

# **FCN-244P/245P\*\*\*-G/E, -241J/247J\*\*\*-G/E**

## **FCN-240J Series Ribbon Contact Board Plug and Cable Socket Connectors**

### **1.27 mm PITCH, RIBBON CONTACT BOARD PLUG AND ROUND-CABLE SOCKET**

#### **FEATURES**

- The mating pin has a 1.27 mm (0.050 in.) pitch two-row configuration to enable high-density mounting.
- 20, 28, 36, 50, 68, and 80 contacts available.
- IDC socket for discrete-wire (AWG#30 and 28) I/O cable is provided with a metal cover to prevent electromagnetic interference (EMI).
- Ribbon contact provides excellent torsional strength.
- PCB terminal has a 4-row staggered arrangement (1.27 <0.05> × 1.905 <0.075> mm <in.>).
- The insulation material is completely washable and is approved by the UL (94V-0).
- The FCN-230 EMI cover and dust cap can be used together.

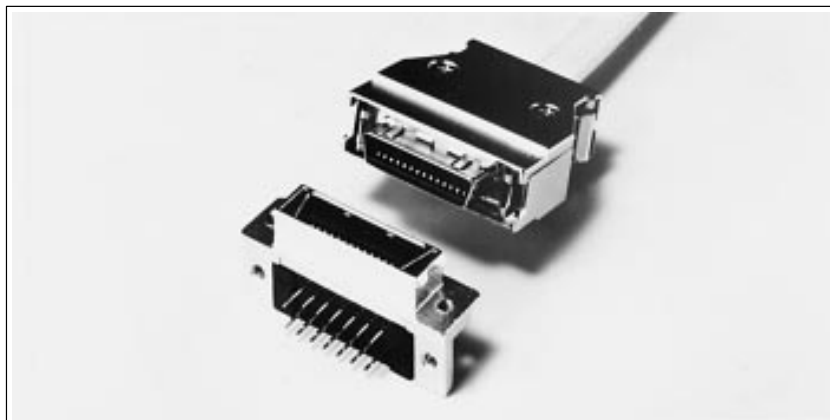
2

#### **SPECIFICATIONS**

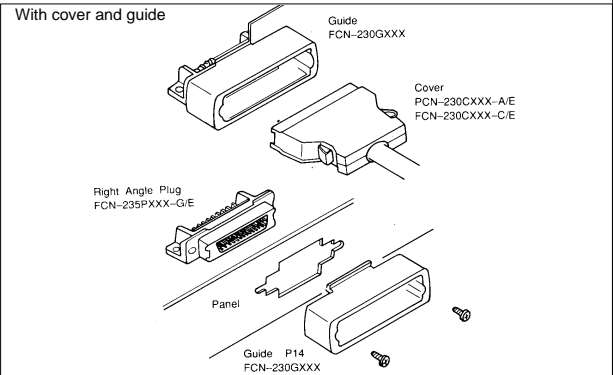
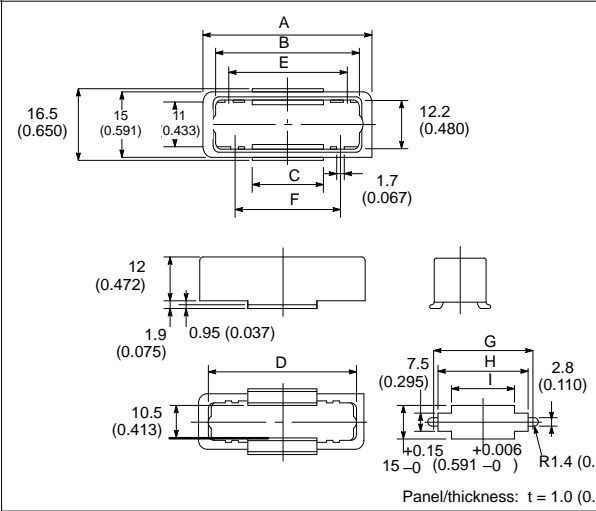
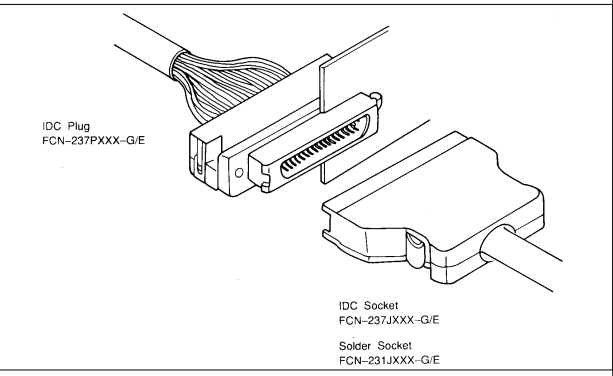
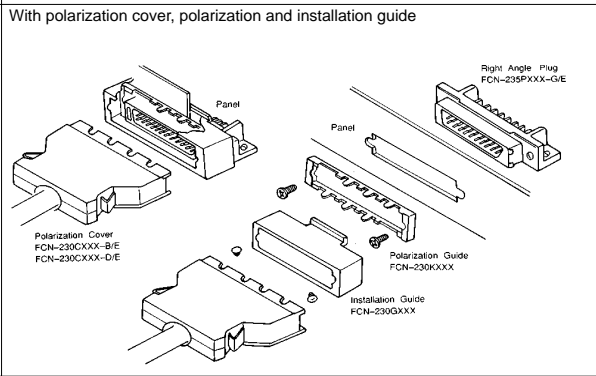
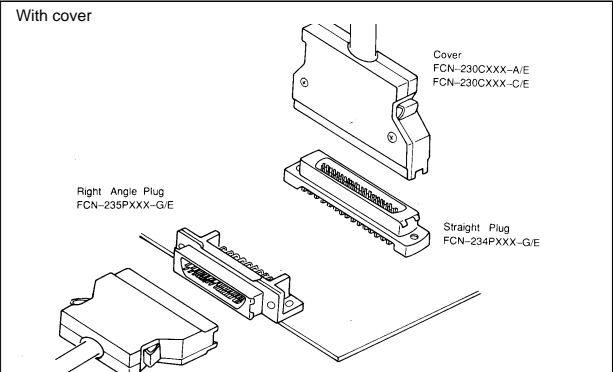
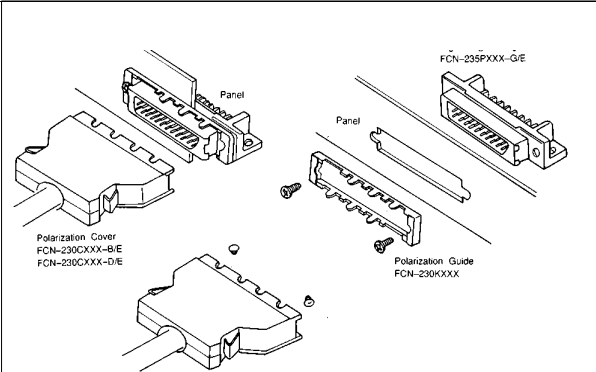
|                                |   |
|--------------------------------|---|
| Temperature Range              | -55 to + 105 °C   |
| Maximum Allowable Current      | 1 A DC  |
| Maximum Allowable Voltage      | 240 V AC  |
| Contact Resistance             | 35 mΩ max. (6 V DC, 0.1 A)  |
| Insulation Resistance          | 1000 MΩ max. (500 V DC)   |
| Dielectric Strength            | 750 V AC, 1 minute  |
| Insertion Force                | 4.5 kg max. (20 contacts)   |
| Withdrawal Force               | 0.6 kg min. (20 contacts)   |
| Applicable PC Board (standard) | 1.6 mm (0.063 in.) thick  |
| Applicable Wire (standard)     | IDC: AWG#30 and 28 with 0.5 to 0.65 mm (0.020 to 0.026 in.) outside diameter.<br>Select a FCN-230 Series cover according to applied cable.<br>Solder: AWG#26 max. (reference) |

