

Multiple Sensor Heads Controlled Through Single Electronics 0°C to 2100°C



Multidrop T Series has been designed to offer our customers a cost – effective non – contact based temperature monitoring solution, ideal for installation at multiple points in their processes. This product combines high accuracy and ruggedness of T Series sensor heads with an innovative multi-channel Interface Controller module.

Each Multidrop is a two-piece pyrometer unit offering a variety of sensor heads with temperature ranges between 0°C and 2100°C. The sensor heads cover multiple spectral ranges and optics thus providing an array of solutions for your application requirements.

The Interface Controller module acts as a digital display as well as provides analogue and digital signal output. It also provides power and communications to the connected sensor heads and allows for parameterization of sensor heads through built-in user interface keypad or through service software.

The high accuracy, ruggedness and low cost per measurement point make these pyrometers ideal for installation at multiple points in your process.

MultiDrop T Series



Applications

- Food
- Power Industry
- Gas cylinder filling
- Automotive
- Plastics
- Infrared Curing

Features

- Multiple Sensor Head design (up to 8 sensor heads per Interface module; each individually addressable)
- For temperature measurements between 0 °C and 2100 °C
- Multiple spectral ranges and high resolution fixed optics (up to 200:1)
- Galvanically isolated single analogue output – 0/4 to 20 mA, 0 to 10 V, J type & K type TC* (user switchable) and Single relay output
- USB 2.0, RS-232/RS-485 Interfacing for remote configuration
- Integrated high resolution LCD display with user interface keypad in Interface module

Ordering Information

Standard Scope of Delivery	MultiDrop Interface Controller module	
Options (must be specified at the time of order)		
Sensing Heads		
Sensing Heads	T2-450, T2-250, TL-390, TL-514, TL-8 (only single sensor type per module)	
Working Distance	T2-450/T2-250 TL-390/TL-514	250 mm, 600 mm, 1400 mm 500 mm, 800 mm, 1000 mm
Temperature Range	T2-450 T2-250	600 °C to 1600 °C (100:1) 700 °C to 2100 °C (200:1) 300 °C to 1300 °C (100:1) 500 °C to 1500 °C (200:1)
Sensing head Configurations	4 Sensor Head configuration with 3 mtr cable each 8 Sensor Head configuration with 3 mtr cable each	
Sensing head cable	Up to 15 mtr	
Accessories (can be ordered at any time and added on-site)		
Mounting Angle	Reference No. 8200-03	
Air Purge Unit	Reference No. 8200-01	
Converter RS-485 / RS-232	Reference No. 9000-03	

