

Operating Instructions

021503/10/07

Weather Display LED

9.2750.xx.90x



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1 Device Versions

Designation	Order No.	Equipment	Operating voltage
Weather Display LED	9.2750.00.90 0	Input/output 1 x RS422	230 V AC; 24 V AC; 12...35 V DC
Weather Display LED	9.2750.01.90 0	Input/output 1 x RS422	115 V AC; 24 V AC; 12...35 V DC
Weather Display LED	9.2750.00.90 1	Input/output 1 x RS422 Input 1 x Pt100 or 0...10 V / 0(4)...20mA 3 x 0..10 V or 0(4)..20 mA Output 2 x 0..10 V or 0(4)..20 mA	230 V AC; 24 V AC; 15...35 V DC
Weather Display LED	9.2750.01.90 1	Input/output 1 x RS422 Input 1 x Pt100 or 0...10 V / 0(4)...20mA 3 x 0..10 V or 0(4)..20 mA Output 2 x 0..10 V or 0(4)..20 mA	115 V AC; 24 V AC; 15...35 V DC
Weather Display LED	9.2750.10.90 1	Input/output 1 x RS422 Input 1 x Pt100 or 0...10 V / 0(4)...20mA 3 x 0..10 V or 0(4)..20 mA Output 2 x 0..10 V or 0(4)..20 mA Integrated pressure sensor	230 V AC; 24 V AC; 15...35 V DC
Weather Display LED	9.2750.11.90 1	Input/output 1 x RS422 Input 1 x Pt100 or 0...10 V / 0(4)...20mA 3 x 0..10 V or 0(4)..20mA Output 2 x 0..10 V or 0(4)..20mA Integrated pressure sensor	115 V AC; 24 V AC; 15...35 V DC

Table 1: Device versions

2 Application

The Weather Display LED is a modern data-processing measuring and display device for the display of to four measured values. Depending on the version it is also used for serial and analog output of the measured data to further processing systems.

The device operates in conjunction with a weather station (e.g. data logger), which supplies a serial data protocol. Optionally the Weather Display LED also acquires analog data (see Device versions) from direct-connection sensors with analog outputs.

Configuration is carried out either at the factory according to the data protocol of Thies products (weather station, data logger etc.) or on the basis of a data protocol as per customer specification.

The Weather Display LED is characterised by its high reliability and flexibility as well as optimum display of the weather parameters.

Red light-emitting diodes (LEDs), which are easily to read under a wide range of lighting conditions and distances, are used for display. The brightness is adjustable. Two brightness levels can be stored using an extended dimming function. This allows individual settings for daytime and night-time brightness to be called up quickly.

The device version 9.2750.xx.901 also has an analog interface. This provides for the connection of measured value transmitters with an analog output.

The device version 9.2750.1x.901 is additionally equipped with an integrated pressure sensor for the acquisition of barometric air pressure data.

Equipment with device 9.2750.0x.900:

- 1 x real-time clock
- 1 x RS422 interface

Additional equipment with 9.2750.xx.901:

- 4 analog inputs (current / voltage / Pt100)
- 2 analog outputs (current or voltage)

Additional equipment with 9.2750.1x.901:

- 4 analog inputs
- 2 analog outputs (current or voltage)
- Built-in pressure sensor (air pressure)

Functions with device 9.2750.0x.900:

- Measured values received via:
 - serial interface RS 422
 - real-time clock
- Measured values output via:
 - serial interface RS 422
- Calculation of:
 - Instantaneous values
 - sliding extreme values
 - sliding mean values
 - sums
- Customer-specific formatting of weather parameters
- Customer-specific formatting of display sequence
- Operation and settings via five buttons on front
- Flexible power supply with 230VAC or 24VAC / 12 - 35V DC (optionally 115VAC).

Additional functions with 9.2750.0x.901:

- Measurement of analog weather parameters and conversion to different units of measurement for display and data output.

Additional functions with 9.2750.1x.901:

- Measurement of analog weather parameters and conversion to different units of measurement for display and data output.
- Setting, measurement and conversion of pressure sensor parameters for display and output.

3 View



4 Mode of Operation

4.1 Calculation of sliding mean and extreme values:

To process the sliding measured values two ring buffers with a depth of 60 single values are available for each measured value. With processing of the measured values every second this results in a 1-minute sliding extreme and mean value. With the selection of times > 1min, the measured values are processed to produce an integral extreme and mean value prior to sliding processing.

Sliding time	Integral mean from n values (pre-averaging)	Sliding mean value from n integral values
1 min	1	60
10 min	10	60
1 h	60	60
24h	1440	60

The ring buffers are initialised whenever the Weather Display is started up. The first valid measured value is written to the ring buffers so that a measured value appears in the display at once. A regular extreme or mean value is then available after the time selected.

The times selected are not synchronised to the clock time. They indicate the period of time in the past.

Available time settings:

Parameter	Time								
Extreme value	1min	10min	30min	1h	2h	6h	12h	24h	
Mean value	no	1min	10min	30min	1h	2h	6h	12h	24h

4.2 Calculation of Sums

The menu sum „Su“ facilitates the configuring of a display line into a sum channel.

The input value, related to the display line, must be a sum value, too.

The addend for the sum to be indicated is calculated from the difference between the current input value and the „old“ input value. The measuring range of the input values is acquired **automatically** in increments, so that the sum overflow of the input value is identified and respectively processed.

Sum ranges:

Parameter	Sum								
Value	10,0	20,0	25,0	50,0	1000,0				

The accepted increment within a second-by-second-query is between 0.1 and 1.1. Values of outside the range are not accepted, and lead, after 2 sec, to a new basic value for the following totals formation

The totals formation, once started (Power On), and the indicated sum value, are reset exclusively by the internal clock (RTC) at 00:00, or by a RESET.

4.3 Elevation Input to the Air Pressure (Function only with instrument 9.2750.1x.901)

The wind display indicates the absolute pressure (P) or the air pressure (QNH), reduced to the sea level. The absolute pressure is the standard factory setting, in case no other written arrangement has been made.

For the setting of the display of the air pressure (QNH), reduced to sea level, the baro station height (above sea level) must be entered.

The range of the baro station height input is 0.. 3000 m. The input is done by the front side keys, and is indicated in the display line „Pressure“.

For description of the station height input please refer to operating examples point 6 (chapter 8).

