■ LIGHTMETER DATA LOGGER

1110

MODEL 1110
LIGHTMETER

AEMC®
INSTRUMENTS
www.aemc.com

ENGLISH   **User Manual**

AEMC®
INSTRUMENTS
CHAUVIN ARNOUX GROUP

Statement of Compliance

Chauvin Arnoux®, Inc. d.b.a. AEMC® Instruments certifies that this instrument has been calibrated using standards and instruments traceable to international standards.

We guarantee that at the time of shipping your instrument has met its published specifications.

An N.I.S.T. traceable certificate may be requested at the time of purchase, or obtained by returning the instrument to our repair and calibration facility, for a nominal charge.

The recommended calibration interval for this instrument is 12 months and begins on the date of receipt by the customer. For recalibration, please use our calibration services. Refer to our repair and calibration section at **www.aemc.com**.

Serial #: _____

Catalog #: 2121.71 _____

Model #: 1110 _____

Please fill in the appropriate date as indicated:

Date Received: _____

Date Calibration Due: _____

AEMC® INSTRUMENTS
CHAUVIN ARNOUX GROUP

Chauvin Arnoux®, Inc.
d.b.a AEMC® Instruments
www.aemc.com

CONTENTS

Thank you for purchasing the Lightmeter Data Logger Model 1110. For best results from your instrument:

- read these operating instructions carefully,
- comply with the precautions for use.

⚠	WARNING, risk of DANGER! The operator must refer to these instructions whenever this danger symbol appears.
ℹ	Information or useful tip.
🔋	Battery.
🧲	Magnet.
♻	The product has been declared recyclable after analysis of its life cycle in accordance with the ISO14040 standard.
♻ Eco Conception ♻	AEMC has adopted an Eco-Design approach in order to design this appliance. Analysis of the complete lifecycle has enabled us to control and optimize the effects of the product on the environment. In particular this appliance exceeds regulation requirements with respect to recycling and reuse.
CE	Indicates conformity with European directives and with regulations covering EMC.
🗑	Indicates that, in the European Union, the instrument must undergo selective disposal in compliance with Directive WEEE 2002/96/EC. This instrument must not be treated as household waste.

Precautions

This instrument is compliant with safety standard IEC 61010-2-030, for voltages up to 5 V with respect to ground. Failure to observe the following safety instructions may result in electric shock, fire, explosion, and damage to the instrument and/or the installation in which it is located.

- The operator and/or the responsible authority must carefully read and clearly understand all precautions to be taken prior to using the instrument. Thorough knowledge and awareness of electrical hazards are essential when using this instrument.
- Observe the conditions of use, including temperature, relative humidity, altitude, pollution degree, and location of use.
- Do not use the instrument if it appears damaged, incomplete, or improperly closed.
- Before each use, check the condition of the housing and accessories. Any item on which the insulation is deteriorated (even partially) must be set aside for repair or disposal.
- All troubleshooting and metrological checks must be done by accredited personnel.

Receiving Your Shipment

Upon receiving your shipment, make sure that the contents are consistent with the packing list. Notify your distributor of any missing items. If the equipment appears to be damaged, file a claim immediately with the carrier and notify your distributor at once, giving a detailed description of any damage. Save the damaged packing container to substantiate your claim.

Ordering Information

Lightmeter Data Logger Model 1110………………….…………………………………..……….…....…….. **Cat. #2121.71**
Includes soft carrying pouch, three AA alkaline batteries, 6 ft. USB cable, quick start guide, USB thumb drive with DataView® software and user manual.

Replacement Parts:
Cable – 6 ft. USB Type A - Type B micro (Replacement for
Models L452, 1110, 1227, 1246, 1510, 1821, 1822, 1823)
and use with wall adapter for MR415 to MR527 series, SL306, & SL361………...................................... **Cat. #2138.66**

Pouch – Replacement Carrying Pouch………………….….…………….….…….……….….........…………….…………........ **Cat. #2118.65**

Accessories:
Multifix Universal Mounting System …..….……………....……………….…..**Cat. #5000.44**
Adapter – Replacement US Wall Plug to USB for Models L452, 1510,
MH60 (Accessory for Models 1110,1227,1246, 1821,1822, 1823, MR415 to MR527 series,
SL306, & SL361)………………..….……….….…….….…….….…….……...…...….……….…….................**Cat. #2153.78**
Shock Proof Housing………………………….……….……........………......…….……….……….…..........…….….. **Cat. #2122.31**
Adapter, Bluetooth USB………………………….……….……….….……….……….……….….…….….…….…….**Cat. #2126.45**
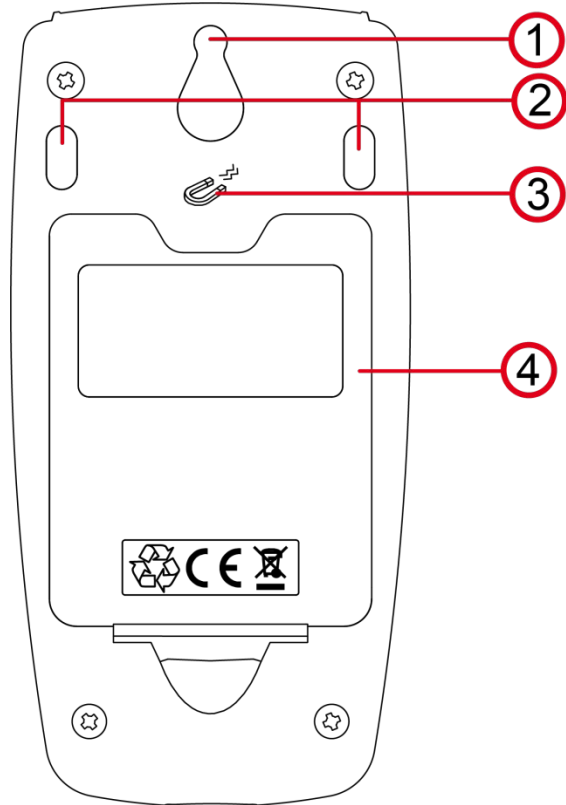
For the accessories and replacement parts, visit our web site: www.aemc.com

1. GETTING STARTED

1.1. Battery Installation
The instrument accepts three AA or LR6 alkaline batteries.

1. **Tear-drop** notch to hang instrument
2. Non-skid pads
3. Magnets for mounting to a metallic surface
4. Battery compartment cover

To change the batteries:

1. Press the tab of the battery compartment cover and lift it clear.
2. Remove the battery compartment cover.
3. Insert the new batteries, ensuring correct polarity.
4. Close the battery compartment cover; ensuring it is completely and correctly closed.

