

# SCR-E (LAN) SCR-L (LTE)

## VPN Routers / IoT Gateways



## SCR - the essential

### Focused on the basics

The routers of the SCR series are IoT gateways of the special kind. They provide latest technology in a compact, flexible mountable housing for a very attractive price.

The SCR series is available in LTE and LAN versions, both optionally as I/O variant. Users can connect both, IP-based and serial devices, to this Smart Device locally. This allows to transform elder existing plants in modern IT environments with a retrofit.

The two mounting directions make an SCR suitable for both, a switch cabinet in industrial environments and flat building connection boxes.

Besides the INSYS operating system icom OS, the icom SmartBox is also on board, an integrated Linux environment that allows to execute scripts and programs directly on the router based on so-called containers.

Therefore, an SCR router can not only be used for secure remote maintenance and control, but also for capturing and processing application data within the scope of edge computing. This also allows to monitor the conditions and values of connected devices and realise reporting or benchmarking across different plants thanks to plug & play connection to cloud services.

### Highlights

This **VPN router** offers the following impressive highlights:

- Serial interface RS232
- RS232, RS485 and 2+2 digital I/Os
- Sleep mode for energy self-sufficient applications
- Compact, flat housing
- Wall and DIN rail mounting
- Installation in control cabinets and small distributors

On board thanks to the operating system **icom OS**:

- Comprehensive IT security functions
- Connection redundancy incl. multiple VPNs
- Comprehensive network functionality with multiple IP networks
- Integrated edge computing and IoT functions

## Technical Data

### SCR-E (LAN), SCR-L (LTE)

| Mobile communication SCR-L            |                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|---------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Frequency bands, data rates           | 4G/LTE <sup>1</sup> : 700, 800, 900, 1.800, 2.100 MHz (bands 1, 3, 8, 20, 28)<br>LTE Cat. 1 (DL: max. 10.2 Mbps, UL: max. 5.2 Mbps)<br>2G/GPRS/EDGE: 900, 1.800 MHz; GPRS/EDGE Class 12 (DL: max. 85.6 kbps, UL: max. 85.6 kbps)                                                                                                                                                                                                  |
| Antenna connection                    | 1x SMA female                                                                                                                                                                                                                                                                                                                                                                                                                     |
| SIM                                   | Slot for 1 Mini-SIM card (2FF), locked                                                                                                                                                                                                                                                                                                                                                                                            |
| Router                                |                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Function                              | Up to 5 IP local networks (LAN) or as WAN with both, DHCPv4 and DHCPv6 clients, with static IP addresses, VLAN incl. tags and trunk ports; SLAAC, router advertiser, own DHCPv4 and DHCPv6 server per IP network; static routing, configurable routing priority; dynamic routing OSPF, BGP, RIP, RIPv2, RIPng; net filters: D-NAT, S-NAT, IP/port forwarding, netmapping, DNS relay, dynDNS support; PPPoE for external DSL modem |
| Security                              | OpenVPN (client and server), IPsec, GRE (incl. multi-port), DMVPN, IP filters (stateful firewall) also in VPN tunnel, several VPN tunnels in parallel possible, MAC filters, PPTP server                                                                                                                                                                                                                                          |
| Redundancy                            | WAN chains: several WAN accesses configurable (prioritised and event-controlled), WAN groups: parallel operation of WAN interfaces or VPNs, several OpenVPN servers; provider redundancy when using a multi roaming SIM card (see chapter "suitable accessories")                                                                                                                                                                 |
| Ethernet switch, interfaces           |                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Ports                                 | 2x RJ45, 10/100 MBit/s, full/half-duplex, auto MDI-X, 1.5 kV isolation voltage                                                                                                                                                                                                                                                                                                                                                    |
| Function                              | Each port can be freely assigned to the IP networks, Link up/down detection, configuration port                                                                                                                                                                                                                                                                                                                                   |
| I/O variant (for LAN and LTE version) | 2 digital inputs, high-active (as per EN 61131-2, Type 1)<br>2 open drain outputs (24 V/100 mA)                                                                                                                                                                                                                                                                                                                                   |
| Events (selection)                    | Change: input, Ethernet port, WAN chain, profile, supply input, cellular field strength; timer expiry, firewall violation, login attempt detection, pulse sequence at digital input, counter                                                                                                                                                                                                                                      |
| Event-controlled actions (selection)  | Messages via e-mail, SMS (only cellular variant), SNMP traps, MCIP; switching profile, switching connection, changing modem state, starting timer, switching output or pulse sequence, activating firmware, reset, restart SmartBox container                                                                                                                                                                                     |
| Serial interface                      |                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| RS232 (Serial1)                       | 1 x RS232 / D-Sub-9 (m)                                                                                                                                                                                                                                                                                                                                                                                                           |
| Functions                             | Serial-Ethernet gateway (incoming and outgoing connections, Modbus TCP/RTU gateway, modem emulation, editable AT answer list, phone number conversion to IP addresses)                                                                                                                                                                                                                                                            |
| Operation                             |                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Wizards                               | Configuration of connection incl. VPN, adding LAN networks, quick start of icom Connectivity Suite – VPN                                                                                                                                                                                                                                                                                                                          |
| Help                                  | Web interface with inline help texts, online help, FAQ, exemplary profiles, plausibility check                                                                                                                                                                                                                                                                                                                                    |
| Configuration                         | Local and remote web interface (http, https; with session management), command line interface (CLI), Telnet, SSH, ASCII and binary file (also for backup), configuration management with switchable profiles (event-controlled)                                                                                                                                                                                                   |
| Indications (LEDs)                    | Power, WAN (Internet connection), Signal (for cellular radio)                                                                                                                                                                                                                                                                                                                                                                     |
| Authentication                        | Several users, different user roles and rights, certificate-based authentication with revocation list                                                                                                                                                                                                                                                                                                                             |
| Diagnostics                           | SNMP traps and agent, configurable system logs, remote syslog, support packet, help functions<br>Diagnosis tools: ping, tcpdump, traceroute, DNS lookup, AT commands                                                                                                                                                                                                                                                              |
| Firmware updates                      | Incremental, fail-safe, automated via update server (http, ftp, https, ftps)                                                                                                                                                                                                                                                                                                                                                      |
| System time                           | NTP client and server, real-time clock                                                                                                                                                                                                                                                                                                                                                                                            |
| Edge Computing                        |                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| icom SmartBox                         | Linux programming environment: creation of LXC containers for programs and scripts (apps), ARMv7 CPU, 448 MB RAM, 3 GB flash memory                                                                                                                                                                                                                                                                                               |

