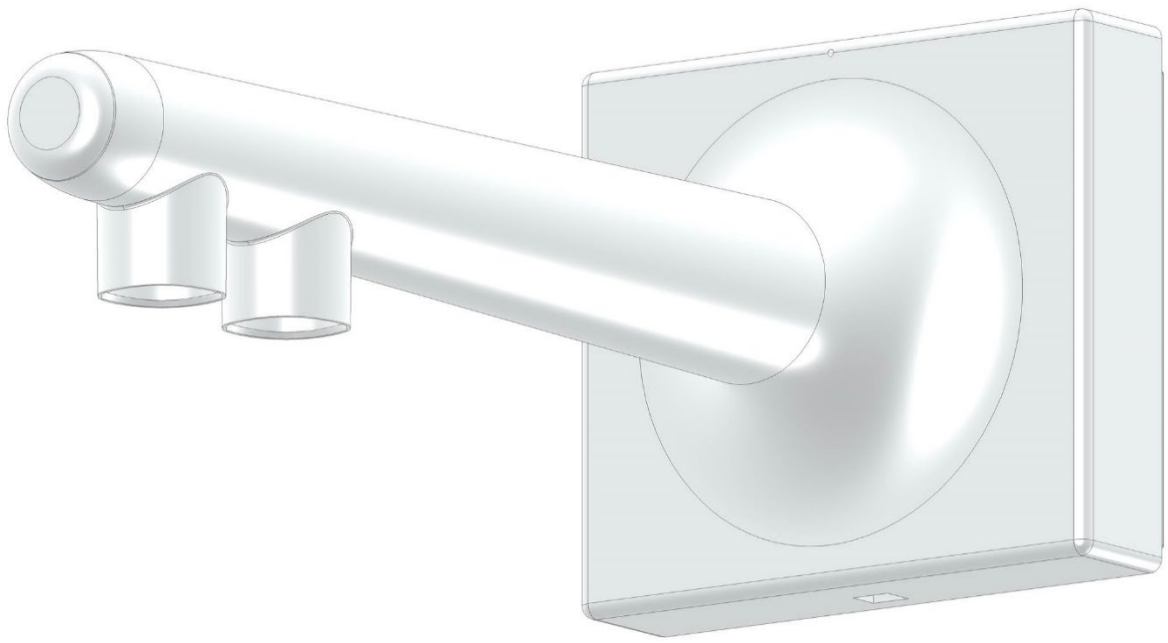
WIND MONITOR ST

Instruction for Use

4.3450.00.00x

Software version V1.13 Status: 12/2025



Doc. No. 022103/11/26

THE WORLD OF WEATHER DATA

Safety Instructions

- Before operating with or at the device/product, read through the operating instructions.
  This manual contains instructions which should be followed on mounting, start-up, and operation.
  A non-observance might cause:
  - failure of important functions
  - endangerment of persons by electrical or mechanical effect
  - damage to objects
- Mounting, electrical connection and wiring of the device/product must be carried out only by a qualified technician who is familiar with and observes the engineering regulations, provisions and standards applicable in each case.
- Repairs and maintenance may only be carried out by trained staff or **Adolf Thies GmbH & Co. KG**. Only components and spare parts supplied and/or recommended by **Adolf Thies GmbH & Co. KG** should be used for repairs.
- Electrical devices/products must be mounted and wired only in a voltage-free state.
- **Adolf Thies GmbH & Co KG** guarantees proper functioning of the device/products provided that no modifications have been made to the mechanics, electronics or software, and that the following points are observed:
- All information, warnings and instructions for use included in these operating instructions must be taken into account and observed as this is essential to ensure trouble-free operation and a safe condition of the measuring system / device / product.
- The device / product is designed for a specific application as described in these operating instructions.
- The device / product should be operated with the accessories and consumables supplied and/or recommended by **Adolf Thies GmbH & Co KG** .
- Recommendation: As it is possible that each measuring system / device / product may, under certain conditions, and in rare cases, may also output erroneous measuring values, it is recommended using redundant systems with plausibility checks for **security-relevant applications**.

Environment



- As a longstanding manufacturer of sensors Adolf Thies GmbH & Co KG is committed to the objectives of environmental protection and is therefore willing to take back all supplied products governed by the provisions of "*ElektroG*" (German Electrical and Electronic Equipment Act) and to perform environmentally compatible disposal and recycling. We are prepared to take back all Thies products concerned free of charge if returned to Thies by our customers carriage-paid.



- Make sure you retain packaging for storage or transport of products. Should packaging however no longer be required, please arrange for recycling as the packaging materials are designed to be recycled.

Documentation

- © Copyright **Adolf Thies GmbH & Co KG**, Göttingen / Germany
- Although these operating instructions have been drawn up with due care, **Adolf Thies GmbH & Co KG** can accept no liability whatsoever for any technical and typographical errors or omissions in this document that might remain.
- We can accept no liability whatsoever for any losses arising from the information contained in this document.
- Subject to modification in terms of content.
- The device / product should not be passed on without the/these operating instructions.

