

IX Series

IEC Standard Compliant Next-Generation Industrial Transmission Connector



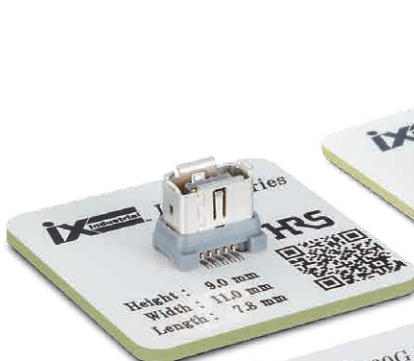
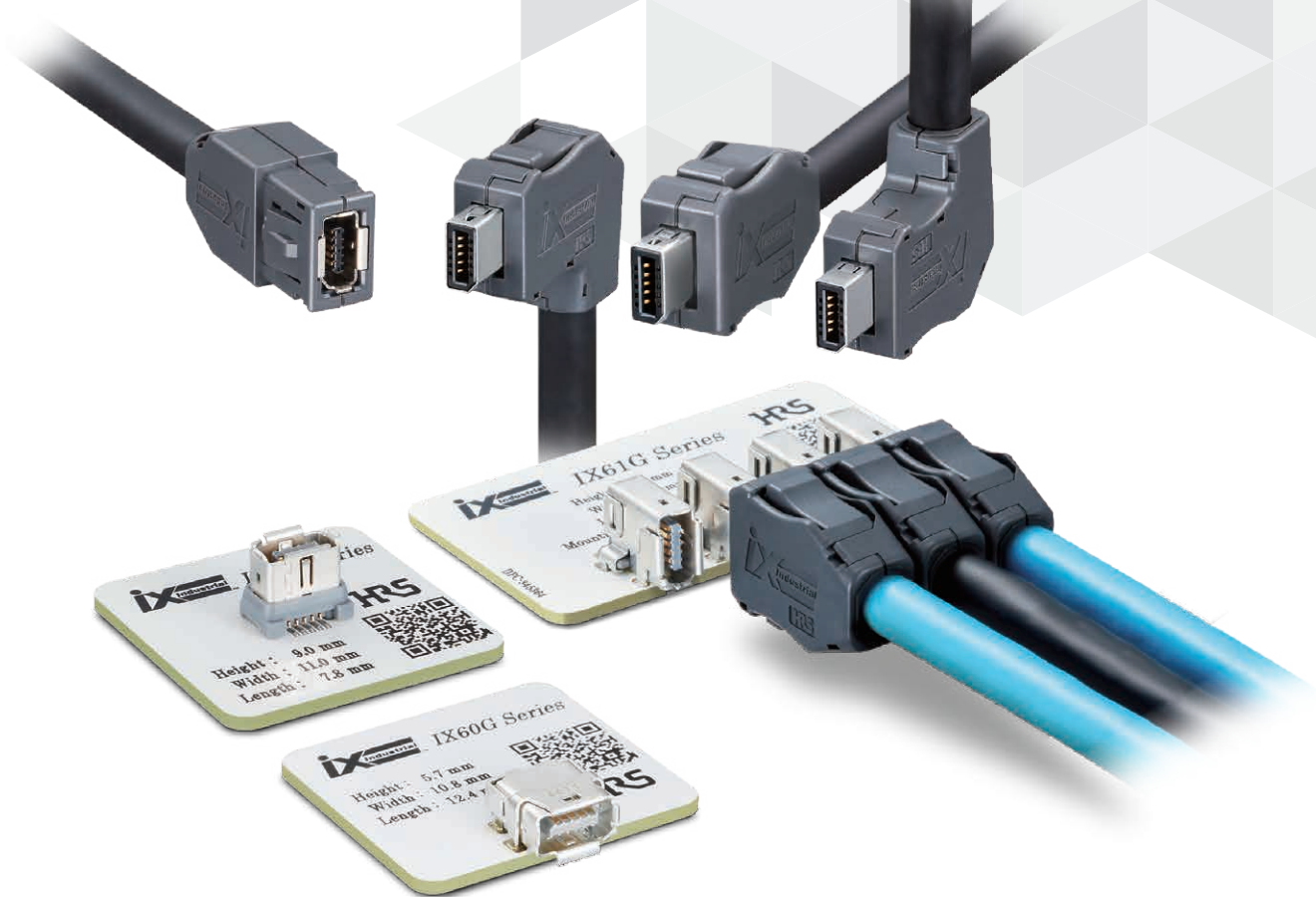
Compact



Robust



CAT6A



Product page
<https://www.hirose.com/product/en/products/IX/>



Special features page
https://www.hirose.com/product/en/pr/ix_industrial/ Jun. 2023

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Advance with ix Industrial™

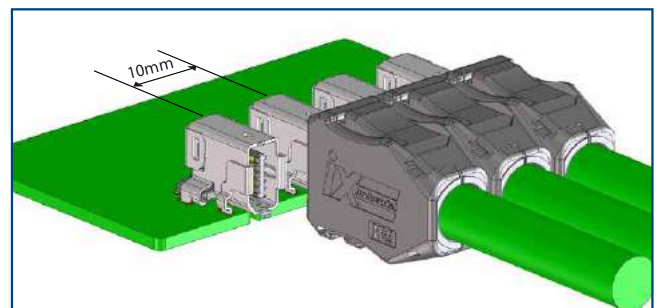
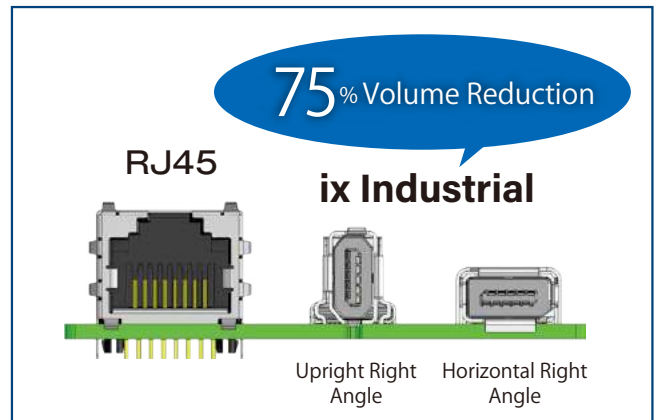
Overview

- Multi-purpose, compact I/O connector for industrial machinery.
- IEC Standard IEC 61076-3-124 compliant
- Compact, robust and supports high speeds
- High EMC resistance

Features

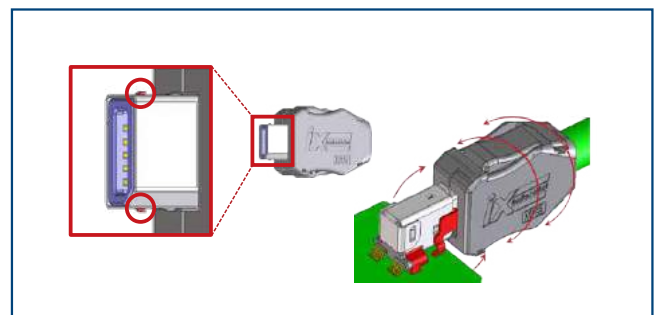
1. Smaller Size, Greater Design Freedom

The ix Industrial offers a size reduction of 75% compared to the RJ45. The right angle receptacle provides an even greater height reduction. Furthermore, it allows for 10mm pitch parallel mounting. The ix Industrial enables greater board design flexibility and is ideal for space reduction.



