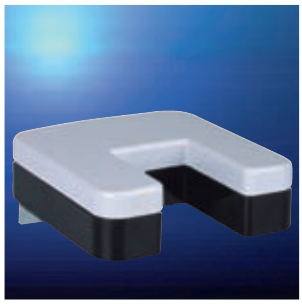
HUMIDITY · TEMPERATURE · PRESSURE

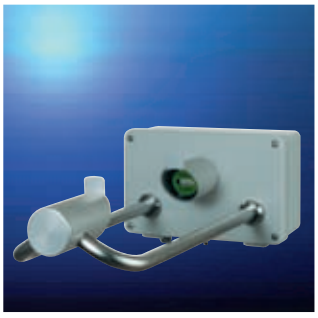
Thies CLIMA

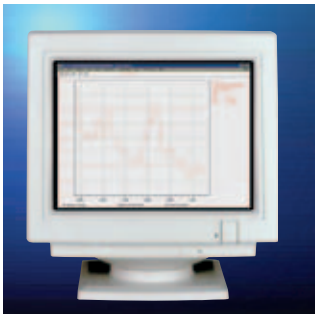
THE WORLD OF WEATHER DATA

THE WORLD OF WEATHER DATA

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





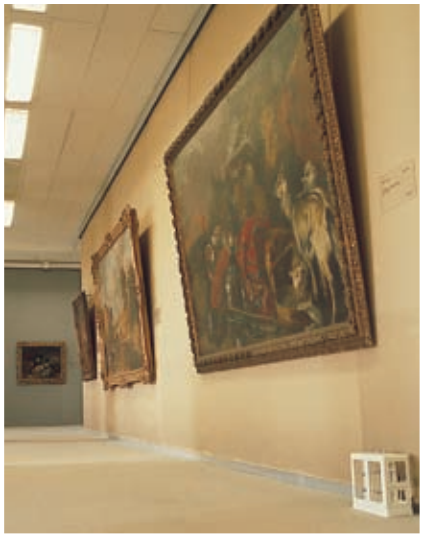


Today more than ever, the measurement, processing and analysis of meteorological data requires a high degree of measurement instrument precision and an optimal adaption of the data acquired to the task at hand.
For more than 50 years, we have been developing, producing and supplying practical instruments 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 fulfill 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.

Humidity, Temperature, Pressure
Table of Contents

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.



Humidity
Glossary

Absolute Humidity	Indicates the amount of water vapor present in the atmosphere, defined in the number of grams of water per m^3 of air.
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 vapor is absorbed.
Dew point	A measure of the absolute humidity of the atmosphere. The temperature at which the saturation point is reached under cooling i.e. dew begins to form
Dry bulb temperature	The ambient temperature measured on the dry ventilated thermometer of a psychrometer.
Humidity hose	Fabric hose which is drawn over the thermometer of a psychrometer. The hose is moistened and is used to measure the wet bulb temperature.
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 humidity measurement 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 to +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 to +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 Resistance-Thermometer	The temperature-dependent change in resistance of a measurement coil made of platinum wire is used as a measure of temperature.100 Ω for 0 °C is usually used as the basic value (Pt 100). The standarized resistance values as a function of time are found in IEC 751.
Relative Humidity	The ratio of the absolute humidity to the amount of saturation of the water vapor in the atmosphere at the current temperature, expressed in percentage.
Tensiometer	Measurement instrument to measure the saturation potential of the soil (water requirement of soils). Important to determine irrigation requirements.
Wet bulb temperature (humidity temperature)	Wet bulb temperature, 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

Indicators

Round Hygrometer

Indicating instrument to measure the ambient humidity. Different models available.

Order No.	
1.0070.xx.000	
1.0074.xx.000	
.00.	
.02.	

Technical Data	
Model	Console
	Case with flange
Meas. element	Measuring range
H	10 ... 100% rel. h.
K	0 ... 100% rel. h
Scale range	0 ... 100% rel. h.
Accuracy	±3% rel. h. @ 20 ... 100% r. h. and room temperature
Graduation	1% rel. h.
Scale	Ø 100 mm
Ambient temp.	-60 ... +70 °C (H) 0 ... +70 °C (K)
Dimension	Ø 103 x 35 mm Ø 120 x 36 mm with model with mounting flange
Weight	0.25 kg

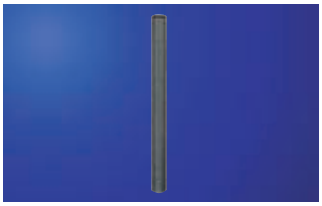
In-Stream type Hygrometer

Round hygrometer with the measuring element in an immersion shaft attached axially to the back of the case. The instrument is designed to be fastened horizontally to a wall. The shaft protrudes through a bore hole into a neighbouring room

Order No.	
1.0153.xx.000	
1.0154.xx.000	
.00.	
.02.	

Technical Data	
Immersion depth	100 mm
	250 mm
Meas. element	Measuring range
H	10 ... 100% rel. h.
K	0 ... 100% rel. h.
Scale range	0 ... 100% rel. h.
Accuracy	±3% rel. h. @ 20 ... 100% r. h. and room temperature
Graduation	1% rel. h.
Scale	Ø 100 mm
Ambient temp.	-60 ... +70 °C (H) 0 ... +70 °C (K)
Flange	Ø 120 mm
Stem	Ø 16 mm
Mounting thread	R 1/2“
Weight	approx. 0.45 kg

Wind Protection Device

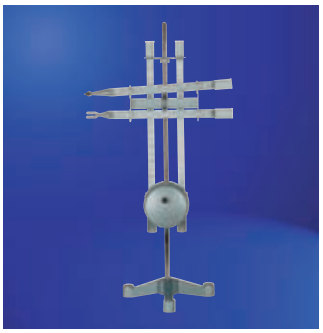


Consists of a protective gauze and a wind shield. Is put onto the shaft of the in-stream type hygrometer and protects the measuring element from coarse dust and error measurements in case of wind velocities ›3 m/s.

Order No.	
1.0509.85.001	
.002	

Technical Data	
Immersion depth	100 mm
	250 mm
Mesh aperture	0.32 mm for Gaze
Material	stainless steel
Diameter	18 mm
Total length	200 mm
Weight	0.022 kg

Description	Order No.	Technical Data	
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.	**1.0400.00.010**	Measuring range Accuracy Graduation Aspirator Measuring time Dimension Weight	-10 ... +60 °C ±0.2 K (thermometer) 0.2 °C spring-wound drive approx. 8 min (4 ... 2 m/s) Ø 90 x 420 mm 3.5 kg
Replacement-Thermometer for Aspiration-Psychrometer 1.0400.00.010	**502888**		
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.	**1.0444.10.002**	Type of thermometer Psychrometer Max.-Thermometer Min.-Thermometer Graduation Total height Weight	Measuring range -30 ... +50 °C (±0.2 K) -30 ... +50 °C (±0.2 K) -40 ... +40 °C (±0.3 K) 0.2 °C / 0.5 °C 550 mm 2.6 kg
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.	**1.0450.00.010**	Measuring range Accuracy Graduation Dimension Weight	-10 ... +60 °C ±0.2 K 0.2 °C 305 x 60 x 22 mm 0.42 kg
Instrument Case Black synthetic material case, lined with foam material for the above instrument including accessories.	**1.0452.10.000**	Colour Dimension Weight	black 350 x 230 x 70 mm 0.25 kg
Replacement-Thermometer for Sling-Psychrometer 1.0450.00.010	**502591**		



Humidity

Description	Order No.	Technical Data	
Tensio Transmitters			
Tensio Transmitter Electrical instrument for the continuous measurement of the saturation potential of the soil which results from the pressure balance between tensiometer liquid and the ambient soil by means of a diaphragm (ceramic cell). A pressure sensor measures the pressure of the water tension in the soil.	**1.0226.51.073**	Measuring range Electr. output Non-linearity Response time Ambient temp. Operating voltage Tube length Protection Cable Weight	0 ... -85 kPa 0 ... 5 V DC ‹ 0.5%/K ‹ 3 s 0 ... +40 °C 12 ... 24 V DC / 0.5 VA 600 mm IP 65 5 m long 0.45 kg

Recording Instruments

Hygrograph

Instrument for measurement and recording of the relative humidity. Measurement results are recorded on a strip chart, which is situated on a drum clockwork with manual winding mechanism acc. to DIN 8300 and DIN 58658 or a Quartz clockwork. Two models are available regarding the drum clockwork:

1. With mechanical drum clockwork and manual winding mechanism for the temperature range from -35 ... +80 °C for model (1.0610/614...).