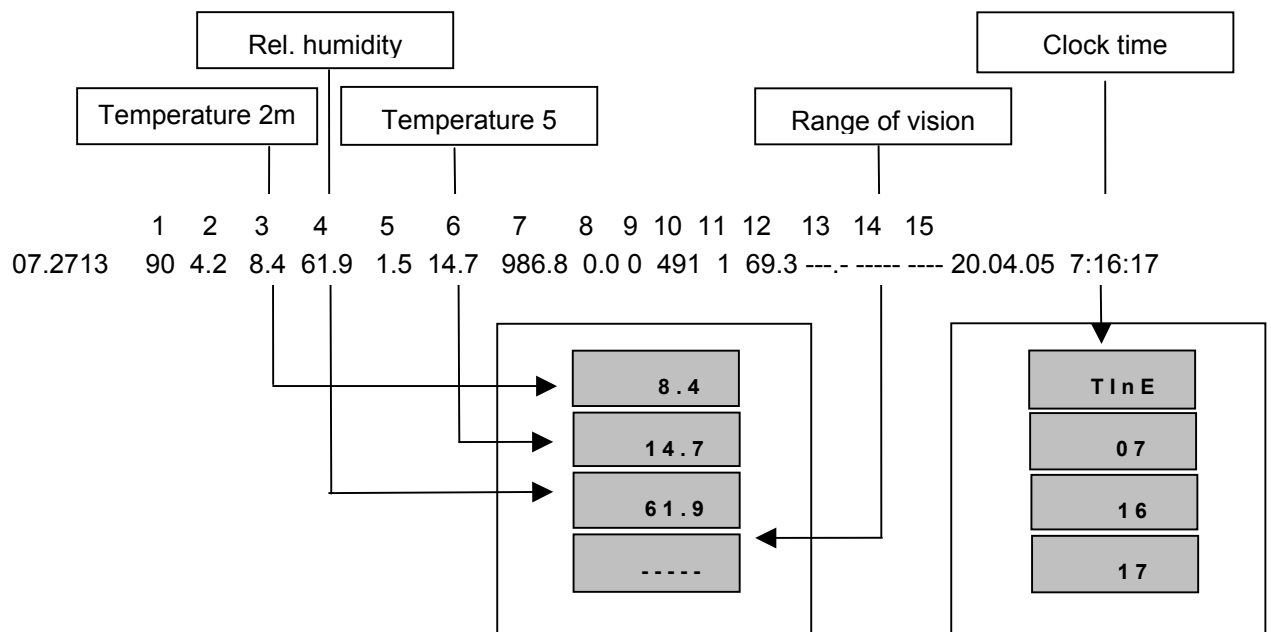
4.4 Acquisition of measured values

The acquisition of measured values is carried out via the serial interface (RS422) or optionally the analog inputs.

The parameters required are filtered out of the data protocol received or the analog values and assigned to the relevant LED displays.

Configuration of the Weather Display LED is carried out at the factory. Any ASCII data protocols can be interpreted.

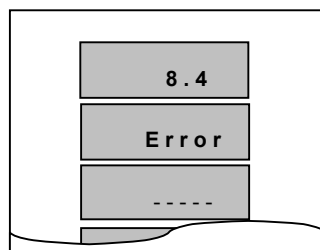
Example: Input telegram with filtering and display



After the Weather Display has started up, the internal real-time clock is synchronised with the first clock time received.

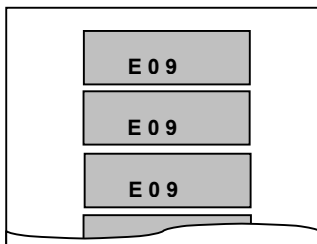
Erroneous parameters are indicated by an error message in the level.

Erroneous parameters are replaced by minus signs "-----".



If no telegram is received, the following message will appear after 10 sec

"E09" =Time out



5 Recommendation for Selection of Site

The device is designed for indoor installation. When used outdoors, an additional external housing including the appropriate type of protection is required.

Note

When selecting the installation site please take note of the operating temperature range.

6 Installation

Caution

The device should only be installed and connected by qualified technicians. The general engineering regulations and provisions and standards applicable must be observed.

6.1 Mechanical installation:

The display is designed for control panel installation. The necessary opening in the control panel must measure 138 x 138 mm. The scope of supply includes two fixing brackets. After the device has been inserted in the control panel, the fixing brackets are slid into the housing at the rear and screwed into place.

6.2 Electrical installation / connections:

All connections are at the rear (see Fig. 1 and 2).

