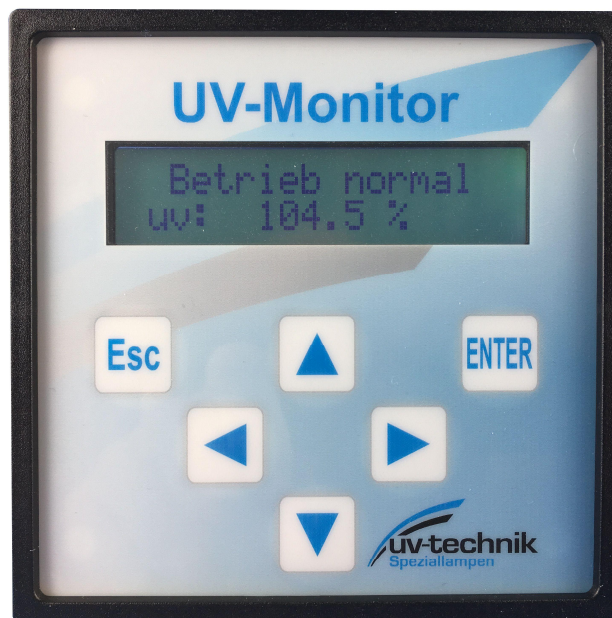


# Operating Manual

## UV Monitor UVT 18

Software Version 1.2



## UV - Monitor UVT 18

### Intended use

The signal monitor UVT 18 was developed to control small- and medium-sized UV systems and is fully compatible to the rules DVGW W294 and ÖNORM M5873. Next to monitoring the irradiation strength, measured by an UV sensor, it also allows the connection of further sensors for reading other important values such as temperature and flow and offers dose calculations.

### Description

The monitor is made for panel-mounting. All connection inputs are on the backside of the monitor housing. The front panel is equipped with control keys and a two line alphanumeric display with multi-colored background lighting to monitor measuring values and operation conditions. The values which shall be shown on the display can be preselected in the menu and chosen via the control keys. In addition, the complete adjustment and programming of the monitor is done via these keys. A password protection can limit the operational functions to a reduced menu for standard operations, if necessary. Moreover, the monitor UVT 18 does include an optional RS485 interface for comfortable programming and transferring measuring values to a superior control PLC. Alternatively, this interface is applicable to connect digital sensors for variable measuring values.

### Technical data

<b>Mains supply</b>	90-264 V AC 50 to 60 Hz or 100-300 V DC, power consumption 2.5 W
<b>Size W x H x D</b>	Monitor size 96 x 96 x 64, fixation via screw clamps
<b>Installation dimension</b>	Cut-out 92 <sup>+0.8</sup> x 92 <sup>+0.8</sup> acc. to DIN 43700, installation depth minimum 75 mm,
<b>Connections</b>	Pluggable screw clamps, appropriate wire cross section 0.25 -1.5 mm <sup>2</sup>
<b>Display</b>	Alphanumeric LCD-Display, two lines, colored backlight acc. to alarm status
<b>Handling</b>	Via 6 keys in front of monitor
<b>Temperature</b>	Allowed ambient temperature 0 to 40° C
<b>Weight</b>	Approx. 500 g
<b>Inputs</b>	<ul style="list-style-type: none"> <li>- UV diode input for direct connection of photodiodes or sensors for relative measurements</li> <li>- Input for UV sensor with voltage output 0..2/5/10 V DC</li> <li>- Input for sensor with voltage output 0..2 V DC (for temperature sensor or flow meter)</li> <li>- Two inputs for current loop sensors 0/4-20 mA</li> <li>- Impulse input (for flow meter)</li> <li>- Dry impulse input 115..230 V AC for switch-on cycle counter (connection for EPS supply)</li> <li>- Switch input (connection for dry fault relay contacts of EPS), I<sub>e</sub> = 5 mA</li> <li>- Switch input for alarm suppression during maintenance/service</li> </ul>
<b>Outputs</b>	<ul style="list-style-type: none"> <li>- Analog output 0/4-20 mA DC, adjustable via menu, burden max. 100Ω</li> <li>- Output of supply voltage of 24 V DC for each two voltage and current sensor</li> <li>- Relay output pre-alarm, min. 5 V DC, 50 mA, max. 250 V AC, 5 A ohmic load</li> <li>- Relay output main-alarm, min. 5 V DC, 50 mA, max. 250 V AC, 5 A ohmic load</li> <li>- Relay output with programmable switch function, (e.g. temperature alarm)</li> </ul>
<b>Interface (optional)</b>	- RS485 interface to import setups and for communication with superior control or alternatively for connection of digital UV-sensors
<b>Functions</b>	<ul style="list-style-type: none"> <li>- Counter for total operation hours (not resettable), lamp hours counter and switch-on cycles</li> <li>- Display for necessary lamp exchange</li> <li>- Display for lamp failure</li> <li>- Display for main-alarm, pre-alarm, temperature alarm</li> <li>- Backlight color changes acc. to alarm status</li> <li>- reference sensor check while operation according to DVGW/ÖNORM</li> </ul>
<b>Possibilities for modifications</b>	<ul style="list-style-type: none"> <li>- Private label of front panel</li> <li>- Factory-provided programming for specific customized setup (from 10 pieces)</li> <li>- Tailor-made program version (from 100 pieces)</li> <li>- Hardware changes (from 200 pieces)</li> </ul>
<b>Protection class</b>	Front IP65, connection side IP00
<b>Complied standards</b>	CE, EMC and Low Voltage Directive fully compatible to rules DVGW W294 and ÖNORM M5873

