

# Stingray Series

Fast Ethernet, M83526/21-02,  
100Base-TX / FX Media Converter,  
Multimode, 1310nm

## Dual Port, Jam Nut

### FEATURES

- Compliant with IEEE-802.3:2005 Fast Ethernet 100Base-TX and 100Base-FX
- Optical fiber link distances up to 2.0Kilometers
- Copper link distances up to 100 Meters (EIA/TIA Cat-5E)
- Operating temperature range from -40°C to +85°C
- Shock, vibration and immersion resistant per MIL-STD-810
- Zinc-Nickel finish meets stringent corrosion resistance specifications
- Aluminum housings are strong, durable and light weight
- M83526/21-02 compliant optical fiber connector interface
- MIL-DTL-38999 electrical interface for power and signals

### APPLICATIONS

Stingray 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 M83526/21-02 and D38999 shells provide sealed interfaces that are 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 quadrx copper conductors unacceptable.



M83526/21-02 to MIL-DTL-38999 Optical Media Converter

### DESCRIPTION

Stingray 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 M83526/21-02 fiber optic connector assembly.

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

The optical interface to the Stingray series optical media converters is a M83526/21-02 jam nut fiber optic connector with an integral protection cap and lanyard.

The electrical interface to the Stingray series optical media converters is a MIL-DTL-38999 cylindrical connector enabling interconnection to a customer supplied cable assembly for 28VDC power and Fast Ethernet signal sources.

Stingray 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

### ORDERING INFORMATION

Application	Product Number
Dual Port 100Base-TX/FX - 28VDC	P83J-4LAU-FZ-V
See Appendix A1 for more part number options	

## 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
Power Supply Voltage	$V_{CC}$	18.0		36.0	VDC
Power Supply Noise (p-p)	$N_p$			200	mV

## 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
FDA / CDRH / IEC-825-1	Eye Safety	Class 1	No Safety Interlocks Required

## MATERIALS

Item	Detail	Notes
Conector Shells and Housings	Aluminum Alloy	
M83526 Connector Finish	Zinc Nickel	
Insert	Aluminum Alloy	
Interfacial Seal	Elastomer	
Alignment Sleeves	Zirconia	
Printed Circuits	FR-4	

Dual Port Stingray Series MIL-DTL-83526 Connector, 100Base-TX to  
100Base-FX Media Converter, Multimode, 1310nM, 28VDC

**TRANSMITTERS**  $T_A$  = Operating Temperature,  $V_{CC}$  = Operating Voltage Range

Parameter	Symbol	Minimum	Typical	Maximum	Unit
Optical Output Power	$P_o$	-19.0		-14.0	dBm
Optical Output Wavelength	$\lambda_{OUT}$	1260	1310	1380	nM

**RECEIVERS**  $T_A$  = Operating Temperature Range,  $V_{CC}$  = Operating Voltage Range

Parameter	Symbol	Minimum	Typical	Maximum	Unit
Optical Sensitivity	$P_i$	-31.5		-6.0	dBm
Optical Wavelength	$\lambda_{IN}$	1100		1590	nM

**SUPPLY CURRENT**  $T_A$  = Operating Temperature Range

Parameter	Symbol	Minimum	Typical	Maximum	Unit
Supply Current per Port	$I_{CCT}$		150	200	mA

