

Non-Contact Temperature Measurement

MAURER – INFRARED – RADIATION THERMOMETER

Temperature range 250 to 1700°C (482 - 3092°F)

Temperature control during production process
compact units – Infrared – measuring transducer and electronic process
unit in one case with light beam aiming device
or viewfinder

Series KTR 1075



MAURER – Infrared – radiation thermometer can also assist you to monitor your heating processes, ensuring a uniform standard of quality for your products.

Infrared Radiation Thermometer Serie KTR 1075

More than 50 years experience in the non-contact temperature measurement and also the continuous development of thermometers makes it possible, that we can offer you a complete program of perfected unit types. Above all the **non-contact temperature measurement** is appropriated for fast **annealing processes**.

The **Serie KTR 1075** are partial radiation thermometer, which record the infrared radiation emitted from the heat source over a narrow spectral range, and convert it into a signal suitable for recording, switching and controlling purposes. When using the non-contact temperature measurement it's to note, that the emission of an annealing position is depending on material and surface. This physical characteristic is described as emissivity, and can (if known) be preset at the instrument in the form of an emission factor.

Examples for application:

steel, iron, non-ferrous metal, tempering, coating, wires, hardening, induction heating, soldering, forging, pre-heating, rolling

unit types	target marking
KTR 1075 - 1	light beam device
KTR 1075 - 2	optical viewfinder

Temperature - Measuring - range - linear -

No.	Meas.- range short
1	250 - 550°C (482 - 1022°F)
2	300 - 800°C (572 - 1472°F)
3	350 - 900°C (662 - 1652°F)
4	400 - 1000°C (752 - 1832°F)
5	500 - 1200°C (932 - 2192°F)

No.	Meas.- range long
6	250 - 1200°C (482 - 2192°F)
7	300 - 1300°C (572 - 2372°F)
8	350 - 1350°C (662 - 2462°F)
9	400 - 1500°C (752 - 2732°F)
10	500 - 1700°C (932 - 3092°F)

Technical Data

Measuring range	250-1700°C (482- 3092°F)
Spectral range	1,45 - 1,7 µm
Response time	10 - 100 ms
Accuracy	1 % ± 1°C (33,8°F)
Reproducibility	3 ‰
Emission factor	100 - 10 %
Working temperature	0°C - 60°C (32 - 140°F)
Stock temperature	- 10°C - + 70°C (14 - 158°F)
Temperature- sensitivity	0,05 % / °C
Humidity tolerance	35 - 85 % RF
Output (choiceable)	0 - 20 mA
	4 - 20 mA
	0 - 1 V
Operating voltage	DC 24 V ± 10 %
	AC 24 V ± 10 %
Current input	< 160 mA
Unit connection	5 - pole socket
Dimensions H / W / D	54 x 54 x 147 mm (2,13x2,13x5,78 inch)
Weight	0,6 kg (1,32 lbs)
Protection grade	IP 65

Objectives:

For accommodation to the measuring application are several objectives and optic systems available.

Options: - built-in digital display

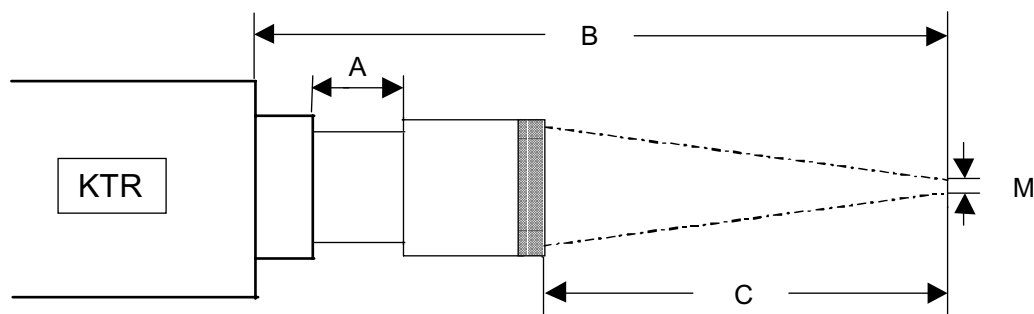
- maximum reading memory

scanner	electronic process unit	electrical assembly	mechanical assembly
SC 1010	AE 1010	- digital display	- units with cooling case
SC 1012	AE 1012	- 2 contact outputs	- blowing device
		- interface RS 232 o.s.	- mirror 90°
		- power supply 230V/AC - 24 V/DC	- mounting parts

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Optic tables for KTR 1075+1085 and QKTR 1075+1085



Optic-type : L 1050-N1			
Lens : f 50 22,4 Ø			
Meas. aperture : 0,5 mm Ø			
Meas. distance from casing of meas. head B / mm	Meas. distance from optic front edge C / mm	Optic extension A / mm	Target size M / mm=d
180	124	13	1,5
190	137	10	1,6
200	149,5	7,5	1,7
210	162	5,0	1,8
220	173,5	3,5	1,9
230	185	2,0	2,0
240	196	1,0	2,1
250	207	0	2,2

Optic-type : L 1060-N1			
Achromat : f 60 22,4 Ø			
Meas. aperture : 0,5 mm Ø			
Meas. distance from casing of meas. head B / mm	Meas. distance from optic front edge C / mm	Optic extension A / mm	Target size M / mm=d
285	229	13	1,5
300	245,4	11,6	1,6
350	299,9	7,1	1,9
400	352,3	4,7	2,3
450	404,1	2,9	2,7
500	455,5	1,5	3,2
550	507	0	3,8

Optic-type : L 1050-N2			
Lens : f 50 22,4 Ø			
Meas. aperture : 0,5 mm Ø			
Meas. distance from casing of meas. head B / mm	Meas. distance from optic front edge C / mm	Optic extension A / mm	Target size M / mm=d
210	154,0	13,0	1,3
220	166,1	10,9	1,4
240	188,6	8,4	1,6
260	210,9	6,1	1,8
280	232,6	4,4	2,1
300	253,9	3,1	2,3
320	274,9	2,1	2,5
340	295,5	1,5	2,7
360	316,0	1,0	2,9
380	336,5	0,5	3,1
400	357,0	0,0	3,3

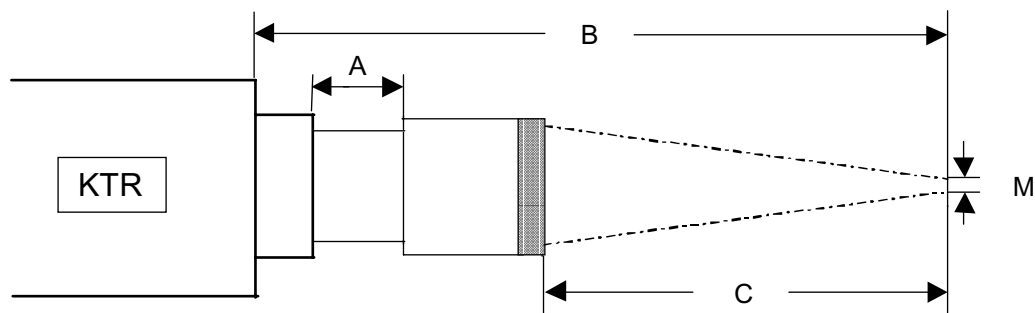
Optic-type : L 1060-N2			
Achromat : f 60 22,4 Ø			
Meas. aperture : 0,5 mm Ø			
Meas. distance from casing of meas. head B / mm	Meas. distance from optic front edge C / mm	Optic extension A / mm	Target size M / mm=d
350	294	13	2,0
400	346,7	10,3	2,4
450	398,9	8,1	2,8
500	450,1	6,9	3,2
550	501,1	5,9	3,7
600	522	5,0	4,2
650	603	4,0	4,7
700	653,9	3,1	5,2
750	704,4	2,6	5,6
800	754,9	2,1	6,1
1000	956,2	0,8	9,2

Target=98 % of beam density of the surface

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Optic tables for KTR 1075+1085 and QKTR 1075+1085



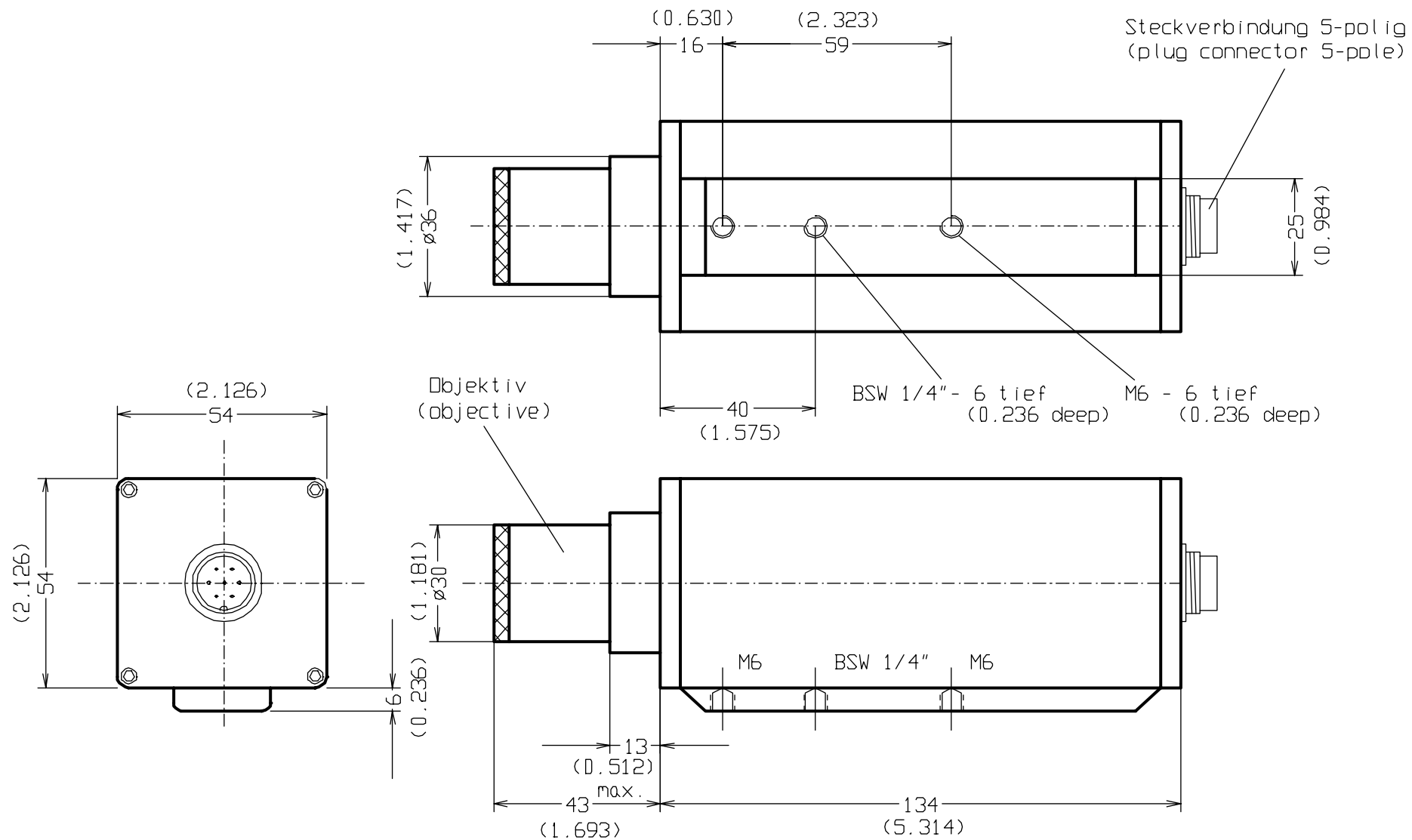
Optic-type : L 1060-T			
Achromat : f 60 22,4 Ø			
Meas. aperture : 0,5 mm Ø			
Meas. distance from casing of meas. head B / mm	Meas. distance from optic front edge C / mm	Optic extension A / mm	Target size M / mm=d
375	319	13	2,7
400	345,4	11,6	2,9
500	447,6	9,4	3,5
600	549,8	7,2	4,2
700	651,4	5,6	5,0
800	752,4	4,6	6,0
900	853	4,0	7,0
1000	953,5	3,5	7,2
2000	1955,6	1,4	15
3000	2956,3	0,7	24
4000	3956,5	0,5	31

Optic-type : A 1080			
Achromat : f 80 31,5 Ø			
Meas. aperture : 0,5 mm Ø			
Meas. distance from casing of meas. head B / mm	Meas. distance from optic front edge C / mm	Optic extension A / mm	Target size M / mm=d
620	557,5	13	3,5
700	639,9	10,6	4,0
800	741,4	9,1	4,5
900	842,5	8,0	5,0
1000	943,4	7,1	6,0
1100	1044,3	6,2	6,5
1200	1144,9	5,6	7,0
1300	1245,4	5,1	7,5
1400	1345,8	4,7	8,0
1500	1446,2	4,3	8,5
1600	1546,5	4,0	9,2
1700	1646,9	3,6	10,0
1800	1747,2	3,3	10,8
1900	1847,4	3,1	11,5
2000	1947,5	3,0	12,1
3000	2948,5	2,0	18,0
4000	3949,2	1,3	24,0

Target=98 % of beam density of the surface

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(xxx) - Maße in Zoll
(dimensions inch)

				Maßstab 1:1	
				Fa.Dr. Maurer GmbH	
				STANDARDGEHÄUSE (standard case)	
				KTR 1000	
				Blatt	
				Bl.	
				940302	
				11.06.03	
Zust.	Änderung	Datum	Name		

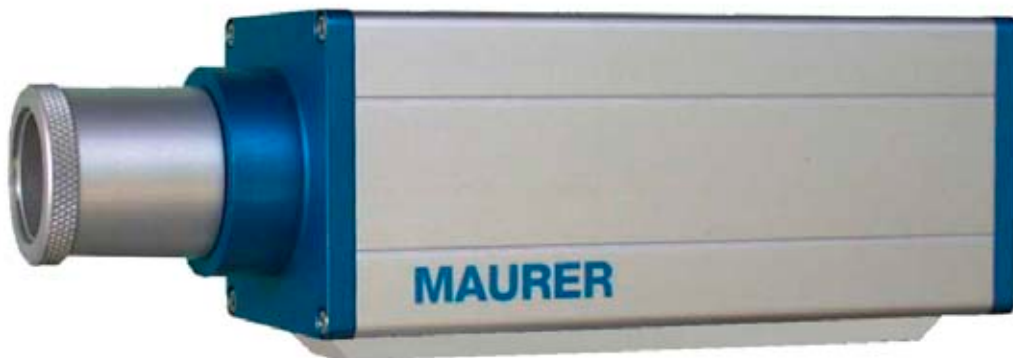
Non-Contact Temperature Measurement

MAURER – INFRARED – RADIATION THERMOMETER

Temperature range 550 to 4000°C (1022 - 7232°F)

Temperature control during production process
compact units – Infrared – measuring transducer and electronic process
unit in one case with light beam aiming device
or viewfinder

Series KTR 1085



MAURER – Infrared – radiation thermometer can also assist you to monitor your heating processes, ensuring a uniform standard of quality for your products.

Infrared Radiation Thermometer Series KTR 1085

More than 50 years experience in the non-contact temperature measurement and also the continuous development of thermometer makes it possible, that we can offer you a complete program of perfected unit types. Above all the **non-contact temperature measurement** is appropriated for fast **annealing processes**. The **Series KTR 1085** are partial radiation thermometer, which record the infrared radiation emitted from the heat source over a narrow spectral range, and convert it into a signal suitable for recording, switching and controlling purposes. When using the non-contact temperature measurement it's to note, that the emission of an annealing position is depending on material and surface. This physical characteristic is described as emissivity, and can (if known) be preset at the instrument in the form of an emission factor.

Examples for application:

steel, iron, non-ferrous metal, wires, glass feeder, glass tub, glass arching, hardening, induction heating, ceramics, soldering, forging, welding, transforming, vacuum-furnace, rolling

unit types	target marking
KTR 1085 - 1	light beam aiming device
KTR 1085 - 2	optical viewfinder

Temperature - Measuring - range - linear -

No.	Meas.- range short
1	550 - 1050°C (1022 - 1922°F)
2	600 - 1200°C (1112 - 2192°F)
3	650 - 1300°C (1202 - 2372°F)
4	700 - 1400°C (1292 - 2552°F)
5	750 - 1500°C (1382 - 2732°F)
6	800 - 1700°C (1472 - 3092°F)
7	900 - 2000°C (1652 - 3632°F)
8	1000 - 2200°C (1832 - 3992°F)
9	1100 - 2500°C (2012 - 4532°F)

No.	Meas.- range long
10	550 - 1800°C (1022 - 3272°F)
11	600 - 2000°C (1112 - 3632°F)
12	650 - 2200°C (1202 - 3992°F)
13	700 - 2500°C (1292 - 4532°F)

(Special meas.- range on request)

Technical Data

Measuring range	550 - 4000°C (1022 - 7232°F)
Spectral range	0,85 - 1,1 µm
Response time	10 - 100 ms
Accuracy	1 % ± 1°C
Reproducibility	3 ‰
Emissions factor	100 - 10 %
Working temperature	0°C - 60°C (32 - 140°F)
Stock temperature	-10°C - + 70°C (14 - 158°F)
Temperature- sensitivity	0,05 % / °C
Humidity tolerance	35 - 85 % RF
Output (choiceable)	0 - 20 mA
	4 - 20 mA
	0 - 1 V
Operating voltage	DC 24 V ± 10 %
	AC 24 V ± 10 %
Current input	< 160 mA
Unit connection	5 - pole socket
Dimension H / W / D	54 x 54 x 147 mm (2,13x2,13x5,70 inch)
Weight	0,6 kg (1,32 lbs)
Protection grade	IP 65

Objectives:

For accommodation to the measuring application are several objectives and optic systems available.

Options: - built-in digital display

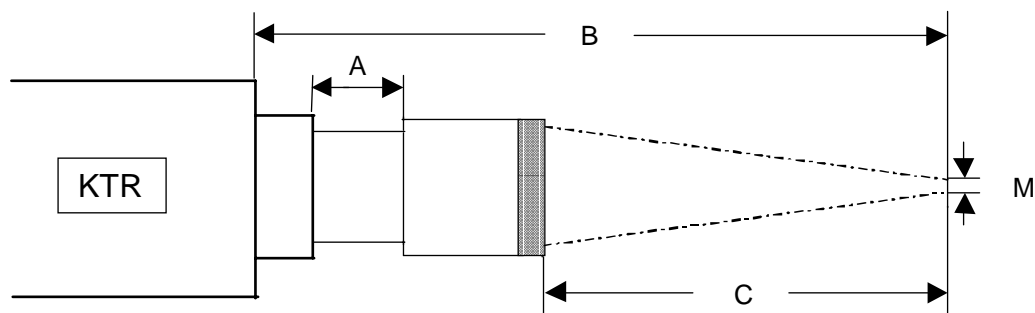
- maximum reading memory

scanner	electronic process unit	electrical assembly	mechanical assembly
SC 1010	AE 1010	- digital display	- units with cooling case
SC 1012	AE 1012	- 2 contact outputs	- blowing device
		- interface RS 232 o.s.	- mirror 90°
		- power supply 230V/AC - 24 V/DC	- mounting parts

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Optic tables for KTR 1075+1085 and QKTR 1075+1085



Optic-type : L 1060-T			
Achromat : f 60 22,4 Ø			
Meas. aperture : 0,5 mm Ø			
Meas. distance from casing of meas. head B / mm	Meas. distance from optic front edge C / mm	Optic extension A / mm	Target size M / mm=d
375	319	13	2,7
400	345,4	11,6	2,9
500	447,6	9,4	3,5
600	549,8	7,2	4,2
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800	752,4	4,6	6,0
900	853	4,0	7,0
1000	953,5	3,5	7,2
2000	1955,6	1,4	15
3000	2956,3	0,7	24
4000	3956,5	0,5	31

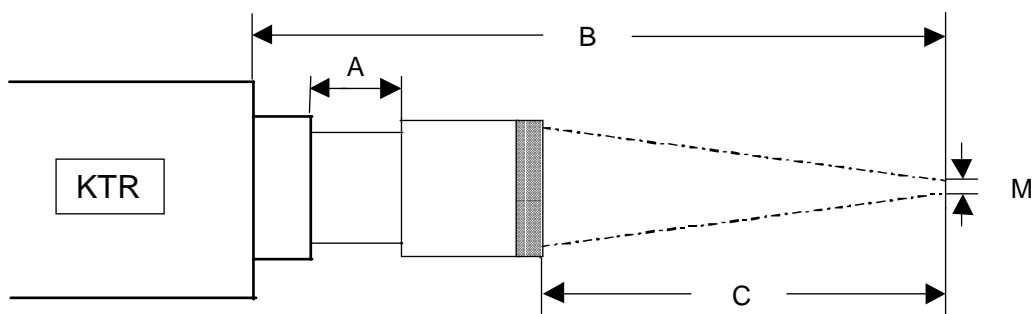
Optic-type : A 1080			
Achromat : f 80 31,5 Ø			
Meas. aperture : 0,5 mm Ø			
Meas. distance from casing of meas. head B / mm	Meas. distance from optic front edge C / mm	Optic extension A / mm	Target size M / mm=d
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700	639,9	10,6	4,0
800	741,4	9,1	4,5
900	842,5	8,0	5,0
1000	943,4	7,1	6,0
1100	1044,3	6,2	6,5
1200	1144,9	5,6	7,0
1300	1245,4	5,1	7,5
1400	1345,8	4,7	8,0
1500	1446,2	4,3	8,5
1600	1546,5	4,0	9,2
1700	1646,9	3,6	10,0
1800	1747,2	3,3	10,8
1900	1847,4	3,1	11,5
2000	1947,5	3,0	12,1
3000	2948,5	2,0	18,0
4000	3949,2	1,3	24,0

Target=98 % of beam density of the surface

Dr. Georg Maurer GmbH – OPTOELEKTRONIK –



Optic tables for KTR 1075+1085 and QKTR 1075+1085



Optic-type : L 1050-N1			
Lens : f 50 22,4 Ø			
Meas. aperture : 0,5 mm Ø			
Meas. distance from casing of meas. head B / mm	Meas. distance from optic front edge C / mm	Optic extension A / mm	Target size M / mm=d
180	124	13	1,5
190	137	10	1,6
200	149,5	7,5	1,7
210	162	5,0	1,8
220	173,5	3,5	1,9
230	185	2,0	2,0
240	196	1,0	2,1
250	207	0	2,2

Optic-type : L 1060-N1			
Achromat : f 60 22,4 Ø			
Meas. aperture : 0,5 mm Ø			
Meas. distance from casing of meas. head B / mm	Meas. distance from optic front edge C / mm	Optic extension A / mm	Target size M / mm=d
285	229	13	1,5
300	245,4	11,6	1,6
350	299,9	7,1	1,9
400	352,3	4,7	2,3
450	404,1	2,9	2,7
500	455,5	1,5	3,2
550	507	0	3,8

Optic-type : L 1050-N2			
Lens : f 50 22,4 Ø			
Meas. aperture : 0,5 mm Ø			
Meas. distance from casing of meas. head B / mm	Meas. distance from optic front edge C / mm	Optic extension A / mm	Target size M / mm=d
210	154,0	13,0	1,3
220	166,1	10,9	1,4
240	188,6	8,4	1,6
260	210,9	6,1	1,8
280	232,6	4,4	2,1
300	253,9	3,1	2,3
320	274,9	2,1	2,5
340	295,5	1,5	2,7
360	316,0	1,0	2,9
380	336,5	0,5	3,1
400	357,0	0,0	3,3

Optic-type : L 1060-N2			
Achromat : f 60 22,4 Ø			
Meas. aperture : 0,5 mm Ø			
Meas. distance from casing of meas. head B / mm	Meas. distance from optic front edge C / mm	Optic extension A / mm	Target size M / mm=d
350	294	13	2,0
400	346,7	10,3	2,4
450	398,9	8,1	2,8
500	450,1	6,9	3,2
550	501,1	5,9	3,7
600	522	5,0	4,2
650	603	4,0	4,7
700	653,9	3,1	5,2
750	704,4	2,6	5,6
800	754,9	2,1	6,1
1000	956,2	0,8	9,2

Target=98 % of beam density of the surface

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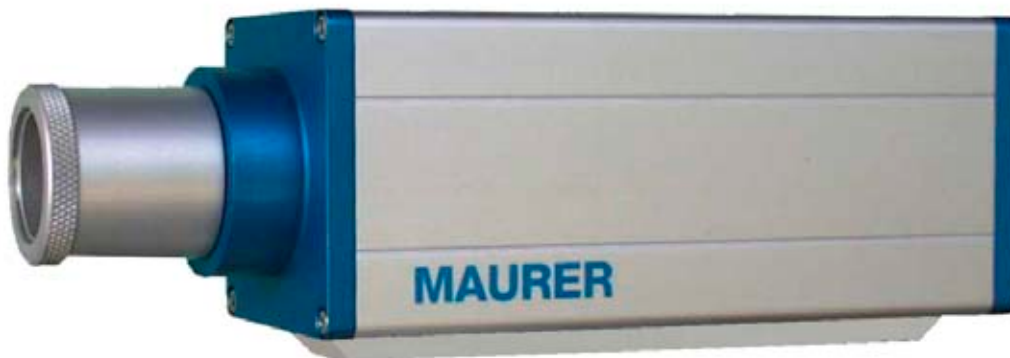
Non-Contact Temperature Measurement

MAURER – INFRARED – RADIATION THERMOMETER

Temperature range -20 to 1000°C (-4 - 1832°F)

Temperature control during production process
compact units – Infrared – measuring transducer and electronic process
unit in one case with light beam aiming device
or viewfinder

Series KTR 1105



MAURER – Infrared – radiation thermometer can also assist you to monitor your heating processes, ensuring a uniform standard of quality for your products.

Infrared Radiation Thermometer Series KTR1105

The non-contact temperature registration in the measuring technique is unthinkable without it. The **KTR 1105** is placing new standards in the **low temperature measuring technique**. It's developed with latest findings and manufactured in **up-dated technology**. Through using of Thermopile Detectors the usual used measuring light choppers are no more necessary. Therefore no moving parts are within these unit-series. A guarantee for **long durability**. For exact adjustment to the measuring point a **light beam aiming device** is available for short measuring distances - for longer measuring distances an **optical viewfinder**.

Examples for application:

ceramics, rubber, paper, wood, food, asphalt, building material, electronic components, plastics, plastic deep-drawing, lacquering drying, drying process..

unites types	target marking
KTR 1105	without
KTR 1105 - 1	light beam aiming device
KTR 1105 - 2	optical viewfinder

Temperature - Measuring - range - linear -

No.	Meas. - range
1	-20 - 100°C (- 4 - 212°F)
2	0 - 100°C (32 - 212°F)
3	0 - 200°C (32 - 392°F)
4	0 - 300°C (32 - 572°F)
5	0 - 400°C (32 - 752°F)
6	0 - 500°C (32 - 932°F)
7	100 - 1000°C (212 - 1832°F)

(Special meas.range on request)

Technical Data

Measuring range	-20 - 1000°C (-4 - 1832°F)
Spectral range	8 - 14 µm
Response time	0,15 - 1,5 s
Accuracy	1 % ± 1°C
Reproducibility	3 ‰
Emissions factor	100 - 10 %
Working temperature	0°C - 50°C (32 - 122°F)
Stock temperature	-10°C - + 70°C (14 - 158°F)
Temperature-sensitivity	0,05 % / °C
Humidity tolerance	35 - 85 % RF
Output (choiceable)	0 - 20 mA
	4 - 20 mA
	0 - 10 V
Operating voltage	DC 24 V ± 10 %
	AC 24 V ± 10 %
Current input	< 160 mA
Unit connection	5 - pole socket
Dimensions H / W / D	54 x 54 x 147 mm (2,13x2,13x5,75 inch)
Weight	0,6 kg (1,32 lbs)
Protection grade	IP 65

Objectives:

For accomodation to the measuring application are several objectives and optic systems available.

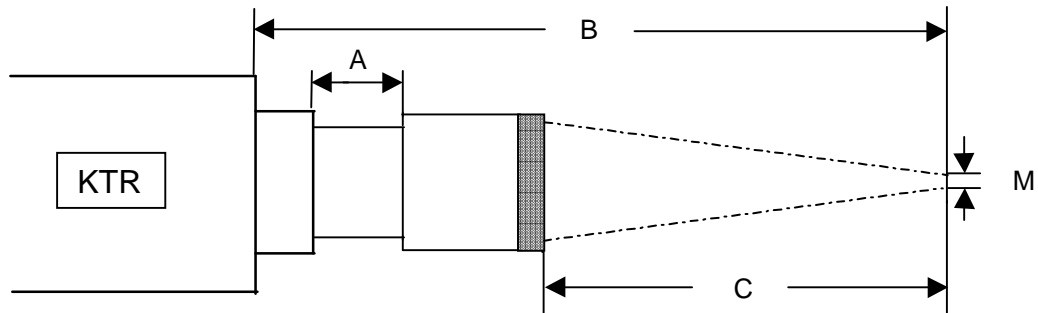
Options: - built-in digital display
- maximum reading memory

scanner	electronic process unit	electrical assembly	mechanical assembly
SC 1010	AE 1010	- digital display	- units with cooling case
SC 1012	AE 1012	- 2 contact outputs	- blowing device
		- interface RS 232 o.s.	- mirror 90°
		- power supply 230V/AC - 24 V/DC	- mounting parts

Dr. Georg Maurer GmbH – OPTOELEKTRONIK –



Optic tables for KTR 1105



Optic-type : IR 1040			
Lens : f =1,5" Ø=1" (12/04)			
Meas. aperture : 1,0 mm Ø			
Meas. distance from casing of meas. head B / mm	Meas. distance from optic front edge C / mm	Optic extension A / mm	Target size M / mm=d
150	116,0	13	3,0
200	170,8	8,2	4,0
300	273,9	5,1	6,8
400	375,2	3,8	9,5
500	476,5	2,5	12,2
600	577,3	1,7	15,5
700	677,7	1,3	17,3
800	778,2	0,8	20,6
900	878,6	0,4	24,2
1000	979,0	0	29,4

Optic-type : IR 1060-N			
Lens : f 2,5" Ø=1" (01/06)			
Meas. aperture : 1,0 mm Ø			
Meas. distance from casing of meas. head B / mm	Meas. distance from optic front edge C / mm	Optic extension A / mm	Target size M / mm=d
300	244	13	3,4
350	298	9,0	4,0
400	350,6	6,4	4,9
450	402,3	4,7	6,0
500	454	3,0	6,6
550	505	2,0	7,7
600	556	1,0	8,5
650	607	0	9,3
700	657	0	10
900	857	0	22,2

Optic-type : IR 1060-T			
Lens : f 2,5" Ø=1"			
Meas. aperture : 1,0 mm Ø			
Meas. distance from casing of meas. head B / mm	Meas. distance from optic front edge C / mm	Optic extension A / mm	Target size M / mm=d
440	384	13	5,4
500	444,8	12,2	6,1
600	547,3	9,7	7,8
700	649,1	7,9	8,6
800	750,2	6,8	10,4
900	851	6	12
1000	951,3	5,7	13,6
1500	1452,2	4,8	21
2000	1952,6	4,4	29,8
3000	2954,5	2,5	42
4000	3955,6	1,4	60
5000	4956	1,0	75

Optic-type : IR 1040-M			
Lens : f 1,5" Ø=1"			
Meas. aperture : 1,0 mm Ø			
Meas. distance from casing of meas. head B / mm	Meas. distance from optic front edge C / mm	Optic extension A / mm	Target size M / mm=d
103	60	0	1,5

Target=98 % of beam density of the surface

Dr. Georg Maurer GmbH – OPTOELEKTRONIK –



Reg.-Nr.: Q1 0201014

Non-Contact Temperature Measurement

MAURER – INFRARED – RADIATION THERMOMETER

Temperature range 250 to 1700°C (482 - 3092°F)

Temperature control during production process
compact units – Infrared – measuring transducer and electronic process
unit in one case with light beam aiming device

Series KTR 1475



MAURER – Infrared – radiation thermometer can also assist you to monitor your heating processes, ensuring a uniform standard of quality for your products.

Infrared Radiation Thermometer Series KTR 1475

Over 50 years experience in the area of non-contact temperature measurement and permanently development in completion of the models, makes it possible to offer you a complete program of field tested thermometer types. In fast warming processes only the non-contact temperature measurement is suitable. The series of **KTR 1475** are part-radiation thermometer, which record in a narrow spectral range the infrared radiation, emitted from the heat source and convert it into a signal, suitable for recording, switching or controlling processes. When non-contact temperature recording is introduced it must be remembered, that heat source radiation depends on the material and its surface. This physical characteristic is described as emissivity, and can (if known) be preset at the instrument in form of an emission factor.

Examples for applications :

steel, iron, non-ferrous metal, tempering, coating, wires, hardening, induction heating, soldering, forging, pre-heating, rolling

Temperature - measuring range - linear -

No.	Meas.- range short
1	250 - 550°C (482 - 1022°F)
2	300 - 800°C (572 - 1472°F)
3	350 - 900°C (662 - 1652°F)
4	400 - 1000°C (752 - 1832°F)
5	500 - 1200°C (932 - 2192°F)

No.	Meas.- range long
6	250 - 1200°C (482 - 2192°F)
7	300 - 1300°C (572 - 2372°F)
8	350 - 1350°C (662 - 2462°F)
9	400 - 1500°C (752 - 2732°F)
10	500 - 1700°C (932 - 3092°F)

(Special meas.range on request)

Technical Data

Measuring range	250 - 1700°C (482 - 3092°F)
Spectral range	1,45 - 1,7 µm
Response time	10 - 100 ms
Accuracy	1 % ± 1°C
Reproducibility	3 ‰
Emission factor	100 - 10 %
Working temperature	0°C - 60°C (32°F - 140°F)
Stock temperature	-10°C - + 70°C (14 - 158°F)
Temperature- sensitivity	0,05 % / °C
Humidity tolerance	35 - 85 % RF
Output (choiceable)	0 - 20 mA
	4 - 20 mA
	0 - 1 V
Operating voltage	DC 24 V ± 10 %
	AC 24 V ± 10 %
Current input	< 160 mA
Unit connection	5 - pole socket
Dimensions H / W / D	54 x 54 x 147 mm (2,13x2,13x5,70 inch)
Weight	0,6 kg (1,32 lbs)
Protection grade	IP 65

Fibre optic cables: Type GM-L49, length 1800 mm in metal hose/T-coated
ambient temperature max.150°C, bend radius min. 40 mm

186-2005	Infrared fibre optic cable	Type GM-L 49	1800 mm	Ø 1,1 mm fibre bundle
186-2010	Infrared fibre optic cable	Type GM-L 49	1800 mm	Ø 2,0 mm fibre bundle
186-2036	Infrared fibre optic cable	Type GM-L 49	1800 mm	0,5 x 2,7 mm fibre bundle

(other length and fibre bundles on request)

Objectives:

For accommodation to the measuring application are several objectives and optic systems available.

Options: - built-in digital display
- maximum reading memory

electronic process unit

AE 1010
AE 1012
AE 1410
AE 1412

electrical assembly

- digital display
- 2 contact outputs
- interface RS 232 o.s.
- power supply 230V/AC - 24 V/DC

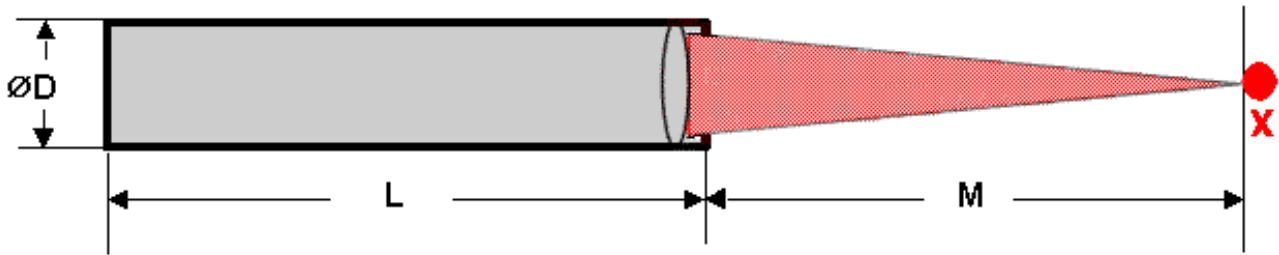
mechanical assembly

- units with cooling case
- blowing device
- mirror 90°
- mounting parts

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Objectives for units with fibre optic cable 1475/1485



Fibre bundle $\varnothing 1,1 \text{ mm}$ / $\varnothing 2,0 \text{ mm}$ / $0,5 \times 2,7 \text{ mm}$

For determination of the respective target size X the fibre optic bundle must be multiplied by the magnification factor of the optic system.

Article-No.:	Optic-type:	\varnothing D mm	Meas. distance M mm	zoom factor V	length L mm
116-1206	VL 20 M	11	20	1,0	49,5
116-1068	VL 40 M	11	40	1,0	67,0
116-1207	VL 60	11	60	1,5	62,5
116-1208	VL 50 M	18	50	0,6	127,0
116-1028	VL 100 M	18	100	1,0	127,0
116-1029	VL 160	18	160	1,6	157,0
116-1209	VL 200	18	200	2,0	144,0
116-1050	VL 250	18	250	2,5	132,5
116-1210	VL 300	18	300	3,3	125,5
116-1211	VL 400	18	400	4,5	119,0
116-1071	VL 500	18	500	4,0	152,0
116-1212	VL 600	18	600	6,0	146,5
116-1213	VL 1000	18	1000	9,5	138,0
116-1214	VL 1500	18	1500	13,6	135,0
116-1215	VL 100 M	25	100	1,0	127,5
116-1216	VL 160	25	160	1,5	123,0
116-1217	VL 200	25	200	2,0	226,0
116-1218	VL 250	25	250	2,5	147,0

(special objectives on request)

Non-Contact Temperature Measurement

MAURER – INFRARED – RADIATION THERMOMETER

Temperature range 550 to 4000°C (1022 - 7232°F)

Temperature control during production process
compact units – Infrared – measuring transducer and electronic process
unit in one case with light beam aiming device

Series KTR 1485



MAURER – Infrared – radiation thermometer can also assist you to monitor your heating processes, ensuring a uniform standard of quality for your products.

Infrared Radiation Thermometer Series KTR1485

Over 50 years experience in the area of non-contact temperature measurement and permanently development in completion of the models, makes it possible to offer you a complete program of field tested thermometer types. In fast warming processes only the non-contact temperature measurement is suitable. The serie of **KTR 1485** are part-radiation thermometer, which record in a narrow spectral range the infrared radiation, emitted from the heat source and convert it into a signal, suitable for recording, switching or controlling processes. When non-contact temperature recording is introduced it must be remembered, that heat source radiation depends on the material and its surface. This physical characteristic is described as emissivity, and can (if known) be preset at the apparatus in form of an emission factor.

Examples for applications :

steel, iron, non-ferrous metal, wires, glass feeder, glass tub, glass arching, hardening, induction heating, ceramics, soldering, forging, welding, transforming, vacuum furnace, rolling

Temperature - Measuring - range - linear -

No.	Meas.- range short
1	550 - 1050°C (1022 - 1922°F)
2	600 - 1200°C (1112 - 2192°F)
3	650 - 1300°C (1202 - 2372°F)
4	700 - 1400°C (1292 - 2552°F)
5	750 - 1500°C (1382 - 2732°F)
6	800 - 1700°C (1472 - 3092°F)
7	900 - 2000°C (1652 - 3632°F)
8	1000 - 2200°C (1832 - 3992°F)
9	1100 - 2500°C (2012 - 4532°F)

No.	Meas.- range long
10	550 - 1800°C (1022 - 3272°F)
11	600 - 2000°C (1112 - 3632°F)
12	650 - 2200°C (1202 - 3992°F)
13	700 - 2500°C (1292 - 4532°F)

special meas. range up
to 4000°C on request

Technical Data

Measuring range	550 - 4000°C (1022 - 7232°F)
Spectral range	0,85 - 1,1 µm
Response time	10 - 100 ms
Accuracy	1 % ± 1°C
Reproducibility	3 ‰
Emissions factor	100 - 10 %
Working temperature	0°C - 60°C (32 - 140°F)
Stock temperature	-10°C - + 70°C (14 - 158°F)
Temperature- sensitivity	0,05 % / °C
Humidity tolerance	35 - 85 % RF
Output (choiceable)	0 - 20 mA
	4 - 20 mA
	0 - 1 V
Operating voltage	DC 24 V ± 10 %
	AC 24 V ± 10 %
Current input	< 160 mA
Unit connection	5 - pole socket
Dimension H / W / D	54 x 54 x 147 mm (2,13x2,13x5,70 inch)
Weight	0,6 kg (1,32 lbs)
Protection grade	IP 65

Fibre optic cables: Type GM-L48, length 1800 mm in metal hose/T-coated
ambient temperature max. 150°C, bend radius min. 40 mm

186-2005	fibre optic cable	Type GM-L48	1800 mm	Ø 1,1 mm fibre bundle
186-1010	fibre optic cable	Type GM-L48	1800 mm	Ø 2,0 mm fibre bundle
186-1030	fibre optic cable	Type GM-L48	1800 mm	0,5 x 2,7 mm fibre bundle

(other length and fibre bundle on request)

Objectives:

For accomodation to the measuring application are several objectives and optic systems available.

Options: - built-in digital display
- maximum reading memory

electronic process unit

AE 1010
AE 1012
AE 1402
AE 1412

electrical assembly

- digital display
- 2 contact outputs
- interface RS 232 o.s.
- power supply 230V/AC - 24 V/DC

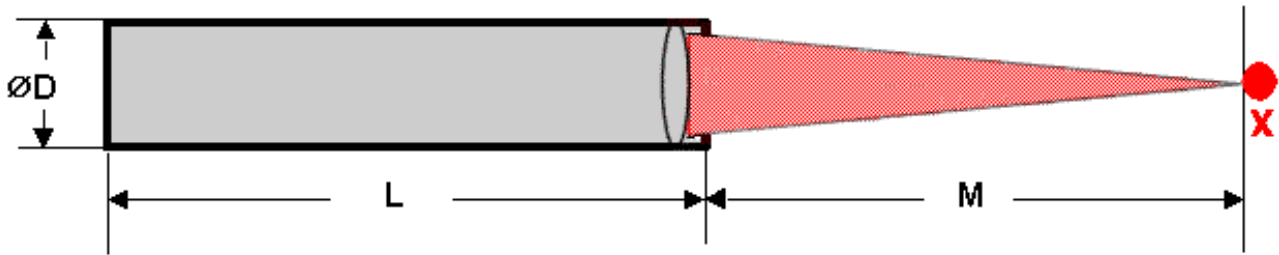
mechanical assembly

- units with cooling case
- blowing device
- mirror 90°
- mounting parts

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Objectives for units with fibre optic cable 1475/1485



Fibre bundle $\varnothing 1,1 \text{ mm}$ / $\varnothing 2,0 \text{ mm}$ / $0,5 \times 2,7 \text{ mm}$

For determination of the respective target size X the fibre optic bundle must be multiplied by the magnification factor of the optic system.

