



CASE STUDY

**MONITORIZATION**  
OF SOLAR INSTALLATIONS  
FOR SELF-SUPPLY



[www.mtxm2m.com](http://www.mtxm2m.com)

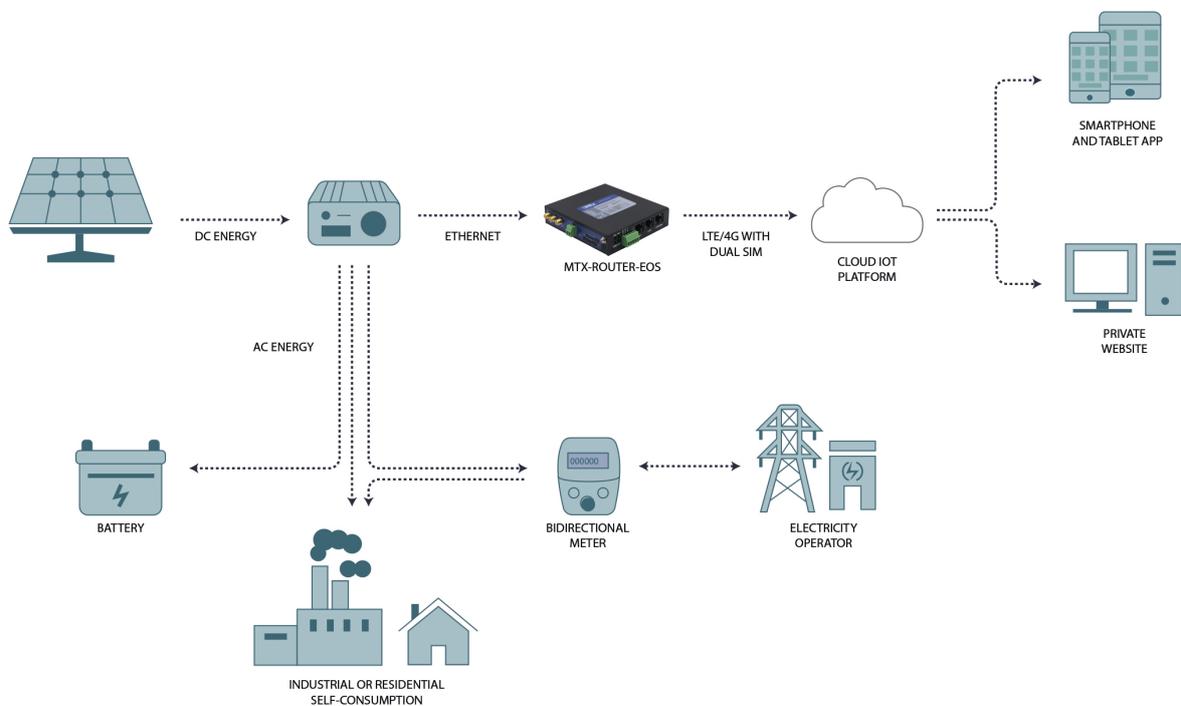
# Monitoring of Solar Installations for Self-Supply

The upward trend of renewable energy does not stop, especially when we talk about solar energy applied to self-supply both in private homes and, especially, in an industrial environment. Thanks to the installation of solar panels for self-supply, homes and industries can achieve economic savings and an ecological footprint.

This kind of installation consists of one or several solar panels connected to one or more current inverters, which in turn pour the energy obtained into batteries for the user's electrical network and the company's electrical network (surplus). For proper monitoring of both, the status of the devices and the consumption and energy generated, a communication equipment is essential so it receives the data from the inverters and send it to the cloud so the pertinent IoT platform can analyze it. This is especially relevant in industrial environment solar installations, where fail-proof LTE/4G connectivity is required.

Device: **MTX-Router-EOS, industrial IoT compact router with LTE, dual SIM and 3x Ethernet**

Platform: **Platform integrator's property**



The renewable energy solution for self-supply requires constant monitoring of the installed devices, as well as the absolute control of the energy produced, the consumption and the surplus that is discharged into the general electrical network. To do this, each inverter in the installation is connected via Ethernet to a simple communication device that transparently transmits the information received to the cloud, where a proprietary platform of the integrator analyzes the data obtained and displays the information directly to the customer. To reduce costs it is important to be able to connect more than one inverter to the same communication device. Since these installations are not always in urban environments, maximum security in LTE/4G connectivity is essential, to avoid the interruption of the data flow.

Due to these requirements, the most recommended MTX equipment is the MTX-Router-EOS, an entry level router with basic features and affordable price, that provides all the requirements of the project.

The MTX-Router-EOS has three Ethernet connectors, which allow three different inverters to be connected to the same router, which in turn obtains energy from several solar panels. Thanks to the communication between the inverter and the router, it is possible to obtain differentiated information on the status of each of the solar panels and the inverter itself, as well as the data on the obtained energy, the consumption and the surplus. In addition, thanks to its dual SIM it has a high tolerance to network failures due to the fact that two SIM cards can be inserted so that in the event of a network failure, one of them is automatically connected through the other in order to keep sending the information. This is especially interesting in industrial and rural environments where the state of the network can be less than appropriate.

Communication between the inverters and the integrator's platform is carried out in a transparent way, sending data frames as generated by the inverter, ensuring the integrity and quality of the information.

The MTX-Router-EOS offers industrial benefits and great reliability for IoT solutions which require a fast and secure transmission of information in a transparent way. It has a very compact design with a very resistant case and the necessary accessories to be mounted on a DIN rail. It has dual SIM, 3x Ethernet, VPN client and 3x antennas included (plus a fourth for optional GPS).

