



#WeAreConnectivity
SMART SOLUTIONS FOR A CHANGING WORLD



● CASE STUDIES ●
Data Center
MONITORING



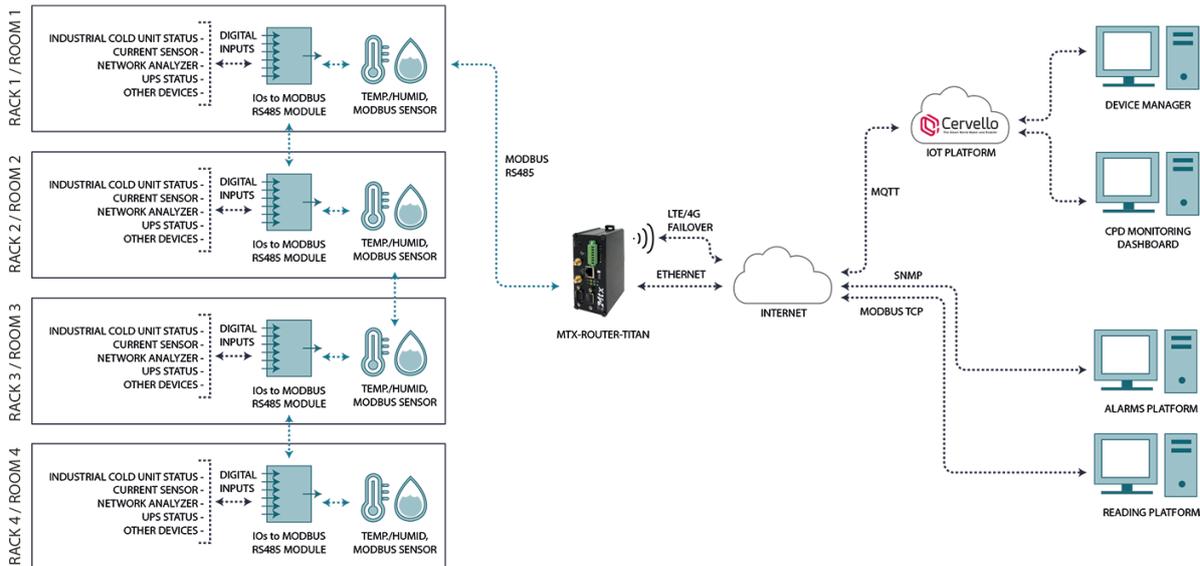
www.mtxm2m.com

Data Center Monitoring

A Data Center is an installation of one or several rooms full of computers and electronic equipment which function as the server of company or an organization, whether it is public or private. These facilities, as well as their features and size, can vary. They can be from large buildings dedicated entirely to this function, to small rooms within the organization's facilities. However, all of them have in common the need for constant monitoring, in real time and at different levels, to ensure the proper functioning of the equipment inside and that the conditions of the rooms are the most suitable for the maintenance of the devices

Device: **MTX-Router-Titan II, advanced industrial router with RS485, Modbus and Ethernet**

Platform: **Cervello IoT Platform**



In an example of a typical installation we find a building with four Data Center rooms with some variables we want to monitor. The data of these variables is sent by sensors and connectivity devices in the room controlling the temperature and humidity of the equipment in the room. Our solution is organized in four rooms, each one with a modbus temperature and humidity sensor and a connectivity module with up to 16 digital inputs and modbus output to which the sensors and the equipment are connected: an industrial cold unit, a network analyzer, UPS, sensors or any other device with digital output.

In terms of connectivity, since the rooms have a permanent internet connection, internet connectivity via Ethernet is established as the main means of communication. However, for the solution to continue working in the event of a network crash, it is necessary that the connectivity device can also access the network using LTE/4G technology.

Given these interface needs and with the requirement of significant processing capacity, the solution is designed around an MTX-Router-Titan II, an industrial router with high processing performance, RS485 Modbus connectivity and output via Ethernet or LTE/4G with different protocols.

The MTX-Router-Titan II performs a continuous polling of all Modbus RTU sensors connected to the RS485 bus to manage Data Center rooms. Each time a change in the registration of any sensor is detected, the MTX-Router-Titan II sends an alarm message to an SNMP Platform informing of such change or in case of reading failures (for example, power failure of the sensors) At the same time, the modbus registers of the sensors must also be read at any time from the SNMP Platform to check, in real time, the status of any of the devices connected to the solution.

On the other hand, always in parallel to the previous SNMP functionality, the MTX-Router-Titan II maps the modbus registers read from the sensors in its own internal memory to be able to act as a Modbus TCP slave and

allow a reading platform to access via modbus to read the records stored directly from the internal memory of the equipment.

Finally, the MTX-Router-Titan II sends all the information, both modbus readings and the information itself, through MQTT to the Cervello Device Manager, which can act with both the Device Manager function for the management, control and monitoring of the devices, as well as with the Data Center Monitoring Platform function, allowing to visually display all the information of each of the sensors and records obtained in each of the CPD rooms on a personalized dashboard.

