EXELSIUS

PROCESS PARTNER FOR THE ELECTRONICS INDUSTRY

XUV METER
395nm

UV
MEASUREMENT
DEVICE

USER MANUAL

Please read this manual carefully before using
and reserve it for reference.

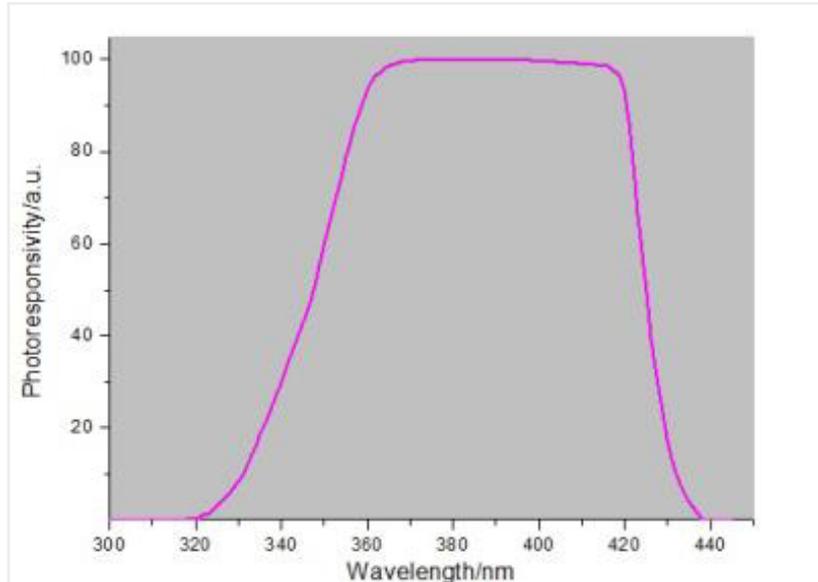# EXELSIUS

I. THE XUV METER:

The XUV meter is designed to simultaneously measure UV energy, UV intensity, and temperature. It is suitable for monitoring UV curing processes in a wide range of equipment, including UV curing machines, UV dryers, UV coating systems, exposure units, printing machines, and other UV-related industrial equipment.

This meter is specifically intended for measuring UV intensity and UV energy from UV LED light sources

II. PARAMETERS:

SPECTRAL RANGE	340nm ~ 420nm, λp = 395nm
IRRADIANCE MEASUREMENT RANGE	0 ~ 2,000mW/cm²
IRRADIANCE RESOLUTION	1 mW/cm²
ENERGY MEASUREMENT RANGE	0 to 999,999 mJ/cm²
MEASUREMENT ACCURACY (H = standard value)	• H < 5 mW/cm²: ±0.5 mW/cm² • H ≥ 5 mW/cm²: ±10% of H (typical ±5%)
TEMPERATURE MEASUREMENT RANGE	−55 °C to +125 °C
SAMPLING RATE	2,048 samples per second
IRRADIANCE DATA STORAGE RATE	32 samples per second
TEMPERATURE DATA STORAGE RATE	2 samples per second
RECORDING PERIOD	32 minutes
POWER SUPPLY	2 × AAA alkaline batteries
DISPLAY	240 × 160 dot-matrix LCD
DIMENSIONS	Diameter: 120 mm | Thickness: 13 mm
WEIGHT	225 g
SUPPLY VOLTAGE	DC 3 V
OPERATING CURRENT	24mA
OPERATING POWER CONSUMPTION	72mW

EXELSIUS

III. SPECTRAL RESPONSE CURVE:

IV. CHARACTERISTICS

- The UV energy meter features a large LCD display that directly shows temperature data and irradiance curves.
- It is equipped with a USB interface. The dedicated PC software allows users to read detailed measurement records, generate data curves, and print test reports.The instrument integrates a high-precision, fast-response temperature sensor, enabling real-time temperature measurement inside curing equipment.
- A built-in heat-resistant layer allows the meter to withstand high temperatures and operate continuously at up to 100 °C.
- The meter includes large internal memory, capable of storing up to 60,000 irradiance data points and 3,800 temperature data points.
- Stored data is retained when the power is off, and the last measurement data is automatically displayed when the device is powered on.
- A built-in timer enables accurate recording of UV curing time.

