DENG KAI

EBQ

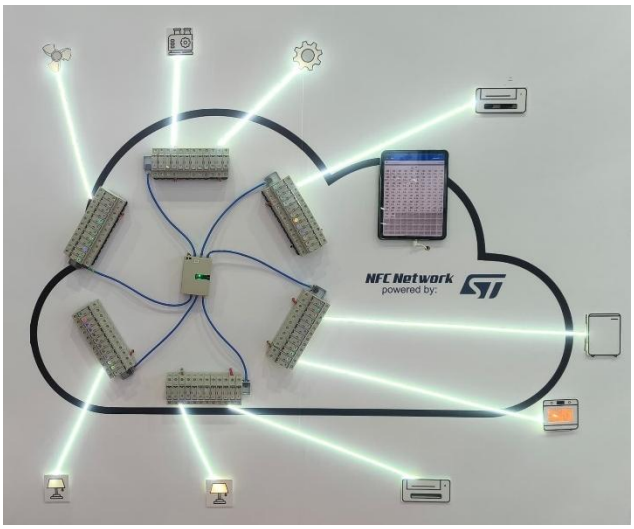
Electronic Breaker with Charge

Wireless-powered electronic circuit breaker with IoT-ready feature

https://www.deng-kai.com/ebq/ | enquiry@deng-kai.com

About EMS by EBQ

Deng Kai is an electronics design company specializing various type of electronic devices to make smart energy solution available for everyone and empower everyone to take action hence reduce carbon emissions together.



Energy efficient made simpler with Energy Management Solution (EMS) is to helps compliance to Environmental, Social, Governance (**ESG**) and fulfilling the energy management standard, **ISO 50001**.

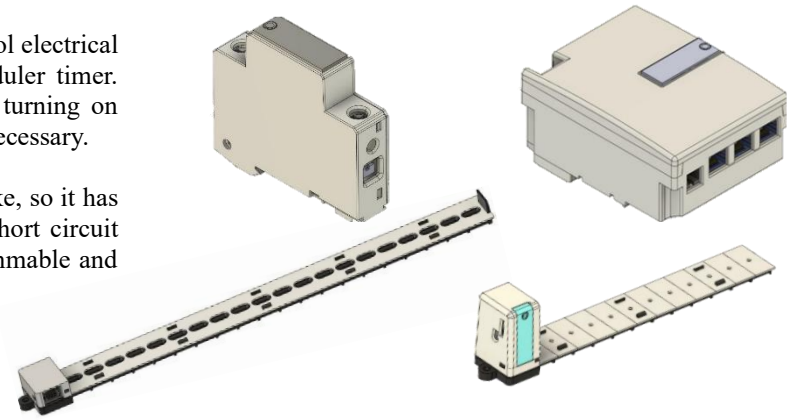
EMS has 3 main features:

1. Energy Monitor
2. Smart Control
3. Circuit Protection

Energy Monitor. As EMS is IoT based device, it is connected to cloud so you can monitor your electrical devices anytime, everywhere. From the historical data, you may understand the behaviours of your appliances and get know that is any power hungry devices or electric stealing happen.

Smart control. We have the feature allow you to control electrical appliance, either controlling manually or use a scheduler timer. With these IoT control, you save a lot of energy by turning on electrical appliances when you need, and off when unnecessary.

Circuit protection. Since it is an electronic breaker like, so it has all function like normal MCB, overcurrent trip and short circuit protection. The main difference is our EBQ is programmable and able to set your desired tripping current.



