

Pyroskop 840



High Speed
Infrared Thermometer

Digital High speed pyrometer for fast temperature measurements



- Measurement ranges from 160 ... 3,500 °C
- Response time 10 μ s
- Measuring field diameter from 0.3 mm
- Large configurable display
- Network and RS 485 connection
- PC software for measurement recording and adjustment
- Switching output
- Configurable digital inputs

The **KLEIBER Pyroskop 840** is a digital high speed pyrometer with **display, network connection, current output** and many configuration possibilities.

It is particularly suitable for use in **research and development departments** as also for very fast industrial applications. This include sections of **material development** and testing or temperature measurement of **combustion engines** and **turbines**.

Maximum **flexibility** is guaranteed by a large continuous measuring ranges from **160 ... 3,500 °C** , a variety of different optics (directly in the pyrometer integrated or connected via optical fiber) with **measuring**

distances between **60 and 3,000 mm** and measuring fields from **0.3 to 28 mm** and a response time t_{95} of **10 μ s** .

The large integrated **display** shows the current **measurement temperature**, the **temperature curve**, the **pyrometer status** and or values of **parameters**. The parameters can also be set.

Via the **network** and **RS 485 interface**, the pyrometer can be connected to a PC. The enclosed **software Pyroskop Control** can control several pyrometer and **measured values** from up to **4 pyrometers** can be recorded simultaneously in a **live chart**.

Applications:

- Laser applications (cutting, welding, soldering, etc.)
- Material research/-testing
- Welding
- Induction processes
- Airbag testing
- Turbines
- Explosion processes

Materials:

- Metals (also tungsten or silicon)
- Synthetic materials
- Ceramics

KLEIBER combines decades of experience with a passion for cutting-edge technology.

Device types

Meas. range	600 ... 1,600 °C	800 ... 2,300 °C	300 ... 1,400 °C	500 ... 2,500 °C	160 ... 1,000 °C
Spectral range	0.85 ... 1.05 μm	0.85 ... 1.05 μm	1.58 ... 1.80 μm	1.58 ... 1.80 μm	1.58 ... 2.20 μm
Meas. range	200 ... 1,000 °C	400 ... 1,300 °C	300 ... 2,300 °C	400 ... 3,000 °C	350 ... 3,500 °C
Spectral range	1.58 ... 2.20 μm	1.58 ... 2.20 μm	2.00 ... 2.20 μm	2.00 ... 2.20 μm	2.00 ... 2.20 μm

Other temperature ranges on request

Technical data

Measurement outlet analog	0 ... 20 mA or 4 ... 20 mA, maximum burden 500 Ω , galvanically separated
Update rate of analog output	10 μs (± 5 ppm)
Resolution measurement value	0.1 K
Interface	Ethernet: 10/100 MBit, AES / RSA encryption configurable RS 485: halfduplex, baud rate 3.0 MBd, galvanically separated, Line A and B terminated with 120 Ω
Accuracy	0.75 % of measured value (at 25 °C, $\varepsilon = 1$)
Reproducibility	< 0.3 % of measured value (at 25 °C, $\varepsilon = 1$)
Response time t_{95}	10 μs (internal acquisition, ± 5 ppm), higher value configurable
Emissivity ε	Adjustable from 0.1 ... 1 in 0.001 steps
Switching output	Digital adjustable, short-circuit proof, short-circuit current
Input	2 pieces, function configurable (pilot light, measurement value marking, control measurement value recording, storage measurement value clear, max. 24 V, $U_{\text{Low}} < 0.8$ V, $U_{\text{High}} > 15$ V)
Display	Configurable display (measurement value, value settings, live chart), configuration menu
Optic	Direct optics or fiber optics
Aiming device	LED pilot light
Operating temperature	Direct optics: 0 ... +35 0 ... +80 °C with water cooling Fiber optics: 0 ... +35 °C pyrometer 0 ... +260 °C for fiber optics and optical fiber
Storage temperature	-20 ... +70 °C
Water cooling connection	2 Tube screw connector 0.25" only for direct optics
Cooling water	Temperature 10 ... 30 °C, pressure maximum 6 bar, flow rate at least 1 l/min
Relative humidity	Non condensing conditions
Power supply	24 V DC ± 10 %, 0.5 A
Degree of protection	IP 54 according to DIN 40 050
CE marking	According to EU regulations
Standard reference	2014/30/EU electromagnetic compatibility 2014/35/EU electrical equipment designed for use within certain voltage limits
Length	Direct optics: 180 mm + length optics, overall maximum 330 mm Fiber optics: 199.5 mm (pyrometer)
Height	70 mm
Depth	70 mm
Weight	Direct optics: about 1,200 g Fiber optics: about 910 g

