

## Hornet Series

5 Port Panel Mounted Ethernet Switch,  
Autonegotiable, Auto MDI/MDIX  
10/100/1000Base-T, MIL-DTL-38999

### Five Port (4+1), Receptacle

#### FEATURES

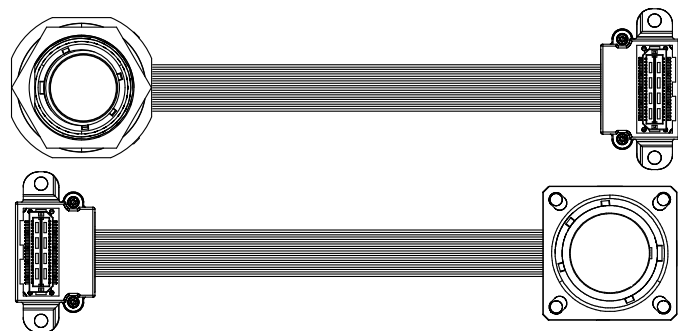
- 5x (4+1) triple-speed switched 10/100/1000Base-T Ethernet ports per IEEE 802.3:2005
- Cable link distances up to 100 Meters (EIA/TIA Cat-5E)
- Operating temperature range from -40°C to +85°C
- Jumbo frame support in all speeds (10/100/1000 Mbps)
- Full duplex flow control per IEEE802.3X and half duplex back pressure, symmetric and asymmetric
- Shock, vibration and immersion resistant per MIL-STD-810
- Aluminum connector shells are strong, durable and light weight
- Auto sensing of half or full duplex operation
- Unmanaged Ethernet switch - no configuration required

#### APPLICATIONS

Hornet series 10/100/1000Base-T Ethernet switches enable high speed network communications in harsh environments.

- Civil and military vehicle networking
- Plug and play operation - no configuration required
- Unmanaged Ethernet switch port multiplication

The MIL-DTL-38999, Series III shell provides a sealed interface that is water-tight to MIL-STD-810 when mated.



D38999 / SMT 4+1 Port 10/100/1000Base-T Ethernet Switch

#### DESCRIPTION

Hornet series 10/100/1000Base-T unmanaged Ethernet switches consist of 5x10/100/1000Base-T ports with autonegotiation and auto MDI / MDIX functions integrated into a bulkhead mounted MIL-DTL-38999 connector assembly.

The Hornet series unmanaged Ethernet switch consists of two Ethernet interfaces: for internal and external connections. The external interface of the Hornet series Ethernet switches is a D38999 size 19-35 connector with 4x IEEE-802.3U:2005 10/100/1000Base-T compliant Ethernet ports.

The internal 10/100/1000Base-T interface of the Hornet series Ethernet switch is a ribbon coax cable to Samtec SMT connector assembly enabling interconnection to a motherboard, daughtercard or backplane. Power to the unit is supplied through the Samtec connector.

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

- Front interface sealed against liquid and solid contaminants
- Shock and vibration resistant

#### ORDERING INFORMATION

Application	Product Number
10/100/1000Base-T - Flange	H41F-5UCT-FW-Lxxx
10/100/1000Base-T - Jam Nut	H41J-5UCT-FW-Lxxx

See Page 5 for standard part number / cable length options and Page 10 for complete part number ordering options

# Facilitating Secure Communications in Harsh Environments

## Hornet Series Five Port (4+1) Panel Mounted Ethernet Switch D38999 / SMT Connector, 10/100/1000Base-T

### 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 xxxx-xxBx-xx xxxx-xxCx-xx	$V_{CC}$	+6.0 +4.5	12.0 5.0	+24.0 +5.5	VDC
Power Supply Noise (p-p)	$N_p$			200	mV

### INTERFACE SPECIFICATIONS COMPLIANCE

Requirement	Feature	Condition	Notes
MIL-STD-883	ESD	Class II	2200V
MIL-STD-810	Vibration	3.8g <sup>2</sup> /Hz	43G rms
MIL-STD-810	Shock	40.0g	6-9mS
MIL-STD-810	Immersion	1.0 meter	2.0Hours
MIL-STD-1344	Flame Resistance	Method 1012	30 Seconds
MIL-STD-1344	Damp Heat	10 Cycles	24 Hours

