PRODUCT GUIDE:

EYEDRO INLINE PRODUCTS

Revision: 220214

CONTENTS

INTRODUCTION

OVERVIEW

Eyedro Green Solutions Inc. is a software and electronics design company making electricity usage easy to understand. We provide simple solutions for monitoring your electricity in real-time.

Combined with the MyEyedro cloud service, Eyedro is an affordable, easy to install and scalable electricity monitor for your home and business. Join thousands of customers already using Eyedro to keep an eye on their electricity use.

Thank you for choosing the Eyedro Electricity Monitoring System. You have taken the first step towards better awareness of where your energy is being consumed. Awareness can lead to energy savings, cost savings and peace of mind.

The Eyedro Electricity Monitoring System will help you keep an eye on your electrical consumption. Its non-invasive design measures electrical current supplied to the building and computes the power consumed. Data is stored on a remote server 24 hours a day - 7 days a week - 365 days a year. There is no need to worry about losing your data or running out of storage space. Your data is available for review from anywhere you have access to the internet - at home, at work or on the go! The easy to use interface allows you to view your current and historical data, daily averages, bill to date and even predict what your total bill will look like. Use the browser on your mobile phone to walk through your house switching appliances on and off – you may be surprised what you learn!

The Eyedro Electricity Monitoring System will help you realize just how much electricity you are wasting every day and how much money you could save by reducing that waste. You will soon realize that simple changes in your habits – like turning off lights, unplugging unused equipment, or dialing back the thermostat – will result in less consumption and more money in your pocket.

If you have any questions about using your Eyedro Electricity Monitoring System please visit eyedro.com for information, documentation, videos and answers to frequently asked questions.

PLEASE READ ALL ENCLOSED INSTRUCTIONS PRIOR TO INSTALLATION.

EACH STEP OF THE ENCLOSED INSTRUCTIONS MUST BE FOLLOWED CAREFULLY.

IMPORTANT SAFETY INFORMATION FOR EYEDRO MONITORING PRODUCTS

The Eyedro Monitoring products (and all components) are designed for **INDOOR USE ONLY** and should be installed inside a suitable building or panel. When installing:

- **DO NOT** subject the unit or sensors to excessive temperature, humidity, force, shock, or dust
- **DO NOT** use or store this product in locations that could adversely affect the product such as rain, snow or desert.
- **DO NOT** immerse the unit in water or other liquids. If liquid is spilled over it, remove power and clean up the spill immediately with a soft, lint-free, cloth and allow all electronics to fully dry before attempting to use.
- **DO NOT** use this product where the use of radio frequency products can cause interference in other critical control equipment (i.e. hospitals).

The Eyedro Monitoring products (and all components) are **NOT USER SERVICEABLE**. Please contact Eyedro Green Solutions Inc. if any component appears damaged or faulty.

- **DO NOT** open the case of the unit or tamper with any of the internal components.
- **DO NOT** attempt to repair the product by yourself.
- **DO NOT** dispose of this product in your household waste. At the end of its serviceable life please ensure product is disposed of according to local electrical and electronics equipment disposal practices.

The following notes apply to all Eyedro Wireless products:

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy, and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

Reorient or relocate the receiving antenna.

Increase the separation between the equipment and receiver.

Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

Consult the dealer or an experienced radio/TV technician for help.

To satisfy FCC RF Exposure requirements for mobile and base station transmission devices, a separation distance of 20 cm or more should be maintained between the antenna of this device and persons during operation. To ensure compliance, operation at closer than this distance is not recommended. The antenna(s) used for this transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

ADDITIONAL SAFETY INFORMATION FOR INLINE ELECTRICITY MONITORING

It is important that you observe some simple safety precautions when installing Eyedro Inline Electricity Monitoring products. The Eyedro Inline Electricity Monitor was designed to be generic and easy to install. Typically, there is no need to handle live wires during the installation. However, there are a couple safety issues that should be considered when installing and using the system.

UNSURE ABOUT HANDLING ELECTRICAL WIRING? CONSULT A QUALIFIED ELECTRICIAN FOR SENSOR INSTALLATION.

- Any **inlet or outlet power cords** used with this product must be **properly rated** for the connected device.
- Current and/or voltage of the connected device **must not exceed the maximum ratings** specified on this product.

