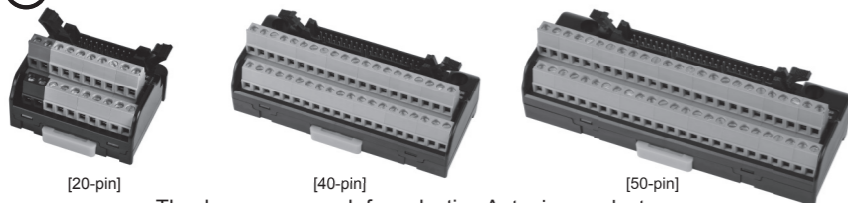


# Autonics INTERFACE TERMINAL BLOCK AFR Series INSTRUCTION MANUAL



Thank you very much for selecting Autonics products.  
For your safety, please read the following before using.

## ■ Safety Considerations

※Please observe all safety considerations for safe and proper product operation to avoid hazards.

※Safety considerations are categorized as follows.

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

▲Caution Failure to follow these instructions may result in personal injury or product damage.

※The symbols used on the product and instruction manual represent the following  
▲symbol represents caution due to special circumstances in which hazards may occur.

### ▲ Warning

1. 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.)
2. Do not repair, or inspect the unit while connected to a power source.
3. Do not use the unit where flammable or explosive gas, humidity, direct sunlight, radiant heat, vibration, or impact may be present.
4. Do not disassemble or modify the unit. Please contact us if necessary.

### ▲ Caution

1. Do not use the unit outdoors.
2. Use the unit within the rated specifications.
3. Do not use water or oil-based detergent when cleaning the unit. Use dry cloth to clean the unit.
4. Keep dust and wire residue from flowing into the unit.

## ■ Précautions pour la sécurité

※Après avoir lu ce guide, s'il vous plaît, placez-le dans un lieu où vous pouvez récemment le trouver.

※S'il vous plaît suivre les conseils suivants pour la sécurité.

▲Avertissement L'inaccomplissement des instructions peut provoquer des blessures graves.

▲Précaution Le produit peut être endommagé ou de provoquer des blessures si les consignes ne sont pas respectées.

※La signification des icônes utilisées dans le produit et le manuel sont les suivants:

▲Précaution: Blessure ou danger peuvent se produire dans des conditions particulières.

### ▲ Avertissement

1. Utilisez le produit seulement après avoir relié un double dispositif de sécurité pour les instruments qui ont un grand effet pour le corps humain et la propriété, comme sont les dispositifs d'énergie atomique, mets en oeuvre Médecine, de véhicules, Rails, aéronefs, Brûleurs ou produits de sécurité.
2. Ne pas réparer ou vérifier le produit tout alimenté.
3. Utilisez le produit avec l'environnement comme il est décrit dans le manuel. Évitez le lieu d'émission de gaz corrosifs, gaz inflammables, incorporation température, haute humidité, vibrations, choc, etc.
4. Ne pas démonter et modifier cet appareil. S'il vous plaît nous contacter si cela est nécessaire.

### ▲ Précaution

1. Cette unité ne doit pas être utilisé à l'extérieur.
2. S'il vous plaît respecter les spécifications nominales.
3. Dans nettoyer l'appareil, n'utilisez pas d'eau ou de solvants organiques. Et utiliser un chiffon sec.
4. Ne pas laisser de poussière pénétrer l'unité.

## ■ Ordering Information

AF	R	H	40	L	N	Input logic
						Operation indicator
						Connector
						No. of connector pins
						Connector type
						Terminal type
						Item

No-mark	None
N	NPN
P	PNP
No-mark	None
L	LED indicator
No-mark	HIF3BA, XG4A-2031 <sup>※1</sup>
B	HIF3BB
20	20-pin
40	40-pin
50	50-pin
H	Hirose
R	Rising clamp
AF	Interface terminal block

※1: Omron connector, XG4A-2031, is available only for AFR-H20(-LN(P)) model.

## ■ Crimp Terminal Specifications

	A	B	C	Applicable wire
End Sleeve (ferrule terminal) crimp terminal	6.0 to 8.0	Max. 2.0	Max. 4.1	AWG22-16 (0.30 to 1.25mm <sup>2</sup> )

※Please use UL certified crimp terminals.

