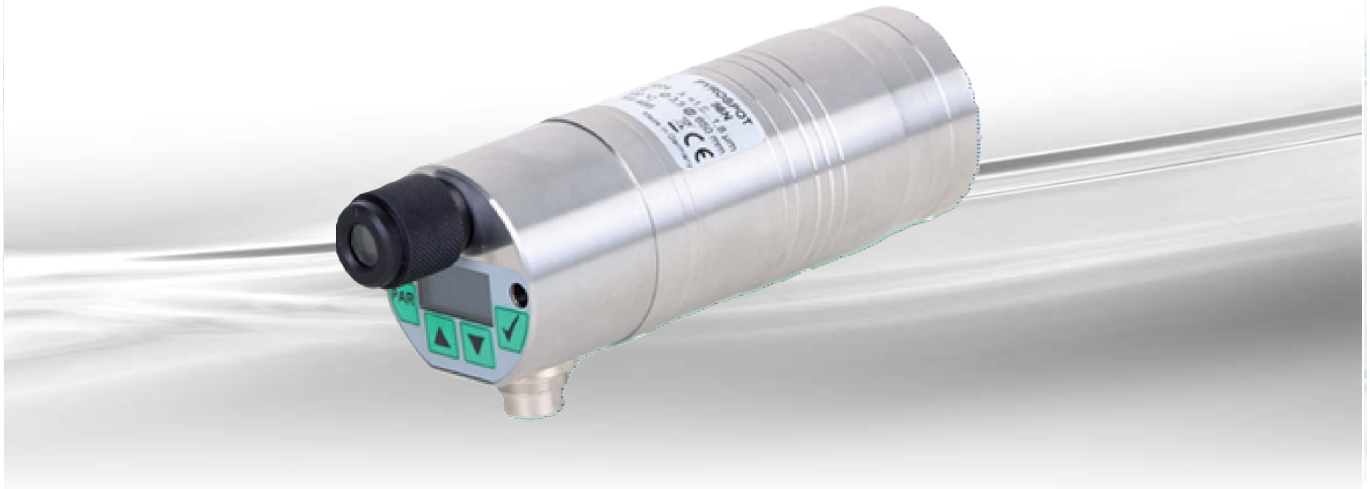


AST A250+

Pyrometer for industrial application

Overview

Digital pyrometers with RS-485 interface



Special features

- For temperature measurements between 200 °C and 2500 °C
- Temperature linear output 0/4 to 20 mA, switchable
- Display, keys and integrated RS-485 interface
- Laser aiming light or integrated color video camera
- Optional through-lens sighting
- Very short response time 2 ms

Description and application

The digital AST pyrometer AST A250+ is specifically designed for industrial purposes. This device is suitable for non-contact temperature measurement from 200 °C on different surfaces like metal, graphite or ceramics.

The solid and compact stainless steel housing allows usage even under rough environmental conditions. Measuring spot sizes from 0.8 mm can be easily realized. With a minimal response time of only 2 ms (t_{95}) the devices are usable for fast measuring tasks.

The temperature linear standard output signal of 0/4 to 20 mA allows an easy implementation in existing measurement and control systems.

Use the integrated red laser aiming light for the exact aiming of the pyrometer to the measurement object. The optional integrated video camera module provides an anti-glare aiming of the pyrometer even when the measurement object is very hot. It substantially facilitates the adjustment under difficult local conditions where the pyrometer is not easy to reach or the measurement object cannot be seen directly. A through-lens sighting is also optionally available.

The AST A250+ possesses a RS-485 interface. The devices are bus-compatible in this way and use the Modbus RTU protocol.

Connect the pyrometer to a PC to adjust the parameters emissivity, sub temperature range, data storage settings and response time to the application by using the comfortable parameterizing and evaluation software AST NET1.

Typical application areas:

- Steel and metal industry
- Furnace industry
- Soldering applications
- Ceramic industry



