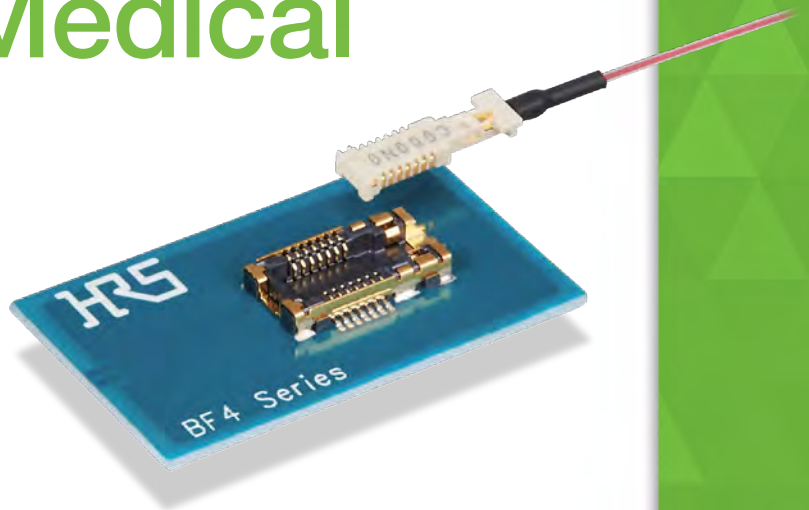




Connecting Medical Technology:

Innovative Connector
Solutions for Excellence



HRS HIROSE
ELECTRIC
AMERICAS

CONNECTING THE FUTURE

At Hirose, we craft connectors that define precision and reliability—essential tools for medical professionals globally.

With a strong global presence generating over \$1.5 billion in sales, our connectors are crucial in devices that monitor, diagnose, and save lives. Our legacy spans over 80 years, marked by a commitment to meet and exceed the medical industry's stringent standards for quality and performance.

Challenges in Medical Connector Design: High-Quality Imaging Solutions:

EMI-FREE TRANSMISSION: Our solutions ensure crystal-clear, uninterrupted imaging with high-speed optical transmission that eliminates electromagnetic interference.

DESIGN EFFICIENCY: Featuring flexible, low-profile connectors that are both energy-efficient and capable of operating over long distances, our products cater to the stringent demands of medical technology.

Technology Miniaturization Solutions:

BEST-IN-CLASS MICRO CONNECTORS: We lead with micro connectors that set the standard for compactness and functionality, allowing for technological advancement without spatial compromises.

EMI/RF Noise Mitigation Solutions:

SHIELDED RELIABILITY: Our connectors are designed to safeguard against electromagnetic interference, enhancing overall system reliability and ensuring continuous operation.

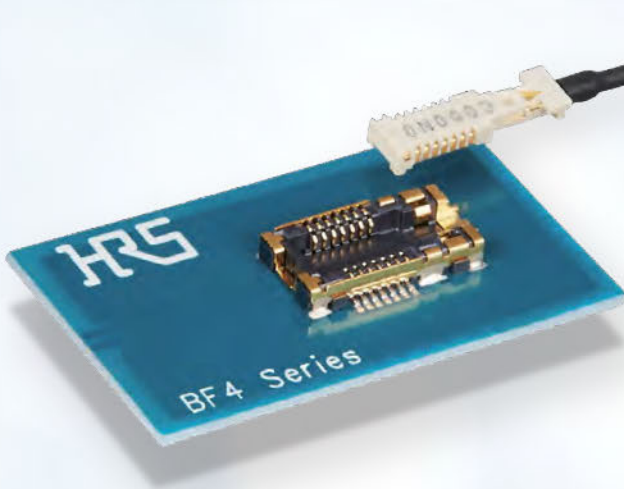


Compact, fast, and durable, our connectors are at the heart of advanced medical devices. They play a crucial role in various essential applications, **including MRI and CT systems, ultrasonography, endoscopes, patient monitors, and patient care equipment.**

At Hirose, we recognize the critical role our connectors play in healthcare. We are dedicated to delivering reliable solutions that healthcare professionals trust, ensuring that every connection promotes the health and safety of patients around the world.