※The above specifications are subject to change and some models may be discontinued without notice.

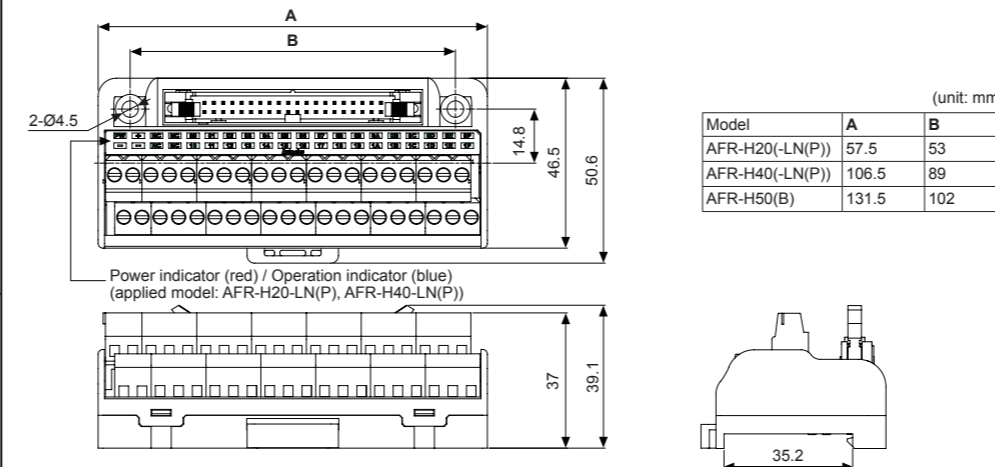
## ■ Specifications

Model	AFR-H20	AFR-H40	AFR-H50	AFR-H50B	AFR-H20-LN AFR-H20-LP	AFR-H40-LN AFR-H40-LP
Power supply	Max. 125VDC, 125VAC 50/60Hz <sup>※1</sup>				24VDC ±10%	
Rated current	Max. 1A					
Terminal type	Rising clamp					
No. of terminals	20	40	50		16 <sup>※2</sup>	32 <sup>※3</sup>
Terminal pitch	5.0mm					
Connector type	XG4A-2031	HIF3BA		HIF3BB	XG4A-2031	HIF3BA
Indicator	—				Power indicator: Red LED Operation indicator: Blue LED	
Applicable wire	Solid wire Ø0.3 to Ø1.2mm Stranded wire <sup>※4</sup> AWG22-16 (0.30 to 1.25mm <sup>2</sup> )					
Stripped wire length	6 to 8mm					
Insulation resistance	Min. 1,000MΩ (at 500VDC megger)					
Dielectric strength	600VAC 50/60Hz for 1 minute					
Vibration	0.75mm amplitude at frequency of 10 to 55Hz (for 1 min) in each of X, Y, Z directions for 2 hours					
Shock	150m/s <sup>2</sup> (approx. 15G) in each of X, Y, Z directions for 3 times					
Environment	Ambient temp. -15 to 55°C, storage: -25 to 65°C Ambient humi. 35 to 85%RH, storage: 35 to 85%RH					
Material	CASE: Polycarbonate, BASE: Polycarbonate					
Tightening torque	4.08 to 6.1 kgf-cm (0.4 to 0.6N-m)					
Protection structure	IP20 (IEC standard)					
Approval	CE					
Weight <sup>※5</sup>	Approx. 98.7g (approx. 61g)	Approx. 183g (approx. 116g)	Approx. 210g (approx. 143g)		Approx. 98.8g (approx. 61.1g)	Approx. 188g (approx. 118g)

- ※1: Please connect to a load using the same power supply. Connecting to a load from a different power supply may cause safety issues.  
 ※2: Among 20 terminals, 16 terminals are available for I/O and 4 terminals are LED power.  
 ※3: Among 40 terminals, 32 terminals are available for I/O and 8 terminals are LED power and N-C (Not Connect) terminals.  
 ※4: When using stranded wire, use End Sleeve (ferrule terminal) crimp terminals.  
 ※5: The weight includes packaging. The weight in parentheses is for unit only.  
 ※Environment resistance is rated at no freezing or condensation.

