

ITT Cannon is the foremost manufacturer of MS and MS type connectors with the widest range of connector styles, sizes and variations in the industry. These connectors utilize the finest materials, which, along with precision manufacturing and rigid quality control, assure ITT Cannon customers of the finest quality connectors. The MS A & B product line has environmentally safe green and black zinc alloy plating. The Black

zinc plating is RoHS compliant. The plating is a high quality, uniform finish. The contact, which are preloaded in the insulator, have been redesigned such that the solder cups remain in the proper orientation and will not rotate during wiring termination. The contacts are machined for strength and durability and plated with silver. The Cannon MS A&B design meets the performance requirements of the MIL-C-5015. The

product is available in all the popular sizes and configurations available in Class A (solid end bell) and Class B (split end bell) versions.

**Applications:**

- Industrial Controls
- Test Equipment
- Traffic Signals
- Bus Systems

**Product Features and Benefits**

- High strength aluminum alloy connector
- High strength plastic insulators
- Environmentally safe shell finishes
- Protected against corrosion
- High quality plating finish
- Threaded coupling
- Product is tooled and available in 50 insert patterns
- Machined contacts
- Low cost
- UL recognized

**Performance Specifications**

Temperature Range:	-55°C to 125°C (-67°F to 257°F)
Current Rating:	13 A to 150 A*
Durability:	500 mating cycles min.
Wire Accommodation:	0 to 20 AWG*
No. of Contacts:	2 to 48
Termination:	Solder

\*Depending on contact size.

**ELECTRICAL SERVICE DATA**

Test current ratings of contacts and allowable voltage drop under test conditions when assembled as in service are shown below. Maximum total current to be carried per connector is the same as the allowable in wire bundles as specified in MIL-W-5088.

Contact Size	Test Current (amps)	Potential Drop (millivolts)
16	13	49
12	23	42
8	46	28
4	80	23
0	150	21

**HIGH POTENTIAL TEST VOLTAGE**

MS connectors show no evidence of breakdown with the test voltage given below is applied between the two closest contacts and between the shell and the contacts closest to the shell for a period of one minute.

MS Service Rating	Test Voltage (RMS) 60 cps	Suggested* Operating Voltages		Air Spacing Nom. (inches)	Creepage Distance Nom. (inches)
Inst.		DC	AC (rms)		
Inst.	1000	250	200		1/16
A	2000	700	500	1/16	1/8
D	2800	1250	900	1/8	3/16
E	3500	1750	1250	3/16	1/4
B	4500	2450	1750	1/4	5/16
C	7000	4200	3000	5/16	1

\*As indicated in previous MS Specification and to be used by designer only as a guide.

**Materials and Finishes**

Description	Material	Finish
Shell	Aluminum Alloy	Green Zinc Standard, Black Zinc (RoHS), OD CAD
Insulator	Hard Plastic	—
Contact	Brass or Copper Alloy	Silver





A

Circular

CA/MS 3100A wall mounting receptacles are used to carry wires through walls or bulkheads, or to provide the means of disconnection at a bulkhead. CA/MS 3100A receptacles mate with CA/MS 3106 and 3108 plugs.



CA/MS 3101A cable connecting receptacles are used for cable extension requirements where mounting provisions are unnecessary. CA/MS 3101A plugs mate with 3106A/B and 3108B connectors.



**Note:** The D revision of MIL-C-5015 has changed the nomenclature of the 3101 from receptacle to plugs.

CA/MS 3102A box mounted receptacles are used in junction boxes or as an integral part of equipment. CA/MS 3102A receptacles will mate with 3106 and 3108 plugs.



CA/MS 3106A straight plug utilizes a solid endbell. The CA/MS 3106A mates with 3100, 3101, and 3102 connectors



CA/MS 3106B is identical to the 3106A straight plug except it utilizes a split endbell. CA/MS 3106B mates with 3100, 3101, and 3102 connectors.



CA/MS 3108B 90° angle plugs are used where there is limited space and where wires must be brought at abrupt angles. This plug will mate with 3100, 3101, and 3102 connectors.

