Conforming to IEC Standard The Next-Generation Ethernet Connector for Industrial Equipment

IX Series



■Overview

Multi-purpose small-sized I/O connector for industrial machinery.
Conforming to IEC Standard IEC PAS 61076-3-124
Compact size, robust and high speeds.
High EMC resistance.

■Features

1. Contribution to size reduction

The ix Industrial offers a reduced size of 75% compared to conventional RJ-45 modular solutions. This size reduction allows for reduced installation space. Parallel-mounting at P=10mm is possible.

2. Single action lock design

The connector locks by simply inserting the plug into the receptacle. An audible click insures locking. The lock can be released by pushing a button on the plug leading to smooth removal.

3. Robust design resistant to wrenching forces

The PCB-mounted receptacle shell is designed to minimize the influence of wrenching force from the plug on the mated surface. Additionally, the PCB-mounted shape is designed to protect the contacts. Unique metal hold down placement which can prevent peeling of contacts. Stainless steel material is used for metal parts to enhance the mechanical strength.

4. High EMC Resistance

Optimized shielding design guarantees high EMC resistance to secure safe data transmission.

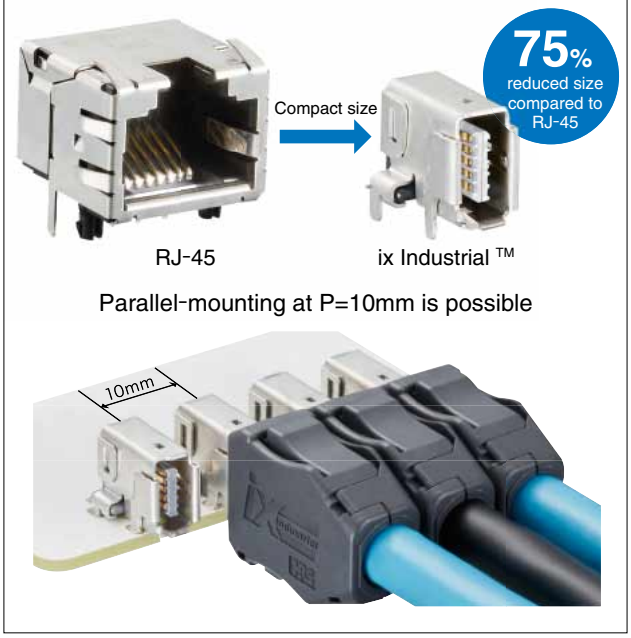
5. High Data Rate Transmission

Cat.5e (1Gbps) and Cat.6A (10Gbps) high-speed Ethernet performance.

6. PIP (Pin-In-Paste) mounting possible

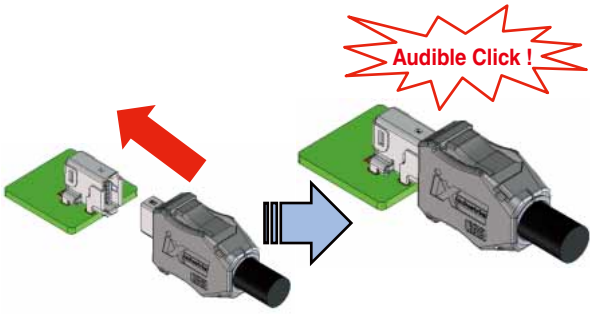
The receptacle shell is mounted at the through hole section of the PCB to enhance the mounting strength of the PCB. Both signal contact SMT and PIP mounting allows for reflow-mounting and reduction of man-hours required for board processing.