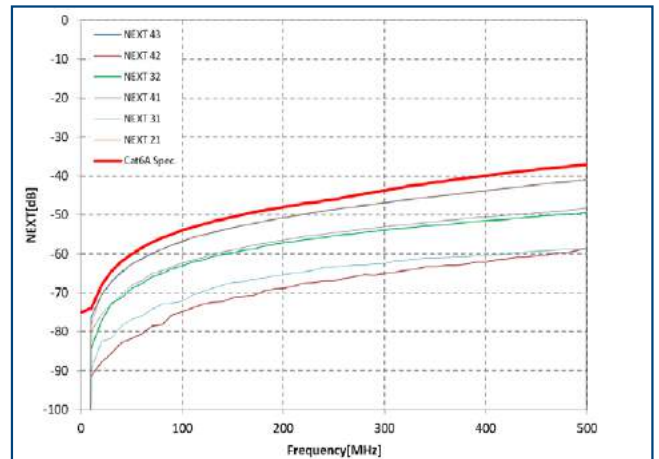
2. Breakage Prevention

The metal lock latches won't break, and the shell is through-hole mounted. The design reduces stress to the SMT leads while preventing breakage from prying. The ix Industrial was designed with vibration and impact resistance.



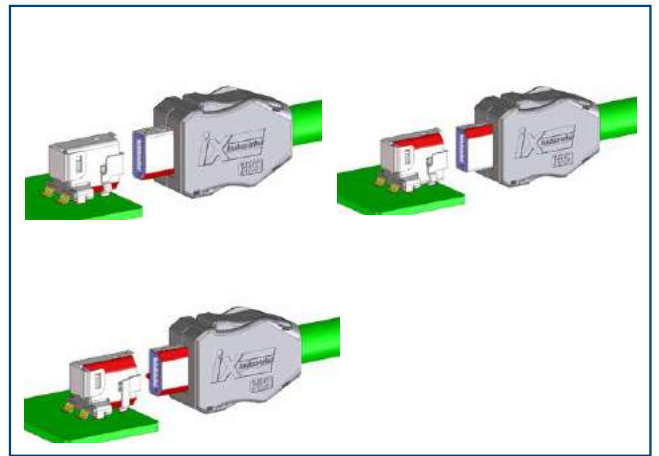
3. Supports a Wide Range of Transmission Speeds

Supports Cat.5e (1Gbps/4 Pairs) and Cat.6A (10Gbps/4 Pairs) stable high speed transmission. It is used in a variety of applications, from Ethernet in FA equipment to medical devices.



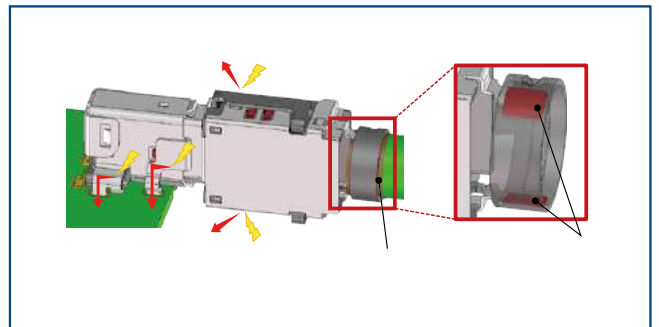
4. Ethernet and others

Use the Type A/C for Ethernet communications and the Type B for Non-Ethernet communications. The ix Industrial enables a variety of connections.



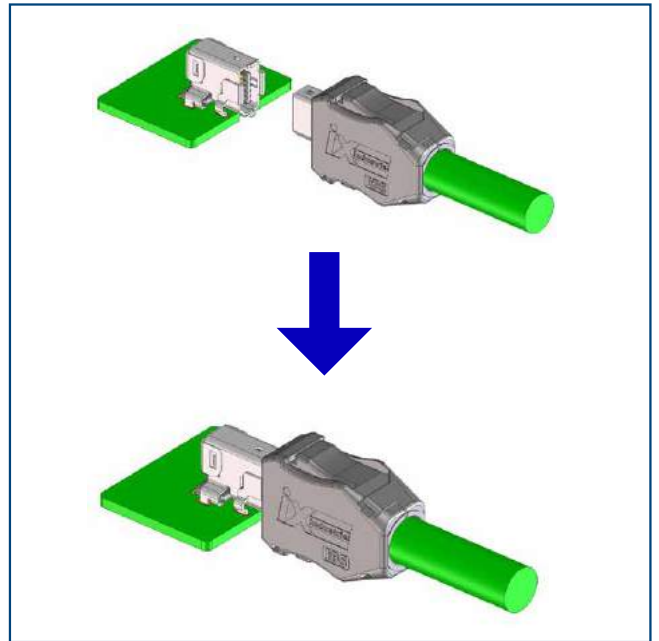
5. Superior Noise Resistance

The shell is crimped together and comes into direct contact with the receptacle's ground spring for shielding. The ix Industrial can be used safely in any operating environment.



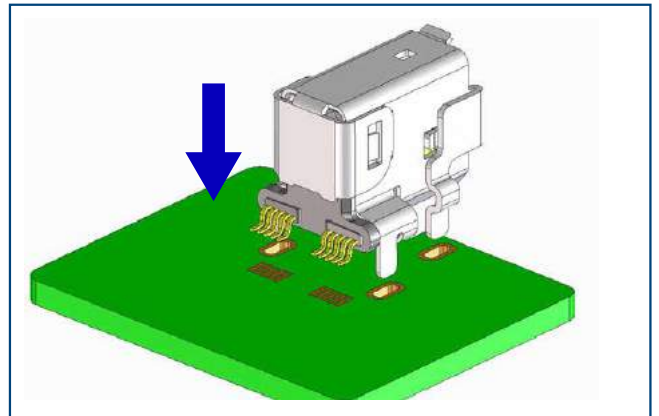
6. Easy, but Provides a Reliable Connection

Locking is completed simply by inserting the plug into the receptacle. Simple operation that the lock can be released easily by pushing on the buttons while pulling out. Clear tactile click prevents incomplete mating.



7. THR (Through-Hole Mounting) Compatible

The receptacle shell is mounted in the through-holes for enhanced PCB mounting strength. THR mounting enables simultaneous reflow mounting with the signal contact SMT, for reduced board mounting time.



Product Specifications

| | | | | |
|---------------|--------------------|----------|--------------------------------|--------------|
| Rated Current | All Pins | 1.5A/pin | Operating Temperature (Note 1) | -40 to +85°C |
| | Pin No.1,2,6 and 7 | 3A/pin | Storage Temperature Range | -30 to +60°C |
| Rated Voltage | 50V AC / 60V DC | | | |

| Item | Specification | Conditions |
|-------------------------------|--|--|
| Contact Resistance | Signal : 30mΩ Max. (Note 2) Shield : 100mΩ Max. (Note 2) | Measured at 100mA |
| Insulation Resistance | 500MΩ Min. | Measured at 500V DC |
| Withstanding Voltage | No flashover or breakdown | Voltage of 500V DC applied for 1 min. |
| Mating Durability | Signal : 80mΩ Max. (Note 2) Shield : 100mΩ Max. (Note 2) | 5,000 insertion/extraction cycles |
| Vibration Resistance | No electrical discontinuity of 1 μs or more. (Note 3) No damage, crack or loosened parts | 10 to 500Hz, Half Amplitude 0.35mm, Acceleration of 50m/s ² . |
| Shock Resistance | No electrical discontinuity of 1 μs or more. (Note 3) No damage, crack or loosened parts Signal : 80mΩ Max. (Note 2) Shield : 100mΩ Max. (Note 2) | 300m/s ² , 11ms Duration, 3 Axis in Both Directions, 3 Times Each |
| Fretting Corrosion Resistance | No electrical discontinuity of 1 μs or more. (Note 3) No damage, crack or loosened parts | 490m/s ² , 30 times/min, 1000 times |

Note 1 : Includes temperature rise due to current flow.

Note 2 : Conductor resistance of the cable is not included.

Note 3 : Electrical performance applicable to signal contact and Shield except Contact No. 3.8.

