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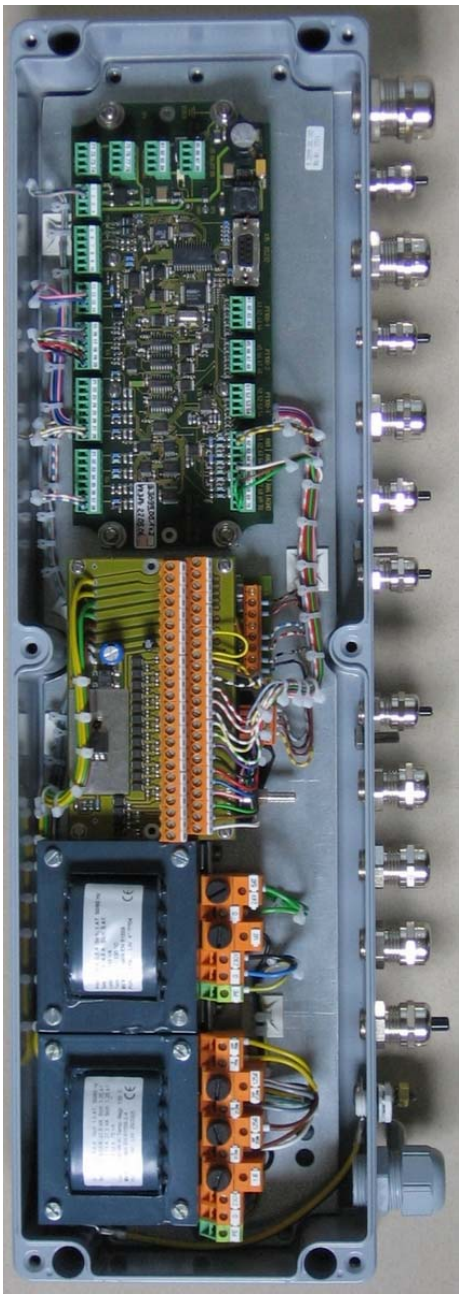
Instruction for Use

021560/01/09



Sensor- Interface

Type: TDL14K

9.3099.00.102

9.3099.01.102

850286

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Contents

Preamble

This instruction manual describes the factory-setting of the sensor interface for application of a certain measuring device configuration.

In case of deviations to the system configuration or customer requirements an additional separate description is delivered along with this standardized instruction manual.

1 Models available

Description	Order-no.	Operating voltage	Electrical output	Configuration
Sensor Interface	9.3099.00.102	230V / 50Hz	Online telegram output	Interface pc-board with connection box and power supply
Sensor Interface	9.3099.01.102	115V / 60Hz		
Sensor Interface	850286	8...24 VDC/AC	Online telegram output	Interface pc-board

2 Application

The sensor interface provides a disturbance-free acquisition and remote transmission of measuring values via a 4/5-wire cable RS232/RS422.

Fields of application are, for example:

1. Extension of existing data acquisition systems TDL 14K (DL15)
2. Addition of systems available by distal measuring sensors, without re-cabling
3. Sensor connection to systems (pc/logger) via digital/serial interface.
4. Controlling of weather displays for the visualisation of instantaneous values.

In case of application with datalogger TDL14K the sensor interface is connected to the serial-synchronous inputs, in order to integrate the measuring values, acquired by the sensor interface, into the datalogger.

Moreover, it can be used for the acquisition of digital and analogue measuring values as well as for the direct connection/further processing vie RS232/RS422 a the PC or weather display.

- The sensor interface is integrated in a connection box, which serves for the power supply of the pc-board, for the connection of measuring value transmitters and their power supply.
- The sensor interface 850286 is a pc-board without connection box, which can be integrated into a measuring device/measuring system – depending on the task .

3 Installation

Attention

The sensor interface must be mounted and wired only by a qualified expert, who knows and observes the generalities of technics, and applicable regulations and norms.

3.1 Mechanical Mounting (Sensor Interface 9.3099...)

Attention:

The sensor interface must be mounted and wired only in de-energised condition. The connection box of the sensor interface must be opened only in dry environment.

The sensor interface with connection box is designed for wall mounting. For fixing see dimension drawing (chapter 11).

The connection box can be mounted onto a mast, stand support or tube by means of an optional installation kit.

Attention:

The screwed cable glands must point downward.

3.1.1 Electrical Mounting

For connecting the measuring value transmitters remove the cover by loosening the screws on the front. The terminal clamps are now freely accessible.

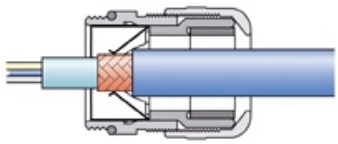
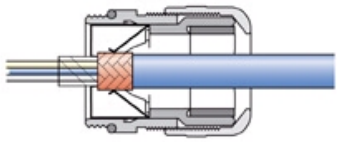
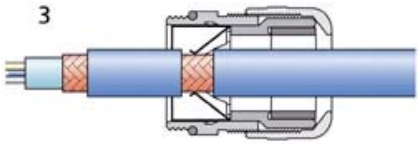
Remark

The electrical connection is carried out according to the additional connection diagram of the complete measuring system.

