BETTER CONNECTED LIVING

Intelligent FTTH Gateways,
Ethernet Routers and Access Points

Icotera

ABOUT ICOTERA

Icotera is a leading European developer and manufacturer of standard-setting Fiber-to-the-Home (FTTH) CPE solutions. We pride ourselves on creating and delivering products with superior design, quality and performance, and are dedicated to providing fiber network operators with tailor-made, flexible and cost-effective solutions that fit their individual needs.

We are a technological leader in our field, with more than ten years of experience in fiber solutions. Our company headquarters are located in Denmark, while all of our R&D, manufacturing and customer support is in operation throughout Europe. Our hardware and software development is produced in-house, guaranteeing our customers the quality they need. We have proven our ability to adapt quickly and effectively to future technologies, working with customers to provide them with the services they require.

Our products and solutions are currently supporting the efforts of leading network operators throughout Europe, providing high-speed Internet broadband and content services to hundreds of thousands of private homes via the growing network of fiber-optic cables that are now being deployed across the continent.

Our mission is to enable our customers to deliver high quality FTTH solutions and services to their subscribers, providing them with additional revenue streams that contribute to their sustainable growth, both now and in the future.

Our goal is to provide our customers' subscribers with an innovative, 'Better Connected Living' experience.

WE AIM TO MAKE OUR CUSTOMERS SUCCESSFUL BY DELIVERING:

QUALITY THAT LASTS

State-of-the-art FTTH P2P and GPON solutions, crafted with superior quality of design, components, software, and manufacturing.

TAILOR-MADE SOLUTIONS

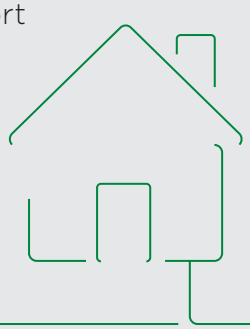
Solutions that exceed the required standards, with multiple management systems integrated along with in-house R&D, allowing us to meet our customers' individual needs and requirements.

INNOVATION PLATFORM

New and innovative applications and products that combined with high-speed Internet broadband, enhance the experience of every FTTH end-user.

24/7 SUPPORT

The highest level of in-house customer support and after-market services in the industry, enabling fast and reliable handling of feature request and day-to-day support.



CUSTOMER TESTIMONIALS

"Icotera was chosen as our CPE partner as we believed they were best placed to fulfil all of our technical requirements at the very best price. Their innovative system is easy to install, looks great and has proven to have a very high level of quality. Their technical support team is quick to respond to our requests, and issues are always fixed quickly. We have been very happy with this partnership."

Michael Lund, Operations Manager
Syd Energi A/S

"We were looking for a reliable CPE partner for a fiber broadband project in Jordan, which also happened to be Orange's first attempt to convert almost all services to IPv6. Icotera appeared very professional and technically competent, and turned out to be the only vendor who could deliver to our exact specifications. With Icotera's proven success in IPv6 and implementation flexibility, they became the natural choice for Orange."

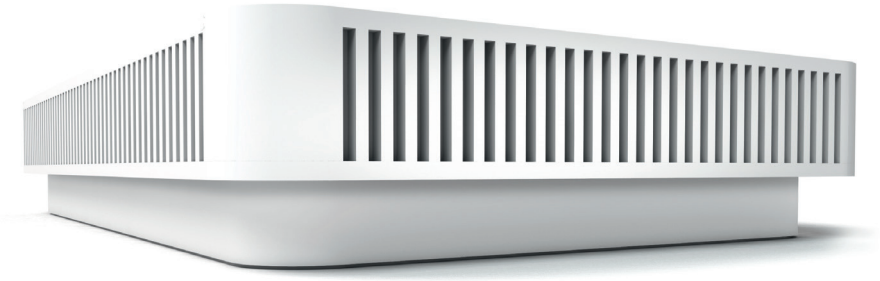
Nicola Fanous, Data Network Team Leader
Orange Jordan

"NTE considers Icotera to be a visionary fiber technology company, with many years of solid experience in P2P fiber CPE solutions. Icotera worked with us closely before, during and after the CPE selection phase, which made the overall experience a very positive one for both us and our customers. Looking into the future, Icotera has also been open-minded and solutionoriented to our new feature requests, and we therefore have great confidence in their ability to support our company in the future."

