

METRIC

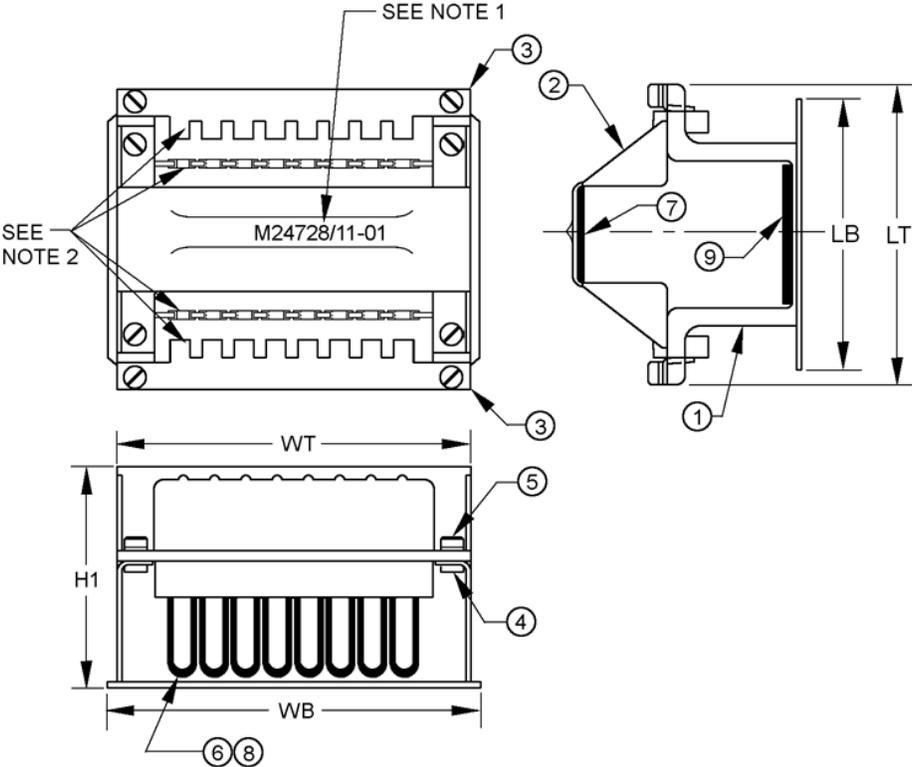
MIL-DTL-24728/11  
W/AMENDMENT 1  
19 September 2012  
SUPERSEDING  
MIL-DTL-24728/11  
23 August 2010

DETAIL SPECIFICATION SHEET

INTERCONNECTING BOX, FIBER OPTIC,  
SPLICE TRAY HOLDER MODULE, 8 TRAY

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-I-24728.



NOTES:

- 1. Steel stamp with 3.3 mm (.13 inch) high characters in this area, PIN, and either the manufacturer's CAGE code, name, or logo.
- 2. Base assembly slots (8 places), support angle assembly right slots (8 places), and support angle assembly left slots (8 places) shall be at an angle of 90 degrees  $\pm$  1 degree.
- 3. For dimensions, see table I.

FIGURE 1. Splice tray holder module.

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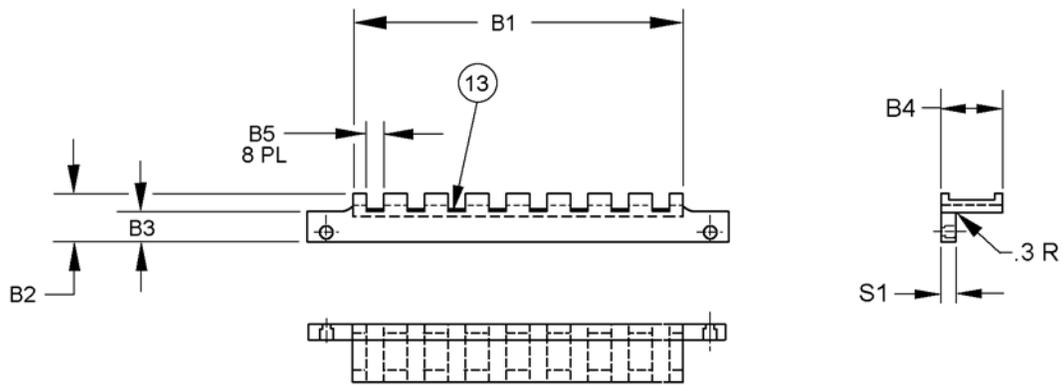
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TABLE I. Splice tray holder module and cover dimensions

