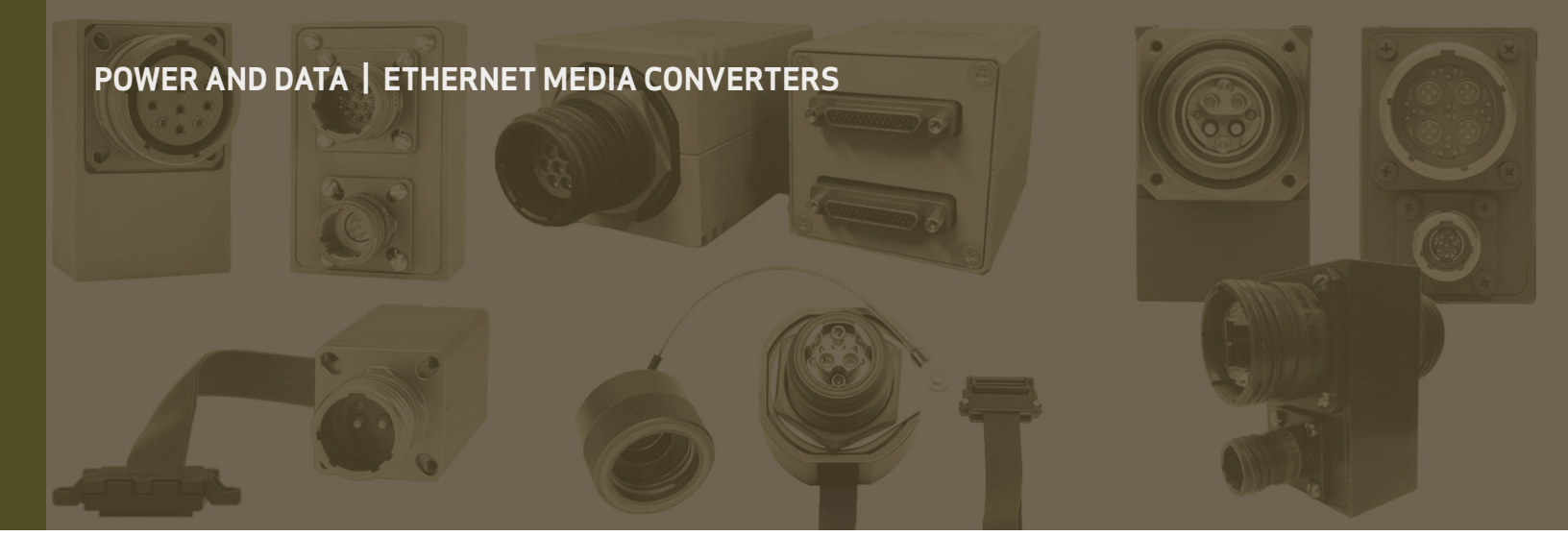
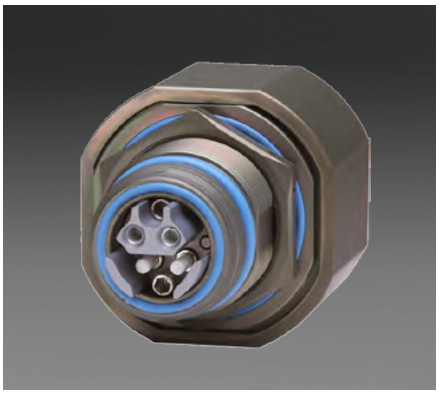


MUSTANG SERIES

FAST ETHERNET, TFOCA II®, 100BASE-TX / FX MEDIA CONVERTER, MULTIMODE, 1310 NM



Mustang series Fast Ethernet media converters consist of optoelectronic transmitter and receiver functions integrated along with the 100Base-TX electrical to 100Base-FX optical media conversion circuitry into a jam-nut TFOCA II® fiber optic connector assembly.

The optical transmitters are high output 1310 nM devices. The optical receivers consist of InGaAs PIN and preamplifier assemblies and limiting post-amplifiers.

The electrical interface to the Mustang series optical media converters is a MIL-DTL-83513 Micro D-Subminiature pin connector enabling interconnection to a customer supplied flexible circuit or cable assembly.

Mustang series Fast Ethernet media converters are vibration isolated, environmentally hardened components designed for use in harsh environment applications.