## ■ Dimensions

### ● AFR-H20(-LN(P)) / AFR-H40(-LN(P)) / AFR-H50(B)



## ■ Connecting Crimp Terminals

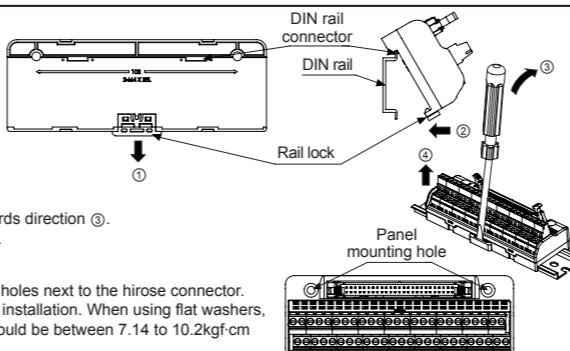
### ● Connecting and Removal end sleeve (ferrule terminal) crimp terminal at rising clamp type terminal block

- Connection
- 1) Insert a flat-head screw driver into the hole above the terminal. Rotate the screw in direction ① (CCW).
  - 2) Push the end sleeve (ferrule) crimp terminal towards direction ②.
  - 3) Insert a flat-head screw driver into the hole above the terminal. Rotate the screw in direction ③ (CW). The tightening torque should be between 4.08 to 6.1kgf-cm (0.4 to 0.6N-m).
- Removal
- 1) Insert a flat-head screw driver into the hole above the terminal. Rotate the screw in direction ① (CCW).
  - 2) Remove the end sleeve (ferrule crimp terminal) towards direction ④.

## ■ Installation

### 1. Mounting to and removal from DIN rail.

- Mounting
- 1) Pull the rail lock towards direction ①.
  - 2) Attach the DIN rail connection hook onto the DIN rail.
  - 3) Push the unit down to the ② direction and then push up the rail lock to the unit body.
- Removal
- 1) Insert a screwdriver into hole of rail lock and pull it towards direction ③.
  - 2) Remove the unit by pulling the unit towards direction ④.



### 2. Mounting with screws

- 1) The unit can be mounted on panels using the mounting holes next to the Hirose connector.
- 2) M4×25mm spring washer screws are recommended for installation. When using flat washers, use Ø8mm diameter washers. The tightening torque should be between 7.14 to 10.2kgf-cm (0.7 to 1.0N-m).

## ■ Caution During Use

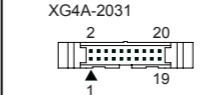
1. Use the unit within the rated environment of specification.
2. Supply power within the rated allowable voltage range.
3. Check the polarity of power before connecting PLC or other controllers.
4. When connecting the power input, use Solid wire: Ø0.3 to Ø1.2mm, Stranded wire: AWG22-16 (0.30 to 1.25mm<sup>2</sup>). For using crimp terminals, refer to "Crimp Terminal Specifications".
5. Do not connect wire or remove connector while connected to a power source.
6. Do not use the unit at below places.
  - ① Environments with high vibration or shock.
  - ② Environments where strong alkalis or acids are used.
  - ③ Environments with exposure to direct sunlight.
  - ④ Near machinery which produce strong magnetic force or electric noise
7. This unit may be used in the following environments.
  - ① It shall be used indoor
  - ② Altitude Max. 2,000m
  - ③ Pollution Degree 2
  - ④ Installation Category II

※Failure to follow these instructions may result in product damage.

## ■ Connections

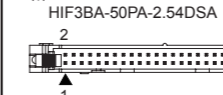
### ● AFR-H20 / AFR-H20-LN(P)

※Omron connector model: XG4A-2031



### ● AFR-H50

※Hirose connector model: HIF3BA-50PA-2.54DSA



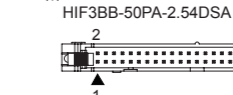
### ● AFR-H40 / AFR-H40-LN(P)

