BETTER CONNECTED LIVING

INTELLIGENT FTTH SOLUTIONS

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

Dates





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 bestin-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 costeffective 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...



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 internet 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

cooolbox

"We spent a lot of time researching different companies and decided to go with lcotera 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

grain

"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



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-users 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.



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

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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.

i6400 Residential Switch

FEATURES

- Vendor-independent
- Award-winning industrial design
- Low power consumptionOptional 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:

i6400 residential switch configuration possibilities

LAN1

Gateway interface configurations

LAN

4x

4x

4/5x

LAN2

LAN3

USB

1x

1x

1x

LAN4

CATV

1x

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

USB

Bottom

FTU / Patch

FTU / Patch

Patch (Roll-up)

Reset

0

τv

www.icotera.com

Power on/off

Model Uplink

i6407 RJ45/SFP

BX20

BX20

 \odot

i6401

i6405

- Short
- Open
- Impedance mismatch
- Cable length

Sabie lengen

LAYER 2

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

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 75 Ω
- Frequency range: 45 MHz -890 MHz
- Slope (maximum): 5 dBRF output level (4% OMI,
- -8 dBm to 0 dBm): 80 \pm 2dB μ V
- CNR ≥ 45dB • CSO ≥ 60dB
- C30 ≥ 60dB • CTB ≥ 60dB
- Management via OMCI
 - nanagement via orre

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 streamsProvides 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 testingAutomatic 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)

CATV LED indicator for the signal

and duplex for each LAN port

FIBER TERMINATIONS

installation (optional)

• Icotera i6400 switch

• 12 V power supply unit

• FTU support for:

• Slide-on mechanism for easy

• Status LED indicators for link, traffic,

Gas block unit (sold separately)

WDM filter (sold separately)

• Blind cover for the FTU (optional)

• 2 labels with the PON serial number

7

Fiber termination unit (optional)

INCLUDED IN THE BOX

• Weight: 388 g

registration status

status

 WAN LED indicator for the connection status

• VOIP LED indicators for the

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.

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110		 -	

Patch installation

FTU installation



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) • 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

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

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**

Optical connector: SC/APC

• RF output impedance 75 Ω

Slope (maximum): 5 dB

RE output level (4% OML

• Management: via OMCI

• BS 6312 compliant socket

• SIP (RFC3261) over IPv4

VoIP (optional)

RF PARAMETERS

• WDM filter

• CNR > 45dB

• CSO > 60dB

• CTB ≥ 60dB

• 1 POTS line

- Input wavelength: 1550 nm 1560 nm
- Operating optical input power: -10 dBm to 0 dbm

• Frequency range: 45 MHz - 890 MHz

-8 dBm to 0 dBm): 80 ± 2 dBµV

- Class B+ optics

- Open
- Impedance mismatch
- Cable length

- 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)
- Nokia ISAM 7330/7360 • Huawei MA5600/5800
- ZTE C320

PHYSICAL

the right side

bottom side

Wall mountable

Icotera i5200 ONT

• 12 V power supply unit

for Schuko installation

status

connection status

CASING

SPECIFICATIONS

• Size: 126 x 140 x 28 mm (W x H x D)

• Area for an optional PON label with

the serial number - 16 x 30 mm on

LAN LED indicator for the link status

• The i5205 model supports slide-on-

mechanism for easy installation or Schuko in-wall installation

• 2 labels with the PON serial number

• The i5205 model includes the FTU

SUPPORTED PLATFORMS

INCLUDED IN THE BOX

• CATV LED indicator for the signal

Product SN, PON SN, FW version

and MAC address label on the

• PON LED indicator for the

FIBER TERMINATIONS

or 101 x 106 x 22 mm (i5205)

• Weight: 222 g or 126 g (i5205)

• The ONT supports other specific platforms. For more information, contact our Sales department at sales@icotera.com

i5200-series residential GPON ONT configuration possibilities



Gateway interface configurations

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

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



Wall plate

9

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.



