# Wi-Fi 7 PRODUCTS

r-series

Residential Wi-Fi 7 routers and access points

The Icotera r-series triband routers and access points provide superior Wi-Fi 7 connectivity making them an ideal choice for building powerful home mesh systems. Designed with a focus on three main pillars: security, performance, and longevity, the Icotera r-series combines advanced features with a minimalistic and beautiful Danish design. Advanced Wi-Fi and CPU power-saving techniques minimise power consumption and carbon footprint. Powered by prplOS, the r-series provides a secure, standardised software platform that supports third-party container applications. You can choose a model with the 4+4+4, 2+4+2, or 2+4 radio chains, or an XGS-PON one-box solution.

- Triband Wi-Fi 7 platform
- Up to 21.5 Gbps combined Wi-Fi link rate
- Qualcomm quad-core A53 SoC
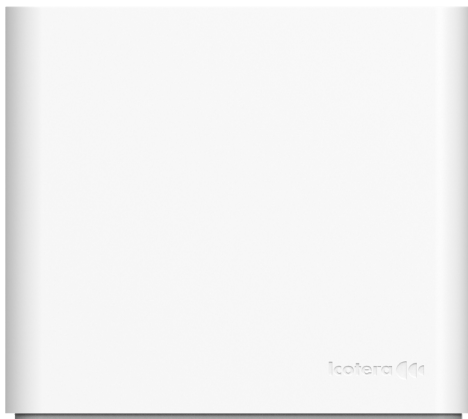
Security as a top priority
Icotera r-series routers and access points support the Secure Boot technology to secure sensitive data and make the device run only on trusted software.

Designed to last a long time
Icotera r-series routers and access points are manufactured with high-quality components and provide regular software updates.

Advanced technologies
The r-series routers and access points provide optional support for Bluetooth LE, Thread, and ZigBee. These low-power wireless mesh standards target embedded homes and help in building automation applications.

Get the most of Wi-Fi 7
A powerful quad-core Qualcomm CPU and 2 GB RAM ensure the top-level performance of the Icotera r-series. With up to three dedicated radios and up to 12 spatial streams, users can achieve an impressive 21.5 Gbps combined link rate. The Wi-Fi-certified EasyMesh and Easy Connect technologies simplify wireless network setup and configuration for end users, while prplOS ensures high performance and stability.
The XGS-PON model becomes an ideal solution for both fiber termination and creating a local wireless network. When your customers are looking for a better gaming or streaming experience, provide them with an Icotera r-series router. Icotera designed these series to improve throughput, network performance, and data transfer rates.

r-series Residential Wi-Fi 7 products

FEATURES

- Tri-band Wi-Fi 7 networking platform with up to 12-stream configuration
- Simultaneous operation in the 6 GHz, 5 GHz, and 2.4 GHz spectrum bands
- Low power consumption thanks to advanced power-saving techniques for Wi-Fi and CPU
- Optional operator branding
- Customized firmware based on prplOS
- Support for running third-party container applications
- Quad-core ARM Cortex-A53 1.5 GHz
- Up to 2 GB RAM
- Up to 1 GB flash memory
- Bluetooth Low Energy (optional)
- Thread IEEE 802.15.4 (optional)
- Zigbee IEEE 802.15.4 (optional)

NETWORK COMMUNICATION

WAN INTERFACE

- 10G WAN (RJ45) or 2.5G WAN (RJ45) or XGS-PON
- Energy-Efficient Ethernet (EEE)

LAN INTERFACE

- 1x 10G LAN (optional), 2x 2.5G LAN or 1x 2.5G LAN, 2x 1G LAN (optional)