Table of contents

1 Device Versions 4
2 Application 4
3 Structure / working method 5
4 Installation and location selection 6
4.1 Selection of installation location 6
4.2 Installation 7
4.2.1 Cable 9
4.3 Removal of the power/data cable 9
5 Maintenance 10
6 Interface 10
6.1 Command interpreter THIES (4.3450.00.000) 11
6.1.1 Data telegrams 12
6.2 Command interpreter MODBUS RTU (4.3450.00.001) 15
Measured values (input register) 16
6.3 Commands and description 17
6.3.1 Command BR 18
6.3.2 Command CI (THIES) 18
6.3.3 Command CS 18
6.3.4 Command FB 19
6.3.5 Command ID 19
6.3.6 Command KY 20
6.3.7 Command LC 20
6.3.8 Command OR 21
6.3.9 Command RD 21
6.3.10 Command RS 21
6.3.11 Command SF 22
6.3.12 Command SN 22
6.3.13 Command SV 22
6.3.14 Command TA 23
6.3.15 Command TR 23
6.3.16 Command TT 23
7 LED signals 24
8 Technical data 25
9 Dimension drawing [in mm] 26
10 EC Declaration of Conformity 27
11 More Information / Documents as download 28

Table

Table 1: Status word 13
Table 2: Measured value telegram 1 13
Table 3: Diagnostic data telegram 10 14
Table 4: MODBUS Frame 15
Table 5: MODBUS Exceptions. 15
Table 6: Command list 17

Operating instructions

This operating manual describes all application and setting options for the device.

With the help of this operating manual, the user can adjust the factory settings to their requirements via the serial interface of the weather station.

Scope of supply

1 x Sensor Wind Monitor ST
1 x Copy of the instructions for uses

The instructions for use are available for download under the following link:

https://www.thiesclima.com/en/db/dnl/4.3450.00.xxx_wind_monitor_st_en.pdf

For assisting the parameter settings and/or special configurations there is our cost-free Device Utility Tool art.-no. 9.1700.81.000 available for download on our homepage. Please download the tool with following link.

Link: https://www.thiesclima.com/de/Download/

In the section "General", the program "Thies Device Utility".

1 Device Versions

Designation	Order no.	Output	Data format	Operating voltage
WIND MONITOR ST	4.3450.00.000	RS485 HD	Thies ASCII	18 ... 30VDC
WIND MONITOR ST	4.3450.00.001	RS485 HD	MODBUS RTU	18 … 30VDC

2 Application

The WIND MONITOR ST wind sensor is designed for use in building automation and measures the following parameters:

- Wind speed
- Brightness
- Light temperature
- Twilight

The interface to the device is digital and consists of an RS485 interface in half-duplex mode.

The following data protocols are available:

- ASCII (THIES format)
- MODBUS RTU

3 Structure / working method

Wind speed

Wind measurement is based on the hot-wire principle. The heated sensor is located on the underside of the housing. The temperature of the sensor is regulated by a PID controller to a temperature that is constantly higher than the ambient temperature. The heating energy supplied is a measure of the wind speed.

Brightness

Brightness is measured using a silicon photo sensor. The sensor is aligned at 90° to the horizontal (see Figure 1). The brightness measurement can also be used as a twilight measurement.

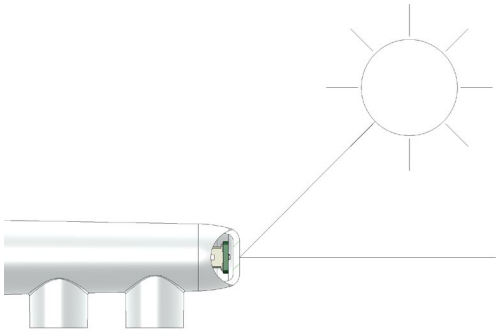


Figure1 : Elevation angle

Light temperature

Color temperature describes the color appearance of light and is measured in Kelvin (K). Lower values (approx. 2700–3000K) correspond to warm white, yellowish-reddish light, while higher values (approx. 5000–6500K) correspond to cool white, bluish light, such as that found in daylight.

Measuring the color temperature of outdoor light makes it possible to adjust the lighting inside the building to match the natural color impression of daylight. This allows the interior lighting to follow the changing outdoor light throughout the day.

Twilight

Twilight refers to the period between day and night, as well as between night and day, during which the sun is below the horizon but there is still some brightness due to the scattering of sunlight in the atmosphere.

Twilight is not measured directly, but can be derived from the measured brightness value.

4 Installation and location selection

Attention:
The WIND MONITOR ST is designed for horizontal use. (Sensors point downwards). When installing, dismantling, transporting, or maintaining the WIND MONITOR ST, ensure that no water enters the device or plug.

4.1 Selection of installation location

The sensor is designed for installation on a vertical building facade.

An exposed location should be chosen for installation. Wind shelter, light reflection, and shadows must not affect the measurement characteristics.

Installation above dark roof surfaces: Dark surfaces can become very hot when exposed to sunlight. The resulting thermal effects can distort wind measurements.

Distance from surfaces below: The distance to surfaces below the device should be more than 0.5m. This reduces the risk of secondary droplets from these surfaces reaching the sensors on the underside.

Distance from chimneys: The device should not be installed in the immediate vicinity of chimneys. Exhaust gases can react chemically with moisture to form corrosive substances that attack the housing surface.

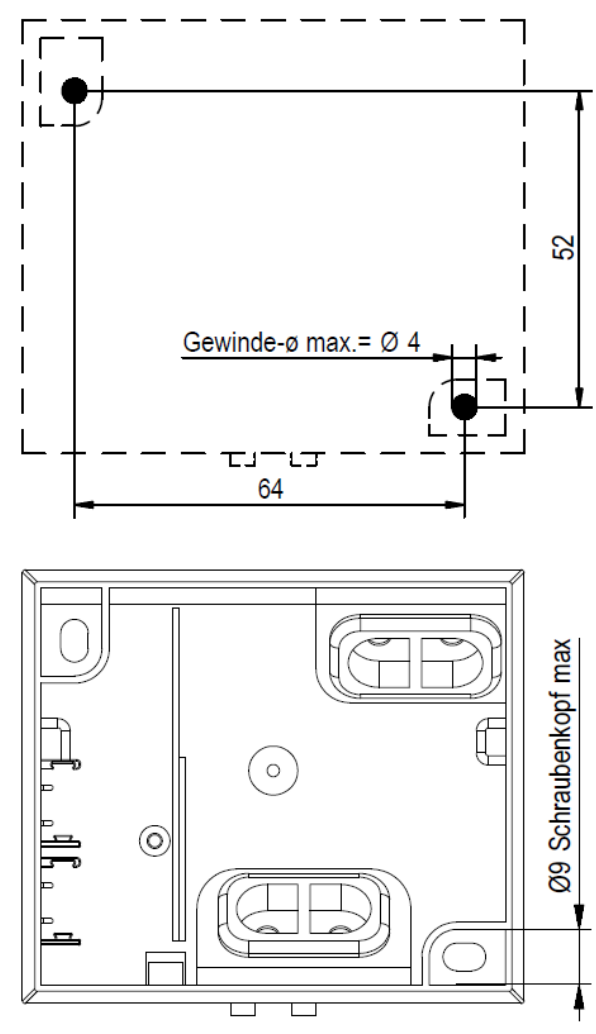
Surge protection and lightning protection must be provided by the customer.