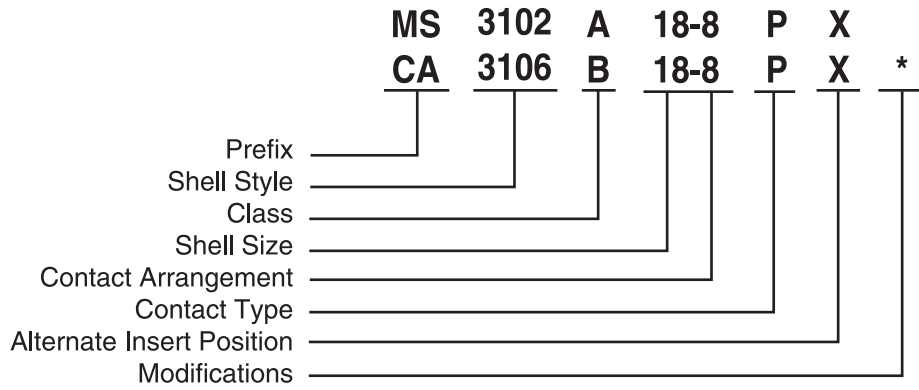




A

Circular

How to Order



**SERIES PREFIX**

- MS – Complies with Military Specification MIL-C-5015
- CA – Cannon prefix
- CAR – RoHS Compliant (Black Zinc Only)

**SHELL STYLE**

- 3100 – Wall Mounting Receptacle (A version only)
- 3101 – Cable Connector Receptacle (A version only)
- 3102 – Box Mounting Receptacle
- 3106 – Straight Plug
- 3108 – 90° Angle Plug (B version only)

**CLASS**

- A – Solid or one-piece endbell
- B – Split or two-piece endbell

**SHELL SIZE**

Coupling thread diameter in sixteenths of an inch

**CONTACT ARRANGEMENTS**

Refer to page B-5

**CONTACT TYPE**

- P – Pin
- S – Socket

**ALTERNATE INSERT POSITIONS**

Refer to page 4

**MODIFICATIONS**

A206 (RoHS) Black Zinc Plating  
Contact Cannon for other options.



For more information, please contact your local Cannon sales office.

Contact Cavity Arrangements



A

Circular

	10SL-3* 3 - #16	10SL-4* 2 - #16	12S-3 2 - #16	14S-1 3 - #16	14S-2 4 - #16	14S-5 5 - #16	14S-6 6 - #16	14S-7 3 - #16	14S-9 2 - #16	16-9 2 - #16 (B, D) 2 - #12 (A, C)	16-10 3 - #12	16-11 2 - #12
Service Rating	A	A	A	A	Inst.	Inst.	Inst.	A	A	A	A	A
	16S-1 7 - #16	16S-8 5 - #16	18-1 10 - #16	18-4 4 - #16	18-5 1 - #16 (A) 2 - #12 (B, C)	18-8 7 - #16 (A-G) 1 - #12 (H)	18-9 5 - #16 (B, C, E-G) 2 - #12 (A, D)	18-10 4 - #12	18-11 5 - #12	18-12 6 - #16		
	A	A	A (B,C,F,G) Inst. (all others)	D	D	A	Inst.	A	A	A		
	18-20 5 - #16	18-22 3 - #16	20-3 3 - #12	20-4 4 - #12	20-7 8 - #16	20-19 3 - #8	20-27 14 - #16	20-29 17 - #16	20-33 11 - #16			
	A	D	D	D	A (C-F) D (A,B,G,F)	A	A	A	A			
	22-2 3 - #8	22-14 19 - #16	22-19 14 - #16	22-23 8 - #12	22-28 7 - #12	24-2 7 - #12	24-10 7 - #8	24-20 9 - #16 (A-D, G-L) 2 - #12 (E, F)				
	D	A	A	D (H) A (all others)	A	D	A	D				
	24-28 24 - #16	28-10 3 - #12 (A, F, G) 2 - #8 (B, E) 2 - #4 (C, D) D (G) A (all others)	28-11 18 - #16 (A-I, N-X) 4 - #12 (J-M)	28-12 26 - #16	28-15 35 - #16	28-16 20 - #16	28-21 37 - #16					
	Inst.		A	A	A	A	A					
	36-5 4 - #0	36-7 40 - #16 (A-Z, a-s) 7 - #12 (t-z)	36-8 46 - #16 (A-X, Z-z) 1 - #12 (Y)	36-10 48 - #16								
	A	A	A	A								

\* 10SL is available in the following configurations only: 3100, 3101, 3102, pin contacts only and 3106 and 3108 socket contacts only