Contribution to size reduction



Parallel-mounting at P=10mm is possible

Lock design



Single action lock allows for easy operation
Clear tactile click prevents insufficient mating

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■Product Specifications

Ratings	Voltage	50V AC / 60V DC		Operating temperature range	-40 to +85℃ (Note 1)
	Electric current	1.5A	All-pin signal	Storage temperature range	-30℃ to +60℃
		3.0A	4 pins of contacts No.1, 2, 6 and 7		

Items	Specifications	Conditions
1. Contact resistance	Signal : 30mΩ or less (Note 2) Shield : 100mΩ or less (Note 2)	Measured at 100mA
2. Insulation resistance	500MΩ or more	Measured at 500V DC
3. Withstanding voltage	No flashover or breakdown	Apply a voltage of 500V DC for 1 minute.
4. Mechanical operation	Signal : 80mΩ or less (Note 2) Shield : 100mΩ or less (Note 2)	5000 times
5. Vibration resistance	①No electrical discontinuity of 1μs or more ②No damage, crack or loosened parts	10 to 500Hz, half amplitude 0.35mm, Acceleration of 50m/s².
6. Shock resistance		300m/s², 11ms duration, 3 axis both directions, 3 times each.
7. Fretting corrosion resistance	①No electrical discontinuity of 1μs or more ②No damage, crack or loosened parts	490m/s², 30 times/min, 1000 times

Note 1 : Includes temperature rise due to current flow.
Note 2 : Conductor resistance of the cable isn't included.

■Materials / Finish

●Receptacle

Component	Materials	Color/Finish	Remarks
Insulator	Liquid crystal polymer	Gray	UL94V-0
Contact	Copper alloy	Partially gold plated	———
Shielding plate	Stainless steel	———	———
Shell	Stainless steel	Tin plated	———
Suction cap	Polyamide resin	Black	UL94V-0

●Plug

Component	Materials	Color/Finish	Remarks
Contact	Copper alloy	Partially gold plated	———
Insulator	Polyamide resin	Black, Dark gray	UL94V-0
Shielding plate	Stainless steel	———	———
Insulated case	Polyamide resin	Black	UL94V-0
Guide	Polycarbonate resin	Transparent, Clear yellow	UL94V-0
Shield case	Stainless steel	Nickel plated	———
Shield shell	Stainless steel	Nickel plated	———
Cover case	Polycarbonate resin	Dark gray	UL94V-0

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■Product Number Structure

Refer to the chart below when determining the product specifications from the product number.
Please select from the product numbers listed in this catalog when placing orders.

●Receptacle

IX ❶ 61 ❷ G ❸ – A ❹ – 10 ❺ P ❻ (**) ❾

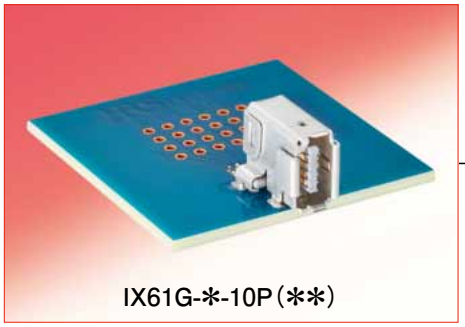
●Plug

IX ❶ 40 ❷ G ❸ – A ❹ – 10 ❺ S ❻ – CV ❼ 7.0 ❽ (**) ❾

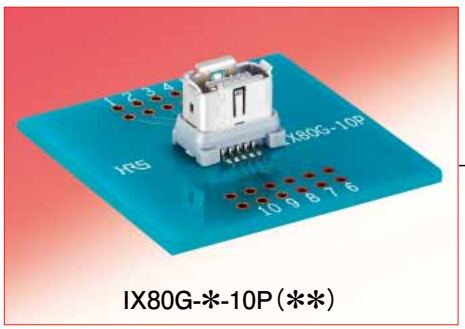
❶ Series name ： IX IX Series	❻ Contact polarity ： P Male contact S Female contact
❷ Mounting/connection method ： 40 Hand soldering 30 IDC (26 to 28 AWG, Cable outer dia meter ϕ0.95 to1.05) 31 IDC (24 to 26 AWG, Cable outer dia meter ϕ1.1 to 1.25) 61 Upright right angle SMT 80 Vertical SMT	❼ Plug cover CV Cable outlet direction : Straight
❸ Correspond to Gigabit Ethernet ： G	❽ Applicable cable diameter ： (7.0) Sheath outside diameter ： ϕ6.3 to 7.2
❹ Mating key ： Type A Type B	❾ Plating specifications ： Blank Gold plated (01) Palladium-Nickel plated + Gold plated
❺ Number of Contacts	

