# Cellular Routers GPRS/EDGE

## ER75i v2 Series

## PRODUCT FEATURES

- Designed for M2M applications
- WiFi, M-BUS and Modbus TCP / Modbus RTU
- Modular design to fit application requirements
- Single or dual SIM cards for redundant backhaul
- Up to 85.6 KBps upload / 236.8 KBps download
- LINUX platform & advanced networking functions
- Advanced security features

**GPRS/EDGE ER75i v2** router is used to wirelessly connect various equipment and devices via Ethernet interface 10/100 to the Internet or intranet. With a high security level and wide coverage of GPRS/EDGE technology provided by mobile phone operators, it is mostly used in industrial applications, for remote maintenance and service of machines, or for data transfer from solar or wind power plants. Other benefits and advantages includes high modularity and option to connect various devices via Ethernet 10/100, RS232, RS485, RS422, M-Bus or I/O.

### Key features

As a standard, this industrial ER75i v2 wireless router is equipped with one Ethernet 10/100, one USB Host port, one binary input/output (I/O) port and one SIM card. To save and backup communication data, a version with 2 SIM cards is available. The wide range of interface options of this wireless router further expands an optional Port1 and Port2 - selected by the customer. For example, Ethernet port 10/100, serial interface ports RS232/RS485/RS422/M-Bus or (I/O - CNT). Port2 may be equipped with serial interfaces RS232/RS485/RS422/M-Bus or (I/O - CNT). The wireless router is supplied either in a plastic or metal casing, based on the requirements of the customer. WiFi models are available ("F" version of router).

Configuration is done via web interface protected by password.
The GPRS/EDGE router supports creation of VPN tunnels using chnologies IPsec, OpenVPN and L2TP to ensure safe communication. Web interface provides detail statistics about the wireless router activities, signal strength, detailed log, etc. Router supports
functions: DHCP, NAT, NAT-T, DynDNS, NTP, VRRP, control by SMS and many other functions.
Other diagnostic functions to ensure continuous communication include automatic inspection of PPP connection offering an automatic restart feature - in case of connection losses, or hardware watchdog which monitors the status of the router. With the help of a special start up script window, you may insert Linux scripts for various actions. For some applications the option to create several different configurations for one wireless GPRS/EDGE router, the profiles (maximum of 4), and the option to switch between them (for example via SMS, binary input status, etc.) is essential. Cellular wireless routers may automatically upgrade configuration and firmware from server. This allows mass reconfiguration of many routers in one time.

## SELECTED APPLICATIONS

Transportation and security
IT and communication
Self-service terminals
Energy and power industry
Metrology, alarm and warning systems

## ORDERING INFORMATION

*Note: Check with your local distributor for availability and options. Contact Advantech B+B SmartWorx distributors.*

Europe, Middle East, Africa, Asia, South America, Latin America.

**BB - ER 2 X 51 X X X X**

| Accessories | |
|---|---|
| 0 | No Accessories (DIN holder included) |
| 1 (set) | Accessories with EU power supply |
| 2 (set) | Accessories with UK power supply |
| 3 (set) | Accessories with Australia power supply |
| 4 (set) | Accessories with US power supply |

| Enclosure | |
|---|---|
| 1 | Plastic enclosure |
| 2 | Metal enclosure |

| PORT2 (Full version only) | |
|---|---|
| 0 | No expansion port |
| 1 | ETH |
| 2 | RS232 |
| 3 | RS485 |
| 4 | RS422 |
| 5 | M-BUS |
| 6 | CNT (4× BI, 2×, 1×BO) - I/O port |
| 7 | WiFi |
| 8 | WMBUS (Wireless M-BUS) |

| PORT1 | |
|---|---|
| 0 | No expansion port |
| 1 | ETH |
| 2 | RS232 |
| 3 | RS485 |
| 4 | RS422 |
| 5 | M-BUS |
| 6 | CNT (4× BI, 2×, 1×BO) - I/O port |
| 9 | Switch |

| Router version | |
|---|---|
| B | Basic |
| F | Full |

*Please note: Isn't possible to have in the router all combinations of the ports. Please check your chosen variant with your a local distributor.*

## SPECIFICATIONS

### FIXED INTERFACES - BASIC VERSION

| | |
|---|---|
| 1× Ethernet | 10/100 Mbits, independent or bridged |
| 1× SIM | SIM Card |
| 1× I/O | Binary input/output |
| 1× USB | USB 2.0 Host, Type A |