1.2. Instrument Front Panel

1. Spiral-wound extension cable.
2. Sensor cover (captive).
3. Illumination sensor.
4. Magnets for securing sensor to housing.
5. Backlit LCD display.
6. Keypad.
7. ON/OFF button.
8. Type B micro-USB connector.

1.3. Instrument Functions

The Model 1110 measures illumination from 0.1 to 200,000 lux. The instrument measures visible light only, and excludes non-visible wavelengths (infrared, ultraviolet, and so on). It measures illumination in accordance with the recommendations of the AFE (Association Française de l'Éclairage - French Association of Illumination). The instrument also measures decrease in illumination over time due to aging or dusty light sources.
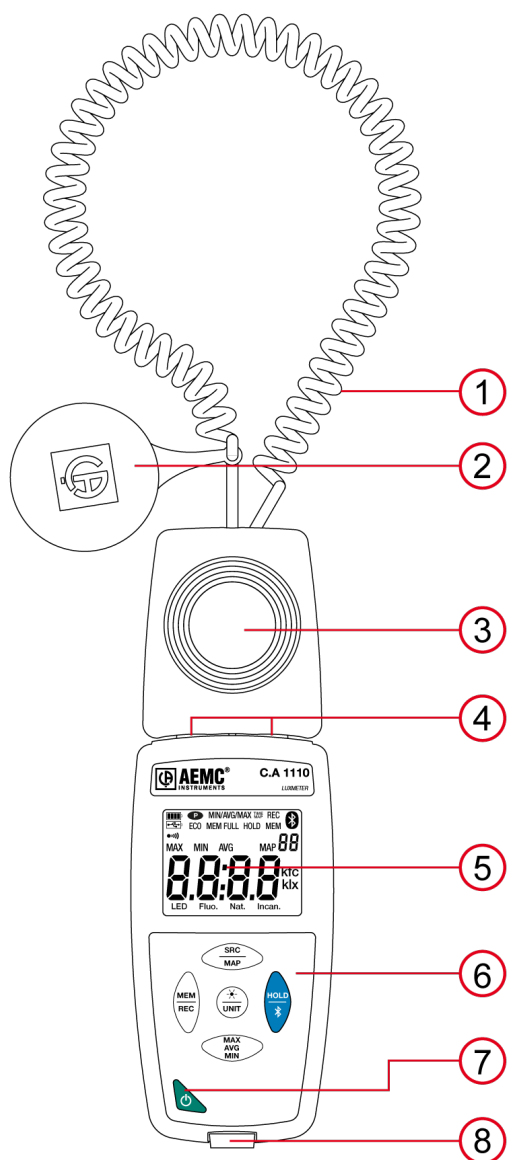
The Model 1110 can:

- Display illumination measurements in lux (lx) or foot-candles (fc).
- Record minimum, average (mean), and maximum measurements within a specified period.
- Record minimum/average/maximum for a surface or room.
- Record and store measurements.
- Communicate with a computer via Bluetooth or USB cable.

DataView with the Data Logger Control Panel software can be installed on a computer to allow you to configure the instrument, view measurements in real time, download data from the instrument, and create reports.

1.4. Turning the Instrument ON/OFF

REC

End

- **ON**: Press the ⏻ button for >2 seconds.

- **OFF**: Press the ⏻ button for >2 seconds when the instrument is ON. Note that you cannot turn OFF the instrument when it is in HOLD or in recording mode.

If the screen to the left appears during start-up, a recording session was still in progress the last time the instrument was turned OFF. This screen indicates the instrument is saving the recorded data.

Do not turn OFF the instrument while this screen is displayed; otherwise the recorded data will be lost.

1.5. Function Buttons

Button	Function
SRC / **MAP**	■ Short press selects the type of illumination source: incandescent (default), fluorescent, or LED. (See Appendix §A.1.) ■ Long press (>2 seconds) enters MAP mode.
MEM / **REC**	■ Short press stores the measurement and date in the instrument's memory. MAP mode: adds a measurement to the measurements in the MAP (§3.1.3). ■ Long press starts/stops a recording session.
☀ / **UNIT**	■ Short press turns on back-lighting. ■ Long press toggles between lux (lx) and foot-candles (fc).
HOLD / ✳	■ Short press freezes the display. ■ Long press activates/deactivates Bluetooth.
MAX AVG MIN	■ Short press enters MAX AVG MIN mode (§3.1.2); measurement values continue to be displayed. Second press displays the maximum value. Third press displays the average value. Fourth press displays minimum value. Fifth press returns to normal measurement operation. ■ Long press exits MAX AVG MIN mode. In MAP mode, pressing MAX AVG MIN displays in turn the maximum, average (mean), and minimum of the MAP measurements.

1.6. Display
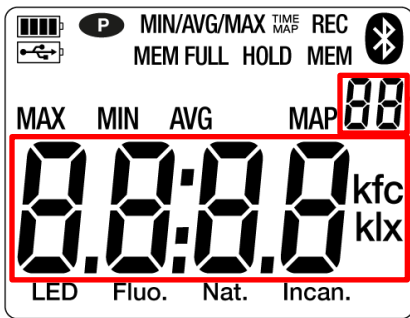
1. MAP function counter.
2. Main display.

OL indicates the measurement is outside the instrument limits (positive or negative).

P indicates Auto OFF is disabled. This occurs when the instrument is:

- Recording, in MAX AVG MIN mode, in MAP mode, or in HOLD mode
- Connected via the USB cable either to an external power supply or for communication with a computer
- Communicating via Bluetooth.
- Set to Auto OFF disabled (see §2.4).