Pyroskop 840 Rear side



Accessories

- Pyrometer connecting cable, standard length 5 m (other cable length see website)
- Ethernet connecting cable, standard length 2 m (other cable length see website)
- Power supply in aluminum housing, 230 V AC, 24 V DC
- Ball and socket mounting screw mounted
- Ball and socket mounting clamp mounted

Fiber optics

Optics

Description	Measuring distance in mm	Measuring field \varnothing in mm	Optical fiber
LVO 25	80 ... 300	1.6 ... 4.3	blue
LVO 35	250 ... 1,000	3.5 ... 11.0	blue
LVA 25	110 ... 800	0.8 ... 5.0	red
LVO 25 S - 1	115 ... 300	0.4 ... 1.5	red
LVO 25 S - 2	200 ... 240	0.85 ... 1.1	red
LVO 25 S - 3	78	0.3	red
LVO 25 S - 4	60	0.5	red
LVO 25 S - 5	70 ... 200	1.0 ... 2.6	blue
LVO 25 S - 6	250 ... 500	3.5 ... 6.3	blue
LVO 25 S - 9	74 ... 284	0.7 ... 3.0	red

Possible meas. ranges: See data sheet for all fiber optics for possible combinations between measurement range and fiber optics
 Optical fiber: Available length between 1.5 and 25 m with stainless steel housing or PTFE housing as well as vacuum lead through special fibre optics cable.

Accessories

Protection glass
Screw cap incl. protection glass - very fast changeable
Cooling jacket with integrated air purge
Laser rejection filter 920 ... 1100 nm
Ball and socket mounting
90° mirror
Air purge unit

Direct optics

Vario optic

D ^a in mm	450	600	800	1,000	1,200
M ^b in mm	2.5	4.0	6.0	8.0	10.5
D ^a in mm	1,400	1,600	2,000	2,500	3,000
M ^b in mm	11.5	13.0	15.0	20.0	28.0

