

# FOR BOARD-TO-CABLE CONNECTION

## 240 SERIES (GENERAL-PURPOSE TYPE)

### ■ FEATURES

- 1.27 mm (0.050 in.) pitch contact arrangement in two rows enables high-density mounting.
- Connectors with 20 to 96 contacts are available for various purposes.
- Discrete-wire (AWG #28, #30) I/O cables can be assembled by IDC. Metal covers completely protect sockets from EMI.
- Bellows contacts ensure stable contact preventing pins from bending. The bellows contacts also have excellent stability with repeated insertion and extraction.
- Tails are spaced in a four-row staggered arrangement (2.54 mm × 1.905 mm) (0.100 in. × 0.075 in.) for easy PC board design.
- Insulation is UL-approved (94V-0) and is washable.
- An FCN-230 EMI cover and dust cap can be used together.



### ■ SPECIFICATIONS

Item	Specifications
Operating temperature range	-55°C to +105°C
Current rating	DC 1 A
Voltage rating	AC 240 V
Contact resistance	35 mΩ max. (DC 6 V, 0.1A)
Insulation resistance	1000 MΩ min. (DC 500 V)
Dielectric withstand voltage	AC 750 V for 1 minute
Insertion force (kg)	4.5 kg max. (20 pins)
Withdrawal force (kg)	0.6 kg min. (20 pins)
Applicable PC board	1.6 mm (0.063 in.) thick
Applicable wire (standard)	IDC: AWG #28 and #30 stranded wires with $\phi$ 0.5 to 0.88 mm (0.020 to 0.035 in.) insulation diameter. Soldering: AWG #26 max. (reference) (The applicable wires depend on the number of contacts. See the descriptions of IDC sockets and metal covers.)

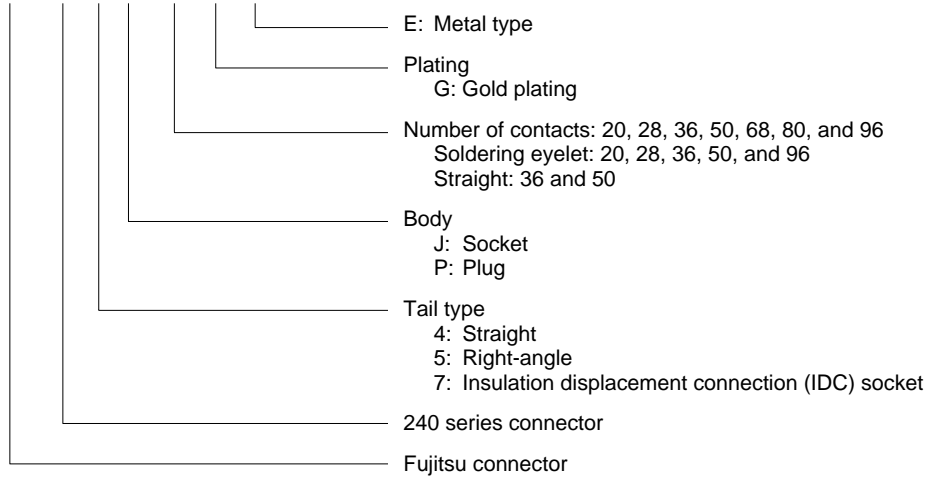
### ■ MATERIALS

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

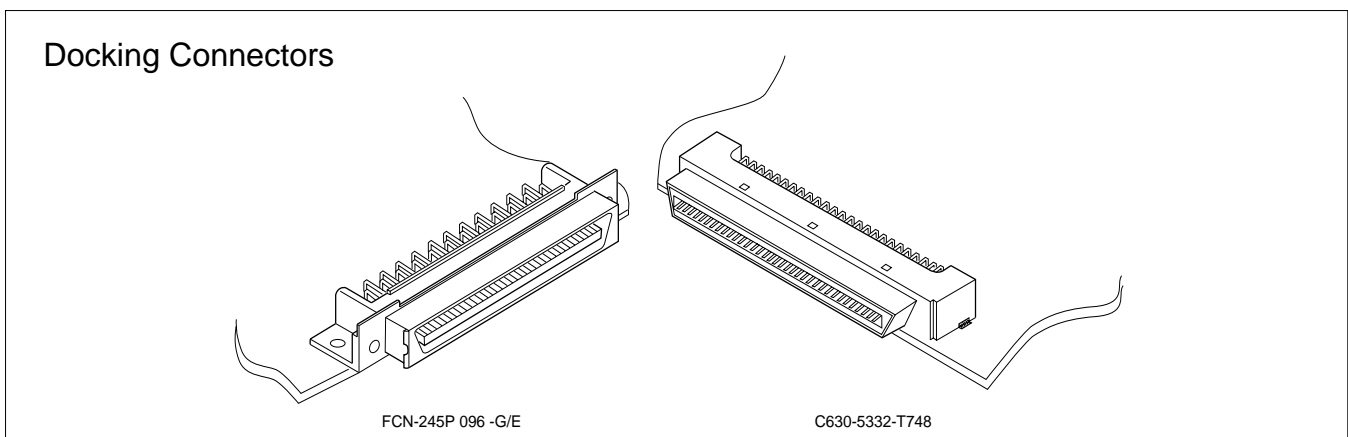
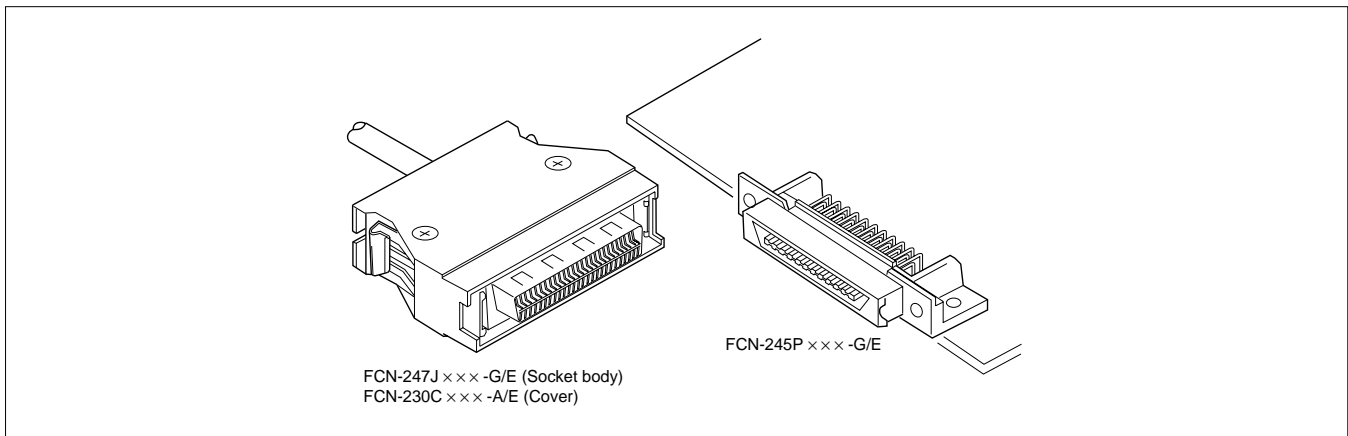
# 240 Series (General-Purpose Type)