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

LAN1

Gateway interface configurations

Uplink LAN ports

4x1G 1x2.5G

GPON/ MSGW

Stateful Firewall

Power on/off

0

Model

i5900-00

• IPv4 - SNAT, DNAT, DMZ

- DNS proxy - DHCP client and server
- IPv6 - Prefix delegation
- PPPoE (termination)
- 32k NAT/NAPT flows
- SW connection tracking
- 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 gueues
- 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 ± 2dBµ∨
- CNR > 45dB

i5900 residential ONT configuration possibilities

LAN3

USB 2.0

ports

0

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

LAN2

POTS ports

2

- CSO ≥ 60dB • CTB ≥ 60dB
- Management via OMCI

LAN4

USB 3.0

ports

0

2.5G LAN

Wi-Fi

N/A

Antennas

N/A

VolP

• 2 separate POTS lines SIP (RFC3261)

LED brightness configurable by the

Wake-on-LAN for the web interface

• Power consumption maximum: 11 W

Operating temperature: 5°C - 45°C

• Humidity: 5% - 95% (noncondensing)

PHYSICAL SPECIFICATIONS

• Size: 190 x 150 x 32 mm (W x H x D)

• PON LED indicator for the connection

• LAN LED indicator for the link status

• CATV LED indicator for the signal

and duplex for each LAN port

FIBER TERMINATIONS

Slide-on mechanism for easy

• LED auto off after timeout period

- Gas block unit (sold separately)

- WDM filter (sold separately)

Blind cover for FTU (optional)

INCLUDED IN THE BOX

• 2 labels with the PON serial number

SUPPORTED PLATFORMS

• Status LED indicators for link, traffic,

• VOIP LED indicators for the

registration status

• Storage temperature: 5°C - 85°C

Power consumption in idle state: 5.5 W

operator or end-user

Hardware watchdog

OPERATIONAL

• DC 12 V input

CASING

status

status

installation

FTU support for

Icotera i5900 ONT

• 12 V power supply unit

• Fiber termination unit

• Nokia ISAM 7330/7360

• ZTE C320

• Weight: 400 g

SPECIFICATIONS

and CLL

- Up to 5 ringer equivalence numbers (REN)
- DTMF signaling
- SIP INFO - Inband
- Auto
- REC 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

MONITORING

management

- LAN network

- Port forwarding

- NAT loopback

users

- DMZ

- DynDNS

• SNMP v1/v2

memorv

Phone1 Phone2 Reset

CATV output

High output

www.icotera.com

Packet dumping

update (polling)

firmware upgrading

- Modem or fax detection
- G.165 echo cancellation **MANAGEMENT &**

· Shared or separate IP interface for

· L1 and L3 filters for all local services

• Configurable web interface for end

Zero-touch provisioning with DHCP,

• TR-069 with TLS, supporting TR-104

• Firmware upgrade from a USB drive

• All settings are stored locally in flash

Automatic firmware and configuration

Dual bank flash memory with fail-safe

for VoIP and TR-181 for network

• SSHv2 with key authentication

• Telnet with authentication

- Status and monitoring

• CLI with auto-completion

• Extensive debug possibilities

TV

Gateway top

Printed English port + logo

Gateway bottom

FTU

TFTP, HTTP, FTP, or TR-069

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.



i6900 Multi-Service Gateway

I AYER 3

Virtual interfaces

routing/NAT

monitoring

- DNS proxy

• IPv4

• IPv6

QoS

Stateful firewall

- SNAT, DNAT, DMZ

- Prefix delegation

• PPPoE (termination)

32K NAT/NAPT flows

• RTSP stateful proxy

Guest access

Laver2 mode)

SW connection tracking

• Protocol helpers for: SIP, RTSP, FTP,

TFTP, PPTP, L2TP, and IPSec

Support for Strict Priority and

(available for Layer2 mode)

(available for Layer2 mode)

(available for Layer2 mode)

CATV (OPTIONAL)

