

# METEO comp



Measurement system for the measurement of wind velocity, wind direction and temperature

Operating Instruction: Combined Wind Transmitter 4.3329.00.000

Display Instrument 9.3229.00.000



## Range of Application

The **METEO comp** measurement system is designed to measure wind velocity, wind direction and the external temperature.

The measurement system features the following:

- Selection of the appropriate unit of measurement for wind velocity in m/s, km/h or Beaufort
- Selection of the unit of measurements for temperature in °C, °F or wind chill temperature
- Displays the min.-max. values of all the measurement units occurring within the preceding 24 hours.
- Output of parameter wind and temperature via serial interface (RS 232)

## Construction and Mode of Operation

The METEO comp measurement system consists of the following components:

*Combined wind transmitter*  
*Display instrument*  
*Plug power unit*

Connect the *combined wind transmitter* with the integrated temperature sensor via the cable with the plug to the electronic display instrument. Electrical energy is supplied to the wind transmitter and the display unit by means of a plug power unit which has been connected to the display unit.

The wind transmitter is quite compact, allowing simple mounting with minimal influence on the sensors.

The **wind velocity** is detected by cup anemometers. This value is measured once a second and actualized in the display. Moreover, the minimum and maximum values of the wind velocities are determined and saved over a gliding 24-hour time period. If the wind transmitter is not connected or the wind velocity sensor is defective, EEE will appear on the display.

Wind direction is detected by means of a wind vane. This value is measured once every 50 ms (20 Hz) and actualized on the display. If the wind transmitter is not connected or the wind direction sensor is defective, the LEDs **N, S, E, W** all light up simultaneously.

**External temperature** is detected by means of the NTC resistor which is integrated in the wind direction unit. This value is actualized once a second on the display. Moreover, the minimum and maximum values of the occurring temperatures are determined and saved over a gliding 24-hour period of time. If the wind transmitter is not connected or the temperature sensor is defective, EEE appears on the display.

The easy-to-read digital LED-measured data representation on the display adapts automatically to the brightness of the surroundings.

If the display of measured data is not required for a longer period of time, then the instrument can be switched to the sleep mode. This is done by pressing both keys simultaneously. You can return to the operating mode in the same way. The sleep mode does not influence the measurement respectively the determination of the min.-max. values.

## Serial Interface

For output and processing of measured data by other systems (for example: PC) display instrument is equipped with serial interface RS232 (9 pol. – D-plug). Measured data of wind velocity (m/s), wind direction (engledegree) temperature (°C) will be distributed every second via this interface.

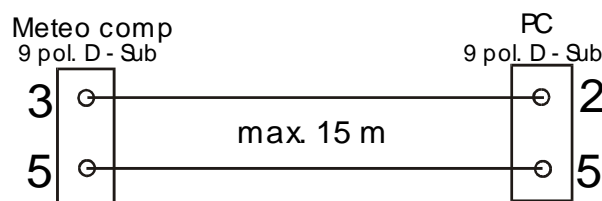
Following interface parameter are pre-selected:

8 data bit  
no parity  
1 stop bit  
1200 Baud

### Pin connection of 9-pol. D-plug

Pin	Function
2	RXD (not in use)
3	TXD
5	GND

### Connecting diagram



## Data telegram [STX]xx.x xxx.x xxx.x[CR][ETX]

ZEICHEN NR.	FUNKTION
1	STX (HEX 02)
2	10 <sup>1</sup> wind velocity (m/s)
3	10 <sup>0</sup> wind velocity (m/s)
4	. decimal point
5	10 <sup>-1</sup> wind velocity (m/s)
6	space (HEX 20)
7	10 <sup>2</sup> wind direction (angle degree)
8	10 <sup>1</sup> wind direction (angle degree)
9	10 <sup>0</sup> wind direction (angle degree)
10	. decimal point
11	10 <sup>-1</sup> wind direction (angle degree)
12	space (HEX 20)
13	- first sign
14	10 <sup>1</sup> temperature (C degree)
15	10 <sup>0</sup> temperature (C degree)
16	. decimal point
17	10 <sup>-1</sup> temperature (C degree)
18	CR (HEX 0C)
19	ETX (HEX 03)

## Technical Specifications

### Combined Wind Transmitter

#### Wind Direction

Output Signal	0 V...4,69 V = 0...337,5 angle degree (Vcc = 5 V)
Resolution	0,31 V = 22,5 angle degree
Output Resistance	approx.. 10 kΩ

#### Wind Velocity

Measurement Principle	1 Reed contact / 2 magnets
Output Signal	0...100 Hz = 0...40 m/s

#### External Temperature

Sensor	NTC 10 kΩ
Measurement Connections	Voltage divider
Measuring range	-30...+60 C degree

#### General Data

Operating Temperature	-30...+60 C degree
Connection Cable	20 m
Connecting Plug	Western plug, 6-pole
Current consumption	3 mA
Voltage supply	5 V DC

### Display Unit

#### Wind direction

Measuring Range	0...360 angle degree
Resolution	22,5 angle degree
Scanning Frequency	20 Hz

#### Wind Velocity

Resolution	0,1 m/s, 1 km/h, 1 Bft
Scanning Frequency	1Hz

External Temperature	
Measuring Range	-30...+60 C degree
Resolution	0,1°C, 1 F degree
Scanning Frequency	1Hz

General Data	
Display	LED
Operating Temperature	- 20...+ 40 C degree
Voltage Supply	9 V DC
Current Consumption	max. 500 mA