Dimensions shown in inches (mm)  
Specifications and dimensions subject to change

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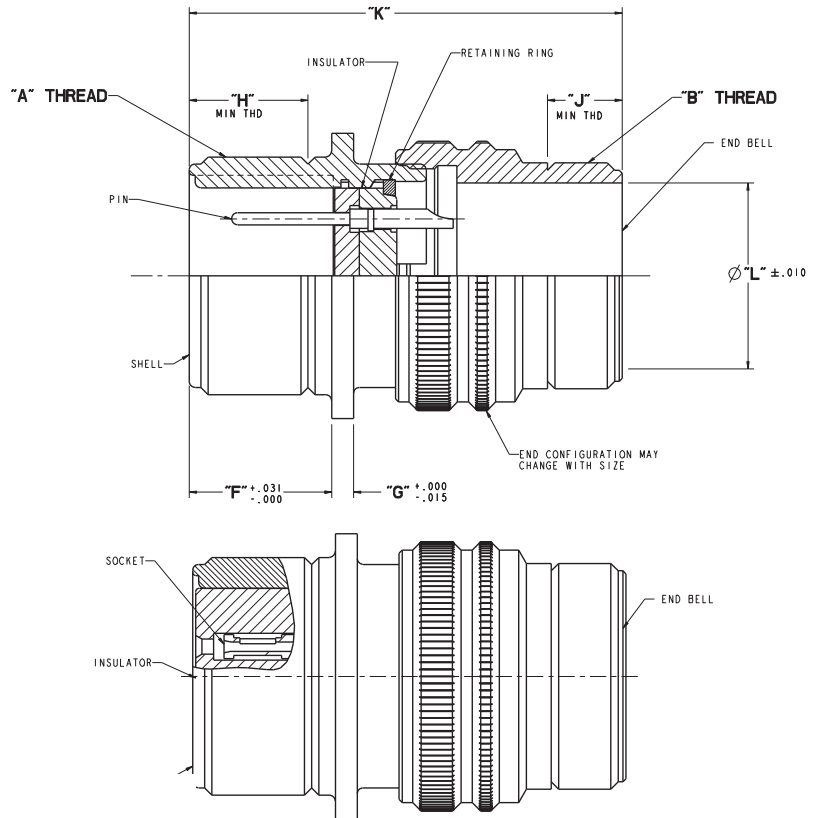
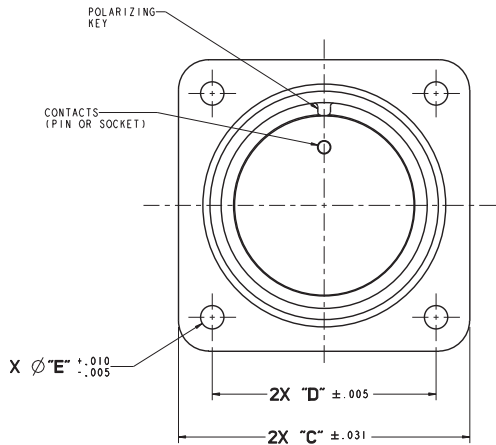
A

