

METRIC

MIL-DTL-49292/8
20 September 2013

DETAIL SPECIFICATION SHEET

CABLE ASSEMBLIES, NONPRESSURE PROOF, FIBER OPTIC,
MIL-DTL-83526/20 EXPANDED BEAM CONNECTOR, METRIC

This specification is approved for use by all Departments and Agencies of the Department of Defense.

The requirements for acquiring the product described herein shall consist of this specification sheet and MIL-DTL-49292.

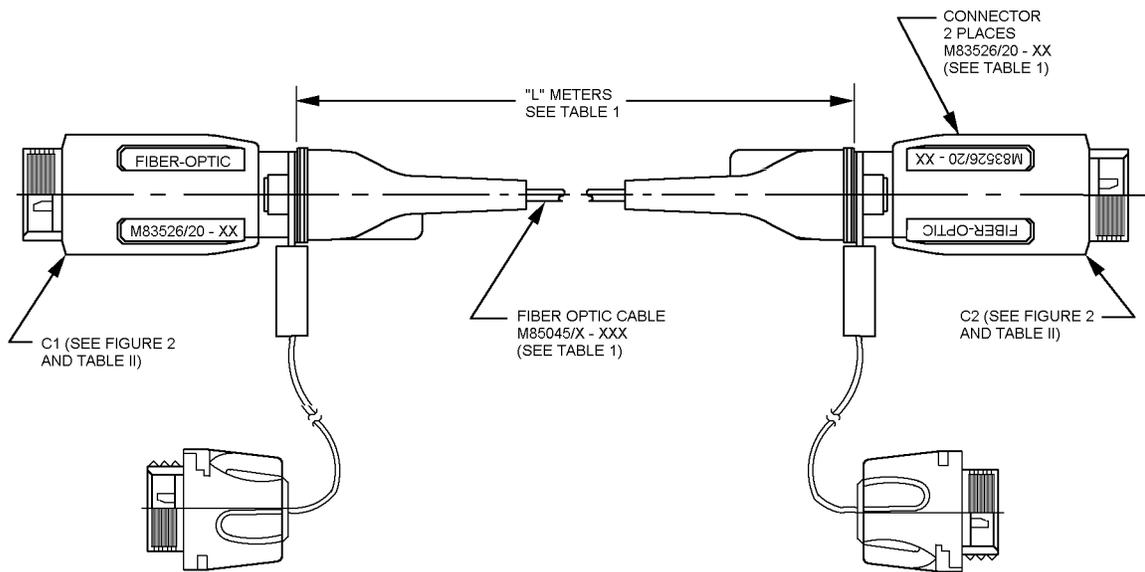


FIGURE 1. Outline drawing, cable assembly (hermafroditic) fiber optic.

AMSC N/A

FSC 6020

MIL-DTL-49292/8

PIN configuration: For cable assembly PIN configuration and insertion loss, see table I.

TABLE I. Cable assembly PIN configurations and optical insertion loss.