## ORDERING CODE

FCN-24 5 P 050-G / E



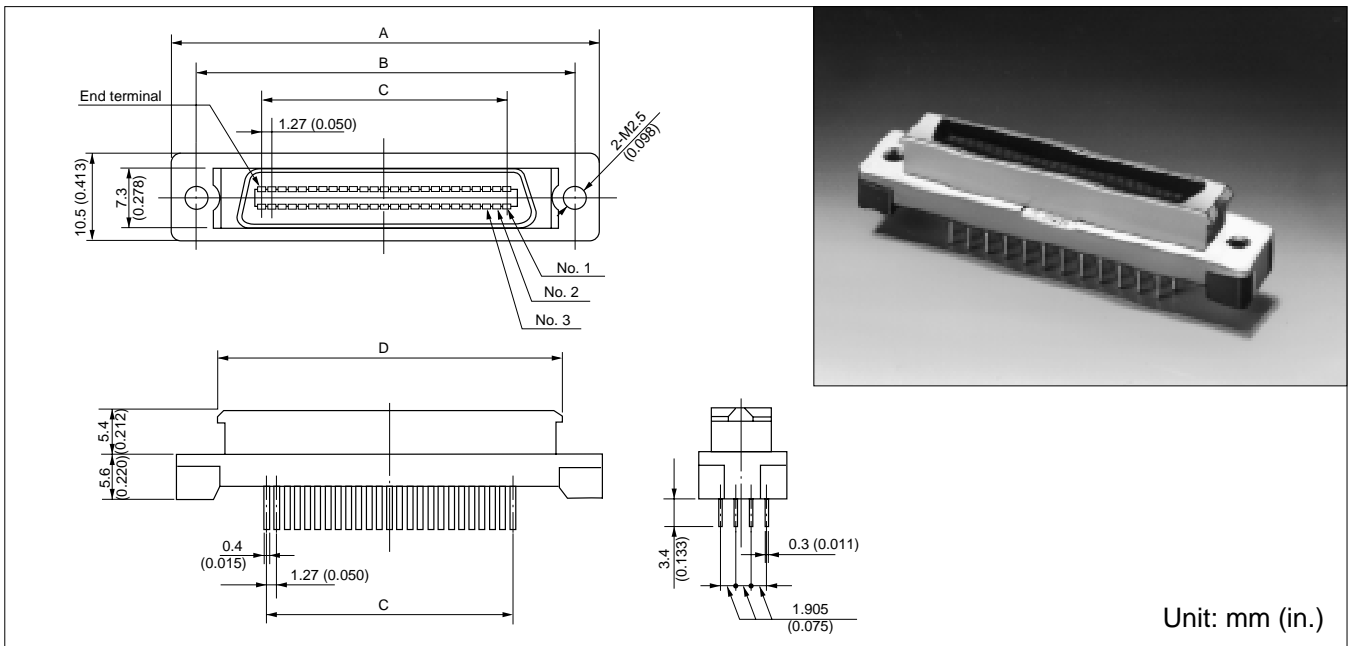
## APPLICATIONS



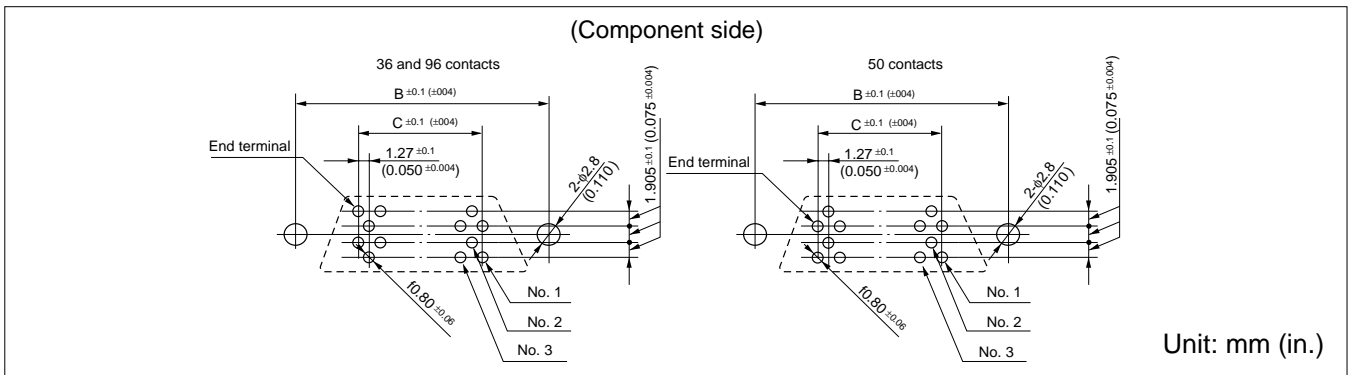
# 240 Series (General-Purpose Type)

