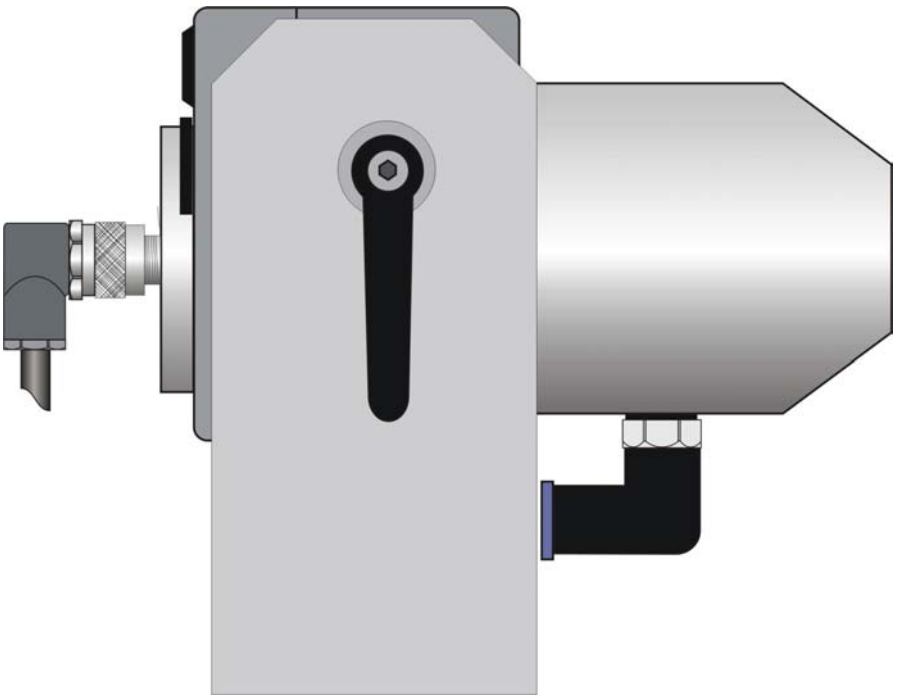
Infrared-Thermometer
IN5PD



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1. Technical data

IR-detector:	**Thermopile on Si-basis**
Spectral range:	**8...14µm (no interference due to steam or CO2)**
Pilot light:	**Laser of protective class 2, can be switched on with rear-side switch.**
Attention! Warning!	**Do not look into the laser beam.**
Power supply:	**24V DC ±25% for 2-lead system 5,9V DC**
Compressed-air connection:	**Festo connection 1/8" for hose inner diameter 6mm; with L-plug connection, use PAN, PUN plastic hose is necessary**
Type of protection:	**IP 65 according to DIN 40050 only sensor**
Ambient temperature:	**0 ... +63°C**
Storage temperature:	**-20 ... +63°C**
Measuring output:	**4 ... 20mA applied direct current, linear**
Max. load:	**700Ω at 24V DC (max. 100Ω at 12V DC)**
Emission factor (ε):	**0.2 ...1 adjustable**
Accuracy:	**1% of measured value in °C or 1.5°C ±1digit (whichever value is greater) ***
Repeatability:	**0.3% of measured value in °C or 0.6°C (whichever value is greater) ***
Noise Equivalent Temperature Difference (NETD):	**0.2K (=1) measured temp.=23°C t_{90} = 80ms and =1 0.05K (=1) measured temp.=23°C t_{90} = 1s and =1**
Response time (adjustable):	**0.08s, 0.5s, 1s, 2s or 5s**
Measuring ranges:	**IN 5 PD: MB 1: 0...100°C MB 2: 0...200°C MB 3: 0...300°C MB 4: 0...400°C MB 7: 0...500°C**
Double power unit:	**230V AC / 50Hz / 7VA 5,9V DC / 24V DC**
CE Approval / EMV tests:	**Satisfies EU regulations for electromagnetic immunity (industry norm)**