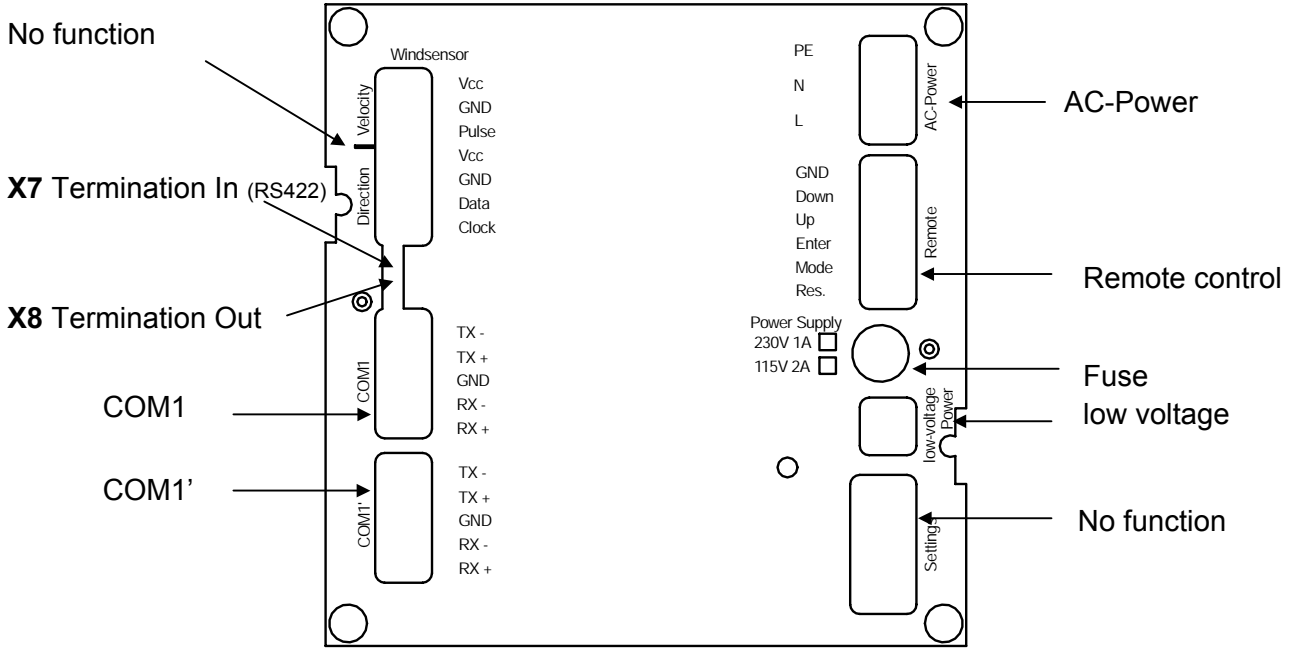


Fig. 1: Rear 9.2750.xx.900

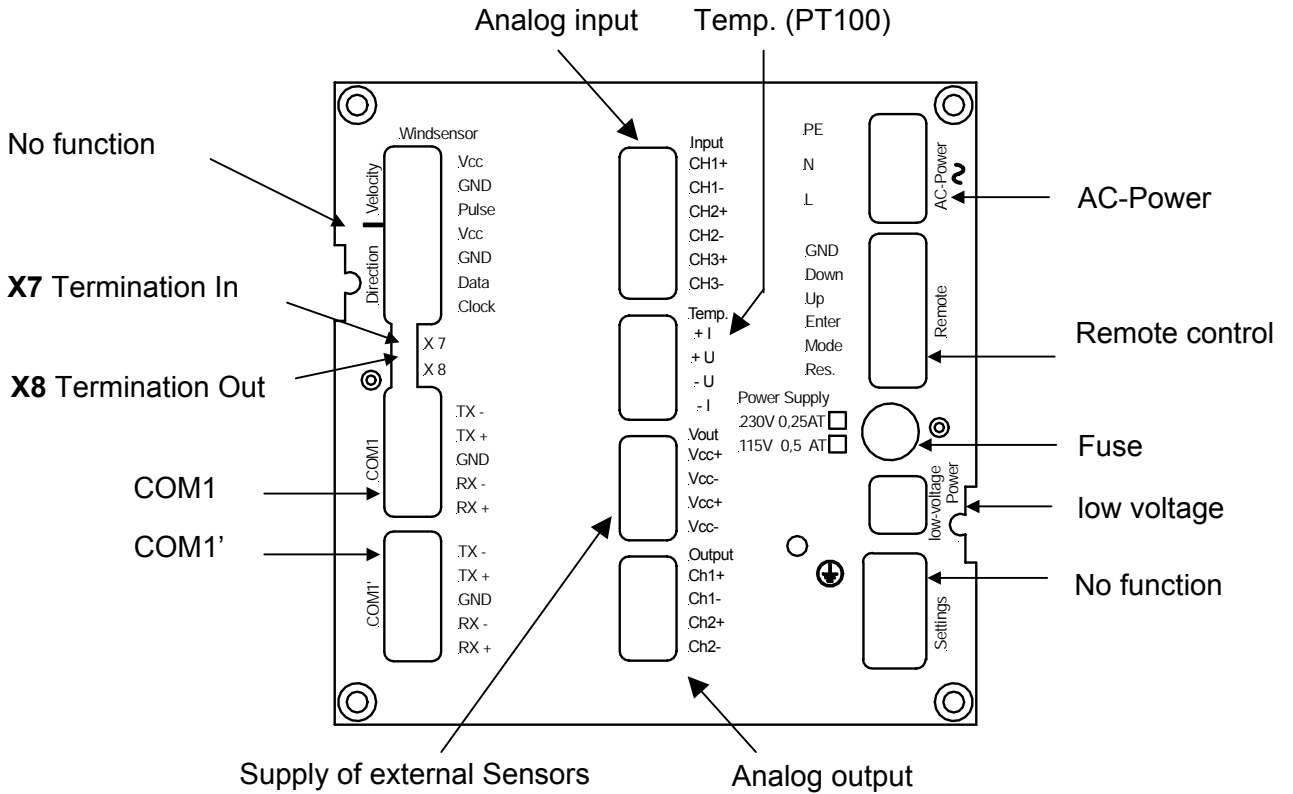
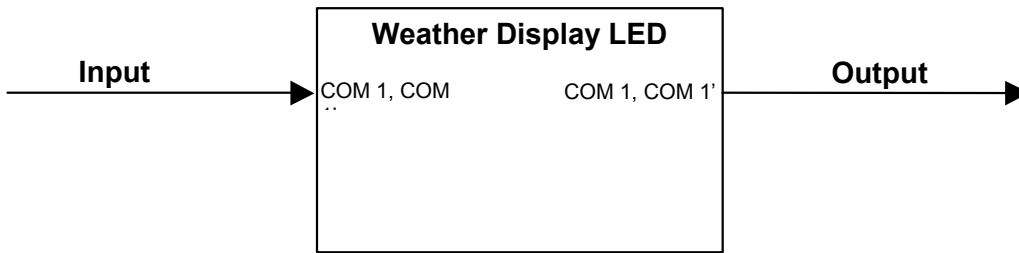


Fig. 2: Rear 9.2750.0x.901

6.2.1 Connection of serial interface RS422

- The Weather Display LED is equipped with 1x RS422 Input / Output.



The baud rate for the interface is set using the buttons on the front of the Weather Display LED (see Section 8).

No special interface specification is necessary for the inputs. The inputs may have the following interface specification: 8N1, 7E1, 7O1

The clamping plugs "COM1" / "COM1'" are used for connection. The two clamping plugs of the interface are connected in parallel.

Desig.	Clamping plug: COM1	Clamping plug: COM1'
TX-	Transmitter	Transmitter
TX+		
GND	Earth	Earth
RX-	Receiver	Receiver
RX+		

For termination with long cables the rear of the display has contact pins (X7), which can be bridged externally with a jumper if required (see Fig. 3).