### MATERIALS

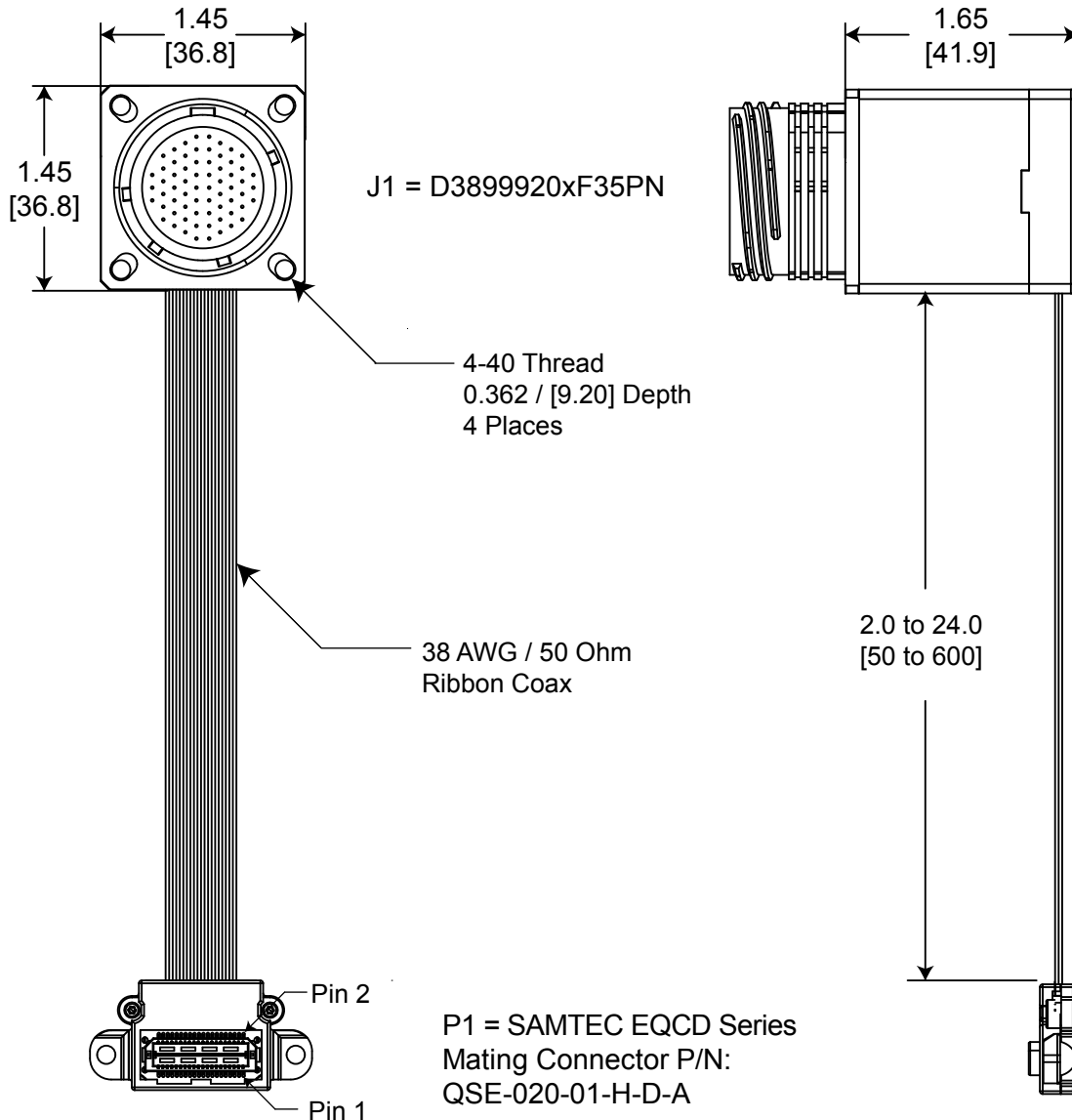
Item	Detail	Notes
Shell and housing	Aluminum Alloy	
Connector Shell Plating	OD-CD, NI or ZN-NI	
Insert	Thermoplastic	
Interfacial Seal	Elastomer	

