Autonics

SENSOR CONNECTOR TERMINAL BLOCK

AFE Series

M A N U A L

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

▣ Caution for your safety

※Please keep these instructions and review them before using this unit.

※Please observe the following for safety.
⚠**Warning** Serious injury may result if instructions are not followed.
⚠**Caution** Product may be damaged, or injury may result if instructions are not followed.

※The following is an explanation of the symbols used in the operation manual.
⚠ Caution: Injury or danger may occur under special conditions.

⚠Warning

1. **In case of using this unit with machinery (Ex: nuclear power control, medical equipment, ship, vehicle, train, airplane, combustion apparatus, safety device, crime/ disaster prevention equipment, etc) which may cause damages to human life or property, it is required to install fail-safe device.**
   It may cause a fire, human injury or damage to property.
2. **Do not repair or check units during power on.**
   It may cause a fire or electric shock.
3. **Do not use this unit in place where there are flammable or explosive gas, humidity, direct ray of the sun, radiant heat, vibration, impact etc.**
   It may cause a fire or explosion.
4. **Do not disassemble and modify this unit. Please contact us if it is required.**
   It may cause a fire, electric shock, or damage to the product.

⚠Caution

1. **This unit shall not be used outdoors.**
   It may shorten the life cycle of the product or cause electric shock.
2. **Please observe the rated specifications.**
   It may shorten the life cycle of the product and cause a fire.
3. **Check mode switching setting and use the proper product to the setting.**
   It may shorten the life cycle and cause malfunctions.
4. **In cleaning the unit, do not use water or organic solvents. And use dry cloth.**
   It may cause electric shock or damage to the product.
5. **Do not inflow dust or wire dregs into the unit.**
   It may cause a fire or malfunction.

▣ Model

Model	Item	Connector type for primary	For secondary		Sensor connectors	LED	Case type
			Connector type	Connector pins			
AFE4-H20-16LF	Interface terminal block	Sensor connector 4-pin socket	Hirose connector	20-pin	16EA	Yes	Full case
AFE4-H40-32LF				40-pin	32EA		

▣ Specifications

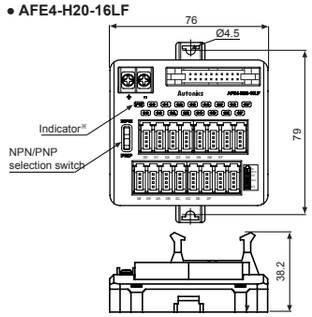
Model		AFE4-H20-16LF	AFE4-H40-32LF
Power supply		12-24 VDC	
Allowable voltage range		90 to 110% of rated voltage	
Rated current※1		Max. 1 A	
Number of connectors		20 pins	40 pins
Number of sensor connectors		16EA	32EA
Insulation resistance		Min. 1,000 MΩ (at 500 VDC megger)	
Dielectric strength		600 VAC 50/60 Hz for 1 minute	
Vibration	Mechanical	0.75mm amplitude at frequency of 10 to 55Hz(for 1 min.) in each of X, Y, Z directions for 1 hour	
	Malfunction	0.75 mm amplitude at frequency of 10 to 55 Hz(for 1 min.) in each of X, Y, Z directions for 10 minutes	
Shock	Mechanical	150 m/s²(15 G) in each of X, Y, Z directions for 3 times	
	Malfunction	100 m/s²(10 G) in each of X, Y, Z directions for 3 times	
Environment	Ambient temperature	-15 to 55 ℃, Storage: -25 to 65 ℃	
	Ambient humidity	35 to 85%RH, Storage: 35 to 85%RH	
Material		CASE, BASE: PC	
Tightening torque		0.7 to 0.8 N·m	
Approval		CE c UL us	
Weight※2		Approx. 121 g(Approx. 69 g)	Approx. 203 g(Approx. 119 g)

※**1:** The rated current including LED current of terminal block.
※**2:** The weight is with packaging and the weight in parentheses is only unit weight.
※Environment resistance is rated at no freezing or condenstion.

