

# USB Type-C Connector

## CX Series



Note: Please contact us for TID acquisition status of each product.

### Overview

The CX series connector conforms to the next-generation USB standard "USB Type-C™". It is expected to be widely adopted as a standard interface in various devices in the consumer, industrial machinery and automobile market.

※"USB Type-C™" is a registered trademark of USB Implementers Forum, INC

### Features

#### 1. Easy mating due to the reversible form factor

The symmetrical design eliminates concern for backward insertion. You simply insert the plug in either directions.

#### 2. Conforms to the USB type-C standard

#### 3. USB 3.1 Gen2, 10Gbps high speed transmission

USB Type-C can transfer the data twice as fast compared to the conventional USB 3.0 (5Gbps), 10Gbps (Max.)

Also, if alternate mode is applied, it becomes possible to meet various video transmission standards such as MHL and Display Port.

#### 4. Clear tactile click (Excellent Retention)

CX series has a superior "click feel" when mating and is designed to prevent incomplete mating.

#### 5. Design with superior mechanical strength

#### 6. Plug: Slim overmold design

#### 7. Many varieties

Hybrid type (Mid-mount) : Easy for solder reworking

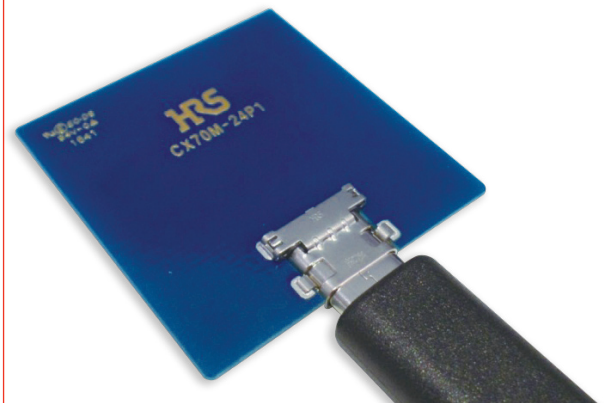
Double-row SMT (Top-mount) : Excellent for high-speed transmission

#### 8. RoHS compliant, halogen-free product

CX series is halogen-free product.

(Maximum content of Br, Cl and Br+Cl total are 900ppm, 900ppm and 1500ppm, respectively.)

Mid-mount



Top-mount



## Product Specifications

Ratings	Rated Current	DC 1.25A max. for each power pin (i.e. A1, A4, A9, A12, B1, B4, B5, B9, B12) DC 0.25A for the other pins	Rated Voltage	AC 20V
			Operating Temp. Range	-30°C~+85°C (Note 1)
			Storage Temp. Range	-10°C ~+60°C

Items	Specifications	Conditions
1. Contact resistance	40mΩ max.	Measured at 100mA (DC or 1000Hz)
2. Withstand voltage	No flashover or breakdown	100V AC / 1min.
3. Durability	Contact resistance : Increase by 10mΩ or less from the initial value	10,000 mating cycles
4. Overall insertion / Extraction forces	Insertion : 5~20N, Extraction : 8~20N	Measured with applicable connector

Note 1: Includes temperature rise caused by current flow.

Note 2: The above specifications are representative of this series.

Hirose does not guarantee specified performance when mating with other manufacturers' parts.

## Materials / Finish

### ● Receptacle

Parts	Materials	Color/Finish
Insulator	LCP or Polyamide	Black/UL94V-0
Contact	Copper alloy	Mating part : Gold flash plating over Nickel-palladium plating Mounting part : Gold flash plating
Ground-plate	Stainless steel	-
Mid plate	Stainless steel	Nickel plating
Shell	Stainless steel	Nickel plating

### ● Plug

Parts	Materials	Color/Finish
Insulator	LCP or Polyamide	Black/UL94V-0
Contact	Copper alloy	Mating part : Gold flash plating over Nickel-palladium plating Mounting part : Gold flash plating
Lock spring	Stainless steel	Nickel plating
Ground spring	Stainless steel	Nickel plating
Shield	Stainless steel	Nickel plating

※ This is a halogen-free product.

