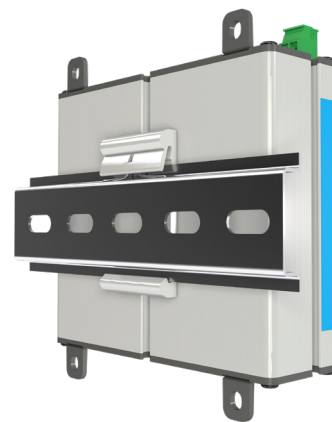


# SCR-E (LAN) SCR-L (LTE)

## VPN Routers / IoT Gateways



## SCR - the essential

### Focused on the fundamentals

The SCR series routers offer modern technology in a compact, flexibly mountable housing. They are suitable both for secure remote maintenance and for recording and processing application data (edge computing). Like all routers from INSYS icom, the devices of the SCR series stand out for their high system stability, durability and uniform user guidance.



#### Multiple versions

Available in 4G and LAN versions, both also as an I/O variant



#### Easy remote access & device updates

Plug & play - connection of VPN service and central device management



#### Serial interfaces

One RS232 interface for connecting external devices



#### Ethernet and I/O

Two RJ45 connections; 2x2 digital inputs and outputs



#### Flexible mounting

Top-hat rail mounting in control cabinets and small distribution boards, as well as wall mounting



#### Sleep-Mode

Energy-saving mode for applications with solar or battery operation



#### Hardened router operating system

Operating system with extensive security and network functions



#### IoT-ready

Local data processing as well as connection to IoT platforms and cloud systems

# SCR-E (LAN)

# SCR-L (LTE)

## Technical Data

### Cellular communication (SCR-L)

Frequency bands <sup>1</sup> , data rates	4G/LTE: 1 (2100 MHz), 3 (1800 MHz), 8 (900 MHz), 20 (800 MHz) , 28 (700 MHz) LTE Cat 1 (DL: max. 10.2 Mbit/s, UL: max. 5.2 Mbit/s)
SCR-L200/300 1.1/1.0	2G/GPRS/EDGE: 900, 1800 MHz; GPRS/EDGE Class 12 (DL: max. 85.6 kbit/s, UL: max. 85.6 kbit/s)
Antenna connection	1x SMA female
SIM	Slot for 1 Mini-SIM card (2FF), locked
Cellular Status	Signal field strength, RSSI, RSCP / Ec/No, RSRP / RSRQ, Cell-ID, Location-ID

### Hardware interfaces

Ethernet ports	2x RJ45 shielded, 10/100 Mbit/s, full/half-duplex, auto MDI-X, 1.5 kV isolation voltage
Ethernet function	Assignment to IP network freely configurable per port, link up/down detection
I/O variant (SCR-E300/-L300)	2 digital inputs, high-active (as per EN 61131-2, Type 1) 2 open drain outputs (24 V/100 mA)
RS232 (serial1)	1 x RS232 / D-Sub-9 (m)
Functions of serial interface	Serial-Ethernet gateway (incoming and outgoing connections, Modbus TCP/RTU gateway, modem emulation, editable AT answer list, phone number conversion to IP addresses)
Signal LEDs	Power, WAN (Internet connection), Signal (for Cellular communication)

### Network

Network functions	100 local IP networks, IP static/DHCP, TCP, UDP, IPv4, IPv6, NTP, DHCP, DNS, HTTP/S, ARP, SSH, 802.1Q VLAN incl. tags and trunk ports
Service	DHCP Server v4/v6 per IP network, DHCP relay, NTP server, DNS, DynDNS, IPv6 Router Advertiser
Routing	Static routing, routing priority, RSTP, dynamic routing (OSPF, BGP, RIPv1, RIPv2, RIPng)
WAN	Several WAN connections configurable also in parallel operation, fallback level for connection
redundancy/failover	breakdown (failover), event-based WAN changeover (see events)
Connection check	Periodic, ping/icmp, DNS request, link up/down
DSL	PPPoE for external DSL modems
NAT/PAT	SNAT/DNAT (masquerade, netmapping, port forwarding, IP forwarding) unlimited number of rules