Solution to Challenge #1: High-Quality Imaging

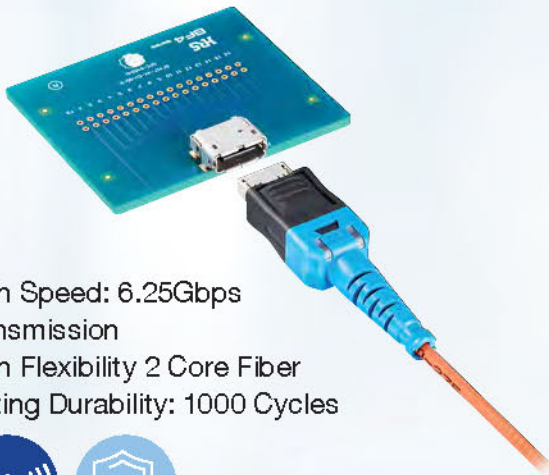
BF4M Series: High-Speed Active Optical Connector



- EMI-Free High-Speed Optical Transmission
- Low-Profile, Flexible Design
- Energy-Efficient Long-Distance Capability



BF4-IR2 Series: Bidirectional Transmission Active Interface Connector



- High Speed: 6.25Gbps Transmission
- High Flexibility 2 Core Fiber
- Mating Durability: 1000 Cycles



FJ Series: Ultra Slim In-Line Connector



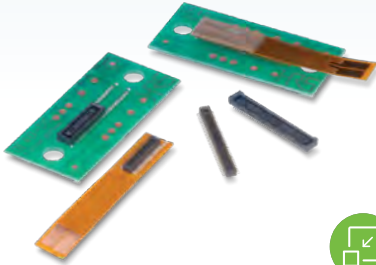
- Micro Ferrule Diameter of $\phi 0.8\text{mm}$
- Separated Housing Design for Narrow Spaces
- Bayonet Lock Keeps a Secure and Reliable Connection



Solution to Challenge #2: Technology Miniaturization

DF40 Series:

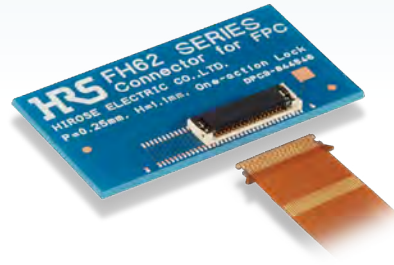
High-Speed, High-Precision Connector



- 0.4mm Pitch for Dense Layouts
- Variable Heights from 1.5 to 4.0mm
- USB4 Gen.2 (20Gbps) Compatible

FH62 Series:

Ultra-Fine Pitch FPC Connector

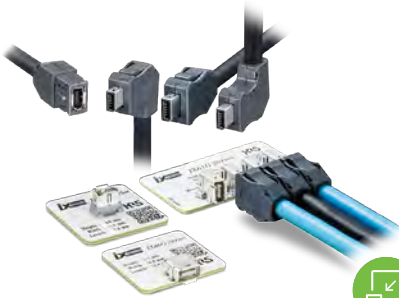


Space Saving Design:

- 0.25mm Pitch
- 1.1mm Height
- 4.0mm Width

IX Industrial Series:

Next-Gen Industrial Transmission Connector



- 75% Size Reduction Compared to RJ45
- Right Angle Receptacle Option: Height Reduction
- 10mm Pitch Parallel Mounting

DF62 Series:

Slim In-Line/THT Connector



- In-Line: Great for Wiring through Narrow Spaces
- Slim Design with Contacts In a Grid Arrangement
- Smooth Contour Avoids Wire Tangle
- No Metal Exposure: Avoids Accidental Conduction

HR30 Series:

