

6 Installation of the USB/RS485 Interface Converter

9.1702.40.002

For the installation of the USB/RS485 interface converter please proceed as follows:

1. Put the USB-plug of the RS485 converter into the provided socket of the PC.
2. The PC identifies a new instrument, and displays it as follows.
3. Select in the dialogue "No, not this time".
4. Acknowledge the next dialogue with OK.
5. Windows will install the driver for the USB/RS485 converter.
6. After successful completion the instrument is ready for use.
7. In the Windows system control a new COM-port is registered. The program "ThiesDeviceUtility.EXE" is using this port automatically.
8. Settings for RS485 half-duplex operation.

In half-duplex operation the connections 1,2, and 6 are used. The sliding switches have to be set as follows:

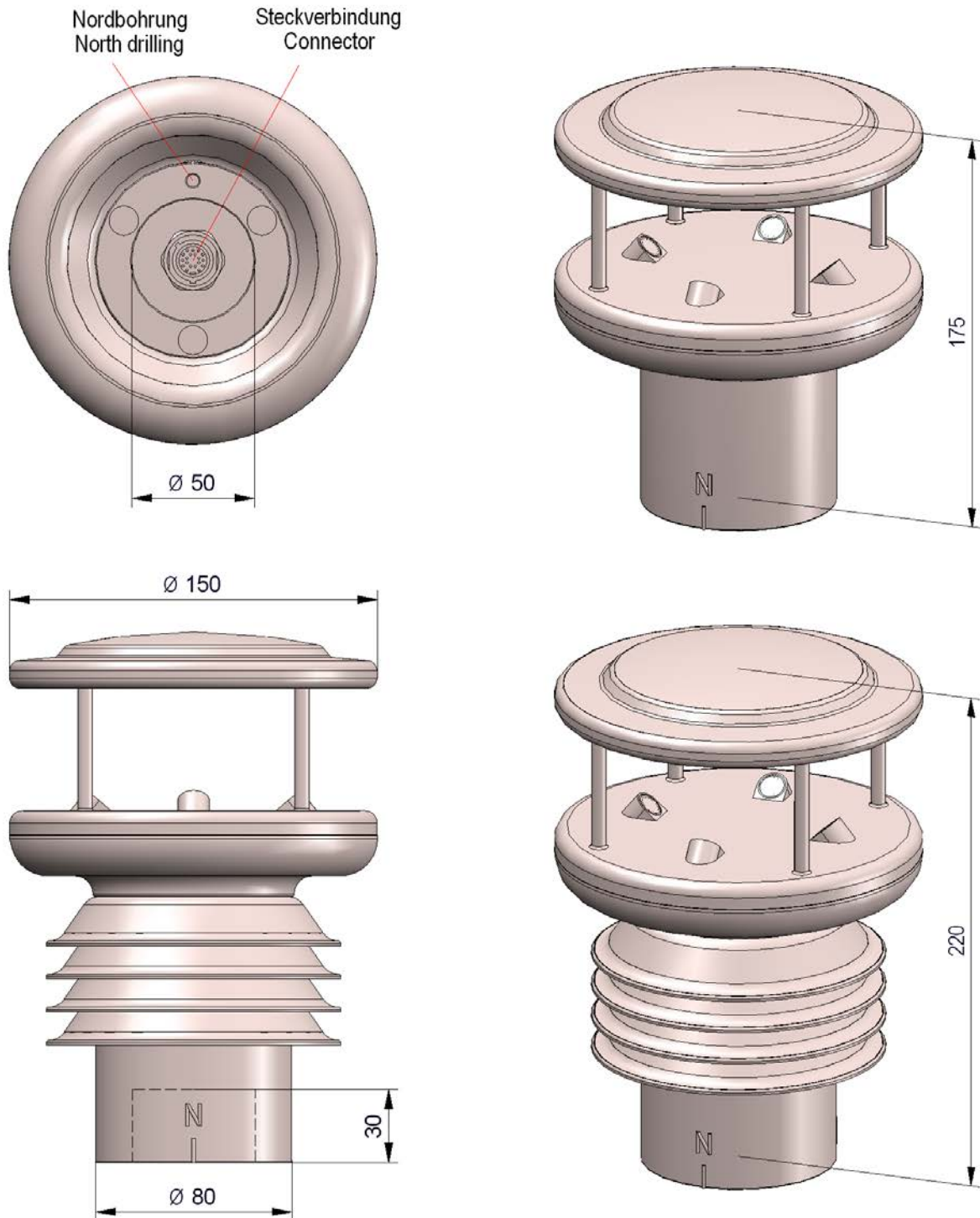
- | | |
|--------|--------|
| 1: ON | 3: OFF |
| 2: OFF | 4: OFF |