Serial Interface	
Type	RS232
Pre-selection	1200 Baud, 8 data bit, no parity, 1 stop bit
Output interval	1 sec (automatically)
Output format	refer to data telegram

## Mounting

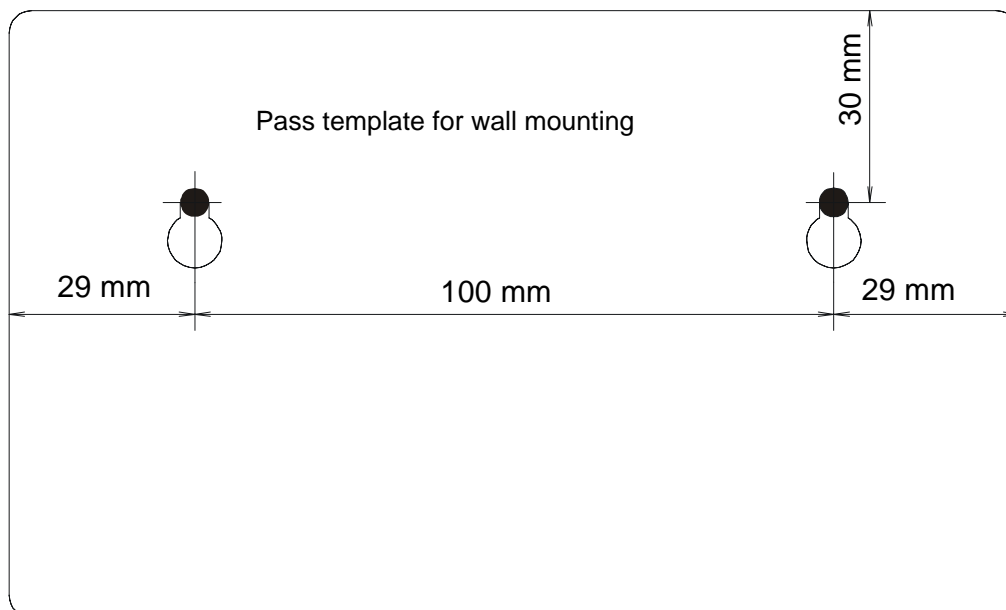
### Combined Wind Transmitter:

In order to obtain comparative values when the surface wind is measured, the wind transmitter should be set up in a flat, open area. It should preferably be mounted to a mast by means of a mounting pin with a diameter of 30 mm. After the combined wind transmitter has been placed onto the mast, align the mast hoop of the wind transmitter to North and attach it firmly to the mast by tightening the screws on the shaft.

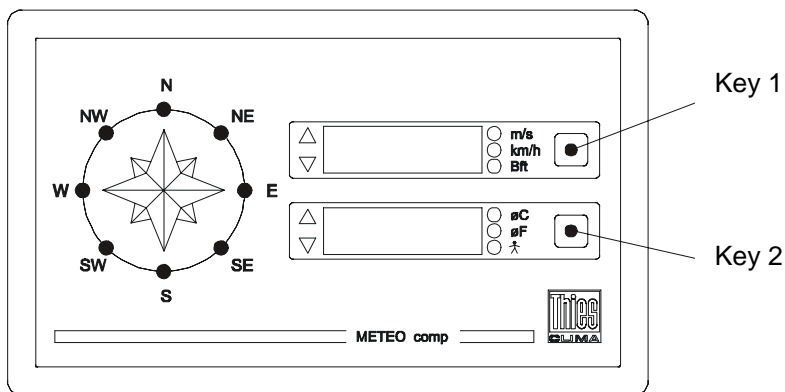
### Display Unit

The display unit is designed for use in dry interior rooms. It can be operated both as a table instruments and as a wall instrument.

To mount it to walls or other plane surfaces, two dowel pins 5 x 25 mm and two screws 4 x 30 DIN 96 (DIN =German Industrial Standards Code) or two self-tapping screws 3.5 x 32 DIN 7981 are required. Using a pass template, mark two points on the wall and then drill two 5 mm dowel pin holes



## Key Operation



### Wind Velocity:

In order to display the min. and max. values of wind velocity, press key 1 briefly (<2 seconds) as follows: The first time you press key 1 ▼ appears on the display and the minimum value of the preceding 24 hours is displayed. Press key 1 again briefly and a ▲ will appear on the display and the maximum value of the preceding 24 hours is displayed. Pressing the key very briefly once again will return you to the current value display.

To select other units of measurement, press key 1 for more than 3 seconds.

- |                             |                              |                             |
|-----------------------------|------------------------------|-----------------------------|
| <input type="radio"/> λ m/s | <input type="radio"/>        | <input type="radio"/>       |
| <input type="radio"/>       | <input type="radio"/> λ km/h | <input type="radio"/>       |
| <input type="radio"/>       | <input type="radio"/>        | <input type="radio"/> λ Bft |

### External Temperature:

To display the minimum and the maximum values, press key 2 as described above for wind velocity.

To select other units of measurement, press key 2 for more than 3 seconds.

- |                            |                            |                                 |                                 |
|----------------------------|----------------------------|---------------------------------|---------------------------------|
| <input type="radio"/> λ °C | <input type="radio"/>      | <input type="radio"/> λ °C      | <input type="radio"/>           |
| <input type="radio"/>      | <input type="radio"/> λ °F | <input type="radio"/>           | <input type="radio"/> λ °F      |
| <input type="radio"/>      | <input type="radio"/>      | <input type="radio"/> λ W.Chill | <input type="radio"/> λ W.Chill |

To switch from the operating mode to the sleep mode, press both keys simultaneously. Do the same to switch from the sleep mode to the operating mode.



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