Optical connector: SC/APC

• RF output impedance 75Ω

OPTICAL PARAMETERS

RF PARAMETERS

- 890 MHz

Weighted Fair Queuing (available for

8 upstream or downstream queues

Class of service based on VLAN-ID,

802.1p (available for Layer2 mode)

Marking and remarking of DSCP/ToS

• Input wavelength: 1550 nm - 1560 nm

• Input level range: -9 dBm to 2 dBm

Marking and remarking of 802.1p

- DHCP client and server

• Multiple WAN interfaces in one router

• IGMP v1/v2 proxy with fast-leave and

• 64 byte forwarding at line rate with

FEATURES

- Vendor-independent
- Award-winning industrial design
- Low power consumptionOptional operator branding

NETWORK COMMUNICATION PON 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
- 1x: 1310 nm, Rx: 1480 nm 160
- Full-duplex transmission
 Operating distance: 201
- 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 I AN
- 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 forwardingForwarding up to 2k MAC addresses
- Porwarding up to 2k MAC address
 Multicast support
- VLAN translation

Power on/off

Model

i6901-20

i6902-20

i6905-20

 \odot

Port1

Gateway interface configurations

Uplink

P2P MSGW

P2P MSGW

P2P MSGW

- VLAN 802.1Q support
- Port mirroring
- Advanced QoS for wholesale support
 - 890 MHz
 Frequency range Filter2: 590 MHz -
 - 890 MHz
 Slope (maximum): 5 dB

• Frequency range pass-band: 45 MHz

Frequency range Filter1: 430 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

Phone1 Phone2 Reset

Antennas

None

None

None

Wi-Fi

None

None

None

- CNR≥45dB
- CSO≥60dB
- CTB≥60dB

i6900 multi-service gateway configuration possibilities

POTS

ports

2x

2x

Micro SD

No

No

No

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

Port3

LAN ports

4xGE

4xGF

4xGF

Management via OMCI

- VoIP (optional)
- 2 separate POTS lines SIP (RFC3261)
- Up to 5 ringer equivalence numbers
- (REN) • DTMF signaling - SIP INFO
- Inband
- Auto - REC 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
- NAT toopback
- 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

Gateway

top

Printed: English ports + logo

Printed: English

Printed: English ports + logo Gateway bottom

FTU

ETU

FTU

CATV

output

1 x

1 x

www.icotera.com

- 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)

WAN LED indicator for the connection

LAN LED indicator for the link status

• CATV LED indicator for the signal

and duplex for each LAN port

FIBER TERMINATIONS

Slide-on mechanism for easy

• LED auto off after timeout period

Status LED indicators for link, traffic,

Gas block unit (sold separately)

- WDM filter (sold separately)

• Blind cover for FTU (optional)

INCLUDED IN THE BOX

2 labels with the PON serial number

13

Icotera i6900 gateway

12 V power supply unit

• Fiber termination unit

• VOIP LED indicators for the

registration status

• Weight: 462 g

status

status

installation

FTU support for

RESIDENTIAL XGS-PON ONT

i7208

Open Access XGS-PON ONT



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.







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 GPON 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 L AN

· 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 Area for an optional PON label with firmware upgrading
- Hardware watchdog

OPERATIONAL SPECIFICATIONS

- DC 12 V input
- Power consumption in idle state:
- 35W • 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
- 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
- Power consumption maximum: 4.5 W $\,$ 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.

i7208 residential XGS-PON ONT



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



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



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 GPON 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 forwardingMulticast 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.

i7400 residential ONT configuration possibilities





Gateway interface configurations

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



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.



