



# + JOIN WIRELESS EXPERTS

**LTE/HSPA+/UMTS/CDMA/EDGE/GPRS  
MOBILE ROUTER TECHNOLOGY  
DESIGNED FOR M2M APPLICATIONS**



A **B&B ELECTRONICS** Company



## The most popular applications ...



### Communications and transport

- Meteorological measurements on roads
- Traffic density monitoring, camera systems
- Road infrastructure monitoring – traffic signs, crossroads, tunnels
- Parking machines, guidance systems, information boards
- Railway cars – trolley lines exchange stations



### Energy and Heat Industries

- Remote control of high-voltage sectional switches
- Measurement and control of devices in transformer stations
- Remote readouts of electric meters, smart metering
- Monitoring of small power plants – water, wind, photovoltaic power plants



### Camera and Security Systems

- Transfer of images and videos from security IP cameras
- Large camera systems monitoring
- Camera motion control
- Security systems connections



### Telecommunications

- Monitoring of vending and dispensing machines
- Parking ticket machines, highway toll machines
- Self-service gas stations
- Information kiosks



### Environmental measurement

- Transfer of data provided by meteorological stations and sensors
- Air quality measurement and monitoring
- Flood control systems, early warning information systems for municipalities, cities and industrial enterprises
- Monitoring of volcanoes, prediction of earthquakes and other natural disasters
- Gas and radiation detection systems



### Display and Information Systems

- Monitoring of advertisement billboards and movable/mobile commercial panels
- Video commercial system contents update
- Information kiosks
- Information and traffic navigation systems



## Why Conel Products?

### + Widely-functional

- OS LINUX
- VPN tunnels, Dynamic routing protocols
- Firewall
- System status, system logs, reboot log
- SMS, E-mail
- Serial server/client, TCP/UDP
- MODBUS TCP/RTU gateway
- DNP3 Outstation
- Backup Routes - Automatic wireless backup of wire WAN connection
- Network management SW R-SeeNet
- Additional SW modules and ability to create you own SW module
- Secure network tool - Smartcluster

### + Easy to use

- Very simple and intuitive web-based configuration
- Simple DIN rail installation
- Wide range of feeding voltage
- Wide range of running temperature
- Already implemented list of local mobile carrier APN
- Compatible with common network standards
- Backward compatible with previous versions of the equipment



### All-around support +

- Online HelpDesk support
- Online knowledge base
- Application consulting
- Short delivery time and convenient delivery conditions
- International network of local partners
- One CLICK report - current configuration / factory identification /system log / kernel log / reboot log / routing table

### + Reliable

- The electrical components of our routers are rigorously tested for quality at through the entire production process
- MTBF of the routers is longer than 49 years
- Networks with more than 15000 routers are in action
- Industrial design
- Designed and manufactured in EU
- HW and SW watchdog
- ISO 9001
- More than 20 years experience with wireless technologies

### Modular +

- Tempered Aluminium or Plastic housing
- BASIC / FULL HW configuration
- 2 SIM cards supported
- 2 wireless modules supported
- Ability to create you own SW plugin
- 3 physical interfaces simultaneously
- GPRS/EDGE/UMTS/HSDPA/HSUPA/HSPA/HSPA+/LTE/CDMA
- Optional interfaces: RS232 / RS422 / RS485 / M-BUS / Wireless M-BUS / CNT / ETH / Switch /SD / WiFi / In-Out
- Thousands of possible HW combinations
- Investment protection using - HW and SW upgrade possibility



## Fully Modular Concept – Buy Exactly What You Need

Basic and full versions are available, with the combination of optional ports and SIM card holders.

