

AST DG10NT DG10NTV

Special pyrometer for measurement on tungsten in industry and research

Overview

Digital pyrometers for temperature measurement on tungsten



Merkmale

- For temperature measurement between 500 °C and 2500 °C
- Special spectral range for measurement on tungsten
- Keys and display for parameterization and display of temperature
- Vario optics with aiming light, through-lens sighting or color video module
- Short response time from 2 ms
- Temperature linear output 0/4 to 20 mA

Description and application

The digital pyrometers AST DG10NT DG10NTV are specifically designed for temperature measurement up to 2500 °C on tungsten materials. Due to a special narrow-band spectral range exact measurements with a constant emissivity in a wide temperature range can be made.

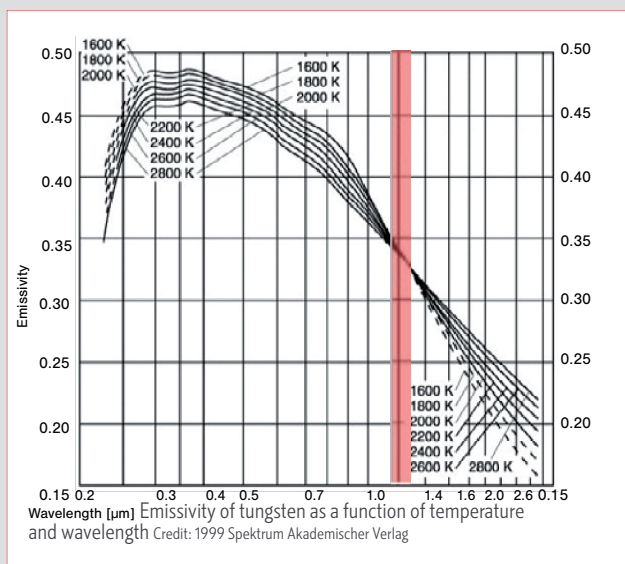
The solid construction in form of a compact housing with a protection window for optics allows usage even under rough environmental conditions. With a short response time of only 2 ms (t_{95}) these pyrometers are also suitable for fast measuring processes. The vario optics with quartz glass protection window realize measuring field diameters from 1.2 mm.

The integrated LED or laser aiming light or the alternative through-lens sighting, enables an exact focus on the measurement object. With the optional color video module (AST DG10NT) the alignment of the pyrometers to the target can be monitored visually and the entire process can be recorded and documented.



The device is equipped with a galvanically isolated RS-485 interface which allows parameterising and software evaluation even in bus systems.

The emissivity is also adjustable via push-buttons and display directly on the device. All parameters can be easily adjusted to the application by using the convenient parameterizing and evaluation software AST NET.



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Technical data

Type	DG10NT DG10NTV
Temperature range	500 °C to 2500 °C (others on request)
Sub temperature range of analog output	adjustable within temperature range, minimum span 50 °C
Spectral range	around 1.25 µm
Optics	vario optics with quartz glass protection window, measuring field diameters from 1.2 mm
Distance ratio	approx. 200 : 1
Measurement uncertainty ₁	0.5 % of measured value in °C + 1 K
Reproducibility ₁	0.1 % of measured value in °C + 0.5 K
Transmittance	50 % to 100 %
Ambient radiation	adjustable within temperature range
NETD _{1,2}	0.1 K
Response time (t ₉₅)	2 ms ₃ , adjustable up to 100 s
Emissivity	0.050 to 1.000, adjustable at the device or via RS-485 interface
Storage	minimum and maximum value storage, adjustable via interface
Output	0/4 to 20 mA, switchable via software, temperature linear, max. burden 500 Ω (galvanically isolated)
Interface	RS-485 (galvanically isolated), half duplex, baudrate up to 115 kBd, data protocol Modbus RTU
Switching output/threshold	1 Opto relay, R _{Load} min. 48 Ω/adjustable within temperature range
Aiming	LED aiming light, laser aiming light (630 to 680 nm, class II, < 1 mW), through-lens sighting or camera module (DG 10NV)
Software	AST NET1 for Windows®
Parameters ₄	emissivity, transmittance, ambient radiation, response time, temperature unit °C or °F, storage settings, sub temperature range of measurement output, switching thresholds of switching output
User controls	keys for „Parameter Menu“, „Enter“, „Up“ and „Down“, aiming light push-button, display
Power supply	24 V DC ± 25 %
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 appr. 520 g	
Dimensions	54 × 54 mm, length 170 mm
Housing	compact housing with plug connector, display, push-buttons and optics protection window
Safety class	IP 65 (DIN 40 050)
CE symbol	according to EU regulations (EN 50 011)
Scope of delivery	AST DG10NT DG10NTV, mounting screw nut, inspection sheet, manual, AST NET for Windows® (without connection cable, please order separately)

1 Tambient = 23 °C, ε = 1, t₉₅ = 1 s. 2 Noise equivalent temperature difference. 3 With dynamic adaption at low signal level. 4 Adjustable via software and interface or directly at the device.

