

## Instruction for Use

020551/04/05

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# *Thermograph*

2.0600.../ 2.0604.../ 2.0605...



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# 1 Models available

Order-No.	Recording Time	Clockwork	Lockable housing
2.0600.10.xxx	1 day / 7 days, switchable	Spring clockwork mechanism	
2.0604.10.xxx	14 days / 31 days switchable	Spring clockwork mechanism	
2.0605.10.xxx	1 / 7 / 31 days, switchable	Quartz clockwork mechanism	
... .0xx..			no
... .9xx..			yes
	Temperature Measuring Range	Graduation	
.x00	-35 ... +45 °C	1 °C	
.x05	-20 ... +60 °C	1 °C	
.x11	-10 ... +50 °C	1 °C	
.x14	0 ... +40 °C	0,5 °C	
.x17	0 ... +80 °C	1 °C	

Table 1: Models available

## Attention:

■ *Thermographs with Quartz clockwork mechanism are applicable only within the temperature range from -20 ...+60°C!*

## 2 Application

The thermograph measures and records the air temperature of the surrounding atmosphere. The recording drum is driven with utmost precision either by a manual spring clockwork mechanism or by a battery-operated quartz clockwork.

Typical applications include environmental monitoring in computer rooms, factories, warehouses, offices, laboratories, greenhouses, museums and galleries but they can also be used in meteorological measuring stations.

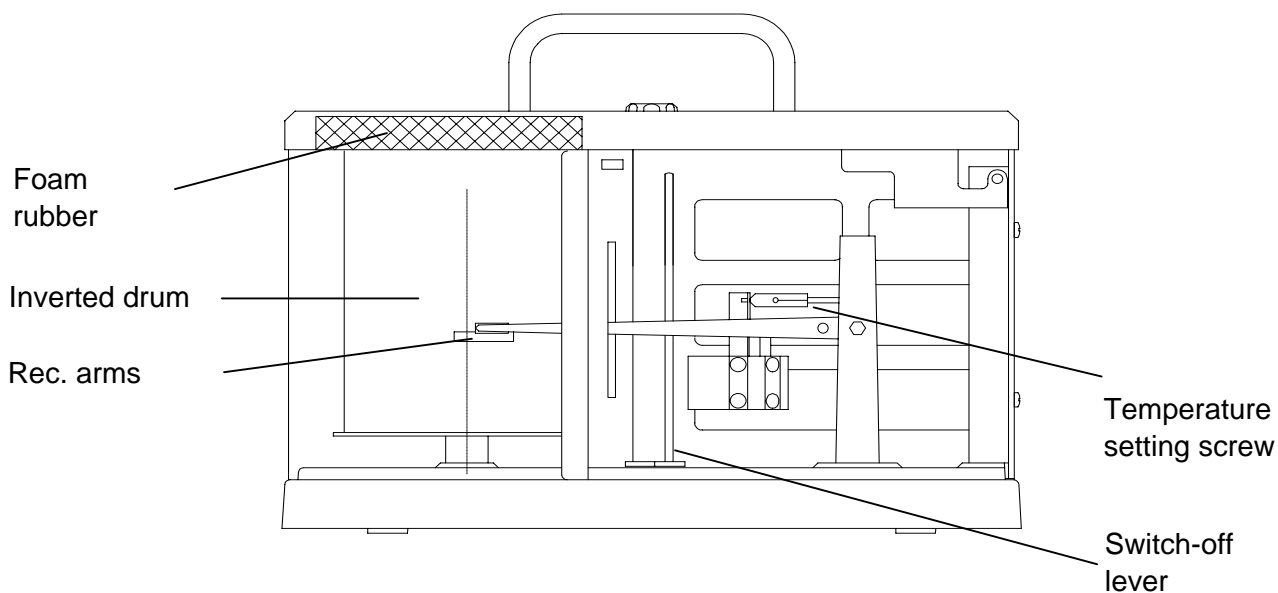
## 3 Set-Up and Mode of Operation

The clockwork and the columns with the temperature measuring element are mounted to a base plate. The instrument is protected by a tiltable transparent hood. The measuring elements react promptly thanks to large ventilation openings in the direction of measurement.