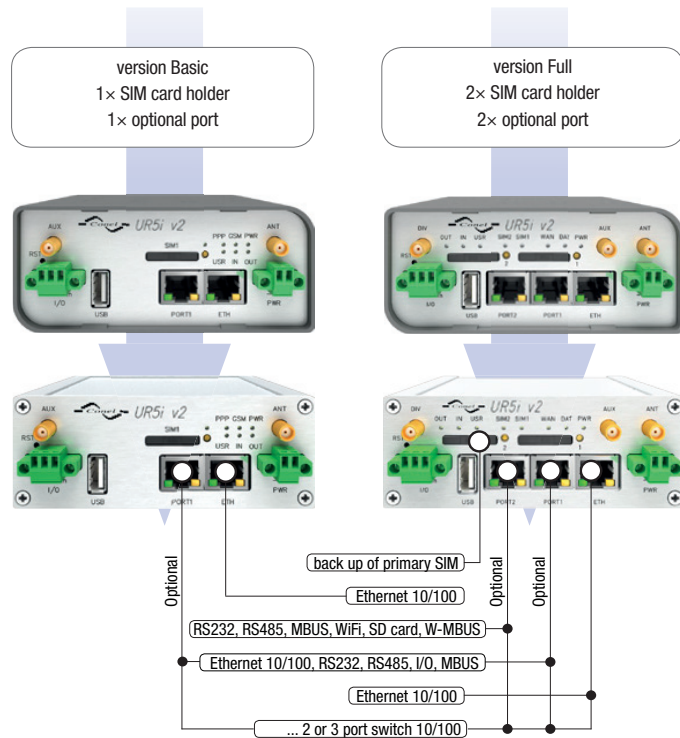
Fixed communication interfaces:

- ETHERNET 10/100
- USB HOST
- I/O port with 1× input and 1× output

Optional interfaces to optimize according to your application, with the ability to add additional interfaces in the future:

- 1-2× ETHERNET 10/100 with possible modes:
  - 2-port Ethernet switch
  - 3-port Ethernet switch
  - 2× independent LAN
- Wi-Fi: AP or client mode
- RS232 serial port
- RS485 galvanic separation possible
- RS422 galvanic separation possible
- MBUS master for up to 30 slave meters
- SD card holder
- Wireless MBUS
- I/O CNT interface including 4× binary inputs (2 inputs may be configured as counter) 2× analogue inputs and 1× binary output

For all routers, you can choose either a metal or plastic casing.

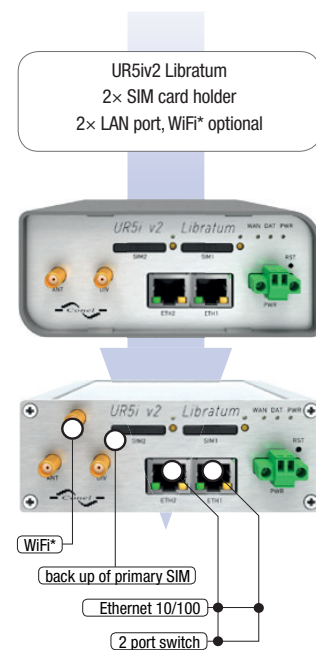


## Balanced Concept - UR5i v2 Libratum

All the best from "Fully Modular concept" - Balanced router UR5iv2 Libratum HSPA+ wireless router featuring high speed data rates (14.4 Mbit/s)

- 2× ETHERNET 10/100 with possible modes:
  - 2-port Ethernet switch
  - 2× independent LAN
- Optional\* Wi-Fi: AP or client mode
- Dual-SIM fail over
- Antenna Rx Diversity
- Temperature up to +70 °C
- You can choose either a metal or plastic casing

All Conel routers are compatible with:



## LTE/HSPA+/UMTS/CDMA/EDGE/GPRS Routers

Choose the right model by data transfer technology:

ROUTER	MOBILE WIRELESS NETWORK TECHNOLOGY	MAX DOWNLOAD	MAX UPLOAD
ER75i v2 GPRS/EDGE router	GPRS/EDGE	236,8 Kbit/s	118,4 Kbit/s
UR5i v2 UMTS/HSPA+ router	UMTS/HSPA+ & GPRS/EDGE	14,4 Mbit/s	5,76 Mbit/s
UR5i v2 Libratum router	UMTS/HSPA+ & GPRS/EDGE	14,4 Mbit/s	5,76 Mbit/s
LR77 v2 LTE router	LTE & UMTS/HSPA+ & GPRS/EDGE	100 Mbit/s	50 Mbit/s
CR10 v2 CDMA router	CDMA 2000 1X, EV-DO Rev. A, B, 450 MHz bands	14,7 Mbit/s	5,4 Mbit/s
UCR11 v2 UMTS/CDMA router	UMTS/HSPA+ & GPRS/EDGE & CDMA2000 1X, EV-DO Rev A, B, 450 MHz bands	21,1 Mbit/s	5,76 Mbit/s
Bivias v2 router	by the modules	by the modules	by the modules
XR5i v2 LAN router	ETHERNET 10/100	100 Mbit/s	100 Mbit/s

