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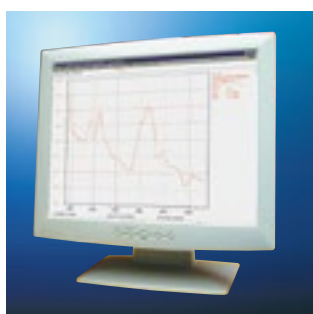


Каталог продукции

Влажность, температура, давление

THE WORLD OF WEATHER DATA

Measurement and Documentation:
Thies' range of service for meteorology,
environmental protection and industry



Today more than ever the measurement, processing and analysis of meteorological data requires a high degree of measurement instrument precision and an optimal adaptation of the data acquired to the task at hand.

For more than 60 years, we have been developing, producing and supplying practical instruments and systems for the analysis of weather data. Today, we are one of the world's largest suppliers of such equipment.

Our close cooperation with scientific institutions and governmental agencies in many countries guarantees a constant and up-to-date flow of information about all aspects of individual national problems and projects and the rapid implementation of state-of-the-art developments and measurement techniques.

Our instruments and systems fulfil in all respects both to the requirements of national weather services as well as those of the World Meteorological Organization in Geneva.

Meteorological observations without computer-aided measurement and documentation systems are unthinkable today.

THIES develops complete ready-for-use-systems which include precision data transmitters, data loggers, power supply units and personal computers with adapted software.



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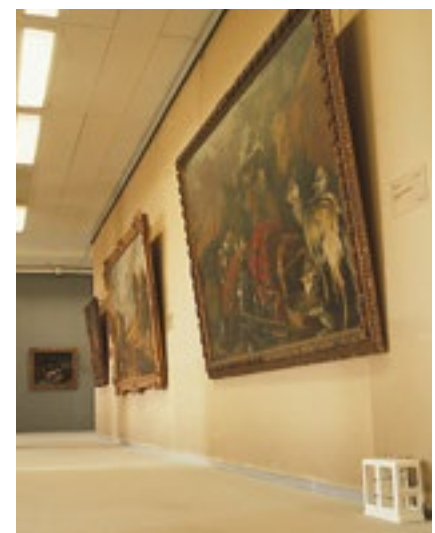
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Beyond the meteorology the measurement and regulation of air humidity is an essential element of the climatic technology. Humidity control in closed rooms as for example swimming baths, offices or living-rooms creates a comfortable atmosphere for man and helps considerably to save energy. The right humidity determines also the ideal climate for delicate goods in storerooms and dehumidifying plants, and improves by this the product quality and durability.

In the rural meteorology and environmental technique humidity measurements in the open field are undeniable for the planning of irrigation and humidifying, for the determination of the optimum seed and planting as well as for the control of micro climate.



Absolute humidity	Indicates how many grams [g/m ³] of water vapour are included in one cubic meter of air. (at 0 °C max. 5 g/m ³ , at 20 °C approx. 17 g/m ³)
Capacitive measurement element	An arrangement in which a change in the relative humidity leads to a change in the electrical capacity. For example the capacity of a polymer film on a carrier material changes when water vapour is absorbed.
Dew point	Temperature [°C, K], to which the mixture of air and water vapour has to cool down, so that the air is just saturated with the available amount of water vapour, and condensation is starting. At 15 °C and 50% rel. humidity the dew point is about 5 °C, at 80% rel. humidity about 12 °C, and at a humidity of 100% the dew point corresponds to the current temperature of 15 °C.
Dry bulb temperature	The ambient temperature measured on the dry ventilated thermometer of a psychrometer.
Hygro transmitter	General term for humidity measurement instruments with an electrical measured value output.
Hygrograph	Measurement instrument which mechanically records the relative humidity as a function of time.
Hygrometer	General term for indicating humidity measuring instruments.
Hygrostat	Humidity-dependent switching instrument to regulate moistening or dehydrating devices or to trigger warning signals indicating too little or too much moisture in moisture-sensitive installations.
Measurement element H	Specially prepared human hairs expand under the influence of humidity, thus changing in length. This change in length is a measure of relative humidity. The range of application lies between 10 and 100% rel. humidity in temperatures ranging from -60 ... +70 °C. Hair measurement elements must be regenerated.
Measurement element K	Under the influence of humidity, specially prepared synthetic fibers change in length. This change in length is a measure of relative humidity. The range of application lies between 0 and 100% rel. humidity in temperatures ranging from 0 ... +100 °C.
Psychrometer	A measurement instrument with which the humidity of the atmosphere can be measured by measuring the dry bulb temperature, and the wet bulb temperature, and applying the psychrometric equation. Owing to the good measurement accuracy attainable, it is also used as a reference instrument.
Pt 100 Sensor	A temperature sensor with a measurement coil made of platinum wire. The temperature-dependent resistance-change of the platinum wire is used as measure for the temperature. 100 Ω for 0 °C is used as basic value. The resistance-change is defined in the DIN IEC 60751 standard. Pt 100 sensors are applied for ex. in psychro transmitters.
Relative humidity	Indicates the ratio in percent [%] of the instantaneous content of water vapour in the atmosphere to the maximum possible content of water vapour at the same temperature.
Tensiometer	Measurement instrument to measure the saturation potential of the soil (water requirement of soils). Important to determine irrigation requirements.
Wet bulb temperature	Temperature, arising from evaporation (humidity temperature). Wet bulb temperature is measured at the moisturized thermometer of a psychrometer. The wet bulb temperature results from the chilling because of the evaporation at the moisturized thermometer.

Humidity



Description

Psychrometer

Aspiration Psychrometer

Model Assmann
Portable, handy, sturdy standard instrument for psychrometric humidity measurements. Used as a control instrument for humidity measuring instruments. The thermometers acc. to DIN 58661 can be calibrated. The thermometer capillary has a blue background and a clearly printed scale. The instrument is equipped with a moistening device and a psychrometer-table. Supplied in a case.

Replacement-Thermometer

for Aspiration-Psychrometer
1.0400.00.010

Wick 3.5 mm

Serves as **replacement** for used / soiled wicks at humidity thermometers of psychrometers, or as **adding**, for upgrading replacement thermometers to humidity thermometers.

Standard Psychrometer

Model August
Standard instrument for use in weather huts and thermometer huts. The instrument consists of the following:
2 Psychrometric thermometers acc. to DIN 58660
1 Maximum thermometer acc. to DIN 58654
1 Minimum thermometer acc. to DIN 58653
1 Aspirator with spring-wound drive
1 Psychrometer table
1 Moistening device as well as a foot with stand and holder.

Replacement Thermometer

for Standard Psychrometer
1.0444.10.002

Minimum Thermometer

Maximum Thermometer

Standard Thermometer

Order No.

1.0400.00.010

502588

502578

1.0444.10.002

2.0446.00.001

2.0445.00.002

2.0447.00.002

Technical Data

Measuring range	-10 ... +60 °C
Accuracy	±0.2 K (thermometer)
Graduation	0.2 °C
Aspirator	spring-wound drive
Measuring time	approx. 8 min (4 ... 2 m/s)
Dimension	Ø 90 x 420 mm
Weight	3.5 kg

Diameter / Length	3.5 mm / 1 m
-------------------	--------------

Suitable for:	
- Aspiration Psychrometer	1.0400.00.010
- Replacement Thermometer	502588

Type of thermometer	Psychrometer	Measuring range	-30 ... +50 °C (±0.2 K)
Max.-Thermometer			-30 ... +50 °C (±0.2 K)
Min.-Thermometer			-40 ... +40 °C (±0.3 K)
Graduation			0.2 °C / 0.5 °C
Total height			550 mm
Weight			2.6 kg

Description	Order No.	Technical Data
<p>Wick 8 mm Serves as replacement for used / soiled wicks at humidity thermometers of psychrometers, or as adding, for upgrading replacement thermometers to humidity thermometers.</p>	502580	<p>Diameter / Length 8 mm / 1 m</p> <p>Suitable for: - Standard Psychrometer 1.0444.10.002 - Replacement Thermometer 2.0447.00.002</p>
<p>Sling Psychrometer Simple, sturdy measuring instrument. The air ventilation required is attained by rotary centrifugal movement. The instrument is supplied with the required moistening device along with a psychrometric table.</p>	1.0450.00.010	<p>Measuring range -10 ... +60 °C Accuracy ±0.2 K Graduation 0.2 °C Dimension 305 x 60 x 22 mm Weight 0.42 kg</p>
<p>Instrument Case Black synthetic material case, lined with foam material for the above instrument including accessories.</p>	1.0452.10.000	<p>Colour black Dimension 350 x 230 x 70 mm Weight 0.25 kg</p>
<p>Replacement Thermometer for Sling Psychrometer 1.0452.10.000</p>	502591	
<p>Wick 3.5 mm Serves as replacement for used / soiled wicks at humidity thermometers of psychrometers, or as adding, for upgrading replacement thermometers to humidity thermometers.</p>	502578	<p>Diameter / Length 3.5 mm / 1 m</p> <p>Suitable for: - Sling Psychrometer 1.0450.00.010 - Replacement Thermometer 502591</p>



Humidity



Description

Recording Instruments

Hygrograph

Instrument for measurement and recording of the relative humidity. Measurement results are recorded on a strip chart, which is clamped onto a hand wound drum clockwork acc. to DIN 8300 and DIN 58658 or a quartz clockwork.

Two models are available regarding the drum clockwork:

1. Mechanical drum clockwork with hand wound drive for the temperature range from -35 ... +80 °C (for model 1.0610/614)
2. Battery-operated quartz clockwork for the temperature range from -20 ... +60 °C (for model 1.0615...)

Included in delivery:
1 set (100 sheets) strip charts
1 piece felt pen

Accessories

Felt Pen

Recording Charts

(100 pcs.)

Console

To attach the hygrograph to a wall.



Order No.

1.0610.xx.xxx

1.0614.xx.xxx

1.0615.xx.xxx

.10.

.12.

.000

.900

500847

1.0598.10.000

Technical Data

Recording time	Thrust
1 day	11.45 mm/h,
7 days	40 mm/day
14 days	20 mm/day,
31 days	9 mm/day
1 / 7 / 31 days	s. above
Measuring range	Measuring element
10 ... 100% rel. h.	H (-35 ... +70 °C)
0 ... 100% rel. h.	K (0 ... +80 °C)
non lockable	
lockable	
Accuracy	
Measuring element "H"	±2% rel. h. +1 scale division @ 65% rel. h. and room temperature
Measuring element "K"	±3% rel. h. +1 scale division @ 65% rel. h. and room temperature
Recording width	82 mm
Graduation	5% rel. h.
Ambient temp.	depending on measuring element and clockwork
Dimension	280 x 140 x 214 mm
Weight	2.2 kg

Colour violet

Meas. element H	1 day	7 days	14 days	31 days
10 ... 100% rel. h.	205079	205077	205082	205083

Meas. element K	1 day	7 days	14 days	31 days
0 ... 100% rel. h.	205080	205078	–	–

Material Varnished aluminium
Surface 280 x 140 mm
Weight 0.8 kg

Description	Order No.	Technical Data
Control Instruments		
Room Hygrostat	1.0509.42.001	<p>Operating range 35 ... 95% rel. h. Accuracy $\pm 3\%$ rel. h. Type of contact 1 x change over (micro switch)</p> <p>Micro switch Switch difference approx. 4% rel. h. Switching capacity max. 250 V AC and 0.1 ... 5 A with ohmic load for dehumidification 0.1 ... 2 A with ohmic load for humidification 0.1 ... 1 A with inductive load</p> <p>Operating temperature 0 ... +60 °C Housing Plastic, grey Protection IP 20 Dimension 115 x 70 x 42 mm Weight approx. 0,12 kg</p>
Duct Hygrostat	1.0509.60.001	<p>Operating range 35 ... 95% rel. h. Accuracy $\pm 4\%$ rel. h. Type of contact 1 x switch over (micro switch)</p> <p>Micro switch Switch difference approx. 4% rel. h. Switch capacity with ohmic load 15 A @ 230 V Switch capacity with inductive load 2 A @ 230 V Switch capacity with D/C voltage 0.25 A DC @ 230 V Max. voltage 250 V AC Switch capacity, minimum load 100 mA, 125 V AC</p> <p>Operating temperature 0 ... +60 °C Housing Plastic, light grey Protection IP 64 Dimension Housing 80 x 120 x 72 mm Stem length L 220 mm, \varnothing 16 mm Weight approx. 0.7 kg</p>
Mounting Flange	1.0509.81.000	<p>Material Aluminum Diameter for immersion tube approx. 19 mm Total diameter 50 mm Weight 0.025 kg</p>
Protective Gauze	500278	<p>Length 200 mm Diameter inside approx. 16 mm outside approx. 16.8 mm Material Stainless steel Width of mesh 0.32 mm Weight 0.011 kg</p>



Humidity

Description

Wind screen

Consisting of and dust shield. Both are placed on the sensor tube of the duct hygostat 1.0509.60.001 and, thus, are protecting the measuring element against coarse dust particle, and faulty measurements with airflows > 3 m/s.