AST A250+

Pyrometer for industrial application

Technical data

| Type | AST A250+ | | | | | | | | | |
|--|---|--------------|-----------------------|--------------|-----------------------|--------------|-----------------------|--------------|-----------------------|--------------|
| Temperature range | 200 °C to 1200 °C | | 250 °C to 1500 °C | | 350 °C to 2000 °C | | 250 °C to 2500 °C | | 200 °C to 2000 °C | |
| Distance ratio | 200 : 1 | | 300 : 1 | | 300 : 1 | | 300 : 1 | | 200 : 1 | |
| Optics ¹ | several fixed optics (type 250, 650, 2000, 4000) | | | | | | | | | |
| Part numbers | Laser | Color camera | Laser | Color camera | Laser | Color camera | Laser | Color camera | Laser | Color camera |
| | Through-lens sighting | | Through-lens sighting | | Through-lens sighting | | Through-lens sighting | | Through-lens sighting | |
| 250 | 5561062204 5561082204 | | 5561062205 5561082205 | | 5561062206 5561082206 | | 5561062207 5561082207 | | 5561062208 5561082208 | |
| | 5561072204 | | 5561072205 | | 5561072206 | | 5561072207 | | 5561072208 | |
| 650 | 5561063204 5561083204 | | 5561063205 5561083205 | | 5561063206 5561083206 | | 5561063207 5561083207 | | 5561063208 5561083208 | |
| | 5561073204 | | 5561073205 | | 5561073206 | | 5561073207 | | 5561073208 | |
| 2000 | 5561066204 5561086204 | | 5561066205 5561086205 | | 5561066206 5561086206 | | 5561066207 5561086207 | | 5561066208 5561086208 | |
| | 5561076204 | | 5561076205 | | 5561076206 | | 5561076207 | | 5561076208 | |
| 4000 | 5561067204 5561087204 | | 5561067205 5561087205 | | 5561067206 5561087206 | | 5561067207 5561087207 | | 5561067208 5561087208 | |
| | 5561077204 | | 5561077205 | | 5561077206 | | 5561077207 | | 5561077208 | |
| Sub temperature range of analog output | adjustable within temperature range, minimum span 50 °C | | | | | | | | | |
| Spectral range | 1.5 µm to 1.8 µm | | | | | | | | | |
| Emissivity ■ | 0.050 to 1.000 | | | | | | | | | |
| Response time (t ₉₅) | 2 ms ² , adjustable up to 100 s | | | | | | | | | |
| Measurement uncertainty ³ | 0.5 % of measured value in °C + 1 K | | | | | | | | | |
| Reproducibility ³ | 0.1 % of measured value in °C + 0.5 K | | | | | | | | | |
| NETD ^{3,4} | 0.1 K | | | | | | | | | |
| Transmittance | 50 % to 100 % | | | | | | | | | |
| Ambient radiation | adjustable within temperature range | | | | | | | | | |
| Output | 0/4 mA to 20 mA, temperatur linear, burden max. 500 Ω (galvanically isolated) | | | | | | | | | |
| Interface | RS-485 (galvanically isolated), half duplex, max. 115 kBd, data protocol Modbus RTU | | | | | | | | | |
| Aiming | AST A250+: laser aiming light, 630 ... 680 nm, class II, < 1 mW, optional optical through-lens sightings AST A250+V: video camera, composite video signal PAL (B), 50Hz (galvanically isolated) or NTSC (M), | | | | | | | | | |
| Switching output/threshold | 60 Hz ¹ opto relay, R _{load} min. 48 Ω (galvanically isolated)/adjustable within temperature range adjustable via interface | | | | | | | | | |
| Parameters | and software or at the device: emissivity, transmissivity, ambient radiation, response time, data storage settings, sub range of measurement output, switching thresholds of switching output | | | | | | | | | |
| Power supply | 24 V DC ± 25 %, residual ripple 500 mV | | | | | | | | | |
| Power consumption | max. 1.5 W (without load at switching output) | | | | | | | | | |
| Operating temperature | 0 °C to 70 °C | | | | | | | | | |
| Storage temperature | -20 °C to 70 °C | | | | | | | | | |
| Weight | approx. 750 g | | | | | | | | | |
| Housing | stainless steel round housing with plug connector, length: approx. 140 mm (without through-lens sighting), Ø 50 mm | | | | | | | | | |
| Safety class | IP65 according to DIN EN 60529 and DIN 40050 | | | | | | | | | |
| Test regulations | EN 55 011:1998, limit class A | | | | | | | | | |
| CE symbol | according to EU regulations | | | | | | | | | |
| Scope of delivery | AST A250+ manual, inspection sheet, software AST NET1 without connection cable (please order separately) | | | | | | | | | |

¹ Other fixed optics on request. ² With dynamic adaption at low signal level. ³ Specifications for black body radiator, T = 23 °C, t = 1 s. ⁴ Noise equivalent temperature difference. ⁵ Operating temperature up to 50 °C to avoid injury.

Fixed optics

| Measurement distance a [mm] | Aperture D [mm] | a = 250 | a = 650 | a = 2000 | a = 4000 |
|-----------------------------|-----------------|---------------------------------|---------|----------|----------|
| Temperature range | | Measuring field diameter M [mm] | | | |
| 200 °C to 1200 °C | 10.0 | 1.3 | 3.5 | 10.0 | 20.0 |
| 250 °C to 1500 °C | 8.0 | 0.8 | 2.2 | 6.7 | 13.3 |
| 350 °C to 2000 °C | 5.0 | 0.8 | 2.2 | 6.7 | 13.3 |
| 200 °C to 2000 °C | 5.0 | 1.3 | 3.5 | 10.0 | 20.0 |
| 250 °C to 2500 °C | 3.5 | 0.8 | 2.2 | 6.7 | 13.3 |

