837T Solid-State Temperature Sensors

Allen-Bradley

Compact, Comprehensive Solution with IO-Link Functionality

Features and Benefits

Display Models

- Temperature Range: -20…80 °C (-4…176 °F)
- Embedded IO-Link communication protocol helps minimize downtime and increase productivity
- Available in various process connections to fit your application needs
- Output: 2 x PNP
  1 x PNP +1 x Analog (4…20 mA)
- Probe lengths from 25…350 mm (0.98…13.7 in.)

Non-Display Models

- Temperature range: -50…250 °C (-58…482 °F)
- Various process connections to fit your application needs
- Probe lengths: 25 to 400 mm (0.98…15.75 in.)

837TH Sanitary Models

- Available with a 3/4," 1 1/2" and 2" Tri-clamp® process connection
- Temperature range: -50…250 °C (-58…482 °F)
- 3-A® compliance

837RTD Resistance Temperature Detector

- Temperature range : -50…200 °C (-58…392 °F)
- Pt1000 measuring element

What is IO-Link?

IO-Link is a worldwide open-standard protocol that allows sensors to easily integrate into The Connected Enterprise. Benefits of IO-Link technology include:

- Reduced inventory and operating costs
- Increased uptime/productivity
- Simplified design, installation, setup and maintenance

1732 ArmorBlock® IO-Link Master

837T Display

837T Non-Display

837TH Sanitary

837RTD

Rockwell Automation introduces the Allen-Bradley® 837T Temperature Sensor as part of its Solid-State Condition Sensors portfolio. Built with high-accuracy and new technology, these devices provide users with a comprehensive solution for measuring temperatures in liquids, gases and vapors.

The display model has temperature ranges from -20…80 °C (-4…176 °F) and embedded IO-Link 1.1 communications protocol. IO-Link allows sensors to easily integrate with The Connected Enterprise, delivering data from the sensor directly into a control system in a very cost-efficient and easy-to-use manner via an IO-Link master and EtherNet/IP.™ For easy on-machine programming, it can be configured manually as well as through the Studio 5000 Logix Designer® software.

The flexible 837T sensor with display offers various process connections and features a compact, rotatable housing (320°) and head (330°) to accommodate the most complicated applications. These sensors have 2 x PNP and 1 PNP + 4…20 mA analog output configurations, probe lengths from 25…350 mm (0.98…13.7 in.) and an IP67 enclosure rating.

The 837T non-display model offers a temperature range from -50… 250 °C (-58…482 °F) along with various process connections to fit your application needs. These devices are available in two form factors – standard and extended range. These sensors have 4…20 mA analog outputs, probe lengths from 25 to 400 mm (0.98…15.75 in.) and an IP67 enclosure rating.

The 837TH sanitary models are ideal for applications in the food & beverage, cosmetics and pharmaceutical industries. The 837TH is available with a 3/4," 1 1/2" and 2" Tri-clamp® process connection and offers a temperature range from -50… 250 °C (-58…482 °F).

The 837RTD Resistance Temperature Detector completes the temperature portfolio. These sensors have a wide temperature range -50…200 °C (-58…392 °F), a Pt1000 measuring element and a compact, vibration-resistant design with an IP67 enclosure rating.

LISTEN. THINK. SOLVE.®

837T IO-Link Version 1.1 Benefits

IO-Link is a worldwide open-standard peer-to-peer serial communication protocol (IEC 61131-9) that allows sensors and actuators to easily integrate into The Connected Enterprise.

- The IO-Link enabled 837T sensor – when connected to an IO-Link master – shares device identity, parameters, real-time diagnostics and process data with the control system to optimize machine setup, maintenance and troubleshooting.
- By combining simple implementation with powerful data and diagnostics, IO-Link sensors provide simplified integration and seamless visibility of your processes to increase uptime and productivity.

IO-Link Master

837T IO-Link Benefits

- **Teaching the sensor** can be accomplished with IO-Link via the Add-On-Profile through Studio 5000 Logix Designer software or by using the tactile pushbuttons on the sensor.
- **Temperature information** in Celsius eliminates the need to scale the temperature data on the PLC and saves commissioning time.
- **Application-specific name**s help the user quickly locate the sensor on the machine.
- **Locking options** are available to lock local settings when operating in IO-Link mode, and therefore any unauthorized changes will not change the settings of the sensor.