Cable assembly PIN M49292/8-	Connector PIN M83526/	Cable PIN M85045/	Length "L" (meters)	Channels	Mode	Wavelength ±30 nm ^{1/}	Insertion loss max (dB) ^{2/}
2S1	20-05	30E2A	10.0 ±0.5	2	Single	1,310	2.01
2S2	20-05	30E2A	100.0 ±0.5	2	Single	1,310	2.05
2S3	20-05	30E2A	500.0 ±0.5	2	Single	1,310	2.25
2S4	20-05	30E2A	1000.0 ±0.5	2	Single	1,310	2.50
2S5	20-06	30E2A	10.0 ±0.5	2	Single	1,550	2.01
2S6	20-06	30E2A	100.0 ±0.5	2	Single	1,550	2.05
2S7	20-06	30E2A	500.0 ±0.5	2	Single	1,550	2.25
2S8	20-06	30E2A	1000.0 ±0.5	2	Single	1,550	2.50
2M1	20-05	8-B2A	10.0 ±0.5	2	Multi	850 / 1,300	1.54 / 1.52
2M2	20-05	8-B2A	100.0 ±0.5	2	Multi	850 / 1,300	1.88 / 1.65
2M3	20-05	8-B2A	500.0 ±0.5	2	Multi	850 / 1,300	3.38 / 2.25
2M4	20-05	8-B2A	1000.0 ±0.5	2	Multi	850 / 1,300	5.25 / 3.00
4S1	20-01	30E4A	10.0 ±0.5	4	Single	1,310	2.01
4S2	20-01	30E4A	100.0 ±0.5	4	Single	1,310	2.05
4S3	20-01	30E4A	500.0 ±0.5	4	Single	1,310	2.25
4S4	20-01	30E4A	1000.0 ±0.5	4	Single	1,310	2.50
4S5	20-03	30E4A	10.0 ±0.5	4	Single	1,550	2.01
4S6	20-03	30E4A	100.0 ±0.5	4	Single	1,550	2.05
4S7	20-03	30E4A	500.0 ±0.5	4	Single	1,550	2.25
4S8	20-03	30E4A	1000.0 ±0.5	4	Single	1,550	2.50
4M1	20-01	8-B4A	10.0 ±0.5	4	Multi	850 / 1,300	1.54 / 1.52
4M2	20-01	8-B4A	100.0 ±0.5	4	Multi	850 / 1,300	1.88 / 1.65
4M3	20-01	8-B4A	500.0 ±0.5	4	Multi	850 / 1,300	3.38 / 2.25
4M4	20-01	8-B4A	1000.0 ±0.5	4	Multi	850 / 1,300	5.25 / 3.00

1/ Multimode connectors can be used at two wavelengths, depending on the connector specified (see table I, column two).

2/ Cable assembly insertion loss shall include cable loss, connector loss and the loss of any required optical attenuation element(s) within each connector.

PIN Example; M49292/8-2S3 designates a two channel single mode fiber optic cable assembly consisting of: a M83526/20-05 connector on each end of an M85045/30E2A cable, 500 meters long, with an insertion loss of 2.25dB max at 1,310 nm ±30 nm wavelength.

REQUIREMENTS:

Component parts:

Connectors, (two required) shall be in accordance with M83526/20-XX, where XX indicates the connector configuration (2 or 4 channel and single mode or multimode (see MIL-DTL-83562/20 table V) and table I above).

Dust cover assemblies shall be as specified in M83526/20 (included as part of the connector).

MIL-DTL-49292/8

Cable designation shall be as follows, M85045/W-XYZ, where W is the specification sheet (either 8 (multimode) or 30 (single mode)), X is either "B" or "E", Y indicates the number of channels (2 or 4) and Z indicates fiber size ((62.5/125 or 50/125) for multimode or coating diameter (250 or 500) for single mode)), see table I above).

Assembly: Assembly shall be in accordance with figures 1 and 2, and tables I and II, and shall pass the requirements of tables III, and IV.

Length: Length shall be in accordance with table I.

Cable connector termini termination pinout diagram and fiber buffer color: Cable connector termini termination pinout diagram shall be in accordance with figure 2.

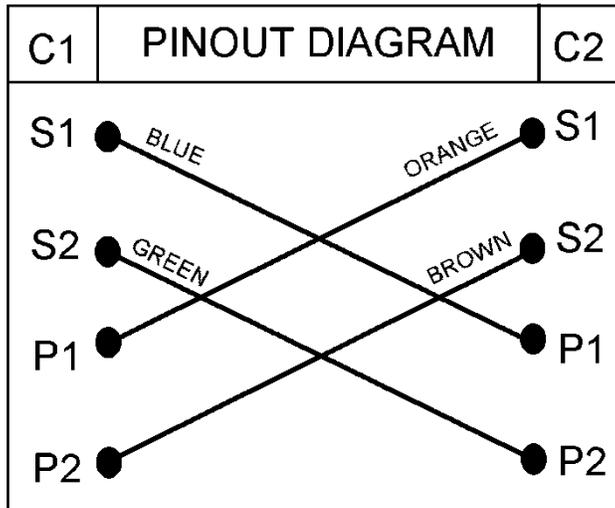


FIGURE 2. C1 to C2 cable connector termini termination pinout diagram.