Electrical Transmitters

Hygro-Transmitter

Measures and indicates humidity. Equipped with electrical output for long-range transmission. Sturdy construction. The exposed parts such as the case head and the immersion stem are made of stainless steel.



Wind Protection

Gauze- and wind protection protects the humidity measuring element from coarse dust (> 0.32 mm) and error measurements in case of wind velocities > 3 m/s. Suitable for above hygro transmitter.



Weather and Thermal Radiation Shield

Protective covering for the preceding hygro-transmitters for outdoor installation. Helps to prevent atmospheric influences and radiation errors from influencing the measured results.



Order No.

1.0509.85.002

1.1000.50.xxx
.015
.515

1.0509.85.006

1.1025.51.000

Technical Data

Length	200 mm
Diameter	
inside	approx. 16 mm
outside	approx. 19 mm
Material	Stainless steel, MS
Width of mesh	0.32 mm
Weight	0.043 kg

Electr. output	Connecting
200 Ω linear	Lemosa plug
200 Ω linear	3 m cable
Measuring range	10 ... 100% rel. h.
Accuracy	$\pm 2\%$ rel. h. @ 20 ... 100% rel. h. and room temperature
Ambient temp.	-35 ... +70 $^{\circ}\text{C}$
Scale graduation	1% rel. h., non-linear
Measuring element	H
Scale length	94 mm (90 $^{\circ}$)
Stem	\varnothing 22 mm
Stem length	250 mm
Protection	IP 65, case
Total length	350 mm
Weight	0.7 kg resp. 0.9 kg

Diameter	24 mm
Length	200 mm
Mesh aperture	0.32 mm
Material	Niro, Brass
Weight	0.05 kg

Installation pin	\varnothing 22 x 27 mm
Material	Al, galvanised and varnished
Dimension	\varnothing 170 x 450 mm
Weight	2.2 kg

Description	Order No.	Technical Data
<p>Psychrogeber Measuring instrument to determine the air humidity values based on the dry and moist temperature. An attached water container provides for the moistening of the psychro sensor. The double-walled protection tubes protect the sensor from radiation.</p> <p>A hanger, included in delivery, serves for the lateral mounting of the psychro-transmitter at a facade, wall etc.</p>	<p>1.1130.xx.000 .20. .22.</p>	<p>Operating voltage 12 V AC / 6 W 24 V AC / 11 W 24 V DC / 8 W</p> <p>Operating voltage 12 V DC Measuring range 0 ... +60 °C Measuring elements 2 x Pt 100, acc. to DIN IEC 60751</p> <p>Accuracy 1/3 class B (±0.1 K) Time constante 17 s (90%) Airflow 4 ... 6 m/s Water container 250 ml Type of switching 4-wire circuit Connection 2 x 4 pole plug connection</p> <p>Dimension Psychro transmitter Ø: 160 mm, H: 465 mm Hanger L: 310 mm</p> <p>Weight Psychro transmitter 3.7 kg Hanger 1.0 kg</p>
<p>Replacement-Sensor for Psychro-Transmitter 1.1130... compl., consisting of Pt 1000 (1/3 class B) casing and plug connection</p>	2.1266.10.001	
<p>Soil Moisture Probe Trime-Pico 32, serial Soil moisture sensor with integrated temperature sensor.</p> <p>The network-compatible instrument serves for the measurement of volumetric water content in the ground and the soil temperature.</p> <p>The data communication is carried out via an RS485 interface.</p> <p>It is used with</p> <ul style="list-style-type: none"> • Hydrology, • Forestry, • Agriculture, • Environmental- and Geological science <p>The electrical connection is carried out via a permanently connected cable.</p>	1.0231.00.000	<p>Humidity measuring range 0 ... 100% volumetric water content Accuracy ±2% @ 0 ... 40% ±3% @ 40 ... 70%</p> <p>Temperature measuring range -15 ... +50 °C Accuracy ±1.5 °C Operating voltage 7 ... 24 V DC Power consumption 100 mA @ 12V/DC during 2 ... 3 sec of measurement</p> <p>Electr. output RS485 Connection 5 m cable with cable-end sleeves Protection IP 68</p> <p>Dimension Probe Ø 32 x 155 mm Rod Ø 3.5 x 110 mm Weight approx. 0.12 kg</p>



Humidity



Description

Soil Moisture Probe Trime-Pico 32, analogue

Instrument as above, however, the measuring value output occurs as analogue signal.

Order No.

1.0231.00.060

Technical Data

Humidity measuring range	0 ... 100% volumetric water content
Accuracy	±2% @ 0 ... 40% ±3% @ 40 ... 70%
Temperature measuring range	-40 ... +70 °C
Accuracy	±1.5 °C
Operating voltage	7 ... 24 V DC
Power consumption	100 mA @ 12V/DC during 2 ... 3 sec of measurement
Electr. output	2 x 0 ... 1V
Connection	5 m cable with cable-end sleeves
Protection	IP 68
Dimension	
Probe	Ø 32 x 155 mm
Pod	Ø 3.5 x 110 mm
Weight	Approx. 0.12 kg



Meteorological garden with weather huts

Temperature measurements are fundamentally important in the different fields of science, industry and environmental technique. The legal requirements e.g. for the storing of food, get constantly stricter, and meanwhile lay down also official controls of climatic data. Our instruments with calibration certificate meet these requirements. Reliable measurements and documentation of extreme temperature ranges and temperature fluctuations as well as high-precise measurements are problem-free possible with the different instrument components. Exactly acquired and recorded temperature values form the basis for effective energy optimising and energy saving.



Climatic measurement of the South Pole



Meteorological data for the road condition



Bimetallic measuring element	A strip composed of two different metals which are welded together. The two different heat expansion coefficients of these metals lead to a temperature-dependent curvature of the welded metal. This curvature respectively deflection is a measure of the upcoming temperature	
Extreme Thermometer	Combination of a min.- and a max. -thermometer to measure the current, the lowest and the highest temperature of the preceding measurement period.	
Max.-Thermometer	For the measurement of the current and highest temperature of the preceding measurement period. A pin is pushed forward through the meniscus of the mercury filament by raising temperature, and remains with the maximum temperature value when the temperature drops. The thermometer is used in horizontal position	
Min.-Thermometer	For the measurement of the current and lowest temperature of the preceding measurement period. A pin in the alcohol filament is pushed back by the surface tension of the alcohol, and remains with the minimum temperature value when the temperature increases.	
Perceived Temperature	The ambient temperature as perceived by the human body affected by the wind. It is calculated from the "wind-chill" factor.	
Pt 100 Sensor	Is a temperature sensor with a measurement coil made of platinum wire. The temperature-dependent resistance-change of the platinum wire is used as measure for the temperature. 100 Ω for 0 °C is used as basic value. The resistance-change is defined in the DIN IEC 60751 standard.	
Soil Surface Thermometer	Measurement instrument to measure the temperature above the soil, preferably at a height of 5 cm. The German Weather Service uses sensors without radiation protection only to measure the minimum temperature.	
Soil Thermometer	Measurement instrument to measure the air temperature in soil at different depths.	
Temperatur transmitter	Electrical temperature measurement instrument with an electrical measured value output.	
Thermograph	Measurement instrument which mechanically records the temperature as a function of time	
Thermometer	General term for a temperature measurement instrument	
Units	Kelvin [K]	Used since 1976 as the legal unit of temperature. It starts at -273.15 °C
	Celsius [°C]	Common temperature degree scale in which the melting point of ice is 0 °C and the boiling point of water is 100 °C on a thermometer at an air pressure of 1013.2 mbar.
	Fahrenheit [°F]	Temperature scale frequently used in Anglo-Saxon countries. On this scale, the melting point of ice is 32 °F
	Conversions	$^{\circ}\text{C} = \text{K} - 273.15$ $\text{K} = ^{\circ}\text{C} + 273.15$ $^{\circ}\text{C} = \frac{5}{9} (^{\circ}\text{F} - 32)$ $^{\circ}\text{F} = 32 + \frac{9}{5} ^{\circ}\text{C}$
Windchill	The loss of heat by the human body [W/m ²] through the wind The "perceived temperature" is derived from this factor.	

Temperature

Description

Thermometers

Maximum-Thermometer

A mercury glass thermometer, can be calibrated. Employed to determine the highest air temperature.

Minimum-Thermometer

An alcohol glass thermometer, can be calibrated. Employed to determine the lowest air temperature.

Standard-Thermometer

A mercury glass thermometer, can be calibrated. Designed for measuring the current ambient temperature. Also used as a spare thermometer for psychrometers model August.

Soil Thermometer

A mercury glass thermometer, can be calibrated. Designed for measuring the soil temperature. Supplied with a holder. The immersion depth governs the depth of the measuring point in the soil.

Soil Depth Thermometer

Consists of a mercury glass thermometer with a holder and a plastic guide tube. The immersion depth governs the depth of the measuring point in the soil.

Order No.