2. SETUP

Before using your instrument, you must set its date and time through DataView (see §2.3). Other basic setup tasks include selecting:

- Auto OFF interval (requires DataView)
- lx or fc for measurement units (can be done on the instrument or via DataView)
- Light source type (can be done on the instrument or via DataView)

2.1. DataView Installation

1. Insert the USB drive that comes with the instrument into a USB port on your computer.
2. If Autorun is enabled, an AutoPlay window appears on your screen. Click **Open folder to view files** to display the DataView folder. If Autorun is not enabled or allowed, use Windows Explorer to locate and open the USB drive labeled **DataView**.
3. When the DataView folder is open, find the file Setup.exe in the root directory and double-click it.
4. The Setup screen appears. This enables you to select the language version of the setup program. You can also select additional install options (each option is explained in the Description field). Make your selections and click Install.
5. Click OK to confirm setup. The InstallShield Wizard screen appears. This program leads you through the DataView install process. As you complete these screens, be sure to check Data Loggers when prompted to select features to install.
6. When the InstallShield Wizard finishes installing DataView, the Setup screen appears. Click Exit to close. The DataView folder appears on your computer desktop.

2.2. Connecting the Instrument to a Computer

You can connect the instrument to a computer either through USB cable (provided with the instrument) or Bluetooth®. The first two steps of the connection procedure depend on the connection type:

USB:

1. Connect the instrument to an available USB port using the supplied cable.
2. Turn ON the instrument. If this is the first time this instrument has been connected to this computer, the drivers will be installed. Wait for driver installation to finish before proceeding with step 3 below.

Bluetooth:

Connecting the instrument via Bluetooth requires your computer to be Bluetooth-enabled. If your computer does not have Bluetooth capability built in, you will need to install a Bluetooth USB adapter (we recommend the Bluegiga BLED112 Smart Dongle, commercially available via several sources). When the dongle is installed, do the following:

1. Turn ON the instrument by pressing the ⏻ button.
2. Activate Bluetooth on the instrument by pressing the 🗲 button until the ⓧ symbol appears in the LCD.

   After the USB cable is connected or Bluetooth is activated, proceed as follows:

3. Open the DataView folder on your desktop. This displays a list of icons for the Control Panel(s) installed with DataView.
4. Open the DataView Data Logger Control Panel by clicking the 🖥 icon.
5. In the menu bar at the top of the screen, select Help. In the drop-down menu that appears, click the option Help Topics. This opens the Data Logger Control Panel Help system.
6. Use the Contents window in the Help system to locate and open the topic **Connecting to an Instrument**. This provides instructions explaining how to connect your instrument to the computer.
7. When the instrument is connected, its name appears in the Data Logger Network folder in the left side of the Control Panel. A green check mark appears next to the name indicating it is currently connected.

2.3. Instrument Date/Time

1. Select the instrument in the Data Logger Network.

2. In the menu bar, select Instrument. In the drop-down menu that appears, click Set Clock.

3. The Date/Time dialog box appears. Complete the fields in this dialog box. If you need assistance, press F1.

4. When you are finished setting the date and time, click OK to save your changes to the instrument.

2.4. Auto OFF

By default, the instrument automatically turns OFF after 3 minutes of inactivity. You can use the Data Logger Control Panel to change the Auto OFF interval, or disable this feature, as instructed by the Help that comes with the software.

When Auto OFF is disabled, the symbol **P** appears in the instrument LCD screen.

2.5. Measurement Units

The **UNIT** button on the instrument front panel allows you to toggle between lx (lux) and fc (foot-candles) for measurement units. You can also set this through the Data Logger Control Panel.

2.6. Light Source Type

SRC

The **MAP** button cycles through the three available light source options (incandescent, fluorescent, or LED). You can also set this through the Data Logger Control Panel.

3. STANDALONE OPERATION

The instruments can operate in two modes:
- Stand-alone mode, described in this section
- Remote mode, in which the instrument is controlled by a computer running DataView (see §4)

3.1. Making Measurements
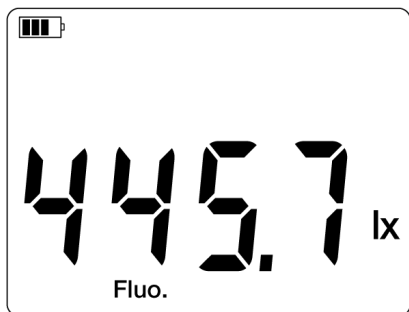
1. Remove the cap protecting the sensor.
2. Place the sensor in the location to be measured, ensuring you do not position yourself between the sensor and light source(s).
3. If the instrument is OFF, press and hold down the ⏻ button until it turns ON. The instrument displays the current time, followed by the measurement.
4. To change the units of measure, long-press the **UNIT** button. The instrument will continue to use this unit when next turned ON.
5. To save the measurement to the instrument's memory, press the **REC** button.

> **ⓘ** Note that you can make a low-illumination measurement immediately following a high-illumination measurement; no delay between measurements is required.

Refer to Appendix §A.2 for common illumination values.

3.1.1. HOLD Function

Pressing the **HOLD** key freezes the display. A second press unfreezes it.

