



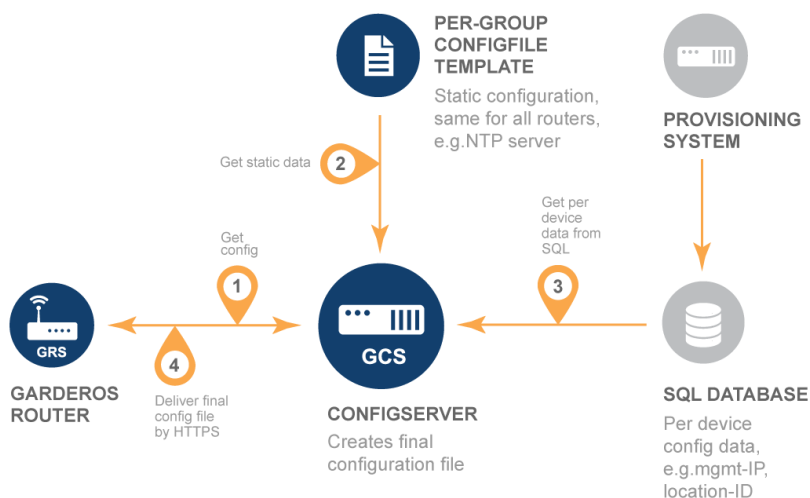
Application and project description

Garderos routers provide cyber-secure and reliable data connectivity for large-scale router networks in telecommunications and utility networks, as well as intelligent traffic systems. The Garderos R-7600 Series routers provide 2 LAN ports and optional wireless WAN interfaces such as Public Cellular and Private LTE. Failover between a wireless WAN interface and an Ethernet port configured as a WAN port is possible. Also available in an extended version with additional I/Os and RS-485 interfaces (see separate data sheet).



Fig. 1: Garderos R-7600 single radio routers optimized for smart grid.

Core functions



- Central administration
- Scalable up to 10,000 routers with one server
- Routers periodically query server for new firmware or configuration
- Hardware and software watchdogs for highest availability
- Standard interfaces in GCS for easy integration with existing infrastructure
- Cyber security by design: secure protocols and functions

Casing	Material Dimensions (WxHxD) without / with connectors without / with connectors Weight Ingress protection IEC protection class	Diecast aluminium 44,5x110x115mm / 44,5x110x121mm 80,5x111x116mm / 80,5x111x122mm ~0.45kg / ~0.70kg (with additional connectors) IP40 3 Depends on router model (see "Ordering Information"). Phoenix 2 pin 2x RJ-45 1x RJ-45 console/data 1x D-Sub 9 (female) data (optional) up to 2x SMA (female) 1x SMA (female) (optional) Phoenix 4-pin PCB clamp (optional) 1 Mini-SIM (thermoreistant) or 1x MFF-SIM chip (optional) 12-24 VDC (9,6VDC - 28VDC tolerance) ~2-5W
Temperature range	Power connector Ethernet connector Serial connector	1x 1x 1x (optional) 1x/1x or 2x/0x (optional) (see LAN)
Interfaces on casing	WWAN antenna connector GPS antenna connector I/O connector SIM card slot	4G/5G RedCap ¹⁾ , 2G/3G/4G ²⁾ , 4G ³⁾ , 2G/4G ⁴⁾ yes ^{1,2)} 2x 10/100 Base-T yes yes Monitors "heartbeats" from router O/S. Restarts router in case of software problems.
Power supply	Input voltage Power consumption	md5, sha1, sha512, aes, des, 3des IEC 61000-6-2:2005 EN 60068-2-6:2008 EN 60068-2-27:2009 RoHS, REACH, CE
Serial interface	RS-232 (console) RS-485 half duplex (data) RS-232 (data)	
Digital I/O	Input / Output	
WAN	Ethernet	
WWAN	Technology	
LAN	Passive GPS Ethernet Autosensing Auto-MDIX Hardware watchdog	
Other features	Cryptographic hardware accelerator Criteria for EMC Vibration resistant Shock resistant	
Certifications		
Regulations		