V. OPERATION

1. PARAMETER SETTINGS

When the device is powered off, press and hold the "POWER" button to enter setting mode.

In setting mode:

- Use the "SELECT" button to navigate through the options.
- Use the "POWER" button to confirm the selection.

A. LANGUAGE:

Select "Language" to enter the language menu.

Choose the desired language and confirm the selection. The meter will automatically return to the main menu, and all on-screen text will be displayed in the selected language.

The selected language is shown next to the "Language" option.

B. TRIGGER MODE: AUTO / MANUAL

Select "Trigger Mode" to enter the trigger mode menu.
Choose the desired mode (Auto or Manual) and confirm the selection. The meter will automatically return to the main menu, where the selected trigger mode is displayed next to the "Trigger Mode" option.

- Auto: In automatic trigger mode, the measurement starts automatically when the measured power value exceeds the configured trigger power.

- Manual: In manual mode, briefly press the "POWER" button to start a measurement and press it again to end the measurement.

Note: Since the maximum recording time is 32 minutes, AUTO mode must be selected when using long production lines where a longer waiting time is required before reaching the UV lamp position.
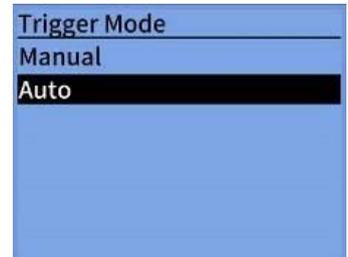
C. TRIGGER POWER:

Select "Trigger Power" to enter the trigger power setting interface.
- Short press the "SELECT" button to decrease the trigger power value.
- Short press the "POWER" button to increase the trigger power value.
- After setting the required trigger power, press and hold the "POWER" button to confirm.

The XUV meter automatically returns to the main menu, where the newly set trigger power value is displayed next to the "Trigger Power" option.

## D. SMOOTH: OFF/50HZ/60HZ

When the UV light source is powered by AC power, the supply frequency can affect the accuracy of the irradiance measurement.

Selecting the correct power frequency allows the instrument to apply appropriate smoothing and improves measurement accuracy.

Select "Smooth" to enter the smoothing menu.

Choose the desired option and confirm the selection. The meter automatically returns to the main menu, where the selected smoothing mode is displayed next to the "Smooth" option.
- OFF: Select this option when no smoothing is required and the UV lamp is powered by direct current (DC).
- 50 Hz: Select this option when the AC power frequency is 50 Hz.
- 60 Hz: Select this option when the AC power frequency is 60 Hz.
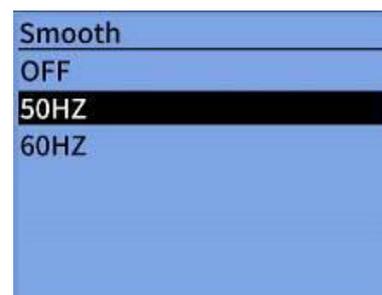
E. RESET:

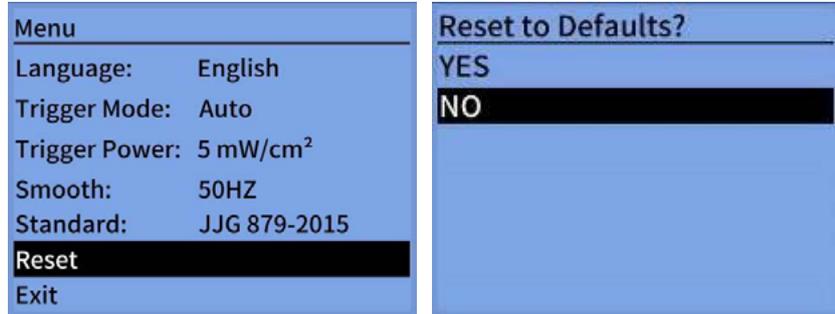Select "Reset" to enter the restore menu.

Choose "Yes" or "No" and confirm the selection. The meter then returns to the main menu.

If "Yes" is selected, the instrument restores the factory default settings.

The language setting is not reset.

