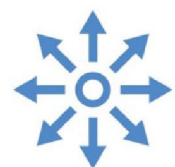## Wireless router
MAGNETAR-105

Multifunctional router providing access and sharing of 2G/3G/4G/LTE mobile network.

Reliable

Easy to Configure

Multitasking

Magnetar-105

Wireless 2/3/4G LTE Ethernet/RS232 Router /485 and interfaces input/output

- ✓ *1/2x WAN **modem 2/3G/4G LTE***
- ✓ *1x LAN Ethernet* 10/100Mbps
- ✓ *1x **RS232/485** interface*
- ✓ *1x **RS232** interface or 2x **RS232** interfaces* with RJ45 connectors
- ✓ Modes for RS interfaces: TCP/IP Server/Client , UDP Server
- ✓ 2x digital inputs, 1x 230V relay output, 1x low voltage relay output in version with screw connections
- ✓ IO port functionality implemented according to customer specific requirements.
- ✓ 1x USB OTG
- ✓ Static routing, NAT, Masquerade
- ✓ Security mechanisms: Firewall, IPsec, Open VPN, GRE
- ✓ Management via HTTP, *SNMPv2c/v3,* HTTPS, SSH, CLI
- ✓ Operating temperature from ***-40 to +75°C***
- ✓ Robust metal enclosure **IP-30 DIN**
- ✓ **DC** power supply

Features of Magnetar-105

Reliable

Magnetar-105 device has been designed to work in harsh conditions. Its durable IP-30 enclosure provides protection against external factors, additionally the device is adapted to work in temperature range from -40°C to +75°C

Easy to configure

Built-in **http/https** server, **SSH** server and **SNMPv.3** agent allows secure configuration of device parameters via standard WWW browser and continuous fault monitoring from any management platforms equipped with SNMP protocol.

Multitasking

Apart from Ethernet ports, the Magnetar-105 router can be equipped with additional interfaces expanding its capabilities:

- One RS232/485 serial interface and one RS232 serial interface for communication with external devices via Ethernet/IP in the version with screw connectors or two RS232 serial interfaces in the version with RJ45 connectors.
- Two digital inputs to detect a space violation in a room.
- Input/output interfaces only available with screw connectors for RS interface.

Supported standards, recommendations and directives EMC, safety*

PN-EN 55035:2017-09	Electromagnetic compatibility for multimedia equipment	Resilience Requirements.
PN-EN 55032:2015-09	Electromagnetic compatibility for multimedia equipment	Emission Requirements.
PN-EN IEC 62368-1:2020-11	Audio/visual, information technology and telecommunications equipment	Part 1: Safety requirements
PN-EN 55011:2016	Industrial, scientific and medical equipment	Radio frequency disturbance characteristics - Limits and methods of measurement.
PN-EN 60825-1:2014-11	Safety of laser equipment	Part 1: Equipment classification and requirements.
EMC 2014/30/EU	EMC Electromagnetic Compatibility Directive.	
LVD 2014/35/EU	LVD Low Voltage Directive.	
IEC 61000-4-2	Electromagnetic Compatibility (EMC)	Part 4-2: Test methods and measurements - ESD immunity test
IEC 61000-4-3	Electromagnetic Compatibility (EMC)	Part 4-3: Test and measurement methods - Testing for immunity to radiated radio frequency electromagnetic fields
IEC 61000-4-4	Electromagnetic Compatibility (EMC)	Part 4-4: Test for immunity to a series of fast electrical transients
IEC 61000-4-5	Electromagnetic Compatibility (EMC)	Part 4-5: Test and measurement methods - Impact test
IEC 61000-4-6	Electromagnetic Compatibility (EMC)	Part 4-6: Test and measurement methods - Immunity test for conducted disturbances induced by radio frequency fields
IEC 61000-4-8	Electromagnetic Compatibility (EMC)	Part 4-8: Testing for immunity to mains frequency magnetic fields
IEC 61000-4-11	Electromagnetic Compatibility (EMC)	Part 4-11: Testing for resistance to voltage dips, interruptions and voltage changes
IEC 61000-6-5:2016-01	Electromagnetic Compatibility (EMC)	Part 6-5: Generic standards - Immunity for equipment used in power plant and substation environments
PN-ETSI 60529:2003/A2:2014-07	Degrees of protection provided by enclosures (IP code)	
PN-ETSI EN 301 511 V12.5.1:2017-10	Global System for Mobile communications (GSM) -- Mobile station equipment -- Harmonized EN covering essential requirements under Article 3.2 of Directive 2014/53/EU	
PN-ETSI EN 301 489-1 V2.2.3:2020-07	Electromagnetic Compatibility (EMC) standard for radio equipment and systems	Part 1: Common technical requirements - Harmonized standard for electromagnetic compatibility
PN-ETSI EN 301 489-7 V1.3.1:2006	Electromagnetic compatibility and radio spectrum matters (ERM) - Electromagnetic compatibility (EMC) standard for radio equipment and services	Part 7: Specific requirements for mobile and portable radio and ancillary equipment of digital cellular radio telecommunications systems (GSM and DCS)