Article-No.:	Optic-type:	\varnothing D mm	Meas. distance M mm	zoom factor V	length L mm
116-1206	VL 20 M	11	20	1,0	49,5
116-1068	VL 40 M	11	40	1,0	67,0
116-1207	VL 60	11	60	1,5	62,5
116-1208	VL 50 M	18	50	0,6	127,0
116-1028	VL 100 M	18	100	1,0	127,0
116-1029	VL 160	18	160	1,6	157,0
116-1209	VL 200	18	200	2,0	144,0
116-1050	VL 250	18	250	2,5	132,5
116-1210	VL 300	18	300	3,3	125,5
116-1211	VL 400	18	400	4,5	119,0
116-1071	VL 500	18	500	4,0	152,0
116-1212	VL 600	18	600	6,0	146,5
116-1213	VL 1000	18	1000	9,5	138,0
116-1214	VL 1500	18	1500	13,6	135,0
116-1215	VL 100 M	25	100	1,0	127,5
116-1216	VL 160	25	160	1,5	123,0
116-1217	VL 200	25	200	2,0	226,0
116-1218	VL 250	25	250	2,5	147,0

(special objectives on request)

Non-Contact Temperature Measurement

MAURER – INFRARED – RADIATION THERMOMETER

Temperature range 150 to 850°C (302 - 1562°F)

compact units – Infrared – measuring transducer and electronic process unit in one case with light beam aiming device

Series KTR 2340



MAURER – Infrared – radiation thermometer can also assist you to monitor your heating processes, ensuring a uniform standard of quality for your products.

Infrared Radiation Thermometer Series KTR 2340

The non-contact temperature registration in the measuring technique is unthinkable without it. The **KTR 2340** is placing new standards in the **low temperature measuring technique** for metallic surfaces. It's developed with latest findings and manufactured in **up-dated technology**. Through the approved chopper system a very efficient long-term stability and low-sensitivity contrary to temperature-shocks is achieved. In view of a response time of **only 5 msec.** this thermometer is also useable for high-speed measuring applications. For exact adjustment to the measuring point a **light beam aiming device** is available.

Examples for application:

steel, iron, non-ferrous metal, tempering, wires, induction heating, soft soldering, pre-heating

Temperature-measuring range - linear -

No.	Meas. – range short
1	150 - 450°C (302 - 842°F)
2	200 - 700°C (392 - 1292°F)

No	Meas.-range long
3	200 - 850°C (392 - 1562°F)

(special meas. range on request)

Technical Data

Measuring range	150 - 850°C (302 - 1562°F)
Spectral range	2,3 µm
Response time	0,005 - 0,5 s
Accuracy	1 % ± 1°C
Reproducibility	3 ‰
Emissions factor	100 - 10 %
Working temperature	0°C - 50°C (32 - 122°F)
Stock temperature	-10°C - + 70°C (14 - 158°F)
Temperature-sensitivity	0,05 % / °C
Humidity tolerance	35 - 85 % RF
Output (choiceable)	0 - 20 mA
	4 - 20 mA
	0 - 10 V
Operating voltage	DC 24 V ± 10 %
	AC 24 V ± 10 %
Current input	approx 300 mA
Unit connection	5 - pole socket
Dimensions H / B / D	54 x 54 x 171 mm (2,13x2,13x6,73 inch)
Weight	0,6 kg (1,32 lbs)
Protection grade	IP 65

Fibre optic cables: Type GM-L49, length 1800 mm in metal hose/T-coated
ambient temperature max. 150°C, bend radius min. 40 mm

186-2005	fibre optic cable	Type GM-L49	1800 mm	Ø 1,1 mm fibre bundle
186-2010	fibre optic cable	Type GM-L49	1800 mm	Ø 2,0 mm fibre bundle
186-2036	fibre optic cable	Type GM-L49	1800 mm	0,5 x 2,7 mm fibre bundle

(other length and fibre bundle on request)

Objectives:

For accomodation to the measuring application are several objectives and optic systems available.

Options: - built-in digital display

electronic process unit

AE 1010
AE 1012
AE 1410
AE 1412

electrical assembly

- digital display
- 2 contact outputs
- interface RS 232 o.s.
- power supply 230V/AC - 24 V/DC

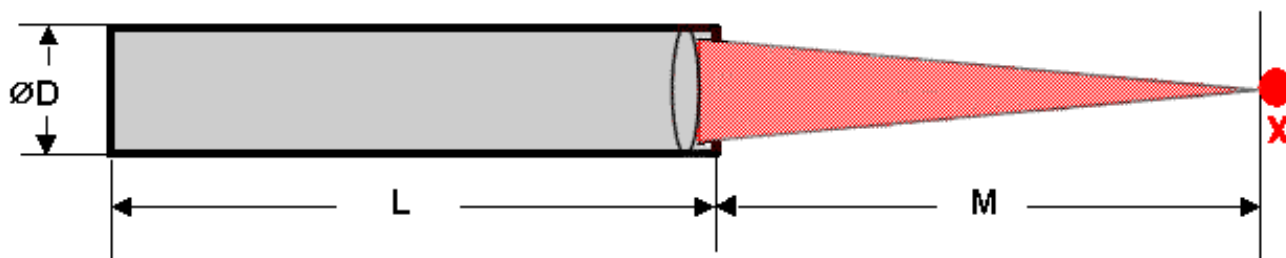
mechanical assembly

- units with cooling case
- blowing device
- mirror 90°
- mounting parts

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Objectives for units with fibre optic cable series 2340



fibre - bundle $\varnothing 1,1 \text{ mm}$ / $\varnothing 2,0 \text{ mm}$ / $0,5 \times 2,7 \text{ mm}$

For determination of the respective target size X the fibre optic bundle must be multiplied by the magnification factor of the optic system.

Article-No.:	Optic-type:	\varnothing D mm	Meas. distance M mm	zoom factor V	Länge L mm
117-1028	VL 50-2	18	50	1,0	80,0
117-1029	VL 75-2	18	75	1,5	80,0
117-1050	VL 100-2	18	100	2,0	80,0
117-1074	VL 200-2	18	200	4,0	80,0

(special objectives on request)

Non-Contact Temperature Measurement

DIGITAL – INFRARED – PYROMETER

Temperature range 100 to 1400°C (212 - 2552°F)

Temperature control during production process

compact units – Infrared – measuring transducer and electronic process unit in one case with light beam aiming device or optical viewfinder, focusable optic, serial interface, limit output

Series KTRD 1065



MAURER – Infrared – pyrometer can also assist you to monitor your heating processes, ensuring a uniform standard of quality for your products.

Infrared-Digital-Pyrometer Series KTRD 1065

More than 60 years experience in the area of non-contact temperature measurement and permanently development of the pyrometers makes it possible to offer you a complete program of field tested units.. Mainly for **fast warming processes** the **contactless temperature measurement** is suitable.

The **series KTRD 1065** are **digital part radiation pyrometer** with vario-objective in compact structure likewise suitable for industry, research and laboratory.

With the integrated light beam aiming device (green LED or Laser) resp. viewfinder an adjusting of the pyrometer to the measuring object is very easy.

The temperature linear analog output signal 0/4 up to 20 mA is available for measuring- and controlling purposes.

The simultaneous using of the serial interface with the software IR-LOG enables the data detection, graphical representation and the parameter settings of the pyrometer.

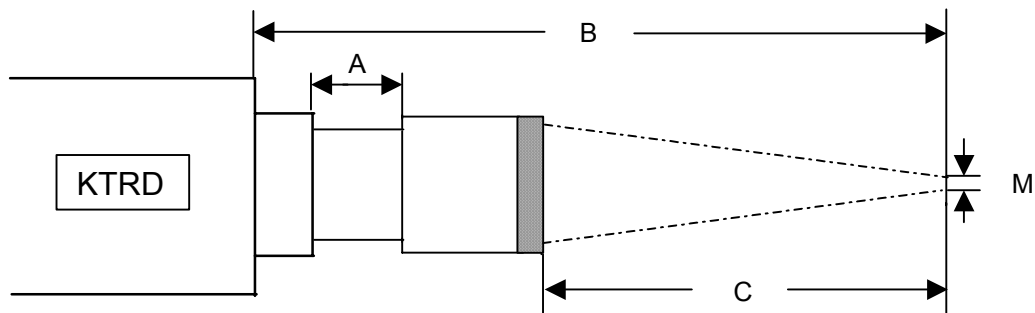
Examples for applications:

steel, iron, non-ferrous metal, wires, ceramics, rolling, induction heating, soldering, welding, transforming, vacuum furnace etc.

Technical datas:			
Unit types	KTRD 1065-1		KTRD 1065-2
Target marking	light beam aiming device green LED or laser		viewfinder
Temp. measuring ranges:	MR 1: 100 - 800°C 212 - 1472°F	MR 2: 150 - 1200°C 302 - 2192°F	MR 3: 200 - 1400°C 392 - 2552°F
Response time (t90)	5 ms		<0,5 ms
Spectral range	2,1 µm		
Measuring uncertainty	0,5% of meas.value in °C ± 1°C (ε = 1, Tamb. = 23°C, T ₉₅ = 1s)		
Reproducibility	0,1% of meas.value in °C ± 1°C (ε = 1, Tamb. = 23°C, T ₉₅ = 1s)		
Emission factor ε	100 - 10 % adjustable at the unit or through interface		
Analog output	0 - 20 mA or 4 - 20 mA , load max. 500R		
Part measuring ranges:	free adjustable within the measuring range		
Resolution	< 0,1% analog output, < 0,1°C at interface		
1 limit output (open coll.)	24 V DC / max. 100 mA		
Max.reading memory	max.memory, double memory,adjustable time and threshold value, erasing after time, external contact, by software, after new meas.part		
Interface	RS 232 isolated ± 50 V or RS 485 isolated 2500VRMS options: PROFIBUS, PROFINET, Ethernet, EtherCAT, USB 2.0		
Software IR-LOG	data recording, graph.representation, setting of pyrometer parameters		
adjustable parameter with Software IR-LOG	emissionfactor,switching output,analog output, part meas.range, °C/°F, max.memory, average value, light beam aiming device switchable		
Objectives	for accommodation to the measuring application an extensive selection of objectives are available		
Working temperature	pyrometer 0 - 50°C (32-122°F), optic system up to 150°C(302°F)		
Stock temperature	- 10°C - + 70°C (14-158°F)		
Temperature sensitivity	0,05 % / °C		
Humidity tolerance	35 - 85 % RF (non condensing)		
Operating voltage	24 V DC ± 10 % or 18 V AC ± 10 % < 160 mA		
Unit connection	12-pole plug-connector		
Dimensions: H / W / D	54 x 54 x 147 mm (2,13 x 2,13 x 5,79 inch) ALU-case		
Weight	0,6 kg (1,32 lbs)		
Protection grade	IP 65		
Option	built in digital display		

mechanical assembly	electrical assembly		
Execution in cooling case	AED 1012	electr.process unit	digital display (built in-execution)
Blowing device	AED 1012-C	PID controller	connection cable 12-pole
Mirror 90°	AED 1012-PC	Program controller	line scanner SC 1000 / SC 1012
Mounting parts	power supply 100-270VAC - 24 VDC		PC-Box (USB – connection set)

Optic tables for KTRD 1065+1075+1085 and QKTRD 1075+1085



Optic-type : L 1050-N1			
Lens : f 50 22,4 Ø			
Meas. aperture : 0,5 mm Ø			
Meas. distance from casing of meas. head B / mm	Meas. distance from optic front edge C / mm	Optic extension A / mm	Target size M / mm=d
180	124	13	1,5
190	137	10	1,6
200	149,5	7,5	1,7
210	162	5,0	1,8
220	173,5	3,5	1,9
230	185	2,0	2,0
240	196	1,0	2,1
250	207	0	2,2

Optic-type : L 1060-N1			
Achromat : f 60 22,4 Ø			
Meas. aperture : 0,5 mm Ø			
Meas. distance from casing of meas. head B / mm	Meas. distance from optic front edge C / mm	Optic extension A / mm	Target size M / mm=d
285	229	13	1,5
300	245,4	11,6	1,6
350	299,9	7,1	1,9
400	352,3	4,7	2,3
450	404,1	2,9	2,7
500	455,5	1,5	3,2
550	507	0	3,8

Optic-type : L 1050-N2			
Lens : f 50 22,4 Ø			
Meas. aperture : 0,5 mm Ø			
Meas. distance from casing of meas. head B / mm	Meas. distance from optic front edge C / mm	Optic extension A / mm	Target size M / mm=d
210	154,0	13,0	1,3
220	166,1	10,9	1,4
240	188,6	8,4	1,6
260	210,9	6,1	1,8
280	232,6	4,4	2,1
300	253,9	3,1	2,3
320	274,9	2,1	2,5
340	295,5	1,5	2,7
360	316,0	1,0	2,9
380	336,5	0,5	3,1
400	357,0	0,0	3,3

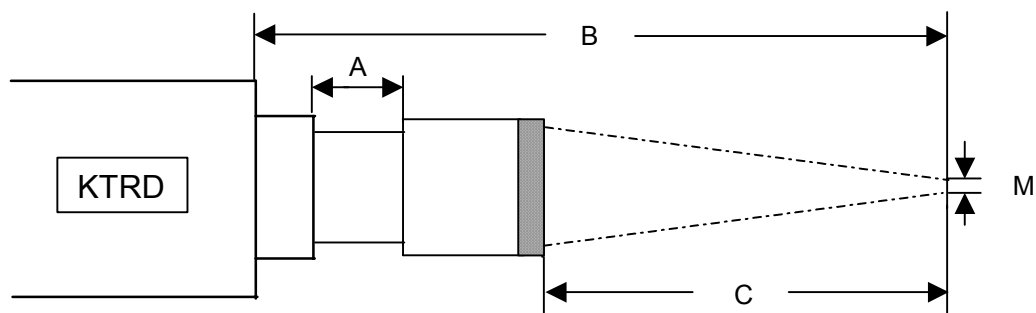
Optic-type : L 1060-N2			
Achromat : f 60 22,4 Ø			
Meas. aperture : 0,5 mm Ø			
Meas. distance from casing of meas. head B / mm	Meas. distance from optic front edge C / mm	Optic extension A / mm	Target size M / mm=d
350	294	13	2,0
400	346,7	10,3	2,4
450	398,9	8,1	2,8
500	450,1	6,9	3,2
550	501,1	5,9	3,7
600	522	5,0	4,2
650	603	4,0	4,7
700	653,9	3,1	5,2
750	704,4	2,6	5,6
800	754,9	2,1	6,1
1000	956,2	0,8	9,2

Target=98 % of beam density of the surface

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Optic tables for KTRD 1065+1075+1085 and QKTRD 1075+1085



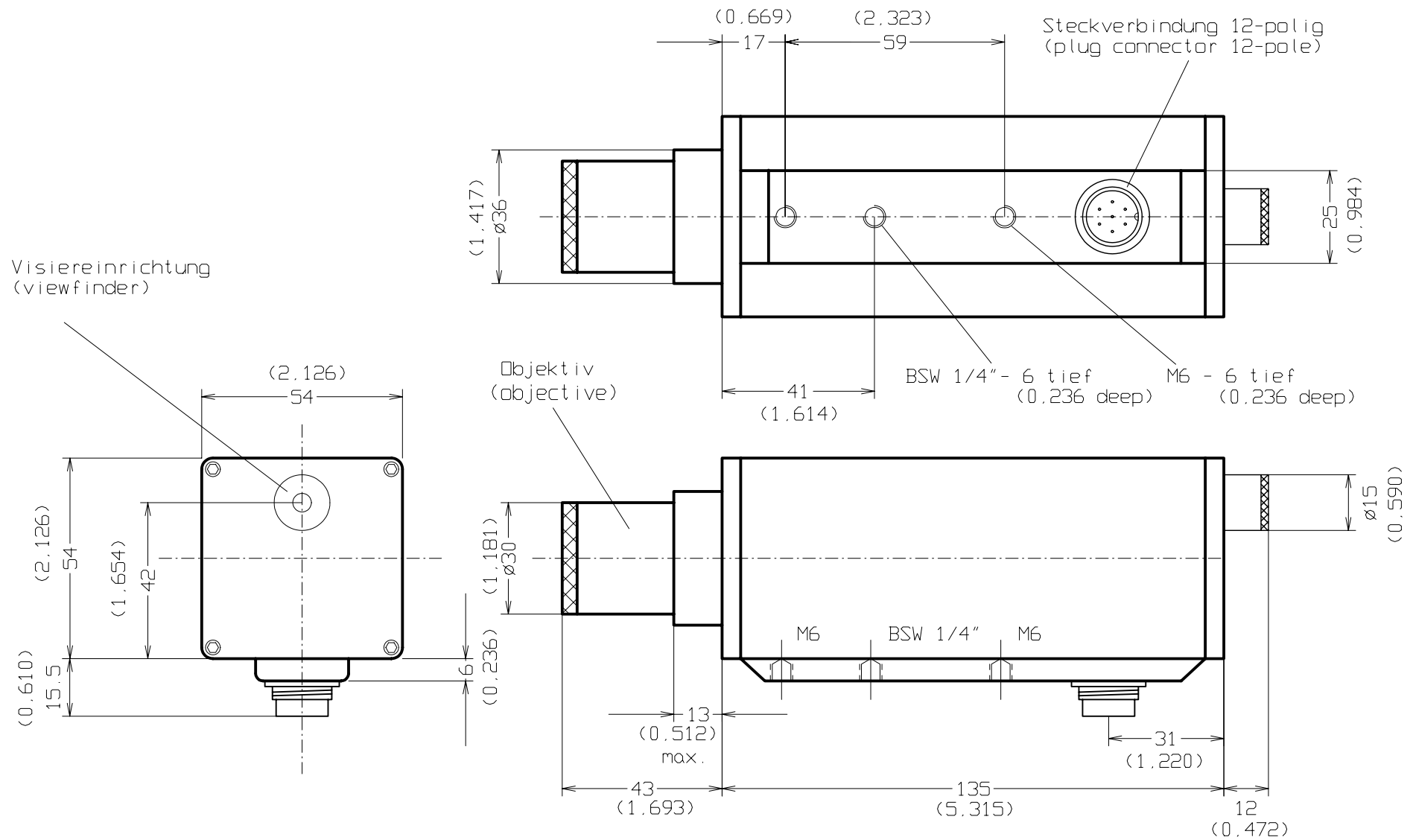
Optic-type : L 1060-T			
Achromat : f 60 22,4 Ø			
Meas. aperture : 0,5 mm Ø			
Meas. distance from casing of meas. head B / mm	Meas. distance from optic front edge C / mm	Optic extension A / mm	Target size M / mm=d
335	279	13	2,6
400	345,8	11,2	2,5
500	448,5	8,5	3,2
600	550	7,0	4,0
700	651,4	5,6	4,8
800	753	4,0	5,9
900	853,9	3,1	7,2
1000	954,8	2,2	8,3
2000	1956	1,0	14,6
3000	2955,4	0,6	23,9
4000	3956,8	0,2	31,0

Optic-type : A 1080			
Achromat : f 80 31,5 Ø			
Meas. aperture : 0,5 mm Ø			
Meas. distance from casing of meas. head B / mm	Meas. distance from optic front edge C / mm	Optic extension A / mm	Target size M / mm=d
620	557,5	13	3,5
700	639,9	10,6	4,0
800	741,4	9,1	4,5
900	842,5	8,0	5,0
1000	943,4	7,1	6,0
1100	1044,3	6,2	6,5
1200	1144,9	5,6	7,0
1300	1245,4	5,1	7,5
1400	1345,8	4,7	8,0
1500	1446,2	4,3	8,5
1600	1546,5	4,0	9,2
1700	1646,9	3,6	10,0
1800	1747,2	3,3	10,8
1900	1847,4	3,1	11,5
2000	1947,5	3,0	12,1
3000	2948,5	2,0	18,0
4000	3949,2	1,3	24,0

Target=98 % of beam density of the surface

Dr. Georg Maurer GmbH – OPTOELEKTRONIK –





(xxx) - Maße in Zoll
(dimensions inch)

Maßstab				1:1	
Fa.Dr. Maurer GmbH					
STANDARDGEHÄUSE (standard case)					
KTRD 1000-2 Stecker 90° (connector 90°)					
Visiereinrichtung (viewfinder)					
100207				Blatt	
				Bl.	
Zust	Änderung	Datum	Name		

Non-Contact Temperature Measurement

DIGITAL – INFRARED – PYROMETER

Temperature range 250 to 2500°C (482 - 4532°F)

Temperature control during production process

compact units – Infrared – measuring transducer and electronic process unit in one case with light beam aiming device or optical viewfinder, focusable optic, serial interface, limit output

Series KTRD 1075



MAURER – Infrared – pyrometer can also assist you to monitor your heating processes, ensuring a uniform standard of quality for your products.

Infrared-Digital-Pyrometer Series KTRD 1075

More than 60 years experience in the area of non-contact temperature measurement and permanently development of the pyrometers makes it possible to offer you a complete program of field tested units.. Mainly for **fast warming processes** the **contactless temperature measurement** is suitable.

The **series KTRD 1075** are **digital part radiation pyrometer** with vario-objective in compact structure likewise suitable for industry, research and laboratory.

With the integrated light beam aiming device (green LED or Laser) resp. viewfinder an adjusting of the pyrometer to the measuring object is very easy.

The temperature linear analog output signal 0/4 up to 20 mA is available for measuring- and controlling purposes.

The simultaneous using of the serial interface with the software IR-LOG enables the data detection, graphical representation and the parameter settings of the pyrometer.

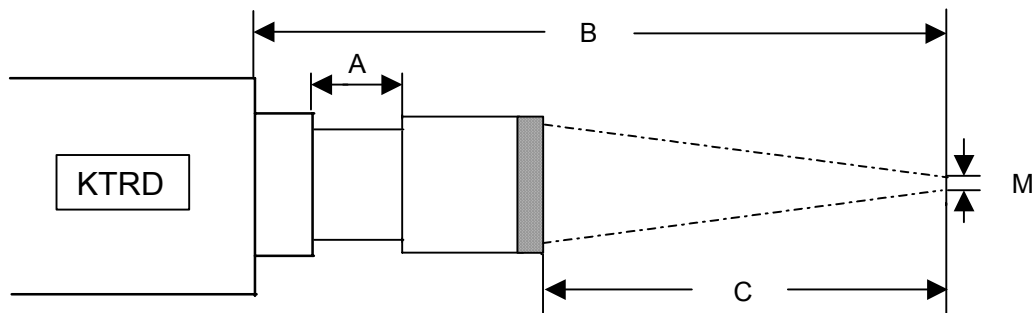
Examples for applications:

steel, iron, non-ferrous metal, tempering, coating, wires, hardening, induction heating, soldering, forging, pre-heating, rolling, glowing etc.

Technical datas:		
Unit types	KTRD 1075-1	
Target marking	light beam aiming device green LED or laser	
Temp. measuring ranges:	MR 1: 250 - 1400°C 482 - 2552°F	MR 2: 300 - 2000°C 572 - 3632°F
Response time (t90)	<0,5 ms	
Spectral range	1,45 - 1,7 µm	
Measuring uncertainty	0,5% of meas.value in °C ± 1°C (ε = 1, Tamb. = 23°C, T ₉₅ = 1s)	
Reproducibility	0,1% of meas.value in °C ± 1°C (ε = 1, Tamb. = 23°C, T ₉₅ = 1s)	
Emission factor ε	100 - 10 % adjustable at the unit or through interface	
Analog output	0 - 20 mA or 4 - 20 mA , load max. 500R	
Part measuring ranges:	free adjustable within the measuring range	
Resolution	< 0,1% analog output, < 0,1°C at interface	
1 limit output (open coll.)	24 V DC / max. 100 mA	
Max.reading memory	max.memory, double memory,adjustable time and threshold value, erasing after time, external contact, by software, after new meas.part	
Interface	RS 232 isolated ± 50 V or RS 485 isolated 2500VRMS options: PROFIBUS, PROFINET, Ethernet, EtherCAT, USB 2.0	
Software IR-LOG	data recording, graph.representation, setting of pyrometer parameters	
adjustable parameter with Software IR-LOG	emissionfactor,switching output,analog output, part meas.range, °C/°F, max.memory, average value, light beam aiming device switchable	
Objectives	for accommodation to the measuring application an extensive selection of objectives are available	
Working temperature	pyrometer 0 - 50°C (32-122°F), optic system up to 150°C(302°F)	
Stock temperature	- 10°C - + 70°C (14-158°F)	
Temperature sensitivity	0,05 % / °C	
Humidity tolerance	35 - 85 % RF (non condensing)	
Operating voltage	24 V DC ± 10 % or 18 V AC ± 10 % < 160 mA	
Unit connection	12-pole plug-connector	
Dimensions: H / W / D	54 x 54 x 147 mm (2,13 x 2,13 x 5,79 inch) ALU-case	
Weight	0,6 kg (1,32 lbs)	
Protection grade	IP 65	
Option	built in digital display	

mechanical assembly	electrical assembly	
Execution in cooling case	AED 1012 electr.process unit	digital display (built in-execution)
Blowing device	AED 1012-C PID controller	connection cable 12-pole
Mirror 90°	AED 1012-PC Program controller	line scanner SC 1000 / SC 1012
Mounting parts	power supply 100-270VAC - 24 VDC	PC-Box (USB – connection set)

Optic tables for KTRD 1065+1075+1085 and QKTRD 1075+1085



Optic-type : L 1050-N1			
Lens : f 50 22,4 Ø			
Meas. aperture : 0,5 mm Ø			
Meas. distance from casing of meas. head B / mm	Meas. distance from optic front edge C / mm	Optic extension A / mm	Target size M / mm=d
180	124	13	1,5
190	137	10	1,6
200	149,5	7,5	1,7
210	162	5,0	1,8
220	173,5	3,5	1,9
230	185	2,0	2,0
240	196	1,0	2,1
250	207	0	2,2

Optic-type : L 1060-N1			
Achromat : f 60 22,4 Ø			
Meas. aperture : 0,5 mm Ø			
Meas. distance from casing of meas. head B / mm	Meas. distance from optic front edge C / mm	Optic extension A / mm	Target size M / mm=d
285	229	13	1,5
300	245,4	11,6	1,6
350	299,9	7,1	1,9
400	352,3	4,7	2,3
450	404,1	2,9	2,7
500	455,5	1,5	3,2
550	507	0	3,8

Optic-type : L 1050-N2			
Lens : f 50 22,4 Ø			
Meas. aperture : 0,5 mm Ø			
Meas. distance from casing of meas. head B / mm	Meas. distance from optic front edge C / mm	Optic extension A / mm	Target size M / mm=d
210	154,0	13,0	1,3
220	166,1	10,9	1,4
240	188,6	8,4	1,6
260	210,9	6,1	1,8
280	232,6	4,4	2,1
300	253,9	3,1	2,3
320	274,9	2,1	2,5
340	295,5	1,5	2,7
360	316,0	1,0	2,9
380	336,5	0,5	3,1
400	357,0	0,0	3,3

Optic-type : L 1060-N2			
Achromat : f 60 22,4 Ø			
Meas. aperture : 0,5 mm Ø			
Meas. distance from casing of meas. head B / mm	Meas. distance from optic front edge C / mm	Optic extension A / mm	Target size M / mm=d
350	294	13	2,0
400	346,7	10,3	2,4
450	398,9	8,1	2,8
500	450,1	6,9	3,2
550	501,1	5,9	3,7
600	522	5,0	4,2
650	603	4,0	4,7
700	653,9	3,1	5,2
750	704,4	2,6	5,6
800	754,9	2,1	6,1
1000	956,2	0,8	9,2

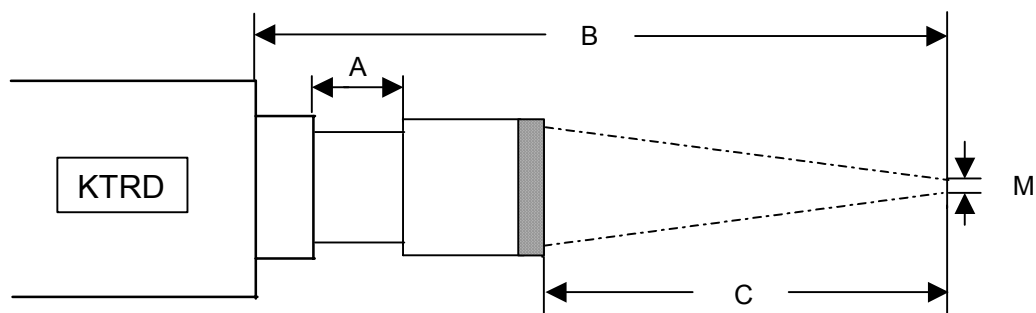
Target=98 % of beam density of the surface

Dr. Georg Maurer GmbH – OPTOELEKTRONIK –



Reg.-Nr.: Q1 0201014

Optic tables for KTRD 1065+1075+1085 and QKTRD 1075+1085



Optic-type : L 1060-T			
Achromat : f 60 22,4 Ø			
Meas. aperture : 0,5 mm Ø			
Meas. distance from casing of meas. head B / mm	Meas. distance from optic front edge C / mm	Optic extension A / mm	Target size M / mm=d
335	279	13	2,6
400	345,8	11,2	2,5
500	448,5	8,5	3,2
600	550	7,0	4,0
700	651,4	5,6	4,8
800	753	4,0	5,9
900	853,9	3,1	7,2
1000	954,8	2,2	8,3
2000	1956	1,0	14,6
3000	2955,4	0,6	23,9
4000	3956,8	0,2	31,0

Optic-type : A 1080			
Achromat : f 80 31,5 Ø			
Meas. aperture : 0,5 mm Ø			
Meas. distance from casing of meas. head B / mm	Meas. distance from optic front edge C / mm	Optic extension A / mm	Target size M / mm=d
620	557,5	13	3,5
700	639,9	10,6	4,0
800	741,4	9,1	4,5
900	842,5	8,0	5,0
1000	943,4	7,1	6,0
1100	1044,3	6,2	6,5
1200	1144,9	5,6	7,0
1300	1245,4	5,1	7,5
1400	1345,8	4,7	8,0
1500	1446,2	4,3	8,5
1600	1546,5	4,0	9,2
1700	1646,9	3,6	10,0
1800	1747,2	3,3	10,8
1900	1847,4	3,1	11,5
2000	1947,5	3,0	12,1
3000	2948,5	2,0	18,0
4000	3949,2	1,3	24,0

Target=98 % of beam density of the surface

Dr. Georg Maurer GmbH – OPTOELEKTRONIK –



Non-Contact Temperature Measurement

DIGITAL – INFRARED – PYROMETER

Temperature range 550 to 4000°C (1022 - 7232°F)

Temperature control during production process

compact units – Infrared – measuring transducer and electronic process unit in one case with light beam aiming device or optical viewfinder, focusable optic, serial interface, limit output

Series KTRD 1085



MAURER – Infrared – pyrometer can also assist you to monitor your heating processes, ensuring a uniform standard of quality for your products.

Infrared-Digital-Pyrometer Series KTRD 1085

More than 60 years experience in the area of non-contact temperature measurement and permanently development of the pyrometers makes it possible to offer you a complete program of field tested units.. Mainly for **fast warming processes contactless temperature measurement** is suitable.

The **series KTRD 1085** are **digital part radiation pyrometer** with vario-objective in compact structure likewise suitable for industry, research and laboratory.

With the integrated light beam aiming device (green LED or Laser) resp. viewfinder an adjusting of the pyrometer to the measuring object is very easy.

The temperature linear analog output signal 0/4 up to 20 mA is available for measuring- and controlling purposes.

The simultaneous using of the serial interface with the software IR-LOG enables the data detection, graphical representation and the parameter settings of the pyrometer.

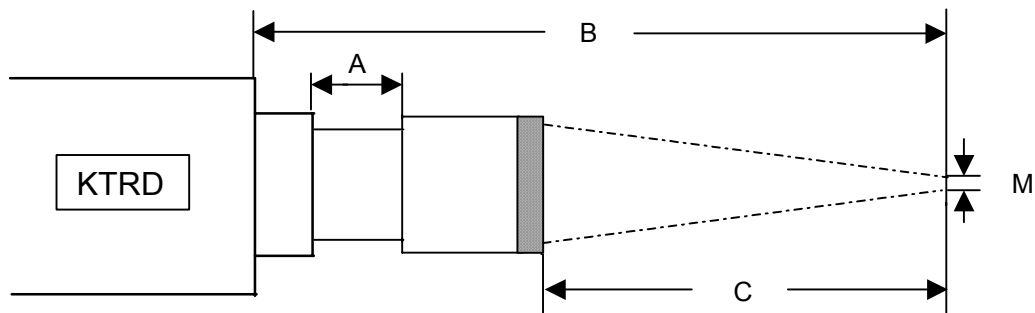
Examples for applications:

steel, iron, non-ferrous metal, wires, glass feeder, glass tub, glass arching, hardening, induction heating, ceramics, soldering, forging, welding, transforming, vacuum-furnace, rolling etc.

Technical datas:	
Unit types	KTRD 1085-1
Target marking	light beam aiming device green LED or laser
Temp. measuring ranges:	viewfinder
	MR1: 550-1800°C 1022-3272°F
	MR2: 600-2000°C 1112-3632°F
	MR3: 650-3000°C 1202-5432°F
	MR4: 700-3500°C 1292-6332°F
Response time (t90)	<0,5 ms
Spectral range	0,85 - 1,1 µm
Measuring uncertainty	0,5% of meas.value in °C ± 1°C (ε = 1, Tamb. = 23°C, T ₉₅ = 1s)
Reproducibility	0,1% of meas.value in °C ± 1°C (ε = 1, Tamb. = 23°C, T ₉₅ = 1s)
Emission factor ε	100 - 10 % adjustable at the unit or through interface
Analog output	0 - 20 mA or 4 - 20 mA , load max. 500R
Part measuring ranges:	free adjustable within the measuring range
Resolution	< 0,1% analog output, < 0,1°C at interface
1 limit output (open coll.)	24 V DC / max. 100 mA
Max.reading memory	max.memory, double memory,adjustable time and threshold value, erasing after time, external contact, by software, after new meas.part
Interface	RS 232 isolated ± 50 V or RS 485 isolated 2500VRMS options: PROFIBUS, PROFINET, Ethernet, EtherCAT, USB 2.0
Software IR-LOG	data recording, graph.representation, setting of pyrometer parameters
adjustable parameter with Software IR-LOG	emissionfactor,switching output,analog output, part meas.range, °C/°F, max.memory, average value, light beam aiming device switchable
Objectives	for accommodation to the measuring application an extensive selection of objectives are available
Working temperature	pyrometer 0 - 50°C (32-122°F), optic system up to 150°C(302°F)
Stock temperature	- 10°C - + 70°C (14-158°F)
Temperature sensitivity	0,05 % / °C
Humidity tolerance	35 - 85 % RF (non condensing)
Operating voltage	24 V DC ± 10 % or 18 V AC ± 10 % < 160 mA
Unit connection	12-pole plug-connector
Dimensions: H / W / D	54 x 54 x 147 mm (2,13 x 2,13 x 5,79 inch) ALU-case
Weight	0,6 kg (1,32 lbs)
Protection grade	IP 65
Option	built in digital display

mechanical assembly	electrical assembly	
Execution in cooling case	AED 1012	electr.process unit
Blowing device	AED 1012-C	PID controller
Mirror 90°	AED 1012-PC	Program controller
Mounting parts	power supply 100-270VAC - 24 VDC	digital display (built in-execution)
		connection cable 12-pole
		line scanner SC 1000 / SC 1012
		PC-Box (USB – connection set)

Optic tables for KTRD 1065+1075+1085 and QKTRD 1075+1085



Optic-type : L 1050-N1			
Lens : f 50 22,4 Ø			
Meas. aperture : 0,5 mm Ø			
Meas. distance from casing of meas. head B / mm	Meas. distance from optic front edge C / mm	Optic extension A / mm	Target size M / mm=d
180	124	13	1,5
190	137	10	1,6
200	149,5	7,5	1,7
210	162	5,0	1,8
220	173,5	3,5	1,9
230	185	2,0	2,0
240	196	1,0	2,1
250	207	0	2,2

Optic-type : L 1060-N1			
Achromat : f 60 22,4 Ø			
Meas. aperture : 0,5 mm Ø			
Meas. distance from casing of meas. head B / mm	Meas. distance from optic front edge C / mm	Optic extension A / mm	Target size M / mm=d
285	229	13	1,5
300	245,4	11,6	1,6
350	299,9	7,1	1,9
400	352,3	4,7	2,3
450	404,1	2,9	2,7
500	455,5	1,5	3,2
550	507	0	3,8

Optic-type : L 1050-N2			
Lens : f 50 22,4 Ø			
Meas. aperture : 0,5 mm Ø			
Meas. distance from casing of meas. head B / mm	Meas. distance from optic front edge C / mm	Optic extension A / mm	Target size M / mm=d
210	154,0	13,0	1,3
220	166,1	10,9	1,4
240	188,6	8,4	1,6
260	210,9	6,1	1,8
280	232,6	4,4	2,1
300	253,9	3,1	2,3
320	274,9	2,1	2,5
340	295,5	1,5	2,7
360	316,0	1,0	2,9
380	336,5	0,5	3,1
400	357,0	0,0	3,3

Optic-type : L 1060-N2			
Achromat : f 60 22,4 Ø			
Meas. aperture : 0,5 mm Ø			
Meas. distance from casing of meas. head B / mm	Meas. distance from optic front edge C / mm	Optic extension A / mm	Target size M / mm=d
350	294	13	2,0
400	346,7	10,3	2,4
450	398,9	8,1	2,8
500	450,1	6,9	3,2
550	501,1	5,9	3,7
600	522	5,0	4,2
650	603	4,0	4,7
700	653,9	3,1	5,2
750	704,4	2,6	5,6
800	754,9	2,1	6,1
1000	956,2	0,8	9,2

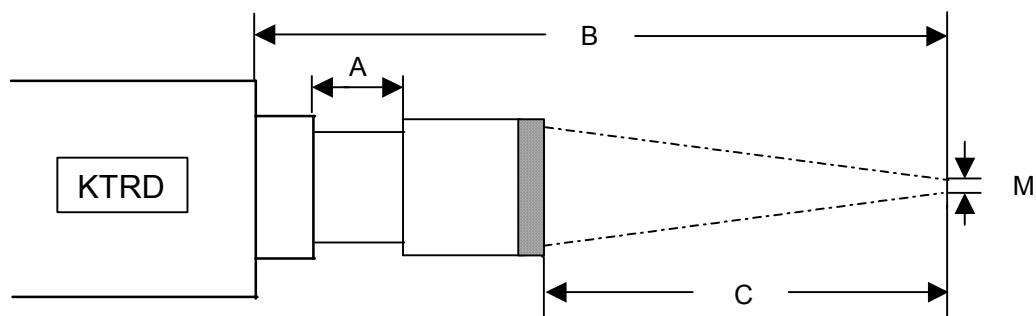
Target=98 % of beam density of the surface

Dr. Georg Maurer GmbH – OPTOELEKTRONIK –



Reg.-Nr.: Q1 0201014

Optic tables for KTRD 1065+1075+1085 and QKTRD 1075+1085



Optic-type : L 1060-T			
Achromat : f 60 22,4 Ø			
Meas. aperture : 0,5 mm Ø			
Meas. distance from casing of meas. head B / mm	Meas. distance from optic front edge C / mm	Optic extension A / mm	Target size M / mm=d
335	279	13	2,6
400	345,8	11,2	2,5
500	448,5	8,5	3,2
600	550	7,0	4,0
700	651,4	5,6	4,8
800	753	4,0	5,9
900	853,9	3,1	7,2
1000	954,8	2,2	8,3
2000	1956	1,0	14,6
3000	2955,4	0,6	23,9
4000	3956,8	0,2	31,0

Optic-type : A 1080			
Achromat : f 80 31,5 Ø			
Meas. aperture : 0,5 mm Ø			
Meas. distance from casing of meas. head B / mm	Meas. distance from optic front edge C / mm	Optic extension A / mm	Target size M / mm=d
620	557,5	13	3,5
700	639,9	10,6	4,0
800	741,4	9,1	4,5
900	842,5	8,0	5,0
1000	943,4	7,1	6,0
1100	1044,3	6,2	6,5
1200	1144,9	5,6	7,0
1300	1245,4	5,1	7,5
1400	1345,8	4,7	8,0
1500	1446,2	4,3	8,5
1600	1546,5	4,0	9,2
1700	1646,9	3,6	10,0
1800	1747,2	3,3	10,8
1900	1847,4	3,1	11,5
2000	1947,5	3,0	12,1
3000	2948,5	2,0	18,0
4000	3949,2	1,3	24,0

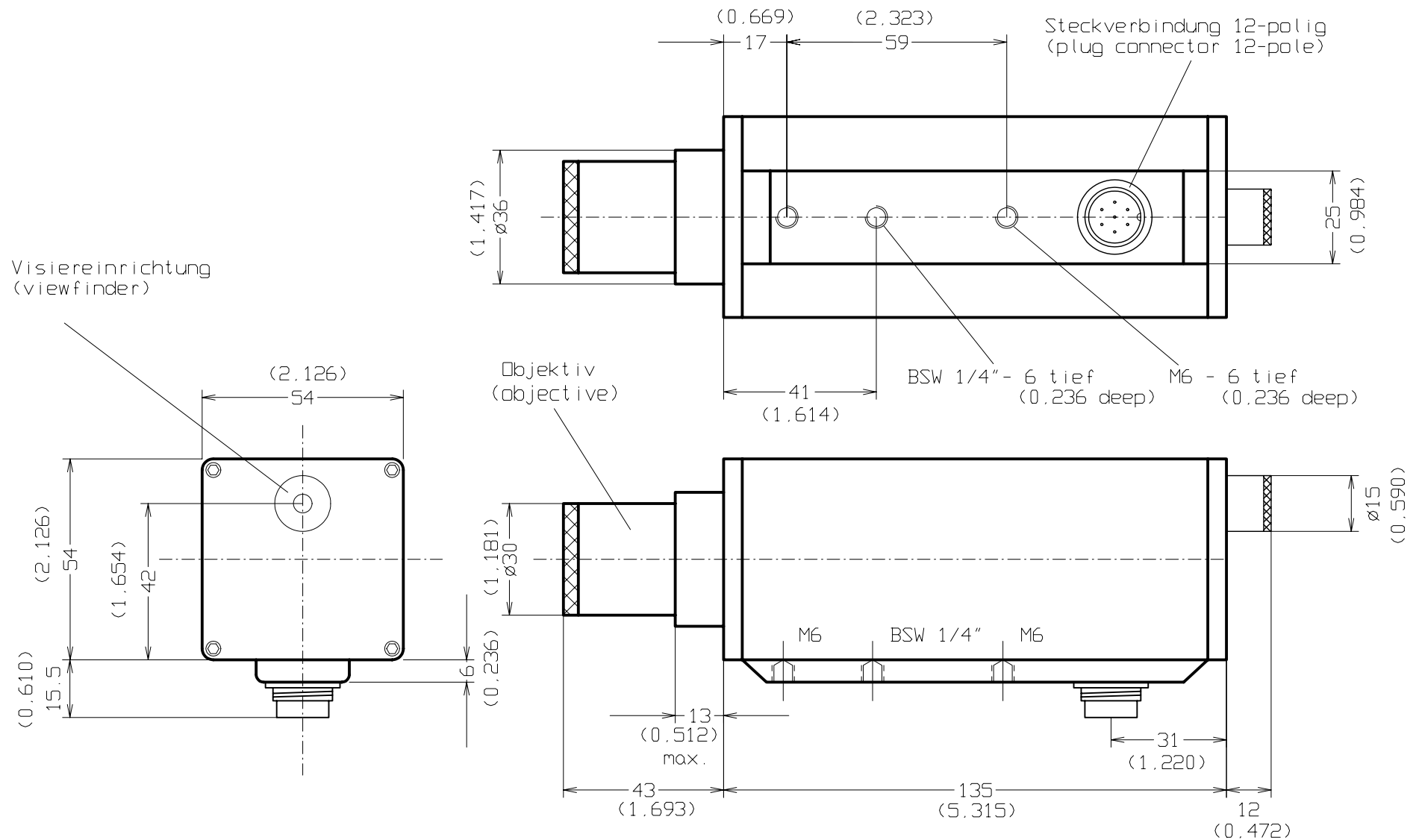
Target=98 % of beam density of the surface

Dr. Georg Maurer GmbH – OPTOELEKTRONIK –

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Reg.-Nr.: Q1 0201014



(xxx) - Maße in Zoll
(dimensions inch)

				Maßstab 1:1	
				Fa.Dr. Maurer GmbH	
				STANDARDGEHÄUSE (standard case)	
				KTRD 1000-2 Stecker 90° (connector 90°)	
				Visiereinrichtung (viewfinder)	
				100207	
				Blatt	
				Bl.	
Zust	Änderung	Datum	Name		

Non-Contact Temperature Measurement

DIGITAL – INFRARED – PYROMETER

Temperature range -20 to 1000°C (-4 - 1832°F)

Temperature control during production process

compact units – Infrared – measuring transducer and electronic process unit in one case with light beam aiming device or optical viewfinder, focusable optic, serial interface, limit output

Series KTRD 1105



MAURER – Infrared – pyrometer can also assist you to monitor your heating processes, ensuring a uniform standard of quality for your products.

