iModX500 series

Programowalny kontroler automatyki (PAC)

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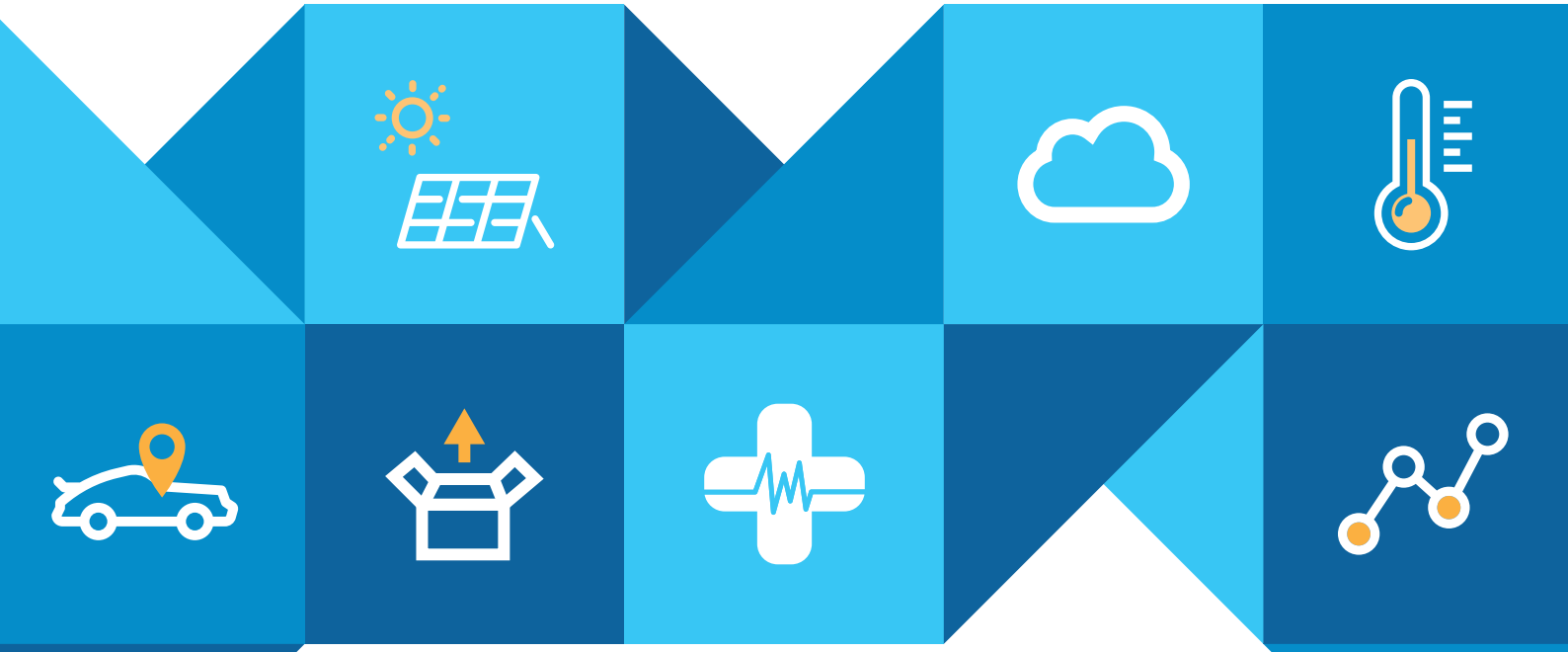
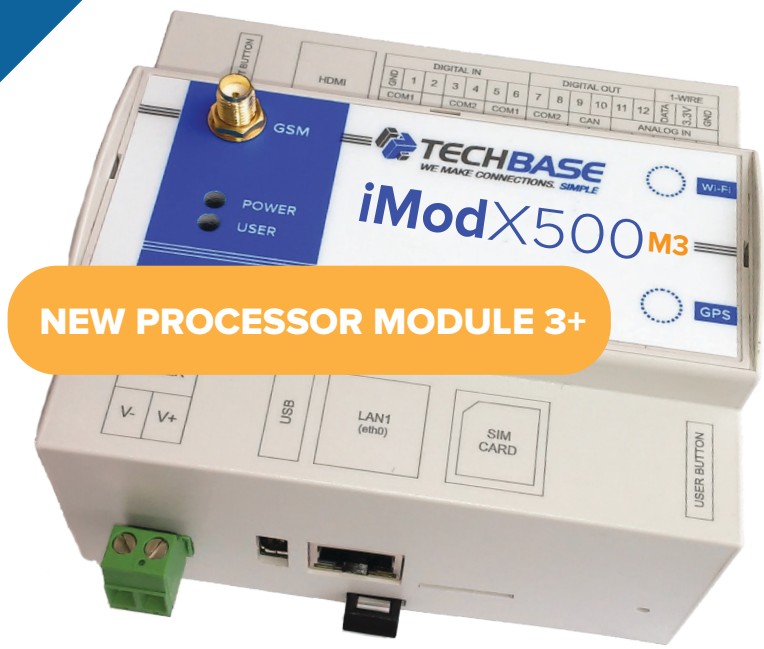
Upgrade your installations using newest Processor Module 3+