* - The scope and list of supported standards may change as the device evolves

Supported transmission standards

- ✓ IEEE 802.3 10Base-T Ethernet;
- ✓ IEEE 802.3u 100Base-TX Fast Ethernet;
- ✓ IEEE 802.1Q VLAN.

Supported protocols

- ✓ TCP/IP, IPv4, UDP, ICMP,IPv6,
- ✓ SNMP v1/v2c/v3, DHCP Client,
- ✓ NTP Server, NTP Client,
- ✓ HTTP, HTTPS, SSH v2,
- ✓ MIB, SNMP Inform,
- ✓ Firewall, NAT, Masquerade,
- ✓ Modes for RS interfaces: TCP/IP Server, TCP/IP Client, and UDP Server
- ✓ Static Routing,
- ✓ IPSEC, GRE, Open VPN

Ethernet Interfaces

- ✓ **WAN** modem 2/3/4G LTE (4G LTE available only with GSM4 module),
- ✓ **LAN/WAN** 1x 10/100Mbps RJ45,
- ✓ **Protocols:** TCP/IP, IPv4, UDP, ICMP, static routing,
- ✓ Security features: Firewall, IPsec, Open VPN, GRE.

GSM modem

- ✓ 1/2 x GSM 2/3G/4G LTE modem (4G available only with GSM4 module),
- ✓ CDMA/HSPA/UMTS/EDGE/LTE standards,
- ✓ Radio frequencies: 800/900/1800/2100MHz,
- ✓ 1/2 x SIM card,
- ✓ 1 /2x SMA antenna,
- ✓ Indicates operating status and signal quality,
- ✓ Automatic login and packet session establishment in APN, hardware reboot of the device after failed attempts,
- ✓ For *MAGNETAR-105-Z it* is possible to order version with only one GSM or RF modem .

RS485 ports

- ✓ The port has galvanic separation,
- ✓ Transmission rate 1200-115200bps,
- ✓ Interfaces 1x RS485 interface
- ✓ Software support for RS mode selection,
- ✓ Screw connections depending on version.

RS232 ports

- ✓ The port has galvanic separation,
- ✓ Transmission rate 1200-115200bps,
- ✓ Interfaces 1x RS232 interface or 2x RS232 serial interfaces with RJ45 connector,
- ✓ RJ45 or screw connectors depending on version.

Inputs / Outputs

- ✓ IO port functionality implemented according to customer specific requirements,
- ✓ 2x optically isolated digital inputs,
- ✓ 1x 230V relay output,
- ✓ 1x low voltage relay output
- ✓ NO/NC configuration,
- ✓ Ability to send TRAP,
- ✓ The version with an RJ45 connector on the RS interface does not have IO (input/output) interfaces.

Environmental requirements

- ✓ Standard operating temperature: -40 to +75°C,
- ✓ No active cooling/heating components in the unit and no external sources are required,
- ✓ Standard ambient humidity during operation: 0 to 95 % (non-condensing),
- ✓ Location type: class C according to PN-EN 60870-2-2 - sheltered locations,
- ✓ Degree of protection according to IP-30.