^aDistance from optics front edge

^bMeasuring field diameter

Macro optic

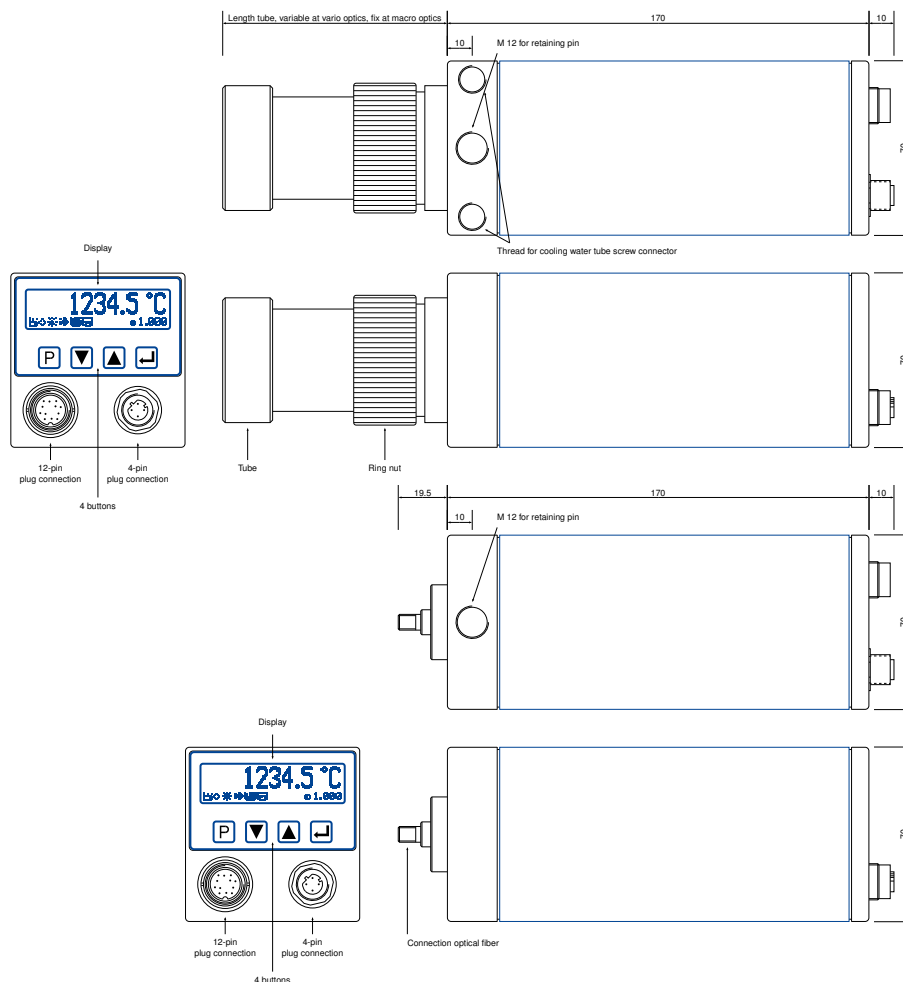
Spectral range	0.85 ... 1.05 μm , 1.58 ... 1.80 μm	1.58 ... 2.20 μm , 2.00 ... 2.20 μm
D ^a in mm	144	140
L ^b in mm	144	150
M ^c in mm	0.7	1.0

