






# AS-Interface related products



## ■ Connectors for waterproof slaves

Description		Type	Applicable cable Diameter Conductor cross-section	Manufacturer
<b>M12 connector (straight)</b>	Screw connector  KK02-196A	<b>SACC-M12MS-4CON-PG7-M</b>	4 to 6mm 0.25 to 0.75mm <sup>2</sup>	Phoenix Contact
	Insulation displacement connector  KK02-174	<b>SACC-M12MS-4QO-0.75-M</b>	4 to 7.5mm 0.34 to 0.75mm <sup>2</sup>	Phoenix Contact
		<b>SACC-M12MS-4QO-0.34-M</b>	3.5 to 6 0.14 to 0.34mm <sup>2</sup>	
Screw connector  KK02-173	<b>RSC4/7</b>	3 to 6.5mm 0.75mm <sup>2</sup>	Lumberg	
<b>M12 connector (L-shaped)</b>	Screw connector  KK02-194A	<b>SACC-M12MR-4CON-PG7-M</b>	4 to 6mm 0.25 to 0.75mm <sup>2</sup>	Phoenix Contact
	Screw connector  KK02-172	<b>RSCW4/7</b>	3 to 6.5mm 0.75mm <sup>2</sup>	Lumberg
<b>M8 connector (straight)</b>	Soldering  KK02-197A	<b>SACC-M8MS-3CON-M</b>	3.5 to 5mm 0.25mm <sup>2</sup>	Phoenix Contact
<b>M8 waterproof cap</b>	—	<b>PROT M8</b>	—	Phoenix Contact

## ■ Connectors for dustproof slaves
















Description		Type	Applicable cable cross-section	Connector color	Manufacturer
<b>Connectors for dustproof slaves</b>	Insulation displacement connector  KK02-176	<b>QZ-61-H4SFUT1#10</b>	0.08 to 0.2mm <sup>2</sup>	Light blue	Honda Tsushin Kogyo
		<b>QZ-61-H4SFUT3#10</b>		Light green	
		<b>QZ-61-H4SFUT2#10</b>	0.3mm <sup>2</sup>	Blue	
		<b>QZ-61-H4SFUT4#10</b>		Green	

## ■ Others

Description		Type	Manufacturer
<b>Relaying cable</b>	Straight (female) + straight (male) Cable length: 1.5m	<b>SAC-4P-M12MS/1.5-PUR/M12FS</b>	Phoenix Contact
	Straight (male) + straight (male) Cable length: 1m	<b>SAC-4P-M12MS/1.0-PUR/M12MS</b>	
<b>Branch connector</b>	2 cables  KK02-221A	<b>0911 ANC 101</b>	Lumberg
	1 cable  KK02-222A	<b>0911 ANC 408</b>	Lumberg

Please contact Fuji's Distributors for the purchase of connectors, etc.

## ■ Connectors for FE16D AS-i motor starter slave

Description		Type	Applicable cable diameter in mm	Manufacturer
<b>ACIN use</b>	Han3A internal socket, female  KK02-201A	<b>09200032711</b>	6.5 to 12	Harting
	Metal cover, top  KK02-202A	<b>09200031440</b>		
	Seal screw (M3)  KK02-203A	<b>09200009918</b>		
	Cable sealing parts (metal nut)  KK02-204A	<b>09000005013</b>		
<b>MOTOROUT use</b>	HanQ5/0 internal socket, male  KK02-205A	<b>09120053001</b>	6.5 to 12	
	Metal cover, top  KK02-202A	<b>09200031440</b>		
	Seal screw (M3)  KK02-203A	<b>09200009918</b>		
	Cable sealing parts (metal nut)  KK02-204A	<b>09000005013</b>		
	Plug pin, male (2.5mm <sup>2</sup> )  KK02-203A	<b>09330006102</b>		
<b>ACOUT use</b>	Han3A internal socket, male  KK02-206A	<b>09200032611</b>	6.5 to 12	
	Metal cover, top  KK02-202A	<b>09200031440</b>		
	Seal screw (M3)  KK02-203A	<b>09200009918</b>		
	Cable sealing parts (metal nut)  KK02-204A	<b>09000005013</b>		
<b>Waterproof cover</b>	Metal cover internal element socket  KK02-207A	<b>09000035425</b>	—	
<b>Crimping tool</b>	Crimping pliers (for plug pins)  KK02-200A	<b>09990000021</b>		

Please contact Fuji's Distributors for the purchase of connectors, etc.