## Hornet Series Five Port (4+1) Panel Mounted Ethernet Switch D38999 / SMT Connector, 10/100/1000Base-T

### OUTLINE DIMENSIONS

#### Flange Mount Option

Dimensions shown are: inches [mm]



Part Number = \*H41F-5UxT-Fx-Lxxx

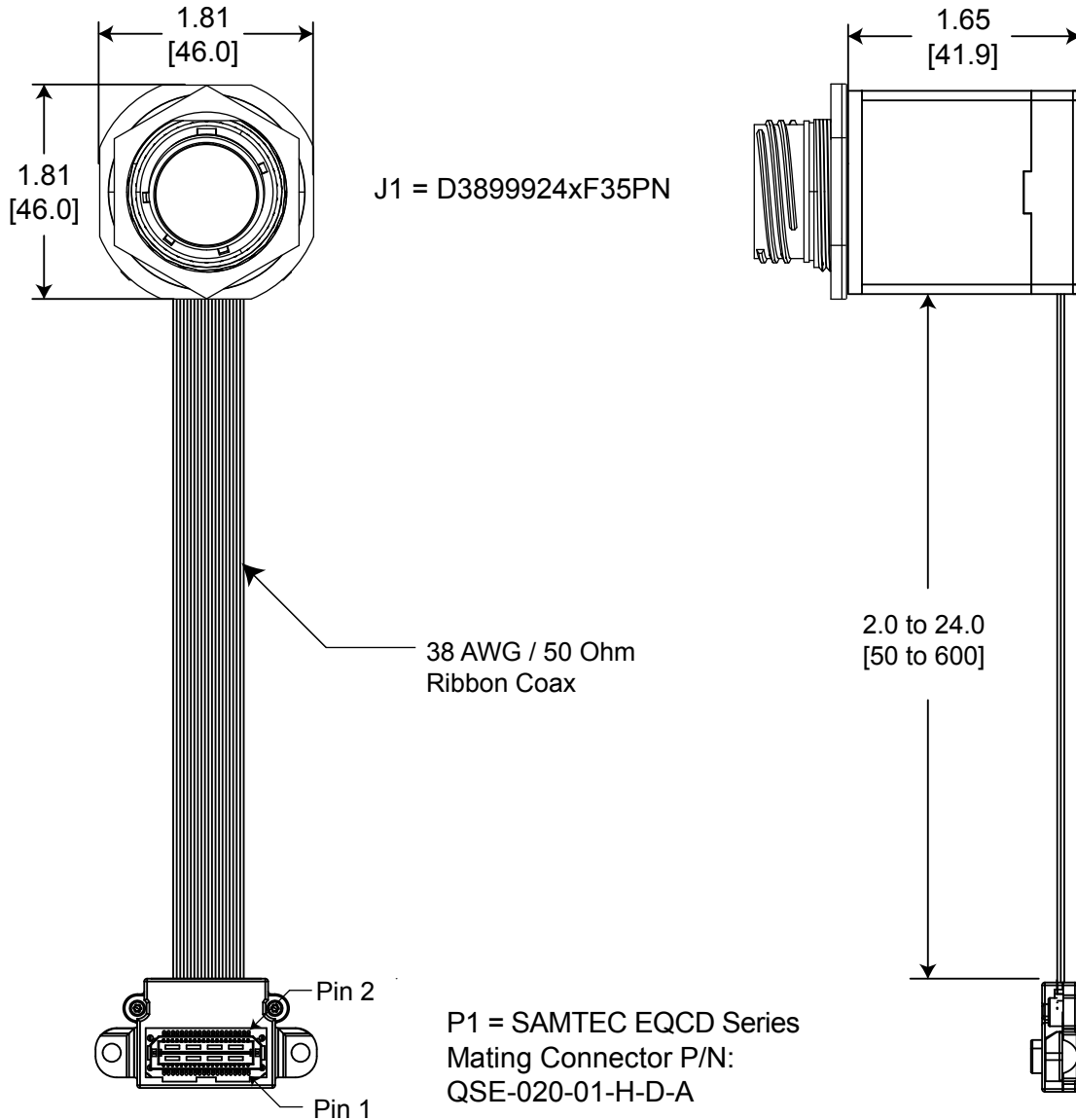
\*see page 6 for standard part number / cable length options