### OPTIONAL INTERFACES

| | |
|---|---|
| 1× Optional port (PORT 1) | Ethernet (10/100Mbps), RS232, RS422/485, M-BUS I/O Input/Output, Ethernet Switch (with PORT 2) |

### ANTENNA CONNECTORS

| | |
|---|---|
| 1x SMA – 50 Ohm | |

### FIXED INTERFACES - FULL VERSION

| | |
|---|---|
| 1× Ethernet | 10/100 Mbits, independent or bridged |
| 2× SIM | SIM Card |
| 1× I/O | Binary input/output |
| 1× USB | USB 2.0 Host, Type A |

### OPTIONAL INTERFACES

| | |
|---|---|
| 1× Optional port (PORT 1) | Ethernet (10/100Mbps), RS232, RS422/485, M-BUS I/O Input/Output, Ethernet Switch (with PORT 2) |
| 1× Optional port (PORT 2) | RS232, RS422/485, M-BUS, WMBUS, WiFi Ethernet Switch (with PORT 1) |

### ANTENNA CONNECTORS

| | |
|---|---|
| 1x SMA – 50 Ohm | |

### POWER

| | |
|---|---|
| Source | 9 - 36 VDC |
| Consumption | Idle - 2 W<br>Transmission - 5 W |

### MECHANICAL

| | |
|---|---|
| Dimension Plastic version | 51 x 87 x 116mm |
| Dimension Metallic version | 42 x 87 x 113mm |
| Protection | IP30 |
| Weight Plastic version | 150 g |
| Weight Metallic version | 280 g |

### ENVIRONMENTAL

| | |
|---|---|
| Operating Temperature | -40 to +75°C |
| Storage Temperature | -40° to +85°C |
| Humidity | Operating - 0 to 95% relative humidity non condensing<br>Storage - 0 to 95% relative humidity non condensing |

### WIFI *optional ("F" router versions)

| | |
|---|---|
| Antenna connector | R-SMA – 50 Ohms |
| Supported WiFi band | 2.4 GHz |
| Standards | 802.11b, 802.11g, 802.11n |
| 2.4 GHz supported channels | 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13 |
| RX Sensitivity | 11b, 11 Mbps: typ. -85 dBm<br>11g, 54 Mbps: typ. -70 dBm<br>(HT20) 11n, MSC7: typ. -66 dBm<br>(HT40) 11n, MSC7: typ. -62 dBm |
| TX Output Power | 11b, 11 Mbps: min. 18, typ. 19, max. 20 dBm<br>11g, 54 Mbps: min. 14.5, typ. 16, max. 17.5 dBm<br>802.11n (HT20): min. 13.5, typ. 15, max. 16.5 dBm<br>802.11n (HT40): min. 13.5, typ. 15, max. 16.5 dBm |
| Type of device | Access point, station |

### PARAMETERS - EDGE module

| | |
|---|---|
| Frequency bands | EGSM850, EGSM900, GSM1800 and GSM1900 |
| Transmit power | Class 4 (2 W) for EGSM850<br>Class 4 (2 W) for EGSM900<br>Class 1 (1 W) for GSM1800<br>Class 1 (1 W) for GSM1900 |

### 32B ARM MICROPROCESSOR

| | |
|---|---|
| Memory | 512 Mb DDR SDRAM<br>128 Mb FLASH<br>1 Mb MRAM |

### I/O PORT (CNT)

| | |
|---|---|
| Binary input | Reed contact with trigger level 1.3 up to 1.4 V |
| Binary output | 100 mA/ max. 30 V |

### SOFTWARE FEATURES

Linux based, possibility to program your own application

NTP client, NTP Server – time synchronization

SMS communication – AT commands on RS232, Ethernet and I/O

M-RAM memory inside – router statistic´s saving into memory

### NETWORKING

DHCP – automatic IP addressing in LAN network

NAT/PAT – IP address and ports translation between inside/outside network

VRRP – virtual backup router function

DynDNS client – access to the router with a dynamic IP address

Dial-in – the ability to communicate over dial CSD call

PPPoE Bridge – PPP frames encapsulation inside ETH frames

### VPN TUNNELING

IPsec, OpenVPN, L2TP – secure encrypted tunnels

### CONFIGURATION AND DIAGNOSTIC

HTTP server – configuration via web server

Telnet – configuration and access to the file system

SNMP – router diagnostics, communication with I/O and M-Bus

GPRS state signalization by LED

On-line info on GSM signal status (level, cell, neighbors)

SMS info – power on, GPRS connection or disconnection

SMS control – on/off GPRS connection, switch SIM, I/O etc.