Thanks to this solution, remote monitoring of a Data Center center can be carried out, regardless of its size and configuration, in a simple, practical and efficient way, improving the efficiency of the maintenance of the facilities and increasing safety.

MTX-ROUTER-TITAN II

LTE/4G/3G/GSM/GPRS industrial IoT router

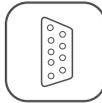
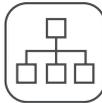
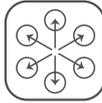
The MTX-Router-Titan II is an innovative industrial router that comprises a complete set of wireless and wired interfaces. By providing an easy integration and powerful interfaces, it avoids further hardware components.

It can be used in infinite M2M and IoT applications. It has LTE connectivity with fallback 3G/2G.

The MTX-Router-Titan II also includes advanced functionalities such as: DHCP server, NAT, CSD call manager, 4G to RS232/USB gateways, external sensor dataloggers (temperature, distance, Modbus RTUs), DynDNS/NoIP client, GSM cell positioning, remote firmware upgrade, among others.



MAIN FEATURES

- | | | | | | | |
|--|---|---|---|--|---|---|
| 
4G connectivity | 
USB 2.0 | 
RS232
RS485 | 
Ethernet | 
Digital inputs | 
WiFi | 
DIN rail |
| 
DynDNS | 
Web server | 
Serial gateway | 
Modbus | 
Datalogger | 
Firewall | 
VPN |

-  DC input: +8 to +30 Vdc
-  Temperature range: -40° to +85°C
-  Dimensions: 112x51x75mm
-  Weight: <500gr

Datasheet subject to changes | 2019/2
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SUPPORT: iotsupport@mtx2m.com
SALES: info@mtx2m.com
mtx2m.com



HARDWARE FEATURES

	TITAN II 4G Cat.1	TITAN II 4G Cat.4*	TITAN II 3G
	5Band LTE: 700*, 800, 900, 1800, 2100 MHz, 2Band HSPA+: 900 & 2100 MHz, 2Band GSM: 900 & 1800 MHz	5Band LTE: 700*, 800, 900, 1800, 2100 MHz, 2Band GSM 900 & 1800 MHz; UMTS: 900, 2100 MHz	5Band UMTS (WCDMA/FDD); Bands: 800, 850, 900, 1900 & 2100 MHz. 4Band GSM; Bands: 850, 900, 1800 & 1900 MHz
	LTE Cat.1 (3GPP Release 9): DL 10.2Mbps, UL 5.2Mbps	LTE Cat.4 (3GPP Release 9): DL 150Mbps, UL 50Mbps	
	HSPA Cat.8 (3GPP Release 8): DL 7.2Mbps, UL 5.7Mbps	HSPA Cat.8 (3GPP Release 8): DL 7.2Mbps, UL 5.7Mbps UMTS (3GPP Release 4): PS data rate DL 384 kbps, UL 384 kbps; CS DL 64 kbps, UL 64 kbps	HSPA Cat.8 (3GPP Release 8): DL 7.2Mbps, UL 5.7Mbps UMTS (3GPP Release 4): PS data rate DL 384 kbps, UL 384 kbps; CS DL 64 kbps, UL 64 kbps
	GPRS Class 12: DL max. 85.6 kbps, UL max 85.6 kbps	EDGE Class 12 data rates: DL 237 kbps, UL 237 kbps GPRS Class 12 data rates: DL 85.6 kbps, UL 85.6 kbps	EDGE Class 12 data rates: DL 237 kbps, UL 237 kbps GPRS Class 12 data rates: DL 85.6 kbps, UL 85.6 kbps
			CSD data transmission up to 9.6 kbps, V.110, non-transparent
	SMS text and PDU mode	SMS text and PDU mode	SMS text and PDU mode

Interfaces

-  4G/3G/2G connectivity
-  4x operating LEDs
-  Ethernet 10/100 BaseT
-  GPS (optional)
-  USB 2.0 OTG
-  RF expansion (optional)
-  2x RS232
-  WiFi b/g/n (optional)
-  RS485 and RS422 (optional)
-  DIN rail
-  3x digital I/O (4x optional)
-  Micro SD
-  SIM card interface 1.8V/3V

Connectors



RJ45: Ethernet 10/100 BaseT



Micro USB AB Type: USB 2.0



DB9 F: RS232



DB9 M: RS232



Terminal block: RS485, 3x digital I/O



Micro SIM: SIM card interface 1.8V/3V



3x SMA F antenna connectors

ORDERING INFORMATION

STANDARD VERSIONS:

- industrial temperature -40°C-85°C
- no WiFi

MTX-Router-Titan II-S	199802205
MTX-Router-Titan II-S-3G	199802206
MTX-Router-Titan II-S-4G C1	199802208
MTX-Router-Titan II-S-4G C4	199802215
MTX-Router-Titan II-S-3G-GPS	199802207

COMMERCIAL VERSIONS:

- regular temperature 0°C-60°C
- with WiFi

MTX-Router-Titan II-SC-3G	199802223
MTX-Router-Titan II-SC-4G C1	199802224
MTX-Router-Titan II-SC-4G C4	TBD
MTX-Router-Titan II-SC	199802222
MTX-Router-Titan II-SC-3G-GPS	TBD