Designator	Descriptions	Dimensions <sup>1/</sup>			
		mm		inches	
		nom	tol	nom	tol
H1	Overall height	151.1	±2.5	5.95	±.10
LB	Base length	196.8	±2.5	7.75	±.10
LT	Length of top	217.4	±2.5	8.56	±.10
WB	Width of base	254.0	±2.5	10.00	±.10
WT	Width of top	241.3	±2.5	9.50	±.10

<sup>1/</sup> Inch equivalents are given for information only.



NOTE: For dimensions, see table II.

FIGURE 2. Support angle assembly.

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TABLE II. Support angle assembly dimensions.

Designator	Descriptions	Dimensions <u>1/</u>			
		mm		inches	
		nom	tol	nom	tol
B1	Alignment channel length	177.8	±0.4	7.00	±.02
B2	Alignment channel width	29.4	±0.2	1.16	±.01
B3	Cutout base	22.3	±0.2	.88	±.01
B4	Alignment channel, height	38.1	±0.4	1.50	±.02
B5	Cutout width	9.5	±0.2	.37	±.01
S1	Rail height	9.5	±0.4	.37	±.02

1/ Where appropriate inch equivalents are given for information only.

TABLE III. Parts list.

Subcomponent identification numbers, circled (see figure(s) 1 and 2)	Subcomponent name	Located in Figure(s)	Quantity	Material (see notes)	Remarks (inches) <u>1/</u>
1	Base assembly	1	1	2	Installation hardware, see subcomponents 10, 11 and 12
2	Cover assembly	1	1	2	
3	Support angle assembly	1, 2	2	3	
4	Clinch nut	1	8	4	1/4 -20 UNC-2B CLS-0420-2
5	Captive panel screw	1, 2	8	4	1/4 -20 UNC-2A
6	Channel edging	1	16	5	162.1 (6.38) long
7	Cover bumper	1	1	6	63.5 (2.5) X 6.4 (.250) X 177.8 (7.00) long
8	Adhesive	1	AR <u>7/</u>	8	
9	Base bumper	1	1	6	95.3 (3.75) X 6.4 (.250) X 168.4 (6.6)
10	Screw, cross, recessed PHM		8	4, 9	1/4 -20UNC-2A X 5/8 long
11	Flat washer		8	4, 9	1/4
12	Lock washer, split		8	4, 9	1/4
13	Support angle assembly, bumper	2	16	6	9.6 (.38) X 1.5(.06) X 38.1(1.5)

See footnotes on next page



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Design and construction: The physical characteristics of the splice tray holder shall be as shown in figures 1 and 2, tables I, II, III, and IV and shall be such that it installs into the mounting holes as shown in MIL-DTL-24728/9 and MIL-DTL-24728/10. Subcomponents 10, 11, and 12 shall be supplied with each tray holder for mounting purposes. When installed, the tray holder shall not adversely affect the performance of MIL-DTL-24728/9 and MIL-DTL-24728/10. Splice tray holders may be installed in other MIL-I-24728 boxes, provided that the module dimensions can be accommodated.

Mass: 2100 g (4.6 pounds) maximum.

Materials: Unless otherwise specified, materials shall be as specified in table III.

Parts and processes: Unless otherwise specified, parts and processes shall be selected or developed in accordance with the supplier's standard practices and shall allow the resultant product to meet the requirements of this specification.

Stress relief: Splice tray holder shall be stress relieved in accordance with MIL-E-24142.