Transferred data counting, one more APN as backup

Remote router group configuration change, switching among configuration profiles

SSH – encrypted configuration and access to the file system

### STANDARDS/REGULATION

| | |
|---|---|
| Telecom and Emission | ETSI EN 301 511 V12.5.1 (2017-03), ETSI EN 300 328 V2.1.1 (2016-11), ETSI EN 300 220-2 V3.1.1 (2017-02) |
| EMC | ETSI EN 301 489-1 V2.1.1 (2016-11), Draft ETSI EN 301 489-52 V1.1.0 (2016-11), ETSI EN 301 489-17 V3.1.1 (2017-02), ETSI EN 301 489-3 V2.1.1 (2017-03) |
| Safety | EN 60950-1:2006 + A11:2009 + A1:2010 + A12:2011 + A2:2013 + AC:2011 |

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## ACCESSORIES

| ORDER CODE | DESCRIPTION | Variant of router without accessories | Accessories included in set | Accessories sold separately |
|---|---|:---:|:---:|:---:|
| BB-SBD40 | Metal DIN holder for Metal versions of routers v2 | ✔ | ✔ | ✔ |
| BB-CPD2-G | Plastic DIN holder for Plastic versions of routers v2 | ✔ | ✔ | ✔ |
| BB-TG.09.0113 | Antenna GSM/UMTS stick 2dB - Penta-band, SMA-M connector | | | ✔ |
| BB-AO-AGSM-MG3S | Antenna GSM 900/1800 magnetic 3dB, 3m cable, SMA-M connector | | ✔ | ✔ |
| BB-AO-AGSM-MG9S | Antenna GSM/UMTS magnetic 9dB - Quad-band, 3,5m cable, SMA-M connector | | | ✔ |
| BB-AW-A24G-M5SRP | Antenna WiFi stick 5dB, SMA-RP connector | | ✔ | ✔ |
| BB-KD-ETH | Ethernet cross cable 1,5m | | ✔ | ✔ |
| BB-CON-WR3 | 3-pin terminal block for IO | | ✔ | ✔ |
| BB-CON-WR2 | 2-pin Terminal block for Power Supply | ✔ | | ✔ |
| BB-RPS-v2-WR2-EU | Power supply with WR connector (2 pins) - 12V/1AX, EU plug | | ✔ | ✔ |
| BB-RPS-v2-WR2-US | Power supply with WR connector (2 pins) - 12V/1AX, US plug | | ✔ | ✔ |
| BB-RPS-v2-WR2-UK | Power supply with WR connector (2 pins) - 12V/1AX, UK plug | | ✔ | ✔ |
| BB-RPS-v2-WR2-AUS | Power supply with WR connector (2 pins) - 12V/1AX, AUS plug | | ✔ | ✔ |
| Quick Start Guide | | ✔ | ✔ | ✔ |

**BASIC VERSION**
1× SIM card holder, 1× optional port (PORT1)

**FULL VERSION**
2× SIM card holder, 2× optional port (PORT1,2)

**PLASTIC VERSION**

**METALLIC VERSION**

Optional

Back up of primary SIM

Ethernet 10/100

RS232, RS485, MBUS, Wi-Fi, CNT, W-MBUS

Ethernet 10/100, RS232, RS485, CNT, MBUS

Ethernet 10/100

2 or 3 port switch 10/100
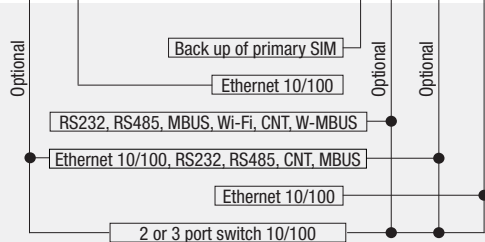
## R-SEENET™

Router Management Software consisting of two parts:

**R-SeeNet Server** application can be programmed to automatically send SNMP queries (Simple Network Management Protocol) to each router defined in the network. The application retrieves status information from the routers and records it in the SQL database.

**R-SeeNet PHP** is a web-based application that accesses the SQL database and provides the network administrator detailed information on individual routers and network health.

## SMARTWORX HUB™

**SmartWorx HUB** takes management of your devices to new levels of flexibility and efficiency. Giving you a complete view of your installed device population, SmartWorx Hub delivers invaluable configuration, diagnostic and management facilities directly to your desktop, wherever you are.

Manage a single device or your entire device population at the same time. Whether you need to modify configuration parameters, download or upgrade installed firmware and applications or view detailed information regarding network statistics, you can do it all from any location.