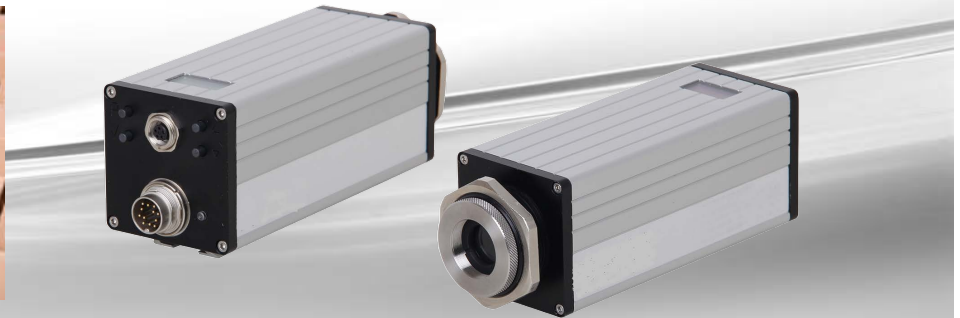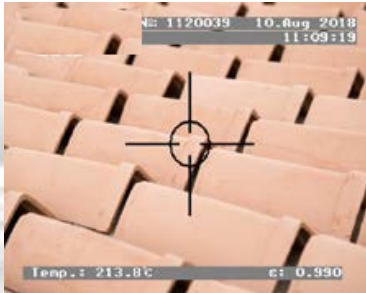# AST AL30 10
Pyrometer for industrial application

Overview

Digital pyrometers with RS-485 interface

Features

- For temperature measurements between 0 °C and 1000 °C
- Display and keys for displaying the temperature and parameterizing
- Vario optics with aiming light, through-lens sighting or video color module
- Short response times from 30 ms
- Standard 0/4 to 20 mA temperature linear output signal

Description and applications

The digital pyrometers AST AL30 10 are specially designed for industry and research applications. The devices are suitable for precise temperature measurement between 0 °C and 1000 °C on different non-metallic and coated metallic surfaces.

The solid construction in form of a compact housing allows usage even under rough environmental conditions. With a short response time of only 30 ms (t95) these pyrometers are also suitable for fast measuring processes. The vario optics realize measuring field diameters from 1.3 mm.

The integrated LED or laser aiming light or the alternative through-lens sighting enables to focus the measuring object exactly.
Use the optional integrated color video modul (AL10) to monitor the aiming of the pyrometer at the measurement object.

The parameters of the pyrometer are adjustable via push-buttons and display directly on the device or by using the convenient parameterizing and evaluation software AST NET.

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

Typical pyrometer application areas:

- Ceramic and glass industry
- Furnace construction
- Paper and packaging industry
- Food industry

Image credit: Shutterstock.de/Dmitry

AST AL30 10

Pyrometer for industrial application

Technical data	
Type	**AL30 10**
Temperature range	0 °C to 1000 °C
Sub temperature range	adjustable within temperature range, minimum span 50 °C
Spectral range	8 µm to 14 µm
Optics	vario optics, measuring field diameters from 1.3 mm, distance ratio approx. 100 : 1
Measurement uncertainty [1]	0.6 % of measured value in °C or 1 K [3]
Reproducibility [1]	0.3 % of measured value in °C or 0,5 K [3]
NETD [2]	0.2 K [4]
Response time (t_{95})	30 ms, adjustable up to 100 s via RS-485 interface or directly at the device
Emissivity	0.200 to 1.000, adjustable via RS-485 interface or directly at the device
Data Storage	minimum/maximum value storage, adjustable via RS-485 interface or directly at the device
Output	0/4 to 20 mA, switchable via RS-485 interface or directly at the device, temperature linear, max. burden 700 Ω
Interface	RS-485 (galvanically isolated), half duplex, baudrate up to 115 kBd, data protocol Modbus RTU
Switching output/Switching threshold 1	opto relay, R min. 48 Ω (galvanically isolated)/adjustable within temperature range Burden
Aiming	LED aiming light, laser aiming light, through-lens sighting or color video module (AL10)
Software	AST NET for Windows®
Parameters	emissivity, response time, temperature unit °C or °F, storage, sub temperature range, transmission, ambience compensation, video parameter, adjustable via via RS-485 interface or directly at the device
User controls	aiming light push-button, four control keys, display
Power supply	24 V DC ± 25 %, residual ripple 500 mV
Power consumption	max. 2.0 W
Operating temperature	0 °C to 70 °C
Storage temperature	–20 °C to 70 °C
Weight	appr. 500 g
Dimensions	54 × 54 mm, length 170 mm
Housing	compact housing with plug connector, display and push-buttons
Safety class	IP65 (DIN 40 050, DIN EN 60529)
CE symbol according to EU regulations (EN 50 011)	
Scope of delivery	AST AL30 , mounting screw nut, inspection sheet, manual, AST NET for Windows® (**without** connection cable, please order separately)