9. Settings for RS485 full-duplex operation.

In full-duplex operation the connections 1,2,3,4, and 6 are used. The sliding switches must be set as follows:

- | | |
|--------|-------|
| 1: ON | 3: ON |
| 2: OFF | 4: ON |

7 Dimensional Drawing



8 Technical Data

Parameter		
Wind velocity ¹	Measuring range	0.01 ... 60m/s Scaling of analogue output freely selectable.
	Accuracy	≤ 10m/s: ±0.25m/s (rms - mean over 360°)
		≤ 30m/s: ±2.5% (rms - mean over 360°)
		30 ... 60m/s: ±3.5% (rms - mean over 360°)
	Resolution	0.1m/s: in telegrams 1, 2, 3, 5, 6
0.01m/s: in telegram 14		
Wind direction ¹	Measuring range	0 ... 360°
	Accuracy	±2.0° (rms - mean over 360°) with WS > 2m/s ±3.0° (rms - mean over 360°) with WS > 35m/s
	Resolution	1°: in telegrams 1, 2, 3, 4, 6
		0.1°: in telegrams 5, 14
Acoustic virtual temperature ²	Measuring range	-50 ... +80°C
	Accuracy	±0,5K at absolutely dry air in the range of 20°C. The acoustic temperature is not suitable for the exact measurement of air temperature. It serves exclusively for the verification of the acquired wind measuring values
	Resolution	0.1K
Air temperature ³	Measuring range	-50 ... +80°C
	Accuracy	±0.3K @ 25°C ±0.5K @ -45 ... +60°C ±1.0K @ -50 ... +80°C
	Resolution	0.1K
	Long-term stability	< 0.04K per year
Air humidity, relative ³	Measuring range	0 ... 100% relative humidity
	Accuracy	±1.8% of 10 ... 90%, ±3.0% of 0 ... 100%
	Long-term stability	<0.5% per year
	Resolution	0.1%
Air pressure ³	Measuring range	260 ... 1260hPa
	Accuracy	typ. ± 0,25hPa @ -20 ... +80°C @ 800...1100hPa
		typ. ± 0,50hPa @ -20 ... +80°C @ 600...1100hPa
		typ. ± 1,00hPa @ -50 ... -20°C @ 600...800hPa
	Resolution	0,1hPa
Long-term stability	typ. ± 0,3hPa pro Jahr	
Brightness ⁴	Measuring range	1 ... 150.000Lux
	Accuracy	3% of relative measured value
	Resolution	Approx. 0.3% of measuring value
Brightness direction ⁴	Measuring range	0 ... 360°, 0° ± Brightness <10.000Lux
	Accuracy	Typically < 2° in direct sunlight without clouds
Twilight ⁴	Measuring range:	0 ... 250Lux
	Accuracy:	3% of relative measured value
	Resolution:	Approx. 0.3% of measuring value
Precipitation ⁵	Measuring ranges:	
	Intensities	0.001 ... 999mm/h

	Resolution intensity	0.001mm/h
	Daily total	0.01 ... 999mm
	Resolution daily total	0.01mm
	Droplet size	0.25 ... 5.0mm, large as hail
	Accuracy with precipitation	With 95% of the precipitations deviations less than 10% compared with Thies Laser Precipitation Monitor (Reference)
	Type of precipitation	Rain, snow, sleet, ice crystals, hail
Rain Temperature ⁹	Measuring range	5 ... 50°C
	Resolution	0,1°C
	Accuracy	0,5°C
Electr. compass ⁶ Differential angle of instrument north marking to magnetic north pole	Measuring range	1 ... 360°
	Accuracy	Typically <2° in magnetically undisturbed environment
	Resolution	0.1°
Derivative Parameter		
Absolute Humidity ³	Measuring Range:	0 ... 10,00g/m ³
	Resolution:	0.01g/m ³
Dew point temperature ³	Measuring range:	Data see „Air Temperature“
	Accuracy:	
	Resolution:	
Windchill temperature ³ Remark: measuring value valid only from ≤10°C	Measuring range:	Data see „Air Temperature“
	Accuracy:	
	Resolution:	
Heat index temperature ³ Remark: measuring value valid only from ≥26°C	Measuring range:	Data see „Air Temperature“
	Accuracy:	
	Resolution:	
Direction of magnetic compass (optionally) ⁶	Measuring range:	1 ... 360°
	Accuracy:	Typ. <2° in magnetically undisturbed surroundings.
	Resolution:	0.1°
Global radiation ⁸ is calculated with the brightness measurement.	Measuring range:	0 ... 2000W/m ²
	Accuracy:	Typ. ± 30W/m ² compared to a Class B pyranometer
	Resolution:	1W/m ²
Data output digital ⁷	Interface	RS 485 / RS 422 Electrically isolated from supply
	Baud rate	1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200, 230400, 460800, 921600 selectable
	Output	Instantaneous values, sliding means from 100msec to 10min in increments of 100msec freely selectable. The mean value of the last minute is always output for the precipitation intensity. Precipitation totals are reset at the beginning of the next day "00:00:00".