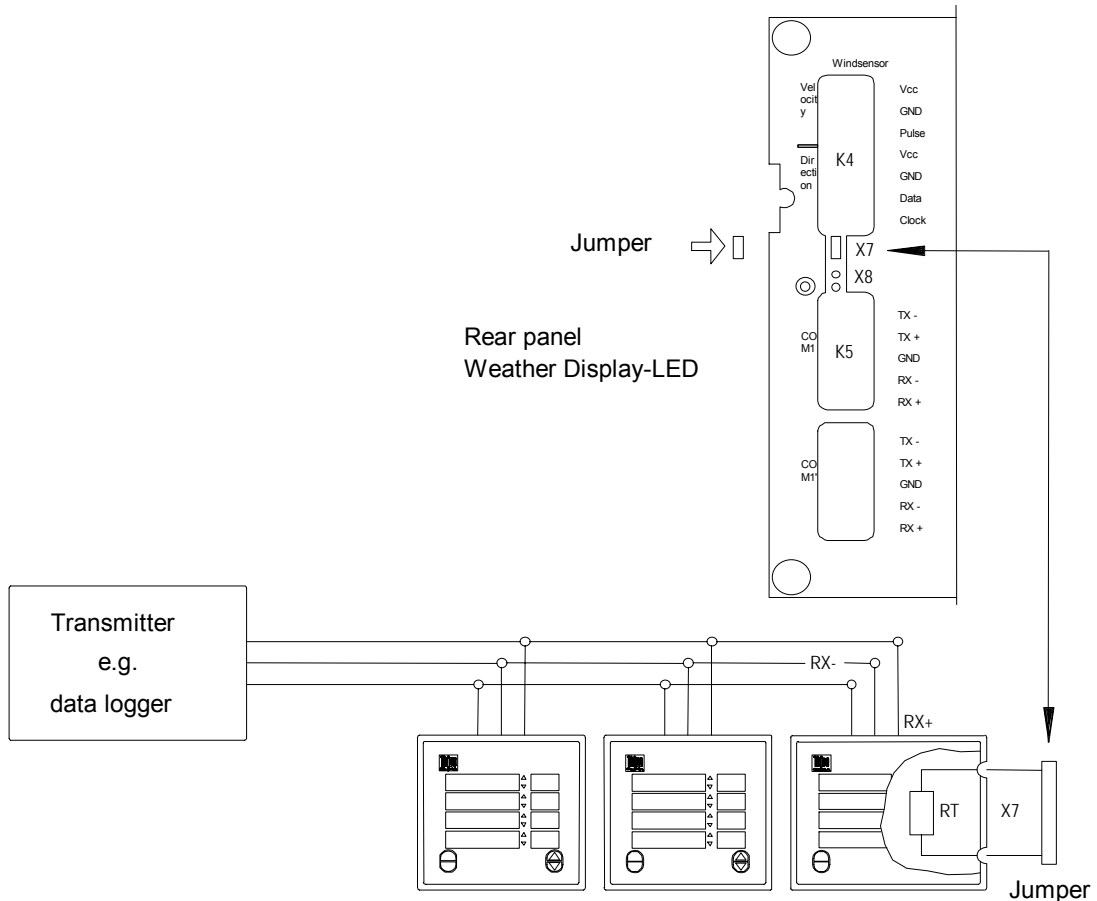


Fig. 3: Example of connection

Information for RS422:

Faults on long cables may affect serial transmission may affect serial transmission, with the serial interface possibly being destroyed by over voltages. We therefore recommend:

- The transmission line should be shielded. The shield must be connected to a central earth potential.
- With cable connections longer than 100 m twisted pairs should be used for the signal lines +RX/-RX and +TX/-TX.
- The ground pins (GND) should also be connected in addition to the twisted signal lines. If major differences in potential between the transmitter and receiver result in high compensating currents, isolating interface adapters have to be used.
- The cable must always be terminated with its surge impedance (100 Ω to 600 Ω depending on cable). With more than one Weather Display LED (slaves) the resistor must be located at the receiver furthest from the transmitter.
- The integrated termination resistor ($RT=200\Omega$) has to be activated with the use of a jumper (X7) at the receiver (slaves)(see Fig. 3.).

6.2.2 Connection of analog inputs (9.2750.xx.901)

- For external measured value transmitters with analog output for acquisition of weather parameters:

Des.	Clamping plug: Analog input (weather parameters)
CH1+	V, mA
CH1-	V, mA
CH2+	V, mA
CH2-	V, mA
CH3+	V, mA
CH3-	V, mA

Des.	Clamping plug: Temp (temperature)
+I	Pt100 in 4-wire circuit
+U	
-U	
-I	

or

+I	V, mA
+U	
-U	
-I	

Note: for 9.2750.1x.901

The "barometric air pressure" is captured by a built-in pressure sensor.

6.2.3 Connection Power Supply for external Sensors (9.2750.xx.901)

Bez.	Clamping plug: Vcc (Sensor)
Vcc+	15V(*5V) Sensor (x)
Vcc-	15V(*5V) Sensor (x)
Vcc+	15V(*5V) Sensor (y)
Vcc-	15V(*5V) Sensor (y)
*5V alternative Power supply	

6.2.4 Connection of analog outputs (9.2750.xx.901)

Des.	Clamping plug: Analog output (weather parameters)
CH1+	V, mA
CH1-	V, mA
CH2+	V, mA
CH2-	V, mA

6.2.5 Connection of power supply

- For Weather Display **9.2750.x0.900 / 901**

Des.	Clamping plug: AC-Power
PE	Protective conductor
N	230V AC
L	230V AC

or

Des.	Clamping plug: low voltage Power
1	24V AC/DC
2	24V AC/DC

- For Weather Display **9.2750.x1.900 / 901**

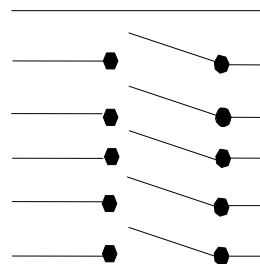
Des.	Clamping plug: AC-Power
PE	Protective conductor
N	115V AC
L	115V AC

or

Des.	Clamping plug: low voltage Power
1	24V AC/DC
2	24V AC/DC

6.2.6 Connection of remote control

Des.	Clamping plug: Remote
--	GND
--	Down
--	Up
--	Enter
--	Mode
--	Reset



Remote control
GND
Down
Up
Enter
Mode
Reset

7 Data Output Protocol

The output protocol contains all four display parameters. They are output in the display sequence 1 ... 4 and in the display format.

e.g. Weather Display protocol: **(STX)xxx.x xxx.x xxx.x xxxxx*HL(CR)(ETX)**

- ' ' is used as a separator
- Erroneous parameters are replaced by "???."
- Missing parameters are replaced by "---."
- Measured values are output with a leading ' ' e.g. ' ' 0.1

Abbreviations:

' '	= blank character
"*"	= identifier for checksum
"H"	= checksum high
"L"	= checksum low
<STX>	= start of text
<CR>	= carriage return
<LF>	= line feed

The checksum is generated by the XOR function from the characters between <STX> and "*" 2...9 (starting with Hex00). The 8-bit checksum is then split into two ASCII characters (high and low nibble) with a value range from 0...F (Hex).

*Note for COM1 Input:
The COM1 interface can be configured with any protocol. See Section 4.2.*

8 Operation

The display is operated using the buttons on the front (**s. Fig. 4**). Whenever a button is pressed, this is acknowledged by an acoustic signal.

The **Table of operating functions** summarises the operations possible. The MODE button is used to navigate through the 3 operator control levels (Mode 0-2). The areas marked in white in the table symbolise general operating functions of the display such as dimming, baud rate etc. The grey areas symbolise operating functions that specifically relate to a parameter (measured value) (display of min./max value etc.).