- Sealed against liquid and solid contaminants
- Shock and vibration resistant

MOOG

DUAL PORT MUSTANG SERIES *TFOCA II® CONNECTOR, 100BASE-TX TO 100BASE-FX MEDIA CONVERTER, MULTIMODE, 1310 NM

Dual Port, Jam Nut
TFOCA II® to M83513 / Optical to Electrical Media Converter

FEATURES

- Compliant with IEEE-802.3:2005 Fast Ethernet 100Base-TX and 100Base-FX
- Optical fiber link distances up to 2.0 kilometers
- Copper link distances up to 100 meters (EIA / TIA Cat-5E)
- Operating temperature range from -40° to +85° C
- Shock, vibration and immersion resistant per MIL-STD-810
- Zinc nickel plating meets stringent EMI / RFI and corrosion resistance performance specifications
- Aluminum housings are strong, durable and light weight
- TFOCA II® compliant optical fiber connector interface
- MIL-DTL-83513 electrical interface with #2 - 56 jacksockets

APPLICATIONS

Mustang series bulkhead mounted Fast Ethernet media converters enable high speed network communications over long distances in harsh environments.

- Fast Ethernet switches and peripherals
- Telecom and datacom switch / router rack-to-rack links
- Storage or computation clusters

The TFOCA II® shell provides a sealed optical interface that is water-tight to Mil-Std-810 when mated.

The multimode optical fiber interface supports applications where copper cable link distance, bandwidth, weight or bulk make the use of twisted pair, twinax or quadrax copper conductors unacceptable.

**TFOCA-II® is a registered trademark of Amphenol Fiber Systems International*

ORDERING INFORMATION

Application	Part Number
Dual Port 100Base-TX / FX - 3.3 VDC	P51J-4L1U-FZ-M

For additional product options see Appendix A2.

DUAL PORT MUSTANG SERIES *TFOCA II® CONNECTOR, 100BASE-TX TO 100BASE-FX MEDIA CONVERTER, MULTIMODE, 1310 NM

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}	+3.135	+5.0	+3.465	VDC
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	3.8 g^2 / Hz	43 G rms
MIL-STD-810	Shock	40.0 g	6-9 mS
MIL-STD-1344	Immersion	1.0 meter	30 Seconds
MIL-STD-1344	Flame Resistance	Method 1012	24 Hours
TFOCA II	Damp Heat	10 Cycles	EIA / TIA-455-21
FDA / CDRH / IEC-825-1	Eye Safety	Class 1	No Safety Interlocks Required

MATERIALS

Item	Detail	Notes
Shell	Aluminum Alloy	
Shell Plating	Zinc Nickel	SAE-AMS-2417
Inserts	Aluminum Alloy	
Interfacial Seals	Elastomer	
Alignment Sleeves	Zirconia	
Printed Circuits	FR-4	

DUAL PORT MUSTANG SERIES *TFOCA II® CONNECTOR, 100BASE-TX TO 100BASE-FX MEDIA CONVERTER, MULTIMODE, 1310 NM

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	-31.5		-6.0	dBm
Optical Wavelength	λ_{IN}	1100		1590	nM

SUPPLY CURRENT T_A = OPERATING TEMPERATURE RANGE

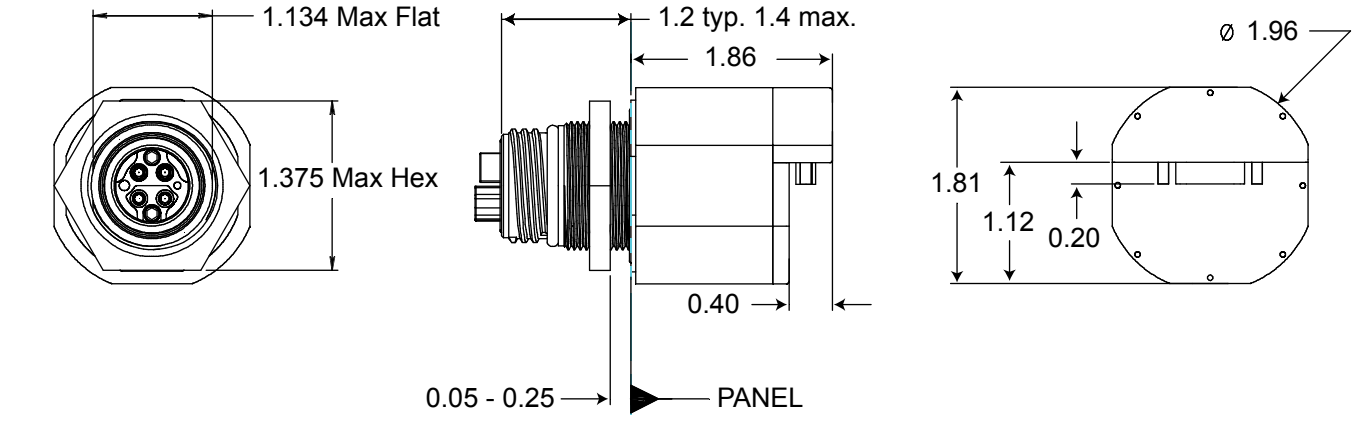
Parameter	Symbol	Minimum	Typical	Maximum	Unit
Supply Current per Port	I_{CCT}		400	650	mA