2. With Quartz clockwork and 1,5 V battery operated, Quartz controlled step-motor-drum clockwork in the temperature range form -20 ... +60 °C (the model 1.0615...).

Delivery including 1 set strip charts (100 sheets)

Order No.	Technical Data	
	Recording time	Thrust
1.0610.xx.xxx	1 day	11.45 mm/h,
	7 days	40 mm/day
1.0614.xx.xxx	14 days	20 mm/day,
	31 days	9 mm/day
1.0615.xx.xxx	1 / 7 / 31 days	s. above
	Meas. range	Measuring element
.10.	10 ... 100% rel.h.	H (-35 ... +70 °C)
.12.	0 ... 100% rel.h.	K (0 ... +80 °C)
.000	non lockable	
.900	lockable	
	Scale range	0 ... 100% rel. h.
	Accuracy	±2% rel. h. (H)
		±3% rel. h. (K)
		@ 65% rel. h. and room temperature
	Recording width	82 mm
	Graduation	5% rel. h.
	Ambient temp.	-35 ... +80 °C (spring-wound clockwork)
		-20 ... +60 °C (quartz clockwork)
	Dimension	280 x 140 x 214 mm
	Weight	2.2 kg

Accessories

Felt Pen

500847	Colour	violet (standard)
502722		black
502721		red

Recording Charts

(100 pcs.)

	Meas. element	Recording
205079	H	1 day
205077	H	7 days
205082	H	14 days
205083	H	31 days
205080	K	1 day
205078	K	7 days

Console

To attach the hygrograph to a wall.

1.0598.10.000

Material	Varnished aluminium
Surface	280 x 140 mm
Weight	0.8 kg

Humidity

Control Instruments

Room Hygrostat

Moisture control instrument for humidifier and dehumidifier. The desired value can be set by means of a rotary knob.

1.0509.xx.000
.40.
.42.

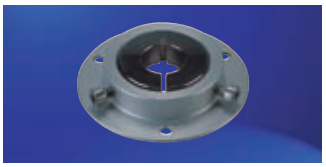
Meas. element	H K
Control range	30 ... 90% rel. h.
Switch difference	±3% rel. h.
Contact	1 change over
Contact load	250 V AC / 15 A 24 V DC / 2 A
Dimension	130 x 65 x 33 mm
Weight	0.22 kg

Hygrostat

(for use in ducts)
Moisture control instrument for humidifier and dehumidifier. The instrument is mounted to the wall of a duct. The immersion stem protrudes through this wall into the measuring space. The model with 2 switches is equipped with an adjustable switch differential of 5 ... 25% rel. h.

1.0509.60.000

Type of contact	1 change over
Control range	30 ... 90% rel. h.
Switch difference	±3% rel. h.
Measuring element	K
Stem	Ø 16 mm
Stem length	270 mm
Contact load	max. 250 V AC max.10 A max. 1000 VA
Dimension	134 x 67 x 70 mm
Weight	0.6 kg



Mounting Flange

To mount duct hygrostats 1.0509.60 / 70.
The flange clamps the hygrostat to the stem and allows a variable immersion depth.

1.0509.80.000

Material	Al, Brass
Weight	0.1 kg

Wind Protection

(not depicted)
A device to protect the humidity measuring element from coarse dust (› 0.32 mm) and error measurements in case of wind velocities › 3 m/s. Suitable for above duct hygrostat.

1.0509.85.002

Diameter	18 mm
Length	200 mm
Mesh aperture	0.32 mm
Material	Niro, Brass
Weight	0.022 kg

Electrical Transmitters

Description	Order No.	Technical Data	
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.	**1.1000.50.xxx** **.015** **.515**	Electr. output 200 Ω linear 200 Ω linear Measuring range Accuracy Ambient temp. Scale graduation Measuring element Scale length Stem Stem length Protection Total length Weight	Connecting Lemosa plug 3 m cable 10 ... 100% rel. h. ±2% rel. h. @ 20 ... 100% rel. h. and room temperature -35 ... +70 °C 1% rel. h., non-linear H 94 mm (90°) Ø 22 mm 250 mm IP 65, case 350 mm 0.45 kg
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.	**1.0509.85.006**	Diameter Length Mesh aperture Material Weight	24 mm 200 mm 0.32 mm Niro, Brass 0.022 kg
Weather and Thermal Radiation Shield Protective covering for the preceding hygro-transmitters out-of-doors. Helps to prevent atmospheric influences and radiation errors from influencing the measured results.	**1.1025.51.000**	Installation pin Material Dimension Weight	Ø 22 x 27 mm Al, galvanised and varnished Ø 170 x 450 mm 2.5 kg
Psychro-Transmitters 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.	**1.1130.xx.000** **.20.** **.22.**	Operating voltage Operating voltage Measuring range Measuring elements Accuracy Time constant Air stream Water container Electr. connection Connection Dimension Weight	12 V AC / 6 VA 24 V AC / 11 VA 24 V DC / 8 W 12 V DC 0 ... +60 °C 2 x Pt 100, acc to. IEC 751 1/3 class B (±0.1 k) 17 s (90%) 4 ... 6 m/s 250 ml 4-lead circuit 4 pole plug Ø 160 x 465 mm 3.7 kg
Replacement-Sensor for Psychro-Transmitter 1.1130... compl., consisting of Pt 1000 (1/3 class B) casing and plug connection	**2.1266.10.001**		

Humidity

Leaf Wetness

Leaf Wetness Transmitter

Model Dr. Weihofen Instrument to be connected to the THIES-datalogger.
The leaf wet ness is determined by means of the electrical conductivity of natural substances. The wetness period is shown as leading value with the information ”dry” or ”wet”. Each instrument has its separate scaling parameter, which is already integrated in the software program of the THIES-dataloggers.

Order No. 1.0225.00.xxx
.000 Hemp
.001 Cotton

Meas. element	Application
Hemp	Potatoes, Rapes, Trees
Cotton	Grain
Measuring range	0 ... 100%
Resolution	10%-points
Leaf wetness	‹ 20% “dry”
	› 80% “wet”
Cable 20-m	LiYCY 2 x 0,5 mm^2
Dimension	100 x 50 x 50 mm
Weight	0.7 kg

Suitably for this:

Preamplifer

The instrument serves to convert the small measuring value signals of the Leaf Wetness Transmitter into a standardized signal, which can be transmitted also over a long distance afterwards.

Order No. 1.1415.00.100

Electrical input	Resistor
Electrical output	0 - 5 V (0 ... 100%)
Ambient temp.	-30 ... +50 °C
Operating voltage	6 - 18 V DC
Protection	IP 65
Cable 3 m	LiYCY 3 x 0,25 mm^2
Dimension	58 x 35 x 64 mm
Weight	0.18 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 instructions 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
Measurement
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 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

Mercury thermometer to measure the current temperature and the highest temperature of the preceding measurement period. When the temperature drops, the highest temperature reached is indicated by a mark.

Min.-Thermometer

Alcohol thermometer to measure the current temperature and the lowest temperature of the preceding measurement period. A dark pin in the alcohol thread is pushed back by the surface tension of the alcohol and remains stationary when the temperature increases. The thermometer is used in a horizontal position.

Perceived Temperature

The ambient temperature as perceived by the human body by the wind and calculated from the windchill factor.

Pt 100 Resistance Thermometer

The temperature-dependent change in resistance of a measurement coil made of platinum is used as a measure of temperature. 100 Ω for 0 °C is usually taken as the basic value (Pt 100). The standardized resistance values as a function of time are found in IEC 751.

