Basic Industrial Routers
EBW

EBW-L	EBW-H	EBW-WH	EBW-W	EBW-E
4G	3G	WiFi/3G	WiFi	LAN

Professional routers for secure and easy network connection

The EBW series of INSYS icom is characterised by deliberate reduction to standard routing tasks without stinting on quality and IT security. EBW devices consist of a router and a 2-port switch (except EBW-E100), and feature an integrated Linux programming environment for user-specific applications (INSYS sandbox).
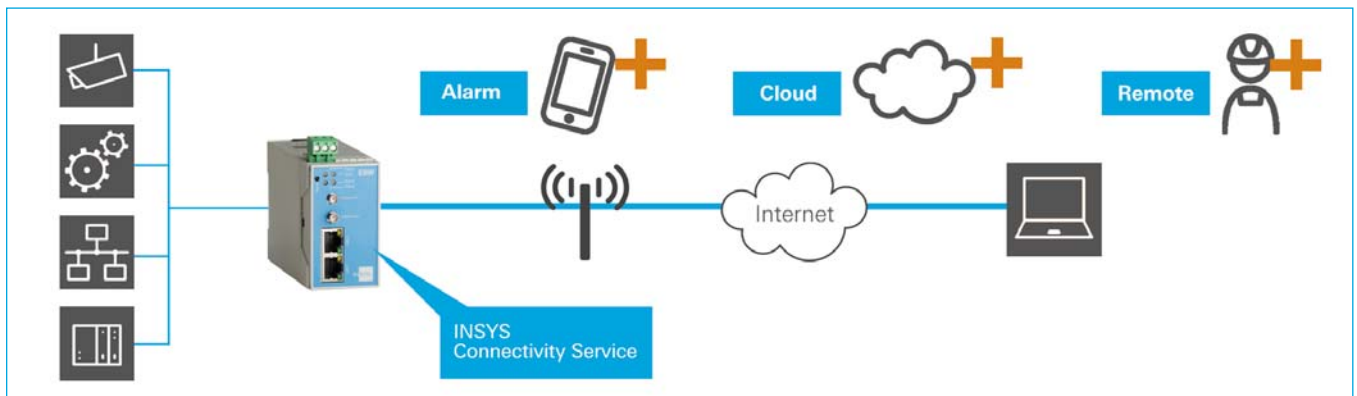
Configuration is accomplished via a simple and intuitive web interface. The combination of VPN and firewall provides a maximum of IT security. You'll set-up your own VPN network quick and easy with the optional INSYS Connectivity Service. PCs, routers and locally connected network devices can be integrated in just a few steps.

The Monitoring App allows you to extend the functionality of the devices by monitoring controls and other devices as well as sending messages via e-mail or SMS.
Moreover, application data can be transferred quick and easy to cloud services like Cumulocity or Telekom "Cloud der Dinge" for central management and visualisation.

Highlights

- Router and switch in one device
- Compact design
- IT security: VPN, stateful firewall
- 2-port switch with 10/100 MBit/s
- **NEW:** Integrated Linux programming environment (INSYS sandbox)
- Quick start for VPN service INSYS Connectivity Service
- Monitoring App for monitoring Siemens LOGO!™, S7 and Modbus TCP devices
- Management and visualisation of application data via Cumulocity Cloud and Telekom "Cloud der Dinge"

Sample application with cellular radio networks

Technical Data
EBW - General Functions

Router

Function	IPv4/IPv6 router, connection management, DHCP server and client, Full NAT (IP forwarding, port forwarding, netmapping), DNS relay, dynDNS support, PPPoE for ADSL modem via LAN (ext), Dial-in, dial-out, callback
Security	OpenVPN (client and server), IPsec (ESP normal/aggressive mode), GRE, PPTP, stateful firewall and MAC filters, RADIUS authentication, 10 users for dial-in, authentication via PAP/CHAP/MS-CHAP/MS-CHAP 2, dial filter for dial-out, Linkloss Detection, Failed Login Detection, no backdoor
Redundancy	LAN ext. port for external DSL modem, 2 dial-out targets, 2 OpenVPN servers
Connection stability	Connection monitoring on several levels, hardware watchdog