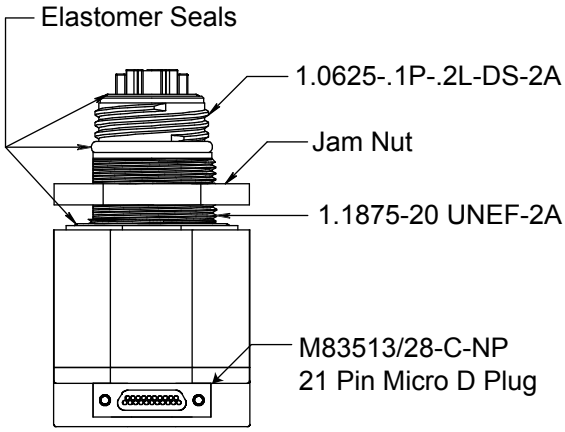
OPTICAL FIBER LINK DISTANCES

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

DUAL PORT MUSTANG SERIES *TFOCA II® CONNECTOR, 100BASE-TX TO 100BASE-FX MEDIA CONVERTER, MULTIMODE, 1310 NM

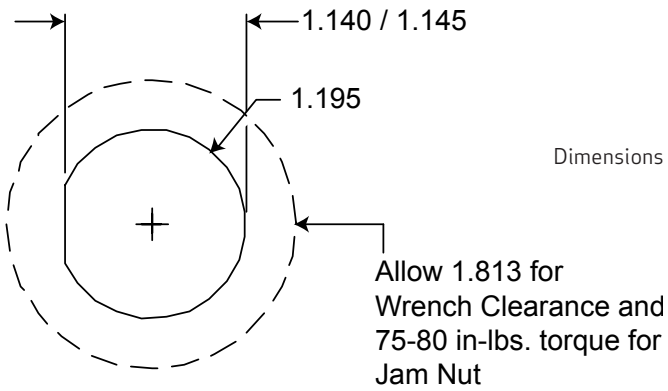
OUTLINE DRAWING





Dimensions are shown as: inches [mm]

PANEL CUTOUT DIMENSIONS

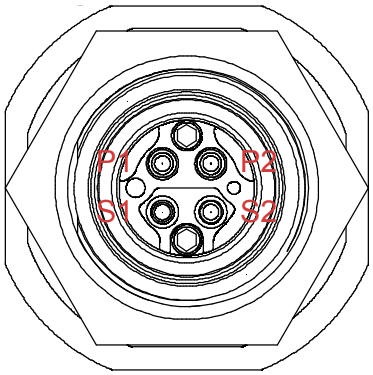


Dimensions are shown as: inches [mm]

DUAL PORT MUSTANG SERIES *TFOCA II® CONNECTOR, 100BASE-TX TO 100BASE-FX MEDIA CONVERTER, MULTIMODE, 1310 NM

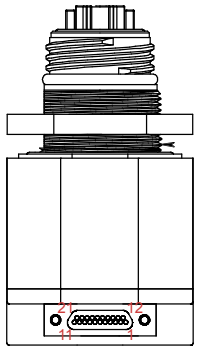
J1 OPTICAL INSERT PIN FUNCTIONS - ETHERNET PORT AND PIN ASSIGNMENTS

TOP
Optical Interface



Front view of the TFOCA II media converter optical insert shown - fiber optic cable plug opposite - see Appendix A1 for details.

TOP
Electrical Interface



Back view of the media converter shown - see Electrical Pin Function Chart for more details.