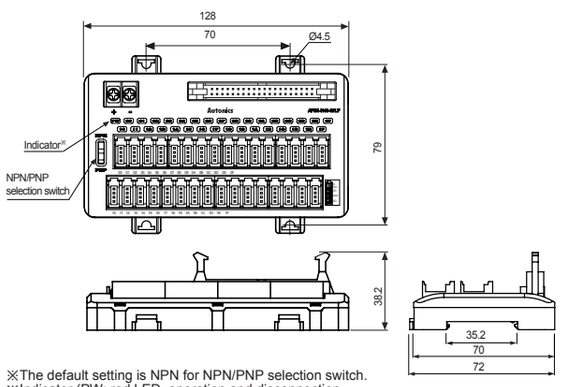
▣ Dimensions

(unit: mm)

● **AFE4-H20-16LF**



● **AFE4-H40-32LF**

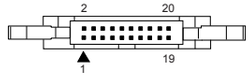


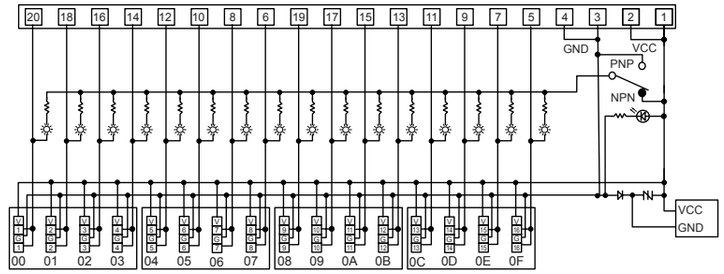
※The default setting is NPN for NPN/PNP selection switch.
※Indicator (PW: red LED, operation and disconnection

▣ Wire connections

● **AFE4-H20-16LF**

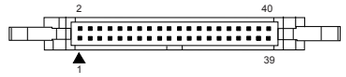
※Hirose connector model No.: HIF3BA-20PA-2.54DSA

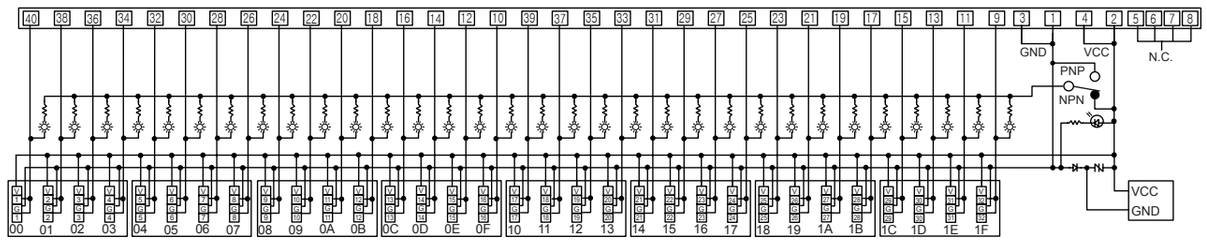




● **AFE4-H40-32LF**

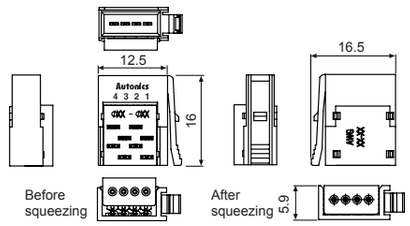
※Hirose connector model No.: HIF3BA-40PA-2.54DSA





▣ Specifications of sensor connector wire mount plug

(unit: mm)

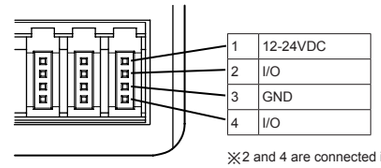


※Sensor connector plug is sold separately.