Hornet Series Five Port (4+1) Panel Mounted Ethernet Switch  
D38999 / SMT Connector, 10/100/1000Base-T

## OUTLINE DIMENSIONS

### Jam Nut Option

Dimensions shown are: inches [mm]

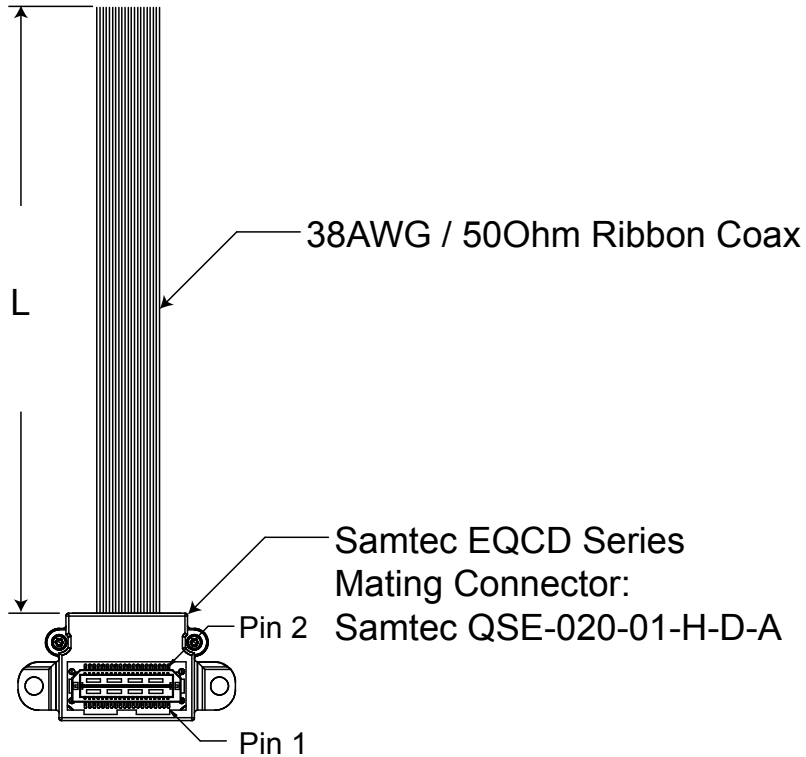


Part Number = \*H41J-4UxT-Fx-Lxxx

\*see page 6 for standard part number / cable length options

Hornet Series Five Port (4+1) Panel Mounted Ethernet Switch  
 D38999 / SMT Connector, 10/100/1000Base-T

## OUTLINE DRAWING Cable Length Options



### Ribbon Coax Cable Length Options

L (mm) +/- 6.0	ITEM #
50	xxxx-xxxx-xx-L050
100	xxxx-xxxx-xx-L100
150	xxxx-xxxx-xx-L150
200	xxxx-xxxx-xx-L200
250	xxxx-xxxx-xx-L250

# Facilitating Secure Communications in Harsh Environments

Hornet Series Five Port (4+1) Panel Mounted Ethernet Switch  
D38999 / SMT Connector, 10/100/1000Base-T

