

Half-pitch Fine-fit Connectors Achieve High-density Mounting without Soldering

- Solderless connection eliminates soldering and washing processes.
- Multi-level stacking conserves board space.
- Requires half the space of conventional DIN connectors (OMRON's XC5B).
- At a stacking height of 16.8 mm, the XH3 can be stacked together with DIN connectors.
- Mates with conventional XH3-series Half-pitch Connectors. (See the Mating Diagram on page 4.)
- Allows press fitting using commercial tools.

RoHS Compliant

Terminology

Fine-fit

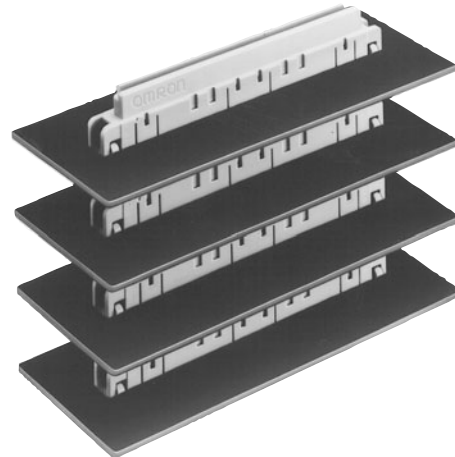
Refers to a press-fit connection using Omron's own terminal shape.

Solderless connection

Refers to a solderless electric connection of a connector, electric cable and printed circuit board. It involves crimping, IDC pressing, press-fitting (fine-fit), etc. A solderless connection generally refers to a press-fit connection.

Stacking

Connects the printed-wiring boards parallel to each other. The distance between the boards here is called "stacking height".



Ordering Information

Ratings and Characteristics

Rated current	0.5 A
Rated voltage	125 VAC
Contact resistance (See note.)	40 mΩ max. (at 20 mV, 100 mA max.)
Insulation resistance	1,000 MΩ min. (at 500 VDC)
Dielectric strength	650 VAC for 1 min (leakage current: 1 mA max.)
Total insertion force	0.78 N max. per contact
Total removal force	0.05 N min. per contact
Insertion durability	50 times
Ambient operating temperature	Operating: -55 to 105°C (with no icing)

Note: The contact resistance is for the XH3B-013P-D32 combined with the XH3B-013P-D5F (with the XH3B-013P-D32 terminal used as the plug).

Materials and Finish

Con- nector	Housing		PBT resin with glass (UL94V-0)/gray
	Locator		Polyester elastomer (UL94V-0)/black
	Con- tacts	Socket	Copper alloy/nickel base, 0.15-μm gold plating
		Short terminal	Copper alloy/nickel base, gold flash plating
Backplane terminal		Copper alloy/nickel base, 0.15-μm gold plating	
Backplane connector housing/ short terminal connector rear cover			PBT resin with glass (UL94V-0)/gray

Applicable Fine-fit PCBs

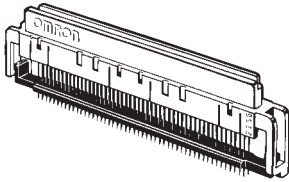
PCB thickness		1.6 mm
Through holes	Finished di- ameter	0.5±0.05 mm diameter (drill bit diame- ter 0.55±0.05 mm)
	Plating speci- fications	5 μm min. solder with 25 μm min. cop- per base
PCB materials		Glass-epoxy board

XH3B Socket, Fine-fit Backplane Connectors

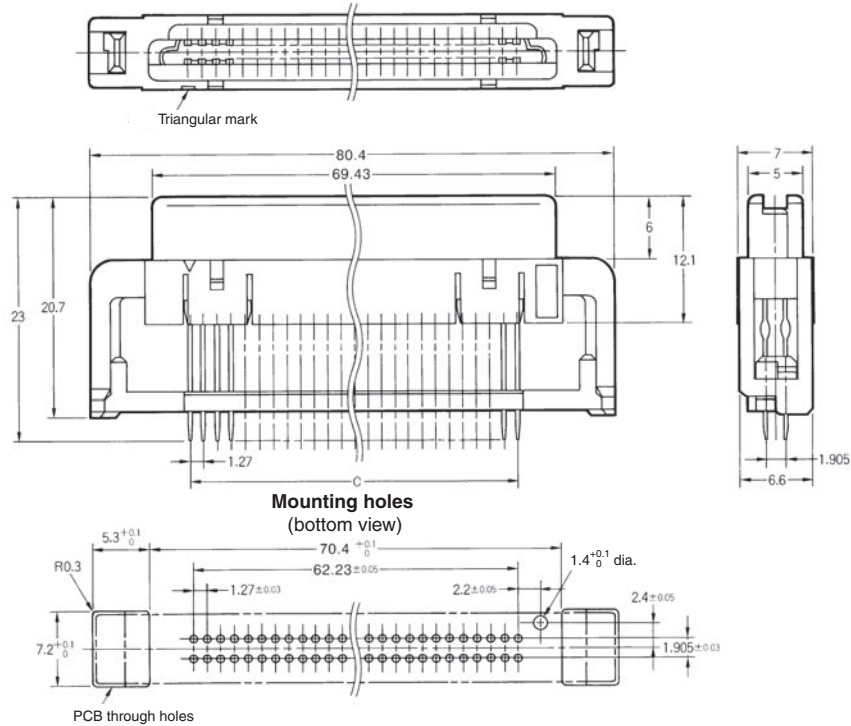
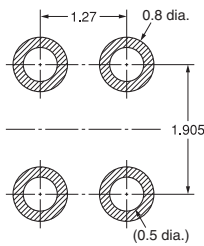
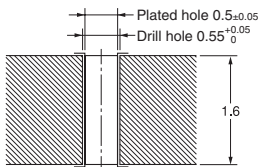
■ Dimensions