	ER75i v2	UR5i v2	UR5i v2 Libratum	LR77 v2	CR10 v2	UCR11 v2	Bivias v2
<b>Frequency Bands</b>							
GSM 900, 1800 MHz	✓	✓	✓	✓		✓	✓
GSM 850, 1900 MHz	✓	✓	✓	✓		✓	✓
UMTS (WCDMA/FDD) 900, 2100 MHz		✓	✓	✓		✓	✓
UMTS (WCDMA/FDD) 850, 1900 MHz		✓	✓	✓		✓	✓
LTE 800, 900, 1800, 2100, 2600 MHz				✓			✓
CDMA 2000 450 MHz					✓	✓	✓

### Functions & Software Features

Conel routers enhanced functionality, incorporating self-diagnostics and a HW watchdog, ensure secure and consistent operation and ultra-reliable wireless connections.

For critical applications, these routers offer wireless redundancy through dual SIM failover with SMS and email messaging and control capability for remote alerts and resets. They support the most commonly used LAN/WAN network protocols and Conel's custom software allows for easy, flexible and effective networking and management.

#### Networking

- DHCP: automatic IP addressing in LAN network
- NAP/PAT: IP address and port translation
- Firewall: filtering of addresses, ports, protocols
- VRRP: virtual backup router function
- DynDNS client: access to the dynamic IP address
- VLAN 802.1Q: virtual LAN
- QoS: quality of service
- PPPoE Bridge: PPP over Ethernet Bridge mode
- Dial-in: communicate over dial CSD call
- NTP client, NTP server: time synchronization

#### 2× SIM for all FULL version wireless routers

- Back-up by switching two independent mobile networks
- Switch when data limit is exceeded, when roaming is detected or by any other programmable option

#### VPN Tunnelling

- IPSec, OpenVPN, PPTP, L2TP, EasyVPN, GRE
- Authentication by certificates, shared keys, name/password

### Remote Router Supervision & Mass Network Management

- HTTP/HTTPS, Telnet/SSH for local and remote configuration and firmware updates
- Automatic configuration and firmware updates from FTP/HTTP server by schedule
- Up to 4 independent configuration profiles can be stored and remotely switched using scripts, SMS messages, I/O, etc.
- Additional software for easy networking and monitoring SmartCLUSTER and R-SeeNet

#### Diagnostics

- Detailed logs of operational information, including signal status and data traffic
- Signal level data, cell identifiers and data traffic are saved in router's memory for up to 2 months
- SNMP: router diagnostics, communication with I/O and MBUS
- LED indication: signal strength, connection status, ports

#### SMS & E-mail Info

- Information about status, connection or disconnection and many others
- SMS control: on/off connection, switching SIM, router profile, I/O
- SMS communication: AT commands (RS232 and TCP/IP), I/O or HTTP

### Modular LINUX Software Environment

Open LINUX based system allows use of common LINUX commands, scripts and other features. Conel routers offer an extension of standard firmware with optional software plug-ins. You can create your own plug-in and simply apply it to the router. The router has 128kb non-volatile RAM memory, ready for data collection and processing applications.

#### Software Plug-ins

- Easy VPN client: secure, encrypted VPN
- Dynamic routing protocols: BGP, OSPF, RIP, IS-IS
- IGMP: multicast protocols
- MODBUS RTU/TCP gateway and mapping: convert data from RTU to TCP/IP format
- Captive Portal



