

FOR BOARD-TO-CABLE CONNECTION

230R SERIES (CONFORMS TO SCSI)

■ FEATURES

- 1.27 mm × 2.54 mm (0.050 in. × 0.100 in.) pitch contact arrangement enables high-density mounting.
- Cables and connectors are assembled by means of discrete wire IDC.
- Terminals are spaced in a four-row staggered arrangement (2.54 mm × 1.905 mm) (0.100 in. × 0.075 in.).
- Knife-fork two-point contacts are highly reliable.
- One-touch lock types and screw lock types are available for fixing the board-side connector and the cable-side connector.
- The following connectors conform to the SCSI standards recommended by ANSI:
 - (1) Single-operation lock types
 - 50-contact type: Conforms to the A-cable connectors prescribed in SCSI-II and SCSI-III
 - 68-contact type: Conforms to the B-cable connectors prescribed in SCSI-II
 - (2) Screw lock types
 - 68-contact type: Conforms to the P/Q-cable connectors prescribed in SCSI-III

* SCSI: Small Computer System Interface

■ SPECIFICATIONS

Item	Specifications
Operating temperature range	-55°C to +105°C
Current rating	DC 1 A
Voltage rating	AC 240 V
Contact resistance	30 mΩ max. (DC 6 V, 0.1A)
Insulation resistance	1000 MΩ min. (DC 500 V)
Dielectric withstand voltage	AC 750 V for 1 minute
Applicable wire (standard)	AWG #28 and #30 twisted-pair cables with φ 0.5 to 0.88 mm (0.020 to 0.035 in.) sheath diameter. (The applicable wires depend on the number of contacts. See the descriptions of IDC plugs and metal covers.)



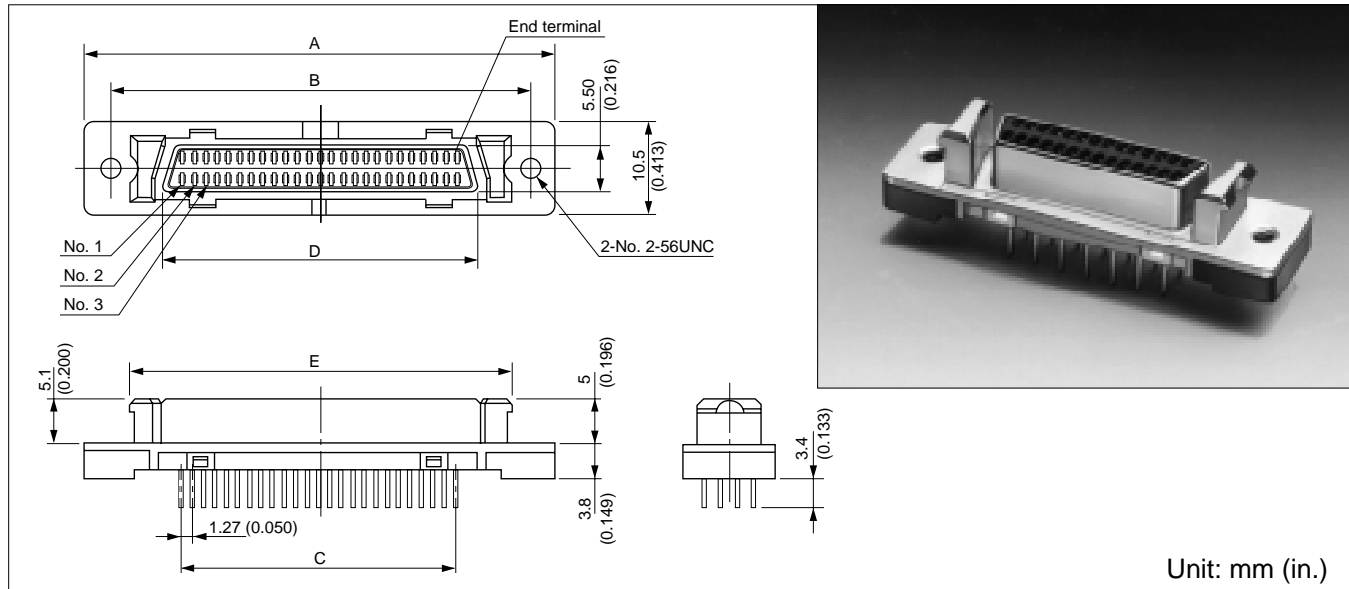
■ MATERIALS

Item	Materials	
Insulator	Polyester (UL94V-0)	
Conductor	Copper alloy	
Plating	Contact	Gold plating
	Terminal	Palladium plating

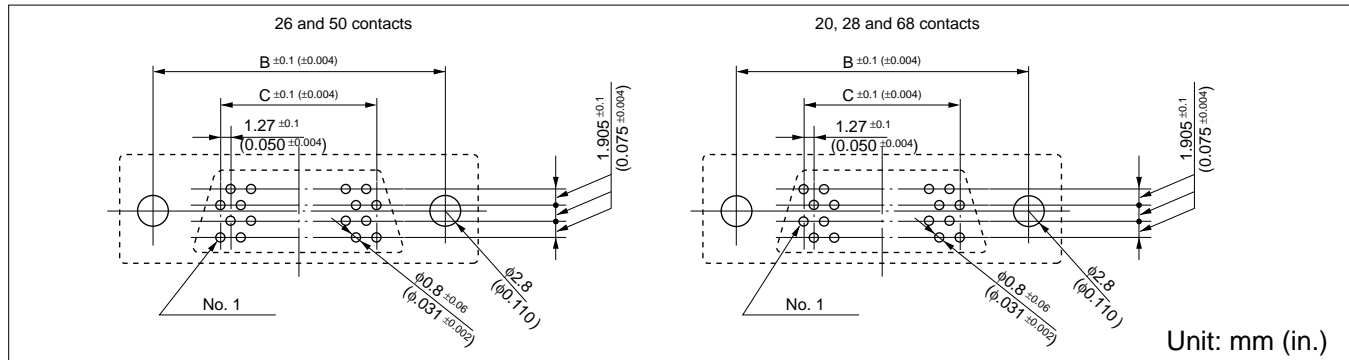
230R Series (Conforms to SCSI)

STRAIGHT SOCKET (SINGLE-OPERATION LOCK TYPE)

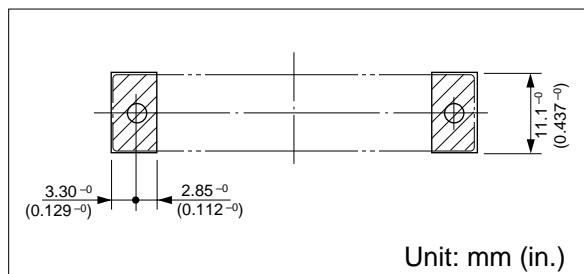
■ DIMENSIONS



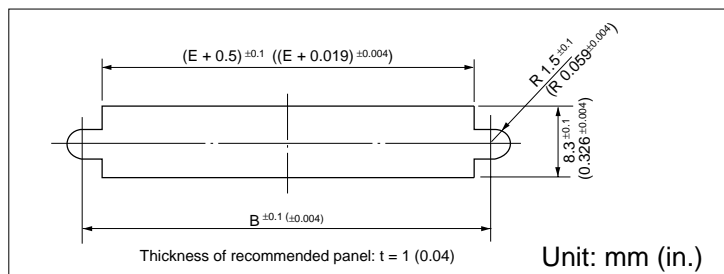
■ MOUNTING HOLE LAYOUT (COMPONENT SIDE)



■ PATTERN INHIBITED AREAS



■ RECOMMENDED PANEL DIMENSIONS



■ PART NUMBERS AND DIMENSIONS

Number of contacts	Part number	Dimensions: mm (in.)				
		A	B	C	D	E
20	FCN-234D020-G/E	33.40 (1.314)	27.43 (1.079)	11.46 (0.451)	15.60 (0.614)	23.24 (0.914)
26	FCN-234D026-G/E	37.21 (1.464)	32.24 (1.269)	15.24 (0.600)	19.41 (0.764)	27.05 (1.064)
28	FCN-234D028-G/E	38.48 (1.514)	32.51 (1.279)	16.51 (0.650)	20.68 (0.814)	28.32 (1.114)
40	FCN-234D040-G/E	46.10 (1.841)	40.13 (1.479)	24.13 (0.950)	28.30 (1.114)	35.94 (1.414)
50	FCN-234D050-G/E	52.45 (2.064)	46.48 (1.829)	30.48 (1.200)	34.65 (1.364)	42.29 (1.664)
68	FCN-234D068-G/E	63.88 (2.514)	57.91 (2.279)	41.91 (1.650)	46.08 (1.814)	53.72 (2.114)

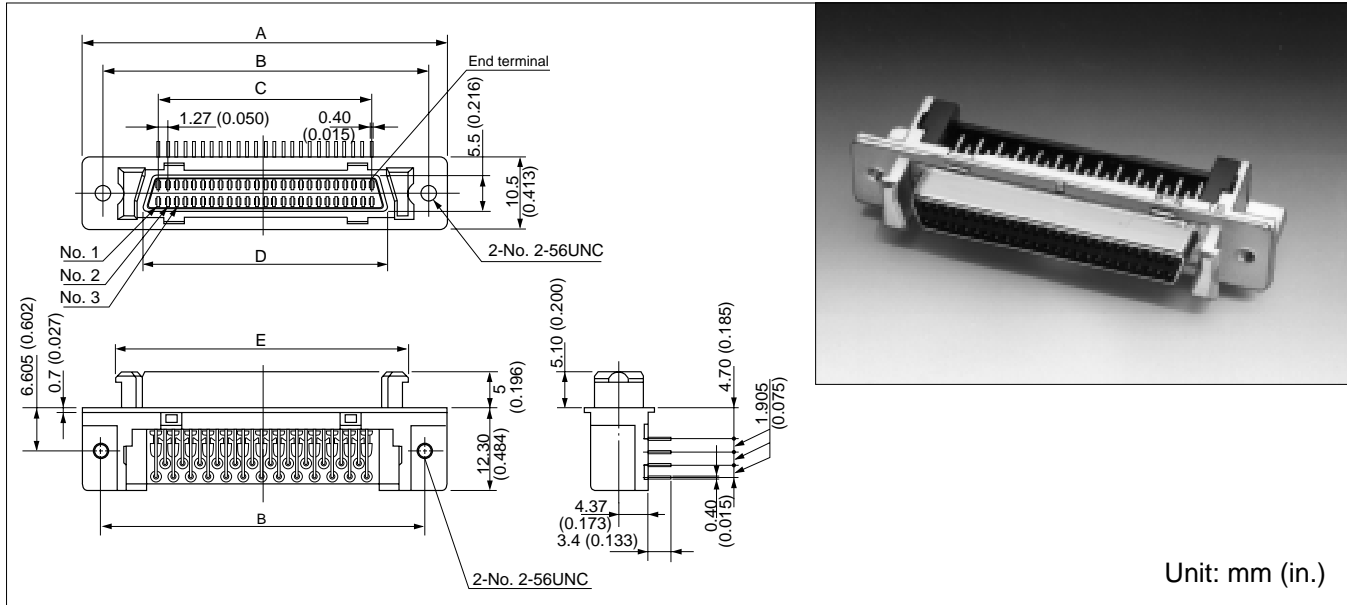
This series includes connectors with M 2.5 threaded inserts for mounting on PC boards and panels. Specify a part number by replacing -G/E at the end with -G/C.