Infrared-Digital-Pyrometer Series KTRD 1105

More than 60 years experience in the area of non-contact temperature measurement and permanently development of the pyrometers makes it possible to offer you a complete program of field tested units.. Mainly for **fast warming processes contactless temperature measurement** is suitable.

The **series KTRD 1105** are **digital part radiation pyrometer** with vario-objective in compact structure likewise suitable for industry, research and laboratory.

With the integrated light beam aiming device (green LED or Laser) resp. viewfinder an adjusting of the pyrometer to the measuring object is very easy.

The temperature linear analog output signal 0/4 up to 20 mA is available for measuring- and controlling purposes.

The simultaneous using of the serial interface with the software IR-LOG enables the data detection, graphical representation and the parameter settings of the pyrometer.

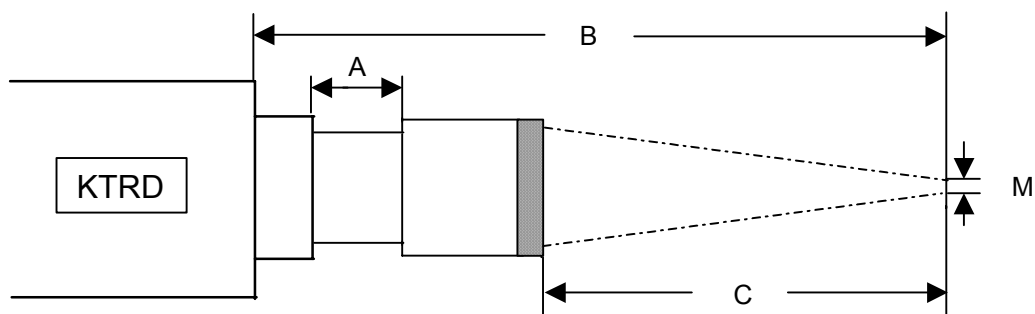
Examples for applications:

ceramics, rubber, paper, wood, food, asphalt, building material, electronic components, plastics, plastic deep-drawing, lacquering drying, drying process etc

Technical datas:	
Unit types	KTRD 1105-1
Target marking	light beam aiming device green LED or laser
Temp. measuring ranges:	MR 1: 0 - 100°C 32 - 212°F
Response time (t90)	<100 ms
Spectral range	8-14 µm
Measuring uncertainty	0,5% of meas.value in °C ± 1°C (ε = 1, T _{amb.} = 23°C, T ₉₅ = 1s)
Reproducibility	0,3% of meas.value in °C ± 1°C (ε = 1, T _{amb.} = 23°C, T ₉₅ = 1s)
Emission factor ε	100 - 10 % adjustable at the unit or through interface
Analog output	0 - 20 mA or 4 - 20 mA , load max. 500R
Part measuring ranges:	free adjustable within the measuring range
Resolution	< 0,1% analog output, < 0,1°C at interface
1 limit output (open coll.)	24 V DC / max. 100 mA
Max.reading memory	max.memory, double memory,adjustable time and threshold value, erasing after time, external contact, by software, after new meas.part
Interface	RS 232 isolated ± 50 V or RS 485 isolated 2500VRMS options: PROFIBUS, PROFINET, Ethernet, EtherCAT, USB 2.0
Software IR-LOG	data recording, graph.representation, setting of pyrometer parameters
adjustable parameter with Software IR-LOG	emissionfactor,switching output,analog output, part meas.range, °C/°F, max.memory, average value, light beam aiming device switchable
Objectives	for accommodation to the measuring application an extensive selection of objectives are available
Working temperature	pyrometer 0 - 50°C (32-122°F)
Stock temperature	- 10°C - + 70°C (14-158°F)
Temperature sensitivity	0,05 % / °C
Humidity tolerance	35 - 85 % RF (non condensing)
Operating voltage	24 V DC ± 10 % or 18 V AC ± 10 % < 160 mA
Unit connection	12-pole plug-connector
Dimensions: H / W / D	54 x 54 x 147 mm (2,13 x 2,13 x 5,79 inch) ALU-case
Weight	0,6 kg (1,32 lbs)
Protection grade	IP 65
Option	built in digital display

mechanical assembly	electrical assembly	
Execution in cooling case	AED 1012	electr.process unit
Blowing device	AED 1012-C	PID controller
Mirror 90°	AED 1012-PC	Program controller
Mounting parts	power supply 100-270VAC - 24 VDC	digital display (built in-execution)
		connection cable 12-pole
		line scanner SC 1000 / SC 1012
		PC-Box (USB – connection set)

Optic tables for KTRD 1105



Optic-type : IR 1040			
Lens : f=1,5" Ø=1" (12/04)			
Meas. aperture : 1,0 mm Ø			
Meas. distance from casing of meas. head B / mm	Meas. distance from optic front edge C / mm	Optic extension A / mm	Target size M / mm=d
150	116,0	13	3,0
200	170,8	8,2	4,0
300	273,9	5,1	6,8
400	375,2	3,8	9,5
500	476,5	2,5	12,2
600	577,3	1,7	15,5
700	677,7	1,3	17,3
800	778,2	0,8	20,6
900	878,6	0,4	24,2
1000	979,0	0	29,4

Optic-type : IR 1060-N			
Lens : f 2,5" Ø=1" (01/06)			
Meas. aperture : 1,0 mm Ø			
Meas. distance from casing of meas. head B / mm	Meas. distance from optic front edge C / mm	Optic extension A / mm	Target size M / mm=d
300	244	13	3,4
350	298	9,0	4,0
400	350,6	6,4	4,9
450	402,3	4,7	6,0
500	454	3,0	6,6
550	505	2,0	7,7
600	556	1,0	8,5
650	607	0	9,3
700	657	0	10
900	857	0	22,2

Optic-type : IR 1060-T			
Lens : f 2,5" Ø=1"			
Meas. aperture : 1,0 mm Ø			
Meas. distance from casing of meas. head B / mm	Meas. distance from optic front edge C / mm	Optic extension A / mm	Target size M / mm=d
440	384	13	5,4
500	444,8	12,2	6,1
600	547,3	9,7	7,8
700	649,1	7,9	8,6
800	750,2	6,8	10,4
900	851	6	12
1000	951,3	5,7	13,6
1500	1452,2	4,8	21
2000	1952,6	4,4	29,8
3000	2954,5	2,5	42
4000	3955,6	1,4	60
5000	4956	1,0	75

Optic-type : IR 1040-M			
Lens : f 1,5" Ø=1"			
Meas. aperture : 1,0 mm Ø			
Meas. distance from casing of meas. head B / mm	Meas. distance from optic front edge C / mm	Optic extension A / mm	Target size M / mm=d
103	60	0	1,5

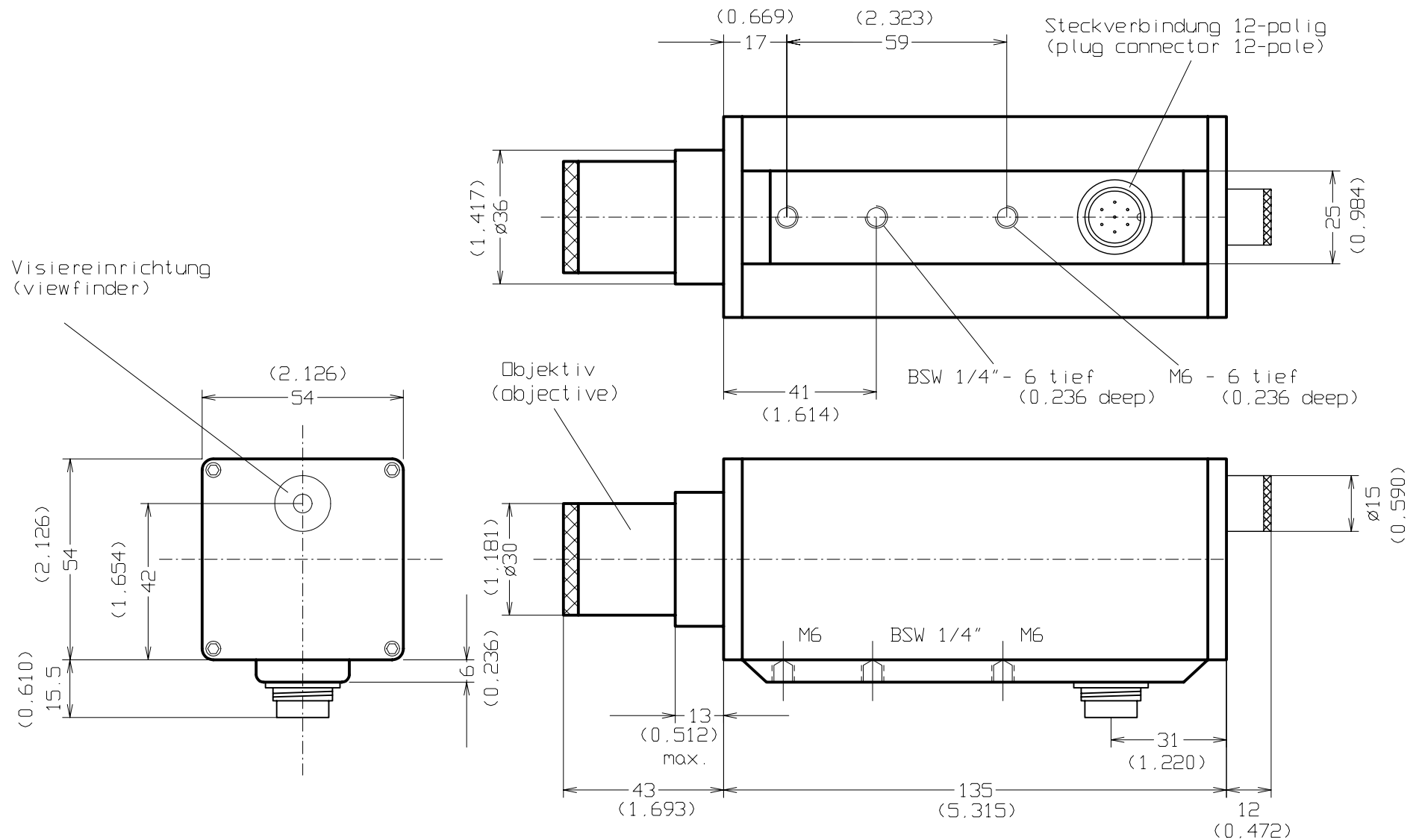
Target=98 % of beam density of the surface

Dr. Georg Maurer GmbH – OPTOELEKTRONIK –

20



Reg.-Nr.: Q1 0201014



(xxx) - Maße in Zoll
(dimensions inch)

				Maßstab 1:1	
				Fa.Dr. Maurer GmbH	
				STANDARDGEHÄUSE (standard case)	
				KTRD 1000-2 Stecker 90° (connector 90°)	
				Visiereinrichtung (viewfinder)	
				Blatt	
				Bl.	
				100207	
Zust	Änderung	Datum	Name		

Non-Contact Temperature Measurement

DIGITAL – INFRARED – PYROMETER

Temperature range 100 to 1400°C (212 - 2552°F)

Temperature control during production process

compact units – Infrared – measuring transducer and electronic process unit in one case with light beam aiming device, fiber optic, serial interface, limit output

Series KTRD 1465



MAURER – Infrared – pyrometer can also assist you to monitor your heating processes, ensuring a uniform standard of quality for your products.

Infrared-Digital-Pyrometer Series KTRD 1465

More than 60 years experience in the area of non-contact temperature measurement and permanently development of the pyrometers makes it possible to offer you a complete program of field tested units.. Mainly for **fast warming processes** the **contactless temperature measurement** is suitable.

The **series KTRD 1465** are **digital part radiation pyrometer** with fiber optic and optic system in compact structure likewise suitable for industry, research and laboratory.

With the integrated light beam aiming device (green LED) an adjusting of the pyrometer to the measuring object is very easy.

The temperature linear analog output signal 0/4 up to 20 mA is available for measuring- and controlling purposes.

The simultaneous using of the serial interface with the software IR-LOG enables the data detection, graphical representation and the parameter settings of the pyrometer.

Examples for applications:

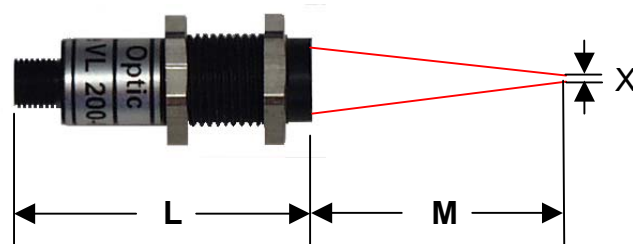
steel, iron, non-ferrous metal, wires, ceramics, rolling, induction heating, soldering, welding, transforming, vacuum furnace etc.

Technical datas:			
Unit types	KTRD 1465		
Target marking	light beam aiming device green LED		
Temp. measuring ranges:	MR 1: 100 - 800°C 212 - 1472°F	MR 2: 150 - 1200°C 302 - 2192°F	MR 3: 200 - 1400°C 392 - 2552°F
Response time (t90)	5 ms<0,5 ms		
Spectral range	2,1 μm		
Measuring uncertainty	0,5% of meas.value in °C ± 1°C (ε = 1, T _{amb.} = 23°C, T ₉₅ = 1s)		
Reproducibility	0,1% of meas.value in °C ± 1°C (ε = 1, T _{amb.} = 23°C, T ₉₅ = 1s)		
Emission factor ε	100 - 10 % adjustable at the unit or through interface		
Analog output	0 - 20 mA or 4 - 20 mA , load max. 500R		
Part measuring ranges:	free adjustable within the measuring range		
Resolution	< 0,1% analog output, < 0,1°C at interface		
1 limit output (open coll.)	24 V DC / max. 100 mA		
Max.reading memory	max.memory, double memory,adjustable time and threshold value, erasing after time, external contact, by software, after new meas.part		
Interface	RS 232 isolated ± 50 V or RS 485 isolated 2500VRMS options: PROFIBUS, PROFINET, Ethernet, Ether CAT , USB 2.0		
Software IR-LOG	data recording, graph.representation, setting of pyrometer parameters		
adjustable parameter with Software IR-LOG	emissionfactor,switching output,analog output, part meas.range, °C/°F, max.memory, average value, light beam aiming device switchable		
Fiber optic	length 1800mm, bend radius min. 40 mm, (other length on request)		
Objectives	for accommodation to the measuring application an extensive selection of objectives are available		
Working temperature	pyrometer 0-50°C (32-122°F), fiber optic, optic system up to 150°C(302°F)		
Stock temperature	- 10°C - + 70°C (14-158°F)		
Temperature sensitivity	0,05 % / °C		
Humidity tolerance	35 - 85 % RF (non condensing)		
Operating voltage	24 V DC ± 10 % or 18 V AC ± 10 % < 160 mA		
Unit connection	12-pole plug-connector		
Dimensions: H / W / D	54 x 54 x 147 mm (2,13 x 2,13 x 5,79 inch) ALU-case		
Weight	0,6 kg (1,32 lbs)		
Protection grade	IP 65		
Option	built in digital display		

mechanical assembly	electrical assembly	
Execution in cooling case	AED 1012 electr.process unit	digital display (built in-execution)
Blowing device	AED 1012-C PID controller	connection cable 12-pole
Mirror 90°	AED 1012-PC Program controller	line scanner SC 1000 / SC 1012
Mounting parts	power supply 100-270VAC - 24 VDC	PC-Box (USB – connection set)

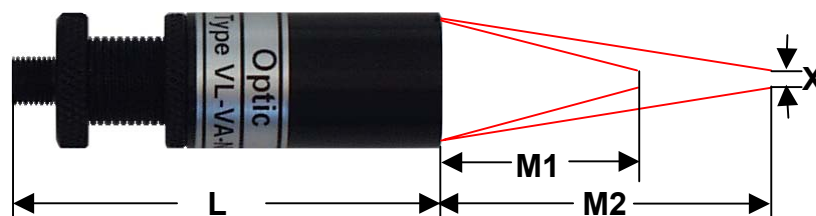
objective for fiber optic pyrometer

fix-focus
M12x1



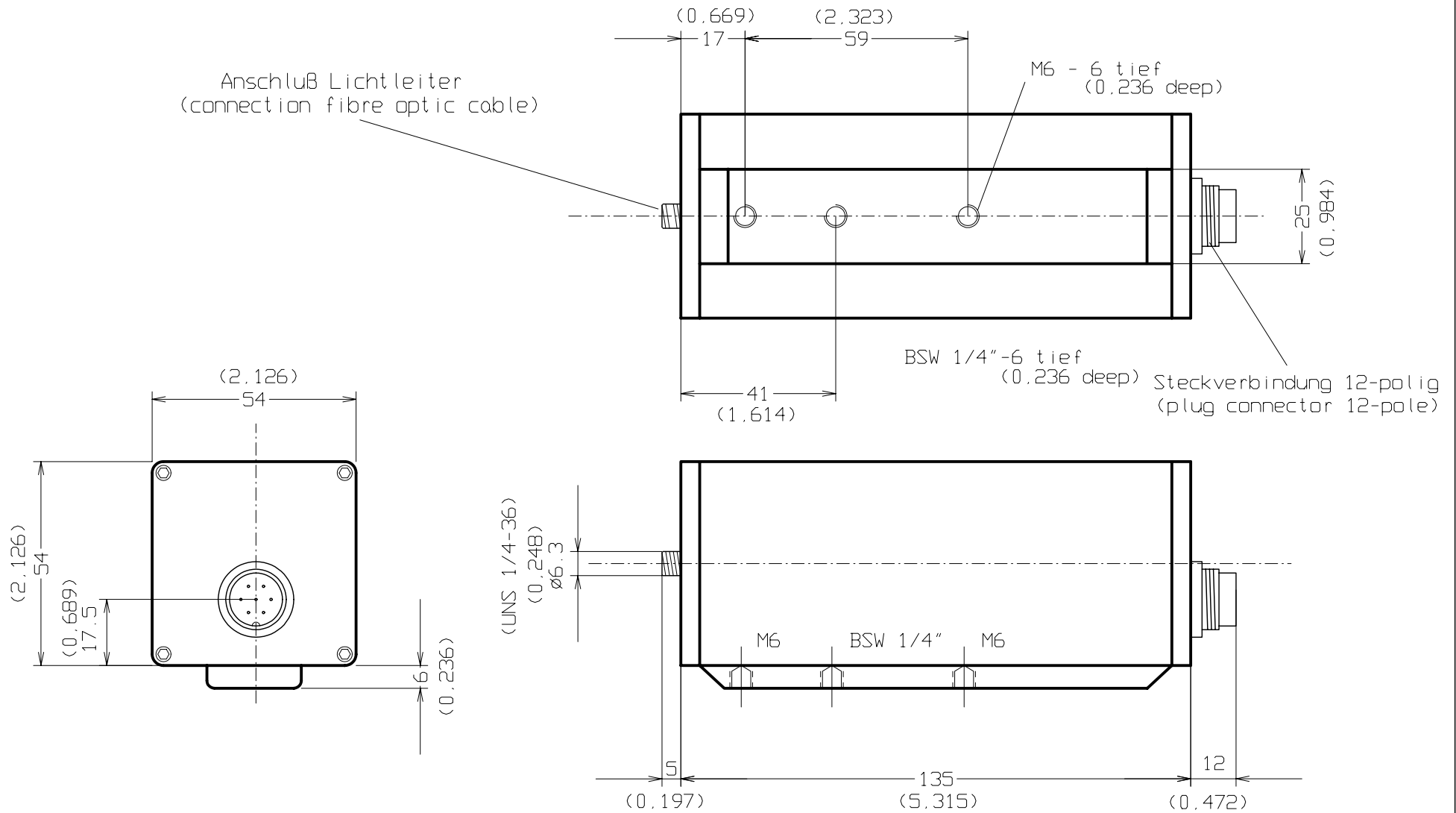
optic type	M / mm	L / mm	target size X Ø / mm	
VL 50-M12	50	38	fiber 0,2mm	0,7mm
			fiber 0,4mm	1,4mm
			fiber 0,6mm	2,0mm
VL 100-M12	100	40	fiber 0,2mm	1,0mm
			fiber 0,4mm	2,0mm
			fiber 0,6mm	3,0mm
VL 150-M12	150	38	fiber 0,2mm	1,4mm
			fiber 0,4mm	2,7mm
			fiber 0,6mm	4,0mm
VL 200-M12	200	38	fiber 0,2mm	2,0mm
			fiber 0,4mm	4,0mm
			fiber 0,6mm	6,0mm

vario-focus
Ø 18mm



target size X: $\frac{\text{focusing distance M mm}}{\text{distance ratio D}}$ par ex. $\frac{M = 150\text{mm}}{D = 75} = 2,00 \text{ mm } \varnothing$

optic type	M1 / mm	M2 / mm	L / mm	distance ratio D	
VL-VA-N	65	160	46 - 56	fiber 0,2mm	138
				fiber 0,4mm	69
				fiber 0,6mm	46
VL-VA-T	100	5000	46 - 56	fiber 0,2mm	150
				fiber 0,4mm	75
				fiber 0,6mm	50



(xxx) - Maße in Zoll
(dimensions inch)

						Maßstab 1:1			
						Fa.Dr. Maurer GmbH			
					Datum	Name		STANDARDGEHÄUSE (standard case) KTRD 1400-1 Lichtleiteranschluß SMA (connection fibre optic cable SMA)	
				Bearb	25.02.10	Schlotterb.			
				Gepr					
				Nam					

Non-Contact Temperature Measurement

DIGITAL – INFRARED – PYROMETER

Temperature range 250 to 2500°C (482 - 4532°F)

Temperature control during production process

compact units – Infrared – measuring transducer and electronic process unit in one case with light beam aiming device, fiber optic, serial interface, limit output

Series KTRD 1475



MAURER – Infrared – pyrometer can also assist you to monitor your heating processes, ensuring a uniform standard of quality for your products.

Infrared-Digital-Pyrometer Series KTRD 1475

More than 60 years experience in the area of non-contact temperature measurement and permanently development of the pyrometers makes it possible to offer you a complete program of field tested units.. Mainly for **fast warming processes** the **contactless temperature measurement** is suitable.

The **series KTRD 1475** are **digital part radiation pyrometer** with fiber optic and optic system in compact structure likewise suitable for industry, research and laboratory.

With the integrated light beam aiming device (green LED) an adjusting of the pyrometer to the measuring object is very easy.

The temperature linear analog output signal 0/4 up to 20 mA is available for measuring- and controlling purposes. The simultaneous using of the serial interface with the software IR-LOG enables the data detection, graphical representation and the parameter settings of the pyrometer.

Examples for applications:

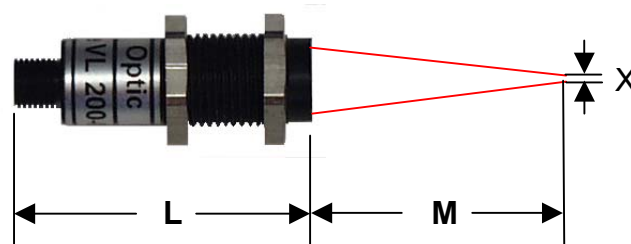
steel, iron, non-ferrous metal, tempering, coating, wires, hardening, induction heating, soldering, forging, pre-heating, rolling, glowing etc.

Technical datas:			
Unit types	KTRD 1475		
Target marking	light beam aiming device green LED		
Temp. measuring ranges:	MR 1: 250 - 1400°C 482 - 2552°F	MR 2: 300 - 2000°C 572 - 3632°F	MR 3: 350 - 2500°C 662 - 4532°F
Response time (t90)	<0,5 ms		
Spectral range	1,45 - 1,7 µm		
Measuring uncertainty	0,5% of meas.value in °C ± 1°C (ε = 1, T _{amb.} = 23°C, T ₉₅ = 1s)		
Reproducibility	0,1% of meas.value in °C ± 1°C (ε = 1, T _{amb.} = 23°C, T ₉₅ = 1s)		
Emission factor ε	100 - 10 % adjustable at the unit or through interface		
Analog output	0 - 20 mA or 4 - 20 mA , load max. 500R		
Part measuring ranges:	free adjustable within the measuring range		
Resolution	< 0,1% analog output, < 0,1°C at interface		
1 limit output (open coll.)	24 V DC / max. 100 mA		
Max.reading memory	max.memory, double memory,adjustable time and threshold value, erasing after time, external contact, by software, after new meas.part		
Interface	RS 232 isolated ± 50 V or RS 485 isolated 2500VRMS options: PROFIBUS, PROFINET, Ethernet, Ether CAT , USB 2.0		
Software IR-LOG	data recording, graph.representation, setting of pyrometer parameters		
adjustable parameter with Software IR-LOG	emissionfactor,switching output,analog output, part meas.range, °C/°F, max.memory, average value, light beam aiming device switchable		
Fiber optic	length 1800mm, bend radius min. 40 mm, (other length on request)		
Objectives	for accommodation to the measuring application an extensive selection of objectives are available		
Working temperature	pyrometer 0-50°C (32-122°F), fiber optic, optic system up to 150°C(302°F)		
Stock temperature	- 10°C - + 70°C (14-158°F)		
Temperature sensitivity	0,05 % / °C		
Humidity tolerance	35 - 85 % RF (non condensing)		
Operating voltage	24 V DC ± 10 % or 18 V AC ± 10 % < 160 mA		
Unit connection	12-pole plug-connector		
Dimensions: H / W / D	54 x 54 x 147 mm (2,13 x 2,13 x 5,79 inch) ALU-case		
Weight	0,6 kg (1,32 lbs)		
Protection grade	IP 65		
Option	built in digital display		

mechanical assembly	electrical assembly	
Execution in cooling case	AED 1012 electr.process unit	digital display (built in-execution)
Blowing device	AED 1012-C PID controller	connection cable 12-pole
Mirror 90°	AED 1012-PC Program controller	line scanner SC 1000 / SC 1012
Mounting parts	power supply 100-270VAC - 24 VDC	PC-Box (USB – connection set)

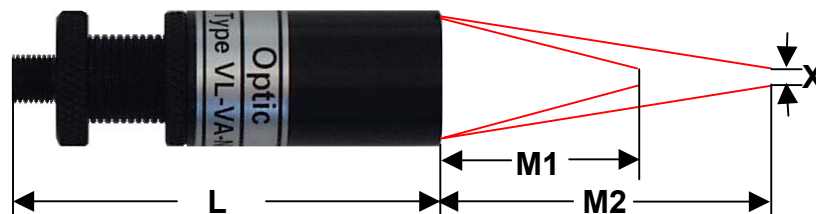
objective for fiber optic pyrometer

fix-focus
M12x1



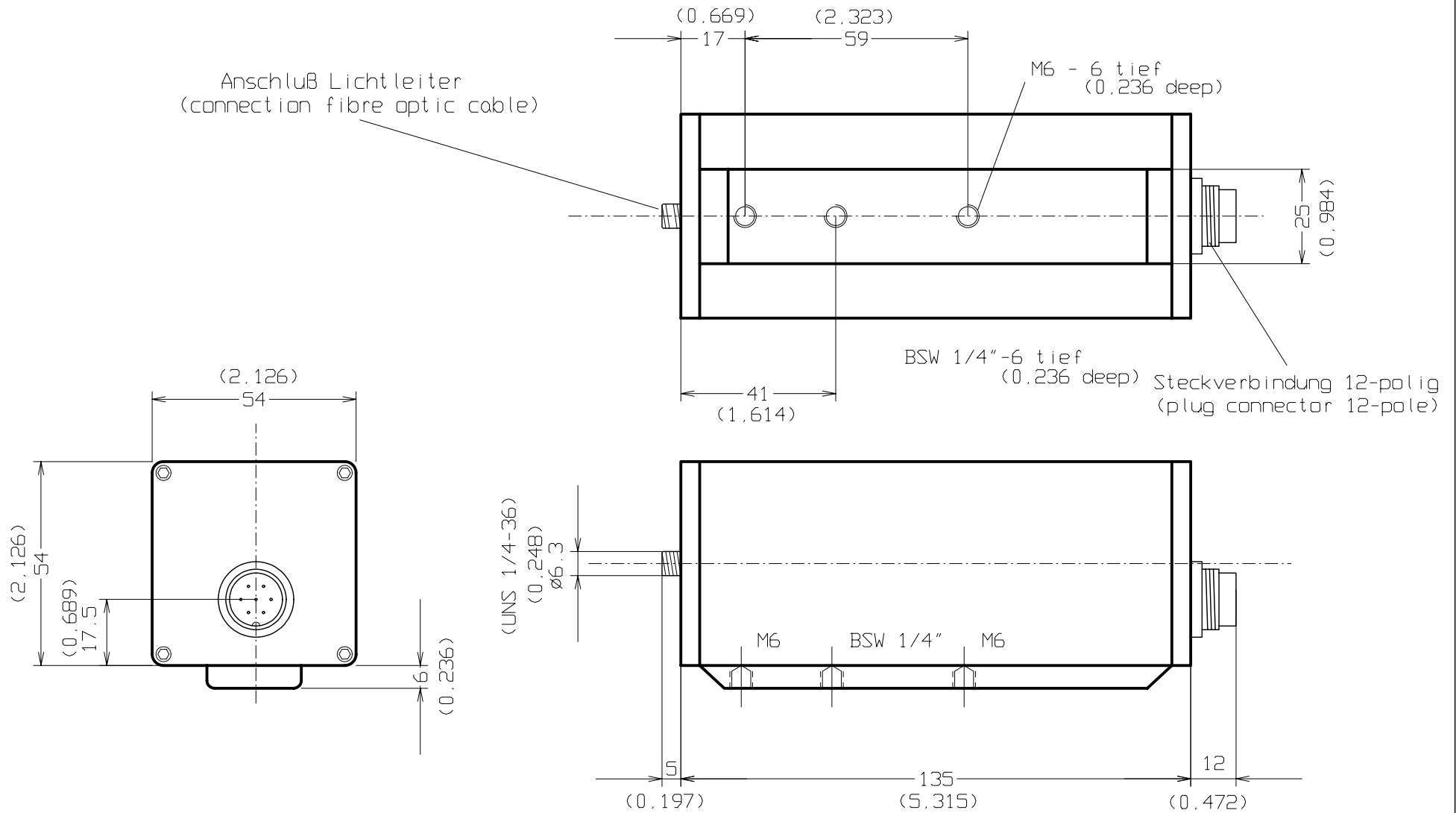
optic type	M / mm	L / mm	target size X Ø / mm	
VL 50-M12	50	38	fiber 0,2mm	0,7mm
			fiber 0,4mm	1,4mm
			fiber 0,6mm	2,0mm
VL 100-M12	100	40	fiber 0,2mm	1,0mm
			fiber 0,4mm	2,0mm
			fiber 0,6mm	3,0mm
VL 150-M12	150	38	fiber 0,2mm	1,4mm
			fiber 0,4mm	2,7mm
			fiber 0,6mm	4,0mm
VL 200-M12	200	38	fiber 0,2mm	2,0mm
			fiber 0,4mm	4,0mm
			fiber 0,6mm	6,0mm

vario-focus
Ø 18mm



target size X: $\frac{\text{focusing distance M mm}}{\text{distance ratio D}}$ par ex. $\frac{M = 150\text{mm}}{D = 75} = 2,00 \text{ mm } \varnothing$

optic type	M1 / mm	M2 / mm	L / mm	distance ratio D	
VL-VA-N	65	160	46 - 56	fiber 0,2mm	138
				fiber 0,4mm	69
				fiber 0,6mm	46
VL-VA-T	100	5000	46 - 56	fiber 0,2mm	150
				fiber 0,4mm	75
				fiber 0,6mm	50



(xxx) - Maße in Zoll
(dimensions inch)

						Maßstab 1:1			
						Fa.Dr. Maurer GmbH			
					Datum	Name		STANDARDGEHÄUSE (standard case) KTRD 1400-1 Lichtleiteranschluß SMA (connection fibre optic cable SMA)	
				Bearb	25.02.10	Schlotterb.			
				Gepr					
				Nam					

Non-Contact Temperature Measurement

DIGITAL – INFRARED – PYROMETER

Temperature range 550 to 4000°C (1022 - 7232°F)

Temperature control during production process

compact units – Infrared – measuring transducer and electronic process unit in one case with light beam aiming device, fiber optic, serial interface, limit output

Series KTRD 1485



MAURER – Infrared – pyrometer can also assist you to monitor your heating processes, ensuring a uniform standard of quality for your products.

Infrared-Digital-Pyrometer Series KTRD 1485

More than 60 years experience in the area of non-contact temperature measurement and permanently development of the pyrometers makes it possible to offer you a complete program of field tested units.. Mainly for **fast warming processes contactless temperature measurement** is suitable.

The **series KTRD 1485** are **digital part radiation pyrometer** with fiber optic and optic system in compact structure likewise suitable for industry, research and laboratory.

With the integrated light beam aiming device (green LED) an adjusting of the pyrometer to the measuring object is very easy.

The temperature linear analog output signal 0/4 up to 20 mA is available for measuring- and controlling purposes. The simultaneous using of the serial interface with the software IR-LOG enables the data detection, graphical representation and the parameter settings of the pyrometer.

Examples for applications:

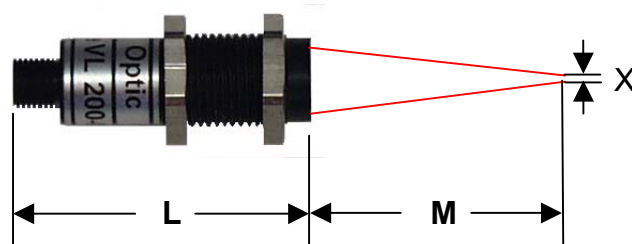
steel, iron, non-ferrous metal, wires, glass feeder, glass tub, glass arching, hardening, induction heating, ceramics, soldering, forging, welding, transforming, vacuum-furnace, rolling etc.

Technical datas:	KTRD 1485			
Unit types	light beam aiming device green LED			
Target marking				
Temp. measuring ranges:	MR1: 550-1800°C 1022-3272°F	MR2: 600-2000°C 1112-3632°F	MR3: 650-3000°C 1202-5432°F	MR4: 700-3500°C 1292-6332°F
Response time (t90)	<0,5 ms			
Spectral range	0,85 - 1,1 µm			
Measuring uncertainty	0,5% of meas.value in °C ± 1°C (ε = 1, Tamb. = 23°C, T ₉₅ = 1s)			
Reproducibility	0,1% of meas.value in °C ± 1°C (ε = 1, Tamb. = 23°C, T ₉₅ = 1s)			
Emission factor ε	100 - 10 % adjustable at the unit or through interface			
Analog output	0 - 20 mA or 4 - 20 mA , load max. 500R			
Part measuring ranges:	free adjustable within the measuring range			
Resolution	< 0,1% analog output, < 0,1°C at interface			
1 limit output (open coll.)	24 V DC / max. 100 mA			
Max.reading memory	max.memory, double memory,adjustable time and threshold value, erasing after time, external contact, by software, after new meas.part			
Interface	RS 232 isolated ± 50 V or RS 485 isolated 2500VRMS options: PROFIBUS, PROFINET, Ethernet, EtherCAT, USB 2.0			
Software IR-LOG	data recording, graph.representation, setting of pyrometer parameters			
adjustable parameter with Software IR-LOG	emissionfactor,switching output,analog output, part meas.range, °C/°F, max.memory, average value, light beam aiming device switchable			
Fiber optic	length 1800mm, bend radius min. 40 mm, (other length on request)			
Objectives	for accommodation to the measuring application an extensive selection of objectives are available			
Working temperature	pyrometer 0-50°C (32-122°F), fiber optic, optic system up to 150°C(302°F)			
Stock temperature	- 10°C - + 70°C (14-158°F)			
Temperature sensitivity	0,05 % / °C			
Humidity tolerance	35 - 85 % RF (non condensing)			
Operating voltage	24 V DC ± 10 % or 18 V AC ± 10 % < 160 mA			
Unit connection	12-pole plug-connector			
Dimensions: H / W / D	54 x 54 x 147 mm (2,13 x 2,13 x 5,79 inch) ALU-case			
Weight	0,6 kg (1,32 lbs)			
Protection grade	IP 65			
Option	built in digital display			

mechanical assembly	electrical assembly		
Execution in cooling case	AED 1012	electr.process unit	digital display (built in-execution)
Blowing device	AED 1012-C	PID controller	connection cable 12-pole
Mirror 90°	AED 1012-PC	Program controller	line scanner SC 1000 / SC 1012
Mounting parts	power supply 100-270VAC - 24 VDC	PC-Box (USB – connection set)	

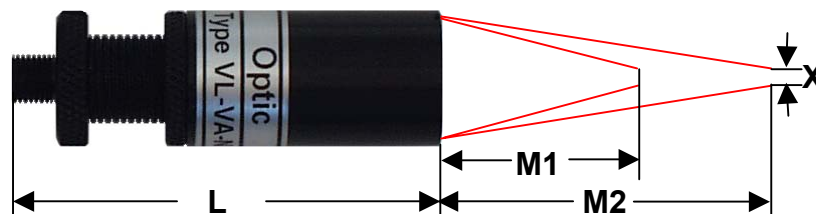
objective for fiber optic pyrometer

fix-focus
M12x1



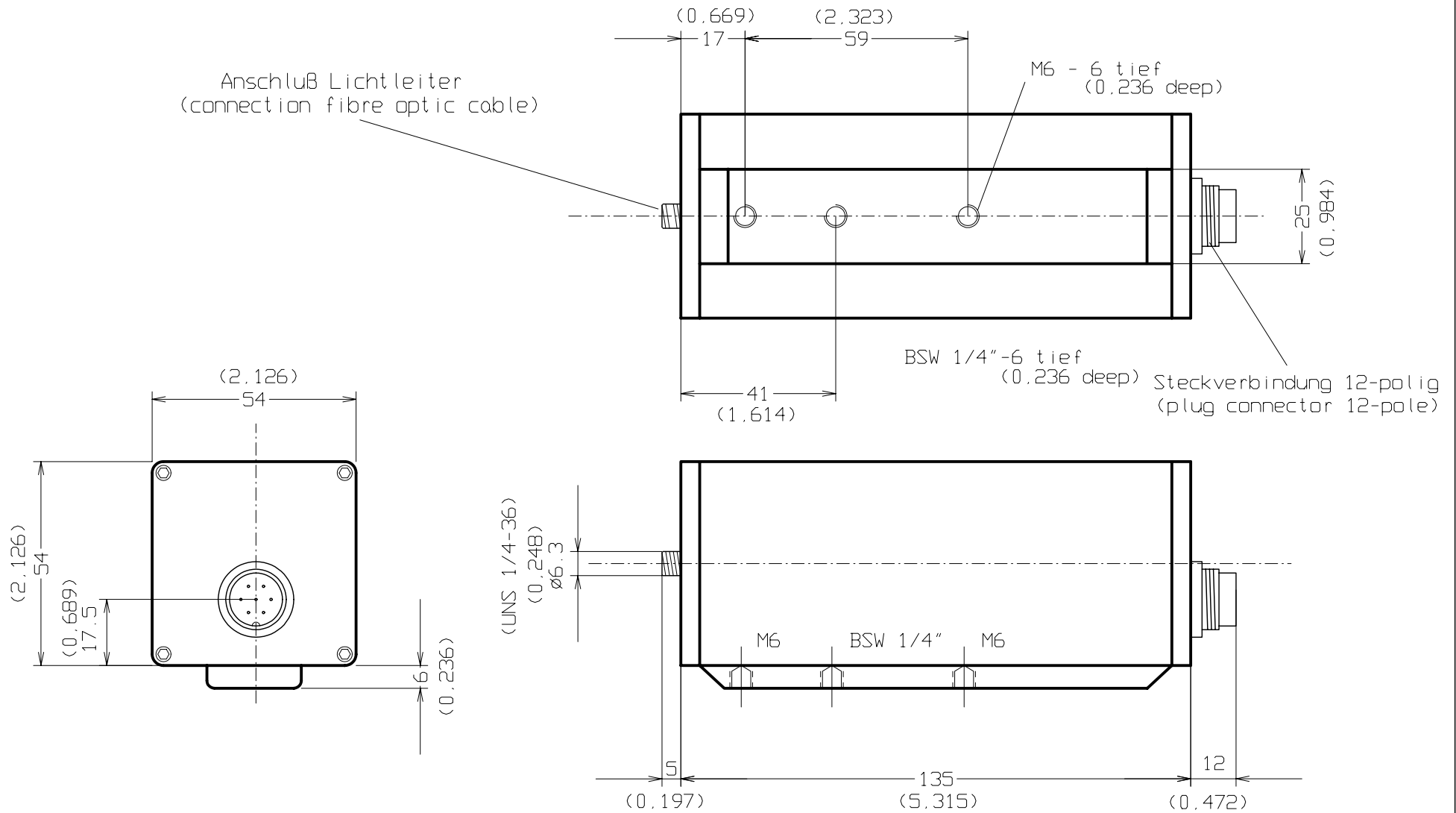
optic type	M / mm	L / mm	target size X Ø / mm	
VL 50-M12	50	38	fiber 0,2mm	0,7mm
			fiber 0,4mm	1,4mm
			fiber 0,6mm	2,0mm
VL 100-M12	100	40	fiber 0,2mm	1,0mm
			fiber 0,4mm	2,0mm
			fiber 0,6mm	3,0mm
VL 150-M12	150	38	fiber 0,2mm	1,4mm
			fiber 0,4mm	2,7mm
			fiber 0,6mm	4,0mm
VL 200-M12	200	38	fiber 0,2mm	2,0mm
			fiber 0,4mm	4,0mm
			fiber 0,6mm	6,0mm

vario-focus
Ø 18mm



target size X: $\frac{\text{focusing distance M mm}}{\text{distance ratio D}}$ par ex. $\frac{M = 150\text{mm}}{D = 75} = 2,00 \text{ mm } \varnothing$

optic type	M1 / mm	M2 / mm	L / mm	distance ratio D	
VL-VA-N	65	160	46 - 56	fiber 0,2mm	138
				fiber 0,4mm	69
				fiber 0,6mm	46
VL-VA-T	100	5000	46 - 56	fiber 0,2mm	150
				fiber 0,4mm	75
				fiber 0,6mm	50



(xxx) - Maße in Zoll
(dimensions inch)

						Maßstab 1:1			
						Fa.Dr. Maurer GmbH			
					Datum	Name		STANDARDGEHÄUSE (standard case) KTRD 1400-1 Lichtleiteranschluß SMA (connection fibre optic cable SMA)	
				Bearb	25.02.10	Schlotterb.			
				Gepr					
				Nam					
						100204		Blatt	
								Bl.	
Zust	Änderung	Datum	Name						

Non-Contact Temperature Measurement

DIGITAL – INFRARED – PYROMETER

Temperature range 100 to 1200°C (212 – 2192°F)

Temperature control during production process

compact unit – with light beam aiming device

- focusable optic
- RS 232 or RS 485 interface
- limit output (open collector)

Series KTRD 4065-1



figure approx. M 1:1

MAURER – Infrared – pyrometer can also assist you to monitor your heating processes, ensuring a uniform standard of quality for your products.

Digital Infrared-Pyrometer Series KTRD 4065-1

60 years experiences and digital technology makes it possible!