1 Specifications for blac body radiator TU = 23 °C, ε = 1, t95 = 1 s. 2 Noise equivalent temperature difference. 3 Whichever is higher value. 4 At TU = 23 °C, t95 = 100 ms, ε = 1, TObject = 100 °C.
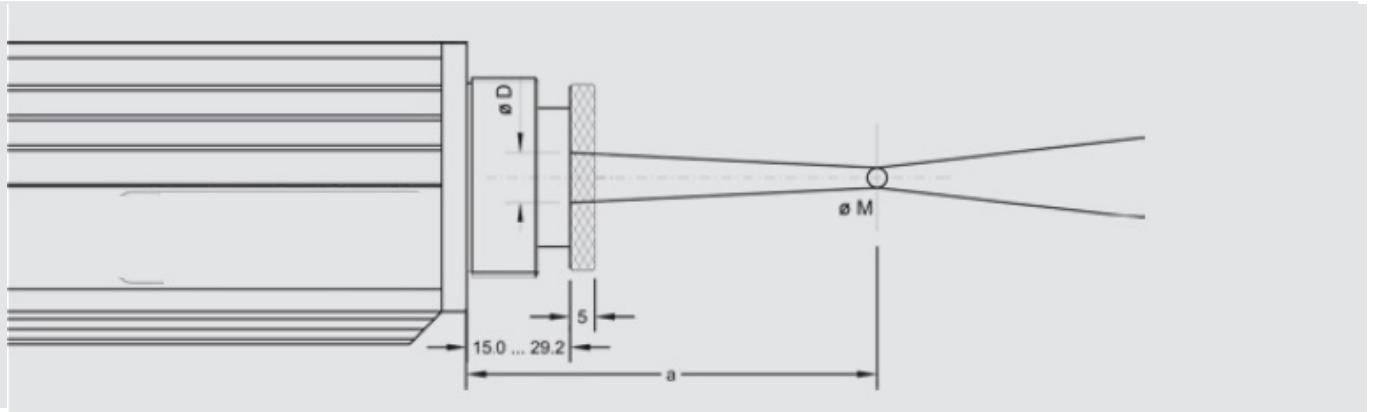
Dimensional drawing pyrometer

AST AL30 10

Pyrometer for industrial application

Vario optics					Part number			
Optics	Temperature measurement range	Measuring field diameter M [mm]	Meas. distance a [mm]	Aperture D [mm]	LED aiming light	Laser aiming light	Through-lens sighting	Color video module
I	0 °C to 1000 °C	1.3 to 1.8	130 to 150	11.6	5106211201	5106201201	5106221201	5106231201
III	0 °C to 1000 °C	5.0 to 32	500 to 2600	11.6	5106213201	5106203201	5106223201	5106233201

Dimensional drawing vario optics

Color video module (AST AL10)

– PAL (50 Hz), optional NTSC (60 Hz)
– 628 × 586 pixels (PAL) or 510 × 496 pixels (NTSC)
– Composite video signal approx. 1 V_{ss} at 75 Ω (galvanically isolated)
– Target mark in size of measurement field, display of measurement, temperature, emissivity
– Exposure control automatically or manually

Detailed view: Display

The digital display shows the current measurement value and the emissivity set.

Current measurement temperature

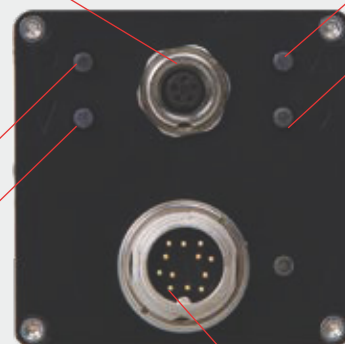Set emissivity value

221.1°C

Status switching output

Detailed view: Rear side of the device

The parameters can be set by using the control keys at the rear side of the device. The value set is transfered directly.

Through-lens sighting, pilot light or video connector

Keys for „Up" and „Down"

Keys for „Parameter Menu" and „Enter"

Plug connection and interface

AST AL30 10

Pyrometer for industrial application

Electrical, mechanical and optical accessories[1]		Order number
Connection cable, 12 pin, angulate plug	length 2 m length 5 m length 10 m length 15 m length 20 m length 25 m length 30 m	3310A11131 3310A11132 3310A11133 3310A11134 3310A11135 3310A11136 3310A11137
Video connection cable	length 2 m	3310A16521
Interface module	RS-485 to USB	3310A14020
Power supply PSU 15	24 V DC, 0.6 A	3310A12010
Mounting angle	adjustable	3310A21020
Air purge adapter	stainless steel, purge air 0.1 to 0.5 bar, oil-free	3310A22020
Window slide	without window	3310A21210
Vacuum flange	KF 16 with zinc selenide window	3310A24015 3310A34041
TFT display/TFT display industrial	3.5" with 2 m cable	3310A16110/3310A16120
Adapter	Video/USB	3310A14030

[1] More accessories available.

Selected accessories

Mounting angle, adjustable	Ball and socket mounting	Cooling jacket
Order number: 3310A21020	Order number: 3310A21025	Order number: 3310A23031

Cooling plate	Air purge unit	Mirror 90° Order
Order number: 3310A23020	Order number: 3310A22020	number: 3310A24110

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