TTS100 Series Thermistor Sensors

CSI's TTS100 line of thermistor sensors are temperature measuring devices which vary their resistance as a function of temperature.

TTS100 Thermistor Sensor Features

- High Degree of Conformity
  - Interchangeable
  - Predictable Performance
- Variety of Installation Options
  - Element Only
  - Wall Mount
  - Duct Mount
  - Immersion Mount
- Slide/STAT
  - Wall Mount
  - Integral Thermistor
  - Potentiometer "Slide"
  - Occupancy Override Button
  - Integral Port for Commissioning or Service
- Excellent Thermal Response
- Highly Repeatable
- Stable

Slide/STAT

TTS100W

Description

Thermistor sensors vary their resistance in proportion to temperature changes. Their high impedance properties make these resistance element sensors very tolerant of voltage drop problems encountered in longer wiring runs. Power for operation is normally obtained from the associated CSI controller.

Thermistor sensors produce a non-linear output, which is linearized by a Look-Up table in the associated controller. The TTS100 Thermistors exhibit a negative temperature coefficient (NTC).

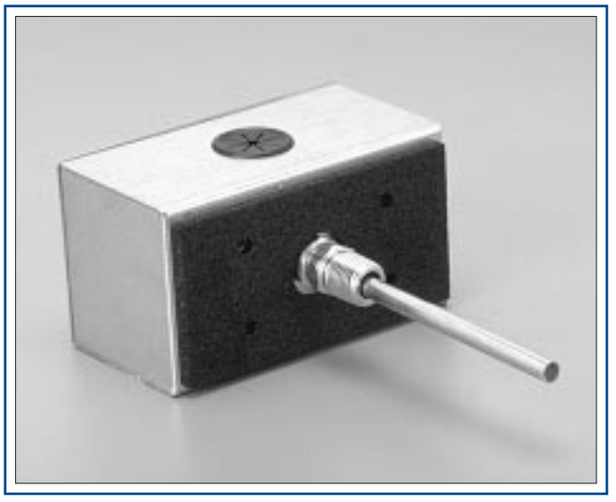
Installation Options

Thermistor sensors are available in the following packaging options to suit a variety of installation applications:

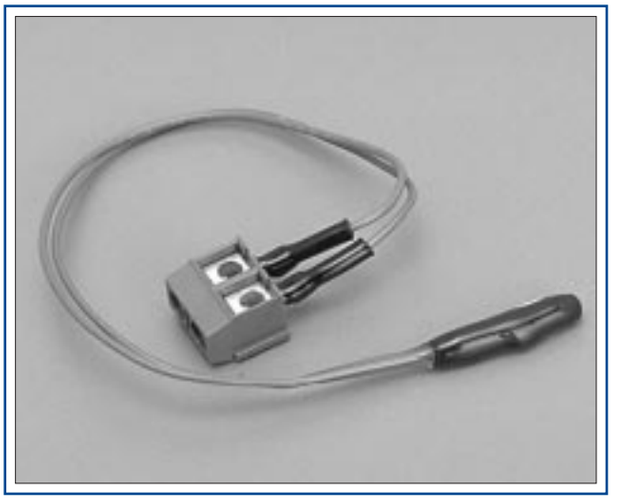
❒ TTS100S: A TTS100 sensing element sealed in a potted cylinder and provided with pigtail leads. Two length options are available.

❒ TTS100W: A TTS100 element in a thermally responsive wall mount enclosure.