Our device **iMod X500** is now available with latest, third gen. processor module. Our upgraded **iMod X500 M3** device offers ten times higher performance, thanks to quad-core **Cortex A53** processor with higher computing frequency and doubled the amount of operating memory. **iMod X500 M3** maintains low power consuption and optimal price of this solution.





NEW PROCESSOR MODULE 3+

Features of iModX500 M3

- Quad core **Cortex A53** processor @ **1.2 GHz** with Videocore IV GPU
- **1GB** LPDDR2 SDRAM
- **up to 32GB** eMMC Flash
- Full **Modbus/M-Bus/SNMP/MQTT** protocol support + new protocol implementation
- Wide range of **wired and wireless communication protocols** (Wi-Fi, 3G/LTE, GPS, Bluetooth, ZigBee, etc.)
- **Industrial-grade components** and casing with DIN rail mounting

www.techbase.eu e-mail: info@techbase.eu tel. +48 58 345 39 22

iModX500 M3 series

Programmable automation controller (PAC)

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iMod X500 M3 is the newest series of industrial computers which you can easily adapt to your needs by choosing from the available options.

- Energy-efficient quad-core **Cortex A53 1.2GHz** processor
- **1GB RAM** and **up to 32GB eMMC** flash memory
- Rich set of I/O interfaces: including **digital and analog inputs/outputs, RS-232/RS-485 serial ports**
- Economic **1-Wire bus**
- Expandable resources: **LTE/3G, WiFi, ZigBee, Bluetooth**

iMod X500 M3

- Designed for the needs of automation, telecommunications, remote supervision, and monitoring
- Fully configurable platform - you can setup hardware options of your device
- Full range of communications interfaces, including LTE/3G modem
- Standard protocol support (e.g. MODBUS, SNMP, M-Bus), possibility to install dedicated user protocols
- Web page visualization of current/archived data and remote control directly from the device or cloud service

Available hardware options

Serial ports: 2x RS-232/485

Digital inputs/outputs:
4x Digital input, 4x Digital output

Configurable digital inputs/outputs
4x Digital input/output

Analog inputs:
4x Analog input

Communication interfaces: Ethernet, 1-Wire, 1x USB, CAN (optional)

Audio/Video: HDMI (optional)

Expansion cards:
Wi-Fi, ZigBee, LTE/3G/GPRS/EDGE, Bluetooth, GPS, ExCard modules

Software properties

New firmware based on Linux Kernel 4.0+ guarantees stability and security of operation

Expansion modules to increase the amount of available interfaces (see accessories section)

Ready tools and pre-compiled packs, including C/C++, JAVA, SQL, PHP, SSH and VPN support

Developer tools and support, instructions, informational materials

Remote software updates

Innovative iMod software platform

iModCloud – dedicated cloud computing service for telemetry, remote control and data sharing