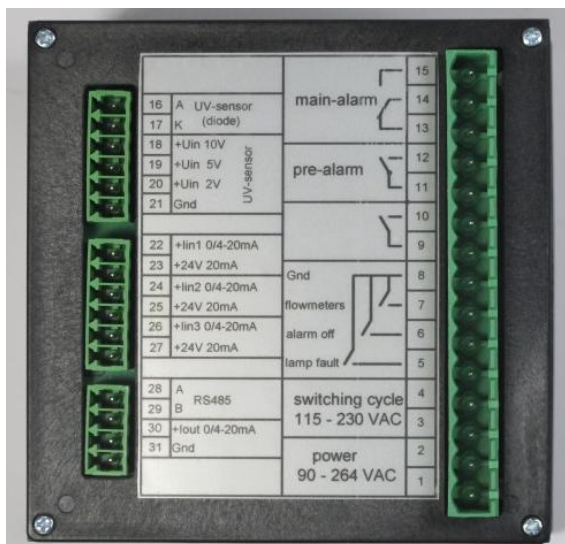
## Mounting

The monitor is designated for installations in control boards and must be mounted in a cut-out of about  $W \times H 92^{+0,8} \times 92^{+0,8}$  mm. The required installation depth including space for cable connections its rear is at least 75 mm. Fixation is by screw clamps which are in the scope of delivery. The connection side for mains supply is executed with a slightly larger plug. Thereby and together with clear descriptions of each and every terminal, maximum installation safety is provided.