Factory Default Settings
- Trigger Mode: Manual
- Smooth: 50 Hz

F. EXIT:

After completing the parameter settings, select "Exit" and confirm.

All configured parameters are automatically saved, and the instrument returns to the last measurement result interface (STOP interface).

2. ON/OFF

- When the meter is in the POWER OFF state, briefly press the "POWER" button to turn it on.
- After powering on, the meter displays the calibration standard, software version, serial number, and other information, then automatically enters the last measurement interface (STOP interface).
- In the STOP interface, press and hold the "POWER" button to turn off the meter.
- When the meter remains in the STOP interface with no operation, it automatically powers off after 3 minutes.
- In automatic trigger measurement mode, when the meter is in the READY state, the maximum waiting time is 50 minutes. If the measurement is not triggered within this time, the meter automatically powers off.

3. MEASUREMENT

In measurement mode, the instrument operates in three states:
- READY: Standby state. In auto trigger mode, the meter waits for the trigger condition to start a measurement.
- RUN: Measurement state. The meter is actively collecting data.
- STOP: End state. The measurement is completed and results are available.

Display Modes

In measurement mode, four display modes can be selected by pressing the "SELECT" button:
- MAX: Maximum values, including energy, irradiance, and temperature
- RT: Real-time values, including time, irradiance, and temperature
- Irradiance Curve: Displays the irradiance curve (available only in the STOP state)
- Temperature Curve: Displays the temperature curve (available only in the STOP state)

Manual Measurement Mode

When the meter is in the STOP interface:
- Briefly press the "POWER" button, then briefly press the "SELECT" button to confirm a new measurement.
- The previous measurement data is cleared (displayed as "-----"), and the meter automatically enters the measurement interface (RUN state) after 1 second.
- To end the measurement, briefly press the "POWER" button, or wait until the recording time reaches 32 minutes.
- The meter then returns to the STOP interface.

Automatic Measurement Mode

- After confirming a new measurement, the meter enters the READY state, clears the previous data, and waits for the trigger condition (trigger power) to be met. During this phase, the energy display shows "----" and flashes.
- When the measured power exceeds the configured trigger power, the trigger condition is met and the meter enters the measurement interface (RUN state).
- The measurement ends automatically when:
  - the recording time reaches 32 minutes, or
  - the measured power falls below the configured trigger power.
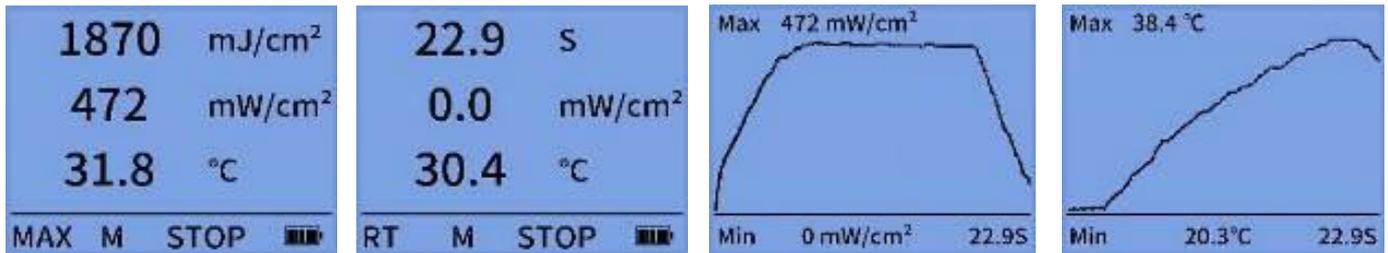- The meter then returns to the STOP interface.
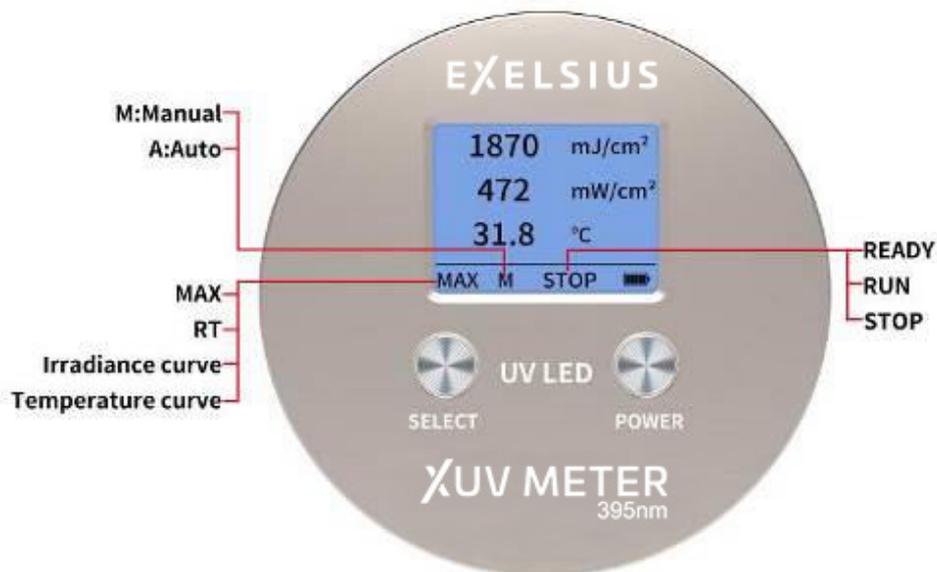
4. THE LAST MEASUREMENT DATA VIEW