(unit: mm)

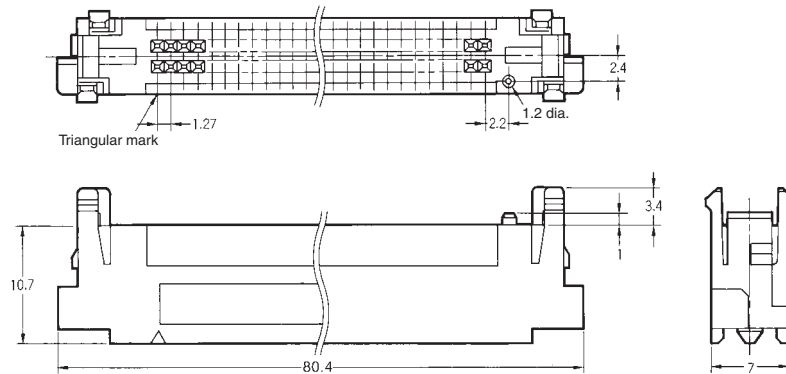
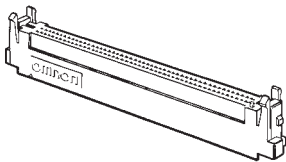
XH3B-013P-D32 (Backplane Connectors)



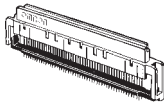
Though holes and dimensions

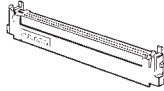


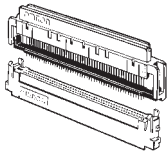
XH3C-0112 (Backplane Connector Housings)



■ Ordering Information

Socket/Backplane Connectors	
	
No. of contacts	Model
100	XH3B-013P-D32

Backplane Connector Housings	
	
No. of contacts	Model
100	XH3C-0112

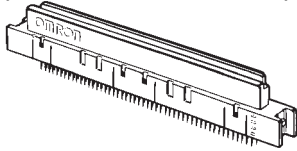
Set of Connectors and Housings	
	
No. of contacts	Model
100	XH3B-013P-D32-C

XH3B Socket, Fine-fit Short Terminal Connectors

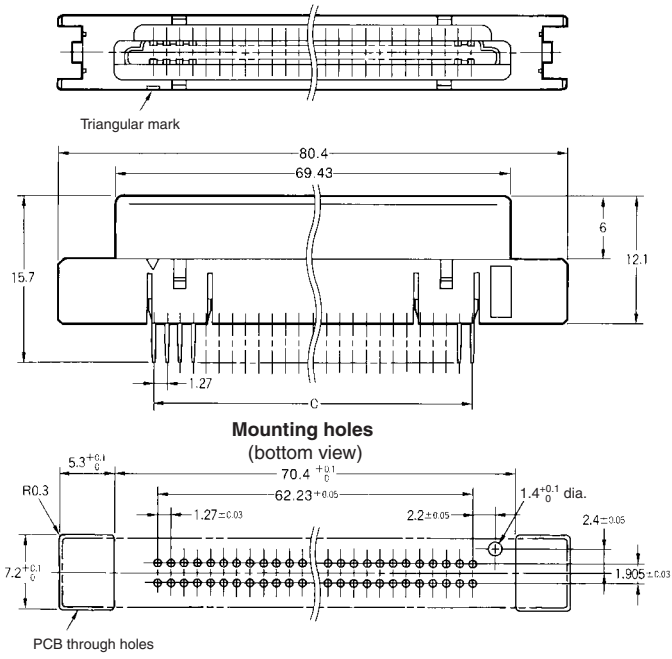
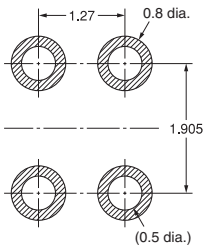
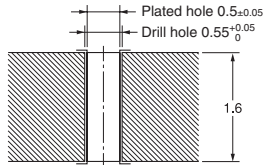
■ Dimensions