The cables are guided through the screwed cable glands, located in the housing, and are connected to the terminal clamps. Please attend to the cable diameter.

After wiring work is done the nuts of the cable glands and the screws of the cover are to be evenly screwed tightly to the housing.

3.1.2 Cable Mounting

In order to carry out an EMC-compatible installation the cable screen/shielding (except the supply cable, which, in general, is not shielded) is to be connected to the contact spring of the screwed cable gland (see figure). **1. With the Standard Contacting (see 1)** - Strip back the outer sheath and screen (shielding) - Make a round cut in the outer sheath approx. 15 mm along but do not remove the sheath - Guide the cable through the cable gland - Pull off the outer sheath - Pull back the cable until the connection is made between the cable screen and contact spring - Turn shut… and it is ready for use!	1 
2. With thin Wires without an Inner Sheath (see 2) - Strip back the outer sheath - Pull back the screen braid approx. 15-20mm over the outer sheath - Insert the cables into the cable gland until the contact is made between the cable screen and contact spring - Turn shut ….and it is ready for use!	2 
3. When Routing the Cable Screen to another Connection (see 3) - Expose the screen braid approx. 10 mm - Guide the cable through the cable gland until the connection is made between the cable screen and contact spring - Turn shut…and it is ready for use!	3 

3.2 Mechanical Mounting (Sensor Interface 850286)

The sensor interface is a pc-board without housing. Mostly, it is integrated into the measuring system/datalogger in the factory. Therefore, a description for mechanical installation is not necessary.

3.2.1 Electrical Mounting

The sensor interface is partial-wired in the factory after mechanical installation into the measuring system/datalogger. That means, system constellation permitting, the power supply and the connection to the measuring system could already be connected.

> ***Remark***
>
> ***The electrical connection is carried out according to the additional connection diagram of the complete measuring system.***

4 Mode of Operation

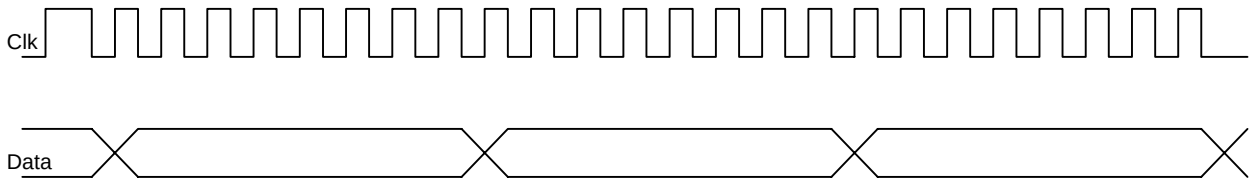
The sensor interface processes the digital counter (wind velocity, precipitation sum) in second cycle and measures the analogue values within 1…2s (acc. to the number of channels to be measured).
The temperature is generally measured in 3s-cycle.

The updated measuring values are filed in a formatted data record, and are queried once a second via the serial interface by the datalogger.

For the direct data acquisition by PC without datalogger the automatic telegram output is selected via COM1. In this mode a telegram is output every 1-1,5 seconds (depending on the number of measured channels and the interface velocity).

4.1 Telegram Structure

Start pulse, Data bits



After a start pulse of approx. 2ms a new bit is output with every “clk”..

Three byte add up to one unit:

1. Byte = channel number of the channel to be replaced with the TDL14K
2. and 3. Byte = formatted measuring value (16-Bit)

As soon as the fourth byte (channel number) is = 0 (end of identification) the logger expects the checksum (XOR) as measuring value, starting with “0x5A” throughout all bytes up to the identification.

If the checksum is not correct, the last value (=3sec.) is output thrice, before an error recognition appears in the logger display, for example: “???.?”.

If the logger identifies in the verified data record a channel number, which is shown in the internal channel table, the measuring value of the sensor interface is saved instead of the internal measuring value (only TDL14K). This configuration is retained in the datalogger until another one is advised from the sensor interface; thus an automatic measurement of the internal blank channels is avoided in case of possible sensor interface failure.
Channels which are no longer required, can still be shown and masked out via the datalogger channel configuration.