## J1 / D38999/20xF35PA 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	0	MDD-	8	IEEE-802.3.2005 10/100/1000Base-T
6	0	MDD+	7	IEEE-802.3.2005 10/100/1000Base-T
7	1	MDD-	8	IEEE-802.3.2005 10/100/1000Base-T
8	1	MDD+	7	IEEE-802.3.2005 10/100/1000Base-T
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	0	MDC-	5	IEEE-802.3.2005 10/100/1000Base-T
12	0	MDC+	4	IEEE-802.3.2005 10/100/1000Base-T
13	N/A	N/C	N/A	Do Not Connect - Factory Use Only
14	1	MDC-	5	IEEE-802.3.2005 10/100/1000Base-T
15	1	MDC+	4	IEEE-802.3.2005 10/100/1000Base-T
16	N/A	N/C	N/A	Do Not Connect - Factory Use Only
17	N/A	N/C	N/A	Do Not Connect - Factory Use Only
18	0	MDB-	6	IEEE-802.3.2005 10/100/1000Base-T
19	0	MDB+	3	IEEE-802.3.2005 10/100/1000Base-T
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	1	MDB-	6	IEEE-802.3.2005 10/100/1000Base-T
23	1	MDB+	3	IEEE-802.3.2005 10/100/1000Base-T
24	N/A	N/C	N/A	Do Not Connect - Factory Use Only
25	N/A	N/C	N/A	Do Not Connect - Factory Use Only
26	0	MDA-	2	IEEE-802.3.2005 10/100/1000Base-T
27	0	MDA+	1	IEEE-802.3.2005 10/100/1000Base-T
28	N/A	N/C	N/A	Do Not Connect - Factory Use Only
29	N/A	N/C	N/A	Do Not Connect - Factory Use Only
30	N/A	N/C	N/A	Do Not Connect - Factory Use Only
31	1	MDA-	2	IEEE-802.3.2005 10/100/1000Base-T
32	1	MDA+	1	IEEE-802.3.2005 10/100/1000Base-T
33	N/A	N/C	N/A	Do Not Connect - Factory Use Only
34	N/A	N/C	N/A	Do Not Connect - Factory Use Only

# Facilitating Secure Communications in Harsh Environments

Hornet Series Five Port (4+1) Panel Mounted Ethernet Switch  
D38999 / SMT Connector, 10/100/1000Base-T

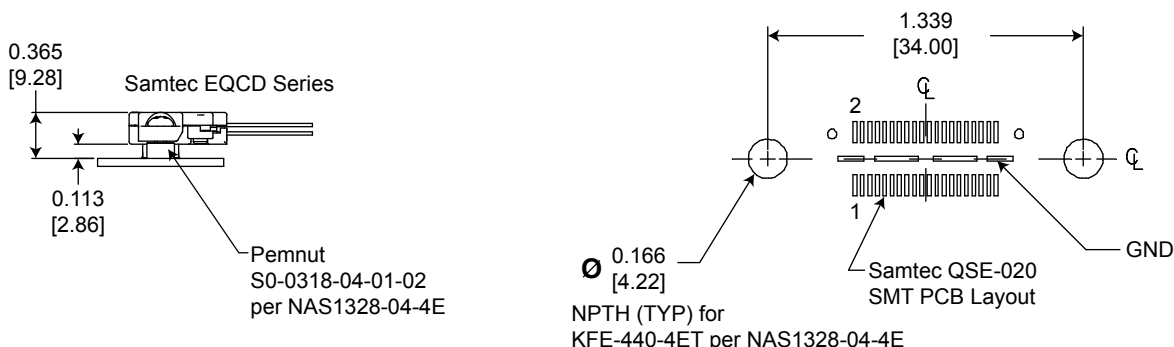
## J1 D38999/20WF35PN ELECTRICAL PIN FUNCTIONS - Continued from the previous page