A pyrometer – as small as a cigarette-box – but powerful like a big one.

- light beam aiming device with LED
- focusable optic
- emissivity adjustable at the unit
- analog- and digital output
- 1 adjustable limit output (open collector)
- software IR-LOG

Through the serial interface additional parameter functions are possible:

analog output: 0 – 20 / 4 – 20 mA switchable

zoom range within measuring range

emissivity: 100,00 – 10,00 %

average: arithmetical or sliding

maximum value storage: storage modes and erase functions par ex. automatically with the next measuring object

Examples of applications:

steel, iron, non-ferrous metal, wires, ceramics, rolling, induction heating, soldering, welding, transforming, vacuum furnace

unit type	target marking
KTRD 4065-1	light beam aiming device LED green

Temperature measuring range

- linear -

No.	temperature range short:
1	100 - 300°C (212 – 572°F) D=50
2	150 - 400°C (302 – 752°F) D=50
3	200 - 600°C (392 – 1112°F) D=85
4	250 - 800°C (482 – 1472°F) D=85

No.	temperature range long:
5	100 - 500°C (212 – 932°F) D=50
6	150 - 800°C (302 – 1472°F) D=85
7	200-1200°C (392 – 2192°F) D=85

special measuring ranges
on request

Technical datas:

Spectral response	2,1 µm
Response time	1 - 5 ms
Accuracy	0,5 % ± 1°C
Reproducibility	1 ‰
Emissivity	100 - 10 %
Operating temperature	0 - 60°C (32 – 140°F)
Storage temperature	- 10°C - + 70°C (14 – 158°F)
Temperature-sensitivity	0,01 % / °C
Humidity tolerance	35 - 85 % RF
Analog output temp.linear	0 – 20 mA or 4 – 20 mA
1 Limit output (open coll.)	24 V 100 mA
Digital output	RS 232 ± 50 V isolated or RS 485 ± 70 V isolated
Operating voltage	DC 24 V ± 10 %
Supply current	< 100 mA
Unit connection	8-pole plug connector
Dimensions H / W / D	65 x 30 x 80 mm (2,56 x 1,18 x 3,15 inch)
Weight	0,15 kg (0,33 lbs)
Protection class	IP 65

Objectives: For optimum accomodation to the measuring application an objective with focusing is available.

Adjusting range 100 mm to infinite, distance ratio: D = 85

Calculation of target size: $\frac{\text{focusing distance } M \text{ mm}}{D = 85}$ par ex. $\frac{M = 100 \text{ mm}}{D = 85} = 1,18 \text{ Ø}$

electrical assembly		mechanical assembly
AED 1012	electronic process unit	PC-Box (USB – connection set)
AED 1012-C	PID controller	execution in cooling case
AED 1012-C	Program controller	blowing devices
power supply	100-270VAC - 24 VDC	USB-RS232 – 8-pol connector
		USB-RS485 – 8-pol connector
		mirror 90°
		connection cable 8-pole
		mounting parts

Dr.Georg Maurer GmbH – OPTOELEKTRONIK –





cable socket straight



cable socket 90°

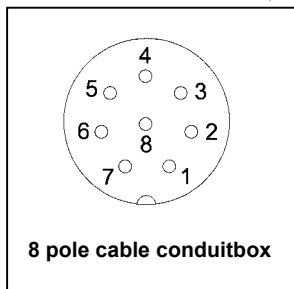
8-pole plug-connector – cable with free ends

female 8-pole PIN	color	function
1	white	\perp 24VDC / \perp - output 0-20mA / 4-20mA ** storage reset or aiming device (button), limit value
2	brown	+ 24 VDC
3	green	+ output 0-20mA
4	yellow	external controlling input selective for storage reset or aiming device (button)
5	grey	limit value (open collector) resp. min. intensity
6	pink	RS 232 TXD (from PC 9-pole SUB-D PIN 2)
7	blue	RS 232 RXD (from PC 9-pole SUB-D PIN 3)
8	red	RS 232 GND (from PC 9-pole SUB-D PIN 5)
housing	black (screen)	PE (earth)
		** \perp central ground

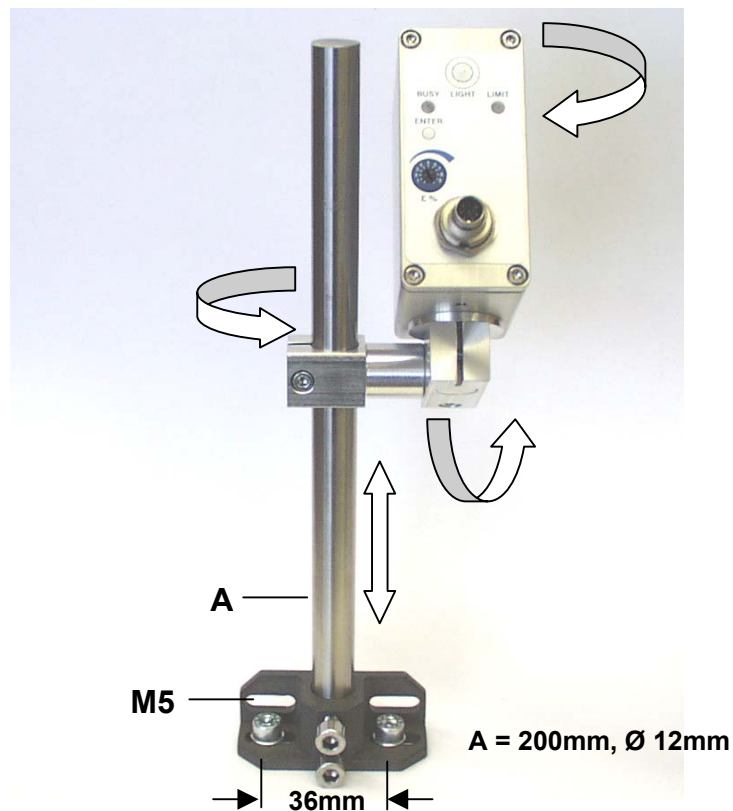
8-pole plug-connector – 15-pole SUB-D (AE 10XX)

female 8-pole PIN	color	function	15-pole male Sub-D PIN
1	white	\perp 24VDC / \perp - output 0-20mA / 4-20mA ** storage reset or aiming device (button), limit value	connection to PIN 13 4
2	brown	+ 24 VDC	1
3	green	+ output 0-20mA	8
4	yellow	external controlling input selective for storage reset or aiming device (button)	12
5	grey	limit value (open collector) resp. min. intensity	2
6	pink	RS 232 TXD (from PC 9-pole SUB-D PIN 2)	9
7	blue	RS 232 RXD (from PC 9-pole SUB-D PIN 3)	10
8	red	RS 232 GND (from PC 9-pole SUB-D PIN 5)	11
housing	black (screen)	PE (earth)	15
			connection to PIN 4 13
		** \perp central ground	

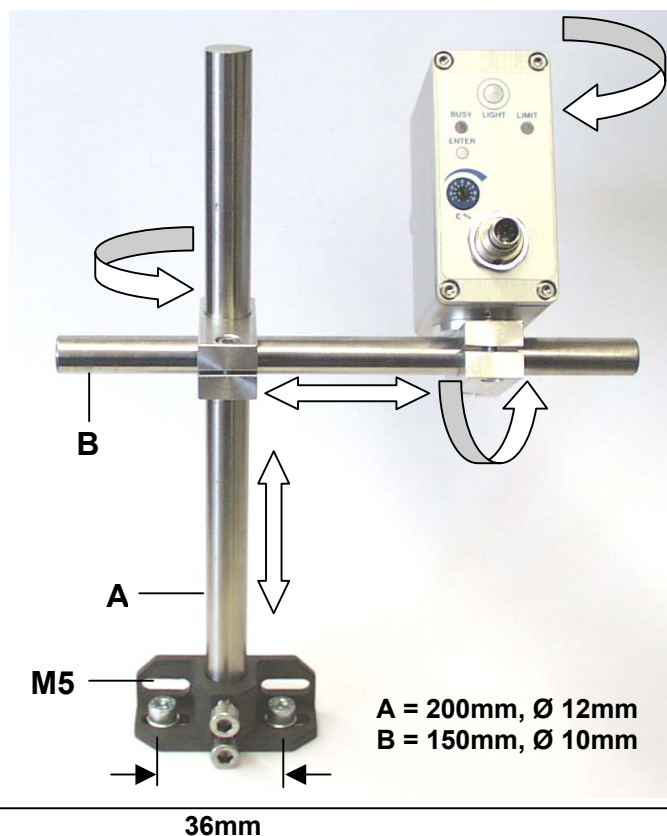
contact arrangement (view on solder termination)

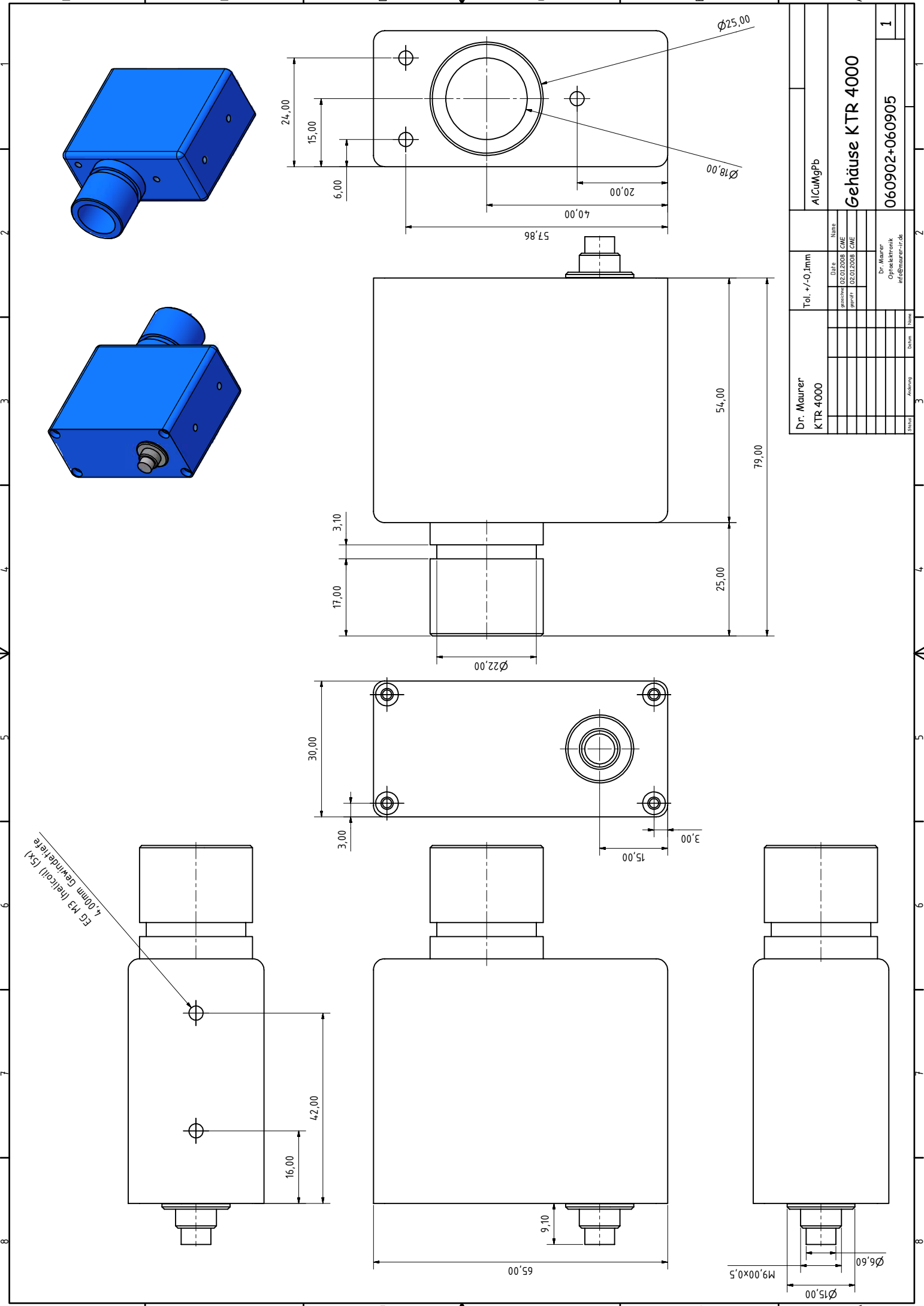


mounting stud standard for KTRD 4000-series



mounting stud universal for KTRD 4000-series





Dr. Maurer KTR 4000		Tol. +/-0.1mm		AlCuMgPb	
Name		Date		Name	
per checked 02.01.2008 CNE		per checked 02.01.2008 CNE		per checked 02.01.2008 CNE	
per draft 02.01.2008 CNE		per draft 02.01.2008 CNE		per draft 02.01.2008 CNE	
Dr. Maurer Optoelektronik info@maurer-tr.de		Name		Name	
Dr. Maurer		Dr. Maurer		Dr. Maurer	
KTR 4000		KTR 4000		KTR 4000	
060902+060905		060902+060905		060902+060905	
1		1		1	

Non-Contact Temperature Measurement

DIGITAL – INFRARED – PYROMETER

Temperature range 300 to 1500°C (572 – 2732°F)

Temperature control during production process

compact unit – with light beam aiming device

- focusable optic
- RS 232 or RS 485 interface
- limit output (open collector)

Series KTRD 4075-1



figure approx. M 1:1

MAURER – Infrared – pyrometer can also assist you to monitor your heating processes, ensuring a uniform standard of quality for your products.

Digital Infrared-Pyrometer Series KTRD 4075-1

60 years experiences and digital technology makes it possible!

A pyrometer – as small as a cigarette-box – but powerful like a big one.

- **light beam aiming device with LED**
- **focusable optic**
- **emissivity adjustable at the unit**
- **analog-and digital output**
- **1 adjustable limit output (open collector)**
- **software IR-LOG**

Through the serial interface additional parameter functions are possible:

analog output: 0 – 20 / 4 – 20 mA switchable

zoom range within measuring range

emissivity: 100,00 – 10,00 %

average: arithmetical or sliding

maximum value storage: storage modes and erase functions par ex. automatically with the next measuring object

Examples of applications:

steel, iron, non-ferrous metal, wires, ceramics, hardening, rolling, induction heating, soldering, brazing, forging, welding, transforming, vacuum furnace

unit type	target marking
KTRD 4075-1	light beam aiming device LED green

Temperature measuring range

- linear -

No.	temperature range short:
1	300 - 800°C (572 – 1472°F)
2	350 - 900°C (662 – 1652°F)
3	400 - 1000°C (752 – 1832°F)
4	500 - 1200°C (932 – 2192°F)

No.	temperature range long:
5	300 - 1300°C (572 - 2372°F)
6	400 - 1500°C (752 - 2732°F)

special measuring ranges
on request

Technical datas:

Spectral response	1,45 - 1,7 µm
Response time	1 ms
Accuracy	0,5 % ± 1°C
Reproducibility	1 ‰
Emissivity	100 - 10 %
Operating temperature	0 - 60°C (32 – 140°F)
Storage temperature	- 10°C - + 70°C (14 – 158°F)
Temperature-sensitivity	0,01 % / °C
Humidity tolerance	35 - 85 % RF
Analog output temp. linear	0 – 20 mA or 4 – 20 mA
1 Limit output (open coll.)	24 V 100 mA
Digital output	RS 232 ± 50 V isolated or RS 485 ± 70 V isolated
Operating voltage	DC 24 V ± 10 %
Supply current	< 100 mA
Unit connection	8-pole plug connector
Dimensions H / W / D	65 x 30 x 80 mm (2,56 x 1,18 x 3,15 inch)
Weight	0,15 kg (0,33 lbs)
Protection class	IP 65

Objectives: For optimum accomodation to the measuring application an objective with focusing is available.

Adjusting range 100 mm to infinite, distance ratio: D = 85

Calculation of target size: $\frac{\text{focusing distance } M \text{ mm}}{D = 85}$ par ex. $\frac{M = 100 \text{ mm}}{D = 85} = 1,18 \text{ Ø}$

electrical assembly		mechanical assembly
AED 1012 electronic process unit	PC-Box (USB – connection set)	execution in cooling case
AED 1012-C PID controller	USB-RS232 – 8-pol connector	blowing devices
AED 1012-C Program controller	USB-RS485 – 8-pol connector	mirror 90°
power supply 100-270VAC - 24 VDC	connection cable 8-pole	mounting parts

Dr.Georg Maurer GmbH – OPTOELEKTRONIK –

20





cable socket straight



cable socket 90°

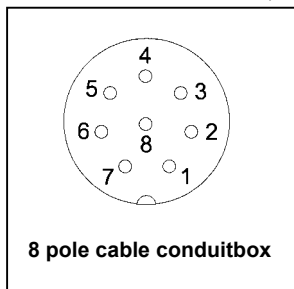
8-pole plug-connector – cable with free ends

female 8-pole PIN	color	function
1	white	\perp 24VDC / \perp - output 0-20mA / 4-20mA ** storage reset or aiming device (button), limit value
2	brown	+ 24 VDC
3	green	+ output 0-20mA
4	yellow	external controlling input selective for storage reset or aiming device (button)
5	grey	limit value (open collector) resp. min. intensity
6	pink	RS 232 TXD (from PC 9-pole SUB-D PIN 2)
7	blue	RS 232 RXD (from PC 9-pole SUB-D PIN 3)
8	red	RS 232 GND (from PC 9-pole SUB-D PIN 5)
housing	black (screen)	PE (earth)
		** \perp central ground

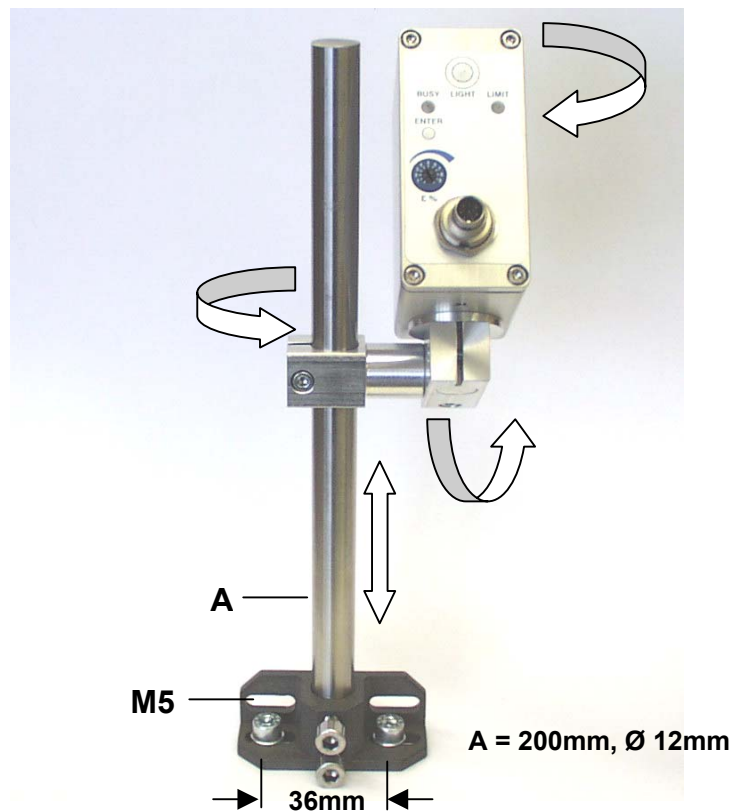
8-pole plug-connector – 15-pole SUB-D (AE 10XX)

female 8-pole PIN	color	function	15-pole male Sub-D PIN
1	white	\perp 24VDC / \perp - output 0-20mA / 4-20mA ** storage reset or aiming device (button), limit value	connection to PIN 13 4
2	brown	+ 24 VDC	1
3	green	+ output 0-20mA	8
4	yellow	external controlling input selective for storage reset or aiming device (button)	12
5	grey	limit value (open collector) resp. min. intensity	2
6	pink	RS 232 TXD (from PC 9-pole SUB-D PIN 2)	9
7	blue	RS 232 RXD (from PC 9-pole SUB-D PIN 3)	10
8	red	RS 232 GND (from PC 9-pole SUB-D PIN 5)	11
housing	black (screen)	PE (earth)	15
			connection to PIN 4 13
		** \perp central ground	

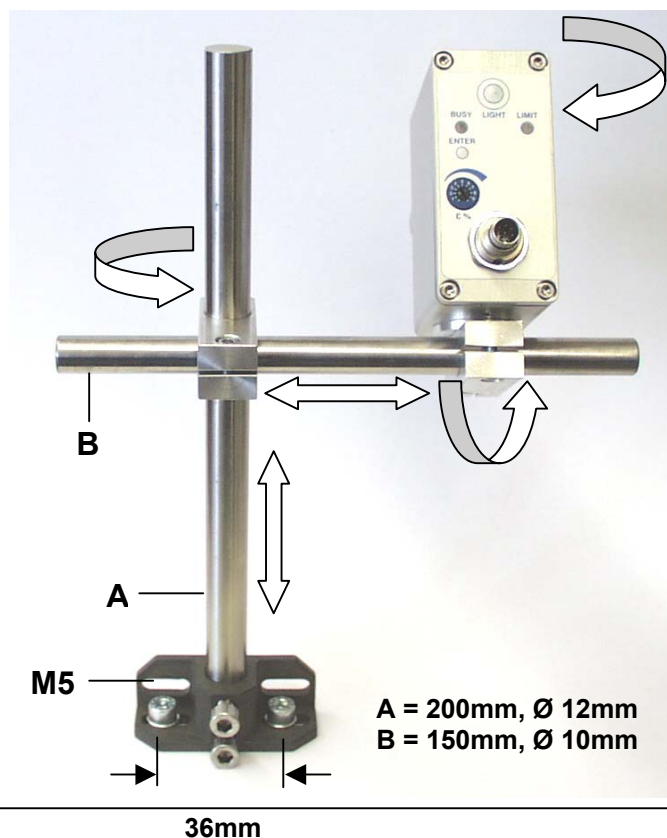
contact arrangement (view on solder termination)

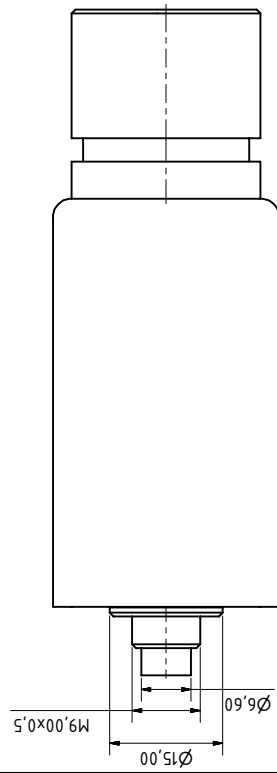
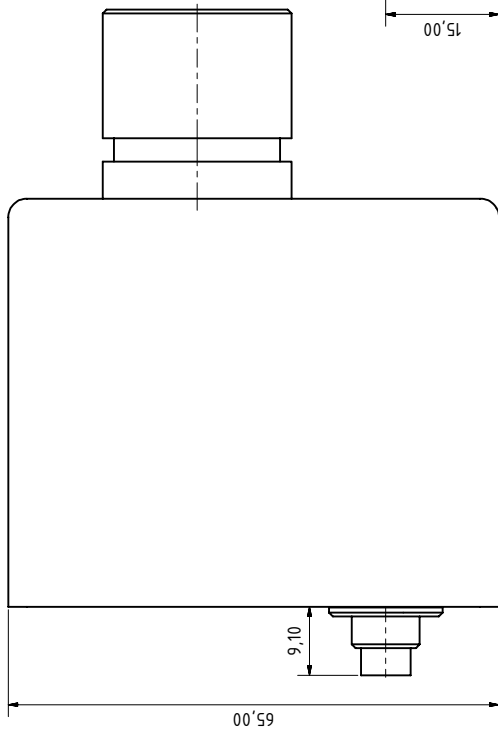
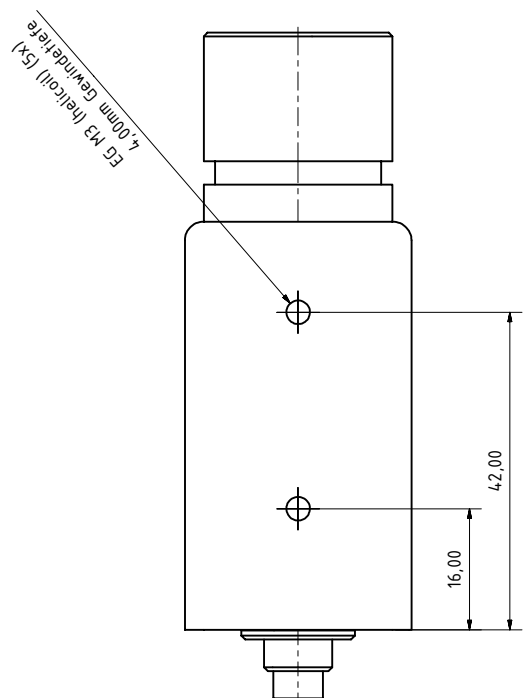
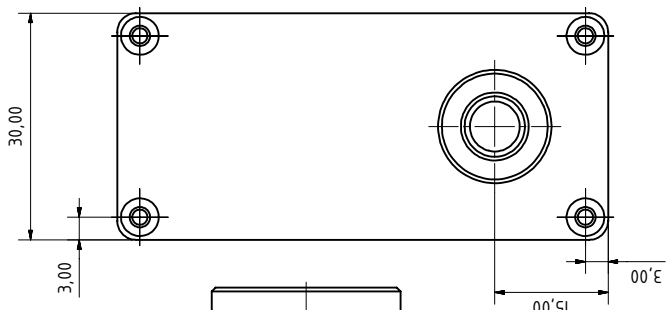
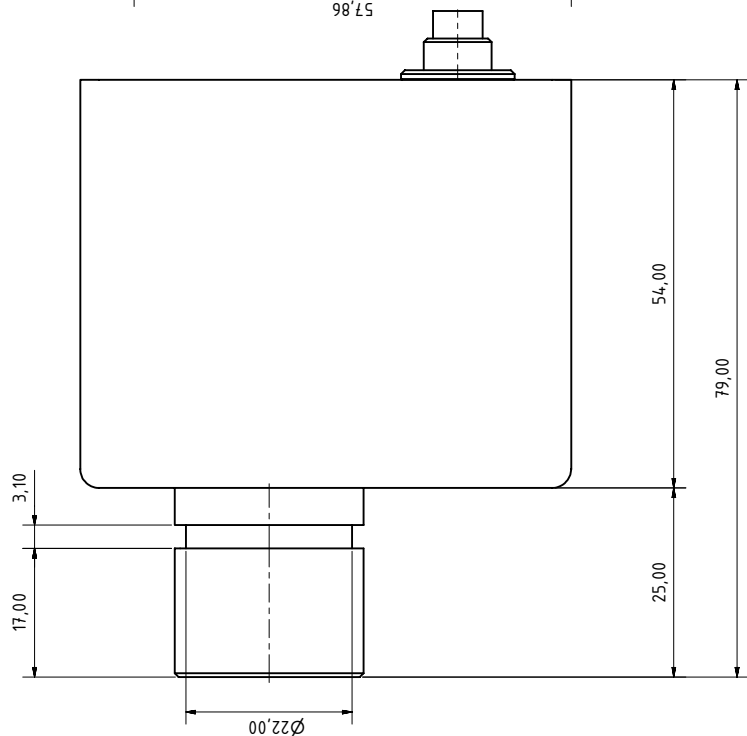
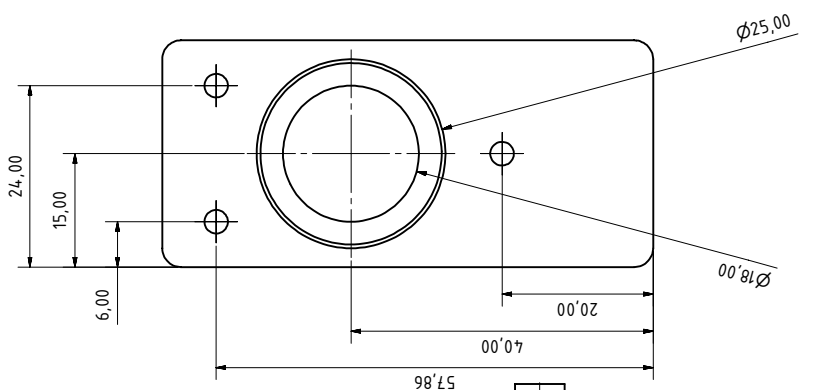
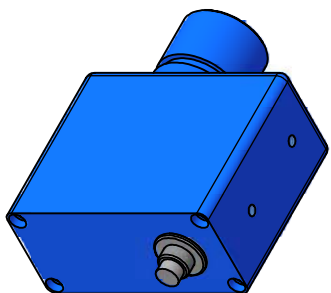
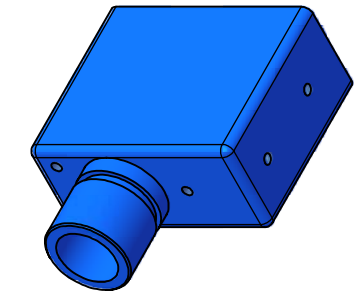


mounting stud standard for KTRD 4000-series



mounting stud universal for KTRD 4000-series



[illegible]

Non-Contact Temperature Measurement

DIGITAL – INFRARED – PYROMETER

Temperature range 600 to 2500°C (1112 – 4532°F)

Temperature control during production process

compact unit – with light beam aiming device

- focusable optic
- RS 232 or RS 485 interface
- limit output (open collector)

Series KTRD 4085-1



figure approx. M 1:1

MAURER – Infrared – pyrometer can also assist you to monitor your heating processes, ensuring a uniform standard of quality for your products.

Digital Infrared-Pyrometer Series KTRD 4085-1

60 years experiences and digital technology makes it possible!

A pyrometer – as small as a cigarette-box – but powerful like a big one.

- **light beam aiming device with LED**
- **focusable optic**
- **emissivity adjustable at the unit**
- **analog-and digital output**
- **1 adjustable limit output (open collector)**
- **software IR-LOG**

Through the serial interface additional parameter functions are possible:

analog output: 0 – 20 / 4 – 20 mA switchable

zoom range within measuring range

emissivity: 100,00 – 10,00 %

average: arithmetical or sliding

maximum value storage: storage modes and erase functions par ex. automatically with the next measuring object

Examples of applications:

steel, iron, non-ferrous metal, wires, ceramics, glass feeder, glass tub, glass arching, hardening, rolling, induction heating, brazing, forging, welding, transforming, vacuum furnace

unit type	target marking
KTRD 4085-1	light beam aiming device LED green

Temperature measuring range

- linear -

No.	temperature range short:
1	600 - 1200°C (1112 - 2192°F)
2	650 - 1300°C (1202 - 2372°F)
3	700 - 1400°C (1292 - 2552°F)
4	750 - 1500°C (1382 - 2732°F)
5	800 - 1700°C (1472 - 3092°F)
6	900 - 2000°C (1652 - 3632°F)

No.	temperature range long:
7	600 - 1600°C (1112 - 2912°F)
8	700 - 2000°C (1292 - 3632°F)
9	850 - 2500°C (1562 - 4532°F)

special measuring ranges
on request

Technical datas:

Spectral response	0,85 – 1,1 µm
Response time	1 ms
Accuracy	0,5 % ± 1°C
Reproducibility	1 ‰
Emissivity	100 - 10 %
Operating temperature	0 - 60°C (32 – 140°F)
Storage temperature	- 10°C - + 70°C (14 – 158°F)
Temperature-sensitivity	0,01 % / °C
Humidity tolerance	35 - 85 % RF
Analog output temp.linear	0 – 20 mA or 4 – 20 mA
1 Limit output (open coll.)	24 V 100 mA
Digital output	RS 232 ± 50 V isolated or RS 485 ± 70 V isolated
Operating voltage	DC 24 V ± 10 %
Supply current	< 100 mA
Unit connection	8-pole plug connector
Dimensions H / W / D	65 x 30 x 80 mm (2,56 x 1,18 x 3,15 inch)
Weight	0,15 kg (0,33 lbs)
Protection class	IP 65

Objectives: For optimum accomodation to the measuring application an objective with focusing is available.

Adjusting range 100 mm to infinite, distance ratio: D = 85

Calculation of target size: $\frac{\text{focusing distance } M \text{ mm}}{D = 85}$ par ex. $\frac{M = 100 \text{ mm}}{D = 85} = 1,18 \text{ Ø}$

electrical assembly		mechanical assembly
AED 1012	electronic process unit	PC-Box (USB – connection set)
AED 1012-C	PID controller	USB-RS232 – 8-pol connector
AED 1012-C	Program controller	USB-RS485 – 8-pol connector
power supply	100-270VAC - 24 VDC	connection cable 8-pole
		mounting parts

Dr.Georg Maurer GmbH – OPTOELEKTRONIK –





cable socket straight



cable socket 90°

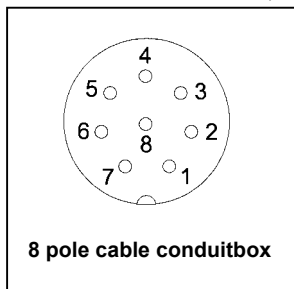
8-pole plug-connector – cable with free ends

female 8-pole PIN	color	function
1	white	\perp 24VDC / \perp - output 0-20mA / 4-20mA ** storage reset or aiming device (button), limit value
2	brown	+ 24 VDC
3	green	+ output 0-20mA
4	yellow	external controlling input selective for storage reset or aiming device (button)
5	grey	limit value (open collector) resp. min. intensity
6	pink	RS 232 TXD (from PC 9-pole SUB-D PIN 2)
7	blue	RS 232 RXD (from PC 9-pole SUB-D PIN 3)
8	red	RS 232 GND (from PC 9-pole SUB-D PIN 5)
housing	black (screen)	PE (earth)
		** \perp central ground

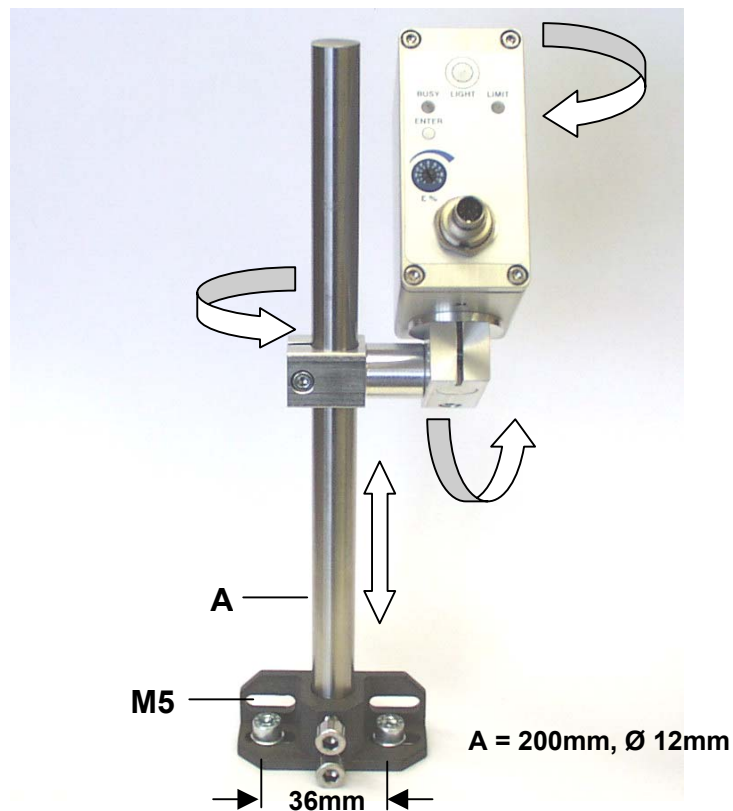
8-pole plug-connector – 15-pole SUB-D (AE 10XX)

female 8-pole PIN	color	function	15-pole male Sub-D PIN
1	white	\perp 24VDC / \perp - output 0-20mA / 4-20mA ** storage reset or aiming device (button), limit value	connection to PIN 13 4
2	brown	+ 24 VDC	1
3	green	+ output 0-20mA	8
4	yellow	external controlling input selective for storage reset or aiming device (button)	12
5	grey	limit value (open collector) resp. min. intensity	2
6	pink	RS 232 TXD (from PC 9-pole SUB-D PIN 2)	9
7	blue	RS 232 RXD (from PC 9-pole SUB-D PIN 3)	10
8	red	RS 232 GND (from PC 9-pole SUB-D PIN 5)	11
housing	black (screen)	PE (earth)	15
			connection to PIN 4 13
		** \perp central ground	

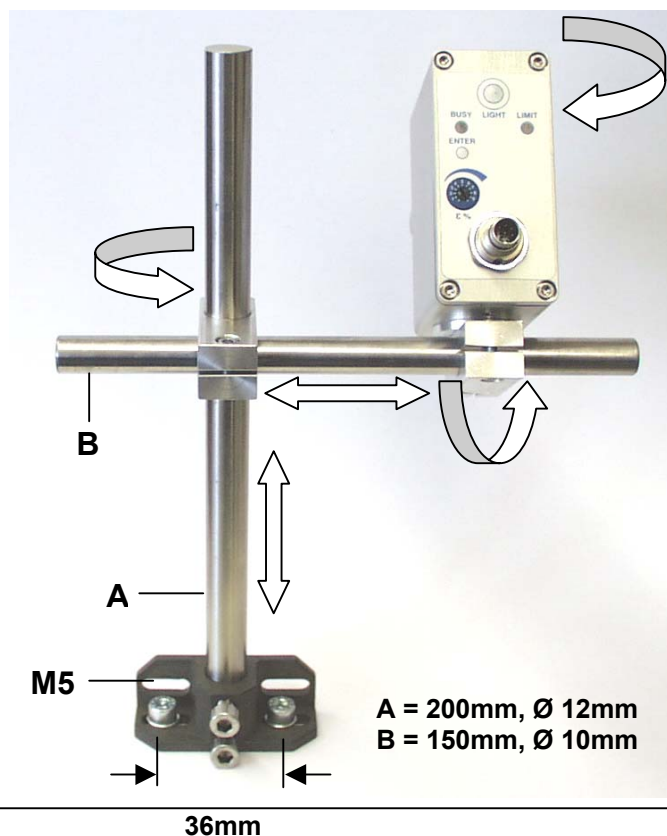
contact arrangement (view on solder termination)

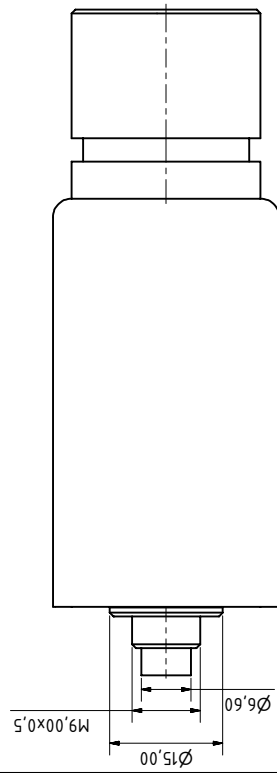
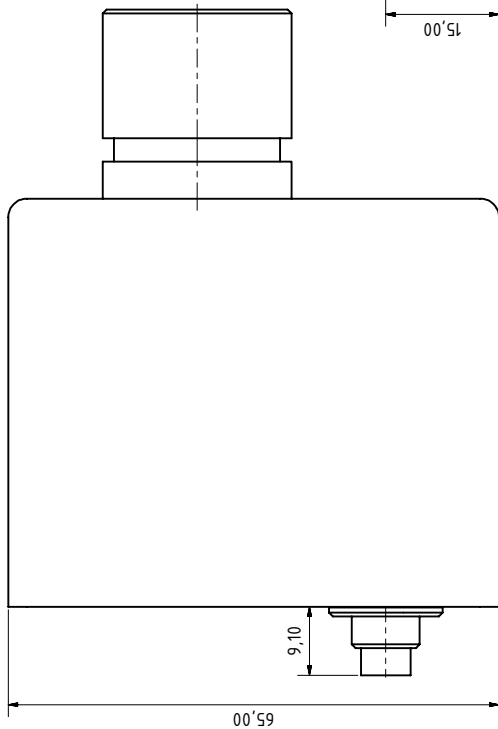
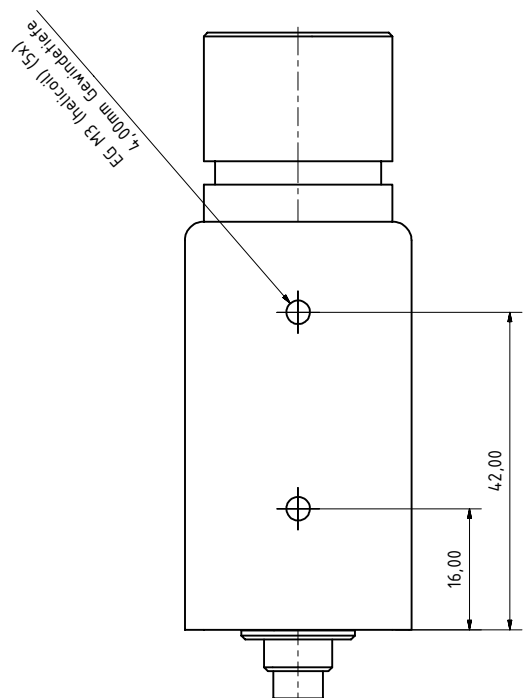
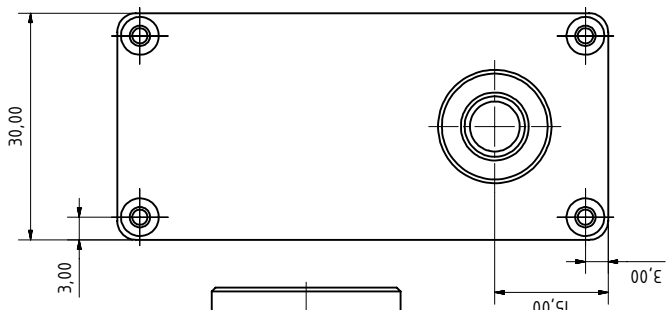
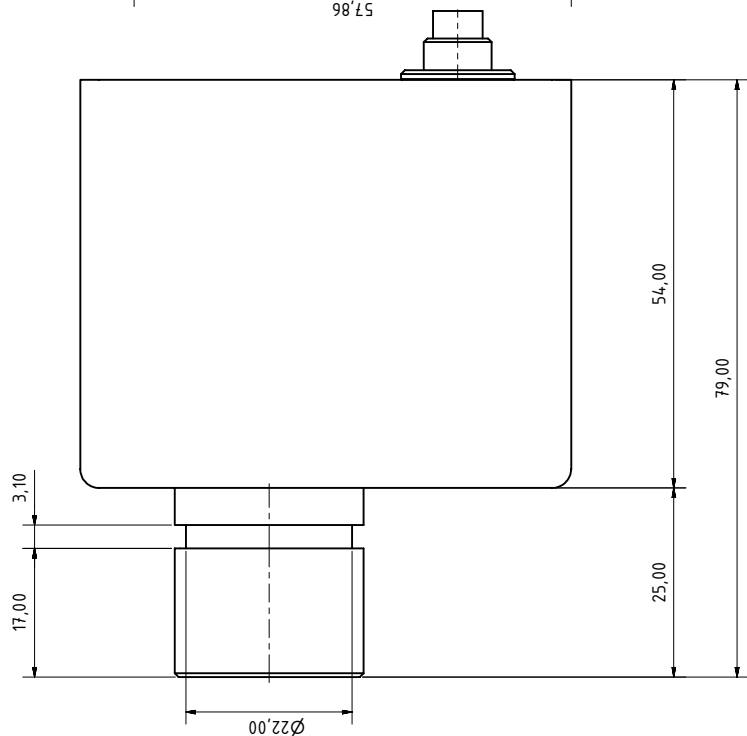
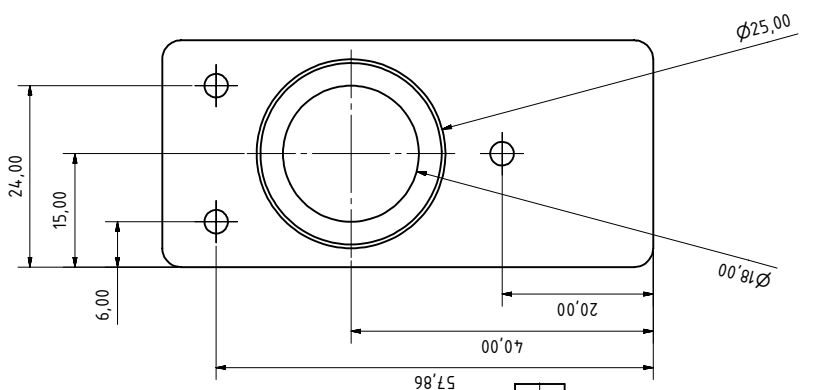
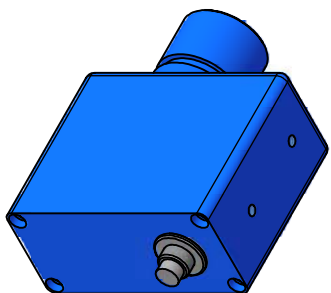
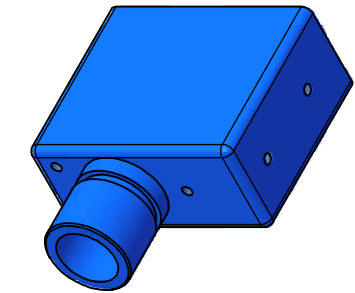


mounting stud standard for KTRD 4000-series



mounting stud universal for KTRD 4000-series



[illegible]

Non-Contact Temperature Measurement

DIGITAL – INFRARED – FIBER OPTIC – PYROMETER

Temperature range 100 to 1200°C (212 – 2192°F)

Temperature control during production process

compact unit – with light beam aiming device

- fiber optic
- RS 232 or RS 485 interface
- limit output (open collector)

Series KTRD 4465-1



figure approx. M 1:1

MAURER – Infrared – pyrometer can also assist you to monitor your heating processes, ensuring a uniform standard of quality for your products.

