2436352 Loctite EQ PM20 UV VIS Radiometer
2436353 Loctite EQ PM20 UV AB Radiometer
Operating Manual
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</tbody>
</table>
1 Please Observe the Following

1.1 Emphasized Sections

⚠️ Warning!
Refers to safety regulations and requires safety measures that protect the operator or other persons from injury or danger to life.

❗️ Caution!
Emphasizes what must be done or avoided so that the unit or other property is not damaged.

⚠️ Notice:
A notice gives recommendations for better handling of the unit during operation or adjustment as well as for service activities.

1.2 For Your Safety

⚠️ For safe and successful operation of the meter, read these instructions completely. If the instructions are not observed, the manufacturer can assume no responsibility.

⚠️ Do not use the Meter for anything other than designed function.

⚠️ Observe general safety regulations for the handling of chemicals such as Loctite® adhesives and sealants. Observe the manufacturer’s instructions as stated in the Safety Data Sheet.

❗️ Do not open the meter housing for any reason.

❗️ Do not expose the meter display to high levels of UV light.

❗️ Do not expose the meter to high humidity, chemicals or liquid solutions to clean.

⚠️ Notice: While under warranty, the unit may be repaired only by an authorized Loctite service representative.
1.3 Unpacking and Inspection

Unpack the Loctite® EQ MP20 UV Radiometer and inspect for any damage. If unit is damaged, notify the carrier immediately. Claims for damage must be made by the consignee to the carrier and should be reported to the manufacturer.

1.4 Items supplied
1.4.1 Loctite® EQ MP20 UV Radiometer
1.4.2 Micro USB charging / data cable
1.4.3 Equipment instructions
1.4.4 Certificate of Calibration
1.4.5 Meter storage / shipping case

1.5 Features
1.5.1 Display, OLED
1.5.2 Feature and control buttons
1.5.3 Micro USB port
1.5.4 Tripod mounting
1.5.5 Data storage
1.5.6 3 modes of operation; Automatic, Manual, and Live.
1.5.7 Spot adapter mounting holes
The Loctite® EQ PM20 UV Radiometer is designed to measure UV light source outputs including Loctite® UV LED light sources, conveyor, flood, spot, and UV lamps.

**IMAGE 1: EQ PM20 UV Radiometer**

1. OLED Display
2. ON/OFF & Feature control buttons
3. Display / Button Cover
4. Tripod mount (1/4”-20 thread)
5. Input Optic
6. Spot adapter mounting holes (qty 2 - #2-56 thread)
7. Micro USB port (power/data transfer)
### Technical Data

**Dimensions (L x H x W):** 6” x 4” x 1/2” [152.4 mm x 101.6 mm x 12.7 mm]

**Power Requirements:** USB Micro, USB 2.0 or 3.0

Loctite® EQ PM20 UV Radiometer is a sensitive light monitoring device. Noisy USB power circuits may transfer to the measurement circuit and cause unit to count or incorporate the noise into the displayed results.

**Spectral Ranges Loctite® EQ PM20 UV Radiometers:**

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Total</th>
<th>LED</th>
</tr>
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<tbody>
<tr>
<td>2436352</td>
<td>350-660 nm</td>
<td>395-620 nm</td>
</tr>
<tr>
<td>2436353</td>
<td>280-405 nm</td>
<td>320-395 nm</td>
</tr>
</tbody>
</table>

### Operation

**To prevent damaging the display with intense UV sources, the display and button cover must be closed when measuring UV light source.**

#### 4.1 Turn ON/OFF Meter

Loctite® EQ PM20 UV Radiometer will turn ON with the following conditions:

- Button 1 is pressed. Display lights up after brief delay.
- Meter is connected to a powered USB port.

**Power up display:**

Once the meter turns on, the following display appears for a few seconds.

![Image 2: Meter Power Up Display](image2.png)

The display information contains meter type, serial number, calibration date, and days to calibration.