■Diagram of Connector Mating Combinations

●Receptacle



IX61G-*-10P(**)



IX80G-*-10P(**)

●Plug



IX40G-*-10S-CV(7.0)(**)



IX30G-*-10S-CV(7.0)(**)



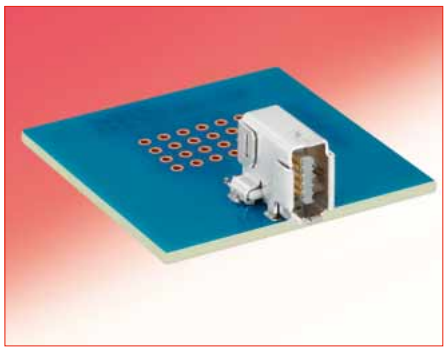
IX31G-*-10S-CV(7.0)(**)

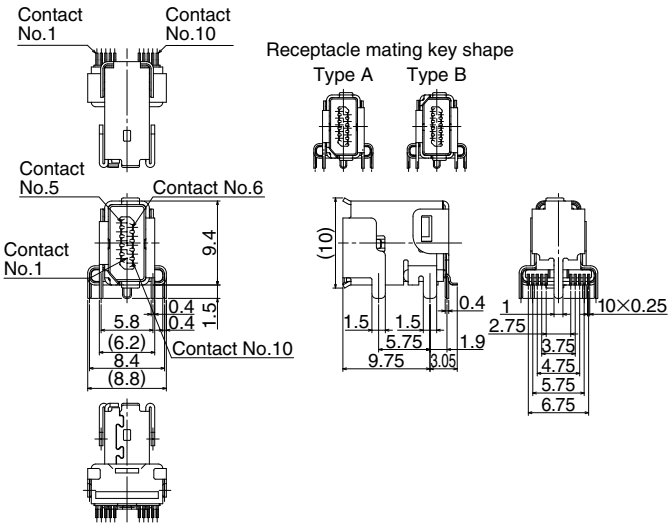
※Mating key (Type A, B) of Plug & Receptacle must be the same for mating.