## STRAIGHT PLUG

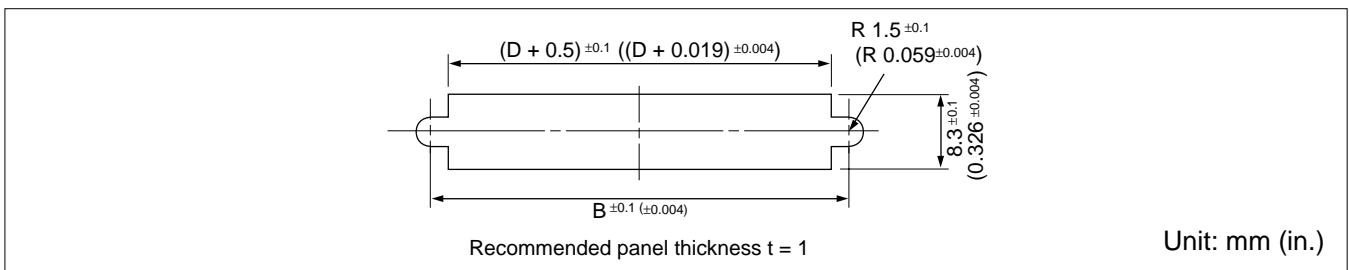
### ■ DIMENSIONS



### ■ MOUNTING HOLE LAYOUT



### ■ RECOMMENDED PANEL DIMENSIONS



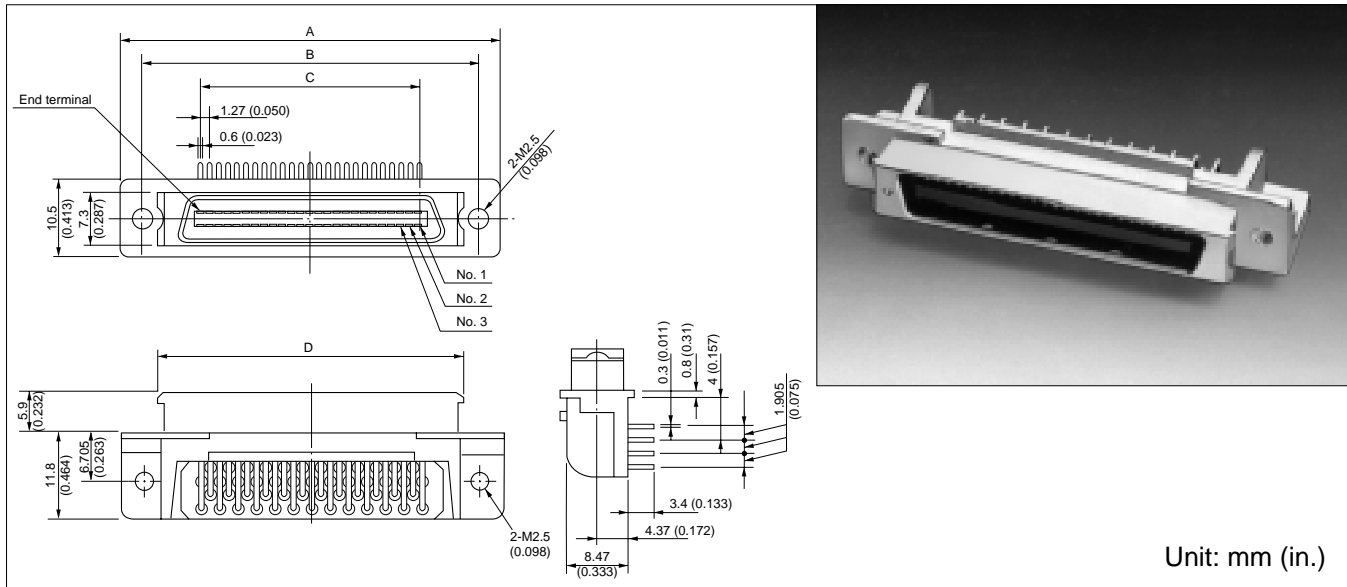
### ■ PART NUMBERS AND DIMENSIONS

Number of contacts	Part number	Dimensions: mm (in.)			
		A	B	C	D
36	FCN-244P036-G/E	43.56 (1.714)	37.56 (1.478)	21.59 (0.850)	33.46 (1.317)
50	FCN-244P050-G/E	52.45 (2.064)	46.45 (1.828)	30.48 (1.200)	42.35 (1.607)
96	FCN-244P096-G/E	81.66 (3.214)	75.66 (2.978)	59.69 (2.350)	71.56 (2.817)

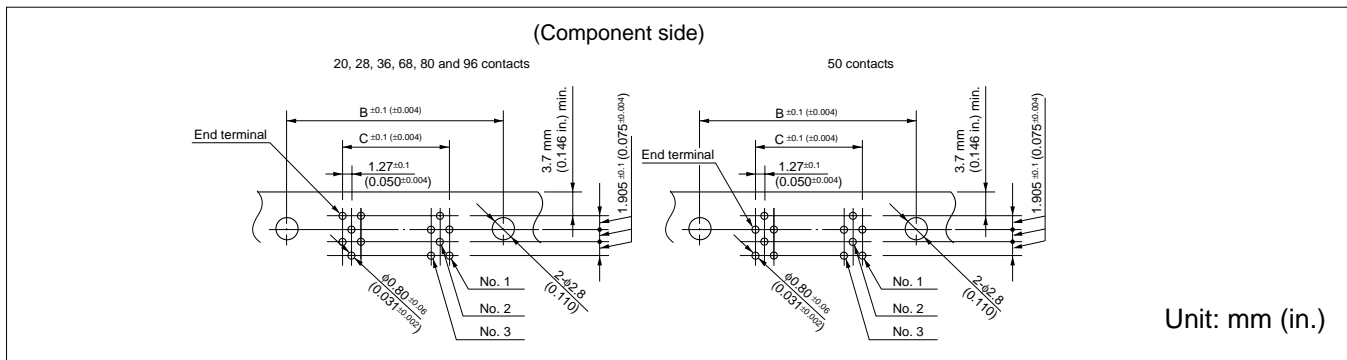
# 240 Series (General-Purpose Type)