Soil Thermometer

Measurement instrument to measure the air temperature in soil at different depths.

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.

Temperature 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.

Windchill

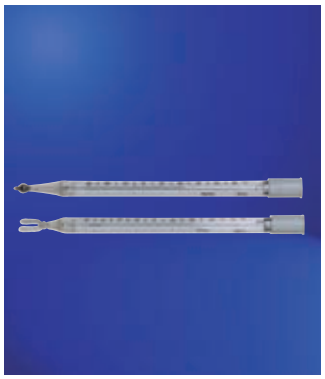
The loss of heat by the human body [W/m^2] through the wind. The “perceived temperature” is derived from this factor.

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	°C = K -273.15 K	K = °C +273.15 °C
	$°C = \frac{5}{9}$ (°F -32)	$°F = 32 + \frac{9}{5}$ °C

Temperature

Thermometers



Maximum Thermometer

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

Order No.: **2.0445.00.002**

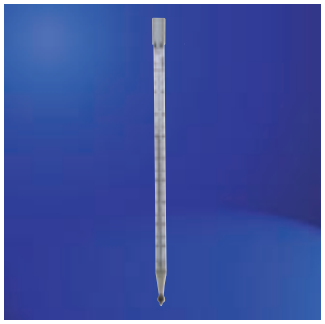
Measuring range	-30 ... +50 °C
Accuracy	±0.2 K
Graduation	0.5 °C
Type	acc. with DIN 58654
Dimension	Ø 19 x 300 mm
Weight	0.075 kg

Minimum Thermometer

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

Order No.: **2.0446.00.001**

Measuring range	-40 ... +40 °C
Accuracy	±0.3 K
Graduation	0.5 K
Type	acc. with DIN 58653
Dimension	Ø 19 x 300 mm
Weight	0.06 kg



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.

Order No.: **2.0447.00.001**
.002

Measuring range	-40 ... +40 °C -30 ... +50 °C
Accuracy	±0.2 K
Graduation	0.2 °C
Model	acc. with DIN 58660
Dimension	Ø 16 x 370 mm
Weight	0.06 kg

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.

Order No.	Meas. range	Immersion depth
2.2110.02.003	-25 ... +60 °C	20 mm
.03.003	-25 ... +60 °C	30 mm
.06.004	-25 ... +45 °C	60 mm
.11.006	-22 ... +40 °C	110 mm
.16.008	-15 ... +40 °C	160 mm
.21.009	-15 ... +35 °C	210 mm
.31.009	-15 ... +35 °C	310 mm

Accuracy	±0.4 K (‹ 0 °C) ±0.2 K (0 ... 50 °C) ±0.3 K (› +50 °C)
Graduation	0,2 °C
Type	acc. with DIN 58655
Bending	150°
Weight	ca. 0.95 kg

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.

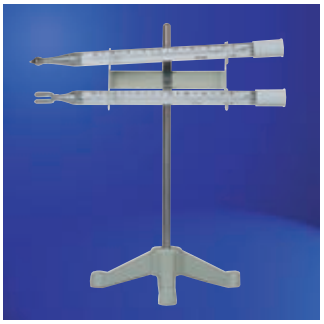
Order No.: **2.2115.03.013**
2.2116.03.013

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
Type	acc. with DIN 58664
Guide tube	Ø 40 mm
Weight	0.9 kg resp. 1.4 kg

Description	Order No.	Technical Data	
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.	**2.2121.xx.002** **2.2122.xx.002** **.02.** **.05.** **.10.** **.20.**	Type Immersion length Measuring range Accuracy Graduation Bending Weight	Min.-Thermometer Max.-Thermometer 20 mm 50 mm 100 mm 200 mm -25 ... +50 °C ±0.4 K / ±0.3 K 0.2 °C 95° 0.12 kg
Thermometer Stand not depicted Holds the extreme thermometer for use in soil, described in the preceding.	**2.2123.00.000**	Material Dimension Weight	Stainless steel 340 x 320 x 20 mm 0.7 kg
Extreme Thermometer Determines the lowest and highest ambient temperature. Consists of a maximum thermometer and a minimum thermometer with stand.	**2.2135.00.000**	Techn. data Total height Weight	see instrument no.: 2.0445.00.002 and 2.0446.00.001 (page 14) 320 mm 1.5 kg

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

Max.- and Min.-Thermometer Model Six Thermometer determines the current temperature as well as the lowest and the highest temperatures of the measuring period. There is a magnet included in the delivery to set back the markers for extreme value identification. Instrument is installed onto a plane wall.	**2.2000.00.002** **2.2002.00.002**	Model Measuring range Graduation Fluid Instrument colour Dimension Weight	Glass base plate Sheet metal case -30 ... +50 °C 1 °C Mercury white 200 x 55 x 10 mm, resp. 240 x 60 x 35 mm 0.15 kg, resp. 0.2 kg
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.	**2.2004.00.079**	Measuring range Graduation Fluid Material of case Length of scale Dimension Weight	-38 ... +50 °C 1 °C Mercury white synthetic 110 mm 220 x 66 x 35 mm 0.17 kg



Temperature

Water Thermometer

Thermometer determines the water temperature.

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

Order No.	Technical Data	
2.2141.00.064	Measuring range	-5 ... +40 °C
	Accuray	±0.2 K
	Graduation	0.5 °C
	Fluid	Mercury
	Container	Brass, nickel plated
	Dimension	Ø 28 x 300 mm
	Weight	0.4 kg

Recording Instruments

Thermograph

Instrument for measurement and recording of the ambient temperature. Measurement results are recorded on a strip chart, which is situated on a drum clockwork with manual winding mechanism acc. to DIN 8300 and DIN 58658 or a Quartz clockwork. Two models are available regarding the drum clockwork:

1. With mechanical drum clockwork and manual winding mechanism for the temperature range from -35 ... +80 °C (for model 2.0600/604...).
2. With Quartz clockwork and 1,5 V battery operated, Quartz controlled step-motor-drum clockwork in the temperature range form -20 ... +60 °C (the model 2.0605...).

Delivery including 1 set strip charts (100 sheets)

Order No.	Recording time	Thrust
2.0600.10.xxx	1 day	11.45 mm/h,
	7 days	40 mm/day
2.0604.10.xxx	14 days	20 mm/day
	31 days	9 mm/day
2.0605.10.xxx	1 / 7 / 31 days	see preceding
.0xx	non-lockable	
.9xx	lockable	
	Meas. 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
	Accuracy	±1% of mr.
	Measuring element	Bimetal
	Recording width	82 mm
	Dimension	280 x 138 x 214 mm
	Weight	2.2 kg

Console

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

Order No.		
1.0598.10.000	Material	Aluminium, varnished
	Surface	280 x 140 mm
	Weight	0.8 kg

Accessories

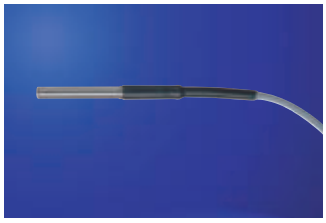
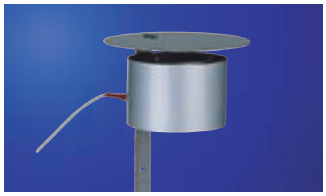
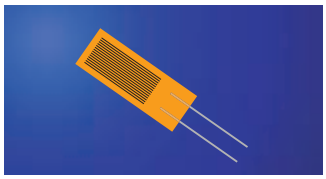
Felt Pen

