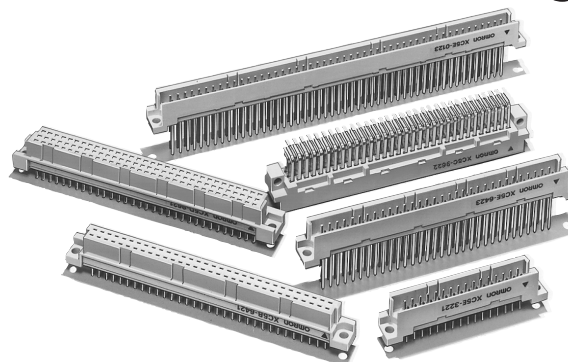


DIN Twin-contact Connectors XC5

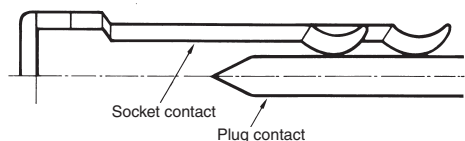
A Wide Variety of DIN Connectors That Conform to UL/CSA Standards.

- Fully preserves the characteristics of normal DIN connectors while increasing the number of terminals available.
- Meets world market needs with products ranging from one-piece connectors (card edge) to two-piece connectors.
- Uses a twin-contact system for high reliability and low cost.
- Lower insertion force as a result of FEM analysis techniques.
- Conform to UL standards (file no. E 103202) and CSA standards (file no. LR 62678).

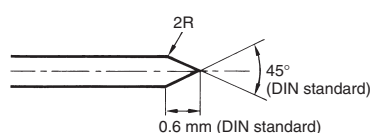


Structure

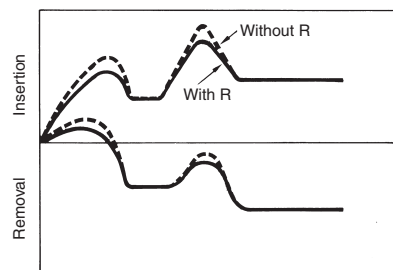
**Twin Contacts
(2-point Contact System)**



Low Insertion Force Design



The shape of the Plug contact tip is based on the DIN standard dimensions, however, a small radius, R, has been introduced between the shaft and the tip. This results in less force being required for insertion.



Connector Styles

Double-row Connectors

| Model | XC5A B type | XC5B B type | XC5E Q type | XC5F Q type |
|------------|-------------------------------------|------------------------------------|----------------------------------|---------------------------------------|
| Appearance | Plug with right-angle terminals | Socket with straight terminals | Plug with straight terminals | Socket with right-angle terminals |

Triple-row Connectors

| Model | XC5C C type | XC5D C type | XC5G R type | XC5H R type |
|------------|-------------------------------------|------------------------------------|----------------------------------|---------------------------------------|
| Appearance | Plug with right-angle terminals | Socket with straight terminals | Plug with straight terminals | Socket with right-angle terminals |

Ratings and Characteristics

| | |
|-----------------------|--|
| Rated current | 2 A |
| Rated voltage | 300 VAC |
| Contact resistance | 20 mΩ max. (at 20 mV, 100 mA max.) |
| Insulation resistance | 10 ⁶ MΩ min. (at 100 VDC) |
| Dielectric strength | 1,000 VAC for 1 min (leakage current: 1 mA max.) |
| Connector insertion | 0.59 N max. per contact |
| Contact removal | 0.15 N min. (with test gauge, t = 0.56 mm) |
| Insertion durability | 200 times |
| Ambient temperature | Operating: -55 to 125°C (with no icing) |

Materials and Finish

| Item | | Plugs | Sockets |
|----------|------------|--|--|
| Housings | | Fiber-glass reinforced PBT resin (UL94V-0)/gray | |
| Contacts | Mating end | Brass/nickel base, 0.4-μm gold plating (See note 1.) | Phosphor bronze/nickel base, 0.4-μm gold plating (See note 1.) |
| | Terminal | Brass/nickel base, tin plating | Phosphor bronze/nickel base, tin plating |

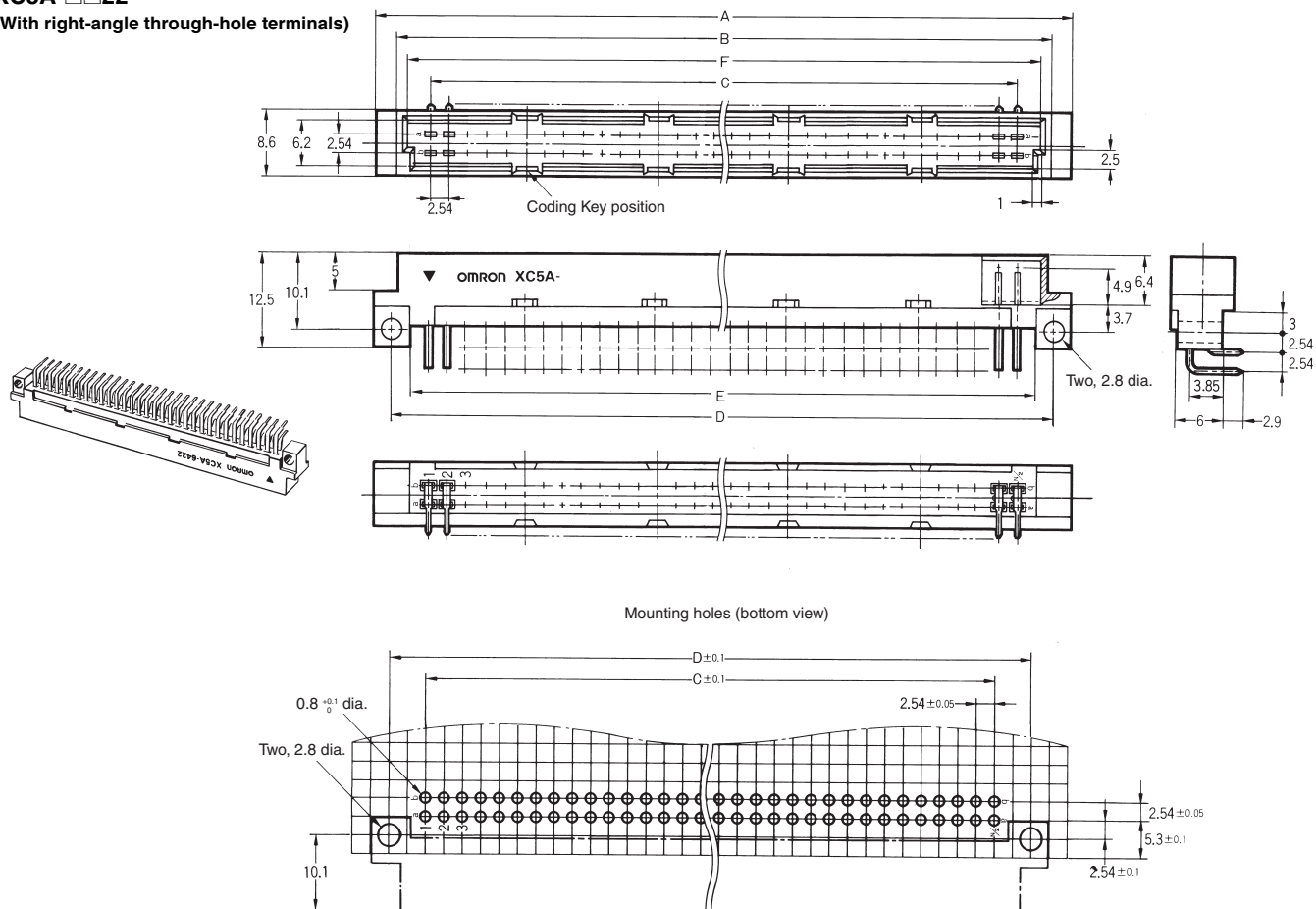
- Note:**
1. For non-standard plating specifications, contact OMRON
 2. Wrap terminal contacts are made from phosphor bronze.
 3. See "Precautions" for information about Wire Wrap terminals

