

# ES110 and ES120 Series

## Packaged Temperature Probes with Integral Connectors



### DESCRIPTION

Honeywell's ES110 Series and ES120 Series are a modular range of inflow thermistor-based sensors specifically designed for use in the transportation industry.

Thermistors can be very effective in sensing temperatures of gases, liquids or solids because of their enhanced sensitivity, accuracy and reliability.

The ES110 Series air/gas sensor has an exposed thermistor element that offers enhanced response for greater levels of control, while the ES120 Series is primarily used for immersion temperature measurements. Its fully enclosed brass body makes it often ideal for applications requiring direct contact with liquids.

### FEATURES

- Air/gas or immersion sensing
- NTC (Negative Temperature Coefficient) or KTY (silicon-based positive temperature coefficient) type outputs
- Enhanced sensitivity
- Enhanced accuracy
- Enhanced reliability
- Robust packaging
- Fast response
- Wide operating temperature range
- Easy installation
- Customizable

Robust and easy-to-install threaded packaging often provides reliable operation in harsh application environments. Fast response times over a wide operating temperature range of -40 °C to 150 °C [-40 °F to 302 °F] allow application flexibility.

Custom configurations are available.

### POTENTIAL APPLICATIONS

- Transportation: engine coolant, oil temperature, air intake, fuel and engine block sensing
- Industrial: compressor, duct, hydraulic oil temperature sensing

# ES110 and ES120 Series

Table 1. General Specifications

Characteristic	Parameter
Temperature sensing type	ES110: air/gas ES120: immersion
Thermistor type	NTC or KTY
Nominal resistance at 25 °C [77 °F]	2000 Ohm
Operating temperature range	-40 °C to 150 °C [-40 °F to 302 °F]
Tolerance	±5.0%
Accuracy	20 °C [68 °F], 25 °C [77 °F]
Time constant in air (ES110 Series)	10.0 s
Dissipation constant in air (ES110 Series)	1 mW/°C
Time constant in water at 0.914 m/s [3 ft/s] (ES120 Series)	15.0 s
Dissipation constant in water at 0.914 m/s [3 ft/s] (ES120 Series)	6 mW/°C
Housing material	brass
Mounting method/mechanical interface	• M10x1.0 thread     • M12x1.5 thread     • 1/8 PTF 27 TPI • M10x1.25 thread     • M14x1.5 thread
Electrical interface/connector type	• overmolded connector/2 Pin MINI TIMER • overmolded connector/Delphi 90° METRI-PACK 150 Series

Figure 1. Typical NTC Curve (12 kOhm at 25 °C [77 °F])

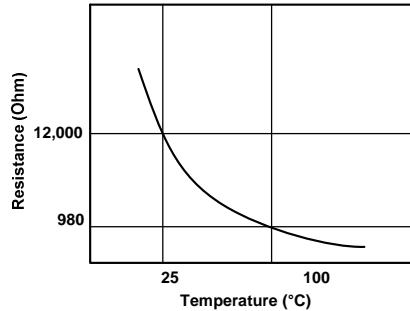


Figure 2. Typical KTY Curve (R<sub>25</sub> = 2,000 Ohm)