Finish: Chemfilm in accordance with MIL-DTL-5541, type II, class 1A (Alodine) after weld and before installing subcomponents 6 through 10 (see table III and figures 1 and 2).

Non-magnetic Materials: Not Applicable.

Part identification: The splice tray holder shall be identified individually by steel stamp with 3.3 mm (.13 inch) high characters (see figure 1). Identification marking shall include the PIN and either the manufacturer's CAGE code, name, or logo.

Enclosure: Splice tray holder shall be designed such that all cables, cable components, fibers, blown optical fiber (BOF) tubes, connectors, splices, couplers, and mounting and stability supports for the above components entering, enclosed in, or exiting the components are not damaged during servicing of the components or during installation of additional components.

Mounting provisions: The splice tray holder shall install into the mounting holes as shown in figure 2 of MIL-DTL-24728/9 and figure 2 of MIL-DTL-24728/10 using mounting hardware identified in table III, subcomponents 13, 14, and 15.

Interconnect organization: The splice tray holders shall accommodate splice tray removal, as specified herein, such that fiber splice organizers may be moved into serviceable positions without damage to any component, and their operational position shall minimize micro bends or macro bends in any cable, optical fiber cable component (OFCC), BOF tubes, or fiber. NOTE: All buffered fibers, OFCC's, BOF tubes, or fiber ribbons are routed within the interconnection box using tie wrap rails, cable routing posts, and cable management devices to avoid interference with input cables and other splice tray holders.

Fiber and splice organizers: Splice organizers shall be universal or replaceable to accommodate and protect all types of fiber optic splices, both mechanical and fusion. The design shall allow the physical rearrangement of splices. Splice and fiber organizers shall be designed in removable units to provide additional storage capacity for fiber and splices. Fiber and splice organizers shall be designed to be compatible with MIL-DTL-24728/8 splice tray dimensions, mounting and interconnect organization.

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Accessibility: Regardless of the method used for mounting a splice organizer, all parts of the organizer for fiber interconnecting, splicing, maintenance, mounting, and cable additions shall be from the front. Splices, fiber organizers, and individual connections shall be accessed without the removal of, or damage to, other splices, fibers, and connections. Hinged covers shall be designed to remain in an open position.

Tray holder compatibility and density: The splice tray holder shall have the capacity to hold a maximum of eight (8) MIL-DTL-24728/8 trays. Tray holder shall be fabricated to provide a minimum of 21.6 mm (.85 inch) distance from tray center line to tray center line when trays are installed.

VERIFICATION.

Inspection routine: Applicable with the following modifications.

Environmental/mechanical inspections:

Vibration: Applicable with the following modification. Vibration test shall be performed with optical fiber splices assembled on M85045/16-02 in accordance with MIL-PRF-24623/6 stored in the tray and tray holder and shall meet discontinuity during the test and change in optical transmittance requirements after the test.

Structural integrity: Applicable except the assembled splice tray holder module shall not have a resonant frequency less than the maximum specified in MIL-STD-167/1 type 1.

Shock: Applicable with the following modifications.

- a. Test setup, optical fiber splices assembled on M85045/16-02 in accordance with MIL-PRF-24623/6 stored in the splice tray and tray holder shall meet discontinuity requirements during the test and change in optical transmittance requirements after the test.
- b. The following test conditions shall also apply:
  - (1) Fore-aft testing shall be performed in addition to normal and athwartship orientations,
  - (2) Use 90 degrees for athwartship and fore-aft testing,
  - (3) Total weight on anvil plate shall not exceed 3400 lbs.
  - (4) Testing shall be performed using hammer heights with anvil table travel limits specified in accordance with table XI.

TABLE XI. Fixed hammer heights and table travel limits

Fixed hammer height		Anvil table travel limit	
meter	Feet	millimeter	Inch
0.91	3.0	76.2	3.0
1.68	5.5	76.2	3.0
1.68	5.5	38.1	1.5

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Temperature/humidity cycling: Applicable with the following modification. Testing shall be performed in accordance with TIA/EIA-455-5, method B. The sub-cycle shall be included in the test. Change in optical transmittance is not applicable.