4.2 Format of the Data Telegram via the COM1

No.	Characters	Description	Value	Range
1...4	XXXX	Number of measurements since IF start (after 9999 continuation with 0100!)	4x ASCII	0000 to 9999
5		Separator (SPACE)	Hex 20	
6...10	XXXXX	Visibility in m	5x ASCII	6 to 16000
11		Separator (SPACE)	Hex 20	
12	X	Status of sun yes = 1 / no = 0	Hex 31 / Hex 30	0/1
13		Separator (SPACE)	Hex 20	
14...18	XXX.X	Instantaneous value of rel. humidity	unit %	0.2 to 100.0
19		Separator (SPACE)	Hex 20	
20...23	XXXX	Instantaneous value of radiation 1W/10µV	unit W/qm	0 to 2000
24		Separator (SPACE)	Hex 20	
25...29	XXX.X	Instantaneous value 0...20mA in percent	unit %	0.0 to 100.0
30		Separator (SPACE)	Hex 20	
31...35	XXX.X	Instantaneous value 0...20mA in percent	unit %	0.0 to100.0
36		Separator (SPACE)	Hex 20	
37...40	XXXX	Ventilator flow & radiation shield in mA	unit mA	0 to 1000
41		Separator (SPACE)	Hex 20	
42...46	vXX.X	Instantaneous value of temperature 1	unit °C	-99.0 to 99.0
47		Separator (SPACE)	Hex 20	
48...52	vXX.X	Instantaneous value of temperature 2	unit °C	-99.0 to 99.0
53		Separator (SPACE)	Hex 20	
54...58	vXX.X	Instantaneous value of temperature 3	unit °C	-99.0 to 99.0
59		Separator (SPACE)	Hex 20	
60...62	XXX	Instantaneous value of wind direction	unit °	0 to 360
63		Separator (SPACE)	Hex 20	
64...67	XX.X	Instantaneous value of wind velocity	unit m/s	0.0 to 75.0
68		Separator (SPACE)	Hex 20	
69	X	Status of precipitation yes = 1 / no = 0	Hex 31 / Hex 30	0/1
70		Separator (SPACE)		
71...75	XXX.X	Sum of precipitation since IF start after 999.9 continuation with 0.0!)	unit mm/d	0.0 to 999.9
76		Separator (SPACE)		
77...80	XXXX	Cloud height	unit m	0...2500
81	CR	Carriage return	Hex 0D	
82	LF	Line feed	Hex 0A	

Example telegram (mm):

```
0126 16000 0  34.2  632 100.0  50.0  160  12.7  14.4  -1.0 180 18.4 0   0.0 ????<CRLF>
```

Remarks:

- All characters are displayed in ASCII -code.
- The telegram has a constant line length of a total of 82 characters incl.. CR,LF
- Leading zeros of the measuring values are replaced by “spaces” (20 HEX).
- Negative values are marked by a sign, which is right-justified at the date, se “v” in the table. That means, for example with the temperature in °C: „**`-1.0`**“ and not „**`- 1.0`**“.
- All points and colons have fixed position.
- Erroneous measuring values (for ex caused by measuring range overflow) are replaces by one or several ?, depending on the position, point inclusive:
  for ex. „???.?“ for an erroneous temperature
  and „????“ for a defective or non-connected cloud height transmitter
- Carriage return and line feed are carried out by CR (0D hex) and LF (0A hex).
- The individual measuring values are separated by space character „SPACE“ (20 Hex).
- Baud rate COM1 for operation and for online telegram output(RS232): 9600Bd 8N1 unless otherwise set!

5 Pin Assignment Operation Interface COM1

5.1 Assignment for standard operation

Sensor Interface	PC
2	2
3	3
5	5

5.2 Assignment for a firmware-update

SENSOR-IF	PC
2	2
3	3
4	4
5	5 (bridge between 5 & 9)
6	6
7	7
8	8
9	9

6 Operation

6.1 Power up message

Connect the Pc with the sensor interface by means of a serial extension cable (1:!).
Open an adequate terminal program (for ex. TeraTerm or Hyper-Terminal), select the interface and set to the parameters 9600Bd 8N1 (default).

At power-up of the sensor interface the following message is output at the COM1

(RS232 SUB-D):

```
--------------------------
 SENSOR INTERFACE DL
 CPU: MSC1210, 3.6864 MHz
 Version: 0.30b
 Release: May 24 2005
--------------------------
 Help: <Strg-B>HH<Strg-C>
--------------------------
```

6.2 Set of Commands from V0.30

The operation and calibration of the sensor interface is possible only via a rudimental set of commands, and only via the COM1 (RS232 SUB-D). All commands are initiated by <**Strg-B**> and are terminated by <**Strg-C**> !