Materials / Finish

● Receptacle

| Component | Materials | Color/Finish | Remarks |
|-----------------|----------------------------------|-----------------------|---------|
| Insulator | Liquid Crystal Polymer, PA Resin | Gray | UL94V-0 |
| Contact | Copper Alloy | Partially Gold Plated | - |
| Shielding Plate | Stainless Steel | - | - |
| Shell | Stainless Steel | Tin Plated | - |
| Suction Cap | PA 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 | - | - |
| Insulator Case | Polyamide Resin | Black | UL94V-0 |
| Guide | Polycarbonate Resin | Transparent, Transparent Yellow, Transparent Blue | UL94V-0 |
| Shield Case | Stainless Steel | Nickel Plated | - |
| Shield Shell | Stainless Steel | Nickel Plated | - |
| Cover Case | Polycarbonate Resin | Dark Gray | UL94V-0 |

● In-line Jack

| Component | Materials | Color/Finish | Remarks |
|-----------------|---------------------|-----------------------|---------|
| Contact | Copper Alloy | Partially Gold Plated | UL94V-0 |
| Insulator Case | Polyamide Resin | Black | UL94V-0 |
| Retention Plate | Polyamide Resin | Black | UL94V-0 |
| Shielding Plate | Stainless Steel | - | - |
| Shell | Stainless Steel | Nickel Plated | - |
| Shield Case A | Stainless Steel | Nickel Plated | - |
| Shield Case B | Stainless Steel | Nickel Plated | - |
| Cover Case | Polycarbonate Resin | Dark Gray | UL94V-0 |

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 61 G - A - 10 P (##)

① ② ③ ④ ⑤ ⑥ ⑨

| | | | |
|--------------------------------|--|--|--|
| ① Series Name | IX Series | ④ Mating Key/ Application | A : Type A/Ethernet Communication B : Type B/Non-Ethernet Communication |
| ② Mounting/ Assembly Method | 61 : Upright Right Angle SMT 60 : Horizontal Right Angle SMT 80 : Vertical SMT | ⑤ Maximum Number of Usable Positions | 10 : 10pos. |
| | | ⑥ Contact Gender | P : Male Contact |
| ③ Gigabit Ethernet Support | G | ⑨ Plating Specifications | Blank : Gold Plated (01) : Palladium-Nickel Plated + Gold Plated |

Plug

IX 40 G - A - 10 S - CV (7.0) (##)

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

| | | | |
|--------------------------------|--|--|---|
| ① Series Name | IX Series | ⑤ Maximum Number of Usable Positions | 10 : 10pos. 8 (Note) : 8pos. |
| ② Mounting/ Assembly Method | 40 : Hand Solder 30 : IDC (26 to 28 AWG, Insulator Outer Diameter φ 0.95 to 1.05mm) 31 : IDC (24 to 25 AWG, Insulator Outer Diameter φ 1.1 to 1.25mm) 32 : IDC (22 AWG, Insulator Outer Diameter φ 1.4 to 1.6mm) | ⑥ Contact Gender | S : Female Contact |
| | | ⑦ Plug Cover Cabling Direction | CV : Straight CVL1 : Downward Cabling CVL2 : Upward Cabling |
| ③ Gigabit Ethernet Support | G | ⑧ Applicable Cable Diameter | (7.0) : Sheath Outer Diameter φ 6.3 to 7.2mm |
| ④ Mating Key/ Application | A : Type A/Ethernet Communication B : Type B/Non-Ethernet Communication | ⑨ Plating Specifications | Blank : Gold Plated (01) : Palladium-Nickel Plated+Gold Plated |

Note : Contacts No.3 and 8 do not have a hole to pass the wire through the IDC guide.

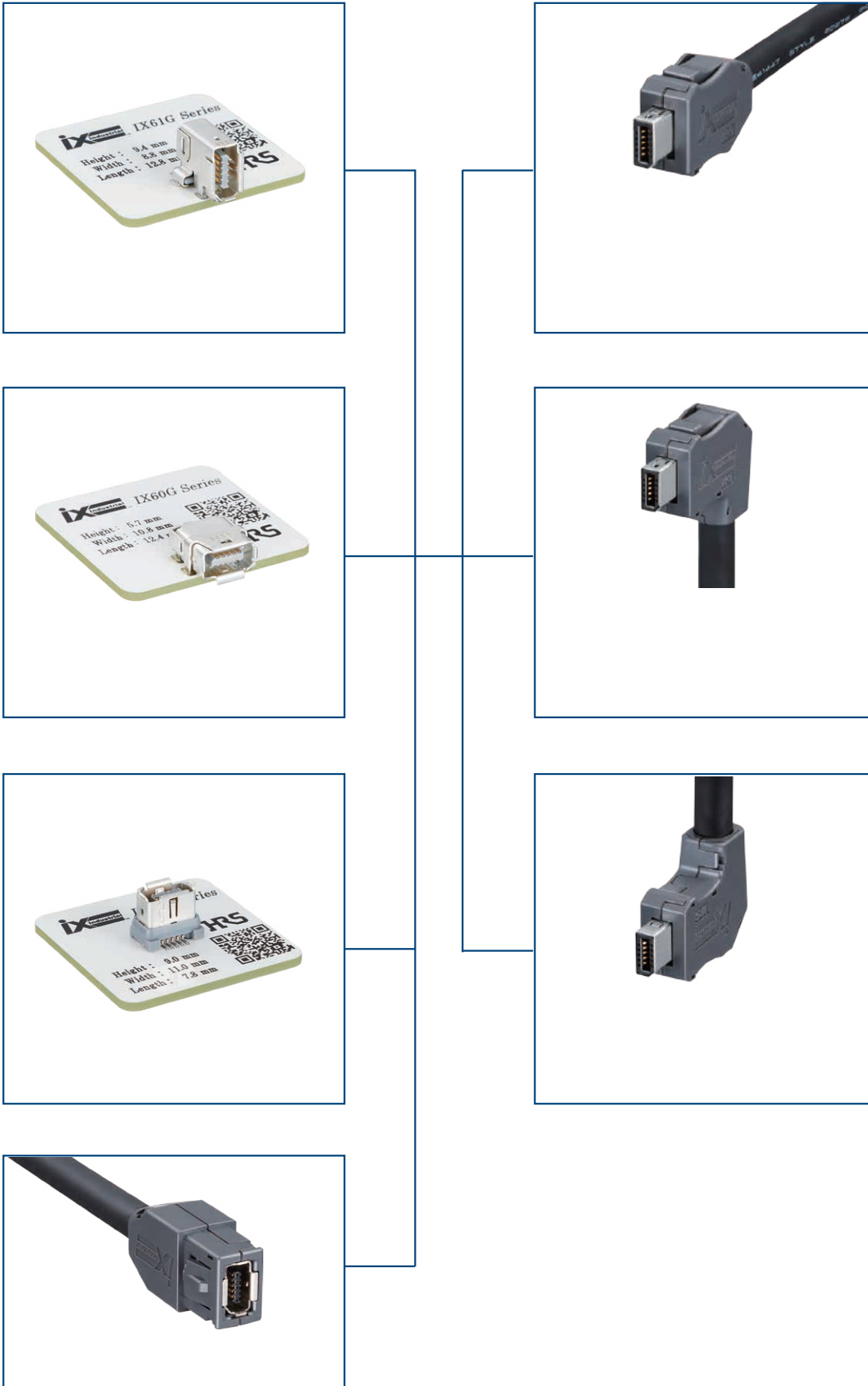
In-line Jack

IX 40 G - A - 10 P - JC (7.0) (##)

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

| | | | |
|--|--|---|---|
| ① Series Name | IX Series | ⑥ Contact Gender | P : Male Contact |
| ② Mounting/ Assembly Method | 40 : Hand Solder | ⑦ In-line Jack Cover Cabling Direction | JC : Straight |
| ③ Gigabit Ethernet Support | G | | |
| ④ Mating Key/ Application | A : Type A/Ethernet Communication B : Type B/Non-Ethernet Communication | ⑧ Applicable Cable Diameter | (7.0) : Sheath Outer Diameter φ 6.3 to 7.2mm |
| ⑤ Maximum Number of Usable Positions | 10 : 10pos. | ⑨ Plating Specifications | Blank : Gold Plated (01) : Palladium-Nickel Plated + Gold Plated |