Example: FCN-234D050-G/C

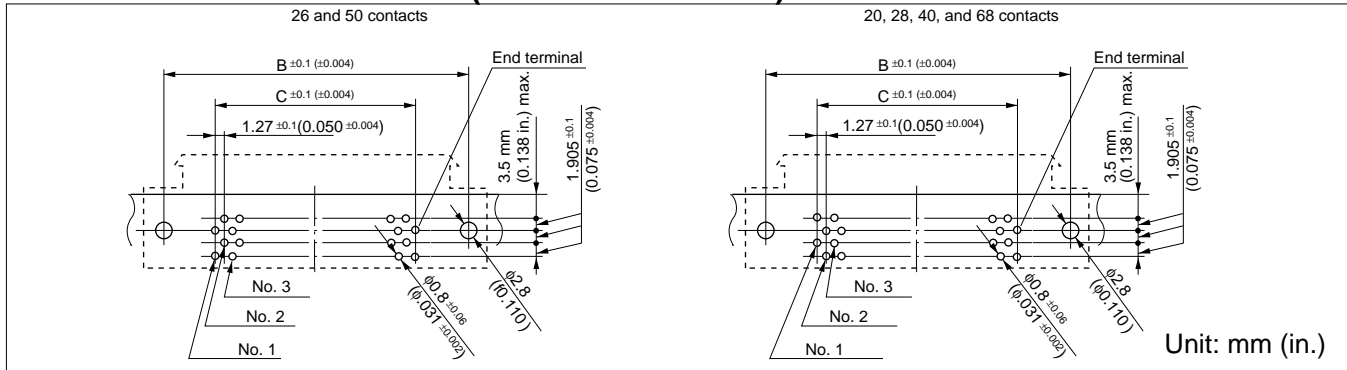
230R Series (Conforms to SCSI)

RIGHT ANGLE SOCKET (SINGLE-OPERATION LOCK TYPE)

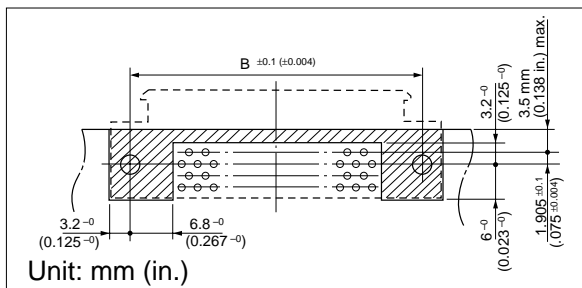
■ DIMENSIONS



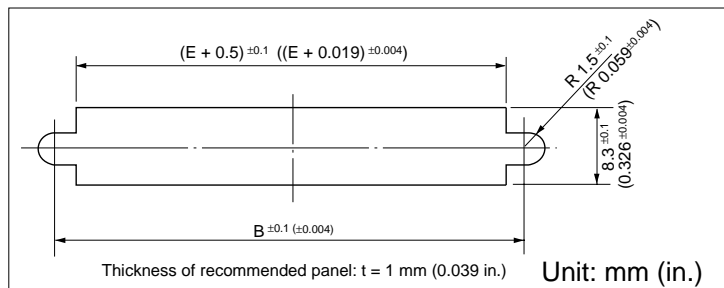
■ MOUNTING HOLE LAYOUT (COMPONENT SIDE)



■ PATTERN INHIBITED AREAS



■ RECOMMENDED PANEL DIMENSIONS



■ PART NUMBERS AND DIMENSIONS

Number of contacts	Part number	Dimensions: mm (in.)				
		A	B	C	D	E
20	FCN-235D020-G/E	33.40 (1.314)	27.43 (1.079)	11.46 (0.451)	15.60 (0.614)	23.24 (0.914)
26	FCN-235D026-G/E	37.21 (1.464)	32.24 (1.269)	15.24 (0.600)	19.41 (0.764)	27.05 (1.064)
28	FCN-235D028-G/E	38.48 (1.514)	32.51 (1.279)	16.51 (0.650)	20.68 (0.814)	28.32 (1.114)
40	FCN-235D040-G/E	46.10 (1.841)	40.13 (1.479)	24.13 (0.950)	28.30 (1.114)	35.94 (1.414)
50	FCN-235D050-G/E	52.45 (2.064)	46.48 (1.829)	30.48 (1.200)	34.65 (1.364)	42.29 (1.664)
68	FCN-235D068-G/E	63.88 (2.514)	57.91 (2.279)	41.91 (1.650)	46.08 (1.814)	53.72 (2.114)

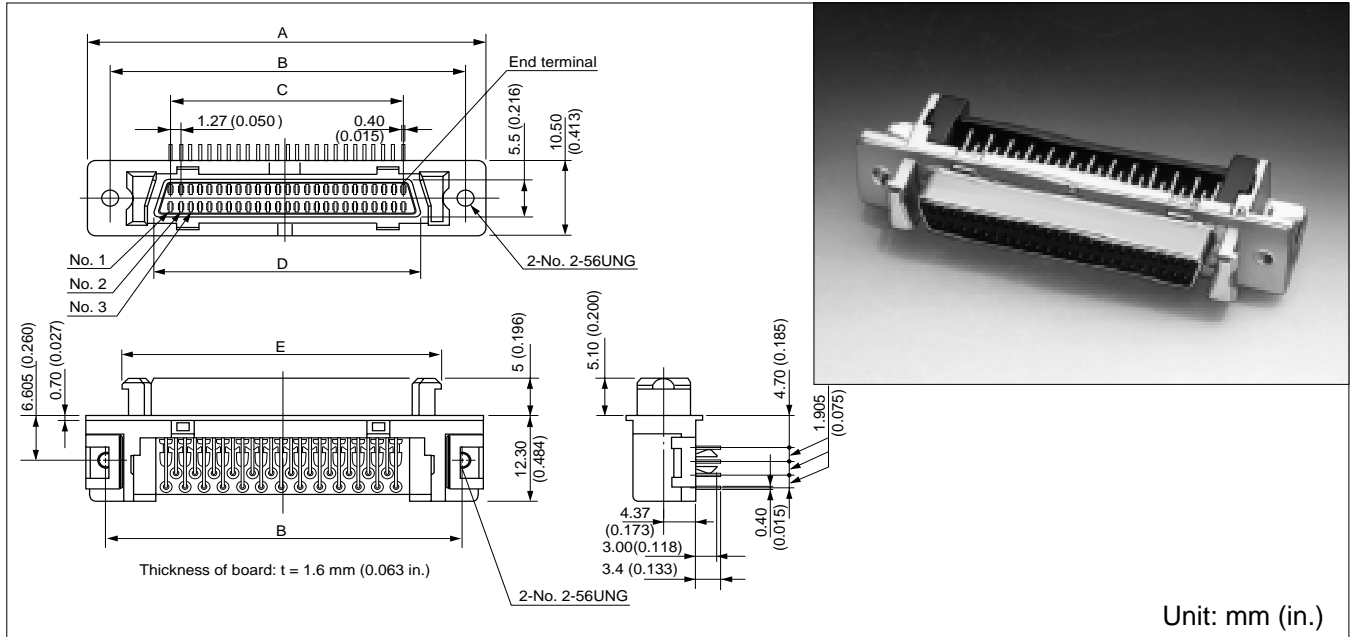
This series includes connectors with M 2.5 threaded inserts for mounting on PC boards and panels. Specify a part number by replacing -G/E at the end with -G/C.

Example: FCN-235D050-G/C

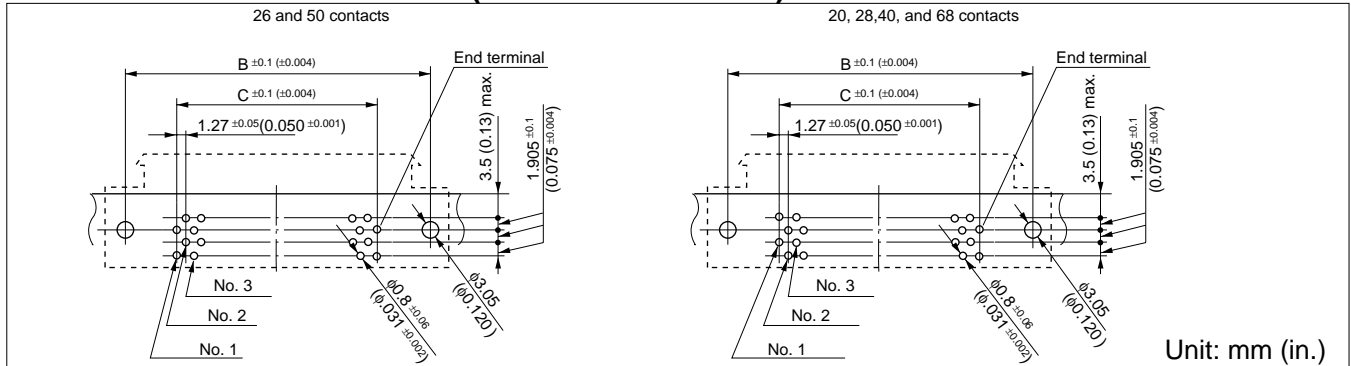
230R Series (Conforms to SCSI)

RIGHT-ANGLE SOCKET WITH BOARD LOCK BRACKET (SINGLE-OPERATION LOCK TYPE)

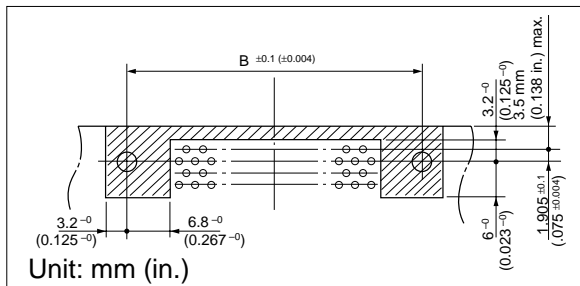
■ DIMENSIONS



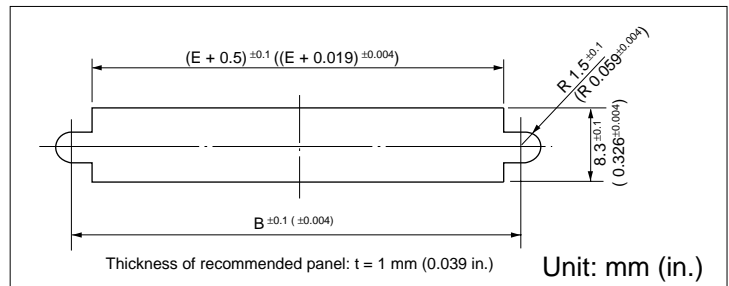
■ MOUNTING HOLE LAYOUT (COMPONENT SIDE)



■ PATTERN INHIBITED AREAS



■ RECOMMENDED PANEL DIMENSIONS



■ PART NUMBERS AND DIMENSIONS

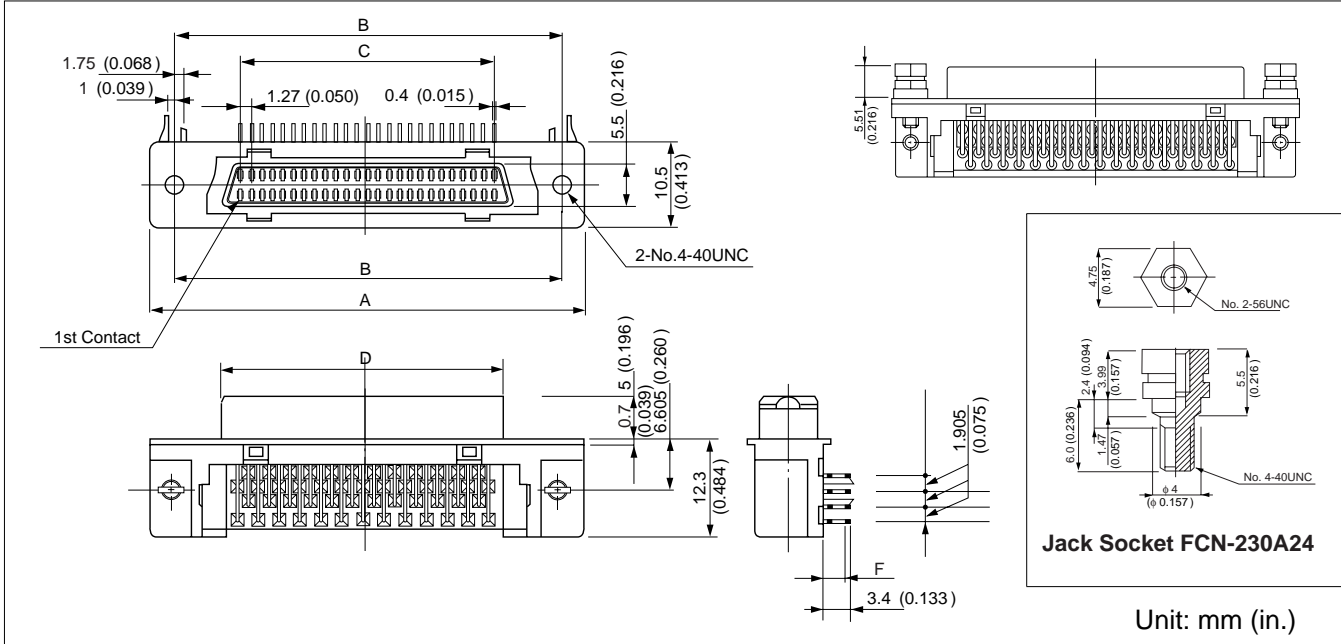
Number of contacts	Part number	Dimensions: mm (in.)				
		A	B	C	D	E
20	FCN-235D020-G/H	33.40 (1.314)	27.43 (1.079)	11.46 (0.451)	15.60 (0.614)	23.24 (0.914)
26	FCN-235D026-G/H	37.21 (1.464)	32.24 (1.269)	15.24 (0.600)	19.41 (0.764)	27.05 (1.064)
28	FCN-235D028-G/H	38.48 (1.514)	32.51 (1.279)	16.51 (0.650)	20.68 (0.814)	28.32 (1.114)
40	FCN-235D040-G/H	46.10 (1.841)	40.13 (1.479)	24.13 (0.950)	28.30 (1.114)	35.94 (1.414)
50	FCN-235D050-G/H	52.45 (2.064)	46.48 (1.829)	30.48 (1.200)	34.65 (1.364)	42.29 (1.664)
68	FCN-235D068-G/H	63.88 (2.514)	57.91 (2.279)	41.91 (1.650)	46.08 (1.814)	53.72 (2.114)