#### **MATERIALS**

|                 |   |
|-----------------|---|
| Conductor       | Copper alloy                            |
| Insulator       | Polyester (UL94V-0)                     |
| Contact Plating | Gold over palladium over nickel (PAGOS) |



EXAMPLES OF CONNECTOR APPLICATIONS (PCB TO CABLE)

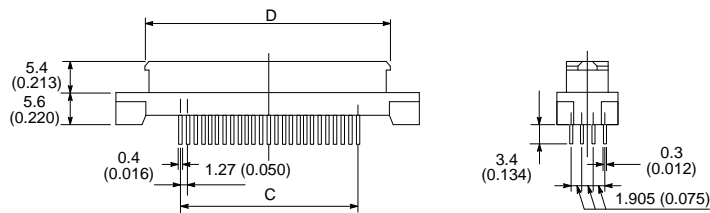
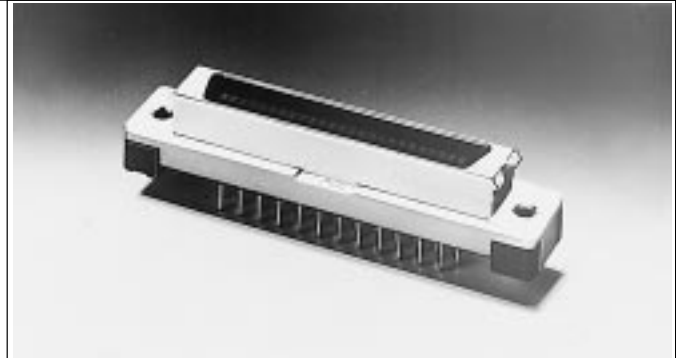
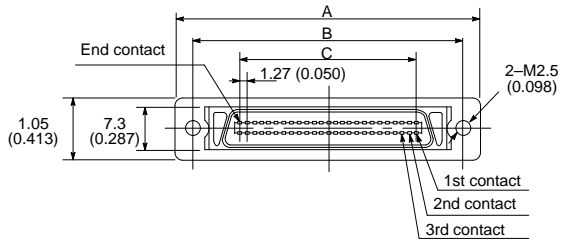


PART NUMBERS INSTALLATION GUIDE

| No. of Contacts | Part Number | Dimensions      |                 |               |                 |               |               |                 |                 |                 |
|-----------------|-------------|-----------------|-----------------|---------------|-----------------|---------------|---------------|-----------------|-----------------|-----------------|
|                 |             | A               | B               | C             | D               | E             | F             | G               | H               | I               |
| 20              | FCN-230G020 | 37.4<br>(1.472) | 30.7<br>(1.209) | 11<br>(0.433) | 33<br>(1.297)   | 25<br>(0.984) | 8<br>(0.315)  | 27.4<br>(1.079) | 23.7<br>(0.933) | 11.3<br>(0.445) |
| 28              | FCN-230G020 | 42.5<br>(1.673) | 35.8<br>(1.409) | 16<br>(0.630) | 38.1<br>(1.500) | 30<br>(1.181) | 16<br>(0.630) | 32.5<br>(1.280) | 28.8<br>(1.134) | 16.3<br>(0.642) |
| 36              | FCN-230G020 | 47.6<br>(1.874) | 40.9<br>(1.610) | 20<br>(0.787) | 43.2<br>(1.701) | 34<br>(1.339) | 31<br>(1.220) | 37.6<br>(1.480) | 33.9<br>(1.335) | 20.3<br>(0.799) |
| 50              | FCN-230G020 | 56.3<br>(2.217) | 49.6<br>(1.953) | 30<br>(1.181) | 52.1<br>(2.051) | 42<br>(1.654) | 39<br>(1.535) | 46.5<br>(1.831) | 42.8<br>(1.685) | 30.3<br>(1.193) |
| 68              | FCN-230G020 | 67.7<br>(2.665) | 61<br>(2.462)   | 40<br>(1.575) | 63.5<br>(2.500) | 52<br>(2.047) | 49<br>(1.929) | 57.9<br>(2.280) | 54.1<br>(2.130) | 40.3<br>(1.587) |

