



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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Long Range Ultrasonic Sensor

E4R

Sensing Distance Adjustable
to 2.5 m

- Mutual interference protection
- Wide beam angle ideal for detecting granular or high-viscosity materials
- Compact sensing head with separate controller



Ordering Information

■ SENSOR SYSTEM

Description	Part number
Ultrasonic sensing head	E4R-A
Controller for sensing head	E4R-2
Reference pulse unit to synchronize multiple sensors	E4R-SP
Switching power supply to power controller E4R-2	S82K-00312

■ REPLACEMENT PARTS

Description	Part number
Socket for E4R-2 controller; mounts to panel or on DIN-rail track	14PFA
Socket for E4R-SP reference pulse unit	8PFA

Specifications

■ SENSING HEAD

Part number	E4R-A
Sensing method	Reflective
Sensing distance	0.7 to 2.5 m (2.30 to 8.20 ft), adjustable
Standard sensing object	200 x 200 mm flat plate
Ultrasonic oscillation frequency	40 ±2 kHz
Directional angle	±20°
Indicator	—
Ambient operating temperature	-25°C to 55°C (-13°F to 131°F) with no icing
Relative humidity	45% to 85% with no condensation
Vibration resistance	10 to 25 Hz, 1.5-mm double amplitude for 2 hours each in X, Y, and Z axes
Shock resistance	100 m/s ² (approx. 10 G) 10 times each in X, Y, and Z axes

(This table continues on the next page.)

Specifications Table - continued from previous page

Part number	E4R-A
Cable length	Use shielded cable, 20 m (65.62 ft) max. between sensor and controller
Weight	Approx. 400 g
Material	Plastic
Temperature influence	±5% max. of sensing distance within the temperature range of -10°C to 40°C (14°F to 104°F)
Voltage influence	±5% max. of sensing distance within the permissible power supply voltage

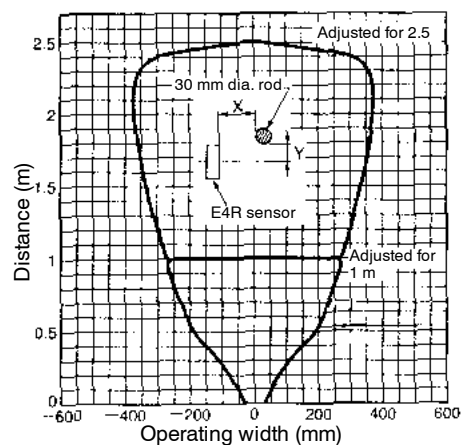
■ CONTROLLER

Part number	E4R-2
Supply voltage	12 VDC ±15%
Current consumption	Approx. 1.5 W (120 mA DC)
Response time	ON: 150 ms; OFF time: 500 ms
Control output	SPDT contact, 4 A at 220 VAC/24 VDC
Operation mode	NO and NC switch selectable
indicator	POWER and DETECT indicators
Ambient operating temperature	-10°C to 40°C (14°F to 104°F)
Relative humidity	45% to 85% with no condensation
Insulation resistance	20 MΩ min. at 500 VDC between current carrying parts and case
Dielectric strength	1500 VAC 50/60 Hz for 1 min between current carry parts and case
Vibration resistance	10 to 25 Hz, 1.5-mm double amplitude for 2 hours each in X, Y and Z axes
Shock resistance	100 m/s ² (approx. 10 G) 10 times each in X, Y, and Z axes
Enclosure rating	IP10
Weight	400 g

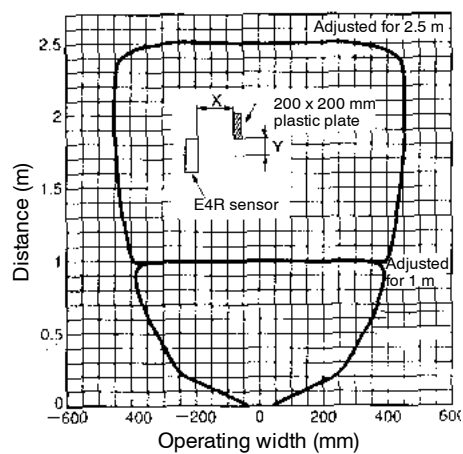
Engineering Data

■ OPERATING RANGE DIAGRAMS (TYPICAL)

30-mm dia. Rod



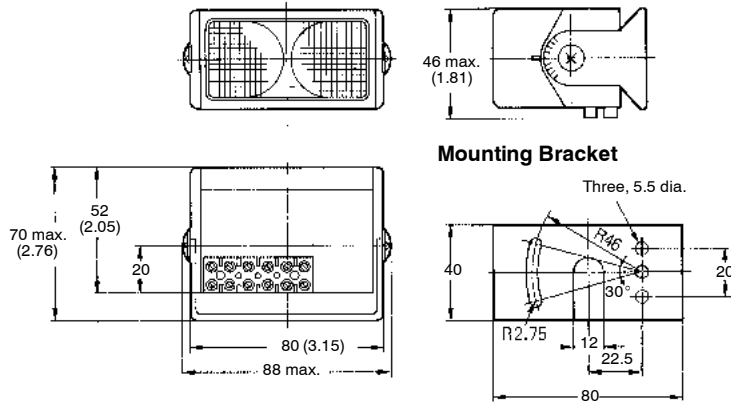
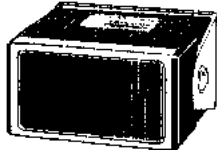
200 x 200 mm Plastic Plate