Weight: Maximum weight of the cable assembly shall be in accordance with table II.

TABLE II Length vs. weight.

Length "L" (meters)	Weight (kg) maximum
10.0 ±0.5	1.3
100.0 ±0.5	4.1
500.0 ±0.5	17.0
1000.0 ±0.5	33.0

MIL-DTL-49292/8

Performance:

Optical requirements:

Insertion loss (maximum assembly attenuation) per channel shall be as specified in table I. Where cable assemblies can be used at multiple wavelengths, insertion loss shall be measured at all wavelengths. Measurements shall be made in accordance with TIA/EIA-455-171, test method B1 for multimode and method B# for single mode.

Optical fiber bandwidth: For 62.5/125, ≥ 300 MHz at $850 \text{ nm} \pm 20 \text{ nm}$ and ≥ 600 MHz at $1300 \text{ nm} \pm 20 \text{ nm}$. For 50/125 fiber, ≥ 500 MHz-km at $850 \text{ nm} \pm 20 \text{ nm}$ and ≥ 500 MHz-km at $1,300 \text{ nm} \pm 20 \text{ nm}$.

Crosstalk: When tested in accordance with TIA-455-42, the assembly cross talk characteristics shall be no less than -60 dB.

Thermal shock: Not applicable.

Cable retention: The minimum cable retention (cable to connector pullout strength) shall be 182 kilograms (401 lbs).

Fluid immersion: Not applicable.

Temperature range:

Operating: -46°C (-51°F) to $+71^{\circ}\text{C}$ (160°F).

Storage: -57°C (-71°F) to $+85^{\circ}\text{C}$ (185°F).

Salt fog: Not applicable.

Part or Identifying Number (PIN) characteristics: See table I.

Temperature cycling: The test cable assembly shall be tested in accordance with the following:

Low temperature: MIL-STD-810, method 502, procedures I and II.

High temperature: MIL-STD-810, method 501, procedures I and II (constant temperature).

NOTE: The minimum soak time at each storage and operating temperature shall be 2 hours.

First article inspection shall consist of performing the inspections and optical tests specified in table III herein, in the sequence shown.

MIL-DTL-49292/8
 TABLE III. First article inspection.

Inspection <u>1/</u>	Sample quantity
<u>Group I (5 units)</u> Visual and mechanical Insertion loss	5 units 5 units
<u>Group II (5 units)2/</u> Bandwidth Crosstalk	5 units 5 units
<u>Group III (3 units) 3/</u> Cable seal flexing Cable retention Low pressure (altitude) Temperature cycling Dust Storage temperature Humidity	1 unit 2 units 1 unit 2 units 2 units 2 units 1 unit
<u>Group IV (2 units) 3/</u> Vibration Life	1 unit 1 unit

1/ All inspections to be performed in the order specified in each group.

2/ Units from group 1 after completion of inspections.

3/ 5 units from group II inspections shall be divided into 3 units for group III inspections and 2 units for group IV inspections.

Group A inspection shall consist of performing the inspections and optical tests specified in table IV herein, in the sequence shown.

TABLE IV. Group A inspection.

Inspection
Visual and mechanical
Insertion loss

Group B inspection: Not applicable.

MIL-DTL-49292/8

Reference documents: In addition to MIL-DTL-49292, this document references the following:

MIL-STD-810

TIA-455-42

TIA/EIA-455-171

MIL-DTL-83526/20

Custodians:

Army - CR

Navy - SH

Air Force - 85

DLA - CC

Preparing activity:

DLA - CC

(Project 6020-2010-002)

Review activities:

Army - AR, AV, MI

Navy - AS, CG, EC, MC

Air Force - 99

NOTE: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change, you should verify the currency of the information above using the ASSIST Online database at <https://assist.dla.mil>.