
Simulator Test Box

9.8000.00.001



ADOLF THIES GmbH & Co. KG

Hauptstraße 76

Box 3536 + 3541

Phone ++551 79001-0

www.thiesclima.com

37083 Göttingen Germany

37025 Göttingen

Fax ++551 79001-65

info@thiesclima.com

Contents

1	Models available	3
2	Application	3
3	Power Supply.....	4
4	Installation.....	4
4.1	Connection of the Sensor Cable (simulation data).....	4
4.1.1	Sequence of connection:	5
4.1.2	Removing the sensor cable:	5
4.2	Connection to operating mode „Power supply or „charge battery“	5
4.3	Connection Table	6
5	Simulation Mode	7
6	Technical Data.....	9
7	Maintenance	10

1 Models available

Description	Order-No.	Suitable for:	
Simulator Test Box	9.8000.00.001	Datalogger DL15 9.1700.20.000 Doc. No. 1249.0 Nö D14. 10/2007, Order No. 0704054	
Simulated Sensors	Order-No	Measuring range	Output
Wind sensor	4.3515.30.000	0 ...50 m/s	50 Hz at 40 m/s
Wind direction sensor	4.3124.30.018	0 ...360°	0... 400 Ω = 0..358°
Hygro- Thermo transmitter	1.1005.50.515	10 ..100% r.h. -30 ..+50°C	Poti.0...200 Pt 100
Radiation transmitter	7.1415.03.000	0... 1328 W/m ²	0 ... 20 mV
Precipitation transmitter	5.4032.35.007	0... 999.9 mm	Impulses
Leaf moistening transmitter	1.0225.00.000	0 ... 100 % ≤ 20 % "dry" ≥ 80 % "wet"	wet: 470 KΩ / dry: ∞ Ω
Evaporation transmitter	6.1432.20.400	0... 100 mm	Serial-synchronous

Included in delivery :

- 1 x Simulator Test box in aluminium case
- 1 x Power cable
- 1 x Sensor cable
- 1 x Instruction for use

2 Application

Die *Simulator test box* serves for testing the datalogger DL15 (9.1700.20.000). By means of the test box different sensor can be simulated at the respective inputs of the datalogger. Moreover, the sensor supply voltages of the datalogger are checked, and – in case the value of the supply voltage is sufficiently high – are indicated by the power LEDs.

The instrument is suited for lab application with power supply or for battery operation, as well as for battery operated field application.

Attention:

In case of field application please consider the allowable ambient conditions (for ex. protection, temperature range).

3 Power Supply

The power supply of the text box is carried out by a gas-proof internal 12V-battery.

The BAT-OK LED **5** signalises an battery capacity > 30%.

The LOW-BAT-LED **4** signalises an battery capacity of 10% up to 30%.

If the battery voltage drops out below 10,5V, a load switch-off is carried out by the low voltage disconnect.

The battery can be charged by the integrated power unit. For this, the main switch **3** is to be activated.

In case of power supply the internal battery is buffered.

4 Installation

Attention:

Storage, mounting and operation are permissible only under observance of the given ambient conditions, otherwise, the instrument can be damaged or the accuracy might be restricted.

The already acquired data of the datalogger should be read-out in advance so that the simulated measuring values do not affect the series of measurement of the real measuring values.

The simulated measuring values are indicated in the display, as usual, and saved. For this, please refer to the instruction for use **Datalogger DL15 9.1700.20.000 Doc. No. 1249.0 Nö D14. 10/2007, Order No. 0704054**

4.1 Connection of the Sensor Cable (simulation data)

- First of all, the sensors should be disconnected from the datalogger.

The *Simulator Test Box* is connected to the datalogger by means of the 24-core sensor cable which is included in delivery.

For pin assignment please refer to chapter 4.3.

4.1.1 Sequence of connection:

Important:

The sequence for connection is to be kept absolutely, otherwise there is the danger of short-circuit !!!

The connecting wires must not be bypassed.

1. Connect the marked connecting wires of the sensor cable with the terminals of the datalogger (see connection table, chapter 4.3).
2. Connect the circular plug of the sensor cable with the *Simulator Test Box* (plug **2**).

4.1.2 Removing the sensor cable:

1. Remove the circular plug of the sensor cable from the *Simulator Test Box* (plug **2**).
2. Separate the connecting wires of the sensor cable by means of the datalogger terminals.

4.2 Connection to operating mode „Power supply or „charge battery“



Attention:

In operating mode „power supply“ or „charge battery“ as well as in simulator mode the cover of the case must not be closed because of the connected power cable and sensor cable !!!