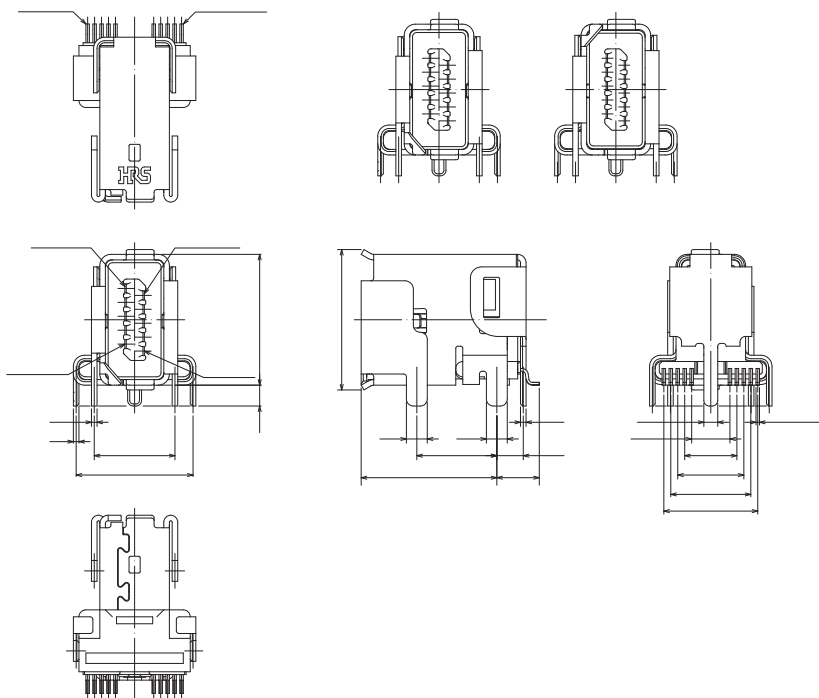
Connector Mating Combination Diagram



Note : Please use the same mating key (Type A, B) for both the plug and receptacle.

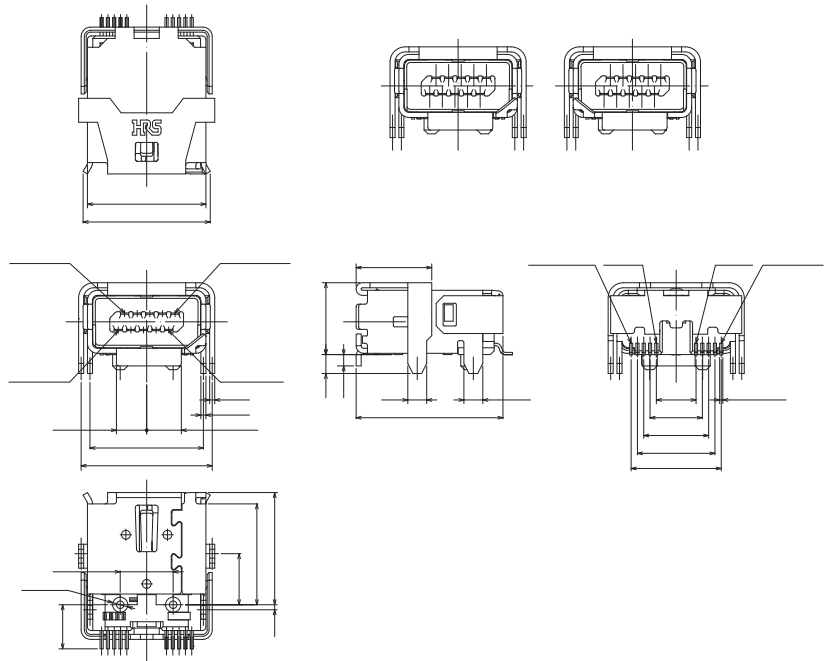
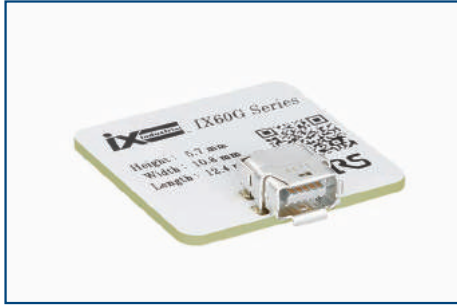
Receptacle

Upright Right Angle



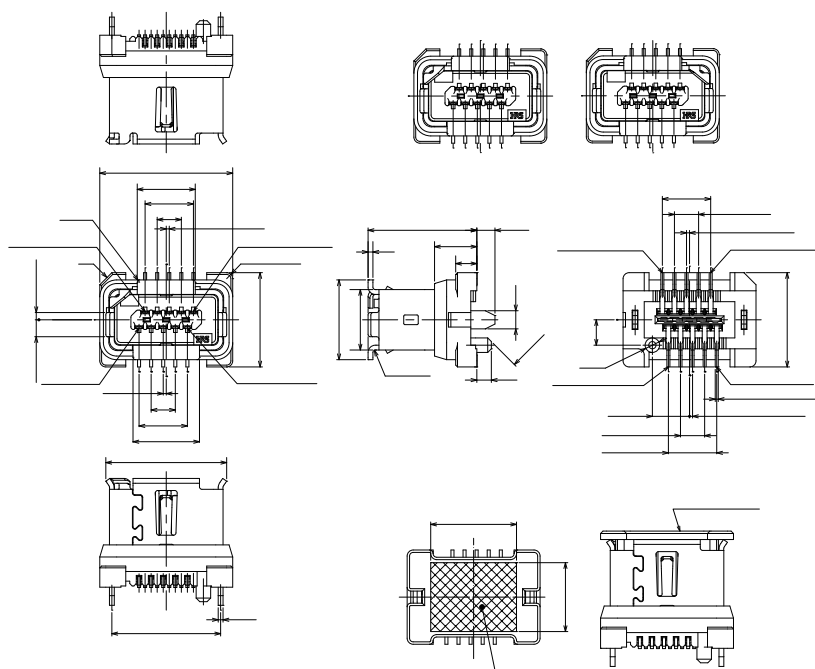
| Part No. | HRS No. | Contact Area Plating | Purchase Unit |
|-----------------|------------------|---|--------------------|
| IX61G-A-10P | CL0251-0021-0-00 | Gold Plated 0.2 μ m | 400pcs per reel |
| IX61G-A-10P(01) | CL0251-0021-0-01 | Palladium-Nickel Plated 0.75 μ m + Gold Plated 0.05 μ m | |
| IX61G-B-10P | CL0251-0026-0-00 | Gold plated 0.2 μ m | |
| IX61G-B-10P(01) | CL0251-0026-0-01 | Palladium-Nickel Plated 0.75 μ m + Gold Plated 0.05 μ m | |

Horizontal Right Angle



| Part No. | HRS No. | Contact Area Plating | Purchase Unit |
|-----------------|------------------|---|-----------------|
| IX60G-A-10P | CL0251-0016-0-00 | Gold Plated 0.2 μ m | 550pcs per reel |
| IX60G-A-10P(01) | CL0251-0016-0-01 | Palladium-Nickel Plated 0.75 μ m + Gold Plated 0.05 μ m | |
| IX60G-B-10P | CL0251-0017-0-00 | Gold Plated 0.2 μ m | |
| IX60G-B-10P(01) | CL0251-0017-0-01 | Palladium-Nickel Plated 0.75 μ m + Gold Plated 0.05 μ m | |

