

Rising Clamp Interface Terminal Block



AFR Series PRODUCT MANUAL

For your safety, read and follow the considerations written in the instruction manual, other manuals and Autonics website.

The specifications, dimensions, etc. are subject to change without notice for product improvement. Some models may be discontinued without notice.

Features

- Rising clamp type connection method offers easy and durable connection
- Space-saving design with 5 mm terminal pitch (compact size)
- Ideal for PLCs and motion device I/O
- DIN rail mount and screw mount installation
- ※ Autonics CH/CO series I/O terminal block cables are recommended for best performance.

Safety Considerations

- Observe all 'Safety Considerations' for safe and proper operation to avoid hazards.
- ⚠ symbol indicates caution due to special circumstances in which hazards may occur.

⚠ Warning Failure to follow instructions may result in serious injury or death.

01. Fail-safe device must be installed when using the unit with machinery that may cause serious injury or substantial economic loss. (e.g. nuclear power control, medical equipment, ships, vehicles, railways, aircraft, combustion apparatus, safety equipment, crime/disaster prevention devices, etc.)

Failure to follow this instruction may result in personal injury, economic loss or fire.

02. Do not use the unit in the place where flammable/explosive/corrosive gas, high humidity, direct sunlight, radiant heat, vibration, impact, or salinity may be present.

Failure to follow this instruction may result in explosion or fire.

03. Do not connect, repair, or inspect the unit, or remove connector while connected to a power source.

Failure to follow this instruction may result in fire or electric shock.

04. Do not disassemble or modify the unit.

Failure to follow this instruction may result in fire or electric shock.

⚠ Caution Failure to follow instructions may result in injury or product damage.

01. Use the unit within the rated specifications.

Failure to follow this instruction may result in fire or product damage.

02. Use dry cloth to clean the unit, and do not use water or organic solvent.

Failure to follow this instruction may result in fire or electric shock.

03. Keep the product away from metal chip, dust, and wire residue which flow into the unit.

Failure to follow this instruction may result in fire or product damage.

Cautions during Use

- Follow instructions in 'Cautions during Use'. Otherwise, it may cause unexpected accidents.
- Keep away from high voltage lines or power lines to prevent inductive noise. In case installing power line and input signal line closely, use line filter or varistor at power line and shielded wire at input signal line. Do not use near the equipment which generates strong magnetic force or high frequency noise.
- This unit may be used in the following environments.
 - Indoors (in the environment condition rated in 'Specifications')
 - Altitude max. 2,000 m
 - Pollution degree 2
 - Installation category II

Product Components

- Product
- Instruction manual

Sold Separately

- I/O cable CH/CO Series

Ordering Information

This is only for reference, the actual product does not support all combinations. For selecting the specified model, follow the Autonics website.

AFR - ① ② ③ - ④ ⑤

① **Connector type**
H: Hirose connector

② **Number of connector**
20: 20-pin
26: 26-pin
40: 40-pin
50: 50-pin

③ **Connector**
No-mark: HIF3BA, XG4A-2031, XG4A-2631
B: HIF3BB

④ **Indicator**
No-mark: no LED
L: LED equipped

⑤ **Input logic**
No-mark: None
N: NPN
P: PNP

Specifications

Model	AFR-H20	AFR-H26	AFR-H40	AFR-H50	AFR-H50B
No. of connector pins	20	26	40	50	50
No. of terminal points	20	26	40	50	50
Terminal type	Rising Clamp	Rising Clamp	Rising Clamp	Rising Clamp	Rising Clamp
Terminal pitch	5.0 mm	5.0 mm	5.0 mm	5.0 mm	5.0 mm
Connector for controller side	20-pin Omron (XG4A-2031)	26-pin Omron (XG4A-2631)	40-pin Hirose (HIF3BA-40PA-54DSA)	50-pin Hirose (HIF3BA-50PA-2.54DSA)	50-pin Hirose (HIF3BB-50PA-2.54DSA)
Material	Case, Base: PC	Case, Base: PC	Case, Base: PC	Case, Base: PC	Case, Base: PC
Approval	CE UK ENEC ETL	CE UK ENEC ETL	CE UK ENEC ETL	CE UK ENEC ETL	CE UK ENEC ETL
Unit weight (packaged)	≈ 61 g (≈ 98.7 g)	≈ 78 g (≈ 107 g)	≈ 116 g (≈ 183 g)	≈ 143 g (≈ 210 g)	≈ 143 g (≈ 210 g)