## Overview of Conel routers



	ER75i v2	UR5i v2 Libratum	UR5i v2	LR77 v2	CR10 v2	UCR11 v2	Bivias v2	XR5i v2F / XR5i v2E
<b>MOBILE WIRELESS NETWORK TECHNOLOGY</b>								
GPRS	✓	✓	✓	✓		✓	optional	
UMTS/HSPDA		✓	✓	✓		✓	optional	
UMTS/HSPA+		✓	✓	✓		✓	optional	
LTE				✓			optional	
CDMA 2000 1X, EV-DO Rev. A, B					✓	✓	optional	
WAN ETHERNET	optional	optional	optional	optional	optional	optional	optional	✓
Two VF modules						✓	✓	
<b>COMMUNICATION INTERFACES AND EXPANSIONS</b>								
Ethernet 10/100	✓	2x	✓	✓	✓	✓	✓	✓ / 2x
Ethernet 10/100 3-port switch	optional		optional	optional	optional	optional	optional	
Wi-Fi (IEEE 802.11 b, g, n)	optional	optional	optional	optional	optional	optional	optional	optional
USB Host	✓		✓	✓	✓	✓	✓	✓ / -
RS232/RS422/RS485	optional		optional	optional	optional	optional	optional	optional / -
MBUS, Wireless MBUS	optional		optional	optional	optional	optional	optional	optional / -
I/O CNT	optional		optional	optional	optional	optional	optional	optional / -
I/O CNT (1xIN/1xOUT)	✓		✓	✓	✓	✓	✓	✓ / -
GPS Receiver			optional	optional			optional	
<b>DESIGN, DIMENSIONS, SIM, ENVIRONMENTAL</b>								
Plastic Casing (51x87x116mm)	optional	optional	optional	optional	optional	-	-	optional
Metal Casing (42x87x113mm)	optional	optional	optional	optional	optional	optional	42x87x148mm	optional
2xSIM Card	optional	✓	optional	optional	optional	✓	✓	
Antenna Rx Diversity		✓	✓	✓		optional	✓	
Power Supply 10V - 30V DC	✓	✓	✓	✓	✓	✓	✓	✓
Op. Temperature -30 to +60 °C	✓	+70 °C	+70 °C	✓	✓	✓	✓	✓
DIN holder TS35/TS32	✓	✓	✓	✓	✓	✓	✓	✓
<b>FUNCTIONS</b>								
Linux	✓	✓	✓	✓	✓	✓	✓	✓
IPSec (DES, 3DES, AES, MD5, SHA-1, DH2, DH5)	✓	✓	✓	✓	✓	✓	✓	✓
OpenVPN, PPTP, L2TP, GRE	✓	✓	✓	✓	✓	✓	✓	✓
Authentication (X.509 certificate, Pre-shared key, PW)	✓	✓	✓	✓	✓	✓	✓	✓
EasyVPN	optional	optional	optional	optional	optional	optional	optional	optional
Firewall	✓	✓	✓	✓	✓	✓	✓	✓
DHCP	✓	✓	✓	✓	✓	✓	✓	✓
NAT/PAT	✓	✓	✓	✓	✓	✓	✓	✓
HTTP/HTTPS Server	✓	✓	✓	✓	✓	✓	✓	✓
Telnet/SSH	✓	✓	✓	✓	✓	✓	✓	✓
DynDNS	✓	✓	✓	✓	✓	✓	✓	✓
FTP Server	✓	✓	✓	✓	✓	✓	✓	✓
NTP Server, NTP Client	✓	✓	✓	✓	✓	✓	✓	✓
SNMP	✓	✓	✓	✓	✓	✓	✓	✓
RRRP	✓	✓	✓	✓	✓	✓	✓	✓
SMTP, E-mail, SMS Functions	✓	✓	✓	✓	✓	✓	✓	✓
VLAN 802.1Q	✓	✓	✓	✓	✓	✓	✓	✓
QoS, IGMP, BGP, OSPF, RIP	optional	optional	optional	optional	optional	optional	optional	optional
PPPoE Bridge	✓	✓	✓	✓	✓	✓	✓	✓
COM Port TCP/UDP server/client	✓		✓	✓	✓	✓	✓	✓ / -
MODBUS RTU/TCP Gateway	optional		optional	optional	optional	optional	optional	optional / -
4 Configuration Profiles	✓	✓	✓	✓	✓	✓	✓	✓
Automatic Configuration and FW Update	✓	✓	✓	✓	✓	✓	✓	✓
<b>ADDITIONAL SOFTWARE SUPPORT</b>								
SW Plug-in Modules	✓	✓	✓	✓	✓	✓	✓	✓
R-SeeNet	✓	✓	✓	✓	✓	✓	✓	✓
Smart Cluster	✓	✓	✓	✓	✓	✓	✓	✓

## Smart Decisions Begin with Intelligent Management Software

### R-SEENET

#### R-SeeNet - Monitoring & Management Software

R-SeeNet is the software system used for monitoring Conel routers. It continuously collects information from individual routers in the network and records the data into a SQL database. Then, it creates a visual form and reports of the information collected for the network administrator.