(Maximum content of Br, Cl and Br+Cl total are 900ppm and 1500ppm, respectively.)

Note: The above data is representative of this series. Data may vary according to specifications.

## 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

**CX 90 \* \* - \*\* \* \***  
 ① ② ③ ④ ⑤ ⑥ ⑦

### ● Plug

**CX 60 \*\* \* - UNIT**  
 ① ② ⑤ ⑥ ⑧

**CX 60 - SLDA**  
 ① ② ⑧

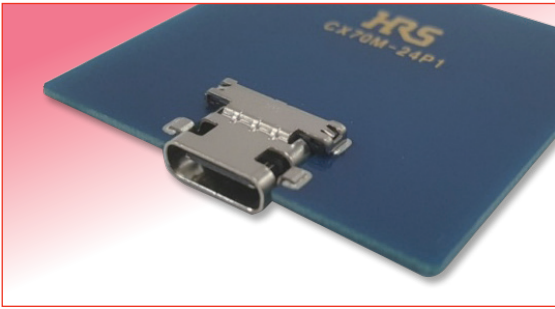
① Series name		CX
② Mounting type	60	Paddle Card (PCB wire soldering)
	70	Right angle Hybrid (SMT+DIP)
	90	Right angle SMT
③ Board mounting Style (Receptacle)	B	Top-mount
	M	Mid-mount
④ No. of serial		None or 1, 2, 3, ... (CX90 Series only)
⑤ No. of contact		24
⑥ Contact type	P	Receptacle (Male contacts)
	S	Plug (Female contacts)
⑦ No. of serial		None or 1,2,3,... (CX70 Series only)
⑧ Plug components	UNIT	Plug unit
	SLDA	Plug shell

## Product Variation

	Mounting Type		Product Name	3D Image	Size W x H x D (mm)	Page
Receptacle	Hybrid (SMT+DIP)	Mid-mount	CX70M-24P1		11.40x3.66x8.35	4 page
			CX70M-24P2		11.40x3.66x7.95	4 page
	Double-row (SMT)	Top-mount	CX90B1-24P		8.94x3.14x8.15	5 page
Plug	Paddle Card (PCB wire soldering)		Unit : CX60-24S-UNIT		8.25x2.40x11.10	5~6 page
			Plug Shell : CX60-SLDA		10.25x4.40x23.35	

