

## AST T3-250 40 \ T3-450 40 Pyrometer for industrial application

### Overview

Digital 2-wire pyrometers with integrated USB interface



### Features

- For temperature measurements between 250 °C and 2500 °C
- 4 to 20 mA temperature linear output
- Integrated USB interface for stand-alone operation
- Maximum and minimum value storage
- Stainless steel housing
- Several fixed and vario optics available

### Description and applications

The digital pyrometers AST T3-250 40 and AST T3-450 40 are specifically designed for industrial purposes. The devices are suitable for high temperature measurement from 250 °C on many different surfaces for example metals, ceramics or graphite.

The solid body in stainless steel housing with protection window for optics allows usage even under rough environmental conditions. With a fast response time of only 10 ms ( $t_{95}$ ) these pyrometers are also suitable for fast measuring processes. Several fixed optic types realize Target sizes from 1.2 mm.

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

The T3-250 40 T3-450 40 are equipped with an integrated, galvanically isolated USB interface on the back side. The USB interface simplifies parameterization and data evaluation via software, without needing an additional power supply.

The integrated LED or laser aiming light enables to focus the measuring object exactly. The size of the LED aiming light is identical to the measuring field.

Due to direct USB connection parameters like emissivity sub range, response time and data storage are all easy adjusted through the user friendly parameterization and evaluation software AST NET1 or optional handheld programming device DHP 1040.

Typical application areas:

- Steel industry
- Furnace industry
- Soldering applications
- Ceramic industry
- Metal industry



# AST T3-250 40 \ T3-450 40

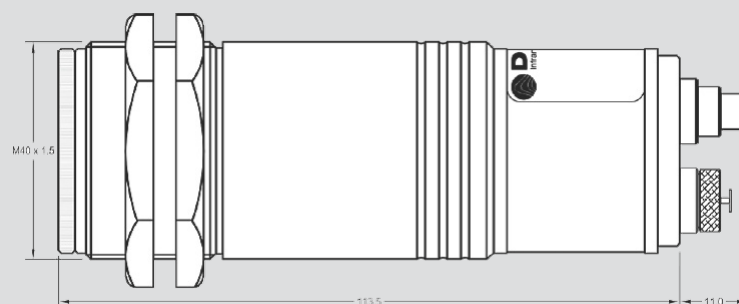
## Pyrometer for industrial application

### Technical data

Type	T3-450 40				T3-250 40					
Temperature range	600 °C to 1800 °C		800 °C to 2500 °C		250 °C to 1300 °C		350 °C to 1800 °C		250 °C to 2000 °C	
Sub temperature range of analog output	adjustable within temperature range via USB interface, minimum span 50 °C									
Spectral range	0.8 µm to 1.1 µm				1.5 µm to 1.8 µm					
Optics	several fixed optics (Typ 210, 290, 650 and 4000) with quartz glass protection window , vario optics									
Order number	LED	Laser	LED	Laser	LED	Laser	LED	Laser	LED	Laser
Optics 210	4400051301	4400061301	4400051302	4400061302	4401051301	4401061301	4401051302	4401061302	4401051303	4401061303
Optics 290	4400052301	4400062301	4400052302	4400062302	4401052301	4401062301	4401052302	4401062302	4401052303	4401062303
Optics 650	4400053301	4400063301	4400053302	4400063302	4401053301	4401063301	4401053302	4401063302	4401053303	4401063303
Optics 4000	4400054301	4400064301	4400054302	4400064302	4401054301	4401064301	4401054302	4401064302	4401054303	4401064303
Vario optics	4400001301	4400011301	4400001302	4400011302	4401001301	4401011301	4401001302	4401011302	4401001303	4401011303
Distance ratio	approx. 100 : 1		approx. 200 : 1		approx. 100 : 1		approx. 200 : 1		approx. 100 : 1	
Measurement uncertainty <sup>1</sup>	0.5 % of measured value in °C + 1 K									
Reproducibility <sup>1</sup>	0.1 % of measured value in °C + 0.5 K									
NETD <sup>1,2</sup>	0.1 K									
Response time (t <sub>95</sub> )	10 ms, adjustable up to 100 s via USB interface									
Emissivity	0.05 to 1.00, adjustable via USB interface									
Data storage	maximum and minimum value storage, adjustable via USB interface									
Output	4 to 20 mA, temperature linear, max. burden: 600 Ω at 24 V									
Interface	galvanically isolated USB interface									
Aiming	integrated LED- or laser aiming									
Software	AST NET1 Windows®									
Parameters	emissivity, response time, data storage, sub range, adjustable via USB interface and software									
Power supply	24 V DC ± 25 %, residual ripple 500 mV, LED or laser aiming light: 7 V to 30 V DC, < 200 mW									
Power consumption	max. 0.6 W (without aiming light)									
Operating temperature	0 °C to 70 °C									
Storage temperature	-20 °C to 70 °C									
Weight	appr. 450 g									
Dimensions	thread M40 x 1.5, length 125 mm									
Housing	stainless steel with plug connector and protection window									
Safety class	IP 65 (according to DIN EN 60526 and DIN 40050)									
CE symbol	according to EU regulations									
Scope of delivery	AST T3-250 40 \ T3-450 40, manual, mounting screw nuts, inspection sheet, AST NET1 Windows® (without connecting cable, please order separately)									