AST A250+ Pyrometer for industrial application

Technical data AST A250+V with video camera

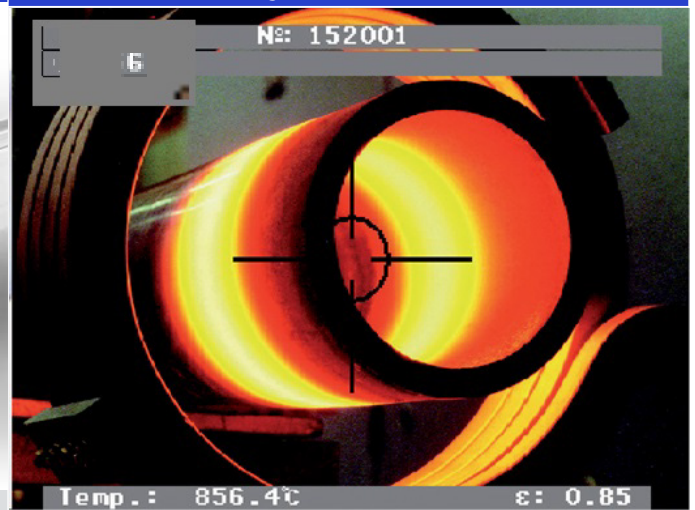
| | |
|-------------------------|---|
| Video signal | Composite video signal approx. 1V _{ss} at 75 Ω (galvanically isolated, video signal can be deactivated via software) |
| Color norm | PAL (B), 50 Hz (optional color norm NTSC (M), 60 Hz) |
| Resolution | 1/3 inch video chip 628 × 586 pixels (NTSC option: 510 × 496 pixels) |
| Exposure control | automatic |
| Visible field | approx. 8 % × 6 % of adjusted measurement distance (NTSC option: 6.5 % × 5 %) |
| Date/time | Real-time clock with minimum 3 days power reserve, adjustable via software |
| Durable image displays | Target mark in measurement spot size, measurement temperature, emissivity |
| Optional image displays | Via software: serial number, device name or user-defined text (16 characters), date, time, temperature unit °C/°F, 12/24 hours display |

Pyrometer with TFT monitor



The video image can be displayed via the additionally available TFT monitor.

Detailed view of video image



Pyrometer with different aiming variants



through-lens sighting



color video camera



laser aiming light






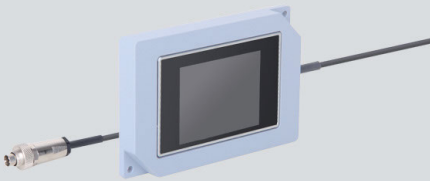


AST A250+

Pyrometer for industrial applications

| Electrical, mechanical and optical accessories: | | Part number | | |
|---|--|---|------------|------------|
| Connection cable, straight plug, 12 pin | length 2 m | 3310A1111 | | |
| | length 5 m | 3310A1112 | | |
| | length 10 m | 3310A1113 | | |
| | length 15 m | 3310A1114 | | |
| | length 20 m | 3310A1115 | | |
| | length 25 m | 3310A1116 | | |
| | length 30 m | 3310A1117 | | |
| Video connection cable | length 2 m | 3310A16521 | | |
| | length 5 m | 3310A16522 | | |
| | length 10 m | 3310A16523 | | |
| | length 15 m | 3310A16524 | | |
| | length 20 m | 3310A16525 | | |
| | length 25 m | 3310A16526 | | |
| | length 30 m | 3310A16527 | | |
| Mounting angle | adjustable | 3310A21050 | | |
| Cooling jacket | including air purge unit, without mounting angle | 3310A23056 | | |
| Ball flange | thread M40 × 1.5 | 3310A24020 | | |
| Air purge unit | stainless steel | 3310A22050 | | |
| Power supply PSU 15 | 24 V DC, 0.6 A | 3310A12010 | | |
| Ring nut | with quartz glass window with sapphire glass window | 3310A34022 3310A34052 | | |
| TFT monitor | TFT monitor industrial | 3.5" with 2 m connection cable ¹ | 3310A16110 | 3310A16120 |
| Adaptor | video/USB | 3310A14030 | | |
| DHP 1040 | handheld programming device | 3310A17010 | | |

¹ More accessories on request. ² Cable lengths 5 m and 10 m also available.

Selected accessories

| Mounting angle, adjustable | Cooling jacket | Air purge unit |
|--|---|--|
| Part number: 3310A21050  | Part number: 3310A23056  | Part number: 3310A22050  |
| TFT monitor (industrial) | Ball flange Part | Power supply PSU 15 |
| Part number: 3310A16120  | number: 3310A24020  | Part number: 3310A12010  |

Technical details are subject to change. 21.04.20

ISO 9001

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