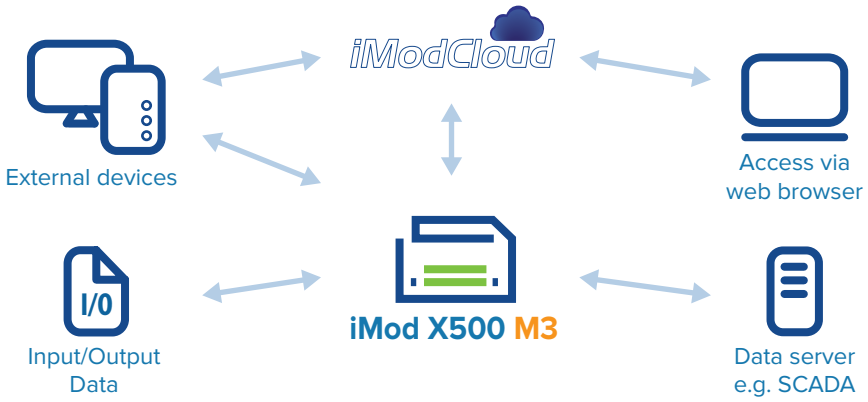
Full technical support through a dedicated portal, project cooperation via TECHBASE Solution Partner

Typical method of use (3 functions: C-L-V)

Protocol and interface conversion (Convert) - data is collected from input interfaces, converted and transmitted to output interfaces, e.g. 3G/GPRS, external modules

Data logger (Log) - archiving and sharing data in a file format, database or with the use of external systems (SCADA or dedicated iModCloud)

Access via WWW (Visualize) - data is presented directly from the device or with dedicated cloud computing services (iModCloud)



iMod X500 M3 can perform following functions:

PLC

Telemetry module with data logger

Serial port server

Protocol and interface converter

Programmable controller

LTE/3G/GPRS/EDGE modem

MODBUS Gateway/Router

SNMP Agent

Web server with PHP and SQL database support

SMS Gateway

LTE/3G/GPRS router, NAT

E-mail server, FTP, SSH, VPN

Features of adaptation to industrial conditions:

Low energy consumption

RTC Battery-powered Real Time Clock (RTC)

WatchDog function ensures hardware operation control of selected services

Effective file systems used for FLASH memory, ensuring long, failure-free operation

Compact, durable housing made from ABS plastic, adapted to installation on a DIN bus

Easy installation due to the use of disconnectable screw terminals

No moving elements (fans, platter disks)

Versions with extended operating temperature range: -25 ~ 65°C

LTE/3G/GPRS/EDGE modem*

Modem for data LTE/3G/GPRS data transmission and SMS support. iMod has unique hardware-software features providing connection efficiency and economy:

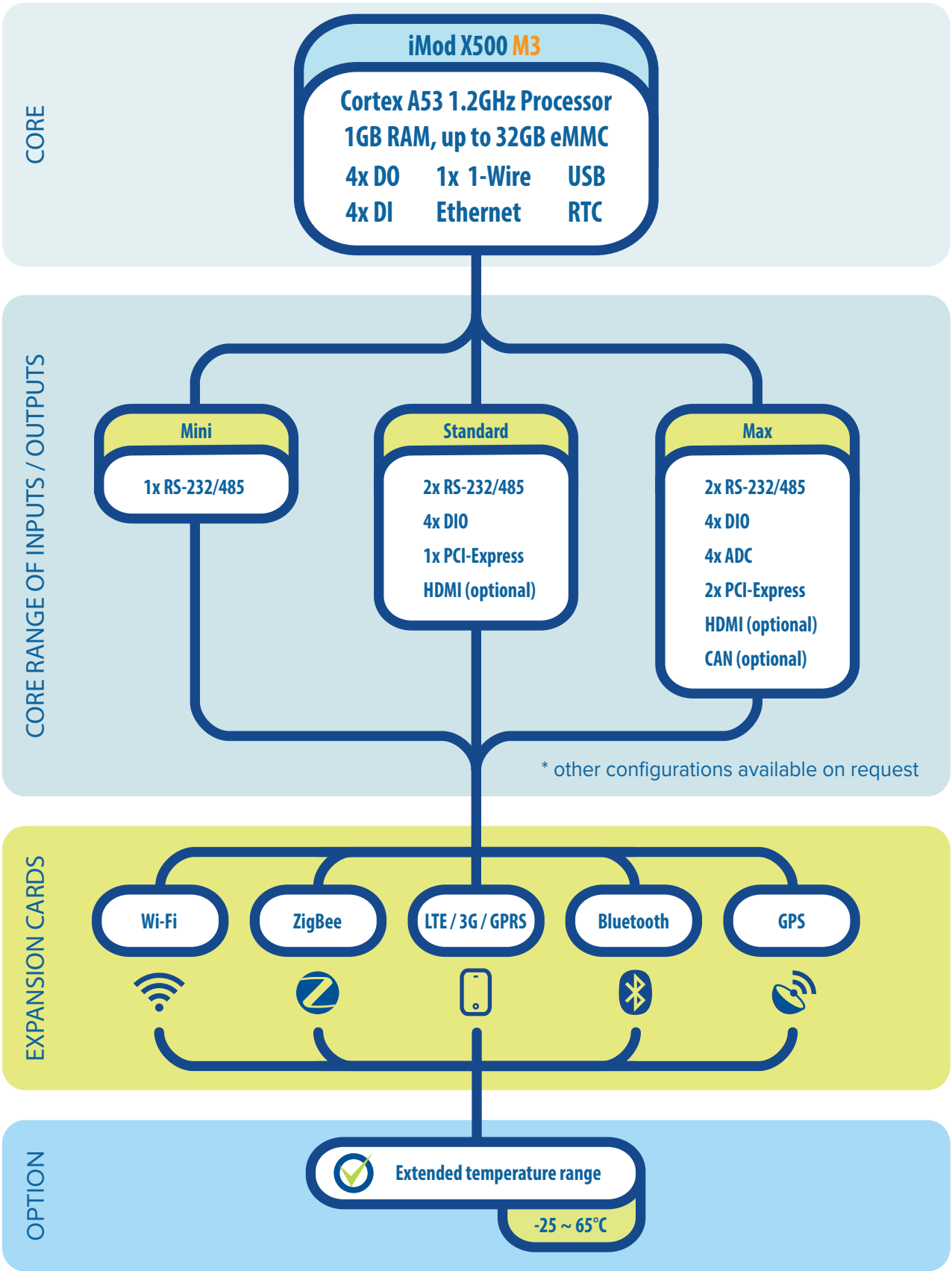
The device i equipped with Watchdog mechanism to ensure modem stability.

Pre-installed software for constant verification of LTE/3G/GPRS connection and GPRS reconnect function.

Multiplexing server provides 3 independent modem communication channels. Allows sending and receiving of SMS during LTE/3G/GPRS transmission.

You can use telemetry SIM cards with dynamic IP addresses due to the use of DynDNS. VPN or iModCloud technology allows use of cards with non-public IP.

* GPRS/EDGE are supported by LTE/3G modem


CORE
iMod X500 M3
Cortex A53 1.2GHz Processor
1GB RAM, up to 32GB eMMC
4x DO
4x DI
1x 1-Wire
Ethernet
USB
RTC
CORE RANGE OF INPUTS / OUTPUTS
Mini
1x RS-232/485
Standard
2x RS-232/485
4x DIO
1x PCI-Express
HDMI (optional)
Max
2x RS-232/485
4x DIO
4x ADC
2x PCI-Express
HDMI (optional)
CAN (optional)
* other configurations available on request
EXPANSION CARDS
Wi-Fi
ZigBee
LTE / 3G / GPRS
Bluetooth
GPS
OPTION
Extended temperature range
-25 ~ 65°C

iMod - an innovative software platform allowing for fast start-up and full exploitation of device capabilities without the need for writing programs. A fully configurable system reflecting typical C-L-V use (see clarification above). In order to learn more about the iMod platform, visit the page: **www.techbase.eu/imod**

iModCloud is a Software as a Service (SasS) that fully controls iMod devices. Together stand as a complete solution ecosystem – **iModCloud Ecosystem.** In other words – it is a combination of a cloud service with a web user interface and special industrial devices that are fully manageable remotely.