3.1.2. MAX AVG MIN Function

You can monitor the maximum, minimum, and average measurements by pressing the **MAX AVG MIN** button. This displays the words MIN/AVG/MAX at the top of the display (see below). In this mode, pressing **MAX AVG MIN** once displays the maximum value measured during the current session. A second press displays the average value, and a third displays the minimum. Finally a fourth press restores the normal display. Subsequent presses of **MAX AVG MIN** repeat this cycle.
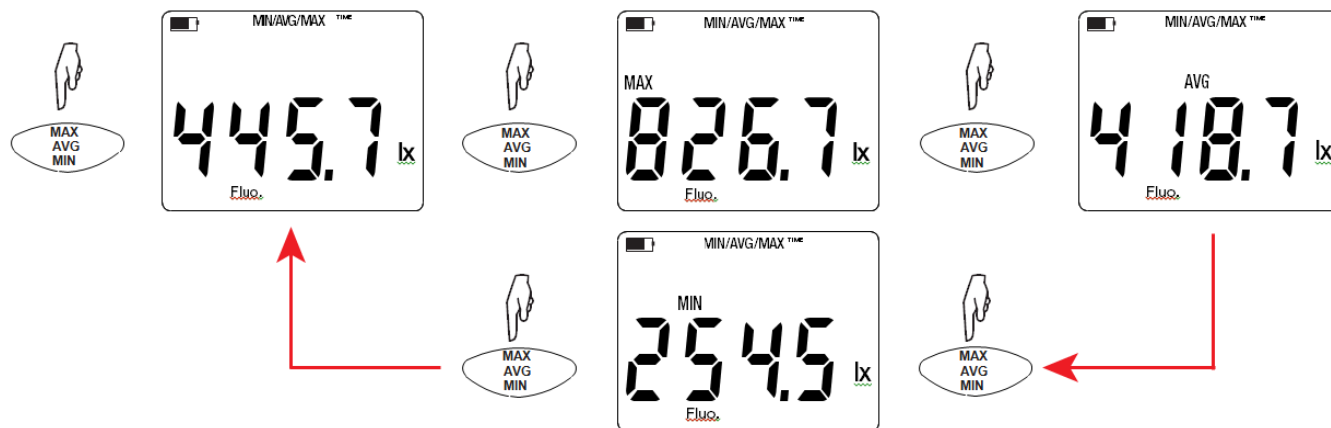
To exit MAX AVG MIN mode, long-press **MAX AVG MIN**. Note that when MAX AVG MIN mode is active, the MAP function is deactivated.

3.1.3. MAP Function

The MAP function enables you to map the illumination for a 2-dimensional space or surface. For example, in MAP mode you can measure the illumination at specific points within a room. You can then download the recording to a computer running DataView, and display the measurements as a 2-dimensional matrix, creating a **map** of the illumination within the room.
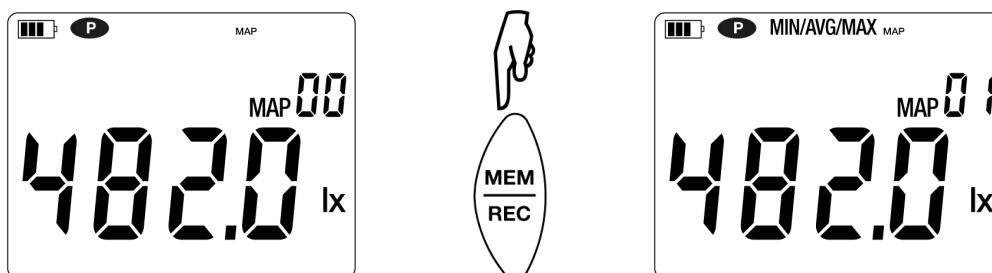
Before mapping an area, it is good practice to create a chart identifying where to make measurements. For instance, the following illustrations are example measurement charts for two different rooms.

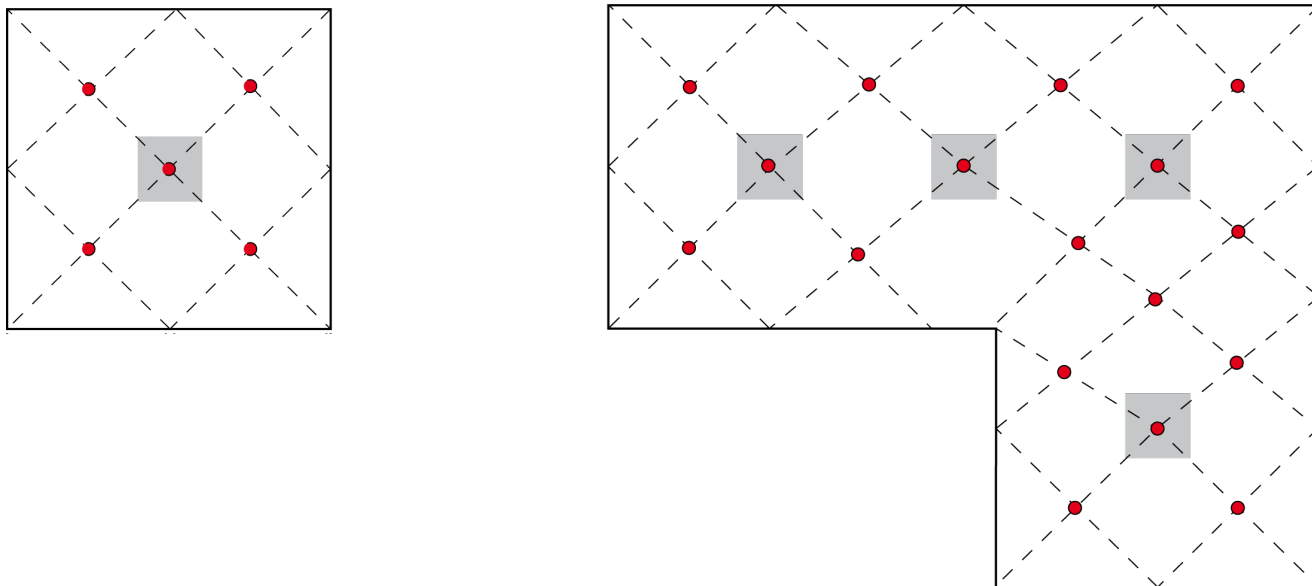In the preceding illustrations, gray areas represent illumination sources (such as lights or windows) and red circles represent measurement points. Consult §4.4 in the standard NF EN 12464-1 for guidance when creating an illumination mapping chart.

To create a map with the Model 1110:

1. Press the **MAP** button for >2 seconds to enter MAP mode. The counter on the LCD will be initially set to 00 (see below).

2. Place the sensor at the first measurement point and press **MEM** to record the value in memory. The counter is incremented.