## FCN-244P\*\*\*-G/E STRAIGHT TYPE, BOARD-PLUG

### DIMENSIONS



2

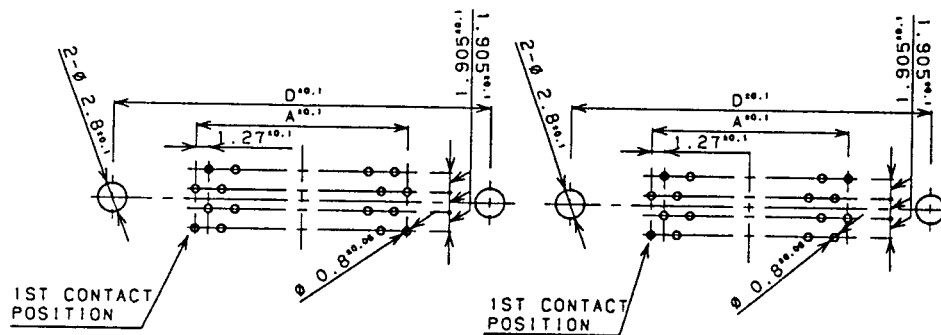
### MOUNTING HOLE LAYOUT

36 contacts

50 contacts

50 contacts

PCB LAYOUT



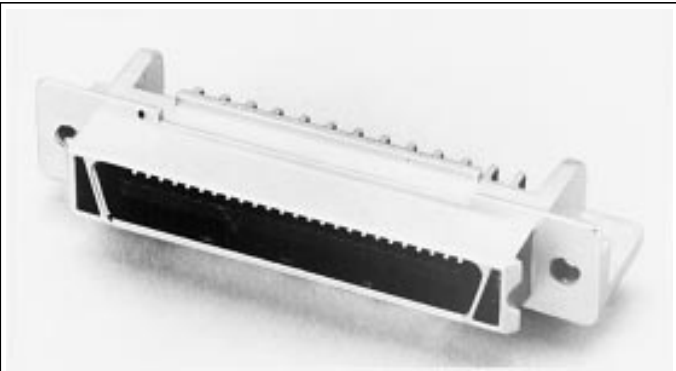
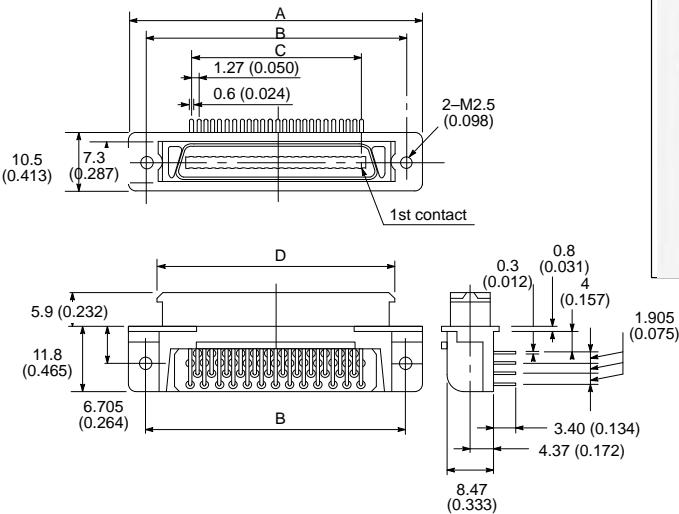
Unit: mm (in.)

### PART NUMBERS

| No. of Contacts | Part Number     | A             | B             | C             | D             |
|-----------------|-----------------|---------------|---------------|---------------|---------------|
| 36              | FCN-244P036-G/E | 43.56 (1.715) | 37.56 (1.479) | 21.59 (0.850) | 33.46 (1.317) |
| 50              | FCN-244P050-G/E | 52.45 (2.065) | 46.45 (1.929) | 30.48 (1.200) | 42.35 (1.667) |
| 96              | FCN-244P096-G/E | 81.55 (3.215) | 75.66 (2.979) | 59.69 (2.350) | 71.56 (2.817) |

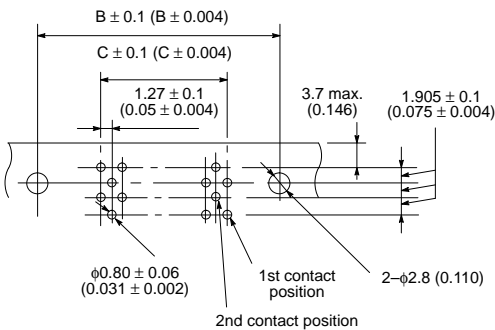
FCN-245P\*\*\*-G/E RIGHT-ANGLE, BOARD-PLUG

DIMENSIONS

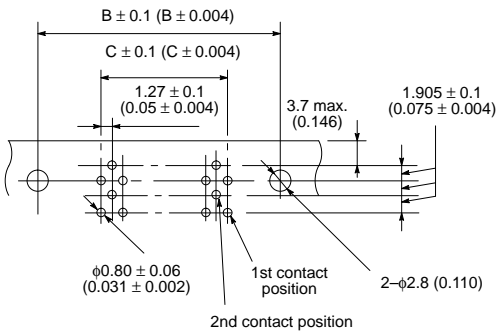


MOUNTING HOLE LAYOUT (FROM MOUNT SIDE)