### VPN

icom Connectivity Suite	Supports VPN service for remote maintenance, remote access and M2M-communication
OpenVPN	Client/server, several parallel tunnels, server with up to 20 clients, tls-auth/tls-crypt, dead peer detection (DPD)
OpenVPN encryption	DES EDE 128, DES EDE3 192, AES 128-256 CBC/GCM, SHA 256-512
IPsec	IKEv1, IKEv2 (automatic, fix), several parallel tunnels, pre-shared keys, certificates, tunnel mode, transport mode, dead peer detection (DPD)
IPsec encryption	DES EDE3 192, AES 128-256 CBC/GCM, SHA 256-512 DH-Group 1-31 (Diffie-Hellman 768 - 25519), ChaCha20-Poly1305
GRE	GRE via IPsec, point-to-point, multipoint
PPTP	PPTP client/server; PAP/CHAP/MS CHAP/MS CHAP V2; MPPE 40-128
Dynamic VPN	Dynamic multipoint VPN (GRE, IPsec, NHRP, EIGRP, OSPF, RIPv1/v2, BGP)

### IT security

Authentication	Pre-shared key, X.509 certificates, RADIUS, access rights (read, write, status)
Firewall / netfilter	IP filters (stateful firewall) also in VPN tunnel; packet filter: TCP, UDP, ICMP, ESP, AP, GRE; MAC filter; pre-defined firewall rules can be activated
Security	Bootimg signed firmware, HTTP/HTTPS attack prevention; response upon events: configuration change, link up/down, restart, login attempt, netfilter violation, password hashing

### IoT and Cloud (icom Data Suite, license required)

Function	Machine connection and data processing; connection to cloud and SCADA Systems;
icom Data Suite	arithmetic & logic functions; data logger; dashboard
Data acquisition	CODESYS, Modbus TCP/RTU, MQTT, Siemens S7, OPC UA Client, IEC 60870-5-101, digital input, analogue input (if present)

# SCR-E (LAN)

# SCR-L (LTE)

## Technical Data

Data transmission	MQTT, OPC UA Server, IEC 60870-5-104, Modbus TCP/RTU, e-mail, SMS, SFTP, digital input, analogue input (if present)
IoT platforms	MQTT compatibility: Thingsboard, Cumulocity, AnyViz, Azure IoT Hub, Bosch IoT Suite, AWS IoT Core
<b>Events &amp; Actions</b>	
Event & Action Handler	Notification, alarming, diagnosis, attack detection, fault handling, operation and commissioning logic
Events / alarms	Change: digital input, Ethernet port, WAN chain, profile status, supply input (with MRX), cellular field strength; timer expired, firewall violation, login attempt detection, pulse sequence on digital input, counter, netfilter rule
Event-triggered	Messages via e-mail, SMS (only LTE variants), SNMP traps, MCIP; switch profile, switch connection, change modem state, start timer, switch output or pulse sequence, activate firmware, reset, restart container
<b>Programming environment/scripting</b>	
Container environment	Installation of several application containers, container with own IP end point, assignment to IP networks - full firewall and routing transparency; access control, SDK available
Container Resources	CPU: 50% of ARMv7 (600 MHz), RAM: 448 MB, Flash: 1 GB eMMC
Lua scripting	Lua interpreter for own scripts
<b>Monitoring and Management</b>	
Monitoring	SNMP traps and agent, configurable system logs, remote syslog, link up/down detection, netfilter violation
Certificate management	EST, CRL
icom Router Management	Supports central router management for FW updates, configuration management, connection monitoring, container updates, mass rollout, certificate management, available as public/private cloud (server) installation or onPremises
<b>Administration</b>	
Configuration	Web Interface HTTP(S) with session management, command line interface (CLI), Telnet, SSH, configuration profiles as ASCII and binary file, ample configuration profiles event-triggered, REST API
Diagnosis tools	Ping/icmp, tcpdump, traceroute, DNS lookup, AT commands, port mirroring
FW update	Incremental, failsafe, update server (HTTP, FTP, HTTPS, FTPS), icom Router Management (WebSocket)
System time	NTP client and server
Help	Web interface: inline help, online help; example profiles, plausibility check, Configuration Guides
<b>Supply</b>	
Voltage	12 ... 24 V DC ( $\pm 20\%$ : 9,6 ... 28,8 V), protected against reverse polarity and surge/transient pulses
Terminals	2-pin terminal connectors, rigid/flexible conductors up to 1.5 mm <sup>2</sup>
Power consumption	LTE 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-Modus	Sleep mode: Energy conservation mode with event-triggered activation, stopping via timer, reset, re-establishing supply or state change of digital input (input only variants SCR-x300)
<b>Ambient conditions</b>	
Dimensions	42 x 95 x 105 mm (W x H x D)
Weight	290 g
Mounting	DIN rail mounting and wall mounting horizontal pitch (HP) on DIN rail : 2.5 units (control cabinet) or 6 units (small distributor)
Temperature	-30 .... +75 °C <sup>2</sup> SCR-E200/-E300 (operation and storage) -30 .... +70 °C <sup>3</sup> SCR-L200 /-L300 (operation and storage)
Humidity	0 ... 95 % (non-condensing)
Protection class	Housing: IP40