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

- 1 x RJ45 10/100/1000/2500 Base-T(x)
- Full-duplex transmission
- Auto-negotiation for speed and duplex
- Optional Energy-Efficient Ethernet (EEE)

LAN INTERFACE

- 2 x RJ45 10/100/1000 Base-T(x) + 1 x RJ45 10/100/1000/2500 Base-T(x)
- 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 longrange and resilient video and voice deliverv
- Authentication methods:
- Open
- WPA2 - WPA3
- 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

WAN

Model

i4882

i4883

• Meshing — a built-in controller for Icotera i3560 access points

i4880 configuration possibilities

2.5G LAN

Gateway interface configurations

Uplink

Wi-Fi 6

- 802.11ax 8x8:8 5 GHz + 4x4:4 2.4 GHz 32k HW connection tracking
- BW support: 20 MHz, 40 MHz, 80 MHz RTSP stateful proxy
- 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

LAN

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

100/1000/2500 BaseT(x) 2 x 10/100/1000 BaseT(x) + 100/1000/2500 BaseT(x)

100/1000/2500 BaseT(x) 2 x 10/100/1000 BaseT(x) + 100/1000/2500 BaseT(x)

- PPPoF (termination)

- Protocol helpers for: SIP, RTSP, FTP, TFTP, PPTP, L2TP, and IPSec

Monitoring via telemetry streaming

L1 and L3 filters for all local services

• Zero-touch provisioning with DHCP

• Firmware upgrade from a USB drive

• All settings are stored locally in flash

· Dual bank flash memory with fail-safe

Wake-on-LAN for the web interface

• L1 and L3 filters for all local services

• 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

• Size: 234 x 177 x 53 mm (W x H x D)

• Weight: 844 g without VoIP, 869 g

operators or end users.

Front LED indicators configurable by

• Status LED indicators for link, traffic,

19

and duplex for each LAN port

INCLUDED IN THE BOX

• Icotera i488x gateway

• 12 V power supply unit

- Power or WAN status such as link or

• Extensive debug possibilities

SSHv2 with key authentication

(ICONS)

and TR-069

• SNMP v1/v2

memory

end users

and CLI

• TR-069 with TLS:

- TR-104 (VoIP)

Packet dumping

TR-181 (Network)

firmware upgrading

Hardware watchdog

OPERATIONAL

• DC 12 V input

CASING

with VoIP

provisioning

• WPS button

- VolP

- Wi-Fi

SPECIFICATIONS

LED indicators brightness

configurable by operators or

Guest access

USB

• 1 x USB 2.0 host port

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

Codec negotiation

MONITORING

management

- PPPoE WAN

- Guest network

- Port forwarding

- Status and monitoring

- NAT loopback

- LAN network

users

- Wi-Fi

- DM7

RESET

 \bigcirc

WPS

 $\overline{}$

POTS

N/A

2x

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USB

1 x USB 2 0

1 x USB 2.0

POWER ON/OFF

Wi-Fi

Wi-Fi 6

Wi-Fi 6

Antennas

8x8 + 4x4

8x8 + 4x4

- DvnDNS

Modem or fax detection

• G.165 echo cancellation

MANAGEMENT AND

• Shared or separate IP interface for

Configurable web interface for end

- Forward on busy - Forward on no answer
- Call waiting
- Codecs:
- G.711A a-law G.711U μ-law - G.722

- G.729

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.



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

- 1 x RJ45 connector 10/100/1000 Base-T(X)
- Full-duplex transmission
- Auto-negotiation for speed and duplex
- Optional Energy-Efficient Ethernet (EEE)

LAN INTERFACE

- 4 x RJ45 connectors 10/100/1000 Base-T(X)
 Auto-negotiation for speed and
- Auto-negotiation for speed and duplex
- Integrated cable tester to detect the following metrics:
- Short
- Open
- Impedance mismatch
 Cable length
- 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

Icotera i4850 residential router configuration possibilities

Gateway interface configurations

4x

4x

4x

USB

2x

2x

POTS

2x

2x

Model Uplink LAN

i4850-20 RJ45

i4850-21 RJ45

14850-25 R.145

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 markingVLAN support
- 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 router64 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)
 - SW connection tracking
- 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
- 1 x USB 2.0 host port

Wi-Fi

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

802.11b/g/n + 802.11ac 2x2 + 4x4 Int.

802.11b/g/n + 802.11ac 2x2 + 4x4 Int.

