

Racktivity

User Manual



Energy Sensor

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Preliminary Information

Applicable Models

Unless specified otherwise, all information in this document is applicable to the following Racktivity Energy Sensor models:

- ESN100-10

Usage

The Racktivity Energy Sensors are intended to be used in conjunction with Racktivity Energy Switches that are equipped with one or more Racktivity R-BUS connectors.

Specifications

Electrical Ratings

Input:

	ESN100-10
Voltage	5V DC

The Energy Sensor receives input power through the R-BUS connection with another Energy Switch. A standard Cat. 5e LAN cable (straight through) is used to establish this connection.

Linking multiple Energy Sensors

Up to 10 Energy Sensors can be connected to 1 Energy Switch R-BUS connector.

Note: The double R-BUS connector on certain 0U Energy Switches functions as 1 R-BUS connector. In this case 10 Energy Sensors can be connected in total over the double R-BUS connector.

Operating Environment

Operating temperature	0°C to 50°C	32°F to 122°F
Storage temperature	-10°C to 60°C	14°F to 140°F
Humidity	5% to 85% RH	non-condensing

Dimensions

Dimensions cm (WxHxD)	5.77 x 7.00 x 2.38
Dimensions inch (WxHxD)	2.27 x 2.76 x 0.94

Compliance

- **WEEE**

Waste Electrical and Electronic Equipment

- **RoHS**

Restriction of Hazardous Substances



ROHS

Safety Information



Save these instructions!

This documentation contains important instructions that should be followed during installation and maintenance of the Energy Sensor. It is intended for Racktivity customers who set up, install, relocate, or maintain Racktivity equipment. Changes and modifications to this unit not expressly approved by Racktivity could void the warranty.

Receiving Inspection

Inspect the package (see INVENTORY section) and contents for shipping damage and make sure that all parts were received. Report any damage immediately to the shipping agent and report missing contents, damage, or other problems immediately to your reseller.

Recycling



The materials used for shipping the Energy Sensor are recyclable, please save them for later use or dispose of them appropriately.

Servicing & Repair

There are no user serviceable parts inside the Energy Sensor. All repairs and service should be performed by authorized service personnel only.

Please refer to the Service Manual for RMA procedure.

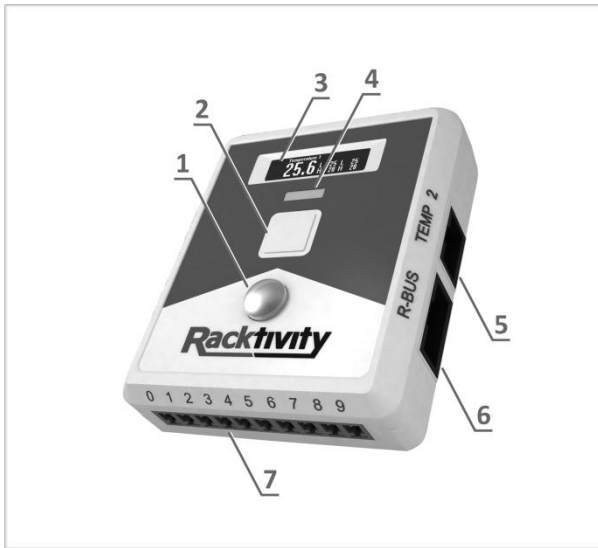
Inventory

Please verify the contents of the box:

Standard Package

Item	Quantity
Energy Sensor	1
Cat. 5e LAN cable (straight)	1
User Manual	1

Overview



1	DOME	Motion detection dome (if applicable)
2	BUTTON	Operation button
3	DISPLAY	OLED display
4	LED	RGB status LED (see Status LED chapter)
5	TEMP (2x)	Connector for external temperature probes (both sides)
6	R-BUS (2x)	R-BUS connector (both sides)
7	I/O CONN	Input & output connector (see I/O Connector chapter)

Status LED

BLUE	The sensor is powered on (no motion detected (if applicable))
RED	The sensor is powered on and has detected motion. Intensity is based on the amount of motion detected
GREEN	The button has been pressed

Internal Temperature Sensor

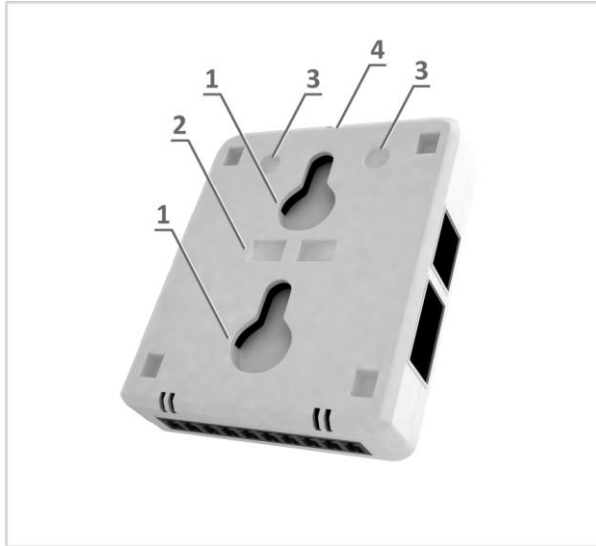
To ensure the most accurate readings from the Energy Sensor' internal temperature sensor please install the unit in a well-ventilated area. When this is not the case a slight deviation of the temperature sensor' readings is possible. Using external temperature probes - connected to the TEMP connectors - removes this issue.