Loctite® EQ PM20 UV Radiometer will turn OFF with the following conditions:

- Button 1 is pressed for more than one second
- Battery voltage falls below 3.5V
- Meter is idle (no button presses), while not charging, for 5 minutes.
Time to shut OFF can be programmed by user.
When the meter turns OFF, following data is saved:
- The active device ID (Programmed source ID in use)
- The measurement mode, i.e. “Auto”, “Manual”, or “Live”

4.2 Meter Modes and Use
There are 3 modes of operation available for the meter once it is turned ON.

“Auto” Mode:
Meter will automatically start “integrating” in Auto mode. It will track the dose and peak irradiance once a pre-defined minimum light level is established. Meter will stop 2 seconds after the light level drops below the pre-determined minimum. The integration will stop, and the display will update with the dosage, peak, and irradiance profile.

Minimum light threshold and time delays are programmed using the meter software (Loctite EQ PM20 UV.exe)

“Manual” Mode:
The meter Start/Stop button is used by the operator to begin and end measuring. When the operator stops the meter measuring, the display stops the meter measuring, the display will then update with the dosage, peak, and irradiance profile.

“Live” Mode:
Meter is always sampling irradiance and updating the dose/integral. Pressing the zero button resets the dose/integral to zero.
In Auto and Manual modes, the peak and dose values will be 0.0 on the display when turned ON. Display updates with values and profile after a measurement is taken.
Button options for these displays are as follows:

**Button 1:**
- **Set ID** - changes to Set ID display and menu

**Button 2:**
- **Details** - changes to Details display and menu

**Button 3:**
- **Button 3:**
  - **[blank]** - auto mode: button has no function.
  - **Start/Stop** - manual mode: button starts and stops the meter sampling.
  - **Zero** - live mode: button zeros the displayed integral/dose value.

**Button 4:**
- **Options** - changes to Options display and menu

4.2 Option menu [ Home Display]

![Image 6: Option Menu Display](image)

The options menu, displayed with the home display, presents the following button options:

**Button 1:**
- **Mode** - Sets sampling start mode to either Auto (light threshold trigger), Manual (Start/Stop with button), or Live.

**Button 2:**
- **Add-Ons** - *not currently supported*

**Button 3:**
- **Info** - Displays meter configuration information along with to capture “live” data for informational or system setup debugging.

**Button 4:**
- **Home** - return to current set mode display
4.3 Set ID Display

This display enables selection of active Device IDs. All subsequent saved data will be associated with the selected ID.
Device IDs are programmed using the “meter software”. See section “8.3 Config Tab” for entering device IDs.
Button options for the Device ID display are:

**Button 1:**
Up - Selection cursor moves up the device ID list

**Button 2:**
Down - Selection cursor moves down the device ID list

**Button 3:**
[blank] - Not used

**Button 4:**
Home - return to current set mode display
4.4 Details Display

![Image 8: Details Display]

Last data sample additional details are shown on this display along with meter data management options. Current sample is indicated by a highlighted “C” in the upper left corner of the display. Current sample is the most recent set of data captured.

Button options for the Details display are:

**Button 1:**
- Store - Saves the baseline including chart data, detail data, and Device ID. Up to 1000 baselines can be stored.

**Button 2:**
- History - Changes to History display and options.

**Button 3:**
- Erase - Changes to the Erase display and options.

**Button 4:**
- Home - return to current set mode display
4.5 History Display

Display historical profiles and data. From this display there is an option for viewing difference of any previously saved data and the current captured data.

All profiles are associated with the selected Device ID.

Button options for the History display are:

**Button 1:**

Previous - Locates and displays the sample from previous memory location for the selected device ID. Device ID is selected from the Set ID display. *

*see note in 4.6 Erase Display section*

**Button 2:**

Next - Locates and displays the sample from the next memory location for the selected device ID. Device ID is selected from the Set ID display. *

*see note in 4.6 Erase Display section*

**Button 3:**

Rotate - Rotates the display between “C” current profile, “B” saved baseline, and “D” delta between the current and saved baseline.

**Button 4:**

Home - return to current set mode display
4.6 Erase Display [History Display]

Display allows for erasing previously stored sample data from internal memory.

Button options for Erase Display are:

**Button 1:**
- Shown - Erase currently displayed sample data.

**Button 2:**
- Device - Erases all data samples associated with the selected Device ID. Device ID is selected from the Set ID display. *

**Button 3:**
- All - Erases all sample data for all device IDs.

**Button 4:**
- Home - return to current set mode display

* Data in memory location is typically in chronological order, i.e. previous memory location contains the sample previously saved in time. If individual “shown” baselines are erased, as opposed to “Device” or “All”, a previous memory location can represent a later point in time.
4.7 Battery Status

New batteries should provide around 2 hours of operation between charges. An auto-OFF feature and ultra-low battery drain while the unit is OFF, together provide for extended periods of time between charges.