## RIGHT-ANGLE PLUG

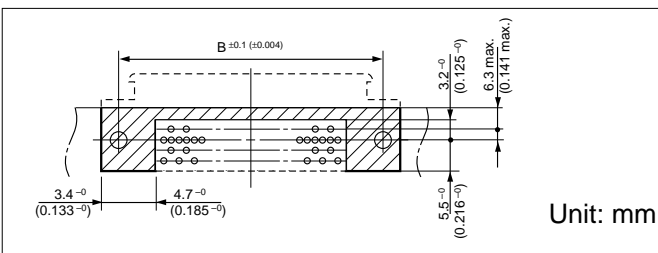
### ■ DIMENSIONS



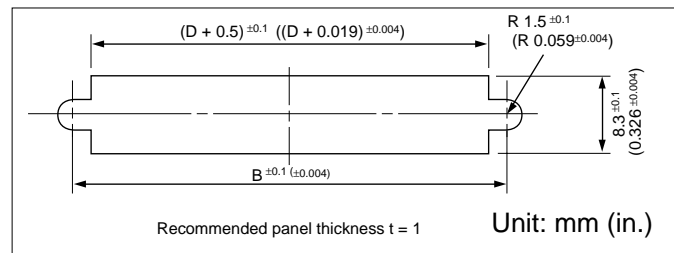
### ■ MOUNTING HOLE LAYOUT



### ■ PANEL INHIBITED AREAS



### ■ RECOMMENDED PANEL DIMENSIONS



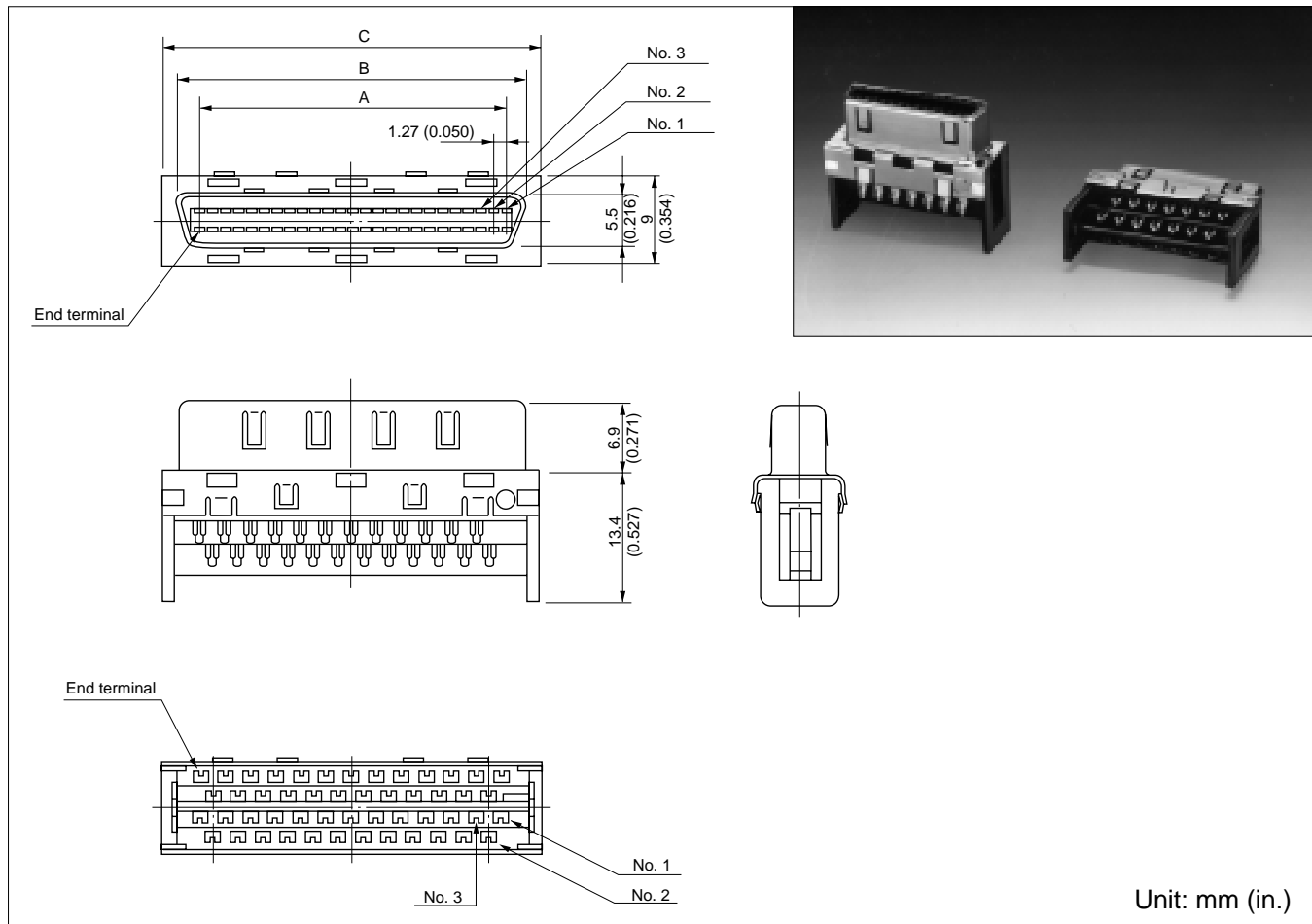
### ■ PART NUMBERS AND DIMENSIONS

Number of contacts	Part number	Dimensions: mm (in.)			
		A	B	C	D
20	FCN-245P020-G/E	33.40 (1.314)	27.40 (1.078)	11.43 (0.450)	23.30 (0.917)
28	FCN-245P028-G/E	38.48 (1.514)	32.48 (1.278)	16.51 (0.650)	28.38 (1.117)
36	FCN-245P036-G/E	43.56 (1.714)	37.56 (1.478)	21.59 (0.850)	33.46 (1.317)
50	FCN-245P050-G/E	52.45 (2.064)	46.45 (1.828)	30.48 (1.200)	42.35 (1.667)
68	FCN-245P068-G/E	63.88 (2.514)	57.88 (2.278)	41.91 (1.650)	53.78 (2.117)
80	FCN-245P080-G/E	71.50 (2.814)	65.50 (2.578)	49.53 (1.950)	61.40 (2.417)
96	FCN-245P096-G/E	81.66 (3.214)	75.66 (2.978)	59.69 (2.350)	71.56 (2.817)

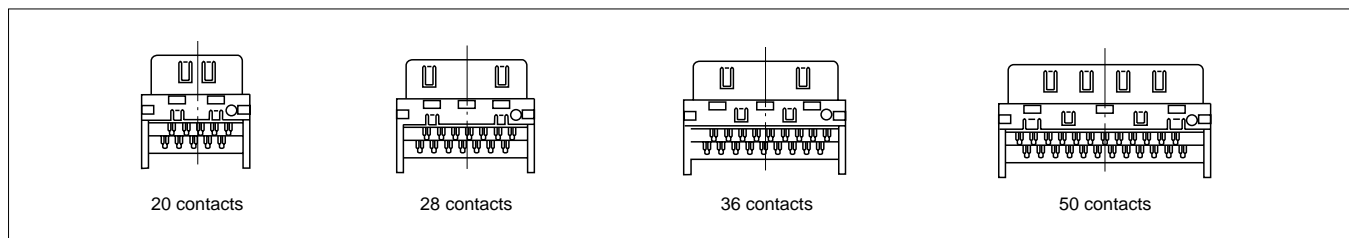
# 240 Series (General-Purpose Type)

## SOLDERING EYELET SOCKET

### ■ DIMENSIONS



### ■ SHAPES OF MAIN BODY DEPENDING ON THE NUMBER OF CONTACTS



### ■ PART NUMBERS AND DIMENSIONS

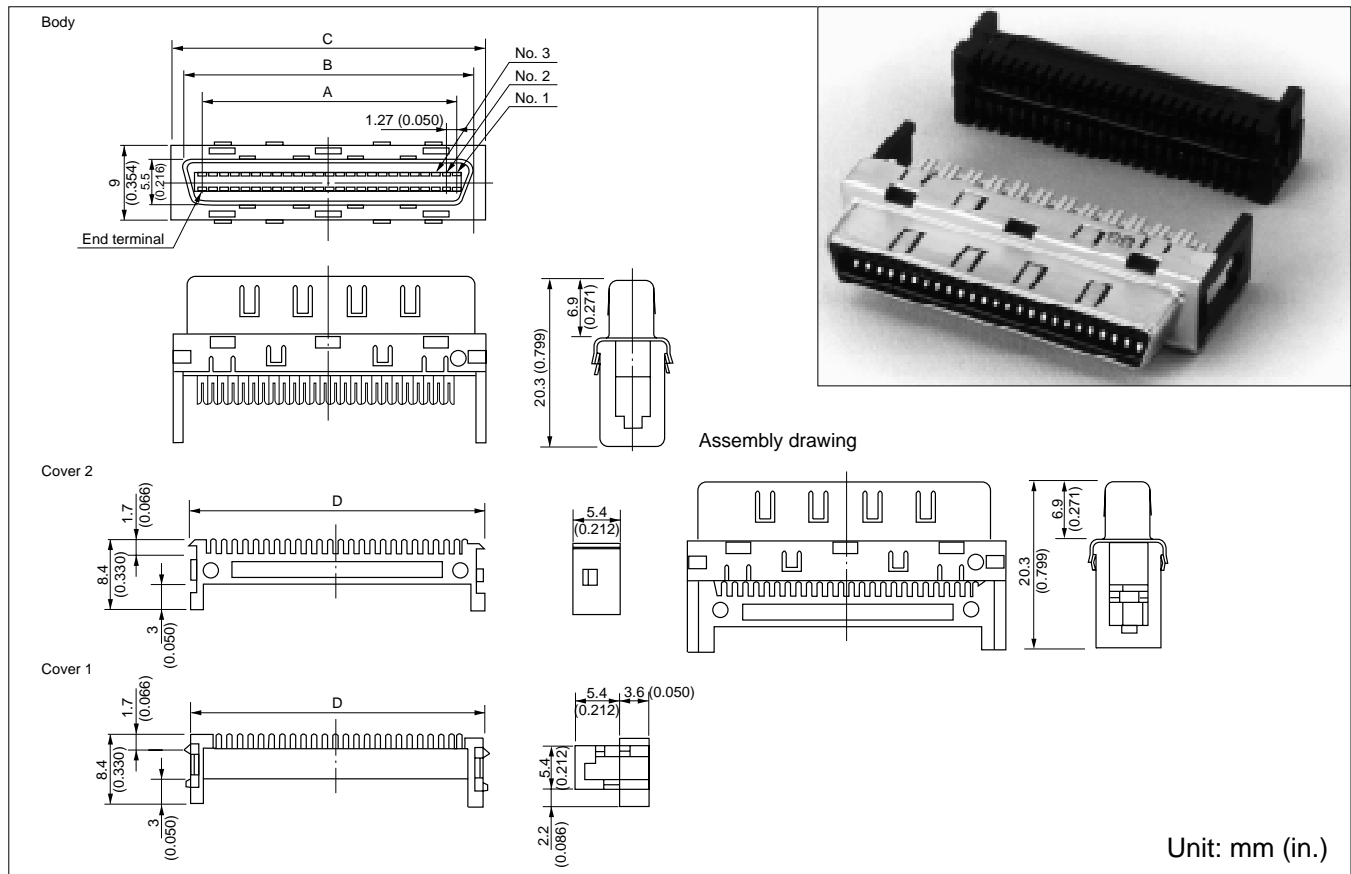
Number of contacts	Part number	Dimensions: mm (in.)		
		A	B	C
20	FCN-241J020-G/E	11.43 (0.450)	16.25 (0.639)	19.25 (0.757)
28	FCN-241J028-G/E	16.51 (0.650)	21.33 (0.839)	24.33 (0.957)
36	FCN-241J036-G/E	21.59 (0.850)	26.41 (1.039)	29.41 (1.157)
50	FCN-241J050-G/E	30.48 (1.200)	35.30 (1.389)	38.30 (1.507)