BOX CONTENTS (BY PRODUCT)

EYEDRO INLINE ELECTRICITY MONITOR

A

B

C

	Wi-Fi (ILM.WIFI.*)	Wireless Mesh (ILM.NODE.*)	Description
A	1	-	Eyedro Inline Wi-Fi Electricity Monitor
	-	1	Eyedro Inline Wireless (Mesh) Electricity Monitor
B	1	1	Inlet Power Cord (15A NEMA 5-15P to IEC C13 shown)
C	1	1	Outlet Power Cord (15A IEC C14 to NEMA 5-15R shown)
D	1	1	Quick Start Guide (not shown)

HARDWARE INSTALLATION

DO NOT CONTINUE WITH THE INSTALLATION OF THE EYEDRO INLINE ELECTRICITY MONITORING SYSTEM UNTIL YOU HAVE READ THE SAFETY SECTION OF THIS GUIDE.

CONNECT CABLING

MATERIALS YOU WILL NEED

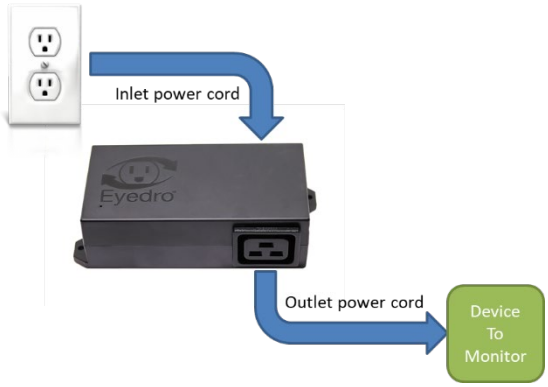
- ✓ Tie wraps (optional – not included)

TOOLS YOU WILL NEED

- None

PROCEDURE

1. Unplug the device/load that will be monitored.
2. Connect the provided outlet power cord to the outlet socket of the Eyedro Inline module.
3. Connect the provided inlet power cord to the inlet socket of the Eyedro Inline module.
4. Connect the plug of the device to be monitored to the receptacle side of the outlet cord.
5. Connect the plug side of the inlet cord into a nearby AC wall receptacle or power strip.
6. Ensure connected device powers on as expected.
   - Eyedro Inline Monitors are passive (no on/off control). If the connected device does not operate as expected, verify all connections in between are correct and secured.
7. Optionally, secure all wiring neatly with tie wraps.
8. Optionally, proceed to module mounting procedure if desired.



MOUNT EYEDRO MODULE (OPTIONAL)

MATERIALS YOU WILL NEED

- ✓ Two (2) #8 mounting screws (optional – not included)

TOOLS YOU WILL NEED

- Screwdriver
- 7/64” drill bit (optional)
- Drill (optional)

PROCEDURE (VERTICAL MOUNT)

1. Write down the 8-digit serial number from the back of the module. This will be required during software setup.
    - The serial number will be in the format "**123 - 45678**"
2. Find a clear area on the wall beside the device being monitored.
    - Make sure all cables will easily reach the module before securing.
3. Mark locations on the wall for the screws using the module as a template.
4. If preferred, drill a pilot hole in the marked locations using a 7/64” drill bit.
5. Drive the two (2) #8 screws into wall surface through the mounting holes on the sides of the module enclosure. Be careful not to over-tighten.
6. Ensure secure fit.

PROCEDURE (HORIZONTAL MOUNT)

Mounting is not required for horizontal installations (i.e. on a desktop or shelf). If added security is desired, follow instructions for vertical mounting using screws or double-sided tape.

INTERNET CONNECTION

All Eyedro products are designed to take advantage of the MyEyedro cloud services – thus requiring the product(s) to be connected to the internet. There is a small amount of internal memory to store data in the event of a temporary disruption to your internet service.

For most networks, it only requires that you connect the device to the network with a DHCP server somewhere on the network. A DHCP server is enabled on most routers by default and will provide connected hardware with an IP address so they can communicate via the internet.

In some cases, additional security has been added to the local network (firewall, port filtering, etc) making some additional configuration necessary. A good test would be to connect a laptop or phone to the same Wi-Fi network – if you can open a browser and navigate the web no additional configuration is likely needed.