20, 28, 36, 68, 80, 96 contacts



50 contacts



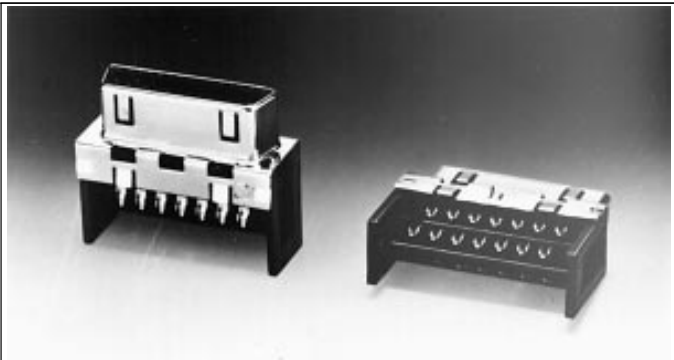
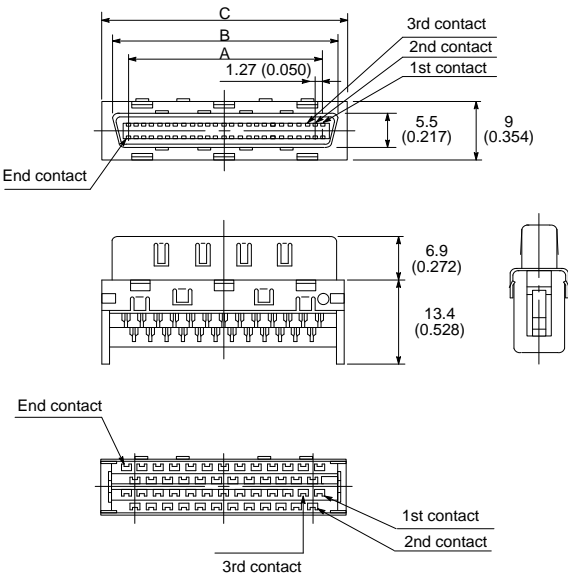
Unit: mm (in.)

PART NUMBERS

| No. of Contacts | Part Number     | A             | B             | C             | D             |
|-----------------|-----------------|---------------|---------------|---------------|---------------|
| 20              | FCN-245P020-G/E | 33.40 (1.315) | 27.40 (1.079) | 11.43 (0.450) | 23.30 (0.917) |
| 28              | FCN-245P028-G/E | 38.48 (1.515) | 32.48 (1.279) | 16.51 (0.650) | 28.38 (1.117) |
| 36              | FCN-245P036-G/E | 43.56 (1.715) | 37.56 (1.479) | 21.59 (0.850) | 33.46 (1.317) |
| 50              | FCN-245P050-G/E | 52.45 (2.065) | 46.45 (1.829) | 30.48 (1.200) | 42.35 (1.667) |
| 68              | FCN-245P068-G/E | 63.88 (2.515) | 57.88 (2.279) | 41.91 (1.650) | 53.78 (2.117) |
| 80              | FCN-245P080-G/E | 71.50 (2.815) | 65.50 (2.579) | 49.53 (1.950) | 61.40 (2.417) |
| 96              | FCN-245P096-G/E | 81.66(3.215)  | 75.66(2.979)  | 59.69(2.350)  | 71.56(2.817)  |

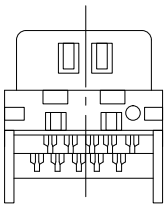
FCN-241J\*\*\*-G/E SOLDER TYPE, ROUND-CABLE-SOCKET

DIMENSIONS

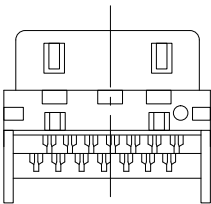


Note: Applied wire (Ex-Dia: mm)  
#26 Max (Reference)

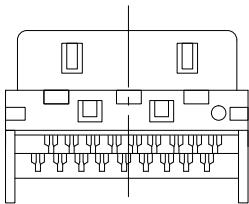
BODY FORM BY NUMBER OF CONTACTS



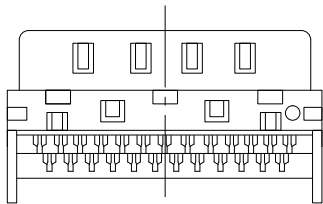
20 contacts



28 contacts



36 contacts



50 contacts

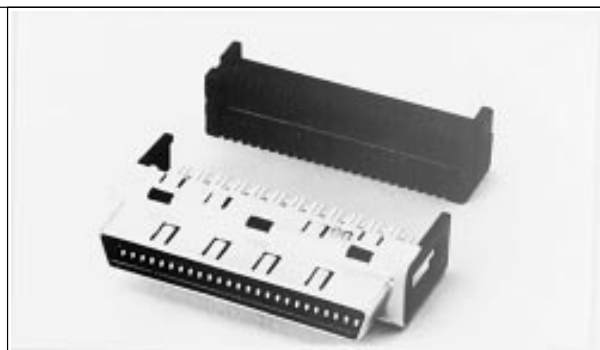
Unit: mm (in.)

PART NUMBERS

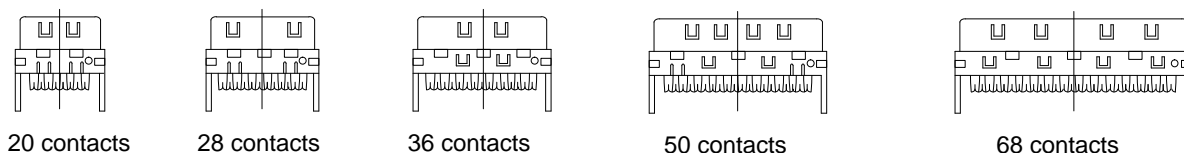
| No. of Contacts | Part Number     | A             | B             | C             |
|-----------------|-----------------|---------------|---------------|---------------|
| 20              | FCN-241J020-G/E | 11.43 (0.450) | 16.25 (0.640) | 19.25 (0.758) |
| 28              | FCN-241J028-G/E | 16.51 (0.650) | 21.33 (0.840) | 24.33 (0.958) |
| 36              | FCN-241J036-G/E | 21.59 (0.850) | 26.41 (1.040) | 29.41 (1.158) |
| 50              | FCN-241J050-G/E | 30.48 (1.200) | 35.30 (1.390) | 38.30 (1.508) |