After entering the key-combination Strg-B, and then „HH“ and Strg-C, the following help is output:

```
        List of commands:
        -----------------

HH            : this help
<..>          : optional parameters (no space characters)
MM|mm<r>      : update measuring values
                r: autom. telegram output
GT<h><r>      : Thies-serial values(ASCII)
                h: Telegram output(HEX) for connecting
                   a 2.IF via COM1(X15)
                r: autom. Telegram output
GTh<2|3>      : autom. Telegram output (HEX) via reserve COM2/3(opt.)
ST<a>         : stops autom. telegram output (a: on all interfaces)
KK<CH,FUNC>   : channel - configuration CH:channel(1-16), CH:d(default), FUNC:0|1
SE<CH><X>     : CH: input which is scaled (abbrev./channel number)
                X: Index/factor of scaling for ex.
                   SESW1(Belfort), SESW2(Sentry),
                   SEWG1(WG-STD), SEWG2(WD-COMPACT)...
CT<h|l|d>     : Calibration of inputs via PT100-1
                h: upper  temperature (default:+65°C)
                l: lower temperature (default:-50°C)
                d: set default
CI<CH><c|d>   : CH: EA-channel(1...8) which is calibrated
                c: calculates Gain and Offset, d: default Gain
BR<N:BRATE>   : N: 1=COM1(SUB-D), 2=COM2(232-KL:11+14), 3=COM2(422-X2)
              : BRATE: 1=1200, 2=2400, 3=4800, 4=9600, 5=19200, 6=57600(only
                COM1)
WC<w|r|a>     : w/r saves/reads the configuration
                a: saves also the automatic telegram output
XX<v>         : v: version info
END
```

6.3 Application and Configuration

Through <Strg-B>**MMr**<Strg-C> all shown measuring values are displayed cyclically in clear text. The output stops after entering <Strg-B>ST<Strg-C> or on power-up/down.

Detailed output telegram (only with „MMr“):

auto. output (repeat-mode)

```
      Instantaneous measuring values :
      --------------------
Visibility  : 16000 m     [1] 21(10V)  22(GND)
Sun y/n     : 0 y/n       [2] 23(10V)  24(GND)
rel. hum.   :  54.2 %     [3] 25(1V)   26(GND)
Radiation   :  650        [4] 27(20mV) 28(GND)
Power input1:  25.0 %     [5] 31(20mA) 32(GND)
Power input2:  10.0 %     [6] 33(20mA) 34(GND)
Power W.a.S.:  160 mA     [7] 37(20mA) 38(GND)
Temperat.  1:  16.3 °C    [8] 41..44 (A a e E)
Temperat.  2:  -7.0 °C    [9] 45..48 (A a e E)
Temperat.  3: ???.? °C   [10] 51..54 (A a e E)
Wind direct.: 180 °      [11] 12,13,14(D,C,GD)
Wind veloc. : 11.2 m/s   [12] 15(CLK)  16(GND)
PPmonitory/n: 0 y/n      [13] 17(IN)   18(GND)
Precipitat. :   0.0 mm   [14] 19(CLK)  20(GND)
Cloud height : ---- m     [15] X15 RS232 (SUBD)
Live-Counter:  844
END
```

Terminal connections
channel number

The telegram output „mm“ (<Strg-B>**mm**<Strg-C>) would respectively look like this:
(Format s. tab. S4, chap. 3.2)

```
                                                    1.                  2.
0844 16000 0  54.2  650  25.0  10.0  160  16.3  -7.0 ???.? 180 11.2 0   0.0 ----
```

1. Sensor not connected or defective

2. Channel masked out

If a telegram shall automatically output after a re-start of the sensor interface, as well, the required telegram must be set before, for ex. through <Strg-B>**mmr**<Strg-C> and saved by means of <strg-B>**WCa**<strg-C>.

Channel configuration

For powering-down the visibility the following command must be entered:

<Strg-B>**KK1,0**<Strg-C>

Response from sensor interface: channel-config.(IF): 0111 1111 1111 1101

For re-starting please enter the following:

<Strg-B>**KK1,1**<Strg-C>

If this setting shall be a permanent one it has to be saved through: <Strg-B>**WCw**<Strg-C> .

6.4 Calibration

of the analogue inputs:

1. Set the output telegram „MMr“ (s. chap. 6.3.).
2. the input to be calibrated must be switched on (s. channel configuration chap. 6.3.).
3. connect an adjusted voltage-/power source to the respective terminal
4. Set the source to final value (s. value in brackets with terminal connections)
5. calibrate respective channel through: <strg-B>**CI**<*channel number* >**c**<strg-C>
6. check the calibration by means of the half-measuring value – if without success, there is the following option:
   a.) factory-scaling (not calibrated) through: load <strg-B>**CI**<*channel-number*>**d**<strg-C> and repeat the procedure starting from item 4.
   b.) Power-off the sensor interface for a short time and start with item 1.
7. Save the new calibration with: <strg-B>**WCw**<strg-C>

of the temperature:

1. Set the PT100 simulator to 65°C
2. <strg-B>CTh<strg-C> calibrates the upper value
3. Set the PT100 simulator to -50°C
4. <strg-B>CTl<strg-C> calibrates the lower value.
5. For controlling, set any interim value at the PT100 simulator and control it.
6. Save the new calibration with: <strg-B>**WCw**<strg-C>

Remarks:

The powering-off and re-starting of the sensor interface causes a reset to the last updated calibration; therefore, a saving after every effectively calibrated input is recommendable.

This is done with: ***<strg-B>****WCw****<strg-C>***

7 Firmware update

The firmware update can be carried out only via the interface COM1 (RS232 SUB-D).

For pin assignment between sensor interface and PC refer to page 8, chapt. 5.2.