2.0445.00.002
.010
.011
.017

2.0446.00.001
.002
.066
.067
.092

2.0447.00.002
.011
.056

2.2110.02.003
.03.003
.06.004
.11.006
.16.008
.21.009
.31.009

2.2115.03.013
2.2116.03.013

Technical Data

Measuring range	Graduation/Accuracy
-30 ... +50 °C	0.5 °C / ±0.2 K
-10 ... +60 °C	0.5 °C / ±0.5 K
-10 ... +50 °C	0.2 °C / ±0.2 K
0 ... +60 °C	0.2 °C / ±0.2 K

Dimension	Ø 19 x 300 mm
Weight	0.075 kg

Measuring range	Graduation/Accuracy
-40 ... +40 °C	0.5 °C / ±0.2 K
-40 ... +40 °C	0.2 °C / ±0.2 K
-30 ... +50 °C	0.2 °C / ±0.2 K
-45 ... +40 °C	0.2 °C / ±0.2 K
-40 ... +60 °C	0.5 °C / ±0.5 K

Dimension	Ø 19 x 300 mm
Weight	0.06 kg

Measuring range	Graduation/Accuracy
-30 ... +50 °C	0.2 °C / ±0.2 K
-10 ... +50 °C	0.2 °C / ±0.2 K
-30 ... +60 °C	0.2 °C / ±0.2 K

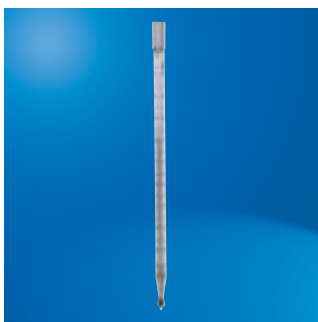
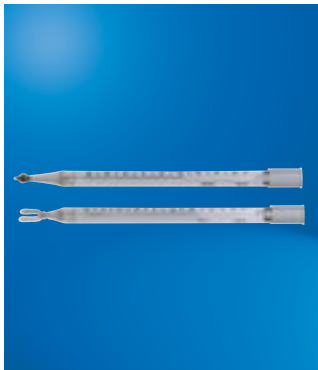
Liquid	Alcohol or mercury
Dimension	Ø 16 x 370 mm
Weight	0.06 kg

Measuring range	Immersion depth
-25 ... +60 °C	20 mm
-25 ... +60 °C	30 mm
-25 ... +45 °C	60 mm
-22 ... +40 °C	110 mm
-15 ... +40 °C	160 mm
-15 ... +35 °C	210 mm
-15 ... +35 °C	310 mm

Accuracy	±0.4 K (< 0 °C) ±0.2 K (0 ... 50 °C) ±0.3 K (> +50 °C)
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Graduation	0.2 °C
Bending	150°
Weight	approx. 0.95 kg

Immersion depth	500 mm 1000 mm
Measuring range	-10 ... +30 °C
Accuracy	±0.3 K (-10 ... -5 °C) ±0.15 K (-5 ... -30 °C)
Graduation	0.1 °C
Guide tube	Ø 40 mm
Weight	0.9 kg resp. 1.4 kg



Temperature

Description

Extreme Thermometer for use in soil

Consists of a mercury glass thermometer with a bent immersion stem, determines the lowest and highest temperature of the soil. The immersion depth governs the depth of the measuring point in the soil.

Thermometer Stand

not depicted
Holds the extreme thermometer for use in soil, described in the preceding.

Extreme Thermometer

Determines the lowest and highest ambient temperature. Consists of a maximum thermometer and a minimum thermometer with stand.

Max.- and Min.- Thermometer

Thermometer determines the current temperature as well as the lowest and the highest temperatures of the measuring period. There is an adjustment knob to set back the marker threads for extreme value identification.

■ other thermometer-variants, measuring range and scales on request

Order No.

2.2121.xx.002
2.2122.xx.002
.02.
.05.
.10.
.20.

2.2123.00.000

2.2135.00.000

2.2004.00.079

Technical Data

Type	Min.-Thermometer Max.-Thermometer
Immersion length	20 mm 50 mm 100 mm 200 mm
Measuring range	-25 ... +50 °C
Accuracy	±0.4 K / ±0.3 K
Graduation	0.2 °C
Bending	95°
Weight	0.12 kg

Material	Stainless steel
Dimension	340 x 320 x 20 mm
Weight	0.7 kg

Techn. data	see instrument no.: 2.0445.00.002 and 2.0446.00.001 (page 14)
Total height	320 mm
Weight	1.5 kg

Measuring range	-38 ... +50 °C
Graduation	1 °C
Fluid	Mercury
Material of case	white synthetic
Length of scale	110 mm
Dimension	220 x 66 x 35 mm
Weight	0.17 kg



Temperature



Description

Water Thermometer

Thermometer determines the water temperature.

A glass mercury thermometer in a metal tube with a large perforated water container.

Recording Instruments

Thermograph

Instrument for measurement and recording of the ambient temperature. Measurement results are recorded on a strip chart, which is clamped onto a hand wound drum clockwork acc. to DIN 8300 and DIN 58658 or a quartz clockwork.

Two models are available regarding the drum clockwork:

1. Mechanical drum clockwork with hand wound drive for the temperature range from -35 ... +80 °C (for model 2.0600/604...)
2. Battery-operated quartz-clockwork for the temperature range form -20 ... +60 °C (for model 2.0605...).

Included in delivery:
1 set (100 sheets) strip chats
1 piece felt pen

Console

Instrument for wall mounting of the thermograph described in the preceding.

Accessories

Felt Pen

Recording Charts

(100 pcs.)
For Thermograph

Order No.

2.2141.00.064

2.0600.10.xxx

2.0604.10.xxx

2.0605.10.xxx

.0xx

.9xx

.x00

.x05

.x11

.x14

.x17

1.0598.10.000

500847

Technical Data

Measuring range	-5 ... +40 °C
Accuracy	±0.2 K
Graduation	0.5 °C
Fluid	Mercury
Container	Brass, nickel plated
Dimension	Ø 28 x 300 mm
Weight	0.4 kg

Recording time	Thrust
1 day	11.45 mm/h,
7 days	40 mm/day
14 days	20 mm/day
31 days	9 mm/day
1 / 7 / 31 days	see preceding

non-lockable
lockable

Measuring range	Graduation
-35 ... +45 °C	1 °C
-20 ... +60 °C	1 °C
-10 ... +50 °C	1 °C
0 ... +40 °C	0.5 °C
0 ... +80 °C	1 °C

Accuracy	±1% of mr. +1 scale division @ 65% r.h and room temperature
----------	--

Measuring element	Bimetal
Recording width	82 mm
Dimension	280 x 138 x 214 mm
Weight	2.2 kg

Material	Aluminium, varnished
Surface	280 x 140 mm
Weight	0.8 kg

Colour	violet
--------	--------

temp. range	1 day	7 days	14 days	31 days
-35 ... +45 °C	205060	205046	205063	205069
-20 ... +60 °C	205050	205036		205075
-10 ... +50 °C	205052	205038		205068
0 ... +40 °C	205054	205040	205064	205076
0 ... +80 °C	205057	205043		

Temperature

Description

Electrical Transmitters

Temperature Transmitter Water Temperature Transmitter

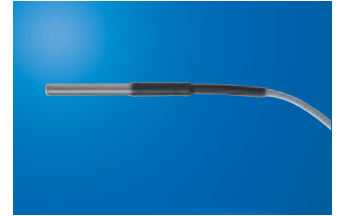
The measuring element is protected by a waterproof and stainless steel tube, it has a PVC cable resp. a FEP-cable.

Order No.

2.1235.00.xxx
2.1235.01.xxx
.000
.010
.020

Technical Data

Measuring range -30 ... +100 °C (±0.1 K)
-50 ... +200 °C (±0.1 K)
Cable length 5 m
10 m
20 m
Measuring element Pt 100
acc. to DIN IEC 60751
Accuracy $\frac{1}{3}$ class B
(0.1 °C at 0 °C)
Electr. connection 4-lead circuit
Cable LIYCY 4 x 0.25 mm²
Sensor dimension Ø 6 x 70 mm
Weight 0.3 kg; 0.6 kg; 1.2 kg

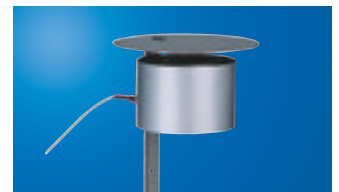


Soil Surface Temperature Transmitter

Instrument measures the temperature above the surface of the soil. The temperature sensor is protected by a well-ventilated double-walled tube with roofing plate.

2.1241.00.000

Measuring range -30 ... +50 °C
Measuring element Pt 100
acc. to DIN IEC 60751
Accuracy ±0.1 K; $\frac{1}{3}$ class B
Electr. connection 4-lead circuit
Cable 5 m, LIYCY
4 x 0.25 mm²
Protective shield double tube,
varnished
Dimension Ø 177 x 100 mm
Weight 1 kg



Air Temperature Transmitter with Thermal Radiation Shield

The instrument is designed to measure the temperature outdoor precisely. It has a specially constructed well-ventilated thermal radiation shield made of an anodized aluminium.

2.1260.00.000

Measuring range -30 ... +50 °C
Measuring element Pt 100
acc. to DIN IEC 60751
Accuracy ±0.1 K; $\frac{1}{3}$ class B
Electr. connection 4-lead circuit
Connection 4-pole clamp
Dimension Ø 120 x 400 mm
Weight 0.8 kg



Ventilated Air Temperature Transmitter

This instrument is designed to measure the precise air temperature with the air of a ventilated sensor. The sensor is protected by a double thermal radiation shield. A built-in ventilator provides for the necessary air flow. A hanger, included in delivery, serves for the lateral mounting of the air temperature transmitter at a facade, wall etc.

2.1265.xx.000
.20.

.22.

Operating voltage 12 V AC/ 6 W or
24 V AC/ 11 W or
24 V DC/ 8 W
Operating voltage 12 V DC/ 4 W
Measuring element Pt 100
acc. to DIN IEC 60751
Accuracy $\frac{1}{3}$ class B (±0.1 k)
Time constant 17 s (90%)
Air flow 4 ... 6 m/s
Type of switching 4-wire circuit
Connection 4 pole plug connection
Dimension
Air temp. transmitter Ø: 160 mm,
H: 465 mm
L: 310 mm
Hanger
Weight
Air temp. transmitter 3.5 kg
Hanger 1.0 kg



Replacement-Sensor
for Ventilated Air Temperature
Transmitter 2.1265... compl.
consisting of PT 100 ($\frac{1}{3}$ Class B),
casing and plug connection

2.1266.10.001

Temperature



Description

Temperature Sensor compact

Electrical measured value receiver to measure the ambient temperature, The measured value is emitted as a resistance value in accordance with DIN IEC 60751 resp. as an analogue voltage or current signal.

Order No.

2.1280.00.xxx
.000
.141
.160
.161
.173

Technical Data

Electr. output	Accuracy
Pt 100 acc. to	1/3 class B
DIN IEC 60751	(±0.1 K)
4 ... 20 mA	±0.3 K
0 ... 1 V	±0.2 K
0 ... 10 V	±0.2 K
0 ... 5 V	±0.2 K
Measuring range	-30 ... +70 °C
Time constant	20 s (90%)
Ambient temp.	-40 ... +80 °C
Operating voltage	
I-output	12-30 V DC
U-output (10 V)	15-30 V DC
U-output 5 V)	10-30 V DC
U-output (1 V)	6-30 V DC
Int. power consump.	approx. 5 mA (10V)
Cable	5 m long
Dimension	Ø 20 x 138 mm
Weight	0.35 kg

Temperature Sensor compact

• Plug type
Model like 2.1280.00.1xx, however with plug and mating connector instead of von permanently connected cable.

2.1280.00.xxx
.700
.761

Electr Output	Accuracy
Pt 100 acc. to	1/3 Class B (±0.1 K)
DIN IEC 60751	
0 ... 10 V	±0.2 K
Connection	connector
Dimension	Ø 20 x 155 mm
Weight	approx. 0.4 kg



Teflonfilter with gauze ZE 20

This hood is placed over the sensor and protects the measurement element from coarse dirt.

1.1005.54.901



Sinter Filter ZE 21

made of metal. This basket is placed over the sensor and protects the measurement element from high wind speed (> 5 m/s) and increased dust.

A necessity for sensors in use in exposed areas, eg. in marine climates, desert, mountains.

1.1005.54.902



Wall Holder

- for mounting the Temperature Sensor 2.1280 onto a wall,
- radiation- and precipitation-protected use (for ex. indoor)

1.1005.54.903

Clamping range	Ø 20 mm
Wall distance	83 mm (to transmitter centre)
Material	plastic, grey flange
Mounting	plate with 3 x 6.5 mm boring
Dimension	96 mm long
Weight	0.075 kg



Weather and Thermal Radiation Shield, compact

Protective case for the preceding temperature sensor compact for outdoor installation. This case essentially eliminates the influence of weather and radiation errors which affect the measurement result.