A couple of important notes:

- Eyedro devices require **a DHCP server** somewhere on the network.
- If your network does not have a DHCP server, or it is restricted, you may need to reserve an IP address for the device based on the MAC address of the device.
- The **MAC address** of your device will be **60:54:64:XX:YY:ZZ** – where XX:YY:ZZ are the last digits of your module serial number. For example, a module with the serial number 003-12345 will have the MAC address 60:54:64:31:23:45.
- Eyedro devices communicate using **port 80 (HTTP)** – all communication to/from the device looks like standard **web traffic**.
- If you have changed the DNS settings in your router (i.e. to use an ad blocker), try switching back to use the default settings. Alternately use Google's DNS servers 8.8.8.8 (primary) and 8.8.4.4 (secondary)

- Wireless Mesh products (ILM.NODE.*) do **not** communicate using the **Wi-Fi** protocol. They use a custom wireless protocol between modules and an existing Eyedro Gateway[1] (not included).
- Eyedro Gateway[1] devices require connection to **an active Ethernet port** on your router, switch or hub.
- Eyedro Gateway[1] devices ship with Ethernet patch cords (straight-through). Most routers, switches and hubs provide crossover functionality, but some old hardware may not. In those cases, it may be necessary to connect to a specific port or use a crossover cable.
- Eyedro Gateway$_1$ devices communicate via **Half-Duplex 10Base-T**. Most routers, switches and hubs provide coexistence, but some may not. In those cases, it may be necessary to configure the connected port appropriately.

[1] Eyedro Gateway devices sold separately

PROVISIONING WI-FI (ILM.WIFI.* PRODUCTS ONLY)

MATERIALS YOU WILL NEED

- ✓ Phone, tablet, or computer to connect to the device's network

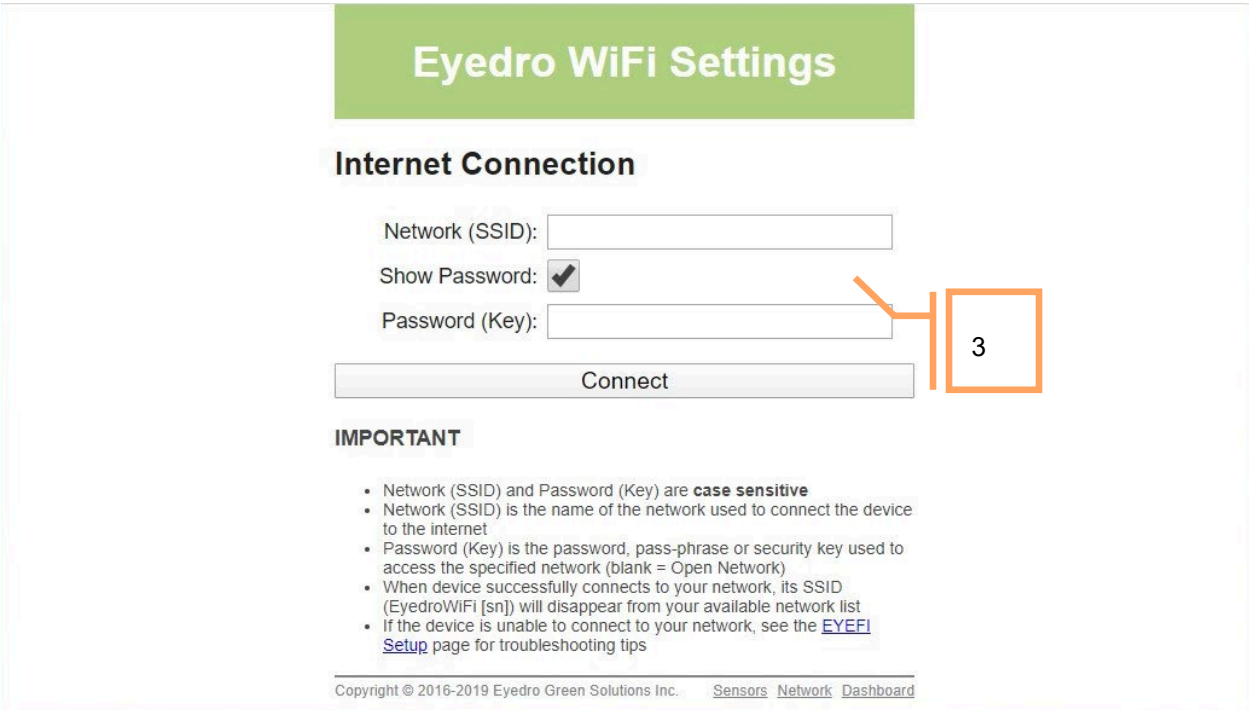
INFORMATION YOU WILL NEED

- **SSID** (network name) for the **2.4GHz Wi-Fi** network you will connect to – **CASE SENSITIVE**
- **Password** for the network you will connect to – **CASE SENSITIVE**