These accessories are also used for the FCN-230 series (general-purpose). Refer to the data sheet for the FCN-230 series for details.

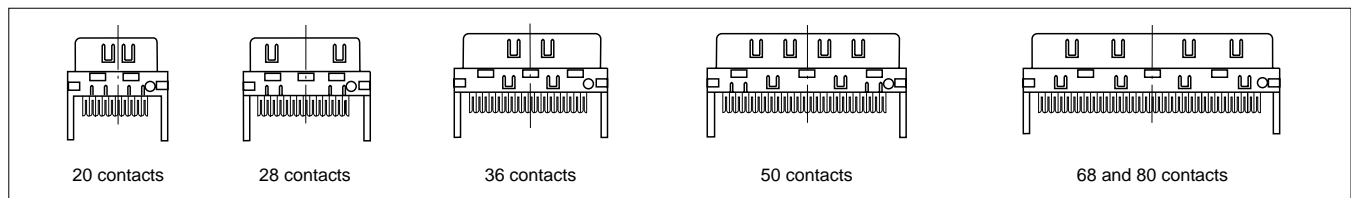
# 240 Series (General-Purpose Type)

## INSULATION DISPLACEMENT CONNECTION (IDC) SOCKET

### ■ DIMENSIONS



### ■ SHAPES OF MAIN BODY DEPENDING ON THE NUMBER OF CONTACTS



### ■ PART NUMBERS AND DIMENSIONS

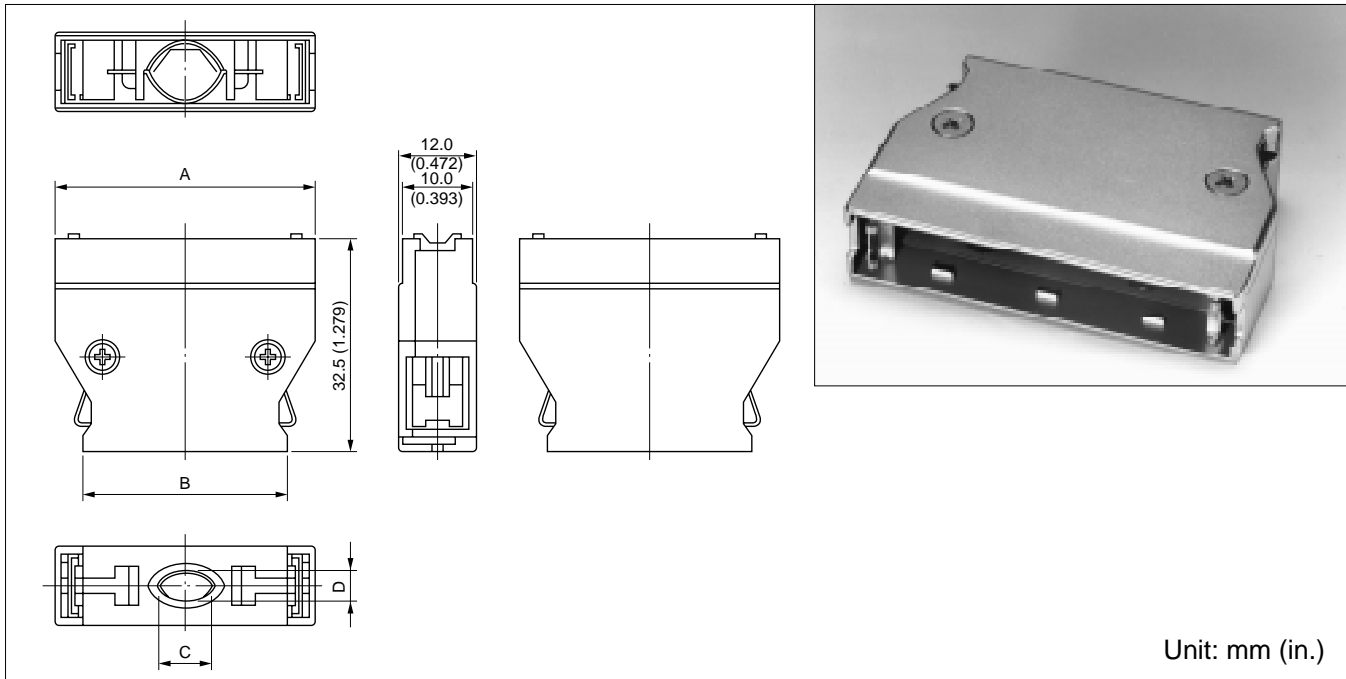
Number of contacts	Insulation diameter of applicable wire	Part number	Dimensions: mm (in.)			
			A	B	C	D
20	φ0.5 to 0.65 mm	FCN-247J020-G/E	11.43 (0.450)	16.25 (0.639)	19.25 (0.757)	16.75 (0.659)
	φ0.65 to 0.8 mm	FCN-247J020-G/G				
	φ0.8 to 0.88 mm	FCN-247J020-G/F				
28	φ0.5 to 0.65 mm	FCN-247J028-G/E	16.51 (0.650)	21.33 (0.839)	24.33 (0.957)	21.83 (0.859)
	φ0.8 to 0.88 mm	FCN-247J028-G/F				
36	φ0.5 to 0.65 mm	FCN-247J036-G/E	21.59 (0.850)	26.41 (1.039)	29.41 (1.157)	26.91 (1.059)
	φ0.8 to 0.88 mm	FCN-247J036-G/F				
50	φ0.5 to 0.65 mm	FCN-247J050-G/E	30.48 (1.200)	35.30 (1.339)	38.30 (1.507)	35.80 (1.409)
	φ0.65 to 0.8 mm	FCN-247J050-G/G				
	φ0.8 to 0.88 mm	FCN-247J050-G/F				
68	φ0.5 to 0.65 mm	FCN-247J068-G/E	41.91 (1.650)	46.73 (1.839)	49.73 (1.957)	47.23 (1.859)
	φ0.65 to 0.8 mm	FCN-247J068-G/G				
	φ0.8 to 0.88 mm	FCN-247J068-G/F				
80	φ0.5 to 0.65 mm	FCN-247J080-G/E	49.53 (1.950)	54.35 (2.139)	57.35 (2.257)	54.85 (2.159)
96	φ0.5 to 0.65 mm	FCN-247J096-G/E	59.69 (2.350)	64.51 (2.539)	67.51 (2.657)	65.01 (2.559)

These accessories are also used for the FCN-230 series (general-purpose). Refer to the data sheet for the FCN-230 series for details.