* Available only with TL-8

Technical Specifications

Parameter	T2-450		T2-250		TL-390	TL-514	TL-8
Temperature range	600 - 1600°C	700 - 2100°C	300 - 1300°C	500 - 1500°C	300°C to 1400°C	200°C to 1400°C	0°C to 500°C
Sub temp. range	Adjustable within temperature range; minimum span 51°C						
Spectral response	1 µm		1.6 µm		3.9 µm	5.14 µm	8 to 14 µm
Optics	Fixed optics with 250 mm, 600 mm and 1400 mm Working distances				Fixed optics with 500mm, 800 mm and 1000 mm Working distances		Fixed optics; variable working distances
Distance ratio	100:1	200:1	100:1	200:1	50:1		15:1
Temperature accuracy ¹	Up to 1500°C: 0.8% of measured value +2°C, Above 1500°C: 1% of measured value +1°C				1.5 % of temperature reading ²		±2% of measured value or ±3°C whichever is greater
Repeatability	0.4% of measured value				±0.5% of measured value or ±1°C whichever is greater		
Response time (t90)	50 msec. to 10 sec. adjustable				100 msec. to 10 sec. adjustable		
Emissivity	1.0 factory default; 0.1 to 1.0 adjustable						1.0 factory default; 0.1 to 1.2 adjustable
Aiming	None						
Digital Output	USB 2.0, RS232/RS485 user selectable.						
Analogue Output	Single 0/4 to 20 mA / 0 to 10 V / J type TC / K type TC; switchable through user interface keypad and service software (TC output option available only with TL-8)						
Analogue output Resolution	0.1 K						
Relay Output	1 Relay output with hysteresis (60 VDC/ 42 VAC RMS, 0.4 A)						
Loop Time	20 ms X no. of connected heads						
Interface	<p>Interfacing for Interface Controller Module : Type: RS-485 (Galvanically isolated); Mode: Half duplex; Baud rate: 19.2 kBd; Data protocol: MT500 ASCII protocol; Line Address: 250 ('FA' - factory default)</p> <p>Interface for Sensor heads : Type: TTL output, Baud rate: 9.6 kBd (T2-450 / T2-250), 19.2 kBd (TL-390 / TL-514/TL-8); Data protocol: MT500 ASCII protocol; Line Address: 1 to 8 ('01' to '08' - factory default) (Sensor heads can only be interfaced through Module)</p>						
Head Support	Up to 8 sensing heads per module (offered with 4 sensors or 8 sensors Configurations)						
Control Panel	35.0 mm X 25.0 mm Backlit segmented graphical LCD, 3 keys for parameter settings Control Panel Settings : 3 display modes: measuring mode, page menu, settings menu; Default mode is measuring mode; Keypad locked by default unlock to change parameters						
Configurable parameters	<p>Parameters for Module Temperature Processing Mode, Temperature Unit, Analogue output mode, Analogue output sub-range, Alarm set-point & hysteresis, RS-232/RS-485 selection</p> <p>Parameters for Sensor Heads Emissivity, Peak picker, Response time, Line address</p>						
Software	MT 1.1.3						
Power supply	24 V DC ± 1 V; max. current 1 A						
Protection Class	IP65						
Housing	<p>Interface Controller Module : ABS</p> <p>Sensor Heads : Stainless Steel</p>						
Dimensions	<p>Interface Controller Module : 171.0 mm x 121.0 mm x 55.0 mm</p> <p>Sensor Heads : T2-450/T2-250; dia 25mm, L 139.4 mm</p> <p>TL-390/TL-514 : dia 25 mm, L 149.4 mm</p> <p>TL-8 : dia 25 mm, L 103 mm</p>						
Weight	<p>Interface Controller Module : 320 g,</p> <p>Sensor Heads : T2-450/T2-250 : 250 g, TL-390/TL-514/TL-8 : 200 g</p>						
Operating temp.	0 °C to 70 °C						
Storage temp.	-20 °C to 70 °C						

1 Specifications for black body: $\epsilon=1$, $T_{amb}=25^{\circ}\text{C}$, $\tau=1\text{sec}$

2 The instrument must be at a constant ambient temperature for a minimum of 25-30min.

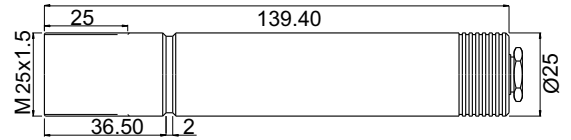
Sensor Head



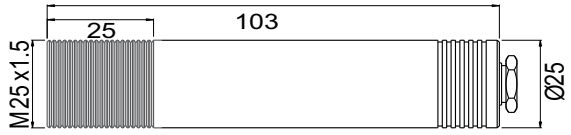
Features

- Multiple spectral ranges with different fixed optics
- Rugged industrial cable for sensing heads
- Sensor head cable extendable up to 15 mtr
- IP65 rated stainless steel housing