Compact Waterproof Connector



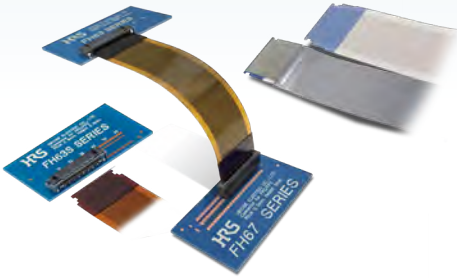
- Low-Profile, Lightweight Design
- Push/Pull Locking Mechanism
- Suited for Long-Term Outdoor Use



Solution to Challenge #3: The Existence of EMI/RF Noise

FH63S/FH67 Series:

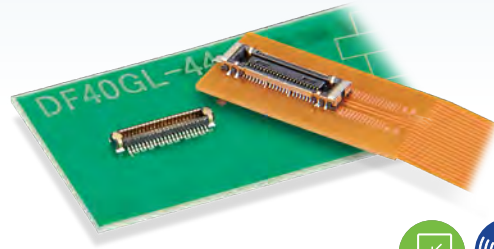
2-point Contact, 125 °C Compatible Flex Connectors



- Compatible with Shielded FFC for EMI Prevention
- One Action Lock Design for Easy Operation
- Vertical and Horizontal Flex Cable Insertion Direction

DF40GL Series:

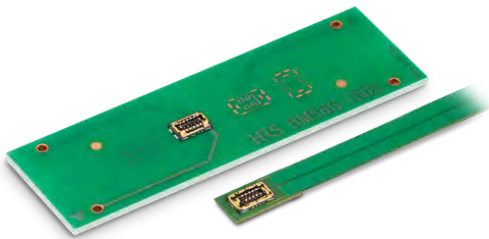
Shielded Board to Board/FPC Connector



- Excellent EMI Performance with Shielding & Grounding Design
- High Speed: Meets USB Type C & PCIe Gen 4 Standards
- Positive Lock with Blade Lock Design

BM56 Series:

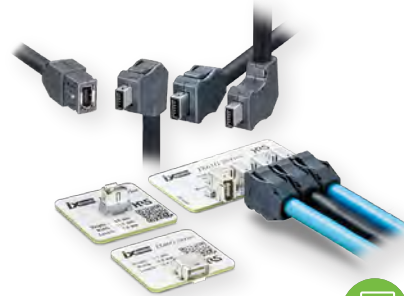
Ultra-Compact Multi-RF FPC-to-Board Connector



- 0.35mm Pitch for High-Density Mounting
- EMI Prevention with Superior RF Transmission
- Halogen-Free with Robust Mating Guides

IX Industrial Series:

Next-Gen Industrial Transmission Connector



- Superior Noise Resistance: Use Safely In Any Operating Environment
- Supports a Wide Range of Transmission Speeds
Cat. 6A (10Gbps/4Pairs) / Cat. 5e (1Gbps/4Pairs)

LF Series:

Compact, Waterproof Shielded Connector



- IP67/IP68 Waterproof, Bayonet Lock
- High-Speed Transmission with Robust Design
- Easy Assembly, Variety of Configurations





Connector	High Quality Imaging	Miniaturization	EMI/RF Noise Protection
LF			✓
DF40		✓	✓
IX Industrial		✓	✓
HR30		✓	
BF4M	✓	✓	✓
BM56		✓	✓
FH62		✓	
DF62		✓	
BF4-IR2	✓		✓
FJ	✓	✓	✓
FH63S/FH67			✓