Switch*

Ports	2x RJ45 10/100 BT for full and half duplex operation
Function	Automatic detection of patch cable/cross-over cable, automatic speed adjustment, port mirroring

* Not for EBW-E

Operation

Configuration	Local and remote web interface (http, https), command line interface (CLI), Telnet, SSH, ASCII and binary file (also for backup), quick start for ICS Menu languages: German, English, French
Indications (LEDs)	Connection status, data/signal, device status/VPN, power, switch ports
Diagnosis	Comprehensive log files, support package, integrated help functions, Diagnosis tools: ping, tcpdump, traceroute, DNS lookup
Customer-specific programming environment	User access to embedded Linux (sandbox), 150 MB permanent memory, socket access, example programs: e-mail and SMS client, serial logger, etc.
Messages	Hardware watchdog, system messages via e-mail, SMS (only EBW-H and EBW-WH), SNMP traps, SNMP V1/V2c/V3
Additional features	NTP client and server, buffered real-time clock, optional monitoring packages
Updates	Update of firmware and configuration (local and remote), daily auto update via server (http, ftp)

Enviromental conditions

Power supply	10 ... 48 V DC (±20%)
Humidity	0...95% (non-condensing)
Mounting / protection class	DIN rail mounting / housing: IP40, terminals: IP20
Certifications	CE, EBW-E100 and EBW-H100 additionally: IC and FCC part 15 class A
Applied standards	Radiation: EN 55022 Class B, EN 61000-6-3 Interference resistance: EN 55024, EN 61000-6-2 Security: EN 60950-1 (except EBW-E, not required)
Dimensions (WxHxD)	45 x 70 x 110 mm (2.6 HP)

Monitoring App (monitoring function)

Monitoring elements	Timer, incoming SMS[1], internal flags
Logical combination of the elements	AND, OR, NOR, NAND, XOR
Actions	Message dispatch, http call, timer start, upload to Cumulocity cloud, Telekom Cloud der Dinge: Central and easy visualisation of measurements, events and alarms
Messages	SMS, e-mail: Freely configurable text, also actual values from monitored elements

[1] not for EBW-E, EBW-L, EBW-W

Technical Data
EBW Variants - Specific Functions of Individual Versions

EBW-E - Ethernet

Additional function	PPPoE for ADSL modem via LAN (ext)
Power consumption (during connection)	Approx. 2 W
Operating temperature	-30...+70 °C -30...+85 °C under restricted conditions (refer to www.insys-icom.com/restricted)

EBW-L - Cellular radio (LTE)

Networks	2G/GPRS/EDGE: 900, 1.800 MHz; CSD, GPRS/EDGE Class 12 3G/UMTS/HSPA: 900, 1.800, 2.100 MHz; UMTS/HSPA 4G/LTE: 800, 900, 1.800, 2.100, 2.600 MHz; LTE Cat. 3 (DL: 100 Mbps, UL: 50 Mbps)
Antenna connections	SMA female for main antenna and SMA female for Rx Diversity (3G) or MIMO (LTE)
SIM	1 slot for Mini-SIM card (2FF), locked
Power consumption (during connection)	Approx. 2 W (logged in), max. 5 W (data transmission)
Operating temperature	-30...+60 °C -30...+75 °C under restricted conditions (refer to www.insys-icom.com/restricted)
Applied radio standards	EN 300440-2, EN 301489-1, EN 301489-3, EN 301489-7, EN 30189-24, EN 301511, EN 301908-1, EN 301908-2, EN 301908-13

EBW-H - Cellular radio (HSPA)

Networks	2G: 850, 900, 1800, 1900 MHz; GSM/GPRS/EDGE Class 12 3G: 800, 850, 900, 1.900, 2.100 MHz; UMTS/HSPA 3GPP Release 6, 7 DL 14.4Mbps, UL 5.7Mbps
Antenna connection	SMA female
SIM	1 slot for Mini-SIM card
Power consumption (during connection)	Approx. 2 W (logged in), max. 5 W (data transmission)
Operating temperature	-30...+60 °C -30...+75 °C under restricted conditions (refer to www.insys-icom.com/restricted)
Applied radio standards	EN 301489-1, EN 301489-7, EN 301489-24, EN 301511