## FCN-247J\*\*\*-G/E IDC TYPE, ROUND-CABLE-SOCKET

## DIMENSIONS



## MAIN BODY BY NUMBER OF CONTACTS



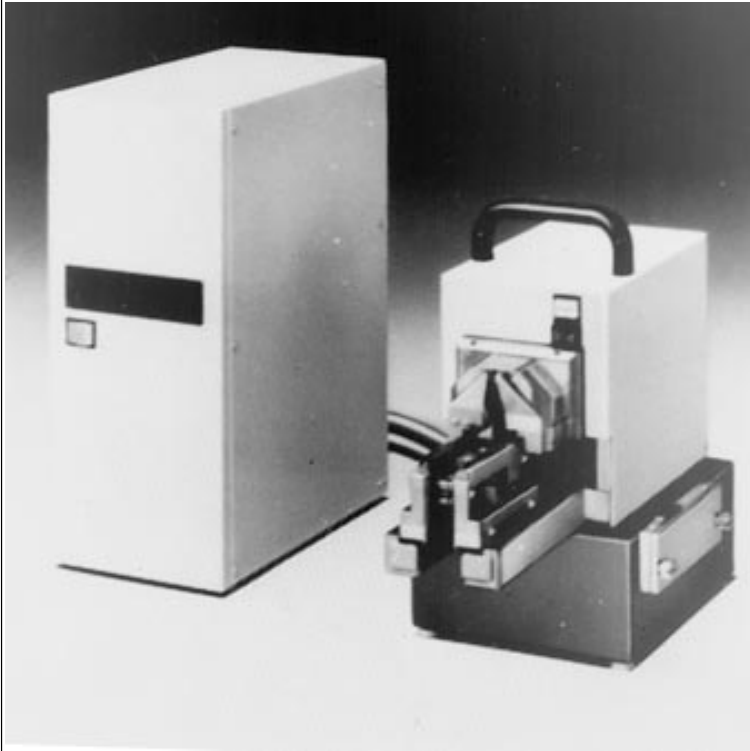
Unit: mm (in.)

## PART NUMBERS

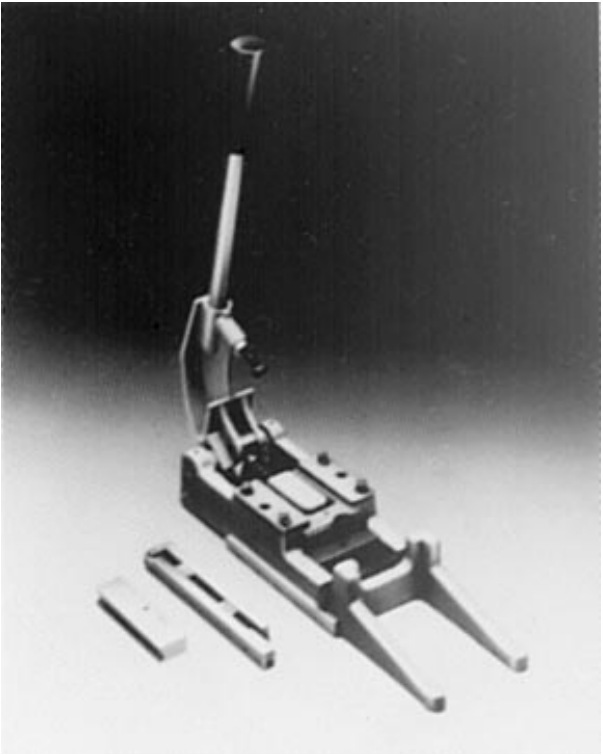
| No. of Contacts | Part Number     | A             | B             | C             | D             |
|-----------------|-----------------|---------------|---------------|---------------|---------------|
| 20              | FCN-247J020-G/E | 11.43 (0.450) | 16.25 (0.640) | 19.25 (0.758) | 16.75 (0.659) |
| 28              | FCN-247J028-G/E | 16.51 (0.650) | 21.33 (0.840) | 24.33 (0.958) | 21.83 (0.859) |
| 36              | FCN-247J036-G/E | 21.59 (0.850) | 26.41 (1.040) | 29.41 (1.158) | 26.91 (1.059) |
| 50              | FCN-247J050-G/E | 30.48 (1.200) | 35.30 (1.390) | 38.30 (1.508) | 35.80 (1.404) |
| 68              | FCN-247J068-G/E | 41.91 (1.650) | 46.73 (1.840) | 49.73 (1.958) | 48.93 (1.926) |
| 80              | FCN-247J080-G/E | 49.53 (1.950) | 54.35 (2.140) | 57.35 (2.258) | 56.55 (2.226) |
| 96              | FCN-247J096-G/E | 59.69(2.350)  | 64.15         | 67.51(2.526)  | 66.71(2.626)  |

See page 3-67 for backshells/accessories.  
See page 3-78 for applicable tooling.