READY-TO-USE

iModCloud is ready-to-use set of components that can be adjusted to any remote monitoring and control system

REMOTE CONTROL

User interface of the system is accessible from any place of the world through web browsers of desktops and mobile devices

PLC - software for creation of algorithms in the ladder system with the capability of operation on iMod device, services the MODBUS protocol

CODESYS - development environment for programming controller applications according to the international industrial standard IEC 61131-3

Node-RED - flow-based development tool for wiring together hardware devices, APIs and online services as part of the Internet of Things.

Expanded developer's platform, additional software packs:

GPRS - facilitating management of the 3G/GPRS connection and containing the functionality of monitoring connection status and DynDNS service

SMS - allows sending and receiving text messages

APACHE - HTTP server pack, enabling device access from web browser

PYTHON/RUBY/JAVA/PHP - packs allowing creating, develomepent and start-up of applications in many programming languages

PostgreSQL, MSSQL, SQLite - tools for database management

Open VPN - enables creating a connection, allowing communication between devices located in different networks, providing very high level of security

SSH - enables remote connection with device while maintainging high level of security

GPS - allows the location of the device, traffic monitoring for the unit and time synchronization

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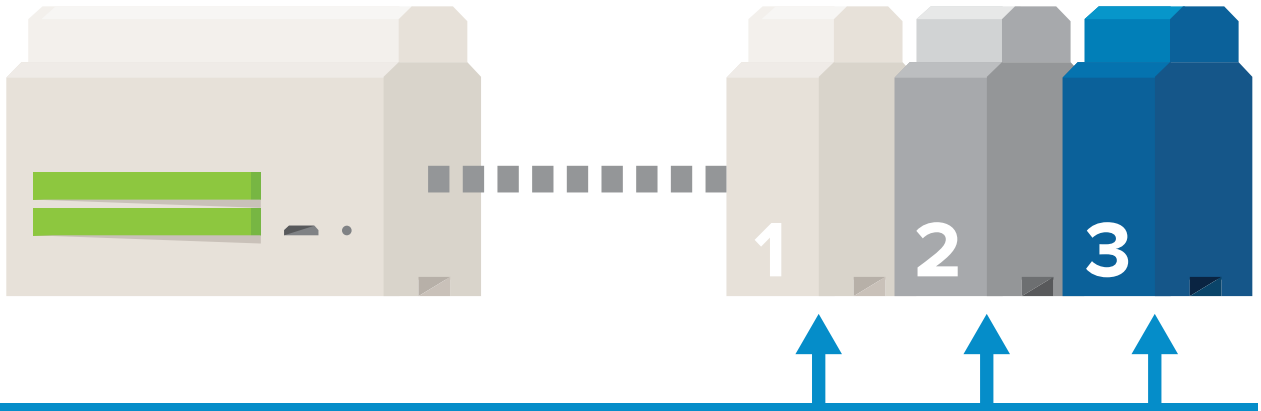
The **iMod X500 M3** device allows use of up to 3 expansion modules, increasing its capabilities with additional I/Os, providing support for additional modems and wireless communication modules, and adding new features such as accelerometer and opto-isolation.



INTERNAL EXTENSION MODULES

ExCard 4RS	2x or 4x RS232/485 ports
ExCard ETH	1x or 2x Ethernet ports
ExCard EXP	1x PCI-Express slot **(modem and communication iterfaces support)**
ExCard AI	8x analog input AI or 4x analog input AI dual mode
ExCard AO	12/8/4x analog output AO
ExCard 4R	4x relay
ExCard DIO	12x digital input/output DIO
ExCard AK	Accelerometer
ExCard OP	Opto-isolation for power supply and i^2c serial bus **(ExCard AI/AO/4R/DIO/AK)**
mBus10	M-Bus interface to RS232 or RS485 converter **(up to 10 SLAVE devices)**
mBus60	M-Bus interface to RS232 or RS485 converter **(up to 60 SLAVE devices)**
mBus400	M-Bus interface to RS232 or RS485 converter **(up to 400 SLAVE devices)**

INTERNAL MODEMS

Wi-Fi	Wi-Fi Standard 802.11 b/g/n
Bluetooth	Bluetooth 4.0
ZigBee	ZigBee modem
GPS	GPS receiver
GPRS/GPS	GPRS/GPS modem
GPRS/Bluetooth	GPRS/Bluetooth 3.0 modem
3G/GPS	3G/GPS modem
LTE/3G/GPRS	LTE/3G/GPRS modem
GPRS/EDGE/NB-IoT	NarrowBand-IoT (LTE cat. NB1) modem, backwards compatible with GPRS/EDGE
LoRa	LoRa modem

? For availability of specific device configurations, modules compatibility and maximum capabilities of expansion modules, please contact the TECHBASE Group sales department.