Typical Applications

Skids	Balers	Filter Press Machines	Wastewater
CIP Machines	**Hydraulic Power Units**	**Automotive**	**Tank Level Detection**

Comparison Chart

Features/ Product Family	Sensor Model		Temperature Range °C (°F)					Process Connection					Probe Length			Output Type			Connection Style
	Standard	Sanitary	-20… 80 (-4 … 176)	-50… 150 (-58…302)	-50…250 (-58…482)	-30… 130 (-22…266)	-50… 200 (-58…392)	1/4" NPT Male	1/2" NPT Male	G 1/4" BSPP Male	G 1/2" BSPP Male	Tri-clamp 3/4", 1-1/2" and 2"	25 mm to 150 mm	28 mm to 250 mm	25 mm to 350/400 mm	1 x PNP + 1 x Analog (4…20 mA), IO-Link	2 x PNP, IO-Link	Analog (4…20 mA)	4-Pin DC Micro (M12) QD
Diameter: 45 mm (1.7 in.) **837T Display Temperature Sensors**	✓	◆	✓					✓	✓	✓	✓				✓	✓	✓		✓
38.1 mm (1.5 in.) **837T Non-Display Temperature Sensors**	✓			✓	✓			✓	✓	✓	✓				✓			✓	✓
51 mm (2 in.) **837TH Sanitary Temperature Sensors**		✓		✓	✓							✓	✓					✓	✓
15 mm (0.59 in.) Varying process connection lengths **837RTD Resistance Temperature Detector**	✓					✓	✓	✓	✓	✓				✓					✓

Note: Sanitary connections (◆) for the 837T Display are slated for future release.

Product Selection

837T Display Model

Process Connection	Probe Length mm (inch)	Temperature Range °C (°F)	Catalog No.	
			Output: 2 x PNP	Output: 1 PNP + 1 Analog 4…20…mA
1/4" NPT Male	25 (0.98)	-20…80 (-4…176)	837T-D3N14A25PP-D4	837T-D3N14A25PA-D4
	50 (1.96)		837T-D3N14A50PP-D4	837T-D3N14A50PA-D4
	100 (3.93)		837T-D3N14B10PP-D4	837T-D3N14B10PA-D4
	150 (5.9)		837T-D3N14B15PP-D4	837T-D3N14B15PA-D4
	250 (9.84)		837T-D3N14B25PP-D4	837T-D3N14B25PA-D4
	350 (13.7)		837T-D3N14B35PP-D4	837T-D3N14B35PA-D4
1/2" NPT Male	25 (0.98)		837T-D3N12A25PP-D4	837T-D3N12A25PA-D4
	50 (1.96)		837T-D3N12A50PP-D4	837T-D3N12A50PA-D4
	100 (3.93)		837T-D3N12B10PP-D4	837T-D3N12B10PA-D4
	150 (5.9)		837T-D3N12B15PP-D4	837T-D3N12B15PA-D4
	250 (9.84)		837T-D3N12B25PP-D4	837T-D3N12B25PA-D4
	350 (13.7)		837T-D3N12B35PP-D4	837T-D3N12B35PA-D4
G 1/4" BSPP Male	25 (0.98)		837T-D3G14A25PP-D4	837T-D3G14A25PA-D4
	50 (1.96)		837T-D3G14A50PP-D4	837T-D3G14A50PA-D4
	100 (3.93)		837T-D3G14B10PP-D4	837T-D3G14B10PA-D4
	150 (5.9)		837T-D3G14B15PP-D4	837T-D3G14B15PA-D4
	250 (9.84)		837T-D3G14B25PP-D4	837T-D3G14B25PA-D4
	350 (13.7)		837T-D3G14B35PP-D4	837T-D3G14B35PA-D4
G 1/2" BSPP Male	25 (0.98)		837T-D3G12A25PP-D4	837T-D3G12A25PA-D4
	50 (1.96)		837T-D3G12A50PP-D4	837T-D3G12A50PA-D4
	100 (3.93)		837T-D3G12B10PP-D4	837T-D3G12B10PA-D4
	150 (5.9)		837T-D3G12B15PP-D4	837T-D3G12B15PA-D4
	250 (9.84)		837T-D3G12B25PP-D4	837T-D3G12B25PA-D4
	350 (13.7)		837T-D3G12B35PP-D4	837T-D3G12B35PA-D4

Note: IO-Link Master Module (Catalog No. 1734-4IOL or 1732-8IOLM12R) is required for premier IO-Link integration experience.

837T Non-Display Model

Process Connection	Probe Length mm (inch)	Temperature Range °C (°F)	Output	Catalog No.
1/4" NPT Male	25 (0.98)	Standard -50…150 (-58…302)	1 Analog 4…20 mA	837T-N1N14A25A-D4
	50 (1.96)			837T-N1N14A50A-D4
	100 (3.93)			837T-N1N14B10A-D4
	150 (5.9)			837T-N1N14B15A-D4
	250 (9.84)			837T-N1N14B25A-D4
	300 (11.81)			837T-N1N14B30A-D4
	350 (13.7)			837T-N1N14B35A-D4
	400 (15.75)			837T-N1N14B40A-D4
	25 (0.98)	Extended Range -50…250 (-58…482)		837T-N2N14A25A-D4
	50 (1.96)			837T-N2N14A50A-D4
	100 (3.93)			837T-N2N14B10A-D4
	150 (5.9)			837T-N2N14B15A-D4
	250 (9.84)			837T-N2N14B25A-D4
	300 (11.81)			837T-N2N14B30A-D4
	350 (13.7)			837T-N2N14B35A-D4
	400 (15.75)			837T-N2N14B40A-D4
G 1/4" BSPP Male	25 (0.98)	Standard -50…150 (-58…302)		837T-N1G14A25A-D4
	50 (1.96)			837T-N1G14A50A-D4
	100 (3.93)			837T-N1G14B10A-D4
	150 (5.9)			837T-N1G14B15A-D4
	250 (9.84)			837T-N1G14B25A-D4
	300 (11.81)			837T-N1G14B30A-D4
	350 (13.7)			837T-N1G14B35A-D4
	400 (15.75)			837T-N1G14B40A-D4
	25 (0.98)	Extended Range -50…250 (-58…482)		837T-N2G14A25A-D4
	50 (1.96)			837T-N2G14A50A-D4
	100 (3.93)			837T-N2G14B10A-D4
	150 (5.9)			837T-N2G14B15A-D4
	250 (9.84)			837T-N2G14B25A-D4
	300 (11.81)			837T-N2G14B30A-D4
	350 (13.7)			837T-N2G14B35A-D4
	400 (15.75)			837T-N2G14B40A-D4