XC5A Double-row Plugs, DIN B-type (Standard)

■ Dimensions

XC5A-□□22

(With right-angle through-hole terminals)



| No. of contacts | Dimensions (mm) | | | | | | Coding Key positions (contact No.) |
|-----------------|-----------------|-------|--------|--------|-------|-------|------------------------------------|
| | A | B | C | D | E | F | |
| 20 | 37.9 | 32.1 | 22.86 | 33.02 | 28.1 | 29.3 | 3, 8 |
| 32 | 53.2 | 47.4 | 38.10 | 48.26 | 43.3 | 44.6 | 5, 12 |
| 44 | 68.4 | 62.6 | 53.34 | 63.50 | 58.5 | 59.8 | 4, 9, 14, 19 |
| 50 | 76.0 | 70.2 | 60.96 | 71.12 | 66.2 | 67.4 | 5, 10, 16, 21 |
| 64 | 93.8 | 88.0 | 78.74 | 88.90 | 83.9 | 85.2 | 6, 13, 20, 27 |
| 100 | 139.5 | 133.7 | 124.46 | 134.62 | 129.7 | 130.9 | 10, 20, 31, 41 |

■ Ordering Information

| No. of contacts | Terminal type | Model |
|-----------------|------------------------------------|-----------|
| 20* | Right-angle through-hole terminals | XC5A-2022 |
| 32 | | XC5A-3222 |
| 44* | | XC5A-4422 |
| 50* | | XC5A-5022 |
| 64 | | XC5A-6422 |
| 100* | | XC5A-0122 |

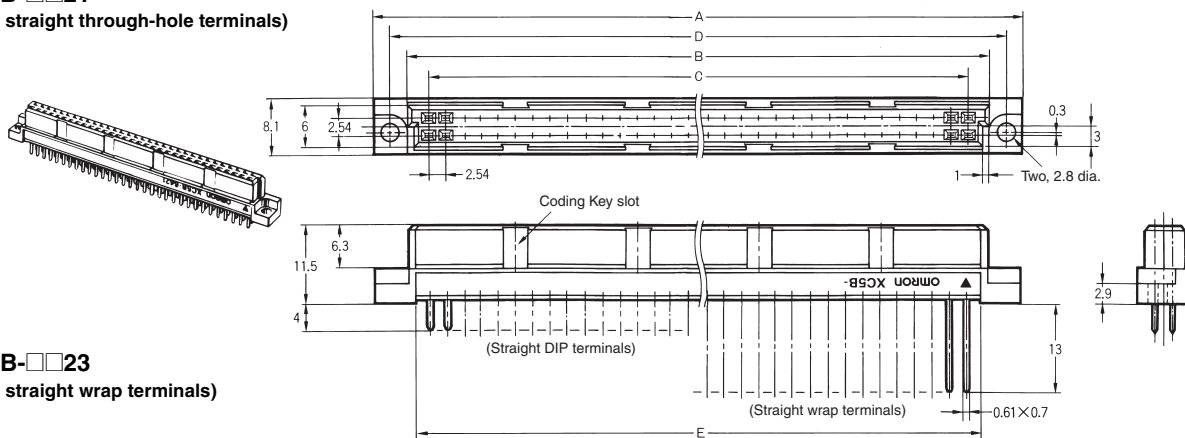
*Marked items have an increased number of contacts while following DIN standards.

XC5B Double-row Sockets, DIN B-type (Standard)

■ Dimensions

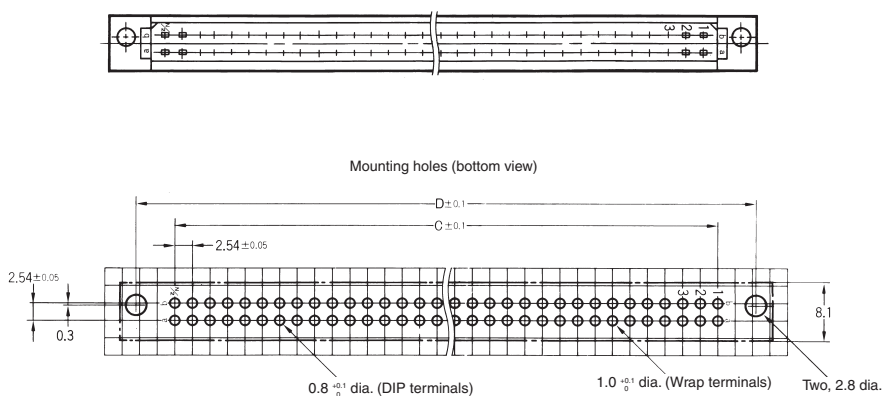
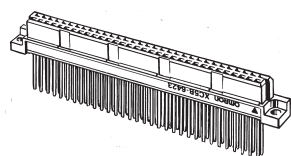
XC5B-□□21

(With straight through-hole terminals)



XC5B-□□23

(With straight wrap terminals)



| No. of contacts | Dimensions (mm) | | | | | Coding Key slot positions (contact No.) |
|-----------------|-----------------|-------|--------|--------|-------|---|
| | A | B | C | D | E | |
| 20 | 38.9 | 29.1 | 22.86 | 34.12 | 27.1 | 3, 8 |
| 32 | 54.2 | 44.4 | 38.10 | 49.36 | 42.3 | 5, 12 |
| 44 | 69.4 | 59.6 | 53.34 | 64.60 | 57.5 | 4, 9, 14, 19 |
| 50 | 77.0 | 67.2 | 60.96 | 72.22 | 65.2 | 5, 10, 16, 21 |
| 64 | 94.8 | 85.0 | 78.74 | 90.00 | 82.9 | 6, 13, 20, 27 |
| 100 | 140.5 | 130.7 | 124.46 | 135.72 | 128.7 | 10, 20, 31, 41 |

■ Ordering Information

| No. of contacts | Terminal type | |
|-----------------|---------------------------------|-------------------------|
| | Straight Through-hole terminals | Straight wrap terminals |
| 20* | XC5B-2021 | XC5B-2023 |
| 32 | XC5B-3221 | XC5B-3223 |
| 44* | XC5B-4421 | XC5B-4423 |
| 50* | XC5B-5021 | XC5B-5023 |
| 64 | XC5B-6421 | XC5B-6423 |
| 100* | XC5B-0121 | XC5B-0123 |

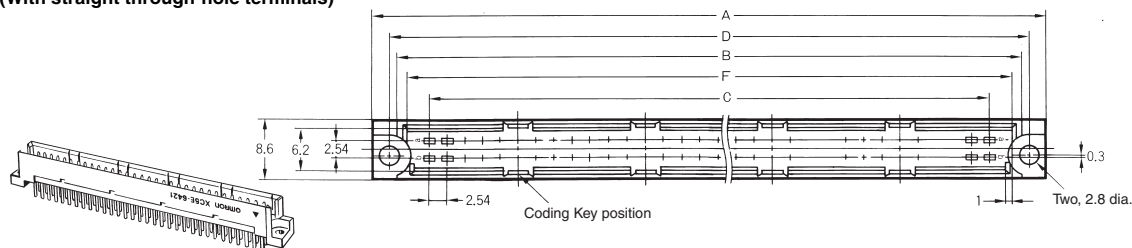
*Marked items have an increased number of contacts while following DIN standards.