Management

- ✓ HTTP/HTTPS, SSH, SNMPv2c/v3, SMTP , CLI,
- ✓ Remote/local diagnostics, reading of: S/N, IP address, GSM status,
- ✓ Remote and local password authentication,
- ✓ Save/export configuration and restore default configuration,
- ✓ Remote/local firmware update,
- ✓ Configuration via SMS commands,
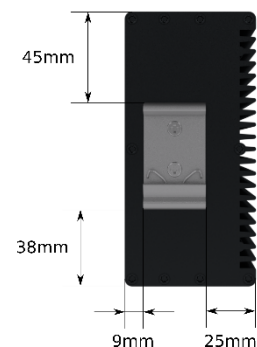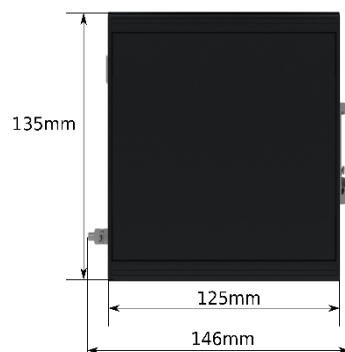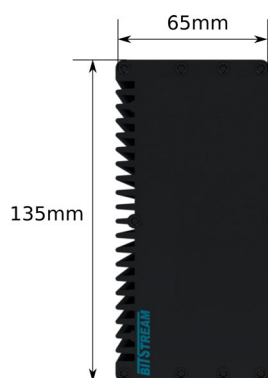- ✓ Monitoring of GSM parameters, supply voltage level, operating temperature.

Power supply

- ✓ DC 9-36V range,
- ✓ 18-60V DC range,
- ✓ Screw connection

Physical characteristics

- ✓ Dimensions: 135x124x65mm
- ✓ Weight: 0.80kg
- ✓ Can be mounted on TH35 DIN rail
- ✓ Metal enclosure IP-30

Mechanical drawing

| Front view | View - Side | View - Rear |

MAGNETAR-10X-(Z)-(Y)-U

Magnetar				X	(Z)	(Y)	U
1x RJ45 (10M/100M)				5			
Serial interface connector type							
Version with two screw connectors					-		
Version with RJ45 connector					Z[4]		
GSM / RF module							
baseline						-[2]	
router equipped with GSM modem						GSM[1]	
router equipped with radio module						RF[1]	
router equipped with two GSM modems with redundancy						GSM-GSM[1,3]	
router equipped with GSM and radio modules						GSM-RF[1,3]	
Power supply							
range 30 - 60V DC							4
range 9 - 36V DC							5

LEGEND:
1 - When completing the symbol, specify the module designation. Available modules in the table below.
2 - The device cannot be extended with RF or GSM modules
3 - Not available with RJ45 connector
4 - I/O interfaces (inputs and outputs) not available and equipped with only one GSM or RF modem

List of available modules

Module designation for insertions into the symbol	Description	Notes
GSM3	GSM 2/3G modem - built-in	Availability by arrangement with R&D
GSM4	GSM 2/3G/4G LTE modem - built-in	
RF	WIFI radio module - 802.11 - built-in	Availability by arrangement with R&D
RFBLU	BLUETOOTH radio module - built-in	Availability by arrangement with R&D
RFZIG	Zigbee* radio module - built-in	Availability by arrangement with R&D

Example designations:

MAGNETAR-105-GSM3-5	Magnetar - 105; 1x built-in GSM 2/3G modem; 1x LAN, RJ45; 1x RS232 and 1x RS-232/485; 2x digital inputs, 1x 230V relay output; Power supply 9-36VDC
MAGNETAR-105-Z-GSM4-5	Magnetar - 105; 1x GSM 2/3G/4G LTE modem; 1x LAN RJ45; 2x RS232; Power supply

List of proposed power supplies for BITSTREAM devices

Power Supply Designation	Output voltage range	nominal output power	Number of ports with PoE (15W)	Number of ports with PoE+ (30W)	Number of ports with PoE++ (60W)	Number of ports with PoE++ (90W)	Operating temperature	NOTES
	DC	W						
ZAS-24-25-W-T	24 V	25	0	0	0	0	-30°C ~ +70°C	No PoE support
ZAS-48-25-W-T	48 V	25	1	0	0	0	-30°C ~ +70°C	PoE support
ZAS-24-25-S-T	24 V	25	0	0	0	0	-30°C ~ +70°C	No PoE support
ZAS-48-25-S-T	48 V	25	1	0	0	0	-30°C ~ +70°C	PoE support
ZAS-24-20-R-T	24 V	20	0	0	0	0	-20°C ~ +70°C	No PoE support
ZAS-24-40-R-T	24V	40	0	0	0	0	-20°C ~ +70°C	No PoE support

V 2.02

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