EM3 – OpenADR 2.0(a)/(b) Configuration Guide

*Requires firmware 4.3.14+
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1. **EM3 Installation**

1) Connect the cable labeled **Network** your network hub. **Note**: the network must *initially* be DHCP enabled.

2) Connect the Power cable. Please note that if you would like to control relays, it’s best to also plug the attached power supply to power as well.

3) If you do not have Java installed, please install the latest for your platform. You may find the latest Java downloads at [http://www.java.com/getjava](http://www.java.com/getjava). Please choose the latest JRE for your platform.

4) Follow [these instructions](#) to install ISY Finder/Launcher app (Figure 1) on your desktop which should be used here on out. Click on your ISY on the list which brings up the launch menu.

   a) Click on the **Dashboard** menu item to perform the rest of the setup in this document.
   b) In either case, when prompted to authenticate, enter **admin** for both username and password.
   c) In case you wish to add/configure INSTEON/Z-Wave devices or perform more advanced programming, from the same menu, choose the **Admin Console**

![Figure 1 – ISY Finder/Launcher](#)
2. Setting Date and Time

Note: By default, EM3’s time zone, latitude, and longitude are configured for San Francisco. You can skip this section if these settings reflect the location of EM3.

a. Activate Date & Time (Steps 1 & 2, Figure 2a)
b. For accurate sunrise/sunset calculations, it’s important to provide correct Latitude and Longitude. If you don’t have those numbers, you can use the Locate Me button (step 3, Figure 9a)
c. Click on the Save button for the changes to take effect (step 4, Figure 2a)

Figure 2a – Setting Date and Time
3. Configure EM3 Settings

a. Bring up the properties dialog (Steps 1 & 2, Figure 3a)

b. Adjust Main Properties as necessary

   **Debug Mode** – Used only for debugging the EM3. Do not check

   **Realtime Mode** – Used to cause EM3 to send real time updates using the user defined intervals (see step c). Check

   **KYZ Mode** – Whether or not you the pulse counter is in KYZ mode or KY mode

   **Temp Unit** – Temperature measurement unit: F/C

c. Adjust Secondary Properties and Intervals for Realtime Mode. **Note**: you must click the button next to the settings after the desired value is set for each

   **Power Report Interval** – The interval when EM3 sends updated Power information (kWh, kW)

   **Volt/Current Report Interval** – The interval when EM3 sends updated Voltage and Current information including Power Factor

   **Temperature Report Interval** – The interval when EM3 sends Temperature information

   **Pulse Report Interval** – The interval when EM3 sends Pulse counts (kW, kWh, and Pulses)

   **Pulse Count Factor** – The number of kWh per each pulse

   **Power Storage Interval** – The interval when EM3 saves Power information in non-volatile memory

   **Pulse Storage Interval** – The interval when EM3 saves Pulse information in non-volatile memory
4. Configure OpenADR

a. Configure Devices

OpenADR operations, including reporting and opts, are only applied to devices that are in the Auto DR Group.

To include devices in the OpenADR Group, click on the Device Manager and drag and drop devices into the Auto DR Group (Figure 4a).

![Figure 4a – Configure Devices]
b. Activate My OpenADR Portlet
c. Configure OpenADR Settings
d. Configure OpenADR Registration (2.0b)

Auto Registration – if this option is checked, EM3 will automatically try to register with the VTN at boot up or when there is no longer any registration.
e. Configure OpenADR Reports (2.0b)

Register All – This option must always be checked since OpenADR 2.0b requires all reports (status/usage) to be registered at the same time.

Register – if Register All is checked, all report types (status/usage) are registered at the same time. Otherwise, only that specific report (usage OR status) is registered.

Duration – This value lets the VTN know how much data EM3 can store before needing to send the reports to the VTN.

