BETTER CONNECTED LIVING

INTELLIGENT FTTH SOLUTIONS

- Fiber Network Termination
- Managed Fiber Gateways
- Managed Ethernet Routers & Access Points
- Wi-Fi App & Network Monitoring

Icotera

ABOUT ICOTERA

Icotera is a leading European developer and manufacturer of Fiber-to-the-Home (FTTH) CPE solutions. Our intelligent FTTH gateways, managed Ethernet routers, and access points include best-in-class Wi-Fi and are optimized by our real-time network and in-home Wi-Fi monitoring solution.

As a technological leader in our field, we create and deliver products with superior design, quality and performance, and we are dedicated to providing fiber network operators and internet service providers with tailor-made, flexible and cost-effective solutions to fit their individual needs. All hardware and software development are produced in-house, guaranteeing our customers the quality they need.

Our mission is to enable our customers to deliver an outstanding user experience based on our high-quality FTTH solutions and services which will provide them with additional revenue streams that contribute to their sustainable growth, both now and in the future.

" Our mission is to enable our customers to deliver an outstanding user experience...

René Brøchner,
Chief Executive Officer at Icotera

OUR PROMISE: EFFICIENT OPERATION & SUPERIOR CUSTOMER EXPERIENCE

User experience
The key to success is satisfied customers. A successful customer journey, powerful technology and efficient support make the difference.

Best-in-class Wi-Fi
High-performance antenna designs secure customers with the best in-home Wi-Fi experience in all rooms of the house.

Unique Nordic design
The stylish and aesthetic appearance makes the products fit easily into the environment — discreet equipment that looks great in every room.

Tailor-made solutions
Intelligent solutions are flexible solutions. And that's why we bring bespoke solutions to medium-sized network operators and ISPs. Together we create the right solutions — not because they fit all, but because we make them all fit.

Quality that lasts
State-of-the-art FTTH P2P and GPON solutions, crafted with superior quality of design, components, software, and manufacturing, optimize the total cost of ownership.

CUSTOMER TESTIMONIALS

"Our goal was to provide our customers with the best on the best wireless network standard in the current market: Wi-Fi 6. The new router must deliver maximum performance and coverage, but it must be compatible with our demand for a simple, elegant, minimalist design. Icotera's ability to unite modern design with high technical capacity is exceptional, and we look forward to offering our customers the benefits that such expertise implies."

Carl Gunnstam, Head of Products and Customer Value Proposition
Telenor, Sweden

"We spent a lot of time researching different companies and decided to go with Icotera as we could see the potential to make our services more attractive to our customers. The high-quality onebox solution would provide our customers with the maximum speed they needed."

Dobrina Penkova, Sales and Marketing Director
Cooolbox, Bulgaria

"Companies like ours will be buying lots of routers, but they must be top quality. If we have any issues, we cannot wait six months for a technical solution, as we will lose the customer within that timeframe. That is why it was important for us that Icotera's CPE met – and continues to meet – our customers' needs for strong Wi-Fi connectivity."

Richard Robinson, Managing Director
Grain Connect, United Kingdom

Icotera

# DESIGN THAT MAKES
A DIFFERENCE

Unique industrial design

The housing of Icotera CPEs has been designed with both aesthetics and functionality in mind. In addition to holding the most powerful optical fiber residential gateways on the market, they also set a unique standard for ease of installation and maintenance. The innovative design minimizes the total cost of ownership, delivering significant savings to network operators and ISPs. What's more, our units have been created to seamlessly fit in with the interiors of both modern and traditional households, with a discreet and compact design that still leaves a lasting impression.

It is not all about the design though - optical fiber networks including the fiber infrastructure that sits within end-user households, benefit from an extremely long life. At Icotera we appreciate the longevity of this technology, which means that our fiber termination units (FTUs) have also been engineered to support future generations of optical fiber gateways.

Because all Icotera products come with a power supply unit with either the EU or UK plug, they are a perfect fit for any market. For more information, request a quote from our Sales department.
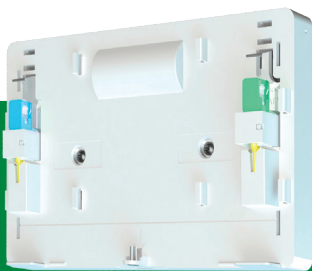
ADVANCED SLIDE-ON SYSTEM

The innovative slide-on system built into our optical fiber gateways has been designed to make it simple to change gateways without interfering with the fiber installation. This makes it easy for end-users to replace their gateways, and thereby dramatically cuts the costs for network operators. This system is an integral part of Icotera FTUs and gateways, allowing for mechanical fixtures and the simple removal of the gateway, as well as facilitating stable and reliable optical interconnections. The mechanical interface is universal in design and will be featured in future generations of gateways, making for easy upgrades, simple maintenance and reduced costs.
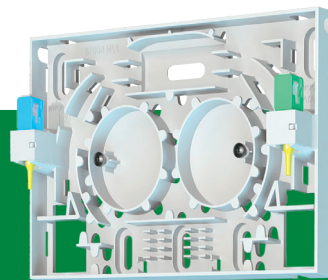
MULTI-PURPOSE FIBER TERMINATION UNIT

To support the expected impressive longevity of fiber installations, Icotera has designed an advanced, universal Fiber Termination Unit (FTU). This FTU supports all types of fiber installation methodologies and facilitates the use of single or dual-fiber in both cable and tube. The FTU provides sufficient space for winding up and reversing the fibers in accordance with the minimum bending radius requirements of standard fibers. There is also plenty of room for a gas block, fixtures for splicing rods, and a Wavelength Division Multiplex (WDM) filter. This innovative design allows for a high-quality standard of fiber installation while minimizing labour and reducing the cost of installation and maintenance.

P2P LAYER 2 SWITCH

i6400-series
Residential Switch

The Icotera i6400 Layer 2 residential fiber switch, prepared for Open Access networks, integrates optical Ethernet-based data transmission with Layer 2-4 functionality, CATV, and USB.

- Ease of use and installation
- Vendor-independent
- Award-winning industrial design
- Lowest total cost of ownership

Strong hardware base
The Icotera i6400 is a fully-featured Layer 2 fiber switch with an advanced feature set. i6400 is targeted towards open access networks and, in general, operators with a layer 2 demarcation point. All switching is done in hardware, resulting in lightning-fast wire-speed gigabit transfer rates and giving the instant-on feeling for the end-user.

State-of-the-art features
The i6400 is a complete, feature-full package of Layer 2 functionalities. Gigabit rates and instant forwarding due to powerful switching capability, optical signal auto-detection and support of 100Base-BX-10/20 and 1000Base-BX standards is a clear token of this high-quality switch. The CATV AGC receiver gives the subscriber cable television access with power level configuration and monitoring. To top it off, this fiber switch offers (optionally) individual RF channel plans in a complete filter solution with high-block band attenuation.

Extensive functionality
The i6400 offers an advanced array of traffic control and shaping features, such as Ethernet and IP filtering up to layer 4, MAC address limiting, IP source guard, and VLAN forwarding and filtering. Agile reduction of traffic overhead is managed by jumbo frame forwarding leading to lower packet rates. Adaptive mechanisms control the quality of the optical signal (CATV and DATA). As a result, users can swiftly zero in on any problems in the upstream network. Ethernet link performance is continuously controlled by 802.3ah OAM instruments that allow prompt resolution of any arising problems. Link state information is propagated on both WAN and LAN side and power consumption is managed with advanced management capabilities.

Full control and management
The i6400 can easily be managed by protocols such as EOAM, SNMP v1/v2, SSH/Telnet and TR-069. Supported by our zero-touch auto provisioning mechanism it allows for easy and trouble-free daily operations.

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i6400 Residential Switch

FEATURES
- Vendor-independent
- Award-winning industrial design
- Low power consumption
- Optional operator branding

NETWORK COMMUNICATION
WAN INTERFACE
- Single-mode fiber (ITU-T G.652) SC/PC connector
- 100BaseBX10/20 compliant
- 1000BaseBX10/20 compliant
- Tx: 1310 nm, Rx: 1480 nm – 1600 nm
- Operating distance: 20 km
- Transmit power: -7 dBm to -2 dBm
- Receive sensitivity: -3 dBm to -23 dBm
- Class 1 laser product
- Auto detection of 100 Mbps or 1 Gbps
- 1 x 1G/SFP for the 6407 model
- Auto detection of 100Mbps or Gigabit

LAN INTERFACES
- 4 x 1G LAN
- Auto-negotiation for speed and duplex
- Integrated cable tester to detect the following metrics:
  - Short
  - Open
  - Impedance mismatch
  - Cable length

LAYER 2
- Jumbo 9k packets
- IGMP v1/v2 snooping
- Transparent IPv6 forwarding
- Forwarding up to 2k MAC addresses
- Multicast support
- VLAN translation
- VLAN 802.1Q support
- Port mirroring

LAYER 3
- Management WAN interface
- OSI Layer 3 and 4 filtering by ACLs

USB
- 1 x USB 2.0 host port

CATV (OPTIONAL)
OPTICAL PARAMETERS
- Input wavelength: 1310 nm – 1550 nm
- Input level range: -9 dBm to 2 dBm
- Optical connector: SC/APC

RF PARAMETERS
- RF output impedance 75Ω
- Frequency range: 45 MHz – 890 MHz
- Slope (maximum): 5 dB
- RF output level (4% OMI, -8 dBm to 0 dBm): 80 ± 2dBμV
- CNR ≥ 45dB
- CSO ≥ 60dB
- CTB ≥ 60dB
- Management via OMCI

MANAGEMENT & MONITORING
- IPv4 management interface
- Separate VLAN (optional)
- Access filtering based on IP source network
- Zero-touch provisioning with DHCP, TFTP, HTTP, FTP, and TR-069/TR-181 with HTTPS
- Multicast analyzer
  - Debugging of live multicast streams
  - Provides detailed information from MPEG-TS and RTP layers
- Host simulation tool
- Adjustable outage portal
- 64-bit port counters
  - Unicast
  - Packet size (64, 128, 256, 512, 1024, 1518, 9k)
  - Multicast
  - Broadcast
  - FCS error
  - Align error
  - Undersized
  - Fragmented
  - Too long
  - Good byte
  - Bad byte
  - Overflow
  - Filtered
  - Collisions
- SNMP v1/v2
  - IF-MIB2
  - Icotera private MIB
  - Community protected
  - Traps
- 802.3ah OAM
  - Link performance monitoring
  - Fault detection
  - Loopback testing
- Automatic firmware and configuration update (polling)
- Dual bank flash memory with fail-safe firmware upgrading