In certain cases it is possible to calibrate the sensor, for more info contact Racktivity Support.

Installation

Mounting Options

The Energy Sensor's back panel features several mounting options.



1	CAGE NUTS	Lock to a vertical rail in a rack using cage nuts
2	CABLE TIE (H)	Cable tie slot for horizontal mounting
3	MAGNETS	Circular notches for 5 x 3mm (0.2 x 0.12") neodymium magnets
4	CABLE TIE (V)	Cable tie slot for vertical mounting

Connecting the Energy Sensor

1. Connect one end of the supplied Cat. 5e LAN cable (standard straight through) to the R-BUS connector on your Energy Switch.
2. Connect the other end of this cable to one of the two R-BUS connectors on the Energy Sensor. Either one of the R-BUS connectors can be used as connection to an Energy Switch or as link to the following Energy Sensor.

Managing the Energy Sensor

When an Energy Sensor is connected to the R-BUS of an Energy Switch it receives input power and is fully functional on itself. At this point the Energy Sensor is not yet “managed” by the Energy Switch, meaning that there is no data link between the two.

Managing can be done in 2 ways, through the Command Line Interface and via the website.

The following chapters only cover specific actions regarding the managing of an Energy Sensor. For more general information about these topics please see the User Manual of your Energy Switch.

Website

1. Connect the Energy Sensor to an available R-BUS connector on your Energy Switch.
2. Log in to the Web Portal as administrator.
3. Open the Management tab (available as of firmware version 1.2).
4. Press the Scan button below the table to scan for modules.
5. When successfully completed the Energy Sensor module has been added to the table ("ESN100-10" by default).
6. Select "Manage" in the Action column of the module row and press the Save button.
7. If the managing is successful a new tab named "Modules" appears at the top of the Web Portal where the Energy Sensor can be operated and monitored.

CLI

1. Log in to the Command Line Interface as administrator.
2. Enter command: **get m1 modinfo 1-4**
to see the number of used slots (replace "1-4" with "5-8" if there are no free slots).
3. Enter command: **set m1 modscan 1**
to initiate a new module scan.
4. Enter command **get m1 modscan**
to get the result of the module scan (should return "2").
5. Enter command **get m1 modinfo 1-4** (or "5-8")
to get the updated list of modules. Every not yet managed Energy Sensor has now been added to the list as an A1 module (ref. step 1). The list number equals the number of the module (shown as [X] in the following commands).
6. Enter command **set m1 modmgmt [X] 1**
to manage the module in slot [X] (as defined above). Do this for every Energy Sensor you wish to manage.
7. Enter command **get m1 modmgmt [X]**
to get the management status of the module in slot [X] (should return "1").

8. Your Energy Sensor is now managed by the Energy Switch. For more information on how to get measurements from the Energy Sensor please see the API documentation or use the “HELP” command in the Command Line Interface.

Connecting I/O

External temperature probe

Up to two external temperature probes can be connected to each Energy Sensor. To connect an external temperature sensor plug it in an available TEMP connector. The read-outs will be available instantly.

I/O Connector

The Energy Sensor features an Input/Output (I/O) connector to which external devices can be connected. The following is an overview of the I/O Connectors pins.

PIN	FUNCTION	MAXIMUM VALUE
0	Relay contact 1 (NC)	2A - 60W - 48V DC
1	Relay contact 1 (NC)	
2	Relay contact 2 (NC)	2A - 60W - 48V DC
3	Relay contact 2 (NC)	
4	Analog IN 1	3.3V
5	-	-
6	-	-
7	Analog IN 2	3.3V
8	5V out - Switched	40mA
9	Ground	-

Quick Configuration

Using the OLED Panel Display

Activating the display

When the Status LED is lit or blinking and the screen is black, push the button below the OLED display to activate it. On some models, the display is activated when motion is detected.

Controlling the display

The button on the Energy Sensor has 2 main functions: switching display screens and resetting values.

- Switching screens: press the button once.
- Resetting values (on a value screen): keep the button pressed until the status LED changes color (1 sec).
- Other functions: follow the instructions on-screen.

Troubleshooting

Known Issues

- **No communication between the Energy Sensor and Energy Switch.**
When the Energy Sensor and Energy Switch are not booted at the same time, communication between the two may fail. This issue can be resolved by booting the 2 devices when they are connected. After connecting the Energy Sensor give the Energy Switch a Hot Reset through an API call or by pressing the MENU and DOWN button simultaneously for 3 seconds.

Support

Feel free to contact us if you need any support:

Online www.rackivity.com/support

E-mail support@rackivity.com

Phone 003293242095 (GMT+1)