picture similar

The handheld UV Meter ***ZED TinyMeter*** is an operating and display unit for digital ZED UV sensors.

Digital ZED UV sensors feature automatic range switching, thus the same sensor can be used for various UV system sizes.

Digital ZED UV sensors are available in various geometrical dimensions in several measurement ranges:

UV reference sensors:

- D-SiCONORM-LP-REF 250W/m² (0.01...250 W/m²)
- D-SiCONORM-LP-REF 500W/m² (0.1...500W/m²)

UV plant sensors for low- and mediumpressure systems:

- D-SiCONORM-LP, -MP
- D-SiCDVGW-LP, -MP
- D-SiC133-LP, -MP
- D-SiC131-LP, -MP
- D-SiCT141-LP, MP

Scope of delivery

- 1 ZED TinyMeter including sensor cable
- 2 carrying case
- 3 optional sensor (please order separately)

The ZED TinyMeter can be operated with different digital ZED UV sensor types. In combination with reference sensors of the type Reference Sensor D-SiCONORM-LP-REF the ZED TinyMeter can be used as Reference Radiometer according to ÖNORM M5873-3: 2020-01-01 bzw. DIN 19294-3: 2020-08 for checking plant sensors in low pressure mercury lamp plants (see 4 Usage in systems according to ÖNORM M5873-1: 2020-01-01 and DIN 19294-1: 2020-08 , page 5).

Besides the UV measurement value the ZED TinyMeter enables access to sensor specific data: sensor-ID, operating hours and date of last adjustment/calibration. Exceeding the specified operating hours of a connected reference sensor is indicated in the display.

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1 Technical specification

manufacturer	ZED Ziegler Electronic Devices GmbH In den Folgen 7, Langewiesen 98693 Ilmenau, Germany
name of product	ZED TinyMeter
article code	801-002

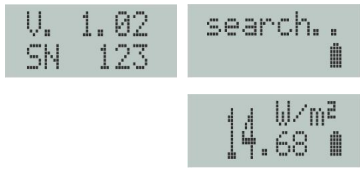
display	LCD Display, alphanumeric 8x2
operation	4 function keys
supply voltage	9 V DC – portable operation via 9V block battery (note 5 Power supply , page 6),
sensor connection	sensors are to be connected using the mounted sensor cable (shield contact on both sides, length: 1.00m)
sensor types	The TinyMeter is intended to be used with digital ZED UV sensors D-SiC with absolute measuring in W/m², production date starting 2017. D-SiC-I/U sensors with analog current/voltage interface as well as D-VUV sensors or D-ST sensors cannot be operated with the ZED TinyMeter.
ambient temperature	0 - 40°C (32 - 104°F)
housing material	ABS
dimensions (LxWxD)	130 x 75 x 25 mm
weight	215 g
protection class	IP65
firmware version	FW V1.02 (The functional description in this document refers to the specified firmware version.)

2 Controls and indicators

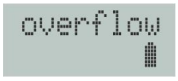
1. sensor cable
2. display
3. battery state
4. ON/OFF (press and hold for approx. 3s)
5. HOLD (freezes the currently measured value
   → indicated by symbol)
6. INFO (information on the connected sensor)
7. LIGHT (activates screen lighting for approx. 15s)
8. battery compartment cover
9. sensor plug

3 Commissioning and Operation

- On initial operation insert the enclosed battery (9V block, see 5.1 Battery change, page 6) and remove the protective foil from the display.
- Connect the sensor with to TinyMeter 9 (please note 6 Cleaning and care, page 6).
- The ZED TinyMeter is switched on using the ON/OFF 4 key.
  First the firmware version and the serial number is shown,
  during the initialization (display: search..) the sensor is detected,
  then the measurement starts.



- If the measuring range is exceeded, „overflow“ will be indicated.



- The battery-condition indicator visualizes the battery charge state
  (see 5 Power supply , page 6).
- Using the HOLD 5 key the measurement is paused, the currently shown value is frozen.
  This state is indicated by the lock symbol .
  Pressing HOLD 5 again the measurement is continued.
  This function is required for checking plant sensors according to ÖNORM M5873-1.

- The blinking exclamation mark behind the measurement value signalizes:
  - the connected sensor is no reference sensor
    or

- the connected reference sensor has more than 100 operation hours, the prescribed calibration interval is expired (see 3.1 Sensor information, page 4).

- Screen lighting is activated using the LIGHT 7 key.
  To save power, the screen lighting is switched off automatically after 15s.