Semi-automatic cable aligner  
Cable Aligning Machine  
Main Body (FCN-M561-A)



IDC Tool



2

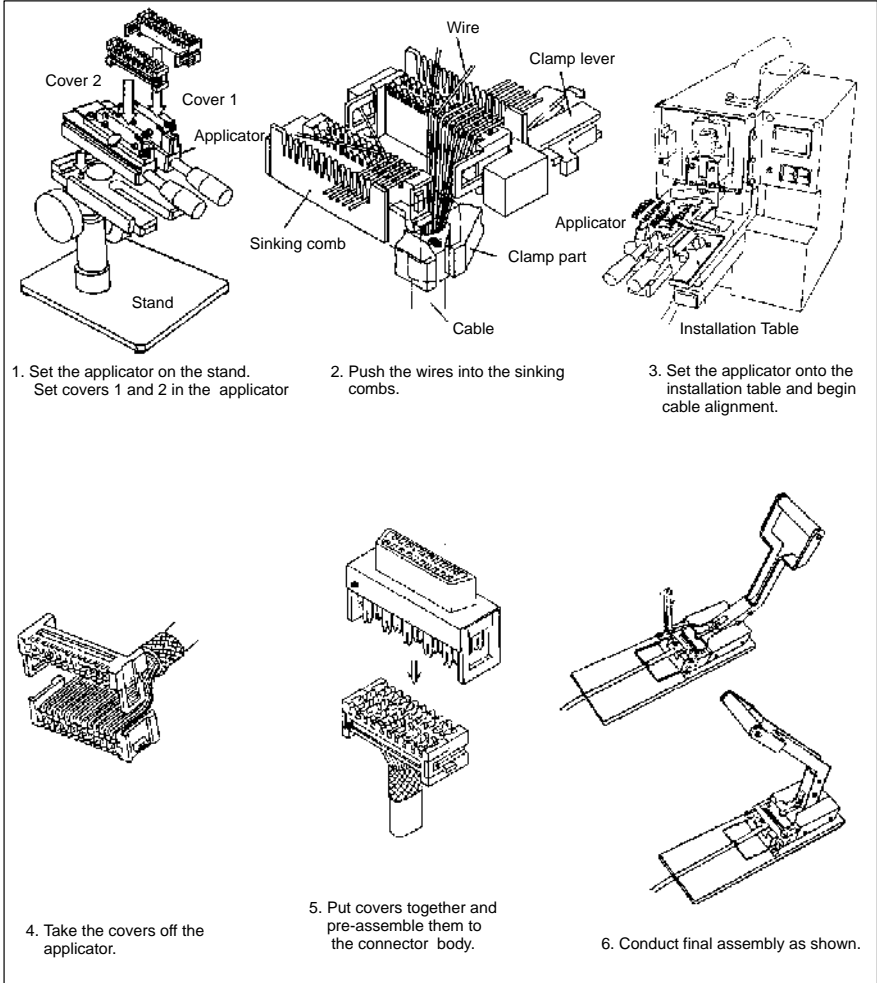
FCN-240 SERIES IDC ROUND-CABLE CONNECTORS

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

| Pos No.       | Applied Wire<br>(wire Dia.: mm) | Connector Part Number                   | Cable Aligner                            |              | IDC Tool   |
|---------------|---------------------------------|---|--|--------------|--|
|               |                                 |   | Hand Tool                                | Semi-Auto    |  |
| 20<br> <br>80 | #28 or #30<br>(0.5 to 0.65)     | FCN-247J020-G/E<br> <br>FCN-247J080-G/E | FCN-237T-T062/H<br>or<br>FCN-237T-T043/H | (See below*) | HAND PRESS:<br>FCN-237T-T109/H<br>HEAD & TABLE:<br>FCN-247T-T066/H |
| 96            |                                 | FCN-247J096-G/E                         | FCN-237T-T062/H                          |              |  |

\*Semi-automatic cable aligner  
Body :FCN-M561-A  
Controler :FCN-B561-120 (FOR 120V), FCN-B561-220 (FOR 220V)  
Bed :FCN-P560-2/A  
Adapter :FCN-K560-K-\*\*\* (\*\*\*:020, 028, 036, 050, 068, 080, 096)

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



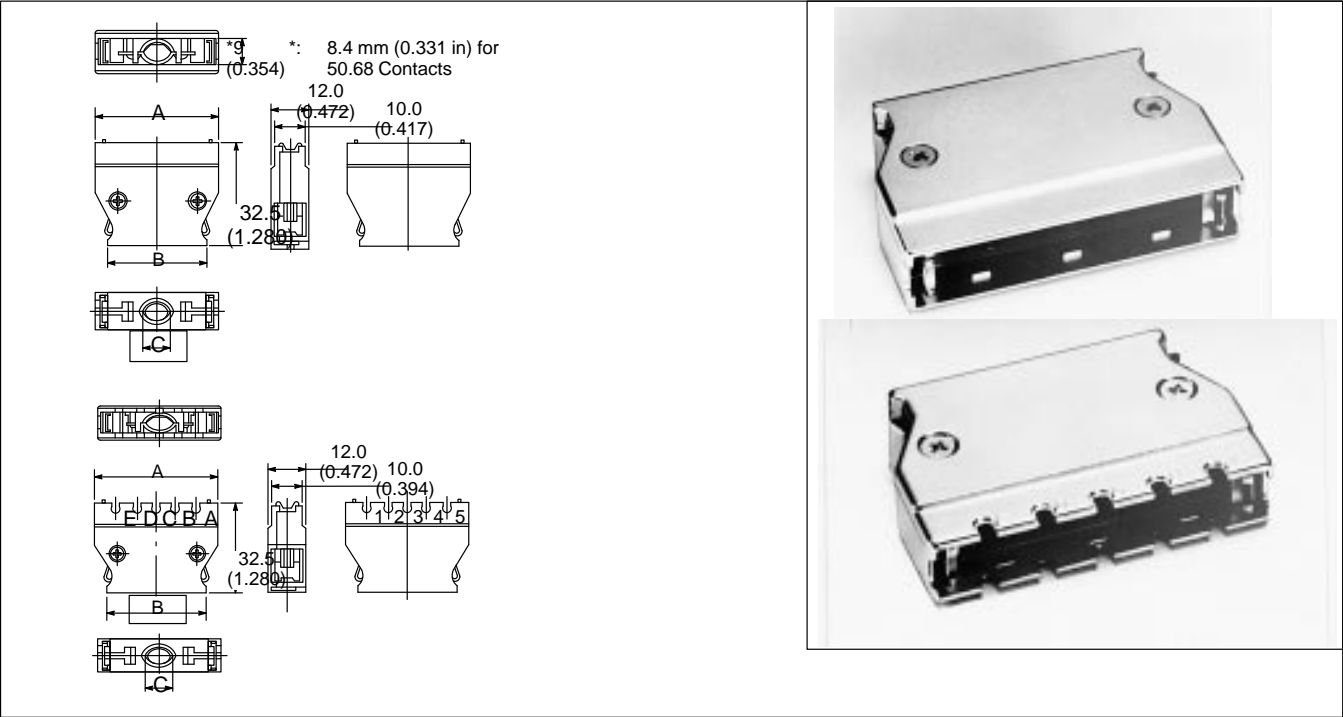
FCN-240R SERIES IDC ROUND-CABLE CONNECTORS  
SOCKET: FCN-247J\*\*\*-G/E (\*\*\*: 020, 028, 036, 050, 068, 080, 096)