Digital Infrared- Fiber Optic-Pyrometer Series KTRD 4465-1

60 years experiences and digital technology makes it possible!

A pyrometer – as small as a cigarette-box – but powerful like a big one.

- fiber optic
- light beam aiming device with a green LED for target marking
- emissivity adjustable at the unit
- analog- and digital output
- 1 adjustable limit output (open collector)
- software IR-LOG

Through the serial interface additional parameter functions are possible:

analog output: 0 – 20 / 4 – 20 mA switchable

zoom range within measuring range

emissivity: 100,00 – 10,00 %

average: arithmetical or sliding

maximum value storage: storage modes and erase functions par ex. automatically with the next measuring object

Examples of applications:

steel, iron, non-ferrous metal, wires, ceramics, rolling, induction heating, soldering, welding, transforming, vacuum furnace

Temperature measuring range

- linear –

No.	temperature range short:
1	100 - 300°C (212 – 572°F)
2	150 - 400°C (302 – 752°F)
3	200 - 600°C (392 – 1112°F)
4	250 - 800°C (482 – 1472°F)

No.	temperature range long:
5	100 - 500°C (212 – 932°F)
6	150 - 800°C (302 – 1472°F)
7	200-1200°C (392 – 2192°F)

special measuring ranges
on request

Technical datas:

Spectral response	2,1 µm
Response time	1-5 ms
Accuracy	0,5 % ± 1°C
Reproducibility	1 ‰
Emissivity	100 - 10 %
Operating temperature	0 - 60°C (32 – 140°F)
Storage temperature	- 10°C - + 70°C (14 – 158°F)
Temperature-sensitivity	0,01 % / °C
Humidity tolerance	35 - 85 % RF
Analog output temp.linear	0 – 20 mA or 4 – 20 mA
1 Limit output (open coll.)	24 V 100 mA
Digital output	RS 232 ± 50 V isolated or RS 485 ± 70 V isolated
Operating voltage	DC 24 V ± 10 %
Supply current	< 100 mA
Unit connection	8-pole plug connector
Dimensions H / W / D	65 x 30 x 80 mm (2,56 x 1,18 x 3,15 inch)
Weight	0,15 kg (0,33 lbs)
Protection class	IP 65

Fiber optic: Type GM-L, length 500 mm in metal hose
ambient temperature max. 150°C, bend radius min. 100 mm

	fiber optic	Type GM-L	500 mm	Ø 0,6 mm fiber	temperature range no. 1 + 2 + 5 + 6
	fiber optic	Type GM-L	500 mm	Ø 0,4 mm fiber	temperature range no. 3 + 7
	fiber optic	Type GM-L	500 mm	Ø 0,2 mm fiber	temperature range no. 4

(other length and fiber on request)

Objectives: For accomodation to the measuring application are several objectives and optic systems available.
(see datasheet)

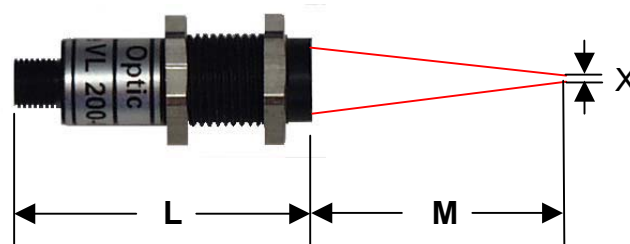
electrical assembly		mechanical assembly
AED 1012	electronic process unit	PC-Box (USB – connection set)
AED 1012-C	PID controller	USB-RS232 – 8-pol connector
AED 1012-C	Program controller	USB-RS485 – 8-pol connector
power supply 100-270VAC - 24 VDC		connection cable 8-pole
		mounting parts

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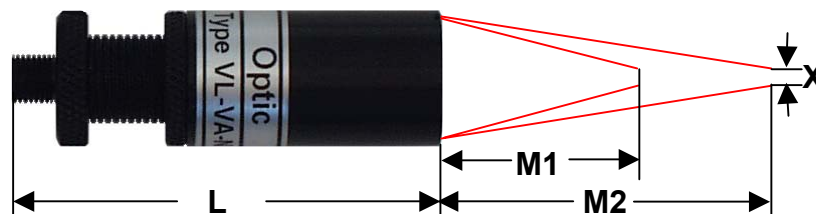
objective for fiber optic pyrometer

fix-focus
M12x1



optic type	M / mm	L / mm	target size X Ø / mm	
VL 50-M12	50	38	fiber 0,2mm	0,7mm
			fiber 0,4mm	1,4mm
			fiber 0,6mm	2,0mm
VL 100-M12	100	40	fiber 0,2mm	1,0mm
			fiber 0,4mm	2,0mm
			fiber 0,6mm	3,0mm
VL 150-M12	150	38	fiber 0,2mm	1,4mm
			fiber 0,4mm	2,7mm
			fiber 0,6mm	4,0mm
VL 200-M12	200	38	fiber 0,2mm	2,0mm
			fiber 0,4mm	4,0mm
			fiber 0,6mm	6,0mm

vario-focus
Ø 18mm



target size X: $\frac{\text{focusing distance M mm}}{\text{distance ratio D}}$ par ex. $\frac{M = 150\text{mm}}{D = 75} = 2,00 \text{ mm } \varnothing$

optic type	M1 / mm	M2 / mm	L / mm	distance ratio D	
VL-VA-N	65	160	46 - 56	fiber 0,2mm	138
				fiber 0,4mm	69
				fiber 0,6mm	46
VL-VA-T	100	5000	46 - 56	fiber 0,2mm	150
				fiber 0,4mm	75
				fiber 0,6mm	50



cable socket straight



cable socket 90°

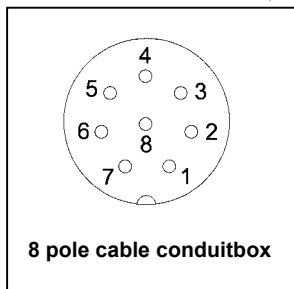
8-pole plug-connector – cable with free ends

female 8-pole PIN	color	function
1	white	\perp 24VDC / \perp - output 0-20mA / 4-20mA ** storage reset or aiming device (button), limit value
2	brown	+ 24 VDC
3	green	+ output 0-20mA
4	yellow	external controlling input selective for storage reset or aiming device (button)
5	grey	limit value (open collector) resp. min. intensity
6	pink	RS 232 TXD (from PC 9-pole SUB-D PIN 2)
7	blue	RS 232 RXD (from PC 9-pole SUB-D PIN 3)
8	red	RS 232 GND (from PC 9-pole SUB-D PIN 5)
housing	black (screen)	PE (earth)
		** \perp central ground

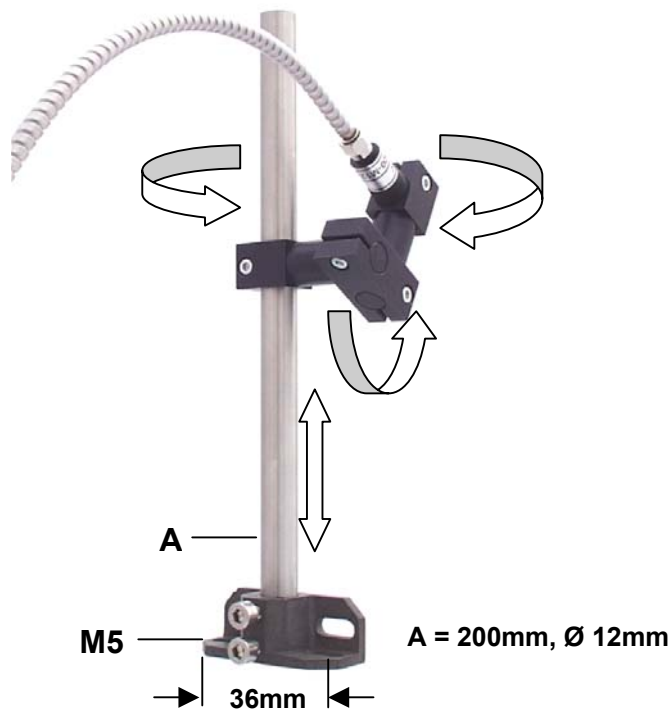
8-pole plug-connector – 15-pole SUB-D (AE 10XX)

female 8-pole PIN	color	function	15-pole male Sub-D PIN
1	white	\perp 24VDC / \perp - output 0-20mA / 4-20mA ** storage reset or aiming device (button), limit value	connection to PIN 13 4
2	brown	+ 24 VDC	1
3	green	+ output 0-20mA	8
4	yellow	external controlling input selective for storage reset or aiming device (button)	12
5	grey	limit value (open collector) resp. min. intensity	2
6	pink	RS 232 TXD (from PC 9-pole SUB-D PIN 2)	9
7	blue	RS 232 RXD (from PC 9-pole SUB-D PIN 3)	10
8	red	RS 232 GND (from PC 9-pole SUB-D PIN 5)	11
housing	black (screen)	PE (earth)	15
			connection to PIN 4 13
		** \perp central ground	

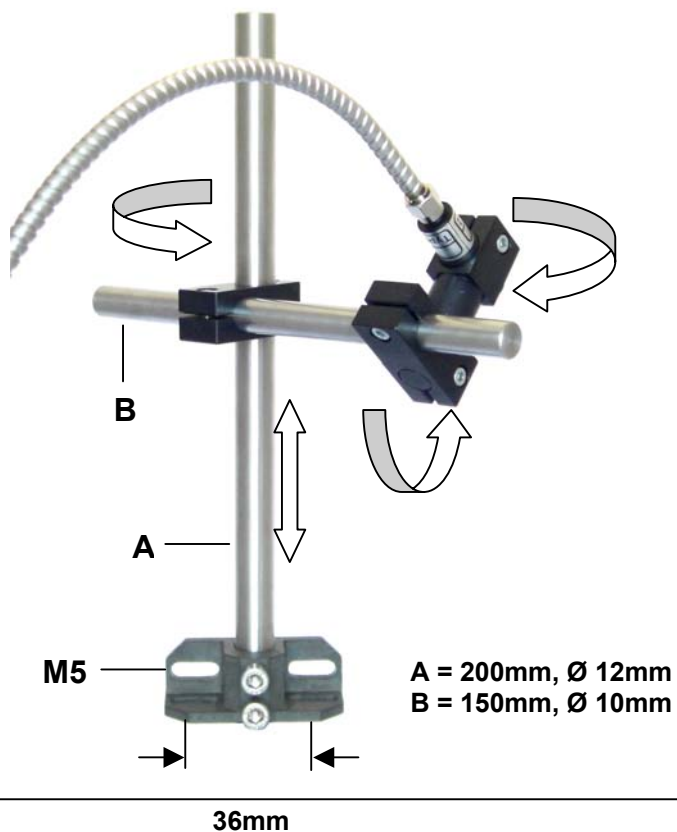
contact arrangement (view on solder termination)



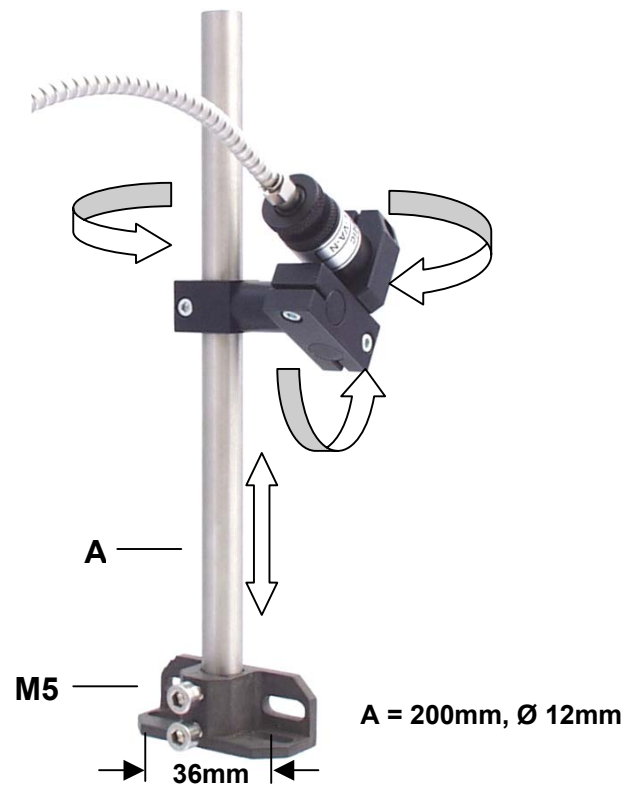
mounting stud standard for KTRD 4400-series objective M12



mounting stud universal for KTRD 4400-series objective M12

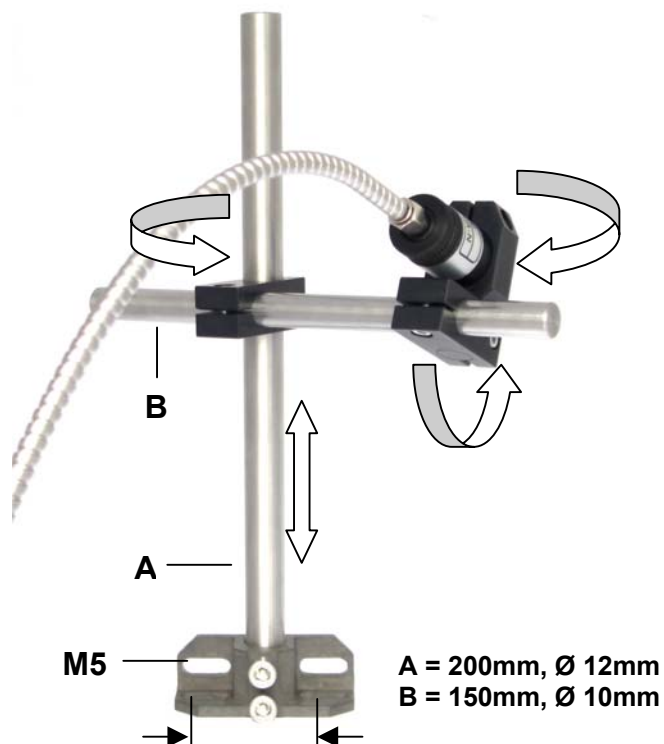


mounting stud standard for KTRD 4400-series objective Ø 18mm

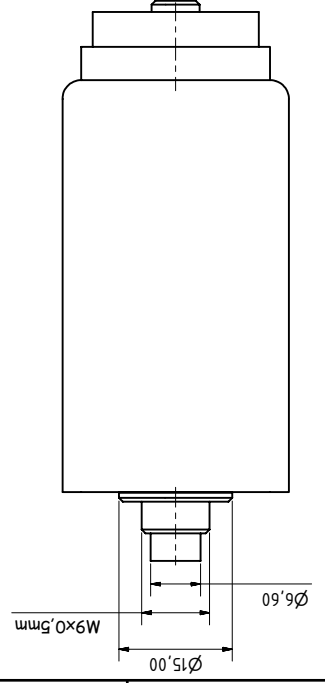
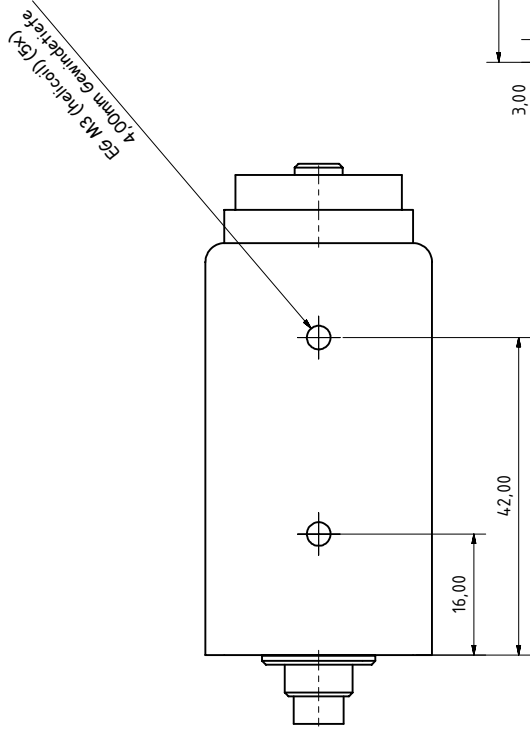
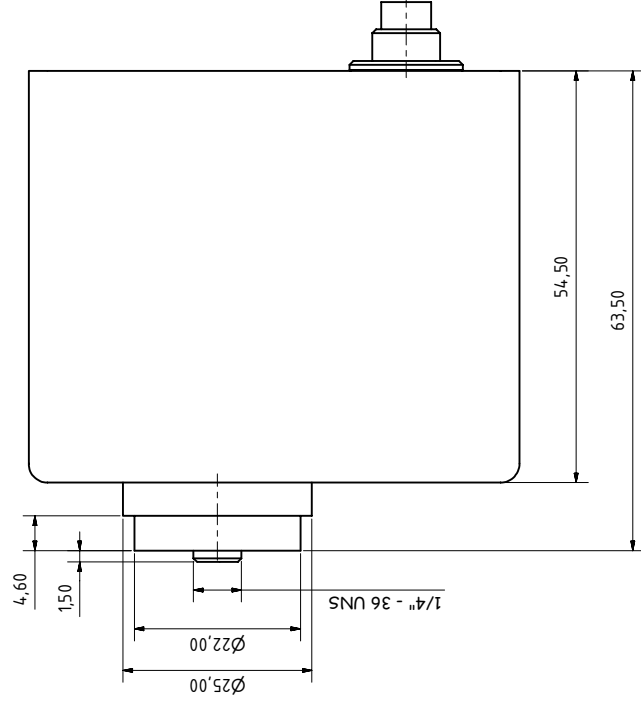
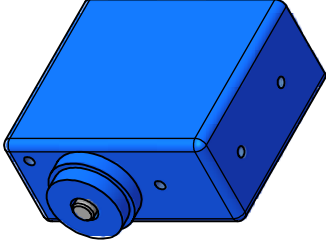


Art Nr. 118-2003

mounting stud universal for KTRD 4400-series objective Ø 18mm



Art Nr. 118-2005

[illegible]

Non-Contact Temperature Measurement

DIGITAL – INFRARED – FIBER OPTIC – PYROMETER

Temperature range 300 to 1500°C (572 – 2732°F)

Temperature control during production process

compact unit – with light beam aiming device

- fiber optic
- RS 232 or RS 485 interface
- limit output (open collector)

Series KTRD 4475-1



figure approx. M 1:1

MAURER – Infrared – pyrometer can also assist you to monitor your heating processes, ensuring a uniform standard of quality for your products.

Digital Infrared- Fiber Optic-Pyrometer Series KTRD 4475-1

60 years experiences and digital technology makes it possible!

A pyrometer – as small as a cigarette-box – but powerful like a big one.

- fiber optic
- light beam aiming device with a green LED for target marking
- emissivity adjustable at the unit
- analog- and digital output
- 1 adjustable limit output (open collector)
- software IR-LOG

Through the serial interface additional parameter functions are possible:

analog output: 0 – 20 / 4 – 20 mA switchable

zoom range within measuring range

emissivity: 100,00 – 10,00 %

average: arithmetical or sliding

maximum value storage: storage modes and erase functions par ex. automatically with the next measuring object

Examples of applications:

steel, iron, non-ferrous metal, wires, ceramics, hardening, rolling, induction heating, soldering, brazing, forging, welding, transforming, vacuum furnace

Temperature measuring range

- linear –

No.	temperature range short:
1	300 - 800°C (572 – 1472°F)
2	350 - 900°C (662 – 1652°F)
3	400 - 1000°C (752 – 1832°F)
4	500 - 1200°C (932 – 2192°F)

No.	temperature range long:
5	300 - 1300°C (572 - 2372°F)
6	400 - 1500°C (752 - 2732°F)

special measuring ranges
on request

Technical datas:

Spectral response	1,45 - 1,7 µm
Response time	1 ms
Accuracy	0,5 % ± 1°C
Reproducibility	1 ‰
Emissivity	100 - 10 %
Operating temperature	0 - 60°C (32 – 140°F)
Storage temperature	- 10°C - + 70°C (14 – 158°F)
Temperature-sensitivity	0,01 % / °C
Humidity tolerance	35 - 85 % RF
Analog output temp.linear	0 – 20 mA or 4 – 20 mA
1 Limit output (open coll.)	24 V 100 mA
Digital output	RS 232 ± 50 V isolated or RS 485 ± 70 V isolated
Operating voltage	DC 24 V ± 10 %
Supply current	< 100 mA
Unit connection	8-pole plug connector
Dimensions H / W / D	65 x 30 x 80 mm (2,56 x 1,18 x 3,15 inch)
Weight	0,15 kg (0,33 lbs)
Protection class	IP 65

Fiber optic: Type GM-L, length 500 mm in metal hose
ambient temperature max. 150°C, bend radius min. 100 mm

	fiber optic	Type GM-L	500 mm	Ø 0,6 mm fiber	temperature range no.
	fiber optic	Type GM-L	500 mm	Ø 0,4 mm fiber	temperature range no. 1 + 2 + 5
	fiber optic	Type GM-L	500 mm	Ø 0,2 mm fiber	temperature range no. 3 + 4 + 6

(other length and fiber on request)

Objectives: For accomodation to the measuring application are several objectives and optic systems available.
(see datasheet)

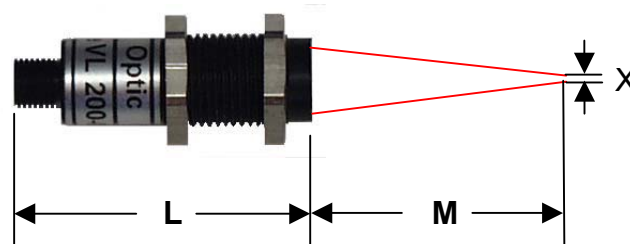
electrical assembly			mechanical assembly
AED 1012	electronic process unit	PC-Box (USB – connection set)	execution in cooling case
AED 1012-C	PID controller	USB-RS232 – 8-pol connector	blowing devices
AED 1012-C	Program controller	USB-RS485 – 8-pol connector	mirror 90°
power supply 100-270VAC - 24 VDC			mounting parts

Dr.Georg Maurer GmbH – OPTOELEKTRONIK –



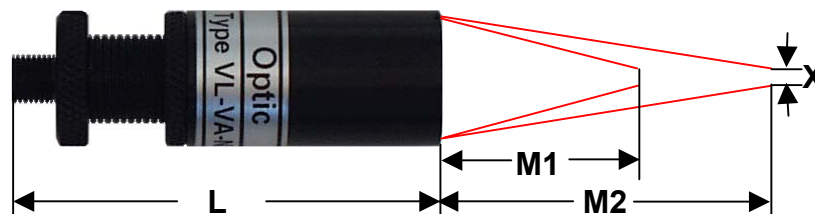
objective for fiber optic pyrometer

fix-focus
M12x1



optic type	M / mm	L / mm	target size X Ø / mm	
VL 50-M12	50	38	fiber 0,2mm	0,7mm
			fiber 0,4mm	1,4mm
			fiber 0,6mm	2,0mm
VL 100-M12	100	40	fiber 0,2mm	1,0mm
			fiber 0,4mm	2,0mm
			fiber 0,6mm	3,0mm
VL 150-M12	150	38	fiber 0,2mm	1,4mm
			fiber 0,4mm	2,7mm
			fiber 0,6mm	4,0mm
VL 200-M12	200	38	fiber 0,2mm	2,0mm
			fiber 0,4mm	4,0mm
			fiber 0,6mm	6,0mm

vario-focus
Ø 18mm



target size X: $\frac{\text{focusing distance M mm}}{\text{distance ratio D}}$ par ex. $\frac{M = 150\text{mm}}{D = 75} = 2,00 \text{ mm } \varnothing$

optic type	M1 / mm	M2 / mm	L / mm	distance ratio D	
VL-VA-N	65	160	46 - 56	fiber 0,2mm	138
				fiber 0,4mm	69
				fiber 0,6mm	46
VL-VA-T	100	5000	46 - 56	fiber 0,2mm	150
				fiber 0,4mm	75
				fiber 0,6mm	50



cable socket straight



cable socket 90°

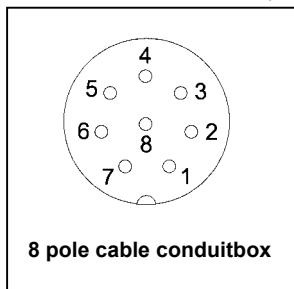
8-pole plug-connector – cable with free ends

female 8-pole PIN	color	function
1	white	\perp 24VDC / \perp - output 0-20mA / 4-20mA ** storage reset or aiming device (button), limit value
2	brown	+ 24 VDC
3	green	+ output 0-20mA
4	yellow	external controlling input selective for storage reset or aiming device (button)
5	grey	limit value (open collector) resp. min. intensity
6	pink	RS 232 TXD (from PC 9-pole SUB-D PIN 2)
7	blue	RS 232 RXD (from PC 9-pole SUB-D PIN 3)
8	red	RS 232 GND (from PC 9-pole SUB-D PIN 5)
housing	black (screen)	PE (earth)
		** \perp central ground

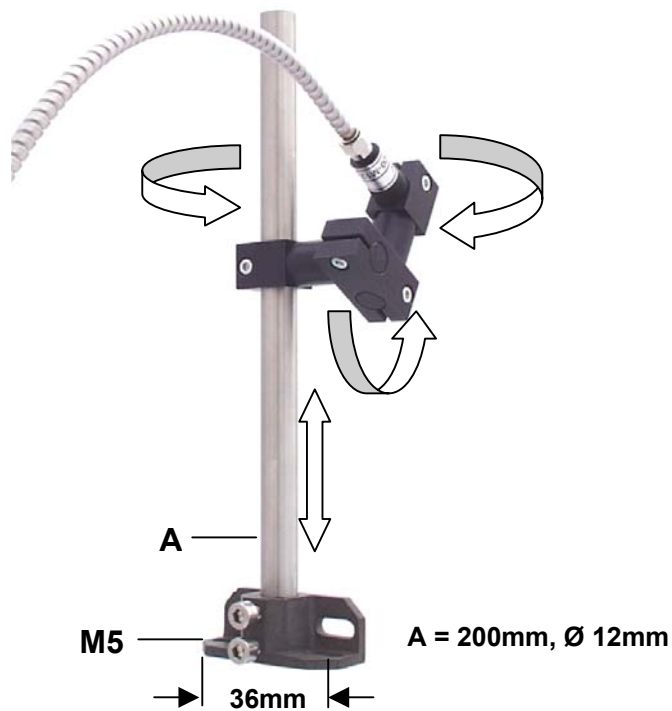
8-pole plug-connector – 15-pole SUB-D (AE 10XX)

female 8-pole PIN	color	function	15-pole male Sub-D PIN
1	white	\perp 24VDC / \perp - output 0-20mA / 4-20mA ** storage reset or aiming device (button), limit value	connection to PIN 13 4
2	brown	+ 24 VDC	1
3	green	+ output 0-20mA	8
4	yellow	external controlling input selective for storage reset or aiming device (button)	12
5	grey	limit value (open collector) resp. min. intensity	2
6	pink	RS 232 TXD (from PC 9-pole SUB-D PIN 2)	9
7	blue	RS 232 RXD (from PC 9-pole SUB-D PIN 3)	10
8	red	RS 232 GND (from PC 9-pole SUB-D PIN 5)	11
housing	black (screen)	PE (earth)	15
			connection to PIN 4 13
		** \perp central ground	

contact arrangement (view on solder termination)

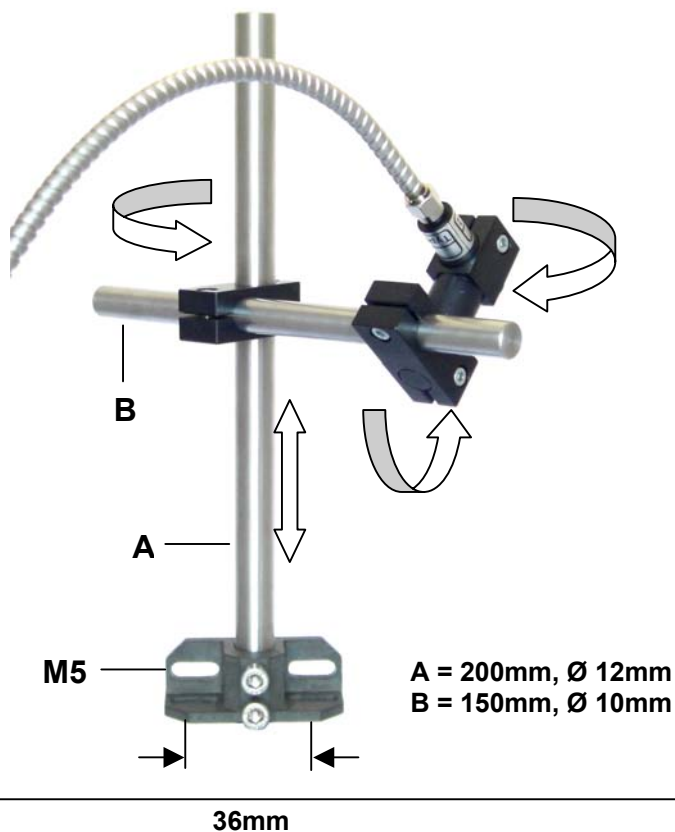


mounting stud standard for KTRD 4400-series objective M12



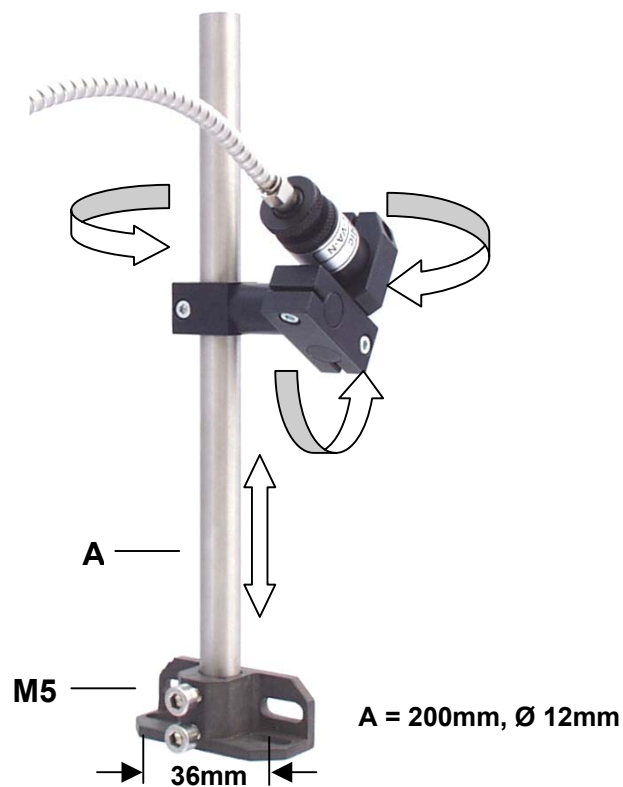
Art.Nr. 118-2004

mounting stud universal for KTRD 4400-series objective M12



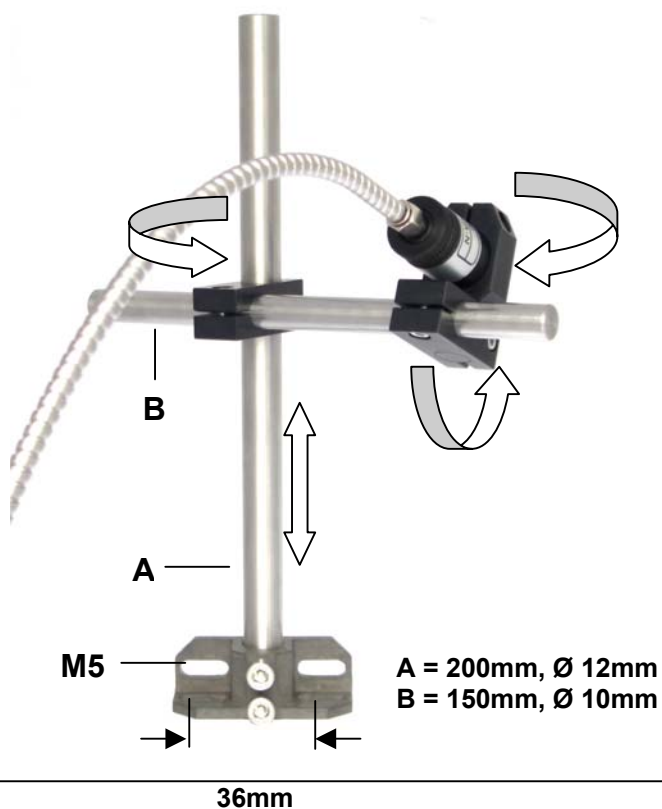
Art.Nr. 118-2006

mounting stud standard for KTRD 4400-series objective Ø 18mm

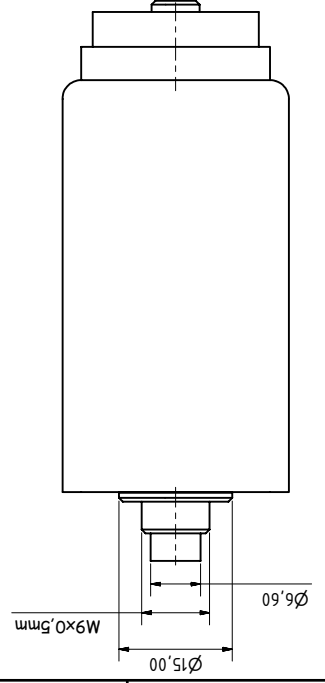
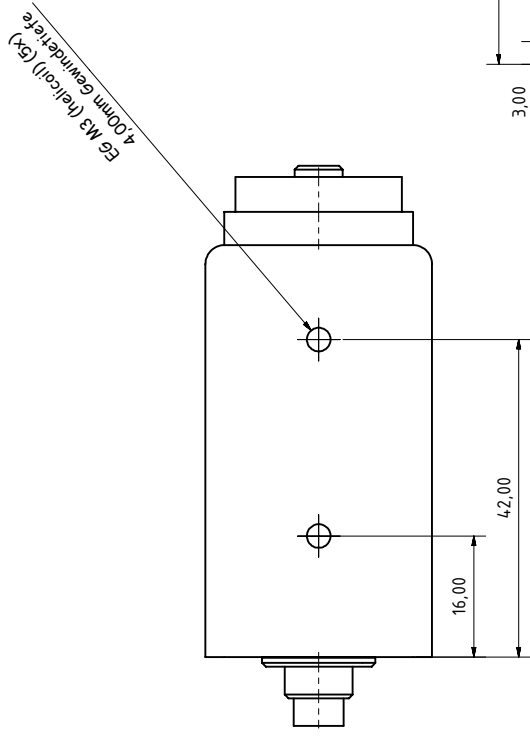
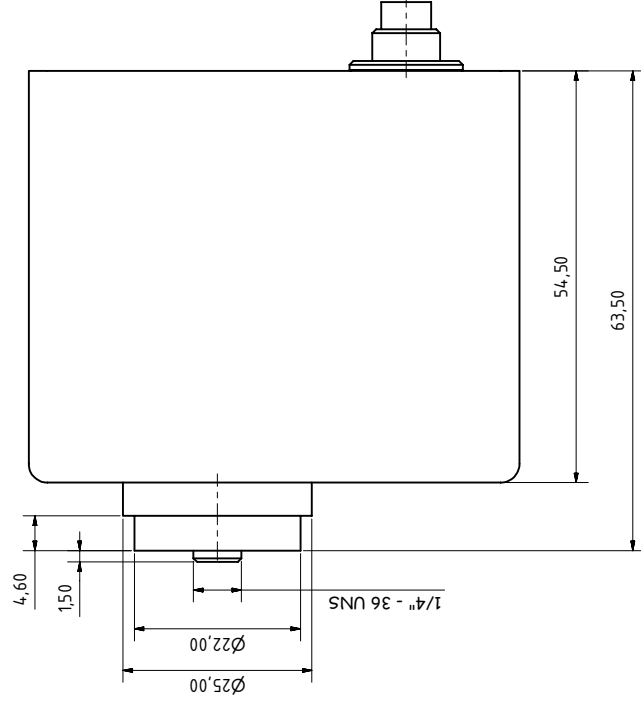
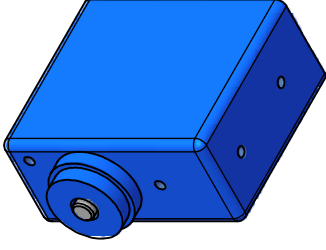


Art Nr. 118-2003

mounting stud universal for KTRD 4400-series objective Ø 18mm



Art Nr. 118-2005



Dr. Maurer KTR 4400		Tol. +/-0,1mm		ALCuWgPb	
			Date	Name	
			gezeichnet	02.08.2008	CME
			geprüft	02.08.2008	CME
			Dr. Maurer		
			Optelektronik		
			info@maurer-jr.de		
			1		
Stichtag	Anforderung	Datum	Name		

Non-Contact Temperature Measurement

DIGITAL – INFRARED – FIBER OPTIC – PYROMETER

Temperature range 600 to 2500°C (1112 – 4532°F)

Temperature control during production process

compact unit – with light beam aiming device

- fiber optic
- RS 232 or RS 485 interface
- limit output (open collector)

Series KTRD 4485-1



figure approx. M 1:1

MAURER – Infrared – pyrometer can also assist you to monitor your heating processes, ensuring a uniform standard of quality for your products.

Digital Infrared- Fiber Optic-Pyrometer Series KTRD 4485-1

60 years experiences and digital technology makes it possible!

A pyrometer – as small as a cigarette-box – but powerful like a big one.