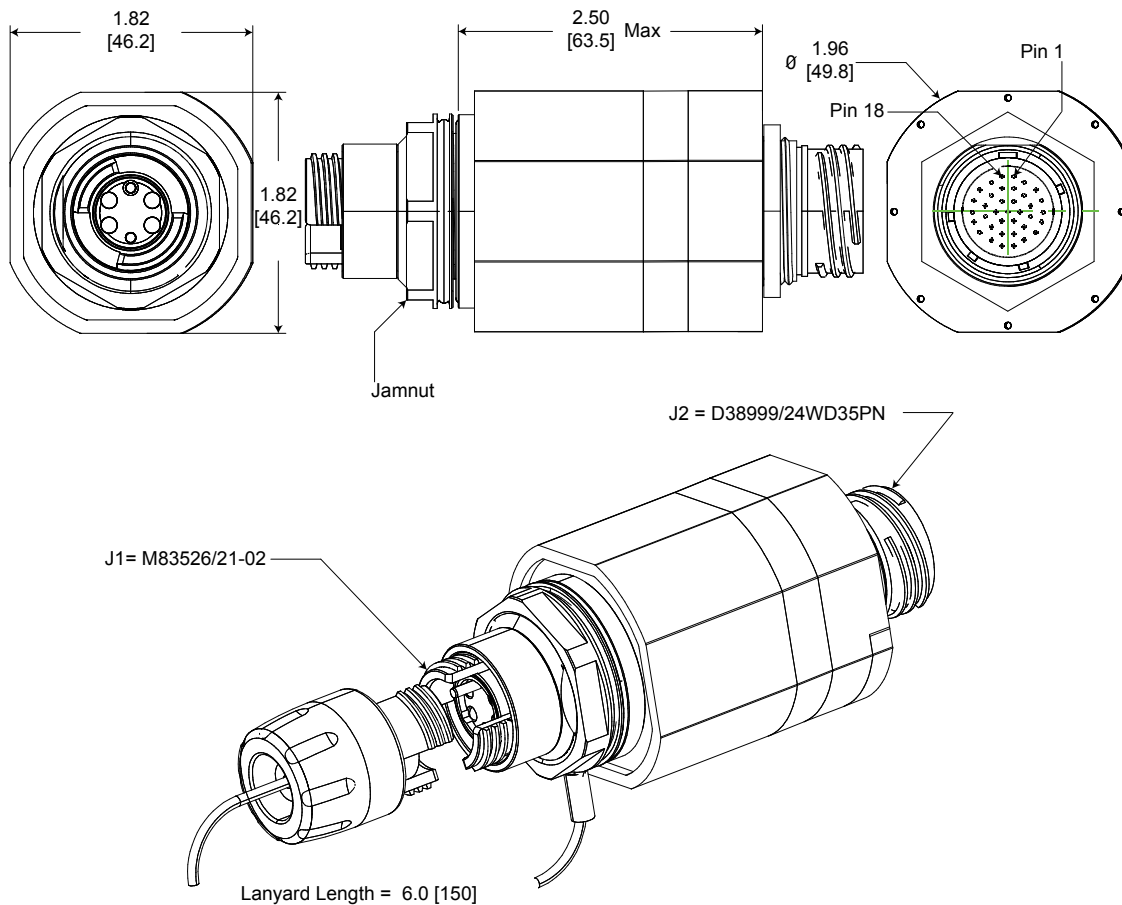
**OPTICAL FIBER LINK DISTANCES**

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

Dual Port Stingray Series MIL-DTL-83526 Connector, 100Base-TX to  
100Base-FX Media Converter, Multimode, 1310nm, 28VDC

**OUTLINE DRAWING**

Dimensions are shown as: inches [mm]



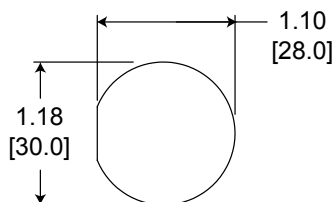
**PORT / FUNCTION ASSIGNMENTS**

Port #	Function
J1	2x100Base-FX
J2	2x100Base-TX + 28VDC

**Panel Cutout Dimensions**

Dimensions are shown as: inches [mm]

Panel Thickness: 3.0 - 6.5mm

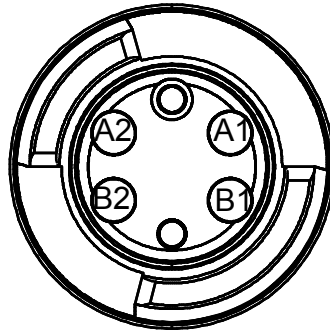


Dual Port Stingray Series MIL-DTL-83526 Connector, 100Base-TX to  
100Base-FX Media Converter, Multimode, 1310nm, 28VDC

## J1 PIN FUNCTIONS

### Ethernet Port and Pin Assignments

Top



Front view of the media converter M83526/21-02 optical  
insert shown, fiber optic cable plug  
opposite - see Appendix A1  
for mating connector details

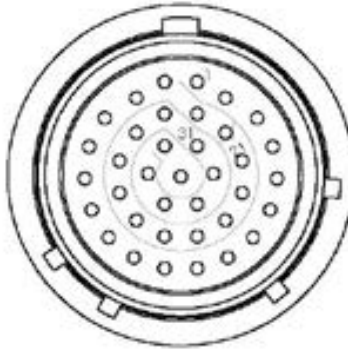
### OPTICAL PORT ASSIGNMENTS

PORT NUMBER	TX	RX
0	B1	A1
1	B2	A2

Dual Port Stingray Series MIL-DTL-83526 Connector, 100Base-TX to  
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**J2 / D38999/24WD35PN ELECTRICAL PIN FUNCTIONS**