4.2 Installation

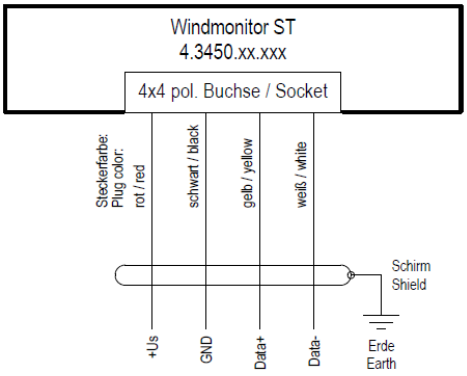
Installation is carried out in 3 steps

1. Installation of the wall bracket
2. Preparing and connecting the power/data cable
3. Attaching the sensor to the wall bracket

1. Mounting the wall bracket



2. Connection diagram



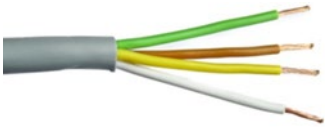
3. Preparing and connecting the power/data cable

Tools:

Wire strippers
Small needle-nose pliers, if necessary

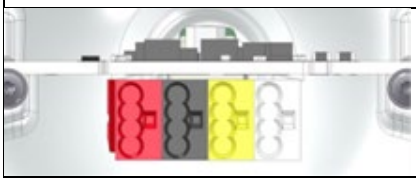
Procedure:

1. Strip 5 cm of the outer insulation from the cable.
2. Strip 6 mm of insulation from the individual cables that are now exposed.
3. Twist the exposed cable strands by hand to the right or left (depending on the nature of the cable).



4. Insert all prepared cable strands one after the other into the marked terminal connections by hand.
   You may need to use a pair of needle-nose pliers to help you.

5. The shield is not connected on the sensor side. It must be connected on the opposite side.

Sensor / Terminal	Function	Plug color
	+ = VCC +	red
	- = GND -	black
	A = DATA +	yellow
	B = DATA –	white

6. Check all cable strands for secure clamping by pulling gently.

Note:

If necessary, pull the cable through the mast, pipe, etc. before preparing the cable.

4.2.1 Cable

The shielded cable to be connected should have the following properties:
4 wires, solid conductor with a diameter of 0. 6 … 0.8mm, UV resistance, shield attached on one side.

Caution:
For long cable connections, the voltage drop across the cable must be taken into account to ensure that the required supply voltage is available at the sensor.

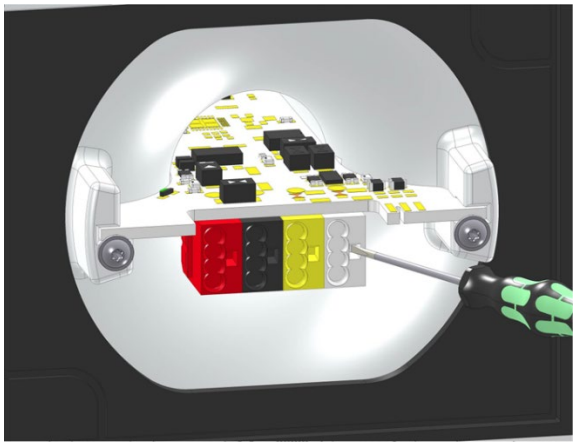
Calculation of the voltage drop on the cable. U_{Ltg} = R_L * I; R= $2 * l * \rho/A$; ρ (rho) = 0.018

Example: I = 0.1A, A = 0.28mm², L = 100m

R= $2 * l * \rho/A$, R = 12.75Ω

U_{Ltg}= R_L* I, **U_{Ltg}= 1.3V**

4.3 Removal of the power/data cable



Procedure:

1. Disconnect the power supply and data acquisition.
2. Detach the weather station from the wall mount.
3. Lift the clamping springs with a screwdriver.
4. Pull out the individual cable wires.

5 Maintenance

The device has no moving parts and is therefore wear-free, only minimal servicing is required.
Depending on the location, the device may become dirty. Cleaning should be carried out with water and a soft cloth. Aggressive cleaning agents must not be used.

An appropriate spider repellent should be used to prevent spider infestation. Care should be taken to use a repellent that does not attack the plastic.

Caution:
During storage, assembly, disassembly, transport, or maintenance, ensure that no water enters the device or plug.

6 Interface

The interface to the sensor consists of an RS485 connection (half-duplex mode) with the following data format:

- 9600 baud (the baud rate can be set with **command BR**)
- 8 data bits.
- No parity.
- 1 stop bit.
- Data in ASCII format (command interpreter: THIES).
- Data in binary format (command interpreter: MODBUS RTU).

The behavior (configuration) of the Weather Station can be changed using the available commands (**see Commands and Description**). For the command interpreter Thies the query of the measuring values is carried out by the **Command TR** or resp. by the Command TT.