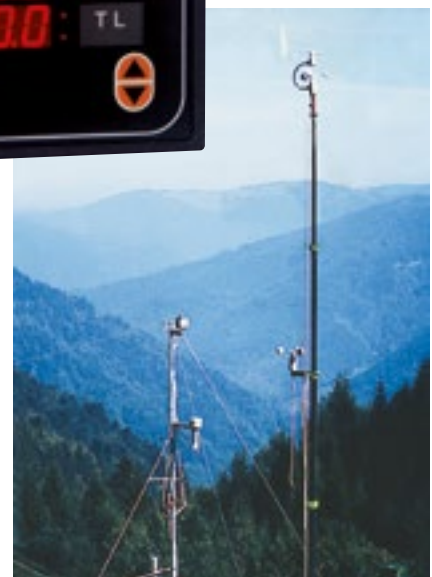
1.1025.55.00x
.10x
.xx0
.xx1

Without ventilator	
With ventilator	12 V DC; 2.5 W
Clamping	Ø 35 ... 50 mm Ø 55 ... 60 mm
Material	syn. laminations, white
Mounting	non-corroding holder
Cable	5 m, for model ... 10x
Dimension	Ø 120 x 275/290 mm
Weight	0.8 kg

Remark: For the putting into circulation of mercurial thermometers, see guideline 2007/51/EG of the European Parliament and Council and regulation (EG) No. 847/2012.



The acquisition and recording of air pressure differences and areas of low and high pressure are the main tasks of the meteorology for precise weather forecasting. But also in the field of laboratorial and environmental technique the exact determination of air pressure is very important. The THIES instruments configuration with their varied forms of calculation and representation guarantee a high precision measurement according to requirements.



Air pressure (P)	The air pressure of any place in the earth's atmosphere is the pressure of the air, existing at this place. It indicates the weight power of the air column standing above a surface or body.
Barograph	is a measuring instrument which records the time course of the air pressure on a chart-stringed drum.
Barometer	is a measuring instrument for determination (display) of air pressure, and is used in a variety of different forms and types mostly in the field of meteorology.
Barometric Altitude Formula	indicates the vertical change of the air pressure with the altitude. Simplify you may assume that close to the sea level the air pressure declines by one hPa per 8 m altitude.
Barometric Unit	Unit of the air pressure is the Pascal. As the air pressure on sea level is, on average, 101325 Pa, thus approx. 100000 Pa, it is given mostly by the number about 1000 in hectopascal (1013.25 hPa) or by the same numerical value millibar (mbar). The air pressure is mostly measured through a barometer, where often obsolete units are used. Here is: 1 hPa = 1 mar = 0.75 Torr (= mm Hg or millimeter mercury column).
Baro transmitter	is a measuring instrument with electrical measuring value output
QFE	QFE means the air pressure of aerodrome/airport on the runway. If QFE is set at the altimeter (for ex. before start or landing) you achieve the barometric air pressure or height related to the airport height. On the airport the altimeter indicates then a height of 0 m or 0 ft.
QFF	QFF is the current air pressure at the measuring site (for ex. aerodrome/airport), reduced to the sea level. It is used in the field of meteorology in order to compare the air pressures of different places at different heights. The calculation is carried out with ASL (altitude above sea level) and data of the "current atmosphere" (pressure, temperature, and humidity).
QNH	The abbreviation QNH means the air pressure at the measuring station, reduced to sea level acc. to "standard atmosphere". It serves for setting an altimeter which displays the flight altitude above sea level. After landing of the aircraft, the altimeter displays the altitude of site above sea level.
Standard atmosphere	is a term used in aviation. Characteristics like pressure, temperature, or temperature course with the altitude are subject to special and time changes in the atmosphere. The standard atmosphere indicates an average state of the atmosphere.
TA	Transition Altitude is a term used in aviation. It indicates the altitude where the transition of the altimeter setting from standard air pressure to the currently existing air pressure QNH is carried out or vice versa.
TL	Transition Level (TL) is the lowest flight level available for use which has a minimum distance of 1000 ft above the transition altitude. Therefore the Transition Level is depending on the air pressure. In some regions of Germany the Transition Altitude is, generally, 5000 ft.

Pressure

Description

Aneroid Barometers



Barometer

Indicating instrument for the barometric pressure. Scale with brass ring, housing made of mahogany.

Order No.

3.1503.00.010

Technical Data

Measuring range 965 ... 1055 hPa
730 ... 790 Torr
Scaling 10 hPa, 1 Torr
Measuring system Aneroid capsule
Dimension
Scale Ø 130 mm
Housing Ø 170 mm



Barometer

Indicating instrument with a mounting flange for wall mounting. Light grey varnished.

3.1509.00.000

Measuring range 935 ... 1065 hPa
700 ... 800 Torr
Graduation 1 hPa; 1 Torr
Accuracy ±3 hPa at 980-1030 hPa
Above sea level 0-1000 m
Measuring element Aneroid capsule
Scale Ø 100 mm
Dimension Ø 120 x 45 mm
Weight 0.3 kg

Mercury Barometers



Mercury Station Barometer

An instrument designed to measure and test atmospheric air pressure in meteorological stations, laboratories etc. The instrument is equipped with an additional thermometer.

3.1550.17.000
.001

Measuring range 800 ... 1080 hPa
560 ... 1030 hPa
Graduation 0.1 hPa, vernier scale
Accuracy ±0.3 hPa
Temp. meas. range -15 ... +50 °C
Dimension Ø 65 x 940 mm
Weight 4.8 kg

Delivery in a wooden transport box

Mounting Board

For vertical installation of the mercury station barometer.

3.1552.00.000
.001

For measuring range 800 ... 1080 hPa
560 ... 1030 hPa
Dimension 1000 x 115 x 13 mm
Weight 2 kg

Description

Recording Instruments

Barograph

The instrument serves for the measurement and recording of the barometric air pressure. The recording is carried out on a strip chart which is clamped onto a hand wound drum clockwork acc. to DIN 8300 and DIN 58658 or onto a quartz clockwork.

The local altitude can be set by means of an adjusting screw.

As to the drum clockwork two models are available:

1. Mechanical drum clockwork with hand wound drive (for model 3.800../3.0804..)
2. Battery-operated quartz clockwork (for model 3.805..)

Included in delivery:

- 1 set (100 sheets) strip chats
- 1 piece felt pen

Micro Barograph

Recording precision measuring instrument for the measurement of the atmospheric air pressure.

The local elevation is set at the measurement site by means of an adjusting screw. The recording is carried out on a strip chart which is clamped onto a hand wound drum clockwork acc. to DIN 8300 and DIN 58658.

Included in delivery:

- 1 set (100 sheets) strip chats
- 1 piece felt pen

Accessories

Felt Pen

Recording Charts

(100 pcs.)
for Barograph
3.080x.10.xxx

Recording Charts

(100 pcs.)
for Micro Barograph
3.0810.20.000

Order No.

3.0800.10.xxx

3.0804.10.xxx

3.0805.10.xxx

.000

.900

3.0810.20.000

500847

Technical Data

Recording time

1 day
7 days
14 days
31 days
1 / 7 / 31 days

non lockable
lockable

Measuring range Graduation Accuracy

Above sea level
Measuring element

Ambient temp.
Recording width
Dimension
Weight

Thrust

11.45 mm/h
40 mm/d
20 mm/d
9 mm/d
see preceding

945 ... 1052 hPa
1 hPa
±0.8 hPa
+1 scale division
@ 65% rel. h. and
room temperature

0 ... 3000 m
Aneroid-capsules
temperature
compensated
-10 ... +45 °C
82 mm
280 x 138 x 214 mm
2.3 kg

Recording time Thrust

Measuring range
Accuracy

Recording width
Graduation
Above sea level

Measuring element

Ambient temp.
Dimension
Weight

1 / 7 days, switchable
11.45 mm/h or
40 mm/d
965 ... 1050 hPa
±0.3 hPa
+1 scale division
@ 65% rel. h. and
room temperature

160 mm
1 hPa
0 ... 2000 m,
adjustable
2 Aneroid capsules,
temperature
compensated
-10 ... +45 °C
280 x 138 x 285 mm
3 kg

Colour

violet



Meas. range	1 day	7 days	14 days	31 days
945 ... 1052 hPa	205184	205182	205185	205186

Meas. range	1 day	7 days	14 days	31 days
965 ... 1050 hPa	205188	205187	–	–

Pressure



Description

Electrical Transmitter

Baro Transmitter

- Scalable
 - measuring range
 - Analogue output
- Configurable
 - mean value calculation
 - heating control,
 - energy saving mode,
 - baud rate

The baro transmitter measures the “absolute air pressure” of the atmosphere at the site. It is designed for application in the field of environmental protection, where high accuracy, quick responding behaviour, long-term stability and reliability are required.

The instrument is suited for in- and outdoor application. A tempered piezo-ceramic sensor for absolute pressure is used, which is characterized by thermal and mechanical stability.

The electric connection is done via an 8-pole terminal strip and a special screwed cable gland with smoothing function for air pressure.

The following outputs are available:

- 1 x serial interface
- 1 x frequency output
- 1 x analogue output (U/I)



Baro Transmitter B-278-1T

Baro Transmitter B-278-2T

Baro transmitters measure the barometric ambient pressure and emit the measured value as an electrical voltage value. Owing to its low current consumption, It is particularly suitable for use in combination with data loggers.

To be mounted preferably in data logger systems.

Order No.

3.1157.10.000

3.1157.10.040

3.1157.10.041

3.1157.10.061

3.1157.10.140

3.1157.10.141

3.1157.10.161

3.1158.00.075

3.1158.10.075

Technical Data

Measuring range (factory settings)	Electr. output
300 ... 1100 hPa	1 x RS485
300 ... 1100 hPa	1x 300 ... 1100Hz
800 ... 1060 hPa	1 x 0 ... 5 V
300 ... 1100 hPa	1 x RS485
300 ... 1100 hPa	1 x 300 ... 1100 Hz
600 ... 1060 hPa	1 x 0 ... 20 mA
300 ... 1100 hPa	1 x RS485
300 ... 1100 hPa	1 x 300 ... 1100 Hz
600 ... 1060 hPa	1 x 4 ... 20 mA
300 ... 1100 hPa	1 x RS485
300 ... 1100 hPa	1 x 300 ... 1100 Hz
600 ... 1060 hPa	1 x 0 ... 10 V
300 ... 1100 hPa	1 x RS485
300 ... 1100 hPa	1 x 300 ... 1100 Hz
800 ... 1060 hPa	1 x 0 ... 20 mA
300 ... 1100 hPa	1 x RS485
300 ... 1100 hPa	1 x 300 ... 1100 Hz
800 ... 1060 hPa	1 x 4 ... 20 mA
300 ... 1100 hPa	1 x RS485
300 ... 1100 hPa	1 x 300 ... 1100 Hz
800 ... 1060 hPa	1 x 0 ... 10 V

Accuracy with heating @ -40 ... +65 °C ±0,25 hPa

Accuracy w/o heating @ -20 ... +65 °C ±1 hPa

Long-term stability ±0.1 hPa/year

Operating voltage depending on mode of operation and model 5/8/12 ... 24 V DC

Current consumption (@12VDC)
 W/o heating 10 mA (max.)
 With heating 115 mA (max.)