TTS100 Series Thermistor Sensors

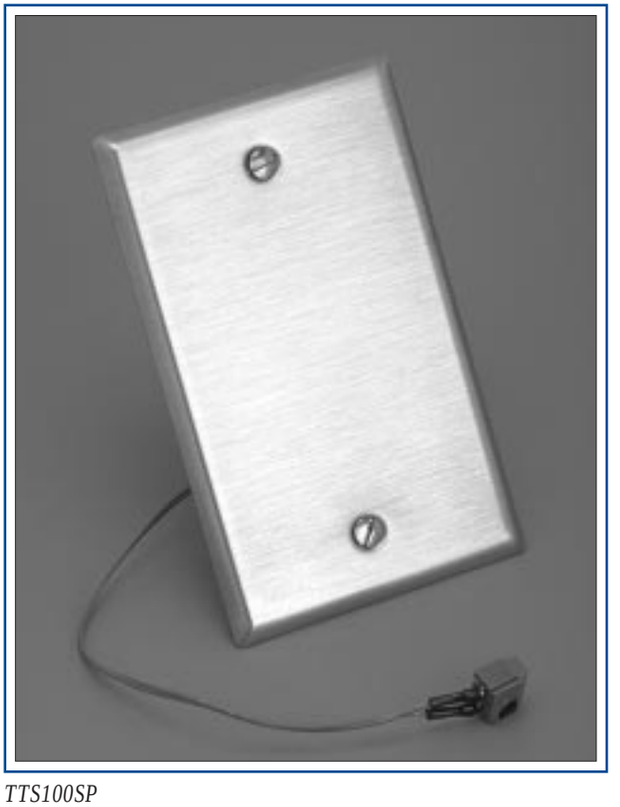


TTS100D

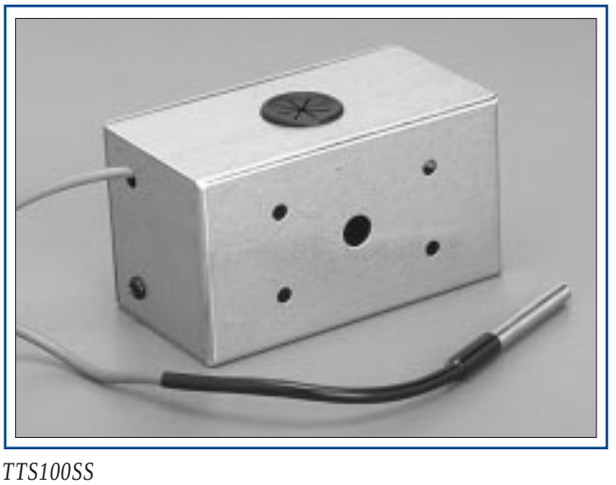


TTS100S1

TTS100OA



TTS100SP



TTS100SS

MODEL NUMBER	DESCRIPTION	COMMENTS
TTS100W	*Thermistor Wall Mount sensor*	
TTS100WJ	*Thermistor Wall Mount sensor*	*with MR communication port*
Slide/STAT	*Thermistor Wall Mount sensor with Potentiometer Slide and override button*	*With MR communication port*
TTS100D1	*Thermistor Duct sensor & junction box*	*with 4" (10 mm) probe*
TTS100D2	*Thermistor Duct sensor & junction box*	*with 8" (20 mm) probe*
TTS100I1	*Thermistor Immersion sensor & junction box*	*with 4" (10 mm) probe & well, 1/2" (1.3 cm) NPT*
TTS100I2	*Thermistor Immersion sensor & junction box*	*with 8" (20 mm) probe & well, 3/4" (1.9 cm) NPT*
TTS100OA	*Thermistor Outside Air sensor*	
TTS100S1	*Thermistor Sensor – element only*	*6" (15 mm) leads*
TTS100S2	*Thermistor Sensor – element only*	*6' (2 m) leads*
TTS100SP	*Thermistor Stainless Plate sensor*	
TTS100SS	*Thermistor Strap-On sensor*	*with Handi-Box*

- ❒ TTS100WJ: A TTS100W with an on-board port, which supports communications between a MicroRegulator™ and an M/STAT for local commissioning or servicing functions.
- ❒ Slide/STAT: A TTS100 element in a thermally responsive wall mount enclosure, which includes a Potentiometer "Slide" that is suitable for setpoint adjustment. Also included is a push button for occupancy override, and an on-board port to support communications between a MicroRegulator™ and an M/STAT for local commissioning or service functions.
- ❒ TTS100D: A TTS100 element mounted in a stainless steel probe which is connected to a junction box. This unit is suitable for duct sensing applications.
- ❒ TTS100I: A TTS100D coupled with a stainless steel thermowell.
- ❒ TTS100OA: A TTS100 element with a shrouded probe connected to a junction box.
- ❒ TTS100SS: A TTS100 mounted element connected to a remote handi-box by 6 ft. (2 m.) of heat shring cable.