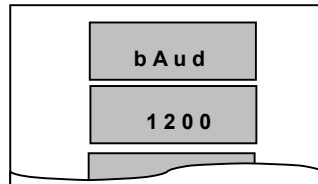
Fig. 4: Front view with operating buttons

Due to restricted character representation in the display the characters used (texts) in the select and input menus are listed.

Select menu				
Menu No.	Display	Function	Menu items	Note
1	bAudr	Baud rate	1200, 2400, 4800, <u>9600</u>, 19200, 57600	<u>Default</u>
2	ProtF	Protocol format	<u>8n1</u>, 7E1	<u>Default</u>
3	Et	Extreme value time	1n, 10n, 30n, 1h, 2h, 6h, 12h, <u>24h</u>	<u>Default</u> (n = Minute)
4	nt	Mean value time	<u>no</u>, 1n, 10n, 30n, 1h, 2h, 6h, 12h, 24h	<u>Default</u> (n = Minute)
5	Su	Sum	<u>no</u>, dISP1, dISP2, dISP3, dISP4	<u>Default</u>

Input menu	Display	Digits
Real-time clock (h)	rtc h	2
Real-time clock (m)	rtc n	2
Real-time clock (s)	rtc S	2
Baro station height	ALtl	5

The menus are displayed in levels 1 & 2. e.g.



Menu structure:

The Weather Display LED has 3 operating modes:

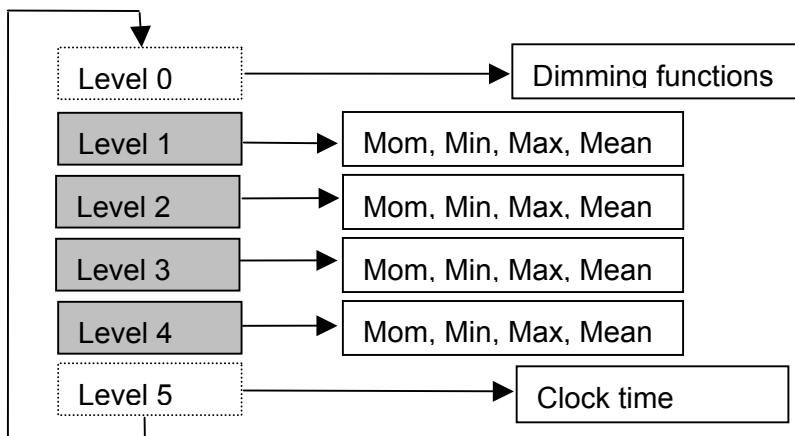
Mode 0 (Display mode):

Whenever the device is started up, the display is automatically in operating mode "Display measured values" (level 0). The brightness level can be selected in this mode.

The **button "MODE"** can be used to move to the next level. Indicated by the flashing MIN/MAX LEDs in each level.

The buttons **button "▲"(UP)** and **button "▼" (DOWN)** can be used here to display the Mom, Min, Max and mean value.

The clock time is displayed in level 5 (see Section 4.2 "Input telegram with filtering and display").



Mode 1 & Mode 2 (Programming mode):

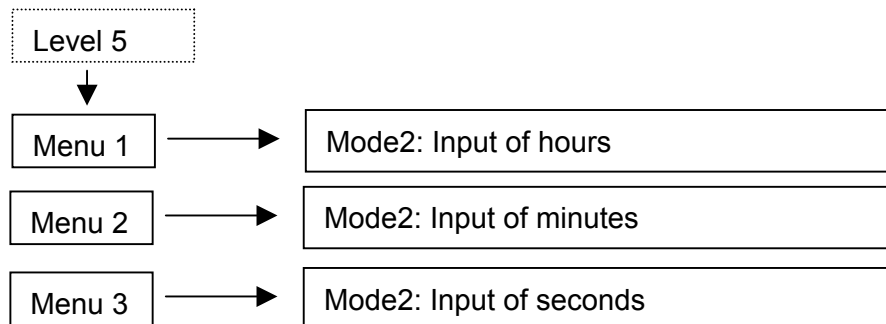
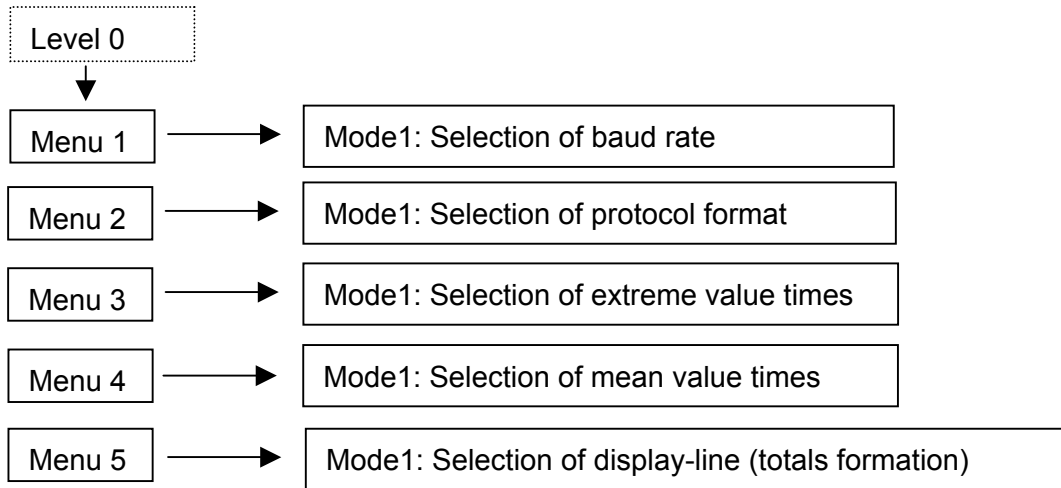
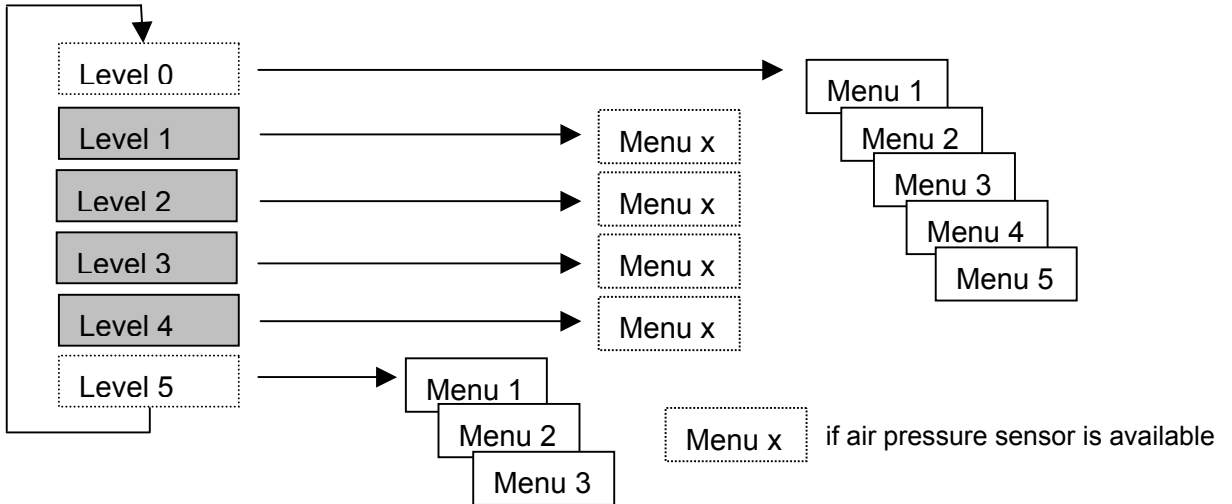
Mode 1&2 are accessed by pressing the **button "MODE"** for over 3 sec.