XC5E Double-row Plugs, DIN Q-type (Reverse)

■ Dimensions

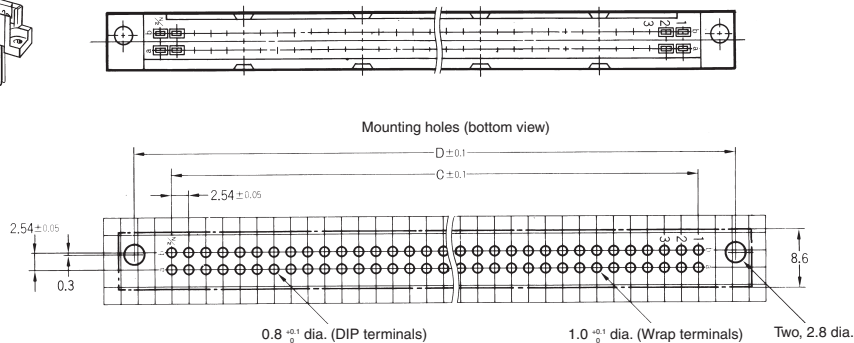
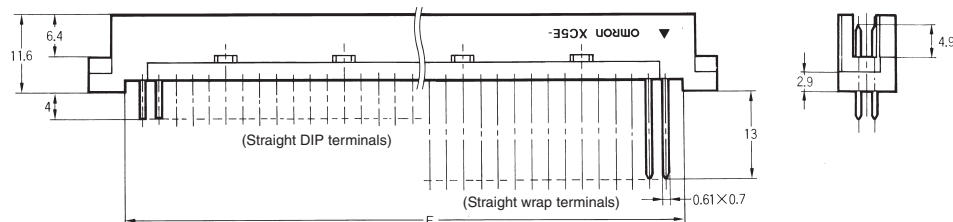
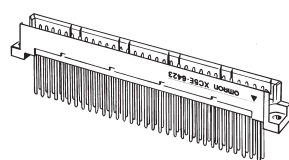
XC5E-□□21

(With straight through-hole terminals)



XC5E-□□23

(With straight wrap terminals)



| No. of contacts | Dimensions (mm) | | | | | | Coding Key positions (contact No.) |
|-----------------|-----------------|-------|--------|--------|-------|-------|------------------------------------|
| | A | B | C | D | E | F | |
| 20 | 38.9 | 32.1 | 22.86 | 34.12 | 28.1 | 29.3 | 3, 8 |
| 32 | 54.2 | 47.4 | 38.10 | 49.36 | 43.3 | 44.6 | 5, 12 |
| 44 | 69.4 | 62.6 | 53.34 | 64.60 | 58.5 | 59.8 | 4, 9, 14, 19 |
| 50 | 77.0 | 70.2 | 60.96 | 72.22 | 66.2 | 67.4 | 5, 10, 16, 21 |
| 64 | 94.8 | 88.0 | 78.74 | 90.00 | 83.9 | 85.2 | 6, 13, 20, 27 |
| 100 | 140.5 | 133.7 | 124.46 | 135.72 | 129.7 | 130.9 | 10, 20, 31, 41 |

■ Ordering Information

| No. of contacts | Terminal type | |
|-----------------|---------------------------------|-------------------------|
| | Straight through-hole terminals | Straight wrap terminals |
| 20* | XC5E-2021 | XC5E-2023 |
| 32 | XC5E-3221 | XC5E-3223 |
| 44* | XC5E-4421 | XC5E-4423 |
| 50* | XC5E-5021 | XC5E-5023 |
| 64 | XC5E-6421 | XC5E-6423 |
| 100* | XC5E-0121 | XC5E-0123 |

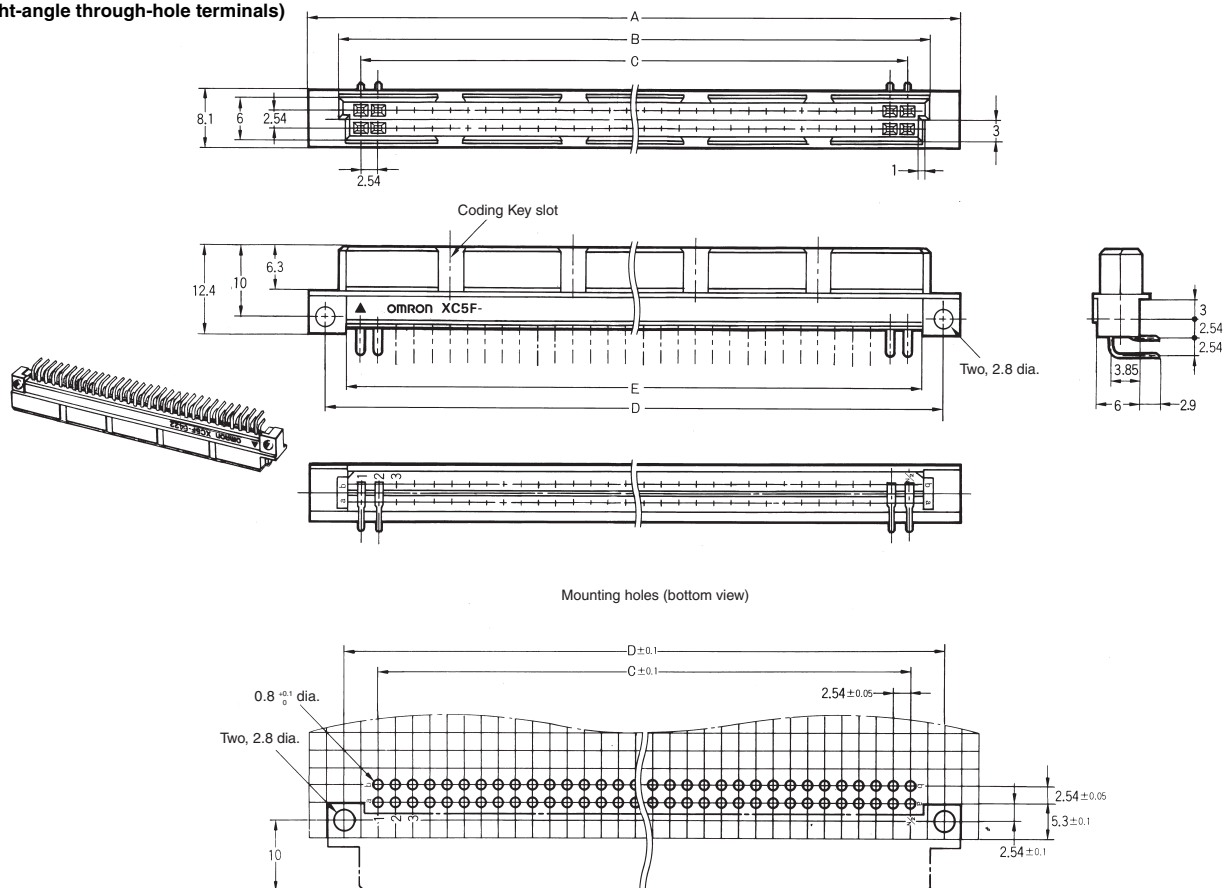
*Marked items have an increased number of contacts while following DIN standards.