6.1 Command interpreter THIES (4.3450.00.000)

The sensor has a THIES command interpreter that can be used to change the behavior of the device. For example, the averaging periods for wind speed and wind direction can be changed.

Commands generally have the following structure:

- <id><command><CR> (No parameter: used to query the set parameter).
- <id><command><parameter><CR> (With parameter: used to set a new parameter).

id:	Identification number ("00" to "99")
Command:	2-character command (see command list)
Parameter:	Parameter value with 1 to 10 digits (decimal value in ASCII representation)
:	Carriage Return (13_{dec} ; 0x0D)

The 'id' identification number allows several devices to be operated together in a bus system. Every device is assigned its own 'id' (see Command ID), and automatic telegram output is switched off (see Command TT).

A sent command is acknowledged with a corresponding echo telegram. The echo
The telegram begins with an "!" followed by the ID, the command, and the set value. This is followed by the characters "carriage return" and "new line."

Commands can be sent with or without parameters. If no parameter is specified, the set value is output.

Example: 00BR<CR>
!00BR00005<CR>

If a command is sent with a parameter, the parameter is checked. If the parameter is valid, it is saved and specified in the "echo telegram." If the parameter is invalid, it is ignored and the set value is output in the "echo telegram."

Examples:

00BR9600<CR>	Send command.
!00BR09600<CR>	Echo telegram (parameter valid and password OK).
00BR4800<CR>	Transmit command.
!00BR09600<CR>	Echo telegram (parameter valid but key incorrect).

Note:

The TR command can be used to query the sensor measurements.
The sensor does not respond with the echo telegram,
but with the requested data telegram!

To prevent unwanted parameter changes, some commands (see command list) are password-protected. This password must be sent before the actual command.

Example: Changing the baud rate

00KY1<CR>	Enable user level commands
00BR4800<CR>	Set baud rate to 4800
!00BR4800<CR>	Baud rate set to 4800

The wind monitor supports 2 different password levels.

- User level (password: "1").
- Calibration data level.

> *Attention:*
> ***Password-protected commands remain enabled until one of the following conditions is met:***
> ***- Switching the supply voltage.***
> ***- The command 00KY0<CR> is sent.***
> ***- No new command is sent for at least 600 seconds.***

6.1.1 Data telegrams

Data is output on request using the TR command. You can choose between the following telegrams:

- Measured value telegram (parameter=1).
- Diagnostic telegram (parameter=10)

The calculation of the checksum, the composition of the status word, and the control/separation characters used in the telegrams are listed below.

Control character:

CR – Carriage Return (13_{dec} ; 0x0D)
LF – Line Feed (10_{dec} ; 0x0A)
STX – Start of Text (2_{dec} ; 0x02)
ETX – End of Text (3_{dec} ; 0x03)

Separation characters:

The separator between the individual measured values in the string is the semicolon ';'.
The checksum separator is the multiplication sign '*'.

Checksum:

The checksum is the XOR combination of all characters between <STX> and the byte <*>. The asterisk serves as a separator for the checksum and is not included in the checksum.

Status :

A status word (16 bits) is available within the weather station, which provides information about the status of the sensor. The measured values are subjected to a plausibility check and displayed in the status word.

Bit number	Function	Description
Bit 0	Wind speed plausible	=1, Output wind speed value plausible active.
Bit 1	Front sensor active	=1, front temperature sensor is used to determine wind speed.
Bit 2	Rear sensor active	=1, rear temperature sensor is used to determine wind speed.
Bit 3	Error	=1, General error.
Bit 4	Front temperature error	=1, Measured value from front temperature sensor invalid.
Bit 5	Rear temperature error	=1, Measurement value from rear temperature sensor invalid.
Bit 6	Internal temperature error	=1, Measurement value from internal temperature sensor invalid.
Bit 7	Brightness error	=1, Measurement value from brightness sensor invalid.

Table 1: Status word

6.1.1.1 Measured value telegram 1

The sensor responds to the command "00TR1\r" with the measured value telegram. The telegram structure is shown in the following table:

Position	Length	Example	Meaning
1	1	STX	Start of text.
2	2	xx	Identification number (ID) xx: 0 ... 99
4	1	;	Separator (';')
5	5	023.1	Wind speed [m/s]
10	1	;	Separator (';')
11	5	023.1	Wind speed maximum value [m/s]
16	1	;	Separator (';')
17	6	90000	Brightness [LUX]
23	1	;	Separator (';')
24	5	4500	Light temperature [Kelvin]
29	1	;	Separator (';')
30	4	0000	Status word [16-bit hex]
34	1	*	*
35	2		Checksum
37	1	CR	Carriage return
38	1	LF	Line feed
39	1	ETX	End of text

Table 2: Measured value telegram 1

6.1.1.2 Diagnostic telegram 10

The sensor responds to the command "00TR10\r" with the diagnostic telegram. The telegram structure is shown in the following table:

Posi-tion	Length	Example	Meaning
1	1	STX	Start of text.
2	2	xx	Identification number (ID) xx: 0 ... 99
4	1	;	Separator (';')
5	5	023.1	Wind speed [m/s]
10	1	;	Separator (';')
11	5	023.1	Wind speed maximum value [m/s]
16	1	;	Separator (';')
17	6	090000	Brightness [LUX]
23	1	;	Separator (';')
24	5	4500	Light temperature [Kelvin]
29	1	;	Separator (';')
30	9	0	Runtime counter [ms] Overflow at 999999999ms
39	1	;	Separator (';')
40	5	+23.1	Front temperature [°C]
45	1	;	Separator (';')
46	5	+23.1	Rear temperature [°C]
51	1	;	Separator (';')
52	5	13900	Internal supply voltage [mV]
57	1	;	Separator character (';')
58	5	023.1	Heating capacity [mW]
63	1	;	Separator (';')
64	5	+23.1	PCB temperature [°C]
69	1	;	Separator (';')
70	4	0000	Status word [16-bit hex]
74	1	*	*
75	2		Checksum (2 byte Hex)
77	1	CR	Carriage return
78	1	LF	Line feed
79	1	ETX	End of text

Table 3: Diagnostic data telegram 10

6.2 Command interpreter MODBUS RTU (4.3450.00.001)

With this device variant, the transmitted bytes are interpreted in accordance with the MODBUS specification (http://www.modbus.org/). The sensor represents a MODBUS slave.