# AS-Interface related products

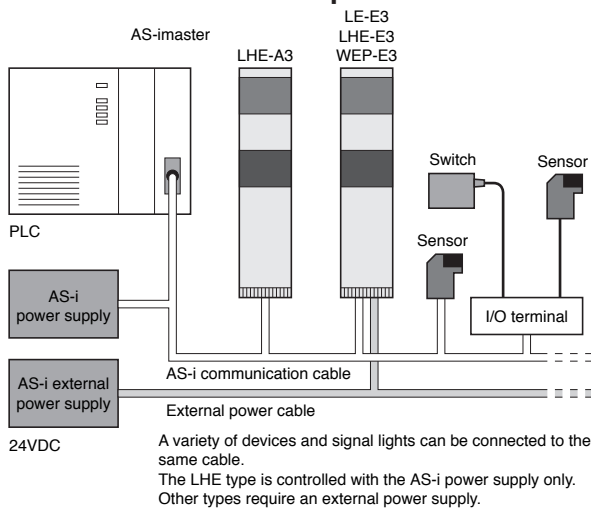
## AS-i conformed signal tower

### ■ Description

#### AS-i-compatible multi-layer signal light for open field networks

- Connects directly to existing AS-interfaces where sensors and switches are connected, thus eliminating the need for the use of dedicated I/O terminals.
- A flexible connection method ensures easy wiring during installation or modification and provides a variety of wire-reducing effects.
- The AS-i power supply type is driven by a power supply and data communications signals through a special AS-i two-core parallel flat cable (yellow). This type is suitable for small-scale installations and equipment.
- In comparatively large-scale installations, where a large number of devices are connected via AS-i, the power requirement may exceed the capacity of the AS-i power supply. In such cases, the auxiliary power supply type is ideal for providing power (24V DC) to the display and buzzer blocks from an external power source.
- Address settings are written to the internal EEPROM through a dedicated addressing unit (sold separately).
- In order to turn on signals, devices such as a PLC-mounted AS-i master, ASI power supply, and gateway connectable to the host network are necessary.
- Fixed output bits correspond to the respective unit colors, thus keeping the light colors unchanged regardless of changes in the color arrangement.
- An integrated electronic buzzer (in the B type) that is gentle to the ear provides a repetitive single-tone beep (85dB at 1m). The sound volume is adjustable in a wide range.
- In order to operate network-compatible products, network-supporting devices, such as a controller and accessories are required.

### ■ AS-i Connection Concept



### ■ Optional accessories



Mounting bracket  
**SZ-011**  
Aluminum die-cast  
Silver colored coating



Mounting bracket  
**SZ-014**  
Copper plate  
Light gray coating

### Double-reflection system

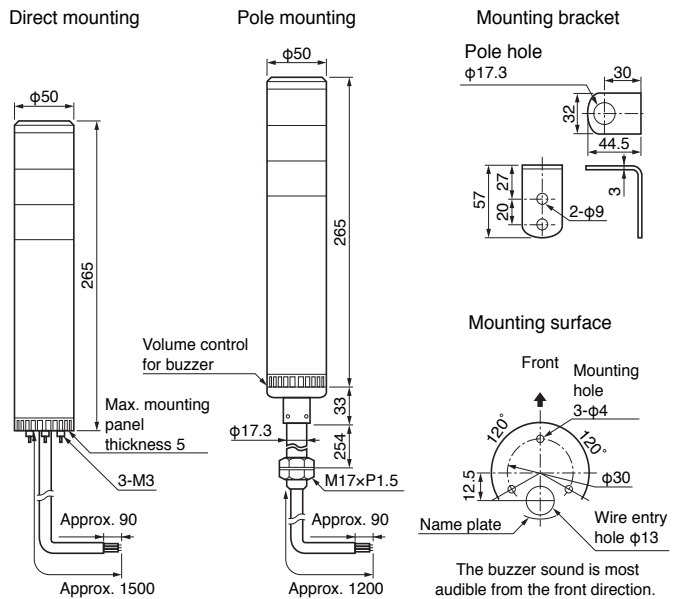
Steady brightness is ensured by the unique double-reflection structure, a lens-cut globe, and ultrahigh intensity LED unit.