XC5F Double-row Sockets, DIN Q-type (Reverse)

■ Dimensions

XC5F-□□22

(With right-angle through-hole terminals)



| No. of contacts | Dimensions (mm) | | | | | Coding Key slot positions (contact No.) |
|-----------------|-----------------|-------|--------|--------|-------|---|
| | A | B | C | D | E | |
| 20* | 37.9 | 29.1 | 22.86 | 33.02 | 27.1 | 3, 8 |
| 32 | 53.2 | 44.4 | 38.10 | 48.26 | 42.3 | 5, 12 |
| 44* | 68.4 | 59.6 | 53.34 | 63.50 | 57.5 | 4, 9, 14, 19 |
| 50* | 76.0 | 67.2 | 60.96 | 71.12 | 65.2 | 5, 10, 16, 21 |
| 64 | 93.8 | 85.0 | 78.74 | 88.90 | 82.9 | 6, 13, 20, 27 |
| 100* | 139.5 | 130.7 | 124.46 | 134.62 | 128.7 | 10, 20, 31, 41 |

■ Ordering Information

| No. of contacts | Terminal type | Model |
|-----------------|------------------------------------|-----------|
| 20* | Right-angle through-hole terminals | XC5F-2022 |
| 32 | | XC5F-3222 |
| 44* | | XC5F-4422 |
| 50* | | XC5F-5022 |
| 64 | | XC5F-6422 |
| 100* | | XC5F-0122 |

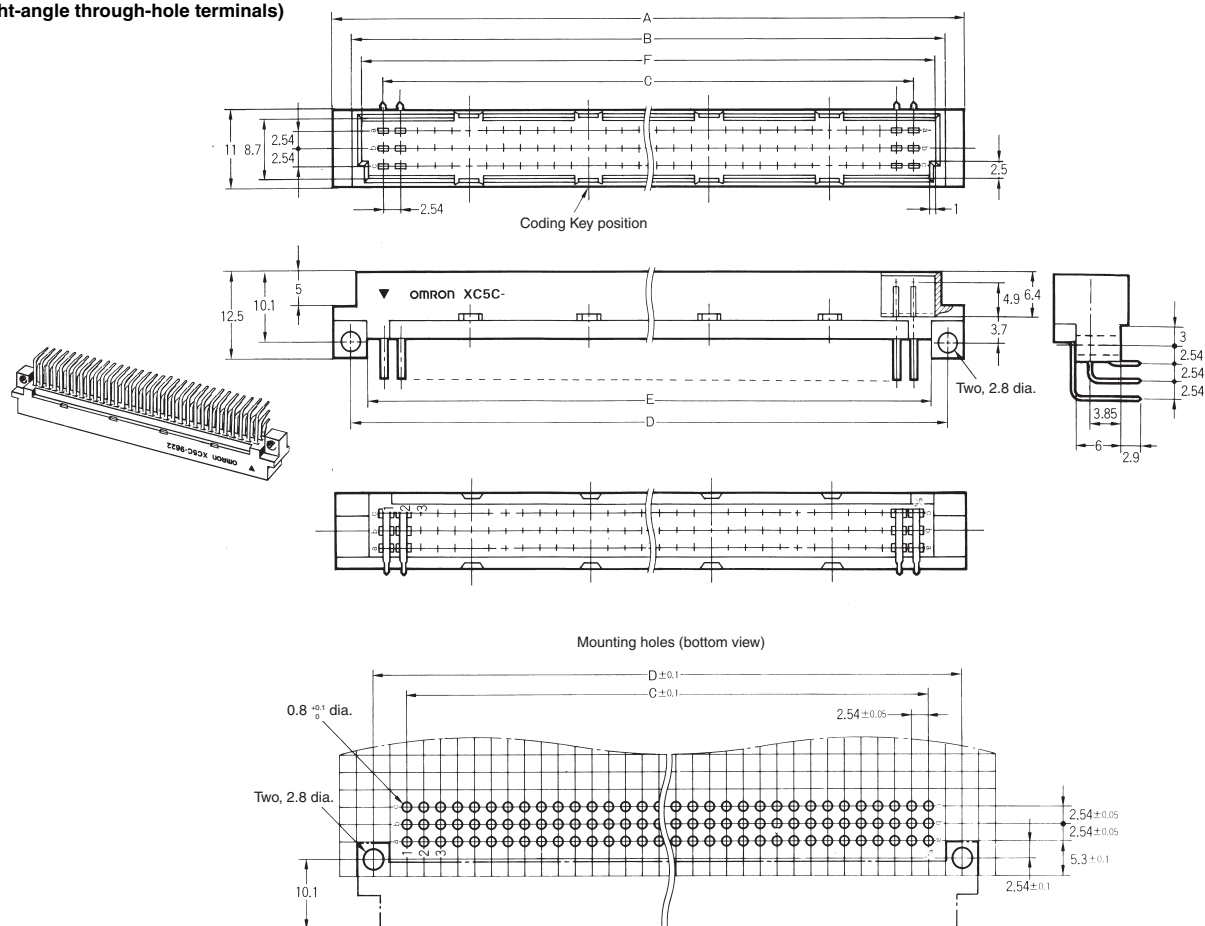
*Marked items have an increased number of contacts while following DIN standards.

XC5C Triple-row Plugs, DIN C-type (Standard)

■ Dimensions

XC5C-□□22

(With right-angle through-hole terminals)



| No. of contacts | Dimensions (mm) | | | | | | Coding Key positions (contact No.) |
|-----------------|-----------------|------|-------|-------|------|------|------------------------------------|
| | A | B | C | D | E | F | |
| 32* | 53.2 | 47.4 | 38.10 | 48.26 | 43.3 | 44.6 | 5, 12 |
| 48 | 53.2 | 47.4 | 38.10 | 48.26 | 43.3 | 44.6 | 5, 12 |
| 64* | 93.8 | 88.0 | 78.74 | 88.90 | 83.9 | 85.2 | 6, 13, 20, 27 |
| 96 | 93.8 | 88.0 | 78.74 | 88.90 | 83.9 | 85.2 | 6, 13, 20, 27 |

*Has no center row (row b).

■ Ordering Information

| No. of contacts | Terminal type | Model |
|-----------------|------------------------------------|-----------|
| 32* | Right-angle through-hole terminals | XC5C-3222 |
| 48 | | XC5C-4822 |
| 64* | | XC5C-6422 |
| 96 | | XC5C-9622 |

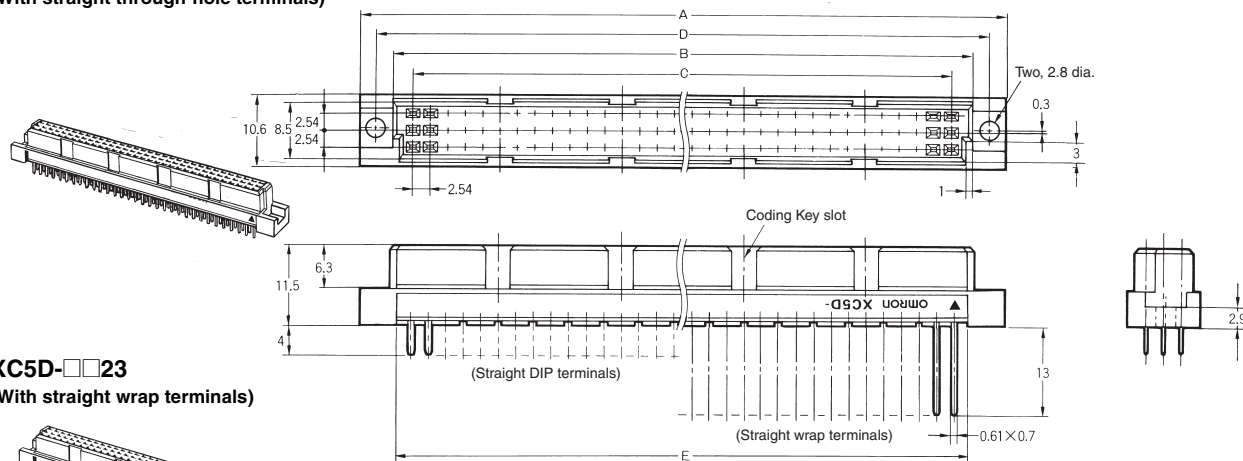
*Has no center row (row b).