Dimensional drawing pyrometer (with through-lens sighting)



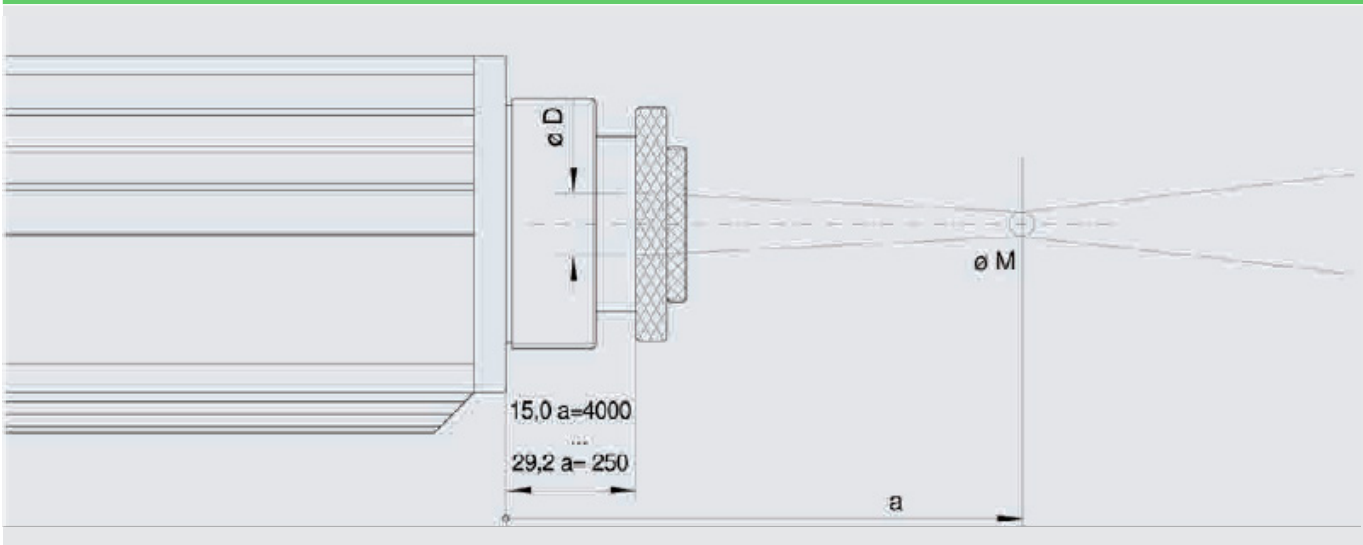
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Vario optics

Measurement distance a [mm]	250	300	350	500	800	4000	Aperture diameter \varnothing D [mm]		Part number		
Optics pullout [mm]	29.2	25.5	23.5	20.3	18.0	15.0	at		LED aiming light	Laser aiming light	
Temperature range	Messfelddurchmesser M [mm]						a = 250 mm	a = 4000 mm	Through-lens sighting	Color video module	
500 °C to 2500 °C	1.2	1.5	1.7	2.5	4.0	20.0	5.5	4.3	5101001237	5101011237	
									5101021237	5101031237	

Dimensional drawing vario optics



Technical data video camera (DG10NTV)

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 \times 586 pixels (NTSC option: 510 \times 496 pixels)
Exposure control	automatic
Visible field	approx. 8 % \times 6 % of adjusted measurement distance (NTSC option: 6.5 % \times 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 $^{\circ}$ C/ $^{\circ}$ F, 12/24 hours display

Pyrometer with TFT monitor



Detailed view of video image



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Electrical, mechanical and optical accessories:		Order number
Connection cable, 12 pin, angulate plug	length 2 m	3310A11131
	length 5 m	3310A11132
	length 10 m	3310A11133
	length 15 m	3310A11134
	length 20 m	3310A11135
	length 25 m	3310A11136
	length 30 m	3310A11137
Interface module	RS-485 to USB	3310A14020
Power supply PSU 15	24 V DC, 0.6 A	3310A12010
Mounting angle	adjustable	3310A21020
Air purge adaptor	stainless steel, purge air 0.1 to 0,5 bar, oil-free	3310A22020
Window slide	without window	3310A21210
Vacuum flange	KF 16	3310A24015
	with quartz window	3310A34021
	with sapphire window (scratch-proof)	3310A34051
Mounting angle	for cooling jacket	3310A23036
DHP 1040	handheld programming device for parameterizing	3310A17010

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

Detailed view: Display	Detailed view: Rear side
<p>The digital display shows the current measured value and the emissivity set as well as further information.</p> <p>Current measured temperature</p> <p>Emissivity set</p> <p>Key lock</p> <p>Status exposure control</p> <p>Status switching output</p>	<p>The parameters can be adjusted with the keys at the rear side of the device. The set value is taken over directly.</p> <p>Through-lens sighting, aiming light or video connector</p> <p>Keys for „Up“ and „Down“</p> <p>Keys for „Parameter Menu“ and „Enter“</p> <p>Status LED</p> <p>Connector and interface</p>

Selected accessories – images		
Mounting angle, adjustable	Ball and socket mounting	Cooling jacket
Part number: 3310A21020 	Part number: 3310A21025 	Part number: 3310A23031

T. Technical details are subject to change. 12.03.19



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