Mounting bracket  
**SZ-012**  
(Included with pole-mounting type)

**LE-E3P**  
**LE-E3BP**

**LE-E3W**  
**LE-E3BW**

### ■ Dimensions, mm



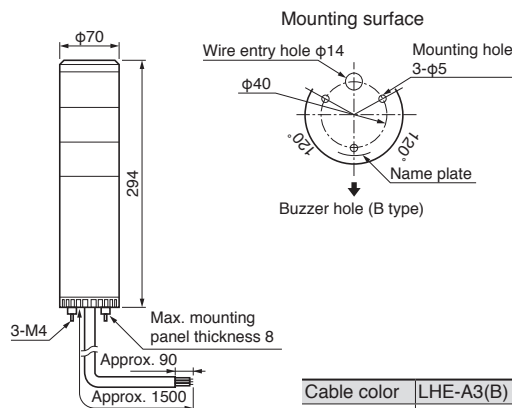
Cable color	
Brown	AS-i +
Blue	AS-i -
White	EXternal power supply 24V DC
Black	EXternal power supply 0V

- An M12 plug and branch connector are used to connect to the AS-i cable.

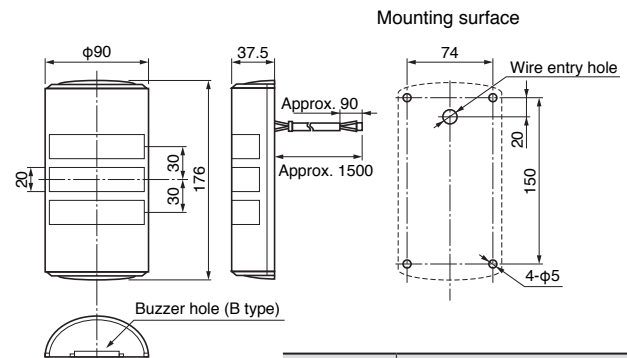
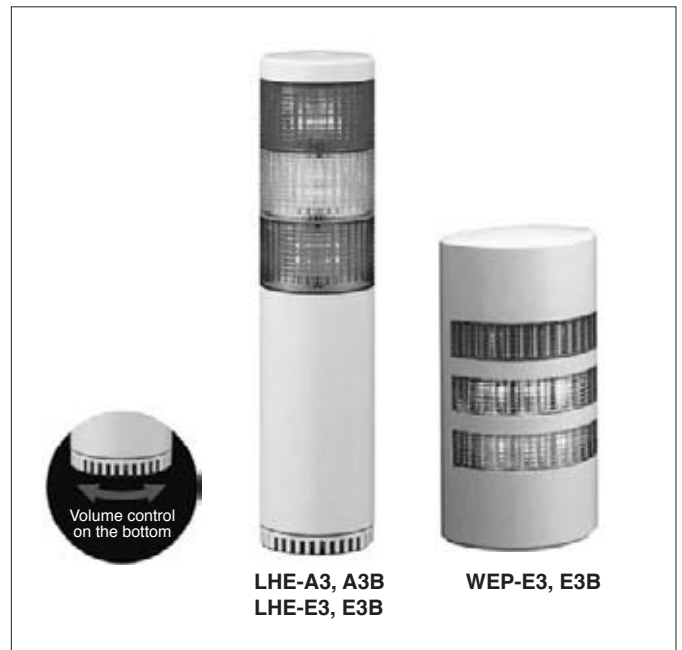
## ■ Description

- An integrated electronic buzzer that is gentle to the ear is provided in the B type.
- The A3 type provides a single-tone beep (90dB at 1m), and the E3 type provides a repetitive beep (90dB at 1m). The sound volume is adjustable in wide range.
- Fixed output bits correspond to the respective unit colors, thus keeping the light colors unchanged regardless of changes in the color arrangement.
- Fuji Electric's newly developed LED reflection system (patent pending) efficiently reflects light and provides bright, excellent visibility.
- A buzzer with a single tone only is incorporated in the B type.
- The thin 37.5mm design allows easy integration with applicable equipment.
- The unique LED irradiation structure ensures high visibility even from the sides.