**TOP**



**Front view of the J2 connector shown - mating cable plug opposite**

PIN #	PORT	FUNCTION	RJ-45 Eq. Pin #	Logic Family
1	N/A	NC	N/A	N/A
2				
3				
4				
5	0 - 1	28VDC Rtn	NA	N/A
6	N/A	NC	N/A	N/A
7				
8				
9				
10	1	MDB-	6	IEEE-802.3:2005 10/100Base-TX
11		MDB+	3	
12		MDA-	2	
13		MDA+	1	
14	0 - 1	28VDC	N/A	N/A
15	0	MDA+	1	IEEE-802.3:2005 10/100Base-TX
16		MDA-	2	
17		MDB+	3	
18		MDB-	6	

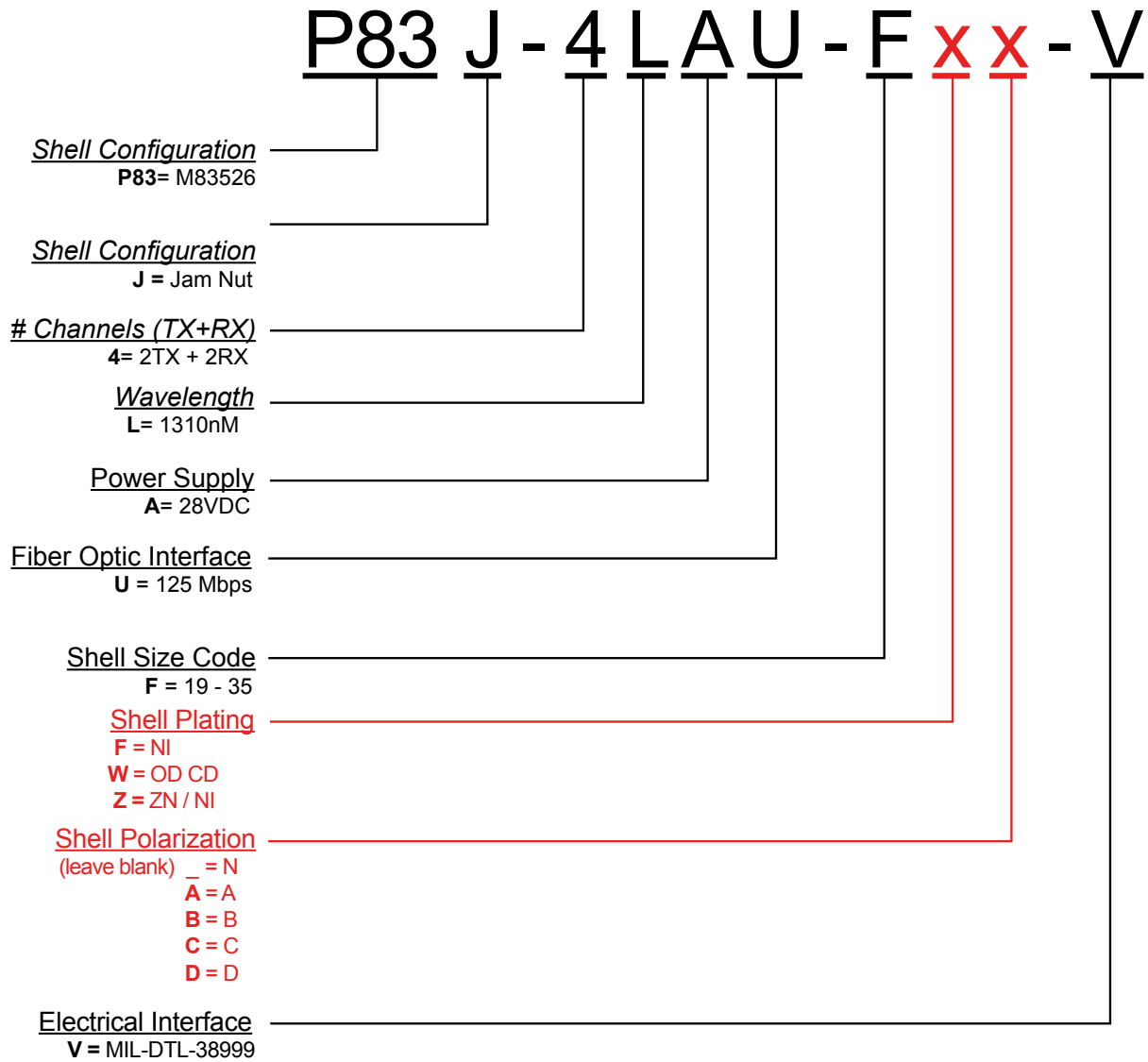
All others are signal GND

Dual Port Stingray Series MIL-DTL-83526 Connector, 100Base-TX to  
100Base-FX Media Converter, Multimode, 1310nm, 28VDC

## APPENDIX A1

### PART NUMBER OPTIONS

M83526/21-02 Media Converter, Dual Port, Fast Ethernet / Multimode / 1310nm



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