^aDistance from optics front edge

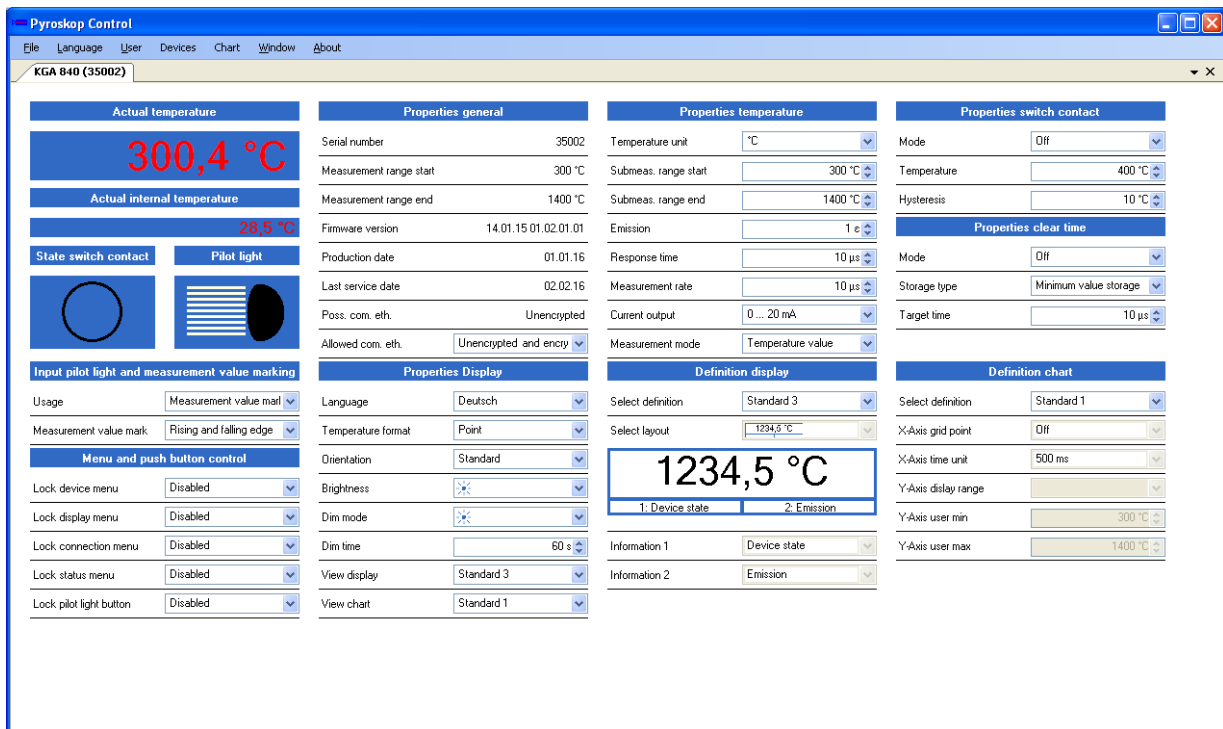
^bFix length tube extraction

^cMeasuring field diameter

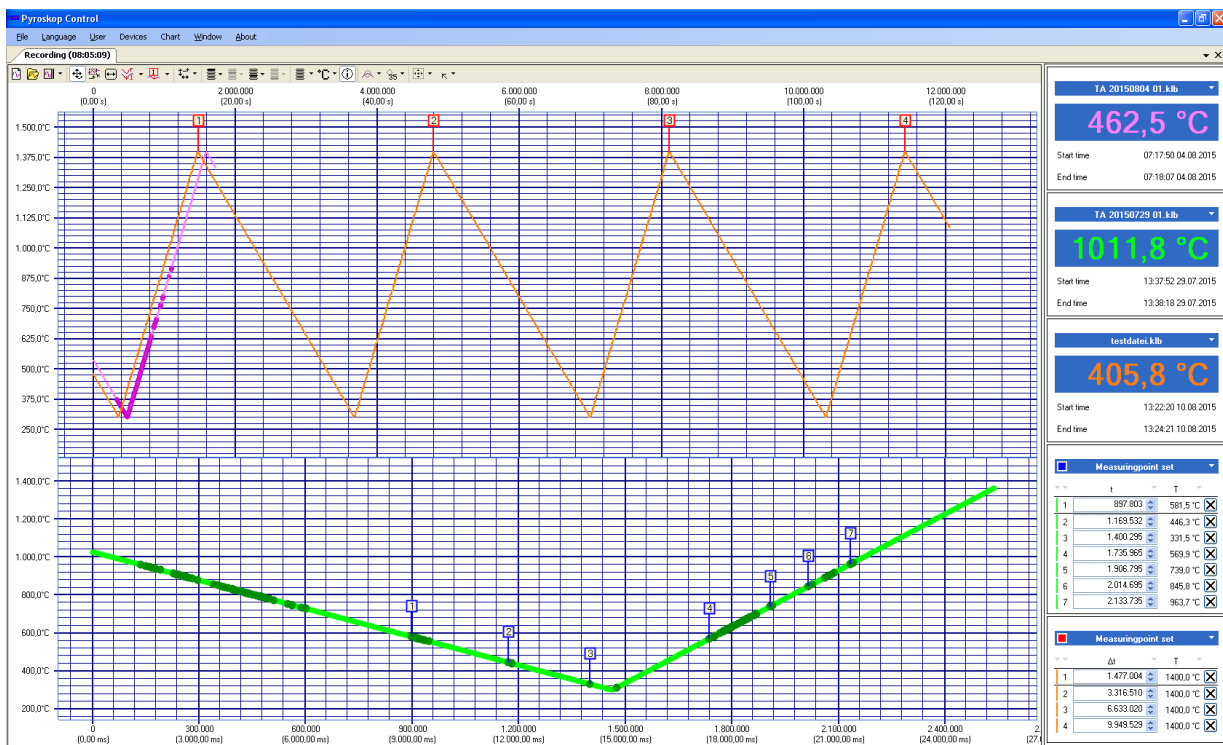
Drawings



Software Pyroskop Control



- Simultaneous display and configuration of multiple pyrometers
- Connection via Ethernet and RS 485
- Communication encryption via AES / RSA possible for Ethernet connections



- Simultaneous live measurement of up to four devices
- Many setting options for displaying and comparing recordings
- Selection, evaluation and comparison of individual measuring points



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