This series includes connectors with M2.5 threaded inserts for mounting panels. Specify a part number by replacing -G/H at the end with -G/J. Example: FCN-235D050-G/J

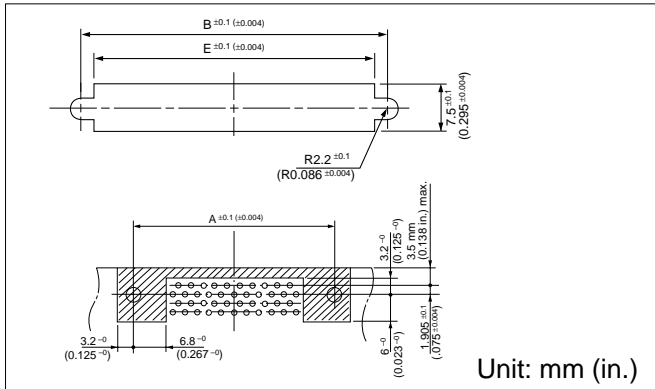
230R Series (Conforms to SCSI)

FCN-235D-G/** RIGHT ANGLE, BOARD-SOCKET, METAL SHELL, BOARDLOCKS (40 PinMII/100 base T std) (68 Pin SCSI III std)

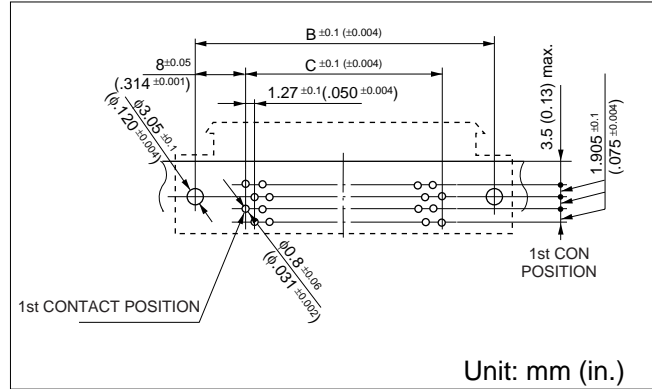
■ DIMENSIONS



■ PANEL LAYOUT



■ PCB LAYOUT



No. of Contacts	PART NUMBER	A	B	C	D	E	F	Jack Sockets
40	FCN-235D040-G/HASR-N	46.10(1.815)	40.13(1.830)	24.13(0.950)	28.30(1.114)	36.43(1.434)	2.54	INSTALLED
40	FCN-235D040-G/HAR-N	46.10(1.815)	40.13(1.830)	24.13(0.950)	28.30(1.114)	36.43(1.434)	3.40	INSTALLED
40	FCN-235D040-G/HBSR-N	46.10(1.815)	40.13(1.830)	24.13(0.950)	28.30(1.114)	36.43(1.434)	2.54	—
40	FCN-235D040-G/HBR-N	46.10(1.815)	40.13(1.830)	24.13(0.950)	28.30(1.114)	36.43(1.434)	3.40	—
68	FCN-235D068-G/HASR-N	63.88(2.515)	57.91(2.280)	41.91(1.650)	46.08(1.814)	54.21(2.134)	2.54	INSTALLED
68	FCN-235D068-G/HAR-N	63.88(2.515)	57.91(2.280)	41.91(1.650)	46.08(1.814)	54.21(2.134)	3.40	INSTALLED
68	FCN-235D068-G/HBSR-N	63.88(2.515)	57.91(2.280)	41.91(1.650)	46.08(1.814)	54.21(2.134)	2.54	—
68	FCN-235D068-G/HBR-N	63.88(2.515)	57.91(2.280)	41.91(1.650)	46.08(1.814)	54.21(2.134)	3.40	—

Specifications subject to change

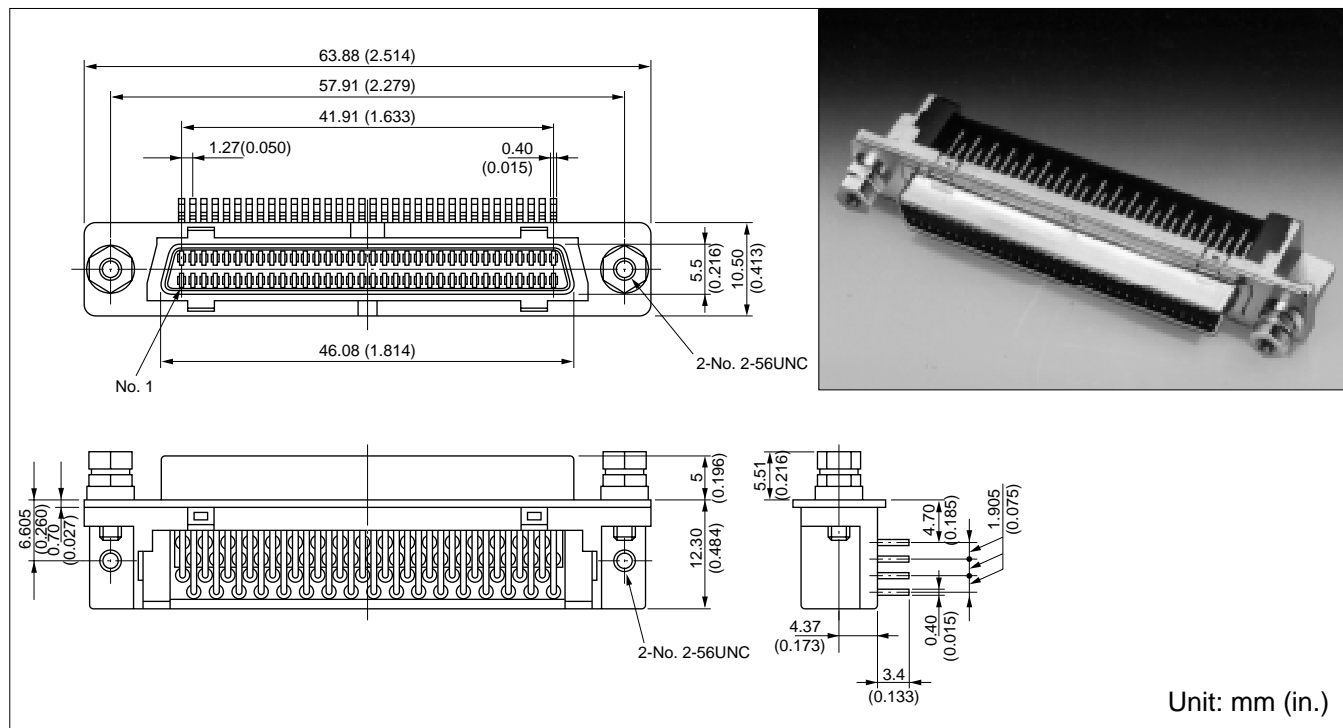
Dimensions are in millimeters (inches)

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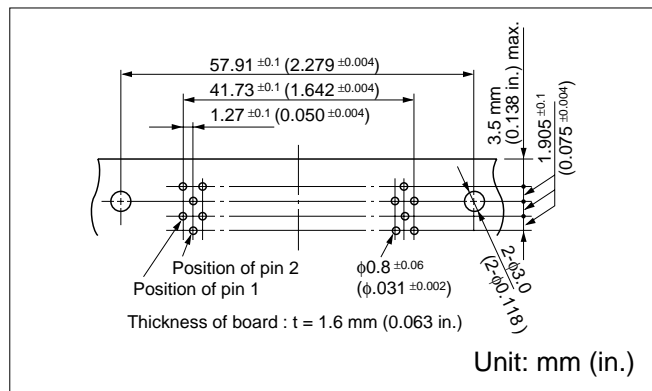
230R Series (Conforms to SCSI)

RIGHT-ANGLE SOCKET (SCREW LOCK TYPE)

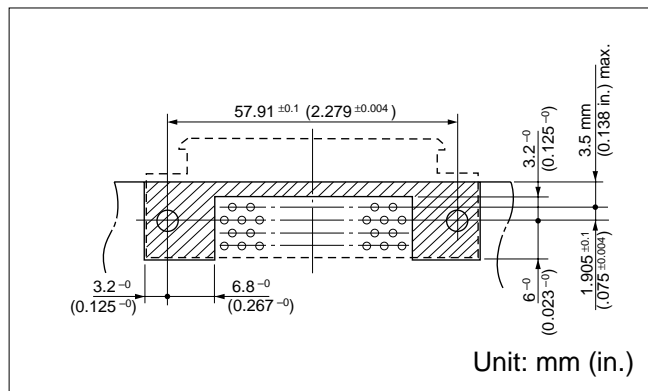
■ DIMENSIONS



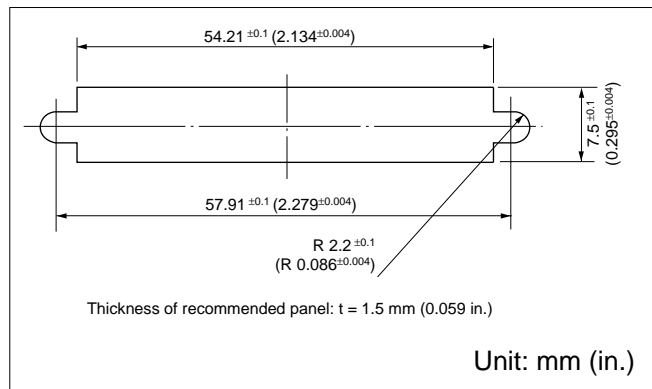
■ MOUNTING HOLE LAYOUT (COMPONENT SIDE)



■ PATTERN INHIBITED AREAS



■ RECOMMENDED PANEL DIMENSIONS



■ PART NUMBER

FCN-235D068-G/EA

■ NUMBER OF CONTACTS

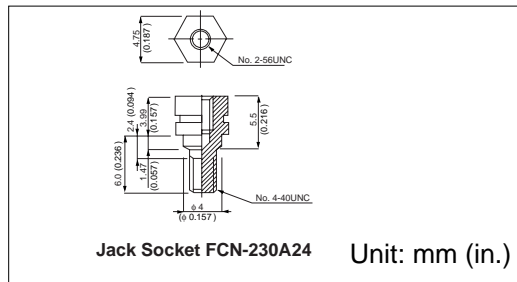
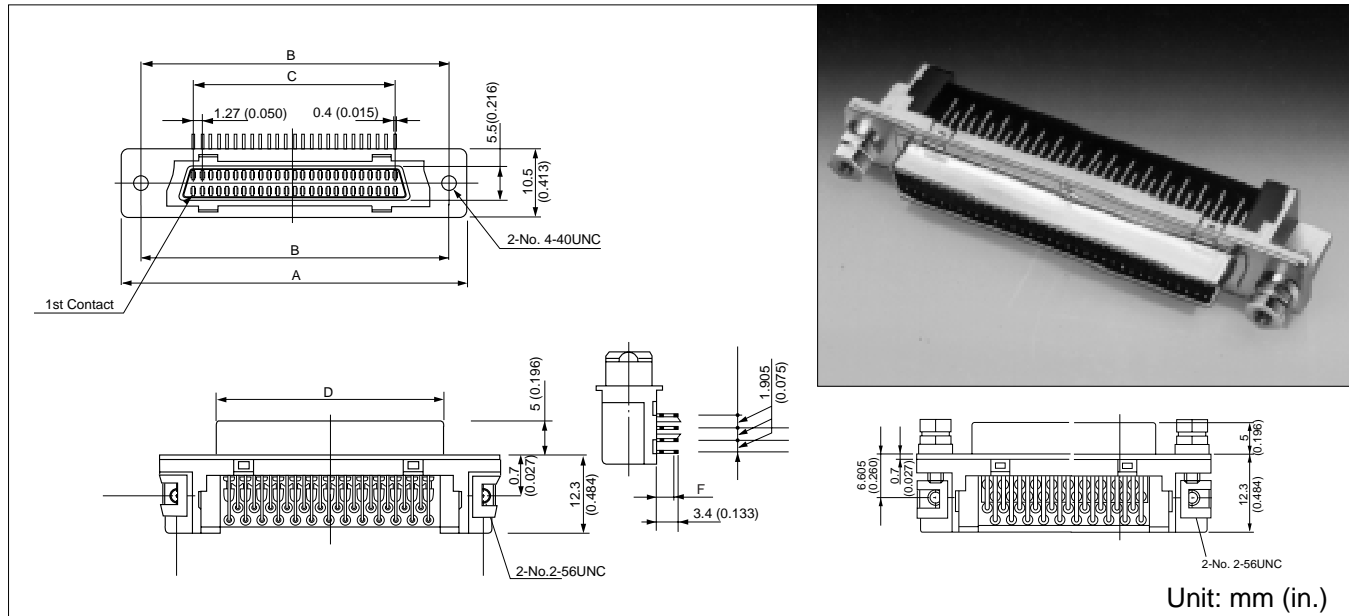
68 contacts

Note: Remove the spacer to mount the connector on the panel, then tighten the hexagon nuts. Make sure that the panel is sandwiched between the connector and nuts.