Circular

Wall Mounting Receptacle - Solid Endbell

MS3100A

CA/CAR 3100A



TABLE

SIZE	ITT CANNON HARDWARE KIT NO. (GREEN ZINC)	ITT CANNON HARDWARE KIT NO. (BLACK ZINC)	"A" THREAD (CLASS: 2A)	"B" THREAD (CLASS: 2A)	"C"	"D"	"E"	"F"	"G"	"H"	"J"	"K"	Ø "L"
10SL*	002799-0000	002799-0001	5/8-24 UNEF	5/8-24 UNEF	1.000 (25.40)	.718 (18.24)	.120 (3.05)	.562 (14.30)	.093 (2.36)	.375 (9.53)	.354 (9.00)	1.625 (42.27)	.346 (8.79)
12S	002602-0000	002602-0001	3/4-20 UNEF	5/8-24 UNEF	1.094 (27.80)	.813 (20.65)	.120 (3.05)	.562 (14.30)	.093 (2.36)	.375 (9.53)	.393 (9.98)	1.655 (42.04)	.465 (11.81)
14S	002604-0000	002604-0001	7/8-20 UNEF	3/4-20 UNEF	1.188 (30.20)	.906 (23.00)	.120 (3.05)	.562 (14.30)	.093 (2.36)	.375 (9.53)	.354 (9.00)	1.705 (45.31)	.575 (14.61)
16S	002606-0000	002606-0001	1-20 UNEF	7/8-20 UNEF	1.281 (32.50)	.969 (24.60)	.120 (3.05)	.562 (14.30)	.093 (2.36)	.375 (9.53)	.374 (9.50)	1.775 (45.09)	.669 (17.00)
12	002603-0000	002603-0001	3/4-20 UNEF	5/8-24 UNEF	1.094 (27.80)	.813 (20.65)	.120 (3.05)	.750 (19.10)	.093 (2.36)	.625 (15.88)	.393 (9.98)	1.845 (46.86)	.465 (11.81)
14	002605-0000	002605-0001	7/8-20 UNEF	3/4-20 UNEF	1.188 (30.20)	.906 (23.00)	.120 (3.05)	.750 (19.10)	.093 (2.36)	.625 (15.88)	.354 (9.00)	1.885 (47.88)	.575 (14.61)
16	002607-0000	002607-0002	1-20 UNEF	7/8-20 UNEF	1.281 (32.50)	.969 (24.60)	.120 (3.05)	.750 (19.10)	.093 (2.36)	.625 (15.88)	.374 (9.50)	1.965 (49.91)	.669 (17.00)
18	002608-0000	002607-0001	1 1/8-18 UNEF	1-20 UNEF	1.375 (35.00)	1.062 (27.00)	.120 (3.05)	.750 (19.10)	.115 (2.92)	.625 (15.88)	.374 (9.50)	2.035 (51.69)	.807 (20.50)
20	002609-0000	002609-0001	1 1/4-18 UNEF	1 3/16-18 UNEF	1.500 (38.10)	1.152 (29.36)	.120 (3.05)	.750 (19.10)	.115 (2.92)	.625 (15.88)	.393 (9.98)	2.245 (57.02)	.978 (20.50)
22	002610-0000	002610-0001	1 3/8-18 UNEF	1 3/16-18 UNEF	1.625 (41.30)	1.250 (31.75)	.120 (3.05)	.750 (19.10)	.115 (2.92)	.625 (15.88)	.393 (9.98)	2.185 (55.50)	.980 (24.89)
24	002611-0000	002611-0001	1 1/2-18 UNEF	1 7/16-18 UNEF	1.750 (44.45)	1.375 (31.90)	.147 (3.74)	.812 (20.63)	.115 (2.92)	.625 (15.88)	.393 (9.98)	2.285 (58.04)	1.220 (31.00)
28	002612-0000	002611-0001	1 3/4-18 UNS	1 7/16-18 UNEF	2.000 (50.80)	1.562 (39.70)	.147 (3.74)	.812 (20.63)	.115 (2.92)	.625 (15.88)	.394 (10.00)	2.245 (57.02)	1.114 (28.30)
32	002613-0000	002613-0001	2-18 UNS	1 3/4-18 UNS	2.250 (57.15)	1.750 (44.45)	.173 (4.40)	.875 (22.23)	.166 (4.21)	.625 (15.88)	.453 (11.50)	2.275 (57.79)	1.425 (36.20)
36	002614-0000	002614-0001	2 1/4-16 UN	2-18 UNS	2.500 (63.50)	1.937 (49.20)	.173 (4.40)	.875 (22.23)	.166 (4.21)	.625 (15.88)	.492 (12.50)	2.485 (63.12)	1.772 (45.00)

\* 10SL is available in the following configurations only: 3100, 3101, 3102, pin contacts only and 3106 and 3108 socket contacts only