Tom André Sandal, Technical Manager
NTE

DESIGN THAT MAKES A DIFFERENCE

reddot design award
product design 2013



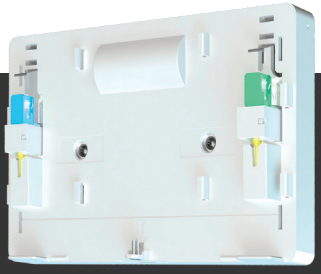
Unique Industrial Design

The housing of Icotera gateways 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 brand new standard for ease-of-installation and maintenance. This innovative design minimizes the total cost of ownership, delivering significant savings to our customers.

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.

Thanks to our belief in the best Danish practices in design and engineering, our units have even been awarded with the prestigious Red Dot award in product design.

It is not all about design though - optical fiber networks including the fiber infrastructure that sits within end-users households, benefits from an extremely long life, on a par with traditional telephony cabling. 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.

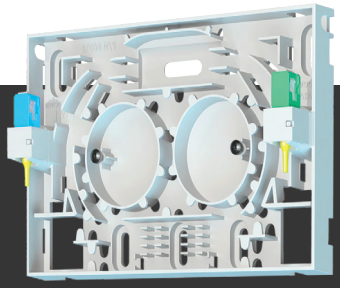


ADVANCED SLIDE-ON SYSTEM

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 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 the fiber installation, while minimizing labor 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 & installation
- Vendor independent
- Local 24/7 support
- Smart Home platform
- 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 wirespeed 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 optical signal (both CATV and DATA) and enable the user to 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
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.

Integrated Smart Home platform
The i6400 Layer 2 switch supports 3rd party Smart Home platforms via state-of-the-art low-consuming wireless technology. A Smart Home platform offers great solutions for end-users within Alarm & Surveillance, Energy Management and Home automation. Via a cloud-based platform the i6400 connects to third party device-hardware, which makes the possibilities for connecting devices close to endless. For the network operator or service provider, a Smart Home platform offers a unique opportunity for additional revenue streams and higher customer loyalty.

i6400 Residential Switch

FEATURES

- Award-winning industrial design
- Vendor-independent
- Integrated CATV solution (optional)
- Developed in Europe
- Optional operator branding
- Customized firmware
- Extensive IPv6 support
- Built-in Smart Home platform

NETWORK COMMUNICATION
WAN INTERFACE

- Single mode fiber (ITU-T G.652) SC/PC connector
- 100BaseBX10/20 compliant
- 1000BaseBX10/20 compliant
- Tx: 1310 nm, Rx: 1480–1600 nm
- Operating distance: 20 km
- Transmit power: -7 – -2 dBm
- Receive sensitivity: -3 – -23 dBm
- Class 1 laser product
- Jumbo packets
- DDM (optional), providing measurements of:
  - TX Power
  - RX Power
  - Temperature
  - Voltage
  - Current TX Bias
- Link propagation

WAN INTERFACE (i6407)

- 100/1000 SFP w/ DDM support
- 10/100/1000Base-T(x) RJ45-connector
- Combo or standalone mode
- Automatic uplink detection
- Link propagation
- Auto-negotiation for speed and duplex
- Auto MDI/MDX

LAN INTERFACE

- 4x 10/100/1000Base-T(x) RJ45 connector (5x ports for i6407 variant)
- Auto-negotiation for speed and duplex
- Auto MDI/MDX
- Jumbo packets
- Link propagation
- Cable tester, detects:
  - Short
  - Open
  - Impedance mismatch
  - Cable length

LAYER 2

- Jumbo packet forwarding
- OSI Layer 2 filtering
- 4k VLAN
- VLAN filtering
- VLAN remapping
- VLAN termination
- MAC limiting (1–254 or disabled)
- IGMP v1/v2 snooping
- MLD v1/v2 snooping
- QinQ
- Port mirroring
- Loop detection
- Broadcast suppression

LAYER 3

- IP source guard
- ARP inspection
- OSI Layer 3 and 4 filtering by ACLs

CATV (OPTIONAL)
OPTICAL PARAMETERS

- Saturation power: +2dBm
- Input level range: -10 to 0 dBm
- Input wave length: 1310/1550 nm
- Optical connector: SC/APC
- ITU-T G.652 Single Mode fiber
- Software monitoring of RX level in 0.1 dB steps
- Low-signal LED configurable