Data is transmitted in packets, known as frames, of a maximum of 256 bytes. Each packet contains a 16-bit CRC checksum (initial value: 0xffff).

Slave address	Function code	Data	CRC	
1 byte	1 byte	0...252 bytes	2 bytes	
			CRC low byte	CRC high byte

Table 4: MODBUS Frame

The following MODBUS functions are supported:

- 0x04 (Read Input Register).
- 0x03 (Read Holding Registers).
- 0x06 (Write Single Register).
- 0x10 (Write Multiple Registers).

The sensor supports write access for slave address 0 ("broadcast").

All received MODBUS requests are checked for validity before execution. In case of an error, the sensor responds with one of the following exceptions (➔ MODBUS Exception Responses).

Code	Name	Meaning
0x01	ILLEGAL FUNCTION	The function code in the request is not permitted for the register address.
0x02	ILLEGAL DATA ADDRESS	The register address in the request is invalid.
0x03	ILLEGAL DATA VALUE	The data specified in the request is not permitted.

Table 5: MODBUS Exceptions.

Measured values (input register)

All measured values from the sensor occupy 32 bits, i.e., 2 MODBUS register addresses. The following table shows the assignment of measured values to register addresses, with the measured values sorted as follows:

- By measured value type (30001 to 34999).
- In sequential order (35001 to 39999).

Register address	Register address 2	Parameter name	Unit	Multiplier	Explanation	Data type
30001	35001	Wind speed	m/s	10	Value / 10 (1 decimal place, e.g. 101=10.1 m/s)	U32
30011	35003	Wind speed max	m/s	10	Value / 10 (1 decimal place, e.g. 101=10.1 m/s)	U32
30401	35005	Sensor temperature	°C	10	Value / 10 (1 decimal place, e.g., 101 = 10.1°C)	S32
30403	35007	Internal temperature	°C	10	Value / 10 (1 decimal place, e.g. 101=10.1°C)	S32
31227	35009	Brightness	LUX	1	Value (no decimal places, e.g., 500=500 lux)	U32
31229	35011	Light temperature	Kelvin	1	Value (no decimal places, e.g. 4500=4500Kelvin)	U32
34811	35013	Sensor status		1	Value (no decimal places, bit encoded, depending on the sensor)	U32
34995	35015	Internal voltage	0	10	Value / 10 (1 decimal place, e.g. 101=10.1V)	U32
34997	35017	Runtime counter overflow at 999999999ms	ms	1	Value (no decimal places, e.g. 2354=2354ms)	U32

6.3 Commands and description

The following table shows the available commands and the corresponding passwords for reading and writing:

Command	Initial value Factory setting	MODBUS Register address	Description	Password Read[1] / Write[2]	
Command BR	9600	40005	Selecting the baud rate.	Without	User
Command CI	0	40013	Command interpreter.	Without	user
Command CS	-		Save configuration	Without	User
Command FB	1	40001	Quick start mode.	Without	user
Command ID	0	40003	Identification number	Without	User
Command KY	0	40009	Set key/password.	Without	Without
Command LC	0	40045	LED Control	Without	User
Command OR	500	-	Interval of automatic telegram output.	Without	user
Command RD	20	40019	Response delay in ms	Without	User
Command RS	-	40029	Reset.	Without	User
Command SF	0	40075	Frame format	Without	User
Command SN	-	40007	Serial number	Without	-
Command SV	-	45005	SW version.	Without	-
Command TA	-	45001, 45003	Thies item number	Without	-
Command TR	-	-	telegram output.	Without	-
Command TT	0	-	Automatic telegram output.	Without	user

[1]: Command without parameters (used to read the set parameter).

[2] : Command with parameter (used to write a new parameter).

Note:

All values of the commands from Table 7 (except KY and TR) are stored in the EEPROM. The number of memory cycles is limited; memory cycles >100000 can lead to device failure.

Table 6: Command list

6.3.1 Command BR

<id>BR<parameter><CR>	Baud rate RS485
Access:	Read / write
Description	This command is used to select the baud rate of the RS485 / TTL serial interface.
Parameter type:	Unsigned integer
Parameters:	1200: 1200 baud 2400: 2400 baud 4800: 4800 baud 9600: 9600 baud 19200: 19200 baud 38400: 38400 baud 57600: 57600 baud 115200: 15200 baud
Return value type:	unsigned integer
Return value:	See parameters
Value range:	1200… 115200
Initial value:	9600

6.3.2 Command CI (THIES)

<id>CI<parameter><CR>	Command interpreter RS485
Access:	Read / write
Description	This command is used to set the command interpreter. When switching from Thies to MODBUS, the identifier must not be set to 0.
Parameter type:	Unsigned integer
Parameter	0: Thies 1: MODBUS RTU
Return value type:	unsigned integer
Return value:	See parameter
Value range:	0… 1
Initial value:	0

6.3.3 Command CS

<id>CS<parameter><CR>	Saving the parameters
Access:	Write
Description:	The command can be used to save parameters. Parameters set via Modbus are saved immediately after being set.
Parameter type:	Unsigned integer
Return value type:	Character string
Return value:	Status of the operation
Value range:	1: Save USER parameters
Initial value	-