230R Series (Conforms to SCSI)

STRAIGHT SOCKET (SINGLE-OPERATION LOCK TYPE)

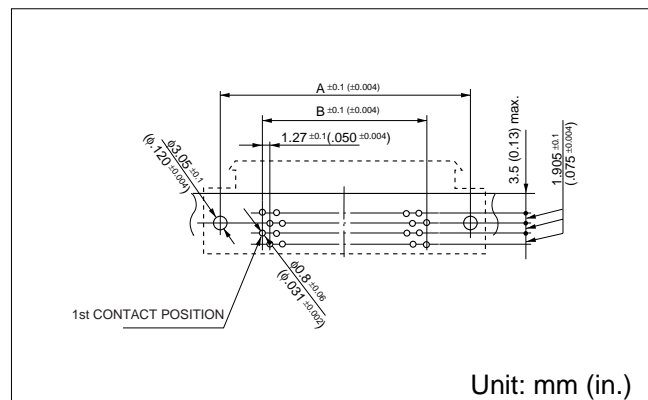
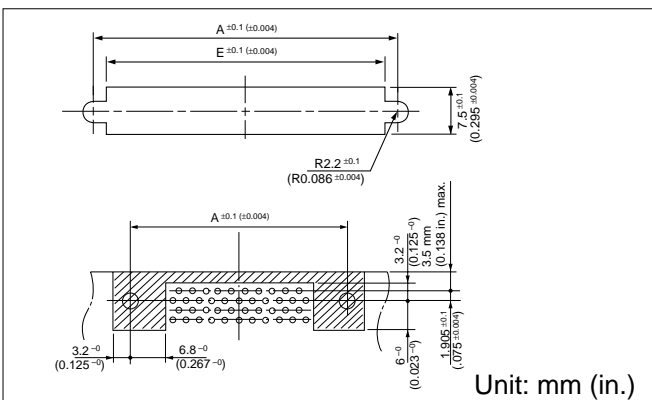
■ DIMENSIONS



■ MOUNTING HOLE LAYOUT (COMPONENT SIDE)

■ PANEL LAYOUT

■ PCB LAYOUT

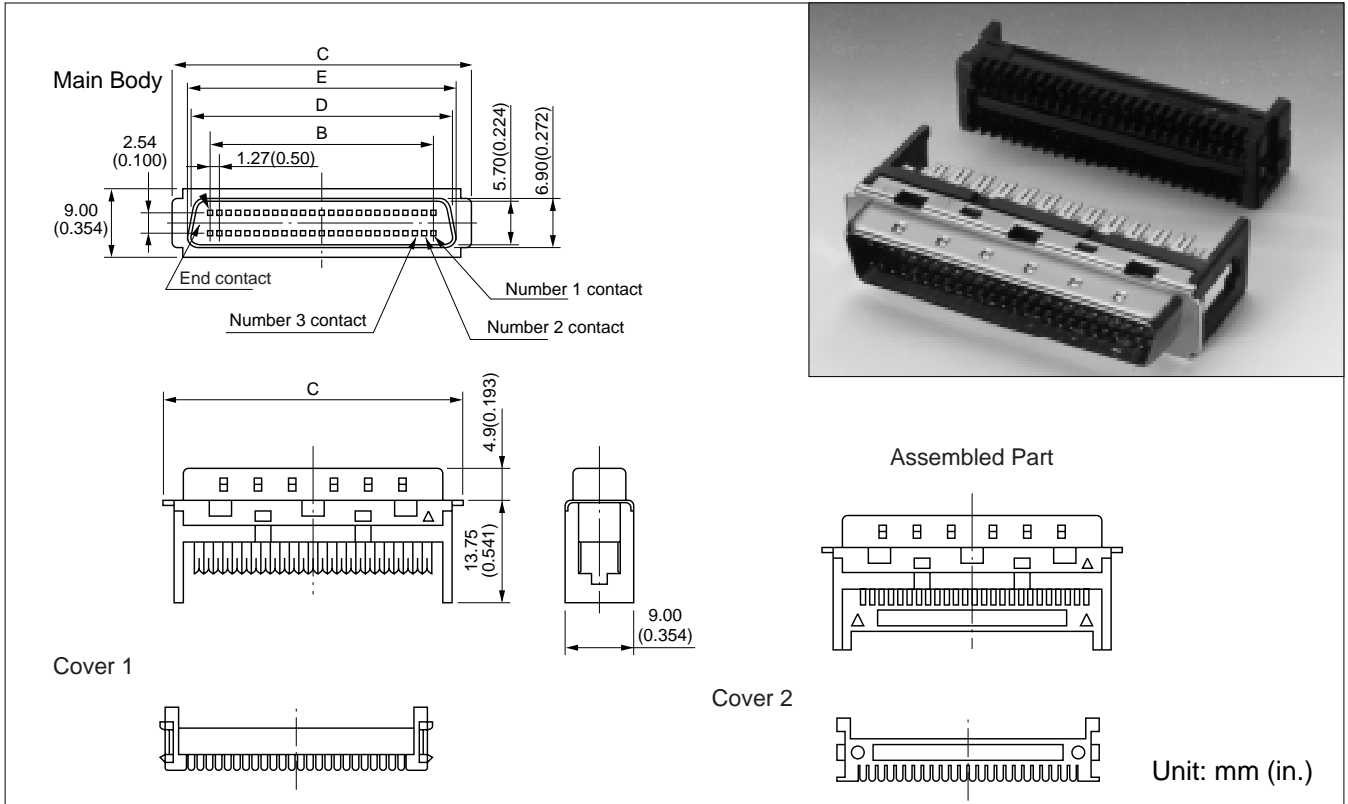


No. of Contacts	PART NUMBER	A	B	C	D	E	F	Jack Sockets
68	FCN-235D068-G/HA	63.88(2.515)	57.91(2.280)	41.91(1.650)	46.08(1.814)	54.21(2.134)	3.40	Yes
68	FCN-235D068-G/HB	63.88(2.515)	57.91(2.280)	41.91(1.650)	46.08(1.814)	54.21(2.134)	3.40	No

230R Series (Conforms to SCSI)

FCN-237R**-G/* IDC TYPE, CABLE-PLUG

■ DIMENSIONS



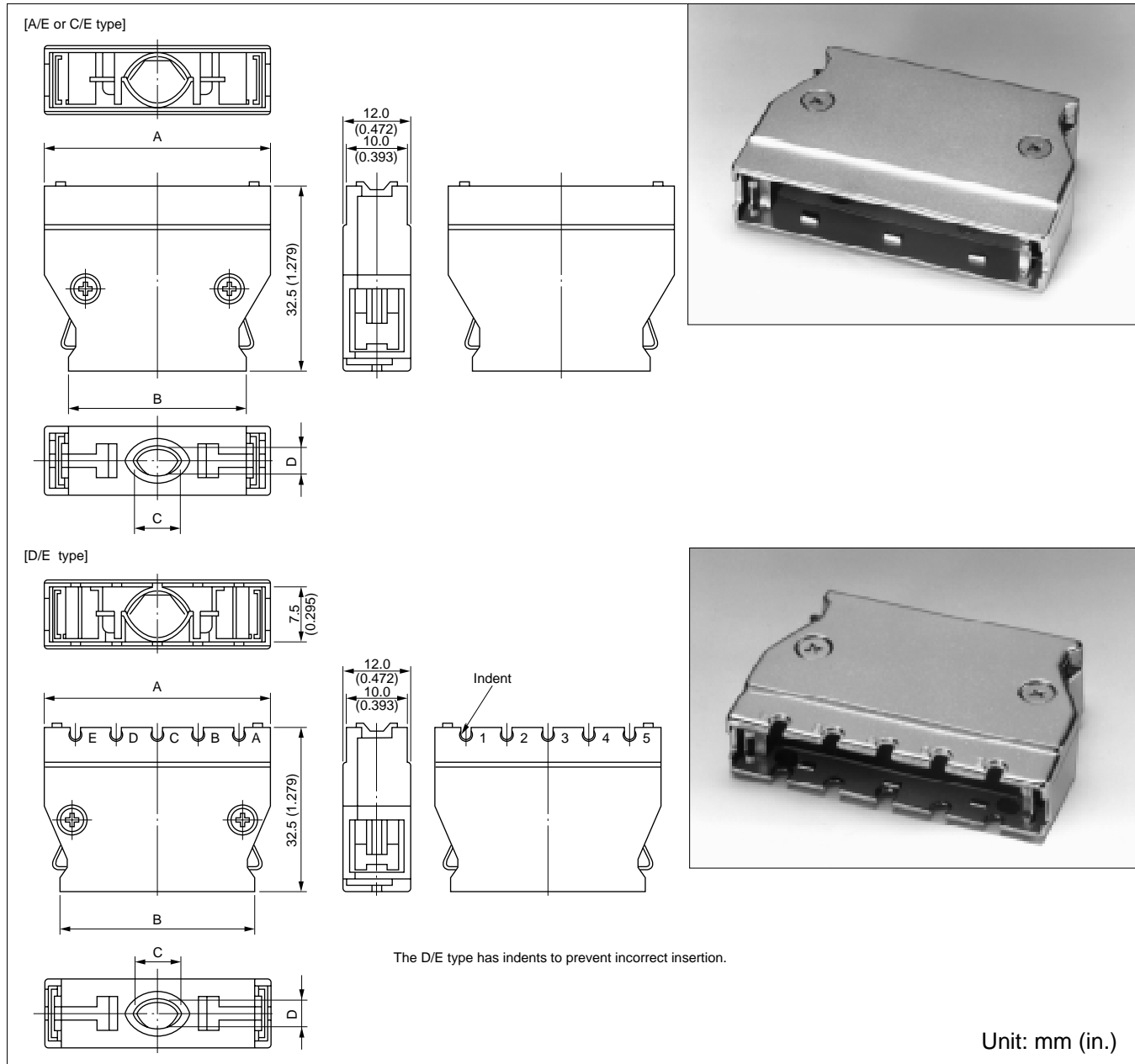
■ PART NUMBERS AND DIMENSIONS

No. of Contacts	External Diameter of Applied Wire	PART NUMBER	Dimensions mm (in.)				
			A	B	C	D	E
20	φ0.8 to 0.88 mm (0.031 to 0.035)	FCN-237R020-G/F	16.75(0.659)	11.43(0.450)	21.25(0.837)	15.80(0.622)	17.00(0.669)
	0.5 to 0.65 mm (0.020 to 0.026)	FCN-237R020-G/E					
	0.66 to 0.79 mm (0.026 to 0.030)	FCN-237R020-G/G					
26	0.8 to 0.88 mm (0.031 to 0.035)	FCN-237R026-G/F	20.65(0.809)	15.24(0.600)	25.06(0.987)	19.61(0.722)	20.81(0.819)
	0.5 to 0.65 mm (0.020 to 0.026)	FCN-237R026-G/E					
28	0.8 to 0.88 mm (0.031 to 0.035)	FCN-237R028-G/F	21.83(0.859)	16.51(0.650)	26.33(1.037)	20.88(0.822)	22.08(0.869)
	0.5 to 0.65 mm (0.020 to 0.026)	FCN-237R028-G/E					
40	0.8 to 0.88 mm (0.031 to 0.035)	FCN-237R040-G/F	29.45(1.159)	24.13(0.950)	33.95(1.377)	28.50(1.122)	29.70(1.169)
	0.66 to 0.79 mm (0.026 to 0.030)	FCN-237R040-G/G					
50	0.8 to 0.88 mm (0.031 to 0.035)	FCN-237R050-G/F	35.80(1.409)	30.48(1.200)	40.30(1.587)	34.85(1.587)	36.05(1.419)
	0.5 to 0.65 mm (0.020 to 0.026)	FCN-237R050-G/E					
	0.66 to 0.79 mm (0.026 to 0.030)	FCN-237R050-G/G					
68	0.8 to 0.88 mm (0.031 to 0.035)	FCN-237R068-G/F	47.23(1.859)	41.91(1.650)	51.73(2.037)	46.28(1.822)	47.48(1.869)
	0.5 to 0.65 mm (0.020 to 0.026)	FCN-237R068-G/E					
	0.66 to 0.79 mm (0.026 to 0.030)	FCN-237R068-G/G					
100	0.8 to 0.88 mm (0.031 to 0.035)	FCN-237R100-G/F	67.55(2.659)	62.23(2.450)	72.05(2.837)	66.60(2.622)	67.80(2.669)
	0.5 to 0.65 mm (0.020 to 0.026)	FCN-237R100-G/E					