Model	AFR-H20-LN, AFR-H20-LP	AFR-H40-LN, AFR-H40-LP
No. of connector pins	20	40
No. of terminal points	16 ⁰¹⁾	32 ⁰²⁾
Terminal type	Rising Clamp	Rising Clamp
Terminal pitch	5.0 mm	5.0 mm
Connector for controller side	20-pin Omron (XG4A-2031)	40-pin Hirose (HIF3BA-40PA-2.54DSA)
Input logic	NPN / PNP model	
Indicator	Power indicator: red, operation indicator: blue	
Material	Case, Base: PC	
Approval	CE UK ENEC ETL	CE UK ENEC ETL
Unit weight (packaged)	≈ 61.1 g (≈ 98.8 g)	≈ 118 g (≈ 188 g)

01) Four terminals among twenty terminals are used for LED power.

02) Eight terminals among forty terminals are used for LED power or N.C (Not Connected) terminals.

Rated voltage ⁰¹⁾	Basic model: ≤ 125 VDC≐, 125 VAC~ 50/60 Hz Indicator equipped model: ≤ 24 VDC≐ ± 10%
Rated current	≤ 1 A
Insulation resistance	≥ 1,000 MΩ (500 VDC≐ megger)
Dielectric strength	2,700 VAC~ 50/60 Hz for 1 minute
Vibration	0.75 mm amplitude at frequency of 10 to 55 Hz in each X, Y, Z direction for 2 hours
Vibration (malfunction)	0.75 mm amplitude at frequency of 10 to 55 Hz in each X, Y, Z direction for 10 minutes
Shock	150 m/s ² (≈ 15 G) in each X, Y, Z direction for 3 times
Shock (malfunction)	100 m/s ² (≈ 10 G) in each X, Y, Z direction for 3 times
Ambient temperature	-15 to 55 °C, storage: -25 to 65 °C (no freezing or condensation)
Ambient humidity	35 to 85 %RH, storage: 35 to 85 %RH (no freezing or condensation)
Protection structure	IP20 (IEC standard)

01) When connecting loads to output part, connect loads of same power type. Connecting loads of different power type may cause safety issues.

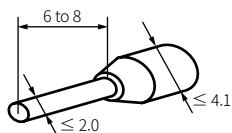
Applicable wire - solid ⁰¹⁾	∅ 0.3 to 1.2 mm
Applicable wire - stranded ^{01) 02)}	AWG 22-16 (0.30 to 1.25 mm ²)
Wire ferrule connection tensile strength	≥ 30 N
Stripped length	6 to 8 mm

01) Use the cable of copper conductor in 60 °C temperature class.

02) When using the stranded wire, use End Sleeve (wire ferrule).

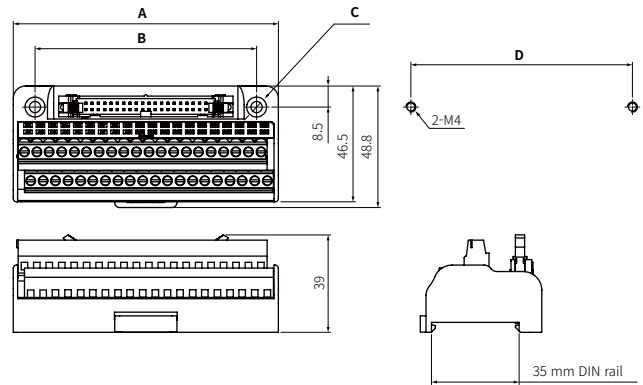
Wire Ferrule Specifications

• Unit: mm, Use the UL approved wire ferrule.



Dimensions

• Unit: mm, For the detailed dimensions of the product, follow the Autonics web site.



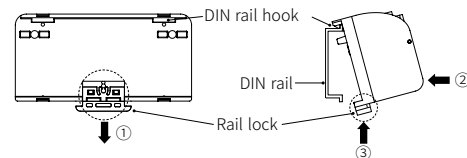
	A	B	C	D
20-pin	57.5	53	2-∅4.2	53
26-pin	72.5	64	2-∅4.2	64
40-pin	106.5	89	2-∅4.5	89
50-pin	131.5	102	2-∅4.5	102

Installation

■ DIN RAIL

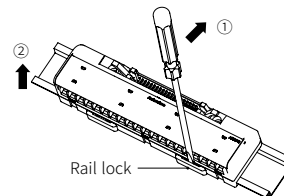
• Mounting

1. Pull the Rail lock on the rear of the product to the direction ①.
2. Hang DIN rail hook on the rear of the product onto DIN rail.
3. Push the product to the direction ②, and push the Rail lock to the direction ③ to fix onto the DIN rail.