3. Repeat step 2 for all other measurement points to be mapped.

4. When finished, press **MAP** for >2 seconds to exit MAP mode.

Note that while in MAP mode, you can use the MAX/AVG/MIN button to cycle through the maximum, average, and minimum measurements made during the mapping session.

Each measurement made during a session is stored in a single MAP file. You can download this file to a computer running DataView, and display it as a 2-dimensional white-gray-black matrix. The DataView Data Logger Control Panel Help system explains how to do this (see also §4).

3.2. Recording Measurements

You can start and stop a recording session on the instrument. Recorded data is stored in the instrument's memory, and can be downloaded and viewed on a computer running the DataView Data Logger Control Panel.

You can record data by pressing the $\overline{\text{REC}}^{\text{MEM}}$ button:

- A short press (MEM) records the current measurement(s) and date.

- A long press (REC) starts the recording session. While the recording is in progress, the symbol REC appears at the top of the display. A second long press of $\overline{\text{REC}}^{\text{MEM}}$ stops the recording session. Note that while the instrument is recording, a short press of $\overline{\text{REC}}^{\text{MEM}}$ has no effect.

To schedule recording sessions, and download and view recorded data, see the DataView Data Logger Control Panel Help.

3.3. Errors

The instrument detects errors and displays them in the form **Er.XX**:

Er.01	Hardware malfunction detected. The instrument must be sent in for repair.
Er.02	Internal memory error. Connect the instrument to a computer via the USB cable and format its memory using Windows.
Er.03	Hardware malfunction detected. The instrument must be sent in for repair.
Er.04	Communication problem between the device and the PC, smartphone or tablet. Switch the device off and on again and reset the communication with the PC, smartphone or tablet.
Er.05	Problem occurred when activating Bluetooth. Contact your distributor.
Er.10	The instrument has not been correctly adjusted. The instrument must be sent to customer service.
Er.11	The firmware is incompatible with the instrument. Install the correct firmware (see §6.4).
Er.12	The firmware version is incompatible with the instrument. Reload the previous firmware version.
Er.13	Recording scheduling error. Ensure that the instrument's time and the time of the DataView Data Logger Control Panel are the same (see §2.3).

4. DATAVIEW

As explained in §2, DataView is required to perform several basic setup tasks including connecting the instrument to a computer, setting the time and date on the instrument, and changing the Auto OFF setting. In addition, DataView allows you to:

- Configure and schedule a recording session on the instrument.
- Download recorded data from the instrument to the computer.
- Generate reports from downloaded data.
- View instrument measurements in real time on the computer.

For information about performing these tasks, consult the DataView Data Logger Control Panel Help.

5. TECHNICAL CHARACTERISTICS

5.1. Reference Conditions

Quantity of influence	Reference values
Temperature	73 ± 3.6 °F (23 ± 2) °C
Relative humidity	(45 to 75) %
Supply voltage	(3 to 4.5) V
Light source	Incandescent (illuminant A)
Electric field	< 1 V/m
Magnetic field	< 40 A/m

The intrinsic uncertainty is the error specified for the reference conditions.

5.2. Optical Specifications

The Model 1110 is a class C lightmeter per standard NF C-42-710. Its illumination sensor is a silicon (Si) photodiode in which the spectral response is corrected by an optical filter. The directional response is ensured by a diffusing lens.

5.2.1. Illumination Measurements

Specified measurement range	(0.1 to 200,000) lx				(0.01 to 18,580) fc			
Resolution	(0.1 to 999.9) lx	(1.000 to 9.999) klx	(10.00 to 99.99) klx	(100.0 to 200.0) klx	(0.01 to 99.99) fc	(100.0 to 999.9) fc	(1.000 to 9.999) kfc	(10.00 to 18.58) kfc
	0.1 lx	1 lx	10 lx	100 lx	0.01 fc	0.1 fc	1 fc	10 fc
Intrinsic uncertainty (illumination measurement)	3 % of Reading ± 2 cts							
Intrinsic uncertainty (spectral response with respect to V(λ))	$f_1' < 20\,\%$							
Directional sensitivity	$f_2 < 1.5\,\%$							
Intrinsic uncertainty (linearity)	$f_3 < 0.5\,\%$							

5.2.2. Other Optical Specifications

Sensitivity to UV	U < 0.05 % (class A)
Sensitivity to IR	R < 0.005 % (class A)
Directional response	$f_2 < 1.5\,\%$ (class B) $F_2 < 3\,\%$ (class C)
Fatigue, memory effect	$f_5 + f_{12} < 0.5\,\%$ (class A)
Influence of temperature	$f_6 = 0.05\,\%/°C$ (class A)
Response to modulated light	f_7 (100 Hz) = Influence negligible
Response to polarization	f_8 (ε) = 0.3 %
Response time	1 s

5.2.3. Spectral Response Curve V(λ)

Visible light is electromagnetic radiation with wavelengths between (380 and 780) nm.

The response curve of the eye as a function of wavelength has been determined by the IEC (International Electrotechnical Commission). This is the V(λ) curve, or relative spectral luminous efficiency curve for photopic vision (daytime vision).