*** - The instrument must be at a constant ambient temperature for a minimum of 15 minutes.**

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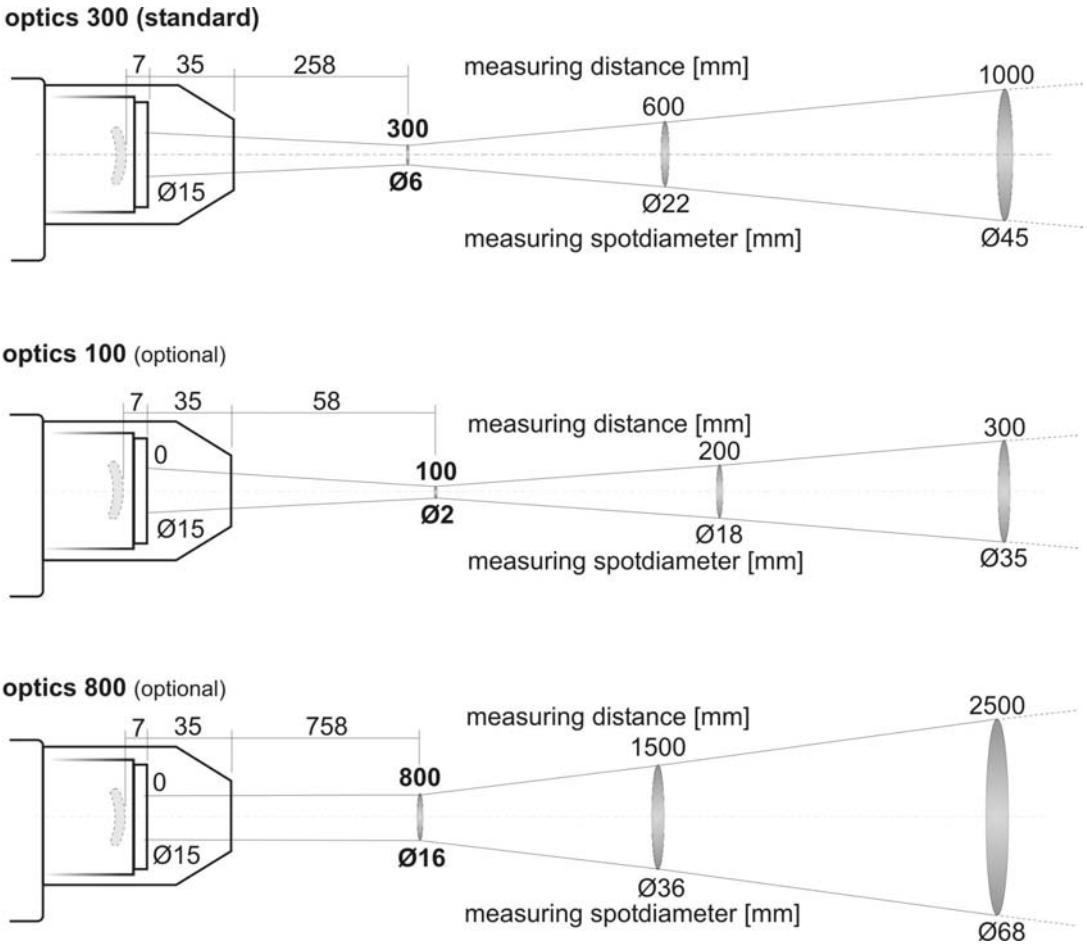
Optics:



2. Power supply:

For operation of the temperature measuring unit, a d.c. voltage of 24V and of 5.9V is necessary. A corresponding double power unit is included in the scope of delivery.

Pin connections:	**terminal 1**	**0 V 1**	**green**
	terminal 2	**+ 5.9V DC**	**yellow**
	terminal 4	**0 V 2**	**brown**
	terminal 5	**+ 24V DC**	**white**
	terminal 8	**L 230V AC**	
	terminal 10	**N**	
	Shield:	**attached to the housing (IN 5 PD)**	

(delivery date before September2002:
+5.9VDC=brown / 0V 1=orange / +24VDC=red / 0V 2=black)

If a temperatur signal of 4...20 mA is additionally needed, one of the 24 V supply lines must be split and an apparent ohmic resistance of max. 700Ω (100Ω at 12V DC) must be connected in series (two-lead technology).