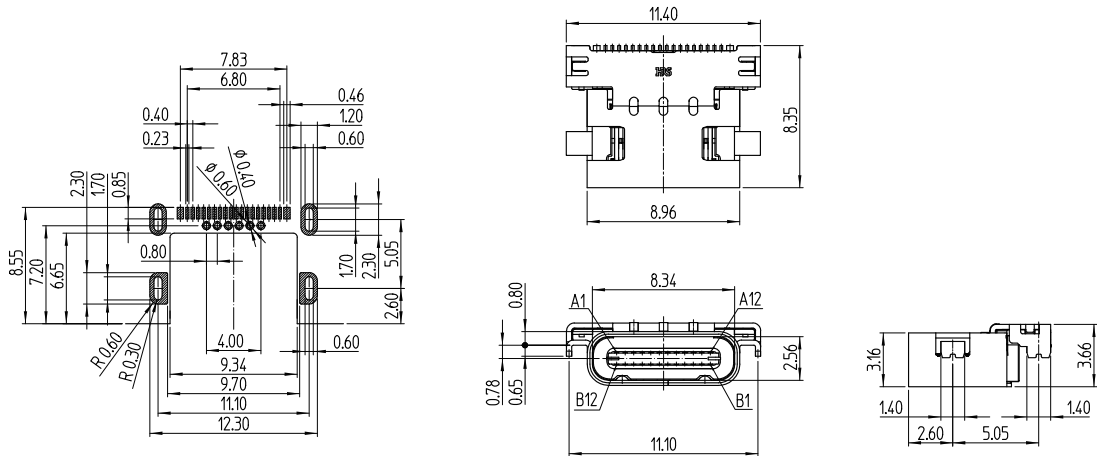
## ■ Receptacle

### ● Hybrid Type Mid-mount - Length 8.35mm



Part No.	HRS No.	Packaging
CX70M-24P1	480-0304-0 00	1,500pcs/Reel

### ◆ Recommended PCB layout (Component side)

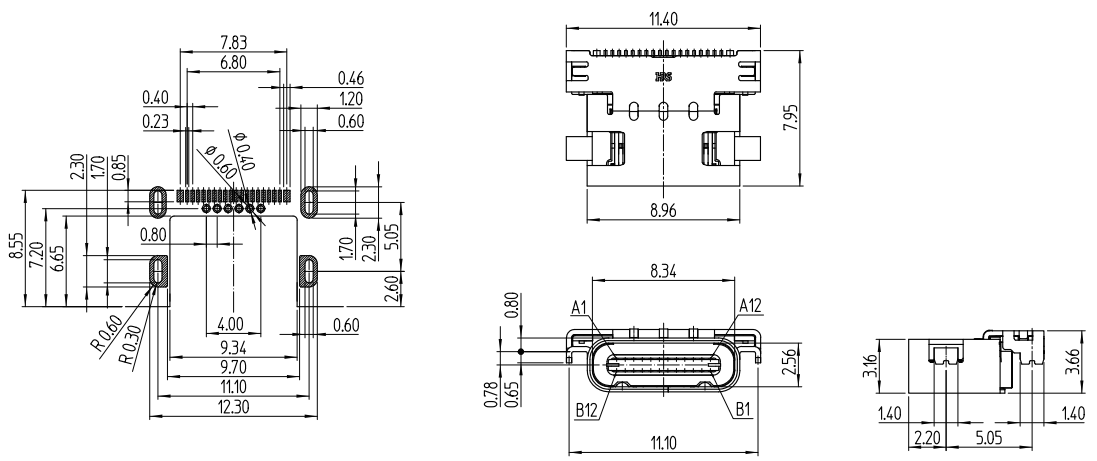


### ● Hybrid Type Mid-mount - Length 7.95mm



Part No.	HRS No.	Packaging
CX70M-24P2	480-0329-0 00	1,500pcs/Reel

### ◆ Recommended PCB layout (Component side)



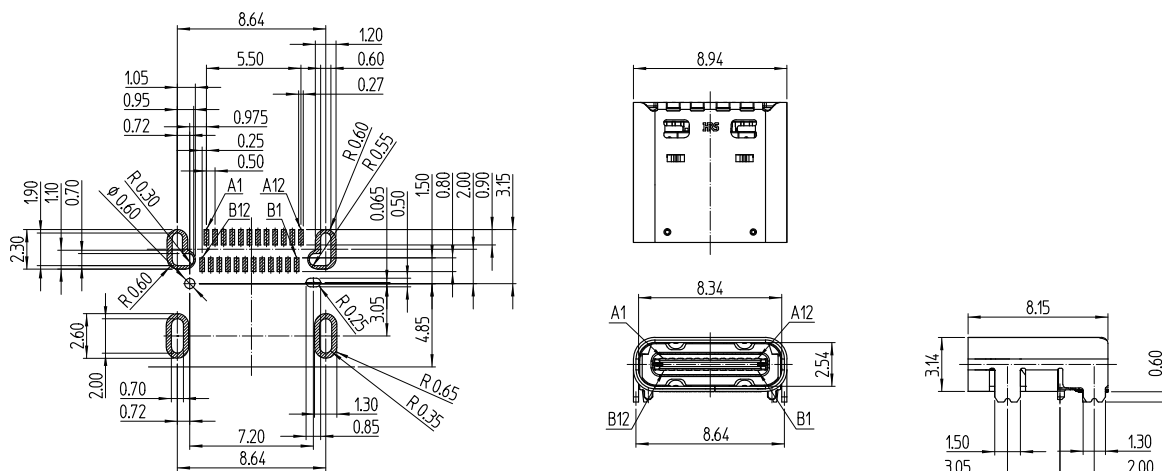