<sup>1</sup> For black body radiators, T<sub>0</sub> = 23 °C, t<sub>95</sub> = 1 s. <sup>2</sup> Noise equivalent temperature difference.

### Dimensional drawing



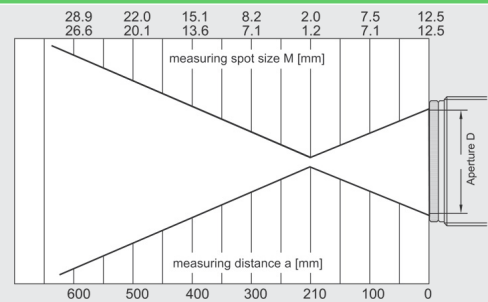
# AST T3-250 40 \ T3-450 40

## Pyrometer for industrial application

### Optics 210, 290, 650 and 4000

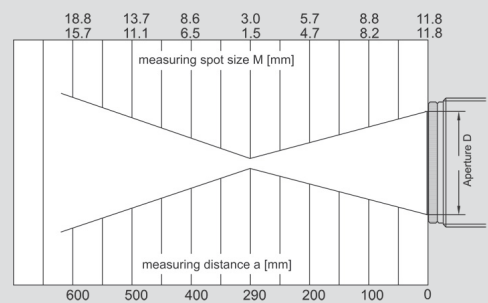
#### Optics 210 (sharp point at a = 210 mm measuring distance, aperture = 12.5 mm)

Measuring distance a [mm]	0	100	210	300	400	500	600
Temperature range	Target size M [mm]						
AST T3-450 40 (600 °C to 1800 °C)	12.5	7.5	<b>2.0</b>	8.2	15.1	22.0	28.9
AST T3-450 40 (800 °C to 2500 °C)	12.5	7.1	<b>1.2</b>	7.1	13.6	20.1	26.6
AST T3-250 40 (250 °C to 1300 °C)	12.5	7.5	<b>2.0</b>	8.2	15.1	22.0	28.9
AST T3-250 40 (250 °C to 2000 °C)	12.5	7.5	<b>2.0</b>	8.2	13.6	22.0	28.9
AST T3-250 40 (250 °C to 2000 °C)	12.5	7.1	<b>2.1</b>	7.1	13.6	20.0	26.6



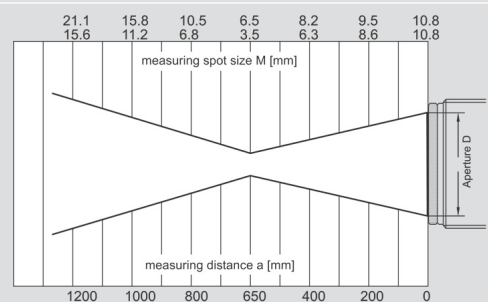
#### Optics 290 (sharp point at a = 290 mm measuring distance, aperture = 11.8 mm)

Measuring distance a [mm]	0	100	200	290	400	500	600
Temperature range	Target size M [mm]						
AST T3-450 40 (600 °C to 1800 °C)	11.8	8.8	5.7	3.0	8.6	13.7	18.8
AST T3-450 40 (800 °C to 2500 °C)	11.8	8.2	4.7	<b>1.5</b>	6.5	11.1	15.7
AST T3-250 40 (250 °C to 1300 °C)	11.8	8.8	5.7	<b>3.0</b>	8.6	13.7	18.8
AST T3-250 40 (250 °C to 2000 °C)	11.8	8.8	5.7	<b>3.0</b>	8.6	11.1	18.8
AST T3-250 40 (350 °C to 1800 °C)	11.8	8.2	4.7	<b>1.5</b>	6.5	11.1	15.7