Order No.		
500847	Colour	violet (standard
502722		black
502721		red

Recording Charts

(100 pcs.)
For Thermograph

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		

Description	Order No.	Technical Data		
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 Teflon cable.	**2.1235.00.xxx** **2.1235.01.xxx** **.000** **.010** **.020**	Measuring range Cable length Measuring element Accurary Electr. connection Cable Sensor dimension Weight	-30 ... +100 °C (±0.1 K) -50 ... +200 °C (±0.1 K) 5 m 10 m 20 m Pt 100 acc. to IEC 751 1/3 class B (0.1 °C at 0 °C) 4-lead circuit LIYCY 4 x 0.25 mm^2 Ø 6 x 70 mm 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. The instrument is inserted into the soil.	**2.1241.00.000**	Measuring range Measuring element Accuracy Electr. connection Cable Protective shield Dimension Weight	-30 ... +50 °C Pt 100 acc. to IEC 751 ±0.1 K; 1/3 class B 4-lead circuit 5 m, LiYCY 4 x 0.25 mm^2 double tube, varnished Ø 177 x 100 mm 1 kg	
Surface Resistance Thermometer A foil temperature transmitter to measure temperatures on plane and curved surfaces. The platinum measuring coil is embedded between two 0.5 mm thick polyamide (Kapton) foils.	**2.1252.00.000**	Measuring range Measuring element Accuracy Dimension Weight	-80 ... +180 °C Pt 100 acc. to IEC 751 ±0.5 K 50 x 21 x 0,2 mm 2 g	
Air Temperature Transmitter with Thermal Radiation Shield The instrument is designed to measure the temperature out-of-doors precisely. It has a specially constructed well-ventilated thermal radiation shield made of an anodized aluminium.	**2.1260.00.000**	Measuring range Measuring element Accuracy Electr. connection Connection Dimension Weight	-30 ... +50 °C Pt 100 acc. to IEC 751 ±0.1 K; 1/3 class B 4-lead circuit 4-pole clamp Ø 120 x 400 mm 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.	**2.1265.xx.000** **.20.** **.22.**	Operating voltage Operating voltage Measuring element Accuracy Ventilation Electr. connection Connection Dimension Weight	12 V AC/ 6 VA or 24 V AC/ 11 VA or 24 V DC/ 8 W 12 V DC/ 4 W Pt 100 acc. to IEC 751 1/3 class B (±0.1 k) 6 m/s 4-lead circuit plug Ø 160 x 435 mm 3.5 kg	
Replacement-Sensor for Ventilated Air Temperature Transmitter 2.1265... compl. consisting of PT 100 (1/3 Class B), casing and plug connection	**2.1266.10.001**			

Temperature

Description	Order No.	Technical Data	
Temperature-Sensor compact Electrical measured value receiver to measure the ambient temperature, The measured value is emitted as a resistance value in accordance with IEC 751 resp. as an analogue voltage or current signal.	**2.1280.00.xxx** **.000** **.141** **.161**	Electr. output Pt 100 (IEC 751) 4 ... 20 mA 0 ... 10 V Measuring range Time constant Ambient temp. Operating voltage I-output U-output (10 V) Int. power consump. Cable Dimension Weight	Accuracy ±0.1 K; 1/3 class B ±0.3 K ±0.2 K -30 ... +70 °C 20 s (90%) -40 ... +80 °C 12 - 30 V DC 24 V DC ±10% approx. 5 mA (10 V) 5 m long Ø 20 x 138 mm 0.35 kg
Teflon Filter with gauze (not depicted) 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 (not depicted) 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**		
Support for wall mounting Not depicted - for mounting the Temperature Sensor 2.1280 onto a wall, - radiation- and precipitation-protected use (for ex. indoor)	**1.1005.54.903**	Clamping range Wall distance Material Mounting Dimension Weight	Ø 20 mm 83 mm (to transmitter centre) plastic, grey flange plate with 3 x 6,5 mm boring 96 mm long 0.075 kg

Weather and Radiation Protection Case, compact Protective case for the preceding temperature sensor compact for installation out-of-doors. 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 Clamping Material Mounting Cable Dimension Weight	 12 V DC; 2.5 W Ø 35 ... 50 mm Ø 55 ... 60 mm syn. laminations, white non-corroding holder 5 m, for model ...10x Ø 120 x 270/290 mm 0.75 kg

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.

Barometer	A **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.
Barograph	A **Barograph** is a measuring instrument which records the time course of the air pressure on a chart-stringed drum.
Baro transmitter	A **Baro transmitter** is a measuring instrument with electrical measuring value output
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.
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).
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.
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.
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.
Standard atmosphere	**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.
Barometric Altitude Formula	**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).

Pressure

Description	Order No.	Technical Data	
Aneroid Barometers			
 **Barometer** Indicating instrument with an inner frame of polished brass and an outer frame of polished brown wood.	**3.1503.00.000**	Measuring range Graduation Accuracy Above sea level Meas. element Scale Dimension Weight	960 ... 1070 hPa 720 ... 800 Torr 1 hPa; 1 Torr ±3% of mr. 0 - 1000 m Aneroid capsule Ø 115 mm Ø 180 x 45 mm 0.56 kg
 **Barometer** Indicating instrument with a mounting flange for wall mounting. Light grey varnished.	**3.1509.00.000**	Measuring range Graduation Accuracy Above sea level Meas. element Scale Dimension Weight	935 ... 1065 hPa 700 ... 800 Torr 1 hPa; 1 Torr ±2 hPa at 980 - 1030 hPa 0 - 1000 m Aneroid capsule Ø 100 mm Ø 120 x 45 mm 0.3 kg
 **Precision Barometer** A very accurate instrument. Test certificate enclosed. Supplied in a leather case.	**3.1530.00.000**	Measuring range Graduation Accuracy Above sea level Meas. element Scale Dimension Weight	920 ... 1050 hPa -6 ... +46 °C 0.5 hPa; 1 °C ±1% of m.r. 0 - 500 m Aneroid capsule Temperature compensated Ø 115 mm Ø 150 x 75 mm 0.72 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. Delivery in a wooden transport box	**3.1550.17.000** **.001**	Measuring range Graduation Accuracy Temp. meas. range Dimension Weight	800 ... 1080 hPa 560 ... 1030 hPa 0.1 hPa, vernier scale ±0.3 hPa -15 ... +50 °C Ø 65 x 940 mm 4.8 kg
Mounting Board For vertical installation of the mercury station barometer.	**3.1552.00.000** **.001**	For meas. range Dimension Weight	800 ... 1080 hPa 560 ... 1030 hPa 1000 x 115 x 13 mm 2 kg

Description	Order No.	Technical Data	
Recording Instruments			
Barograph This instrument is used to measure and record the atmospheric air pressure. The recording is carried out by means of a hand wound clock work drum mechanism acc. to DIN 8300 and DIN 58658 (3.0800... ; 3.0804....) or with a Quartz clock work (3.0815....). The on-site elevation can be set by means of an adjusting screw. Delivery includes a set of recording charts (100 sheets).	**3.0800.10.xxx** **3.0804.10.xxx** **3.0805.10.xxx** **.000** **.900**	Recording time 1 day 7 days 14 / 31 days 1 / 7 / 31 days non lockable lockable Measuring range Graduation Accuracy Above sea level Meas. element Ambient temp. Recording width Dimension Weight	Thrust 11.45 mm/h; 40 mm/d 20 resp. 9 mm/d see preceding 945 ... 1052 hPa 1 hPa ±0.8 hPa 0 ... 3000 m Aneroid-capsules temperature compensated -10 ... +45 °C 82 mm 280 x 138 x 214 mm 2.3 kg
Micro Barograph A precision measuring and recording instrument to determine the atmospheric pressure. Elevation above the sea level can be set at the measuring site on a setting knob. The recording is carried out by means of a hand wound clockwork drum mechanism acc. to DIN 8300 and DIN 58658.	**3.0810.20.000**	Recording time Thrust Measuring range Accuracy Recording width Graduation Above sea level Meas. element Ambient temp. Dimension Weight	1 / 7 days, switchable 11.45 mm/h or 40 mm/d 965 ... 1050 hPa ±0.3 hPa 160 mm 1 hPa 0 ... 2000 m, adjustable 2 Aneroid capsules, temperature compensated -10 ... +45 °C 280 x 138 x 285 mm 3 kg
Accessories			
Felt Pen	**500847** **502722** **502721**	Colour	violet (standard) black red
Recording Charts (100 pcs.) for Barograph 3.0800.10.xxx	**205184** **205182** **205185** **205186**	Recording time	1 day 7 days 14 days 31 days
Recording Charts (100 pcs.) for Micro Barograph 3.0810.20.000	**205187** **205188**	Recording time	7 days 1 day

Pressure

Electrical Transmitter

Baro Transmitter

An electrical transmitter which indicates directly the measured values of the atmospheric air pressure. The measured value is indicated and delivered as electrical resistance value.