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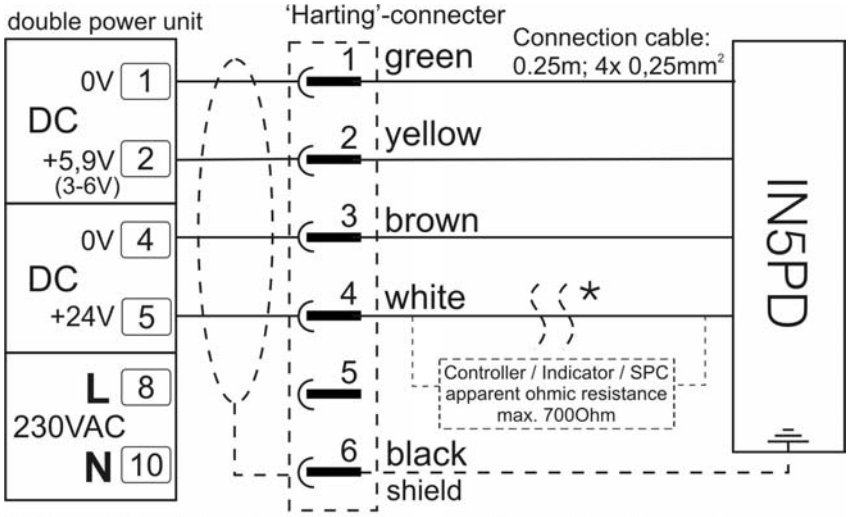
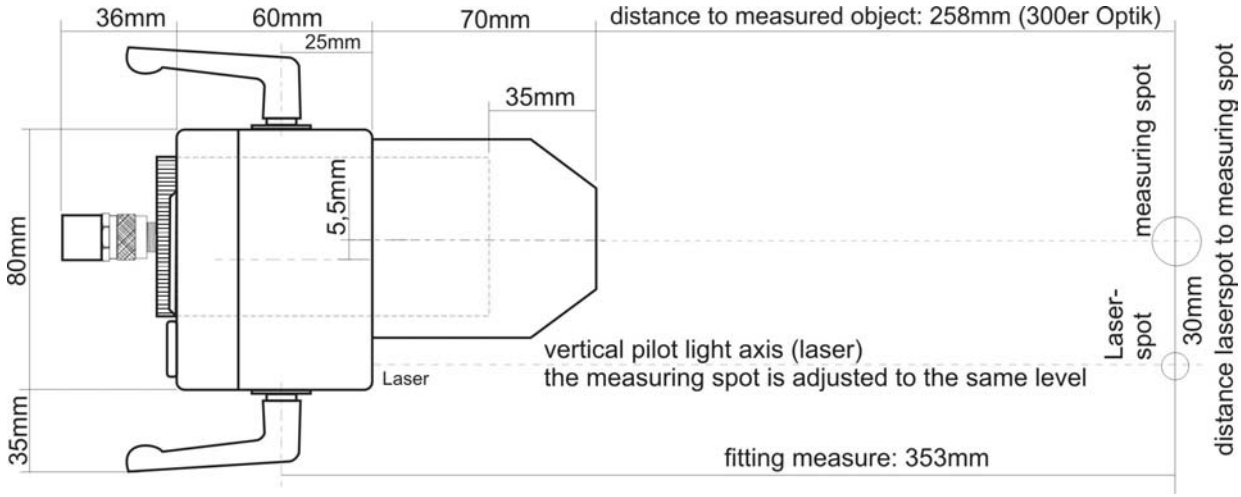
Pin connection:

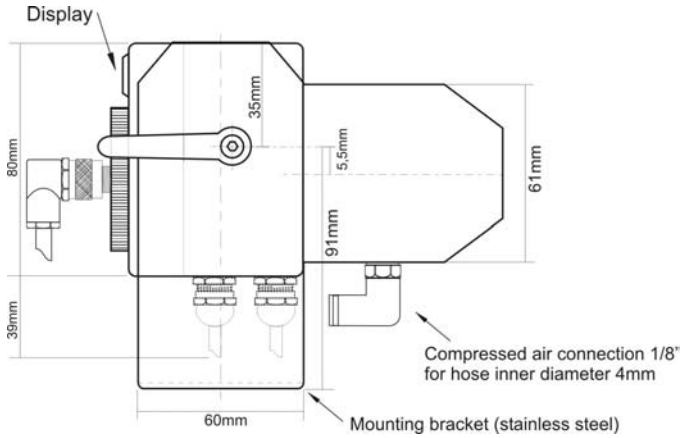


* - If an additional 4 ... 20mA temperature signal is needed, split one of the 24VDC lines and connect your controller etc. in series (two-lead technology).

3. Adjustment:

With the 300mm lens, the measuring spot is situated approx. 30mm to the left of the laser point, if the distance between the object to be measured and the end of the tube amounts to 258mm.