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■Receptacle

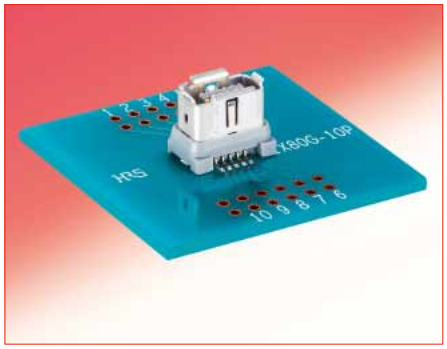
●Upright right angle type

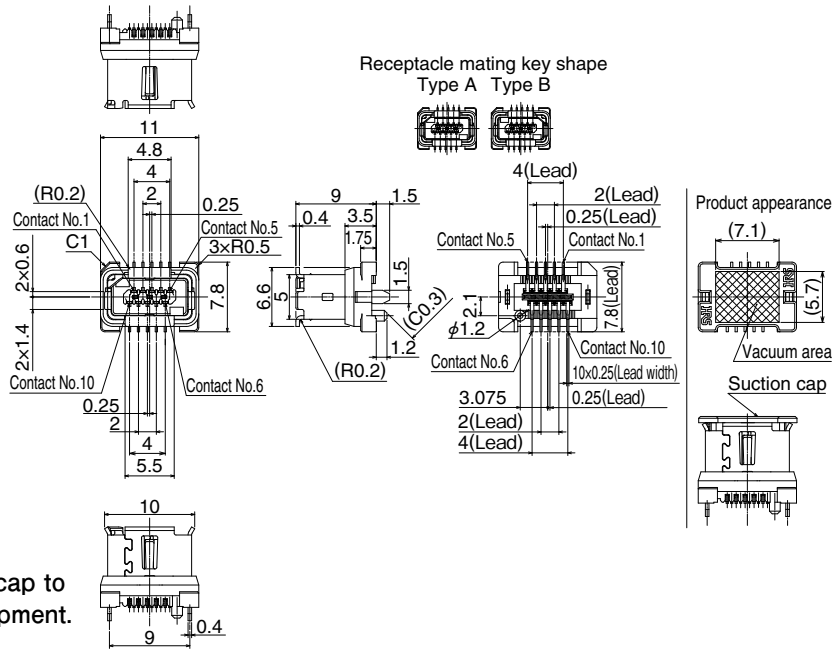




Part No.	HRS No.	Plating of the contact area
IX61G-A-10P	251-0021-0	Gold plated 0.2μm
IX61G-A-10P(01)	251-0021-0 01	Palladium-Nickel plated 0.75μm + Gold plated 0.05μm
IX61G-B-10P	251-0026-0	Gold plated 0.2μm
IX61G-B-10P(01)	251-0026-0 01	Palladium-Nickel plated 0.75μm + Gold plated 0.05μm

●Receptacle (Vertical type)





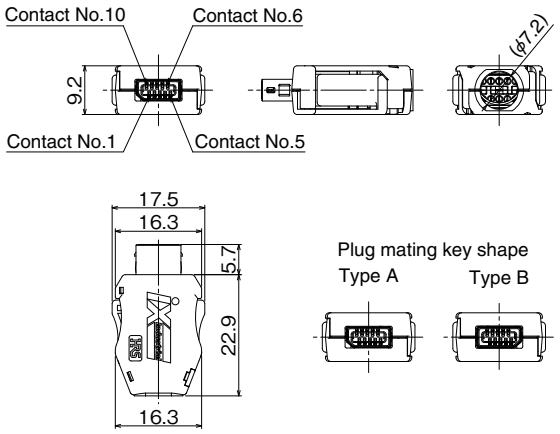
Note : This product is delivered with a cap to accommodate pick & place equipment. Please take the cap before use.

Part No.	HRS No.	Plating of the contact area
IX80G-A-10P	251-0018-0	Gold plated 0.2μm
IX80G-A-10P(01)	251-0018-0 01	Palladium-Nickel plated 0.75μm + Gold plated 0.05μm
IX80G-B-10P	251-0019-0	Gold plated 0.2μm
IX80G-B-10P(01)	251-0019-0 01	Palladium-Nickel plated 0.75μm + Gold plated 0.05μm

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■Plug





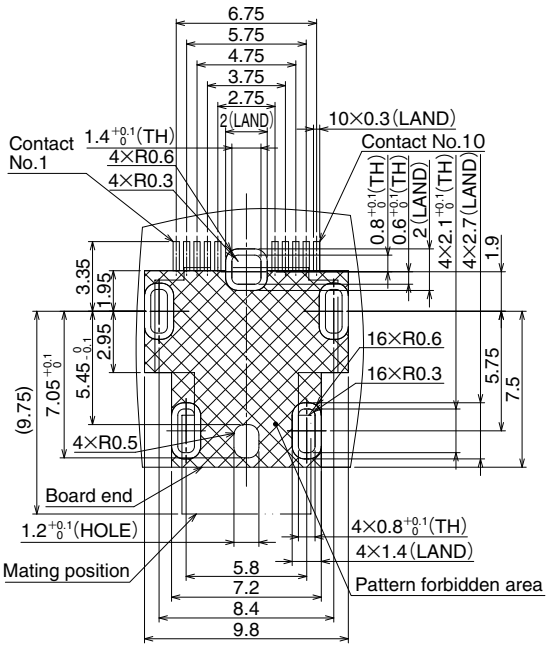
Part No.	HRS No.	Plating of the contact area
IX40G-A-10S-CV(7.0)	251-0022-0	Gold plated 0.2μm
IX40G-A-10S-CV(7.0)(01)	251-0022-0 01	Palladium-Nickel plated 0.75μm + Gold plated 0.05μm
IX40G-B-10S-CV(7.0)	251-0032-0	Gold plated 0.2μm
IX40G-B-10S-CV(7.0)(01)	251-0032-0 01	Palladium-Nickel plated 0.75μm + Gold plated 0.05μm
IX30G-A-10S-CV(7.0)	251-0020-0	Gold plated 0.2μm
IX30G-A-10S-CV(7.0)(01)	251-0020-0 01	Palladium-Nickel plated 0.75μm + Gold plated 0.05μm
IX30G-B-10S-CV(7.0)	251-0025-0	Gold plated 0.2μm
IX30G-B-10S-CV(7.0)(01)	251-0025-0 01	Palladium-Nickel plated 0.75μm + Gold plated 0.05μm
IX31G-A-10S-CV(7.0)	251-0023-0	Gold plated 0.2μm
IX31G-A-10S-CV(7.0)(01)	251-0023-0 01	Palladium-Nickel plated 0.75μm + Gold plated 0.05μm
IX31G-B-10S-CV(7.0)	251-0024-0	Gold plated 0.2μm
IX31G-B-10S-CV(7.0)(01)	251-0024-0 01	Palladium-Nickel plated 0.75μm + Gold plated 0.05μm