Vertical

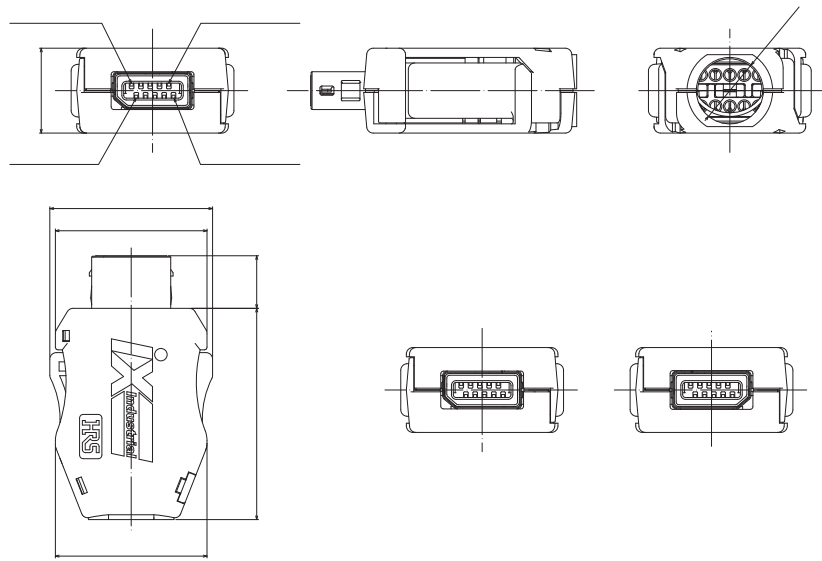


| Part No. | HRS No. | Contact Area Plating | Purchase Unit |
|-----------------|------------------|---|--------------------|
| IX80G-A-10P | CL0251-0018-0-00 | Gold Plated 0.2 μ m | 450pcs per reel |
| IX80G-A-10P(01) | CL0251-0018-0-01 | Palladium-Nickel Plated 0.75 μ m + Gold Plated 0.05 μ m | |
| IX80G-B-10P | CL0251-0019-0-00 | Gold Plated 0.2 μ m | |
| IX80G-B-10P(01) | CL0251-0019-0-01 | Palladium-Nickel Plated 0.75 μ m + Gold Plated 0.05 μ m | |

Note : This product is delivered with a cap for Pick & Place mounting.
Please remove the cap before use.

Plug

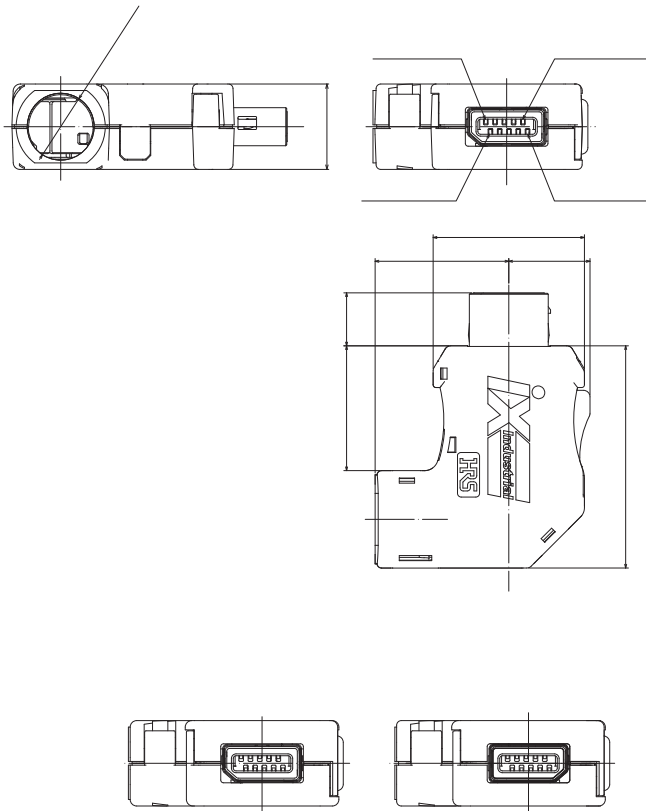
Straight



| Part No. | HRS No. | Contact Area Plating | Purchase Unit |
|-------------------------------|------------------|---|-----------------|
| IX30G-A-10S-CV(7.0) | CL0251-0020-0-00 | Gold Plated 0.2 μ m | 100pcs per tray |
| IX30G-A-10S-CV(7.0)(01) | CL0251-0020-0-01 | Palladium-Nickel Plated 0.75 μ m + Gold Plated 0.05 μ m | |
| IX30G-B-10S-CV(7.0) | CL0251-0025-0-00 | Gold Plated 0.2 μ m | |
| IX30G-B-10S-CV(7.0)(01) | CL0251-0025-0-01 | Palladium-Nickel Plated 0.75 μ m + Gold Plated 0.05 μ m | |
| IX31G-A-10S-CV(7.0) | CL0251-0023-0-00 | Gold Plated 0.2 μ m | 100pcs per tray |
| IX31G-A-10S-CV(7.0)(01) | CL0251-0023-0-01 | Palladium-Nickel Plated 0.75 μ m + Gold Plated 0.05 μ m | |
| IX31G-B-10S-CV(7.0) | CL0251-0024-0-00 | Gold Plated 0.2 μ m | |
| IX31G-B-10S-CV(7.0)(01) | CL0251-0024-0-01 | Palladium-Nickel Plated 0.75 μ m + Gold Plated 0.05 μ m | |
| IX32G-A-8S-CV(7.0) (Note) | CL0251-0042-0-00 | Gold Plated 0.2 μ m | 100pcs per tray |
| IX32G-A-8S-CV(7.0)(01) (Note) | CL0251-0042-0-01 | Palladium-Nickel Plated 0.75 μ m + Gold Plated 0.05 μ m | |
| IX32G-B-8S-CV(7.0) (Note) | CL0251-0043-0-00 | Gold Plated 0.2 μ m | |
| IX32G-B-8S-CV(7.0)(01) (Note) | CL0251-0043-0-01 | Palladium-Nickel Plated 0.75 μ m + Gold Plated 0.05 μ m | |
| IX40G-A-10S-CV(7.0) | CL0251-0022-0-00 | Gold Plated 0.2 μ m | 100pcs per tray |
| IX40G-A-10S-CV(7.0)(01) | CL0251-0022-0-01 | Palladium-Nickel Plated 0.75 μ m + Gold Plated 0.05 μ m | |
| IX40G-B-10S-CV(7.0) | CL0251-0032-0-00 | Gold Plated 0.2 μ m | |
| IX40G-B-10S-CV(7.0)(01) | CL0251-0032-0-01 | Palladium-Nickel Plated 0.75 μ m + Gold Plated 0.05 μ m | |

Note : Cable assembly for IX32G is possible up to 8 positions.
 Contacts No. 3 and 8 do not have a hole to pass the wire though the IDC guide.