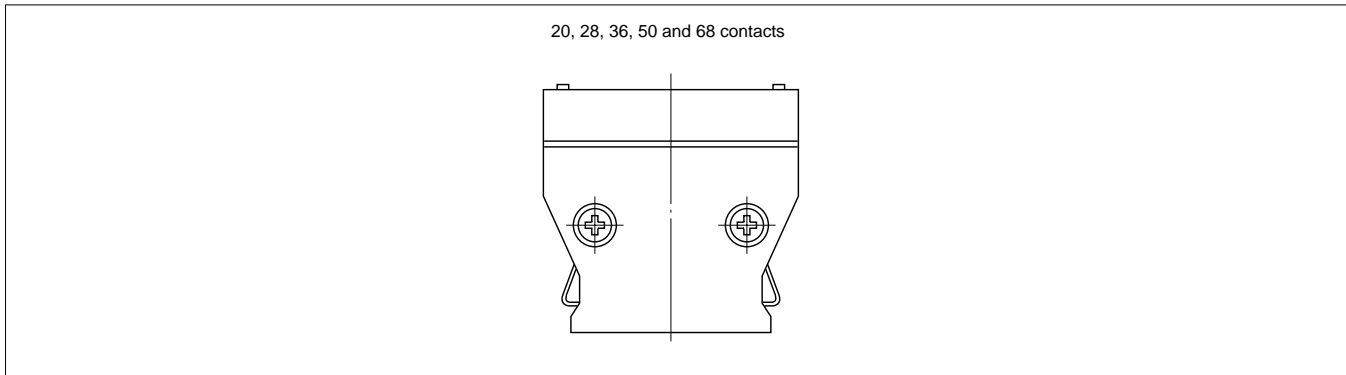
# 240 Series (General-Purpose Type)

## METAL COVER (230 SERIES (GENERAL-PURPOSE) AND 240 SERIES (GENERAL-PURPOSE))

### ■ DIMENSIONS



### ■ SHAPES OF MAIN BODY DEPENDING ON THE NUMBER OF CONTACTS



### ■ PART NUMBERS AND DIMENSIONS

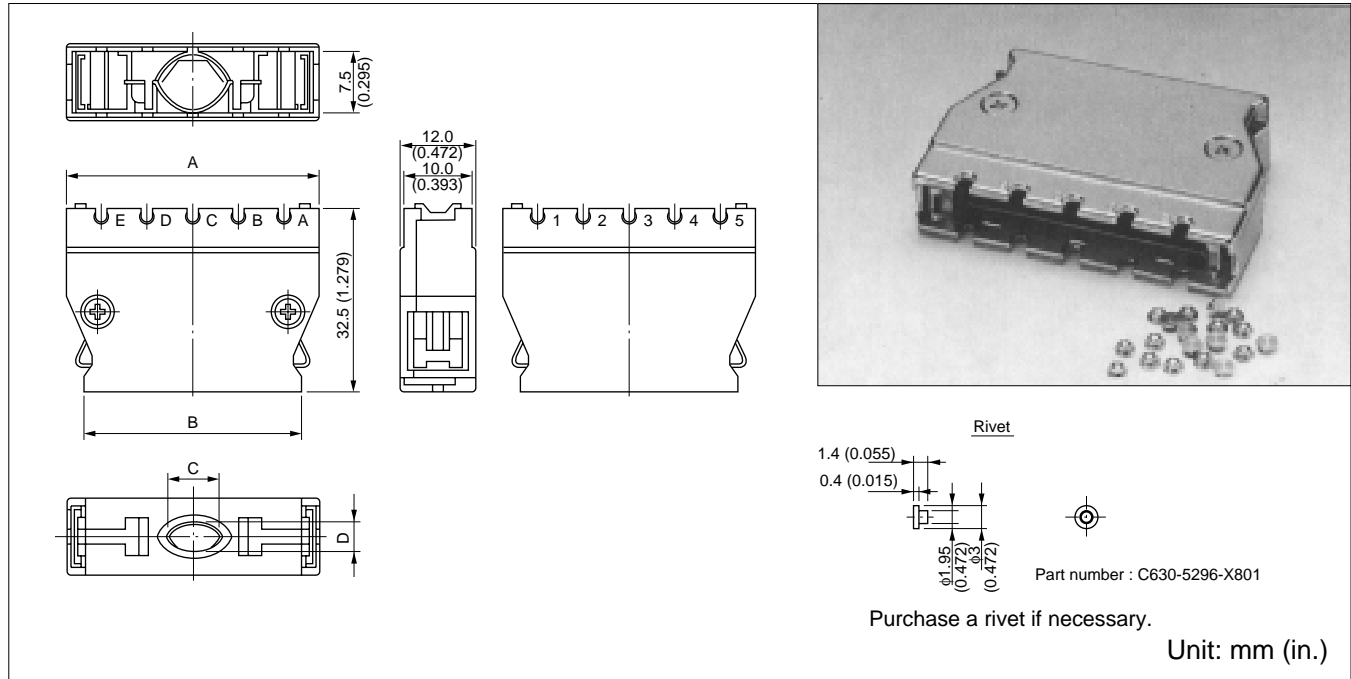
Number of contacts	Part number	Dimensions: mm (in.)		
		A	B	C × D
20	FCN-230C020-A/E	28.95 (1.139)	21.15 (0.832)	6.5 × 4.5 (0.255 × 0.177)
	FCN-230C020-C/E			8.5 × 8.2 (0.334 × 0.322)
28	FCN-230C028-A/E	34.03 (1.339)	26.23 (1.032)	6.5 × 6.0 (0.255 × 0.236)
	FCN-230C028-C/E			7.2 × 8.5 (0.283 × 0.334)
36	FCN-230C036-A/E	39.11 (1.539)	31.31 (1.232)	9.5 × 8.0 (0.374 × 0.314)
	FCN-230C036-C/E			10.0 × 9.7 (0.393 × 0.381)
50	FCN-230C050-A/E	48.00 (1.889)	40.20 (1.582)	8.5 × 7.0 (0.334 × 0.275)
	FCN-230C050-C/E			10.0 × 9.7 (0.393 × 0.381)
68	FCN-230C068-A/E	59.43 (2.339)	51.63 (2.032)	9.0 × 8.0 (0.354 × 0.314)
	FCN-230C068-C/E			10.0 × 9.0 (0.393 × 0.354)
96	FCN-230C096-C/E	77.21 (3.039)	69.41 (2.732)	9.0 × 11.5 (0.381 × 0.452)