Wi-Fi

- Advanced WMM designed for long-range and resilient video and voice delivery
- Authentication methods: WPA3 Personal, WPA3 Enhanced Open, WPA2 Personal
- Up to 8 SSIDs
- Up to 512 connected clients
- MAC address filtering
- Beamforming
- 802.11v band steering and client roaming
- Neighbour scanning
- Advanced channel selection
- EasyMesh R6 agent
- Software Tx power control
- Wireless client isolation
- MCS 15 for extended range (BPSK-DCM for Wi-Fi 7, DCM, ER_SU for Wi-Fi 6)
- Backwards compatible with previous Wi-Fi standards such as Wi-Fi 6E, Wi-Fi 6, Wi-Fi 5, and Wi-Fi 4

Wi-Fi 7

- 802.11be 2x2 2.4 GHz + 4x4 5 GHz + 2x2 6 GHz
- Bandwidth support: 320 MHz, 240 MHz, 160 MHz, 40 MHz, 20 MHz
- Downlink MU-MIMO and OFDMA
- Up to 4096-QAM modulation with full support for MCS 13 in all modes
- Support for LDPC, STBC
- Support for restricted target wake time (R-TWT)
- Full support for multi-link multi-radio MLO
- Static preamble puncturing

LAYER 2

- 16 bridge instances
- 64 byte forwarding at line rate
- Jumbo 9k packets
- IGMP v1/v2/v3 snooping
- MLD v1/v2
- 802.1p marking
- VLAN support
- Transparent IPv6 forwarding
- 32k address entries

LAYER 3

- Virtual interfaces
- Multiple WAN interfaces in one router
- 64 byte forwarding at line rate with routing/NAT
- IGMP v1/v2 proxy with fast-leave and monitoring
- DSCP marking for untagged WAN interfaces
- Stateful IPv4 and IPv6 firewall
- Supports routing for IPv4 and IPv6
- IPv4:
  - SNAT, DNAT, DMZ
  - DNS proxy
  - DHCP client and server
- DS-Lite
- MAP-T
- IPv6:
  - Prefix delegation
- PPPoE (termination)
- Tracking the connection status
- Protocol helpers for SIP, RTSP, FTP, TFTP, PPTP, L2TP, and IPSec
- Guest access

VoIP (optional)

- 2 separate POTS lines SIP (RFC3261)
- Up to 5 ringer equivalence numbers (REN)
- Caller ID support (DTMF/FSK)
- DTMF signalling
  - SIP INFO
  - Inband
  - Auto
  - RFC 2833
- CLIR
- SIP trunk
- Advanced dialplan
- Called party (B-Number) manipulation
- Class 5 services:
  - Forward all calls
  - Forward on busy
  - Forward on no answer
  - Call waiting
- Codecs:
  - G.711A a-law
  - G.711U μ-law
  - G.722
  - G.729
- Codec negotiation
- Modem or fax detection
- G.165 echo cancellation

MANAGEMENT AND MONITORING

- Integrated Wi-Fi EasyMesh R6 controller
- Wi-Fi management logic running on the router in addition to third-party applications running in the cloud
- Easy product hardening to a secure configuration
- Support for sensitive data encryption
- Secure Boot to ensure that the gateway boots using only trusted software
- Shared or separate IP interface for management
- Configurable web interface for end users:
  - PPPoE WAN
  - Wi-Fi
  - Guest network
  - LAN network
  - Port forwarding
  - NAT loopback
  - DMZ
  - Status and monitoring
- Standard monitoring telemetry solutions (Bulk data collection, USP)
- L1 and L3 filters for all local services
- SSHv2 with key authentication
- Zero-touch provisioning with DHCP, CWMP (TR-069), and USP (TR-369)
- Standardised data models for configuration and monitoring
  - TR-104 (VoIP)
  - TR-181 (Gateway)
- Extensive debug possibilities
- Packet dumping
- All settings are securely stored locally in flash memory
- Dual bank flash memory with fail-safe firmware upgrading
- Multilayer watchdog
- TR-143 for performance data and throughput diagnostics