Specification

Electrical Features	Number of Poles	1 (Live In Live Out)	
	Tripping Characteristics	Custom Curve	
Rated Value	Rated Load	16A 250VAC	40A 250VAC
	Current Accuracy	0.01A (Starts from 0.06A)	
	Switching Capacity	5000VA	12500VA
	Contact Resistance (initial)	≤20mΩ (1A 6VDC)	≤2mΩ (1A 6VDC)
	Rated Voltage	110~250VAC	
	Rated Frequency	50Hz & 60Hz	
Cut-Off	Short-circuit Operate Time	20~30ms	25~35ms
	Mechanical Life	100k (Ops.)	
	Electrical Life (On/OFF: 1s/9s)	16A 250VAC 100k (Ops.) 20A 250VAC 20k (Ops.)	50A 250VAC 50k (Ops.)
Operate Condition	Ambient Temperature	-40~85°C	
	Humidity	5%~85%RH	
Internet of Things (IoT)	NFC	ISO/IEC 14443	
	BLE	Bluetooth v5.2	
	Wi-Fi	802.11b/g/n Support WPA/WPA2	
	LTE/ Cellular 4G	LTE B1/3/5/7/8/20/28	
Certification		MS IEC 60898-1	

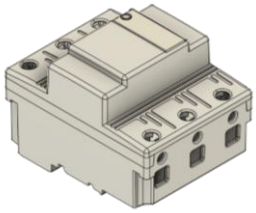
Product Overview

EBQ Tag & Din Rail

EBQ-TAG01-16A
EBQ-TAG01-40A

For all application up to 16A or 40A
With custom tripping characteristics

EBQ-3P01-100A



For all application up to 100A
With custom tripping characteristics

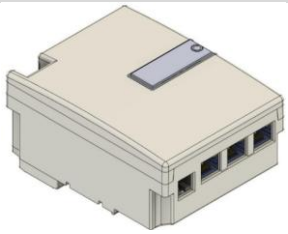
EBQ-RAIL01-12
EBQ-RAIL01-20

Specification	Remarks
Slots	1 - 20 unit
Length	28mm + 18(N)
Height	35mm

*N = No of unit

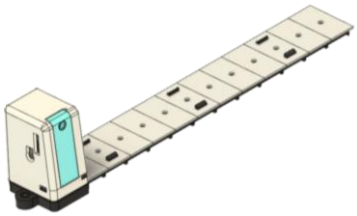
EBQ Master

EBQ-MASTER02



Specification	Remarks
Model	Master 02 (6 RJ45 + 1 RJ11)
Input Voltage	110Vac ~ 275 Vac
Maximum Output	12W

EBQ-MASTER03-12
EBQ-MASTER03-15
EBQ-MASTER03-20



Specification	Remarks
Model	Master 03 (1 RJ45)
Input Voltage	110Vac ~ 275 Vac
Maximum Output	12W