R-SeeNet consists of two parts:

- R-SeeNet Server**  
 A server application that 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**  
 A web-based application that accesses to the SQL database and provides the user or network administrator information about the status of individual routers, as well as about the status of the entire network.

#### Available Data

Everything you need to know about your network's current status as well as a historical view of the information transferred today, yesterday, this week, this month and last month.

- Signal strength
- Data traffic
- Response time
- Router availability
- Number of PPP connections
- Number of various channels connected
- Visual reports, tables and graphs
- Up to 2 months of past data for each router

ID	Description	IP	Status	Signal strength	Data traffic	Response time	Router availability	Number of PPP connections	Number of various channels connected
1	...	...	...	...	...	...	...	...	...
2	...	...	...	...	...	...	...	...	...
3	...	...	...	...	...	...	...	...	...
4	...	...	...	...	...	...	...	...	...
5	...	...	...	...	...	...	...	...	...
6	...	...	...	...	...	...	...	...	...
7	...	...	...	...	...	...	...	...	...
8	...	...	...	...	...	...	...	...	...
9	...	...	...	...	...	...	...	...	...
10	...	...	...	...	...	...	...	...	...
11	...	...	...	...	...	...	...	...	...
12	...	...	...	...	...	...	...	...	...
13	...	...	...	...	...	...	...	...	...
14	...	...	...	...	...	...	...	...	...
15	...	...	...	...	...	...	...	...	...
16	...	...	...	...	...	...	...	...	...
17	...	...	...	...	...	...	...	...	...
18	...	...	...	...	...	...	...	...	...
19	...	...	...	...	...	...	...	...	...
20	...	...	...	...	...	...	...	...	...
21	...	...	...	...	...	...	...	...	...
22	...	...	...	...	...	...	...	...	...
23	...	...	...	...	...	...	...	...	...
24	...	...	...	...	...	...	...	...	...
25	...	...	...	...	...	...	...	...	...



### SMARTCLUSTER

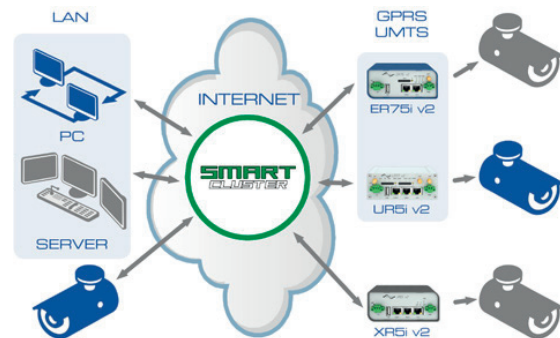
#### SmartCLUSTER - Internet VPN Portal

SmartCLUSTER is software designed to create safe communications systems while using a public network - the Internet. SmartCLUSTER is an OpenVPN server that offers three functions for the creation of safe private networks in a public environment.

1. As an OpenVPN server it connects clients (Conel routers and end-user computers) via an OpenVPN tunnel. It creates communication links between individual tunnels and thereby enables individual devices to communicate with each other.
2. Based on the user-defined network configuration and connection parameters of VPN tunnels, SmartCLUSTER creates a configuration file for Conel routers and also creates secure certificates for both sides of the secured OpenVPN tunnel. This allows the user to install individual Conel routers easily into a virtual private network, confident the system is secure against attacks or unauthorised access.
3. SmartCLUSTER can be used as an instrument for basic network management through information on the connection status of individual routers.

#### The SmartCLUSTER solution

- SmartCLUSTER provides solutions for applications where you need to connect devices on local area networks (LANs), and a router. The router provides communication with the LAN and does not have a public internet IP address.
- SmartCLUSTER does solve problems relevant to network security and the secure connection of individual local networks.
- SmartCLUSTER solves the problem of how to connect devices which are behind routers with SIM cards belonging to various GSM/UMTS operators. It is also a great solution for devices located in various countries that use local tariffs without a roaming service, but use the SmartCLUSTER communication server.



WE ARE HERE TO EMPOWER OUR CUSTOMERS  
WITH EQUIPMENT AND SUPPORT THEY NEED TO  
BE M2M WIRELESS EXPERTS



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