OPERATIONAL SPECIFICATIONS
- DC 12 V input
- Power consumption maximum: 6.7 W
- Power consumption in idle state: 1.9 W
- Operating temperature: 5°C – 45°C
- Storage temperature: 5°C – 85°C
- Humidity: 5% – 95% (noncondensing)

PHYSICAL SPECIFICATIONS
CASING
- Size: 191 x 132 x 49 mm (W x H x D)
- Weight: 388 g
- WAN LED indicator for the connection status
- VOIP LED indicators for the registration status
- CATV LED indicator for the signal status
- Status LED indicators for link, traffic, and duplex for each LAN port

FIBER TERMINATIONS
- Slide-on mechanism for easy installation (optional)
- FTU support for:
  - Gas block unit (sold separately)
  - WDM filter (sold separately)
- Blind cover for the FTU (optional)

INCLUDED IN THE BOX
- Icotera i6400 switch
- 12 V power supply unit
- 2 labels with the PON serial number
- Fiber termination unit (optional)
- Screw (optional)

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i6400 residential switch configuration possibilities

Power on/off   LAN1   LAN2   LAN3   LAN4   USB   Reset   TV

Gateway interface configurations

Model	Uplink	LAN	USB	CATV	Bottom
i6401-51	BX20	4x	1x	1x	FTU / Patch
i6405-51	BX20	4x	1x	-	FTU / Patch
i6407-50	RJ45 + SFP	4x	1x	-	Patch (Roll-up)

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

GPON ONT

i5200-series
Residential Open Access ONT

The Icotera i5200-series residential ONT series is designed as a long-term GPON termination point in a two-box installation. Optional CATV, ITU-T OMCI standards-compliant provisioning, a vendor-independent approach, and easy installation together with Icotera's focus on design and usability make the i5200-series an obvious choice for GPON fiber termination.

• Aesthetic design
• Vendor-independent provisioning and management
• Lowest total cost of ownership
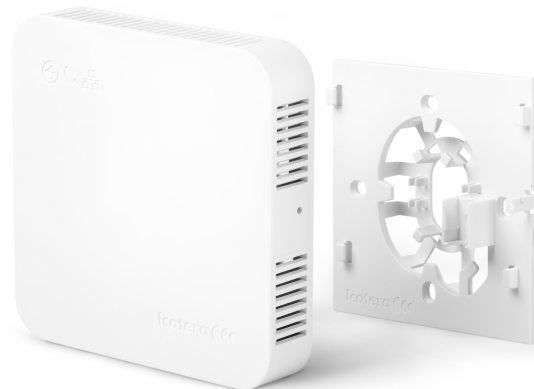• Designed for long-lifetime installations

Full flexibility
Together with the vendor independent provisioning and management, the i520x-20 creates the standards setting for a residential Open Access ONT. The i5200-series is designed for a common patch installation, where the ONT is mounted directly on the wall.

Patch installation

FTU installation

Icotera

i5200-series Residential Open Access ONT

FEATURES
- Vendor-independent GPON ONT
- Hardware forwarding
- Long-lifetime standard interfaces
- Protocol transparent forwarding

NETWORK COMMUNICATION
PON INTERFACE
- GPON 2.488/1.244 Gbps (DS/US)
- The i5205 model includes a PON port on the bottom side of the ONT
- Wavelength: TX: 1310 nm, RX: 1490 nm
- G.984.1,2,3,4,5 compliant
- G.988 compliant
- Multi-vendor support
- Forward Error Correction (FEC)
- Ethernet GEM support
- AES encryption
- Dying gasp
- Class B+ optics

LAN INTERFACE
- 1 x 1G LAN
- Auto-negotiation for speed and duplex
- The i5205 model includes an integrated cable tester to detect the following metrics:
  - Short
  - Open
  - Impedance mismatch
  - Cable length

LAYER 2
- 64 byte forwarding at line rate
- Jumbo 9k packets
- Forwarding up to 256 MAC addresses
- VLAN QinQ support
- VLAN 802.1ad support
- Transparent IPv6 forwarding
- Multicast support

QoS
- Support DBA in SR and NSR modes
- Support for Strict Priority and Weighted Fair Queuing
- Support for TCONTs 1 - 5
- Support up to 32 T-CONTs
- 8 upstream or downstream queues configurable via OMCI
- Class of service based on VLAN-ID, 802.1p
- Marking and remarking of 802.1p
- Marking and remarking of DSCP/ToS

CATV (optional)
OPTICAL PARAMETERS
- Input wavelength: 1550 nm - 1560 nm
- Operating optical input power: -10 dBm to 0 dbm
- Optical connector: SC/APC
- WDM filter

RF PARAMETERS
- RF output impedance 75Ω
- Frequency range: 45 MHz – 890 MHz
- Slope (maximum): 5 dB
- RF output level (4% OMI, -8 dBm to 0 dBm): 80 ± 2 dBμV
- CNR ≥ 45dB
- CSO ≥ 60dB
- CTB ≥ 60dB
- Management: via OMCI

VoIP (optional)
- 1 POTS line
- British telephone socket (BS 6312)
- SIP (RFC3261) over IPv4
- 3 REN support
- DTMF signalling
  - SIP INFO
  - Inband
  - Auto
  - RFC 2833
- Caller ID support (DTMF/FSK)
- CLIR
- Advanced dialplan
- 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.729AB
- Codec negotiation
- Modem/Fax detection

MANAGEMENT & MONITORING
- Zero-touch configuration with OMCI provisioning
- Dual bank flash memory with fail-safe firmware upgrading
- Hardware watchdog

OPERATIONAL SPECIFICATIONS
- DC 12 V input
- Power consumption maximum: 3.3 W or 4.4 W (i5205)
- Power consumption in idle state: 2 W or 2.7W (i5205)
- Operating temperature: 5°C – 45°C
- Storage temperature: 5°C – 85°C
- Humidity: 5% – 95% (non-condensing)

PHYSICAL SPECIFICATIONS
CASING
- Size: 126 x 140 x 28 mm (W x H x D) or 101 x 106 x 22 mm (i5205)
- Weight: 222 g or 126 g (i5205)
- Area for an optional PON label with the serial number - 16 x 30 mm on the right side
- Product SN, PON SN, FW version and MAC address label on the bottom side
- PON LED indicator for the connection status
- LAN LED indicator for the link status
- CATV LED indicator for the signal status

FIBER TERMINATIONS
- Wall mountable
- The i5205 model supports slide-on-mechanism for easy installation or Schuko in-wall installation

INCLUDED IN THE BOX
- Icotera i5200 ONT
- 12 V power supply unit
- 2 labels with the PON serial number
- The i5205 model includes the FTU for Schuko installation, the optical fibre heat shrink tube, and a screw

SUPPORTED PLATFORMS
- Nokia ISAM 7330/7360
- Huawei MA5600/5800
- ZTE C320
- The ONT supports other specific platforms. For more information, contact our Sales department at sales@icotera.com.
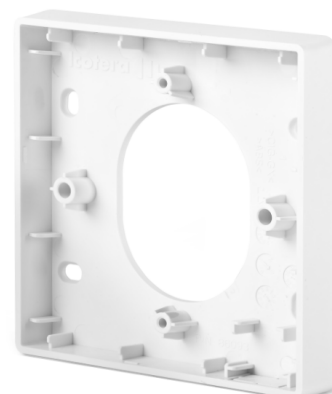
i5200-series residential GPON ONT configuration possibilities

| i5204-20 | TV | | Power | LAN | PON | | i5205-00 | On/Off | LAN | Phone | Reset | Power | | PON |

Gateway interface configurations

Model	LAN	VoIP	CATV	Termination
i5204-22	1x1G	-	1x	Patch
i5205-00	1x1G	1x	-	FTU
i5208-20	1x1G	-	-	Patch

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


Wall plate

GPON FTTH ONT

i5900-series

Residential ONT + Multi-Service Gateway for wholesales network operators

The Icotera i5900 residential ONT integrates optical Ethernet-based gigabit data transmission with Layer 2-4 functionality, VoIP, and optional CATV.

- Ease of use and installation
- OLT vendor independent
- Designed for open access and wholesale deployment
- Award-winning industrial design
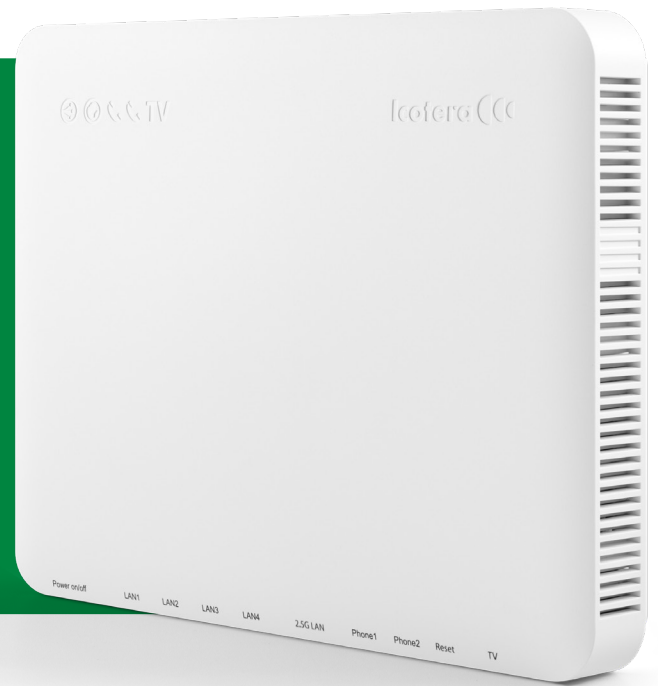
Powerful hardware platform

The Icotera i5900 Fiber-to-the-Home (FTTH) Multi-Service Gateway demonstrates its great strength by bringing together a wide feature set and flawless performance. Its foundation is built on a powerful, cutting-edge dual-core architecture. This, paired with an ASIC for packet forwarding, ensures the platform is always ready to cope with additional tasks while processing VoIP, Gigabit routing of IPv4 with NAT, IPv6 and stateful filtering, and traffic switching or bridging.