(unit: mm)

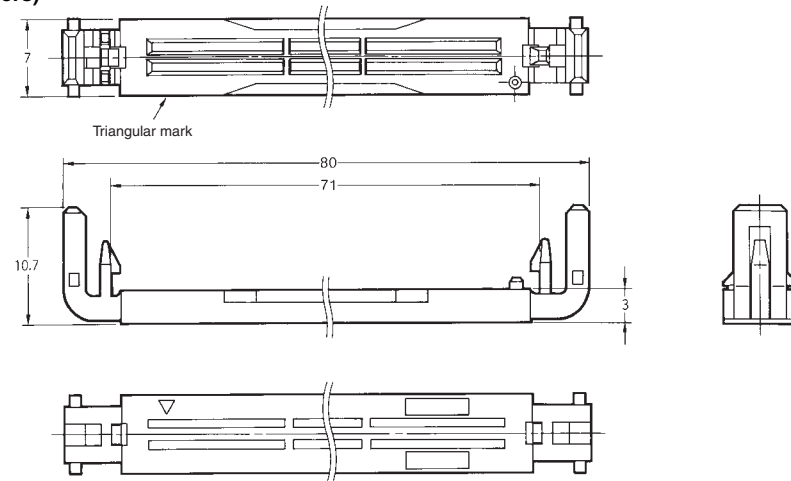
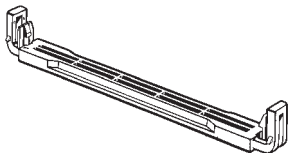
XH3B-013P-D5F (Short Terminal Connectors)



Through holes and land dimensions



XH3S-0111 (Short Terminal Connector Rear Covers)



■ Ordering Information

Socket/Short Terminal Connectors	
No. of contacts	Model
100	XH3B-013P-D5F

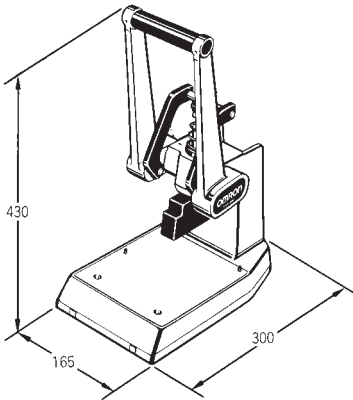
Short Terminal Connector Rear Covers	
No. of contacts	Model
100	XH3C-0111

Set of Connectors and Rear Covers	
No. of contacts	Model
100	XH3B-013P-D5F-S

Special Tools (unit: mm)

XY2B-0002

Press Fit Device

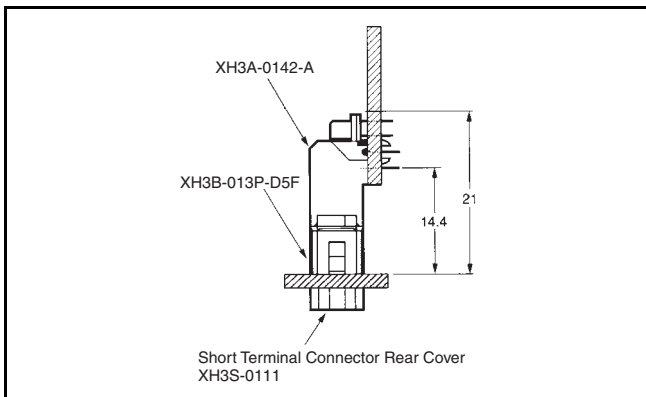


- The Press Fit Device also serves as IDC for flat cable connectors (OMRON's XG4/ XG2).
- The optional pressing plate used for press fitting is required. (Contact your OMRON representative.)