# 240 Series (General-Purpose Type)

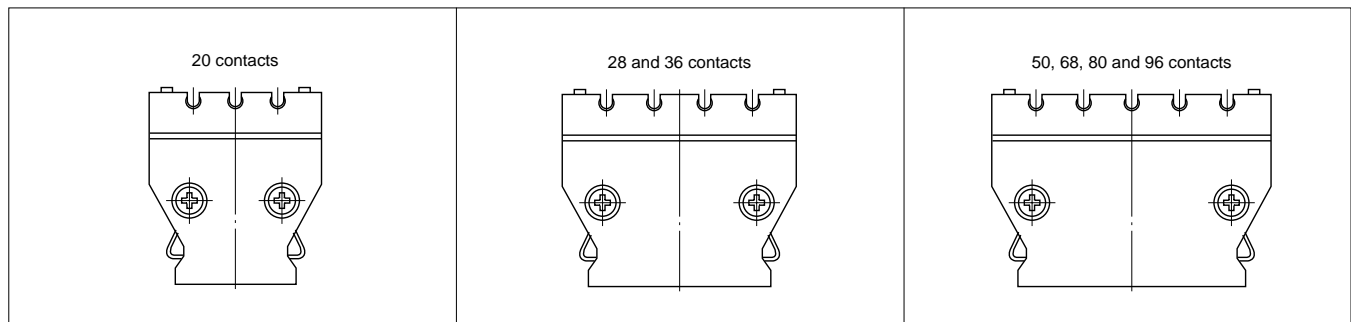
## METAL COVER WITH POLARIZATION [230 SERIES (GENERAL-PURPOSE) AND 240 SERIES (GENERAL-PURPOSE)]

This metal cover prevents a connector from being incorrectly inserted when two or more connectors with the same number of contacts are mounted on a PC board. Use the metal cover together with the polarization guide.

### ■ DIMENSIONS



### ■ SHAPES OF MAIN BODY DEPENDING ON THE NUMBER OF CONTACTS



### ■ PART NUMBERS AND DIMENSIONS

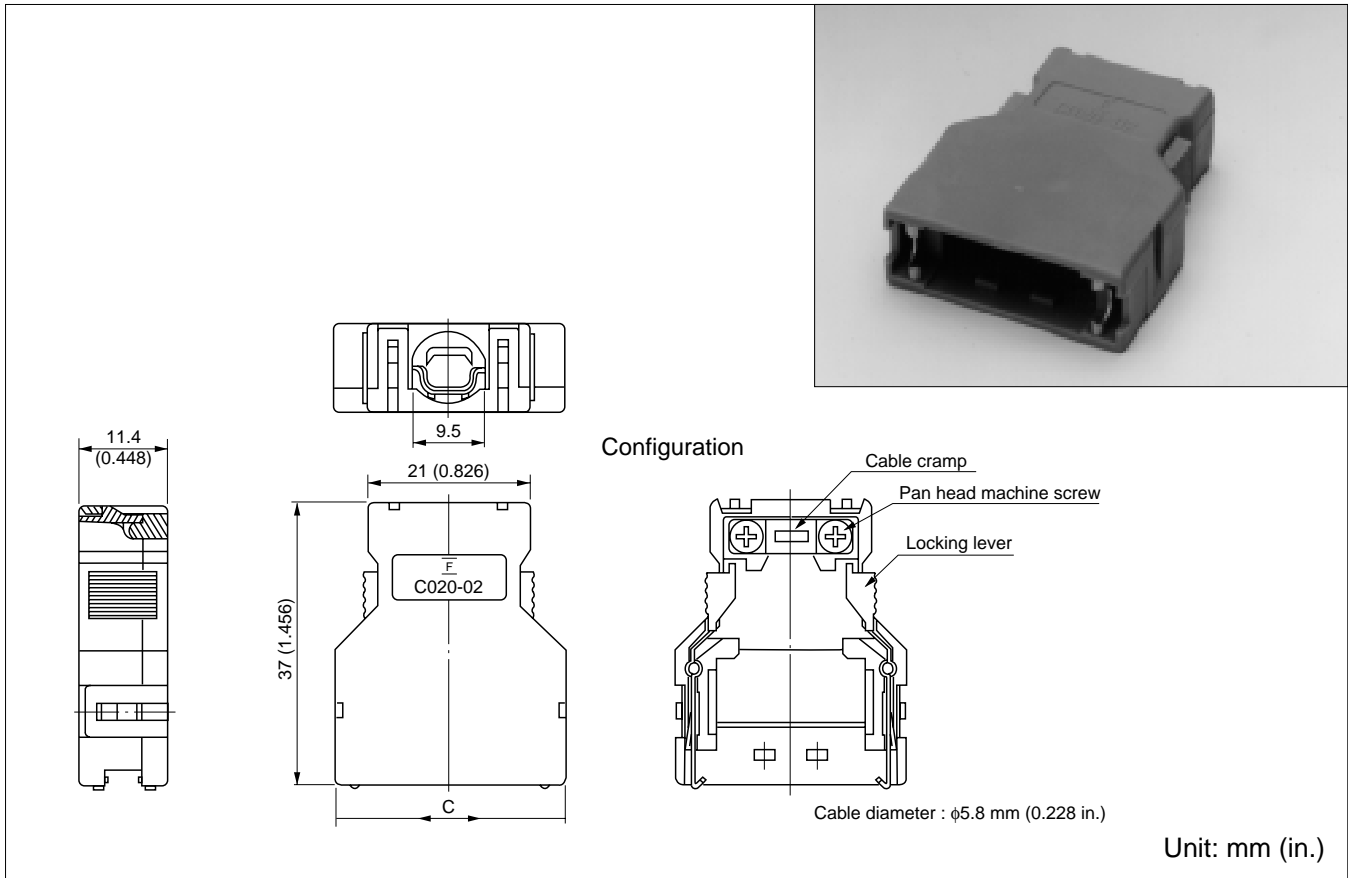
Number of contacts	Part number	Dimensions: mm (in.)		
		A	B	C × D
20	FCN-230C020-B/E	28.95 (1.139)	21.15 (0.852)	6.5 × 4.5 (0.255 × 0.177)
28	FCN-230C028-B/E	34.03 (1.339)	26.23 (1.032)	6.5 × 6.0 (0.255 × 0.236)
36	FCN-230C036-B/E	39.11 (1.539)	31.31 (1.232)	9.5 × 8.0 (0.374 × 0.314)
	FCN-230C036-D/E			10.0 × 9.0 (0.393 × 0.354)
50	FCN-230C050-B/E	48.00 (1.899)	40.20 (1.582)	8.5 × 7.0 (0.334 × 0.275)
	FCN-230C050-D/E			14.7 × 10.4 (0.578 × 0.409)
68	FCN-230C068-B/E	59.43 (2.339)	51.63 (2.032)	9.0 × 8.0 (0.354 × 0.314)
	FCN-230C068-D/E			14.7 × 10.4 (0.578 × 0.409)
80	FCN-230C080-D/E	67.05 (2.639)	59.25 (2.322)	9.0 × 10.0 (0.354 × 0.393)
96	FCN-230C096-B/E	77.21 (3.039)	59.25 (2.332)	8.0 × 10.0 (0.314 × 0.393)
	FCN-230C096-D/E	77.21 (3.039)	51.00 (2.007)	9.0 × 11.5 (0.374 × 0.452)