Modes 1&2 differ from each other as follows:

Mode 1: Select menus of preset parameters

Mode 2: Editing of parameters

Each level can be assigned one or more select or input menus, which are accessed using the **button "MODE"**.



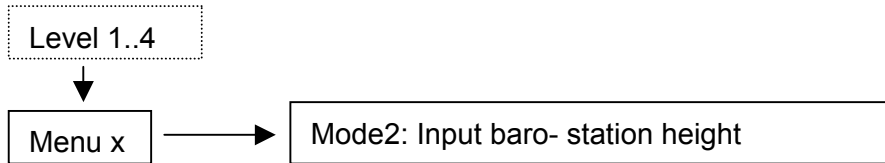


Table of operating functions:

Mod 0	Mod 1	Mod 2	Button	Function
x			▲▼	Dim display
x			▲ & ENTER	Save brightness value Max
x			▼ & ENTER	Save brightness value Min
x			▲ >3sec	Call up brightness value Max
x			▼ >3sec	Call up brightness value Min
x			MODE	Display level 1..4 (Min/Max LED flash)
x			▲▼	Select Mom/Min/Max (level n)
x			ENTER	Mom/Min/Max – Confirm selection (save) (level n)
x →	x		MODE >3sec	Switch to Mode 1 Select menu 1 Baud rate COM1 (1)
	x		MODE	Select menu 2 Protocol format COM1 (2)
	x		MODE	Select menu 3 Times for sliding extreme values
	x		MODE	Select menu 4 Times for sliding mean values
	x		▲▼	Select from menu list
x ←	x		ENTER	Confirm selection (save)
x ←	x		MODE >3sec	Return to Mode 0 without saving changes
x			MODE	Display level 1..4 (Min/Max LED flashes)
x →		X	MODE >3sec	Switch to Editing mode Editing parameters 1 (level n)
		X	MODE	Editing parameters 2 (level n)
		X	ENTER	Select editing parameters n (level n)
		X	MODE	Select one digit (flashes) in parameter n
		X	▲▼	Select digit or character (level n)
x ←		X	ENTER	Save edited parameter n (level n)
x ←		X	MODE >3sec	Return to Mode 0 without saving changes
x			Thies	Functional test, Info display and reset

Note:

1. Changes in Select menu 1 & 2 (baud rate, protocol format) are only effective after starting up.
2. The protocol format setting only refers to the data output (if available).

Functions of MIN and MAX LEDs:

The display status of the MIN & MAX LEDs is listed below as a function of the operating mode:

Operating mode	LED MIN ▼	LED MAX ▲	Function / Status
Display mode	off	off	Display of instantaneous value
	on	off	Display of MIN value
	off	on	Display of MAX value
	on	on	Display of mean value
Mode 0 (Programming)	flashes	flashes	Menu item instantaneous value
	flashes	off	Menu item MIN value
	off	flashes	Menu item MAX value
	flashes alternately		Menu item mean value

Examples of operation:

1. Select brightness and save

Press **button "▲"(UP)** repeatedly until required brightness level is reached.

Hold down **button "▲"(UP)** & **button "ENTER"** simultaneously until this operation is acknowledged by an "acoustic signal" (approx. 3sec). Brightness value is stored.

2. Call up stored brightness value.

Hold down **button "▲"(UP)** until this operation is acknowledged by an "acoustic signal" (approx. 3sec). The brightness level will change to the brightness value stored.

3. Max value display of parameter 3 (in level 3).

Press **button "MODE"** repeatedly until Min/Max LEDs flash in level 3.

Press **button "▲"(UP)** repeatedly until Max LED flashes.

Press **button "ENTER"**. Max value display is selected.

4. Set time for generation of sliding extreme value to 1h

Hold down **button "MODE"** until this operation is acknowledged by an "acoustic signal" (approx 3sec). Select menu 1 (bAudr) appears in the display.

Press **button "MODE"** repeatedly until select menu 4 (Et) appears in the display.

Press **button "▲"(UP)** until 1h appears in the display.

Press **button "ENTER"** and extreme value time will be stored.

5. Selection of the Display Line (Totals Formation)

Press **button „MODE“** and hold it until this procedure is acknowledged by an “acoustic signal” (approx. 3sec.). Selective menu 1 (bAudr) appears in the display.

Press **button „MODE“** as often until the selective menu 5 (Su) appears in the display.

Press **button “▲”(UP)** until „DISP3“ appears in the display.

Press **button „ENTER“**. **Display line, the totals formation, is stored.**

Remark

The configuring of the weather display for the measurement parameters with totals formation (for ex. precipitation sum) is carried out in the factory, as these parameters are already specified acc. to the measurement task, and are provided by the datalogger or weather station.

6. Set Baro Station Height

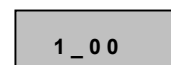
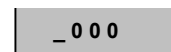
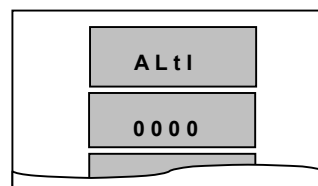
Press **button „MODE“** as often until the MIN/MAX- LED's of the air pressure indicator flash in the display.

Press **button „MODE“** and hold it until this procedure is acknowledged by an „acoustic signal“ (approx. 3sec) and the station height appears in the input menu.

Press **button „ENTER“**. The first digit flashes and can now be changed by **button “▲”** and **button “▼”**.

Press **button „MODE“** once, and the second digit flashes. Through **button “▲”** and **button “▼”** the digit is changed etc.