Order No. 3.1150.10.015

Measuring range	946 ... 1053 hPa
Graduation	1 hPa
Accuracy	±1.5% of mr.
Electr. output	0 ... 200 Ω
Above sea level	max. 3000 m
Meas. element	Aneroid capsules temperature compensated
Ambient temp.	-20 ... +60 °C
Case material	Synthetic
Cable	1 m, LiYCY 5 x 0.5 mm^2
Dimension	122 x 120 x 85 mm
Weight	0.75 kg

Barotransmitter B-278-1T
Barotransmitter B-278-2T

Barotransmitters 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. 3.1158.00.075 / 3.1158.10.075

Measuring range	800 ... 1060 hPa / 600 ... 1060 hPa
B- 278-1T	
Accuracy @ 20°C	±0.3 hPa
Linearity	±0.25 hPa
Hysteresis	±0.03 hPa
S- 278-2T	
Accuracy @ 20°C	±0,5 hPa
Linearity	±0,45 hPa
Hysteresis	±0,05 hPa
Resolution	0.01 hPa
Long Term Stabilty	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

Digital Barotransmitter

Indicating meas. 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.

Order No. 3.1159.00.xxx
.040
.041

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	panelmounting
Dimension	96 x 96 x 127 mm
Weight	0.6 kg

Description	Order No.	Technical Data	
Baro Display Displaying measuring instrument for four **air pressure parameters**. Instrument with integrated pressure sensor. Analogue output and serial interface serve for out of measuring data to processing systems. Display parameter: • **P** absolute pressure • **QNH** air pressure relating to the sea level with standard atmosphere • **QFE** air pressure related to the runway • **TL** Transition- Level Input possibilities: • Input of height (m, ft) at the baro display related to the sea level (QNH) • Input of height (m, ft) at the baro display related to the runway (QFE) • Input of the Transition-Altitude (Germany 5000 ft) Output of measuring value: • The output of the acquired parameters is carried out via a serial interface. The interface specifications are selectable at the baro-display. • The analogue output of absolute pressure and QNH is carried out via an integrated analogue interface (U/I is selectable)	**3.1156.xx.000** **.00** **.01**	Operating voltage Measuring range Accuracy Resolution Digital interface Type Baud rate Parameter Analogue output Display Temperature range ASL (**A**ltitude above **s**ea **l**evel) Construction Dimension Protection Weight EMC	230 V / 50Hz; 24 V AC 12 - 35 V DC 115 V / 50 Hz; 24 V AC 12 - 35 V DC 800 ... 1100 hPa ±0.3 hPa 0.1 hPa 1 x RS 422 1200, 2400, 4800, 9600, 19200, 57600 for ex. 8N1, 7E1 2 x 0 ... 10 V or 0 (4) ... 20 mA 4 x 5-digit, LED red, 14 mm high -10 ... 50 °C selectable switch panel mounting 144 x 144 x 135 mm IP 23 1.5 kg EN 60945 EN 61000-6-2 EN 61000-6-3

Humidity Temperature Pressure

Indicators

Polymeter

Combined indicating instrument to measure the ambient temperature and rel. humidity and to determine the dew point temperature, saturation pressure, vapour pressure or saturation deficit. The values can be read directly at the scale.
The temperature is measured with a mercury thermometer.

Order No. 1.0101.00.003

Technical Data	
Measuring range	
Temperature	-30 ... +50 °C
Dew point	-30 ... + 25 °C
rel. humidity	0 ... 100% rel. h.
Saturation deficit	0.5 ... 100 hPa
Graduation	2% rel. h.; 1 K
Humidity sensor	Hair
Instrument color	anthracite
Dimension	
Scale	Ø 84 mm
(length x high)	250 x 30 mm
Weight	0.2 kg

Round Hygro-Thermometer

Combined indicating instrument designed to measure the ambient temperature and rel. humidity.

Order No. 1.0165.00.006
1.0169.00.006

Technical Data	
Model	with feet and hook with flange for wall-mounting
Scale range	0 ... 100% rel. h. -20 ... +40 °C
Measuring element	
humidity	Hair
temperature	Bimetal
Graduation	1% rel. h./ 1 °C
Accuracy	±3% rel. h. @ 20 ... 100% rel. h. and room temperature ±1 k
Dimension	Ø 103 x 35 mm Ø 120 x 36 mm with model with mounting flange
Weight	0.3 kg

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

Hygro-Thermometer

A thermometer and a hygrometer are fixed on a joint base plate.
Instrument for wall mounting.

Order No. 1.0170.00.xxx
.006
.017

Technical Data	
Measuring range	-20 ... +40 °C 0 ... +80 °C 10 ... 100% rel. h.
Graduation	1% rel. h. / 1 °C
Scale range	0 ... 100% rel. h
Accuracy	±3% rel. h. @ 20 ... 100% rel. h. and room temperature ±1 k
Scale	Ø 100 mm
Model	on a base plate
Dimension	260 x 138 x 40 mm
Weight	1.1 kg

Description	Order No.	Technical Data

Recording Instruments

Hygro-Thermograph

Recording instrument.
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. Mechanical drum clockwork mechanism with hand winding for the temperature range between -35 ... +80 °C.

2. Quartz clock work, battery-operated 1,5 V Mignon cell (LR6A) with switchable thrusts in the temperature range between -10 ... +60 °C

Delivery includes a set of recording charts (100 pcs.).

1.0660.xx.xxx	
1.0664.xx.xxx	
1.0665.xx.xxx	
.00.	
.02.	
.0xx	
.9xx	
.x00	
.x05	
.x11	
.x12	
.x14	
.x15	
.x16	
.x17	

Recording time	Thrust
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	Quartz clock work
Hum. meas. elem.	Measuring range
H (-35 ... +70 °C)	10 ... 100% rel. h.
K (0 ... +80 °C)	0 ... 100% rel. h.
non lockable	
lockable	
Temp. meas. range	-35 ... +45 °C (only H)
	-20 ... +60 °C (only H)
	-10 ... +50 °C (only H)
	-10 ... +40 °C (only H)
	0 ... +40 °C
	0 ... +50 °C
	0 ... +60 °C
	0 ... +80 °C
Scale range	0 ... 100% rel. h.
Accuracy	
humidity	±2% rel. h. (H)
	±3% rel. h. (K)
	@ 65% rel. h. and room temperature
temperature	±1% of the meas. range
pressure	±0.8 hPa
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

Hygro-Thermograph

Recording instrument with a transparent plastic case. The axes are supported by pivot bearings.
Battery-operated 1,5 V Lady cell (LR1) quartz step-motor drum clockwork mechanism. The recording time is switchable.

Delivery includes a set of recording charts (100 pcs.).

Order No.	Technical Data	
1.0680.10.xxx	Meas. range Hum.	10 ... 100% rel. h. (H)
.011	Meas. range Temp.	-10 ... +50 °C
.014		0 ... +40 °C
1.0680.12.014	Meas. range Hum.	0 ... 100% rel. h. (K)
	Meas. range Temp.	0 ... +40 °C
	Scale range	0 ... 100% rel. h.
	Accuracy	
	humidity	±2% rel. h. (H) ±3% rel. h. (K) @ 65% rel. h. and room temperature
	temperature	±1% of the meas. range
	pressure	±0.8 hPa
	Recording time	1/7/31 days
	Thrust	11.45 mm/h 40.01 resp. 9 mm/day
	Recording width	2 x 82 mm
	Graduation	5% rel. h. / 1 resp. 0.5 °C
	Dimension	280 x 138 x 270 mm
	Weight	2.1 kg

Accessories

Recording Charts

(100 pcs)

For Hygro-Thermograph

Attention: Pay attention to the measuring ranges !