- The ZED TinyMeter is switched off by keeping the ON/OFF 4 key pressed for approx. 3s.
  (For a complete RESET keep the ON/OFF 4 key pressed for 20s.)

- To save power, the ZED TinyMeter is switched off automatically after 10min without key-press.

3.1 Sensor information

- By pressing the INFO 6 key repeatedly several information about the connected sensor is shown:

1. sensor type
   REF_500: D-SiCONORM-LP-REF 500W/m²;

   REF_250: D-SiCONORM-LP-REF 250W/m²

   NO REF: the connected sensor is no reference sensor.
   All connected plant sensors will be shown as type „NO REF“.

2. Sensor serial number

3. Date of last adjustment/last calibration
   (time format: YY-MM-DD or year-month-day)

4. Operation period since last adjustment/last calibration.
   („n.a.“ is shown if no information concerning sensor operation is available.)

   If the ZED TinyMeter is operated with a reference sensor, the blinking symbol ▯ behind the measurement value indicates that the prescribed calibration interval of 100h is expired. The reference sensor must be returned to the manufacturer for recalibration.
   (The symbol ▯ is blinking permanently while a plant sensor is connected.)

Note:
Please note the period of validity of the calibration / adjustment for reference sensors and plant sensors!
The period of validity for reference sensors is 100 operating hours and max. 12 month.
According to ÖNORM an annual check of plant sensors is demanded. If necessary, the plant sensor has to be readjusted. Please refer to the appropriate sensor data sheets.

4 Usage in systems according to ÖNORM M5873-1: 2020-01-01 and DIN 19294-1: 2020-08

The TinyMeter can be operated with digital ZED plant sensors (D-SiCONORM, D-SiCDVGW according to ÖNORM M5873-1 and DIN 19294-1).

In combination with ZED reference sensors D-SiCONORM-LP-REF 250W/m² and D-SiCONORM-LP-REF 500W/m² the ZED TinyMeter can be used as reference radiometer (ÖNORM M5873-3 and DIN 19294-3) for checking plant sensors according to ÖNORM M5873-1 and DIN 19294-1.

UV systems according to ÖNORM M5873-1 and DIN 19294-1 are equipped with a special measurement window, allowing removal and exchange of the UV sensor without emptying the reactor. This measurement window is the precondition for the prescribed comparative measurements for checking plant sensors.

According to ÖNORM an annual check of plant sensors is demanded. If necessary, the plant sensor has to be readjusted. Please refer to the appropriate sensor data sheets.

The UV system has to be in stable operating state before the comparative measurement is started. Note the UV value over time to recognize UV variations. Prepare the measurement: connect the sensor and switch on the TinyMeter, thus disabling the UV warning / alarm functions of your UV system can be kept as short as possible.

1. Note the current measurement value of your plant sensor.
2. Disable / pause any alarm functions of your system
   and remove the plant sensor from the measurement window.

   Advice:
   Check the condition of the quartz glass window of the sensor and the measurement window. Note that condensate can accumulate in the measuring window, which distorts the measurement results. If necessary, clean the sensor or measurement window and repeat the measurement with the plant sensor.
3. Place the reference sensor in the measurement window and fix it.
4. Note the current measurement value of your reference sensor, freeze it with HOLD 5.
5. Remove the reference sensor from the measurement window.
6. Place the plant sensor in the measurement window again, reconnect it and fix it.
   Make sure that all warning / alarm system functions are reactivated.
7. Compare the measurement value of the reference sensor with the recorded value of your plant sensor. If necessary, correct the displayed value using the correction factor of your monitoring system. In case of deviations larger than ±20% the plant sensor should be returned for recalibration.

Note:

Make sure that the calibration of the reference sensor is still valid!
The period of validity for reference sensors is 100 operating hours and max. 12 month.

The blinking symbol ▮ behind the measurement value signalizes:

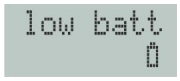
- the connected reference sensor has more than 100 operation hours,
  or
- the connected sensor is no reference sensor

The date of last calibration as well as the operation hours of the sensor can be retrieved by repeatedly pressing the INFO 6 key abrufen.
The calibration date must not date back more than 12 months.
(see 3.1 Sensor information, page 4).

If the period of validity is expired, the reference sensor has to be returned to the manufacturer for recalibration. The TinyMeter does not have to be recalibrated.