Pin #	Port #	Function	RJ-45 Pin #	Logic Family
35	2	MDA-	2	IEEE-802.3:2005 10/100/1000Base-T
36	2	MDA+	1	IEEE-802.3:2005 10/100/1000Base-T
37	N/A	N/C	N/A	Do Not Connect
38	N/A	N/C	N/A	Do Not Connect
39	N/A	N/C	N/A	Do Not Connect
40	3	MDA+	1	IEEE-802.3:2005 10/100/1000Base-T
41	3	MDA-	2	IEEE-802.3:2005 10/100/1000Base-T
42	N/A	N/C	N/A	Do Not Connect
43	N/A	N/C	N/A	Do Not Connect
44	2	MDB-	6	IEEE-802.3:2005 10/100/1000Base-T
45	2	MDB+	3	IEEE-802.3:2005 10/100/1000Base-T
46	N/A	N/C	N/A	Do Not Connect
47	N/A	N/C	N/A	Do Not Connect
48	3	MDB+	3	IEEE-802.3:2005 10/100/1000Base-T
49	3	MDB-	6	IEEE-802.3:2005 10/100/1000Base-T
50	N/A	N/C	N/A	Do Not Connect
51	N/A	N/C	N/A	Do Not Connect
52	2	MDC-	5	IEEE-802.3:2005 10/100/1000Base-T
53	2	MDC+	4	IEEE-802.3:2005 10/100/1000Base-T
54	N/A	N/C	N/A	Do Not Connect
55	3	MDC+	4	IEEE-802.3:2005 10/100/1000Base-T
56	3	MDC-	5	IEEE-802.3:2005 10/100/1000Base-T
57	N/A	N/C	N/A	Do Not Connect
58	N/A	N/C	N/A	Do Not Connect
59	2	MDD-	8	IEEE-802.3:2005 10/100/1000Base-T
60	2	MDD+	7	IEEE-802.3:2005 10/100/1000Base-T
61	3	MDD+	7	IEEE-802.3:2005 10/100/1000Base-T
62	3	MDD-	8	IEEE-802.3:2005 10/100/1000Base-T
63	N/A	N/C	N/A	Do Not Connect
64	N/A	N/C	N/A	Do Not Connect
65	N/A	N/C	N/A	Do Not Connect
66	N/A	N/C	N/A	Do Not Connect

## Hornet Series Five Port (4+1) Panel Mounted Ethernet Switch D38999 / SMT Connector, 10/100/1000Base-T

### PRINTED CIRCUIT BOARD FOOTPRINT

Dimensions shown are: inches [mm]



### Samtec EQCD PIN ASSIGNMENTS

PIN #	PORT #	FUNCTION	Input / Output	RJ-45 PIN#	Logic Family
1	4	MDA+	Input / Output	1	IEEE-802.3:2005 10/100/1000Base-T
3	4	MDA-	Input / Output	2	IEEE-802.3:2005 10/100/1000Base-T
5	4	MDB+	Input / Output	3	IEEE-802.3:2005 10/100/1000Base-T
7	4	MDB-	Input / Output	6	IEEE-802.3:2005 10/100/1000Base-T
9	4	MDC+	Input / Output	4	IEEE-802.3:2005 10/100/1000Base-T
11	4	MDC-	Input / Output	5	IEEE-802.3:2005 10/100/1000Base-T
13	4	MDD+	Input / Output	7	IEEE-802.3:2005 10/100/1000Base-T
15	4	MDD-	Input / Output	8	IEEE-802.3:2005 10/100/1000Base-T
17	0-4	*Reset_Low	Input	N/A	LVTTL with Internal Pullup
19	0-4	V <sub>CC</sub>	Input	N/A	N/A
20	0-4	V <sub>CC</sub>	Input	N/A	N/A
21	0-4	V <sub>CC</sub>	Input	N/A	N/A
22	0-4	V <sub>CC</sub>	Input	N/A	N/A

\*Reset Function: Logic "0" Input = Restart, registers initialized; Logic "1", Open or High Z Input = Normal Operation, all other pins are N/C, center slug is GND