| Pos No.       | Applied Wire<br>(wire Dia.: mm) | Connector Part Number                   | Cable Aligner                            |              | IDC Tool   |
|---------------|---------------------------------|---|--|--------------|--|
|               |                                 |   | Hand Tool                                | Semi-Auto    |  |
| 20<br> <br>80 | #28 or #30<br>(0.5 to 0.65)     | FCN-247J020-G/E<br> <br>FCN-247J080-G/E | FCN-237T-T062/H<br>or<br>FCN-237T-T043/H | (See below*) | HAND PRESS:<br>FCN-237T-T109/H<br>HEAD & TABLE:<br>FCN-247T-T066/H |
| 96            |                                 | FCN-247J096-G/E                         | FCN-237T-T062/H                          |              |  |

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



FCN-230C\*\*\*-\*/E METAL COVER



PART NUMBERS

| No. of Contacts | Part Number     | Dimensions    |               |                         |
|-----------------|-----------------|---------------|---------------|-------------------------|
|                 |                 | A             | B             | C                       |
| 20              | FCN-230C020-A/E | 28.95(1.140)  | 11.43 (0.450) | 6.5 4.5 (0.256 0.177)   |
|                 | FCN-230C020-C/E |               |               | 8.5 8.2 (0.335 0.323)   |
|                 | FCN-230C020-B/E |               |               | 6.5 4.5 (0.256 0.177)   |
| 26              | FCN-230C026-C/E | 32.76(1.1290) | 24.96(0.983)  | 7.2 8.5 (0.283 0.335)   |
| 28              | FCN-230C028-A/E | 34.03(1.340)  | 26/23 (1.033) | 6.50 6.0 (0.256 0.236)  |
|                 | FCN-230C028-C/E |               |               | 8.5 7.2 (0.335 0.283)   |
|                 | FCN-230C028-B/E |               |               | 6.50 6.0 (0.256 0.236)  |
| 36              | FCN-230C036-A/E | 39.11 (1.540) | 31.31 (1.233) | 9.5 8.0 (0.374 0.315)   |
|                 | FCN-230C036-B/E | 39.11 (1.540) | 31.31 (1.233) | 9.5 8.0 (0.374 0.315)   |
|                 | FCN-230C036-C/E | 39.11 (1.540) | 31.31 (1.233) | 9.0 10.0 (0.354 0.394)  |
| 40              | FCN-230C040-C/E | 41.15 (1.639) | 33.85 (1.334) | 8.0 10.6 (0.315 0.417)  |
| 50              | FCN-230C050-A/E | 48.00 (1.890) | 40.20 (1.583) | 8.5 7.0 (0.334 0.276)   |
|                 | FCN-230C050-C/E |               |               | 9.7 10.0 (0.382 0.394)  |
|                 | FCN-230C050-D/E |               |               | 14.7 10.4 (0.579 0.409) |
|                 | FCN-230C050-B/E |               |               | 8.5 7.0 (0.335 0.276)   |
| 68              | FCN-230C068-A/E | 59.43 (2.340) | 51.63 (2.033) | 9.0 8.0 (0.354 0.315)   |
|                 | FCN-230C068-C/E |               |               | 10.0 9.7 (0.394 0.354)  |
|                 | FCN-230C068-D/E |               |               | 14.7 10.4 (0.579 0.409) |
|                 | FCN-230C068-B/E |               |               | 9.0 8.0 (0.354 0.315)   |
| 80              | FCN-230C080-D/E | 67.05 (2.640) | 59.25 (2.333) | 9.0 10.0 (0.354 0.394)  |
| 96              | FCN-230C096-C/E | 77.21 (3.040) | 69.41 (2.733) | 9.0 11.5 (0.354 0.453)  |
|                 | FCN-230C096-D/E |               |               |                         |

FCN-230KXXX POLARIZATION GUIDE

PART NUMBERING FOR POLARIZATION GUIDE VARIATIONS

- FCN-230K0XX   #   

△

○

(1)   (2)
- (1)   △

 : Enter the number (1, 2, 3, 4, 5) corresponding to the desired snapped nail position on the lower edge.
- (2)   ○

 : Enter the letter (A, B, C, D, E) corresponding to the desired snapped nail position on the upper edge.

PART NUMBERING FOR POLARIZATION COVER VARIATIONS (WITH RIVET)

- FCN-230C0XX   -B/E#   

△

○

-D/E   (1)   (2)
- (1)   △

 : Enter the number (1, 2, 3, 4, 5) corresponding to the desired rivet position on the lower plate.
- (2)   ○

 : Enter the letter (A, B, C, D, E) corresponding to the desired rivet position on the upper plate.

When you buy rivet separately, please assemble it by using the following tool.