	Output rate	One per 20msec to one per 60 seconds in increments of 1msec freely selectable.
	Protocol	ASCII- Thies-Format and MODBUS RTU
	Parameter	All a/m parameters, including derivative parameters, are depending on the respective model.
Data output analogue ⁷	Electrical outputs	0 ... 10V Electrically isolated from supply. Please see table 9. selectable parameters with scaling.
<p>Attention: For the actual scaling of the analogue outputs, please refer to the supplementary sheet "Factory setting" on delivery or Table 9.</p>		
	Quantity	max. 8
	Burden	Permissible burden on voltage output: $\geq 2000\Omega$.
	Output	Instantaneous values, sliding means from 100msec to 2min in increments of 100msec freely selectable.
	Output rate	Update rate at an output rate (see command OR) ≥ 250 msec always 250msec. For output rates < 250 msec applies: update rate = output rate. Recommended output rates ≥ 100 msec with an average AV1 = 100msec
	Resolution	16bit
	Parameter	@ 4.9200.x0.00x : WV, WD, Temp., Rel. H., Air Pressure; Brightness, Direction of brightness, Precipitation
		@ 4.9201.x0.00x : WV, WD, Temp., Rel. H., Air Pressure
		@ 4.92x2.x0.00x : WV, WD, Brightness, Precipitation
		@ 4.9203.x0.00x : WV, WD,
GPS reception	Low power consumption GPS receiver, integrated RTC and antenna	
	Service life of the RTC (buffered by battery)	Ca. 10 years
General	Internal measuring rate	Wind: up to 500 propagation time measurements per second, up to 125 complete measuring sequences/second incl. calculations. Temperature, humidity, pressure, precipitation, brightness: updated 1x a second.
	Bus mode	Bus mode with up to 99 devices possible.
	Firmware update	Firmware update via RS422/485 with 4800 Bd..115200 Bd 8N1 in full duplex and half duplex mode.

	Temperature range	Operating temperature -50 ... +80°C Storage temperature -55 ... +80°C
Operating voltage	Supply without heating	6 ... 40V DC or 10 ... 28V AC 50Hz / 60Hz typ. 50mA @ 24V
	Supply with cover heating	24V AC/DC ±15 %, 1,1A typically @ 24V nominal
	Supply with ultrasonic transducer heating	6 ... 40V DC or 10 ... 28V AC 50Hz / 60Hz typ. 400mA @ 24V
	Supply with ultrasonic transducer heating and cover heating	24V AC/DC ±15 %, 1,4A typically @ 24V nominal
	Type of protection	IP 67 (when mounted correctly, see section "5. Installation").
Housing	4.92xx.xx.xxx	Plastic: LEXAN (polycarbonate, UV-stabilised) impact and weather-resistant.
	Mounting	e.g. on mast tube outer-Ø 48 ... 49mm, inner-Ø >30mm
	Type of connection	19 pin plug connection.
	Weight	Approx. 900g (full version)

1),2), 3), 4), 5), 6), 7), 8) @ 4.92x0.x0.00x
 1), 2), 3), 6), 7) @ 4.9201.00.00x
 1), 2), 4), 5), 6), 7) 8) @ 4.9202.x0.xxx
 1), 2), 6) 7) @ 4.9203.00.00x
 9) @ 4.9200.20.xxx

9 More Information / Documents as download

Further information can be found in the instructions for use. These document and also the instruction for use are available for download under the following links.

Short instruction for use

https://www.thiesclima.com/db/dnl/4.920x.x0.xxx_Clima_Sensor_US_e.pdf

Instruction for use

https://www.thiesclima.com/db/dnl/4.920x.x0.xxx_Clima_Sensor_US_e_short.pdf

**Please contact us for your system requirements.
We advise you gladly.**

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