Relative luminous efficiency:
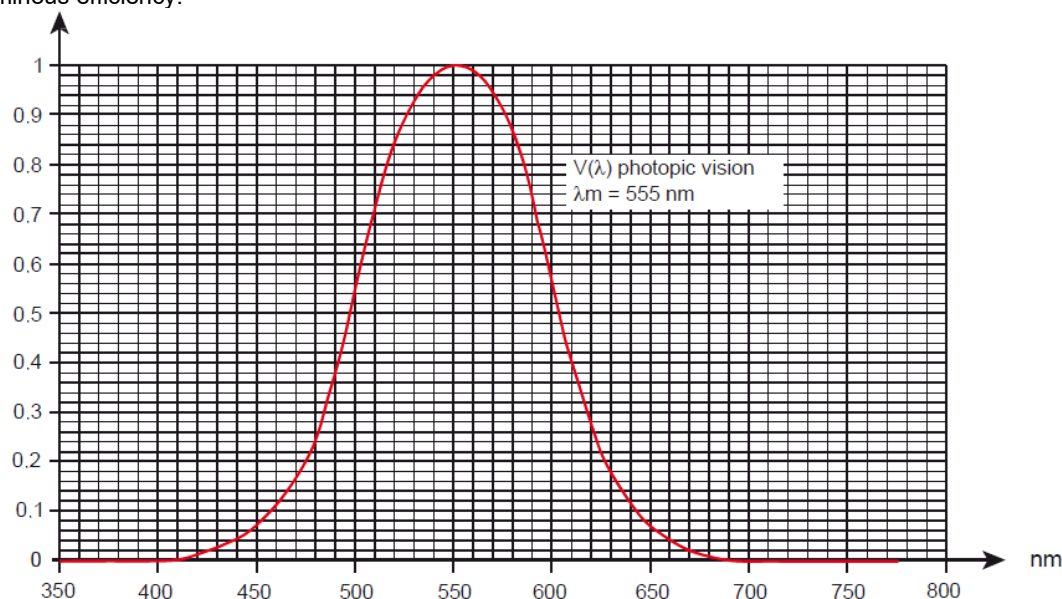
The error on the spectral response of the sensor is equal to the area of the differences between the V(λ) curve and the curve of the sensor.

5.2.4. Variation According to the Type of Light Source

The Model 1110 provides three measurement compensations:
- Incandescent (default)
- LED
- FLUO (fluorescent)

LED compensation is for measurements on LEDs at 4000 K. The intrinsic uncertainty in this case is 4 %. If this compensation is used for other LEDs, the intrinsic error is increased as indicated in the following table.

FLUO compensation is for measurements on type F11 fluorescent sources. The intrinsic uncertainty in this case is 4 %. If this compensation is used for other fluorescent sources, the intrinsic error is increased as indicated below.

Quantities of influence	Range of influence	Quantity influenced	Influence
Type of light source	LED (3000 to 6000) K	Illumination	Intrinsic uncertainty is increased by 3 % (for a total of 6 %)
	Fluorescents of types F1 to F12		Intrinsic uncertainty is increased by 6 % (for a total of 9 %)

See Appendix §A.1 for light source spectral distribution graphs.

5.3. Memory

The instrument has 8 MB of flash memory, sufficient to record and store a million measurements. Each record contains the measurement value, date and time, and unit of measure.

5.4. USB

Protocol: USB Mass Storage
Maximum transmission speed: 12 Mbit/s Type B micro-USB connector

5.5. Bluetooth

Bluetooth 4.0 BLE
Range 32' (10 m) typical and up to 100' (30m) in line of sight.
Output power: +0 to -23 dBm
Nominal sensitivity: -93 dBm
Maximum transfer rate: 10 kbits/s
Average consumption: 3.3 µA to 3.3 V.

5.6. Power Supply

The instrument is powered by three 1.5 V LR6 or AA alkaline batteries. You can replace the batteries with rechargeable NiMH batteries of the same size. However, even when the rechargeable batteries are fully charged, they will not reach the voltage of the alkaline batteries, and the Battery indicator will appear as ▮▮▮ or ▮▮ .

Voltage for correct operation is (3 to 4.5) V for alkaline batteries and 3.6 V for rechargeable batteries. Below 3 V, the instrument stops taking measurements and displays the message **BAt**.

Battery life (with the Bluetooth connection deactivated) is:

- standby mode: 500 hours
- recording mode: 3 years at rate of one measurement every 15 minutes

The instrument can also be powered via a USB-micro cable, connected to either a computer or wall outlet adapter.

> 110 VAC
< 240 VAC
50 / 60 Hz
2.5 W
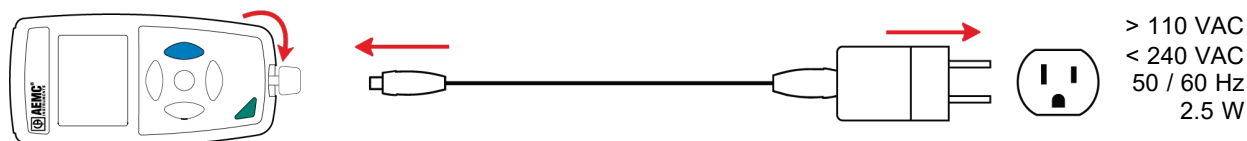
5.7. Environmental Conditions

For use indoors and outdoors.

- Operating range: (+14 to +140) °F (-10 to 60) °C and (10 to 90) % RH without condensation
- Storage range: -4 to +158 °F (-20 to +70) °C and (10 to 95) % RH without condensation, without batteries
- Altitude: <6562 ft (2000 m), and 32,808 ft (10,000 m) in storage
- Pollution degree: 2

5.8. Mechanical Specifications

Dimensions (L x W x H):

- Housing: (5.9 x 2.8 x 1.26) in (150 x 72 x 32) mm
- Sensor: (2.6 x 2.5 x 1.38) in (67 x 64 x 35) mm with the protecting cap
- Spiral-wound cable: (9.4 to 47.2) in (24 to 120) cm

Mass:12.2 oz (345 g) approx.
Inrush protection: IP 50, with the USB connector closed and the protecting cap on the sensor, per IEC 60.529.
Drop impact test: 3.2 ft (1 m) per IEC 61010-1.

5.9. Compliance with International Standards

The instrument is compliant with standard IEC 61010-1.

5.10. Electromagnetic Compatibility (CEM)

The instrument is compliant with standard IEC 61326-1.

6. MAINTENANCE

⚠ **Except for batteries, the instrument contains no parts that can be replaced by personnel who have not been specially trained and accredited. Any unauthorized repair or replacement of a part by an <u>equivalent</u> may significantly impair safety.**

6.1. Cleaning

Disconnect the instrument from all sensors, cable, etc. and turn it OFF.

Use a soft cloth, dampened with soapy water. Rinse with a damp cloth and dry rapidly with a dry cloth or forced air. Do not use alcohol, solvents, or hydrocarbons.

6.2. Maintenance

- Place the protecting cap on the sensor when the instrument is not in use.
- Store the instrument in a dry place and at constant temperature.