TITAN SOFTWARE FEATURES

Serial Gateways

-  3 simultaneous 2G/3G/4G/Eth/WiFi <-> RS232/485/USB gateways
-  Modes: TCP server/TCP client
-  SSH encryption enabled
-  Incoming CSD call for metering applications (only 3G)

Modbus

-  Modbus TCP/Modbus RTU gateway
-  Modbus TCP/RTU to SNMP gateway (SNMP connectivity for any modbus device)
-  Modbus slave RTU/TCP (send/receive SMS, Email, SNMP traps...)
-  User scripts

Datalogger

-  Data from sensors (temperature, distance...)
-  Serial data collected by RS232, RS485 or USB
-  GPS data for tracking applications or fleet management
-  Automatic data sending (HTTP/HTTPS/FTP/MQTT) with JSON format

Sensor Compatible

-  Temperature sensor MTX-Temp-RS232
-  Distance sensors (ultrasound) Maxbotics
-  Modbus RTU/TCP sensors
-  RF868 Wavenis sensors
-  Internal jamming detection sensor with alarm indicator

SMS

-  Full control by SMS with phone number authorizations
-  Alarms (digital input, temp., MBus data read)
-  Send/receive SMS by Modbus TCP (for PLC)

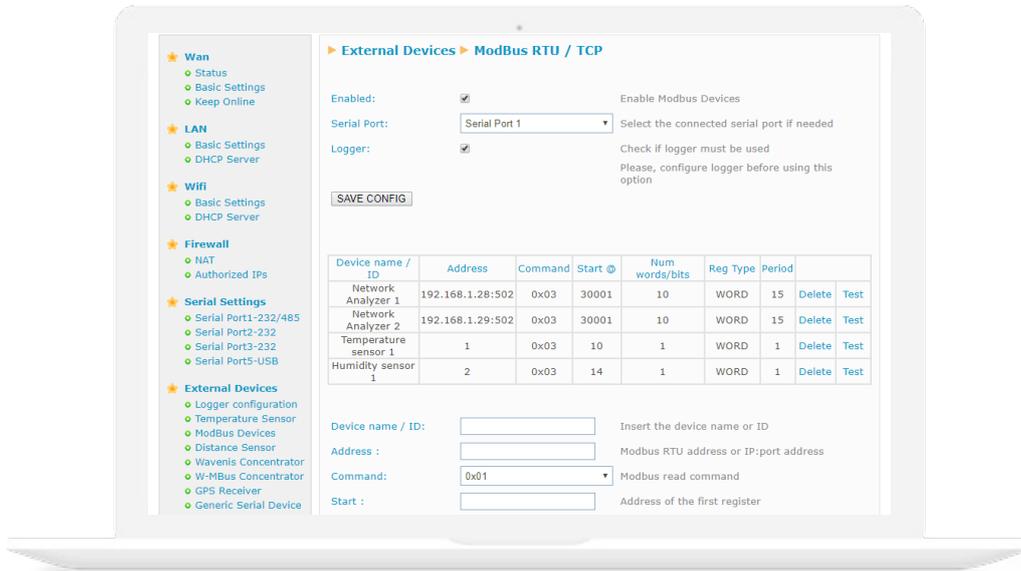
Other

-  Compatible with DynDNS/No-IP & private DNS
 -  GSM cell location
 -  Programmable autoreset (schedule, timer...)
 -  Multioperator SIM utilities (integrated rssi scanning tool)
 -  Time synchronization (NTP) with timezones
 -  Over The Air firmware upgrade
 -  Full management with AT Command by serial, socket, SMS, modbus, SNMP, ...
 -  NAT, firewall, DHCP, etc. and other standard router characteristics
 -  4G connectivity supervisor to maintain connection always active
 -  Internal configuration webserver (all logos and pictures can be customized by user)
 -  Clear and understandable application notes with examples (OpenVPN, serial gateways, modbus, datalogger, SMS, metering, SNMPv2 and SNMPv3...)
 -  Traffic control (prevents excessive data traffic consumption), TACACS+ (for HTTP, Telnet and SSH), multiuser profiles
- ## VPN
-  OpenVPN with client/server mode
 -  Permanent or activated by SMS, AT command, modbus, SNMP, serial...

*The Titan network architecture is protected by nearly 60 hardware and software patents.

TITAN SOFTWARE INTERFACE

The configuration of the routers MTX-Titan can be intuitively done from any computer with a web browser. We can connect locally via Ethernet or WiFi, or remotely via 3G. We can also connect via SMS, Modbus RTU, Modbus TCP and SNMP.



TITAN SOFTWARE DIAGRAM

Titan Software adds advanced features to routers MTX-Titan, which allows them to not only perform the usual router configurations, but also 3G-RS232/485 gateways, remote control of USB devices, execute commands via SMS (to verify coverage, communte relays...), accepting GSM data calls (CSD) to access different kinds of devices like electricity meter boxes, autonomously reading Modbus TCP or Modbus RTU devices, sending data (temperature, distance...) to the cloud, and more.