Temperature is measured by a high quality, aged bimetallic measuring element which has been bent to form a ring. The radius of the measuring element changes when the temperature changes. This change in radius is likewise recorded on the recording strips. The rotation of the drum allows time-dependent registration.

## 4 Preparation for Use

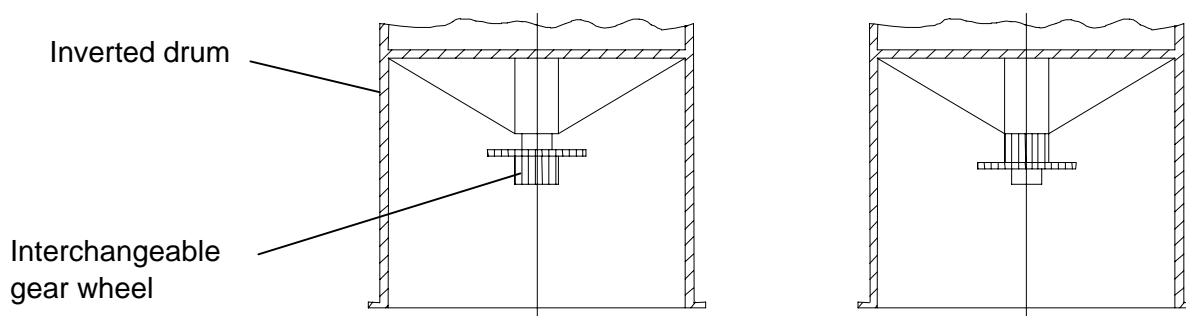
Unscrew the knurled-head screw and open the hood. Remove the foam rubber from the hood (transport protection). Push the switch-off lever to the left to raise the recording pens from the recording strip.



**Figure 1: Thermograph**

### Setting the desired recording time

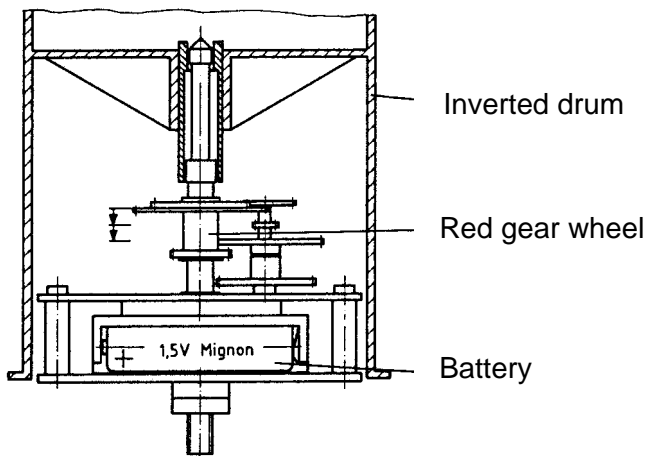
For instruments with a spring clockwork mechanism, unscrew the winding key by turning it towards the right and remove the inverted drum from the drive mechanism. The desired recording time can be set by changing the interchangeable gear wheel on the drum.



Order-No.	Recording Time	Recording Time
2.0600.xx.xxx	1 day	7 days
2.0604.xx.xxx	14 days	31 days

Instrument with Quartz Clockwork.

Remove the inverted drum from the drive mechanism and set the recording time with the red gear wheel by clicking it into place at the appropriate height. Make sure that the yellow gear wheel is properly engaged. Place the enclosed battery into the recess provided with the poles in the correct direction.



Position of the red gear wheel	
up	7 days
middle	31 days
down	1 day

Place the recording strip onto the inverted drum (see 5.1 Changing the recording strip) and insert this onto the drive mechanism until it locks into place!

Remove the lower recording arm from the clamp bolt (transport safety device). Remove the tip protector from the felt pen. For instruments with a spring clockwork mechanism, wind the clockwork with the key in the drum, turning it to the left. Rotate the drum counter clockwise to the correct time. Close the hood and screw the knurled-head screws back into place. Press the switch-off lever to the right stop in order to lower the recording pens onto the recording strip.