OPTICAL PORT ASSIGNMENTS

TFOCA II OPTICAL INTERFACE

Port Number	RX	TX
0	P2	S2
1	P1	S1

ELECTRICAL PIN ASSIGNMENTS

MICRO-D ELECTRICAL INTERFACE

Pin Number	Port Number	Function	Pin Number	Port Number	Function
1	0	TX_D1+	12	1	TX_D1+
2	0	TX_D1-	13	1	TX_D1-
3	0	RX_D2+	14	1	RX_D2+
4	0	RX_D2-	15	1	RX_D2-

DUAL PORT MUSTANG SERIES *TFOCA II® CONNECTOR, 100BASE-TX TO 100BASE-FX MEDIA CONVERTER, MULTIMODE, 1310 NM

ELECTRICAL PIN ASSIGNMENTS - 21 POSITION MICRO-D ELECTRICAL INTERFACE

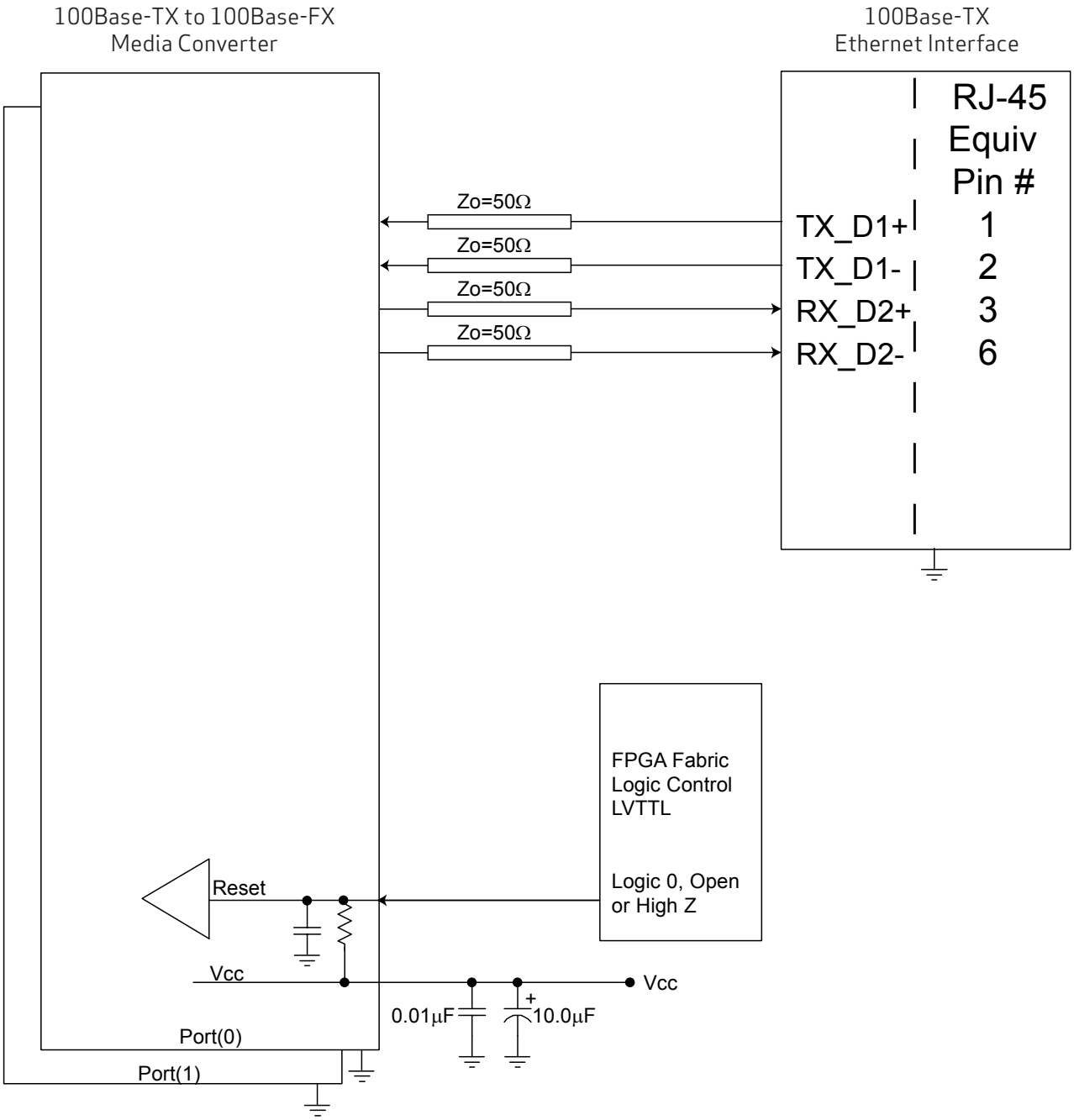
Pin Number	Port	Function	Input / Output	Logic Family
1	0	NC	Input	IEEE-802.3:2005 100Base-TX
2	0	TX+	Input	IEEE-802.3:2005 100Base-TX
3	0	TX-	Output	IEEE-802.3:2005 100Base-TX
4	0	RX+	Output	IEEE-802.3:2005 100Base-TX
5	N/A	RX-	N/A	N/A
6	N/A	NC	N/A	N/A
7	N/A	NC	N/A	N/A
8	N/A	NC	N/A	N/A
9	N/A	NC	N/A	N/A
10	0	NC	Input	LVTTL - with Internal Pullup
11	1	NC	Input	LVTTL - with Internal Pullup
12	1	TX_D1+	Input	IEEE-802.3:2005 100Base-TX
13	1	TX_D1-	Input	IEEE-802.3:2005 100Base-TX
14	1	RX_D2+	Output	IEEE-802.3:2005 100Base-TX
15	1	RX_D2-	Output	IEEE-802.3:2005 100Base-TX
16	N/A	NC	N/A	N/A
17	N/A	NC	N/A	N/A
18	N/A	NC	N/A	N/A
19	N/A	NC	N/A	Do Not Connect - Factory Use Only
20	0 / 1	GND	N/A	N/A
21	0 / 1	VCC	N/A	N/A

