

## Product Brief ZOE-MLC1, Model #4040A



# Smart Energy Wireless Metering Dual-Load Controller

The ZOE-MLC1 dual-load DRLC and on/off controller interfaces wirelessly with an Energy Service Portal (ESP—usually a smart meter) to control high power loads (up to 240VAC at 30Amps) via demand response or price events from the electric utility, or On/Off commands from a local gateway. The device measures the power delivered and other parameters such as power factor, frequency, current and voltage and reports events such as change in load and user opt-in/opt-out. This enables the intelligent management of large appliances to maximize energy conservation while taking advantage of the lowest rates offered by electric utilities. Independent relays eliminate the need for additional controllers when handling two-speed appliances such as pool pumps.



### Benefits

- Remotely controls and monitors heavy loads such as water heaters, pool pumps, pool heaters, electric vehicle chargers, HVAC, etc.
- Measures the energy consumed by a 120V or 240V load, allowing total energy management by the consumer or an electric utility.
- Controlled via ZigBee, a wireless RF protocol that is rapidly becoming the standard for energy management. Enables appliances to become part of the emerging smart ecosystems.
- Small size and convenient connectivity means easy retrofitability and low installation cost.
- Comes standard with normally closed (NC) primary relays. Contact the company for other configurations including fail-safe mode.
- Relays on both lines of the power input provide total isolation of the switched load.
- Third relay on line 1 is ideal for control of two speed appliances.
- Safety tested to UL916 and CSA 22.2 standards.
- Outdoor/indoor NEMA 4X enclosure means the device is ready to be installed stand-alone.

### SPECIFICATIONS:

#### Electrical

Operating Voltage:	95—270 VAC
Max. Load Current:	Relay 1: 30 Amps @ 240VAC Relay 2: 30 Amps @ 240VAC Relay 3: 30 Amps @ 240VAC
Operating power:	All relays energized: < 2.5 Watts. Standby: < 0.5 Watts.
Surge protection:	MOV rated for 300V
Connections:	Loose 12 ga. wires
Switch Contactor:	N.C. primary relays N.O. secondary relay

#### Mechanical

Size:	4.5" L X 3.5" W X 2.25" H
Weight:	14.5 Oz.
Mounting:	Four screw holes or bracket.
Local Load Control:	Yes, through pushbutton

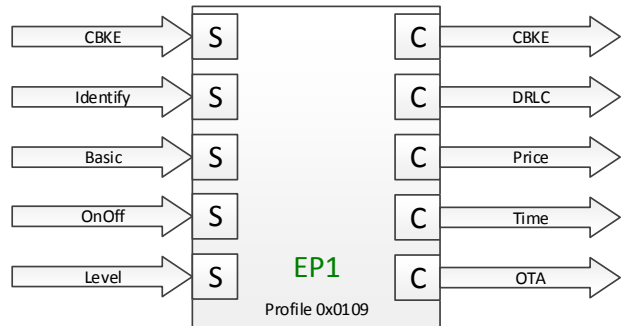
#### Environmental

Temperature:	-25—50 °C (-13—122 °F)
Humidity:	5—80 %RH Condensing

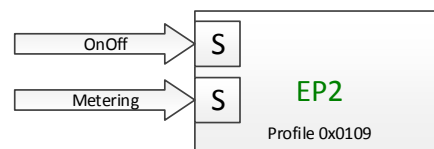
## OTHER SPECIFICATIONS:

Indicators:	Blue LED: Multi-function to indicate network status, binding mode, fault conditions. Green LED: Indicates main relays are energized. Red LED: Indicates L2 relay and second relay on L1 are energized.
Local Control:	Multifunction pushbutton. Operates relays for High/Medium/Off settings. Used for joining network, permit joining, opt-in, opt-out, price update and binding.
ZigBee® function:	Manufacturer ID: 0x1075; end device
Calibrated Metering Accuracy:	As normally supplied accuracy is 1-3%. Calibratable to better than 0.5% 5W-7200W on special order. Supports IEC61036/60687, and IEC62053-22/-23.

SE Profile: (0x0109)		EP1 Device ID: 0x0504	Load Control
		EP2 Device ID: 0x0501	Metering
Cluster ID	Cluster Name	Client/Server	Cluster Description
0x0000	Basic	Server	Attributes for determining basic information and setting and enabling device
0x0003	Identify	Server	Attributes and commands for putting a device into Identification mode
0x0006	On/Off	Server	Attributes and commands to enable control of the relays
0x000A	Time	Client	Attributes and commands to interface to a real-time clock
0x0019	OTA	Client	Attributes and commands to enable over-the-air firmware upgrades
0x0700	Price	Client	Provides mechanism for communicating electricity pricing information within the premise
0x0701	Demand Response and Load Control	Client	Interface to the functionality of Smart Energy Demand Response and Load Control
0x0702	Simple Metering	Server	Provides mechanism to retrieve electric power usage
0x0800	Key Establishment	Client/Server	Attributes and commands necessary for managing secure communication between ZigBee devices



### ZOE-MLC Device Definitions



#### Relay Logic

Relay R1 and R3 are normally n and relay R2 is off (load energized on Hi)  
 On DRLC Event with 100% reduction, all relays are turned off (load de-energized)  
 On DRLC event with 50% reduction, R1 is turned off and R2 and R3 are turned on  
 On DRLC event completion, relays are returned to their previous state  
 OnOff Commands on endpoint 1 affect R1  
 OnOff Commands on endpoint 2 affect R2