The display has a square in the bottom right corner that indicates two charge states.

- **Charging**: Solid square
- **Low Bat**: Square blinks every 2 seconds

5 Troubleshooting

5.1 Unresponsive Meter

If the meter is unresponsive, the unit can be reset from any state or display by a meter “Hard Reset”. To perform a “Hard Reset”, hold Button 1 for 15 seconds.
6. Care and Maintenance

6.1 Conditions for Use

Operating Temperatures:
The Loctite® EQ PM20 UV Radiometer housing reduces risk of internal component overheating (rated up to 75°C) by reflected UV light.

Can withstand short durations of temperature up to 350°C. Make sure housing is cool before exposing to higher temperatures. Repeated exposure to high temperatures, without cooling, can cause overheating of the components inside.

! The display and button cover must be closed to protect from UV light and overheating.

Humidity:
0-95% non-condensing.

Electrostatic Discharge (ESD):
Follow basic electrostatic discharge practice when handling device. Any static buildup can be discharged by touching a grounded conductive surface before handling the meter or its connector.

Housing is not rated for immersion, spray or high levels of moisture.

6.2 Maintenance and Repair

The Loctite® EQ MP20 UV Radiometer is NOT field serviceable. This meter must be repaired by qualified Henkel service personal in a controlled environment. Opening the Loctite® EQ MP20 UV Radiometer by non-Henkel personal voids all warranties and calibration.
6.3 Cleaning

Do not use chemicals or liquid solution to clean the Loctite® EQ PM20 UV Radiometer housing. The housing is not sealed to prevent liquids from reaching the internal components.

The optic window has clear quartz to allow cleaning. The aperture must be kept clean and free from debris, dirt, cracks, scratches, or discoloration. These will cause readings to deviate.

Use glass cleaning wipes or a Cu-top and very small amount of class cleaner, or alcohol to gently clean the window.

⚠ Be sure to avoid liquid entering the sides of the optic window to prevent damaging inner components.

6.4 Calibration

Over time the band pass filters and integrating sphere in the meter may begin to degrade due to the extreme UV exposure. This gradual degradation manifests itself in changes in total transmission and band pass characteristics, both of which adversely affect the calibration. It is, in part, for this reason that the meter should be calibrated on a regular basis.

Calibration is recommended once a year for the Loctite® EQ PM20 UV Radiometer. The recalibration procedure includes evaluation of the charging system and batteries, evaluation of the internal optics (sensor, filter, and integrating sphere), and a complete optical and electrical calibration traceable to N.I.S.T.

In some cases, with extreme use (irradiance, frequency, or temperature) shorter calibration cycles are required.
7 Accessories and Spare Parts

7.1 Replacement Micro USB Cable
Micro USB Charging / Data Cable – Henkel P/N: 9002063

7.2 Adapter Selection
The Loctite® EQ PM20 UV Radiometer is designed to be used with chambers, conveyors, and Loctite® LED curing devices. When using certain Loctite® devices, it is recommended to use the proper adapter which are purchased separately. Adapter must be installed by fastening with two #2-56 screws before taking readings.

Using adapters help provide accurate/repeatable working distance and position when measuring. Small changes in alignment and distance can cause significant changes in measurements of spot curing sources and LEDs.
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<td>EQUIPMENT DESCRIPTION</td>
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<td>1984957 LOCTITE EQ CL 25 LED HEAD</td>
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8 Meter Application Software

8.1 Download and Installation

Meter application software must be downloaded from the Loctite® EQ PM20
UV Radiometer page of the Loctite® equipment web site:
http://equipment.loctite.com/

Install the file “Loctite EQ PM20 UV.exe” software. There will be no further
prompts and the software icon will be placed on the desktop.”

8.2 Running Meter Software

Plug in a meter to a computer using the included USB mini cable. Make sure
only 1 meter / module is connected at a time.

Software does not support simultaneous programming of multiple
units.

The meter software provides the following:

- Configuration of the Loctite EQ PM20 UV Radiometer irradiance
  threshold.
- Configure allowable delay (travel time, lamp to lamp while below
  threshold)
- Configure Auto-OFF (set, activate, de-activate)
- Setting Device ID’s
Click on meter software icon that appears on the computer desktop.

The following window opens:

![Image 12: Loctite EQ PM20 UV Software Start Display](image)

Retrieval of the baseline history (saved with Details -> Store above) that the meter needs to enter the software ready mode by selecting; Button 4 “Options” and then Button 3 “Info”.

Meter software halts all internal meter activity to allow the software to interact with the meter. After selecting Options -> Info on the meter and selecting “OK” in the software, the meter settings and stored baselines will upload into the software.

If there is no meter connected or detected, the following window will appear.

![Image 13: Display if No Connected or Detected Meter](image)

Double check the meter is connected to the PC and Info has been selected. Select “OK” in the software and select “Re-Scan for Meter” if software does not auto-update.
8.3 Config Tab

The Config Tab is where retrieving and setting the meter Device ID’s. Device ID’s can be a light source type, operation, make, model serial number, or other unique description. A maximum of 20 Device ID’s can be created.

![Image 14: Software Config Tab Window](image)

Window radio buttons and entry fields perform the following functions:

- The “Load from Meter” button when selected, loads the list of Device ID’s from the connected meter.
- The “Load from File” button when selected, loads the list of Device ID’s that was previously saved with the “Save to File” button.
- The “Save to File” button when selected, saves the list of Device ID’s to computer drive or memory device.
- The “Irradiance Threshold for Auto Start/Stop” is where the meter threshold can be changed for the Auto Mode trigger to start and stop data collection.
- The “Under Threshold Pause (0-300 secs)” is where the pause to OFF time is set for when the input is below the threshold setting.
- The “Inactivity Timer to Shut Off (mins, 0 = never)” is where the OFF time is set when the meter is not used.
- The “Configure” button when selected, will download the entered parameters and Device ID’s to the meter.
- The “Re-Scan for Meter” button when selected, establishes link with meter if there are communication issues or, more commonly,
used to recognize the next meter for programming. Note that at any time, only one meter should be connected to the computer.

- Set Date and Time – Sets date and time to Local or UTC time.
- Set Temperature units – Sets temperature units to degrees Celsius or Fahrenheit.

8.4 Baseline Tab

This tab is used to download all the baselines for the selected Device ID. This is accomplished by selecting the “Download Baselines” radio button.

Image 15: Software BaselineTab Window

With mouse pointer on any graph, a right-click, will open a window with options of copying the graph to the computer clipboard, saving the graph data to a CSV file, or saving from all graphs, all the data to a CSV file.

Image 16: Software “Copy to Clipboard”, “Save to SCV”, or “Save all to SCV” Menu
9 Warranty

Henkel expressly warrants that all products referred to in this Instruction Manual for (2436352 Loctite® EQ PM20 UV VIS Radiometer, 2436353 Loctite® EQ PM20 UV AB Radiometer) (hereafter called “Products”) shall be free from defects in materials and workmanship. Liability for Henkel shall be limited, as its option, to replacing those Products which are shown to be defective in either materials or workmanship or to credit the purchaser the amount of the purchase price thereof (plus freight and insurance charges paid therefor by the user). The purchaser’s sole and exclusive remedy for breach of warranty shall be such replacement or credit.

A claim of defect in materials or workmanship in any Products shall be allowed only when it is submitted in writing within one month after discovery of the defect or after the time the defect should reasonably have been discovered and in any event, within (12) months after the delivery of the Products to the purchaser. This warranty does not apply to perishable items, such as (indicate items: fuses, filters, lights, etc.). No such claim shall be allowed in respect of products which have been neglected or improperly stored, transported, handled, installed, connected, operated, used or maintained. In the event of unauthorized modification of the Products including, where products, parts or attachments for use in connection with the Products are available from Henkel, the use of products, parts or attachments which are not manufactured by Henkel, no claim shall be allowed.

No Products shall be returned to Henkel for any reason without prior written approval from Henkel. Products shall be returned freight prepaid, in accordance with instructions from Henkel.

NO WARRANTY IS EXTENDED TO ANY EQUIPMENT WHICH HAS BEEN ALTERED, MISUSED, NEGLECTED, OR DAMAGED BY ACCIDENT.

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