RF PARAMETERS

- RF connector: 75 Ohm "F"
- Frequency: 45-870MHz
- EIN @-10dBm: 4 pA/√Hz
- Tilt: 5 dB
- RF output AGC @-8 to 0 dBm (3.5% OMI): 80 dBuV
- Max. RF output @ 0 dBm (3.5% OMI): 96 dBuV
- CNR (CENELEC 42 channels): ≥ 51 dB
- CSO (CENELEC 42 channels): ≥ 60 dBc
- CTB (CENELEC 42 channels): ≥ 60 dBc
- RF filters (optional): up to 2
- Software adjustable RF output level w/AGC

USB

- 2.0 USB port
- Prepared for
  - Z-Wave
  - ZigBee
  - CAT-iq
  - Storage

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 firmware w/ fail-safe upgrading

OPERATIONAL SPECIFICATIONS

- DC12V input (±10%)
- Power consumption: 2.4-7.6W
- Operating temperature: 5 – 45°C
- Storage temperature: -20 – 85°C
- Humidity: 5% – 95% (non-condensing)

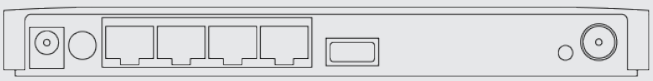
PHYSICAL SPECIFICATIONS
CASING

- Weight: 395 g
- Size: 190 x 132 x 48 mm (W x H x D)
- Front LEDs configurable by operator:
  - Power/WAN status (link/traffic/provisioning)
  - CATV (status/signal power)
- LAN status LEDs (link/traffic, duplex) per interface
- LED auto off after timeout period

FIBER TERMINATION UNIT (OPTIONAL)

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

i6400 Residential Switch
Configuration possibilities



Gateway Interface Configurations:

Model	Uplink	LAN	USB	CATV	Bottom
i6401	BX20	4x	1x	1x	FTU / Patch
i6405	BX20	4x	1x		FTU / Patch
i6407	RJ45/SFP	4/5x	1x		Patch (Roll-up)

NOTE: Please contact Sales for further details on information listed and feature requests.

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.

- Integrated ICONS remote monitoring solution
- Ease of use & installation
- Vendor independent
- Multi-Service Gateway for wholesales 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/ 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 (e.g. 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 firmware.

Integrated Smart Home platform

The i6900 gateway supports 3rd party Smart Home platforms via state-of-the-art low-consuming wireless technology. A Smart Home platform offers great solutions for end-users within Alarm & Surveillance, Energy Management and Home automation. Via a cloud-based platform the i6900 connects to third party device-hardware, which makes the possibilities for connecting devices close to endless. For the network operator or service provider, a Smart Home platform offers a unique opportunity for additional revenue streams and higher customer loyalty.

i6900 Multi-Service Gateway

FEATURES
- Advanced QoS Full Residential Gateway functionality
- Vendor-independent
- Award-winning industrial design
- Integrated CATV solution
- Low power consumption
- Optional operator branding
- Extensive IPv6 support
- Customized firmware
- Built-in Smart Home platform

NETWORK COMMUNICATION

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

LAN INTERFACE
- 4 RJ45 connectors 10/100/1000 Base T(X)
- Auto-negotiation for speed and duplex
- Auto MDI/MDX
- Jumbo packets
- 802.1x
- Integrated cable tester, detects:
  - Short
  - Open
  - Impedance mismatch
  - Cable length

LAYER 2
- 16 bridge instances
- 64 byte forwarding at line rate
- Jumbo 9k packets
- IGMP v1/v2/v3 snooping
- 802.1p marking
- VLAN support
- Transparent IPv6 forwarding
- DHCP relay with option 82
- 2k address entries
- Rate-limit per switch port

LAYER 3
- Virtual interfaces
- Multiple WAN interfaces in one router
- 64 byte forwarding at line rate with routing/NAT
- IGMP v1/v2/v3 proxy with fast-leave and monitoring
- Stateful Firewall
- IPv4 - SNAT, DNAT, DMZ - DNS proxy - DHCP client and server
- IPv6 - Prefix delegation RFC3769 - DHCP client
- PPPoE (termination)
- 2k HW connection tracking
- SW connection tracking
- RTSP stateful proxy
- Protocol helpers for: SIP, FTP, TFTP, PPTP, L2TP and IPSec
- DNS based Parental-Control
- Guest Access

QoS
- 8 queues
- Layer 2 and 3 QoS features - Packet classification marking - Queuing - Scheduling - Rate-limiting
- Marking and Queuing w/ 802.1p, ToS, DiffServ classification
- Globally shared rate-limiting queues