Firmware updates are to be carried out only by authorized service engineers, as the changing of input sensitivity or scaling of new sensors require an adjustment of the inputs.

For updating the PC software „TI-DOWNLOADER“ is required (only Windows 95/98 or higher).

8 General Function Remarks

Using a standard cable (serial extension) at the COM1 (X15) might result in the fact, that the sensor interface is kept in “RESET”-mode, when the levels (DTR/RTS) are on “LOW” on PC-side (for ex.: no terminal program started). (see page.7, chapt. 5.1)
Corrective: A short break of power supply.

The green LED must flash in standard operation at 0,3 to 0,5 Hz.

If the green and the red LED flash alternately, the THIES serial access to the TDL14/DL15 is not or not correctly connected.

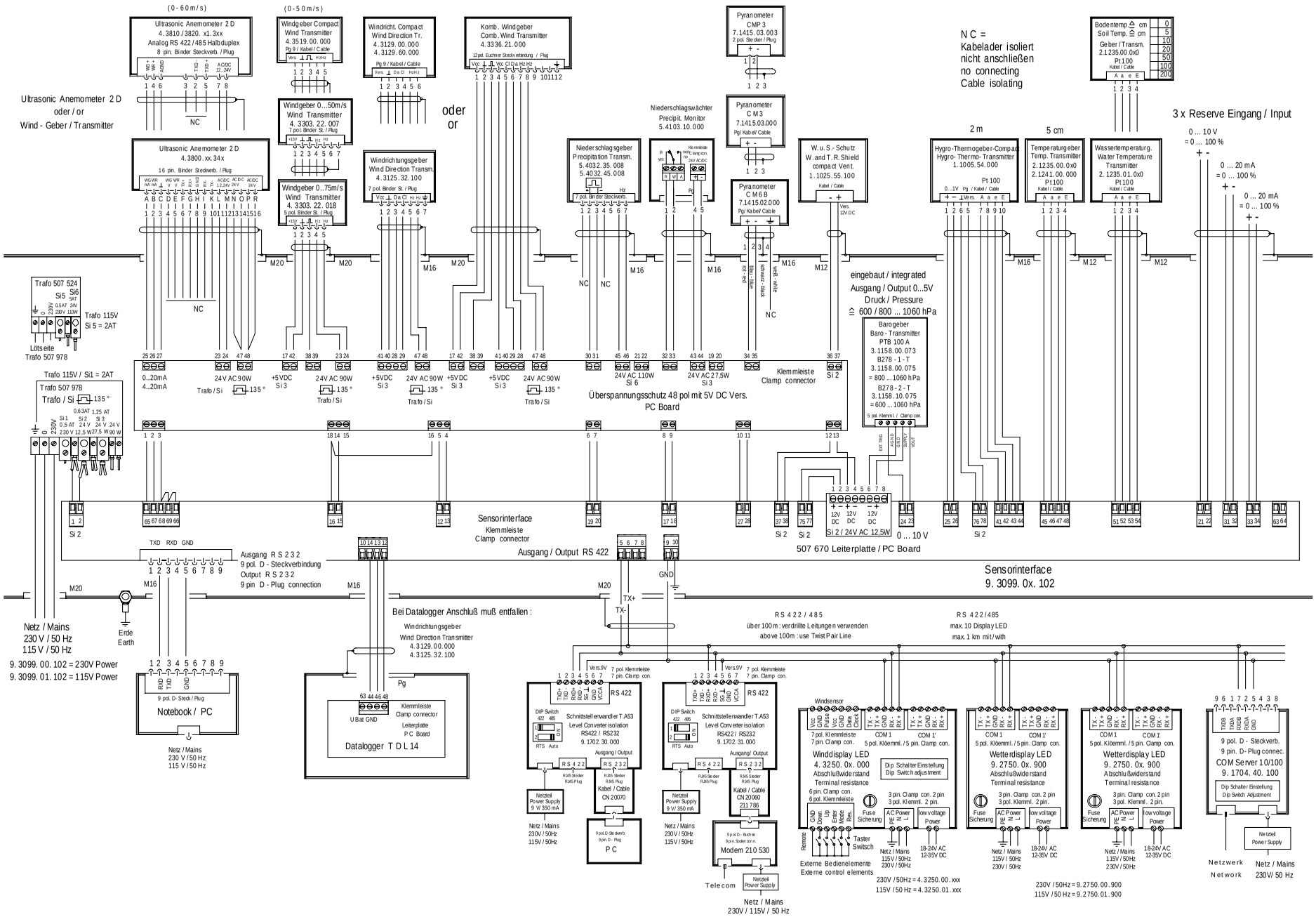
In case of defective or non-connected sensor, both LED’s flash in common mode, when the wind direction (THIES serial) is shown.

On re-start of the sensor interface a power-up message is output via the COM1 also with automatic telegram output (s. page 6, chapt. 5.1). Afterwards, “?” is output for all channels in the first four telegrams.