## ■ Receptacle

### ● Double-row type [Top-mount]



Part No.	HRS No.	Packaging
CX90B1-24P	480-0497-0 00	1,500pcs/Reel

### ◆ Recommended PCB layout (Component side)



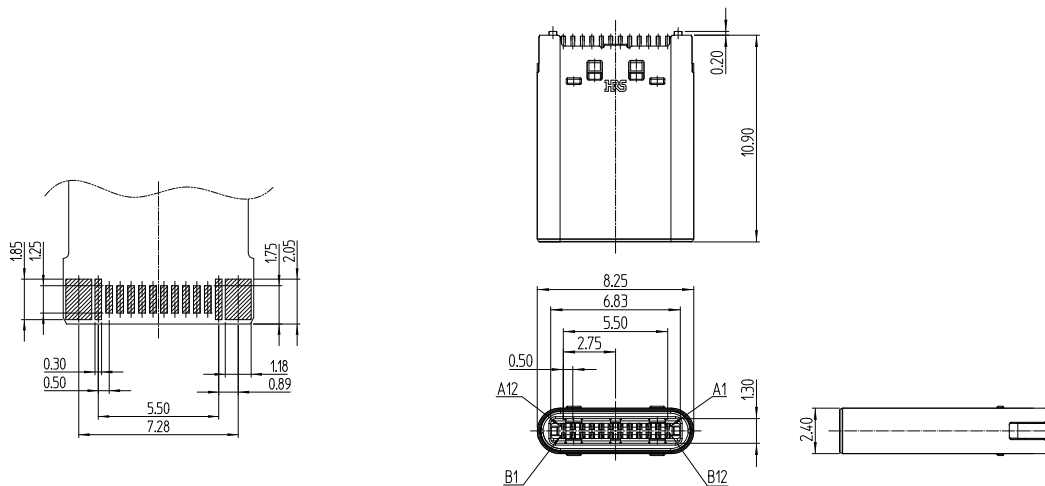
## ■ Plug

### ● Plug unit



Part No.	HRS No.	Packaging
CX60-24S-UNIT	480-0465-0 00	150pcs/Pack

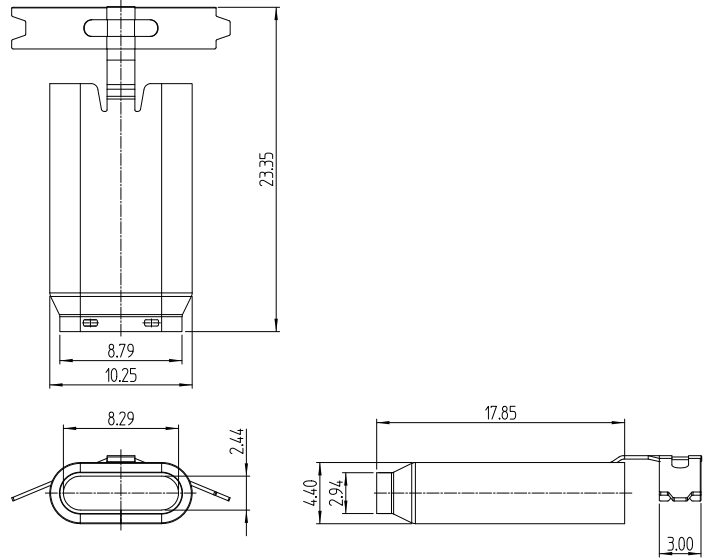
Note : Cable assembly instructions are separately available.



