Autonics

SENSOR CONNECTOR TERMINAL BLOCK
AFE Series

INSTRUCTION MANUAL

Thank you for choosing our Autonics product.
Please read the following safety considerations before use.

▣ Safety Considerations

※Please observe all safety considerations for safe and proper product operation to avoid hazards.
※⚠ symbol represents caution due to special circumstances in which hazards may occur.

⚠**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.

⚠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.)**
   Failure to follow this instruction may result in personal injury, economic loss or fire.
2. **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.
3. **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.
4. **Do not disassemble or modify the unit.**
   Failure to follow this instruction may result in fire or electric shock.

⚠Caution

1. **Use the unit within the rated specifications.**
   Failure to follow this instruction may result in fire or product damage.
2. **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.
3. **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.
4. **Do not use the product when a screw of terminal is loosened.**
   Failure to follow this instruction may result in fire or product damage.

▣ Ordering Information

Model	Item	Terminal Side	Controller side		The number of Sensor connector	LED	Case type
		Connector type	Connector type	The number of connector pin			
AFE4-H20-16LF	Sensor connector terminal block	Sensor connector 4-pin socket	Hirose connector	20-pin	16	Yes	Full case
AFE4-H40-32LF				40-pin	32		

※**The above specifications are subject to change and some models may be discontinued without notice.**
※**Be sure to follow cautions written in the instruction manual and the technical descriptions (catalog, homepage).**

▣ Specifications

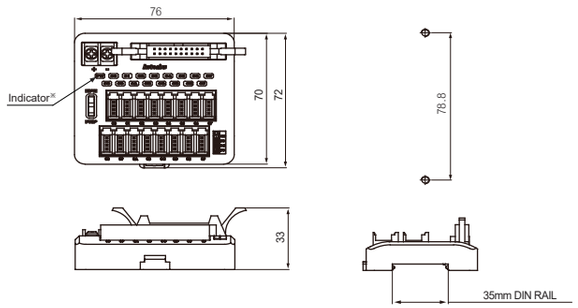
Model		AFE4-H20-16LF	AFE4-H40-32LF
Power supply		12-24VDC⎓	
Allowable voltage range		90 to 110% of rated voltage	
Rated current※1		≤1A	
The number of connector pin		20-pin	40-pin
The number of sensor connector		16	32
Insulation resistance		≥1,000MΩ (at 500 VDC megger)	
Dielectric strength		600VAC 50/60Hz for 1 min	
Vibration	Mechanical	0.75mm amplitude at frequency of 10 to 55Hz (for 1 min) in each X, Y, Z direction for 1 hour	
	Malfunction	0.75mm amplitude at frequency of 10 to 55Hz (for 1 min) in each X, Y, Z direction for 10 min	
Shock	Mechanical	150m/s² (approx. 15G) in each X, Y, Z direction for 3 times	
	Malfunction	100m/s² (approx. 10G) in each X, Y, Z direction 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 8N m	
Approval		CE c UL us	
Weight※2		Approx. 121g (approx. 69g)	Approx. 203g (approx. 119g)

※1: The rated current including LED current of terminal block.
※2: The weight includes packaging. The weight in parenthesis is for unit only.
※Environment resistance is rated at no freezing or condensation.

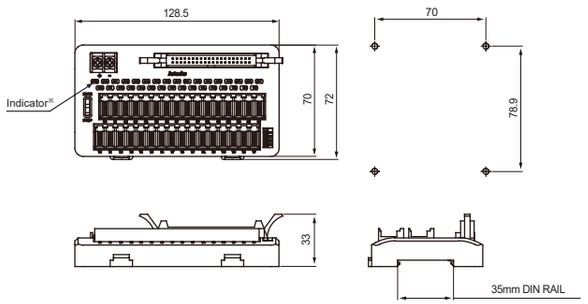
▣ Dimensions

(unit: mm)

● **AFE4-H20-16LF**



● **AFE4-H40-32LF**

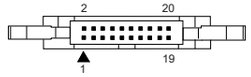


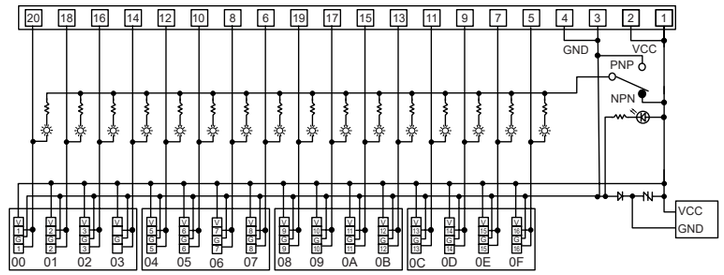
※Power: red LED, operation and disconnection: blue LED