XC5D Triple-row Sockets, DIN C-type (Standard)

■ Dimensions

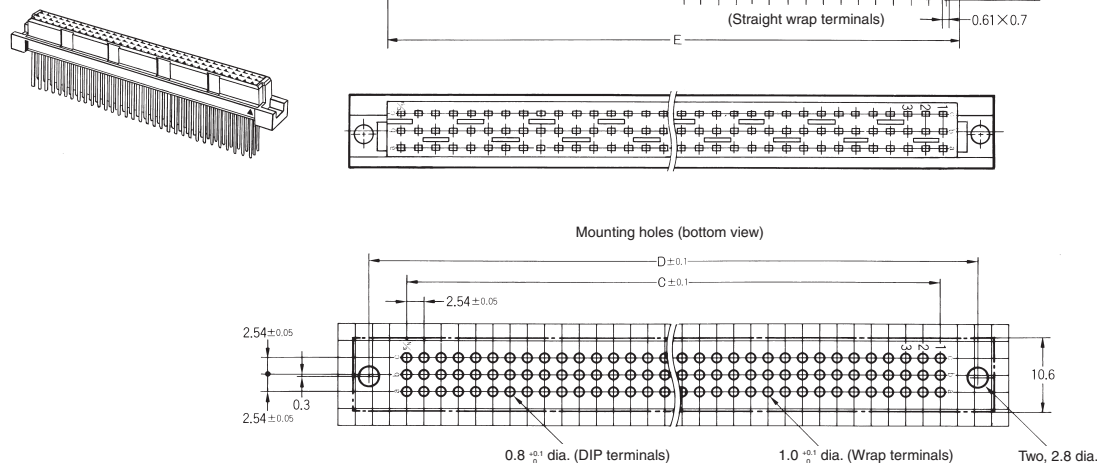
XC5D-□□21

(With straight through-hole terminals)



XC5D-□□23

(With straight wrap terminals)



| No. of contacts | Dimensions (mm) | | | | | Coding Key slot positions (contact No.) |
|-----------------|-----------------|------|-------|-------|------|---|
| | A | B | C | D | E | |
| 32* | 54.2 | 44.4 | 38.10 | 49.36 | 42.3 | 5, 12 |
| 48 | 54.2 | 44.4 | 38.10 | 49.36 | 42.3 | 5, 12 |
| 64* | 94.8 | 85.0 | 78.74 | 90.00 | 82.9 | 6, 13, 20, 27 |
| 96 | 94.8 | 85.0 | 78.74 | 90.00 | 82.9 | 6, 13, 20, 27 |

*Has no center row (row b).

■ Ordering Information

| No. of contacts | Terminal type | |
|-----------------|---------------------------------|-------------------------|
| | Straight through-hole terminals | Straight wrap terminals |
| 32* | XC5D-3221 | --- |
| 48 | XC5D-4821 | XC5D-4823 |
| 64* | XC5D-6421 | XC5D-6423 |
| 96 | XC5D-9621 | XC5D-9623 |

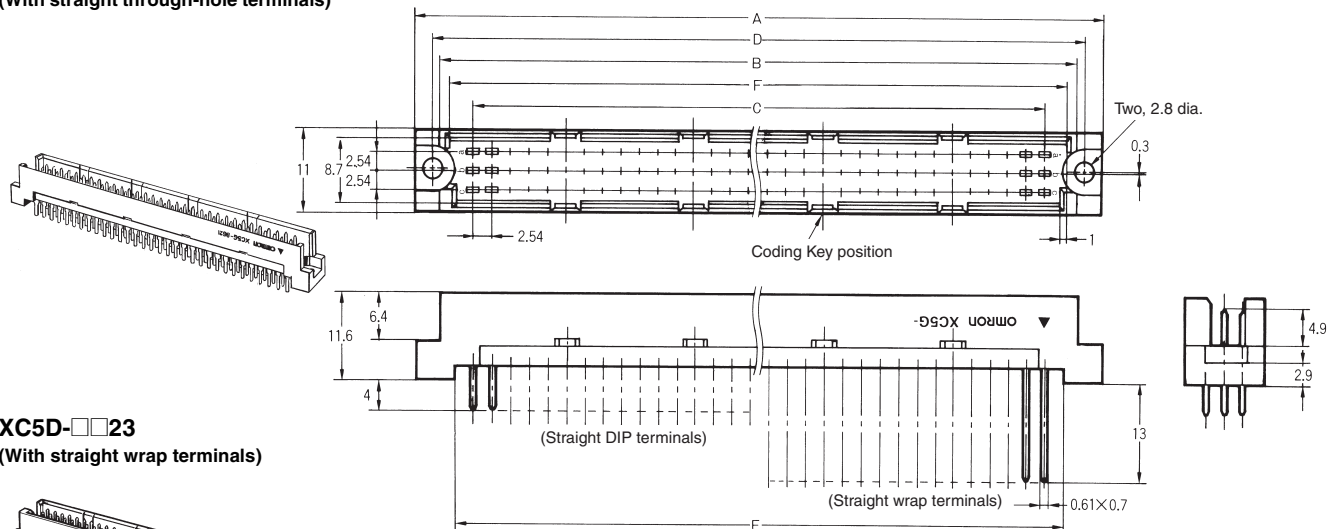
*Has no center row (row b).

XC5G Triple-row Plugs, DIN R-type (Reverse)

■ Dimensions

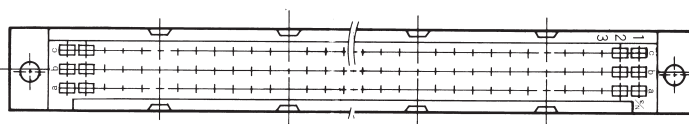
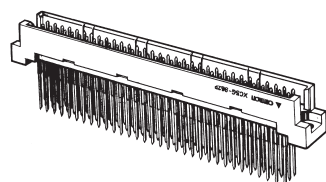
XC5G-□□21

(With straight through-hole terminals)

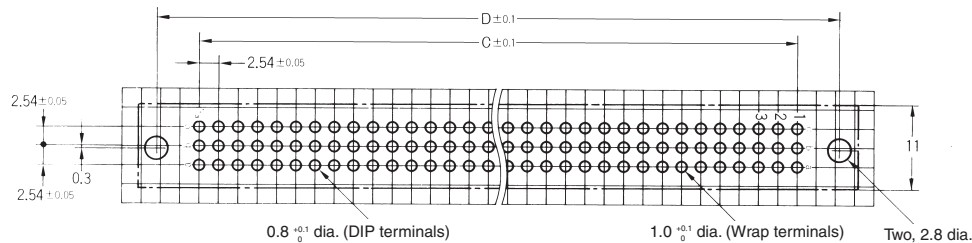


XC5D-□□23

(With straight wrap terminals)



Mounting holes (bottom view)



| No. of contacts | Dimensions (mm) | | | | | | Coding Key positions (contact No.) |
|-----------------|-----------------|------|-------|-------|------|------|------------------------------------|
| | A | B | C | D | E | F | |
| 48 | 54.2 | 47.4 | 38.10 | 49.36 | 43.3 | 44.6 | 5, 12 |
| 64* | 94.8 | 88.0 | 78.74 | 90.00 | 83.9 | 85.2 | 6, 13, 20, 27 |
| 96 | 94.8 | 88.0 | 78.74 | 90.00 | 83.9 | 85.2 | 6, 13, 20, 27 |

*Has no center row (row b).