PHYSICAL SPECIFICATIONS

CASING

- Size: 196 x 175 x 55 mm or 164 x 156 x 40 mm (W x H x D)
- LED indicators
  - Power or WAN status such as link or provisioning
  - VoIP
  - Wi-Fi
- Status LED indicators for link, traffic, and duplex for each LAN port
- Automatically turning off the LED indicators
- WPS button

OPERATIONAL SPECIFICATIONS

- DC 12 V input
- Operating temperature: 5°C – 45°C
- Storage temperature: -20°C – 85°C
- Humidity: 5% – 95% (noncondensing)

INCLUDED IN THE BOX

- Icotera r-series router
- 12 V power supply unit
- Additional label with credentials for Wi-Fi networks and web interface
- Ethernet cable

ESG and SUSTAINABILITY

Product data aligns with the European Sustainability Reporting Standards (ESRS).

Icotera CO_2 reduction targets are approved by the Science Based Target initiative (SBTi).

SCIENCE BASED TARGETS
DRIVING AMBITIOUS CORPORATE CLIMATE ACTION

By 2030, Icotera will reduce the scope 1 and 2 greenhouse gas (GHG) emissions by 42%.

Climate (ESRS E1)
- Product CO_2 footprint (cradle-to-gate) data is available on request

Pollution (ESRS E2)
- Less than 0.1% of hazardous substances in raw materials
- No flame retardants or plastic softeners in plastic parts
- Halogen-free printed circuit boards
- Available in up to 95% post-consumer recycled (PCR) materials
- Packaging: plastic-free, PE bag-free, 95% recycled cardboard
- Compliance with RoHS and the Swedish chemical tax rate for electrical equipment

Social (ESRS S2)
- Suppliers comply with the Icotera Supplier Code of Conduct: https://bit.ly/icotera-code

Distribution (ESRS E1)
- The CO_2 data on logistic solutions (ESRS E1) is available on request

Use
- Power consumption complies with the European Ecodesign Directive 2009/125/EC
- Power saving mode

Refurbishment (ESRS E5)
- Refurbishment service available

End of life (ESRS E5)
- Built with high-quality components for 5 years expected lifetime
- Disassemblable for recycling
- WEEE producer and packaging responsibility is handled through Elretur and Emballageretur

Icotera r-series configuration options

10G WAN | 10G LAN | 2.5G LAN1 | 2.5G LAN2 | Phone1 | Phone2 | Reset | POWER | ON/OFF | WPS
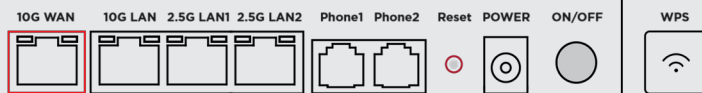
Interface configurations

Model	Uplink	LAN	POTS	Wi-Fi	Peak Wi-Fi link rate	Radio chains
rX800-00-EU	10G WAN (RJ45)	1x 10G, 2x 2.5G	2*	Wi-Fi 7	21.5 Gbps	4 + 4 + 4
rX505-00-EU	10G WAN (RJ45)	1x 10G, 2x 2.5G	2*	Wi-Fi 7	15.1 Gbps	2 + 4 + 2
rX515-00-EU	10G PON	1x 10G, 2x 2.5G	2*	Wi-Fi 7	15.1 Gbps	2 + 4 + 2
r2501-00-EU	2.5G WAN (RJ45)	1x 2.5G, 2x 1G	2*	Wi-Fi 7	15.1 Gbps	2 + 4 + 2
a2501-00-EU	Configurable 2.5G LAN port (RJ45)	2x 2.5G	N/A	Wi-Fi 7	15.1 Gbps	2 + 4 + 2
r2201-00-EU	2.5G WAN (RJ45)	1x 2.5G, 2x 1G	2*	Wi-Fi 7	9.3 Gbps	2 + 4

* — VoIP supported in selected models

For more information, configuration options, and feature requests, contact our Sales department at sales@icotera.com.