## 5 Maintenance

### 5.1 Changing the recording strip

This should be done regularly at the time where the recording strip starts; for example if you are using a 7 day recording period, then change the strip every Monday morning. After swinging the recording arm forwards, raise the chart holder and remove the recording strip. Place the new recording strip onto the drum and fix it into position by inserting the chart holder. Make sure that the new recording strip fits snugly and smoothly against the lower edge of the drum. Rewind the clockwork mechanism every time you change the recording strip. Swing the recording arms back to their original position and rotate the drum counter clockwise to the correct time. The instrument is now ready for use.

## Recording Strips (1 set = 100 sheets), order-no. key

°C	1 day	7 days	14 days	31 days
-35...+45	205 060	205 046	205 063	205 069
-20...+60	205 050	205 036	-----	205 075
-10...+50	205 052	205 038	-----	205 068
0...+40	205 054	205 040	205 064	205 076
0...+80	205 057	205 043	-----	-----

**Table 2: Recording Strips**

### 5.2 Changing the recording pens

Remove the inserted recording pen carefully from the recording arms after consumption. Remove the tip protection from the new pen. Make sure that you do not touch the recording tip when you place the new pen into position.

**Spare Recording pen** (minimum order of 6) Order-No. 500 847

### 5.3 Checking the bimetallic setting

The accuracy of the bimetallic element is checked by carrying out a comparative measurement. In a temperature-constant room hang a precision mercury thermometer next to the thermograph. Allow about 20 minutes adjustment time and then compare the temperature values. If a correction is necessary, do this with the aid of the temperature setting screw on the bimetallic element.

## 6 Technical Data

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### TEMPERATURE

Measuring range	-35 ... +80°C (see models available)
Graduation	1°C or resp. 0,5°C (see models available)
Measuring accuracy	± 1 % of measuring range + 1 Scale graduation

### CLOCKWORK

Spring clockwork mechanism

Recording time	1 day / 7 days or resp. 14 days / 31 days; (see models available)
Thrust	11.45 mm/h.; 40.01 mm/day or resp. 20 mm/day; 9 mm/day
Temperature range	-35 ... +80°C
Gear accuracy	± 60 s/day at 20°C acc. to DIN 8300

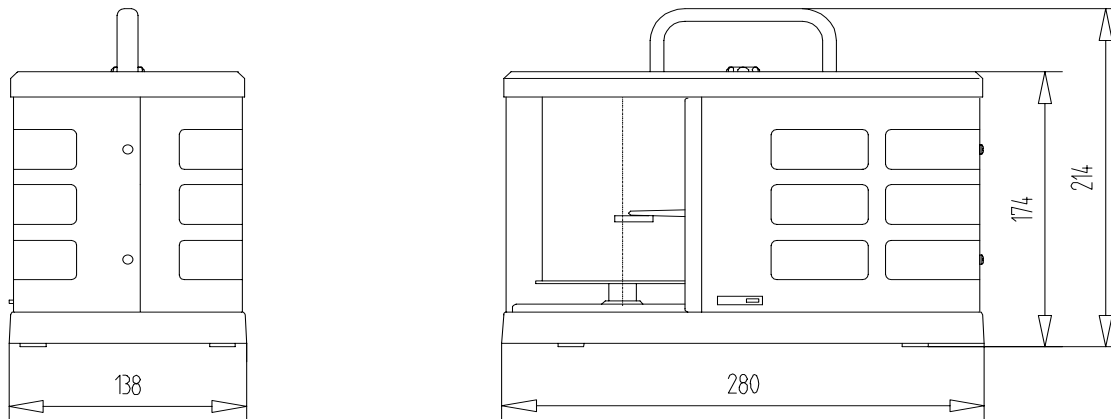
Quartz clockwork

Recording time	1 day / 7 days / 31 days
Thrust	11.45 mm/h.; 40.01 mm/h; 9 mm/h
Temperature range	-20 ... +60°C sim. DIN 8300 B
Gear accuracy	± 2 s/day
Battery capacity	> 1 year at 20°C (Mignon battery 1,5 V)

### GENERALLY

Clockwork drum	Ø 93 x 93 sim. DIN 58658
Recording strip	sim. DIN 16232
Recording width	82 mm
Weight	2.2 kg

## 7 Scale Drawing



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