■ Ordering Information

| No. of contacts | Terminal type | |
|-----------------|---------------------------------|-------------------------|
| | Straight through-hole terminals | Straight wrap terminals |
| 48 | XC5G-4821 | XC5G-4823 |
| 64* | XC5G-6421 | XC5G-6423 |
| 96 | XC5G-9621 | XC5G-9623 |

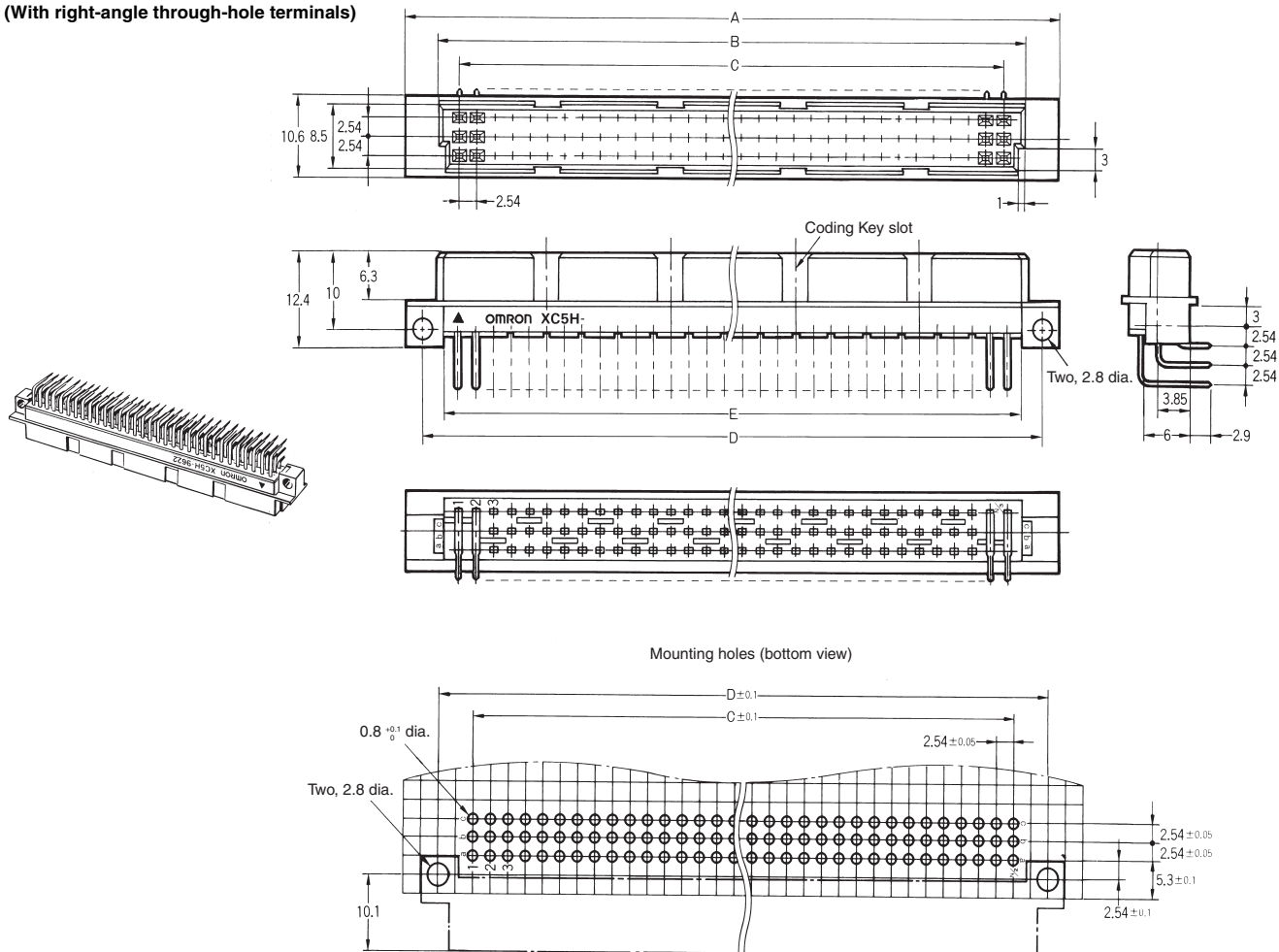
*Has no center row (row b).

XC5H Triple-row Sockets, DIN R-type (Reverse)

■ Dimensions

XC5H-□□22

(With right-angle through-hole terminals)



| No. of contacts | Dimensions (mm) | | | | | Coding Key slot positions (contact No.) |
|-----------------|-----------------|------|-------|-------|------|---|
| | A | B | C | D | E | |
| 48 | 53.2 | 44.4 | 38.10 | 48.26 | 42.3 | 5, 12 |
| 64* | 93.8 | 85.0 | 78.74 | 88.90 | 82.9 | 6, 13, 20, 27 |
| 96 | 93.8 | 85.0 | 78.74 | 88.90 | 82.9 | 6, 13, 20, 27 |

*Has no center row (row b).

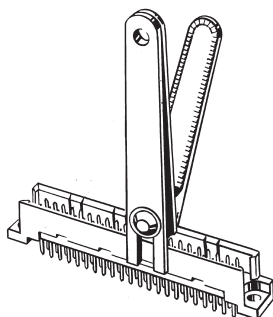
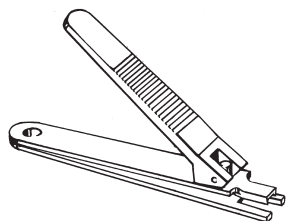
■ Ordering Information

| No. of contacts | Terminal type | Model |
|-----------------|------------------------------------|-----------|
| 48 | Right-angle through-hole terminals | XC5H-4822 |
| 64* | | XC5H-6422 |
| 96 | | XC5H-9622 |

*Has no center row (row b).

Tools and Accessories (Sold Separately)

Coding Cutter XY2D-0001

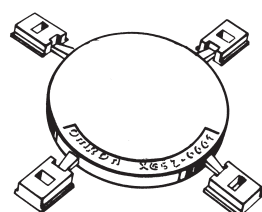


Cut the Coding Key on the Plug and insert the Coding Key in the Coding Key slots on the Socket to prevent improper insertion of the Plug into the Socket.

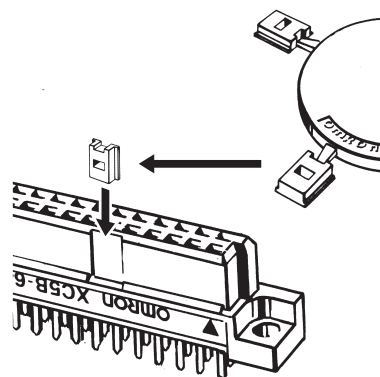
1. Cut the Coding Key(s) in the slot in the plug housing wall with the special cutting tool (XY2D-0001).

Note: Coding Cutters may not work with some DIN-style connector combinations. In that case, contact your OMRON representative.

Coding Key XC5Z-0001



Material: PBT resin (UL94HB)/white



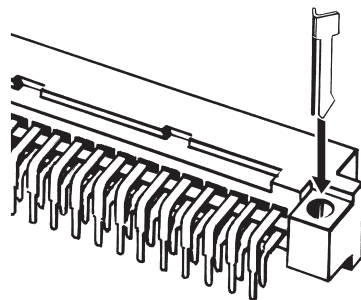
2. Insert the special Coding Key (XC5Z-0001) into the Coding Key slots in the housing wall of the corresponding Socket.

Note: 1. Each XC5Z-0001 has four Coding Keys.

2. Coding Keys may not work with some DIN-style connector combinations. In that case, contact your OMRON representative.

Temporary Fastening Pins XC5Z-0002

(For use with 1.6-mm boards)



Fastening pins (XC5Z-0002) are used to keep the connector flush against the board during automated soldering.

Note: 1. For the XC5A, XC5F, XC5C, and XC5H.