230R Series (Conforms to SCSI)

METAL COVER (ONE-TOUCH LOCK TYPE)

■ DIMENSIONS



■ PART NUMBERS AND DIMENSIONS

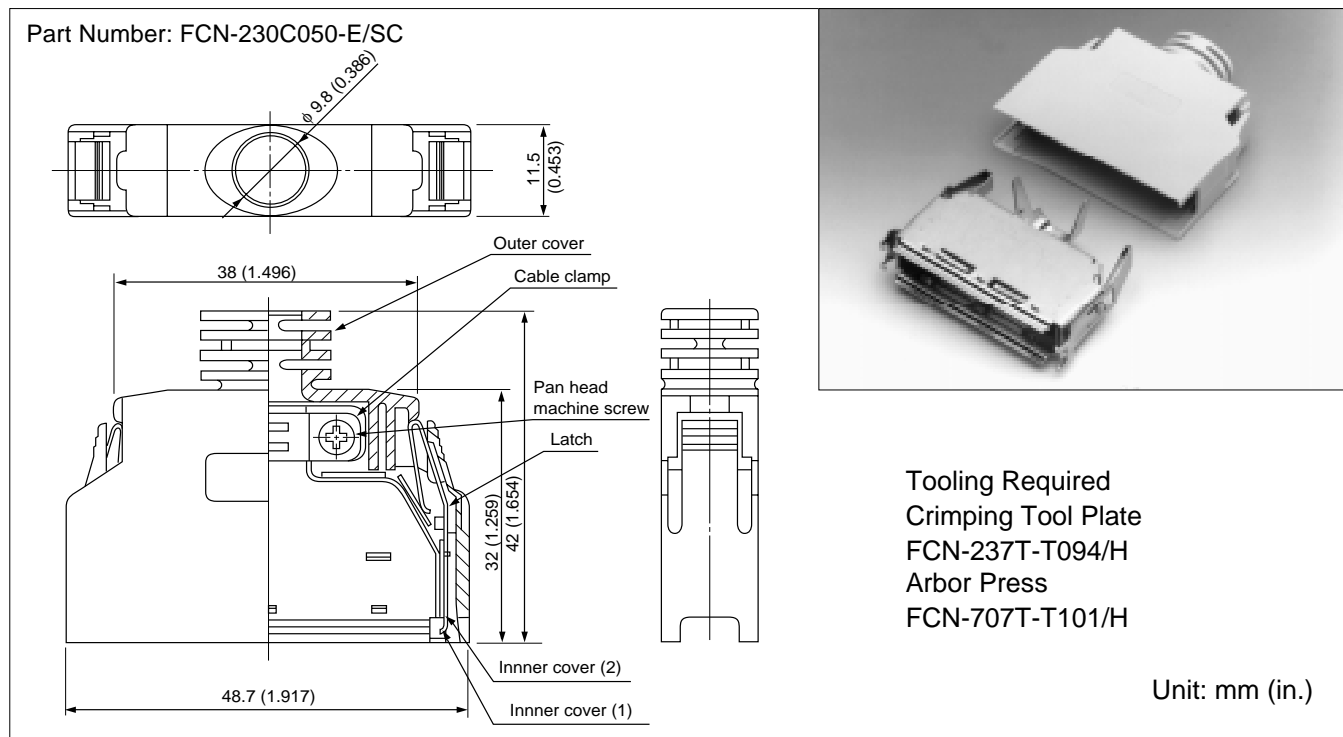
Number of contacts	Part number	Dimensions: mm (in.)		
		A	B	C
20	FCN-230C020-A/E	28.95 (1.139)	21.15 (0.832)	6.5 × 4.5 (0.255 × 0.177)
	FCN-230C020-C/E			8.5 × 8.2 (0.334 × 0.322)
26	FCN-230C026-C/E	32.76 (1.298)	24.96 (0.982)	7.2 × 8.5 (0.283 × 0.334)
28	FCN-230C028-A/E	34.03 (1.339)	26.23 (1.032)	6.5 × 6.0 (0.255 × 0.236)
	FCN-230C028-C/E			7.2 × 8.5 (0.289 × 0.334)
40	FCN-230C040-C/E	41.65 (1.639)	33.85 (1.332)	9.0 × 10.0 (0.354 × 0.393)
	FCN-230C050-A/E			8.5 × 7.0 (0.334 × 0.275)
50	FCN-230C050-C/E	48.00 (1.889)	40.20 (1.582)	10.0 × 9.7 (0.395 × 0.381)
	FCN-230C050-D/E			14.7 × 10.4 (0.585 × 0.409)
	FCN-230C068-A/E			9.0 × 8.0 (0.354 × 0.314)
68	FCN-230C068-C/E	59.43 (2.339)	51.63 (2.032)	10.0 × 9.0 (0.395 × 0.354)
	FCN-230C068-D/E			14.7 × 10.4 (0.585 × 0.409)

230R Series (Conforms to SCSI)

BACKSHELL KIT (METAL CAN , PLASTIC SLIDE ON BOOT)

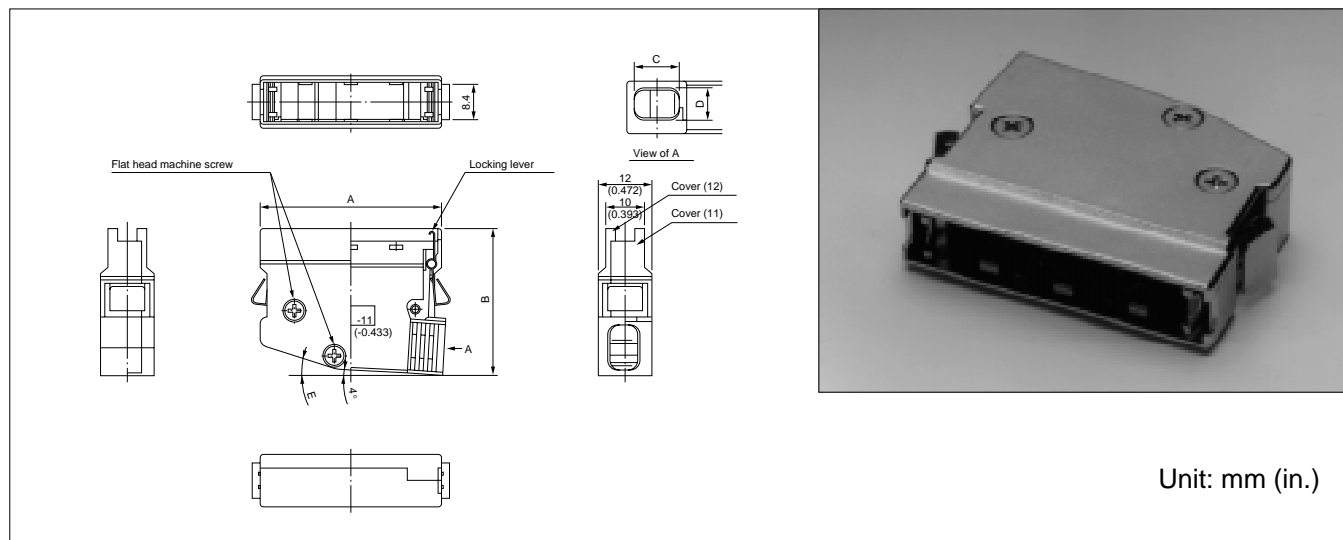
SCSI II

■ DIMENSIONS



METAL OBTUSE ANGLE CABLE OUT COVER (SINGLE-OPERATION LOCK TYPE)

■ DIMENSIONS



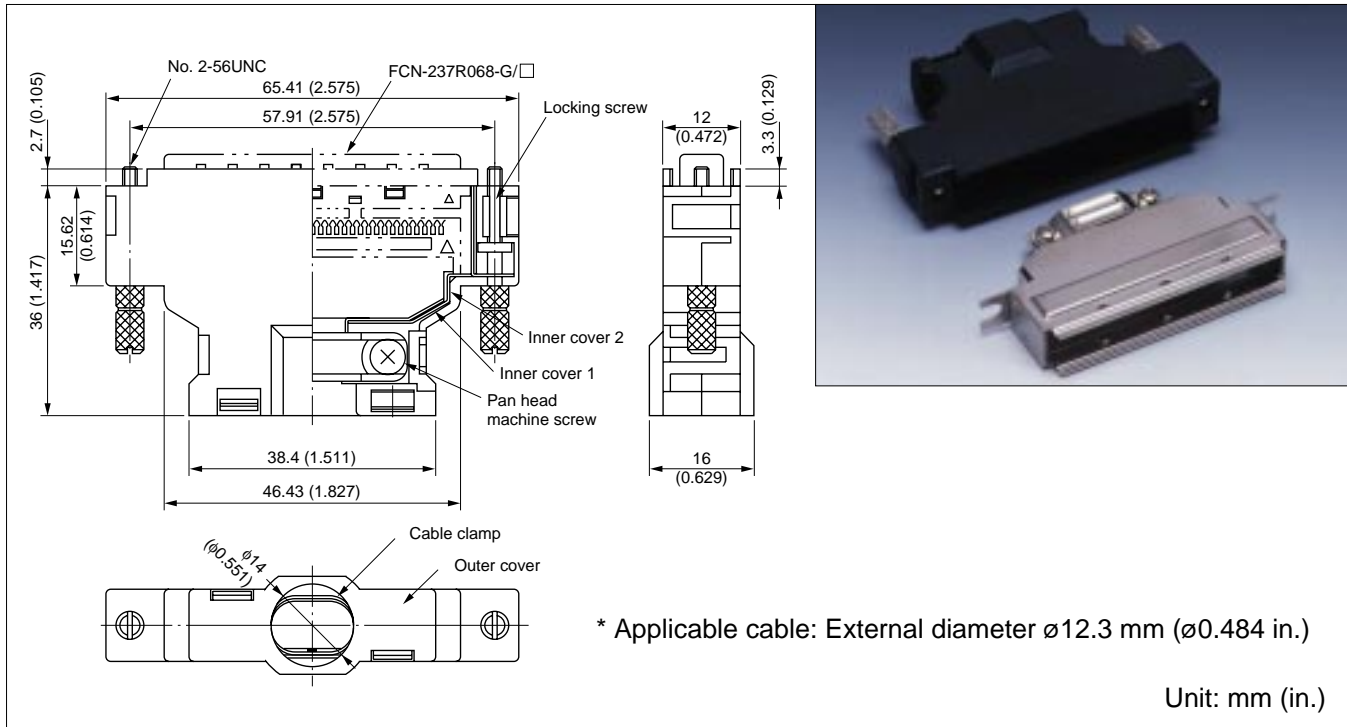
■ PART NUMBERS AND DIMENSIONS

Number of contacts	Part number	Dimensions: mm (in.)				
		A	B	C	D	E
40	FCN-230C040-L/E	41.65 (1.639)	33.80 (1.330)	10.60 (0.417)	6.34 (0.249)	19°
50	FCN-230C050-L/E	48.00 (1.889)	35.50 (1.397)	11.38 (0.448)	6.70 (0.263)	15°