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Recommended Land Pattern Dimensions (Board thickness : t=1.6mm)

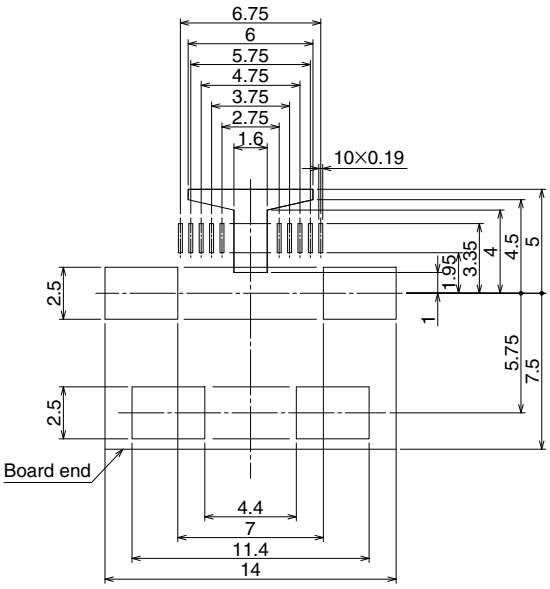
●IX61G-✻-10P

Recommended Land Pattern (Mounting side) (t=1.6)



General tolerance unless specified ±0.05.

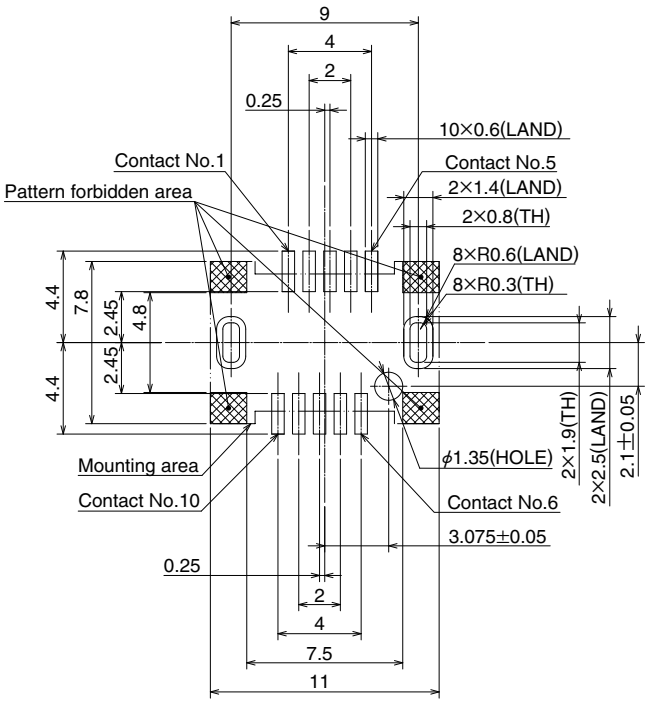
Recommended Metal Mask Pattern (t=0.15)



General tolerance unless specified ±0.02.