6.3.4 Command FB

<id>FB<parameter><CR>	Quick start mode
Access:	Read / write
Description	This command selects quick start mode or queries the set mode. In quick start mode, the bootloader jumps immediately to the firmware and does not output any data. The firmware also does not output any telegrams regarding the encoder status. If quick start mode is inactive, the bootloader outputs C nine times. The command is stored without CS.
Parameter type:	Unsigned integer
Parameter	0: Quick start mode off 1: Quick start mode on
Return value type:	Unsigned integer
Return value:	See parameter
Value range:	0…1
Initial value:	1

6.3.5 Command ID

<id>ID<parameter><CR>	Identification number
Access:	Read / write
Description	This command sets the identification number. A response telegram is only sent if the 'ID' contained in the command matches the one set in the sensor. An exception is the generic 'ID', to which all sensors respond. After the 'ID' has been changed, the device responds immediately with the new 'ID'.
Parameter type:	Unsigned integer
Parameter	99 Generic 'ID'
Return value type:	unsigned integer
Return value:	see parameter
Value range:	0 to 98
Initial value	0

6.3.6 Command KY

<id>KY<parameter><CR>	Key Access mode (Key).
Access mode (Key)	
Access:	Query mode
Description:	Access permissions are required for most commands in order to change the sensor parameters. This prevents accidental changes to the parameters. Access is divided into three levels:
Query mode	"0"
User mode	"1"
Parameter description:	
	0: Query mode Parameters that have no access restriction are those that are not stored in the EEPROM, e.g., cyclic telegram query or system status output. 1: User mode (USER ACCESS) User mode protects parameters that influence the behavior of the sensor, such as automatic telegram output. The user can change these parameters, but should be aware that this will change the behavior of the sensor. Value range: 0.1
Initial value	0
Example:	Activate user mode: 00KY1

6.3.7 Command LC

<id>LC<parameter><CR>	LED Control
Access:	Read / write
Description	This command can be used to influence the behavior of the LEDs.
Parameter type:	Unsigned integer
Parameter	0 The green LED indicates the wind speed, the red LED indicates an error, the LEDs switch off automatically after 5 minutes 1 LEDs deactivated 2 Same as 0, without 5-minute shutdown
Type Return value:	unsigned integer
Return value:	see parameter
Value range:	0 to 1
initial value	0

6.3.8 Command OR

<id>OR<parameter><CR>	Output rate for independent telegram output
Access:	User mode
Description:	Sets the output rate in ms of the telegram that is sent cyclically and independently.
Return value:	Unsigned integer
Value range:	100 ... 65535
Initial value:	500

6.3.9 Command RD

<id>RD<parameter><CR>	Response delay after command received
Access:	Read / write
Description	When a command is received on the RS485 interface, the response is delayed by the set time in ms.
Parameter type:	Unsigned integer
Return value type:	Unsigned integer
Return value:	Set time in ms
Value range:	5… 50
Initial value:	20

6.3.10 Command RS

<id>RS<parameter><CR>	Reset
Access:	Write
Description	The RS command triggers a restart of the sensor. This command can be used to restart the sensor and load the factory settings.
Parameter type:	Unsigned integer
Parameter	1 Restart the sensor 2 Restart the sensor via watchdog (time-delayed) 3 Load factory settings
Value range:	1,2,3
Initial value:	

6.3.11 Command SF

<id>SF<parameter><CR>	Serial frame format
Access:	Read / write
Description	The SF command can be used to set the parity and number of stop bits for the serial interface.
Parameter type:	Unsigned integer
Return value type:	Unsigned integer
Return value:	see parameter
Value range:	0: 8N1 1: 8N2 2: 8E1 3: 8E2 4: 8O1 5: 8O2
Initial value	0

6.3.12 Command SN

<id>SN<parameter>	Serial number
Access	Read
Description	The SN command can be used to read the serial number.
Parameter type:	Unsigned integer
Return value type:	Unsigned integer
Return value:	Serial number
Value range:	0 … 99999999
Initial value	0

-

6.3.13 Command SV

<id>SV<parameter><CR>	Query the firmware version
Access:	Read
Description	Output of firmware version [1/100]
Parameter type:	Unsigned integer
Parameter	No parameter
Return value type:	Character string
Return value:	Output of the firmware version in 1/100, e.g., 00102 -> V1.02

6.3.14 Command TA

<id>TA<parameter>	Thies item number
Access:	Read
Description	This command can be used to read the Thies item number.
Parameter type:	unsigned integer
Return value type:	Character string
Return value:	Example: !00TA4.3450.00.082
Value range:	0 … 999999999
Initial value	345000082

6.3.15 Command TR

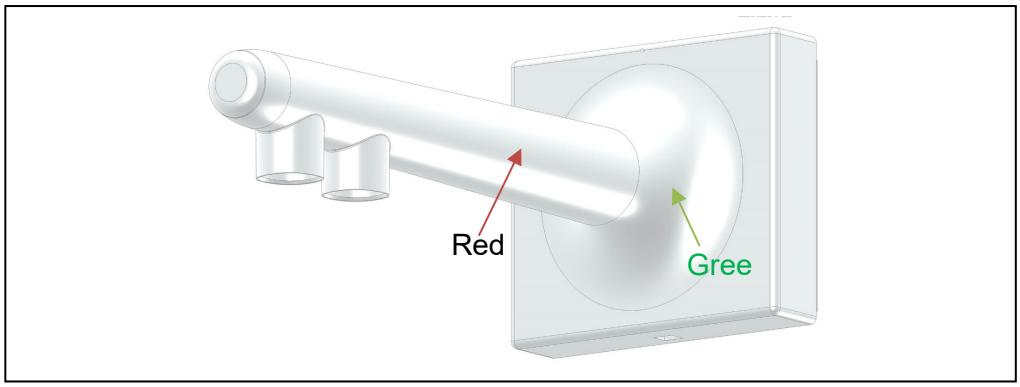
<id>TR<parameter><CR>	Measurement value request
Access	Read
Description	The command triggers a one-time transmission of the current data telegram.
Parameter type:	unsigned integer
Parameters	1: Query measured value telegram 1 10: Query measured value telegram 10
Return value type:	Character string
Return value:	Character string See also **6.1.1 Data telegrams**
Value range:	1 … 10