• Removing

1. Insert a tool such as screwdriver into the hole of Rail lock.
2. Push the tool to the direction ① and pull the Rail lock.
3. Lift bottom of the product to the direction ② and remove the product from DIN rail.



■ Panel

Product with the mounting hole can be installed on panel with screw.

It is recommended to use M4 × 25 mm of spring washer screws.

If you use flat washer, its diameter should be ∅ 8 mm.

Tighten the screw with the tightening torque of 0.7 to 1.0 N·m.



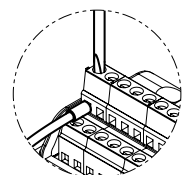
Wiring

• Connecting

1. Loosen the rising clamp screw above the terminal in a counter clock wise direction, using the (-) screwdriver.
2. Insert the wire ferrule into the terminal hole.
3. Tighten the rising clamp screw above the terminal in a clock wise direction, using the (-) screwdriver. Tightening torque is 0.4 to 0.6 N·m.

• Removing

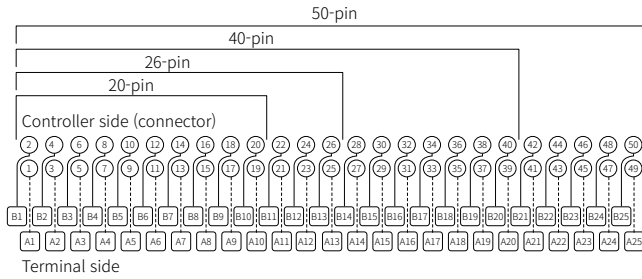
1. Loosen the rising clamp screw above the terminal in a counter clock wise direction, using the (-) screwdriver.
2. Pull the cable to disassemble.



Wire Connection

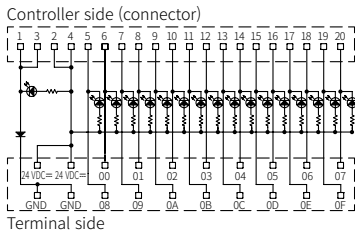
■ Wire connection

- Basic model

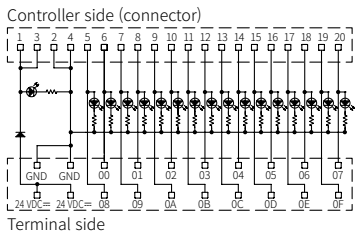


- Indicator equipped model

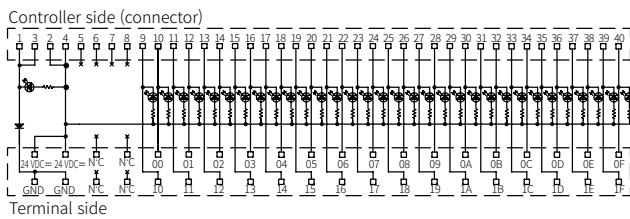
20-pin NPN model



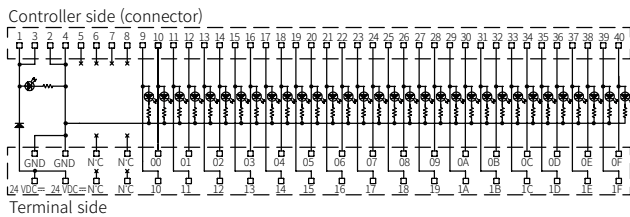
20-pin PNP model



40-pin NPN model



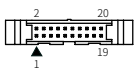
40-pin PNP model



■ Hirose connector pin arrangement

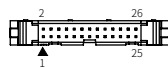
- 20-pin connector

Omron (XG4A-2031)



- 26-pin connector

Omron (XG4A-2631)



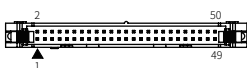
- 40-pin connector

Hirose (HIF3BA-40PA-2.54DSA)



- 50-pin connector

Hirose (HIF3BA-50PA-2.54DSA)



- 50-pin connector

Hirose (HIF3BB-50PA-2.54DSA)