Salt spray: Not applicable.

Temperature life (life aging): Applicable with the following modifications. Testing shall be performed in accordance with TIA/EIA-455-4. Change in optical transmittance is not applicable. The following special test conditions and modifications to TIA/EIA-455-4 shall apply to these tests:

- a. The specimen shall be exposed to dry air at  $85 \pm 3 \text{ } ^\circ\text{C}$  ( $185 \pm 5 \text{ } ^\circ\text{F}$ ) for a period of 240 hours.

Thermal shock: Applicable with the following modifications. Testing shall be performed in accordance with TIA-455-71, using test condition C-0. Change in optical transmittance is not applicable.

Operating temperature: Applicable with the following modifications. Optical fiber splices in accordance with MIL-PRF-24623/6 stored in the tray and tray holder shall meet the change in optical transmittance requirements. Testing shall be performed in accordance with TIA-455-3 using the test condition schedule and soak times in accordance with table V. The change in optical transmittance shall be measured during and after the test. A post test visual examination of the test specimens shall reveal no leakage of waterproofing compounds or other apparent loss of sealing capability, no surface or identification marking impairment, nor any damage detrimental to the operation of the test specimens. The operating temperature range shall be as specified herein.

TABLE V. Temperature cycling steps.

Step	Action	Temperature $^\circ\text{C}$ ( $^\circ\text{F}$ )	Duration
1	Maintain	Room ambient	4 hours (minimum)
2	Ramp to	Low operating temp $+0/-3$ ( $+0/-5$ )	2 hours
3	Maintain	Low operating temp $+0/-3$ ( $+0/-5$ )	8 Hours (minimum)
4	Ramp to	$25 \pm 3$ ( $77 \pm 5$ )	2 hours
5	Maintain	$25 \pm 3$ ( $77 \pm 5$ )	8 hours (minimum)
6	Ramp to	High operating temp $+0/-3$ ( $+0/-5$ )	1 hour
7	Maintain	High operating temp $+0/-3$ ( $+0/-5$ )	8 hours (minimum)
8	Ramp to	$25 \pm 3$ ( $77 \pm 5$ )	1 hour
9	Maintain	$25 \pm 3$ ( $77 \pm 5$ )	8 hours (minimum)
10	Repeat steps 2 through 9, four additional times, for a total of five (5) cycles.		

Fluid immersion: Not applicable.

Water pressure: Not applicable.

Flame spread: Not applicable.

Cable twist: Not applicable.

Cable retention: Not applicable.

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Cable seal flexing: Not applicable.

Compression resistance: Not applicable.

Impact: Not applicable.

Flammability: Not applicable.

Fungus: Applicable with the following modification. Subcomponents composed of materials not listed as fungus inert in guideline 4 of MIL-HDBK-454 shall be tested in accordance with TIA-455-56. The polymeric materials shall show sparse or very restricted microbial growth and reproduction with minor or inhibited substrate utilization. There shall be little or no chemical, physical, or structural change detectable.

Change in optical transmittance: Applicable with the following modification. The change in optical transmittance during or after any specified environmental or mechanical requirement shall be not greater than the maximum specified in the component specification.

Discontinuity: No discontinuity shall occur when tested in accordance with TIA-455-32 using equipment having a time resolution sufficient to resolve discontinuities of duration not less than 50 microseconds. A discontinuity is considered to be a reduction of signal strength defined in the component specification and for a duration defined in the component specification.

Referenced documents. In addition to MIL-I-24728, this specification sheet references the following documents:

MIL-DTL-5541	MIL-HDBK-454	TIA/EIA-455-4
MIL-E-24142	MIL-STD-167/1	TIA/EIA-455-5
MIL-PRF-24623/6	ASTM B209	TIA-455-32
MIL-DTL-24728/8	ASTM B221	TIA-455-56
MIL-DTL-24728/9	TIA-455-3	TIA-455-71
MIL-DTL-24728/10		

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