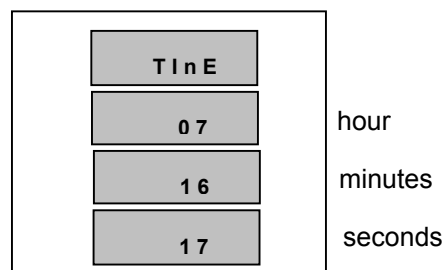
Press **button „ENTER“**, and the elevation value is accepted.



7. Set clock time (real-time clock)

Press **button "MODE"** repeatedly until display opposite appears in the display.

Hold down **button "MODE"** until this operation is acknowledged by an "acoustic signal" (approx. 3sec) and the Hours value appears in the input menu. The Minutes and Seconds values can be selected by continuing to press the Mode button (< 3sec).



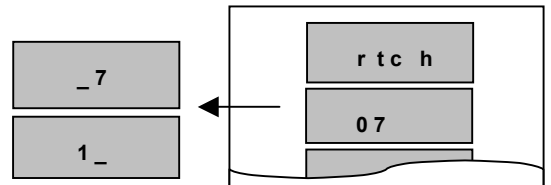
Press **button "ENTER"** and select parameter to be changed.

The first digit flashes and can now be changed with **button "▲"** and **button "▼"**.

Press **button "MODE"** once and the second digit flashes. Use

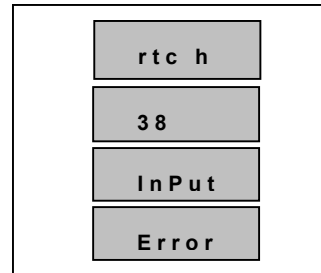
button "▲" and **button "▼"** to change the digit.

Press **button "ENTER"** and the Hours value will be accepted by the real-time clock.



Note:

If an invalid value is entered during inputting, e.g. **hour > 23** this will be followed by an error message.



Button Thies (button "INFO & RESET"):

Pressing the **button "INFO & RESET"** will start an LED test.

- All segments and LEDs light up
- All segments and LEDs off (except Dimension lit up)
- Display of device parameter< (see **Table**)
- Start-up of Weather Display LED.

Table: Device parameters

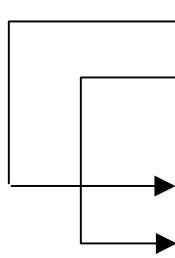
Device parameters	Display
Software	
Version No. (e.g.)	r 1.1
Baud rate	
1200	b12
2400	b24
4800	b48
9600	b96
19200	b192
57600	b576
COM profile	
8n1	8n1
7e1	7E1
7o1	7o1
Sliding extreme value time	
1min	Et 1n
10min	Et10n
30min	Et30n
1h	Et 1h
2h	Et 2h
6h	Et 6h
12h	Et12h
24h	Et24h
Sliding mean value time	
none	nt no
1min	nt 1n
10min	nt10n
30min	nt30n
1h	nt 1h
2h	nt 2h
6h	nt 6h
12h	nt12h
24h	nt24h
Sum	
none	Su no
Display (line) 1	Su d1
Display (line) 2	Su d2
Display (line) 3	Su d3
Display (line) 4	Su d4
Analog interface	
not active	A-IF0
active	A-IF1
RTC time (h:m)	xx-xx
Order-no.	A-nr
	xxx
	xxxx

9 Functional Test

When the device is started up or the button **INFO & RESET** pressed (see Section 8), the Weather Display LED executes a number of test procedures. In the event of an error an error code appears in the display (see Section 10).

Testing serial interface:

When started up, the Weather Display LED transmits a single test protocol. This can be used to test the interface if required. Here the following connections must be made at the clamping plug **COM1**.



Des.	Clamping plug: COM1	Clamping plug: COM1'
TX-	Transmitter	Transmitter
TX+		
GND	Earth	Earth
RX-	Receiver	Receiver
RX+		

The following information should appear in the display (approx. 3sec):

Con1 ALL rIGHT
(com1 all right)

10 Error Messages

If an error is detected in operation, an error code will be shown in the display for at least 3 seconds or as long as the error is present.

Error code	Error	Comment/Action
E01	Internal Vcc 5V	Device defective: Send in
E09	Timeout (COM)	1. Check baud rate setting. 2. Check R422 connections/cables Rx+ & Rx-. 3. Use test plug (connect Rx+ & Tx+ and Rx- & Tx-). After start-up " Con1 ALL rIGHT " should appear in the display. 4. If error message is still present, send in device.
E11	Protocol format	Check data telegram
E12	Proof total	Check data telegram
E50	Syntax error	Device defective: poss. restart
E99	Watchdog	Temporary malfunction if error message is shown once for 3sec. Repeated occurrence: source of interference nearby or device defective
-----	MW missing	The expected parameter is not present in the data telegram Check data telegram / - communication
Error	MW error	The parameter is identified in the telegram as erroneous Check measured value transmitter / acquisition
Error	MW error	The parameter is outside the analog input range Check measured value transmitter
no ConFi	Configuration	Device configuration defective. Send in device

Table 2: Error messages

11 Maintenance

The Weather Display LED is maintenance-free.

Cleaning

To clean the face plate and housing a dampened cloth should be used without chemical cleaning agents.

Storage

The Weather Display LED must be stored in a dry room free of dust at temperatures between -20.. + 50°C. We recommend storing the device in a cardboard box.

Fuse

There is a mains fuse on the rear of the Weather Display LED. The fuse holder can be opened using a screwdriver.

Caution

*In the event of a defect only the following fuses should be used:
230V ; 0.25 A slow for Weather Display 9.2750.x0.90x
115V ; 0.5 A slow for Weather Display 9.2750.x1.90x*

12 Technical Data

Description

Display

Type	LED, red
Display	4 x 5-digit LED, height 14mm
	4 x Min/Max identifiers (LED – arrow)
Display range	- 9.999 ...+ 99999

Interfaces

Serial interface

		1 serial interface (EN 61162-1)
Type		RS422
Data format	Output	7E1, 8N1, 7O1
	Input	7E1, 8N1, 7O1
Baud rate		1200, 2400, 4800, 9600, 19200, 57600

4 analog inputs **only with version 9.2750.xx.901**

4 x voltage	Input	0...1V	0...2V	0...5V	0...10V
	Resolution	0.001V	0.001V	0.0012V	0,0025V
	Accuracy	±0.5%	±0.3%	±0.2%	±0.2%
4 x current	Input	0 ...20 mA	4 ... 20 mA		
	Resolution	0.01 mA	0.01 mA		
	Accuracy	±0.3%	±0.3%		
Temperature	Input	- 30 ... 50°C, Pt 100, 4-wire circuit			
	Resolution	0.02°C			
	Accuracy	± 0.1°C			