9 Connection Diagram (Example)

- Standard connection diagram 5970 (see page 13)

Remark:
In case of deviations to the system configuration an additional separate connection diagram is enclosed.


Ultrasonic Anemometer 2 D
oder / or
Wind - Geber / Transmitter
Ultrasonic Anemometer 2 D
4. 3810 / 3820. x1. 3xx
Analog RS 422 / 485 Halbduplex
8 pin. Binder Steckverb. / Plug
Ultrasonic Anemometer 2 D
4. 3800. xx. 34x
16 pin. Binder Steckverb. / Plug
(0 - 60 m / s)
Windgeber Compact
Wind Transmitter
4. 3519. 00. 000
Pg 9 / Kabel / Cable
(0 - 50 m / s)
Windgeber 0...50m/s
Wind Transmitter
4. 3303. 22. 007
7 pol. Binder St. / Plug
Windgeber 0..75m/s
Wind Transmitter
4. 3303. 22. 018
5 pol. Binder St. / Plug
Windricht. Compact
Wind Direction Tr.
4. 3129. 00. 000
4. 3129. 60. 000
Pg 9 / Kabel / Cable
oder
or
Windrichtungsgeber
Wind Direction Transm.
4. 3125. 32. 100
7 pol. Binder St. / Plug
Komb. Windgeber
Comb. Wind Transmitter
4. 3336. 21. 000
12pol. Euchner Steckverbindung / Plug
Niederschlagsgeber
Precipitation Transm.
5. 4032. 35. 008
5. 4032. 45. 008
7 pol. Binder Steckverb.
Niederschlagswächter
Precipit. Monitor
5. 4103. 10. 000
Pyranometer
CMP 3
7. 1415. 03. 003
2 pol. Stecker / Plug
Pyranometer
C M3
7. 1415. 03. 000
Pg/ Kabel/ Cable
Pyranometer
C M 6 B
7. 1415. 02. 000
Pg/ Kabel/ Cable
W. u. S. - Schutz
W. and T. R. Shield
compact Vent.
1. 1025. 55. 100
Kabel / Cable
NC =
Kabelader isoliert
nicht anschließen
no connecting
Cable isolating
Bodentemp. Δ cm
Soil Temp. Δ cm
0
5
10
20
50
100
200
Geber / Transm.
2. 1235. 00. 0x0
Pt 100
Kabel / Cable
3 x Reserve Eingang / Input
0 ... 10 V
= 0 ... 100 %
0 ... 20 mA
= 0 ... 100 %
0 ... 20 mA
= 0 ... 100 %
2 m
5 cm
Hygro-Thermogeber-Compact
Hygro- Thermo- Transmitter
1. 1005. 54. 000
Pt 100
0...1V Pg / Kabel / Cable
Temperaturgeber
Temp. Transmitter
2. 1235. 00. 0x0
2. 1241. 00. 000
Pt 100
Kabel / Cable
Wassertemperaturg.
Water Temperature
Transmitter
2. 1235. 01. 0x0
Pt 100
Kabel / Cable
Trafo 507 524
Si 5
Si 6
0,5 AT 24V
1 AT 230V 110V
Trafo 115V
Si 5 = 2AT
Lötseite
Trafo 507 978
Trafo 115V / Si 1 = 2AT
Trafo 507 978
Trafo / Si
135 °
0,6 3AT 1,25 AT
Si 1 Si 2 Si 3
0,5 AT 24 V 24 V 24 V
230 V 12,5 W 27,5 W 90 W
NC
0...20mA
4...20mA
24V AC 90W
+5VDC
Si 3
24V AC 110W
Si 6
24V AC 27,5W
Si 3
Überspannungsschutz 48 pol mit 5V DC Vers.
PC Board
Klemmleiste
Clamp connector
Si 2
eingebaut / integrated
Ausgang / Output 0...5V
Druck / Pressure
600 / 800 ... 1060 hPa
Barogeber
Baro - Transmitter
PTB 100 A
3. 1158. 00. 073
B278 - 1 - T
3. 1158. 00. 075
= 800 ...1060 hPa
B278 - 2 - T
3. 1158. 10. 075
= 600 ...1060 hPa
5 pol. Klemml. / Clamp con.
Sensorinterface
Klemmleiste
Clamp connector
Ausgang / Output RS 422
Si 2 / 24V AC 12,5W
0 ... 10 V
507 670 Leiterplatte / PC Board
Sensorinterface
9. 3099. 0x. 102
TXD RXD GND
Ausgang R S 2 3 2
9 pol. D - Steckverbindung
Output R S 2 3 2
9 pin D - Plug connection
Netz / Mains
230 V / 50 Hz
115 V / 50 Hz
9. 3099. 00. 102 = 230V Power
9. 3099. 01. 102 = 115V Power
Erde
Earth
Notebook / PC
9 pol. D- Steck / Plug
Netz / Mains
230 V / 50 Hz
115 V / 50 Hz
Bei Datalogger Anschluß muß entfallen :
Windrichtungsgeber
Wind Direction Transmitter
4. 3129. 00. 000
4. 3125. 32. 100
Klemmleiste
Clamp connector
Leiterplatte
P C Board
U Bat GND
Datalogger T D L 14
9 pol. D- Buchse
9 pol. D- Plug
P C
RS 422 / 485
über 100 m : verdrillte Leitungen verwenden
above 100m : use Twist Pair Line
RS 422 / 485
max. 10 Display LED
max. 1 km mit / with
Schnittstellenwandler T.A53
Level Converter isolation
RS422 / RS232
9. 1702. 30. 000
9. 1702. 31. 000
Ausgang / Output
Netzteil
Power Supply
9 V/ 350 mA
Netz / Mains
230V / 50Hz
115V / 50Hz
Kabel / Cable
CN 20070
CN 20060
211 786
Modem 210 530
Telecom
Netzteil
Power Supply
Netz / Mains
230V / 115V / 50 Hz
Windsensor
Vcc
Data
GND
Data
Clock
7 pol. Klemmleiste
7 pin. Clamp con.
COM 1
5 pol. Klemml. / 5 pin. Clamp con.
COM 1'
5 pol. Klemml. / 5 pin. Clamp con.
Winddisplay LED
4. 3250. 0x. 000
Abschlußwiderstand
Terminal resistance
6 pin. Clamp con.
6 pol. Klemmleiste
Dip Schalter Einstellung
Dip Switch adjustment
3 pin. Clamp con. 2 pin
3 pol. Klemml. 2 pin.
Fuse
Sicherung
AC Power
low voltage
Power
Remote
GND
Zoom
Enter
Mode
Res
Taster
Switch
Externe Bedienelemente
Externe control elements
Netz / Mains
115V / 50Hz
230V / 50Hz
18-24V AC
12-35V DC
230V / 50Hz = 4. 3250. 00. xxx
115V / 50 Hz = 4. 3250. 01. xxx
Wetterdisplay LED
9. 2750. 0x. 900
230V / 50Hz = 9. 2750. 00. 900
115V / 50 Hz = 9. 2750. 01. 900
9 pol. D - Steckverb.
9 pin. D- Plug connec.
COM Server 10/100
9. 1704. 40. 100
Dip Schalter Einstellung
Dip Switch Adjustment
Netzteil
Power Supply
Netzwerk
Network
Netz / Mains
230V/ 50 Hz