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

Felt Pen

500.847	colour	violet (standard)
502.722		black
802.721		red

Console

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

1.0598.10.000	Material	Aluminium, varnished
	Surface	280 x 140 mm
	Weight	0.8 kg

Description	Order No.	Technical Data	
Meteorograph A triple recording instrument for the most important meteorological data temperature, rel. humidity, and barometric air pressure. Reliable, sturdy model with spring-wound clockwork mechanism. White varnished metal case. The axes are supported by pivot bearings. Delivery includes a set of recording charts (100 pcs.).	**1.0840.00.xxx** **.000** **.005**	Measuring range humidity pressure Accuracy humidity temperature pressure Graduation Recording time Advance Hum. meas.elem. Recording width Dimension Weight	-35 ... +45 °C -20 ... +60 °C 10 ... 100% rel. h. 945 ... 1052 hPa ±2% rel. h. @ 65% r.h. and room temp. ±1% of the meas. range ±0.8 hPa 5% rel. h. / 1 °C / 1 hPa 1 day / 7 days 11.45 mm/h; 40 mm/d H 3 x 82 mm 280 x 140 x 350 mm 4.5 kg

Accessories

Felt Pen	**500847** **502722** **502721**	colour	violet (standard) black red

Recording Charts
(100 pcs.)
For Meteorograph

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

Electronic Thermo-Hygrograph Digital measurement and display instrument for air humidity and air temperature with integrated sensors in housing of synthetic material. The measured data are indicated and stored. Delivery with reading-out software: PC-Windows software, interface cable, battery, data memory for 120.000 measurement values/channel.	**1.8252.00.000**	Measuring range Accuracy Resolution Temp. Sensor Humidity Sensor Display Interface Memory capacity Scanning interval Operating time Operating voltage Dimension Weight	-20 ... +50 °C 10 ... 95% rel.h. ±0.3 °C (0 ... 40 °C) ±0.5 °C for rest. ±3% rel. h. 0.1 °C 0.5% rel. h. NTC capacitiv 65 x 40 mm RS 232 120.000 values/ channel 1; 5; 10; 60; 1440 min. typ. 2 years 3.6 V lithium battery 115 x 110 x 25 mm 250 g

Humidity Temperature Pressure

Description	Order No.	Technical Data
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.	1.8625.10.000	Measuring sensor Temperature: NTC Rel. humidity: capacitive 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
Accessories		
Hand grip for measuring sensor Hand grip for pluggable humidity sensor head for connection to hygro-thermometer 625 inclusive sensor cable.	1.8625.11.725	
Carrying Case For measuring instrument and sensor	1.8625.20.210	
Topsafe (protective cover) Protects against shock and dirt	1.8625.20.221	
DKD Certificate 11,3% and 75,3% r.h. @ +25,0 °C	1.8625.90.206	
ISO Certificate 11,3% and 75,3% r.h. @ +25,0 °C	1.8625.90.006	
Battery Charger For external charging of the accumulators	1.8625.30.025	
9 V Accumulator	1.8625.30.515	

Electrical Transmitter

Hygro-Thermo Transmitter capacitive

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.

Model for ducts

The measuring elements are situated at the end of the immersion stem which protrudes from the back.

Room Model

The measuring elements are situated in a lateral protective cover.

Order No.		
1.1005.00.xxx	Model	Model for ducts
1.1015.00.xxx		Room model
.040	Electr. output	2 x 0 ... 20 mA/0-10 V
.041		2 x 4 ... 20 mA/0-10 V
.061		2 x 0 ... 10 V
	Measuring range	
	humidity	0 ... 100% rel.h.
	temperature	0 ... +60 °C
	Accuracy	
	humidity	‹ ±3% rel. h. in the range 5 ... 95% rel.h.
	temperature	±0.1 K + 0.05
	Measuring element	Capacitive for humidity, Pt 100 at IEC 751 1/3 DIN class B for temperature
	Characteristic	linear
	Operating voltage	15 ... 24 V AC 15 ... 36 V DC
	Diameter of stem	25 mm
	Length of stem	250 mm
	Connecting	screw clamps
	Dimension	130 x 75 x 55 mm
	Weight	0.2 kg

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 mounting out-of-doors we recommend the use of the weather- and thermal radiation shield order no. 1.1025.51.000.
(see p. 36)

Order No.		
1.1005.50.xxx	Electr. output	Electr. connection
.015	200 Ω lin./ Pt 100	with Lemosa-plug
.515	200 Ω lin./ Pt 100	with 3 m cable
	Measuring range	10 ... 100% rel. h.
	Accuracy	±3% rel. h. @ 20 ... 100% r.h. and room temperature ±1 k
	Graduation	1% rel. h. not linear
	Scale length	94 mm
	Hum. meas. elem.	H
	Temp. meas. elem.	Pt 100, acc. to IEC 751 1/3 class B
	Diameter of stem.	22 mm
	Length of stem	250 mm
	Protection	IP 65, display case
	Total length	350 mm
	Weight	0.7 kg resp. 0.9 kg

Humidity Temperature Pressure

1.1005.54.xxx 1.1005.54.241

Description	Order No.	Technical Data	
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 mounting out-of-doors we recommend the use of the weather- and thermal radiation shield order no.. 1.1025.55.xxx. (see page 36)	**1.1005.54.xxx** **.000** **.241** **.161**	Electr. output Humidity 0 ... 1 V 4 ... 20 mA 0 ... 10 V Measuring range Accuracy Temp. Meas. elem. Operating voltage Protection Cable Dimension Weight	Temperature Pt 100 (±0,1 K) 4 ... 20 mA (±0,3 K) 0 ... 10 V (±0,2 K) 0 ... 100% rel. h. -30 ... +70 °C ±2% rel. F. Pt 100, acc. to IEC 751 1/3 class B 9 ... 30 V DC (...000) 12 ... 30 V DC (...241) 24 V DC (...161) IP 30 for sensor IP 65 for electronic 5 m long Ø 20 x 115 mm 0.45 kg
Protective basket with gauze not depicted Is put on the sensor and protects the measuring element from coarse dust.	**1.1005.54.901**		
Protective basket made of metal not depicted 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).	**1.1005.54.902**		
Wall holder not depicted Serves for wall mounting of hygro-thermo transmitter 1.1005.54..., for use protected against radiation and precipitation (for ex. indoor).	**1.1005.54.903**	Clamping range Wall distance Material Mounting Dimensions Weight	Ø 20 mm 83 mm (to transmitter centre) plastic, grey flange plate with 3 x 6.5 mm boring 96 mm long 0.075 kg

Weather and Thermal Radiation Shield Protective case for hygro-thermo transmitter compact with outdoor installation.	**1.1025.55.00x** **.10x** **.xx0** **.xx1**	W/o Ventilator with Ventilator Clamping range Material Montage cable Dimensions Weight	 12 V DC; 2.5 W Ø 35 ... 50 mm Ø 55 ... 60 mm Synthetic lamellas, white Non-corroding holder 5 m, for model. ...100 Ø 120 x 270 / 290 mm 0.75 kg

Clima Sensors

Description	Order No.	Technical Data	Wind	Precipitation, Brightness, Twilight	Temperature Air humidity
Clima Sensor WTF	4.9010.00.061		X	X	X
Clima Sensor W	4.9000.00.061		X	X	
Clima Sensor TF	4.9011.00.061			X	X
Clima Sensor	4.9001.00.061			X	

The Clima Sensor 2000 serves for the measurement of important environmental data. Depending on the type of task it is available as combined measuring instrument.
The analogue outputs are configured as standard signals so that they can be used for the coupling on customary bus systems.

Wind
A cup star, the revolution-no. of which is linear-proportional to the wind speed, supplies a frequency through a Reed-contact to a connected frequency-voltage-converter.

Precipitation
The detection is carried out optically acc. to the reflection-method with modulated infrared-light on precipitation particles.

Brightness
The brightness is detected by means of three independent photo-diodes which are arranged in 90°-segments. Three independent output voltages are linear to the brightness.