# Facilitating Secure Communications in Harsh Environments

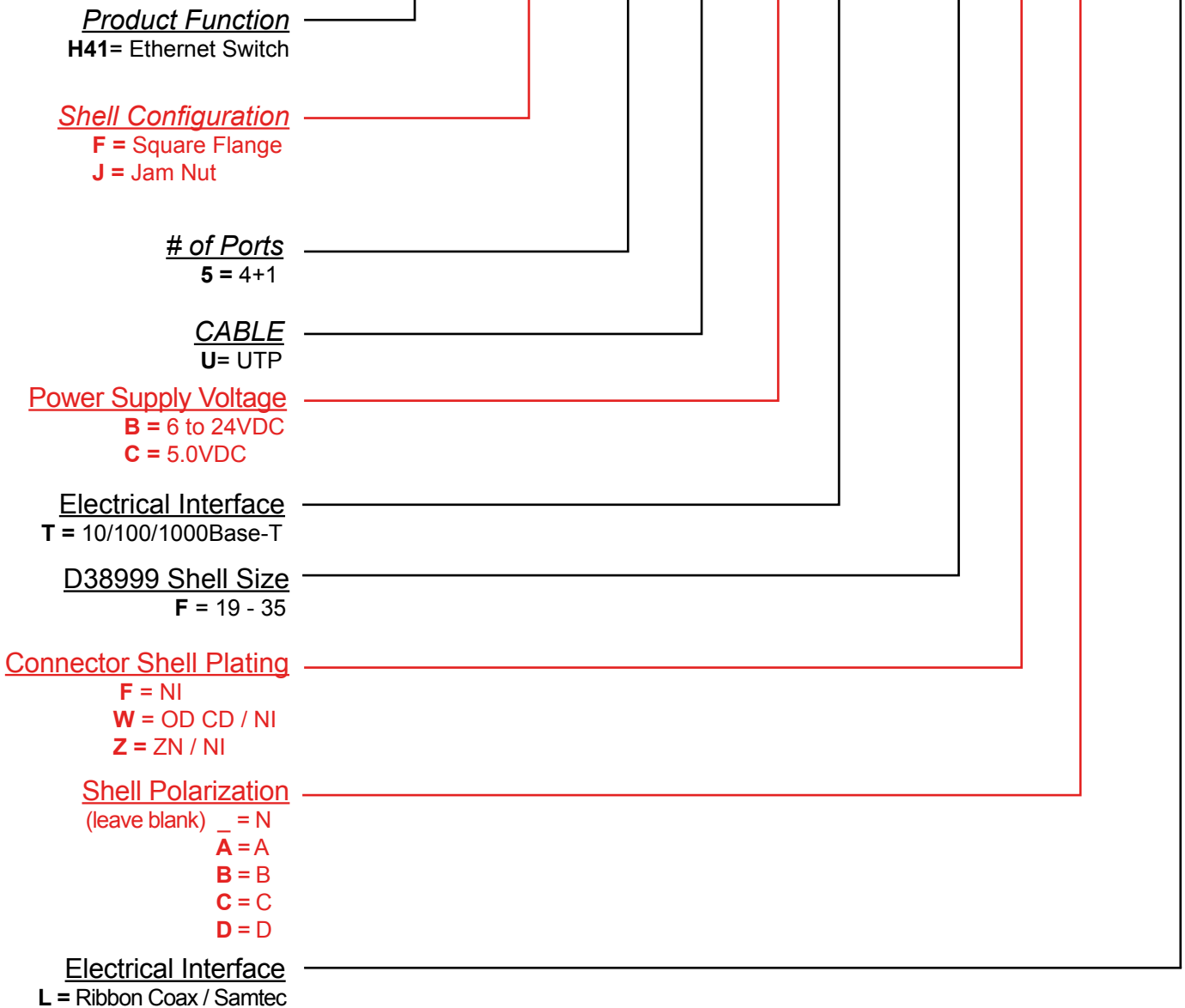
Hornet Series Five Port (4+1) Panel Mounted Ethernet Switch  
D38999 / SMT Connector, 10/100/1000Base-T

## APPENDIX A1

### PART NUMBER OPTIONS

Five (4+1) Port, 10/100/1000Base-T, Ethernet Switch

**H41** **X** - **5** **U** **X** **T** - **F** **X** **X** - **L**



Other mounting and interface options are available.  
Please consult the Protokraft website for alternate configurations.