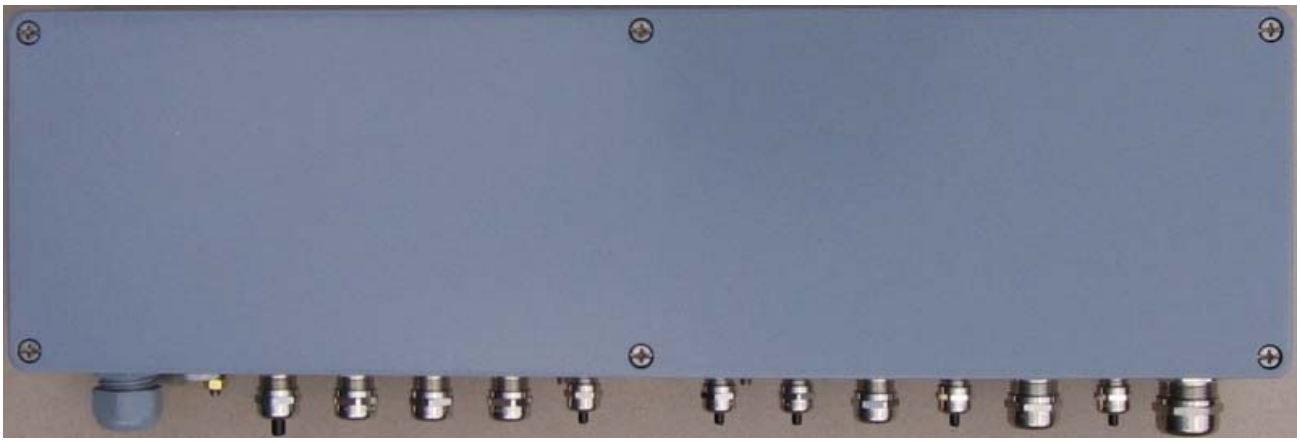
10 Technical Data

Sensor-Interface	
Connection box	
Supply voltage 9.3099.00.102 9.3099.01.102	 Primary: 230 V AC 50 Hz Primary: 115 V AC 50 Hz
	Secondary: 1x 24 V AC 90 W 1 x 24 V AC 27,5 W 1 x 24 V AC 12,5 W 1 x 12 V DC 2,5 W/210mA 1 x 5 V DC 0,5W/100mA 1 x 24 V AC 110 W
Dimension	160 x 560 x 90 mm
Weight	5,5 kg
Protection	IP 65 acc. to DIN 40050
Wall mounting	Drilling template 110 x 540 mm
Housing	ALSi12 DIN 1725, varnished
Sensor interface pc-board	
Supply voltage (pc-board)	8...24V AC/DC
Power consumption	<20mA@12V DC (16mA typical)
Connections	Terminal strip pluggable
Operating temperature	-40°C to +85°C
Electromagnetic compatibility (EMC)	acc. to EN 61326 in conjunction with EN 61000-4-3
Telegram output rate	<3s (depending on telegram length)
Analogue inputs unipolar	2 x 0...10V (max.25V) 2 x 0...1V (max. 2,5V) 2 x 0(4)...20mA 1 x 0... 1A 1 x 0(4)...20mA (optional) 2 x 0...10V (optional) 2 x 0(4)...20mA (optional)
Accuracy	Voltage-/power inputs +/- 0,1% FS
Temperature inputs PT100	3 x –50.0°C...+65.0°C (max. –99.0°C…+99.0°C)
Accuracy	PT100 inputs +/- 0,1K
Analogue inputs bipolar	2 x 0...10V (optional) 2 x 0(4)...20mA (optional)
Digital inputs	1 x 16 bit counter (Wind velocity) 1 x 8 bit counter (Precipitation sum) 1 x 8 bit counter (Pp-Status) 1 x serial-synchron (Thies wind direction transmitter: 11,25°/2.5°)
Serial interfaces	1 x RS232 for operation, calibration, and telegram output baud rates: 1200,2400,4800,9600(default),19200,57600Bd 8N1 1 x RS422 for telegram output and sensor input Baud rates: 1200,2400,4800,9600(default),19200Bd 8N1

Lockable Sensors (Standard model)	1. Visibility Belfort Instrument 6100 / Envirotech Sentry (6m..16km) 2. CSD1 Kipp & Zonen status of sunshine 3. relative humidity (0...1V / 0...100% r.F.) 4. radiation (0...20mV / 0... 2000W/qm) (optional: scaling in the IF) 5. power input (0...20mA / 0...100.0%) 6. power input (0...20mA / 0...100.0%) 7. ventilator flow weather & thermal radiation shield (0... 1000mA) 8. temperature 1 PT100 (-99.0°C...+99.0°C) 9. temperature 2 PT100 (-99.0°C...+99.0°C) 10. temperature3 PT100 (-99.0°C...+99.0°C) 11. wind direction 0...359° (Thies- 5Bit:11,25°/8Bit:2,5°) 12. wind velocity presently unsupported: 4.3303.22.018 754Hz@75m/s (Type: Classic) 4.3519.00.000 945Hz@75m/s (Type: COMPACT) 4.3303.22.007 1042Hz@50m/s (Type: CLASSIC) 13. precipitation monitor (yes/no) 14. precipitation (1 pulse = 0,1mm precipitation) 15. cloud height sensor WHM1K Jenoptik (0...2500m) (optional)