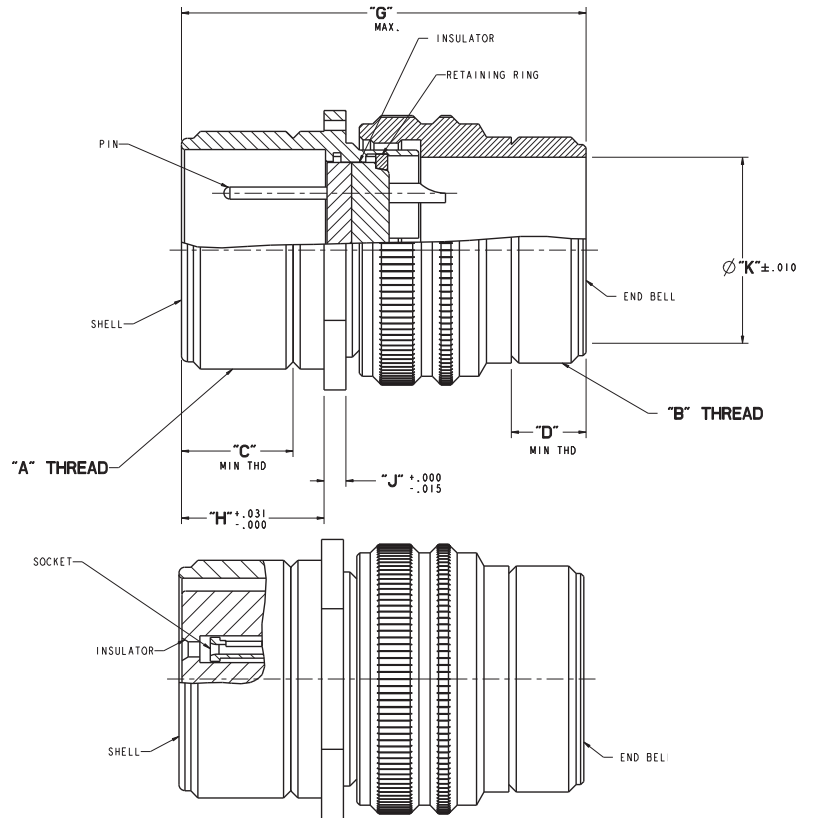
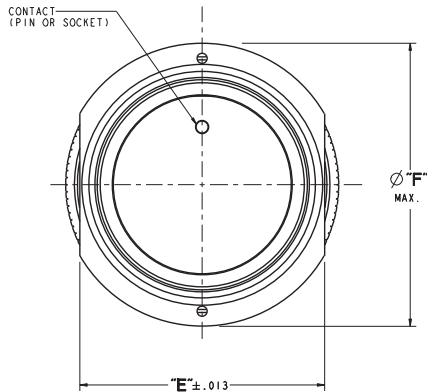
A