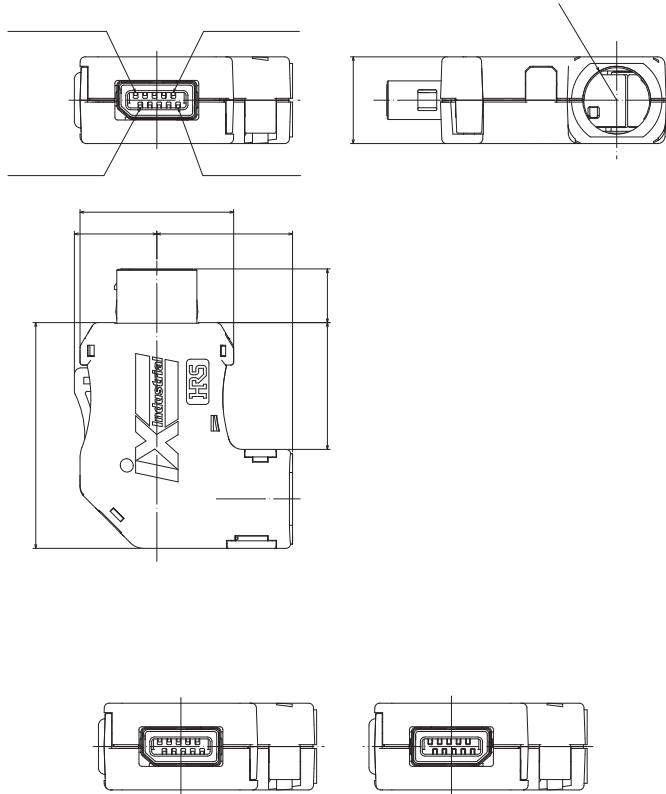
Right Angle, Downward Cabling



| Part No. | HRS No. | Contact Area Plating | Purchase Unit |
|--------------------------------|------------------|--|-----------------|
| IX30G-A-10S-CVL1(7.0) | CL0251-0063-0-00 | Gold Plated 0.2 μ m | 100pcs per tray |
| IX30G-A-10S-CVL1(7.0)(01) | CL0251-0063-0-01 | Palladium-Nickel Plated 0.75 μ m+ Gold Plated 0.05 μ m | |
| IX30G-B-10S-CVL1(7.0) | CL0251-0064-0-00 | Gold Plated 0.2 μ m | |
| IX30G-B-10S-CVL1(7.0)(01) | CL0251-0064-0-01 | Palladium-Nickel Plated 0.75 μ m+ Gold Plated 0.05 μ m | |
| IX31G-A-10S-CVL1(7.0) | CL0251-0067-0-00 | Gold Plated 0.2 μ m | 100pcs per tray |
| IX31G-A-10S-CVL1(7.0)(01) | CL0251-0067-0-01 | Palladium-Nickel Plated 0.75 μ m+ Gold Plated 0.05 μ m | |
| IX31G-B-10S-CVL1(7.0) | CL0251-0068-0-00 | Gold Plated 0.2 μ m | |
| IX31G-B-10S-CVL1(7.0)(01) | CL0251-0068-0-01 | Palladium-Nickel Plated 0.75 μ m+ Gold Plated 0.05 μ m | |
| IX32G-A-8S-CVL1(7.0)(Note) | CL0251-0071-0-00 | Gold Plated 0.2 μ m | 100pcs per tray |
| IX32G-A-8S-CVL1(7.0)(01)(Note) | CL0251-0071-0-01 | Palladium-Nickel Plated 0.75 μ m+ Gold Plated 0.05 μ m | |
| IX32G-B-8S-CVL1(7.0)(Note) | CL0251-0072-0-00 | Gold Plated 0.2 μ m | |
| IX32G-B-8S-CVL1(7.0)(01)(Note) | CL0251-0072-0-01 | Palladium-Nickel Plated 0.75 μ m+ Gold Plated 0.05 μ m | |
| IX40G-A-10S-CVL1(7.0) | CL0251-0075-0-00 | Gold Plated 0.2 μ m | 100pcs per tray |
| IX40G-A-10S-CVL1(7.0)(01) | CL0251-0075-0-01 | Palladium-Nickel Plated 0.75 μ m+ Gold Plated 0.05 μ m | |
| IX40G-B-10S-CVL1(7.0) | CL0251-0076-0-00 | Gold Plated 0.2 μ m | |
| IX40G-B-10S-CVL1(7.0)(01) | CL0251-0076-0-01 | Palladium-Nickel Plated 0.75 μ m+ Gold Plated 0.05 μ m | |

Note : Cable assembly for IX32G is possible up to 8 positions.
 Contacts No. 3 and 8 do not have a hole to pass the wire through the IDC guide.

Right Angle, Upward Cabling

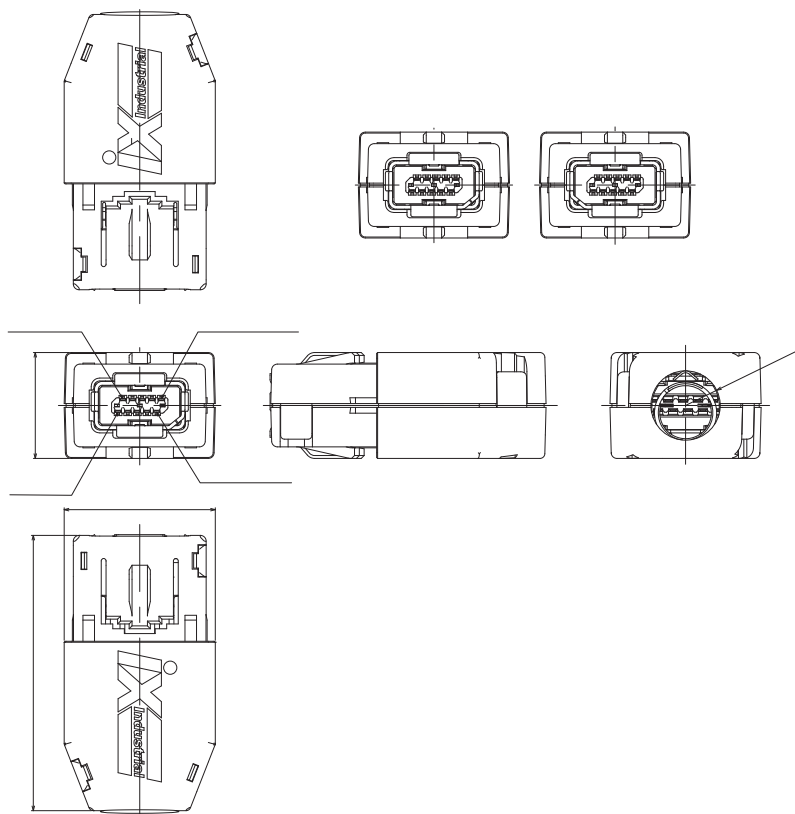


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| Part No. | HRS No. | Contact Area Plating | Purchase Unit |
|--------------------------------|------------------|---|-----------------|
| IX30G-A-10S-CVL2(7.0) | CL0251-0065-0-00 | Gold Plated 0.2 μ m | 100pcs per tray |
| IX30G-A-10S-CVL2(7.0)(01) | CL0251-0065-0-01 | Palladium-Nickel Plated 0.75 μ m + Gold Plated 0.05 μ m | |
| IX30G-B-10S-CVL2(7.0) | CL0251-0066-0-00 | Gold Plated 0.2 μ m | |
| IX30G-B-10S-CVL2(7.0)(01) | CL0251-0066-0-01 | Palladium-Nickel Plated 0.75 μ m + Gold Plated 0.05 μ m | |
| IX31G-A-10S-CVL2(7.0) | CL0251-0069-0-00 | Gold Plated 0.2 μ m | 100pcs per tray |
| IX31G-A-10S-CVL2(7.0)(01) | CL0251-0069-0-01 | Palladium-Nickel Plated 0.75 μ m + Gold Plated 0.05 μ m | |
| IX31G-B-10S-CVL2(7.0) | CL0251-0070-0-00 | Gold Plated 0.2 μ m | |
| IX31G-B-10S-CVL2(7.0)(01) | CL0251-0070-0-01 | Palladium-Nickel Plated 0.75 μ m + Gold Plated 0.05 μ m | |
| IX32G-A-8S-CVL2(7.0)(Note) | CL0251-0073-0-00 | Gold Plated 0.2 μ m | 100pcs per tray |
| IX32G-A-8S-CVL2(7.0)(01)(Note) | CL0251-0073-0-01 | Palladium-Nickel Plated 0.75 μ m + Gold Plated 0.05 μ m | |
| IX32G-B-8S-CVL2(7.0)(Note) | CL0251-0074-0-00 | Gold Plated 0.2 μ m | |
| IX32G-B-8S-CVL2(7.0)(01)(Note) | CL0251-0074-0-01 | Palladium-Nickel Plated 0.75 μ m + Gold Plated 0.05 μ m | |
| IX40G-A-10S-CVL2(7.0) | CL0251-0077-0-00 | Gold Plated 0.2 μ m | 100pcs per tray |
| IX40G-A-10S-CVL2(7.0)(01) | CL0251-0077-0-01 | Palladium-Nickel Plated 0.75 μ m + Gold Plated 0.05 μ m | |
| IX40G-B-10S-CVL2(7.0) | CL0251-0078-0-00 | Gold Plated 0.2 μ m | |
| IX40G-B-10S-CVL2(7.0)(01) | CL0251-0078-0-01 | Palladium-Nickel Plated 0.75 μ m + Gold Plated 0.05 μ m | |

Note : Cable assembly for IX32G is possible up to 8 positions.
 Contacts No. 3 and 8 do not have a hole to pass the wire though the IDC guide.