Model
XY2B-0002

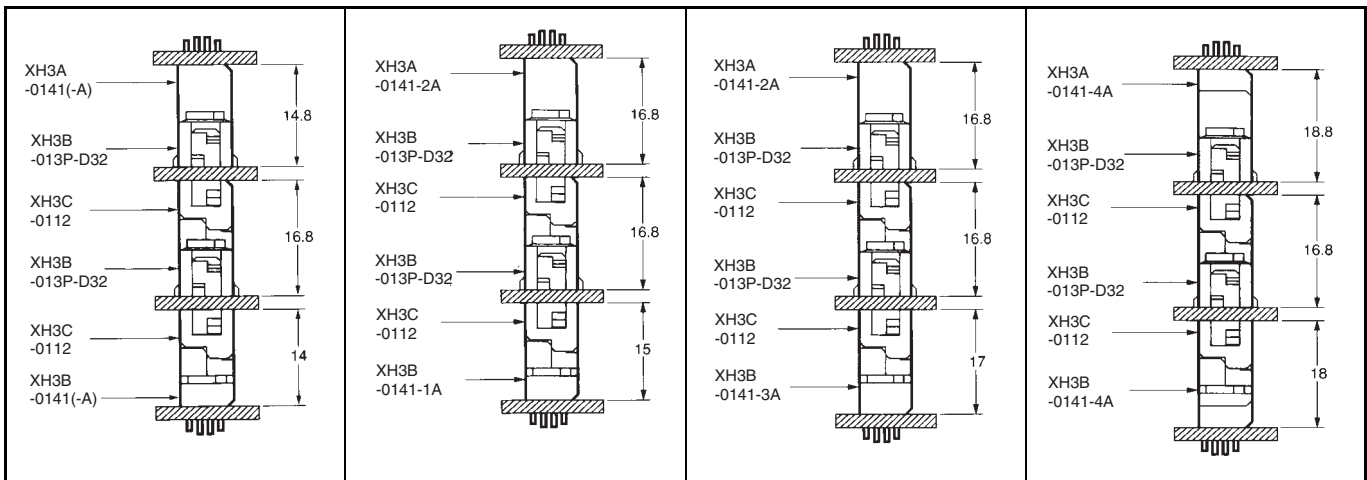
Mating Diagram (unit: mm)

Vertical

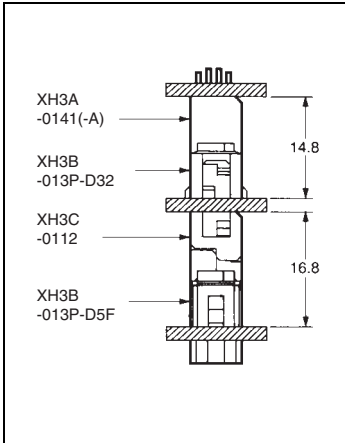


Stacking

- Fine-fit Backplane Connector and DIP Terminal Combinations



• Fine-fit Backplane Connector and Fine-fit Short Terminal Connector Combinations



Stacked PCB Height Dimensions

PCB height dimensions (mm)	XH3B-013P-D□□	XH3B-0141(-A)	XH3B-0141-1(A)	XH3B-0141-3(A)	XH3B-0141-4(A)
XH3C-0112	16.8	14.0	15.0	17.0	18.0
XH3A-0141(-A)	14.8	---			
XH3A-0141-2(A)	16.8	---			
XH3A-0141-4(A)	18.8	---			

■ Contact Numbers

Item	Mated diagram	Mounting holes (bottom view)
Socket, Fine-fit Backplane Connector/ Short Terminal Connectors		
Plug, Straight DIP Terminals		

• Contact numbers are not printed on the connectors. Use the triangular mark (▼) as a guide when designing and mounting to boards.

• On the mating side, the row of terminals on the triangular mark side are called row a, and the row on the other side is called row b. The numbers are in the order shown.

• The triangular marks on the plug and socket must be aligned when mated. The contact numbers on both sides must match.

■ Precautions

Correct Use

Press Fitting

A separate instruction sheet for press fitting precautions is available. Ask your OMRON representative for details.

Mating Compatibility

XH3 Half-pitch Connectors do not mate with XH2 or XH4 Half-pitch Connectors.

Mounting Prohibited area

The punch contacts mounting parts that are higher than the punch BDC of the pressing machine, therefore give an allowance of the punch outer shape + 1 mm.

Note: The punch outer shape of the XY2B-0002 is 21 x 90 mm.

- Application examples provided in this document are for reference only. In actual applications, confirm equipment functions and safety before using the product.
- Consult your OMRON representative before using the product under conditions which are not described in the manual or applying the product to nuclear control systems, railroad systems, aviation systems, vehicles, combustion systems, medical equipment, amusement machines, safety equipment, and other systems or equipment that may have a serious influence on lives and property if used improperly. Make sure that the ratings and performance characteristics of the product provide a margin of safety for the system or equipment, and be sure to provide the system or equipment with double safety mechanisms.

Note: Do not use this document to operate the Unit.

OMRON Corporation

ELECTRONIC AND MECHANICAL COMPONENTS COMPANY

Contact: www.omron.com/ecb

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