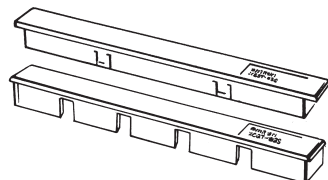
2. Temporary fastening pins cannot be used with DIN-style connectors.

Dust Cover XC5T-962

(For DIN41612 C- or R-type Triple-row Plugs with 64 or 96 contacts)

XC5T-963

(For DIN41612 C- or R-type Triple-row Sockets with 64 or 96 contacts)



Material: Polyamide resin (UL94V-2)/white

This cover is for protection against dust only, and should not be used for flux protection during automated soldering.

Mating Diagrams

| | Vertical (Standard) | Vertical (Reverse) | Stacking (See note.) | Horizontal (See note.) |
|------------------------------|---------------------|--------------------|----------------------|------------------------|
| Double-row Connectors | | | | |
| Triple-row Connectors | | | | |

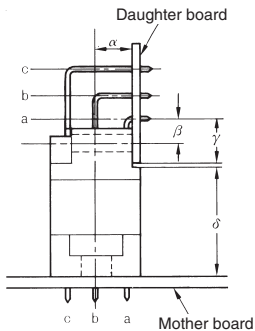
Note: By combining a Standard and a Reverse Connector, stacking and horizontal connections can be made. In this case, the triangular marks (terminal number 1) on the Plug and the Socket will not match.

Precautions

■ Correct Use

Basic Mating Dimensions

Mating dimensions for all Connectors should be as shown in the following diagram.



α: 3.55 mm

The distance between the center line of the mounting holes on the mother board and the daughter board. (This center line is shifted 0.3 mm toward row a from row b.)

β: 2.54 mm

The distance between the mounting holes on the daughter board and row a.

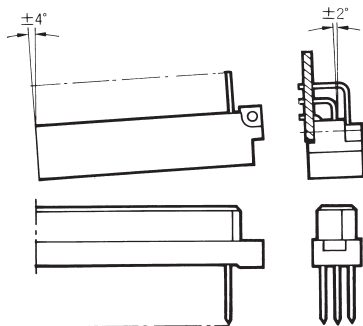
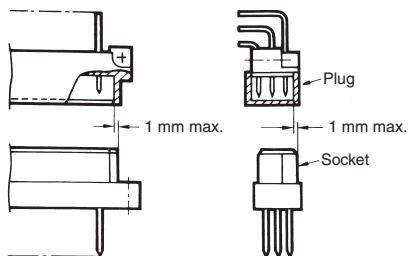
γ: 5.3 mm

The distance between the edge of the daughter board and row a.

δ: 12.4 to 14.2 mm

To ensure reliability, be sure to keep the Connectors within these dimensions when mounting.

The allowable margins for mating the Connectors are shown below.



Applicable Wrap Post Wire Sizes

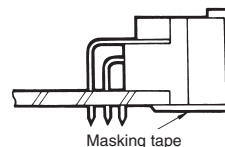
AWG30, AWG28, AWG26, or AWG24
(Solid wire: 0.25 to 0.51 mm dia.)

Wrap Post Length

3 wires

Soldering Automated Soldering

Use masking tape to mask Right-angle Connectors before automated soldering.



(Recommended tape: 3M Sumitomo #214)

Automated Soldering Conditions (Jet Flow)

1. Soldering temperature: 250±5°C
2. Continuous soldering time: Within 5 s

Omron Electronic Components, LLC

Terms and Conditions of Sales

I. GENERAL

- Definitions:** The words used herein are defined as follows.
 - Terms:** These terms and conditions
 - Seller:** Omron Electronic Components LLC and its subsidiaries
 - Buyer:** The buyer of Products, including any end user in section III through VI
 - Products:** Products and/or services of Seller
 - Including:** Including without limitation
- Offer/Acceptance:** These Terms are deemed part of all quotations, acknowledgments, invoices, purchase orders and other documents, whether electronic or in writing, relating to the sale of Products by Seller. Seller hereby objects to any Terms proposed in Buyer's purchase order or other documents which are inconsistent with, or in addition to, these Terms.
- Distributor:** Any distributor shall inform its customer of the contents after and including section III of these Terms.

II. SALES

- Prices/Payment:** All prices stated are current, subject to change without notice by Seller. Buyer agrees to pay the price in effect at the time the purchase order is accepted by Seller. Payments for Products received are due net 30 days unless otherwise stated in the invoice. Buyer shall have no right to set off any amounts against the amount owing in respect of this invoice.
- Discounts:** Cash discounts, if any, will apply only on the net amount of invoices sent to Buyer after deducting transportation charges, taxes and duties, and will be allowed only if (a) the invoice is paid according to Seller's payment terms and (b) Buyer has no past due amounts owing to Seller.
- Interest:** Seller, at its option, may charge Buyer 1.5% interest per month or the maximum legal rate, whichever is less, on any balance not paid within the stated terms.
- Orders:** Seller will accept no order less than 200 U.S. dollars net billing.
- Currencies:** If the prices quoted herein are in a currency other than U.S. dollars, Buyer shall make remittance to Seller at the then current exchange rate most favorable to Seller; provided that if remittance is not made when due, Buyer will convert the amount to U.S. dollars at the then current exchange rate most favorable to Seller available during the period between the due date and the date remittance is actually made.
- Governmental Approvals:** Buyer shall be responsible for all costs involved in obtaining any government approvals regarding the importation or sale of the Products.
- Taxes:** All taxes, duties and other governmental charges (other than general real property and income taxes), including any interest or penalties thereon, imposed directly or indirectly on Seller or required to be collected directly or indirectly by Seller for the manufacture, production, sale, delivery, importation, consumption or use of the Products sold hereunder (including customs duties and sales, excise, use, turnover and license taxes) shall be charged to and remitted by Buyer to Seller.
- Financial:** If the financial position of Buyer at any time becomes unsatisfactory to Seller, Seller reserves the right to stop shipments or require satisfactory security or payment in advance. If Buyer fails to make payment or otherwise comply with these Terms or any related agreement, Seller may (without liability and in addition to other remedies) cancel any unshipped portion of Products sold hereunder and stop any Products in transit until Buyer pays all amounts, including amounts payable hereunder, whether or not then due, which are owing to it by Buyer. Buyer shall in any event remain liable for all unpaid accounts.
- Cancellation, Etc:** Orders are not subject to rescheduling or cancellation unless Buyer indemnifies Seller fully against all costs or expenses arising in connection therewith.
- Force Majeure:** Seller shall not be liable for any delay or failure in delivery resulting from causes beyond its control, including earthquakes, fires, floods, strikes or other labor disputes, shortage of labor or materials, accidents to machinery, acts of sabotage, riots, delay in or lack of transportation or the requirements of any government authority.
- Shipping/Delivery:** Unless otherwise expressly agreed in writing by Seller:
 - All sales and shipments of Products shall be FOB shipping point (unless otherwise stated in writing by Seller), at which point title to and all risk of loss of the Products shall pass from Seller to Buyer, provided that Seller shall retain a security interest in the Products until the full purchase price is paid by Buyer;
 - Delivery and shipping dates are estimates only; and
 - Seller will package Products as it deems proper for protection against normal handling and extra charges apply to special conditions.
- Claims:** Any claim by Buyer against Seller for shortage or damage to the Products occurring before delivery to the carrier or any claim related to pricing or other charges must be presented in detail in writing to Seller within 30 days of receipt of shipment.