2

Ex.) FCN-230K0XX#2C

Designation of standard hollow position with rivet.

| No. of contacts | Designation |    |    |    |
|-----------------|-------------|----|----|----|
| 20-contacts     | 1B          | 1C | 2A | 3A |
| 28-contacts     | 1D          | 2C | 3B | 4A |
| 36-contacts     | 1D          | 2C | 3B | 4A |
| 50-contacts     | 1E          | 2D | 4B | 5A |
| 68-contacts     | 1E          | 2D | 4B | 5A |

Assembling tool  
(FCN-230T-T001/H)

Ex.) FCN-230C0XX-B/E#2C  
-D/E

Polarization key arrangement

20-contacts

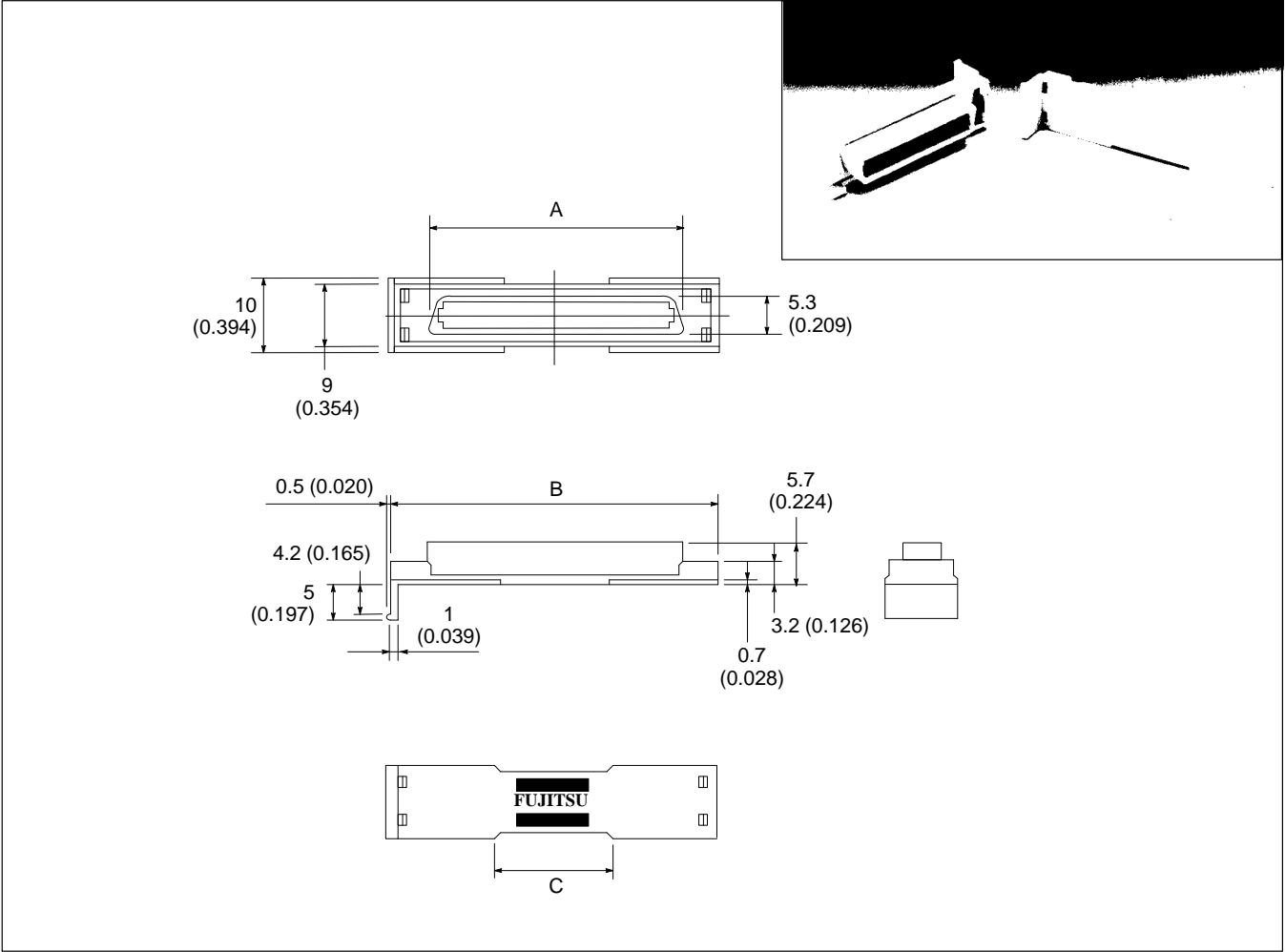
28•36-contacts

50•68-contacts

PART NUMBERS

| No. of Contacts | Part Number | Dimensions    |               |
|-----------------|-------------|---------------|---------------|
|                 |             | A             | C             |
| 20              | FCN-230G020 | 32.60 (1.283) | 27.40 (1.079) |
| 28              | FCN-230G020 | 37.70 (1.484) | 32.48 (1.279) |
| 36              | FCN-230G020 | 42.80 (1.685) | 37.60 (1.480) |
| 50              | FCN-230G020 | 51.70 (2.035) | 46.45 (1.829) |
| 68              | FCN-230G020 | 63.10 (2.484) | 57.88 (2.279) |

FCN-230CxxX-21 DUST CAP FOR BOARD-PLUG



PART NUMBERS

| No. of<br>Contacts | Part Number    | Dimensions    |              |              |
|--------------------|----------------|---------------|--------------|--------------|
|                    |                | A             | B            | C            |
| 20                 | FCN-234C020-21 | 15.60(0.614)  | 25.50(1.004) | 10.00(0.394) |
| 28                 | FCN-230C028-21 | 20.68(0.814)  | 30.58(1.004) | 10.00(0.394) |
| 36                 | FCN-230C036-21 | 25.76(1.014)  | 35.66(1.404) | 10.00(0.394) |
| 50                 | FCN-230C050-21 | 52.45 (2.065) |              |              |
| 68                 | FCN-230C068-21 |               |              |              |