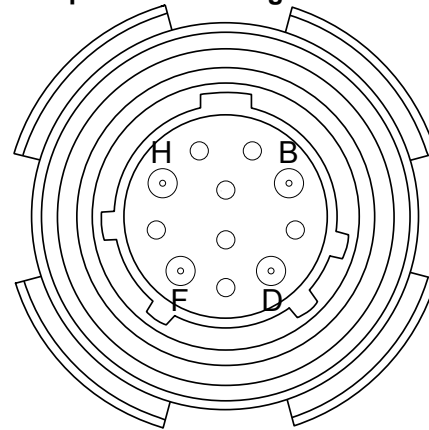
D38999/32 PLUG PROTECTION CAP

MS PLUG CAP P/N

*D38999/32W19N



TOP Optical Cable Plug Interface



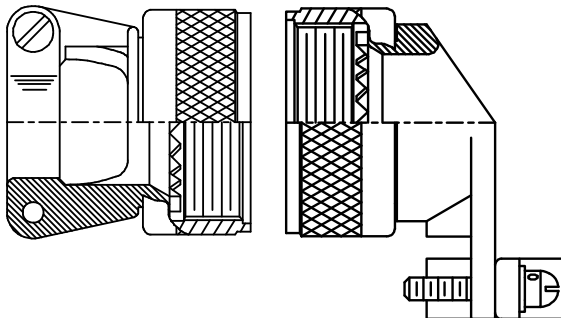
Front face of the optical cable plug pin insert shown. Transceiver insert opposite.

*CABLE BACKSHELL

MIL-C-85049 CABLE BACKSHELL

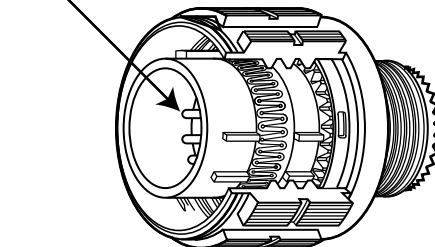
MS BACKSHELL P/N

*MS85049/xxxxx**



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

Pin Termini



Five Port (4+1) Viking Series D38999,
10/100Base-TX / FX Unmanaged Ethernet Switch

APPENDIX A2

PART NUMBER OPTIONS

In-Line, Five (4+1) Port, 10/100Base-TX / FX, Unmanaged Ethernet Switch

V42 F - 5 L C U - F X

Product Function

V42= Inline Ethernet
Switch

Shell Configuration

F = Flange Mount

of Ports

5 = 4+1

CABLE

L= 100Base-FX

Power Supply Voltage

C = 5.0VDC

Electrical Interface

U = 10/100Base-TX

D38999 Shell Size

F = 19-35 / 11

Shell Plating

F = NI

W = OD CD / NI

Z = ZN / NI



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