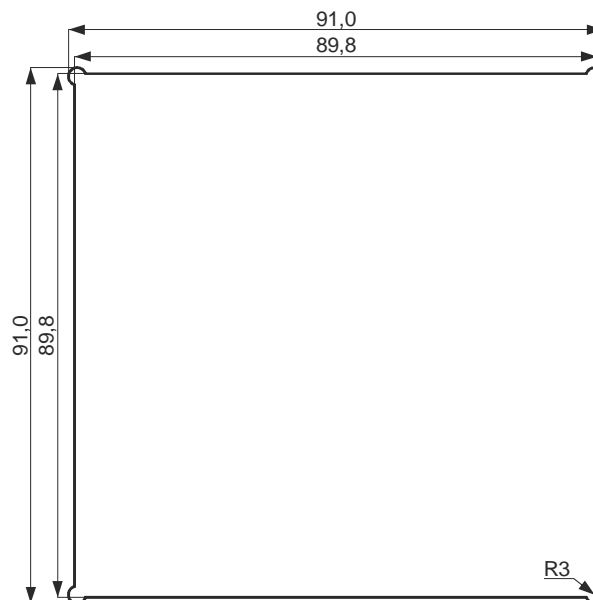
## Connection of terminals

- 1/2: Operation voltage for monitor (90-264 V AC or 100-300 V DC)
- 3/4: Input for operation voltage of electronic ballasts (115-230 V AC)
- 5/8: Input for fault signal contact of electronic ballasts
- 6/8: Switch input for alarm suppression
- 7/8: Impulse input for flow meter with impulse output
- 9/10: Programmable signaling output e.g. for temperature alarm (opener)
- 11/12: Output UV-pre-alarm (opener)
- 13/14/15: Output main alarm for UV, dose and lamp failure (changeover contact)
- 16/17: Input for UV-sensor (relative), diode, 16-anode, 17-cathode
- 18/19/20/21: Input for UV-sensor with voltage output 2/5/10 V DC
- 21/22: Input for sensor with voltage output 2 V DC (temperature, flow, UV)
- 21/23: Output operation voltage for sensors with voltage output (max. 20 mA)
- 24/25: Input for sensor with current loop output 0/4-20 mA (UV, flow)
- 26/27: Input for Sensor with current loop output 0/4-20 mA (flow, UV)
- 28/29: RS485 for connectivity to superior control, setup-storage/programming
- 30/31: Output current loop signal 0/4-20 mA, transfer of UV-value to superior control

## Rear sticker



## Housing dimensions (rear)



**Please check proper connections before commissioning!**  
**Damages caused by faulty wiring are not covered by warranty!**

## Commissioning

After connecting the supply voltage to the monitor, its type and software version are shown in the display. After some seconds the monitor does automatically switch into the measurement mode. The wished adjustments can now be set via the front keys according to the menu (see below). In case that the password protection is active, the menu is just showing reduced options. Hours counter can be reset in this menu after a lamp exchange was made.

Details are given in the menu description later.

## Functionality of keys, navigation in menus

In the very beginning, the device has to be adjusted to its individual functions. A keypad with 6 keys on its front helps to navigate through the menu and to adjust/program all values. The menu is intuitive. Pushing the keys shortly is enough. The ESC-key is equipped with a special function (see menu structure).

Alternatively, the monitor can be programmed with a computer by using the RS485 interface (option). This procedure is recommended if same configurations must be installed as part of a serial production. If 10 pieces or more are ordered within one batch, monitors can be programmed individually in the factory.

## Functionality of keys

- ▶ right      Cursor one position to the right, scrolling through menu
- ◀ left      Cursor one position to the left, scrolling through menu
- ▲ up        Increase digit at cursor position by 1, scrolling through menu
- ▼ down     Decrease digit at cursor position by 1, scrolling through menu
- enter     Confirm settings, open up menu/submenu
- Esc**        Cancellation of input without changes, return to superior level/ basic display  
Special function: pushing for a long time starts function for reference measurement

After 2 minutes the monitor does automatically switch back into the basic display if no key is pushed.