Innovative feature set

The i5900 provides exceptional Layer 2 functionality that can effortlessly handle 16 bridging instances, exceptional Layer 2 and Layer 3 functionality, multiple WAN interfaces, PPPoE and in-band secure management. The CATV AGC receiver offers broadband cable television services to the subscriber with seamless monitoring and configuration of the power levels. As an optional feature, this fiber gateway offers a complete and customizable filter solution with low-pass filters for individual RF channel plans.

Ease of control

A great variety of management protocols (such as OMCI v2, SNMP v1/v2, Syslog, SSH, Telnet and TR-069) is integrated and supported, which guarantees effortless control over the i5900. Paired with our fail-proof, zero-touch auto-provisioning mechanism, they provide easy and trouble-free daily operations. To guarantee effortless firmware roll-outs in harsh network environments, the i5900 also comes with dual-bank flash memory.

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i5900 Residential ONT

FEATURES

- Vendor-independent
- Award-winning industrial design
- Low power consumption
- Optional operator branding

NETWORK COMMUNICATION

PON INTERFACE

- GPON 2.488/1.244 Gbps (DS/US)
- Wavelength: Tx: 1310 nm, Rx: 1490 nm
- G.984.1,2,3,4,5 compliant
- G.988 compliant
- Multi-vendor support
- Forward Error Correction (FEC)
- Ethernet GEM support
- AES encryption
- Dying gasp
- Class B+ optics

LAN INTERFACES

- 1 x 2.5G LAN
- 4 x 1G LAN
- Auto-negotiation for speed and duplex
- Integrated cable tester to detect the following metrics:
  - Short
  - Open
  - Impedance mismatch
  - Cable length

LAYER 2

- 16 bridge instances
- 64 byte forwarding at line rate
- Jumbo 9k packets
- IGMP v1/v2/3 snooping
- Transparent IPv6 forwarding
- Forwarding up to 2k MAC addresses
- Multicast support
- VLAN translation
- VLAN 802.1Q support
- Port mirroring

LAYER 3

- Virtual interfaces
- Multiple WAN interfaces in one router
- 64 byte forwarding at line rate with routing or NAT
- IGMP v1/v2 proxy with fast-leave and monitoring
- Stateful Firewall

- IPv4
  - SNAT, DNAT, DMZ
  - DNS proxy
  - DHCP client and server
- IPv6
  - Prefix delegation
- PPPoE (termination)
- 32k NAT/NAPT flows
- Tracking the connection status in the CLI
- RTSP stateful proxy
- Protocol helpers for: SIP, RTSP, FTP, TFTP, PPTP, L2TP, and IPSec
- Guest access
- Input wavelength: 1550 nm - 1560 nm
- Input level range: -9 dBm to 2 dBm
- Optical connector: SC/APC

QoS

- Support for Strict Priority and Weighted Fair Queuing
- Support for TCONTs 1 - 5
- Support up to 32 T-CONTs
- 8 upstream or downstream queues configurable via OMCI
- Class of service based on VLAN-ID, 802.1p (configurable via OMCI)
- Marking and remarking of 802.1p (configurable via OMCI)
- Marking and remarking of DSCP/ToS (configurable via OMCI)

CATV

Optical parameters

- Input wavelength: 1550 nm - 1560 nm
- Input level range: -9 dBm to 2 dBm
- Optical connector: SC/APC
- WDM filter

RF parameters

- RF output impedance 75Ω
- Frequency range pass-band: 45 MHz – 890 MHz
- Frequency range Filter1: 430 MHz – 890 MHz
- Frequency range Filter2: 590 MHz – 890 MHz
- Slope (maximum): 5 dB
- RF output level (2.5% OMI, -8 dBm to 0 dBm): 80 ± 2 dBμV
- RF output level @ AGC-high mode (2.5% - 4% OMI, -6 dBm to 0 dBm): 85 ± 2dBμV
- CNR ≥ 45dB
- CSO ≥ 60dB
- CTB ≥ 60dB
- Management via OMCI

VoIP

- 2 separate POTS lines SIP (RFC3261)
- Up to 5 ringer equivalence numbers (REN)
- DTMF signaling
  - SIP INFO
  - Inband
  - Auto
  - RFC 2833
- Caller ID support (DTMF/FSK)
- CLIR
- 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 & MONITORING

- Shared or separate IP interface for management
- L1 and L3 filters for all local services
- SSHv2 with key authentication
- Telnet with authentication
- Configurable web interface for end users:
  - LAN network
  - Port forwarding
  - NAT loopback
  - DMZ
  - DynDNS
  - Status and monitoring
- Zero-touch provisioning with DHCP, TFTP, HTTP, FTP, or TR-069
- TR-069 with TLS, supporting TR-104 for VoIP and TR-181 for network
- SNMP v1/v2
- CLI with auto-completion
- Firmware upgrade from a USB drive
- Extensive debug possibilities
- Packet dumping
- All settings are stored locally in flash memory
- Automatic firmware and configuration update (polling)
- Dual bank flash memory with fail-safe firmware upgrading

- LED brightness configurable by the operator or end-user
- Hardware watchdog
- Wake-on-LAN for the web interface and CLI

OPERATIONAL SPECIFICATIONS

- DC 12 V input
- Power consumption maximum: 11 W
- Power consumption in idle state: 5.5 W
- Operating temperature: 5°C – 45°C
- Storage temperature: 5°C – 85°C
- Humidity: 5% – 95% (noncondensing)

PHYSICAL SPECIFICATIONS

CASING

- Size: 190 x 150 x 32 mm (W x H x D)
- Weight: 400 g
- PON LED indicator for the connection status
- LAN LED indicator for the link status
- VOIP LED indicators for the registration status
- CATV LED indicator for the signal status
- Status LED indicators for link, traffic, and duplex for each LAN port
- LED auto off after timeout period

FIBER TERMINATIONS

- Slide-on mechanism for easy installation
- FTU support for
  - Gas block unit (sold separately)
  - WDM filter (sold separately)
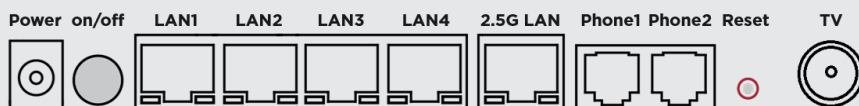- Blind cover for FTU (optional)

INCLUDED IN THE BOX

- Icotera i5900 ONT
- 12 V power supply unit
- Fiber termination unit
- Screw (optional)

SUPPORTED PLATFORMS

- Nokia ISAM 7330/7360
- ZTE C320

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i5900 residential ONT configuration possibilities

Power on/off   LAN1   LAN2   LAN3   LAN4   2.5G LAN   Phone1 Phone2 Reset   TV

Gateway interface configurations

Model	Uplink	LAN ports	POTS ports	USB 2.0 ports	USB 3.0 ports	Wi-Fi	Antennas	CATV output	Gateway top	Gateway bottom
i5901-00	GPON/ MSGW	4x1G 1x2.5G	2	-	-	-	-	High output	Printed English port + logo	FTU

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

P2P FTTH GATEWAY

i6900-series
Residential Multi-Service Gateway

The Icotera i6900 Multi-Service Gateway integrates optical Ethernet-based gigabit data transmission with Layer 2-4 functionality, and CATV.

• Ease of use & installation
• Vendor independent
• Multi-Service Gateway for wholesale network operators
• Award-winning industrial design

Powerful hardware platform
The Icotera i6900 Fiber-to-the-Home (FTTH) Multi-Service Gateway demonstrates its great strength by bringing together a wide feature set and flawless performance. Its foundation is built on a powerful, cutting-edge dual-core architecture. This, paired with an ASIC for packet forwarding, ensures the platform is always ready to cope with additional tasks while processing VoIP, Gigabit routing of IPv4 with NAT, IPv6 and stateful filtering, traffic switching and bridging.

Innovative feature set
The i6900 provides exceptional Layer 2 functionality that can effortlessly handle 16 bridging instances, multiple WAN interfaces, PPPoE and in-band secure management. The CATV AGC receiver offers broadband cable-television services to the subscriber with seamless monitoring and configuration of the power levels. As an optional feature, this FTTH gateway offers a complete and customizable filter solution with low-pass filters for individual RF channel plans.

Ease of control
A great variety of management protocols such as SNMP v1/v2, Syslog, SSH, Telnet and TR-069) is integrated and supported, which guarantees effortless control over the i6900. Paired with our fail-proof, zero-touch auto provisioning mechanism, they provide easy and trouble-free daily operations. To guarantee trouble-free firmware roll-outs in harsh network environments, the i6900 also comes with dual-bank flash memory.