# MTX-Router-EOS

## LTE/4G, dual SIM & 3x Ethernet compact industrial IoT router

The MTX-Router-EOS is an entry level router developed for industrial applications. It has a very compact design with a very rugged enclosure and accessories to be mount in a wall mount. It features dual SIM, 3x Ethernet, VPN client and 3 antennas included (another one for GPS optional). The MTX-Router-EOS can be used in many different IOT applications like kiosk, telemetry, remote sensing, smart grid, security, industrial automation, etc.



### MAIN FEATURES



4G



Dual SIM



WiFi



3x Ethernet



RS232/  
RS485



DIN rail



Modbus



VPN



DHCP



Firewall



Serial  
tunnelling



DynDNS



Programmable  
autoreset



MQTT



SMS  
control



### CERVELLO STEM - IOT PLATFORM FREE FOR ONE YEAR WITH THIS DEVICE



Devices  
inventory



Rules engine



Command  
template



Remote Control



Real time  
Dashboards



Custom  
admin role

-  DC input: 5-35 Vdc Phoenix type
-  Temperature range: -35° to +75°C
-  Dimensions: 115x97x24mm
-  Weight: 390gr

Preliminary Datasheet. Subject to changes | 2020/05  
MTX © by MATRIX ELECTRONICA S.L.U.  
SUPPORT: [iotsupport@mtx2m.com](mailto:iotsupport@mtx2m.com)  
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[mtx2m.com](http://mtx2m.com)

# HARDWARE FEATURES

## MTX-ROUTER-EOS 4G



LTE 700, 800, 900, 1800, 2600MHz; UMTS/HSPA+ 900, 2100MHz

4G

LTE Cat.4 FDD: B1, B3, B7, B8, B20, B28A: DL 150Mbps, UL 50Mbps; MIMO

3G

HSPA (3GPP release 6, 7) B1, B8: DL 7.2Mbps, UL 5.7Mbps; HSDPA Cat.8/HSUPA Cat.6 data rates

2G

GPRS B3, B8: Class 12; mobile station class B; PBCCH support; coding schemes CS 1-4



### Interfaces



4G/3G/2G connectivity



3x Ethernet 10/100 BaseT



1x COM (RS232 or RS485)



WiFi 802.11 b/g/n



GPS (optional)



Operating LEDs



SIM card interface 1.8V/3V



DIN rail

### Connectors



3x RJ45: Ethernet 10/100 BaseT



1x terminal block: RS232/485



Dual SIM card



2x SMA F antenna connectors: LTE



1x SMA F RP antenna connector: WiFi



1x SMA F antenna connectors: GPS (optional)



DC power terminal block: power input

### Packing List Included



DIN rail and wallmount kits



Ethernet cable



WiFi antennas



LTE antennas

## SOFTWARE FEATURES

-  DHCP server
-  NAT/IP firewall
-  Serial tunnelling
-  Multiple DDNS provider supported
-  Automatic data sending (MQTT)
-  Schedule reboot, schedule online and off-line
-  SMS control
-  Remote management (web, SSH, Telnet)
-  Remote firmware upgrade

## ORDERING INFORMATION

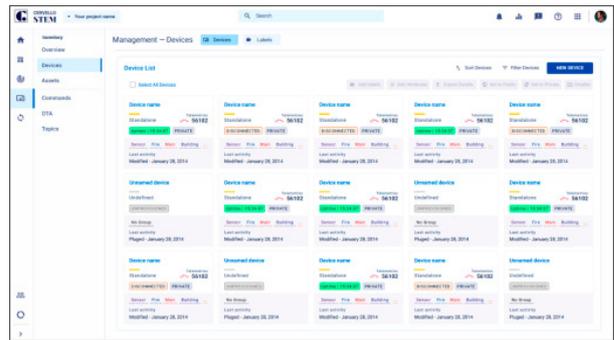
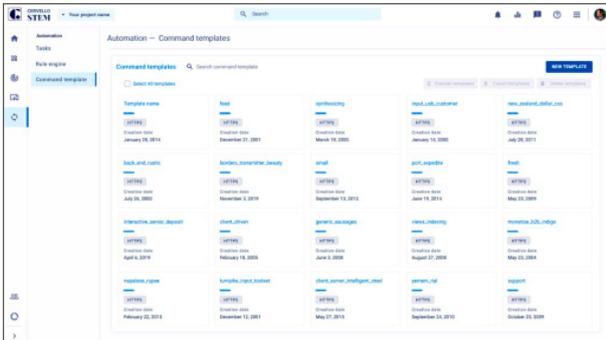
MTX-Router-EOS 4G WiFi

**502300047**



# CERVELLO STEM - IOT PLATFORM

FREE FOR ONE YEAR WITH MTX DEVICES\*\*



## General Features

-  Up to unlimited devices
-  Rules engine
-  Real time dashboards
-  Remote control
-  Multi-tenant\*
-  White labeling\*
-  Custom admin role\*

## Control

-  Command template

## Devices Inventory

-  Add single and single from template
-  Add Bulk from template and from autoprovisioning
-  Manage: Device template, Groups, Assets and Bulk actions

## Visualize

-  Dashboards
-  Reports

## Security

-  2-factor authentication
-  SSL for end user application
-  Custom admin roles\*

\*Upgrade required

\*\*Available with compatible devices: MTX-EOS and MTX devices with MTX-Tunnel or MTX-Titan