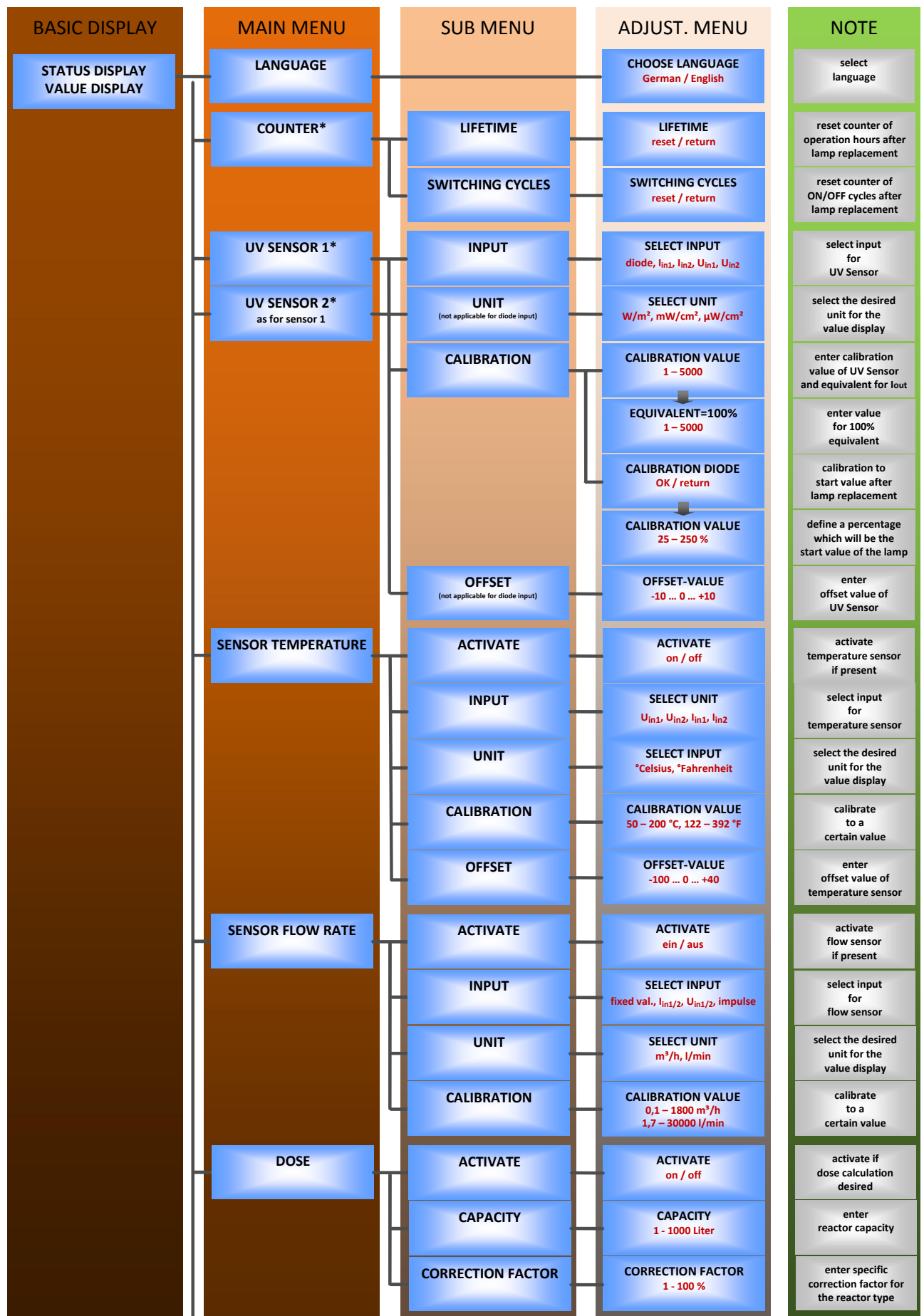
## Display

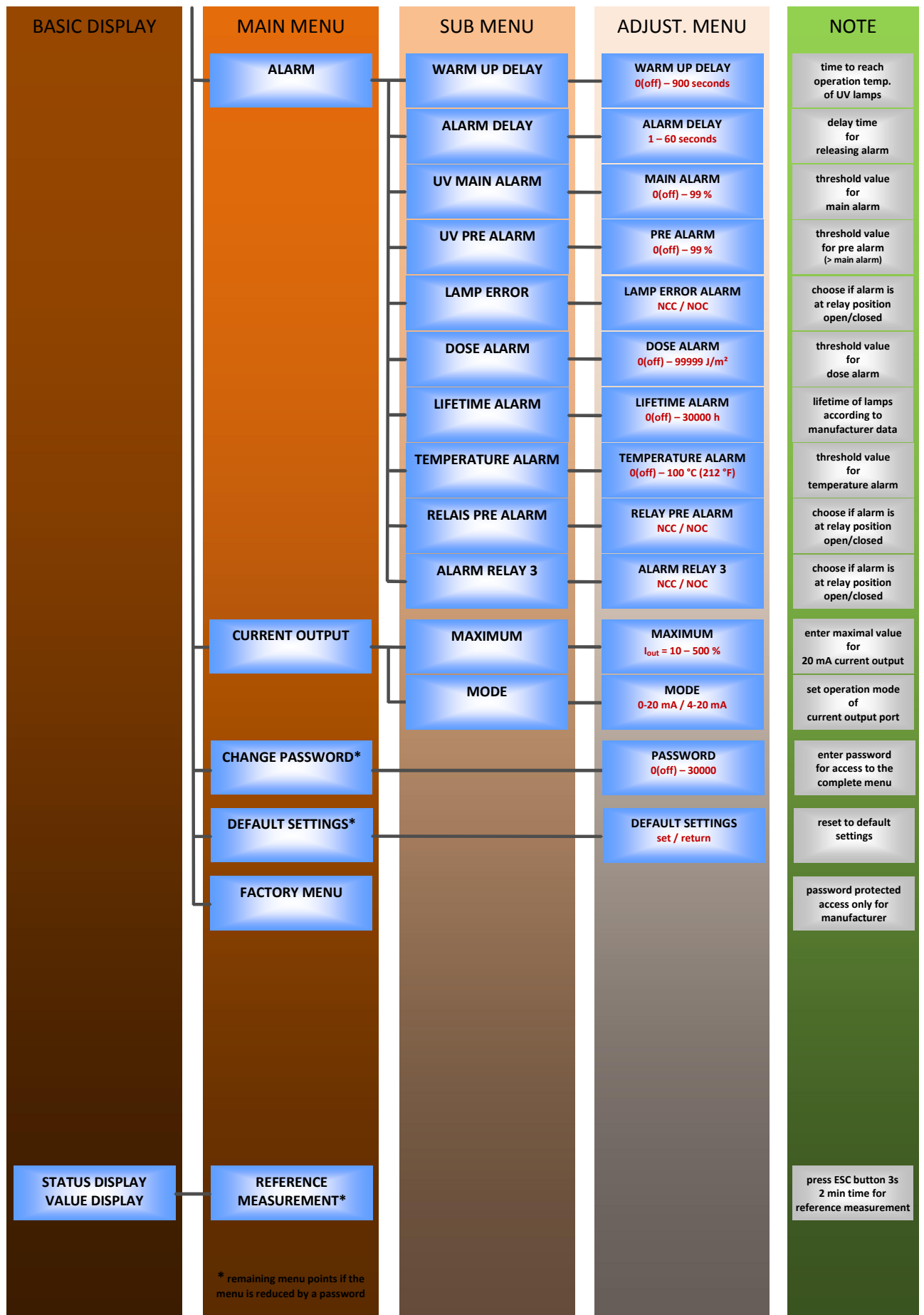
The basic display does always show the alarm status in the first line. Its background lighting refers to the alarm mode and changes color from dark green (normal operation), via lime green (pre-alarm) into red (main alarm). The second line does automatically switch between all values. These can also be changed manually by pushing the arrow keys ▲ ▼.

During the programming procedure, the first line displays the menu level while the second line shows the chosen menu item.

In the setup menu, the first line of the display shows the value which has to be reached and the second line displays the numerical value which must be adjusted. Bringing the cursor to the right position is by pushing the ◀▶ keys and the value is changeable via the ▲ ▼ keys.

## Menu structure:





## Reference measurement









For reference measurements it is essential that the UV system is operating under stable conditions and the display may not swing. Pushing the ESC-key in the basic display for about 3 seconds does “freeze” the actual reading and suppresses all alarm signals (background lighting blue). The field sensor can then be removed without causing alarms and substituted by the reference sensor. The measurement reading of the