## ■ Dimensions, mm



Cable color	LHE-A3(B)	LHE-E3(B)
Brown	AS-i +	AS-i +
Blue	AS-i -	AS-i -
White	—	EXternal power supply 24V DC
Black	—	EXternal power supply 0V



Cable color	
Brown	AS-i +
Blue	AS-i -
White	EXternal power supply 24V DC
Black	EXternal power supply 0V

- An M12 plug and branch connector are used to connect to the AS-i cable.

\* For B type units, make sure that the buzzer hole downward.

## ■ AS-i LED type

No. of stacks	Power supply method with LED indication part	Type		Buzzer	AS-i power supply	External power supply	Current consumption	
		Direct mounting	Pole mounting				AS-i communications only (Max.)	LED stacks, buzzer (Max.)
3-light	External power supply	LE-E3W	LE-E3P	None	30V (AS-i +, AS-i -)	24V DC	60mA	25mA (red, yellow), 20mA (green) 40mA (buzzer)
		LE-E3BW	LE-E3BP	With				
	AS-i power supply	LHE-A3	—	None	30V (AS-i +, AS-i -)	—	60mA	50mA (red, yellow), 40mA (green) 40mA (buzzer)
External power supply	External power supply	LHE-A3B	—	With	30V (AS-i +, AS-i -)	24V DC	60mA	50mA (red, yellow), 40mA (green) 40mA (buzzer) 30mA (red, yellow), 25mA (green) 40mA (buzzer)
		LHE-E3	—	None				
		LHE-E3B	—	With				
		WEP-E3	—	None				
WEP-E3B	—	With						

## ■ Contact

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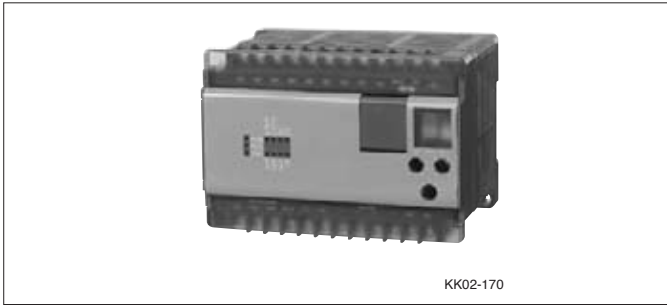
# AS-Interface related products

## CC-Link/AS-i gateway

### ■ Description

This product is a gateway that converts the CC-Link protocol into the AS-i protocol and vice versa.

- Incorporates an LED indicator to display the AS-i status (e.g., slave dropout, AS-i power supply error, and auto address setting availability).
- The 7-segment LED indicator displays the addresses of slaves dropping out (while in protect mode) and configuration slave addresses (while in configuration mode).
- The slave configuration is registered with the pushbuttonswitch on the front panel of the module.
- AS-i specifications: V2.04.