In „mains operation“ or „charging“ the instrument is to be applied only in dry rooms.

Please remove power plug before opening the housing.

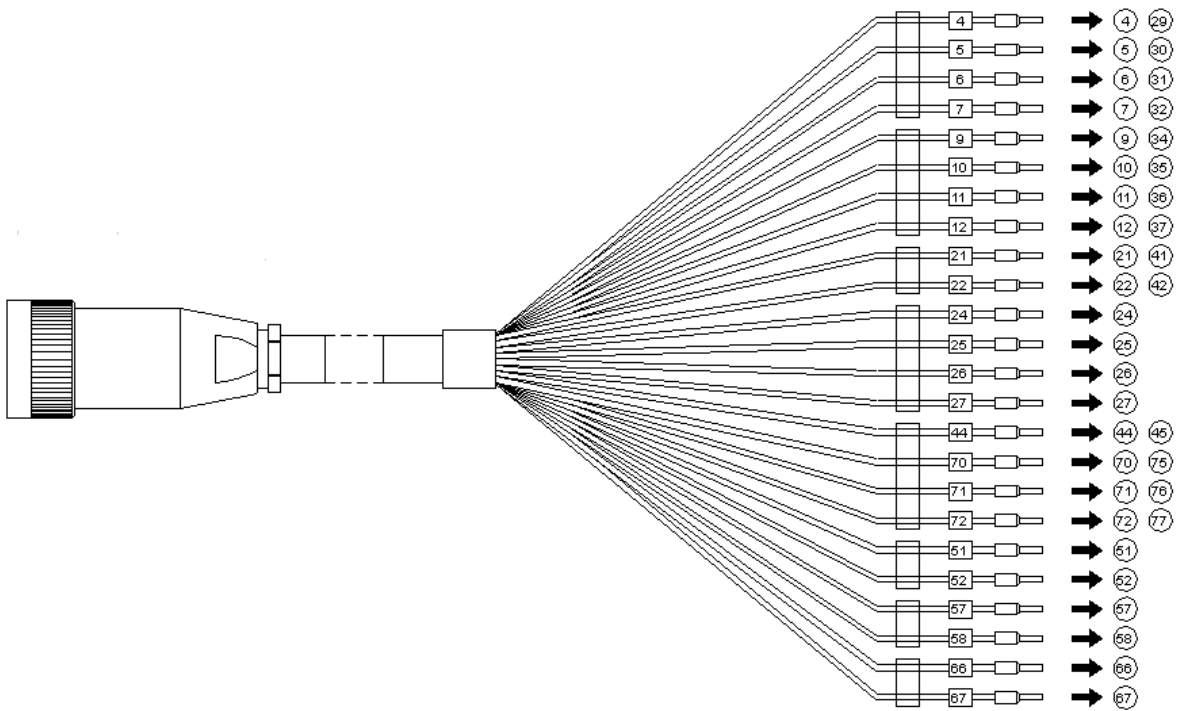
1. The power cable, included in delivery, is to be connected to the *Simulator Test Box* (plug **1**) and to an appropriate power supply system.
2. Activate the power switch **3**

Remark:

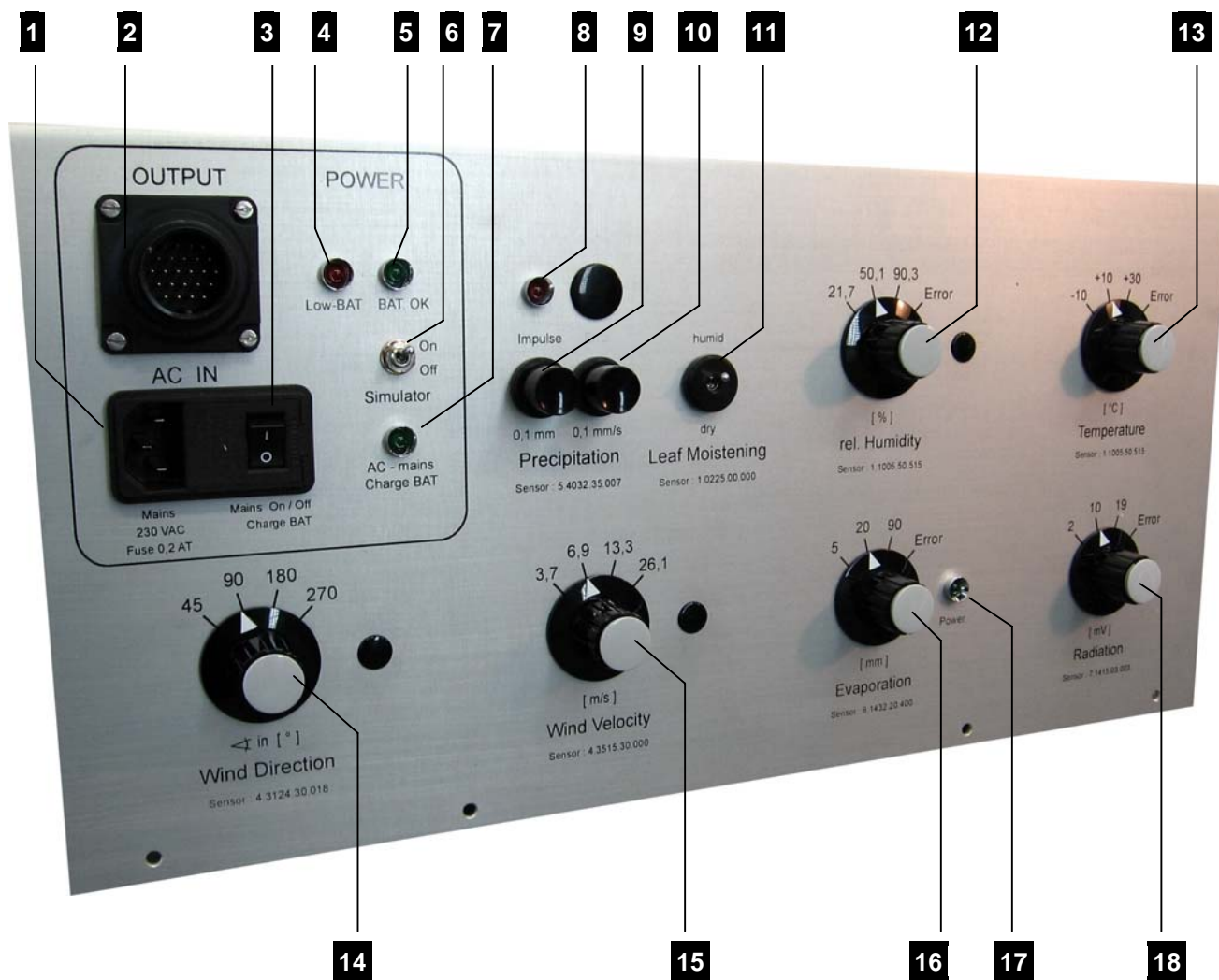
In case of power supply the internal battery is charged automatically.

4.3 Connection Table

Simulator Test Box	Sensor cable		Datalogger			
	Identification No.		Terminal-No.	Terminal function	Sensor-No.	
Wind velocity 4.3515.30.000	57		57	WV_Imp.	1	
	58		58	WV_GND		
Wind direction 4.3124.30.018	27		27	A	2	
	26		26	a		
	25		25	R		
	24		24	E		
Temperature Pt100 1.1005.50.515	9	34	9	34	A	3 / 7
	10	35	10	35	a	
	11	36	11	36	e	
	12	37	12	37	E	
rel. humidity 1.1005.50.515	7	32	7	32	A	4 / 8
	6	31	6	31	a	
	5	30	5	30	R	
	4	29	4	29	E	
Radiation 7.1415.03.003	21	41	21	41	0 - 20 mV	5 / 9
	22	42	22	42	SigGND	
Precipitation 5.4032.35.007	66		66		NS_Imp.	6
	67		67		NS_GND	
Evaporation 6.1432.20.400	44		44	45	+12V	10 / 14
	72		72	77	GND	
	71		71	76	Data	
	70		70	75	Clock	
Leaf moistening 1.0225.00.000	51		51		In	13
	52		52		GND	



5 Simulation Mode



5.1 Simulation of measuring values

The simulation of measuring values is activated by the rocker switch „*Simulator*“ **6**.
The LED **7** signals the mode of operation.

5.2 Wind velocity

By means of the turn-switch **15** the frequencies 4 Hz, 8 Hz, 16 Hz or 32 Hz are output in position 3,7 m/s, 6,9 m/s, 13,3 m/s or 26,1 m/s. These frequencies correspond to the characteristic of the wind velocity transmitter 4.3515.30.000. The data logger indicates the wind velocity in m/s.

5.3 Wind direction

By means of the turn-switch **14** a wind direction of 45°, 90°, 180° or 270° is set. Resistance values of 50Ω, 100Ω, 200Ω and 300Ω are output.
The datalogger indicates here the wind direction in angular degree.