In-line Jack

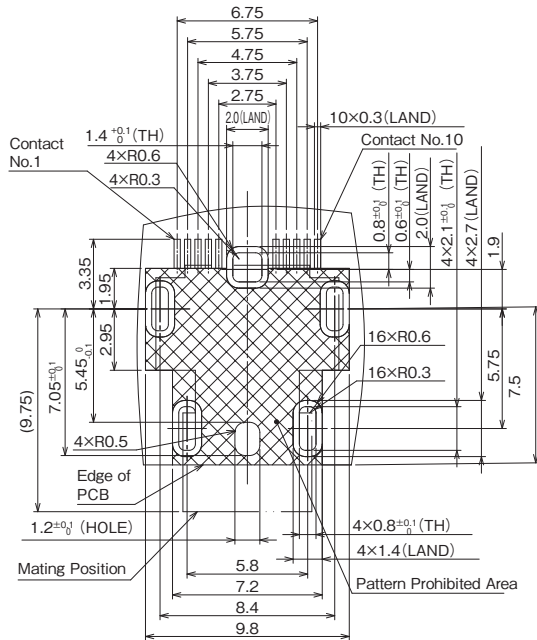


| Part No. | HRS No. | Contact Area Plating | Purchase Unit |
|-------------------------|------------------|---|-----------------|
| IX40G-A-10P-JC(7.0) | CL0251-0109-0-00 | Gold Plated 0.2 μ m | 100pcs per tray |
| IX40G-A-10P-JC(7.0)(01) | CL0251-0109-0-01 | Palladium-Nickel Plated 0.75 μ m + Gold Plated 0.05 μ m | |
| IX40G-B-10P-JC(7.0) | CL0251-0111-0-00 | Gold Plated 0.2 μ m | |
| IX40G-B-10P-JC(7.0)(01) | CL0251-0111-0-01 | Palladium-Nickel Plated 0.75 μ m + Gold Plated 0.05 μ m | |

Recommended Land Pattern Dimensions

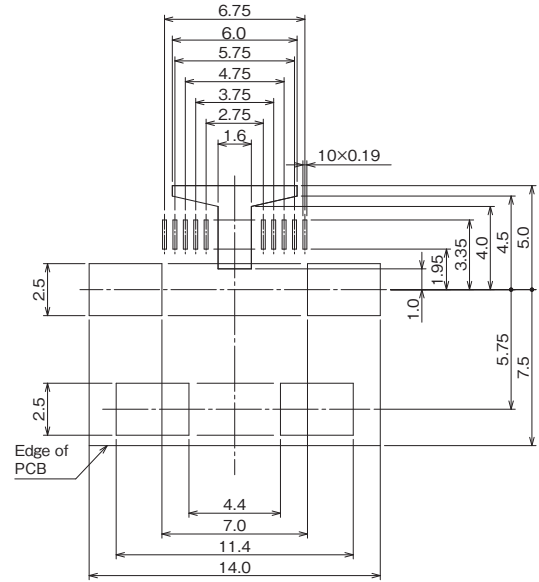
IX61G-#-10P

Reference Board Mounting Dimensions
(From Mounting Side) (t=1.6)



Note : Dimension tolerances not listed are ± 0.05 .

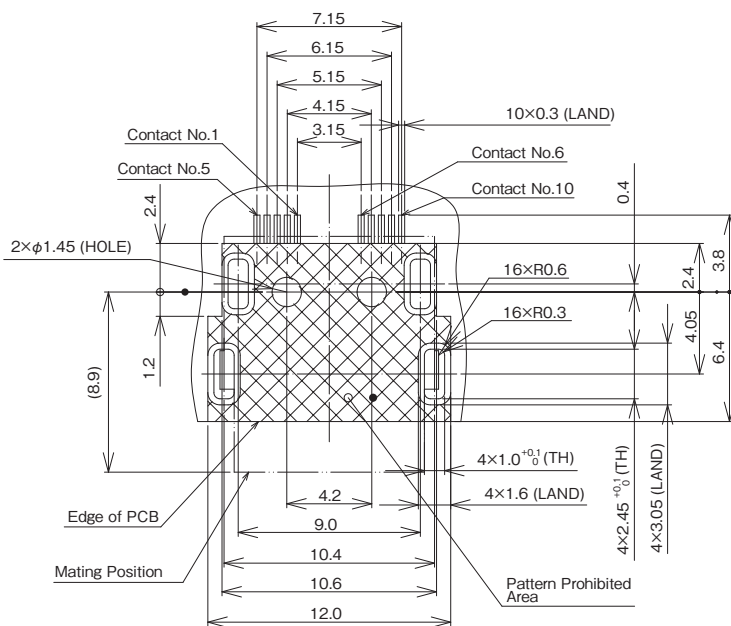
Recommended Metal Mask Pattern
(t=0.15)



Note : Dimension tolerances not listed are ± 0.02 .

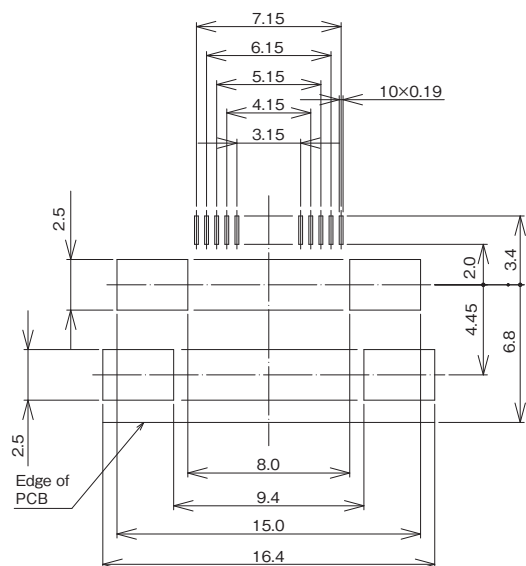
IX60G-#-10P

Reference Board Mounting Dimensions
(From Mounting Side) (t=1.6)



Note : Dimension tolerances not listed are ± 0.05 .

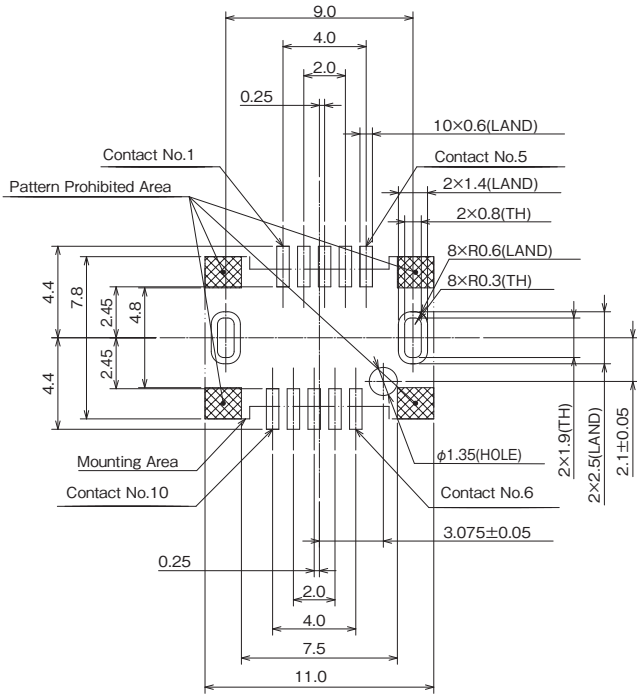
Recommended Metal Mask Pattern
(t=0.15)



Note : Dimension tolerances not listed are ± 0.02 .