Twilight
The twilight is detected by a photo diode. A converter transforms the signal into an output voltage, which is linear to the twilight range.

Temperature
The temperature sensor is a standardized resistance thermometer - Pt 100 - of longterm stability.

Air humidity
The measurement is carried out with a capacitive humidity sensor changing its capacity according to the relative humidity.

Wind Speed	Meas. range	1 ... 40 m/s
	Accuracy	≤ 0.5 m/s
	Electr. output	0 ... 10 V (=0 ... 40 m/s)
	Load resistor	≥ 10 kΩ
Precipitation-Detection	Meas. range	Precipitation yes/no
	Electr... output	0 V at precipitation 10 V no precipitation
	Sensitivity	Drizzle
	Load resistor	≥ 100 kΩ
	Sensitivity	Drizzle
	Switch off-delay	approx. 2 min.
Brightness Detection	Meas. range	0 ... 100 k Lux
	Spectral range	700 ... 1050 nm
	Accuracy	±10% of meas. value
	Electrical output	3 x 0 ... 10 V, Eastern, Southern and Western Direction
	Load resistor	≥ 10 kΩ
Twilight	Meas. range	0 ... 250 Lux
	Electr. output	0 ... 10 V
	Load resistor	≥ 10 kΩ
Temperature	Meas. range	-20 ... +60 °C
	Meas. element	Pt100 at IEC 751 1/3 DIN
	Accuracy	±0.15 °C at 0 °C
	Electr. output	0 ... 10 V
	Load resistor	≥ 10 kΩ
Humidity	Meas. range	0 ... 100% rel. humidity
	Accuracy	±3% in the range 10 ... 90% rel. h.
	Electrical output	0 ... 10 V
	Load resistor	≥ 10 kΩ
General	Operating voltage	24 V AC ±15% 24 V DC ±25%
	Current load	≤ 150 mA
	Temperature range	-40 °C ... +60 °C
	Connecting cable	10 m; LiYCY 12 x 0.14 mm², UV-resistant max. 100-m supply at with nominal 24 V
	Mounting	Niro-holder clamp on mast or wall
	Weight	max. 1.5 kg

Humidity, Temperature Pressure, Wind Brightness

Clima Sensors D

Description	Order No.	Technical Data: Wind	Precipitation, Brightness, Twilight	Temperature Air humidity
Clima Sensor D WTF	4.9110.00.061	X	X	X
Clima Sensor D W	4.9100.00.061	X	X	
Clima Sensor D TF	4.9111.00.061		X	X
Clima Sensor D	4.9101.00.061		X	

The Clima Sensor D serves for the measurement of important environmental data. Depending on the task, it is available as combined measuring instrument. Model D is equipped in addition with a DCF 7 radio controlled clock, and an integrated serial interface. An internal heating serves as protection against dew.

The instrument has
- Analogue outputs and
- Serial interface
- DCF77-receiver for date and time
- Dew protection

The analogue outputs are standard signals and can be used for the connection to commercially available bus systems.

Further description see Clima Sensor

Wind	Measuring range	0,5 ... 40 m/s
	Accuracy	±0,5 m/s or ±5% Mb
Precipitation	Measuring range	rain yes / no
	Sensitivity	drizzle
	Switch-off-delay.	approx. 2 minutes
	Load resistance	≥ 100 kW
Brightness for East, South, West	Measuring range	0 ... 100 k Lux
	Spectral range	700 ... 1050 nm
	Accuracy	±10% of measuring value
Twilight	Measuring range	0 ... 250 Lux
Temperature	Measuring range	-20 ... +60 °C
	Accuracy	1/3 class B acc. to IEC 751 ±0.1 °C at 0 °C
Air humidity	Measuring range	0 ... 100% rel. humidity
	Accuracy	±3 in the range 10 ... 90% rel. h.
Output analogue	Signal	0 ... 10 V each parameter 0 V for rain, 10 V with dryness Load resistance ≥ 10 kW (≥ 100 kW with precipitation)
serial	Type	RS 422/485
	Output	9600Bd, 8N1, simplex-, half-duplex-operation
	Measuring values	Instant. values, date and time
	Output rate	1 / sec.
General	Operating voltage	24 V AC ±15% 24 V DC ±25%
	Current consumption	≤ 150 mA (with heating ≤ 650 mA)
	Ambient temp.	-40 °C ... +60 °C
	Connecting calbe	10 m; LiYCY 16 x 0.14 mm², uv-resistant max. 100 m at supply with nominal 24 V
	Mounting	non-corrosive holding clamp for mast or wall
	Weight	max. 1.5 kg

Accessories

Weather and Thermal Radiation Shield

Weather and Thermal Radiation Shield

Protective covering for the Hygro-Thermo- or Hygro-Transmitters out-of-doors. Helps to prevent atmospheric influences and radiation errors from influencing the measured results.

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	2.5 kg

Weather and Thermal Radiation Shield, compact

Protective case for the Temperature or Hygro-Thermo-Transmitter compact for installation out-of-doors. This case essentially eliminates the influence of weather and radiation errors which affect the measurement result.

Order No.
1.1025.55.00x
.10x
.xx0
.xx1

Technical Data	
Without ventilator	
With ventilator	12 V DC, 1.3 W
Clamping range	Ø 35 ... 50 mm Ø 55 ... 60 mm
Suitable for	1.1005.54 ... or 2..1280....
Material	synthetic lamellas white
Mounting	stainless steel holder
Cable	5 m for model. ...10x
Dimension	Ø 120 x 270/290 mm
Weight	0.75 kg

Weather Huts

Weather Hut

Model Wild
Protective hut to hold meteorological measurement instruments. Protects them from precipitation and eliminates radiation errors. Louvered walls guarantee good air circulation. Delivery includes a stand with three stairs made of hot galvanized steel.

Order No. 1.2170.00.000

Technical Data	
Model	in acc with DIN 58656
Material	wood, painted white
Door	two-leafed
Height of hut	1.80 m
Height of stairs	0.7 m
Inner dimension	720 x 450 x 470 mm
Weight	60 kg

Weather Hut

Model Wild
(not depicted)

Order No. 1.2171.00.000

Technical Data: As above but without the stand and stairs.

Weather Hut

Small version of the preceding huts, without stand and stairs.

Order No. 1.2175.00.000

Technical Data	
Material	wood, painted white
Door	one-leafed
Inner dimension	350 x 230 x 410 mm
Weight	12.5 kg

Description	Order No.	Technical Data	

Measuring Transformers

Measuring Transducer FTD

humidity-temperature-pressure

The resistance signal from the data transmitter is converted into current and/or voltage proportional to the measured value. This makes it possible to control subsequently added recording or switching instruments.
The measuring transducer is usually connected to humidity transmitters, temperature transmitters or baro transmitters.
The wall case is mounted to a plane wall, whereas the PC-board is inserted into a 19“ rack.

1.1080.xx.xxx
1.1081.xx.xxx
2.1082.xx.xxx
3.1080.xx.xxx
.00.xxx
.10.xxx
.xx.040
.xx.041
.xx.060
.xx.061

Electr. input	Measuring range
0 - 200 Ω, linear	10 ... 100% rel.h.
0 - 200 Ω, linear	0 ... 100% rel.h.
Pt 100	-30 ... +50 °C
0 - 200 Ω	945 ... 1052 hPa
Model	wall case
	PC board
Electr. output	0 ... 20 mA
	4 ... 20 mA
	0 ... 1 V
	0 ... 10 V
Ambient temp.	0 ... 40 °C
Operating voltage	230 V / 50 Hz
Protection	IP 65
Dimension	
Case	200 x 120 x 75 mm
PC board	170 x 100 x 30 mm
Weight	0.65 kg. resp. 0.25 kg

Digital Indicators

Digital Indicator for panel installation

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.
Preferably switch panel or front panel installation.

