946 Series

Ultrasonic Sensors
Teachable 30 mm
Diameter, Precision Digital
Outputs

DESCRIPTION

The 946 Series provides a compromise between easy usage
and advanced features. Adjustment is easily done by auto-
tuning. By inserting a plug with four positions one can program
the sensor in a matter of seconds; the parameters are stored in
a non-volatile memory (EEPROM).

FEATURES AND BENEFITS

- Scan ranges from 0,3 m to 6,0 m [0.93 ft to 19.68 ft]
- Auto-tuning by four positions plug
- Independent/Windows® output choice (switching output
  models)
- Stainless steel M30 housing, IP65
- Two switching outputs, open collector PNP
- Temperature compensation
- M12 four-pin connector
- Connector cable 2,0 m [78.75 in] included
- Two independent setpoints
- Teach-in programming
- NO/NC window characteristic possible
- Voltage or current output

POTENTIAL APPLICATIONS

Industrial:

- Loop control, product height measurement
- Tank liquid level measurement
- Reel diameter measurement
- Tire manufacturing

946 Series

Table 1: Order Guide and Specifications for Connectorized Versions

Characteristic	946A4V-2D-001-65E	946-A4V-2D-001-175E	946-A4V-2D-001-400E
Sensor package style	30 mm [1.18 in] dia. stainless steel		
Sensing distance[1] max. mIn.	6000 mm [236 in] 350 mm [13.8 in]	1000 mm [39.4 in] 200 mm [7.87 in]	300 mm [11.8 in] 60 mm [2.36 in]
Termination[2]	connector		
Digital output	pnp		
Beam angle	5°		
Supply voltage	10 Vdc to 30 Vdc		
Supply current	<25 mA without load		
Circuit protection	reverse polarity		
Load current	0 mA to 200 mA		
Hysteresis	3.2%		
Switching frequency	1 Hz	5 Hz	15 Hz
Repeatability	≤0.1% of reading		
Setpoint adjustment	programmable with probe coded plug		
Circuit protection	short circuit		
Operating temperature	-25 °C to 70 °C [-13 °F to 150 °F]		
Storage temperature	-40 °C to 85°C [-40 °F to 185 °F]		
Sealing	IP65		
LED indicator	red: illuminates when object is not recognized, probe coded plug withdrawn or short circuited yellow: illuminates when indicating output function or output status green: illuminates when target is recognized during ''teach mode'' or normal operation		

Notes:

1. Standard target is 120 mm thick square of mild steel perpendicular to ultrasonic beam.
2. Includes 2 m cable with straight connector.

Figure 1. Wiring Diagram
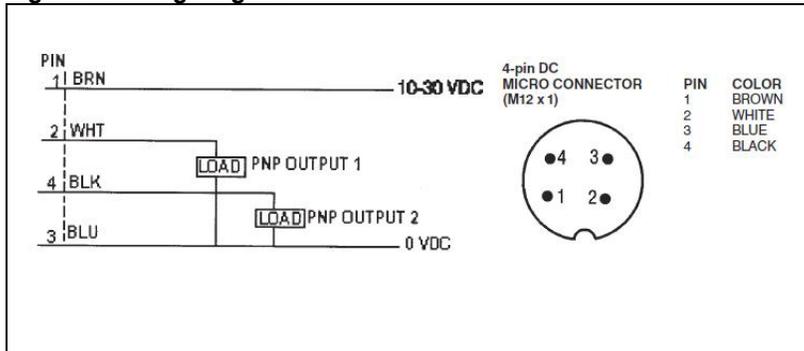
Table 2. Accessories for Connectorized Versions

Catalog Listing	Description
804000A09M020[1]	2 m cable with straight connector (used for wiring to connector)
804001A09M020	2 m cable with right angle connector (used for wiring to connector)

Note:

1. Supplied with sensor.

Teachable 30 mm Diameter, Precision Digital Outputs

Table 3: Order Guide and Specifications for Cable Versions

	946-A4V-2D-2C0-65E	946-A4V-2D-2C0-85E	946-A4V-2D-2C0-175E	946-A4V-2D-2C0-380E
Package style	30 mm [1.18 in] dia. stainless steel			
Sensing distance[1] max. mIn.	6000 mm [236 in] 350 mm [13.8 in]	4000 mm [157.5 in] 500 mm [19.7 in]	2000 mm [78.74 in] 200 mm [7.87 in]	500 mm [19.7 in] 60 mm [2.36 in]
Termination[2]	cable			
Digital output	analog; 4 mA to 20 mA, 0 Vdc to 10 Vdc			
Beam angle	5°			
Supply voltage	10 Vdc to 30 Vdc			
Supply current	<33 mA without load			
Circuit protection	reverse polarity			
Switching frequency	2 Hz	3.3 Hz	10 Hz	28.6 Hz
Repeatability	$\leq$0.1% of reading			
Linearity	$\leq$0.1%			
Setpoint adjustment	programmable with probe coded plug			
Load resistance: minimum maximum	1000 Ohm (10 Vdc to 10 Vdc output) 500 Ohm (4 mA to 20 mA output)			
Slope of output	positive or negative; programmable with probe coded plug			
Circuit protection	short circuit			
Operating temp.	-25 °C to 75 °C [-13 °F to 167 °F]			
Storage temp.	-40 °C to 85°C [-40 °F to 185 °F]			
Sealing	IP 65			
LED indicator	red: illuminates when object is not recognized, probe coded plug withdrawn or short circuited yellow: illuminates when indicating output function or output status green: illuminates when target is recognized during ''teach mode'' or normal operation			

Notes:
1. Standard target is 120 mm thick square of mild steel perpendicular to ultrasonic beam.
2. Includes 2 meter cable with straight connector.

Figure 2. Wiring Diagram
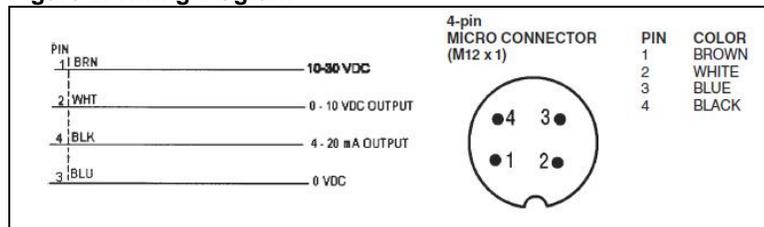
Table 4: Accessories for Cable Versions

Catalog Listing	Description
804000A09M020[1]	2 m cable with straight connector (used for wiring to connector)
804001A09M020	2 m cable with right angle connector (used for wiring to connector)

Note:
1. Supplied with sensor.

SALES AND SERVICE

Honeywell serves its customers through a worldwide network of sales offices, representatives and distributors. For application assistance, current specifications, pricing or name of the nearest Authorized Distributor, contact your local sales office or:

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