11 Dimensional Drawing

Outside dimensions: B x L x H 160 x 560 x 90mm



- Bore dimensions: please refer to backside of instrument

12 Accessories (optional)

Installation kit compact Order-no. 506 614 Mounting holder with tensioning straps, serves for mounting the connection box onto a mast.	Techn. data: clamping range: Ø 48 ... 102 mm Material: stainless steel

13 EC-Declaration of Conformity

Document-No.: **000293** Month: 01 Year: 09

Manufacturer: **A D O L F T H I E S G m b H & C o. K G**

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D-37083 Göttingen
Tel.: (0551) 79001-0
Fax: (0551) 79001-65
email: Info@ThiesClima.com

Description of Product: **Sensor- Interface**

Article No.		
	9.3099.00.102	**9.3099.01.102**
	9.3099.00.113	**9.3099.01.113**
	9.3099.00.104	**9.3099.01.104**

specified technical data in the document: **021553/01/09; 021554/01/09; 021556/01/09**

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

2004/108/EC	DIRECTIVE 2004/108/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 15 December 2004 on the approximation of the laws of the Member States relating to electromagnetic compatibility and repealing Directive 89/336/EEC
2006/95/EC	DIRECTIVE 2006/95/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 12 December 2006 on the harmonisation of the laws of Member States relating to electrical equipment designed for use within certain voltage limits
552/2004/EC	Regulation (EC) No 552/2004 of the European Parliament and the Council of 10 March 2004 on the interoperability of the European Air Traffic Management network (the interoperability Regulation)

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

Reference number	Specification
IEC 61000-6-2: 2005	Electromagnetic compatibility Immunity for industrial environment
IEC 61000-6-3: 2006	Electromagnetic compatibility Emission standard for residential, commercial and light industrial environments
IEC 61010-1: 2001	Safety requirements for electrical equipment for measurement, control and laboratory use. Part 1: General requirements

Place: Göttingen Date: 27.01.2009

Legally binding signature:

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Wolfgang Behrens, General Manager

issuer:

.....

Joachim Beinhorn, Development Manager

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.

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