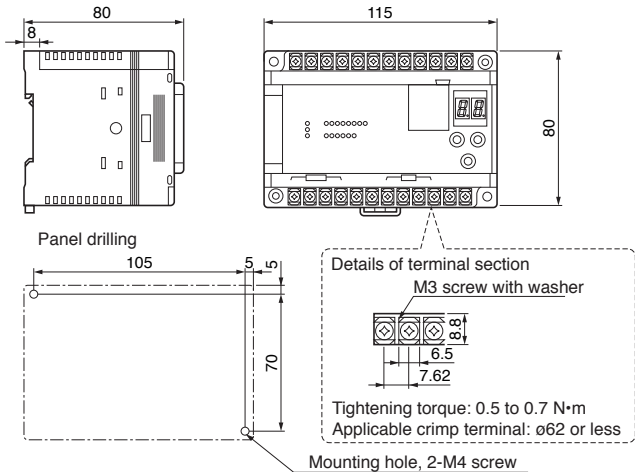
### ■ General specifications

Type	HK-ASICC
Supply voltage	24V DC
Voltage range	19 to 30V DC
Power consumption	Max. 3W
Inrush current	Approx. 3.8A
Structure	Installation inside panel (Natural cooling)
Operating temperature	0 to +55 °C
Relative humidity	20 to 90 % RH (no condensation)
Storage temperature	-20 to + 70 °C
Atmosphere	No corrosive gases and massive dust
Vibration resistance	Crossover frequency 57Hz: 19.6m/s <sup>2</sup> (2G)
Shock resistance	Test method 1-No.3: 294m/s <sup>2</sup> (30G)
Dielectric strength	1500V AC for 1min, between terminals connected together and FG
Insulation resistance	5MΩ, between terminals connected together and FG
Noise immunity	1500V Rise time: 1ns, pulse with 1μs
Electrostatic discharge resistance	Contact discharge method: ± 6kV Aerial discharge method: ± 8kV
Mounting method	IEC rail/screw dual mounting
Mass	Approx. 320g

### ■ CC-Link communications

Communication speed	10Mbps, 5Mbps, 2.5Mbps, 625kbps, 156kbps (SW changeable)					
Communication system	Broadcast polling system					
Synchronization system	Bit synchronization system					
Encoding system	NRZI					
Transmission path format	RS485 bus					
Transmission format	HDLC conformance					
Remote station number	1-64 (SW changeable)					
Error control system	CRC (X <sup>16</sup> +X <sup>12</sup> +X <sup>5</sup> +1)					
RAS function	Communications error detection (CRC error, abort error)					
Connection cable	Shielded twisted pair cable					
Max. overall cable extension length	Transmission speed (bps)	10M	5M	2.5M	625k	156k
	Cable length (m)	100	150	200	600	1200
Terminating resistor	110Ω					
No. of occupied stations	2					
Occupied area	Remote input: RX	64 points (64 bits), 16 points: System area				
	Remote output: RY	8 points (8 words)				
	Remote Register M → R : RWw Register R → M : RWr					

### ■ Dimensions, mm



### ■ AS-i communications

Max. connectable slaves	31 (with addresses from 1 to 31)
Max. No. of I/O points	Max. points per slave: 4 inputs, 4 outputs
Max. cable length	248 points (Max. 124 inputs, Max. 124 outputs)
Cycle time	100m: Via AS-i cable (Max. 300m: Via Repeaters)
Transmission speed	5ms (with 31 slaves connected)
Transmission cable	AS-i cable (yellow) or parallel cable, also used as power cable
Power supply for communication	Use of AS-i power supply

### ■ Contact

Hakko Electronics Co., Ltd.  
Technical Support Section  
Fax: +81-76-274-5210

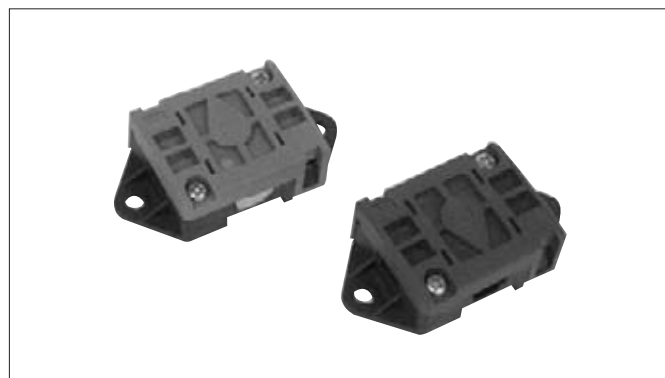
## T-branch connector

### ■ Features

- Reliable connection using piercing technology
- No special tools required  
All that is required is a Phillips screwdriver.
- Degree of protection: IP65 (Waterproof)
- Asymmetrical cables prevent misconnection.

### ■ Application

- AS-i communication cable (yellow) branch
- AS-i external power cable (black) branch



### ■ Specifications

Type	ASD-OIL-BC-L2 For left-branch	ASD-OIL-BC-R1 For right-branch
Rated current	7.2 A, max	
Dielectric strength	1500 Vr.m.s AC (1min.)	
Insulation resistance	100MΩ or more	
Low-level resistor	ΔR20m. Ω or more	
Applicable wire	AS-Interface cable	
Operating temperature	-40 to +85°C	

### ■ Circuit

Left-branch : ASD-01L-BC-L2



Right-branch : ASD-01R-BC-R1



### ■ Contact

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