● Plug Shell



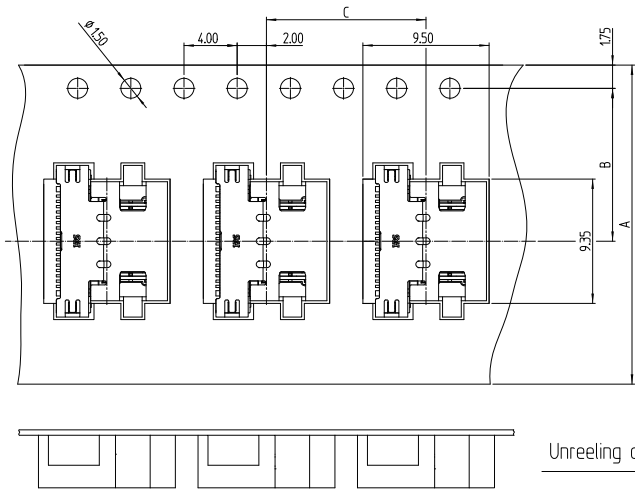
Part No.	HRS No.	Packaging	Cable diameter
CX60-SLDA	480-0522-0 00	3,000pcs/Reel	Φ4.8



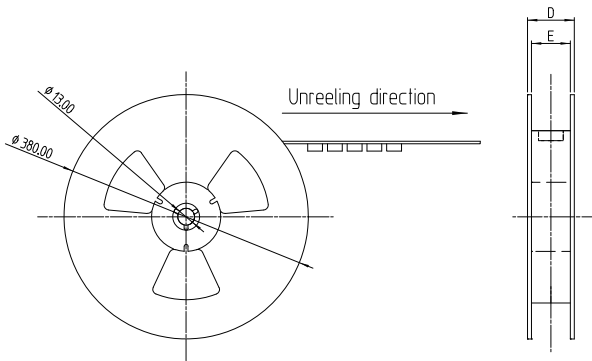
Parts	Plug assembly image
<p>[CX60-24S-UNIT]</p>	<p>[Assembled UNIT and SLDA]</p>
<p>[CX60-SLDA]</p>	<p>[Plug harness]</p>

◆ Packaging Specification (JIS C 0806-3 compliant)

● Emboss Carrier Tape Dimensions



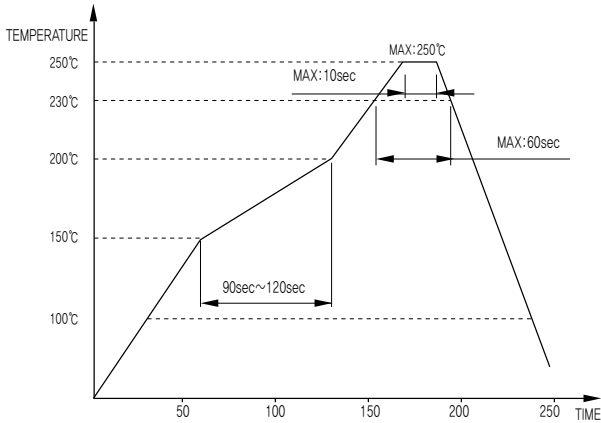
● Reel Dimensions



Part No.	A	B	C
CX70M-24P1	24	11.5	12
CX70M-24P2	24	11.5	12
CX90B1-24P	24	11.5	12

Part No.	D	E
CX70M-24P1	30	26
CX70M-24P2	30	26
CX90B1-24P	30	26

◆ Receptacle Recommended Solder Temperature Profile



The temperature profile is based on the left conditions. In individual applications the actual temperature may vary, depending on solder paste type, volume/thickness and board size/thickness. Contact your solder paste and equipment manufacturer for specific recommendations.

- Note 1 : Reflow is allowed up to 2times with the same conditions. Please allow the parts to return to the ambient temperature before the second run is started.
- Note 2 : The measured temperature is the temperature of the PCB surface around the connector leads.