# 240 Series (General-Purpose Type)

## PLASTIC COVER

### ■ DIMENSIONS



### ■ PART NUMBERS

FCN-240C020-Y/S

# 240 Series (General-Purpose Type)

## 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

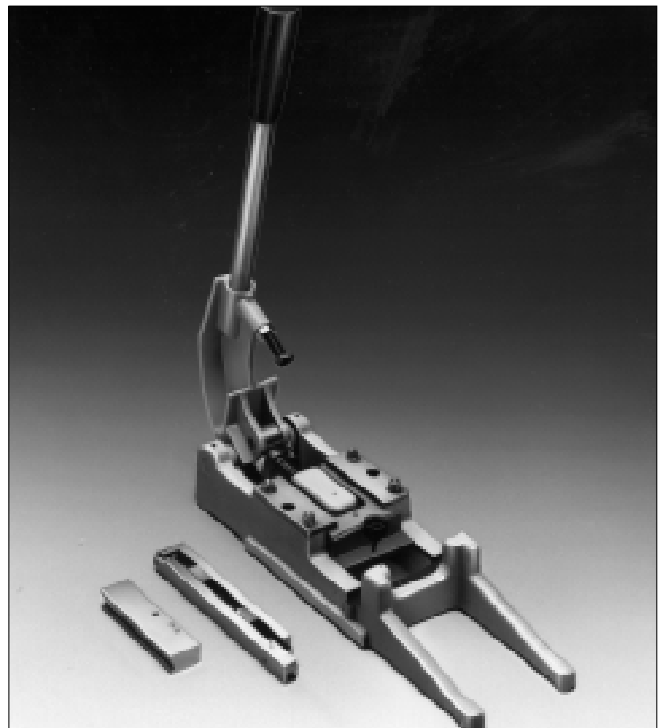
xxx indicates the number of contacts.

### 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

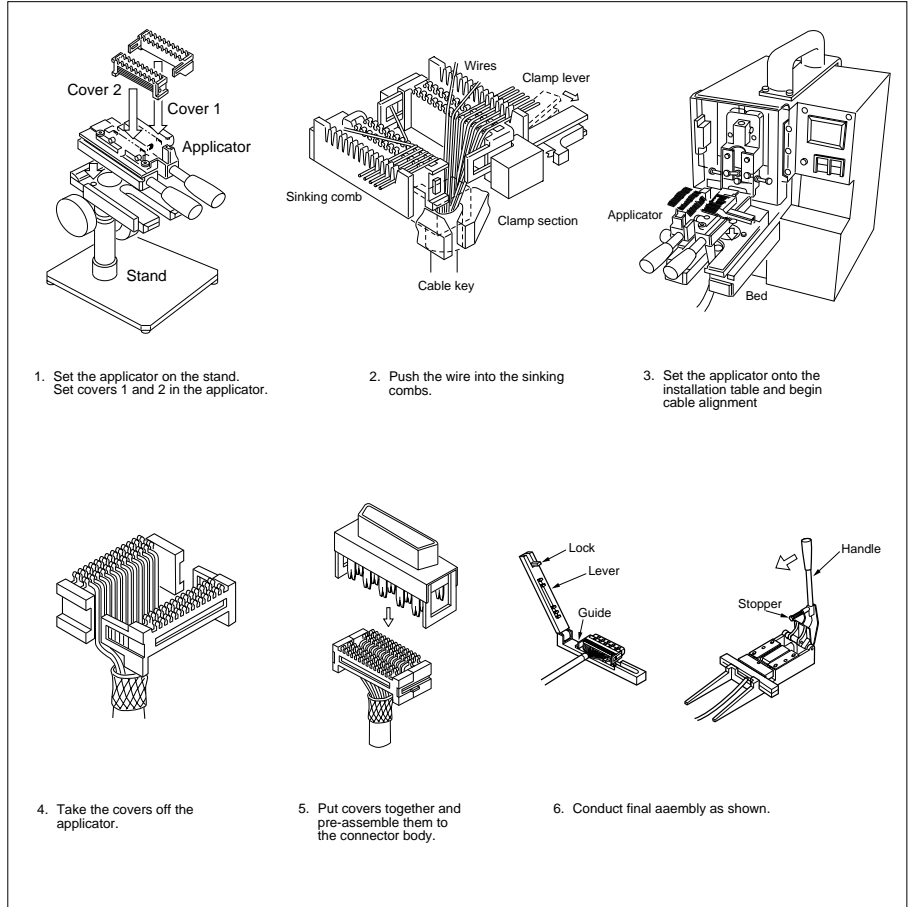
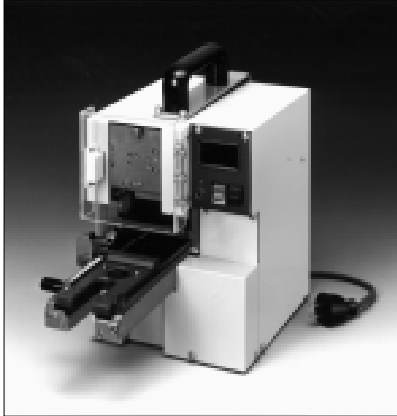


• Insulation displacement connection (IDC) tool

# 240 Series (General-Purpose Type)

## Semi-Automatic Tools Cable Aligning Machine

Main Body (FCN-M551-120, FCN-M551-220)



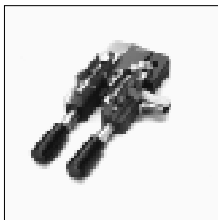
Head (FCN-H550-1/A)



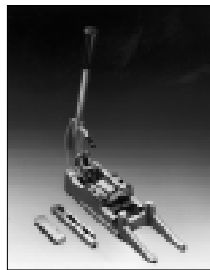
Stand (FCN-D550)



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



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



## FCN-240R SERIES IDC ROUND-CABLE CONNECTORS

SOCKET: FCN-247J\*\*\*-G/E (\*\*\*: 020, 028, 036, 050, 068, 080, 096)

Pos No.	Applied Wire (wire Dia.: mm)	Connector Part number	Cable Aligner		IDC Tool
			Hand Tool	Semi-Auto	
20   68	#28 to #30 (0.5 to 0.65)	FCN-247J020-G/F   FCN-247J080-G/F	FCN-237T-T062/H   FCN-237T-T043/H	(See below*)	HAND PRESS: FCN-237T-T109/H HEAD & Locator: FCN-247T-T066/H
96		FCN-247J096-G/E	FCN-237T-T062/H		

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

# 240 Series (General-Purpose Type)

## 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](mailto:promothq@fcl.fujitsu.com)  
Web: [www.fcl.fujitsu.com](http://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](mailto: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](mailto:info@fceu.fujitsu.com)  
Web: [emea.fujitsu.com/components](http://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: [fcal@fcal.fujitsu.com](mailto:fcal@fcal.fujitsu.com)  
[www.fcal.fujitsu.com](http://www.fcal.fujitsu.com)

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