VoIP
- 2 separate POTS lines SIP (RFC3261) - optional
- 5 REN support
- DTMF signalling - SIP INFO - Inband - Auto - RFC 2833
- Caller ID support (DTMF/FSK/DTMF DK)
- CLIR
- Advanced dialplan
- 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.729AB
- Codec negotiation
- Modem/Fax detection
- Auto gain control
- Adaptive jitter buffer 10-300ms
- Silence suppression
- G.165 Echo Cancellation
- LEC (Line Echo Cancellation) 2-128ms
- VAD (Voice Activity Detection)
- CNG (Comfort Noise Generation)
- PLC (Packet Loss Concealment)

CATV (OPTIONAL)

OPTICAL PARAMETERS
- Saturation power: +2dBm
- Input level range: -10 to 0 dBm
- Input wave length: 1270 - 1610 nm
- Optical connector: SC/APC
- ITU-T G.652 Single Mode fiber
- Software monitoring of RX level in 0.1 dB steps
- Low-signal LED configurable

RF PARAMETERS
- RF connector: 75 Ohm "F"
- Frequency: 45-870MHz
- EIN @-10dBm: 4 pA/√Hz
- EIN @ 0dBm: < 14 pA/√(Hz)
- Tilt: 5 dB
- RF output AGC @-8 to 0 dBm (3.5% OMI): 80 dBuV
- Max. RF output @ 0 dBm (3.5% OMI): 96 dBuV
- CNR (CENELEC 42 channels): ≥ 51 dB
- CSO (CENELEC 42 channels): ≥ 60 dBc
- CTB (CENELEC 42 channels): ≥ 60 dBc
- RF filters (optional): up to 2
- Software adjustable RF output level w/AGC

MANAGEMENT & MONITORING
- Shared or separate IP interface for management
- L1-L3 filters for all local services
- SSHv2 with key authentication
- Telnet with authentication
- End-user oriented web interface (configurable) - LAN network - Port forwarding, NAT loopback, DMZ, DynDNS, Status and monitoring
- TR-069 supporting - TR-104 (VoIP) - TR-181 (Network)
- CLI with auto-completion
- SNMP v1/v2 (IF-MIB, ICOTERA private MIB)
- Multicast analyzer
  - Debugging of live Multicast streams
  - Provides detailed information from MPEG-TS and RTP layers
- Extensive debug possibilities
- Packet dumping
- All settings are stored locally in flash
- Zero-touch configuration with DHCP/TFTP/HTTP/FTP or TR-069
- Automatic firmware and configuration update (polling)
- Dual bank firmware w/ fail-safe upgrading
- LED brightness configurable by operator and/or End-User
- Hardware watchdog
- Wake-on-LAN for WebUI and CLI

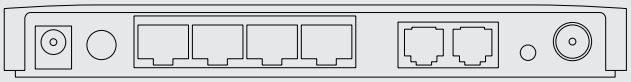
OPERATIONAL SPECIFICATIONS
- DC12V input ±10%
- Power consumption maximum: 14.4 W
- Operating temperature: 5 – 45°C
- Storage temperature: -20 – 85°C
- Humidity: 5% – 95% (non-condensing)

PHYSICAL SPECIFICATIONS

CASING
- Weight: 467 g
- Size: 233 x 162 x 41 mm (W x H x D)
- Front LEDs configurable by operator and/or end-user: Power/WAN status (link/traffic/provisioning) - VoIP port 1 - VoIP port 2 - CATV (status/signal power)
- LAN status LEDs (link/traffic, duplex) per interface

FIBER TERMINATION UNIT (OPTIONAL)
- Slide-on mechanism for easy installation
- FTU support for - Gas block unit (sold separately) - WDM filter (sold separately)
- Optional blind cover for FTU

i6900 Multi-Service Gateway configuration possibilities



Gateway Interface Configurations:

Model	Uplink	LAN ports	POTS ports	USB 2.0 ports	USB 3.0 ports	Micro SD card	Wi-Fi	Antennas	CATV output	Gateway top	Gateway bottom
i6901-00	P2P MSGW	4xGE	2x	0	0	No	None	None	1 x	Printed: English ports + logo	FTU
i6902-00	P2P MSGW	4xGE	-	0	0	No	None	None	1 x	Printed: English ports	FTU

NOTE: Please contact Sales for further details on information listed and feature requests.