reference meter can now easily be compared against the “frozen” value in the monitor display. Since the monitor is giving a time indication, it makes it easy to put the field sensor back into the system on time. After two minutes, the monitor does automatically switch back into its measurement mode. Pushing the ESC-key for a longer time allows to return earlier. After that, it has to be checked whether changes of the UV reading occurred. If so, a stable operation condition was not reached yet and the comparison measurement must be repeated.

For reference measurements, we recommend our reference radiometer MUV 2.4 WR.  
All our SUV20 sensors with 40° or 160° opening angle are applicable as field sensor.  
To use our SUV20 sensors, one of our sensor-ports must be installed in the UV chamber.

**My remarks:**

**My programming:**

**My connection scheme:**

					15	
16	A	UV-sensor	main-alarm		14	
17	K	(diode)			13	
18	+Uin	10V	pre-alarm		12	
19	+Uin	5V			Uin1	11
20	+Uin	2V				
21	Gnd					
			Rel. 3		10	
22	Uin2	2V	Gnd		9	
23	+24V	20mA				
24	+lin1	0/4-20mA	flowmeters		8	
25	+24V	20mA				
26	+lin2	0/4-20mA			alarm off	7
27	+24V	20mA			lamp fault	6
					5	
28	A	RS485	switching cycle		4	
29	B					
30	+Iout	0/4-20mA	115 - 230 VAC		3	
31	Gnd					
			power		2	
						1

**My password :**

**My additional notes:**