6.3. Battery Replacement

The ▮▮▮▮ symbol indicates the remaining battery life. When the ⬚ symbol is empty, all the batteries must be replaced (see §1.1).

🗑 Spent batteries must not be treated as ordinary household waste. Take them to an appropriate recycling facility.

6.4. Firmware Update

AEMC may periodically update the instrument's firmware. Updates are available for free download. To check for updates:

1. Connect the instrument to the Data Logger Control Panel.
2. Click Help.
3. Click Update. If the instrument is running the latest firmware, a message appears informing you of this. If an update is available, the AEMC Download page automatically opens. Follow the instructions listed on this page to download the update.

ℹ After firmware updates, it may be necessary to reconfigure the instrument (see §2).
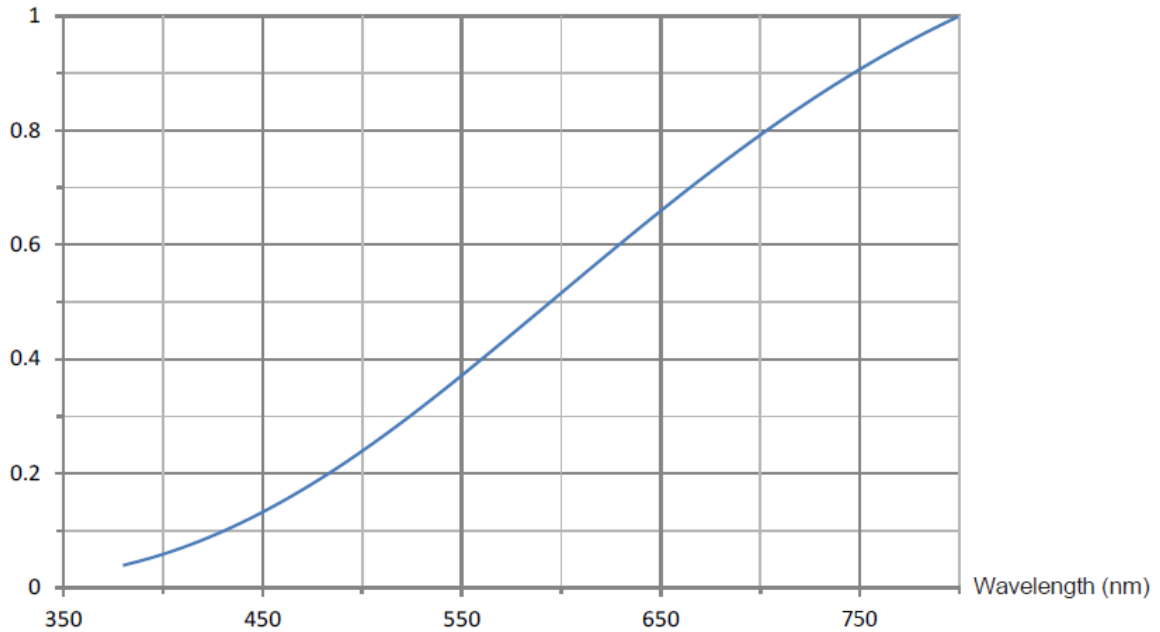
APPENDIX

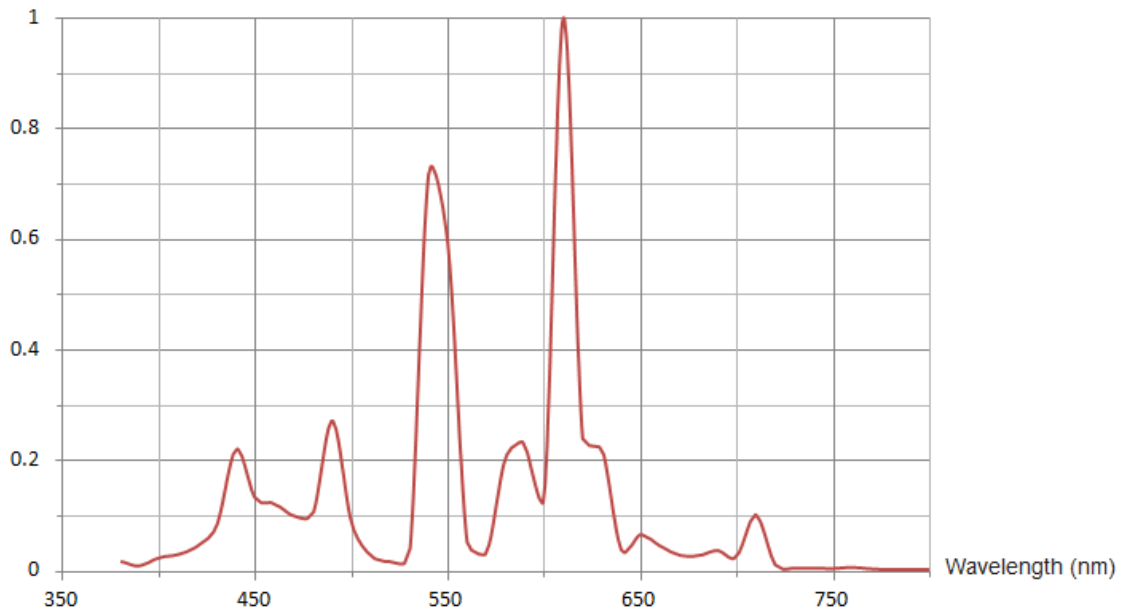## A.1. Spectral Distributions of Illumination Sources