◆ Precautions

1. Please handle connectors with care. Excessive external force may damage the connectors.
2. To extract the plug, hold the plug body itself and remove it straight away from the receptacle. Do not pull on the cable to extract the plug as this may damage the connector.
3. Due to the assembly process there may be some abrasions on the surface of the receptacle. This will not have a negative impact on the performance of the product.
4. Due to external variances, the plating appearance on the surface of the receptacles may differ from lot to lot. This difference will not affect the performance of this product.



**USA:**

**HIROSE ELECTRIC (U.S.A.), INC. HEADQUARTERS CHICAGO OFFICE**  
 2300 Warrenville Road, Suite 150,  
 Downers Grove, IL 60515  
 Phone : +1-630-282-6700  
<http://www.hirose.com/us/>

**USA:**

**HIROSE ELECTRIC (U.S.A.), INC. BOSTON OFFICE**  
 300 Brickstone Square Suite 201,  
 Andover, MA 01810  
 Phone : +1-978-662-5255

**GERMANY:**

**HIROSE ELECTRIC EUROPE B.V. NUREMBERG OFFICE**  
 Neumeyerstrasse 22-26, 90411 Nurnberg  
 Phone : +49-911 32 68 89 63  
 Fax : +49-911 32 68 89 69  
<http://www.hirose.com/eu/>

**UNITED KINGDOM:**

**HIROSE ELECTRIC EUROPE BV (UK BRANCH)**  
 4 Newton Court, Kelvin Drive, Knowlhill,  
 Milton Keynes, MK5 8NH  
 Phone : +44-1908 202050  
 Fax : +44-1908 202058  
<http://www.hirose.com/eu/>

**CHINA:**

**HIROSE ELECTRIC TECHNOLOGIES (SHENZHEN) CO., LTD.**  
 Room 09-13, 19/F, Office Tower Shun Hing Square, Di Wang Commercial Centre,  
 5002 Shen Nan Dong Road, Shenzhen City, Guangdong Province, 518008  
 Phone : +86-755-8207-0851  
 Fax : +86-755-8207-0873  
<http://www.hirose.com/cn/>

**KOREA:**

**HIROSE KOREA CO.,LTD.**  
 143, Gongdan 1-daero, Siheung-si,  
 Gyeonggi-do, 15084, Korea  
 Phone : +82-31-496-7000  
 Fax : +82-31-496-7100  
<http://www.hirose.co.kr/>

**INDIA:**

**HIROSE ELECTRIC SINGAPORE PTE. LTD. BANGALORE LIAISON OFFICE**  
 Unit No-403, 4th Floor, No-84, Barton Centre, Mahatma  
 Gandhi (MG) Road, Bangalore 560 001, Karnataka, India  
 Phone : +91-80-4120 1907  
 Fax : +91-80-4120 9908  
<http://www.hirose.com/sg/>

**USA:**

**HIROSE ELECTRIC (U.S.A.), INC. SAN JOSE OFFICE**  
 2841 Junction Ave, Suite 200  
 San Jose, CA. 95134  
 Phone : +1-408-253-9640  
 Fax : +1-408-253-9641  
<http://www.hirose.com/us/>

**THE NETHERLANDS:**

**HIROSE ELECTRIC EUROPE B.V.**  
 Hogehillweg #8 1101 CC Amsterdam Z-0  
 Phone : +31-20-6557460  
 Fax : +31-20-6557469  
<http://www.hirose.com/eu/>

**GERMANY:**

**HIROSE ELECTRIC EUROPE B.V. HANOVER OFFICE**  
 Bayernstr. 3, Haus C 30855 Langenhagen, Germany  
 Phone : +49-511 97 82 61 30  
 Fax : +49-511 97 82 61 35  
<http://www.hirose.com/eu/>

**CHINA:**

**HIROSE ELECTRIC (SHANGHAI) CO., LTD.**  
 18, Enterprise Center Tower 2, 209# Gong He  
 Road, Jing'an District, Shanghai, CHINA 200070  
 Phone : +86-21-6391-3355  
 Fax : +86-21-6391-3335  
<http://www.hirose.com/cn/>