- fiber optic
- light beam aiming device with a green LED for target marking
- emissivity adjustable at the unit
- analog- and digital output
- 1 adjustable limit output (open collector)
- software IR-LOG

Through the serial interface additional parameter functions are possible:

analog output: 0 – 20 / 4 – 20 mA switchable

zoom range within measuring range

emissivity: 100,00 – 10,00 %

average: arithmetical or sliding

maximum value storage: storage modes and erase functions par ex. automatically with the next measuring object

Examples of applications:

steel, iron, non-ferrous metal, wires, ceramics, glass feeder, glass tub, glass arching, hardening, rolling, induction heating, brazing, forging, welding, transforming, vacuum furnace

Temperature measuring range

- linear –

No.	temperature range short:
1	600 - 1200°C (1112 - 2192°F)
2	650 - 1300°C (1202 - 2372°F)
3	700 - 1400°C (1292 - 2552°F)
4	750 - 1500°C (1382 - 2732°F)
5	800 - 1700°C (1472 - 3092°F)
6	900 - 2000°C (1652 - 3632°F)

No.	temperature range long:
7	600 - 1600°C (1112 - 2912°F)
8	700 - 2000°C (1292 - 3632°F)
9	850 - 2500°C (1562 - 4532°F)

special measuring ranges
on request

Technical datas:

Spectral response	0,85 – 1,1 µm
Response time	1 ms
Accuracy	0,5 % ± 1°C
Reproducibility	1 ‰
Emissivity	100 - 10 %
Operating temperature	0 - 60°C (32 – 140°F)
Storage temperature	- 10°C - + 70°C (14 – 158°F)
Temperature-sensitivity	0,01 % / °C
Humidity tolerance	35 - 85 % RF
Analog output temp.linear	0 – 20 mA or 4 – 20 mA
1 Limit output (open coll.)	24 V 100 mA
Digital output	RS 232 ± 50 V isolated or RS 485 ± 70 V isolated
Operating voltage	DC 24 V ± 10 %
Supply current	< 100 mA
Unit connection	8-pole plug connector
Dimensions H / W / D	65 x 30 x 80 mm (2,56 x 1,18 x 3,15 inch)
Weight	0,15 kg (0,33 lbs)
Protection class	IP 65

Fiber optic: Type GM-L, length 500 mm in metal hose

ambient temperature max. 150°C, bend radius min. 100 mm

	fiber optic	Type GM-L	500 mm	Ø 0,6 mm fiber	temperature range no.
	fiber optic	Type GM-L	500 mm	Ø 0,4 mm fiber	temperature range no. 1 – 4 + 7 + 8
	fiber optic	Type GM-L	500 mm	Ø 0,2 mm fiber	temperature range no. 5 + 6 + 9

(other length and fiber on request)

Objectives: For accomodation to the measuring application are several objectives and optic systems available.
(see datasheet)

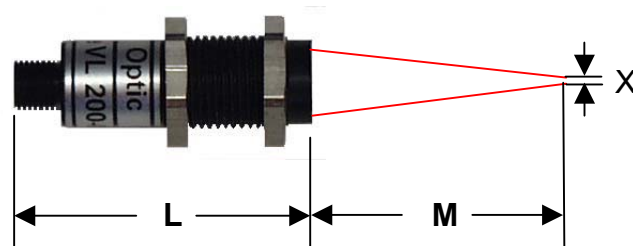
electrical assembly		mechanical assembly
AED 1012	electronic process unit	PC-Box (USB – connection set)
AED 1012-C	PID controller	USB-RS232 – 8-pol connector
AED 1012-C	Program controller	USB-RS485 – 8-pol connector
power supply 100-270VAC - 24 VDC		connection cable 8-pole
		mounting parts

Dr.Georg Maurer GmbH – OPTOELEKTRONIK –



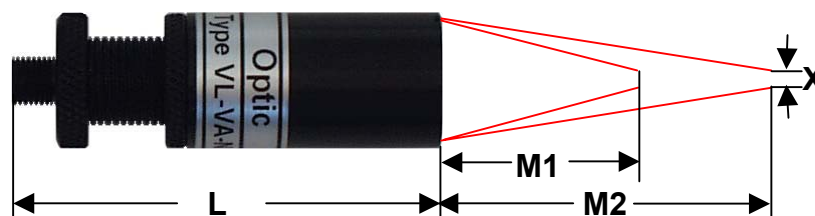
objective for fiber optic pyrometer

fix-focus
M12x1



optic type	M / mm	L / mm	target size X Ø / mm	
VL 50-M12	50	38	fiber 0,2mm	0,7mm
			fiber 0,4mm	1,4mm
			fiber 0,6mm	2,0mm
VL 100-M12	100	40	fiber 0,2mm	1,0mm
			fiber 0,4mm	2,0mm
			fiber 0,6mm	3,0mm
VL 150-M12	150	38	fiber 0,2mm	1,4mm
			fiber 0,4mm	2,7mm
			fiber 0,6mm	4,0mm
VL 200-M12	200	38	fiber 0,2mm	2,0mm
			fiber 0,4mm	4,0mm
			fiber 0,6mm	6,0mm

vario-focus
Ø 18mm



target size X: $\frac{\text{focusing distance M mm}}{\text{distance ratio D}}$ par ex. $\frac{M = 150\text{mm}}{D = 75} = 2,00 \text{ mm } \varnothing$

optic type	M1 / mm	M2 / mm	L / mm	distance ratio D	
VL-VA-N	65	160	46 - 56	fiber 0,2mm	138
				fiber 0,4mm	69
				fiber 0,6mm	46
VL-VA-T	100	5000	46 - 56	fiber 0,2mm	150
				fiber 0,4mm	75
				fiber 0,6mm	50



cable socket straight



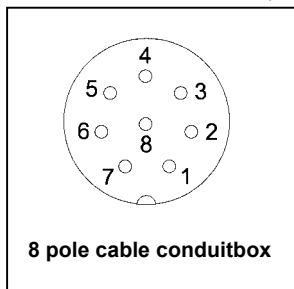
cable socket 90°

8-pole plug-connector – cable with free ends

female 8-pole PIN	color	function
1	white	\perp 24VDC / \perp - output 0-20mA / 4-20mA ** storage reset or aiming device (button), limit value
2	brown	+ 24 VDC
3	green	+ output 0-20mA
4	yellow	external controlling input selective for storage reset or aiming device (button)
5	grey	limit value (open collector) resp. min. intensity
6	pink	RS 232 TXD (from PC 9-pole SUB-D PIN 2)
7	blue	RS 232 RXD (from PC 9-pole SUB-D PIN 3)
8	red	RS 232 GND (from PC 9-pole SUB-D PIN 5)
housing	black (screen)	PE (earth)
		** \perp central ground

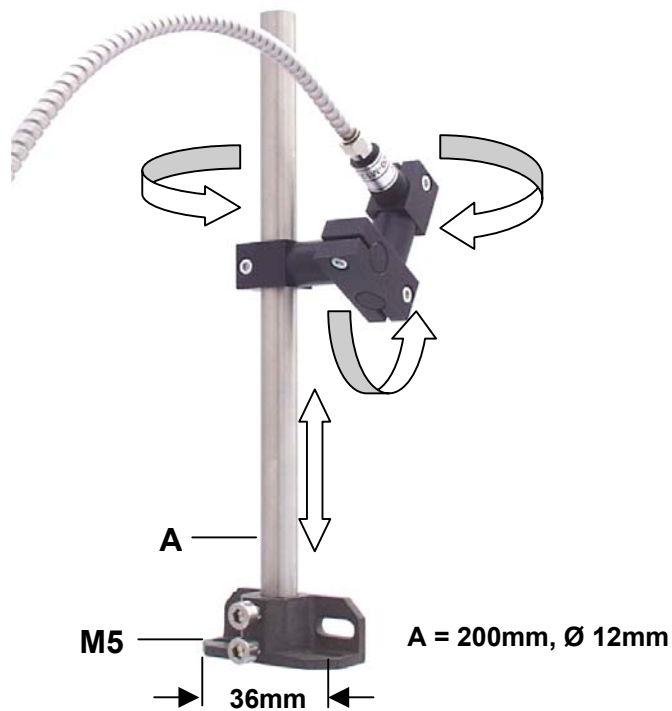
8-pole plug-connector – 15-pole SUB-D (AE 10XX)

contact arrangement (view on solder termination)



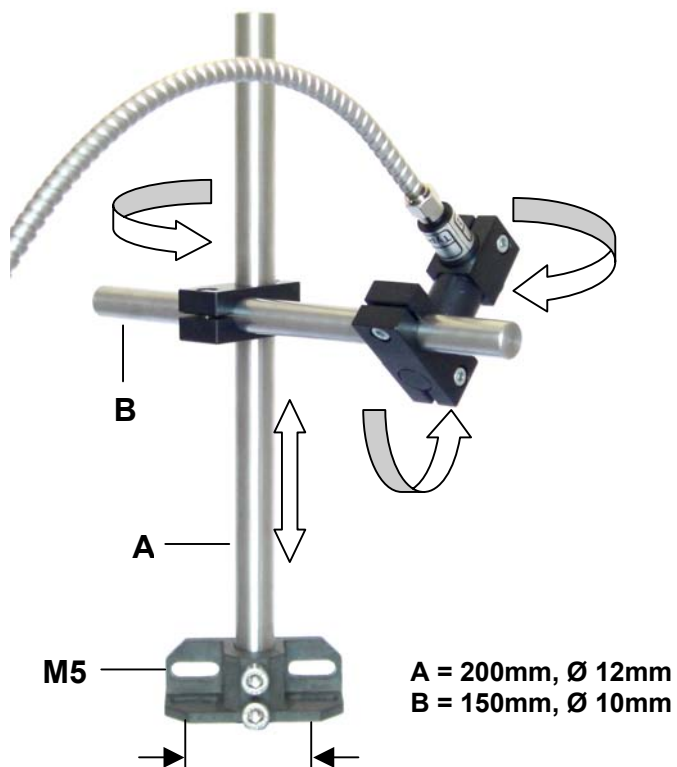
female 8-pole PIN	color	function	15-pole male Sub-D PIN
1	white	\perp 24VDC / \perp - output 0-20mA / 4-20mA ** storage reset or aiming device (button), limit value	connection to PIN 13 4
2	brown	+ 24 VDC	1
3	green	+ output 0-20mA	8
4	yellow	external controlling input selective for storage reset or aiming device (button)	12
5	grey	limit value (open collector) resp. min. intensity	2
6	pink	RS 232 TXD (from PC 9-pole SUB-D PIN 2)	9
7	blue	RS 232 RXD (from PC 9-pole SUB-D PIN 3)	10
8	red	RS 232 GND (from PC 9-pole SUB-D PIN 5)	11
housing	black (screen)	PE (earth)	15
			connection to PIN 4 13
		** \perp central ground	

mounting stud standard for KTRD 4400-series objective M12



Art.Nr. 118-2004

mounting stud universal for KTRD 4400-series objective M12



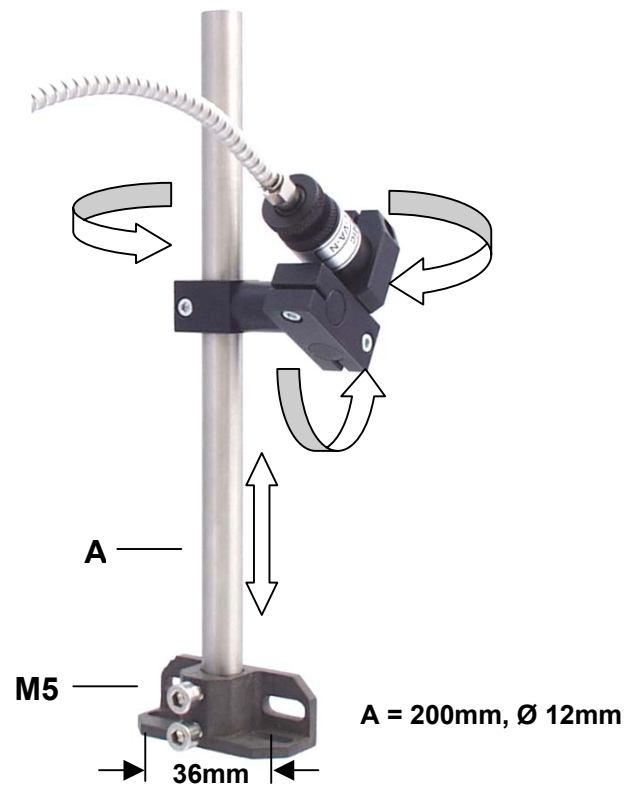
Art.Nr. 118-2006

36mm

Dr.Georg Maurer GmbH – OPTOELEKTRONIK –

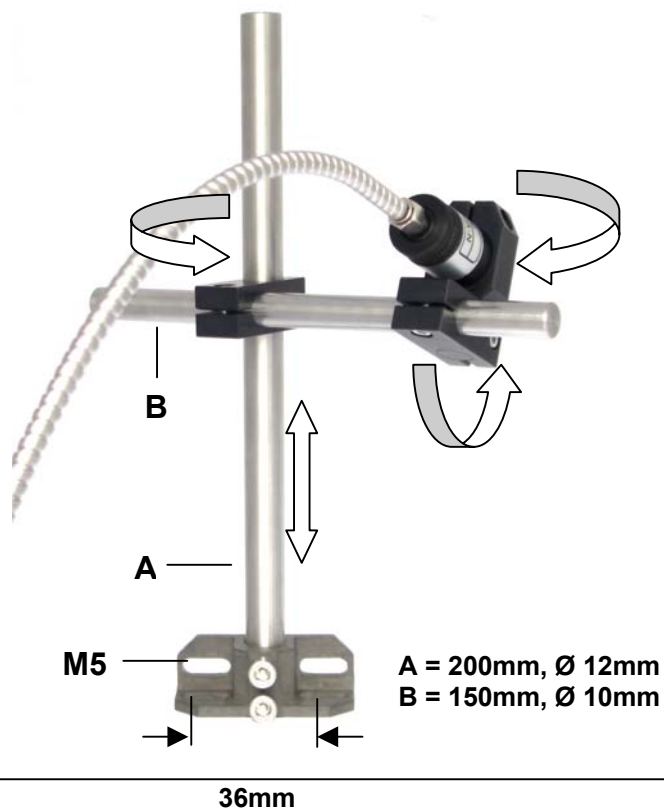


mounting stud standard for KTRD 4400-series objective Ø 18mm

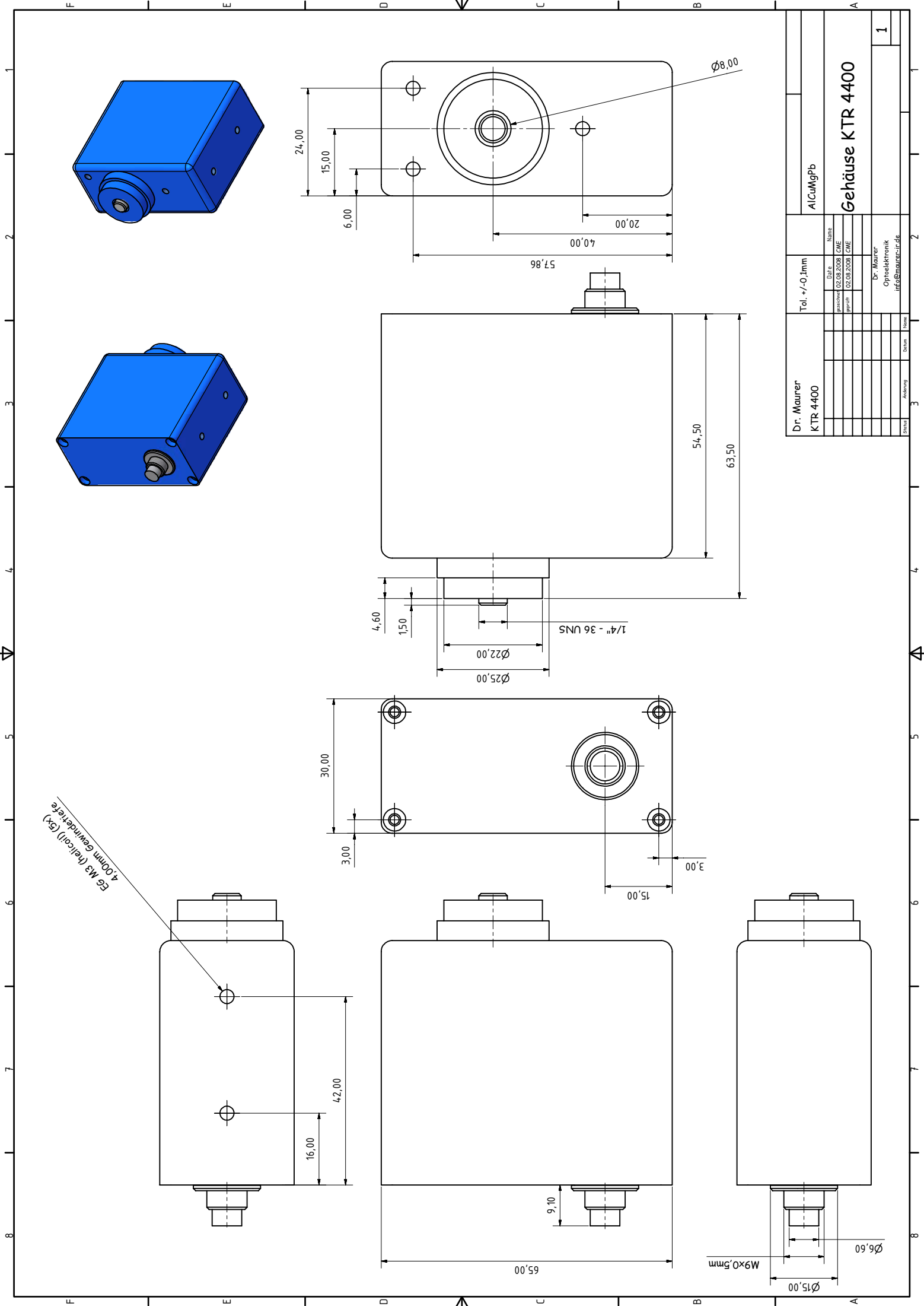


Art Nr. 118-2003

mounting stud universal for KTRD 4400-series objective Ø 18mm



Art Nr. 118-2005



AlCuWgPb		Tol. +/-0.1mm		Dr. Maurer KTR 4400	
Name		Date		Name	
CNE		02.08.2008		CNE	
CNE		02.08.2008		CNE	
Dr. Maurer		Optoelektronik		info@maurer-ir.de	
1		2		3	
Status		Änderung		Datum	

Gehäuse KTR 4400

Non-Contact Temperature Measurement

MAURER – INFRARED – QUOTIENT THERMOMETER

Temperature range 300 to 1200°C (572 - 2192°F)

**Temperature control during production process
compact units – Infrared – measuring transducer and electronic process
unit in one case with light beam aiming device
or viewfinder**

Series QKTR 1075



MAURER – Infrared – radiation thermometer can also assist you to monitor your heating processes, ensuring a uniform standard of quality for your products.

Infrared-Quotient-Thermometer Series QKTR 1075

Quotient thermometer afford on the basis of it's measuring principle contrary to part radiation thermometer a few substantial advantages. They show also still under critical conditions the true temperature, par ex. by absorption of smoke within the measuring path, mist of viewing glasses at ovens, by small parts which don't illuminate the measuring field. For exact adjustment to the measuring point a **light beam aiming device** is available for short measuring distances - for longer measuring distances **an optical viewfinder**.

Examples for application:

steel, iron, non-ferrous metal, tempering, hardening, induction heating, laser, forging, vacuum furnace, pre-heating, rolling

unit types	target marking
QKTR 1075-1	light beam aiming device
QKTR 1075-2	optical viewfinder

Temperature-measuring range-linear

No.	Measuring range
1	300 - 900°C (572 - 1652°F)
2	350 - 1000°C (662 - 1832°F)
3	400 - 1100°C (752 - 2012°F)
4	500 - 1200°C (932 - 2192°F)

(special measuring range on request)

Technical data:

Measuring range	300 - 1200°C (572 - 2192°F)
Spectral range	1,4 - 1,75 µm
	1,6 - 1,75 µm
Response time	20 - 200 msec. adjustable
Accuracy	1 % ± 1°C
Reproducibility	3 ‰
Emission ratio	0,8 - 1,2 adjustable
Emission factor	0,1 - 1,0
Working temperature	0°C - 50°C (32 - 122°F)
Stock temperature	0°C - 60°C (32 - 140°F)
Temperature sensitivity	0,05 % / °C
Humidity tolerance	35 - 85 % RF
Output actual value	0 - 20 mA
- alternative -	4 - 20 mA
Min. Intensity - optical coupler	24 V / 10 mA
Operating voltage	24 V DC ± 10 %
Current input	300 mA
Unit connection	12 pole socket
Dimensions H / W / D	54 x 54 x 147mm (2,13x2,13x5,70 inch)
Weight	0,7 kg (1,54 lbs)
Protection grade	IP 65

Objectives:

For accommodation to the measuring application are several objectives available.

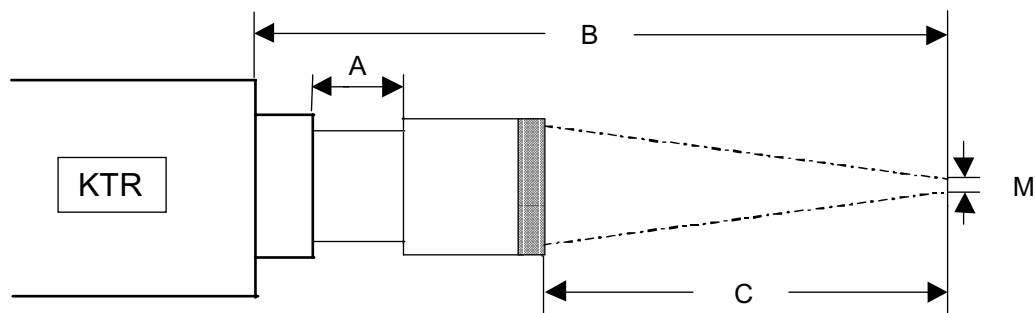
Options: - built-in digital display

scanner	electronic process unit	electrical assembly	mechanical assembly
SC 1010	AE 1010	- digital display	- units with cooling case
SC 1012	AE 1012	- 2 contact outputs	- blowing device
		- interface RS 232 o.s.	- mirror 90°
		- power supply 230V/AC - 24 V/DC	- mounting parts

Dr. Georg Maurer GmbH – OPTOELEKTRONIK –



Optic tables for KTR 1075+1085 and QKTR 1075+1085



Optic-type : L 1060-T			
Achromat : f 60 22,4 Ø			
Meas. aperture : 0,5 mm Ø			
Meas. distance from casing of meas. head B / mm	Meas. distance from optic front edge C / mm	Optic extension A / mm	Target size M / mm=d
375	319	13	2,7
400	345,4	11,6	2,9
500	447,6	9,4	3,5
600	549,8	7,2	4,2
700	651,4	5,6	5,0
800	752,4	4,6	6,0
900	853	4,0	7,0
1000	953,5	3,5	7,2
2000	1955,6	1,4	15
3000	2956,3	0,7	24
4000	3956,5	0,5	31

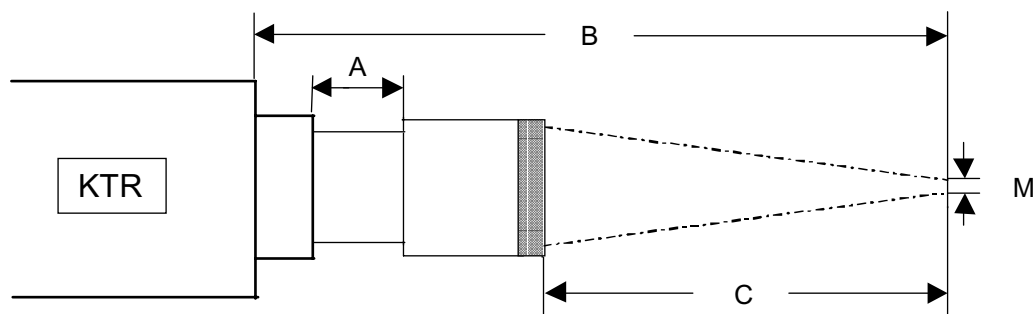
Optic-type : A 1080			
Achromat : f 80 31,5 Ø			
Meas. aperture : 0,5 mm Ø			
Meas. distance from casing of meas. head B / mm	Meas. distance from optic front edge C / mm	Optic extension A / mm	Target size M / mm=d
620	557,5	13	3,5
700	639,9	10,6	4,0
800	741,4	9,1	4,5
900	842,5	8,0	5,0
1000	943,4	7,1	6,0
1100	1044,3	6,2	6,5
1200	1144,9	5,6	7,0
1300	1245,4	5,1	7,5
1400	1345,8	4,7	8,0
1500	1446,2	4,3	8,5
1600	1546,5	4,0	9,2
1700	1646,9	3,6	10,0
1800	1747,2	3,3	10,8
1900	1847,4	3,1	11,5
2000	1947,5	3,0	12,1
3000	2948,5	2,0	18,0
4000	3949,2	1,3	24,0

Target=98 % of beam density of the surface

Dr. Georg Maurer GmbH – OPTOELEKTRONIK –



Optic tables for KTR 1075+1085 and QKTR 1075+1085



Optic-type : L 1050-N1			
Lens : f 50 22,4 Ø			
Meas. aperture : 0,5 mm Ø			
Meas. distance from casing of meas. head B / mm	Meas. distance from optic front edge C / mm	Optic extension A / mm	Target size M / mm=d
180	124	13	1,5
190	137	10	1,6
200	149,5	7,5	1,7
210	162	5,0	1,8
220	173,5	3,5	1,9
230	185	2,0	2,0
240	196	1,0	2,1
250	207	0	2,2

Optic-type : L 1060-N1			
Achromat : f 60 22,4 Ø			
Meas. aperture : 0,5 mm Ø			
Meas. distance from casing of meas. head B / mm	Meas. distance from optic front edge C / mm	Optic extension A / mm	Target size M / mm=d
285	229	13	1,5
300	245,4	11,6	1,6
350	299,9	7,1	1,9
400	352,3	4,7	2,3
450	404,1	2,9	2,7
500	455,5	1,5	3,2
550	507	0	3,8

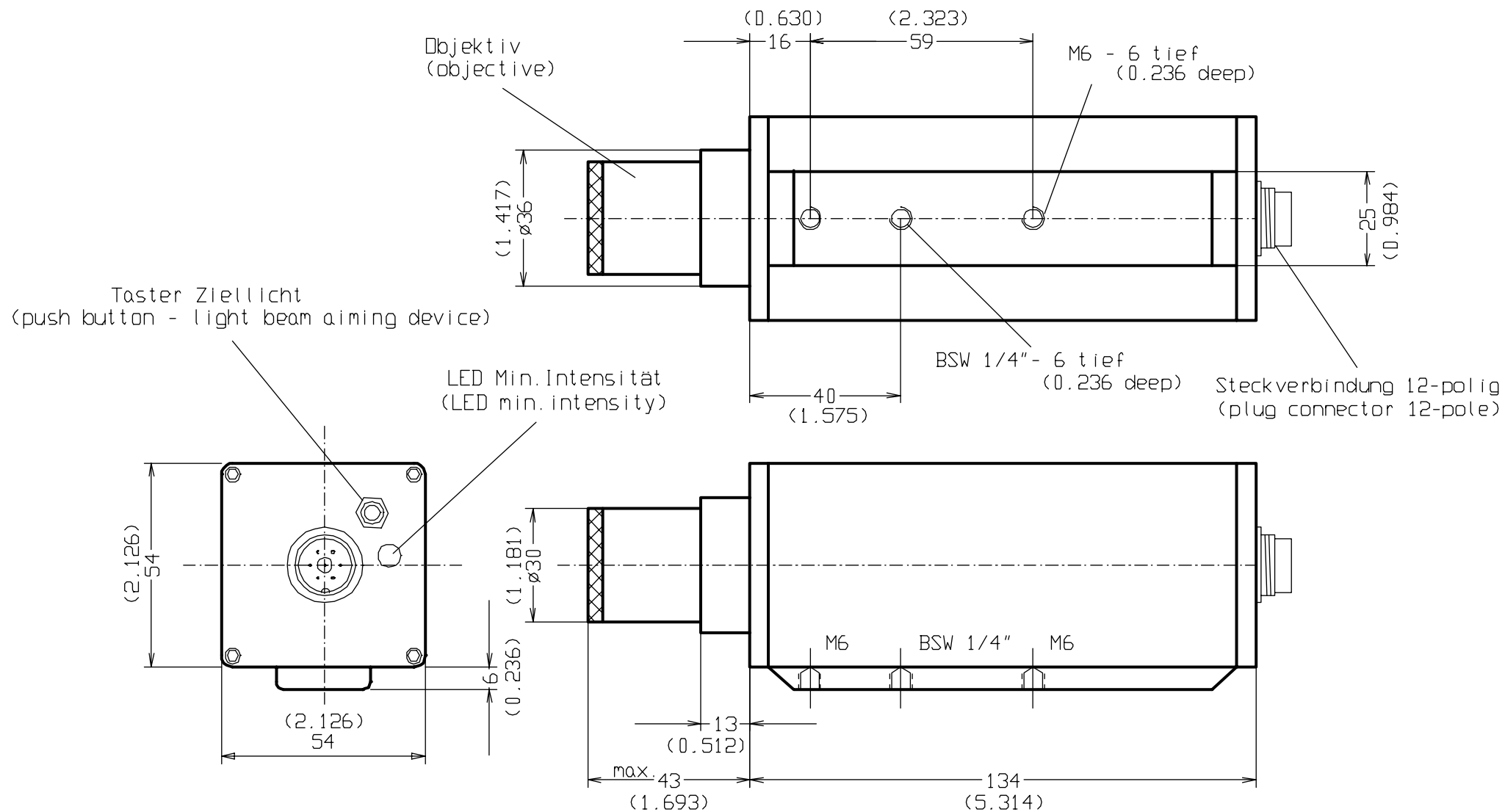
Optic-type : L 1050-N2			
Lens : f 50 22,4 Ø			
Meas. aperture : 0,5 mm Ø			
Meas. distance from casing of meas. head B / mm	Meas. distance from optic front edge C / mm	Optic extension A / mm	Target size M / mm=d
210	154,0	13,0	1,3
220	166,1	10,9	1,4
240	188,6	8,4	1,6
260	210,9	6,1	1,8
280	232,6	4,4	2,1
300	253,9	3,1	2,3
320	274,9	2,1	2,5
340	295,5	1,5	2,7
360	316,0	1,0	2,9
380	336,5	0,5	3,1
400	357,0	0,0	3,3

Optic-type : L 1060-N2			
Achromat : f 60 22,4 Ø			
Meas. aperture : 0,5 mm Ø			
Meas. distance from casing of meas. head B / mm	Meas. distance from optic front edge C / mm	Optic extension A / mm	Target size M / mm=d
350	294	13	2,0
400	346,7	10,3	2,4
450	398,9	8,1	2,8
500	450,1	6,9	3,2
550	501,1	5,9	3,7
600	522	5,0	4,2
650	603	4,0	4,7
700	653,9	3,1	5,2
750	704,4	2,6	5,6
800	754,9	2,1	6,1
1000	956,2	0,8	9,2

Target=98 % of beam density of the surface

Dr. Georg Maurer GmbH – OPTOELEKTRONIK –





(xxx) - Maße in Zoll
(dimensions inch)

			Maßstab 1:1	
			Fa.Dr. Maurer GmbH	
			Datum	Name
			Bearb 03.11.99	Schlotterb.
			Gepr	
			Norm	
			991103	
			STANDARDGEHÄUSE (standard case) QKTR 1000-1 Ziellicht (light beam aiming device)	
			Blatt 1	
			Bl.	
Zust	Änderung	Datum	Name	

Non-Contact Temperature Measurement

MAURER – INFRARED – QUOTIENT THERMOMETER

Temperature range 600 to 3300°C (1112 - 5972°F)

Temperature control during production process
compact units – Infrared – measuring transducer and electronic process
unit in one case with light beam aiming device
or viewfinder

Series QKTR 1085



MAURER – Infrared – radiation thermometer can also assist you to monitor your heating processes, ensuring a uniform standard of quality for your products.

Infrared-Quotient-Thermometer Series QKTR 1085

Quotient thermometer afford on the basis of it's measuring principle contrary to part radiation thermometer a few substantial advantages. They show also still under critical conditions the true temperature, par ex. by absorption of smoke within the measuring path, mist of viewing glasses at ovens, by small parts which don't illuminate the measuring field. For exact adjustment to the measuring point a **light beam aiming device** is available for short measuring distances - for longer measuring distances **an optical viewfinder**.

Examples for application:

steel, iron, non-ferrous metal, coating, wires, molding, hardening, induction heating, soldering, metal melt, forging, welding, transforming, vacuum furnace, rolling

unit types	target marking
QKTR 1085-1	light beam aiming device
QKTR 1085-2	optical viewfinder

Temperature-measuring range

- linear - :

No.	Measuring range
1	600 - 1600°C (1112 - 2912°F)
2	700 - 1700°C (1292 - 3092°F)
3	800 - 1800°C (1472 - 3272°F)
4	900 - 2000°C (1652 - 3632°F)
5	1000 - 2500°C (1832 - 4532°F)
6	1000 - 3000°C (1832 - 5432°F)
7	1000 - 3300°C (1832 - 5972°F)

(special measuring range on request)

Technical data:

Measuring range	600 - 3300°C (1112 - 5972°F)
Spectral range	0,85 - 1,1 µm
	0,95 - 1,1 µm
Response time	20 - 200 msec. adjustable
Accuracy	1 % ± 1°C
Reproducibility	3 ‰
Emission ratio	0,8 - 1,2 adjustable
Emission factor	0,1 - 1,0
Working temperature	0°C - 50°C (32 - 122°F)
Stock temperature	0°C - 60°C (32 - 140°F)
Temperature sensitivity	0,05 % / °C
Humidity tolerance	35 - 85 % RF
Output actual value	0 - 20 mA
- alternative -	4 - 20 mA
Min. Intensity - optical coupler	24 V / 10 mA
Operating voltage	24 V DC ± 10 %
Current input	300 mA
Unit connection	12 pole socket
Dimensions H / W / D	54 x 54 x 147mm (2,13x2,13x5,70 inch)
Weight	0,7 kg (1,54 lbs)
Protection grade	IP 65

Objectives:

For accommodation to the measuring application are several objectives available.

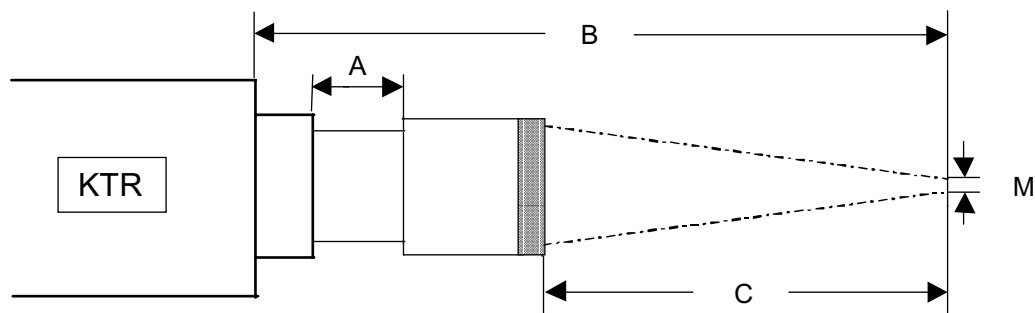
Options: - built-in digital display

scanner	electronic process unit	electrical assembly	mechanical assembly
SC 1010	AE 1010	- digital display	- units with cooling case
SC 1012	AE 1012	- 2 contact outputs	- blowing device
		- interface RS 232 o.s.	- mirror 90°
		- power supply 230V/AC - 24 V/DC	- mounting parts

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Optic tables for KTR 1075+1085 and QKTR 1075+1085



Optic-type : L 1060-T			
Achromat : f 60 22,4 Ø			
Meas. aperture : 0,5 mm Ø			
Meas. distance from casing of meas. head B / mm	Meas. distance from optic front edge C / mm	Optic extension A / mm	Target size M / mm=d
375	319	13	2,7
400	345,4	11,6	2,9
500	447,6	9,4	3,5
600	549,8	7,2	4,2
700	651,4	5,6	5,0
800	752,4	4,6	6,0
900	853	4,0	7,0
1000	953,5	3,5	7,2
2000	1955,6	1,4	15
3000	2956,3	0,7	24
4000	3956,5	0,5	31

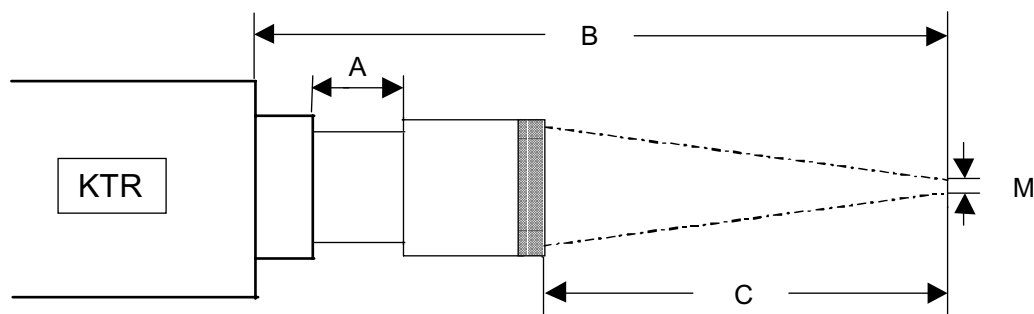
Optic-type : A 1080			
Achromat : f 80 31,5 Ø			
Meas. aperture : 0,5 mm Ø			
Meas. distance from casing of meas. head B / mm	Meas. distance from optic front edge C / mm	Optic extension A / mm	Target size M / mm=d
620	557,5	13	3,5
700	639,9	10,6	4,0
800	741,4	9,1	4,5
900	842,5	8,0	5,0
1000	943,4	7,1	6,0
1100	1044,3	6,2	6,5
1200	1144,9	5,6	7,0
1300	1245,4	5,1	7,5
1400	1345,8	4,7	8,0
1500	1446,2	4,3	8,5
1600	1546,5	4,0	9,2
1700	1646,9	3,6	10,0
1800	1747,2	3,3	10,8
1900	1847,4	3,1	11,5
2000	1947,5	3,0	12,1
3000	2948,5	2,0	18,0
4000	3949,2	1,3	24,0

Target=98 % of beam density of the surface

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Optic tables for KTR 1075+1085 and QKTR 1075+1085



Optic-type : L 1050-N1			
Lens : f 50 22,4 Ø			
Meas. aperture : 0,5 mm Ø			
Meas. distance from casing of meas. head B / mm	Meas. distance from optic front edge C / mm	Optic extension A / mm	Target size M / mm=d
180	124	13	1,5
190	137	10	1,6
200	149,5	7,5	1,7
210	162	5,0	1,8
220	173,5	3,5	1,9
230	185	2,0	2,0
240	196	1,0	2,1
250	207	0	2,2

Optic-type : L 1060-N1			
Achromat : f 60 22,4 Ø			
Meas. aperture : 0,5 mm Ø			
Meas. distance from casing of meas. head B / mm	Meas. distance from optic front edge C / mm	Optic extension A / mm	Target size M / mm=d
285	229	13	1,5
300	245,4	11,6	1,6
350	299,9	7,1	1,9
400	352,3	4,7	2,3
450	404,1	2,9	2,7
500	455,5	1,5	3,2
550	507	0	3,8

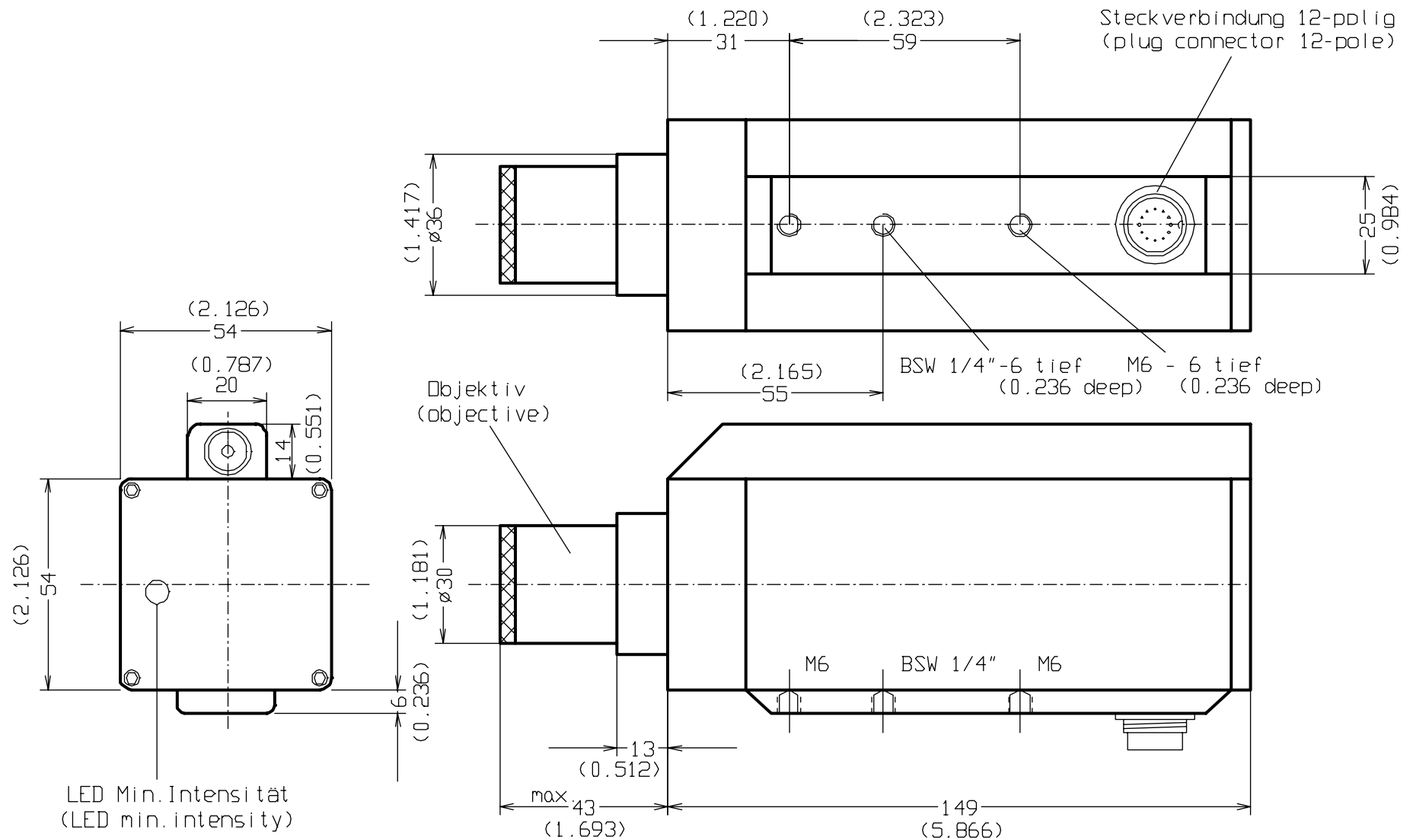
Optic-type : L 1050-N2			
Lens : f 50 22,4 Ø			
Meas. aperture : 0,5 mm Ø			
Meas. distance from casing of meas. head B / mm	Meas. distance from optic front edge C / mm	Optic extension A / mm	Target size M / mm=d
210	154,0	13,0	1,3
220	166,1	10,9	1,4
240	188,6	8,4	1,6
260	210,9	6,1	1,8
280	232,6	4,4	2,1
300	253,9	3,1	2,3
320	274,9	2,1	2,5
340	295,5	1,5	2,7
360	316,0	1,0	2,9
380	336,5	0,5	3,1
400	357,0	0,0	3,3

Optic-type : L 1060-N2			
Achromat : f 60 22,4 Ø			
Meas. aperture : 0,5 mm Ø			
Meas. distance from casing of meas. head B / mm	Meas. distance from optic front edge C / mm	Optic extension A / mm	Target size M / mm=d
350	294	13	2,0
400	346,7	10,3	2,4
450	398,9	8,1	2,8
500	450,1	6,9	3,2
550	501,1	5,9	3,7
600	522	5,0	4,2
650	603	4,0	4,7
700	653,9	3,1	5,2
750	704,4	2,6	5,6
800	754,9	2,1	6,1
1000	956,2	0,8	9,2

Target=98 % of beam density of the surface

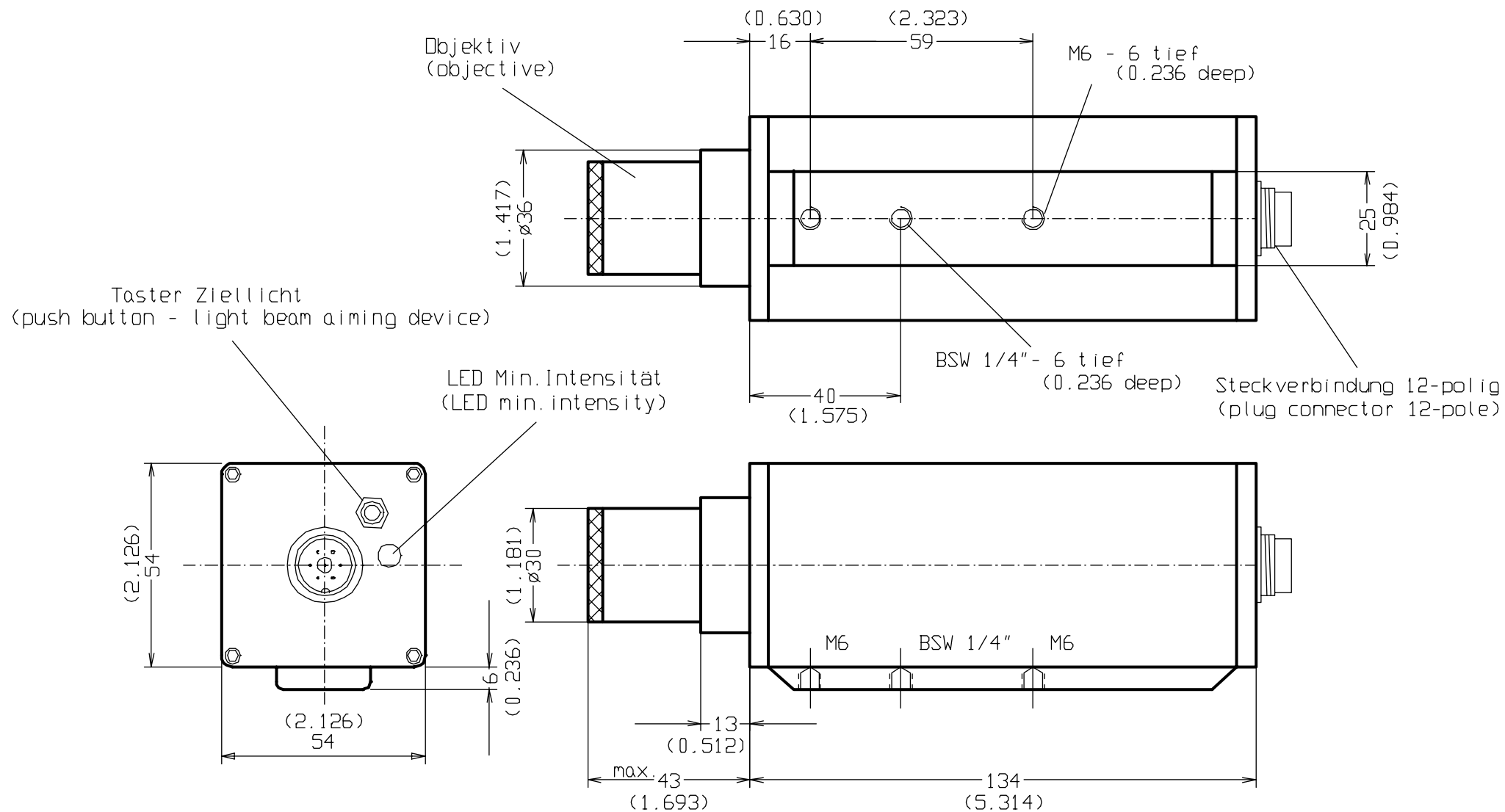
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(xxx) - Maße in Zoll
(dimensions inch)

				Maßstab 1:1	
				Fa. Dr. Maurer GmbH	
			Datum	Name	STANDARDGEHÄUSE (standard case)
			Bearb.	Schloßerb.	QKTR 1000-2
			Gepr.		Visiereinrichtung (view finder)
			Norm		
				970403	
				Blatt	
				Bl.	
Zust.	Änderung	Datum	Name		



(xxx) - Maße in Zoll
(dimensions inch)

				Maßstab 1:1	
				Fa.Dr. Maurer GmbH	
				Datum	Name
				Bearb 03.11.99	Schlotterb.
				Gepr	
				Norm	
				STANDARDGEHÄUSE (standard case)	
				QKTR 1000-1	
				Ziellicht (light beam aiming device)	
				991103	
				Blatt 1	
				Bl.	
Zust	Änderung	Datum	Name		

Non-Contact Temperature Measurement

MAURER – INFRARED – QUOTIENT THERMOMETER

Temperature range 300 to 1200°C (572 – 2192°F)

Temperature control during production process
compact units – Infrared – measuring transducer and electronic process
unit in one case with light beam aiming device

Series QKTR 1475



MAURER – Infrared – radiation thermometer can also assist you to monitor your heating processes, ensuring a uniform standard of quality for your products.

