

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 ¹ : 700, 800, 900, 1.800, 2.100 MHz (bands 1, 3, 8, 20, 28) LTE Cat. 1 (DL: max. 10.2 Mbps, UL: max. 5.2 Mbps) 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) 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 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

¹ 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 ²
Power consumption	Cellular radio variants: typical approx. 2.5 W, max. 6.0 W LAN variants: typical approx. 2.0 W, max. 3.0 W 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 Horizontal pitch when mounting on DIN rail: 2.5 units / 42 mm (control cabinet) or 6 units / 105 mm (small distributor)
Operating temperature	-30...+75 °C ²
Humidity	0...95% (non-condensing)
Protection class	Housing: IP40
Approvals & Standards	
Certifications	Cellular radio variant: CE 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; 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

² +70...+75 °C under restricted conditions (refer to www.insys-icom.com/restricted)