1.1044.00.xxx
1.1044.02.xxx
2.1044.00.xxx
3.1044.00.xxx
.000
.040
.041
.061
.073

Display range	10 ... 100% rel. h.
	0 ... 100% rel. h.
	-100.0 ... +199.9 °C
	945 ... 1053 hPa
Electr. input	Pt 100 (only temp.)
	0 ... 20 mA
	4 ... 20 mA
	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

with 2 adjustable limit contacts
Flat-section indicator for display of humidity, temperature or pressure values.
Two setting knobs on the front panel serve for setting both the potential-free relay-contacts.
The background of the indicator is black to facilitate reading of the red digits.
Preferably switch panel or front panel installation.

1.1045.00.xxx
1.1045.00.xxx
2.1045.00.xxx
3.1045.00.xxx
.000
.040
.041
.061
.073

Display range	10 ... 100% rel. h.
	0 ... 100% rel. h
	-100.0 ... +199.9 °C
	945 ... 1052 hPa
Electr. input	Pt 100 (only temp.)
	4 ... 20 mA
	0 ... 20 mA
	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

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.

Order No.: **9.2750.xx.900**
.x0.
.x1.

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
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

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.

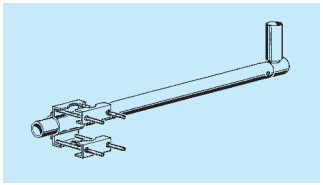
- Operation and setting through front side keys.
- Display sequence and formatting of weather parameters are configurable acc. to customer's request.
- Display possible from instantaneous, min., max. and mean value for each parameter.

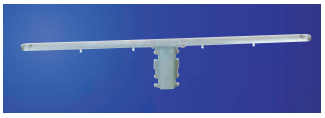
Meas. Value input:
- Receipt of display parameters via a serial interface
- Receipt and acquisition of the display parameters via an integrated analogue interface. The analogue IF is configurable acc. to customer's request.
- Serial output of the display parameters via a serial interface.
- Analogue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

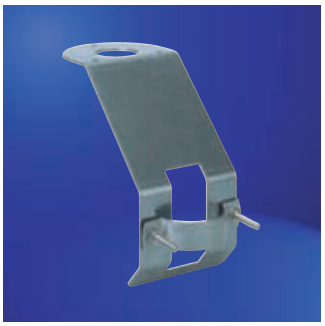
Order No.: **9.2750.xx.901**
.x0.
.x1.
.0x.
.1x.

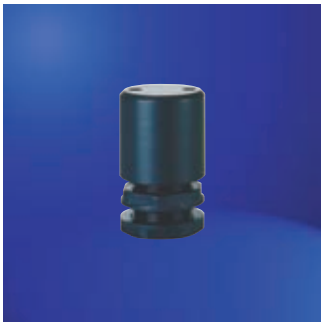
Technical Data	
Operating voltage	230 V / 50 Hz; 24 V AC 12 - 35 V DC 115 V / 50 Hz; 24 V AC 12 - 35 V DC
W/o integrated pressure sensor	
With integrated pressure sensor	
Display range	-9.999 ... +99999
Display	4 x 5 digit, LED red, 14 mm high 4 x min / max LED-arrow
Meas. range	depending on parameter
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	
Meas. 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 Hangers are used to mount measuring transmitters to telescope masts. The extension is 1 m from the mast. The outer end has a holder specially designed for the respective data transmitter.	**4.3185.xx.xxx.** **.00.** **.01.** **.02.** **.000** **.001**	Clamping range suitable for Tube diameter Material Weight	Ø 60 - 132 mm Ø 40 - 80 mm Ø 48 - 50 mm 1.1025.51... 2.1260... 50 mm aluminium 1.8 kg
Traverse For joint mounting of 2 measuring transmitters on a mast, partly in combination with the pins mentioned in the following.	**4.3171.30.000**	Clamping range Transmitter distance Material Weight	Ø 48 ... 102 mm 0.8 m aluminium / stainless steel 0.35 kg
Traverse short For mounting of a measuring transmitter on a mast, partly in combination with the adapters mentioned in the following.	**4.3171.40.000**	Clamping range Transmitter distance Material Weight	Ø 48 ... 102 mm 0.4 m to the mast aluminium / stainless steel 0.30 kg
Holder compact The holder is used to mount a measuring transmitter to a mast tube or a wall, partly in combination with the adapters mentioned in the following.	**506347**	Material Clamping range Dimension Weight	stainless steel Ø 35 ... 50 mm 80 x 150 mm 0.35 kg
Peg complete The pin is used to mount the measuring transmitter situated in the weather and thermal radiation shield, order no. 1.1025.55.000/100 on traverses or holders compact.	**506350**	Material Dimension Weight	POM Ø 40 x 65 mm 0.1 kg
Support for wall mounting Not depicted For mounting the Hygro-Thermo Transmitter compact (1.1005.54...) or Temperature Sensor compact (2.1280...) onto a wall, radiation- and precipitation-protected use (for ex. indoor)	**1.1005.54.903**		





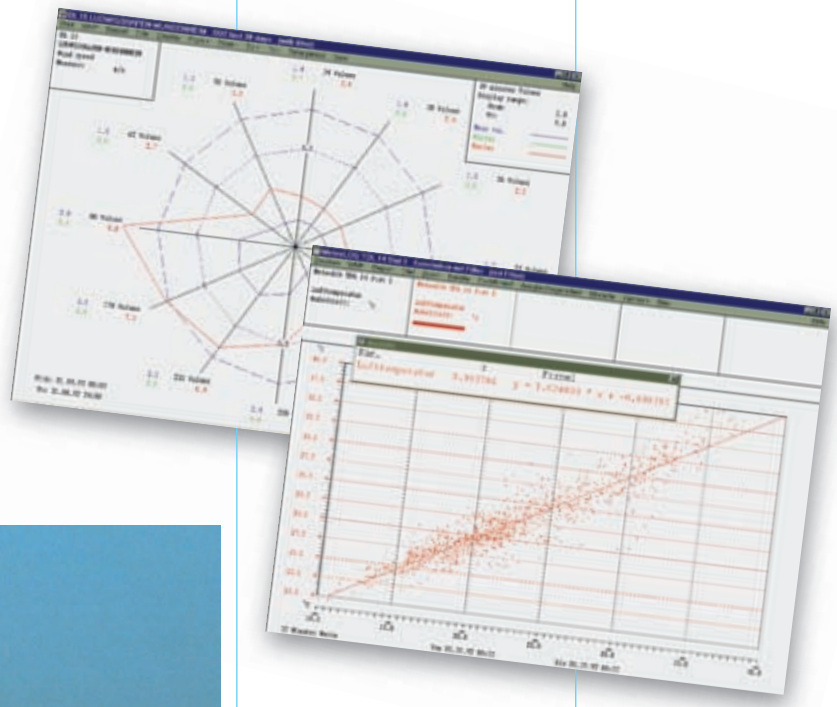




Please contact us for additional accessories such as cables and cable connections as well as supplementary mast constructions or supplementary system constructions. We will prepare an offer tailored to your individual requirements.

Your Notice

THIES –
as versatile as require the international tasks



Weather and environmental monitoring technology needs a competent partner THIES CLIMA – worldwide

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 task 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.

Our partners in:
Arabemirates
Argentinia
Australia
Austria
Belgium
Brasil
Canada
Chile
China
Denmark
Ecuador
Egypt
Finland
France
Greece
Hongkong
India
Indonesia
Iran
Italy
Kolumbia
Korea
Malaysia
Maroc
Mexico
Nepal
Netherland
Norway
Peru
Philippines
Poland
Portugal
Quatar
Romania
Saudi Arabia
Singapore
South-Africa
Spain
Sweden
Switzerland
Syria
Taiwan
Turkey
United Kingdom
Venezuela
Vietnam

Thies CLIMA

ADOLF THIES GMBH & CO KG
Meteorology-Environmental Technology
Box 3536 + 3541
D-37025 Göttingen
Phone +49 551 7 90 01 –0
Fax +49 551 7 90 01 –65
E-Mail info@thiesclima.com
www.thiesclima.com

TÜV CERT
DIN EN ISO 9001
Certificate: 08/100/1688

010127/12/05