EBW-WH (HSPA/WiFi) (for 3G function and operating temperature see EBW-H)

Additional functions to EBW-H	WiFi communication
Standard	IEEE 802.11 b/g/n
Frequency, transmitted power	2.4 GHz, max. 100 mW
WiFi mode	WiFi client, WiFi access point with up to 5 clients
Security	WEP, WPA/WPA2 (AES, TKIP). 802.1X (EAP: TLS, TTLS, PEAP)
Antenna connections	Reverse SMA male for WiFi, SMA female for cellular radio
Power consumption (during connection)	Approx. 2 W (logged in), max. 5.2 W (data transmission)
Operating temperature	-30...+60 °C -30...+75 °C under restricted conditions (refer to www.insys-icom.com/restricted)
Applied radio standards	EN 300328, EN 300440-2, EN 301489-1, EN 301489-3, EN 301489-7, EN 301489-24, EN 301908-1, EN 301908-2

EBW-W - WiFi

Standard	IEEE 802.11 b/g/n
Frequency, transmitted power	2.4 GHz, max. 100 mW
WiFi mode	WiFi client, WiFi access point with up to 5 clients
Security	WEP, WPA/WPA2 (AES, TKIP). 802.1X (EAP: TLS, TTLS, PEAP)
Antenna connection	Reverse SMA male
Power consumption (during connection)	Approx. 2 W (idle condition), max. 3 W (data transmission)
Operating temperature	-30...+70 °C -30...+85 °C under restricted conditions (refer to www.insys-icom.com/restricted)
Applied radio standards	EN 300328, EN 301489-1, EN 301489-3

Order numbers

Product description	Features	Order number
EBW-E100	LAN-LAN router	10014546
EBW-H100	2G/3G	10014545
EBW-L100	2G/3G/4G	10016058
EBW-W100	WiFi	10015750
EBW-WH100	WiFi/2G/3G	10015751

Suitable accessories

Product description	Features	Order number
Magnetic Antenna 4G/3G/2G SMA	Cable: 3m Protection class: IP65	10019504
Outdoor Wall Antenna 4G/3G/2G SMA	Cable: 3m Protection class: IP65	10017467
Magnetic/screw/adhesive Antenna 4G/3G/2G SMA	Cable: 5m Protection class: IP65	10017462
Rectangular Antenna 3G/2G SMA	Mounting directly on the device	10000664
Roof Mount Antenna 3G/2G SMA	Cable: 2.7m Protection class: IP67 & IP69K	10000675
Outdoor Wall Antenna WiFi 2.4GHz rev. SMA	Cable: 2.5m Protection class: IP54	10015910
Magnetic Antenna WiFi 2.4 GHz rev. SMA	Cable: 1.5m Protection class: IP67	10019797
Antenna with hinge WiFi 2.4 GHz rev. SMA	Mounting directly on the device	10000661
Antenna Extension Cable 5m SMA	Device connection: SMA (f), antenna connection: SMA (m)	10015193
Antenna Extension Cable 10m SMA	Device connection: SMA (f), antenna connection: SMA (m)	10018607
Antenna Extension Cable 15m SMA	Device connection: SMA (f), antenna connection: SMA (m)	10000735
Power supply unit	24 V power supply unit for DIN rail	10014249
icom Connectivity Suite - VPN	VPN service for M2M applications	www.insys-icom.com/iCS/VPN
icom Connectivity Suite - M2M SIM	SIM cards, management portals, etc.	www.insys-icom.com/iCS/SIM

Monitoring Packages

Product description	Features	Order number
Monitoring package LOGO!™	Licence for monitoring Siemens LOGO!™ 0BA4 through 0BA8	10017303
Monitoring package Modbus TCP	Licence for monitoring Modbus TCP, function codes 1-6	10017305
Monitoring Package S7	Licence for monitoring Siemens S7 -200/-300/-400/-1200/-1500	10017306