Icotera

i6900 Multi-Service Gateway

FEATURES
- Vendor-independent
- Award-winning industrial design
- Low power consumption
- Optional operator branding

NETWORK COMMUNICATION
WAN INTERFACE
- Single-mode fiber (ITU-T G.652) SC/PC connector
  - 100BaseBX10/20 compliant
  - 1000BaseBX10/20 compliant
- Tx: 1310 nm, Rx: 1480 nm – 1600 nm
- Full-duplex transmission
- Operating distance: 20 km
- Transmit power: -7 dBm to -2 dBm
- Receive sensitivity: -3 dBm to -23 dBm
- Class 1 laser product
- Auto detection of 100 Mbps or 1 Gbps

LAN INTERFACES
- 4 x 1G LAN
- Auto-negotiation for speed and duplex
- Integrated cable tester to detect the following metrics:
  - Short
  - Open
  - Impedance mismatch
  - Cable length

LAYER 2
- 16 bridge instances
- 64 byte forwarding at line rate
- Jumbo 9k packets
- IGMP v1/v2 snooping
- Transparent IPv6 forwarding
- Forwarding up to 2k MAC addresses
- Multicast support
- VLAN translation
- VLAN 802.1Q support
- Port mirroring
- Advanced QoS for wholesale support

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
- Stateful firewall
- IPv4
  - SNAT, DNAT, DMZ
  - DNS proxy
  - DHCP client and server
- IPv6
  - Prefix delegation
- PPPoE (termination)
- 32K NAT/NAPT flows
- Tracking the connection status in the CLI
- RTSP stateful proxy
- Protocol helpers for: SIP, RTSP, FTP, TFTP, PPTP, L2TP, and IPSec
- Guest access

QoS
- Support for Strict Priority and Weighted Fair Queuing (available for Layer2 mode)
- 8 upstream or downstream queues (available for Layer2 mode)
- Class of service based on VLAN-ID, 802.1p (available for Layer2 mode)
- Marking and remarking of 802.1p (available for Layer2 mode)
- Marking and remarking of DSCP/ToS (available for Layer2 mode)

CATV (OPTIONAL)
OPTICAL PARAMETERS
- Input wavelength: 1550 nm – 1560 nm
- Input level range: -9 dBm to 2 dBm
- Optical connector: SC/APC

RF PARAMETERS
- RF output impedance 75Ω
- Frequency range pass-band: 45 MHz – 890 MHz
- Frequency range Filter1: 430 MHz – 890 MHz
- Frequency range Filter2: 590 MHz – 890 MHz
- Slope (maximum): 5 dB
- RF output level (2.5% - 4% OMI, -8 dBm to 0 dBm): 80 ± 2dBμV
- RF output level @ AGC-high mode (2.5% - 4% OMI, -6 dBm to 0 dBm): 85 ± 2dBμV
- CNR ≥ 45dB
- CSO ≥ 60dB
- CTB ≥ 60dB
- Management via OMCI

VoIP (optional)
- 2 separate POTS lines SIP (RFC3261)
- Up to 5 ringer equivalence numbers (REN)
- DTMF signaling
  - SIP INFO
  - Inband
  - Auto
  - RFC 2833
- Caller ID support (DTMF/FSK)
- CLIR
- 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 & MONITORING
- Shared or separate IP interface for management
- L1 and L3 filters for all local services
- SSHv2 with key authentication
- Telnet with authentication
- Configurable web interface for end users:
  - LAN network
  - Port forwarding
  - NAT loopback
  - DMZ
  - DynDNS
  - Status and monitoring
- Zero-touch provisioning with DHCP, TFTP, HTTP, FTP, or TR-069
- TR-069 with TLS:
  - TR- 104 (VoIP)
  - TR-181 (Network)
- SNMP v1/v2
- CLI with auto-completion
- Firmware upgrade from a USB drive
- Extensive debug possibilities
- Packet dumping
- All settings are stored locally in flash memory
- Automatic firmware and configuration update (polling)
- Dual bank flash memory with fail-safe firmware upgrading
- LED brightness configurable by the operator or end-user
- Hardware watchdog
- Wake-on-LAN for the web interface and CLI

OPERATIONAL SPECIFICATIONS
- DC 12 V input
- Power consumption maximum: 16.7 W
- Power consumption in idle state: 5.5 W
- Operating temperature: 5°C – 45°C
- Storage temperature: 5°C – 85°C
- Humidity: 5% – 95% (noncondensing)

PHYSICAL SPECIFICATIONS
CASING
- Size: 235 x 164 x 36 mm (W x H x D)
- Weight: 462 g
- WAN LED indicator for the connection status
- LAN LED indicator for the link status
- VOIP LED indicators for the registration status
- CATV LED indicator for the signal status
- Status LED indicators for link, traffic, and duplex for each LAN port
- LED auto off after timeout period

FIBER TERMINATIONS
- Slide-on mechanism for easy installation
- FTU support for
  - Gas block unit (sold separately)
  - WDM filter (sold separately)
- Blind cover for FTU (optional)

INCLUDED IN THE BOX
- Icotera i6900 gateway
- 12 V power supply unit
- 2 labels with the PON serial number

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i6900 multi-service gateway configuration possibilities

Gateway interface configurations

Model	Uplink	LAN ports	POTS ports	Micro SD card	Wi-Fi	Antennas	CATV output	Gateway top	Gateway bottom
i6901-20	P2P MSGW	4xGE	2x	-	-	-	1x	Printed: English ports + logo	FTU
i6902-20	P2P MSGW	4xGE	-	-	-	-	1x	Printed: English ports	FTU
i6905-20	P2P MSGW	4xGE	2x	-	-	-	-	Printed: English ports + logo	FTU

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

RESIDENTIAL XGS-PON ONT

i7208
Open Access XGS-PON ONT

BBF.247 XGS-PON CERTIFIED

The Icotera i7208 residential ONT is designed as a long-term XGS-PON termination point in a two-box installation. The ITU-T OMCI standards-compliant provisioning, a vendor-independent approach, and easy installation together with Icotera's focus on design and usability make the i7208 an obvious choice for XGS-PON fiber termination.

• Aesthetic design
• Vendor-independent provisioning and management
• Lowest total cost of ownership
• Designed for long-lifetime installations
• 2.5 Gigabit fiber termination
• BBF.247 certification

Future proof solution
The i7208 series is an XGS-PON Layer 2 termination device with a single 2.5 Gbps LAN port. This solution makes it cost-effective for operators to implement two-box installations, as the i7208 is compatible with any Layer 3 device.
The ONT supports securely encrypted and signed FW, environmentally friendly materials, and is certified with the BBF.247 certification, fulfilling the latest test plans developed by the Broadband Forum.

Icotera

i7208 Residential XGS-PON ONT

FEATURES

- Vendor-independent XGS-PON ONT
- Hardware forwarding
- Long-lifetime standard interfaces
- Protocol transparent forwarding

NETWORK COMMUNICATION

PON INTERFACE

- WDM filter that supports CATV and XGS-PON signal coexistence
- ITU-T G.9807.1 compliant
- Wavelength: US 1260 nm - 1280 nm, DS 1575 nm - 1580 nm
- 10 Gbps symmetric line rate
- G.988 compliant
- Forward Error Correction (FEC)
- AES encryption
- Dying gasp
- Class N1 optics

LAN INTERFACE

- 1 x 2.5G LAN
- Auto-negotiation for speed and duplex

LAYER 2

- 64 byte forwarding at line rate
- Jumbo 9k packets
- Forwarding up to 256 MAC addresses
- VLAN QinQ support
- VLAN 802.1ad support
- Transparent IPv6 forwarding
- Multicast support

QoS

- Support DBA in SR and NSR modes
- Support for Strict Priority and Weighted Fair Queuing
- Support for TCONTs 1 - 5
- Support up to 32 T-CONTs
- 8 upstream or downstream queues configurable via OMCI
- Class of service based on VLAN-ID, 802.1p
- Marking and remarking of 802.1p
- Marking and remarking of DSCP/ToS

MANAGEMENT & MONITORING

- Zero-touch configuration with OMCI provisioning
- Dual bank flash memory with fail-safe firmware upgrading
- Hardware watchdog

OPERATIONAL SPECIFICATIONS

- DC 12 V input
- Power consumption maximum: 4.5 W
- Power consumption in idle state: 3.5 W
- Operating temperature: 5°C – 45°C
- Storage temperature: 5°C – 85°C
- Humidity: 5% – 95% (noncondensing)

PHYSICAL SPECIFICATIONS

CASING

- Size: 126 x 130 x 28 mm (W x H x D)
- Weight: 188 g
- Area for an optional PON label with the serial number - 16 x 30 mm on the right side
- Product SN, PON SN, FW version and MAC address label on the bottom side
- PON LED indicator for the connection status
- LAN LED indicator for the link status

FIBER TERMINATIONS

- Wall mountable

INCLUDED IN THE BOX

- Icotera i7208 ONT
- 12 V power supply unit
- 2 labels with the PON serial number

SUPPORTED PLATFORMS

- Nokia ISAM 7330/7360
- Huawei MA5600/5800
- The ONT supports other specific platforms. For more information, contact our Sales department at sales@icotera.com.

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i7208 residential XGS-PON ONT

Power   **LAN**   **PON**

ONT interface configuration

Model	LAN	Termination
i7208-00	1 x 2.5G	Patch

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

XGS-PON FTTH ONT

i7400-series
Residential ONT for wholesale network operators

BBF.247 XGS-PON CERTIFIED

The Icotera i7400 residential ONT integrates optical Ethernet-based gigabit data transmission with Layer 2 functionality and optional CATV.

• Ease of use and installation
• OLT vendor-independent
• Designed for Open Access or wholesale deployment
• Award-winning industrial design
• 10 Gbps LAN port
• BBF.247 certification

Future proof solution
The i7400 series is an XGS-PON L2 termination with full port flexibility and multi-10G + multi-1G ports. This solution allows operators to implement wholesale solutions in a flexible way without compromising on performance and develop a future-proof home setup. The ONT supports securely encrypted and signed FW, environmentally friendly materials, and is certified with the BBF.247 certification, fulfilling the latest test plans developed by the Broadband Forum.

Ease of assembly
The i7400 series comes with the universal Fiber Termination Unit from Icotera that supports all types of fiber installation methodologies and facilitates the use of single or dual-fiber in both cable and tube. The FTU set consists of only 2 parts. The top cover simply locks on the FTU base and stays firmly secured. There is no need to use screws, pins, or other separate elements to join both FTU parts. SCA caps are integrated with the cover - no risk of losing separate caps. Pre-cut kerfs simplify making openings for fiber - no need to drill holes in the sides of the FTU cover.

FTU installation

Patch installation

Icotera

i7400 Residential ONT

FEATURES

- Vendor-independent XGS-PON ONT
- Hardware forwarding
- Long-lifetime standard interfaces
- Protocol transparent forwarding

NETWORK COMMUNICATION
PON INTERFACE

- WDM filter that supports CATV and XGS-PON signal coexistence
- ITU-T G.9807.1 compliant
- Wavelength: US 1260 nm – 1280 nm, DS 1575 nm – 1580 nm
- 10 Gbps symmetric line rate
- G.988 compliant
- Forward Error Correction (FEC)
- AES encryption
- Dying gasp
- Class N1 optics

LAN INTERFACES

- 1 x 10/5/2.5 Gbps LAN
- 4 x 1 Gbps LAN
- Auto-negotiation for speed and duplex

LAYER 2

- 64 byte forwarding at line rate
- Jumbo 9k packets
- Forwarding up to 256 MAC addresses
- VLAN QinQ support
- VLAN 802.1ad support
- Transparent IPv6 forwarding
- Multicast support

QoS

- Support DBA in SR and NSR modes
- Support for Strict Priority and Weighted Fair Queuing
- Support for TCONTs 1 - 5
- Support up to 32 T-CONTs
- 8 upstream or downstream queues configurable via OMCI
- Class of service based on VLAN-ID, 802.1p
- Marking and remarking of 802.1p
- Marking and remarking of DSCP/ToS

CATV (OPTIONAL)

Optical parameters

- Input wavelength: 1550 nm – 1560 nm
- Input level range: -9 dBm to 2 dBm
- Optical connector: SC/APC

RF parameters

- RF output impedance 75Ω
- Frequency range pass-band: 45 MHz – 890 MHz
- Frequency range Filter1: 430 MHz – 890 MHz
- Frequency range Filter2: 590 MHz – 890 MHz
- Slope (maximum): 5 dB
- RF output level (4% OMI, -8 dBm to 0 dBm): 80 ± 2dBμV
- CNR ≥ 45dB
- CSO ≥ 60dB
- CTB ≥ 60dB
- Management via OMCI

MANAGEMENT & MONITORING

- Zero-touch configuration with OMCI provisioning
- Dual bank flash memory with fail-safe firmware upgrading
- Hardware watchdog

OPERATIONAL SPECIFICATIONS

- DC 12 V input
- Power consumption maximum: 5.5 W
- Power consumption in idle state: 3.6 W
- Operating temperature: 5°C – 45°C
- Storage temperature: 5°C – 85°C
- Humidity: 5% – 95% (non-condensing)

PHYSICAL SPECIFICATIONS
CASING

- Size: 190 x 150 x 33 mm (W x H x D)
- Weight: 400 g
- Area for an optional PON label with the serial number - 16 x 30 mm on the right side
- Product SN, PON SN, FW version and MAC address label on the bottom side
- PON LED indicator for the connection status
- LAN LED indicator for the link status

FIBER TERMINATIONS

- Slide-on mechanism for easy installation

INCLUDED IN THE BOX

- Icotera i7400 ONT
- 12 V power supply unit
- Fiber termination unit (FTU)
- 2 labels with the PON serial number

SUPPORTED PLATFORMS

- Nokia ISAM 7330/7360
- Huawei MA5600/5800
- The ONT supports other specific platforms. For more information, contact our Sales department at sales@icotera.com.

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i7400 residential ONT configuration possibilities

Power 10G LAN LAN1 LAN2 LAN3 LAN4 TV
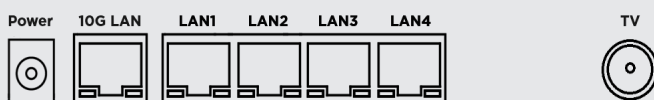
Gateway interface configurations

Model	Uplink	1G LAN port	10G LAN port	CATV output	Installation
i7404-00	XGS-PON	4x	1x	High output	FTU
i7408-00	XGS-PON	4x	1x	-	FTU

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

Wi-Fi 6 ETHERNET ROUTER

i4880-series
Residential Wi-Fi 6 Router

The i4880 ethernet gateway takes performance to the next level with a 2.5 Gbps IPv4 and IPv6 routing engine and premium Wi-Fi 6 with a configuration of 8x8 + 4x4. Special attention has been put into creating a beautiful, minimalistic, yet fully flexible design that fully matches the modern home. Full backward compatibility for WAN/LAN, VoIP, and Wi-Fi makes the i4880 the obvious choice for a high-end residential router for all serious service providers.

- Premium Wi-Fi 6 configuration
- Non-blocking 2.5 Gbps architecture
- Modern Scandinavian design
- Fully managed
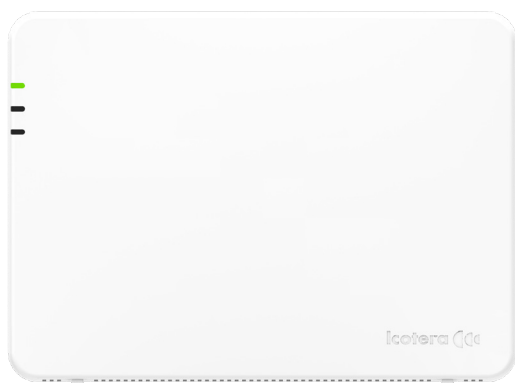
Model: i4883

Flexible installation
The i4880 is designed for all types of installations, both wall-mount and free-standing. In any installation, the i4880 allows for practical cable management, easy access to user-configurable buttons and intuitive LEDs for easy troubleshooting.

Easy cable management
With all interfaces hidden practically on the back of the i4880, all cables can be managed in an easy way regardless of the installation method. Ports are coloured for intuitive installation for first-time users.

Icotera

i4880 Residential Wi-Fi 6 Router

FEATURES
- Enterprise 8x8+4x4 Wi-Fi 6 configuration
- Vendor-independent
- Non-blocking 2.5 Gbps architecture
- Wi-Fi link rate up to 9.8 Gbps
- Low power consumption
- Optional operator branding
- Customized firmware

NETWORK COMMUNICATION
WAN INTERFACE
- 2.5G WAN
- Full-duplex transmission
- Auto-negotiation for speed and duplex
- Optional Energy-Efficient Ethernet (EEE)

LAN INTERFACE
- 1x 2.5G LAN
  2x 1G LAN
- Auto-negotiation for speed and duplex
- Integrated cable tester to detect the following metrics:
  - Short
  - Open
  - Impedance mismatch
  - Cable length

Wi-Fi INTERFACES
- Advanced WMM designed for long-range and resilient video and voice delivery
- Authentication methods:
  - Open
  - WPA2
  - WPA3-Personal
  - WPA3-Personal Transition Mode
- Up to 8 SSIDs
- MAC address filtering
- Beamforming
- 802.11v band steering and client roaming
- Neighbour scanning
- Advanced channel selection
- Software Tx power control
- Wireless client isolation
- Meshing — a built-in controller for Icotera i3560 access points

Wi-Fi 6
- 802.11ax 8x8:8 5 GHz + 4x4:4 2.4 GHz
- BW support: 20 MHz, 40 MHz, 80 MHz
- Modulation support: MCS 0-11
- Downlink MU-MIMO and OFDMA
- Up to 1024-QAM modulation
- Support for unequal MCS
- Support for LDPC, STBC
- Support for target wake time (TWT)

Wi-Fi 5
- 802.11ac Wave-2 8x8:8
- BW support: 20 MHz, 40 MHz, 80 MHz, 160 MHz
- MU-MIMO
- Support for LDPC, STBC
- Modulation support: MCS 0-11
- Up to 1024-QAM modulation

Wi-Fi 4
- 802.11b/g/n 4x4:4
- MIMO
- Modulation support: MCS 0-76

LAYER 2
- 16 bridge instances
- 64 byte forwarding at line rate
- Jumbo 9k packets
- IGMP v1/v2 snooping
- 802.1p marking
- VLAN support
- Wi-Fi support
- Transparent IPv6 forwarding
- DHCP relay with option 82
- 32k address entries
- Flexible L1 and L3 access control lists

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
- Stateful IPv4 and IPv6 firewall
- Supports routing for IPv4 and IPv6
- IPv4:
  - SNAT, DNAT, DMZ
  - DNS proxy
  - DHCP client and server
- IPv6:
  - Prefix delegation

- PPPoE (termination)
- Tracking the connection status in the CLI
- 32k HW connection tracking
- RTSP stateful proxy
- Protocol helpers for: SIP, RTSP, FTP, TFTP, PPTP, L2TP, and IPSec
- Guest access

USB
- 1 x USB 2.0 host port (reserved for future use)

VoIP (optional)
- 2 separate POTS lines SIP (RFC3261)
- Up to 5 ringer equivalence numbers (REN)
- DTMF signalling
  - SIP INFO
  - Inband
  - Auto
  - RFC 2833
- Caller ID support (DTMF/FSK)
- CLIR
- 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
- 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
  - DynDNS

- Status and monitoring
- Monitoring via telemetry streaming (ICONS)
- L1 and L3 filters for all local services
- SSHv2 with key authentication
- Zero-touch provisioning with DHCP and TR-069
- TR-069 with TLS:
  - TR-104 (VoIP)
  - TR-181 (Network)
- SNMP v1/v2
- Extensive debug possibilities
- Packet dumping
- All settings are stored locally in flash memory
- Dual bank flash memory with fail-safe firmware upgrading
- LED indicators brightness configurable by operators or end users
- Hardware watchdog
- Wake-on-LAN for the web interface and CLI
- L1 and L3 filters for all local services
- TR-143 for performance data and throughput statistics

OPERATIONAL SPECIFICATIONS
- DC 12 V input
- Power consumption maximum: 31.7 W
- Power consumption in idle state: 7.5 W
- Operating temperature: 5°C – 45°C
- Storage temperature: -20°C – 85°C
- Humidity: 5% – 95% (noncondensing)

PHYSICAL SPECIFICATIONS
CASING
- Size: 234 x 177 x 53 mm (W x H x D)
- Weight: 844 g without VoIP, 869 g with VoIP
- Front LED indicators configurable by operators or end users.
  - Power or WAN status such as link or provisioning
  - VoIP
  - Wi-Fi
- Status LED indicators for link, traffic, and duplex for each LAN port
- WPS button

INCLUDED IN THE BOX
- Icotera i488x gateway
- 12 V power supply unit
- Additional label with Wi-Fi credentials
- Ethernet cable

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i4880 configuration possibilities

WAN   2.5G LAN   TEL2   TEL1   LAN1   LAN2   USB   WPS   RESET POWER   ON/OFF
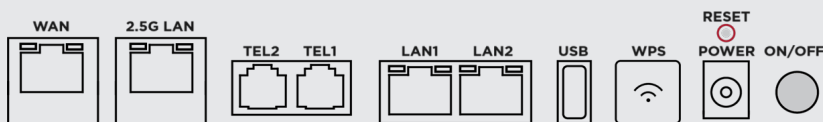
Gateway interface configurations

Model	Uplink	LAN	USB	POTS	Wi-Fi	Antennas
i4882-00	2.5G WAN	1x 2.5G LAN 2x 1G LAN	1 x USB 2.0	-	Wi-Fi 6	8x8 + 4x4
i4883-00	2.5G WAN	1x 2.5G LAN 2x 1G LAN	1 x USB 2.0	2x	Wi-Fi 6	8x8 + 4x4

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

Wi-Fi 5 ETHERNET ROUTER

i4850-series
Residential Router

The Icotera i4850 residential Ethernet router integrates Ethernet-based gigabit data transmission with Layer 2-4 functionality, VoIP, 802.11ac and 802.11b/g/n Wi-Fi, and USB 3.0.

- State of the art 4x4 Wave 2 MU-MIMO Wi-Fi
- Ease of use and installation
- Vendor independent
- Award-winning industrial design
- Lowest total cost of ownership

Powerful hardware architecture
The Icotera i4850 Ethernet router demonstrates its great strength by bringing together a wide feature set and flawless performance. Its foundation is built on a powerful, cutting-edge dual-core architecture. This, paired with an ASIC for packet forwarding, ensures the platform is always ready to cope with additional tasks while processing VoIP, Gigabit routing of IPv4 with NAT, IPv6 and stateful filtering, traffic switching/bridging and high-speed Wi-Fi.

Next-generation Wi-Fi solution
With Wi-Fi becoming the preferred communication technology inside the home, the need for fast and stable wireless connections is becoming ever more important. The i4850 delivers not only backwards compatibility with any 802.11a/b/g/n Wi-Fi-certified device, but also includes the very latest standard — 802.11ac. With the added 802.11ac Wave 2 solution, the i4850 is capable of delivering 1733+300 Mbps and throughput which combined with MU-MIMO can deliver more than 1 Gbps in real home and office environments.

Innovative feature set
The i4850 provides exceptional Layer 2 functionality that can effortlessly handle 16 bridging instances, 8 Wi-Fi access points over 2 radios, multiple WAN interfaces, PPPoE and in-band secure management.

Ease of control
A great variety of management protocols (such as SNMP v1/v2, Syslog, SSH, Telnet, and TR-069) is integrated and supported, which guarantees effortless control over the i4850. Paired with our fail-proof, zero-touch auto-provisioning mechanism, they provide easy and trouble-free daily operations. To guarantee trouble-free firmware roll-outs, in harsh network environments, the i4850 also comes with dual-bank flash memory.

Icotera

i4850 Residential Router

FEATURES

- Best-in-class Wi-Fi 5 solution
- Vendor-independent
- Award-winning industrial design
- Low power consumption
- Optional operator branding
- Customized firmware
- Wi-Fi link rate up to 2.1 Gbps

NETWORK COMMUNICATION

WAN INTERFACE

- 1G WAN
- Full-duplex transmission
- Auto-negotiation for speed and duplex
- Optional Energy-Efficient Ethernet (EEE)

LAN INTERFACE

- 4x 1G LAN
- Auto-negotiation for speed and duplex
- Integrated cable tester to detect the following metrics:
  - Short
  - Open
  - Impedance mismatch
  - Cable length

Wi-Fi INTERFACES

- Authentication methods:
  - Open
  - WEP64
  - WEP128
  - WPA
  - WPA2
- MAC address filtering
- Advanced channel selection
- Software Tx power control
- Wireless client isolation
- Band steering
- Neighbour scanning
- Meshing - a built-in controller for Icotera i3550 access points
- Client roaming
- Airtime management

Wi-Fi 5

- 4x4 Wave 2 MU-MIMO
- 5 GHz band with 256-QAM and 80 MHz
- Beamforming
- LDPC + STBC

Wi-Fi 4

- 802.11b/g/n 2x2:2 MIMO
- 2.4 GHz band with 64-QAM and 40 MHz

LAYER 2

- 16 bridge instances
- 64 byte forwarding at line rate
- Jumbo 9k packets
- IGMP v1/v2 snooping
- 802.1p marking
- VLAN support
- Wi-Fi support
- Transparent IPv6 forwarding
- DHCP relay with option 82
- 2k address entries
- Flexible L1 and L3 access control lists

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
- Stateful Firewall
- IPv4:
  - SNAT, DNAT, DMZ
  - DNS proxy
  - DHCP client and server
- IPv6:
  - Prefix delegation
- Supports routing for IPv4 and IPv6
- PPPoE (termination)
- Tracking the connection status in the CLI
- RTSP stateful proxy
- Protocol helpers for: SIP, RTSP, FTP, TFTP, PPTP, L2TP, and IPSec
- Up to 32K NAT/NAPT flows depending on the scenario used (IPv4, DS-Lite, PPPoE, SIP, L2TP)
- Guest access

USB

- 1 x USB 3.0 host port (reserved for future use)
- 1 x USB 2.0 host port (reserved for future use)

QoS

- Support for 8 configurable upstream queues
- Layer 2 and 3 QoS features:
  - Packet classification marking
  - Queuing
  - Scheduling
  - Rate-limiting
- Marking and queuing with 802.1p, ToS, DiffServ classification
- Globally shared rate-limiting queues

VoIP (OPTIONAL)

- 2 separate POTS lines SIP (RFC3261)
- Up to 5 ringer equivalence numbers (REN)
- DTMF signaling:
  - SIP INFO
  - Inband
  - Auto
  - RFC 2833
- Caller ID support (DTMF/FSK)
- CLIR
- 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
- Modemo or fax detection
- G.165 echo cancellation

MANAGEMENT & MONITORING

- 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
  - DynDNS
  - Status and monitoring
- Monitoring via telemetry streaming (ICONS)
- L1 and L3 filters for all local services
- SSHv2 with key authentication
- Zero-touch provisioning with DHCP, TFTP, HTTP, FTP, or TR-069
- TR-069 with TLS:
  - TR-104 (VoIP)
  - TR-181 (Network)
- SNMP v1/v2
- CLI with auto-completion
- Extensive debug possibilities
- Packet dumping
- All settings are stored locally in flash memory
- Automatic firmware and configuration update (polling)
- Dual bank flash memory with fail-safe firmware upgrading
- LED indicators brightness configurable by operators or end users
- Hardware watchdog
- Wake-on-LAN for the web interface and CLI

OPERATIONAL SPECIFICATIONS

- DC 12 V input
- Power consumption maximum: 26.5 W
- Power consumption in idle state: 6.8 W
- Operating temperature: 5°C – 45°C
- Storage temperature: -20°C – 85°C
- Humidity: 5% – 95% (non-condensing)

PHYSICAL SPECIFICATIONS

CASING

- Weight: 500 g
- Size: 215 x 215 x 50 mm (W x H x D)
- Front LED indicators configurable by operators or end users.
  - Power or WAN status such as link, traffic, or provisioning
  - VoIP ports
  - Wi-Fi
- Status LED indicators for link, traffic, and duplex for each LAN port
- WPS button

INCLUDED IN THE BOX

- Icotera i4850 gateway
- 12 V power supply unit
- Additional label with Wi-Fi credentials
- Ethernet cable

Icotera i4850 residential router configuration possibilities

Reset Phone2 Phone1 USB Port4 Port3 Port2 Port1 WAN on/off Power

Gateway interface configurations

Model	Uplink	LAN	USB	POTS	Wi-Fi	Antennas
i4850-20	1G WAN	4x 1G LAN	2x	2x	802.11b/g/n + 802.11ac	2x2 + 4x4 Int.
i4850-25	1G WAN	4x 1G LAN	-	-	802.11b/g/n + 802.11ac	2x2 + 4x4 Int.

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

Wi-Fi 6 ACCESS POINT

i3560-series
Residential Wi-Fi Access Point

The i3560 Wi-Fi access point takes performance to the next level with best-in-class Wi-Fi 6, the premium configuration of 5x5 + 4x4 guarantees maximum range and performance in all cases. To interconnect with the rest of the network, the i3560 features 2 gigabit LAN ports. Special attention has been put into creating a beautiful, minimalistic yet flexible design, which fully matches the modern home.

• Best possible Wi-Fi 6 configuration
• Non-blocking offloaded architecture
• Modern Scandinavian design
• Fully managed

Flexible installation
The i3560 is designed for both wall mount and free-standing. In any configuration, it allows for practical cable management, easy access to user-configuration buttons, and intuitive LEDs for easy troubleshooting.

Easy cable management
With all interfaces hidden practically on the back of the i3560, all cables can be managed in an easy way regardless of the installation method. Ports are coloured for intuitive installation for first-time users.

Icotera

i3560 Residential Wi-Fi 6 Access Point

FEATURES

- Best-in-class Wi-Fi 6 solution
- Award-winning industrial design
- Optional operator branding
- Customized firmware
- Wi-Fi link rate up to 6.2 Gbps

NETWORK COMMUNICATION
LAN INTERFACE

- 2x 1G LAN
- Auto-negotiation for speed and duplex
- 64-byte forwarding at line rate

LAYER 2

- IGMP v1/v2 snooping
- Transparent IPv6 forwarding
- 2k address entries

Wi-Fi INTERFACES

- Advanced WMM designed for long-range and resilient video and voice delivery
- Authentication methods:
  - Open
  - WPA2
  - WPA3-Personal
  - WPA3-Personal Transition Mode
- Up to 8 SSIDs
- Beamforming
- Band steering and client roaming
- Neighbour scanning
- Advanced channel selection
- Advanced dynamic frequency selection (DFS) mechanism
- Software Tx power control
- Wireless client isolation

Wi-Fi 6

- 802.11ax 5x5:5 5 GHz + 4x4:4 2.4GHz
- BW support: 20 MHz, 40 MHz, 80 MHz
- Modulation support: MCS 0-11
- MU-MIMO and OFDMA
- Up to 1024-QAM modulation
- Support for unequal MCS
- Support for LDPC, STBC

Wi-Fi 5

- 802.11ac Wave-2 5x5:5
- BW support: 20 MHz, 40 MHz, 80 MHz, 160 MHz
- Modulation support: MCS 0-11
- MU-MIMO
- Up to 1024-QAM modulation
- Support for LDPC, STBC

Wi-Fi 4

- 802.11b/g/n 4x4:4
- MIMO
- Modulation support: MCS 0-76

MANAGEMENT & MONITORING

- Monitoring via telemetry streaming (ICONS) when the access point is connected to the Icotera i4882 or Icotera i4883 gateway
- L1–L3 filters for all local services
- SSHv2 with key authentication
- Web interface for end users:
  - Wi-Fi
  - LAN network
  - Firmware upgrade
  - Status and monitoring
- Zero-touch configuration with TR-069 and TR-181 or via the local gateway
- All settings are stored locally in flash memory
- Dual bank flash memory with fail-safe firmware upgrading

OPERATIONAL SPECIFICATIONS

- DC 12 V input ±10%
- Power consumption maximum: 26 W
- Power consumption in standby mode: 13 W
- Operating temperature: 0 – 45°C
- Storage temperature: -20 – 85°C
- Humidity: 5% – 95% (non-condensing)

PHYSICAL SPECIFICATIONS
CASING

- Size: 160 x 162 x 42 mm (W x H x D)
- Weight: 460 g
- Front RGB LED indicator (power or WAN status such as link, traffic, or provisioning)
- Status LED indicators for link, traffic, and duplex for each LAN port
- LED auto off
- WPS button

INCLUDED IN THE BOX

- Icotera i3560 access point
- 12 V power supply unit
- Additional label with Wi-Fi credentials
- Ethernet cable

Icotera i3560 interface configuration

| LAN1 | LAN2 | WPS | RESET | POWER | ON/OFF |

Model	LAN	Wi-Fi 6	Wi-Fi 5	Wi-Fi 4
i3560-00	2x 1G LAN	5x5:5 5 GHz + 4x4:4 2.4GHz	5x5:5	4x4:4

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

Wi-Fi 5 ACCESS POINT

i3550-series
Residential Access Point

The Icotera i3550 is a Wi-Fi access point, repeater, Ethernet and wireless bridge. It delivers 1733 (4x4) + 300 (2x2) Mbps Wi-Fi throughput and includes the latest 4x4:4 802.11ac Wave 2 & 2x2:2 bgn Wi-Fi standard.

- State of the art 4x4 Wave 2 MU-MIMO Wi-Fi with multiple Wi-Fi access points, client roaming, beamforming, and band steering
- Ease of use and installation
- Vendor independent
- Award-winning industrial design
- Lowest Total Cost of Ownership

Remote management
CWMP (TR-069, TR-181) support. Also supports a local web interface, configuration by the local gateway.

2 Gigabit LAN ports
With full IGMP and multicast support to allow for easy in-home installation and network expansion.

Easy and simple installation
Designed for installations by end-users, it's plug and play!

Expand the wireless home
Without complicated configuration, the i3550 simply configures itself and other Icotera network products to deliver the best possible networking experience whether it be cabled or wireless using techniques such as wireless roaming, and secure authentication.

Backward compatible
Compatible with 802.11a/b/g/n/ac wireless standards.

MSSID (Multi SSID)
Multiple SSIDs can be created to allow different users access to the Internet network, even creating public hotspots can be done simply with a click of a button.

Designed for the operator
But with the customer in mind. The operator will always have the possibility to support their clients with full remote access for monitoring and debugging.

Advanced wireless security
WPA2-PSK, WPA2-802.1x.

Great aesthetic design
Both in form and shape the i3500 has great design attributes, but it also does an outstanding job making itself hidden by only using the LED indicators when there is actually something to tell – and that in the most intuitive way possible.

Icotera

i3550 Residential Access Point

FEATURES

- Best-in-class Wi-Fi 5 solution
- Award-winning industrial design
- Low power consumption
- Optional operator branding
- Wi-Fi link rate up to 2.1 Gbps

NETWORK COMMUNICATION
LAN INTERFACE

- 2x 1G LAN
- Auto-negotiation for speed and duplex
- 64 byte forwarding at line rate

LAYER 2

- 8 bridge instances
- IGMP v1/v2 snooping
- Wi-Fi support
- Transparent IPv6 forwarding
- 2k address entries
- 802.1x

Wi-Fi INTERFACES

- Authentication methods:
  - Open
  - WPA2
- Up to 8 SSIDs
- Advanced channel selection
- Full ETSI channel plan including dynamic frequency selection (DFS)
- Software Tx power control
- Neighbour scanning
- Wireless client Isolation
- Band steering
- Client roaming

Wi-Fi 5

- 4x4 Wave 2 MU-MIMO
- 5 GHz band with 256-QAM and 80 MHz
- Beamforming
- LDPC + STBC

Wi-Fi 4

- 802.11b/g/n 2x2:2 MIMO
- 2.4 GHz band with 64-QAM and 40 MHz

MANAGEMENT & MONITORING

- Monitoring via telemetry streaming (ICONS) when the access point is connected to the Icotera i4850, i5850, or i6850 gateway
- L1–L3 filters for all local services
- Web interface for end users:
  - Wi-Fi
  - LAN network
- All settings are stored locally in flash memory
- Zero-touch configuration with DHCP/TFTP, via TR-069 and TR-181 or via the local gateway
- Automatic firmware and configuration update (polling)
- Dual bank flash memory with fail-safe firmware upgrading

OPERATIONAL SPECIFICATIONS

- DC 12 V input
- Power consumption maximum: 13 W
- Power consumption in idle state: 5.5 W
- Operating temperature: 0°C – 45°C
- Storage temperature: -20°C – 85°C
- Humidity: 5% – 95% (non-condensing)

PHYSICAL SPECIFICATIONS
CASING

- Weight: 318 g
- Size: 152 x 152 x 42 mm (W x H x D)
- Front LED indicator (power or WAN status such as link or provisioning)
- Status LED indicators for link, traffic, and duplex for each LAN port
- WPS button

INCLUDED IN THE BOX

- Icotera i3550 access point
- 12 V power supply unit
- Additional label with Wi-Fi credentials

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i3550 residential access point configuration possibilities

Power | Port1 | Port2 | On/Off | Reset
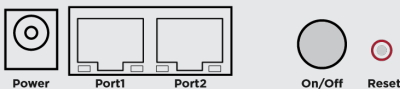
#### Interface configurations

Model	LAN	Wi-Fi
i3550-00	2x 1G LAN	802.11a/n/ac 4x4:4 + 802.11b/g/n 2x2:2

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

IN-HOME REAL TIME NETWORK MONITORING

including in-home end-user devices

- Valuable insights through real-time network monitoring
- Flexible widgets based on advanced algorithms
- Quicker troubleshooting
- Reduce and shorten support calls
- Increased customer satisfaction
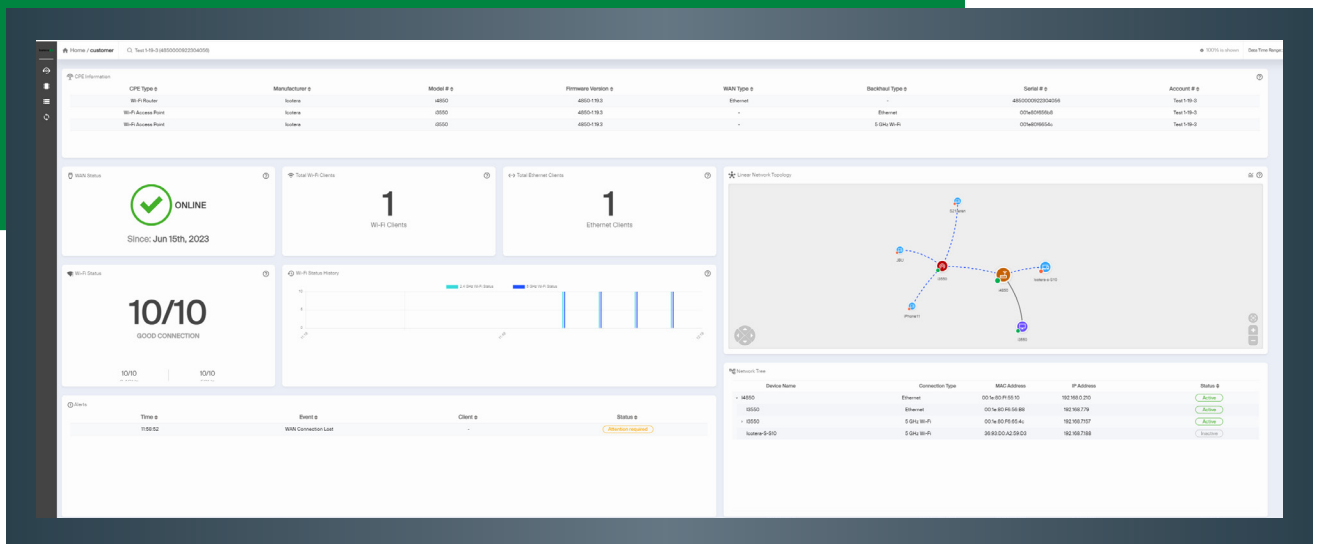
An intuitive overview of alerts and device status improves efficiency and speeds up root-cause analysis.

New level of ISP support

ICONS is an in-home monitoring tool for ISPs enabling 1st, 2nd and even 3rd line supporters to troubleshoot customer issues efficiently.

Through intelligent insights based on advanced algorithms, ICONS makes it possible to reduce the time on support calls dramatically. With a real-time view directly on customer CPEs and even end-user devices, ICONS is helping support personnel to efficiently solve issues with the customer on a one-call basis. Using the Time-Picker functionality helps the supporter to look for periodic problems and efficiently identify the root cause.

Icotera

Dynamic widgets for customised dashboards
ICONS is a widget-based system, where dashboards are designed to match the different expertise levels.
The support supervisor creates the user groups; their rights and even the design of the dashboard.

1st, 2nd and 3rd line supporters do not have the same technical insights and hence should not be presented
with the same type of data. While the 1st line supporter prefers intuitive data and colour-coded graphs, the
more experienced 2nd line supporter needs a more detailed view of network- and Wi-Fi metrics to do in-depth
troubleshooting.

3rd line supporters like senior network engineers, will typically look at overall trends and global network
performance and need data supporting that.
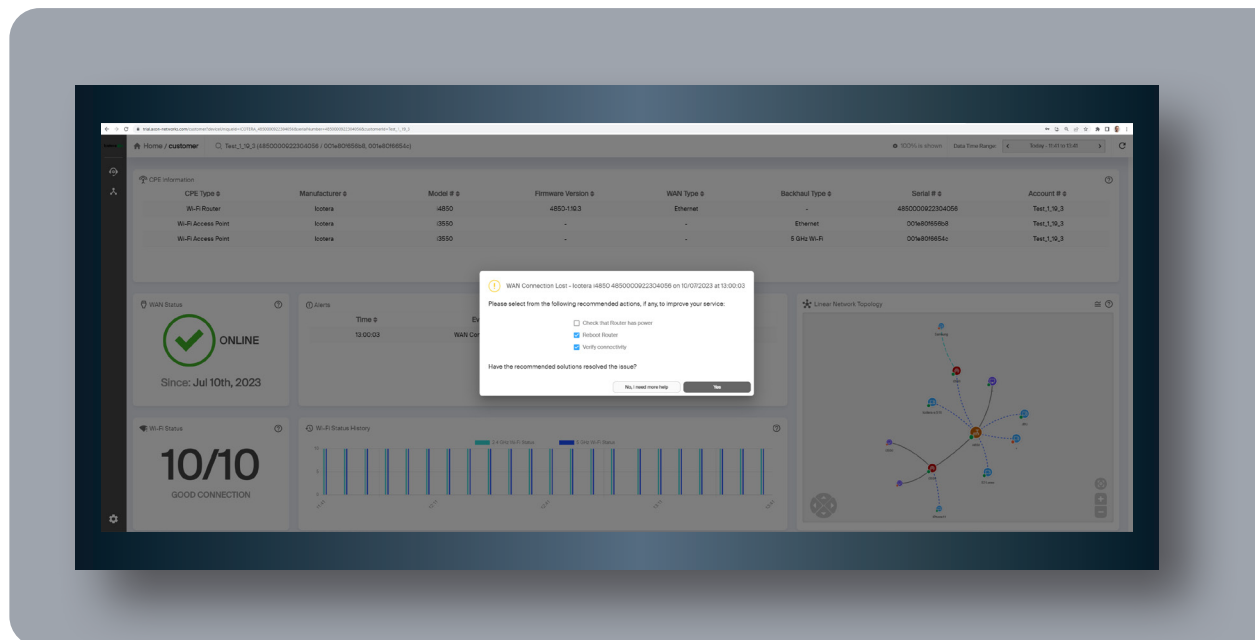
When an issue is resolved, data is collected to build a knowlegde database for advicing other supporters.
Future option is to do CPE-adjustments automatically before the issue appears.

Wi-Fi network analysis
From the very moment a customer calls the support desk, time is a critical factor. Often the customer is
already frustrated about his in-home network and waiting time on rebooting and random troubleshooting
is not the way to go. It's crucial quickly to acknowledge or politely reject the issues by having the right data
available and have a convincing and professional approach to the customer.

Insights also help reduce the amount of units replaced by support because the root cause was not identified
and a replacement of the CPE was the only way out. Handling, shipping and refurbishing of units typically take
a big part of the revenue.

MAKE THE MOST OF YOUR Wi-Fi NETWORK

Intelligent self-service App secures easy onboarding and the best in-home Wi-Fi performance

On-boarding and Home Screen

- Intelligent QR-based on-boarding feature makes it possible to install and connect the router in a few steps

- Home Screen provides overview of devices and current Wi-Fi status
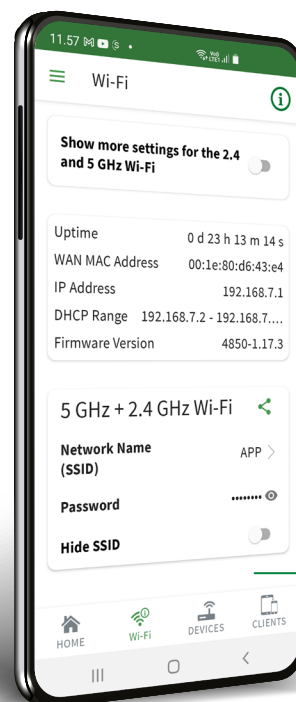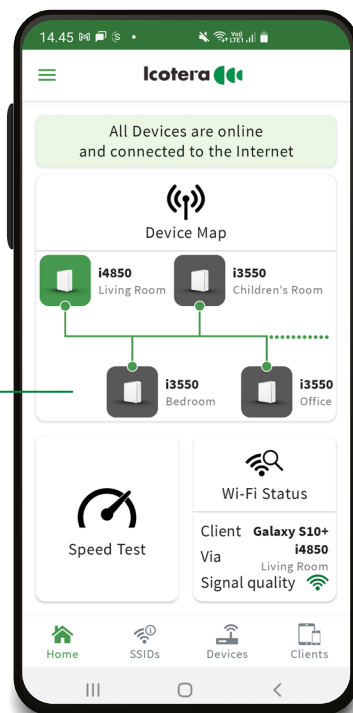
SSID and Password change

- Customer is encouraged to change SSID and Password during the onboarding procedure

- This improves security and reduce support calls

Optimise your customers' Wi-Fi experience with an intuitive and comprehensive Smartphone App.

The App includes an intelligent QR-based onboarding feature enabling the customers to install and connect the new router in a few steps. After completion, the full feature set of Wi-Fi control and -optimisation is available. All Icotera routers and access points in the network will automatically be identified and listed. Devices can be identified with a simple tap and new devices can be added. When an access point is in-stalled, the clear colour coding indicates if the loca-tion is optimal or should be changed.

The App easily identifies how well any client device in

the network is connected and where to. If a client has no connectivity or internet performance issues, the App can be used to quickly investigate what might be the problem. The ultimate blue-print of the connec-tion can be done by initiating a speed test measuring up- and download speeds as well as latency jitter directly in the App.

Increased customer experience

The intelligent self-service App helps free support team resources as it enables the customers to handle simple coverage issues or forgotten passwords them-selves. The increased customer control and faster res-olution of issues means better customer satisfaction and reduced churn.

Icotera

Easy overview of all connected clients

- All clients are easily identified and connectivity status checked

- Click on a device to see connection details
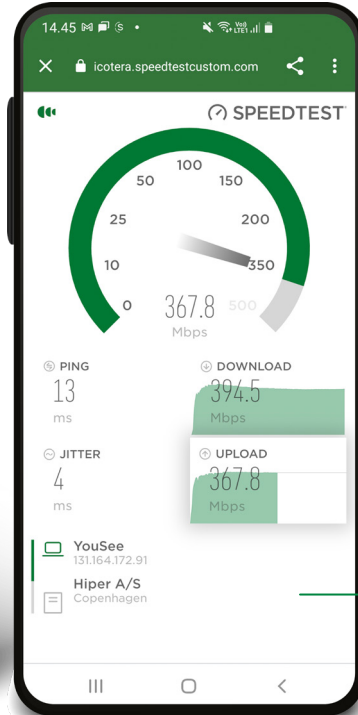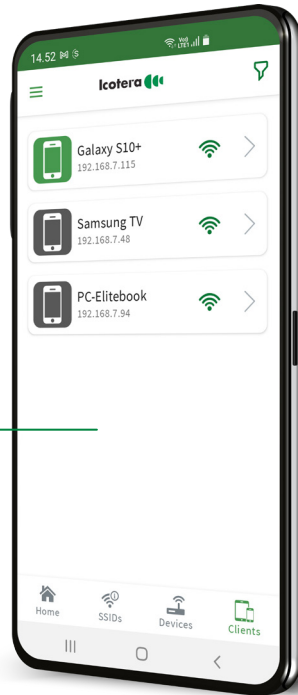
Integrated Ookla™ Speedtest

- Shows current throughput performance

- Download, Upload, Ping and Jitter

Easy and quick to validate the quality and performance of the in-home Wi-Fi network and optimise it if necessary

Most important Wi-Fi settings can be changed on the spot and results are validated through instant speed tests. Wherever the Smartphone or any other client is in the house, its momentary Wi-Fi signal strength will be displayed in the App.

- Intuitive customer-onboarding process
- Automated Device Scan and login procedure
- Initial change of SSID and password
- Optimise Access Point location
- Overview of all connected Devices and Clients
- Add new Access Points
- Ookla™ Speedtest

Device Screen

- Overview of connected devices and their associated end-user clients is shown

- When entering the Device Map a graphical representation of the network is shown
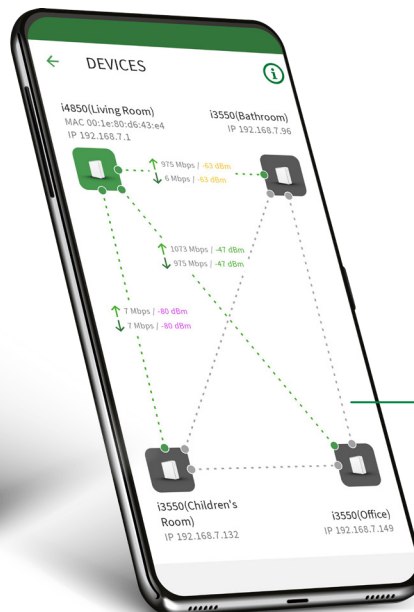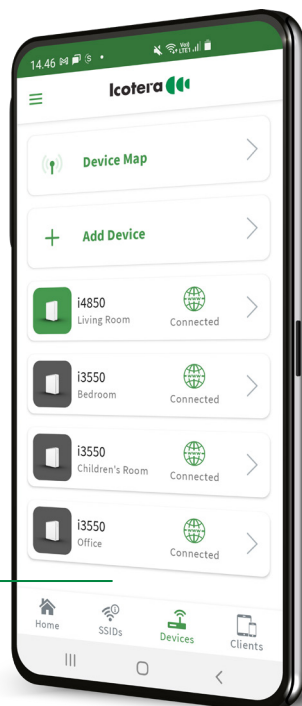
Color featured Device map

- Intuitive color coded interconnectivity status

- Optimize Access Point locations

Icotera