6.3.16 Command TT

<id>TT<parameter><CR>	Independent telegram output (telegram transmission)
Access:	User mode
Description:	Sets the number of the telegram that is sent cyclically independently. The same telegrams are available as described under **Command TR** . To switch off independent telegram transmission, the parameter must be set from TT to 0. Automatic telegram transmission starts immediately after setting the parameter. After switching on the sensor, automatic telegram transmission starts after 10 seconds.
Return value type:	Character string
Value range:	0, 1, 10 ...
Initial value:	0

7 LED signals

There are 2 LEDs on the outside of the sensor, which are visible from the outside through the housing:



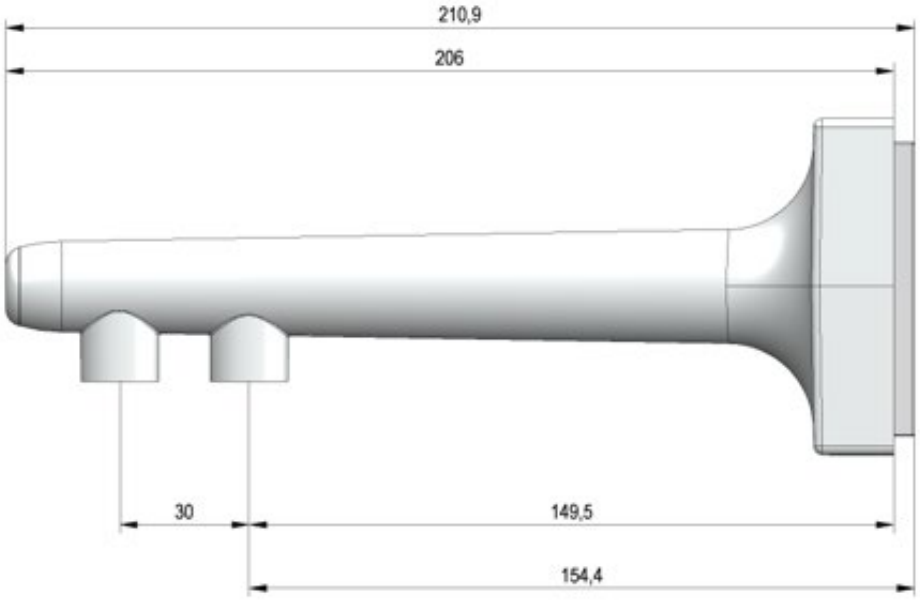
2 : Position of the LEDs

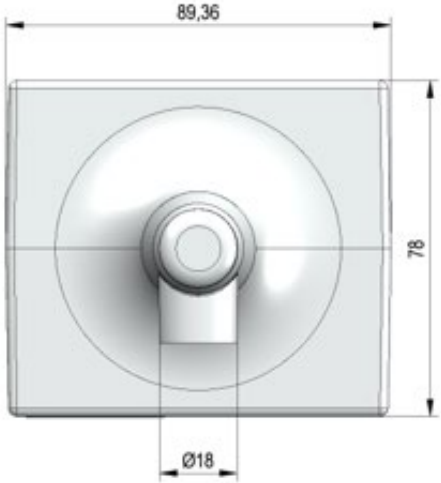
The flashing frequency of the green LED indicates the current wind speed (see command LC). The red LED signals a sensor error.

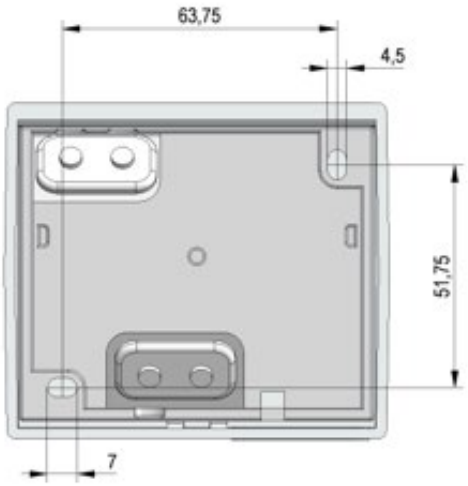
8 Technical data

Wind speed		
	Type	Thermal anemometer
	Measuring range	0 … 40m/s
	Resolution	0.1m/s
	Accuracy Laminar, horizontal flow	±1m/s or ± 5% (worst case) RMS - average over 270°
Brightness/twilight		
	Type	Silicon sensor
	Measuring range	0…150kLux
	Resolution	1 lux
	Accuracy	±3% (± 4.5kLux)
	Spectral range	475 ... 650nm
Digital interface		
	Type	RS485
	Operating mode	Half-duplex mode
	Baud rate	1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200
	Data format	ASCII (command interpreter: THIES), MODBUS RTU
General		
Operating voltage		18 ... 30VDC
	Current consumption	< 100mA @ 24V
Ambient conditions	Temperature range	-30 to +60°C
	Humidity range	Non-condensing.
Housing		
	Material	PC, white transparent
	Mount	Wall mounting, wall adapter included in delivery.
	Dimensions	See dimensional drawing.
	Weight	0.150kg
	Protection	IP54
	Connection	4-pole plug-in terminals

9 Dimension drawing [in mm]







10 EC Declaration of Conformity

Manufacturer: Adolf Thies GmbH & Co. KG
Hauptstraße 76
37083 Göttingen, Germany
http://www.thiesclima.com