# SCR-E (LAN)

# SCR-L (LTE)

## Technical Data

Approvals & Standards	
Certifications	LTE variant: CE, UKCA LAN variant: CE, FCC part 15 class B, IC, UKCA
Validity regions of certifications	CE, UKCA: all EU countries, Iceland, Norway, North Macedonia, Switzerland, Bosnia-Herzegovina, UK FCC part 15 class B: USA IC: Canada
EMV	Emission: EN 55032 Class B, EN 61000-6-3; Immunity: EN 55035 (replaces EN 55024), EN 61000-6-2
Safety	IEC/EN 62368-1
Environmental conditions	Tests Vibration and mechanic shock as per DIN EN 61131-2 and EN 60068-2-6, EN 60068-2-27; Temperature tests as per EN 60068-2-1, EN 60068-2-2, EN 60068-2-14, EN 60068-2-30
Operation time	MTBF > 770.000 h (25 °C), as per standard SN 29500 (according to IEC 61709)

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

<sup>2</sup> +70 ... +75 °C: extended temperature range

<sup>3</sup> +65 ... +70 °C: extended temperature range

(refer to [www.insys-icom.com/en/extended-temperature-range/](http://www.insys-icom.com/en/extended-temperature-range/))

# SCR-E (LAN)

# SCR-L (LTE)

## Order Numbers and Accessories

### Available variants

Product Description	Features	Art. no.
SCR-E200	LAN-to-LAN router, 2 Ethernet ports, 1x RS232	10020726
SCR-E300	LAN-to-LAN router, 2 Ethernet ports, 1x RS232, 2 digital inputs, 2 digital outputs	10020727
SCR-L200	LTE cellular router, 2 Ethernet ports, 1x RS232	10020728
SCR-L300	LTE cellular router, 2 Ethernet ports, 1x RS232, 2 digital inputs, 2 digital outputs	10020729

### Suitable accessories

Product description	Description	Art. no.
Magnetic Antenna 4G/3G/2G SMA	Magnet mounting, height 72 mm, 3 m cable, SMA (m), IP rating IP65	10019504
Outdoor Wall Antenna 4G/3G/2G SMA	Wall mounting incl. bracket, height 220 mm, 5 m cable, SMA (m), IP rating IP65	10020596
Allround Antenna 5G/L4G/3G/2G	Screw or wall mounting, incl. steel angle, height 82 mm, 5 m cable, SMA (m), protection class IP66	10022961
Roof mount antenna 4G/3G/2G SMA	Screw mounting, height 15 mm, 3 m cable, SMA (m), IP rating 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 24V 15W	Power supply unit for DIN rail, wide-range input voltage AC and DC, protection against short circuit / overload / over voltage	10022848
Wall power supply 24V 25W international	Power supply AC/DC with mains plug, suitable for desktop use, wide input, voltage range, protection against short circuit/overload/over voltage	10022849
icom Connectivity Suite - VPN	Supports VPN service for remote maintenance, remote access and M2M communication <a href="http://www.insys-icom.com/en/products/managed-services/vpn-service/">www.insys-icom.com/en/products/managed-services/vpn-service/</a>	various
icom Connectivity Suite - M2M SIM	Industrial SIM cards, multi-roaming, pooling, management portal <a href="http://www.insys-icom.com/en/products/managed-services/m2m-sim-service/">www.insys-icom.com/en/products/managed-services/m2m-sim-service/</a>	various
icom Router Management	Supports central router management for FW updates, configuration management, connection monitoring, container updates, mass rollout, certificate management; available as public/private cloud (server) Available as public/private cloud (server) installation or onPremises <a href="http://www.insys-icom.com/en/products/managed-services/device-management/">www.insys-icom.com/en/products/managed-services/device-management/</a>	various