Infrared-Quotient-Thermometer Series QKTR 1475

Quotient thermometer afford on the basis of it's measuring principle contrary to part radiation thermometer a few substantial advantages. They show also still under critical conditions the true temperature, par ex. by absorption of smoke within the measuring path, mist of viewing glasses at ovens, by small parts which don't illuminate the measuring field. For optimum adaptation to the respective measuring application the unit Type **QKTR 1475** with fibre optic cable and optic system is available. This unit type guarantees also in narrow proportion by volume or high ambient temperatures exact measuring results.

Examples for application:

steel, iron, non-ferrous metal, tempering, hardening, induction heating, laser, forging, vacuum-furnace, pre-heating, rolling

Temperature-measuring range

- linear:

No.	Measuring range
1	300 - 900°C (572 - 1652°F)
2	350 - 1000°C (662 - 1832°F)
3	400 - 1100°C (752 - 2012°F)
4	500 - 1200°C (932 - 2192°F)

(special measuring range on request)

Technical data:

Measuring range	300 - 1200°C (572 - 2192°F)
Spectral range	1,4 - 1,75 µm
	1,6 - 1,75 µm
Response time	20 - 200 msec. adjustable
Accuracy	1 % ± 1°C
Reproducibility	3 ‰
Emission ratio	0,8 - 1,2 adjustable
Emission factor	0,1 - 1,0
Working temperature	0°C - 50°C (32 - 122°F)
Stock temperature	0°C - 60°C (32 - 140°F)
Temperature sensitivity	0,05 % / °C
Humidity tolerance	35 - 85 % RF
Output actual value	0 - 20 mA
- alternative -	4 - 20 mA
Min. Intensity - optical coupler	24 V / 10 mA
Operating voltage	24 V DC ± 10 %
Current input	300 mA
Unit connection	12 pole socket
Dimensions H / W / D	54 x 54 x 147mm (2,13x2,13x5,70 inch)
Weight	0,7 kg (1,54 lbs)
Protection grade	IP 65

Fibre optic cable: Type GM-L49, length 1800 mm in metal hose/T-coated
ambient temperature max. 150°C, bend radius min. 40 mm

186-2005	Infrared fibre optic cable	Type GM-L49	1800 mm	Ø 1,1 mm fibre bundle
186-2010	Infrared fibre optic cable	Type GM-L49	1800 mm	Ø 2,0 mm fibre bundle
186-2036	Infrared fibre optic cable	Type GM-L49	1800 mm	0,5 x 2,7 mm fibre bundle

(other length and fibre bundles on request)

Objectives:

For accommodation to the measuring application are several objectives available.

Options: - built-in digital display

electronic process unit

AE 1010
AE 1012
AE 1410
AE 1412

electrical assembly

- digital display
- 2 contact outputs
- interface RS 232 o.s.
- power supply 230V/AC - 24 V/DC

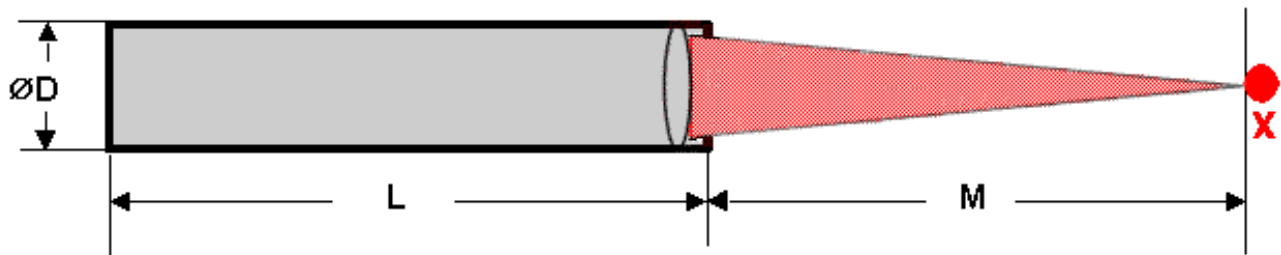
mechanical assembly

- units with cooling case
- blowing device
- mirror 90°
- mounting parts

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Objectives for units with fibre optic cable 1475/1485



Fibre bundle $\varnothing 1,1 \text{ mm}$ / $\varnothing 2,0 \text{ mm}$ / $0,5 \times 2,7 \text{ mm}$

For determination of the respective target size X the fibre optic bundle must be multiplied by the magnification factor of the optic system.

Article-No.:	Optic-type:	\varnothing D mm	Meas. distance M mm	zoom factor V	length L mm
116-1206	VL 20 M	11	20	1,0	49,5
116-1068	VL 40 M	11	40	1,0	67,0
116-1207	VL 60	11	60	1,5	62,5
116-1208	VL 50 M	18	50	0,6	127,0
116-1028	VL 100 M	18	100	1,0	127,0
116-1029	VL 160	18	160	1,6	157,0
116-1209	VL 200	18	200	2,0	144,0
116-1050	VL 250	18	250	2,5	132,5
116-1210	VL 300	18	300	3,3	125,5
116-1211	VL 400	18	400	4,5	119,0
116-1071	VL 500	18	500	4,0	152,0
116-1212	VL 600	18	600	6,0	146,5
116-1213	VL 1000	18	1000	9,5	138,0
116-1214	VL 1500	18	1500	13,6	135,0
116-1215	VL 100 M	25	100	1,0	127,5
116-1216	VL 160	25	160	1,5	123,0
116-1217	VL 200	25	200	2,0	226,0
116-1218	VL 250	25	250	2,5	147,0

(special objectives on request)

Non-Contact Temperature Measurement

MAURER – INFRARED – QUOTIENT THERMOMETER

Temperature range 600 to 3300°C (1112 - 5972°F)

Temperature control during production process
compact units – Infrared – measuring transducer and electronic process
unit in one case with light beam aiming device

Series QKTR 1485



MAURER – Infrared – radiation thermometer can also assist you to monitor your heating processes, ensuring a uniform standard of quality for your products.

Infrared-Quotient-Thermometer Series QKTR 1485

Quotient thermometer afford on the basis of it's measuring principle contrary to part radiation thermometer a few substantial advantages. They show also still under critical conditions the true temperature, par ex. by absorption of smoke within the measuring path, mist of viewing glasses at ovens, by small parts which don't illuminate the measuring field. For optimum adaptation to the respective measuring application the unit Type **QKTR 1485** with fibre optic cable and optic system is available. This unit type guarantees also in narrow proportion by volume or high ambient temperatures exact measuring results.

Examples for application:

steel, iron, non-ferrous metal, coating, wires, molding, hardening, induction heating, soldering, metal melt, forging, welding, transforming, vacuum-furnace, rolling

Temperature-measuring range

- linear:

No.	Measuring range
1	600 - 1600°C (1112 - 2912°F)
2	700 - 1700°C (1292 - 3092°F)
3	800 - 1800°C (1472 - 3272°F)
4	900 - 2000°C (1652 - 3632°F)
5	1000 - 2500°C (1832 - 4532°F)
6	1000 - 3000°C (1832 - 5432°F)
7	1000 - 3300°C (1832 - 5972°F)

(special measuring range on request)

Technical data:

Measuring range	600 - 3300°C (1112 - 5972°F)
Spectral range	0,85 - 1,1 µm
	0,95 - 1,1 µm
Response time	20 - 200 msec. adjustable
Accuracy	1 % ± 1°C
Reproducibility	3 ‰
Emission ratio	0,8 - 1,2 adjustable
Emission factor	0,1 - 1,0
Working temperature	0°C - 50°C (32 - 122°F)
Stock temperature	0°C - 60°C (32 - 140°F)
Temperature sensitivity	0,05 % / °C
Humidity tolerance	35 - 85 % RF
Output actual value	0 - 20 mA
- alternative -	4 - 20 mA
Min. Intensity - optical coupler	24 V / 10 mA
Operating voltage	24 V DC ± 10 %
Current input	300 mA
Unit connection	12 pole socket
Dimensions H / W / D	54 x 54 x 147mm (2,13x2,13x5,70 inch)
Weight	0,7 kg (1,54 lbs)
Protection grade	IP 65

Fibre optic cable: Type GM-L48, length 1800 mm in metal hose/T-coated
ambient temperature max. 150°C, bend radius min. 40 mm

186-1005	Fibre optic cable	Type GM-L48	1800 mm	Ø 1,1 mm fibre bundle
186-1010	Fibre optic cable	Type GM-L48	1800 mm	Ø 2,0 mm fibre bundle
186-1030	Fibre optic cable	Type GM-L48	1800 mm	0,5 x 2,7 mm fibre bundle

(other length and fibre bundles on request)

Objectives:

For accommodation to the measuring application are several objectives available.

Options: - built-in digital display

electronic process unit

AE 1010

AE 1012

AE 1410

AE 1412

electrical assembly

- digital display

- 2 contact outputs

- interface RS 232 o.s.

- power supply 230V/AC - 24 V/DC

mechanical assembly

- units with cooling case

- blowing device

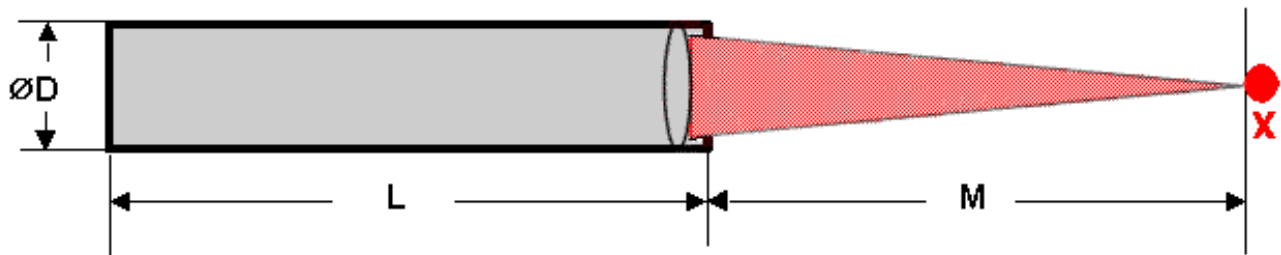
- mirror 90°

- mounting parts

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Objectives for units with fibre optic cable 1475/1485



Fibre bundle $\varnothing 1,1 \text{ mm}$ / $\varnothing 2,0 \text{ mm}$ / $0,5 \times 2,7 \text{ mm}$

For determination of the respective target size X the fibre optic bundle must be multiplied by the magnification factor of the optic system.

Article-No.:	Optic-type:	\varnothing D mm	Meas. distance M mm	zoom factor V	length L mm
116-1206	VL 20 M	11	20	1,0	49,5
116-1068	VL 40 M	11	40	1,0	67,0
116-1207	VL 60	11	60	1,5	62,5
116-1208	VL 50 M	18	50	0,6	127,0
116-1028	VL 100 M	18	100	1,0	127,0
116-1029	VL 160	18	160	1,6	157,0
116-1209	VL 200	18	200	2,0	144,0
116-1050	VL 250	18	250	2,5	132,5
116-1210	VL 300	18	300	3,3	125,5
116-1211	VL 400	18	400	4,5	119,0
116-1071	VL 500	18	500	4,0	152,0
116-1212	VL 600	18	600	6,0	146,5
116-1213	VL 1000	18	1000	9,5	138,0
116-1214	VL 1500	18	1500	13,6	135,0
116-1215	VL 100 M	25	100	1,0	127,5
116-1216	VL 160	25	160	1,5	123,0
116-1217	VL 200	25	200	2,0	226,0
116-1218	VL 250	25	250	2,5	147,0

(special objectives on request)

Non-Contact Temperature Measurement

DIGITAL – INFRARED – 2 – COLOR – PYROMETER

Temperature range 300 to 1700°C (572 - 3092°F)

Temperature control during production process

**compact units – Infrared – measuring transducer and electronic process unit in one case with light beam aiming device or optical viewfinder, focusable optic, serial interface
2- and 1- color temperature**

Series QKTRD 1075



MAURER – Infrared – pyrometer can also assist you to monitor your heating processes, ensuring a uniform standard of quality for your products.

Infrared-Digital-Pyrometer Series QKTRD 1075

Mainly for **fast warming processes** the **contactless temperature measurement** is suitable.

The **series QKTRD 1075** are **digital-2-color-pyrometer** with vario-objective in compact structure likewise suitable for industry, research and laboratory.

2-color-pyrometer afford on the basis of it's measuring principle contrary to part radiation pyrometer a few substantial advantages. They show also still under critical conditions the true temperature, i.e. by absorption of smoke within the measuring path, mist of viewing glasses at ovens, by small parts which don't illuminate the measuring field.

With the integrated light beam aiming device (green LED or Laser) resp. viewfinder an adjusting of the pyrometer to the measuring object is very easy.

The temperature linear analog output signal 0/4 up to 20 mA is available for measuring- and controlling purposes.

The simultaneous using of the serial interface with the software IR-LOG enables the data detection, graphical representation and the parameter settings of the pyrometer.

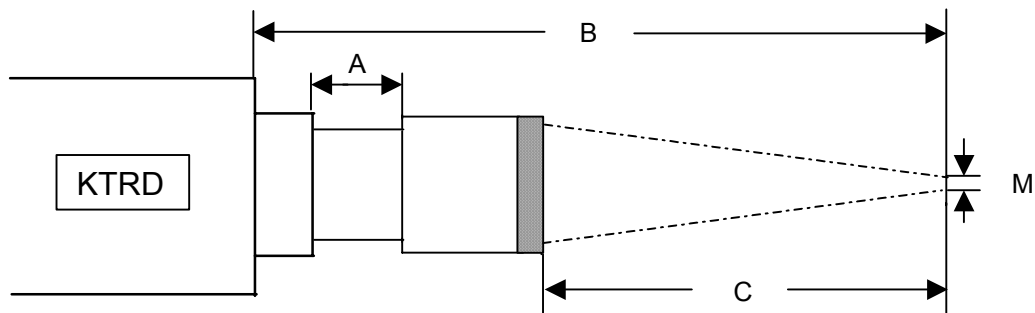
Examples for applications:

steel, iron, non-ferrous metal, tempering, hardening, induction heating, laser, forging, transforming, vacuum furnace, pre-heating, rolling

Technical datas:	
Unit types	QKTRD 1075-1
Target marking	light beam aiming device green LED or laser
Temp. measuring ranges:	viewfinder
	MR1: 300-1000°C 572-1832°F
	MR2: 350-1300°C 662-2372°F
	MR3: 400-1400°C 752-2552°F
	MR4: 500-1700°C 932-3092°F
Response time (t90)	<1 ms with dynamical adaption
Spectral range	1,4 - 1,75 µm und 1,6 - 1,75µm
Measuring uncertainty	0,5% of meas.value in °C ± 1°C (ε = 1, T _{amb.} = 23°C, T ₉₅ = 1s)
Reproducibility	0,1% of meas.value in °C ± 1°C (ε = 1, T _{amb.} = 23°C, T ₉₅ = 1s)
Emission ratio	0,8 – 1,2 adjustable at the unit or through interface
Emission factor ε	100 - 10 % through interface
Analog output	0 - 20 mA or 4 - 20 mA , load max. 500R
Part measuring ranges:	free adjustable within the measuring range
Resolution	< 0,1% analog output, < 0,1°C at interface
1 limit output (open coll.) "min. intensity"	24 V DC / max. 100 mA
Max.reading memory	max.memory, erasing after time, external contact, by software, double memory
Interface	RS 232 isolated ± 50 V or RS 485 isolated 2500VRMS options: PROFIBUS, PROFINET, Ethernet, EtherCAT, USB 2.0
Software IR-LOG	data recording, graph.representation, setting of pyrometer parameters
adjustable parameter with Software IR-LOG	emissionfactor,switching output,analog output, part meas.range, °C/°F, max.memory, average value, light beam aiming device switchable
Objectives	for accommodation to the measuring application an extensive selection of objectives are available
Working temperature	pyrometer 0 - 50°C (32-122°F), optic system up to 150°C(302°F)
Stock temperature	- 10°C - + 70°C (14-158°F)
Temperature sensitivity	0,05 % / °C
Humidity tolerance	35 - 85 % RF (non condensing)
Operating voltage	24 V DC ± 10 % or 18 V AC ± 10 % < 160 mA
Unit connection	12-pole plug-connector
Dimensions: H / W / D	54 x 54 x 147 mm (2,13 x 2,13 x 5,79 inch) ALU-case
Weight	0,6 kg (1,32 lbs)
Protection grade	IP 65
Option	built in digital display

mechanical assembly	electrical assembly	
Execution in cooling case	AED 1012	electr.process unit
Blowing device	AED 1012-C	PID controller
Mirror 90°	AED 1012-PC	Program controller
Mounting parts	power supply 100-270VAC - 24 VDC	digital display (built in-execution)
		connection cable 12-pole
		line scanner SC 1000 / SC 1012
		PC-Box (USB – connection set)

Optic tables for KTRD 1065+1075+1085 and QKTRD 1075+1085



Optic-type : L 1050-N1			
Lens : f 50 22,4 Ø			
Meas. aperture : 0,5 mm Ø			
Meas. distance from casing of meas. head B / mm	Meas. distance from optic front edge C / mm	Optic extension A / mm	Target size M / mm=d
180	124	13	1,5
190	137	10	1,6
200	149,5	7,5	1,7
210	162	5,0	1,8
220	173,5	3,5	1,9
230	185	2,0	2,0
240	196	1,0	2,1
250	207	0	2,2

Optic-type : L 1060-N1			
Achromat : f 60 22,4 Ø			
Meas. aperture : 0,5 mm Ø			
Meas. distance from casing of meas. head B / mm	Meas. distance from optic front edge C / mm	Optic extension A / mm	Target size M / mm=d
285	229	13	1,5
300	245,4	11,6	1,6
350	299,9	7,1	1,9
400	352,3	4,7	2,3
450	404,1	2,9	2,7
500	455,5	1,5	3,2
550	507	0	3,8

Optic-type : L 1050-N2			
Lens : f 50 22,4 Ø			
Meas. aperture : 0,5 mm Ø			
Meas. distance from casing of meas. head B / mm	Meas. distance from optic front edge C / mm	Optic extension A / mm	Target size M / mm=d
210	154,0	13,0	1,3
220	166,1	10,9	1,4
240	188,6	8,4	1,6
260	210,9	6,1	1,8
280	232,6	4,4	2,1
300	253,9	3,1	2,3
320	274,9	2,1	2,5
340	295,5	1,5	2,7
360	316,0	1,0	2,9
380	336,5	0,5	3,1
400	357,0	0,0	3,3

Optic-type : L 1060-N2			
Achromat : f 60 22,4 Ø			
Meas. aperture : 0,5 mm Ø			
Meas. distance from casing of meas. head B / mm	Meas. distance from optic front edge C / mm	Optic extension A / mm	Target size M / mm=d
350	294	13	2,0
400	346,7	10,3	2,4
450	398,9	8,1	2,8
500	450,1	6,9	3,2
550	501,1	5,9	3,7
600	522	5,0	4,2
650	603	4,0	4,7
700	653,9	3,1	5,2
750	704,4	2,6	5,6
800	754,9	2,1	6,1
1000	956,2	0,8	9,2

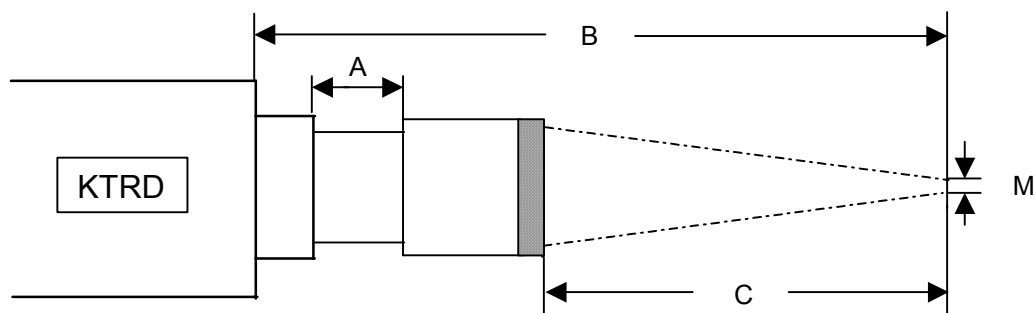
Target=98 % of beam density of the surface

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Reg.-Nr.: Q1 0201014

Optic tables for KTRD 1065+1075+1085 and QKTRD 1075+1085



Optic-type : L 1060-T			
Achromat : f 60 22,4 Ø			
Meas. aperture : 0,5 mm Ø			
Meas. distance from casing of meas. head B / mm	Meas. distance from optic front edge C / mm	Optic extension A / mm	Target size M / mm=d
335	279	13	2,6
400	345,8	11,2	2,5
500	448,5	8,5	3,2
600	550	7,0	4,0
700	651,4	5,6	4,8
800	753	4,0	5,9
900	853,9	3,1	7,2
1000	954,8	2,2	8,3
2000	1956	1,0	14,6
3000	2955,4	0,6	23,9
4000	3956,8	0,2	31,0

Optic-type : A 1080			
Achromat : f 80 31,5 Ø			
Meas. aperture : 0,5 mm Ø			
Meas. distance from casing of meas. head B / mm	Meas. distance from optic front edge C / mm	Optic extension A / mm	Target size M / mm=d
620	557,5	13	3,5
700	639,9	10,6	4,0
800	741,4	9,1	4,5
900	842,5	8,0	5,0
1000	943,4	7,1	6,0
1100	1044,3	6,2	6,5
1200	1144,9	5,6	7,0
1300	1245,4	5,1	7,5
1400	1345,8	4,7	8,0
1500	1446,2	4,3	8,5
1600	1546,5	4,0	9,2
1700	1646,9	3,6	10,0
1800	1747,2	3,3	10,8
1900	1847,4	3,1	11,5
2000	1947,5	3,0	12,1
3000	2948,5	2,0	18,0
4000	3949,2	1,3	24,0

Target=98 % of beam density of the surface

Dr. Georg Maurer GmbH – OPTOELEKTRONIK –



Non-Contact Temperature Measurement

DIGITAL – INFRARED – 2 – COLOR – PYROMETER

Temperature range 600 to 3300°C (1112 - 5972°F)

Temperature control during production process

**compact units – Infrared – measuring transducer and electronic process unit in one case with light beam aiming device or optical viewfinder, focusable optic, serial interface
2- and 1- color temperature**

Series QKTRD 1085



MAURER – Infrared – pyrometer can also assist you to monitor your heating processes, ensuring a uniform standard of quality for your products.

Infrared-Digital-Pyrometer Series QKTRD 1085

Mainly for **fast warming processes** the **contactless temperature measurement** is suitable.

The **series QKTRD 1085** are **digital-2-color-pyrometer** with vario-objective in compact structure likewise suitable for industry, research and laboratory.

2-color-pyrometer afford on the basis of it's measuring principle contrary to part radiation pyrometer a few substantial advantages. They show also still under critical conditions the true temperature, i.e. by absorption of smoke within the measuring path, mist of viewing glasses at ovens, by small parts which don't illuminate the measuring field.

With the integrated light beam aiming device (green LED or Laser) resp. viewfinder an adjusting of the pyrometer to the measuring object is very easy.

The temperature linear analog output signal 0/4 up to 20 mA is available for measuring- and controlling purposes.

The simultaneous using of the serial interface with the software IR-LOG enables the data detection, graphical representation and the parameter settings of the pyrometer.

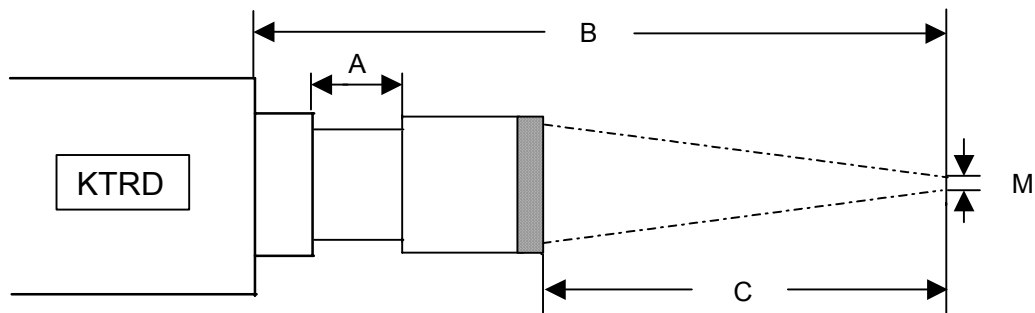
Examples for applications:

steel, iron, non-ferrous metal, coating, wires, molding, hardening, induction heating, soldering, metal melt, forging, welding, transforming, vacuum furnace, rolling

Technical datas:	
Unit types	QKTRD 1085-1
Target marking	light beam aiming device green LED or laser
Temp. measuring ranges:	viewfinder
	MR1: 600-1600°C 1112-2912°F
	MR2: 750-2500°C 1382-4532°F
	MR3: 900-3000°C 1652-5432°F
	MR4: 1000-3300°C 1832-5972°F
Response time (t90)	<1 ms with dynamical adaption
Spectral range	0,85 - 1,1 µm and 0,95 - 1,1µm
Measuring uncertainty	0,5% of meas.value in °C ± 1°C (ε = 1, Tamb. = 23°C, T ₉₅ = 1s)
Reproducibility	0,1% of meas.value in °C ± 1°C (ε = 1, Tamb. = 23°C, T ₉₅ = 1s)
Emission ratio	0,8 – 1,2 adjustable at the unit or through interface
Emission factor ε	100 - 10 % through interface
Analog output	0 - 20 mA or 4 - 20 mA , load max. 500R
Part measuring ranges:	free adjustable within the measuring range
Resolution	< 0,1% analog output, < 0,1°C at interface
1 limit output (open coll.) "min. intensity"	24 V DC / max. 100 mA
Max.reading memory	max.memory, erasing after time, external contact, by software, double memory
Interface	RS 232 isolated ± 50 V or RS 485 isolated 2500VRMS options: PROFIBUS, PROFINET, Ethernet, EtherCAT, USB 2.0
Software IR-LOG	data recording, graph.representation, setting of pyrometer parameters
adjustable parameter with Software IR-LOG	emissionfactor,switching output,analog output, part meas.range, °C/°F, max.memory, average value, light beam aiming device switchable
Objectives	for accommodation to the measuring application an extensive selection of objectives are available
Working temperature	pyrometer 0 - 50°C (32-122°F), optic system up to 150°C(302°F)
Stock temperature	- 10°C - + 70°C (14-158°F)
Temperature sensitivity	0,05 % / °C
Humidity tolerance	35 - 85 % RF (non condensing)
Operating voltage	24 V DC ± 10 % or 18 V AC ± 10 % < 160 mA
Unit connection	12-pole plug-connector
Dimensions: H / W / D	54 x 54 x 147 mm (2,13 x 2,13 x 5,79 inch) ALU-case
Weight	0,6 kg (1,32 lbs)
Protection grade	IP 65
Option	built in digital display

mechanical assembly	electrical assembly	
Execution in cooling case	AED 1012	electr.process unit
Blowing device	AED 1012-C	PID controller
Mirror 90°	AED 1012-PC	Program controller
Mounting parts	power supply 100-270VAC - 24 VDC	digital display (built in-execution)
		connection cable 12-pole
		line scanner SC 1000 / SC 1012
		PC-Box (USB – connection set)

Optic tables for KTRD 1065+1075+1085 and QKTRD 1075+1085



Optic-type : L 1050-N1			
Lens : f 50 22,4 Ø			
Meas. aperture : 0,5 mm Ø			
Meas. distance from casing of meas. head B / mm	Meas. distance from optic front edge C / mm	Optic extension A / mm	Target size M / mm=d
180	124	13	1,5
190	137	10	1,6
200	149,5	7,5	1,7
210	162	5,0	1,8
220	173,5	3,5	1,9
230	185	2,0	2,0
240	196	1,0	2,1
250	207	0	2,2

Optic-type : L 1060-N1			
Achromat : f 60 22,4 Ø			
Meas. aperture : 0,5 mm Ø			
Meas. distance from casing of meas. head B / mm	Meas. distance from optic front edge C / mm	Optic extension A / mm	Target size M / mm=d
285	229	13	1,5
300	245,4	11,6	1,6
350	299,9	7,1	1,9
400	352,3	4,7	2,3
450	404,1	2,9	2,7
500	455,5	1,5	3,2
550	507	0	3,8

Optic-type : L 1050-N2			
Lens : f 50 22,4 Ø			
Meas. aperture : 0,5 mm Ø			
Meas. distance from casing of meas. head B / mm	Meas. distance from optic front edge C / mm	Optic extension A / mm	Target size M / mm=d
210	154,0	13,0	1,3
220	166,1	10,9	1,4
240	188,6	8,4	1,6
260	210,9	6,1	1,8
280	232,6	4,4	2,1
300	253,9	3,1	2,3
320	274,9	2,1	2,5
340	295,5	1,5	2,7
360	316,0	1,0	2,9
380	336,5	0,5	3,1
400	357,0	0,0	3,3

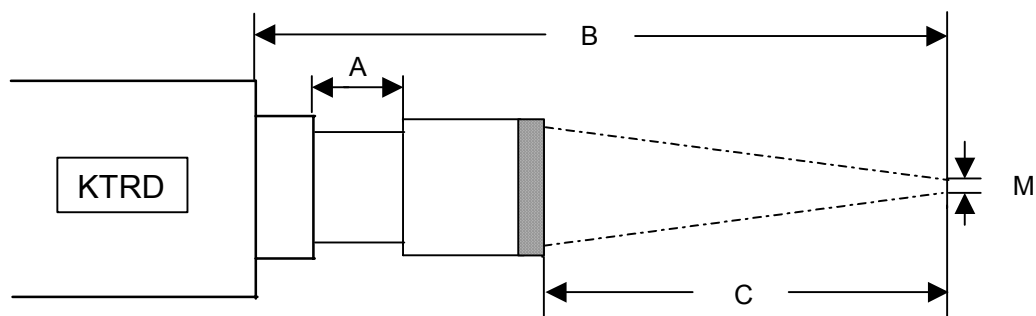
Optic-type : L 1060-N2			
Achromat : f 60 22,4 Ø			
Meas. aperture : 0,5 mm Ø			
Meas. distance from casing of meas. head B / mm	Meas. distance from optic front edge C / mm	Optic extension A / mm	Target size M / mm=d
350	294	13	2,0
400	346,7	10,3	2,4
450	398,9	8,1	2,8
500	450,1	6,9	3,2
550	501,1	5,9	3,7
600	522	5,0	4,2
650	603	4,0	4,7
700	653,9	3,1	5,2
750	704,4	2,6	5,6
800	754,9	2,1	6,1
1000	956,2	0,8	9,2

Target=98 % of beam density of the surface

Dr. Georg Maurer GmbH – OPTOELEKTRONIK –



Optic tables for KTRD 1065+1075+1085 and QKTRD 1075+1085



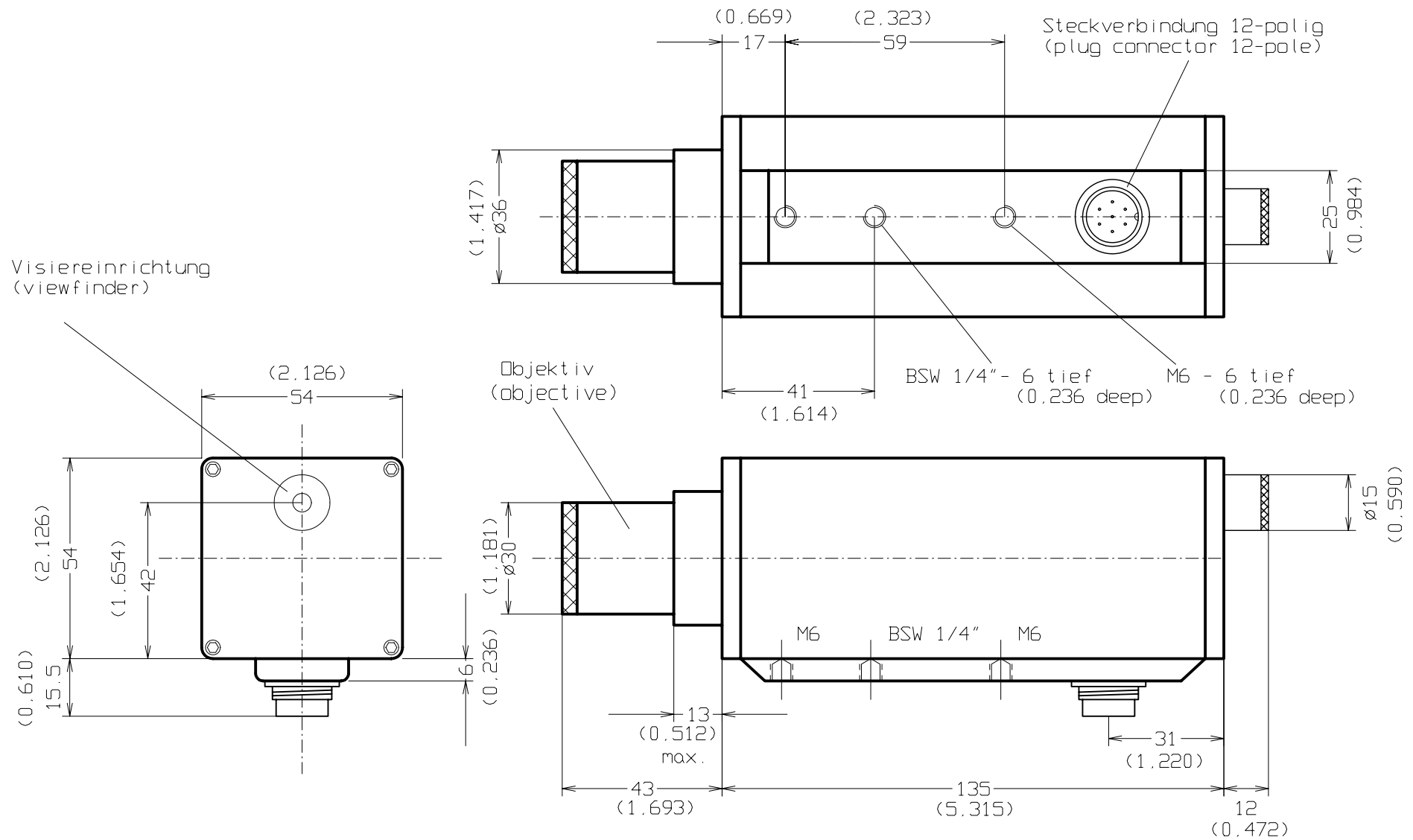
Optic-type : L 1060-T			
Achromat : f 60 22,4 Ø			
Meas. aperture : 0,5 mm Ø			
Meas. distance from casing of meas. head B / mm	Meas. distance from optic front edge C / mm	Optic extension A / mm	Target size M / mm=d
335	279	13	2,6
400	345,8	11,2	2,5
500	448,5	8,5	3,2
600	550	7,0	4,0
700	651,4	5,6	4,8
800	753	4,0	5,9
900	853,9	3,1	7,2
1000	954,8	2,2	8,3
2000	1956	1,0	14,6
3000	2955,4	0,6	23,9
4000	3956,8	0,2	31,0

Optic-type : A 1080			
Achromat : f 80 31,5 Ø			
Meas. aperture : 0,5 mm Ø			
Meas. distance from casing of meas. head B / mm	Meas. distance from optic front edge C / mm	Optic extension A / mm	Target size M / mm=d
620	557,5	13	3,5
700	639,9	10,6	4,0
800	741,4	9,1	4,5
900	842,5	8,0	5,0
1000	943,4	7,1	6,0
1100	1044,3	6,2	6,5
1200	1144,9	5,6	7,0
1300	1245,4	5,1	7,5
1400	1345,8	4,7	8,0
1500	1446,2	4,3	8,5
1600	1546,5	4,0	9,2
1700	1646,9	3,6	10,0
1800	1747,2	3,3	10,8
1900	1847,4	3,1	11,5
2000	1947,5	3,0	12,1
3000	2948,5	2,0	18,0
4000	3949,2	1,3	24,0

Target=98 % of beam density of the surface

Dr. Georg Maurer GmbH – OPTOELEKTRONIK –





(xxx) - Maße in Zoll
(dimensions inch)

				Maßstab 1:1	
				Fa.Dr. Maurer GmbH	
				STANDARDGEHÄUSE (standard case)	
				KTRD 1000-2 Stecker 90° (connector 90°)	
				Visiereinrichtung (viewfinder)	
				Blatt	
				Bl.	
				100207	
Zust	Änderung	Datum	Name		

Non-Contact Temperature Measurement

DIGITAL – INFRARED – 2 – COLOR – PYROMETER

Temperature range 300 to 1700°C (572 - 3092°F)

Temperature control during production process

**compact units – Infrared – measuring transducer and electronic process unit in one case with light beam aiming device, fiber optic, serial interface
2- and 1- color temperature**

Series QKTRD 1475



MAURER – Infrared – pyrometer can also assist you to monitor your heating processes, ensuring a uniform standard of quality for your products.

Infrared-Digital-Pyrometer Series QKTRD 1475

Mainly for **fast warming processes** the **contactless temperature measurement** is suitable.

The **series QKTRD 1475** are **digital-2-color-pyrometer** with fiber optic and optic system

in compact structure likewise suitable for industry, research and laboratory.

2-color-pyrometer afford on the basis of it's measuring principle contrary to part radiation pyrometer a few substantial advantages. They show also still under critical conditions the true temperature, i.e. by absorption of smoke within the measuring path, mist of viewing glasses at ovens, by small parts which don't illuminate the measuring field.

With the integrated light beam aiming device (green LED) an adjusting of the pyrometer to the measuring object is very easy.

The temperature linear analog output signal 0/4 up to 20 mA is available for measuring- and controlling purposes.

The simultaneous using of the serial interface with the software IR-LOG enables the data detection, graphical representation and the parameter settings of the pyrometer.