PROCEDURE (ILM.WIFI.* PRODUCTS ONLY)

1. Using a phone, tablet or computer, connect to the Wi-Fi network created by your Eyedro Inline Wi-Fi Electricity Monitoring device
   - The name of the created network will be "Eyedro[xxx-yyyyy]" where xxx-yyyyy matches the serial number of the device.
2. Open a browser and go to eyedro.com/setup.
   - If not automatically redirected to the setup page, it may be necessary to enter **192.168.1.1/network** in the browser URL.
3. Input the Wi-Fi credentials (SSID and Password) for the network you would like the device to connect to in the appropriate fields and click **Connect**.
4. Reconnect to your original network.

Important note: If the setup is not successful, the device will continue to broadcast its own network and reappear in your available network list. Your device must be connected to the internet before you will be able to claim it on your MyEyedro Account.



CONNECT TO EXISTING WIRELESS MESH (ILM.NODE.* PRODUCTS ONLY)

All wireless mesh products require connection through an Eyedro Gateway module (sold separately).

Assuming your gateway is already installed and configured correctly, no other steps are required to connect your Eyedro Inline Wireless Mesh Electricity Monitor to the internet aside from ensuring it is in range of the gateway.

To achieve best performance in wireless mesh installations the following guidelines should be followed:

1. Minimize the number of obstructions between modules where possible (interior/exterior walls, floors, windows, etc.). Line of sight provides best performance.

2. Minimize the number of 2.4GHz radiators near the modules (Wi-Fi routers, Wi-Fi devices, Bluetooth devices, ZigBee/IEEE 802.15.4 wireless devices or other “smart home” devices).

3. If using a Wi-Fi bridge device for connectivity, create a physical separation (>24”) between Eyedro module(s) and Wi-Fi bridge. If possible, plug the two devices into separate receptacles.

4. Modules should be secured in position with screws, double sided tape, Velcro tape or by other means. They should not be left hanging from wires because if they are bumped it can affect the signal quality.

5. Keep the area around the Eyedro module free from metallic objects.

SOFTWARE CONFIGURATION

MYEYEDRO.COM

The **MyEyedro** electricity monitoring cloud service is the interface for your Eyedro device(s). Eyedro and MyEyedro are always working together to measure, analyze and store your electricity usage and cost information. With MyEyedro, your electricity data is automatically and securely stored in the cloud, so it's ready when and where you need it most. MyEyedro presents your electricity data in ways that are engaging, informative and easy to understand. See real-time electricity usage and gain access to many helpful features, including:

- Responsive real-time graphs
- Hourly/Daily/Weekly/Monthly cost estimates
- Bill comparisons and estimates
- Downloadable data for further analysis

MyEyedro is easy to use and accessible from a standard web browser.

1. Go online to: http://my.eyedro.com to create your online account (or login if you have an existing account).
2. From the device configuration screen, enter the serial number of your Eyedro Module(s) – found on the back of the device(s).

For more information on MyEyedro and complete instructions for adding devices, refer to the online documentation and user guide found at http://eyedro.com/support

SPECIFICATIONS

HARDWARE SPECIFICATIONS – NORTH AMERICA

	Wireless (Mesh)		Wi-Fi	
Model No	EYEDRO.ILM	EYEDRO.ILM	EYEDRO.ILM	EYEDRO.ILM
Part No	ILM.NODE.1E.15A	ILM.NODE.1E.20A	ILM.WIFI.1E.15A	ILM.WIFI.1E.20A
Parts Included	One (1) Inline Wireless Mesh Electricity Monitor One (1) Inlet Power Cord One (1) Outlet Power Cord	One (1) Inline Wireless Mesh Electricity Monitor One (1) Inlet Power Cord One (1) Outlet Power Cord	One (1) Inline Wi-Fi Electricity Monitor One (1) Inlet Power Cord One (1) Outlet Power Cord	One (1) Inline Wi-Fi Electricity Monitor One (1) Inlet Power Cord One (1) Outlet Power Cord
Power Supply Voltage	120VAC, 60Hz			
Maximum Load (Outlet) Current	15A	20A	15A	20A
Measurement Accuracy	±1% Typical[1]			
Environmental Operating Conditions	Indoor Use Only 32 to 122°F (0 to 50°C) 80% relative humidity Altitude up to 6562ft (2000 m) Supply voltage fluctuations up to ±10% nominal Transient overvoltages up to Overvoltage Category II Temporary overvoltages Pollution Degree 2 Ingress protection level IP50			
Module Dimensions (W x H x D)	6.25 x 2.75 x 1.75 in (160 x 70 x 45 mm)			
Weight [approximate][2]	2.6 lbs (1.179 kg)			
Wireless Link	IEEE 802.15.4 2.405 to 2.480 GHz		IEEE 802.11 b/g/n 2.412 to 2.484 GHz	
Wireless Range[3]	Indoors: 500ft (150m) Line of sight: 1000ft (300m)		Indoors: 150ft (46m) Line of sight: 300ft (92m)	