230R Series (Conforms to SCSI)

EMI/ESD RESISTANT COVER (SCREW LOCK TYPE) SCSI III 68 POSITION

■ DIMENSIONS



■ PART NUMBERS

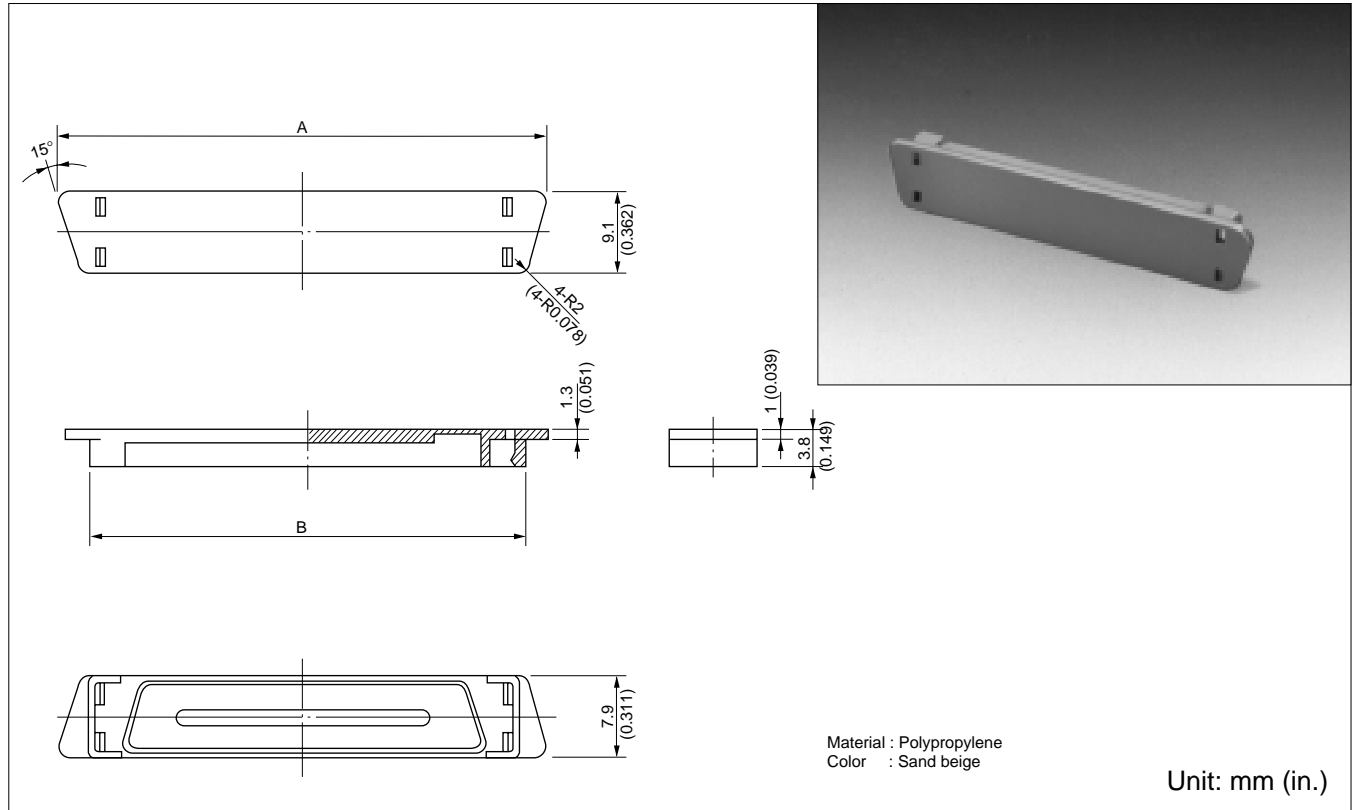
Part number	Applicable Cable
FCN-230C068-E/S	$\varnothing 12.3$ mm ($\varnothing 0.484$ in.)
FCN-230C068-E/SA	$\varnothing 11.5$ mm ($\varnothing 0.452$ in.)

230R Series (Conforms to SCSI)

ACCESSORY (DUST CAP FOR SOCKET) (230R SERIES AND 240R SERIES)

Used to prevent dust from entering the contact section of a socket connector.

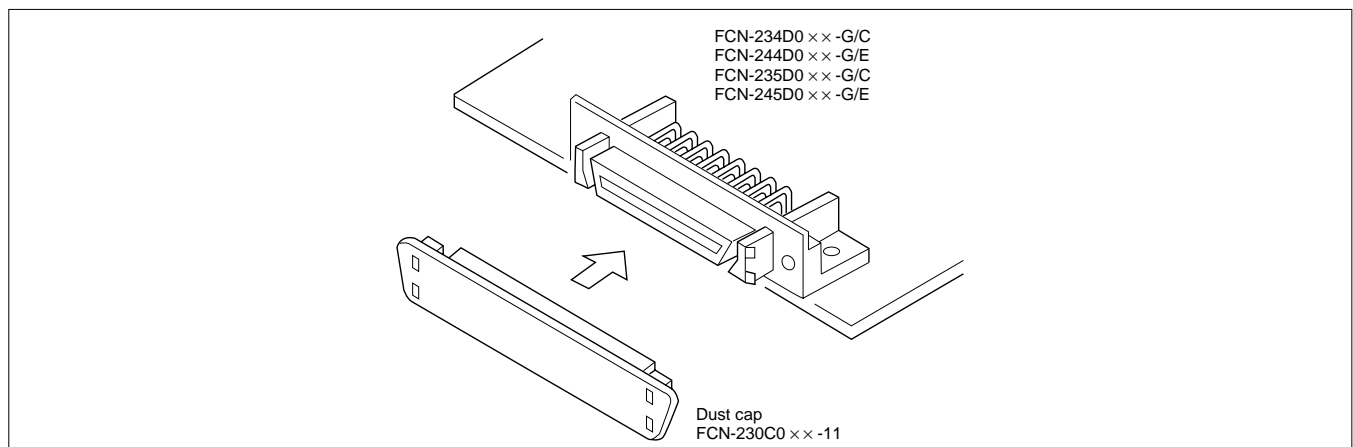
■ DIMENSIONS



■ PART NUMBERS AND DIMENSIONS

Number of contacts	Part number	Dimensions: mm (in.)	
		A	B
28	FCN-230C028-11	35.7 (1.405)	30.1 (1.185)
36	FCN-230C036-11	40.8 (1.606)	35.2 (1.385)
50	FCN-230C050-11	49.7 (1.956)	44.1 (1.736)
68	FCN-230C068-11	61.1 (2.405)	55.5 (2.185)

■ APPLICATIONS



230R Series (Conforms to SCSI)

CABLE ASSEMBLY TOOLS

The following tools are needed to assemble FCN-230/230R/240/240R series connectors.

- Cable aligner (semiautomatic cable aligner or hand tool)
- IDC tool

1. Cable Aligner

Item	Semiautomatic cable aligner			Hand tool
	Body/Controller	Bed	Adaptor	
FCN-237J	FCN-M561-A/C	FCN-P560-2/A	FCN-K560-A-xxx	FCN-237T-T062/H
FCN-237R			FCN-K560-R-xxx	
FCN-247J			FCN-K560-K-xxx	
FCN-247R		FCN-P560-2/J	FCN-K560-J-xxx	FCN-247T-T061/H

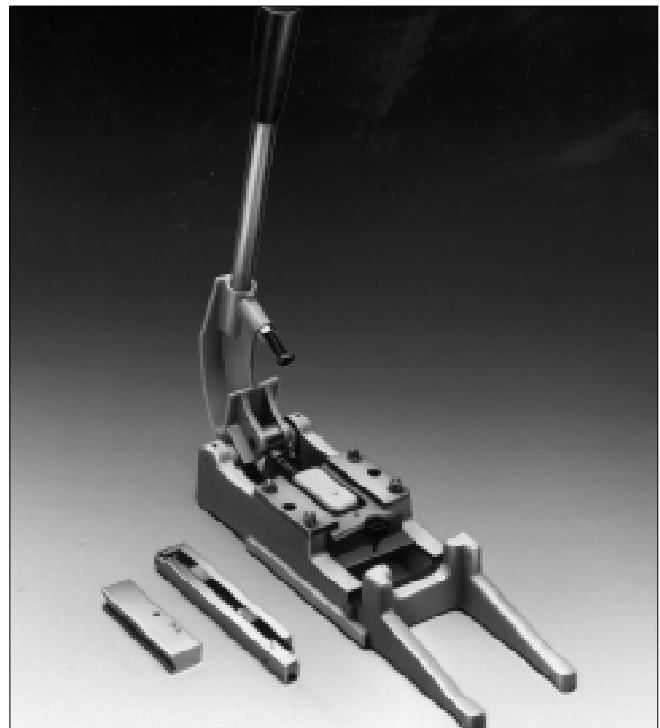
xxx indicates the number of contacts.

2. Insulation Displacement Connection (IDC) tool

Item	Hand press	Head/Table
FCN-237J	FCN-237T-T109/H	FCN-237T-T064/H
FCN-237R		FCN-237T-T067/H
FCN-237D		FCN-237T-T075/H
FCN-247J		FCN-247T-T066/H
FCN-247R		FCN-247T-T068/H
FCN-247D		FCN-247T-T077/H



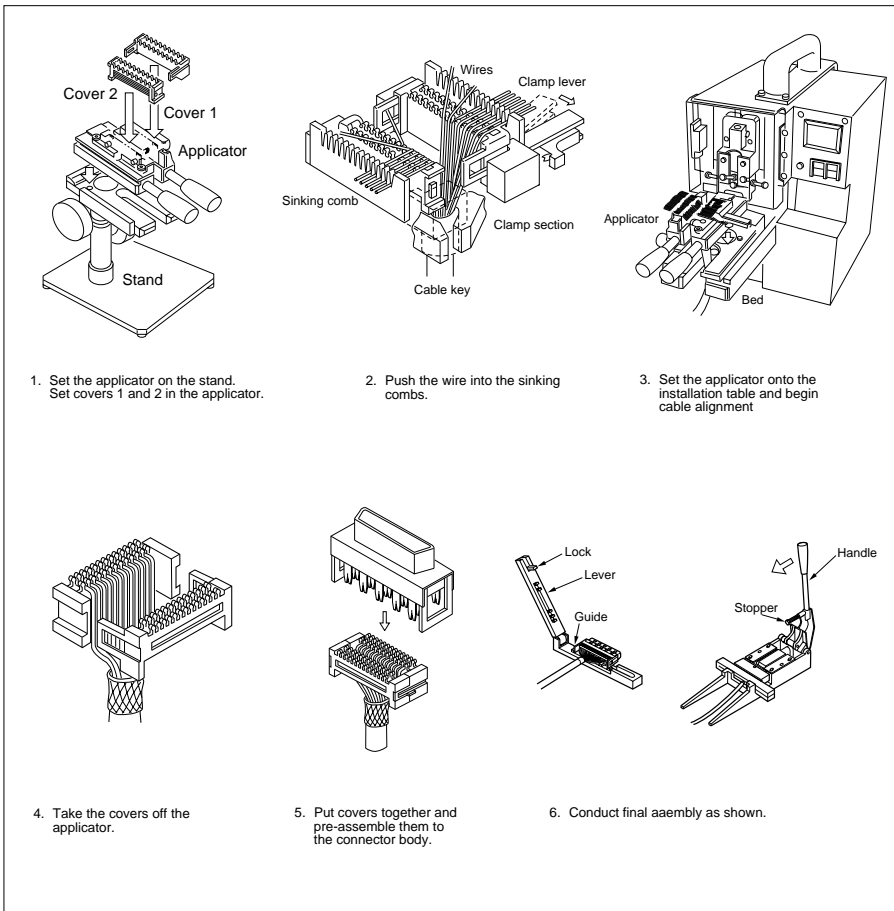
• Cable aligner



• Insulation displacement connection (IDC) tool

230R Series (Conforms to SCSI)

Semi-Automatic Tools Cable Aligning Machine Main Body (FCN-M551-120, FCN-M551-220)



Head (FCN-H550-1/A)



Stand (FCN-D550)



Applicator (FCN-A550-1/A-xxx)



IDC Tool (FCN-237T-T109/H,
FCN-237T-T067/H locator)



FCN-230R SERIES SCSI II CABLE CONNECTORS

SOCKET: FCN-237R***-G/E, G/F (***: 020, 026, 028, 050, 068)