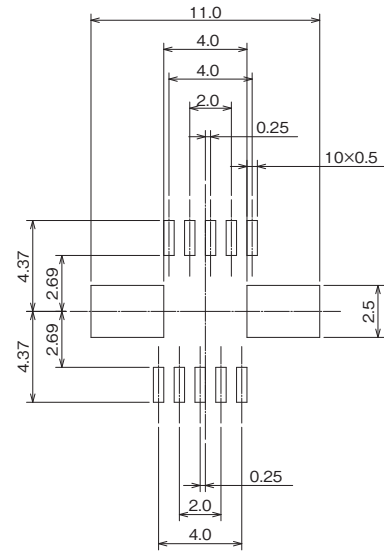
● IX80G-#-10P

Reference Board Mounting Dimensions
(From Mounting Side) (t=1.6)



Note : Dimension tolerances not listed are ± 0.05 .

Recommended Metal Mask Pattern
(t=0.15)

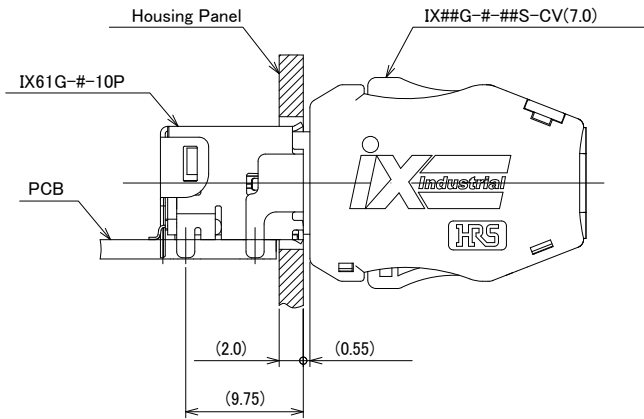


Note : Dimension tolerances not listed are ± 0.02 .

Panel Mounting Dimensions Diagram

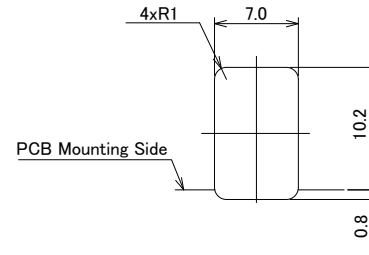
IX61G-#-10P

Mated Condition

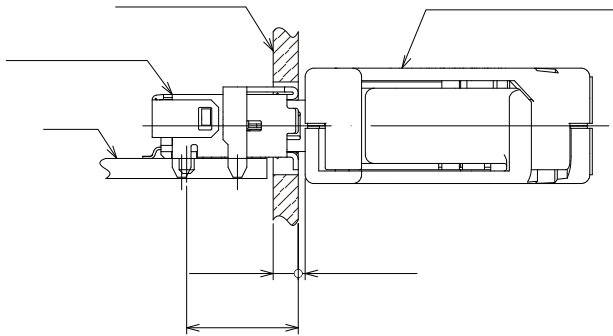


Reference Panel Cut-out Dimensions

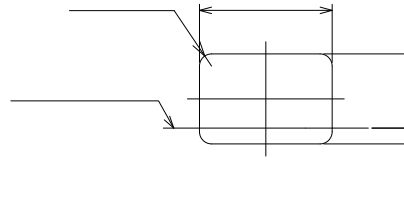
Note : Dimensions are for reference.



IX60G-#-10P

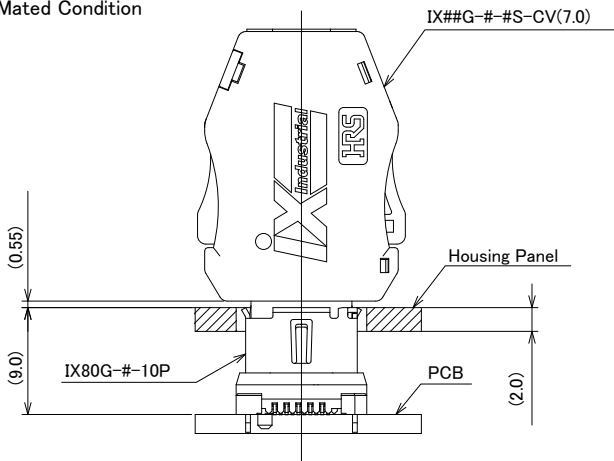


Reference Panel Cut-out Dimensions



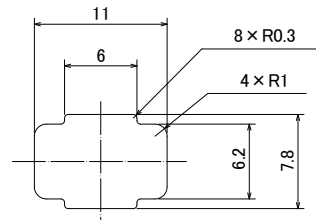
IX80G-#-10P

Mated Condition



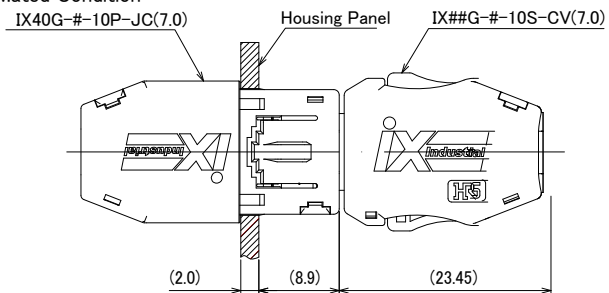
Reference Panel Cut-out Dimensions

Note : Dimensions are for reference.



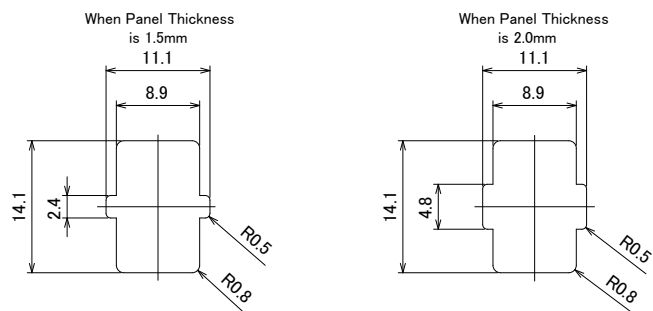
● IX40G-#-10P-JC

Mated Condition



Reference Panel Cut-out Dimensions

Note : Dimensions are for reference.



A chamfer of C0.1 is required in order to prevent scrapage to the cover case during panel installation. Number of panel installation can be used up to 10 times.

Cable Assembly Tools

| Part No. | HRS No. | Applicable Connector | Target Product |
|-----------------------|------------------|--|----------------|
| HT803/IXG-8/10S-63-72 | CL0902-2218-0-00 | IX##G-#-##S-CV(7.0)(##) | Straight Plug |
| HT803/IXG-10S-CVL-70 | CL0902-2223-0-00 | IX##G-#-##S-CVL1(7.0)(##) IX##G-#-##S-CVL2(7.0)(##) | Right Angle |
| HT803/IX40G-10P-JC70 | CL0902-2228-0-00 | IX40G-#-10P-JC(7.0)(##) | In-line Jack |

Adapter for Cabling Certification Testing

This adapter requires the DSX CableAnalyzer™ from Fluke Networks for use.

| Part No. | HRS No. |
|----------------|------------------|
| DSX-CHA-5-IX-S | CL0251-1001-0-00 |

(Note) DSX CableAnalyzer™ is a registered trademark of Fluke Networks.

Applicable Cables List

A list of applicable cables is available on the Hirose website.
(https://www.hirose.com/product/en/pr/ix_industrial/applicable_cable_list/)



While Taking into Consideration

Specifications mentioned in this catalog are reference values.
 When considering to order or use this product, please review the Drawing and Product Specifications sheets.
 Use an appropriate cable when using the connector in combination with cables.
 If considering usage of a non-specified cable, please contact your sales representative.
 If assembly process is done by jigs & tools which are not identified by Hirose, the warranty of the product may be affected.
 If considering usage for below mentioned applications, please contact your sales representative.
 In cases where the application will demand a high level of reliability, such as automotive, medical instruments, public infrastructure, aerospace/defense etc. Hirose must review before assurance of reliability can be given.