HIROSE USA, MEDICAL CONNECTORS, QUICK REFERENCE SHEET

Series	Type	Contacts (Pins)	Pitch (mm)	Temp Range (°C)	Current (A/pin)	Voltage (V AC)	Speed (Gbps)	Termination	Features
BF4-IR2	Active Optical Interface	16	0.5	-10 to 60	-	-	0.05-6.25	SMT	Active Optical: Transmission: Converts Electrical Signal to Optical signal Receiving: Converts Optical Signal to Electrical Signal
BF4M	Active Optical Optical to Board	14	0.5	-10 to 60	-	-	0.05-6.25	SMT	Optical transmission achieved by a simplified electrical connection
BM56	Multi RF Compatible FPC	10	0.35	-55 to 85	1	30	10	SMT	Design Ideal for Both Digital and RF Signals
DF40	B to B/FPC	10-120	0.4	-55 to 85	0.3	50	10, 20	SMT	High Density Mounting Wide Stacking Height Variations High Contact Reliability Wide Self Alignment Range
DF40GL	Positive Lock, Shielded B to B/FPC	44	0.4	-55 to 85	0.35	30	16	SMT	Designed to not disengage during a drop test
DF62	Slim In-Line/THT Connectors	2-24	2.2	-35 to 105	4 Max	250	-	THT	Effective Connectivity in Tight Spaces Slim Design and Smooth Contour Secure Lock Mechanism
FH62	Fine Pitch FFC/FPC Connector	13-61	0.25	-55 to 85	0.3	30	-	SMT	Space-saving Design One Action Lock Design High FPC Retention Force
FH63/ FH67	One Action Locking FFC/FPC Connector	10-40	0.5	-55 to 125	0.5	50	-	SMT	One Action Lock Design, Two-Point Contact Prevents Dust Adhesion Low Insertion & High FPC Retention Force Half-Mating Detection Mechanism High Temperature Resistance EMI Countermeasure with Shielded FFC
FJ	Micro Ferrule Joint Connector for Optical In-Line	-	-	-40 to 85	-	-	-	-	Ultra Small Optical In-Line Connector Using Small ø0.8mm micro ferrule Separated Housing Design for Narrow Spaces Easy & Secure Bayonet Lock
HR30	Miniature Waterproof Plastic Connector	3-12	-	-25 to 85	5 Max	100V AC/ 140V DC Max.	1	THT	Small-Size with Low Profile Waterproof Construction Push/Pull Lock Light Weight
IX	Next Generation Industrial Transmission	8, 10	1	-40 to 85	3	50V AC/ 60V DC	10	Soldering, IDC	Small Size Breakage Prevention Superior Noise Resistance
LF	Shielded Small Waterproof Connector	3-20	-	-25 to 85	10A Max	125V AC/ 175V DC Max.	1	THT	Small, Robust Design Bayonet Lock Waterproof: IP67/IP68 Compliant (when mated) Easy Shielding Termination

For additional information please go to <https://www.hirose.com/product/industry/Medical>
Specifications herein are subject to change without notice. Contact Hirose for latest specifications, drawings, or availabilities.

CONNECTING THE FUTURE
MEDICAL INNOVATION



HIROSE Electric Americas
Headquarters Chicago
2001 Butterfield Road, Suite 1900,
Downers Grove, IL 60515
P: 630.282.6700 • F: 630.963.0507



San Jose Office
2841 Junction Ave, Suite 200,
San Jose, CA 95134, USA
P: 408.253.9640



Detroit Office
17197 Laurel Park Dr., Suite 253,
Livonia, MI 48152, USA
P: 734.542.9963



Boston Office
40 Shattuck Rd, Suite 215,
Andover, MA 01810, USA
P: 978.662.5255



Southern CA Office
7700 Irvine Center Drive, Suite 670,
Irvine, CA, 92618
P: 949.317.0562



Dallas Office
5550 Granite Parkway, Suite 255,
Plano, TX 75024, USA
P: 734.542.9963



Seattle Office
15809 Bear Creek Parkway, Suite 120,
Redmond, WA 98052
P: 206.379-8567



RoHS - We are committed to the development and manufacture of world-class products without sacrificing the health of people & the environment. Hirose manufactures products that are compliant with RoHS directives.



Tampa Office
1646 W Snow Avenue, Suite 281
Tampa, FL 33606
P: 857.270.8662



Scan the QR code for a digital brochure and additional information on Medical Connectors

Visit us at...