[1]Accuracy noted is for sensor readings at 10% to 90% of rated current. This product also requires a continuous internet connection.

[2] Approximate weight includes packaging and contents. Weight based on ILM.xxx.1E.20A model with inlet and outlet cords.

[3] Wireless range is dependent on the location and environment that device(s) are installed in. Typical values provided.

HARDWARE SPECIFICATIONS – EUROPE

	Wireless (Mesh)		Wi-Fi	
Model No	EYEDRO.ILM	EYEDRO.ILM	EYEDRO.ILM	EYEDRO.ILM
Part No	ILM.NODE.1E.10A	ILM.NODE.1E.16A	ILM.WIFI.1E.10A	ILM.WIFI.1E.16A
Parts Included	One (1) Inline Wireless Mesh Electricity Monitor One (1) Inlet Power Cord One (1) Outlet Power Cord	One (1) Inline Wireless Mesh Electricity Monitor One (1) Inlet Power Cord One (1) Outlet Power Cord	One (1) Inline Wi-Fi Electricity Monitor One (1) Inlet Power Cord One (1) Outlet Power Cord	One (1) Inline Wi-Fi Electricity Monitor One (1) Inlet Power Cord One (1) Outlet Power Cord
Power Supply Voltage	230VAC, 50Hz			
Maximum Load (Outlet) Current	10A	16A	10A	16A
Measurement Accuracy	±1% Typical[1]			
Environmental Operating Conditions	Indoor Use Only 32 to 122°F (0 to 50°C) 80% relative humidity Altitude up to 6562ft (2000 m) Supply voltage fluctuations up to ±10% nominal Transient overvoltages up to Overvoltage Category II Temporary overvoltages Pollution Degree 2 Ingress protection level IP50			
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[1]Accuracy noted is for sensor readings at 10% to 90% of rated current. This product also requires a continuous internet connection.

[2] Approximate weight includes packaging and contents. Weight based on ILM.xxx.1E.16A model with inlet and outlet cords.

[3] Wireless range is dependent on the location and environment that device(s) are installed in. Typical values provided.

COMPLIANCE

This product has been tested and found in compliance to:

Safety Requirements For Electrical Equipment For Measurement, Control, And Laboratory Use - Part 1: General Requirements [UL 61010-1:2012 Ed.3+R:29Apr2016]

Safety Requirements For Electrical Equipment For Measurement, Control, And Laboratory Use – Part 1: General Requirements (R2017) [CSA C22.2#61010-1-12:2012 Ed.3+U1;U2]

CAN ICES-3 (B)/NMB-3(B); ISED Canada ICES-003, Issue 6, Class B – Information Technology Equipment (Including Digital Apparatus).

Federal Communications Commission (FCC), Part 15, Subpart B, Class B - Unintentional Radiators.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference and (2) this device must accept any interference received, including interference that may cause undesired operation.

WARRANTY

LIMITED ONE YEAR WARRANTY

Eyedro Green Solutions Inc. warrants this product for a period of one year from date of purchase for all defects in material and workmanship. Defective parts may be repaired or replaced, at the discretion of the manufacturer, free of charge during this period.

Warranty Conditions:

1. The product must be installed and operated in strict accordance to the provided instructions.
2. Warranty requires the original proof of purchase.
3. Warranty is void if the product has been tampered with or modified in any way.
4. Warranty returns require a Return Material Authorization (RMA) number. Visit eyedro.com/support for an RMA number.

CONTACT INFORMATION

If you have any questions about using your Eyedro Inline Electricity Monitoring product please visit our website for documentation, videos, frequently asked questions and contact forms.

Website: eyedro.com

Support: eyedro.com/support

Eyedro Green Solutions Inc.
550 Parkside Drive, Unit B1
Waterloo, ON N2L 5V4