**HONG KONG:**

**HIROSE ELECTRIC HONGKONG TRADING CO., LTD.**  
 Room 1001, West Wing, Tsim Sha Tsui Centre, 66  
 Mody Road, Tsim Sha Tsui East, Kowloon, Hong Kong  
 Phone : +852-2803-5338  
 Fax : +852-2591-6560  
<http://www.hirose.com/hk/>

**SINGAPORE:**

**HIROSE ELECTRIC SINGAPORE PTE. LTD.**  
 03, Anson Road, #20-01, Springleaf Tower,  
 Singapore 079909  
 Phone : +65-6324-6113  
 Fax : +65-6324-6123  
<http://www.hirose.com/sg/>

**MALAYSIA:**

**PENANG REPRESENTATIVE OFFICE**  
 73-3-1, Ideal@The One, Jalan Mahsuri, Bayan  
 Lepas Penang, 11950, Malaysia  
 Phone : +604-648-5536  
<http://www.hirose.com/sg/>

**USA:**

**HIROSE ELECTRIC (U.S.A.), INC. DETROIT OFFICE (AUTOMOTIVE)**  
 17197 N. Laurel Park Drive, Suite 253,  
 Livonia, MI 48152  
 Phone : +1-734-542-9963  
 Fax : +1-734-542-9964  
<http://www.hirose.com/us/>

**GERMANY:**

**HIROSE ELECTRIC EUROPE B.V. GERMAN BRANCH**  
 Schoenbergstr. 20, 73760 ostfildern  
 Phone : +49-711-456002-1  
 Fax : +49-711-456002-299  
<http://www.hirose.com/eu/>

**FRANCE:**

**HIROSE ELECTRIC EUROPE B.V. PARIS OFFICE**  
 130 Avenue Joseph Kessel, Bat E, 78960  
 Voisins le Bretonneux, France  
 Phone : +33-1-85764886  
 Fax : +33-1-85764823  
<http://www.hirose.com/eu/>

**CHINA:**

**HIROSE ELECTRIC (SHANGHAI) CO.,LTD. BEIJING BRANCH**  
 A1001, Ocean International Center, Building 56# East 4th  
 Ring Middle Road, ChaoYang District, Beijing, 100025  
 Phone : +86-10-5165-9332  
 Fax : +86-10-5908-1381  
<http://www.hirose.com/cn/>

**TAIWAN:**

**HIROSE ELECTRIC TAIWAN CO., LTD.**  
 103 8F, No.87, Zhengzhou Rd., Taipei  
 Phone : +886-2-2555-7377  
 Fax : +886-2-2555-7350  
<http://www.hirose.com/tw/>

**INDIA:**

**HIROSE ELECTRIC SINGAPORE PTE. LTD. DELHI LIAISON OFFICE**  
 Office NO.552, Regus-Green Boulevard, Level5, Tower C,  
 Sec62, Plot B-9A, Block B, Noida, 201301, Uttar Pradesh, India  
 Phone : +91-12-660-8018  
 Fax : +91-120-4804949  
<http://www.hirose.com/sg/>

**THAILAND:**

**BANGKOK OFFICE (REPRESENTATIVE OFFICE)**  
 Unit 4703, 47th FL., 1 Empire Tower, South Sathorn  
 Road, Yannawa, Sathorn, Bangkok 10120 Thailand  
 Phone : +66-2-686-1255  
 Fax : +66-2-686-3433  
<http://www.hirose.com/sg/>



**HIROSE ELECTRIC CO.,LTD.**

2-6-3,Nakagawa Chuoh,Tsuzuki-Ku,Yokohama-Shi 224-8540,JAPAN  
 TEL: +81-45-620-3526 Fax: +81-45-591-3726  
<http://www.hirose.com>  
<http://www.hirose-connectors.com>