● **Cover color and wire specifications for sensor connector wire mount plug**

Model	Cover color	Applied wire specifications	
		Norminal cross section area(mm²)	Cover diameter(mm)
CNE-P04-WT	Transparent(WT)	0.05 to 0.08 (AWG30-28)	Ø 0.6 to 0.8
CNE-P04-YG	Yellow-Green(YG)		Ø 0.8 to 1.0
CNE-P04-VT	Violet(VT)		Ø 1.0 to 1.2
CNE-P04-RE	Red(RE)	0.13 to 0.21 (AWG26-24)	Ø 0.8 to 1.0
CNE-P04-YW	Yellow(YW)		Ø 1.0 to 1.2
CNE-P04-OG	Orange(OG)		Ø 1.2 to 1.6
CNE-P04-GN	Green(GN)	0.32 to 0.5 (AWG22-20)	Ø 1.0 to 1.2
CNE-P04-BL	Blue(BL)		Ø 1.2 to 1.6
CNE-P04-GY	Gray(GY)		Ø 1.6 to 2.0

▣ Sensor connector socket arrangement



1	12-24VDC
2	I/O
3	GND
4	I/O

※2 and 4 are connected inside.

▣ Caution for using

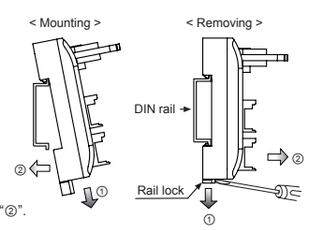
1. Use the product within the rated specifications for operating temperature and humidity.
2. Check voltage fluctuations in the power supply within the rated range.
3. When connecting PLC or other controllers, check the polarity of power before wiring.
4. Power wire should be AWG16(max. 1.25 mm²).
5. Do not use NPN output type and PNP output type sensors simultaneously.
6. Do not use this unit at below places.
   ①Place where there is severe vibration or impact.
   ②Place where strong alkalis or acids are used.
   ③Place where there are direct ray of the sun.
   ④Place where strong magnetic field or electric noise are generated.
7. In case of 24VDC signal input, isolated and limited voltage/current or Class2 source should be provided for power supply.
8. Installation environment.
   ①It shall be used indoor.
   ②Altitude Max. 2,000 m
   ③Pollution Degree 2
   ④Installation Category II

※**It may cause malfunction if above instructions are not followed.**

▣ Installation

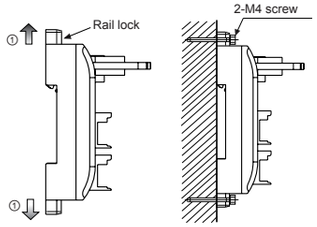
1. Mounting to and removing from DIN rail.

● Mounting
1)Push rail lock to the direction "①".
2)Hook DIN rail connector onto DIN rail.
3)Push the unit down to the direction "②" and push up the rail lock to the to the unit body.
● Removing
1)Insert a screwdriver into hole of rail lock and pull the lock out to the direction "①".
2)Removing the unit by pulling to the direction "②".



2. Mounting to panel

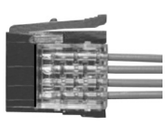
1)Push rail lock to the direction "①".
2)Secure rail lock by inserting and tightening screws.
It is recommended to use M4×15 mm of spring washer screws and to use flat washers which are diameter Ø 6.
The tightening torque should be 0.7 to 1.0 N·m.



※**The above specifications are subject to change without notice.**

▣ How to squeeze sensor connecor wire plug

1. Insert wires
●Check the pin number and insert wires at the insertion part of the cover.
●Check the wires are inserted at the end of a cover.



2. Squeeze the connector
●Insert the cover to the body with tools (press fitting plier, etc.)
※Squeeze it with tools at the side direction as below figure.

▣ 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_2, Nd:YAG)
- Laser welding/soldering system
- Temperature controllers
- Temperature/Humidity transducers
- SSR/Power controllers
- Counters
- Timers
- Panel meters
- Tachometer/Pulse(Rate)meters
- Display units
- Sensor controllers

Autonics Corporation
http://www.autonics.com
Satisfiable Partner For Factory Automation
■**HEAD QUARTERS:**
116, Ungbigongdan-gil, Yangsan-si, Gyeongsangnam-do, Korea
■**OVERSEAS SALES:**
#402-404, Bucheon Techno Park, 655, Pyeongcheon-ro, Wonmi-gu, Bucheon, Gyeonggi-do, Korea
TEL: 82-32-610-2730 / FAX: 82-32-329-0728
■**E-mail:** sales@autonics.com

The proposal of a product improvement and development: product@autonics.com

AS-KE-01-T0003E