Circular

Cable Connecting Receptacle - Solid Endbell

MS3101A

CA/CAR 3101A



TABLE

SIZE	ITT CANNON HARDWARE KIT NO. (GREEN ZINC)	ITT CANNON HARDWARE KIT NO. (BLACK ZINC)	"A" THREAD (CLASS: 2A)	"B" THREAD (CLASS: 2A)	"C"	"D"	"E"	$\phi$ "F"	"G"	"H"	"J"	$\phi$ "K"
10SL*	030922-0000	030922-0001	5/8-24 UNEF	5/8-24 UNEF	.375 (9.53)	.354 (9.00)	.771 (19.58)	.969 (24.61)	1.531 (38.89)	.562 (14.30)	.093 (2.36)	.346 (8.79)
12S	030923-0000	030923-0001	3/4-20 UNEF	5/8-24 UNEF	.375 (9.53)	.393 (9.98)	.771 (19.58)	1.062 (26.77)	1.688 (42.88)	.562 (14.30)	.093 (2.36)	.465 (11.81)
14S	030925-0000	030925-0001	7/8-20 UNEF	3/4-20 UNEF	.375 (9.53)	.354 (9.00)	.898 (22.80)	1.156 (29.36)	1.688 (42.88)	.562 (14.30)	.093 (2.36)	.575 (14.61)
16S	030927-0000	030927-0001	1-20 UNEF	7/8-20 UNEF	.375 (9.53)	.374 (9.50)	1.021 (25.93)	1.250 (31.75)	1.688 (42.88)	.562 (14.30)	.093 (2.36)	.669 (17.00)
12	030924-0000	030924-0001	3/4-20 UNEF	5/8-24 UNEF	.625 (15.88)	.393 (9.98)	.771 (19.58)	1.062 (26.97)	2.062 (52.37)	.750 (19.10)	.093 (2.36)	.465 (11.81)
14	030926-0000	030924-0001	7/8-20 UNEF	3/4-20 UNEF	.625 (15.88)	.354 (9.00)	.898 (22.80)	1.156 (29.36)	2.062 (52.37)	.750 (19.10)	.093 (2.36)	.575 (14.61)
16	030928-0000	030928-0002	1-20 UNEF	7/8-20 UNEF	.625 (15.88)	.374 (9.50)	1.021 (25.93)	1.250 (31.75)	2.062 (52.37)	.750 (19.10)	.093 (2.36)	.669 (17.00)
18	030929-0000	030929-0001	1 1/8-18 UNEF	1-20 UNEF	.625 (15.88)	.374 (9.50)	1.145 (29.08)	1.344 (34.13)	2.062 (52.37)	.750 (19.10)	.115 (2.92)	.807 (20.50)
20	030930-0000	030930-0001	1 1/4-18 UNEF	1 3/16-18 UNEF	.625 (15.88)	.393 (9.98)	1.270 (32.25)	1.469 (37.30)	2.188 (55.58)	.750 (19.10)	.115 (2.92)	.978 (24.99)
22	030931-0000	030931-0001	1 3/8-18 UNEF	1 3/16-18 UNEF	.625 (15.88)	.393 (9.98)	1.395 (35.43)	1.594 (40.50)	2.188 (55.58)	.750 (19.10)	.115 (2.92)	.980 (24.89)
24	030932-0000	030932-0001	1 1/2-18 UNEF	1 7/16-18 UNEF	.625 (15.88)	.393 (9.98)	1.520 (38.60)	1.719 (43.66)	2.312 (58.72)	.812 (20.63)	.115 (2.92)	1.220 (31.00)
28	030933-0000	030933-0001	1 3/4-18 UNS	1 7/16-18 UNEF	.625 (15.88)	.394 (10.00)	1.770 (45.00)	1.969 (50.00)	2.312 (58.72)	.812 (20.63)	.115 (2.92)	1.114 (28.30)
32	030934-0000	030934-0001	2-18 UNS	1 3/4-18 UNS	.625 (15.88)	.453 (11.50)	2.020 (51.30)	2.219 (56.36)	2.438 (61.93)	.875 (22.23)	.166 (4.21)	1.425 (36.20)
36	030935-0000	030935-0001	2 1/4-16 UN	2-18 UNS	.625 (15.88)	.492 (12.50)	2.270 (57.65)	2.469 (62.70)	2.438 (61.93)	.875 (22.23)	.166 (4.21)	1.772 (45.00)

\* 10SL is available in the following configurations only: 3100, 3101, 3102, pin contacts only and 3106 and 3108 socket contacts only

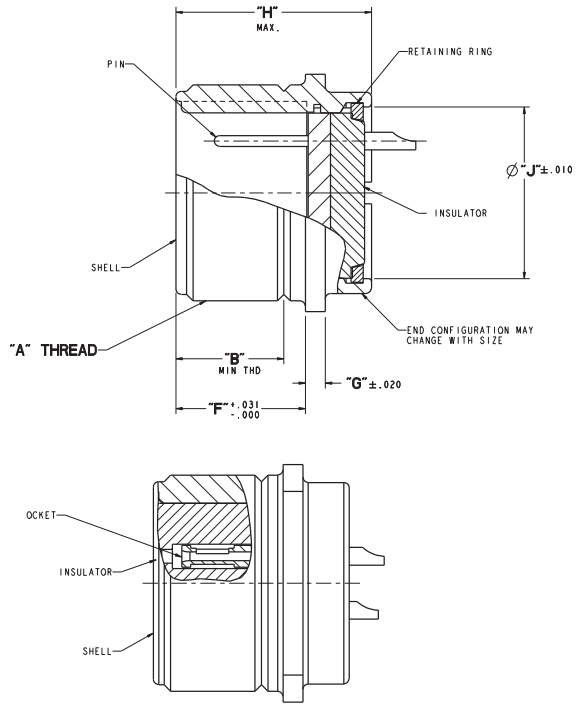
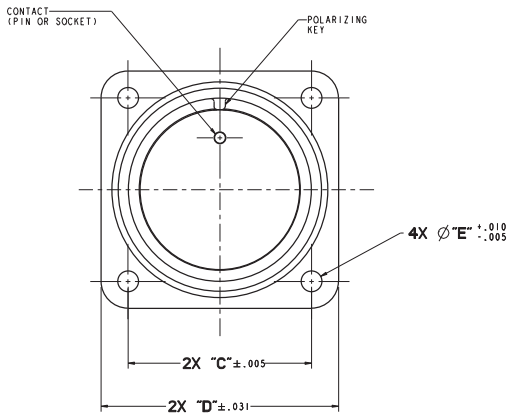