III. PRECAUTIONS

- Suitability:** IT IS THE BUYER'S SOLE RESPONSIBILITY TO ENSURE THAT ANY OMRON PRODUCT IS FIT AND SUFFICIENT FOR USE IN A MOTORIZED VEHICLE APPLICATION. BUYER SHALL BE SOLELY RESPONSIBLE FOR DETERMINING APPROPRIATENESS OF THE PARTICULAR PRODUCT WITH RESPECT TO THE BUYER'S APPLICATION INCLUDING (A) ELECTRICAL OR ELECTRONIC COMPONENTS, (B) CIRCUITS, (C) SYSTEM ASSEMBLIES, (D) END PRODUCT, (E) SYSTEM, (F) MATERIALS OR SUBSTANCES OR (G) OPERATING ENVIRONMENT. Buyer acknowledges that it alone has determined that the Products will meet their requirements of the intended use in all cases. Buyer must know and observe all prohibitions of use applicable to the Product/s.
- Use with Attention:** The followings are some examples of applications for which particular attention must be given. This is not intended to be an exhaustive list of all possible use of any Product, nor to imply that any use listed may be suitable for any Product:
 - Outdoor use, use involving potential chemical contamination or electrical interference.

- Use in consumer Products or any use in significant quantities.
 - Energy control systems, combustion systems, railroad systems, aviation systems, medical equipment, amusement machines, vehicles, safety equipment, and installations subject to separate industry or government regulations.
 - Systems, machines, and equipment that could present a risk to life or property.
- Prohibited Use:** NEVER USE THE PRODUCT FOR AN APPLICATION INVOLVING SERIOUS RISK TO LIFE OR PROPERTY WITHOUT ENSURING THAT THE SYSTEM AS A WHOLE HAS BEEN DESIGNED TO ADDRESS THE RISKS, AND THAT THE PRODUCT IS PROPERLY RATED AND INSTALLED FOR THE INTENDED USE WITHIN THE OVERALL EQUIPMENT OR SYSTEM.
 - Motorized Vehicle Application:** USE OF ANY PRODUCT/S FOR A MOTORIZED VEHICLE APPLICATION MUST BE EXPRESSLY STATED IN THE SPECIFICATION BY SELLER.
 - Programmable Products:** Seller shall not be responsible for the Buyer's programming of a programmable Product.

IV. WARRANTY AND LIMITATION

- Warranty:** Seller's exclusive warranty is that the Products will be free from defects in materials and workmanship for a period of twelve months from the date of sale by Seller (or such other period expressed in writing by Seller). SELLER MAKES NO WARRANTY OR REPRESENTATION, EXPRESS OR IMPLIED, ABOUT ALL OTHER WARRANTIES, NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OF THE PRODUCTS.
- Buyer Remedy:** Seller's sole obligation hereunder shall be to replace (in the form originally shipped with Buyer responsible for labor charges for removal or replacement thereof) the non-complying Product or, at Seller's election, to repay or credit Buyer an amount equal to the purchase price of the Product; provided that there shall be no liability for Seller or its affiliates unless Seller's analysis confirms that the Products were correctly handled, stored, installed and maintained and not subject to contamination, abuse, misuse or inappropriate modification. Return of any Products by Buyer must be approved in writing by Seller before shipment.
- Limitation on Liability:** SELLER AND ITS AFFILIATES SHALL NOT BE LIABLE FOR SPECIAL, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES, LOSS OF PROFITS OR PRODUCTION OR COMMERCIAL LOSS IN ANY WAY CONNECTED WITH THE PRODUCTS, WHETHER SUCH CLAIM IS BASED IN CONTRACT, WARRANTY, NEGLIGENCE OR STRICT LIABILITY. FURTHER, IN NO EVENT SHALL LIABILITY OF SELLER OR ITS AFFILIATES EXCEED THE INDIVIDUAL PRICE OF THE PRODUCT ON WHICH LIABILITY IS ASSERTED.
- Indemnities:** Buyer shall indemnify and hold harmless Seller, its affiliates and its employees from and against all liabilities, losses, claims, costs and expenses (including attorney's fees and expenses) related to any claim, investigation, litigation or proceeding (whether or not Seller is a party) which arises or is alleged to arise from Buyer's acts or omissions under these Terms or in any way with respect to the Products.

V. INFORMATION; ETC.

- Intellectual Property:** The intellectual property embodied in the Products is the exclusive property of Seller and its affiliates and Buyer shall not attempt to duplicate it in any way without the written permission of Seller. Buyer (at its own expense) shall indemnify and hold harmless Seller and defend or settle any action brought against Seller to the extent that it is based on a claim that any Product made to Buyer specifications infringed intellectual property rights of another party.
- Property/Confidentiality:** Notwithstanding any charges to Buyer for engineering or tooling, all engineering and tooling shall remain the exclusive property of Seller. All information and materials supplied by Seller to Buyer relating to the Products are confidential and proprietary, and Buyer shall limit distribution thereof to its trusted employees and strictly prevent disclosure to any third party.
- Performance Data:** Performance data is provided as a guide in determining suitability and does not constitute a warranty. It may represent the result of Seller's test conditions, and the users must correlate it to actual application requirements.
- Change In Specifications:** Product specifications and descriptions may be changed at any time based on improvements or other reasons. It is Seller's practice to change part numbers when published ratings or features are changed, or when significant engineering changes are made. However, some specifications of the Product may be changed without any notice.
- Errors And Omissions:** The information on Seller's website or in other documentation has been carefully checked and is believed to be accurate; however, no responsibility is assumed for clerical, typographical or proofreading errors or omissions.
- Export Controls:** Buyer shall comply with all applicable laws, regulations and licenses regarding (a) export of the Products or information provided by Seller; (b) sale of Products to forbidden or other proscribed persons or organizations; (c) disclosure to non-citizens of regulated technology or information.

VI. MISCELLANEOUS

- Waiver:** No failure or delay by Seller in exercising any right and no course of dealing between Buyer and Seller shall operate as a waiver of rights by Seller.
- Assignment:** Buyer may not assign its rights hereunder without Seller's written consent.
- Law:** These Terms are governed by Illinois law (without regard to conflict of laws). Federal and state courts in Cook County, Illinois have exclusive jurisdiction for any dispute hereunder.
- Amendment:** These Terms constitute the entire agreement between Buyer and Seller relating to the Products, and no provision may be changed or waived unless in writing signed by the parties.
- Severability:** If any provision hereof is rendered ineffective or invalid, such provision shall not invalidate any other provision.

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1. **Suitability for Use.** Seller shall not be responsible for conformity with any standards, codes or regulations which apply to the combination of the Product in Buyer's application or use of the Product. At Buyer's request, Seller will provide applicable third party certification documents identifying ratings and limitations of use which apply to the Product. This information by itself is not sufficient for a complete determination of the suitability of the Product in combination with the end product, machine, system, or other application or use. Buyer shall be solely responsible for determining appropriateness of the particular Product with respect to Buyer's application, product or system. Buyer shall take application responsibility in all cases but the following is a non-exhaustive list of applications for which particular attention must be given:
 - (i) Outdoor use, uses involving potential chemical contamination or electrical interference, or conditions or uses not described in this document.
 - (ii) Energy control systems, combustion systems, railroad systems, aviation systems, medical equipment, amusement machines, vehicles, safety equipment, and installations subject to separate industry or government regulations.
 - (iii) Use in consumer products or any use in significant quantities.
 - (iv) Systems, machines and equipment that could present a risk to life or property. Please know and observe all prohibitions of use applicable to this product.

NEVER USE THE PRODUCT FOR AN APPLICATION INVOLVING SERIOUS RISK TO LIFE OR PROPERTY WITHOUT ENSURING THAT THE SYSTEM AS A WHOLE HAS BEEN DESIGNED TO ADDRESS THE RISKS, AND THAT THE OMRON PRODUCT IS PROPERLY RATED AND INSTALLED FOR THE INTENDED USE WITHIN THE OVERALL EQUIPMENT OR SYSTEM.
2. **Programmable Products.** Seller shall not be responsible for the user's programming of a programmable product, or any consequence thereof.
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