Examples for applications:

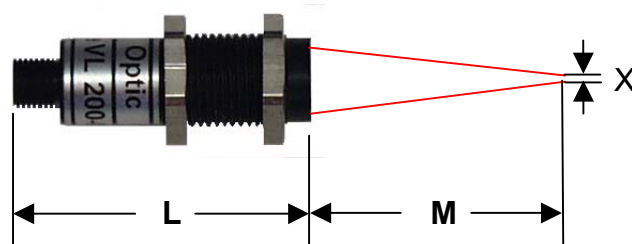
steel, iron, non-ferrous metal, tempering, hardening, induction heating, laser,

forging, transforming, vacuum furnace, pre-heating, rolling

Technical datas:				
Unit types	QKTRD 1475			
Target marking	light beam aiming device green LED			
Temp. measuring ranges:	MR1: 300-1000°C 572-1832°F	MR2: 350-1300°C 662-2372°F	MR3: 400-1400°C 752-2552°F	MR4: 500-1700°C 932-3092°F
Response time (t90)	<1 ms with dynamical adaption			
Spectral range	1,4 - 1,75 µm und 1,6 - 1,75µm			
Measuring uncertainty	0,5% of meas.value in °C ± 1°C (ε = 1, Tamb. = 23°C, T 95 = 1s)			
Reproducibility	0,1% of meas.value in °C ± 1°C (ε = 1, Tamb. = 23°C, T 95 = 1s)			
Emission ratio	0,8 – 1,2 adjustable at the unit or through interface			
Emission factor ε	100 - 10 % through interface			
Analog output	0 - 20 mA or 4 - 20 mA , load max. 500R			
Part measuring ranges:	free adjustable within the measuring range			
Resolution	< 0,1% analog output, < 0,1°C at interface			
1 limit output (open coll.) “min. intensity”	24 V DC / max. 100 mA			
Max.reading memory	max.memory, erasing after time, external contact, by software, double memory			
Interface	RS 232 isolated ± 50 V or RS 485 isolated 2500VRMS options: PROFIBUS, PROFINET, Ethernet, EtherCAT, USB 2.0			
Software IR-LOG	data recording, graph.representation, setting of pyrometer parameters			
adjustable parameter with Software IR-LOG	emissionfactor,switching output,analog output, part meas.range, °C/°F, max.memory, average value, light beam aiming device switchable			
Fiber optic	length 1800mm, bend radius min. 40 mm, (other length on request)			
Objectives	for accommodation to the measuring application an extensive selection of objectives are available			
Working temperature	pyrometer 0-50°C (32-122°F), fiber optic, optic system up to 150°C(302°F)			
Stock temperature	- 10°C - + 70°C (14-158°F)			
Temperature sensitivity	0,05 % / °C			
Humidity tolerance	35 - 85 % RF (non condensing)			
Operating voltage	24 V DC ± 10 % or 18 V AC ± 10 % < 160 mA			
Unit connection	12-pole plug-connector			
Dimensions: H / W / D	54 x 54 x 147 mm (2,13 x 2,13 x 5,79 inch) ALU-case			
Weight	0,6 kg (1,32 lbs)			
Protection grade	IP 65			
Option	built in digital display			
mechanical assembly	electrical assembly			
Execution in cooling case	AED 1012	electr.process unit		digital display (built in-execution)
Blowing device	AED 1012-C	PID controller		connection cable 12-pole
Mirror 90°	AED 1012-PC	Program controller		line scanner SC 1000 / SC 1012
Mounting parts	power supply 100-270VAC - 24 VDC			PC-Box (USB – connection set)

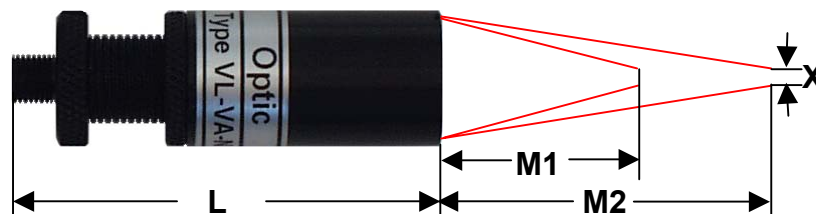
objective for fiber optic pyrometer

fix-focus
M12x1



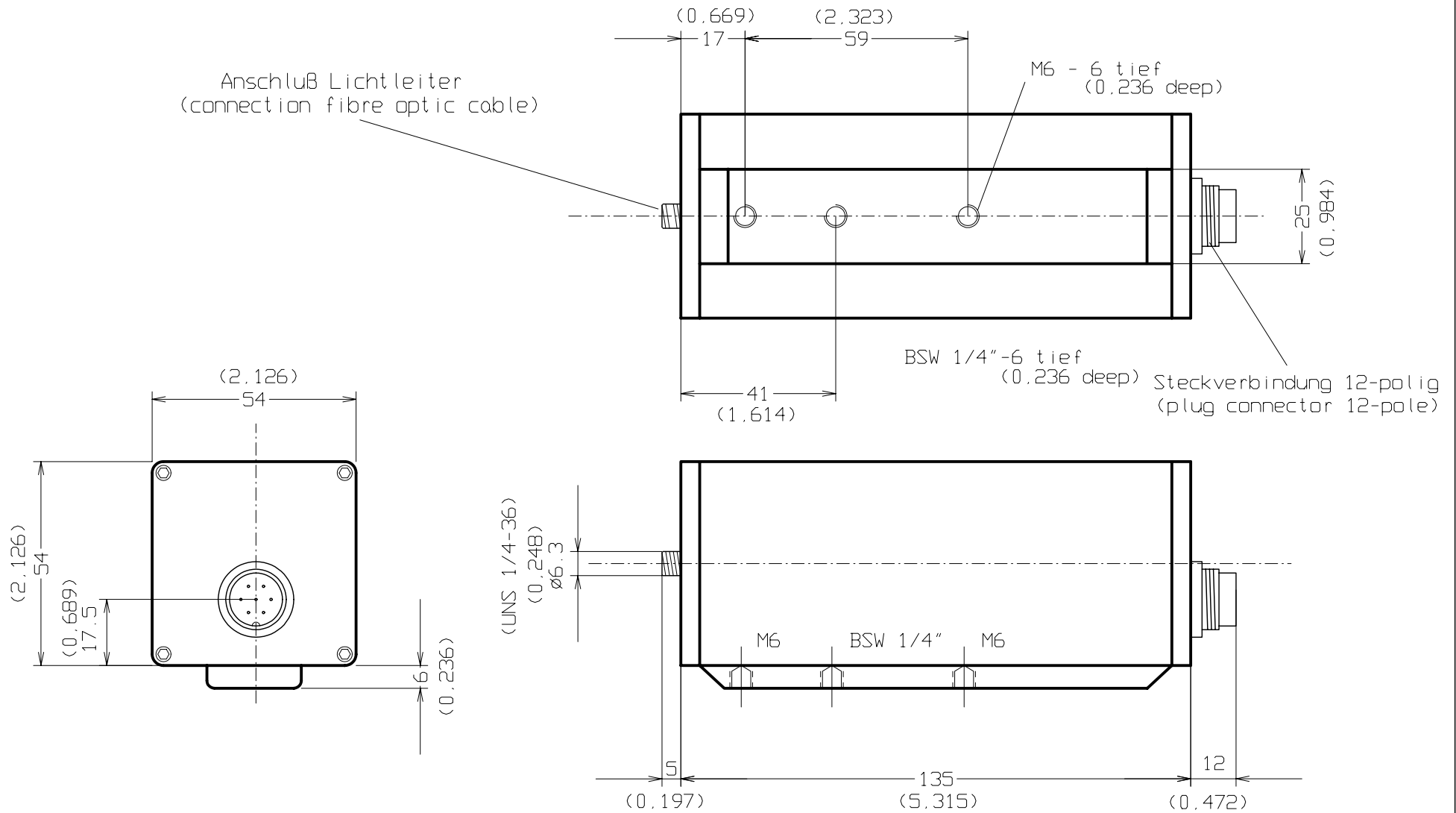
optic type	M / mm	L / mm	target size X Ø / mm	
VL 50-M12	50	38	fiber 0,2mm	0,7mm
			fiber 0,4mm	1,4mm
			fiber 0,6mm	2,0mm
VL 100-M12	100	40	fiber 0,2mm	1,0mm
			fiber 0,4mm	2,0mm
			fiber 0,6mm	3,0mm
VL 150-M12	150	38	fiber 0,2mm	1,4mm
			fiber 0,4mm	2,7mm
			fiber 0,6mm	4,0mm
VL 200-M12	200	38	fiber 0,2mm	2,0mm
			fiber 0,4mm	4,0mm
			fiber 0,6mm	6,0mm

vario-focus
Ø 18mm



target size X: $\frac{\text{focusing distance M mm}}{\text{distance ratio D}}$ par ex. $\frac{M = 150\text{mm}}{D = 75} = 2,00 \text{ mm } \varnothing$

optic type	M1 / mm	M2 / mm	L / mm	distance ratio D	
VL-VA-N	65	160	46 - 56	fiber 0,2mm	138
				fiber 0,4mm	69
				fiber 0,6mm	46
VL-VA-T	100	5000	46 - 56	fiber 0,2mm	150
				fiber 0,4mm	75
				fiber 0,6mm	50



(xxx) - Maße in Zoll
(dimensions inch)

						Maßstab		1:1					
						Fa.Dr. Maurer GmbH							
					Datum	Name		STANDARDGEHÄUSE (standard case) KTRD 1400-1 Lichtleiteranschluß SMA (connection fibre optic cable SMA)					
				Bearb	25.02.10	Schlotterb.							
				Gepr									
				Nam									
						100204							
Zust	Änderung	Datum	Name							Blatt			
										Bl.			

Non-Contact Temperature Measurement

DIGITAL – INFRARED – 2 – COLOR – PYROMETER

Temperature range 600 to 3300°C (1112 - 5972°F)

Temperature control during production process

**compact units – Infrared – measuring transducer and electronic process unit in one case with light beam aiming device, fiber optic, serial interface
2- and 1- color temperature**

Series QKTRD 1485



MAURER – Infrared – pyrometer can also assist you to monitor your heating processes, ensuring a uniform standard of quality for your products.

Infrared-Digital-Pyrometer Series QKTRD 1485

Mainly for **fast warming processes** the **contactless temperature measurement** is suitable.

The **series QKTRD 1485** are **digital-2-color-pyrometer** with fiber optic and optic system

in compact structure likewise suitable for industry, research and laboratory.

2-color-pyrometer afford on the basis of it's measuring principle contrary to part radiation pyrometer a few substantial advantages. They show also still under critical conditions the true temperature, i.e. by absorption of smoke within the measuring path, mist of viewing glasses at ovens, by small parts which don't illuminate the measuring field.

With the integrated light beam aiming device (green LED) an adjusting of the pyrometer to the measuring object is very easy.

The temperature linear analog output signal 0/4 up to 20 mA is available for measuring- and controlling purposes.

The simultaneous using of the serial interface with the software IR-LOG enables the data detection, graphical representation and the parameter settings of the pyrometer.

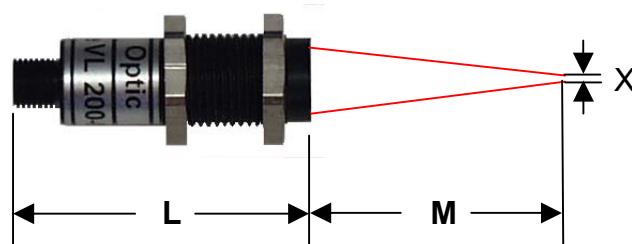
Examples for applications:

steel, iron, non-ferrous metal, coating, wires, molding, hardening, induction heating, soldering, metal melt, forging, welding, transforming, vacuum furnace, rolling

Technical datas:				
Unit types	QKTRD 1485			
Target marking	light beam aiming device green LED			
Temp. measuring ranges:	MR1: 600-1600°C 1112-2912°F	MR2: 750-2500°C 1382-4532°F	MR3: 900-3000°C 1652-5432°F	MR4: 1000-3300°C 1832-5972°F
Response time (t90)	<1 ms with dynamical adaption			
Spectral range	0,85 - 1,1 µm and 0,95 - 1,1µm			
Measuring uncertainty	0,5% of meas.value in °C ± 1°C (ε = 1, Tamb. = 23°C, T 95 = 1s)			
Reproducibility	0,1% of meas.value in °C ± 1°C (ε = 1, Tamb. = 23°C, T 95 = 1s)			
Emission ratio	0,8 – 1,2 adjustable at the unit or through interface			
Emission factor ε	100 - 10 % through interface			
Analog output	0 - 20 mA or 4 - 20 mA , load max. 500R			
Part measuring ranges:	free adjustable within the measuring range			
Resolution	< 0,1% analog output, < 0,1°C at interface			
1 limit output (open coll.) “min. intensity”	24 V DC / max. 100 mA			
Max.reading memory	max.memory, erasing after time, external contact, by software, double memory			
Interface	RS 232 isolated ± 50 V or RS 485 isolated 2500VRMS options: PROFIBUS, PROFINET, Ethernet, EtherCAT, USB 2.0			
Software IR-LOG	data recording, graph.representation, setting of pyrometer parameters			
adjustable parameter with Software IR-LOG	emissionfactor,switching output,analog output, part meas.range, °C/°F, max.memory, average value, light beam aiming device switchable			
Fiber optic	length 1800mm, bend radius min. 40 mm, (other length on request)			
Objectives	for accommodation to the measuring application an extensive selection of objectives are available			
Working temperature	pyrometer 0-50°C (32-122°F), fiber optic, optic system up to 150°C(302°F)			
Stock temperature	- 10°C - + 70°C (14-158°F)			
Temperature sensitivity	0,05 % / °C			
Humidity tolerance	35 - 85 % RF (non condensing)			
Operating voltage	24 V DC ± 10 % or 18 V AC ± 10 % < 160 mA			
Unit connection	12-pole plug-connector			
Dimensions: H / W / D	54 x 54 x 147 mm (2,13 x 2,13 x 5,79 inch) ALU-case			
Weight	0,6 kg (1,32 lbs)			
Protection grade	IP 65			
Option	built in digital display			
mechanical assembly	electrical assembly			
Execution in cooling case	AED 1012	electr.process unit	digital display (built in-execution)	
Blowing device	AED 1012-C	PID controller	connection cable 12-pole	
Mirror 90°	AED 1012-PC	Program controller	line scanner SC 1000 / SC 1012	
Mounting parts	power supply 100-270VAC - 24 VDC		PC-Box (USB – connection set)	

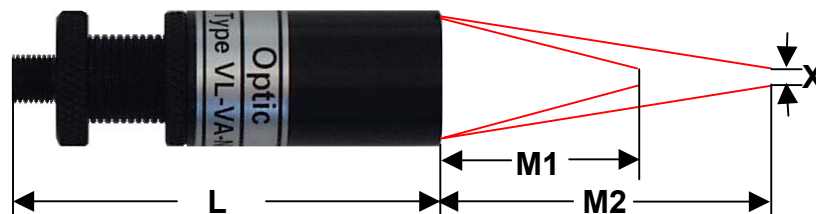
objective for fiber optic pyrometer

fix-focus
M12x1



optic type	M / mm	L / mm	target size X Ø / mm	
VL 50-M12	50	38	fiber 0,2mm	0,7mm
			fiber 0,4mm	1,4mm
			fiber 0,6mm	2,0mm
VL 100-M12	100	40	fiber 0,2mm	1,0mm
			fiber 0,4mm	2,0mm
			fiber 0,6mm	3,0mm
VL 150-M12	150	38	fiber 0,2mm	1,4mm
			fiber 0,4mm	2,7mm
			fiber 0,6mm	4,0mm
VL 200-M12	200	38	fiber 0,2mm	2,0mm
			fiber 0,4mm	4,0mm
			fiber 0,6mm	6,0mm

vario-focus
Ø 18mm



target size X: $\frac{\text{focusing distance M mm}}{\text{distance ratio D}}$ par ex. $\frac{M = 150\text{mm}}{D = 75} = 2,00 \text{ mm } \varnothing$

optic type	M1 / mm	M2 / mm	L / mm	distance ratio D	
VL-VA-N	65	160	46 - 56	fiber 0,2mm	138
				fiber 0,4mm	69
				fiber 0,6mm	46
VL-VA-T	100	5000	46 - 56	fiber 0,2mm	150
				fiber 0,4mm	75
				fiber 0,6mm	50

Non-Contact Temperature Measurement

DIGITAL – 2-COLOR - PYROMETER

Temperature range 700 to 2500°C (1292 – 4532°F)

Temperature control during production process

compact unit – with light beam aiming device

- focusable optic
- RS 232 or RS 485 interface
- limit output min. intensity (open collector)

Series QKTRD 4085-1



figure approx. M 1:1

MAURER – Infrared – pyrometer can also assist you to monitor your heating processes, ensuring a uniform standard of quality for your products.

Digital 2-Color-Pyrometer Series QKTRD 4085-1

60 years experiences and digital technology makes it possible!

A pyrometer – as small as a cigarette-box – but powerful like a big one.

- light beam aiming device with LED
- focusable optic
- emissivity slope adjustable at the unit
- analog-and digital output
- switch-off limit output (open collector)
- software IR-LOG

Through the serial interface additional parameter functions are possible:

analog output: 0 – 20 / 4 – 20 mA switchable

zoom range within measuring range

emissivity slope

average: arithmetical or sliding

maximum value storage: storage modes and erase functions par ex. automatically with the next measuring object

Examples of applications:

steel, iron, non-ferrous metal, wires, ceramics, glass feeder, glass tub, glass arching, hardening, rolling, laser, induction heating, brazing, forging, welding, transforming, vacuum furnace

unit type	target marking
QKTRD 4085-1	light beam aiming device LED green

Temperature measuring range - linear -

No.	temperature range
1	700 - 1600°C (1292 – 2912°F) D=50
2	800 - 2000°C (1472 – 3632°F) D=85
3	850 - 2500°C (1562 – 4532°F) D=85

special measuring ranges
on request

Technical datas:

Spectral response	0,85 – 1,1 µm
Response time	<1 ms with dyn. adaption
Accuracy	0,5 % ± 1°C
Reproducibility	1 ‰
Emissivity slope	0,800 – 1,200
Operating temperature	0 - 50°C (32 – 122°F)
Storage temperature	- 10°C - + 70°C (14 – 158°F)
Temperature-sensitivity	0,01 % / °C
Humidity tolerance	35 - 85 % RF
Analog output temp.linear	0 – 20 mA or 4 – 20 mA
Switch-off limit	5 – 80%
Limit output (open coll.)	24 V 100 mA
Interface	RS 232 ± 50 V isolated or RS 485 ± 70 V isolated
Operating voltage	DC 24 V ± 10 %
Current input	< 100 mA
Unit connection	8-pole plug connector
Dimensions H / W / D	65 x 30 x 80 mm (2,56 x 1,18 x 3,15 inch)
Weight	0,15 kg (0,33 lbs)
Protection class	IP 65

Objectives: For optimum accomodation to the measuring application an objective with focusing is available.
Adjusting range 100 mm to infinite, distance ratio: D = 85

Calculation of target size: $\frac{\text{focusing distance } M \text{ mm}}{D = 85}$ par ex. $\frac{M = 100 \text{ mm}}{D = 85} = 1,18 \text{ } \varnothing$

electrical assembly		mechanical assembly	
AED 1012	electronic process unit	PC-Box (USB – connection set)	execution in cooling case
AED 1012-C	PID controller	USB-RS232 – 8-pol connector	blowing devices
AED 1012-C	Program controller	USB-RS485 – 8-pol connector	mirror 90°
power supply 100-270VAC - 24 VDC		connection cable 8-pole	mounting parts

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cable socket straight



cable socket 90°

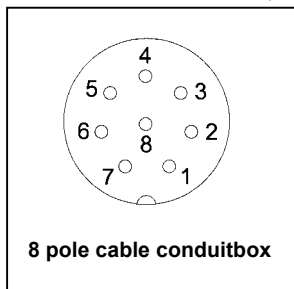
8-pole plug-connector – cable with free ends

female 8-pole PIN	color	function
1	white	\perp 24VDC / \perp - output 0-20mA / 4-20mA ** storage reset or aiming device (button), limit value
2	brown	+ 24 VDC
3	green	+ output 0-20mA
4	yellow	external controlling input selective for storage reset or aiming device (button)
5	grey	limit value (open collector) resp. min. intensity
6	pink	RS 232 TXD (from PC 9-pole SUB-D PIN 2)
7	blue	RS 232 RXD (from PC 9-pole SUB-D PIN 3)
8	red	RS 232 GND (from PC 9-pole SUB-D PIN 5)
housing	black (screen)	PE (earth)
		** \perp central ground

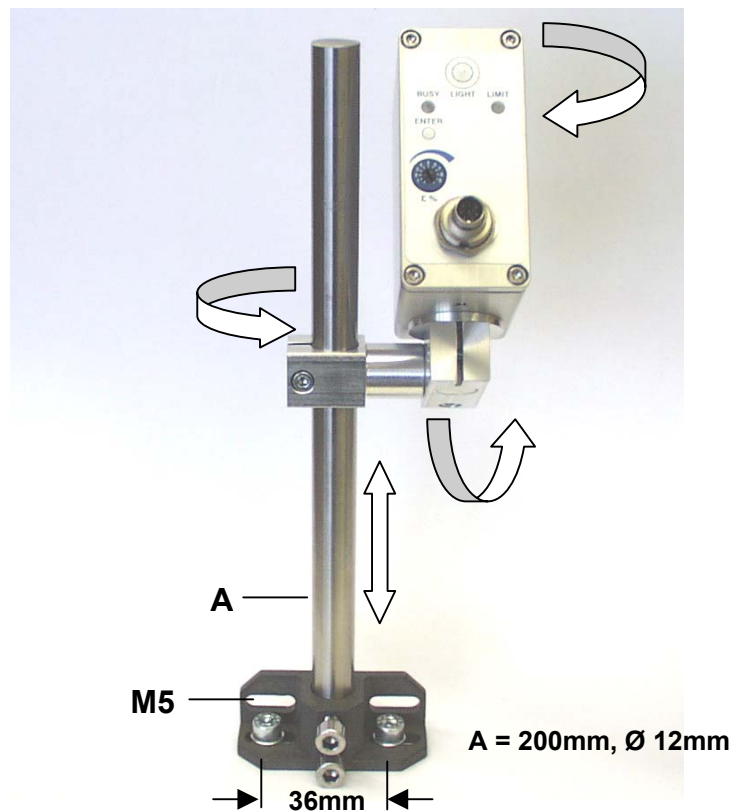
8-pole plug-connector – 15-pole SUB-D (AE 10XX)

female 8-pole PIN	color	function	15-pole male Sub-D PIN
1	white	\perp 24VDC / \perp - output 0-20mA / 4-20mA ** storage reset or aiming device (button), limit value	connection to PIN 13 4
2	brown	+ 24 VDC	1
3	green	+ output 0-20mA	8
4	yellow	external controlling input selective for storage reset or aiming device (button)	12
5	grey	limit value (open collector) resp. min. intensity	2
6	pink	RS 232 TXD (from PC 9-pole SUB-D PIN 2)	9
7	blue	RS 232 RXD (from PC 9-pole SUB-D PIN 3)	10
8	red	RS 232 GND (from PC 9-pole SUB-D PIN 5)	11
housing	black (screen)	PE (earth)	15
			connection to PIN 4 13
		** \perp central ground	

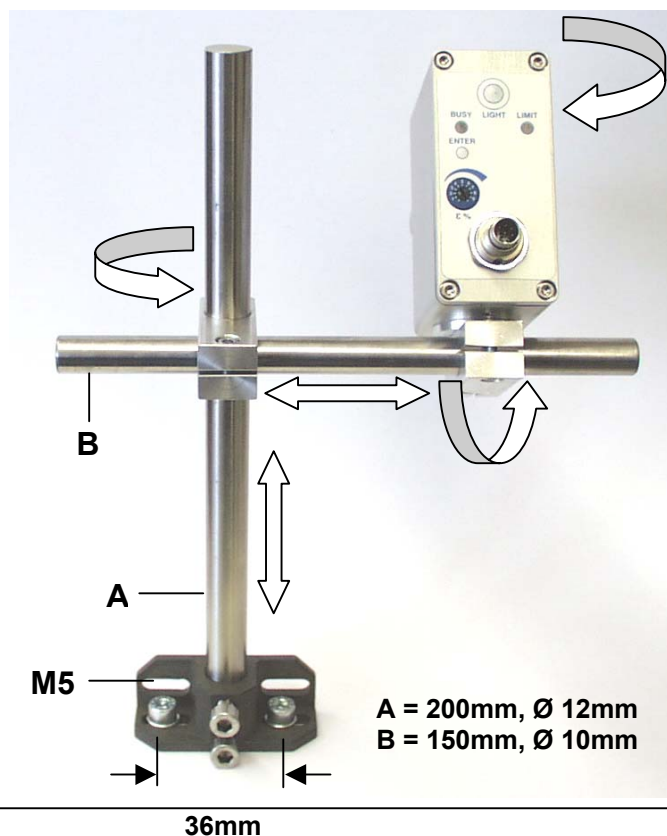
contact arrangement (view on solder termination)

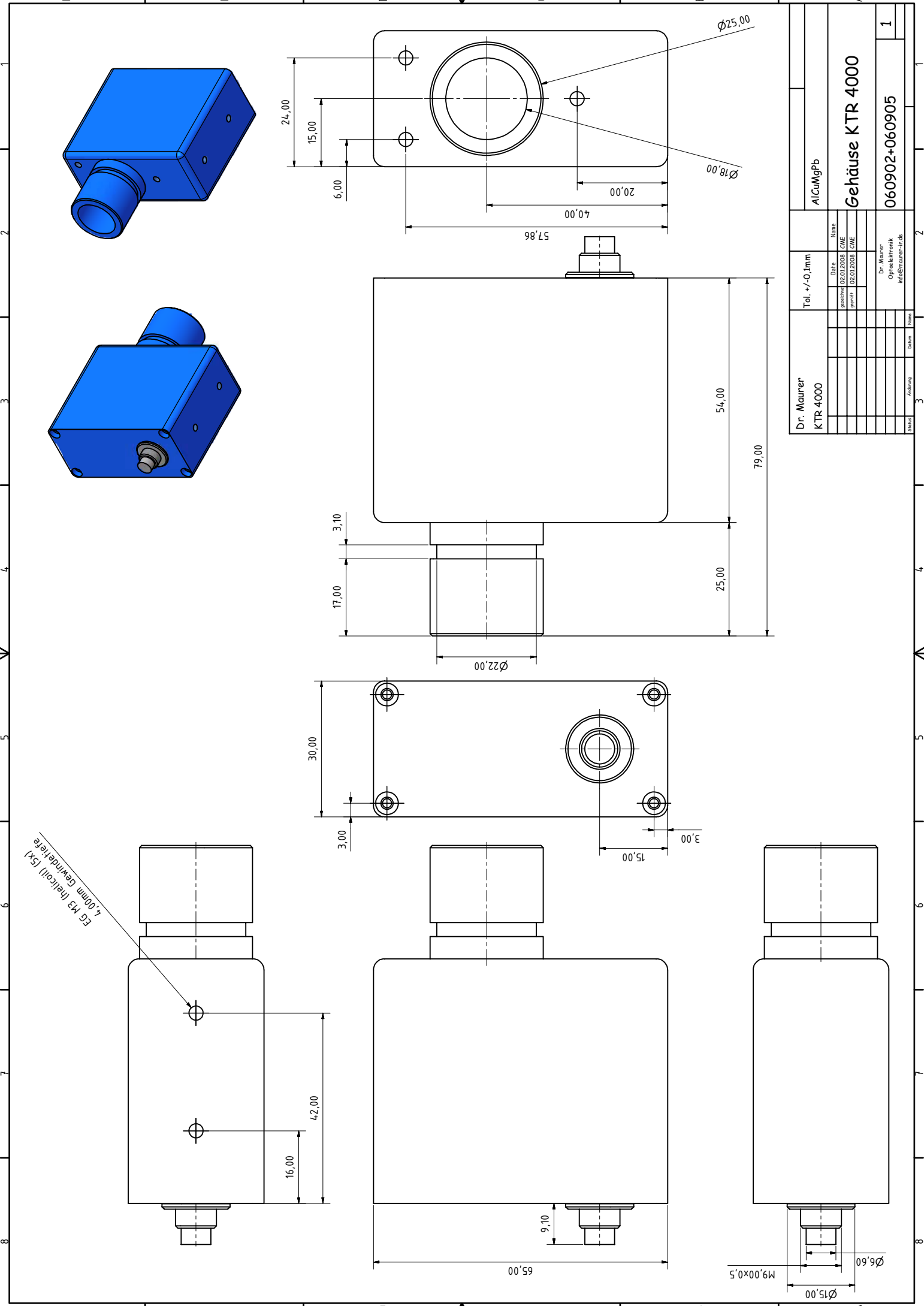


mounting stud standard for KTRD 4000-series



mounting stud universal for KTRD 4000-series





Dr. Maurer KTR 4000		Tol. +/-0,1mm		AlCuMgPb	
Name		Date		Name	
per checked 02.01.2008 CNE		per checked 02.01.2008 CNE		per checked 02.01.2008 CNE	
per draft 02.01.2008 CNE		per draft 02.01.2008 CNE		per draft 02.01.2008 CNE	
Dr. Maurer Optoelektronik info@maurer-tr.de		Name		Name	
Signature		Signature		Signature	
Date		Date		Date	
1		2		3	
060902+060905		Gehäuse KTR 4000		AlCuMgPb	

Non-Contact Temperature Measurement

DIGITAL – 2 – COLOR – FIBER OPTIC – PYROMETER

Temperature range 700 to 2500°C (1292 – 4532°F)

Temperature control during production process

compact unit – with light beam aiming device

- fiber optic
- RS 232 or RS 485 interface
- limit output min. intensity (open collector)

Series QKTRD 4485-1



figure approx. M 1:1

MAURER – Infrared – pyrometer can also assist you to monitor your heating processes, ensuring a uniform standard of quality for your products.

Digital 2-Color-Fiber Optic-Pyrometer Series QKTRD 4485-1

60 years experiences and digital technology makes it possible!

A pyrometer – as small as a cigarette-box – but powerful like a big one.

- fiber optic
- light beam aiming device with a green LED for target marking
- emissivity slope adjustable at the unit
- analog- and digital output
- 1 adjustable limit output (open collector)
- software IR-LOG

Through the serial interface additional parameter functions are possible:

analog output: 0 – 20 / 4 – 20 mA switchable

zoom range within measuring range

emissivity slope

average: arithmetical or sliding

maximum value storage: storage modes and erase functions par ex. automatically with the next measuring object

Examples of applications:

steel, iron, non-ferrous metal, wires, ceramics, glass feeder, glass tub, glass arching, hardening, rolling, laser, induction heating, brazing, forging, welding, transforming, vacuum furnace

Temperature measuring range

- linear –

No.	temperature range
1	700 - 1600°C (1292 – 2912°F)
2	800 - 2000°C (1472 – 3632°F)
3	850 - 2500°C (1562 – 4532°F)

special measuring ranges
on request

Technical datas:

Spectral response	0,85 – 1,1 µm
Response time	<1 ms with dyn. adaption
Accuracy	0,5 % ± 1°C
Reproducibility	1 ‰
Emissivity slope	0,800 – 1,200
Operating temperature	0 - 50°C (32 – 122°F)
Storage temperature	- 10°C - + 70°C (14 – 158°F)
Temperature-sensitivity	0,01 % / °C
Humidity tolerance	35 - 85 % RF
Analog output temp.linear	0 – 20 mA or 4 – 20 mA
Switch-off limit	5 – 80%
Limit output (open coll.)	24 V 100 mA
Interface	RS 232 ± 50 V isolated or RS 485 ± 70 V isolated
Operating voltage	DC 24 V ± 10 %
Current input	< 100 mA
Unit connection	8-pole plug connector
Dimensions H / W / D	65 x 30 x 80 mm (2,56 x 1,18 x 3,15 inch)
Weight	0,15 kg (0,33 lbs)
Protection class	IP 65

Fiber optic: Type GM-L, length 500 mm in metal hose
ambient temperature max. 150°C, bend radius min. 100 mm

	fiber optic	Type GM-L	500 mm	Ø 0,6 mm fiber	temperature range no. 1
	fiber optic	Type GM-L	500 mm	Ø 0,4 mm fiber	temperature range no. 2
	fiber optic	Type GM-L	500 mm	Ø 0,2 mm fiber	temperature range no. 3

(other length and fiber on request)

Objectives: For accomodation to the measuring application are several objectives and optic systems available.
(see datasheet)

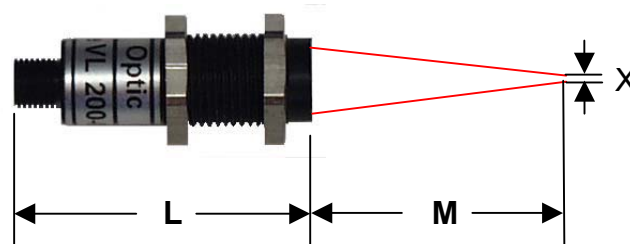
electrical assembly		mechanical assembly
AED 1012	electronic process unit	PC-Box (USB – connection set)
AED 1012-C	PID controller	USB-RS232 – 8-pol connector
AED 1012-C	Program controller	USB-RS485 – 8-pol connector
power supply 100-270VAC - 24 VDC		connection cable 8-pole
		mounting parts

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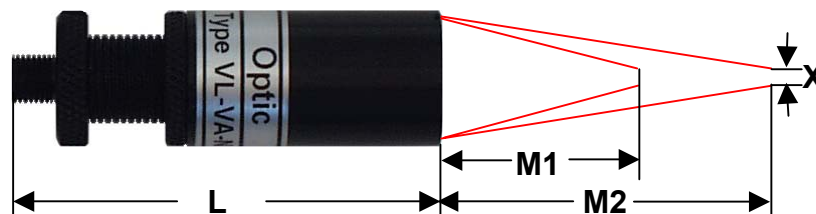
objective for fiber optic pyrometer

fix-focus
M12x1



optic type	M / mm	L / mm	target size X Ø / mm	
VL 50-M12	50	38	fiber 0,2mm	0,7mm
			fiber 0,4mm	1,4mm
			fiber 0,6mm	2,0mm
VL 100-M12	100	40	fiber 0,2mm	1,0mm
			fiber 0,4mm	2,0mm
			fiber 0,6mm	3,0mm
VL 150-M12	150	38	fiber 0,2mm	1,4mm
			fiber 0,4mm	2,7mm
			fiber 0,6mm	4,0mm
VL 200-M12	200	38	fiber 0,2mm	2,0mm
			fiber 0,4mm	4,0mm
			fiber 0,6mm	6,0mm

vario-focus
Ø 18mm



target size X: $\frac{\text{focusing distance M mm}}{\text{distance ratio D}}$ par ex. $\frac{M = 150\text{mm}}{D = 75} = 2,00 \text{ mm } \varnothing$

optic type	M1 / mm	M2 / mm	L / mm	distance ratio D	
VL-VA-N	65	160	46 - 56	fiber 0,2mm	138
				fiber 0,4mm	69
				fiber 0,6mm	46
VL-VA-T	100	5000	46 - 56	fiber 0,2mm	150
				fiber 0,4mm	75
				fiber 0,6mm	50



cable socket straight



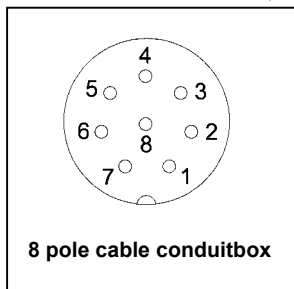
cable socket 90°

8-pole plug-connector – cable with free ends

female 8-pole PIN	color	function
1	white	\perp 24VDC / \perp - output 0-20mA / 4-20mA ** storage reset or aiming device (button), limit value
2	brown	+ 24 VDC
3	green	+ output 0-20mA
4	yellow	external controlling input selective for storage reset or aiming device (button)
5	grey	limit value (open collector) resp. min. intensity
6	pink	RS 232 TXD (from PC 9-pole SUB-D PIN 2)
7	blue	RS 232 RXD (from PC 9-pole SUB-D PIN 3)
8	red	RS 232 GND (from PC 9-pole SUB-D PIN 5)
housing	black (screen)	PE (earth)
		** \perp central ground

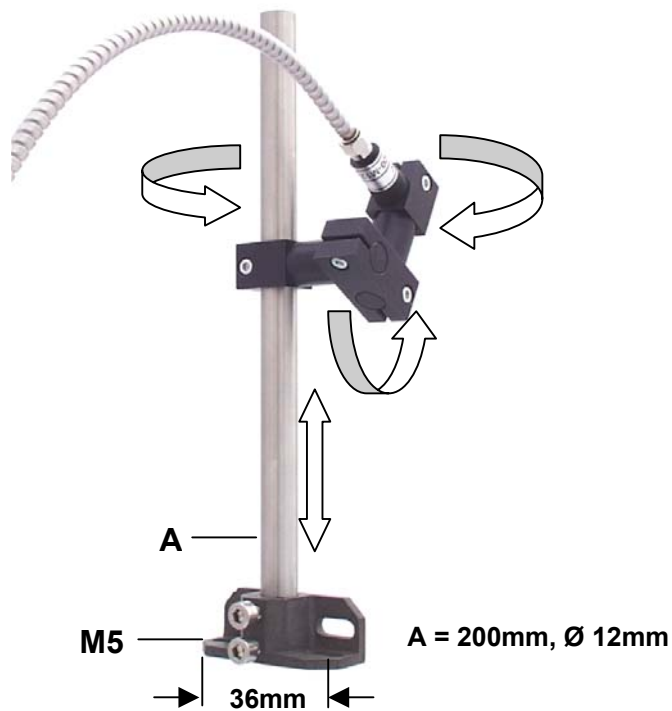
8-pole plug-connector – 15-pole SUB-D (AE 10XX)

contact arrangement (view on solder termination)



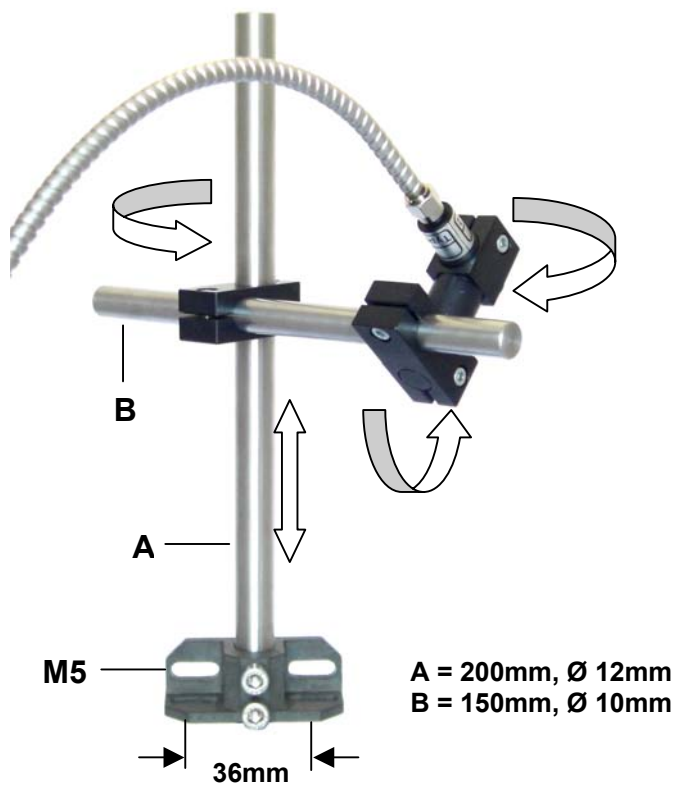
female 8-pole PIN	color	function	15-pole male Sub-D PIN
1	white	\perp 24VDC / \perp - output 0-20mA / 4-20mA ** storage reset or aiming device (button), limit value	connection to PIN 13 4
2	brown	+ 24 VDC	1
3	green	+ output 0-20mA	8
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5	grey	limit value (open collector) resp. min. intensity	2
6	pink	RS 232 TXD (from PC 9-pole SUB-D PIN 2)	9
7	blue	RS 232 RXD (from PC 9-pole SUB-D PIN 3)	10
8	red	RS 232 GND (from PC 9-pole SUB-D PIN 5)	11
housing	black (screen)	PE (earth)	15
			connection to PIN 4 13
		** \perp central ground	

mounting stud standard for KTRD 4400-series objective M12



Art.Nr. 118-2004

mounting stud universal for KTRD 4400-series objective M12



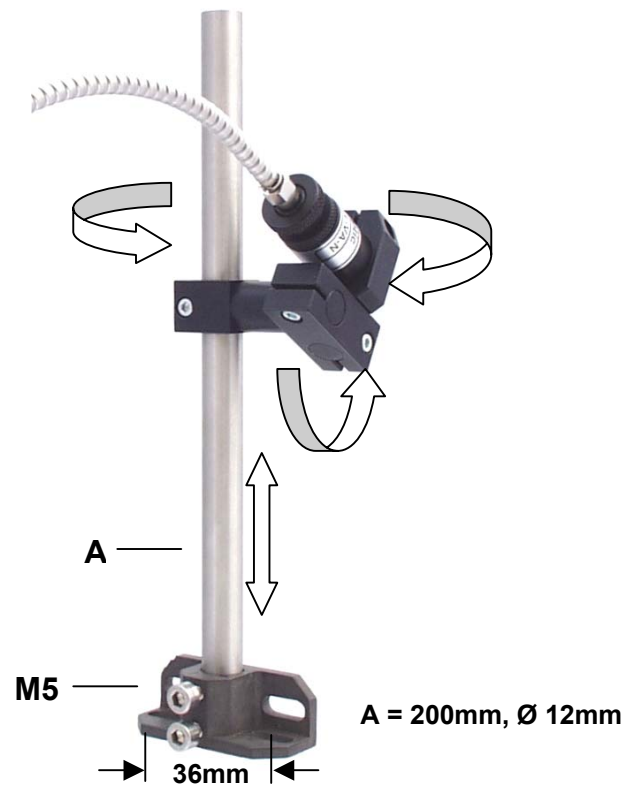
Art.Nr. 118-2006

Dr.Georg Maurer GmbH – OPTOELEKTRONIK –



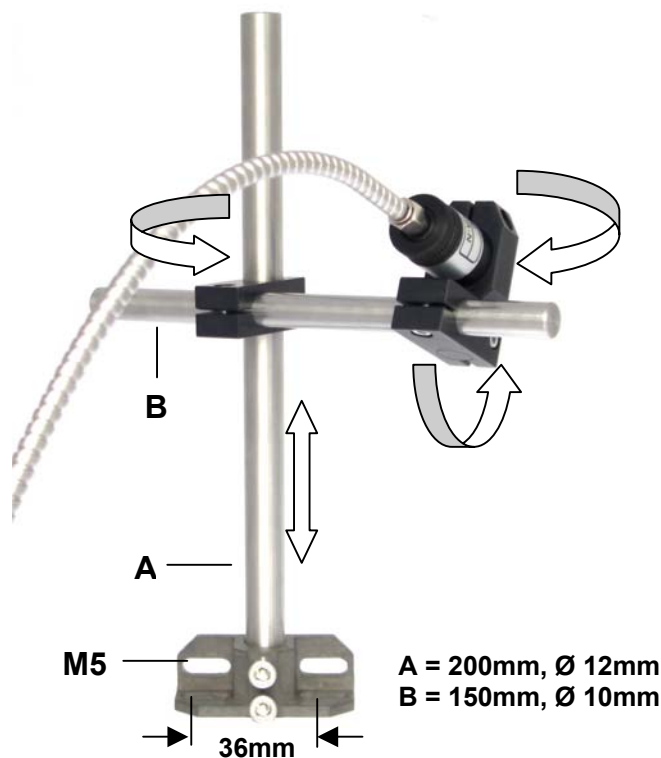
Reg.-Nr.: Q1 0201014

mounting stud standard for KTRD 4400-series objective Ø 18mm



Art Nr. 118-2003

mounting stud universal for KTRD 4400-series objective Ø 18mm

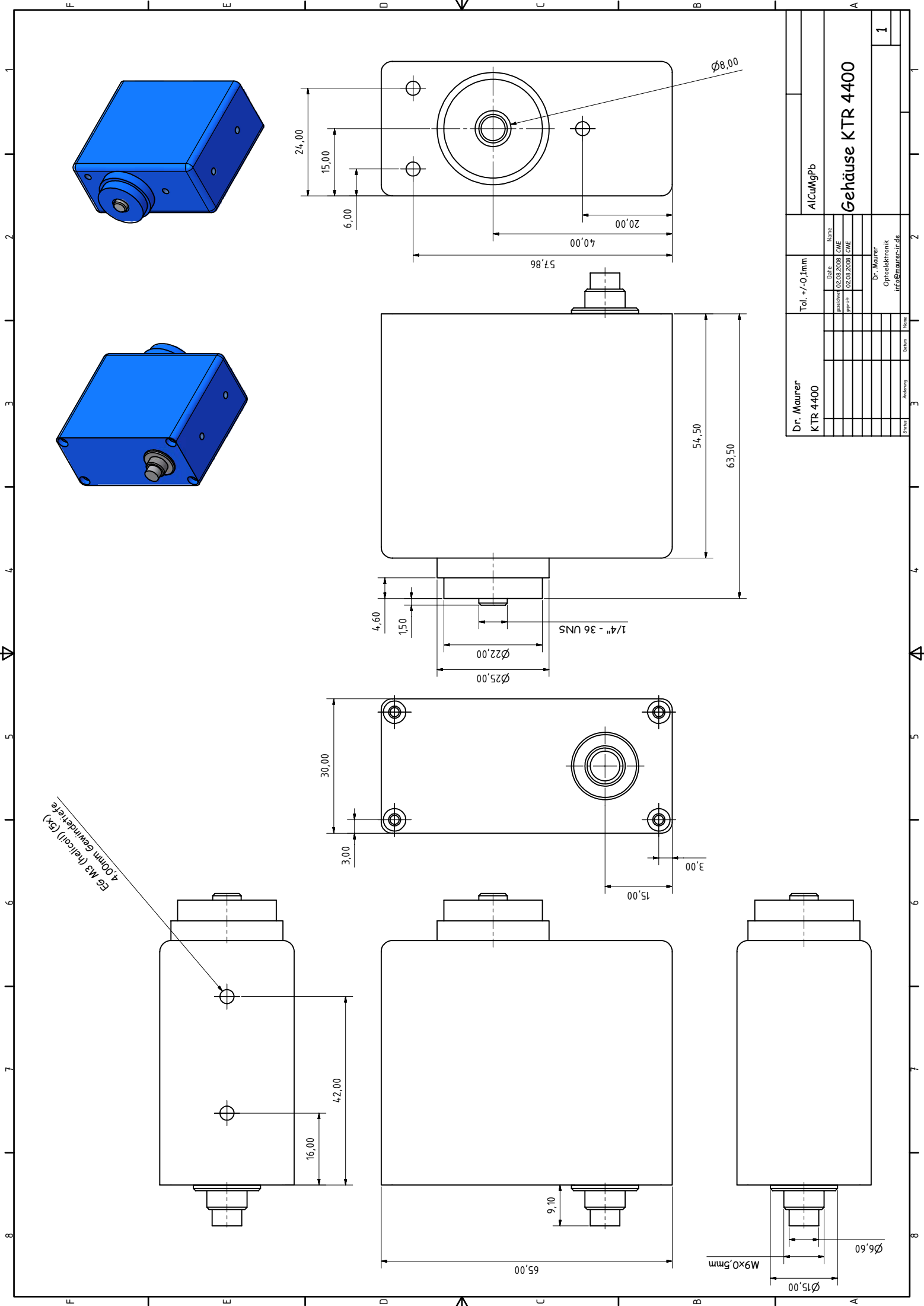


Art Nr. 118-2005

Dr.Georg Maurer GmbH – OPTOELEKTRONIK –



Reg.-Nr.: Q1 0201014



Dr. Maurer KTR 4400		Tol. +/-0.1mm		AlCuWgPb	
Name		Date		Name	
approved		02.08.2008		CNE	
approved		02.08.2008		CNE	
Name		Dr. Maurer		Gehäuse KTR 4400	
Address		Optoelektronik		1	
E-Mail		info@maurer-ir.de			