¹⁾ 4G/5G RedCap Module (CAT 4, global variant)	5G SA RedCap LTE	n1/n2/n3/n5/n7/n8/n12/n13/n14/n18/n20/n25/n26/n28/n30/n38/n40/n41/n48/n66/n70/n71/n77/n78/n79 B1, B2, B3, B4, B5, B7, B8, B12, B13, B14, B17, B18, B19, B20, B25, B26, B28, B30, B34, B38, B39, B40, B41, B42, B43, B48, B66, B70, B71
²⁾ 2G/3G/4G Module (CAT 4, global variant*)	LTE WCDMA EDGE/GPRS/GSM	B1, B2, B3, B4, B5, B7, B8, B12, B13, B18, B19, B20, B26, B28, B38, B39, B40, B41 B1, B2, B4, B5, B6, B8, B19 850/900/1800/1900
³⁾ 4G Module (CAT 4, European variant*)	LTE	B3, B7, B20, B31, B72
⁴⁾ 2G/4G Module (CAT-M1, European variant*)	LTE EDGE/GPRS/GSM	B1, B2, B3, B4, B5, B8, B12, B13, B14, B18, B19, B20, B25, B26, B27, B28, B31, B66, B72, B85 850/900/1800/1900

*other variants available

SOFTWARE FEATURES

Common

- IPv4
- IPv6
- IPv4/IPv6 dual stack
- Multiple IP addresses per interface
- IPv6 prefix delegation

WWAN *)

- PPP over WWAN ⁴⁾
- Dual WAN (Cellular, Ethernet, VLAN)
- Dual WWAN
- Configurable WWAN network selection ^{1,2,3,4)}
- Configurable WWAN band selection ^{1,2,3,4)}
- Multiple APN ^{1,2,3)}
- Intelligent APN selection ^{1,2,3)}
- WWAN IPv4 ^{1,2,3,4)}
- WWAN IPv6 ^{1,2,3)}
- WWAN dual stack ^{1,2,3)}
- IPv6 prefix delegation ³⁾
- Dual SIM ^{1,2,3,4)}
- Modem firmware update ^{1,2,3)}
- XCAL debugging ³⁾

WLAN *)

- 802.11ac a/b/g/n
- Access point and client mode
- Configurable channel
- Configurable transmit power
- Hidden SSID
- Intracell traffic blocking
- Multiple SSID
- WPA, WPA2 and WPA3
- 802.11i (EAP)

Other network interfaces

Bridge

- Layer 2 bridge interface
- STP, RSTP
- IP assignment static IP, DHCP, IPv6 SLAAC, PD

Ethernet

- Configurable link speed
- IP assignment static IP, DHCP, IPv6 SLAAC, PD
- Port mirroring
- 802.1x

Local loop

- Local loop interface
- IP assignment static IP, PD

PPPoE

- IP assignment static IP, PPPoE, IPv6 SLAAC
- PAP and CHAP
- Always on
- Time controlled session termination before provider reconnect

VLAN

- VLAN support (802.1q and priority tagging)
- IP assignment static IP, DHCP, IPv6 SLAAC, PD
- 802.1x

Routing

- Static routes (IPv4, IPv6)
- Static policy routing (IPv4, IPv6)
- Static routes to DHCP gateway (IPv4)
- Dynamic routing protocols RIPv2, OSPFv2, OSPFv3, BGPv4
- Filtering for dynamic routing protocols
- Firewall (IPv4, IPv6, packet filter, connection tracking, bridge filter)
- MAC address filter, Invalid-packet-filter
- NAT (IPv4, IPv6, PAT, 1-to-1, SNAT, port forwarding)
- Synchronous Routing
- Configurable MTU
- Path MTU discovery
- TCP MSS adjustment
- Diffserv (set DSCP bits)
- QoS packet prioritization
- Reverse path filter