Power supply **only with version 9.2750.xx.901** external Sensors

2 x voltage (U Vcc)	Output	12 V (5 V) (is programmed on request)
	Icc (max)	50 mA
	Fuse	Polyswitch approx.1 00 mA

2 analog outputs **only with version 9.2750.xx.901**

2 x voltage	Output	0 ...10 V(5V)
	Resolution	25 mV(5 mV)
	Accuracy	±0.2%
	R (Load)	>50kΩ (output 0...10V), >1kΩ (output 0... 5V)

or

2 x current	Output	0(4)... 20 mA
	Resolution	0.01 mA
	Accuracy	±0.3%
	R _L (Load)	≤ 400Ω

Integrated pr. sensor **only with version 9.2750.1x.901**

Barometr. air pressure	Measuring range	750 ... 1100 hPa
	Resolution	0.1 hPa
	Accuracy	± 0.5 hPa (750 ...1100 hPa at 25°C)
Station height	Elevation range	0 ... 3000m

RTC (Clock)	Puffer time	ca. 2h
	Accuracy	±20 ppm
	Aging	max. ±5 ppm/year

Instrument functions

Extreme value time	1min, 10min, 30min, 1h, 2h, 6h, 12h, <u>24h</u>
Mean value time	<u>no</u> , 1min, 10min, 30min, 1h, 2h, 6h, 12h, 24h
Sum	<u>no</u> , display-Z.1, display-Z.2, display-Z.3, display-Z.4

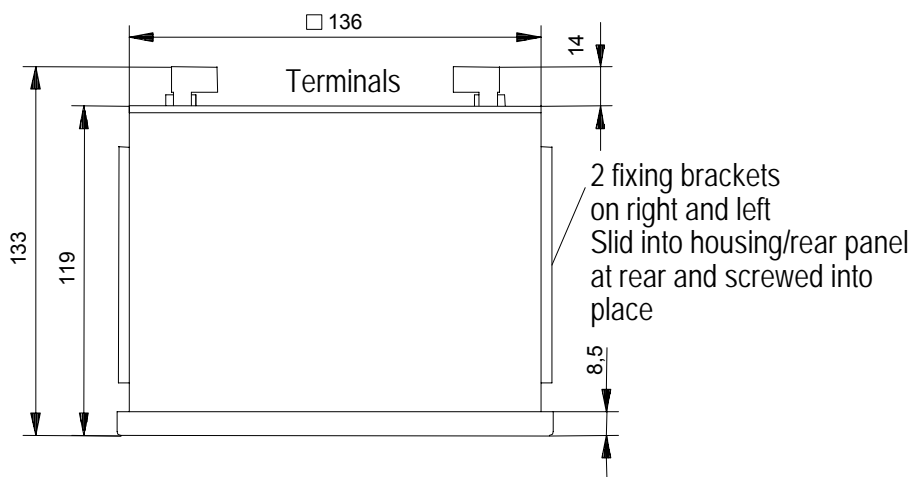
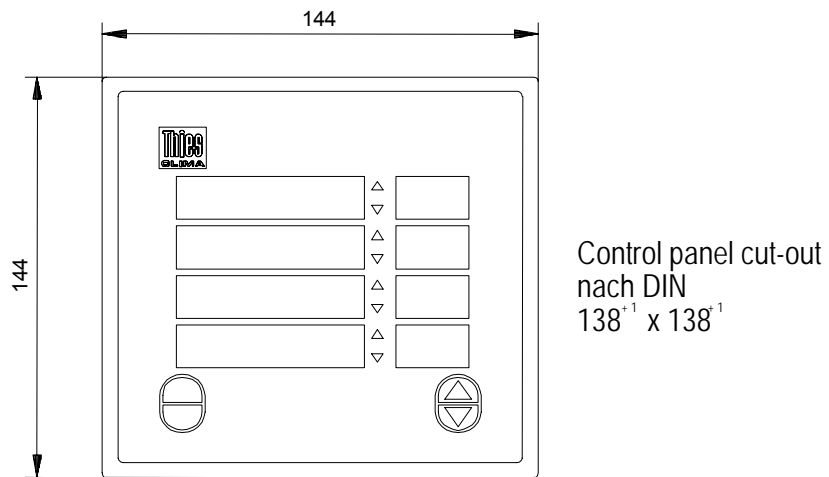
General

Operating voltage	Mains	230V AC (with 9.2750.x0.90x) 115V AC (with 9.2750.x1.90x)
	Mains fuse	0.25 A slow or 0.52 A slow
	Low voltage	18... 28 V AC or 12(15)... 35 V DC
	Power consumption	Max. 1000mA at 12V DC
	Temperature range	-10....+50 °C
	Humidity range	non-condensing
	EMC	EN 60945, EN 61000-6-2, EN 61000-6-3

Housing

	Material	Aluminium
	Dimensions	144 x 144 mm Depth: 119 mm
	Weight	1.5 kg
	Type of protection	IP23; EN 60529

13 Dimension Drawing



14 EC-Declaration of Conformity

Document-No.: **002005**

Month: 11 Year: 07

Manufacturer: **ADOLF THIES GmbH & Co. KG**

Hauptstr. 76
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Tel.: (0551) 79001-0
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Description of Product: **Weather Display LED**

Article No.	9.2750.00.900	9.2750.01.900	9.2750.00.901	9.2750.01.901
	9.2750.10.901	9.2750.11.901		

specified technical data in the document: **021468/10/07**

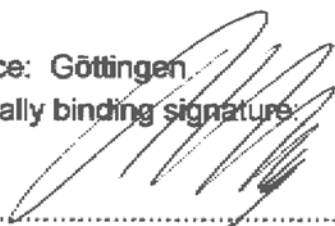
The indicated products correspond to the essential requirement of the following European Directives and Regulations:

- | | |
|-------------|--|
| 89/336/EEC | COUNCIL DIRECTIVE of 3 May 1989 on the approximation of the laws of the Member States relating to electromagnetic compatibility (89/336/EEC) |
| 73/23/EEC | COUNCIL DIRECTIVE of 19. Feb.1973 on the harmonization of the law of Member States relating to electrical equipment designed for use within certain voltage limits (73/23/EEC) |
| 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
EN61000-6-2:2002	Electromagnetic compatibility Immunity for industrial environment
EN61000-6-3:2002	Electromagnetic compatibility Emission standard for residential, commercial and light industrial environments
EN61010-1:2001	Safety requirements for electrical equipment for measurement, control and laboratory use. Part 1: General requirements

Place: **Göttingen**
Legally binding signature:


.....
Wolfgang Behrens

Date: 16.11.2007
issuer:


.....
Joachim Beinhorn

This declaration certifies 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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- Alterations reserved -