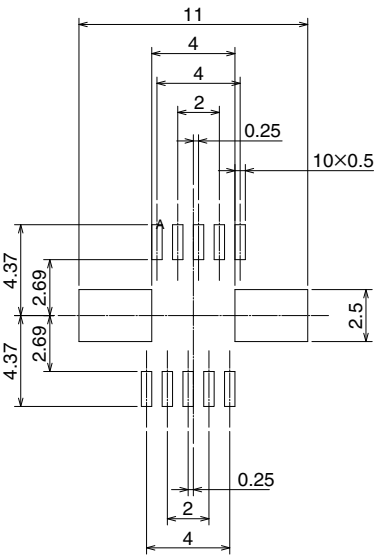
●IX80G-✻-10P

Recommended Land Pattern (Mounting side) (t=1.6)



General tolerance unless specified ±0.05.

Recommended Metal Mask Pattern (t=0.15)



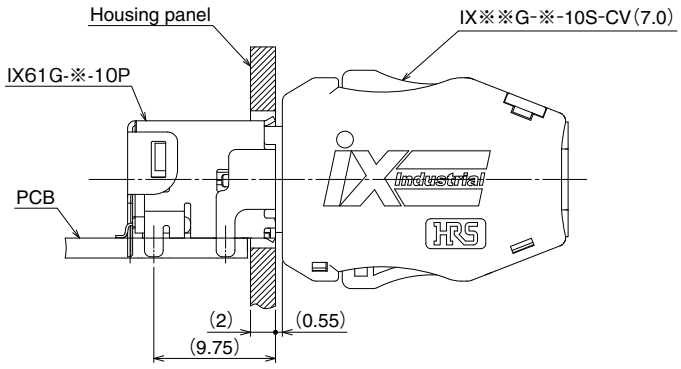
General tolerance unless specified ±0.02.

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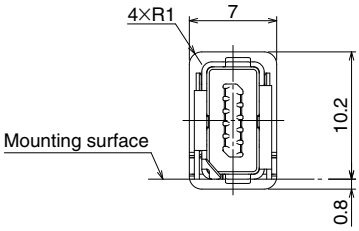
Recommended Panel Thickness

●IX61G-∗-10P

Mated Condition Diagram (FREE)



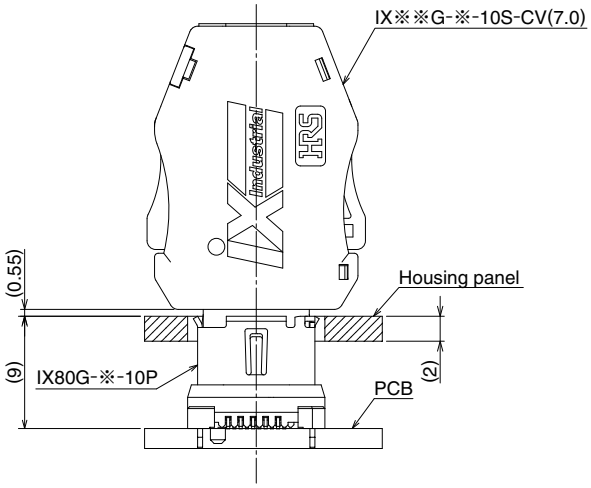
Reference Housing Panel cut-out Dimension (FREE)



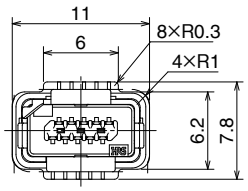
Reference dimensions.

●IX80G-∗-10P

Mated Condition Diagram (FREE)



Reference Housing Panel cut-out Dimension (FREE)



Reference dimensions.

Cable Clamp Jig Tools

Part No.	HRS No.	Remark
HT803/IX30G-10S-70	902-2213-0	IX∗∗G-∗-10S-CV(7.0)

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The characteristics and the specifications contained herein are for reference purpose. Please refer to the latest customer drawings prior to use.
The contents of this catalog are current as of date of 11/2018. Contents are subject to change without notice for the purpose of improvements.