Connection Screwed cable gland and terminal strip

Ambient temperature -40 ... +65 °C
 Dimension approx. 110 x 82 x 57 mm

Weight 0.15 kg

Measuring range 800 ... 1060 hPa
 600 ... 1060 hPa

B- 278-1T
 Accuracy @ 20 °C ±0.30 hPa
 Linearity ±0.25 hPa
 Hysteresis ±0.03 hPa

S- 278-2T
 Accuracy @ 20 °C ±0.50 hPa
 Linearity ±0.45 hPa
 Hysteresis ±0.05 hPa

Resolution 0.01 hPa
 Long term stability 0.1 hPa / Yr
 Electr. output 0 ... 5 V DC
 Operating voltage 9.5-28 VDC (3 mA)
 Ambient temp. -40 ... +60 °C
 Dimension 61 x 91 x 25 mm
 Weight 0.14 kg

Description

Digital Baro Transmitter

Indicating measuring instrument with analogue output to determine the atmospheric pressure. An aneroid capsule with inductive displacement pickup serves as a sensor. The sensor signal is amplified electronically and displayed on a LC display. The analogue output is available for the connection of electronic recording and control instruments. Behind the front panel is a potentiometer to reduce the measured value to sea level. The instrument is in the form of a switch cabinet for panel installation.

Baro Display

Displaying measuring instrument for four air pressure parameters. Instrument with integrated pressure sensor. Analogue output and serial interface serve for output of measuring data to processing systems.

Display parameter:

- **QNH** air pressure relating to the sea level with standard atmosphere
- **QFE** air pressure related to the runway
- **P** absolute pressure
- **TL** Transition-Level
- **Tendency**

Measuring value output:

- The output of the displayed parameters is carried out via a serial interface. The interface specifications are settable.
- The analogue output of absolute pressure P is done via an integrated analogue-interface (U/I is settable).

Operation:

through front side key button

- Dimming display, storing brightness, setting baud rate, setting protocol format, function test
- Editing parameter to **QNH**, **QFE**, offset correction for absolute pressure **P**

Order No.

3.1159.00.xxx
.040
.041

3.1156.xx.000
.00
.01

Technical Data

Electr. output	0 ... 20 mA 4 ... 20 mA
Load	≤ 250 Ω
Measuring range	913.3 ... 1113.3 hPa
Accuracy	±0.5 hPa (at NN)
Resolution	0.1 hPa
Display	4 1/2-digit LED red
Temp. range	0 ... +50 °C
Above sea level	0 ... 850 m
Operating voltage	230 V AC or 115 V AC or 12 ... 28 V DC
Model	panel mounting
Dimension	96 x 96 x 127 mm
Weight	0.6 kg

Operating voltage	230 V / 50Hz; 24 V AC 12-35 V DC 115 V / 50 Hz; 24 V AC 12-35 V DC
-------------------	---

Measuring range	600 ... 1100 hPa
Accuracy	±0.25 hPa
Resolution	0.1 hPa
Digital interface	
Type	1 x RS 422
Baud rate	1200, 2400, 4800, 9600, 19200, 57600 for ex. 8N1, 7E1
Parameter	

Analogue output	1 x 0 ... 5 V or 1 x 0 ... 10 V or 1 x 0(4) ... 20 mA
-----------------	---

Accuracy	±0.3% of the end of measuring range @T _{amb} +20 °C
----------	--

Display	4 x 5-digit, LED red, 14 mm high
---------	-------------------------------------

Temperature range	-10 ... +50 °C
Construction	switch panel mounting
Dimension	144 x 144 x 135 mm
Protection	IP 20
Weight	1.5 kg



Pressure



Description

Baro Display

Displaying measuring instrument for four air pressure parameters with integrated pressure sensor. Analogue output and serial interface serve for the output of the measuring data to systems for further processing.

Display parameter:

- **QFF***, - air pressure reduced to sea level at measuring site
- **QFE** air pressure referred to runway
- **Rel. humidity** (0 ...100% rel. h.)
- **Temperature** (-40 ... +70 °C)

Measuring value output:

- The output of the displayed parameters is carried out via a serial interface. The interface specifications are settable.
- The analogue output of absolute pressure **P** is done via an integrated analogue interface (U/I is settable)

Operation:

through front side key button

- Dimming display, storing brightness, setting baud rate, setting protocol format, function test
- Editing parameter to **QFF**, **QFE**, offset correction for absolute pressure **P**

* display and output is possible only with connection of a suited Hygro-thermo transmitter (for ex.1.1005.54.000).

Remark

For the putting into circulation of mercury barometers, see guideline 2007/51/EG of the European Parliament and Council and regulation (EG) Nr. 847/2012.

Order No.

3.1156.xx.001
.00
.01

Technical Data

Operating voltage	230 V / 50 Hz; 24 V AC 12-35 V DC 115 V / 50 Hz; 24 V AC 12-35 V DC
Measuring range	600 ... 1100 hPa
Accuracy	±0,25 hPa
Resolution	0.1 hPa
Digital interface	
Type	1 x RS 422
Baud rate	1200, 2400, 4800, 9600, 19200, 57600 for ex. 8N1, 7E1
Parameter	
Analogue output	1 x 0 ... 5 V or 1 x 0 ... 10 V or 0(4) ... 20 mA (= 600 ... 1100 hPa)
Accuracy	±0.3% of measuring range @T _{amb} +20 °C
Analogue input	
for rel. humidity	0-1V(2V, 5V, 10V) or 0(4) ... 20mA
for temperature	Pt100
Display	4 x 5-digit, LED red, 14 mm high
Temperature range	-10 ... 50 °C
Construction	Panel mounting
Dimension	144 x 144 x 135 mm
Protection	IP 20
Weight	1.5 kg

Humidity Temperature Pressure

Description

Indicators

Hygro-Thermometer

Combined indicating instrument designed to measure the ambient temperature and rel. humidity, as well as the representation of the normal climate acc. to DIN 50014, and of a comfort range

Order No.

1.0165.42.058
1.0169.42.058

Technical Data

Model with feet and hook with flange for wall-mounting

Humidity
Measuring range 20 ... 100% rel. h.
Graduation 2% rel. h.
Accuracy ±3% rel. h. @ room temperature

Temperature
Measuring range +5 ... +45 °C
Graduation 1 °C
Accuracy ±1 K
Dimension Ø 130 x 36 mm
Ø 150 x 36 mm with model with mounting flange

Weight 0.45 kg



Recording Instruments

Hygro-Thermograph

Recording instrument for rel. air humidity and air temperature. The housing consists of a plastic-metal combination. The axes are supported by pivot bearings. Two different models are available regarding the drum clockwork drive:

1.0660.xx.xxx

1.0664.xx.xxx

1.0665.xx.xxx

.00.
.02.

1. Mechanical drum clockwork with hand wound drive for the temperature range from -35 ... +80 °C (for model 1.0660 / 664..)

.0xx
.9xx

2. Battery-operated quartz clockwork for the temperature range from -20 ... +60 °C (for model 1.0665..)

.x00
.x05
.x11
.x12
.x14
.x15
.x16
.x17

Included in delivery:
1 set (100 sheets) strip charts
2 pieces felt pens

* the measuring range is possible only with mechanical clockwork

** the measuring range is possible only with measuring element „H“.

Recording time
1 day 11.45 mm/h
7 days 40 mm/d
14 days 20 mm/d
31 days 9 mm/d
1 / 7 / 31 days see above

Measuring range
10 ... 100% rel. h. Hum. meas. element
0 ... 100% rel. h. H (-35 ... +70 °C)
K (0 ... +80 °C)

non lockable
lockable

Temp. meas. range
-35 ... +45 °C * / ** Graduation
-20 ... +60 °C ** 1 °C
-10 ... +50 °C ** 1 °C
-10 ... +40 °C ** 1 °C
0 ... +40 °C 0.5 °C
0 ... +50 °C 0.5 °C
0 ... +60 °C 1 °C
0 ... +80 °C 1 °C

Accuracy rel. humidity
H-meas. element ±2% rel. h.
+1 scale division @ 65% rel. h. and room temperature
K-meas. element ±3% rel. h.
+1 scale division @ 65% rel. h. and room temperature

Accuracy temperature ±1% of the m. r.
+1 scale division @ 65% rel. h. and room temperature

Recording width 2 x 82 mm
Graduation 5% rel. h. / 1 resp. 0.5 °C
Dimension 280 x 138 x 285 mm
Weight 2.7 kg



Humidity Temperature Pressure



Description

Hygro-Thermograph

Recording instrument for rel. air humidity and air temperature.

The housing upper part consists of crystal-clear plastic. The axes are supported by pivot bearings.

Battery-operated (1.5 V) quartz drum clockwork mechanism. The recording time is switchable.

Included in delivery:
1 set (100 sheets) strip charts
2 pieces felt pens

* the measuring range is possible only with measuring element „H“.

Accessories

Recording Charts

(100 pcs)

For Hygro-Thermograph

Attention: Pay attention to the measuring ranges !

Felt Pen

Console

For wall-mounting of the hygro-thermographs, order no.. 1.0660... to 1.0665...



Order No.

1.0680.xx.xxx

.10

.12

.011

.014

Technical Data

Recording time	Thrust
1 day	11.45 mm/h
7 days	40 mm/d
31 days	9 mm/d
Humidity meas. range	Hum. meas. element
10 ... 100% rel. h.	H (-35 ... +70 °C)
0 ... 100% rel. h.	K (0 ... +80 °C)
Temp. meas. range	Graduation
-10 ... +50 °C *	1 °C
0 ... +40 °C	0.5 °C
Accuracy rel. humidity	
H-meas. element	±2% rel. h. +1 scale division @ 65% rel. h. and room temperature
K-meas. element	±3% rel. h. +1 scale division @ 65% rel. h. and room temperature
Accuracy temperature	±1% of the m. r. +1 scale division @ 65% rel. h. and room temperature
Recording width	2 x 82 mm
Graduation	5% rel. h. / 1 resp. 0.5 °C
Dimension	280 x 138 x 285 mm
Weight	2.7 kg

Meas. element H	1 day	7 days	14 days	31 days
35 ... +45 °C	205142	205086	205153	205169
-20 ... +60 °C	205143	205088	205158	205168
-10 ... +50 °C	205138	205092	205155	205166
0 ... +40 °C	205123	205094	205150	205160
0 ... +80 °C	205126	205103	205280	205281
Meas. element K	1 day	7 days	14 days	31 days
0 ... +40 °C	205131	205097	205151	205161
0 ... +80 °C	205134	205112	205282	205283

500847

colour

violet

1.0598.10.000

Material
Surface
Weight

Aluminium, varnished
280 x 140 mm
0.8 kg

Humidity Temperature Pressure



Description

Meteorograph

A triple recording instrument for the most important meteorological data temperature, rel. humidity, and barometric air pressure. Approved sturdy model with mechanical drum clockwork and hand wound drive. The housing consists of metal and is white lacquered. The axis of the measuring systems are supported in pivot bearings.

Included in delivery:
1 set (100 sheets)
strip charts
3 pieces felt pens

Accessories

Felt Pen

Recording Charts

(100 pcs.)
For Meteorograph

Order No.

1.0840.00.xxx
.000
.005

500847

Technical Data

Measuring range	
temperature	-35 ... +45 °C -20 ... +60 °C
humidity	10 ... 100% rel. h.
pressure	945 ... 1052 hPa
Accuracy	
humidity	±2% rel. h. +1 scale division @ 65% rel. h. and room temperature
temperature	±1% of the m. r. +1 scale division @ 65% rel. h. and room temperature
pressure	±0.8 hPa +1 scale division @ 65% rel. h. and room temperature
Graduation	5% rel. h. / 1 °C / 1 hPa
Recording time	1 day / 7 days
Advance	11.45 mm/h; 40 mm/d
Hum. meas. elem.	H
Recording width	3 x 82 mm
Dimension	280 x 140 x 350 mm
Weight	4.5 kg

colour	violet
--------	--------

temp. range	1 day	7 days
-35 ... +45 °C	205197	205192
-20 ... +60 °C	205073	205190

Humidity Temperature Pressure



Description

Electronic Hand Instruments

Hygro-Thermometer 625

Digital portable measuring instrument with integrated measuring sensor for the measurement of rel. humidity and temperature.