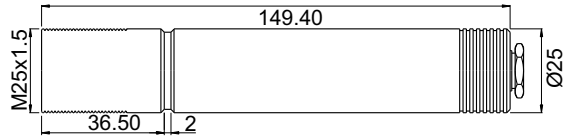
Dimensional Drawing



T2-450 / T2-250



TL-8

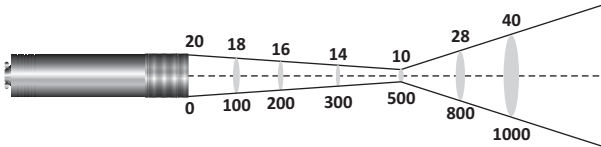


TL-390/TL-514

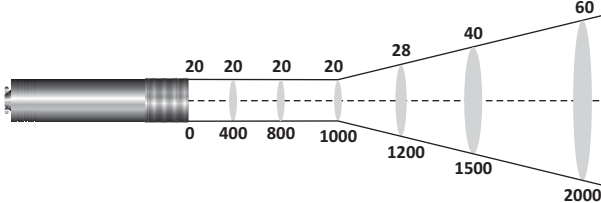
Optical Specifications

TL-390/TL-514 FOV-50:1

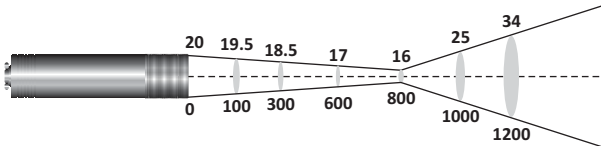
Optics 500(WD = 500mm, Spot Size S = 10 mm, Aperture A = 20 mm)



Optics 1000(WD = 1000mm, Spot Size S = 20 mm, Aperture A = 20 mm)

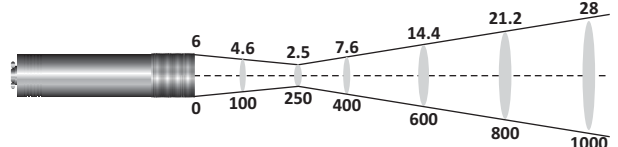


Optics 800(WD = 800mm, Spot Size S = 16 mm, Aperture A = 20 mm)

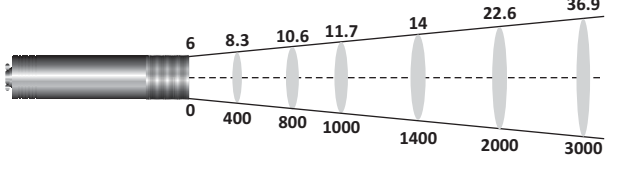


T2-450/T2-250 FOV-100:1

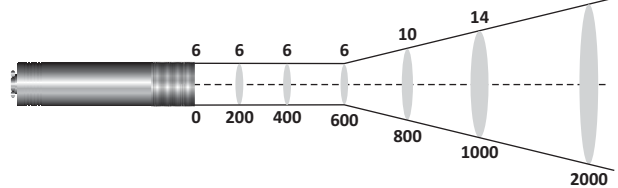
Optics 250(WD = 250mm, Spot Size S = 2.5 mm, Aperture A = 6 mm)



Optics 1400(WD = 1400mm, Spot Size S = 14 mm, Aperture A = 6 mm)

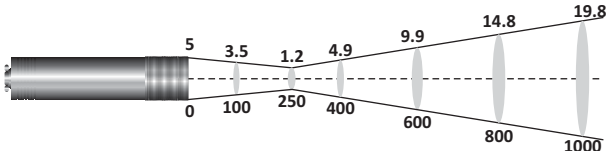


Optics 600(WD = 600mm, Spot Size S = 6 mm, Aperture A = 6 mm)

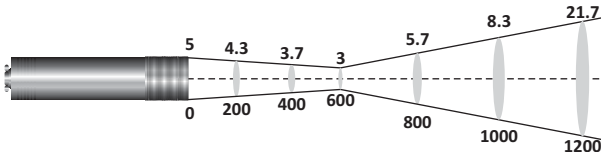


T2-450 FOV-200:1

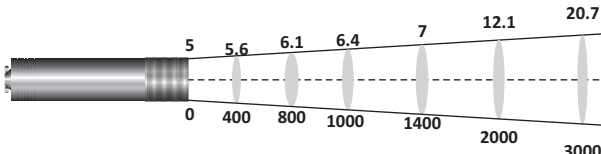
Optics 250(WD = 250mm, Spot Size S = 1.2 mm, Aperture A = 5 mm)



Optics 600(WD = 600mm, Spot Size S = 3 mm, Aperture A = 5 mm)

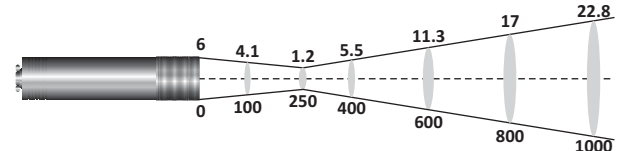


Optics 1400(WD = 1400mm, Spot Size S = 7 mm, Aperture A = 5 mm)

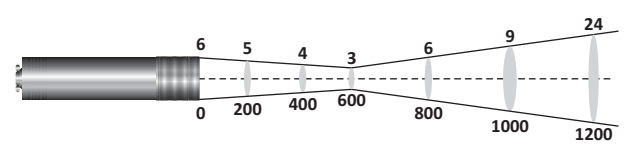


T2-250 FOV-200:1

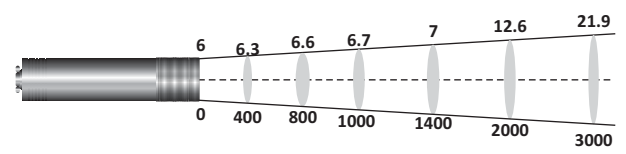
Optics 250(WD = 250mm, Spot Size S = 1.2 mm, Aperture A = 6 mm)



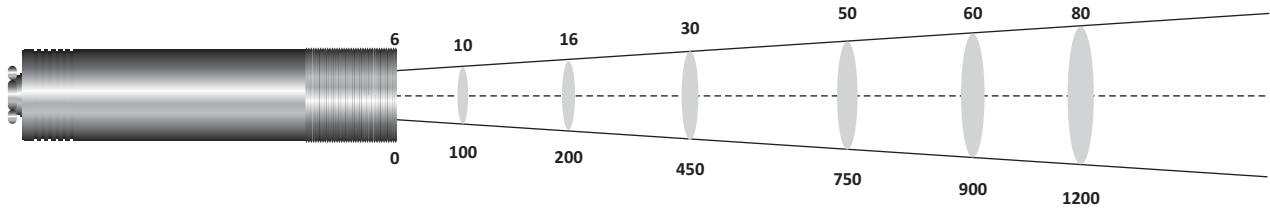
Optics 600(WD = 600mm, Spot Size S = 3 mm, Aperture A = 6 mm)



Optics 1400(WD = 1400mm, Spot Size S = 7 mm, Aperture A = 6 mm)



TL-8 FOV-15:1



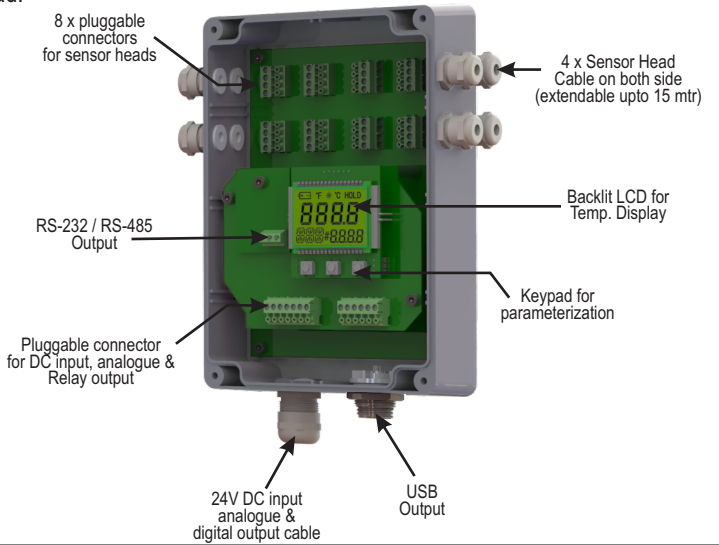
Interface Controller Module

The Interface Controller module is a multi-function device that acts as a display and controller for sensor heads. It has 8 digital inputs configurable for communication with up to 8 sensor heads.

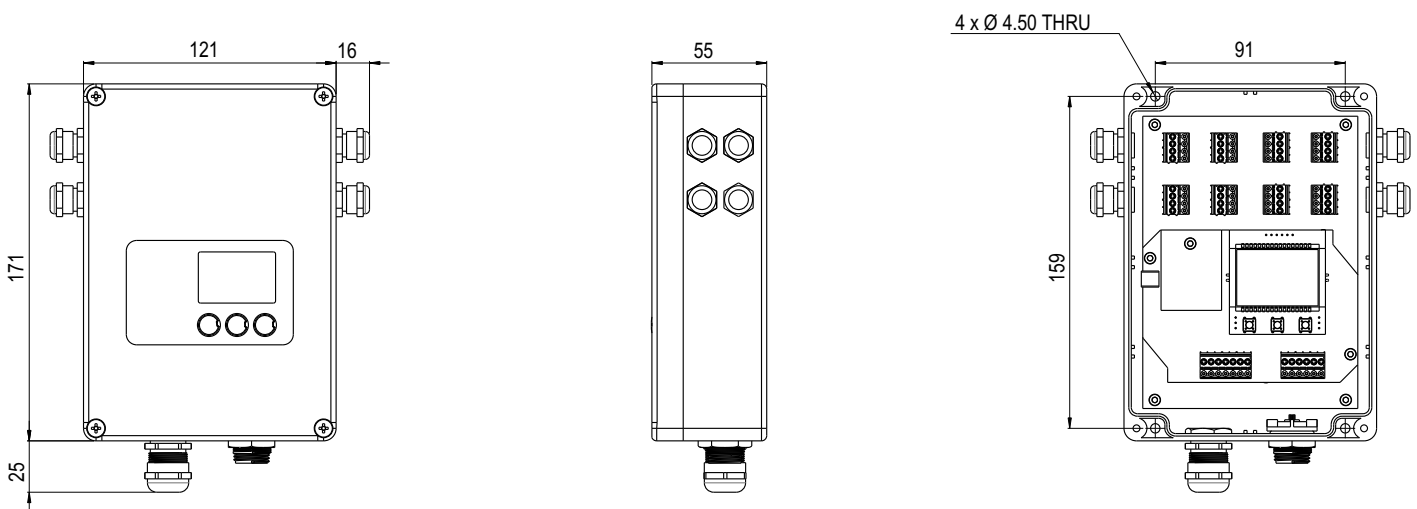
It has one 0/4 to 20 mA / 0 to 10 V analogue signal output for control or re-scalable transmission of process variable or set-point and a relay output. This module also provides power and communications to the sensor heads. Digital output from module is available through USB, RS-232 or RS-485. Several parameters can be preset ex-works via built-in user interface keypad.

Features

- Multiple Sensor Head design (up to 8 sensing heads)
- Digital readout of Max, Min and Average and individual sensor head temperature.
- Galvanically isolated analogue output – 0/4 to 20 mA / 0 to 10 V (J type / K type TC* sensor head dependent)
- Relay output
- USB 2.0, RS-232/RS-485 interface for remote configuration
- Integrated user interface keypad with high resolution LCD display with back light
- Adjustable emissivity, peak hold and alarm functions



Dimensional Drawing



* Only available with TL-8



Misgav Industrial Park, Misgav 20174 Israel
 Ph. : +972-4-9990025, Fax : +972-4-9990031
 E-mail : info@accuratesensors.com
 www.accuratesensors.com



Specifications are subject to change

We measure accurate temperature in extreme conditions