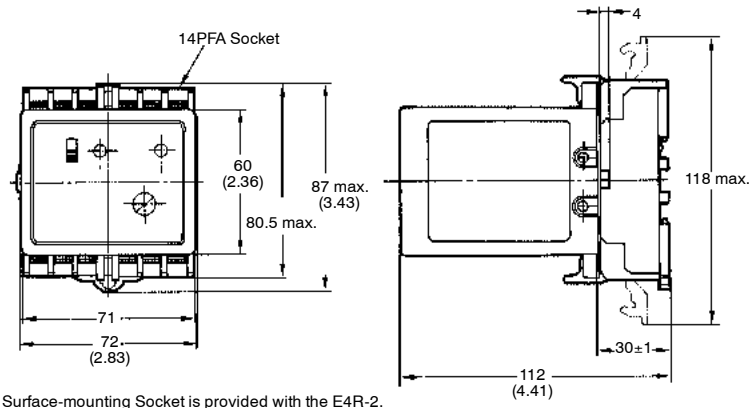
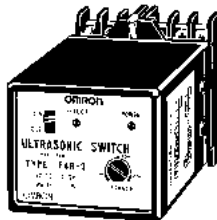
Dimensions

Unit: mm (inch)

■ E4R-A SENSOR



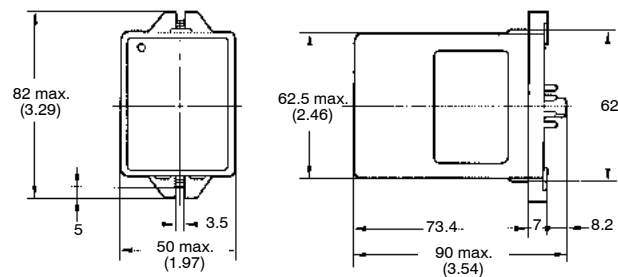
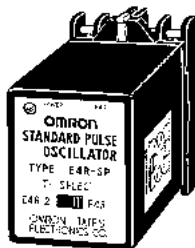
■ E4R-2 CONTROLLER



Note: The dimensions are external dimensions that include the 14PFA Surface-mounting Socket.

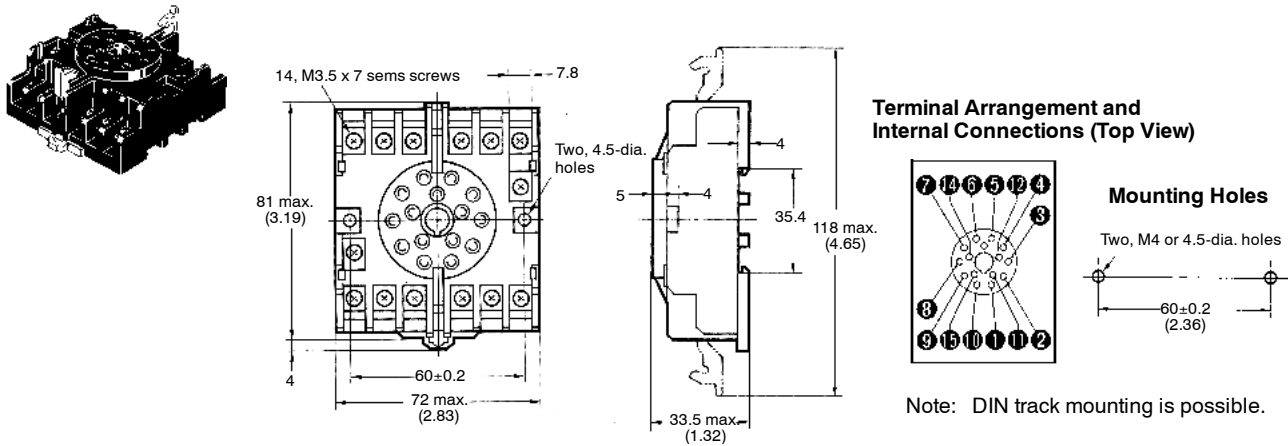
The 14PFA Surface-mounting Socket is provided with the E4R-2.

■ E4R-SP REFERENCE PULSE UNIT



Note: The 8PFA Surface-mounting Socket is provided with the E4R-SP.

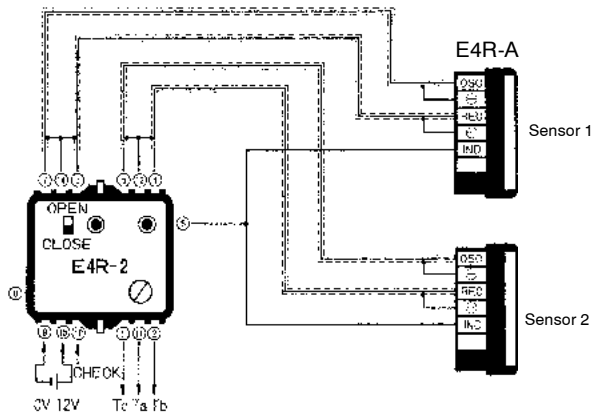
■ 14PFA PANEL AND DIN TRACK MOUNTING SOCKET (ORDER SEPARATELY)



Installation

■ CONNECTIONS

E4R-A/E4R-2



Use shielded cables for the oscillator's transmission line (connected to the OSC terminals) and the reception line (connected to the REC terminals). Each cable must be a maximum of 20 m in length.

The shielded cables connecting the Sensor and terminals 7, 14, and 6 (or 5, 12, and 4) must be all parallel conductors with 11 strands of 0.16-mm dia. each with all conductors shielded independently. The cable connected to terminal 3 must be a single-conductor cable that is 0.2 to 0.3 mm² in size.

- Note: 1. Sensors 1 and 2 are in OR operation.
- 2. If only a single Sensor is connected, leave the terminals for the other Sensor open.
- 3. Set the slide switch to CLOSE.



Note: CHECK terminal allows connection of oscilloscope for trouble shooting ultrasonic signal.