Display:

- Rel. humidity
- Wet bulb temperature
- Dew point temperature
- Temperature
- Max.- and min. values

The instrument is equipped with a "hold function" for holding the displayed measuring instrument. Included in delivery: portable measuring instrument, pluggable sensor, battery, and calibration protocol.

Accessories

Hand grip for measuring sensor

Hand grip for pluggable humidity sensor head for connection to hygro-thermometer 625 inclusive sensor cable.

Carrying Case

For measuring instrument and sensor

Topsafe (protective cover)

Protects against shock and dirt

DKD Certificate

11.3% and 75.3% rel. h.
@ +25.0 °C

ISO Certificate

11.3% and 75.3% rel. h.
@ +25.0 °C

Battery Charger

For external charging of the accumulators

9 V Accumulator

Order No.

1.8625.10.000

1.8625.11.725

1.8625.20.210

1.8625.20.221

1.8625.90.206

1.8625.90.006

1.8625.30.025

1.8625.30.515

Technical Data

Measuring sensor	NTC
Temperature	capacitive
Rel. humidity	
Measuring range	-10 ... +60 °C 0 ... 100% rel. h.
Accuracy	±0.5 K ±2.5% rel. h. (5 ... 95% rel. h.)
Display	LCD, approx. 14 mm high, illuminated
Resolution	0.1 °C / 0.1% rel. h.
Supply	9 V-block battery, 6F22
Operating time of battery	approx. 70 hours
Housing	synthetic (ABS)
Dimension	182 x 64 x 40 mm
Weight	195 g

Humidity Temperature Pressure

Description

Electrical Transmitter

Hygro-Thermo Transmitter

Instrument designed for measurement of temperature and air humidity. The data are output as electrical analogue signals. Humidity value is displayed additionally. The transmitters consist of a hair humidity element and a Pt 100 resistance thermometer. Sturdy construction, essential external parts are made of stainless steel. For outdoor installation we recommend the use of the weather- and thermal radiation shield order no. 1.1025.51.000. (see Accessories)

Hygro-Thermo Transmitter compact

Instrument designed for measurement of temperature and air humidity. The data are output as electrical analogue signals. The transmitters consist of a capacitive humidity element and a Pt 100 resistance thermometer. For outdoor installation we recommend the use of the weather- and thermal radiation shield. Order no 1 1025 55 xxx

Hygro-Thermo Transmitter compact

Model like 1.1005.54.xxx, however with extended temp. measuring range.

Order No.

1.1005.50.xxx
.015
.515

1.1005.54.xxx
.000
.160
.161
.173
.241

1.1005.54.xxx
.441
.461

Technical Data

Electr. output 200 Ω lin./ Pt 100 200 Ω lin./ Pt 100	Electr. connection with Lemosa-plug with 3 m cable
Measuring range Accuracy	10 ... 100% rel. h. ±3% rel. h. @ 20 ... 100% rel. h. and room temperature ±1 K
Graduation Scale length Hum. meas. elem. Temp. meas. elem.	1% rel. h. not linear 94 mm H Pt 100, acc. to DIN IEC 60751 1/3 class B
Diameter of stem. Length of stem Protection Total length Weight	22 mm 250 mm IP 65, display case 350 mm 0.7 kg resp. 0.9 kg

Electr. output Humidity 0 ... 1 V 0 ... 1 V 0 ... 10 V 0 ... 5 V 4 ... 20 mA	Electr. output Temperature Pt 100 0 ... 1 V 0 ... 10 V 0 ... 5 V 4 ... 20 mA
Measuring range	0 ... 100% rel. h. -30 ... +70 °C
Meas. element Rel. humidity Temperature	Capacitive Pt 100 acc. to DIN IEC 60751 1/3 class B
Accuracy Rel. humidity Temperature	±2% rel. h. (@ 5 ... 95% rel. h. and 10 ... 40 °C) ±0.1 K (Pt 100) ±0.2 K (V) ±0.3 K (mA)
Operating voltage	6 ... 30 V DC (...000/160) 15 ... 30 V DC (...161) 10 ... 30 V DC (...173) 12 ... 30 V DC (...241)
Protection	IP 30 for sensor IP 65 for electronic
Connection Dimension Weight	5 m cable Ø 20 x 124(180) mm 0.45 kg

Electr. output Rel. humidity 4 ... 20 mA (= 0 ... 100% rel. h.) 0 ... 10 V (= 0 ... 100% rel. h.)	Temperature 4 ... 20 mA (= -40 ... +60 °C) 0 ... 10 V (= -40 ... +60 °C)
--	--



1.1005.54.xxx 1.1005.54.241

Humidity Temperature Pressure



Description

Hygro-Thermo-Transmitter compact

- Model with plug
- Model like 1 1005 54 xxx, however with plug and socket instead of fixed cable

Order No.

1.1005.54.xxx
.701
.761
.773

Technical Data

Electr output Rel. humidity	Electr. output Temperature
0 ... 1 V	Pt 100 (±0.1 K)
0 ... 10 V	0 ... 10 V (±0.2 K)
0 ... 5 V	0 ... 5 V (±0.2 K)
Connection	Plug connection
Dimension	Ø 20 x 190 mm
Weight	0.45 kg



Hygro-Thermo Transmitter compact

The instrument serves for the measurement of temperature and air humidity.

The data communication is carried out via an RS485-interface with MODBUS RTU-protocol.

The sensors consist of a capacitive humidity element and a pt 100 resistance thermometer.

For outdoor installation we recommend to use the weather and thermal radiation shield order-no 1.1025.55.00x

1.1005.54.780

Measuring range	0 ... 100% rel. h. -40 ... +85 °C
Measuring element	Capacitive
Rel. humidity	Pt 100 1/3 class B
Temperature	acc to DIN IEC 751
Accuracy	
Rel. humidity	±1.5% rel. h. (@ 10...90% rel. h. and 23 °C)
Temperature	±0.2K (@ 23 °C)
Electr. output	RS485, MODBUS- RTU-protocol
Operating voltage	5 ... 30 VDC
Protection	IP 30 for Sensor element IP 67 for plug
Connection	7 pole connector
Dimension	Ø 20 x177 mm
Weight	0.45 kg

Humidity Temperature Pressure

Description

Membrane Filter with gauze ZE 20

Is put on the sensor and protects the measuring element from coarse dust.

Sinter Filter ZE 21

made of metal.
Is put on the sensor and protects the measuring element from high wind speeds (> 5 m/s) and coarse dust. Necessary for use in exposed areas (e.g. sea climate).

Wall Holder

Serves for wall mounting of hygro-thermo transmitter 1.1005.54..., for use protected against radiation and precipitation (for ex. indoor).

Weather and Thermal Radiation Shield

Protective case for hygro-thermo transmitter compact with outdoor installation.

Order No.

1.1005.54.901

1.1005.54.902

1.1005.54.903

1.1025.55.00x
.10x
.xx0
.xx1

Technical Data

Clamping range	Ø 20 mm
Wall distance	83 mm (to transmitter centre)
Material	plastic, grey
Mounting	flange plate with 3 x 6.5 mm boring
Dimensions	96 mm long
Weight	0.075 kg
W/o Ventilator	
with Ventilator	12 V DC; 2 W
Clamping range	Ø 35 ... 50 mm Ø 55 ... 60 mm
Material	Synthetic lamellas, white
Montage cable	Non-corroding holder 5 m, for model. ...100
Dimensions	Ø 120 x 275 / 290 mm
Weight	0.8 kg



Humidity Temperature Pressure



Description

Clima Sensors D

Clima Sensor D, WTF

Clima Sensor D, W

Clima Sensor D, TF

Clima Sensor D

The Clima Sensor D serves for the measurement of environmental data. These are available as

- Serial RS 485/422 telegram and as
- Analogue outputs for further processing

The Clima Sensor D has an internal DCF77 receiver, which takes the time signal of an atomic clock, and integrates it into the data telegram.

Ranges of application are:

- Building control systems
- Control technique
- Green house technique
- Processing of the acquired data to recording or display instruments

Depending on the model, the following data can be measured by the Clima Sensor D:

- Wind velocity
- Precipitation (yes/no)
- Brightness in Eastern, Southern and Western direction
- Twilight
- Temperature
- Rel. humidity

The respective holder serves for the mounting at masts or plane surfaces, depending on the range of application.

Instrument with internal condensation shield

Order No.

4.9110.00.061

4.9100.00.061

4.9111.00.061

4.9101.00.061

Wind

Precipitation

Brightness for South East, West

Twilight

Temperature

Air humidity

Output serial

analogue

General

Dimension

Technical Data

Wind	Precipitation, Twilight	Brightness	Temperature Air Humidity
X	X		X
X	X		
		X	X
		X	

X

X

X

Measuring range
Accuracy

1 ... 40 m/s
±0.5 m/s or ±5% of measuring range
Precipitation yes/no
Fine drizzle
Approx. 2 minutes

Measuring range
Sensitivity
Switch-off-delay

Measuring range
Spectral range
Accuracy

0 ... 100 k Lux
700 ... 1050 nm
±10% of meas. value

Measuring range
Spectral range
Accuracy

0 ... 250 Lux
700 ... 1050 nm
±10% of meas. value

Measuring range
Measuring element
Accuracy

-20 ... +60 °C
Pt 100 ¹/₃ DIN
±0.5 k at > 1 m/s

Measuring range

0 ... 100% rel. h.

Accuracy

±3% in the range
10 ... 90% rel. h.

Type
Output

RS 422 / 485
1200-19200 baud
8N1, full-duplex/
half-duplex-
operation

Output parameter

Environmental data,
housing, temperature,
date, time, sensor
status, checksum

Signal

0 ... 10 V

Depending on
parameter

0 V/10 V

With precipitation
yes/no

Load resistance

≥ 10 kΩ
≥ 100 kΩ with
precipitation

Operating voltage
Current consumption

16-28 VDC or 24 V AC
≤ 150 mA w/o
condensation shield,
approx. 600 mA with
condensation shield