SYSTEM	
CPU	Cortex-A53 @ 4x1.2GHz
RAM	1 GB LPDDR2 SDRAM
Flash Memory	4 / 8 / 16 / 32 GB eMMC
Operating system	Linux 4.0+
Real Time Clock	RTC, 240 byte SRAM, Wath Dog Timer
ETHERNET INTERFACE	
	1x Ethernet 10/100 Mbps (RJ45 connector)
SERIAL PORTS	
RS-232 / RS-485 ports	2x RS-232 (3 pins) / 2x RS-485 (2 pins)
USB PORTS	
	1x external USB 2.0 (host)
INPUTS / OUTPUTS	
Digital inputs (DI)	4x DI (0..30V DC)
Digital outputs (DO)	4x DO (0..30V), max. power efficiency: 500 mA
Analog inputs	4x AI - range (0..10V) DC (18-bit resolution)
Configurable I/Os	4x DI/DO (0..30V DC), max. power efficiency: 500 mA
CAN	1x CAN (optional)
1-Wire	1x 1-Wire
POWER SUPPLY	
	9 ~ 30 V DC, w/o modem: 20W, with modem: 40W
MECHANICAL PARAMETERS	
Dimensions	91 x 106 x 61 mm
Weight	300g
Casing	ABS, DIN rail mounting
OPERATING AND STORAGE CONDITIONS	
	0 ~ 55°C, humidity 5 ~ 95% RH (no condensation)
	Extended operating temperature: -25 ~ 65°C, humidity 5 ~ 95% RH (no condensation)*
AVAILABLE EXPANSION CARDS	
	Wi-Fi (IEEE 802.11 b/g/n, speed up to 150 Mbps, 64/128-bit WEP, WPA, and WPA2)
	LTE/3G modem, GPS module, ZigBee, Bluetooth, Z-Wave Ready, **ExCard modules (page 6)**
CONNECTORS AND PHYSICAL INTERFACES	
	1x RJ45 (Ethernet)
	1x HDMI (optional)
	2x monostable switch button
	1x32 pin screw terminal
	1x USB 2.0 type A
	1x 2 pin power
	1x SIM CARD slot
MANUFACTURER	
	TECHBASE Group Sp. z o.o., Gdynia, Poland

* We cannot guarantee a cold start of the cooled system at temperatures below -30 °C. With the optimal load of the interfaces and ensuring free heat emission in the casing, the device equipped with an extended temperature range operates at temperatures up to 65 °C.

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POWER FEEDERS

MDR-40-24
40.8W Single Output Industrial Power Supply, DIN-rail mounting, input 85..264 V AC or 120..370 V DC

ANTENNAS

ANT-GSM-1M
GSM antenna with frequency 824-960MHz/1710-1910MHZ/1920-2170MHz

1-WIRE SENSORS

1Wire-Therm-Stainless
Digital temperature sensor in steel housing

1Wire-Therm-ABS
Digital temperature sensor closed in ABS plastic housing

M-BUS CONVERTERS

mBus 10
The mBus 10 is a transparent converter from RS-232 to M-Bus interface

mBus 400
The mBus 400 is a transparent converter from RS-232 to M-Bus interface. You can connect 4 RS-232 signal lines - RxD, TxD, CTS, RTS.

ZIGBEE SENSORS/MODULES

ZS-10, ZS-20
Multi-channel ZigBee Sensor with Battery Power Supply

ZM-10, ZM-20
ZigBee Relay I/O Module

INPUT/OUTPUT EXPANSION MODULES

NPEIO-6DIO
Digital inputs/outputs expansion module with MODBUS RTU support

NPEIO-4RO
Relay outputs expansion module with MODBUS RTU support

PINOUT