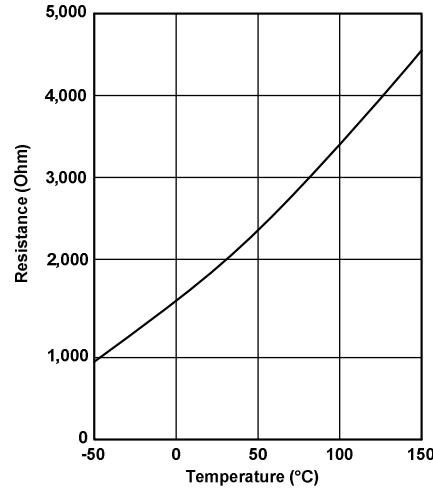
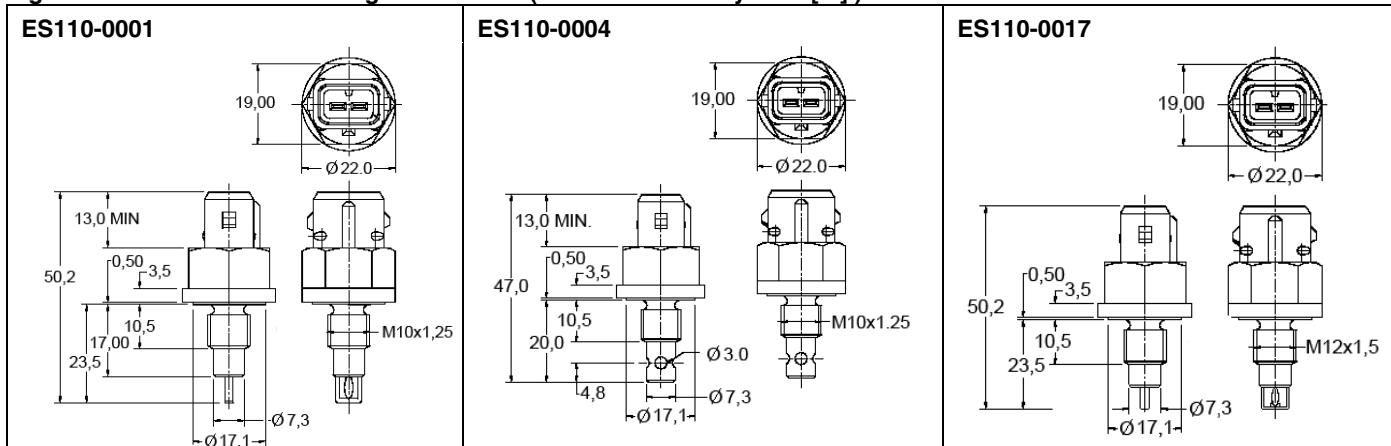
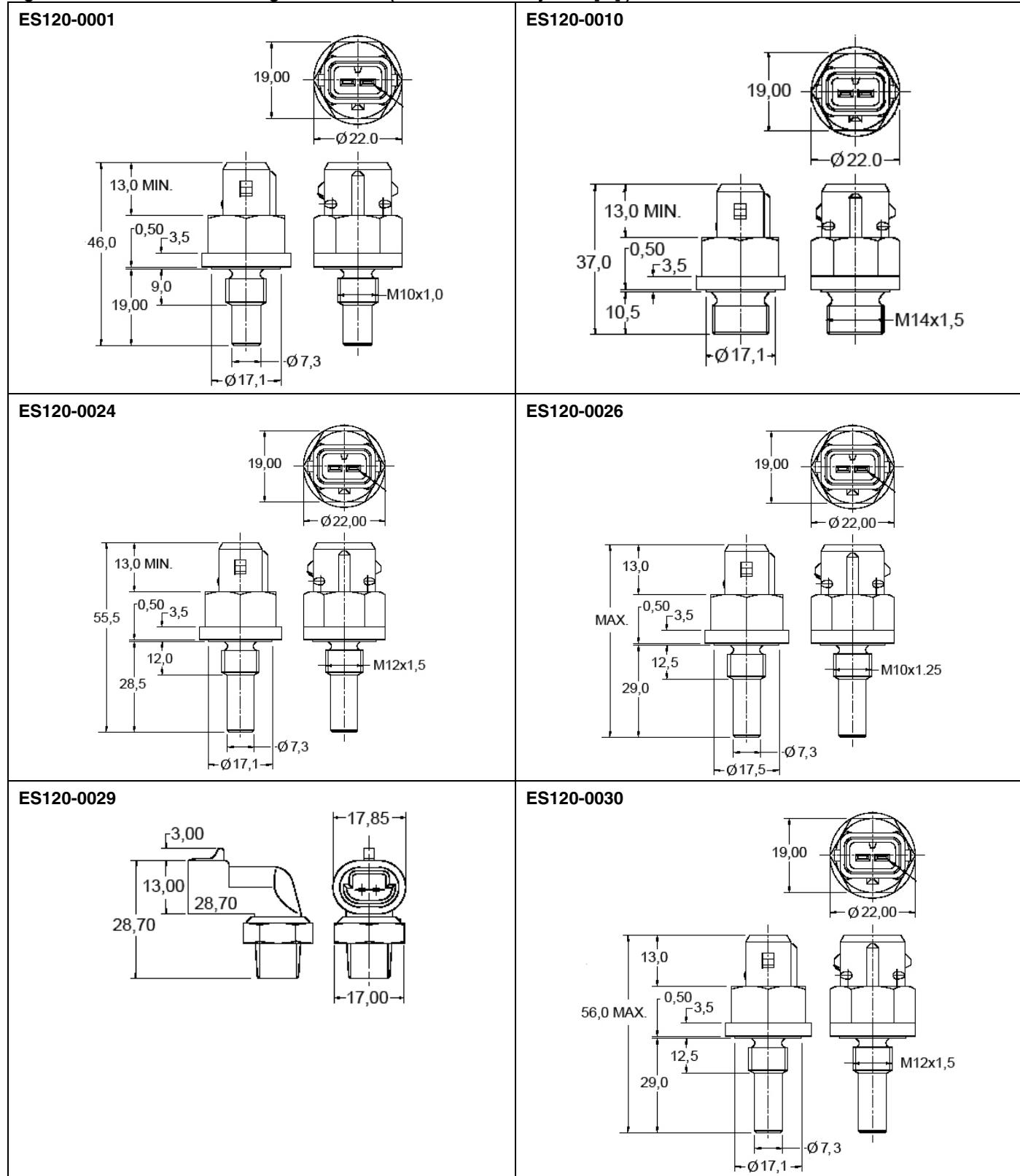


Figure 3. ES110 Series Mounting Dimensions (For reference only: mm/[in].)