TTS100 Series Thermistor Sensors

CSI TTS100 Thermistor Look-up Table Information					
CONTROLLER	RESOLUTION COUNTS	INPUT RANGE (Vdc)	M (Slope)	B (Intercept)	OPERATING TEMPERATURE
7716 PCU, Base Card Only	4096	0 - 5	N/A* N/A*	N/A* N/A*	N/A N/A
7728 I/SITE	4096	0 - 5	N/A*	N/A*	N/A
MR-88 MR-88R MR-632 MR-160	256	0 - 5 or 2 - 4	INTEGRAL LOOK-UP TABLES	INTEGRAL LOOK-UP TABLES	–40 - 176°F –40 - 80°C 32 - 90°F 0 - 32°C
MR-55 (X) Application Specific MRs	256	1.5 - 4	INTEGRAL LOOK-UP TABLES	INTEGRAL LOOK-UP TABLES	25 - 113°F –4 - 45°C

*Used in conjunction with user defined Look-Up

Specifications:

WIRING REQUIREMENTS

DISTANCE TO CONTROLLER:
100 ft. (30m)
50 ft. (15m) for MR Communications port function.
CABLE SUPPORTED: 18 – 24 AWG, 2 conductor, (except TTS100WJ which has 3 conductors, and the Slide/STAT which has four conductors), when connected to application specific microregulators.) Cable capacitance of 55 PP/ft. or less and shielding are recommended.

PERFORMANCE

OPERATING RANGE: 32° to 158°F (0°to 70°C), except TTS100OA –4° to 158°F (–20° to 70°C) and TTS100W 32° to 122°F (0° to 50°C).
ACCURACY: ±0.2°C @ 25°C
NOMINAL RESISTANCE: 10,000 ohm at 72°F. Negative temperature coefficient. (Dale 1M1002-C3)

PHYSICAL DESCRIPTION

MATERIAL: Thermistor
COLOR: Bone body on wall mount units.

SLIDE/STAT POTENTIOMETER OUTPUT

VOLTAGE SPAN: 2.2 – 3.68Vdc (Compatible with application specific MicroRegulators™)

DIMENSIONS

- TTS100S1: 6"L (15 mm)
- TTS100S2: 6'L (2 m)
- TTS100W: 4.5"H x 2.75"W x 1"D (11.4cm x 7cm x 2.5cm)
- SLIDE/STAT: 4.5"H x 2.75"W x 1"D (11.4cm x 7cm x 21.5cm)
- TTS100D: 4.2"L x 2.3"W x 1.9"D (10.7cm x 5.8cm x 4.8cm) Probe: 4"L x.25" dia (10cm x 0.6cm) or 8"L x .25"dia (20cm x 0.6cm)
- TTS100I: 4.2"L x 2.3"W x 1.9"D (10.7cm x 5.8cm x 4.8cm) Probe: 4"L x 0.25" dia (10cm x 0.6cm) or 8"L x 0.25"dia (20cm x 0.6cm)

Well: 4.25"L x 0.625"dia (10.8cm x 1.6 cm) or 8.25"L x 0.625"dia (21cm x 1.6cm)

- TTS100OA: 5.6"L x 1.4"W x 1.5"D (14.2cm x 3.6cm x 3.8cm)
- TTS 100SS: 6'L(2m) with handi-box

POWER REQUIREMENTS: 5 volt excitation via 10K ohm resistor
OPERATING HUMIDITY: 10% to 90% RH, non condensing

CSI Group Headquarters

PAN-AMERICAN MARKET
CSI CONTROL SYSTEMS INTERNATIONAL
1625 W. Crosby Rd., Suite 100
Carrollton, Texas 75006
Phone: 972-323-1111, Fax: 972-242-0026

EUROPEAN COMMUNITY MARKET
CSI Europe
Unit B3, Armstrong Mall – Southwood,
FARNBOROUGH GU14 ONR United Kingdom
Phone: 44 1252 370900, Fax: 44 1252 372470

ASIA-PACIFIC MARKET
CSI Pacific
36 Hasler Rd.
Osborne Park, Western Australia 6017
Phone: 61-9-244 2799, Fax: 61-9-244 4335

www.control systems. com

CSI Control Systems® International