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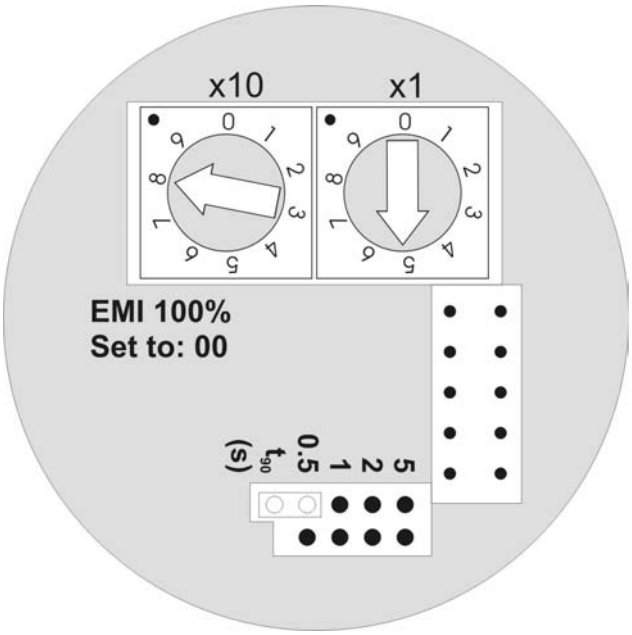
4. Compressed-air connection:

The IN 5 PD is equipped with an integrated blower attachment to keep the lens clean. Air soavening should be carried out using the corresponding filter fittings and a slight overpressure with air that is oil and moisture free.

5. Operation:

The controls are located under the rear cover of the pyrometer and can be accessed by removing the rear cover. To remove the rear cover unscrew both rear screws and take the cover off, making sure it remains straight (without bending or twisting it).

Caution: Disconnect the cable before opening the cover.
Reconnect only when assembly is complete !



Example: ε = 0,85 and t_{90} = 0.08s.

Emissivity can be adjusted between 0.2 and 1.00 in steps of 0.01.
Note: If the emissivity is set to a value below 0.2 the instrument will automatically utilize an emissivity value of 1.
The setting 00 is interpreted as = 1.00 !

The response time is changed by adjusting the jumper position.
In the open position shown in the diagram above, the response time is 0.08s.
For alternative settings (t90 = 0.5s, 1s, 2s, 5s) select the respective jumper position.
Longer response times are useful when measuring objects with fluctuating temperatures.

Settings at delivery: ε = 0,95 (rubber) / t_{90} = 0,5s

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The following table offers a guideline for the correct adjustment of the degree of emission (ε). For a more exact determination of this, a comparision measurement is recommendable (e.g. OPTRON thermometer MP 2000 and a suitable probe).

	(8 ... 14µm)
"Black Body"	1
Human skin	0.98
Black matt paint	0.95
Soot	0.95
Wood	0.8 ... 0.92
Masonry	0.85 ... 0.95
Chamotte	"
Rubber	"
Porcelain	"
Ceramic	"
Paper	"
Plaster	"
Oil paint	0.85 ... 0.95
Asphalt	0.85
Textile	0.75 ... 0.95
Graphite	0.75 ... 0.92
Cement	0.9
Water	0.95
Glass	0.8
Quartz	"
Steel (oxidized)	0.6 ... 0.8
Steel (bare)	0.1 ... 0.3
Aluminium (bare)	0.02 ... 0.15