※Hirose connector model: HIF3BA-40PA-2.54DSA



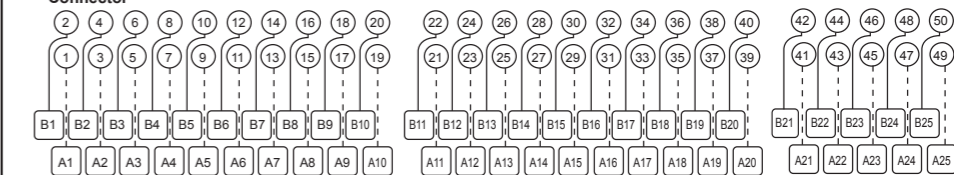
### ● AFR-H50B

※Hirose connector model: HIF3BB-50PA-2.54DSA



### ● AFR-H20 / AFR-H40 / AFR-H50(B)

#### Connector

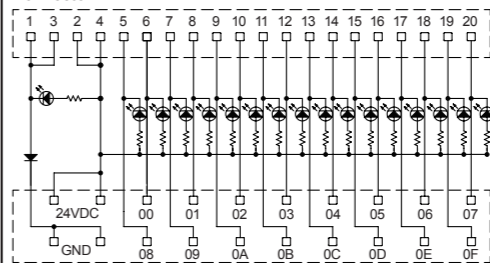


#### Terminal block



### ● AFR-H20-LN

#### Connector

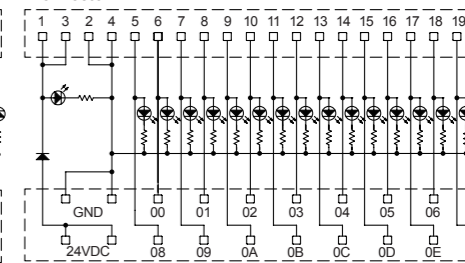


#### Terminal block



### ● AFR-H20-LP

#### Connector

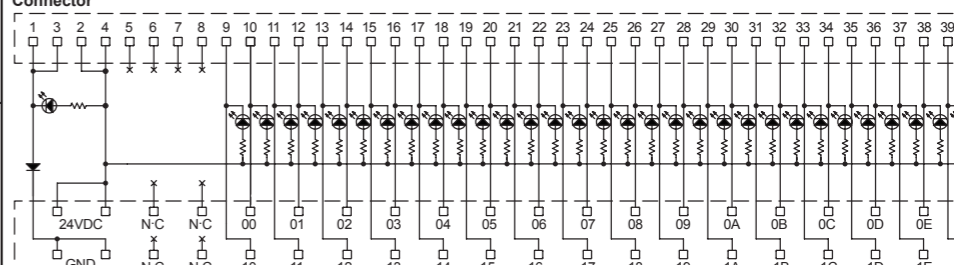


#### Terminal block



### ● AFR-H40-LN

#### Connector

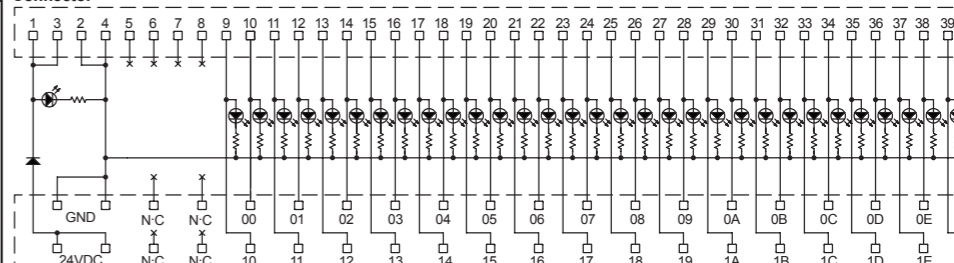


#### Terminal block

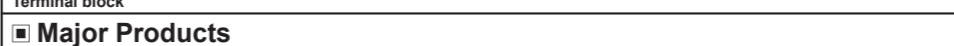


### ● AFR-H40-LP

#### Connector



#### Terminal block



## ■ Major Products

- Photoelectric sensors
- Fiber optic sensors
- Door sensors
- Door side sensors
- Area sensors
- Proximity sensors
- Pressure sensors
- Rotary encoders
- Connector/Sockets
- Switching mode power supplies
- Control switches/Lamps/Buzzers
- I/O Terminal Blocks & Cables
- Stepper motors/drivers/motion controllers
- Graphic/Logic panels
- Field network devices
- Laser marking system (Fiber, CO<sub>2</sub>, Nd:YAG)
- Laser welding/cutting system
- Temperature controllers
- Temperature/Humidity transducers
- SSRs/Power controllers
- Counters
- Timers
- Panel meters
- Tachometer/Pulse (Rate)meters
- Display units
- Sensor controllers

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