# Packaged Temperature Probes with Integral Connectors

Figure 4. ES120 Series Mounting Dimensions (For reference only: mm/[in.].)



## Order Guide

Catalog Listing	Description
ES110-0001	ES110 Series air/gas temperature probe, NTC, 2,000 Ohm, $\pm 5.0\%$ tolerance, 20 °C [68 °F] accuracy, brass, threaded body (M10x1.25), exposed thermistor tip, overmolded connector/2 Pin MINI TIMER
ES110-0004	ES110 Series air/gas temperature probe, NTC, 2,000 Ohm, $\pm 5.0\%$ tolerance, 20 °C [68 °F] accuracy, brass, threaded body (M10x1.25), shrouded thermistor tip, overmolded connector/2 Pin MINI TIMER
ES110-0017	ES110 Series air/gas temperature probe, NTC, 2,000 Ohm, $\pm 5.0\%$ tolerance, 20 °C [68 °F] accuracy, brass, threaded body (M12x1.5), exposed thermistor tip, overmolded connector/2 Pin MINI TIMER
ES120-0001	ES120 Series immersion temperature probe, NTC, 2,000 Ohm, $\pm 5.0\%$ tolerance, 20 °C [68 °F] accuracy, brass, threaded body (M10x1.0), overmolded connector/2 Pin MINI TIMER
ES120-0010	ES120 Series immersion temperature probe, NTC, 2,000 Ohm, $\pm 5.0\%$ tolerance, 20 °C [68 °F] accuracy, brass, threaded body (M14x1.5), overmolded connector/2 Pin MINI TIMER
ES120-0024	ES120 Series immersion temperature probe, KTY, 2,000 Ohm, $\pm 5.0\%$ tolerance, 25 °C [77 °F] accuracy, brass, threaded body (M12x1.5), overmolded connector/2 Pin MINI TIMER
ES120-0026	ES120 Series immersion temperature probe, NTC, 2,000 Ohm, $\pm 5.0\%$ tolerance, 20 °C [68 °F] accuracy, brass, threaded body (M10x1.25), overmolded connector/2 Pin MINI TIMER
ES120-0029	ES120 Series immersion temperature probe, NTC, 2,000 Ohm, $\pm 5.0\%$ tolerance, 20 °C [68 °F] accuracy, brass, threaded body (1/8 PTF 27 TPI), overmolded connector/Delphi 90° METRI-PACK 150 Series
ES120-0030	ES120 Series immersion temperature probe, NTC, 2,000 Ohm, $\pm 5.0\%$ tolerance, 20 °C [68 °F] accuracy, brass, threaded body (M12x1.5), overmolded connector/2 Pin MINI TIMER

### **WARNING**

#### **PERSONAL INJURY**

DO NOT USE these products as safety or emergency stop devices or in any other application where failure of the product could result in personal injury.

**Failure to comply with these instructions could result in death or serious injury.**

### **WARNING**

#### **MISUSE OF DOCUMENTATION**

- The information presented in this product sheet is for reference only. Do not use this document as a product installation guide.
- Complete installation, operation, and maintenance information is provided in the instructions supplied with each product.

**Failure to comply with these instructions could result in death or serious injury.**

#### **WARRANTY/REMEDY**

Honeywell warrants goods of its manufacture as being free of defective materials and faulty workmanship. Honeywell's standard product warranty applies unless agreed to otherwise by Honeywell in writing; please refer to your order acknowledgement or consult your local sales office for specific warranty details. If warranted goods are returned to Honeywell during the period of coverage, Honeywell will repair or replace, at its option, without charge those items it finds defective. **The foregoing is buyer's sole remedy and is in lieu of all other warranties, expressed or implied, including those of merchantability and fitness for a particular purpose. In no event shall Honeywell be liable for consequential, special, or indirect damages.**

While we provide application assistance personally, through our literature and the Honeywell web site, it is up to the customer to determine the suitability of the product in the application.

Specifications may change without notice. The information we supply is believed to be accurate and reliable as of this printing. However, we assume no responsibility for its use.

#### **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:

**E-mail:** [info.sc@honeywell.com](mailto:info.sc@honeywell.com)

**Internet:** [www.honeywell.com/sensing](http://www.honeywell.com/sensing)

#### **Phone and Fax:**

Asia Pacific	+65 6355-2828
	+65 6445-3033 Fax
Europe	+44 (0) 1698 481481
	+44 (0) 1698 481676 Fax
Latin America	+1-305-805-8188
	+1-305-883-8257 Fax
USA/Canada	+1-800-537-6945
	+1-815-235-6847
	+1-815-235-6545 Fax

Sensing and Control

Honeywell

11 West Spring Street

Freeport, Illinois 61032

[www.honeywell.com/sensing](http://www.honeywell.com/sensing)

009036-1-EN IL50 GLO Printed in USA

August 2008

Copyright © 2008 Honeywell International Inc. All rights reserved.

**Honeywell**