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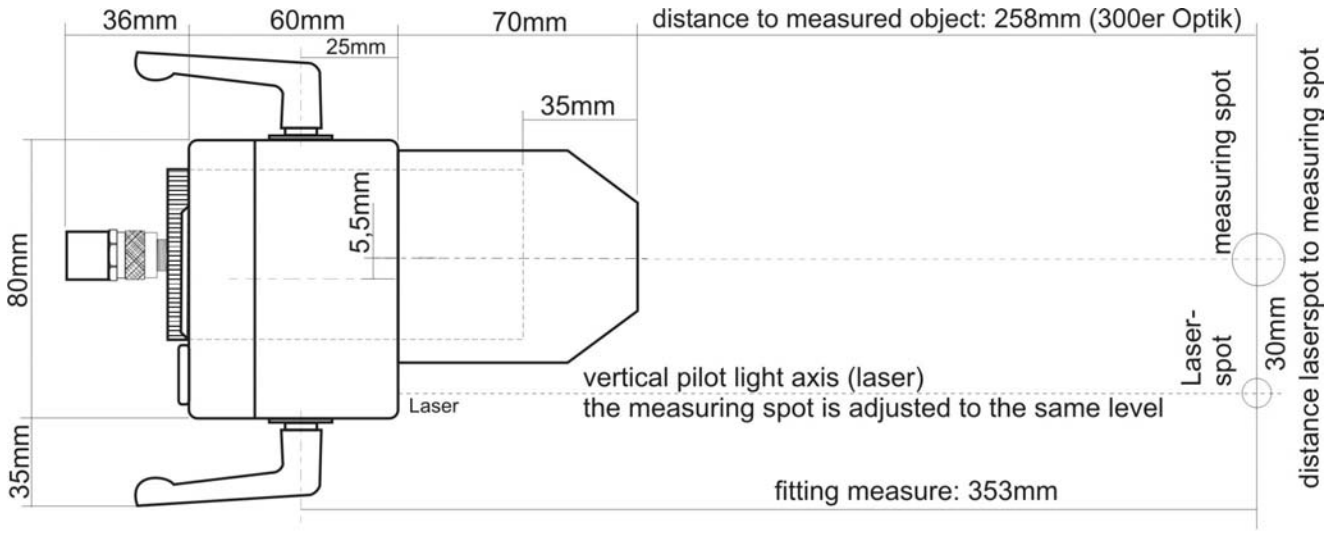
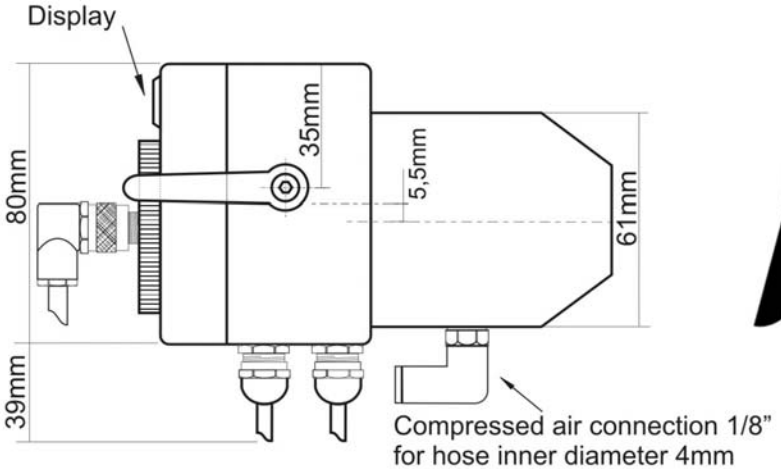
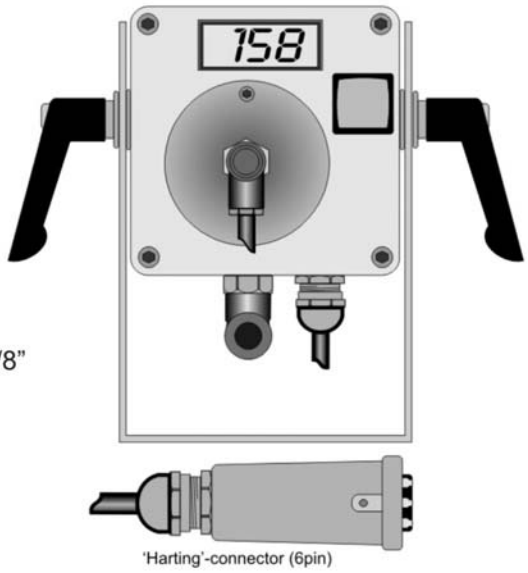
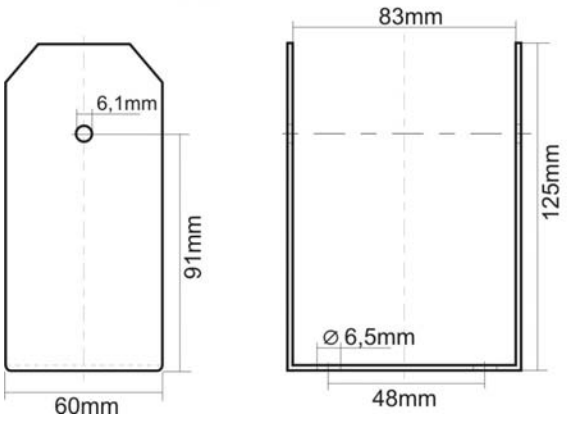
6. Dimensions:







Mounting bracket
stainless steel; 1,5mm



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