Ambient temperature
Connection

-40 °C ... +60 °C
10 m cable; LiYCY
16 x 0.14 mm²,
UV-resistant

Mounting

Retaining clamp,
stainless steel

Weight

max. 1.5 kg

4.9110.00.061
4.9100.00.061
4.9111.00.061
4.9101.00.061

Ø 130 x 430 mm
Ø 130 x 335 mm
Ø 130 x 310 mm
Ø 130 x 215 mm

Humidity Temperature Pressure

Description	Order No.	Technical Data																
Weather Stations																		
Clima Sensor US NHTFB	4.9200.00.000	<table border="0"> <tr> <td></td> <td>Temperature</td> <td></td> <td></td> </tr> <tr> <td></td> <td>Humidity</td> <td>Precipitation</td> <td></td> </tr> <tr> <td>Wind</td> <td>Pressure</td> <td>Brightness</td> <td>Configuration</td> </tr> <tr> <td>X</td> <td>X</td> <td>X</td> <td>10V/RS485/GPS</td> </tr> </table>		Temperature				Humidity	Precipitation		Wind	Pressure	Brightness	Configuration	X	X	X	10V/RS485/GPS
	Temperature																	
	Humidity	Precipitation																
Wind	Pressure	Brightness	Configuration															
X	X	X	10V/RS485/GPS															
Clima Sensor US TFB	4.9201.00.000	X X 10V/RS485																
Clima Sensor US NH	4.9202.00.000	X X 10V/RS485/GPS																
Clima Sensor US	4.9203.00.000	X 10V/RS485																
<p>The Clima Sensor US serves for the measurement of environmental parameters. These are available for further processing as</p> <ul style="list-style-type: none"> • Serial telegram via an RS485/422 and /or as • Analogue Signals via voltage output <p>Some models have a GPS receiver. It serves for determining position and time, here from, the sun position is calculated additionally. Position, time and sun position are output serially.</p> <p>Compact design, easy mounting, and the various possibilities for data output are the basis for an application in many fields, such as.</p> <ul style="list-style-type: none"> • Building control, Traffic control system, Meteorology, Renewable energy, Agriculture. <p>Depending on model, the following parameters can be measured by the Clima Sensor US:</p> <ul style="list-style-type: none"> • Wind velocity • Wind direction • Precipitation intensity and kind • Brightness • Brightness direction • Temperature • Relative air humidity • Air pressure 	Wind Velocity	<p>Measuring range 0 ... 60 m/s Accuracy ±0.2 m/s @ WV <5 m/s ±3% @ WV >5 m/s</p>																
	Wind Direction	<p>Measuring range 0 ... 360° Accuracy ±2.0° @ WG >2 m/s</p>																
	Precipitation	<p>Measuring range 0.001 ... 10 mm/min</p>																
	Brightness	<p>Measuring range 0 ... 150 kLux 3% from rel. meas. value</p>																
	Air pressure	<p>Measuring range 300 ... 1100 hPa Accuracy ±0.25 hPa @ +10 ... +35 °C</p>																
	Temperature	<p>Measuring range -40 ... +80 °C Accuracy ±0.2 K @ 25 °C</p>																
	Air humidity	<p>Measuring range 0 ... 100% rel. h. Accuracy ±1.8% @ 10 ... 90% rel. h.</p>																
	Output serial	<p>Type RS 422 / 485 Baud rate 1200 ... 921600 baud Operating mode full-duplex / half-duplex Protocol ASCII / MODBUS RTU Output parameter Div. meas. data, date, time, check sum etc.</p>																
	analogue	<p>Type 8 x 0 ... 10 V Output parameter Wind velocity and direction, brightness, direction of brightness, precipitation, rel. humidity, temperature, air pressure</p>																
	General	<p>Load resistance ≥ 2 kΩ Operating voltage 5 ... 60 VDC or 10 ... 42 VAC 50/60 Hz Power consumption (Electronics fully equipped) 50 mA @ 24 V Heating at full power 24 V AC / DC 25VA Ambient temperature -30 °C ... +70 °C Connection 19-pole connector Mounting On tube (max. Ø 50 mm) Weight 0.9 / 0.7 kg</p>																
	Dimension	<p>4.9200(1).00.000 Ø 150 x 220 mm 4.9202(3).00.000 Ø 150 x 175 mm</p>																

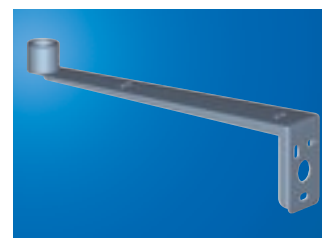


Humidity Temperature Pressure

Description	Order No.	Technical Data	
<p>Cable Pre-assembled connecting cable for Clima Sensor US</p> <p>The cable with 16 leads serves for the connection of:</p> <ul style="list-style-type: none"> • Serial interface • Analogue output • Instrument supply <p>The cable with 8 leads serves for the connection of:</p> <ul style="list-style-type: none"> • Serial interface • Instrument supply <p>Equipment:</p> <ul style="list-style-type: none"> • Plug at the instrument side, • Open cable end receiving side, • Shielded, • Halogen-free, • UV-resistant 	<p>509311</p> <p>509427</p>	<p>Length</p> <p>Number of leads</p>	<p>10 m</p> <p>16</p> <p>10 m</p> <p>8</p>
<p>Power Supply Unit Serves for power supply of the Clima Sensor US as well as for the connection and distribution of cable or cable wire resp. Equipment: toroidal transformer, series terminal, housing with screwed cable gland</p>	9.3389.20.000	<p>Primary</p> <p>Secondary</p> <p>Series terminals</p> <p>Housing</p> <p>Dimensions (LxWxH)</p> <p>Screwed cable gland</p> <p>Protection</p> <p>Weight</p>	<p>230 V AC / 115 V AC</p> <p>24 V AC / 1.25 A</p> <p>16</p> <p>Plastic material</p> <p>125 x 125 x 100 mm</p> <p>3 x M 16 x 1.5</p> <p>1 x M 20 x 1.5</p> <p>IP 66</p> <p>approx. 1.5 kg</p>
<p>Mounting set Serves for lateral mounting of power supply unit 9.3389.20.000 at a mast</p>	509436	<p>Clamping range</p> <p>Material</p> <p>Weight</p>	<p>Ø 48 ... 102 mm</p> <p>Stainless steel</p> <p>approx. 0.5 kg</p>

Humidity Temperature Pressure

Description	Order No.	Technical Data		
<p>Weather Station Compact WSC11 The Weather Station Compact WSC11 is designed for the use in</p> <ul style="list-style-type: none"> • Building automation (such as. shading control) <p>The interface to the instrument is digital and consists of an</p> <ul style="list-style-type: none"> • RS485 interface in half-duplex-mode <p>Together with the ID-based communication the interface allows the operation of the weather station in a bus</p> <p>The instrument has a GPS receiver. It serves for determining the position and time. Herefrom, the sun position is calculated additionally</p> <p>The following parameters can be measured:</p> <ul style="list-style-type: none"> • Wind speed • Wind direction • Brightness (in the North, East, South, West) • Twilight • Global radiation • Precipitation • Temperature • Relative humidity • Air pressure • Time / Date • Geostationary data <ul style="list-style-type: none"> -Longitude -Latitude • Sun position <ul style="list-style-type: none"> -Elevation -Azimuth 	4.9056.00.000	<p>Wind Velocity</p> <p>Measuring range Accuracy</p> <p>0 ... 40 m/s ±5% of meas. range</p> <p>Wind Direction</p> <p>Measuring range Accuracy</p> <p>0 ... 360° ±10°</p> <p>Precipitation</p> <p>Measuring range</p> <p>1 / 0 (yes/no)</p> <p>Brightness</p> <p>Measuring range Accuracy</p> <p>0 ... 150 kLux ±3% of meas. range</p> <p>Twilight</p> <p>Measuring range Accuracy</p> <p>0 ... 500 Lux ±10 Lux</p> <p>Global radiation</p> <p>Measuring range Accuracy</p> <p>0 ... 1300 W/m² ±10% of meas. range</p> <p>Air pressure</p> <p>Measuring range Accuracy</p> <p>300 ... 1100 hPa ±0.5 hPa @ 20 °C</p> <p>Temperature</p> <p>Measuring range Accuracy</p> <p>-30 ... +60 °C ±1 °C @ -5 °C ... +25 °C, >2m/s)</p> <p>Air humidity</p> <p>Measuring range Accuracy</p> <p>0 ... 100% rel. h. ±5% rel. h. @ 0 ... 40 °C</p> <p>Output serial</p> <p>Type Baud rate Operating mode Protocol</p> <p>RS 485 1200 ... 115200 Half-duplex ASCII / MODBUS RTU</p> <p>General</p> <p>Operating voltage Power consumption Ambient temperature Connection Mounting</p> <p>18 ... 30 VDC or 18 ... 28 VAC 50/60 Hz <300 mA @ 24 VDC -30 °C ... +60 °C connector On tube (max. Ø 25 mm)</p> <p>Weight Dimension</p> <p>0.2 Kg Ø130 x 70 mm</p>		
<p>Mounting angle Serves for the lateral mounting of the Weather Station Compact WSC11 at a vertical surface</p>	509276	<p>Length width Material</p> <p>320 mm 60 mm Stainless steel 1.4301</p>		
<p>Cable Pre-assembled 5-pole connecting cable for Weather Station Compact WSC11. Equipped with:</p> <ul style="list-style-type: none"> • Plug at the instrument side, • Open cable end receiving side, • Shielded 	509279	<p>Length</p> <p>5 m</p>		



Accessories

Description

Weather and Thermal Radiation Shield



Weather and Thermal Radiation Shield

Serves as a protective case for
- Hygro-Transmitter
or

- Hygro-Thermo Transmitter
in outdoor use.

This case essentially eliminates the influence of weather and radiation errors which affect the measurement result.

Order No.

1.1025.51.000

Technical Data

Suitable for	1.1000.50... 1.1005.50...
Installation pin	Ø 22 x 27 mm
Material	aluminium galvanised and varnished
Dimension	Ø 170 x 450 mm
Weight	2.2 kg

Weather and Thermal Radiation Shield, compact



Serves as a protective case for
- Temperature -Sensor compact
or

- Hygro- Thermo Transmitter
compact in outdoor use.

This case essentially eliminates the influence of weather and radiation errors which affect the measurement result.

1.1025.55.xxx

1.1025.55.00x

1.1025.55.10x

1.1025.55.xx0

1.1025.55.xx1

Suitable for	1.1005.54... 2.1280...
Without ventilator	
With ventilator	12 V DC, 2 W
Clamping range (holder)	Ø 35 ... 50 mm Ø 55 ... 60 mm
Material	
Lamella	Polycarbonat, white, UV-resistant
Holder	Stainless steel
Cable (execution only 1.1025.55.10x)	5 m
Dimension	Ø 120 x 275/290 mm
Weight	0.8 kg

Measuring Transformer

Universal Amplifier

The Universal Amplifier serves for the connection of various sensors with voltage-, or PT 100 output. It amplifies the measuring values, prepares them and outputs them as standardized voltages or currents analogical and digitally.

Analogue outputs:
Measuring values are, alternatively, output as current- or voltage signal.
The scaling of the measuring values are settable.

Digital output:
An RS485/422 is available for serial communication (operation, scaling and telegram output). It can be operated in full- or resp. half-duplex mode. For the output of measuring values there are pre-defined telegrams available.

All settings/programmings are carried out in the factory.