When the meter is in the STOP state, the display shows the maximum value of the last measurement.

Press the "SELECT" button to cycle through the following views:

- Maximum value
- Real-time value
- Irradiance curve
- Temperature curve

While in the STOP state, press and hold the "SELECT" button to clear the current measurement data. After the data is cleared, "----" is displayed on the screen.
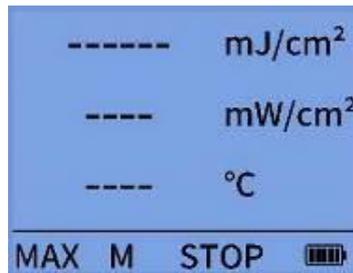
5. USB COMMUNICATION

The meter supports data recording for up to 32 minutes.

- Recording period: 32 minutes
- Irradiance data storage rate: 32 samples per second, up to 61,440 irradiance data points
- Temperature data storage rate: 2 samples per second, up to 3,840 temperature data points

When the meter is in the STOP mode, all recorded data can be accessed using the PC software. The software allows users to display curves, export data to Excel, and generate printed reports

VI. PC SOFTWARE:

The XUV meter is equipped with a USB communication port and can be connected to a computer using a USB cable. After connecting the device, launch the dedicated PC software to read and manage the measurement data stored in the meter.

The software provides the following functions:

- Parameter configuration
- Measurement data reading
- Display of UV irradiance curves for each band
- Temperature curve display
- UV irradiance data export to Excel
- Temperature data export to Excel
- Report generation

EXELSIUS

The report generation and printing function allows test data to be automatically compiled into a report. Reports can be printed directly from the software. If a PDF printer is installed on the computer, reports can also be exported and saved in PDF format, making data recording and archiving more convenient.

Recorded data can be accessed by directly connecting the meter to a computer via the USB cable.
When the meter is connected to a computer for the first time, the system may prompt a computer restart to allow the USB driver to be loaded automatically.

Note: The PC software is currently compatible with the Windows operating system.