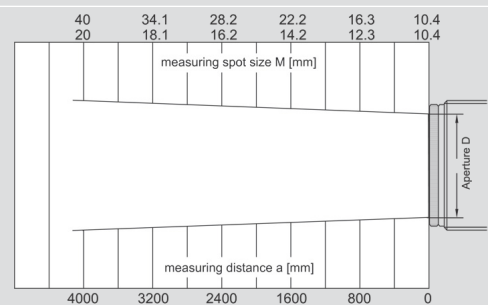
#### Optics 650 (sharp point at a = 650 mm measuring distance, aperture = 10.8 mm)

Measuring distance a [mm]	0	200	400	650	800	1000	1200
Temperature range	Target size M [mm]						
AST T3-450 40 (600 °C to 1800 °C)	10.4	13.4	16.3	22.2	28.2	34.1	21.1
AST T3-450 40 (800 °C to 2500 °C)	10.4	11.4	12.3	14.2	16.2	18.1	15.6
AST T3-250 40 (250 °C to 1300 °C)	10.4	13.4	16.3	22.2	28.2	34.1	21.1
AST T3-250 40 (250 °C to 2000 °C)	10.4	13.4	16.3	22.2	28.2	34.1	21.1
AST T3-250 40 (350 °C to 1800 °C)	10.4	11.4	12.3	14.2	16.2	18.1	15.6



#### Optics 4000 (sharp point at a = 4000 mm measuring distance, aperture = 10.4 mm)

Measuring distance a [mm]	0	400	800	1600	2400	3200	4000
Temperature range	Target size M [mm]						
AST T3-450 40 (600 °C to 1800 °C)	10.4	13.4	16.3	22.2	28.2	34.1	<b>40.0</b>
AST T3-450 40 (800 °C to 2500 °C)	10.4	11.4	12.3	14.2	16.2	18.1	<b>20.0</b>
AST T3-250 40 (250 °C to 1300 °C)	10.4	13.4	16.3	22.2	28.2	34.1	<b>40.0</b>
AST T3-250 40 (250 °C to 2000 °C)	10.4	13.4	16.3	22.2	28.2	34.1	<b>40.0</b>
AST T3-250 40 (350 °C to 1800 °C)	10.4	11.4	12.3	14.2	16.2	18.1	<b>20.0</b>



### Vario optics

#### AST T3-450 40

Temperature range	Measuring distance a	Target size M	Aperture D
600 °C to 1800 °C	300 mm to 800 mm	3.0 mm to 8.6 mm	10 mm
800 °C to 2500 °C	300 mm to 800 mm	1.5 mm to 5.5 mm	10 mm

#### AST T3-250 40

Temperature range	Measuring distance a	Target size M	Aperture D
250 °C to 1300 °C	300 mm to 800 mm	3.0 mm to 8.6 mm	10 mm
250 °C to 2000 °C	300 mm to 800 mm	3.0 mm to 8.6 mm	10 mm
350 °C to 1800 °C	300 mm to 800 mm	1.5 mm to 5.5 mm	10 mm



Pyrometer with vario optics. The cooling jacket is only suitable for devices with fixed optics.

## AST T3-250 40 \ T3-450 40 Pyrometer for industrial application

Electrical, mechanical and optical accessories:		Order number
Connecting cable	length 2 m length 5 m length 10 m length 15 m length 20 m length 25 m length 30 m	3310A11511 3310A11512 3310A11513 3310A11514 3310A11515 3310A11516 3310A11517
USB connecting cable	length 1.8 m, screened	3310A14010
Power supply	24 V DC, 0.6 A	3310A12010
Mounting angle	fixed adjustable	3310A21010 3310A21011
Air purge unit	stainless steel, purge air 0.1 to 0.5 bar, oil free	3310A22010
Water cooling jacket <sup>2</sup>	stainless steel with integrated air purge unit	3310A23010
Vacuum flange KF16	with quartz window or with sapphire window	3310A24010 and 3310A34021 3310A24010 and 3310A34051
Mirror	90°, with integrated air purge unit	3310A24110
DHP 1040	mobile handheld programming device	3310A17010

<sup>1</sup> More accessories available. <sup>2</sup> Only available for pyrometers with fixed optics.

### Selected accessories – pictures

Mounting angle, adjustable	Window slide	Air purge unit
Order number: 3310A21011	Order number: 3310A21210	Order number: 3310A22010
		
Water cooling jacket	Handheld programming device DHP 1040	Digital display DD 200/210
Order number: 3310A23010	Order number: 3310A17010	number: 3310A13020/3310A13025
		

Technical details are subject to change. 05.04.22



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