837TH Sanitary Model					
	Process Connection	Probe Length mm (inch)	Temperature Range °C (°F)	Output	Catalog No.
	3/4" Sanitary Tri-clamp	25 (0.98)	Standard -50…150 (-58…302)	1 Analog 4…20 mA	837TH-N1T34A25A-D4
		50 (1.96)			837TH-N1T34A50A-D4
		100 (3.93)			837TH-N1T34B10A-D4
		150 (5.9)			837TH-N1T34B15A-D4
		50 (1.96)	Extended Range -50…250 (-58…482)		837TH-N2T34A50A-D4
		100 (3.93)			837TH-N2T34B10A-D4
		150 (5.9)			837TH-N2T34B15A-D4
	1.5" Sanitary Tri-clamp	25 (0.98)	Standard -50…150 (-58…302)		837TH-N1T15A25A-D4
		50 (1.96)			837TH-N1T15A50A-D4
		100 (3.93)			837TH-N1T15B10A-D4
		50 (1.96)	Extended Range -50…250 (-58…482)		837TH-N2T15A50A-D4
		100 (3.93)			837TH-N2T15B10A-D4
		150 (5.9)			837TH-N2T15B15A-D4
	2" Sanitary Tri-clamp	25 (0.98)	Standard -50…150 (-58…302)		837TH-N1T20A25A-D4
		50 (1.96)			837TH-N1T20A50A-D4
		100 (3.93)			837TH-N1T20B10A-D4
		50 (1.96)	Extended Range -50…250 (-58…482)		837TH-N2T20A50A-D4
		100 (3.93)			837TH-N2T20B10A-D4
		150 (5.9)			837TH-N2T20B15A-D4

837RTD Resistance Temperature Detector					
	Process Connection	Probe Length mm (inch)	Temperature Range °C (°F)	Output	Catalog No.
	1/4" NPT Male	28 (1.1)	Standard -30…130 (-22…266)	Resistance Output	837RTD-N1N14A28P1-D4
		30 (1.18)			837RTD-N1N14A30P1-D4
		40 (1.57)			837RTD-N1N14A40P1-D4
		50 (1.97)			837RTD-N1N14A50P1-D4
		60 (2.36)			837RTD-N1N14A60P1-D4
		65 (2.56)			837RTD-N1N14A65P1-D4
		28 (1.1)	Extended Range -50…200 (-58…392)		837RTD-N2N14A28P1-D4
		30 (1.18)			837RTD-N2N14A30P1-D4
		40 (1.57)			837RTD-N2N14A40P1-D4
		50 (1.97)			837RTD-N2N14A50P1-D4
		60 (2.36)			837RTD-N2N14A60P1-D4
		65 (2.56)			837RTD-N2N14A65P1-D4
	G 1/4" BSPP Male	28 (1.1)	Standard -30…130 (-22…266)		837RTD-N1G14A28P1-D4
		30 (1.18)			837RTD-N1G14A30P1-D4
		40 (1.57)			837RTD-N1G14A40P1-D4
		50 (1.97)			837RTD-N1G14A50P1-D4
		60 (2.36)			837RTD-N1G14A60P1-D4
		65 (2.56)			837RTD-N1G14A65P1-D4
		28 (1.1)	Extended Range -50…200 (-58…392)		837RTD-N2G14A28P1-D4
		30 (1.18)			837RTD-N2G14A30P1-D4
		40 (1.57)			837RTD-N2G14A40P1-D4
		50 (1.97)			837RTD-N2G14A50P1-D4
		60 (2.36)			837RTD-N2G14A60P1-D4
		65 (2.56)			837RTD-N2G14A65P1-D4

837T Temperature Sensor Accessories

Description	Catalog No.
DC Micro (M12) QD cordset, straight, 4-pin, 2 m (6.5 ft)	889D-F4AC-2
DC Micro (M12) QD cordset, right angle, 4-pin, 2 m (6.5 ft)	889D-R4AC-2
IO-Link Master Module for POINT I/O™	1734-4IOL
ArmorBlock IP67 IO-Link Master	1732E-8IOLM12R

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