Product: Fassadenwindsensor WHX; WIND MONITOR ST

Doc. Nr. 2022-46332_CE

Article Overview:

4.3450.00.082 4.3451.00.000 4.3450.00.000 4.3450.00.001

The indicated products correspond to the essential requirement of the following European Directives and Regulations:

2014/30/EU	26.02.2014	DIRECTIVE 2014/30/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 26 February 2014 on the harmonisation of the laws of the Member States relating to electromagnetic compatibility.
2011/65/EU + 2015/863/EU + 2017/2102/EU	03.01.2013 31.03.2015 15.11.2017	DIRECTIVE (EU) 2011/65/EU + 2015/863/EU + 2017/2102, of the European Parliament and of the Council on the restriction of the use of certain hazardous substances in electrical and electronic equipment.
2012/19/EU	13.08.2012	DIRECTIVE 2012/19/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 4 July 2012 on waste electrical and electronic equipment (WEEE).

The indicated products comply with the regulations of the directives. This is proved by the compliance with the following standards:

DIN EN 50491-5-1	2010-11	General requirements for Home and Building Electronic Systems (HBES) and Building Automation and Control Systems (BACS) - Part 5-1: EMC requirements, conditions and test set-up; German version EN 50491-5-1:2010
DIN EN 55016-2-3	2020-11	Specification for radio disturbance and immunity measuring apparatus and methods - Part 2-3: Methods of measurement of disturbances and immunity - Radiated disturbance measurements (CISPR 16-2-3:2016 + A1:2019); German version EN 55016-2-3:2017 + A1:2019
DIN EN 55016-2-1	2019-11	Specification for radio disturbance and immunity measuring apparatus and methods - Part 2-1: Methods of measurement of disturbances and immunity - Conducted disturbance measurements (CISPR 16-2-1:2014 + A1:2017); German version EN 55016-2-1:2014 + A1:2017
DIN EN 61000-4-2	2009-12	Electromagnetic Compatibility (EMC) - Part 4-2: Testing and measuring procedures - Testing of immunity to static electricity discharge
DIN EN IEC 61000-4-3	2021-11	Electromagnetic compatibility (EMC) - Part 4-3: Test and measurement procedures - Testing of immunity to high-frequency electromagnetic fields
DIN EN 61000-4-4	2013-04	Electromagnetic compatibility (EMC) - Part 4-4: Test and measurement methods - Testing of immunity to fast transient electrical disturbances / burst
DIN EN 61000-4-5	2019-03	Electromagnetic compatibility (EMC) - Part 4-5: Test and measurement procedures - Testing of immunity to surge voltages
DIN EN 61000-4-6	2014-08	Electromagnetic compatibility (EMC) - Part 4-6: Test and measurement methods - Immunity to conducted disturbances, induced by high-frequency fields
DIN EN 61000-4-8	2010-11	Electromagnetic compatibility (EMC) - Part 4-8: Testing and measurement techniques - Power frequency magnetic field immunity test (IEC 61000-4-8:2009); German version EN 61000-4-8:2010
DIN EN IEC 61000-6-2	2019-11	Electromagnetic compatibility Immunity for industrial environment
DIN EN IEC 61000-6-3	2022-06	Electromagnetic compatibility (EMC) - Part 6-3: Generic standards - Emission standard for equipment in residential environments (IEC 61000-6-3:2020); German version EN IEC 61000-6-3:2021
DIN EN 61010-1	2020-03	Safety requirements for electrical equipment for measurement, control, and laboratory use. General requirements
DIN EN IEC 63000	2019-05	Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances.
DIN EN 63044-1	2022-10	Home and Building Electronic Systems (HBES) and Building Automation and Control Systems (BACS) - Part 1: General requirements (IEC 63044-1:2017 + A1:2021); German version EN 63044-1:2017 + A1:2021
DIN EN IEC 63044-3	2018-04	Home and Building Electronic Systems (HBES) and Building Automation and Control Systems (BACS) - Part 3: Electrical safety requirements (IEC 63044-1:2017); German version EN IEC 63044-3:2018
DIN EN IEC 63044-5-1	2020-04	Home and Building Electronic Systems (HBES) and Building Automation and Control Systems (BACS) - Part 5-1: EMC requirements, conditions and test set-up (IEC 63044-5-1:2017); German version EN IEC 63044-5-1:2019
DIN EN IEC 63044-5-2	2020-04	Home and Building Electronic Systems (HBES) and Building Automation and Control Systems (BACS) - Part 5-2: EMC requirements for HBES/BACS used in residential, commercial and light-industrial environments (IEC 63044-5-2:2017); German version EN IEC 63044-5-2:2019
DIN EN IEC 63044-5-3	2020-04	Home and Building Electronic Systems (HBES) and Building Automation and Control Systems (BACS) - Part 5-3: EMC requirements for HBES/BACS used in industrial environments (IEC 63044-5-3:2017); German version EN IEC 63044-5-3:2019

Göttingen, 06.11.2026

General Manager - Dr. Christoph Peper

ppa.

Development Manager - ppa. Jörg Petereit

This declaration of conformity is issued under the sole responsibility of the manufacturer.

This declaration certificates the compliance with the mentioned directives, however does not include any warranty of characteristics.

Please pay attention to the security advises of the provided instructions for use.

11 More Information / Documents as download

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

Instruction for Use

https://www.thiesclima.com/en/db/dnl/4.3450.00.xxx_wind_monitor_st_en.pdf

Talk to us about your system requirements.
We will be happy to advise you.

ADOLF THIES GMBH & CO. KG
Meteorology and environmental measurement technology
Hauptstraße 76 · 37083 Göttingen · Germany
Tel. +49 551 79001-0 · Fax +49 551 79001-65
info@thiesclima.com

www.thiesclima.com