5.4 Temperature

By means of the turn-switch **13** the temperatures -10°C , $+10^{\circ}\text{C}$, $+30^{\circ}\text{C}$ are given and are output as PT-100 resistance values.

In the switch position *Error* a wire fraction is simulated.

5.5 Rel. Humidity

By means of the turn-switch **12** resistance values of 26Ω , 89.10Ω , 138.40Ω und 217.40Ω are output in switch position 21,7%, 50,1%, 90,3%.

Here, the datalogger indicates the rel. humidity in %.

In the switch position *Error* a wire fraction is simulated.

5.6 Radiation

By means of the turn-switch **18** voltages of 2 mV, 10 mV or 19 mV are output.

The datalogger indicates here the radiation values of 200 W/m^2 , 1000 W/m^2 or 1900 W/m^2 , when in datalogger position „Pyr.CM3 constX“ the constant $10\text{mV}/1000\text{W}$ is selected. (see instruction for use Datalogger chapter „Constant of Sensors“).

In the switch position *Error* an overflow of measuring range ($>20\text{ mV}$) is simulated.

5.7 Precipitation

By means of the button **9** one pulse per key-press is output.

The pulse is indicated by the LED *Impulse* (12).

By means of the button **10** a pulse string is output with the frequency of 1Hz, as long as the button is hold.

The LED **8** signalises the pulse simulation

Each pulse increases the precipitation indicated at the datalogger by 0,1 mm.

5.8 Precipitation

By means of the turn-switch **16** a serial-synchronous signal is output each in the switch-positions 5mm, 20mm, 90mm.

The datalogger indicates here the evaporation in mm.

In the switch position *Error* a wire fraction is simulated.

The LED *Power* **17** signalises the state of the sensor supply voltage.

5.9 Leaf moistening

By means of the rocker switch **11** the simulation value „dry“ or „moist“ is given,

The datalogger indicates the moistening for “moist” and “dry” in % .

6 Technical Data

Power supply	
Power supply voltage	230 V AC / 50Hz
Mains fuse	250 V / 0.2AT
(Rechargeable) battery	Lead-battery gas-proof 12V / 7Ah Type: Panasonic LC-R127PG
Power consumption battery operation	< 0.12 A at 12.8 V
Battery durability with full battery	approx. 60 operating hours
Battery durability after display „LOW-BAT“	approx. 15 operating hours
Charge time	approx. 14h; afterwards permanent conservation charging at 13.7 V
General	
Admissible ambient conditions	Temperature: -10... +60C° Rel. humidity: 0..... 95 % r. h., now dewing
Housing dimensions	approx. 470 x 350 x 180 mm
Protection	Aluminium case closed: IP 64 Aluminium case open IP 40
Weight	approx. 9.3 Kg
Power cable	1.8 m long
Sensor cable	4 m long
Leaf moistening	
Simulation values:	moist / dry
output:	wet: 470 KΩ / dry: ∞ Ω
Temperature	
Simulation values:	-10°C +10°C +30° Error
Output:	96.086Ω 103.903Ω 111.673Ω
rel. Humidity	
Simulation values:	21,7% 50,1% 90,3% Error
Output:	26.00Ω 89.10Ω 178.40Ω 217.40Ω
Radiation	
Simulation values:	ca.200W/m ² ca.1000W/m ² ca.1900W/m ² Error (see chapter5.6)
Output:	2mV 10mV 19mV >20 mV

Evaporation				
Simulation values:	5mm	20mm	90mm	Error
Output:	Serial-synchronous			
Wind velocity				
Simulation values:	3.7 m/s	6.9 m/s	13.3 m/s	26.1 m/s
Output:	4 Hz	8 Hz	16 Hz	32 Hz
Wind direction				
Simulation values:	45°	90°	180°	270°
Output:	50Ω	100Ω	200Ω	300Ω
Precipitation				
Simulation values:	1 pulse = 0,1mm Niederschlag			
Output	1 pulse / key-press, pulse frequency (1Hz) / duration of key-press			

7 Maintenance

With proper handling, the instrument operates maintenance-free. For calibration we recommend to send the instrument to the manufacturer in two-years' interval.

	ADOLF THIES GmbH & Co. KG			
	Hauptstraße 76 37083 Göttingen Germany P.O. Box 3536 + 3541 37025 Göttingen Phone ++551 79001-0 Fax ++551 79001-65 www.thiesclima.com info@thiesclima.com			

- Alterations reserved -