EXELSIUS
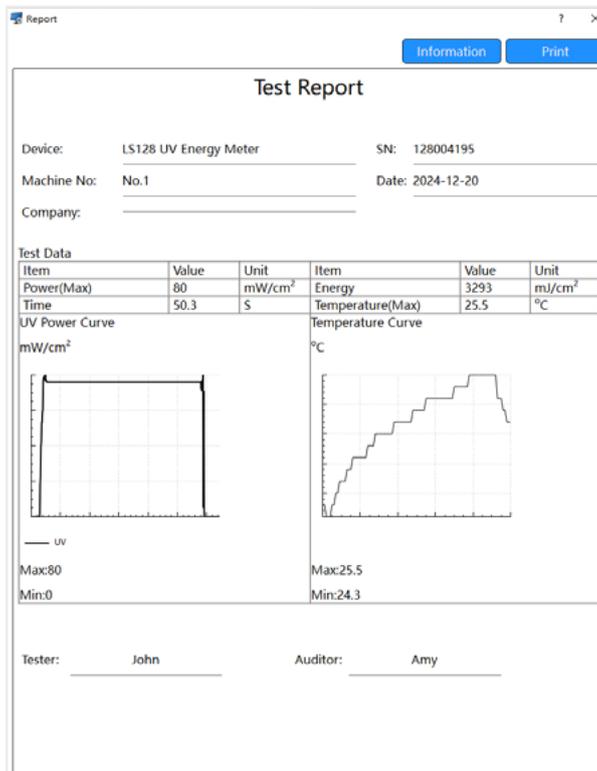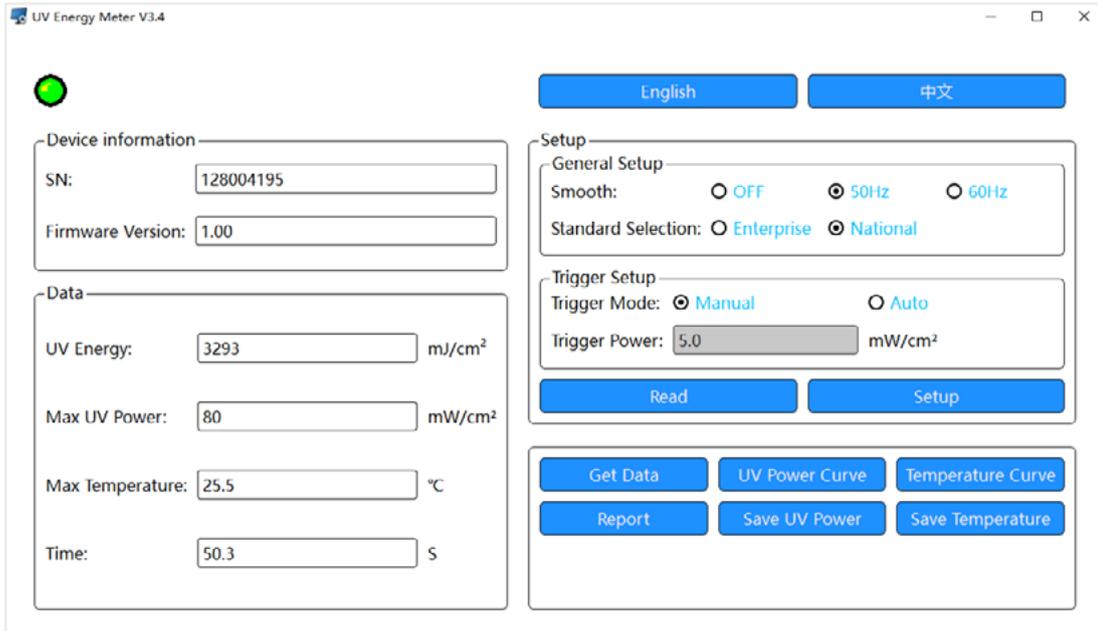
VII. NOTES:

- The meter sensor is located on the rear side of the instrument.
- When the meter is not in use, switch it off.
- Avoid contact with corrosive materials and keep the instrument away from high-humidity environments.
- After powering off, place the meter in its dedicated protective case and store it properly.
- The recommended calibration interval is one year.
- To obtain a calibration certificate, contact EXELSIUS.
- As the UV sensor is highly sensitive to humidity, storage conditions are critical.
- For long-term storage, ensure that the meter is kept in a dry environment.

VIII. PACKING LIST:

NO.	DESCRIPTION	QUANTITY	UNIT
1	XUV meter	1	PC
2	USB cable	1	PC
3	Anti-static gloves	1	PAIR
4	Small Phillips screwdriver	1	PC
5	User manual	1	PC
6	Calibration report (on request)	1	PC
7	Plastic case	1	PC

IX. SERVICE:

- The XUV meter is covered by a one-year warranty.

  In the event of abnormal operation, please return the entire instrument to EXELSIUS for inspection and maintenance.
- Our contact : contact@exelsius.com