Max Sampling – The slowest sampling rate

Min Sampling – The fastest sampling rate

Report registrations are cannot be canceled. So, if there are any changes to any reports, Register button must be clicked again to re-register all reports (replaces the old metadata information).
EM3 will automatically decide what needs to be registered based on the device classes of devices that are in Auto DR group. For instance, energy monitoring channels or Smart Meters, only register Telemetry Usage whereas thermostats and load controllers register Telemetry Status. Some devices may report both.

f. **Configure OpenADR Opt Schedules (2.0b)**

Opt Schedules inform EM3 of what disposition must be reported during certain times. Clicking on the **Add** button or any of the schedules brings up the Opt Editor dialog which enables editing each schedule.
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<td>2014/02/02</td>
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<tr>
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</tr>
<tr>
<td>Reason</td>
<td>Schedule</td>
<td></td>
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</tr>
</tbody>
</table>
5. Configure Load Shedding Strategies

**Revert** option instructs EM3 to revert device states to those immediately before the start of the event. If this option is not enabled, devices continue staying at states initiated by the last event. Please note that this option is also used within the Opt Out context: if the user opts out of an event, and when Revert option is enabled, the states go back to those immediately before the start of the event.

**Note:** EM3 is preconfigured with Revert Option disabled. To enable, follow step (c) below.

**Note:** EM3 is preconfigured with default load shedding strategies. You may skip this step if default values are acceptable.

a. If OpenADR Portlet is not already active, please activate it (section 3)
b. Activate OpenADR Settings dialog (steps 1 & 2, Figure 5a)
c. Check Revert option as necessary (step 3, Figure 5b)
d. If you are using internal EM3 relays (total of 4), adjust the desired Duty Cycle for the load controllers. Duty cycle of 100% means that nothing will be done to the device. Duty cycle of 0% means that the device will be off for the entire duration of the event

e. **[Optionally]** If your EM3 is configured with Zigbee and Z-Wave modules, and if you have would like to control thermostats, adjust desired set point offsets for each Mode (Normal, Moderate, and High). Offset of 0 means that the thermostats will not change their set points (steps 3, 4, and 5, Figure 4a)

**Note:** For Duty Cycle to work properly, you must configure each EM3 Relay with appropriate:

- **Device Class:** such as Water Heater
- **Duty Cycle Period:** such as 60 minutes which is the total duration for a complete cycle

e. **[Optionally]** If you have dimmable devices attached to EM3, adjust the desired Load Adjustment for dimmers. Load adjustment of 0% means that nothing will be done to the device. Load adjustment of 100% means that the device will be off for the entire duration of the event

**Note:** For Load Adjustment to work properly, you must configure each dimmable device with appropriate:

- **Device Class:** such as Interior Lighting

Please contact [support](mailto:example@support.com) for assistance in configuring your EM3 with dimmable devices.

g. Click on the Save button (step 6, Figure 5a)
Figure 5a – Load Shedding Strategy
Figure 5b – Revert Option

Note: By default, EM3 automatically opts into events and will then require the customer to explicitly opt out. Automatic Opt-in/Opt-out Schedules allow this process to be automated per customer’s requirements.

a. If OpenADR Portlet is not already active, please activate it (section 3)
b. Activate Opt Schedules dialog (steps 1 & 2, Figure 6a)
c. Click on the Add button to create a new schedule (step 3, Figure 6a)
d. In the Opt Editor dialog, choose a date range and then the disposition for those dates (steps 4 & 5, Figure 5a)
i. Please note that if you click End Time, you can create a date range that starts at Start Time and continues till this schedule is explicitly canceled
e. Click on the Save button on Opt Editor dialog (step 6, Figure 6a)
f. Repeat for as many schedules or edit existing ones
g. Click on the Save button on opt Schedules dialog (step 7, Figure 6a)

Figure 6a – Automatic Opt-in/out Schedules
7. Issue an Event
You can use the Event Viewer to see the operational status of ISY and OpenADR events:
8. Advanced Options

Please contact support for either in person or remote training.

9. Support

Phone: 818-631-0333
Email: support@universal-devices.com
Tickets: http://www.universal-devices.com/contact-support/