The instrument measures three types of illumination source:
- natural or incandescent (defined as **illuminant A** by standard NF C-42-710)
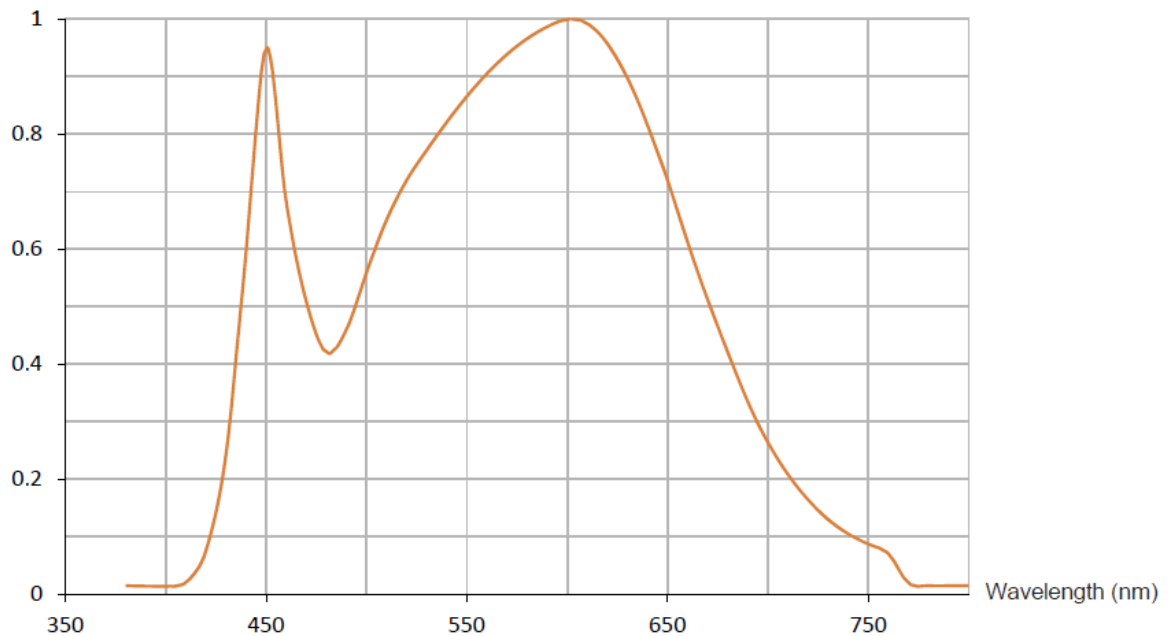- fluorescent tubes with three narrow bands, or F11
- LEDs at 4000 K

A.1.1. Incandescent (Illuminant A) Illumination Spectral Distribution

A.1.2. Fluorescent (F11) Illumination Spectral Distribution

A.1.3. LED Illumination Spectral Distribution

A.2. Illumination Values

Total darkness	0 lx
Outdoors at night	(2 to 20) lx
Production plant without manual operations	50 lx
Passageways, stairs and corridors, warehouses	100 lx
Dock and loading areas	150 lx
Changing rooms, cafeteria, and sanitary facilities	200 lx
Handling, packaging, and dispatching areas	300 lx
Conference and meeting rooms, writing, reading	500 lx
Industrial drafting	750 lx
Operating room, precision mechanics	1000 lx
Electronics workshop, checks of colors	1500 lx
Operating table	10,000 lx
Outdoors, cloudy	(5000 to 20,000) lx
Outdoors, clear sky	(7000 to 24,000) lx
Outdoors, direct sunlight, summer	100,000 lx

REPAIR AND CALIBRATION

To ensure that your instrument meets factory specifications, we recommend that it be scheduled to be sent back to our factory Service Center at one-year intervals for recalibration, or as required by other standards or internal procedures.

For instrument repair and calibration:

You must contact our Service Center for a Customer Service Authorization Number (CSA#). Send an email to repair@aemc.com requesting a CSA#, you will be provided a CSA Form and other required paperwork along with the next steps to complete the request. Then return the instrument along with the signed CSA Form. This will ensure that when your instrument arrives, it will be tracked and processed promptly. Please write the CSA# on the outside of the shipping container. If the instrument is returned for calibration, we need to know if you want a standard calibration or a calibration traceable to N.I.S.T. (includes calibration certificate plus recorded calibration data).

Ship To: Chauvin Arnoux®, Inc. d.b.a. AEMC® Instruments

15 Faraday Drive ▪ Dover, NH 03820 USA
Phone: (800) 945-2362 (Ext. 360) / (603) 749-6434 (Ext. 360)
E-mail: repair@aemc.com

(Or contact your authorized distributor.)

Contact us for the costs for repair, standard calibration, and calibration traceable to N.I.S.T.

NOTE: You must obtain a CSA# before returning any instrument.

TECHNICAL ASSISTANCE

If you are experiencing any technical problems, or require any assistance with the proper operation or application of your instrument, please call or e-mail our technical support team:

Chauvin Arnoux®, Inc. d.b.a. AEMC® Instruments
Phone: (800) 343-1391 (Ext. 351)
E-mail: techsupport@aemc.com

LIMITED WARRANTY

The instrument is warrantied to the owner for a of two years from the date of original purchase against defects in manufacture. This limited warranty is given by AEMC® Instruments, not by the distributor from whom it was purchased. This warranty is void if the unit has been tampered with, abused, or if the defect is related to service not performed by AEMC® Instruments.

Full warranty coverage and product registration is available on ourwebsite at www.aemc.com/warranty.html.

Please print the online Warranty Coverage Information for your records.

What AEMC® Instruments will do:

If a malfunction occurs within the warranty period, you may return the instrument to us for repair, provided we have your warranty registration information on file or a proof of purchase. AEMC® Instruments will repair or replace the faulty material at our discretion.

Warranty Repairs

What you must do to return an Instrument for Warranty Repair:

First, request a Customer Service Authorization Number (CSA#) by phone or by e-mail from our Service Department (see address below), then return the instrument along with the signed CSA Form. Please write the CSA# on the outside of the shipping container. Return the instrument, postage or shipment pre-paid to:

Ship To: Chauvin Arnoux®, Inc. d.b.a. AEMC® Instruments

15 Faraday Drive • Dover, NH 03820 USA

Phone: (800) 945-2362 (Ext. 360)

(603) 749-6434 (Ext. 360)

E-mail: repair@aemc.com

Caution: To protect yourself against in-transit loss, we recommend you insure your returned material.

NOTE: You must obtain a CSA# before returning any instrument.

NOTES: