AST EL50

Pyrometer for industrial application

Accurate Sensors Technologies

Overview

Digital pyrometer with RS-485 interface

Features

- For temperature measurements between –40 °C and 1000 °C
- 0/4 to 20 mA temperature linear output, switchable
- RS-485 interface
- Two opto relay outputs, potential-free
- Small sensor head
- Display and programming keyboard

Description and applications

The digital pyrometers AST EL50 are specifically designed for industrial purpose. The devices are suitable for temperature measurement from –40 °C to 1000 °C on many different nonmetallic or coated metallic surfaces.

The solid body allows usage even under rough environmental conditions. The bright temperature display is visible even over long distance. The very small sensor head allows even the acquisition of measuring object which are difficult of access.

The temperature linear standard output signal of 0/4 to 20 mA allows easy implementation in existing measuring and controlling systems. The device is equipped with a galvanically isolated RS-485 interface, which allows parameterising and software evaluation even in bus systems.

All parameters are adjustable via push-buttons and display directly on the device. Also by using the comfortable parameterising and evaluation software AST NET1 pot the parameters can be easily adjusted to the application.

Typical application areas:

- Paper and packaging industry
- Kiln engineering
- Glass and ceramics industry
- Food industry
- Chemical industry

AST EL50

Pyrometer for industrial application

Accurate Sensors Technologies

Technical data

Type	EL50					
Temperature range	–40 °C to 1000 °C			0 °C bis 1000 °C		
Device with sensor head cable....	2.5 m	6 m	15 m	2.5 m (HT)	5 m (HT)	15 m (HT)
Part number	4048243211	4048243261	4048243241	4048243212	4048243222	4048243242
Spectral range	8 µm to 14 µm					
Fixed optics	20 : 1					
Internal data processing	digital					
Emissivity ε	0.200 to 1.000, adjustable (factory setting when delivered: 1.000)					
Sub temperature range	adjustable within temperature range, minimum span 50 °C					
Response time (t_{95})	100 ms, adjustable up to 100 s					
Measurement uncertainty[1]	1 % of measured value in °C or 1 K[2]					
Reproducibility[1]	0.5 % of measured value in °C or 0.5 K[2]					
NETD[3]	< 0.1 K[4]					
Output	0/4 to 20 mA, switchable, temperature linear, max. burden 700 Ω					
Interface	RS-485 (galvanically isolated), half duplex, max. baudrate 115 kBd, data protocol Modbus RTU					
More inputs and outputs	input for delete maximum and minimum value storage, 2× opto relay switching outputs, potential-free, max. 60 V DC/42 V AC_{eff} 500 mA					
Data storage	minimum and maximum value storage					
Controls	temperature display, keyboard and display for adjusting parameters					
Parameters[5]	emissivity, transmission, response time, storage, analog output, sub temperature range, ambient compensation, switching outputs, address, baudrate, temperature unit °C or °F					
Power supply	24 V DC ± 25 %, residual ripple 500 mV					
Power consumption	approx. 2 W					
Operating temperature	head: 0 °C to 125 °C, electronics box: 0 °C to 70 ° C, head (HT): 0 °C to 180 °C					
Storage temperature	–20 °C to 70 °C					
Safety class	IP65 (DIN EN 60529, DIN 40050)					
Weight	approx. 500 g					
Dimensions	approx. 110 mm × 80 mm × 40 mm (electronics box)					
CE symbol	according to EU regulations					
Test regulations	EN 55 011: 1998,					
Scope of delivery	EL50 with sensor head, electronics box, manual, inspection sheet, software AST NET1					

[1] Specifications for black body, $T_{ambient}$ = 23 °C, t_{95} = 1 s. [2] Whichever is higher value. [3] Noise equivalent temperature difference. [4] For $T_{ambient}$ = 23 °C, t_{95} = 500 ms, ε = 1, T_{object} = 100 °C. [5] Adjustable via keyboard and display, and software.

Display and Keyboard

AST EL50

Pyrometer for industrial application

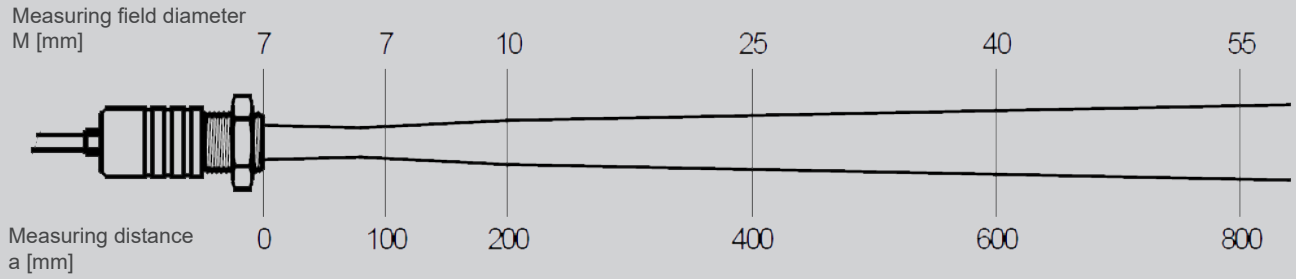
Accurate Sensors Technologies

Optics

Standard optics 20 : 1

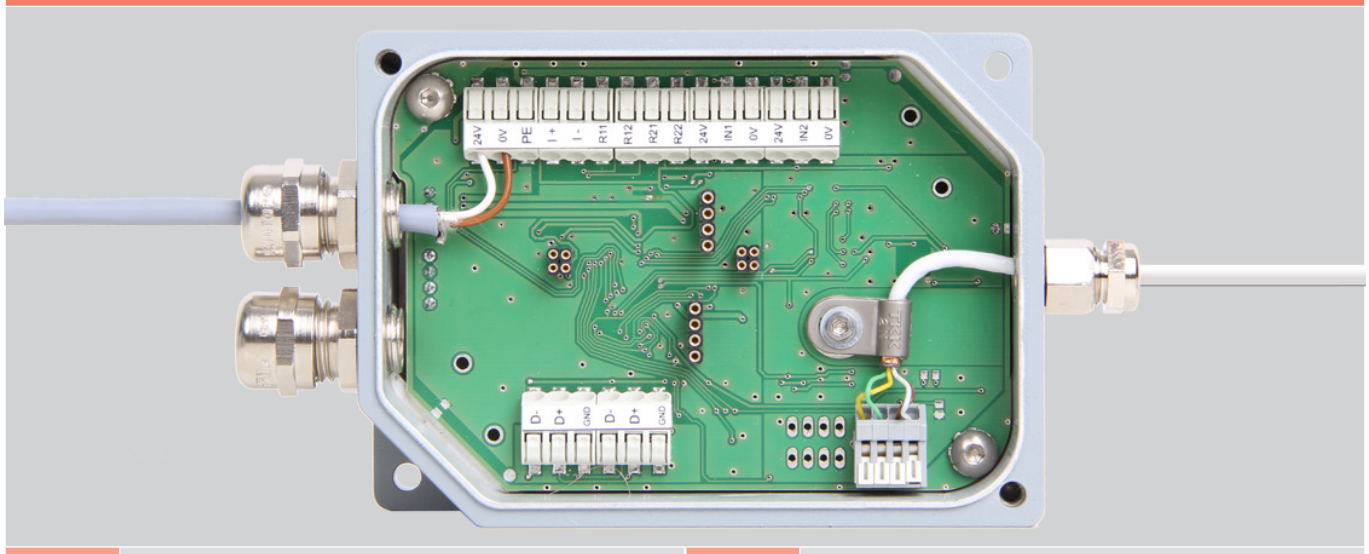
Measuring distance a [mm]	0	85	100	200	400	600	800
	Measuring field diameter M [mm]						
DT 4L (–40 °C to 1000 °C)	7.0	6.0	7.0	10.0	25.0	40.0	55.0

Measuring field diameter



Electronics box

Opened electronics box with feeder clip and relay output



24V	Power supply +24 V DC	D–	D– RS-485
0V	Power supply 0 V DC	D+	D+ RS-485
PE	Potential GROUND, screen	GND	GND RS-485
I +	+ Analog output 0/4 to 20 mA	D–	D– RS-485
I –	– Analog output 0/4 to 20 mA	D+	D+ RS-485
R11	Digital output Relay 1 pin 1, max. 60 V DC/42 V AC_{eff} 500 mA	GND	GND RS-485
R12	Digital output Relay 1 pin 2, max. 60 V DC/42 V AC_{eff} 500 mA		
R21	Digital output Relay 2 pin 1, max. 60 V DC/42 V AC_{eff} 500 mA	NTC gb	Temperature detector, YELLOW (internal detector head)
R22	Digital output Relay 2 pin 2, max. 60 V DC/42 V AC_{eff} 500 mA	NTC gn	Temperature detector, GREEN (internal detector head)
24V	+ Feed-in for function input	DET br	Detector head, detector signal (–), BROWN
IN1	Function input 1, delete data storage	DET ws	Detector head, detector signal (+), WHITE
0V	– Feed-in for function input		
24V	+ Feed-in for function input		
IN2	Function input 2		
0V	– Feed-in for functional input		

AST EL50

Pyrometer for industrial application

Electrical, mechanical and optical accessories[1]		Part number
Mounting angle	fixed, stainless steel	3310A21014
Air purge unit		3310A22041
Air purge unit	angled	3310A22045
Compact housing	with air purge	3310A22040
Mirror	90°	3310A31030
Interface module	RS-485 to USB	3310A14020

[1] More accessories available.

Accessories

Mounting angle

Part number: 3310A21014

Air purge unit

Part number: 3310A22041

Compact housing

Part number: 3310A22040

Air purge unit, angled

Part number: 3310A22045

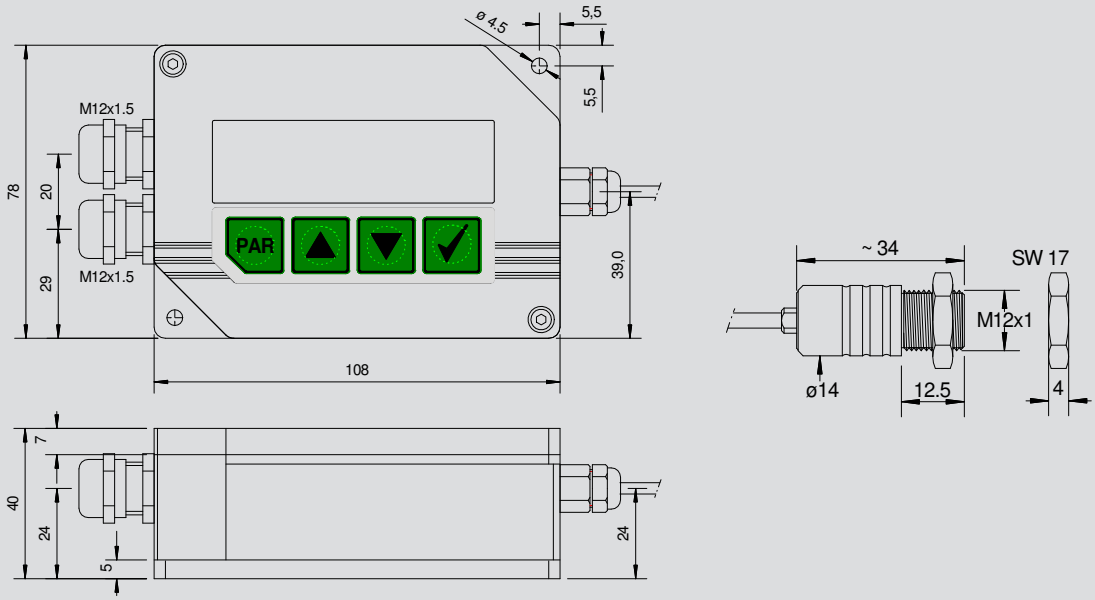
Mirror

Part number: 3310A31030

Power supply PSU 15

Part number: 3310A12010

Dimensional drawing pyrometer and sensor head



Technical details are subject to change. 04.04.23

ISO 9001
Certified
Quality Management System
www.tuv-sud.com/ms-cert

Phone: +972 4 9990025
sales@accuratesensors.com
www.accuratesensors.com

Accurate Sensors Technology
Ltd.Turag house Blue street,
Misgav Industrial Park Israel