EBQ IoT Module

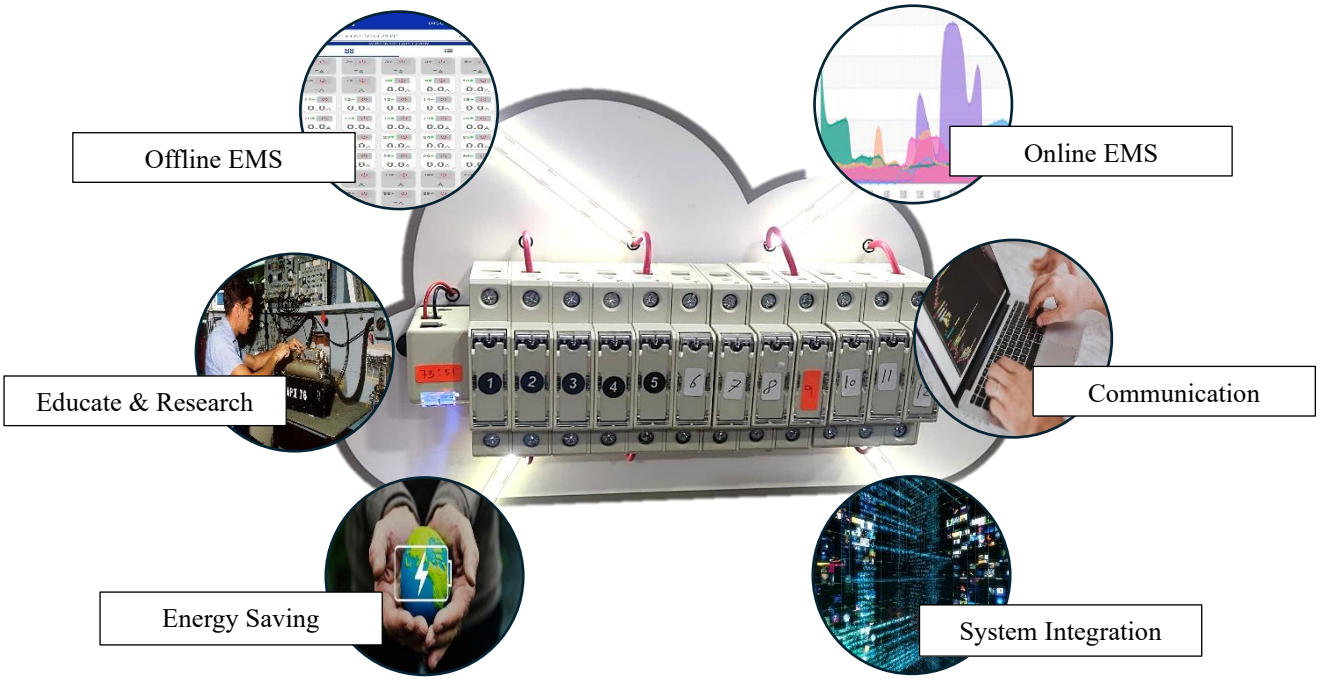
EBQ-4G-MODULE

Specification	Remarks
Maximum Current	3A

EBQ-WIFI-MODULE

Specification	Remarks
Maximum Current	3A

Features



Cellular 4G
Wi-Fi
Bluetooth
NFC

Provide Solutions for Industry/ Residential Customers

Advantages

Our EMS provide some unique features to you:

I. **Flexibility in Integration**
Multiple cloud service provided and flexible to install in panel box, DB or may be for machines.

II. **Scalable for Residential to Small Industrial**
Minimum 3units up to 120, from household, office, retail to small industrial.

III. **Star network Topology**
Single network Internet Protocol (IP) control/monitor up to 120units.

IV. **Programmable**
Able to configure precise tripping current using NFC and BLE.

Questions and Answers

Q. What is the maximum current rating of 1-phase EBQ?
A. 2 models available, 16A and 40A.

Q. What is the maximum current rating 3-phase EBQ?
A. 100A. It will be available at the end of 2025.

Q. Do I need to upgrade EBQ-RAIL and EBQ-MASTER to use 3-phase EBQ?
A. No, it will be compatible with existing EBQ-RAIL.

Q. What are the network connection available?
A. WiFi or 4G/LTE.

Q. How EMS can operate in offline mode?
A. Android devices connects IoT Hub (EBQ-MASTER) enable instantaneous current monitoring and circuit turn-on/off of EBQ, without internet connection.

Q. Can I use my own cloud service?
A. Yes, we open our MQTT protocol for cloud integration.

Q. Where shall I install the EBQ?
A. It can be installed in power distribution box, panel box, or directly installed in power entry point of machine.

Q. What is the IoT security in hardware?
A. AES (Advance Encryption system) is employed when exchanged data between cloud server and EBQ-MASTER. Preloaded digital certificate to authenticate to user preferred cloud server.

Q. What is the IoT security in cloud platform?
A. user access to secure channel https. Cloud platform log-in authenticated using Google security framework.

Q. Can I get power reading in kWh?
A. No. EBQ measures current but not voltage. Hence the reading is kAh. Total KWh can be obtained with additional power meter. Individual kWh can be calculated using kWh = Voltage x kAh x PF (power factor).

Q. Is EBQ compatible with MCB?
A. We recommend EBQ connect in series with MCB for greater flexibility on shifting business location, or directly replace the MCB with EBQ. Mix use of MCB and EBQ is also compatible provided EBQ-RAIL is used.

Our Office

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