Pos No.	Applied Wire (wire Dia.: mm)	Connector Part number	Cable Aligner		IDC Tool
			Hand Tool	Semi-Auto	
20 68	#28 or #30 (0.8 to 0.88)	FCN-237R020-G/F FCN-237R068-G/F	FCN-237T-T062/H FCN-237t-t043/H	(See below*)	HAND PRESS: FCN-237T-T109/H HEAD & Locator: FCN-237T-T067/H
	#28 or #30 (0.5 to 0.65)	FCN-237R020-G/E FCN-237R068-G/E			

Semi-automatic-Medium Level
Body: :FCN-M551-120
Head Assembly: :FCN-H550
Applicator: :FCN-A550-1/A-***(***: 020, 028, 036, 050, 068, 080)
Stand: :FCN-D550

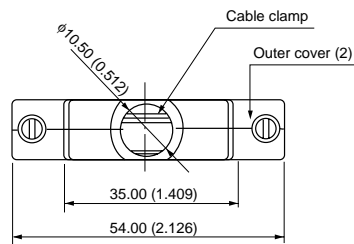
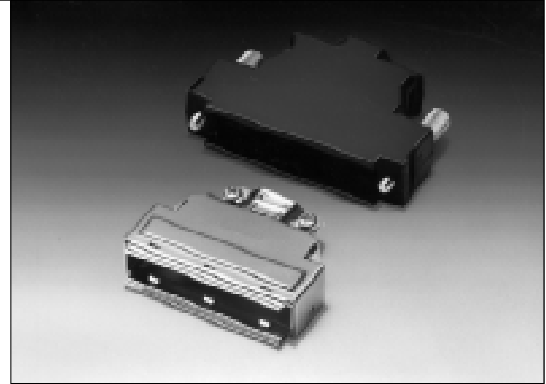
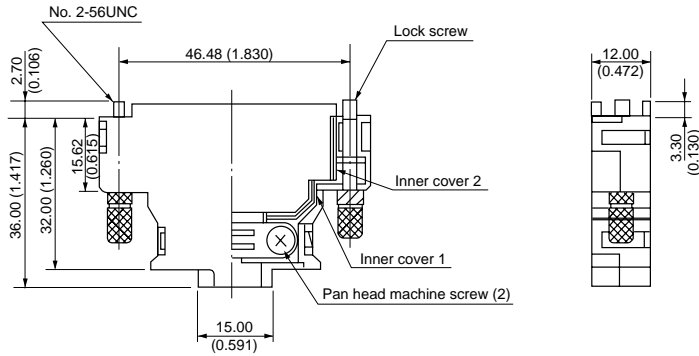
230R Series (Conforms to SCSI)

EMI/ESD RESISTANT COVER

■ DIMENSIONS

Number of contacts: 50 contacts

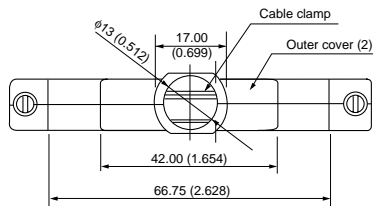
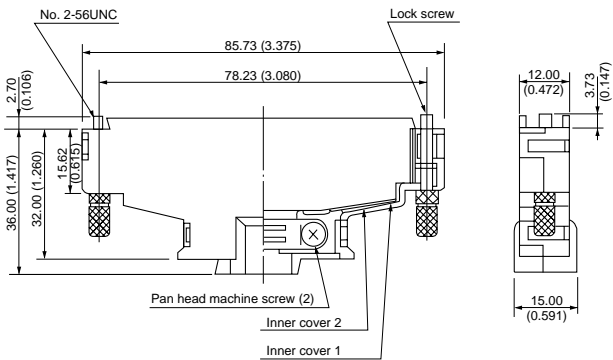
Part number: FCN-230C050-E/S



Unit: mm (in.)

Number of contacts: 100 contacts

Part number: FCN-230C100-E/S



Unit: mm ((in.))

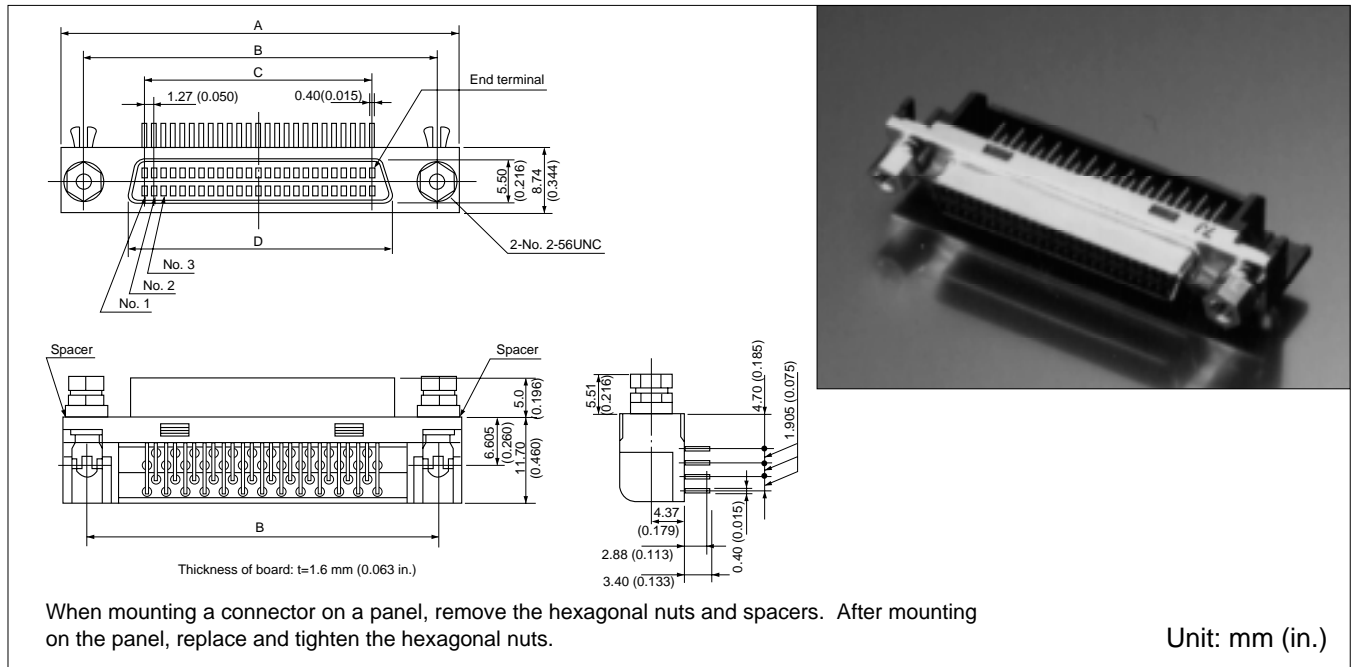
This series includes connectors with No.4-40UNC lock screws. Specify a part number by replacing -E/S at the end with -F/S.

Example: FCN-230C100-F/S

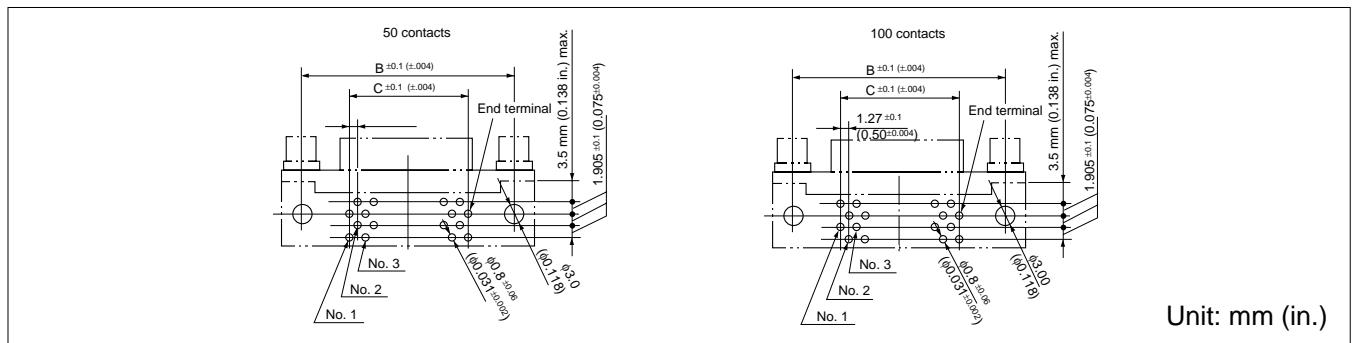
230R Series (Conforms to SCSI)

RIGHT-ANGLE SOCKET WITH HEXAGONAL NUTS FOR BOARD LOCK

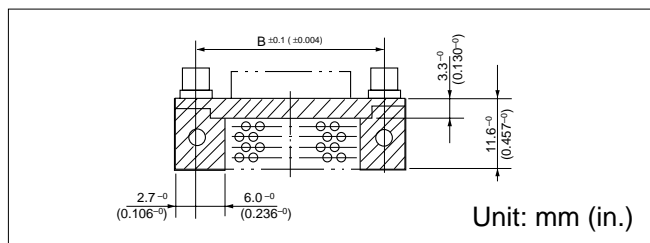
■ DIMENSIONS



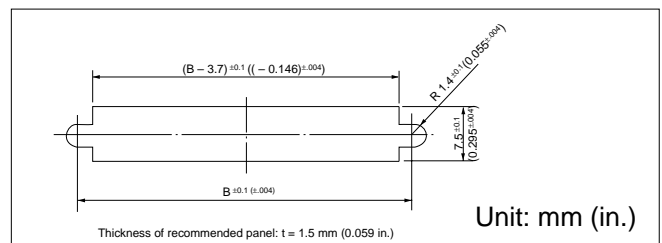
■ MOUNTING HOLE LAYOUT (COMPONENT SIDE)



■ PATTERN INHIBITED AREAS



■ RECOMMENDED PANEL DIMENSIONS



■ PART NUMBERS AND DIMENSIONS

Number of contacts	Part number	Dimensions: mm (in.)			
		A	B	C	D
50	FCN-235D050-G/P#BA	52.45 (2.065)	46.48 (1.830)	30.48 (1.200)	34.65 (1.364)
100	FCN-235D100-G/P#BA	84.20 (3.315)	78.23 (3.080)	62.23 (2.450)	66.40 (2.614)

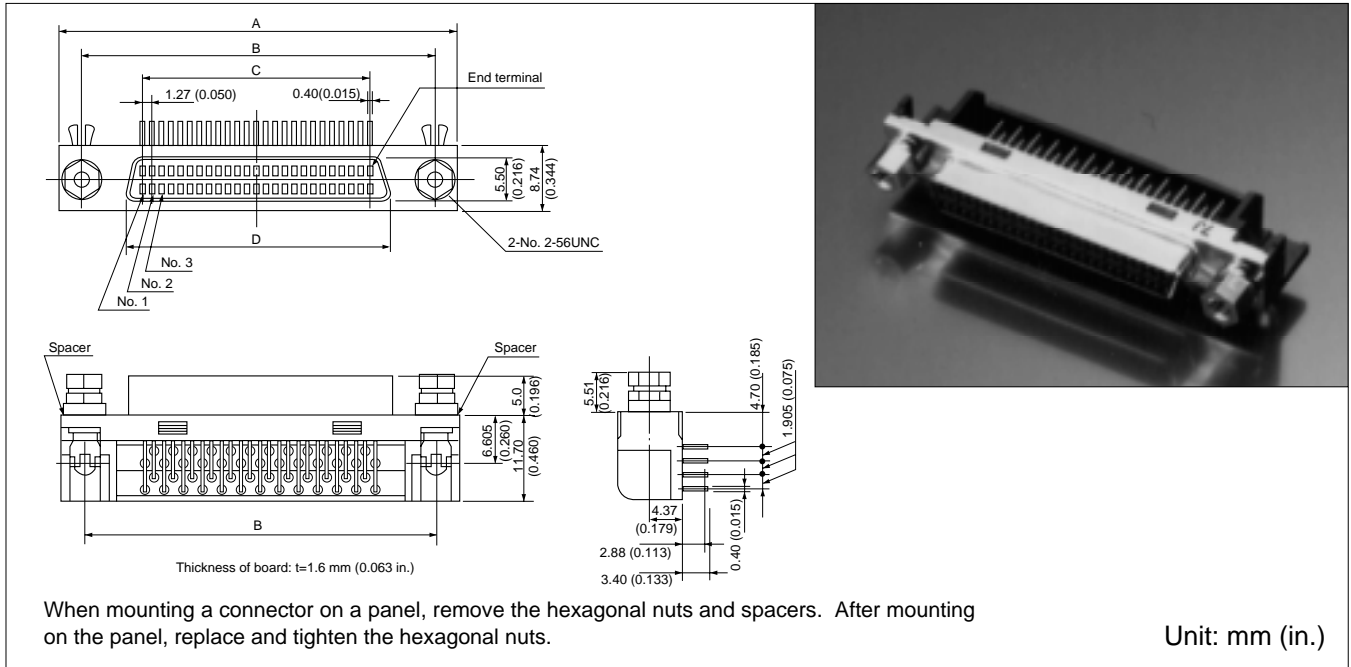
This series includes connectors with No.4-40UNC screws for hexagonal nuts. Specify a part number by replacing #BA at the end with #AA.

Example: FCN-235D100-G/P#AA

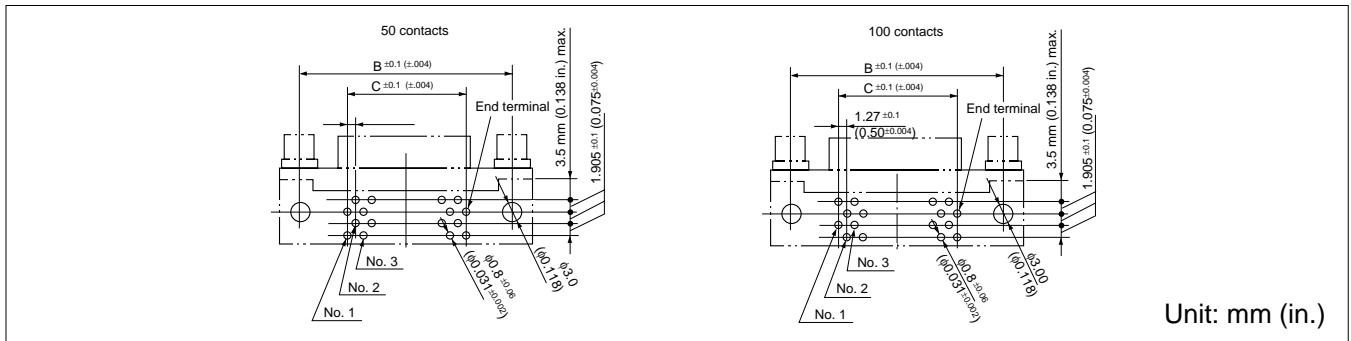
230R Series (Conforms to SCSI)

RIGHT-ANGLE SOCKET WITH HEXAGONAL NUTS FOR BOARD LOCK

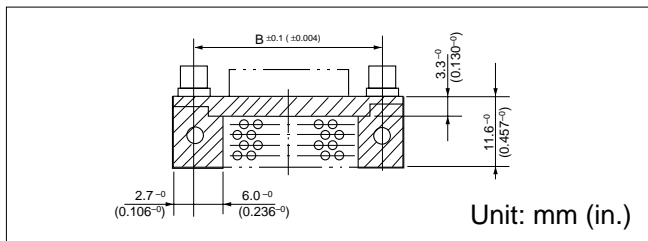
■ DIMENSIONS



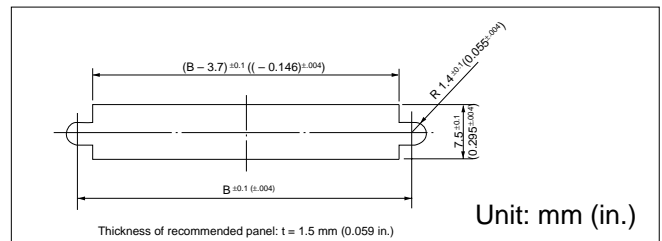
■ MOUNTING HOLE LAYOUT (COMPONENT SIDE)



■ PATTERN INHIBITED AREAS



■ RECOMMENDED PANEL DIMENSIONS



■ PART NUMBERS AND DIMENSIONS

Number of contacts	Part number	Dimensions: mm (in.)			
		A	B	C	D
50	FCN-235D050-G/P#BA	52.45 (2.065)	46.48 (1.830)	30.48 (1.200)	34.65 (1.364)
100	FCN-235D100-G/P#BA	84.20 (3.315)	78.23 (3.080)	62.23 (2.450)	66.40 (2.614)

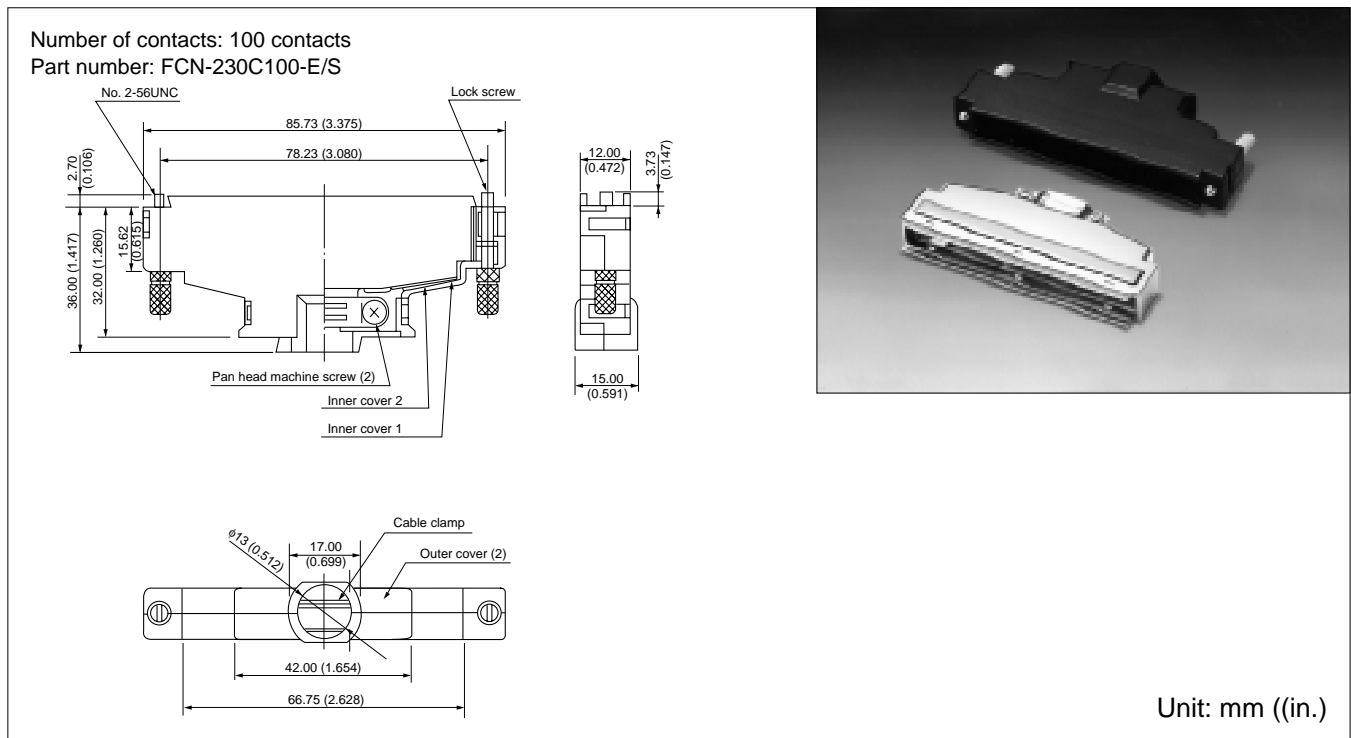
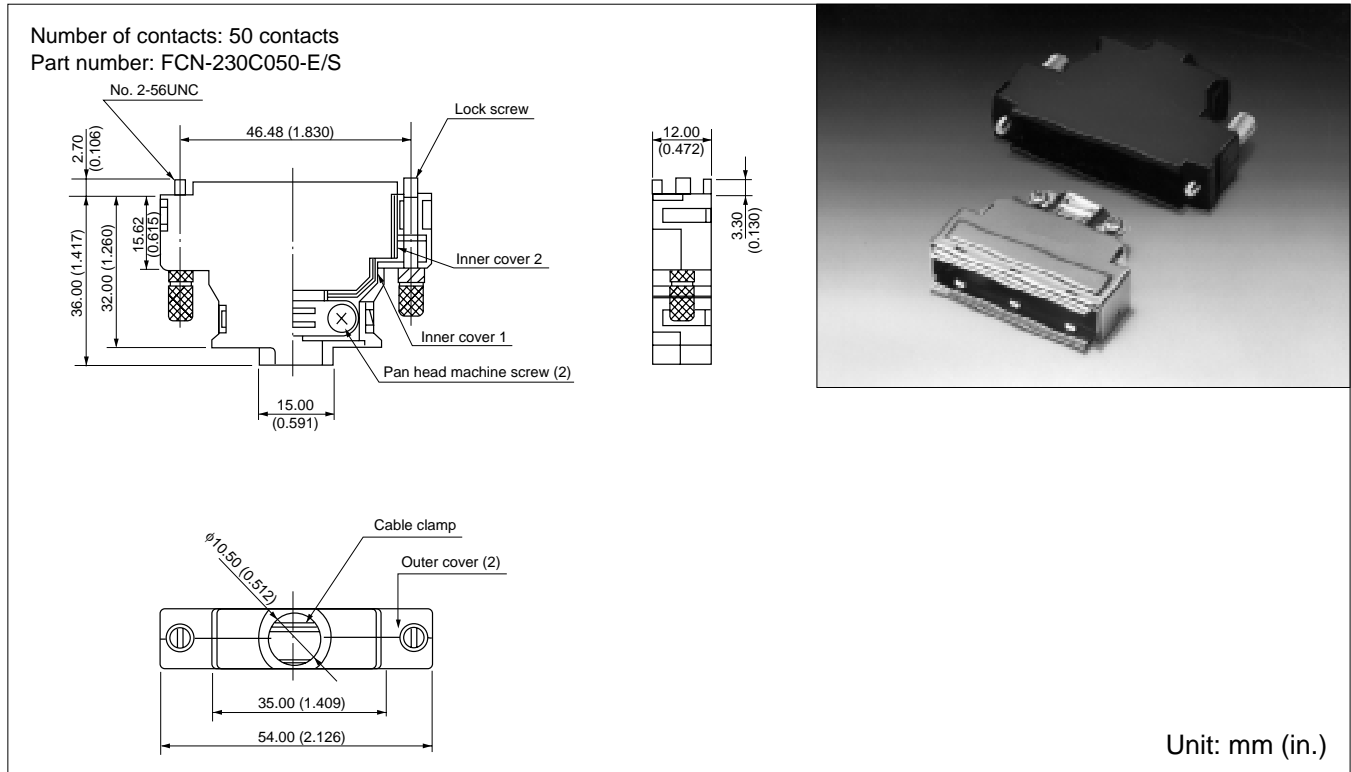
This series includes connectors with No.4-40UNC screws for hexagonal nuts. Specify a part number by replacing #BA at the end with #AA.

Example: FCN-235D100-G/P#AA

230R Series (Conforms to SCSI)

EMI/ESD RESISTANT COVER

■ DIMENSIONS



This series includes connectors with No.4-40UNC lock screws. Specify a part number by replacing -E/S at the end with -F/S.
Example: FCN-230C100-F/S

230R Series (Conforms to SCSI)

Fujitsu Components International Headquarter Offices

Japan

Fujitsu Component Limited
Gotanda-Chuo Building
3-5, Higashigotanda 2-chome, Shinagawa-ku
Tokyo 141-0022, Japan
Tel: (81-3) 5449-7010
Fax: (81-3) 5449-2626
Email: promothq@fcl.fujitsu.com
Web: www.fcl.fujitsu.com

North and South America

Fujitsu Components America, Inc.
250 E. Caribbean Drive
Sunnyvale, CA 94089 U.S.A.
Tel: (1-408) 745-4900
Fax: (1-408) 745-4970
Email: components@us.fujitsu.com
Web: <http://us.fujitsu.com/components>

Europe

Fujitsu Components Europe B.V.
Diamantlaan 25
2132 WV Hoofddorp
Netherlands
Tel: (31-23) 5560910
Fax: (31-23) 5560950
Email: info@fceu.fujitsu.com
Web: emea.fujitsu.com/components

Asia Pacific

Fujitsu Components Asia Ltd.
102E Pasir Panjang Road
#01-01 Citilink Warehouse Complex
Singapore 118529
Tel: (65) 6375-8560
Fax: (65) 6273-3021
Email: fcail.fujitsu.com
www.fcail.fujitsu.com

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