Box Mounting Receptacle

MS3102A

CA/CAR 3102A

Circular



**TABLE**

SIZE	ITT CANNON HARDWARE KIT NO. (GREEN ZINC)	ITT CANNON HARDWARE KIT NO. (BLACK ZINC)	"A" THREAD (CLASS: 2A)	"B"	"C"	"D"	Ø"E"	"F"	"G"	"H"	Ø"J"
10SL*	248-0112-021	248-0112-022	5/8-24 UNEF	.375 (9.53)	.718 (18.24)	1.000 (25.40)	.120 (3.05)	.562 (14.30)	.093 (2.36)	.938 (23.83)	.389 (9.88)
12S	248-0091-027	248-0091-028	3/4-20 UNEF	.375 (9.53)	.813 (20.65)	1.094 (27.80)	.120 (3.05)	.562 (14.30)	.093 (2.36)	.955 (24.26)	.517 (13.13)
14S	248-0093-051	248-0093-052	7/8-20 UNEF	.375 (9.53)	.906 (23.00)	1.188 (30.20)	.120 (3.05)	.562 (14.30)	.093 (2.36)	.955 (24.26)	.597 (15.16)
16S	248-0095-038	248-0095-039	1-20 UNEF	.375 (9.53)	.969 (24.60)	1.281 (32.50)	.120 (3.05)	.562 (14.30)	.093 (2.36)	.955 (24.26)	.719 (18.26)
12	248-0090-009	248-0090-010	3/4-20 UNEF	.625 (15.88)	.813 (20.65)	1.094 (27.80)	.120 (3.05)	.750 (19.10)	.093 (2.36)	1.143 (29.03)	.517 (13.13)
14	248-0092-011	248-0092-012	7/8-20 UNEF	.625 (15.88)	.906 (23.00)	1.188 (30.20)	.120 (3.05)	.750 (19.10)	.093 (2.36)	1.143 (29.03)	.597 (15.16)
16	248-0094-023	248-0094-024	1-20 UNEF	.625 (15.88)	.969 (24.60)	1.281 (32.50)	.120 (3.05)	.750 (19.10)	.093 (2.36)	1.143 (29.03)	.719 (18.26)
18	248-0096-042	248-0096-043	1 1/8-18 UNEF	.625 (15.88)	1.062 (27.00)	1.375 (35.00)	.120 (3.05)	.750 (19.10)	.115 (2.92)	1.143 (29.03)	.839 (21.31)
20	248-0097-033	248-0097-034	1 1/4-18 UNEF	.625 (15.88)	1.156 (29.36)	1.500 (38.10)	.120 (3.05)	.750 (19.10)	.115 (2.92)	1.149 (29.18)	.994 (25.25)
22	248-0098-040	248-0098-041	1 3/8-18 UNEF	.625 (15.88)	1.250 (31.75)	1.625 (41.30)	.120 (3.05)	.750 (19.10)	.115 (2.92)	1.149 (29.03)	1.089 (27.66)
24	248-0099-032	248-0099-033	1 1/2-18 UNEF	.625 (15.88)	1.375 (31.90)	1.750 (44.45)	.147 (3.74)	.812 (20.63)	.115 (2.92)	1.305 (33.015)	1.216 (30.84)
28	248-0100-039	248-0100-040	1 3/4-18 UNS	.625 (15.88)	1.562 (39.70)	2.000 (50.80)	.173 (4.40)	.812 (20.63)	.115 (2.92)	1.305 (33.15)	1.436 (36.047)
32	248-0101-023	248-0101-025	2-18 UNS	.625 (15.88)	1.750 (44.45)	2.250 (57.15)	.173 (4.40)	.875 (22.23)	.166 (4.21)	1.305 (33.15)	1.686 (42.82)
36	248-0102-025	248-0102-026	2 1/4-16 UN	.625 (15.88)	1.937 (49.20)	2.500 (63.50)	.173 (4.40)	.875 (22.23)	.166 (4.21)	1.305 (33.15)	1.901 (48.29)

\* 10SL is available in the following configurations only: 3100, 3101, 3102, pin contacts only and 3106 and 3108 socket contacts only