All reset functions: Logic “0” Input = Restart, registers initialized; Logic “1”, Open or High Z Input = Normal Operation.

DUAL PORT MUSTANG SERIES *TFOCA II® CONNECTOR, 100BASE-TX TO 100BASE-FX MEDIA CONVERTER, MULTIMODE, 1310 NM

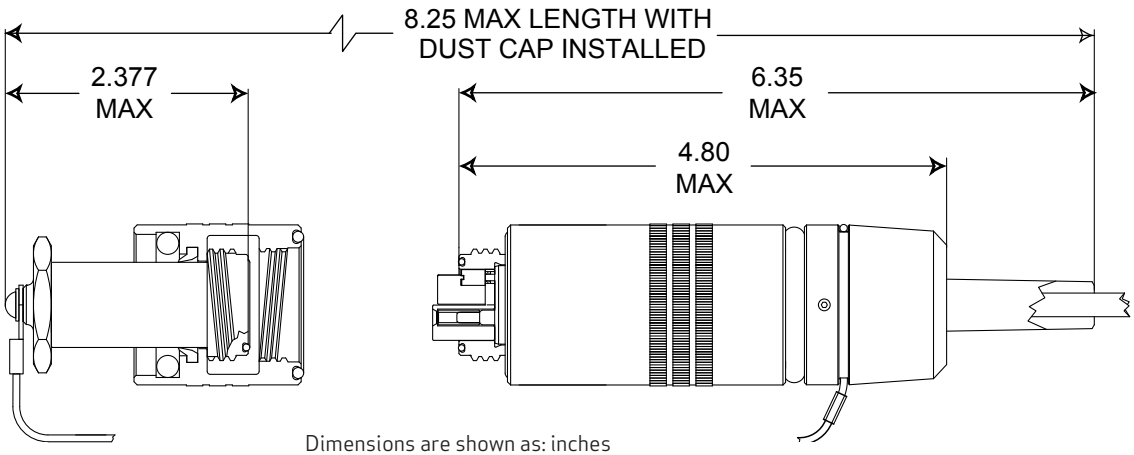
APPLICATION SCHEMATIC

FOR DUAL PORT 10/100BASE-TX TO 100BASE-FX MEDIA CONVERTER APPLICATIONS



DUAL PORT MUSTANG SERIES *TFOCA II® CONNECTOR, 100BASE-TX TO 100BASE-FX MEDIA CONVERTER, MULTIMODE, 1310 NM

APPENDIX A1 TFOCA-II® 4 CHANNEL FIBER OPTIC CABLE PLUG

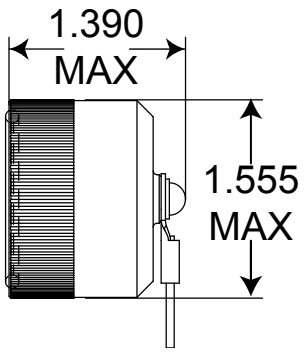


Dimensions are shown as: inches

Amphenol Fiber Systems International®
TFOCA-II® 4-Channel Connector Part Numbers*
*Contact Amphenol Fiber Systems International for more information.

TFOCA II® RECEPTACLE PROTECTION CAPS

Receptacle Cap P/N	Contact Amphenol Fiber Systems International



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