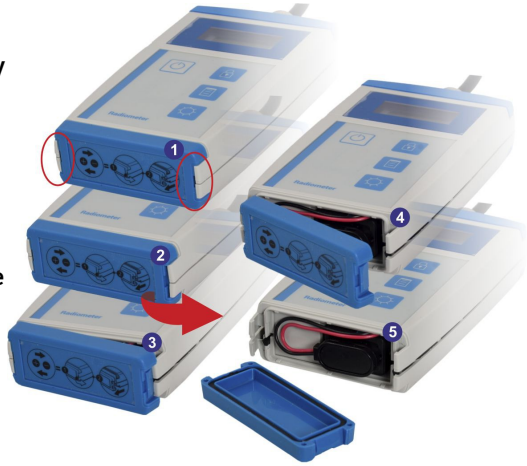
5 Power supply

- The TinyMeter is intended to be used with standard 9V block batteries.
  The battery is the power supply of both TinyMeter and connected sensor.
- The battery-condition indicator visualizes the battery charge state. If the battery charge drops below 20%, the indicator starts blinking. The battery should be replaced now.
  „low batt“ indicates that no reliable measurement is possible any longer.
- To save power, the ZED TinyMeter is switched off automatically after 10min without key-press.



5.1 Battery change

- The battery compartment cover has to be unlocked carefully (if needed use a small screwdriver) before it can be lift off.
- When inserting the battery, make sure that the black/red connection cable is not kinked or squeezed. To fix the battery compartment cover, use moderate pressure until the latches snap noticeble into position. If needed, correct the position of the connection cable.



6 Cleaning and care

Handle the TinyMeter with care. Use a soft cleaning tissue and, if necessary, a commercially available solvent-free antistatic plastic cleaner to clean the ZED TinyMeter.

Keep the sensor front clean and check this state before every measurement, since foreign materials on the window can seriously affect transmittance. Use ethyl alcohol and a cleaning tissue, an iron-free sponge or a soft brush for cleaning the sensor front.Handle the sensor, especially the window surface, with care. Be careful not to touch the quartz glass sensor front with any sharp object. If the window is scratched or damaged, accurate measurement cannot be warranted.

7 General safety instructions

Caution: Health hazard due to ultraviolet Radiation and/or ozon!

Please note the following advice on using UV-C lamps or ozone producing lamps:

Protect your skin and your eyes against the ultraviolet rays.
Never look at the lamp when it is lit.

The open operation of ozone producing low pressure mercury UV lamps may cause serious damage to health. Make sure that people are not exposed to the smell or the radiation of the lamp!

8 EU-Konformitätserklärung/EU Declaration of Conformity

Nummer / *number*	801-002 | 2023-03-22
Hersteller *manufacturer*	ZED Ziegler Electronic Devices GmbH In den Folgen 7, Langewiesen 98693 Ilmenau, Germany
Die alleinige Verantwortung für die Ausstellung dieser Konformitätserklärung trägt der Hersteller. *This declaration of conformity is issued under the sole responsibility of the manufacturer.*	
Produktbezeichnung *name of product*	ZED TinyMeter
Produktfamilie *product family*	TinyMeter
Der oben beschriebene Gegenstand erfüllt die einschlägigen Harmonisierungsrechtsvorschriften der Union: *The object of the declaration described above is in conformity with the relevant Union harmonisation legislation:*	
2014/30/EU	Richtlinie des Europäischen Parlaments und des Rates zur Angleichung der Rechtsvorschriften der Mitgliedstaaten über die elektromagnetische Verträglichkeit / *Directive of the European Parliament and of the Council concerning the standardization of legal regulations of the member countries for electromagnetic compatibility*
2011/65/EU + 2015/86/EU	Richtlinie des Europäischen Parlaments und des Rates zur Beschränkung der Verwendung bestimmter gefährlicher Stoffe in Elektro- und Elektronikgeräten (RoHS II) / *Directive of the European Parliament and of the Council on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS II)*
Angewandte Normen: *Applied standards:*	
EN 61326-1:2022-11	Elektrische Mess-, Steuer-, Regel- und Laborgeräte - EMV-Anforderungen - Teil 1: Allgemeine Anforderungen – Störaussendung: Gerätegruppe 1, Klasse B / Störfestigkeit: industrielle elektromagnetische Umgebung *Electrical equipment for measurement, control and laboratory use - EMC-requirements – Part 1: General requirements - emission: group 1, class B-/ immunity: industrial electromagnetic environment*

Langewiesen, 31.08.2022

Dr.-Ing. Rolf Ziegler, Technischer Direktor
Technical Director

Unterschrift
Signature