VPN

GRE

- GRE, GRE IPv6, GRE TAP, GRE TAP IPv6
- Configurable MTU and MTU inherit

mGRE

- NHRP dynamic tunnel management

- Configurable MTU and MTU inherit
- NHRP dynamic tunnel management
- NHRP IPv6

IPsec

- IPsec IPv4, IPv6
- IKEv1, IKEv2
- Authentication: PSK, public key, RSA, ECDSA and EdDSA certificate
- Tunnel and transport mode
- VTI (virtual tunnel interface)
- Encryption AES, AES192, AES256, CCM+GCM, DES, 3DES
- RSA keys up to 8192 bits, elliptic curves
- VPN gateway

L2TP

- Unmanaged L2TPv3 tunnel
- VLAN tagged L2TPv3 tunnel

OpenVPN

- PSK, user and certificate authentication
- OpenVPN Layer 2 and 3
- Bridging OpenVPN Layer 2 Tunnel
- Encryption algorithms AES, AES192, AES256, CCM+GCM, Blowfish, DES, 3DES

MIP

- Mobile IP foreign agent

Router management

- RS-232 management console
- Authentication by TACACS+, RADIUS, password file and public key
- Administrator roles
- Command line interface (CLI)
- Remote configuration file download (HTTP/HTTPS)
- Trigger based configuration selection
- OCSP
- Authentication by HTTP basic auth and certificate
- Remote software updates
- Central bulk management of routers

Services

- Cronjob
- DHCP server (IPv4+IPv6)
- DHCP relay (IPv4+IPv6)
- DHCP snooping (IPv4)
- DHCP address pools per VLAN/interface
- DHCP secure ARP
- DHCP ARP ping before assigning lease
- DHCP accounting (RADIUS)
- Static DHCP (MAC)
- DNS server and proxy
- DynDNS client
- EST (Enrollment over Secure Transport)
- Ethernet port security (sticky MAC detection)
- Hotspot portal
- IPv6 SLAAC daemon
- LLDP
- NMEA ^{1,2)}
- NTP client, server, MD5, local time source
- SCEP (Simple Certificate Enrolment Protocol)
- SNMPv2 and SNMPv3, monitoring and traps
- SNTP (Simple NTP)
- SSH client, server
- Syslog local, remote, persistent in flash
- Telnet client, server

Other functions

- Configurable LEDs (also project based)
- Hardware and software watchdogs
- LXC virtualization, busybox and Alpine (project based)
- State monitor (ping, interface state, I/O, IPv6-RS, RX-TX, script)
- Reset to factory defaults
- Customer defined factory defaults
- Security hardening (switch off unsecure features)
- Encrypted configuration
- Serial-to-network proxy (ser2net), IPv4/IPv6, TCP/UDP
- Serial modes: Console, Off and Script
- Scripting interface

*) Prerequisite is a suitable interface.
Please see "Hardware Features".

ORDERING INFORMATION

Garderos model number:							Maximum operating temperature range (The temperature range may differ depending on the router variant)
	Ethernet (10/100 Base-T)	RS-232 (console)	RS-232 (data); optional	RS-485 (data)	Digital I/O; optional ¹⁾	4G/5G Module 2G/3G/4G Module 4G Module 2G/4G Module	
R-7607 (2xLAN)	2	1	1	1	1		-40°C to +75°C
R-7628 (2xLAN/4G or 5G Redcap)	2	1	1	1	1	1	-40°C to +75°C

¹⁾ Options:
 - 2x Input
 - 1x Input, 1x Output (NO)
 - 1x Input, 1x Output (NC)

Garderos GmbH
 Balanstrasse 55
 81541 München
 Germany

www.garderos.com
 Email: info@garderos.com

T: +49 89 189306-0

All trademarks shown are registered trademarks of their respective owners.
 Please note that all data and information subject to technical modifications.

©: 2026 Garderos GmbH | Data Sheet R-7600 Series | Version V1 15 — September 2026