7.1415.00.200

Analogue inputs	4 x -0.1 ... +1.0 V; resolution 1 µV switchable to -1 ... +10 V
	Alternatively, each channel is switchable to PT 100: max. -99.0 ... +99.0 °C
	PT100 resolution: 1/10, 1/100, 1/1000 °C, settable
Analogue outputs	0 ... 1 V, 0 ... 5 V, 0 ... 10 V, 4 ... 20 mA, 0 ... 20mA Resolution 1/10000 FS
Serial interface	1 x RS422/485 Baud rates: 1200, 2400, 4800, 9600(default), 115200Bd, 8N1
Operating voltage	7 ... 42 V DC
Ambient conditions	
Operating temperature	-40 ... +60° C
Storage temperature	-40 ... +85° C
Housing	Polycarbonate
Type of connection	Cable gland and terminal strip
Protection	IP 65
Dimension	120 x 80x 55 mm
Weight	0.25 kg



Description	Order No.	Technical Data
Digital Indicators		
Digital Indicator for panel installation	1.1044.00.xxx	Display range
Flat-section indicator for display of humidity, temperature or pressure values. The background of the indicator is black to facilitate reading of the red digits.	1.1044.02.xxx	0 ... 100% rel. h.
Preferably switch panel or front panel installation.	2.1044.00.xxx	0 ... 100% rel. h.
	3.1044.00.xxx	-100.0 ... +199.9 °C
	.000	945 ... 1053 hPa
	.040	Pt 100 (only temp.)
	.041	0 ... 20 mA
	.061	4 ... 20 mA
	.073	0 ... +10 V
		0 ... +5 V
		(only pressure)
		Resolution ±1 digit
		Display LED, red, 13 mm high
		Operating voltage 230 V / 50 Hz
		Model panel mounting
		Protection IP 20
		Dimension 96 x 48 x 104 mm
		Weight 0.3 kg
Digital Indicator for panel installation	1.1045.00.xxx	Display range
with 2 adjustable limit contacts Flat-section indicator for display of humidity, temperature or pressure values.	1.1045.02.xxx	0 ... 100% rel. h.
Two setting knobs on the front panel serve for setting both the potential-free relay-contacts.	2.1045.00.xxx	0 ... 100% rel. h.
The background of the indicator is black to facilitate reading of the red digits.	3.1045.00.xxx	-100.0 ... +199.9 °C
Preferably switch panel or front panel installation.	.000	945 ... 1052 hPa
	.040	Pt 100 (only temp.)
	.041	4 ... 20 mA
	.061	0 ... 20 mA
	.073	0 ... +10 V
		0 ... +5 V
		(only pressure)
		Resolution ±1 digit
		Display LED, red, 13 mm high
		Type of contact throw over switch
		Operating voltage 230 V / 50 Hz
		Model panel mounting
		Protection IP 20
		Dimension 96 x 48 x 104 mm
		Weight 0.3 kg



Accessories



Description

Weather Display LED

Displaying measuring instrument for four meteorological parameters (for ex. temperature, rel. humidity, global radiation, air pressure). Instrument with serial interface for the receipt of measuring data and output to processing systems.

- Operation and setting through front side keys.
- Display sequence and formatting of weather parameters are configurable acc. to customer's request.
- Display possible from instantaneous, min., max. and mean value for each parameter.
- Receipt of display parameters via a serial interface. For ex. for connection to THIES-datalogger systems or THIES-sensor interface.
- Output of display parameters via a serial interface.

Weather Display LED

Displaying measuring instrument for four meteorological parameters (for ex. temperature, rel. humidity, global radiation, air pressure). Instrument with integrated serial interface and analogue-interface for data input and -output. The instrument is optionally equipped with an integrated pressure sensor.

- Operation and setting through front side keys.
- Display sequence and formatting of weather parameters are configurable acc. to customer's request.
- Display possible from instantaneous, min., max. and mean value for each parameter.

Measuring value input:

- Receipt of display parameters via a serial interface
- Receipt and acquisition of the display parameters via an integrated analogue interface. The analogue IF is configurable acc. to customer's request.
- Serial output of the display parameters via a serial interface.
- Analogue output of max. two display parameters via an integrated analogue interface (U/I is selectable).

Order No.

9.2750.0x.900

.00.

.01.

9.2750.xx.901

.x0.

.x1.

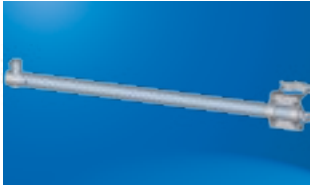



.0x.

.1x.

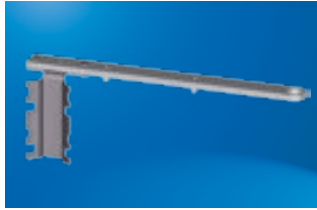
Technical Data

Operating voltage	230 V / 50 Hz; 24 V AC 12-35 V DC
Display range	-9:999 ... +99999
Display	4 x 5 digit, LED red, 14 mm high 4 x min/max LED-arrow
Measuring range	depending on parameter
Resolution	depending on parameter
Digital-Interface	
Type	1 x RS 422
Baud rate	1200, 2400, 4800, 9600, 19200, 57600
Parameter	for ex. 8N1, 7E1,
Temperature range	-10 ... 50 °C
Construction	Switch panel mounting
Dimension	144 x 144 x 135 mm
Protection	IP 23
Weight	1.5 kg
EMC	EN 60945 EN 61000-6-2 EN 61000-6-3

Operating voltage	230 V / 50 Hz; 24 V AC 12-35 V DC
Display range	-9.999 ... +99999
Display	4 x 5 digit, LED red, 14 mm high 4 x min/max LED-arrow
Measuring range	depending on parameter
Resolution	depending on parameter
Digital interface	
Type	1 x RS 422
Baud rate	1200, 2400, 4800, 9600, 19200, 57600
Parameter	for ex. 8N1, 7E1,
Analog input	3 (4) x 0 ... 10 V or 0 (4) ... 20 mA 1 x Pt 100
Analog output	2 x 0 ... 10 V or 0 (4) ... 20 mA
Temperature range	-10 ... 50 °C
construction	Switch panel mounting
Dimension	144 x 144 x 135 mm
Protection	IP 23
Weight	1.5 kg
EMC	EN 60945 EN 61000-6-2 EN 61000-6-3
Pressure sensor	
Measuring range	750 ... 1100 hPa
Resolution	0.1 hPa
Accuracy	±0.5 hPa (at 25 °C)

Description	Order No.	Technical Data		
Hangers / Holders / Adapters				
Hanger 1 m For mast mounting of a measuring value transmitter. Bracket with adapter for hygro-thermo transmitter (1.1005.50..) in the weather and thermal radiation shield (1.1025.51...) or for air temperature transmitter (2.1260.00.000)	4.3185.xx.xxx. .00. .01. .02. .000 .001	Clamping range	Ø 60-132 mm Ø 40-80 mm Ø 48-50 mm	
Traverse 0,2 m compact For storefront mounting of a measuring value transmitter.	4.3171.25.000	Length	200 mm	
For adapting of measuring value transmitter pivots (506350) and holders (506347) can be used.		Material	Aluminium	
		Weight	0.3 kg	
Traverse For combined mounting of 2 measuring value transmitters onto a mast	4.3171.30.000	Clamping range	Ø 48 ... 102 mm	
For adapting of measuring value transmitter pivots (506350) and holders (506347) can be used.		Sensor distance	0.4 m from mast	
		Dimension	0.8 m long	
		Material	Aluminium / Stainless steel	
		Weight	0.35 kg	
Traverse NS/TF – 04 m /0.8 m For combined mounting of 2 measuring value transmitters onto a mast.	4.3171.30.012 4.3171.31.012	Clamping range	Ø 48 ... 102 mm	
Traverse with adapter for hygro-thermo transmitter (1.1005.54..) in weather and thermal radiation shield (1.1025.55...) and precipitation monitor (5.4103.. / 5.4105..)		Clamping range	Ø 116 ... 200 mm	
		Transmitter distance	0.4 m and 0.8 m from mast	
		Dimension	1.2 m long	
		Material	Aluminium / Stainless steel	
		Weight	1.1 kg	

Accessories



Description

Traverse short

For mast mounting of a measuring value transmitter.

For adapting of measuring value transmitter pivots (506350) and holders (506347) can be used.

Order No.

4.3171.40.000

Technical Data

Clamping range	Ø 48 ... 102 mm
Transmitter distance	0.4 m to the Mast
Dimension	0.4 m long
Material	Aluminium / stainless steel
Weight	0.30 kg



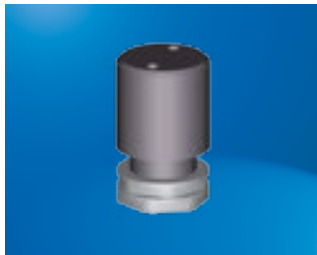
Holder compact

For mounting of measuring value transmitter onto a mast, tube, traverse or at a storefront.

For adapting of measuring value transmitter pivots (506350) and holders (506347) can be used.

506347

Clamping range	35 ... 50 mm
Dimension	80 x 150 mm
Material	Stainless steel
Weight	0.35 kg



Peg complete

For adapting of measuring value transmitters, for ex. for hygro-thermo transmitters (1.1005.54..) in weather and thermal radiation shield (1.1025.55...) at a/m traverses or holders

506350

Material	POM
Dimension	Ø 40 x 65 mm
Weight	0.1 kg

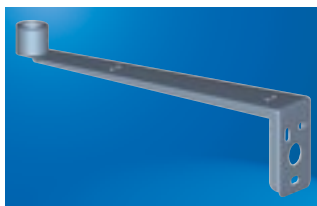


Wall Holder

For mounting of a hygro-thermo transmitter (1.1005.54...) or temperature sensor (2.1280...) at a wall, radiation- and precipitation-protected application (for ex. in rooms)

1.1005.54.903

Clamping range	Ø 20 mm
Average wall distance	83 mm
Material	Plastic, grey
Mounting	Flange plate with 3 x 6.5 mm boring
Dimension	96 mm long
Weight	0.075 kg



Mounting angle

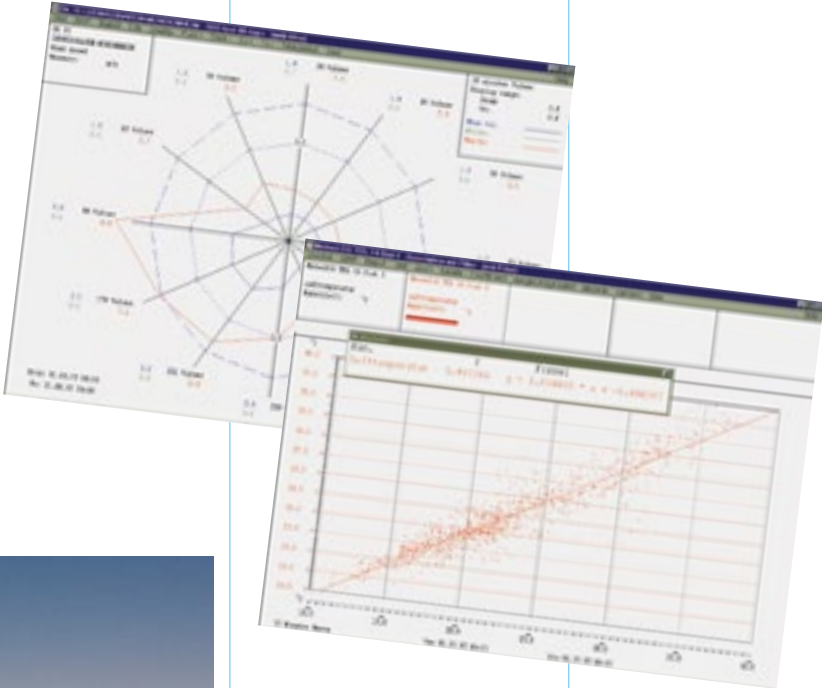
Serves nfor the lateral mounting of the weather station COMPACT WSC 11 at a vertical surface

509276

Length	320 mm
Width	60 mm
Material	Stainless steel 1.4301

Please contact us for other accessories, such as cables and cable connections as well as for additional constructions of masts or systems. We will be pleased to submit an individual offer to you.

THIES –
as versatile as the international
tasks require



THIES-CLIMA – Worldwide

Weather and environmental monitoring technology needs a competent partner

Climatic measurement and intelligent analysis are international tasks. They do not only demand a worldwide cooperation of the responsible authorities, but also a comprehensive network of sensors and analytical systems.

We have developed a smoothly functioning system of partners and subsidiaries throughout the world to provide expert advice there where you need it.

THIES assumes complete supervision of the tasks at hand, from project planning to the installation of the system, from staff training to the processing of the measurement results.

Should you want to contact one of our foreign partners, please write or call us first in Göttingen. We will provide you with the exact address.



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www.thiesclima.nt-rt.ru || tcg@nt-rt.ru