▣ Wire Connections

● **AFE4-H20-16LF**

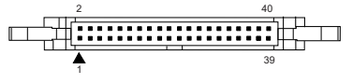
※Hirose connector model no.: HIF3BA-20PA-2.54DSA

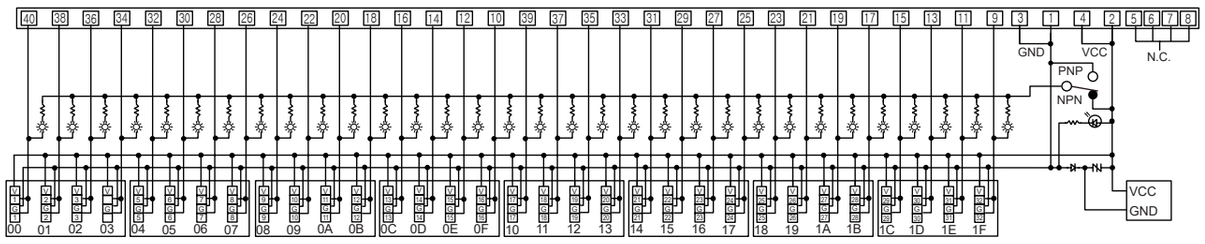




● **AFE4-H40-32LF**

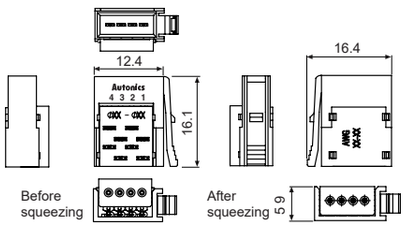
※Hirose connector model no.: HIF3BA-40PA-2.54DSA





▣ Specifications of Sensor Connector Wire Mount Plug

(unit: mm)

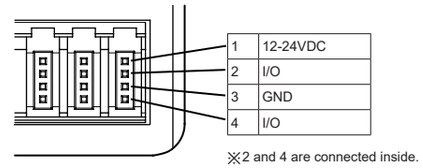


※Sensor connector plug is sold separately.

● **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.

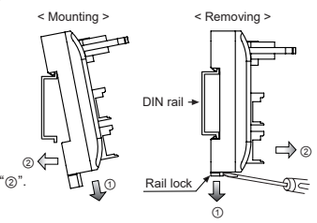
▣ Cautions during Use

1. Follow instructions in 'Cautions during Use'. Otherwise, it may cause unexpected accidents.
2. power supply should be insulated and limited voltage/current or Class 2, SELV power supply device.
3. Check setting of the NPN/PNP selection switch, and use the proper type of product for the setting.
   Failure to follow this instruction may result in shortening the life cycle of the product or malfunction.
4. 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.
5. This unit may be used in the following environments.
   ①Indoors (in the environment condition rated in 'Specifications')
   ②Altitude max. 2,000m
   ③Pollution degree 2
   ④Installation category II

▣ Installation

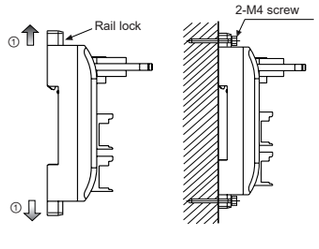
1. Mounting to and removing from DIN rail.

● Mounting
1)Push rail lock to the direction "①".
2)Hook DIN rail connector onto D N rail.
3)Push the unit down to the direction "②" and push up the rail lock 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".



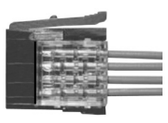
2. Mounting to panel

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 Ø6.
The tightening torque should be 0.7 to 1.0 N m.



▣ How to Squeeze Sensor Connector 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 the tool. (press fitting plier, etc.)
Squeeze it with tools at the side direction as below figure.

▣ Major Products

■Photoelectric sensors ■Temperature controllers
■Fiber optic sensors ■Temperature/Humidity transducers
■Door sensors ■SSR/Power contro lers
■Door side sensors ■Counters
■Area sensors ■Timers
■Proximity sensors ■Panel meters
■Pressure sensors ■Tachometer/Pulse (Rate)meters
■Rotary encoders ■Display units
■Connector/Sockets ■Sensor controllers
■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/cutting system