

Applications



Automotive Power Steering



Powertrains



Agricultural Machinery



Vibration Absorb



High-Current



High Temp

Introducing Hirose's FX31 Series—a high-current, floating board-to-board connector engineered for internal power applications in automotive systems and related sectors such as agricultural machinery and construction equipment. With a 9.5 mm pitch, 20 mm stacking height, and a robust design, the FX31 supports 25A per pin at 800V AC/DC while absorbing vibration and compensating for misalignment (± 0.5 mm in X/Y and ± 1.5 mm in Z).

Its vibration-absorbing structure reduces movement at the engaged contact point by 0.05 mm in the Z direction, while heat resistance up to 125°C ensures long-term reliability in harsh environments. The FX31 is ideal for powertrain, ECU, and other in-vehicle systems requiring stable, high-power connectivity.

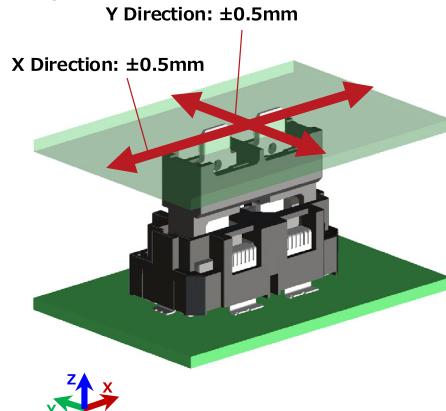
KEY BENEFITS OF THE FX31 SERIES INCLUDE:

- High current capacity: Supports up to 25A per pin and 800V AC/DC for demanding in-vehicle power distribution.
- Vibration resistance: Absorbs PCB amplitude by 0.05 mm in the Z direction.
- Floating structure: ± 0.5 mm tolerance in X/Y directions and ± 1.5 mm effective mating length in Z to compensate for misalignment.
- Heat resistance: Stable performance up to 125°C for high-temperature environments.

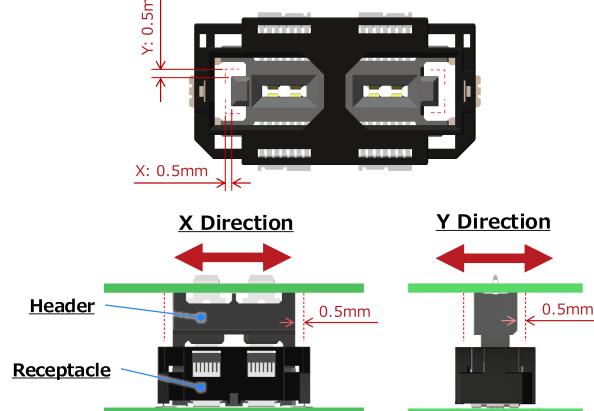


Floating Mechanism Absorbs PCB Misalignment (X and Y Directions)

± 0.5 mm Floating Range in the X and Y Direction



The inner housing of the receptacle is movable.



Floating mechanism on the receptacle side absorbs misalignment in the X and Y directions.

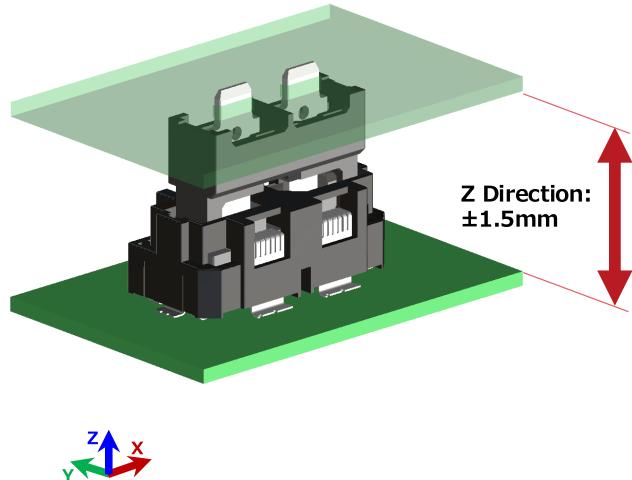
CLICK HERE
FOR MORE INFORMATION

CLICK HERE TO ORDER
SAMPLE NUMBER:
US-FX31SAMPLE-25

Effective Mating Length Absorbs Z-axis Misalignment

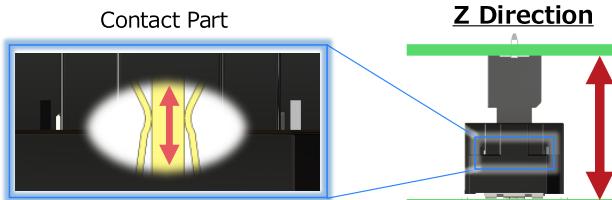
±1.5mm Effective Mating Length

When mounting to the PCB, Z direction displacement due to the outer case and misalignment due to PCB warpage can be absorbed.



Distance between PCBs
= $H \pm 1.5\text{mm}$ (Guaranteed Value)

H	Space between PCBs
20	18.5 to 21.5
25	23.5 to 26.5
30	28.5 to 31.5



The effective mating length allows for absorption of dimensional shifts between PCBs in the Z direction.

Specifications

Material and Finish

COMPONENT	MATERIAL	FINISH, REMARKS
Insulator	Polyamide Resin	Black, UL94V-0
Header Contact	Copper Alloy	Contacted Portion: Gold Plating Mounting Portion: Tin Plating
Receptacle Contact	Copper Alloy	Contacted Portion: Gold Plating Mounting Portion: Gold Plating
Retention Tab	Phosphor Bronze	Tin Plating

Performance Characteristics

Rated Current	25A/Pin*1
Rated Voltage	800V AC/DC*2
Operating Temperature	-40 to +125°C*3
Contact Resistance	2mΩ Max.
Withstanding Voltage	2,500V AC for 1 min.
Insulation Resistance	1,000MΩ Min. (1,000V DC)
Mating Durability	5 times

*1: For details, please see the derating curve.
*2: It is based on IEC 60664-1 Pollution degree 2.

*3: Includes temperature rise due to current flow.



For additional information please go to
<https://www.hirose.com/en/product/series/FX31>

Specifications herein are subject to change without notice.
Contact Hirose for latest specifications, drawings, or availabilities.

STAY CONNECTED