80211b/a/n + 80211ac 2x2 + 4x4 Int

Antennas

QoS

 Support for 8 configurable upstream queues Monitoring via telemetry streaming

L1 and L3 filters for all local services

• Zero-touch provisioning with DHCP,

• Firmware upgrade from a USB drive

• All settings are stored locally in flash

• Automatic firmware and configuration

• Dual bank flash memory with fail-safe

• Wake-on-LAN for the web interface

• Power consumption maximum: 26.5 W

• Power consumption in idle state:

• Operating temperature: 5°C - 45°C

• Storage temperature: -20°C - 85°C

• Humidity: 5% - 95% (non-condensing)

PHYSICAL SPECIFICATIONS

• Size: 215 x 215 x 50 mm (W x H x D)

operators or end users.

traffic, or provisioning

Icotera i4850 gateway

• 12 V power supply unit

• Front LED indicators configurable by

- Power or WAN status such as link,

• Status LED indicators for link, traffic,

21

and duplex for each LAN port

INCLUDED IN THE BOX

SSHv2 with key authentication

TFTP, HTTP, FTP, or TR-069

(ICONS)

• TR-069 with TLS:

- TR-104 (VoIP)

Packet dumping

update (polling)

firmware upgrading

Hardware watchdog

OPERATIONAL

SPECIFICATIONS

• LED indicators brightness

configurable by operators or

memory

end users

and CLI

• DC 12 V input

6.8 W

CASING

• Weight: 500 g

- VoIP ports

• WPS button

- Wi-Fi

• SNMP v1/v2

TR-181 (Network)

CLI with auto-completion

Extensive debug possibilities

- Layer 2 and 3 QoS features:
 Packet classification marking
 - Queuina
- 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 dialplanCalled party (B-Number)
- manipulation
- Class 5 services:
 - Forward all calls - Forward on busy
 - Forward on no answer

• Modemo or fax detection

• Shared or separate IP interface for

• Configurable web interface for end

G.165 echo cancellation

MANAGEMENT &

MONITORING

management

- PPPoF WAN

- Guest network

- LAN network

- NAT loopback

Port forwarding

- Status and monitoring

users:

- Wi-Fi

- DMZ

- DynDNS

Power supply unit type

ΕU

UK

ΕU

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- Call waiting
- Codecs:
 G.711A a-law
- G.711Δ a-law - G.711U μ-law
- G.722
- G.729 • Codec negotiation

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.



i3560 Residential Wi-Fi 6 Access Point

FEATURES

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

NETWORK COMMUNICATION LAN INTERFACE

- 2 RJ45 connectors 10/100/1000 Base-T(x)
- Auto-negotiation for speed and duplex
- 64-byte forwarding at line rate **LAYER 2**

- IGMP v1/v2 snoopingTransparent IPv6 forwarding
- 2k address entries

Wi-Fi INTERFACES

- Advanced WMM designed for longrange and resilient video and voice
- delivery • Authentication methods:
- Open - WPA2
- WPA3
- 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
- MU-MIMO and OFDMA
 Up to 1024-QAM modulation
- Op to 1024-QAM modulat
 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 modulationSupport 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 authenticationWeb 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 offWPS button

INCLUDED IN THE BOX

- Icotera i3560 access point
- 12 V power supply unit

Icotera i3560 interface configuration



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.



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

- 2 RJ45 connectors 10/100/1000 Base-T(x)
 Auto-negotiation for speed and
- Wi-
- 64 byte forwarding at line rate

LAYER 2

duplex

- 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
- Beamforming
 LDPC + STBC
- LDFC -

Wi-Fi 4

- 802.11b/g/n 2x2:2 MIMO2.4 GHz band with 64-QAM and
- 2.4 GHZ band with 64-0 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 servicesWeb interface for end users:
- Wi-Fi - I AN 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
- Automatic firmware and configuratic 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

i3550 residential access point configuration possibilities



Interface configurations

Model	LAN
i3550-00	2x

Wi-Fi 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



Intuitive overview on 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.



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 onboarding 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 installed, the clear colour coding indicates if the location 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 connection 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 themselves. The increased customer control and faster resolution of issues means better customer satisfaction and reduced churn.



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

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