<sup>1</sup> Please check the availability of the LTE frequencies in the planned operating area. Above specified frequencies are currently used in Europe, Middle East, Africa and, to some extent, in the Asia-Pacific region, Australia and South America.

## Technical Data

### SCR-E (LAN), SCR-L (LTE)

| Supply                   |                                                                                                                                                                                     |
|--------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Voltage                  | 12 ... 24 V DC ( $\pm 20\%$ )                                                                                                                                                       |
| Terminals                | 2-pin terminal connectors, rigid/flexible conductors up to 1.5 mm <sup>2</sup>                                                                                                      |
| Power consumption        | Cellular radio variants: typical approx. 2.5 W, max. 6.0 W<br>LAN variants: typical approx. 2.0 W, max. 3.0 W<br>Sleep mode: typical approx. 55 mW                                  |
| Sleep mode               | Sleep mode: Energy conservation mode with event-triggered activation, stopping via timer, reset or re-establishing supply or state change of digital input (only variants SCR-x300) |
| Ambient conditions       |                                                                                                                                                                                     |
| Dimensions (W x H x D)   | 105 x 90 x 42 mm                                                                                                                                                                    |
| Mounting                 | DIN rail mounting and wall mounting<br>Horizontal pitch when mounting on DIN rail:<br>2.5 units / 42 mm (control cabinet) or 6 units / 105 mm (small distributor)                   |
| Operating temperature    | -30...+75 °C <sup>2</sup>                                                                                                                                                           |
| Humidity                 | 0...95% (non-condensing)                                                                                                                                                            |
| Protection class         | Housing: IP40                                                                                                                                                                       |
| Approvals & Standards    |                                                                                                                                                                                     |
| Certifications           | Cellular radio variant: CE<br>LAN variant: CE, FCC Part 15 Class B, IC                                                                                                              |
| EMC                      | Emission: EN 55032 Class B, EN 61000-6-3; immunity: EN 55024, EN 61000-6-2                                                                                                          |
| Safety                   | IEC/EN 62368-1                                                                                                                                                                      |
| Environmental conditions | Vibration/shock as per PLC standard EN 61131-2;<br>Temperature tests as per EN 60068-2-1, EN 60068-2-2, EN 60068-2-14, EN 60068-30                                                  |
| Mean lifetime            | MTBF > 770.000 h (25 °C), used standard SN 29500 (according IEC 61709)                                                                                                              |

#### Available variants

| Product description | Features                                                                 | Order number |
|---------------------|--------------------------------------------------------------------------|--------------|
| SCR-E200            | LAN-to-LAN-Router, 2x LAN, 1x RS232                                      | 10020726     |
| SCR-E300            | LAN-to-LAN-Router, 2x LAN, 1x RS232, 2x digital input, 2x digital output | 10020727     |
| SCR-L200            | LTE router, 2x LAN, 1x RS232                                             | 10020728     |
| SCR-L300            | LTE router, 2x LAN, 1x RS232, 2x digital input, 2x digital output        | 10020729     |

#### Suitable accessories

| Product description                  | Description                                                               | Order number/ Info    |
|--------------------------------------|---------------------------------------------------------------------------|-----------------------|
| Magnetic Antenna 4G/3G/2G SMA        | Height 72 mm, 3 m cable, SMA (m), protection class IP65                   | 10019504              |
| Outdoor Wall Antenna 4G/3G/2G SMA    | Height 22 cm, mounting angle, 5m cable, SMA (m), protection class IP65    | 10020596              |
| Roof mount antenna 4G/3G/2G MIMO SMA | Height 14,7 mm, screw mounting, 3 m cable, SMA (m), protection class IP67 | 10022309              |
| Antenna Extension Cable 5 m SMA      | Device connector: SMA (f), antenna connection: SMA (m)                    | 10015193              |
| Antenna Extension Cable 10 m SMA     | Device connector: SMA (f), antenna connection: SMA (m)                    | 10018607              |
| Antenna Extension Cable 15 m SMA     | Device connector: SMA (f), antenna connection: SMA (m)                    | 10000735              |
| Power supply unit                    | TDK Lambda DSP 10-24 AC/DC power supply unit for DIN rail                 | 10014249              |
| icom Connectivity Suite – VPN        | VPN Service for M2M Applications                                          | insys-icom.com/en/VPN |
| icom Connectivity Suite – M2M SIM    | Industrial SIM cards, multi-roaming, pooling, management portal           | insys-icom.com/en/SIM |
| icom OAM                             | Central management of device updates                                      | insys-icom.com/en/OAM |

<sup>2</sup> +70...+75 °C under restricted conditions (refer to [www.insys-icom.com/restricted](http://www.insys-icom.com/restricted))