GPON GIGABIT ONT

i5200-series

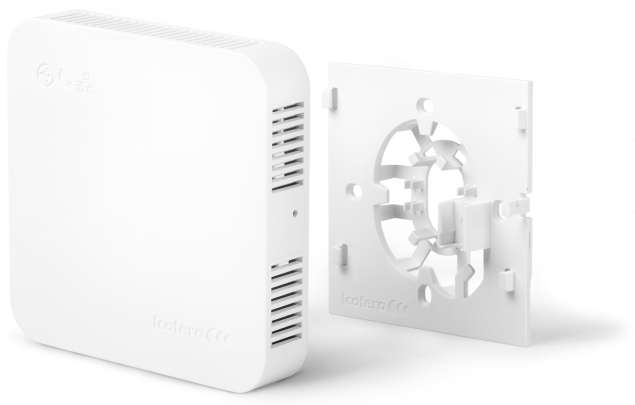
Residential Open Access ONT

The Icotera i5200 residential ONT is designed as a long-term GPON termination point in a two-box installation. Optional VoIP and 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 an obvious choice for GPON fiber termination.

- Aesthetic design
- Unique slide-on mechanism
- Flexible FTU with in-wall installation option
- 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 i5200 series create the standards setting for a residential Open Access ONT. For installation with in-wall fiber termination within the standard wall-can, the i5200 is hiding all sensitive fiber termination and splicing inside the wall secured with the uniquely designed FTU, exposing only customer essential interfaces. The alternative scenario is without FTU as in a common patch installation, where the ONT is directly mounted on the wall.



FTU installation

Patch installation

i5200 Residential Open Access ONT

FEATURES

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

WAN INTERFACE

- GPON 2.488/1.244 Gbps (DS/US)
- Wavelength: TX: 1310nm, RX: 1490nm
- 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

SUPPORTED PLATFORMS

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

Other specific platforms supported on a per integrational basis, contact sales for more information.

LAN INTERFACES

- 1x RJ45 connectors 10/100/1000
- Auto MDI/MDX
- Jumbo packets
- 256 MACs
- VLAN
- QinQ support
- Multicast support
- IGMP v1/v2/v3 snooping

QOS

- Support DBA in SR and NSR modes
- Support for Strict Priority and Weighted Fair Queuing
- Support for TCONTs 1-5
- 8 hardware queues
- Classification
- Marking
- Queuing
- Rate limiting
- DSCP, 802.1p

CATV (OPTIONAL)

Optical parameters

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

RF parameters

- RF connector: 75R “F”
- Frequency: 45Mhz - 1GHz
- Tilt: 2dB
- AGC: 81 ± 1dB μV
- CNR: 45dB
- CSO: 60dB
- CTB: 60dB
- WDM filter: present
- Management: via OMCI

VoIP (OPTIONAL)

- 1x POTS lines
- BS 6312 compliant socket
- SIP (RFC3261) over IPv4
- 3 REN support
- DTMF signalling - SIP INFO - Inband - Auto - RFC 2833
- Caller ID support (DTMF/FSK/DTMF DK)
- 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
- Auto gain control
- Adaptive jitter buffer 10-300ms
- Silence suppression
- G.165 Echo Cancellation
- LEC (Line Echo Cancellation) 2-128ms
- VAD (Voice Activity Detection)
- CNG (Comfort Noise Generation)

MANAGEMENT & MONITORING

- Zero-touch configuration with OMCI provisioning
- Dual bank firmware w/ fail-safe upgrading
- Hardware watchdog

POWER SUPPLY

- DC 12V/0.5A
- 150cm cable
- White PSU + cable

OPERATIONAL SPECIFICATIONS

- DC 12V input +/- 10%
- Operating temperature: 5 - 45 C
- Storage temperature -30 to 65 C
- Humidity 0 to 95% (non-condensing)

LEDs

- CATV green LED - Signal status
- GPON green LED - Connection status
- VoIP green LED - Registration status
- LAN green LED - Link status

PHYSICAL SPECIFICATIONS

- Size: refer to configuration possibilities table below
- RJ45 LAN port
- BS 6312 compliant socket for VoIP (optional)
- Reset button - reboot/factory reset (refer to configuration possibilities table below)
- Power button (refer to configuration possibilities table below)
- Area for visible GPON label right side - 16x30mm for optional GPON SN label
- Product SN, GPON SN, FW version and MAC address label - ONT bottom

FIBER TERMINATIONS

- Slide-on-mechanism for easy installation
- Mountable on Schuko in-wall installation
- Wall mountable
- Up to 2 fiber terminations with 20mm splicing rods (optional)
- External SC ports

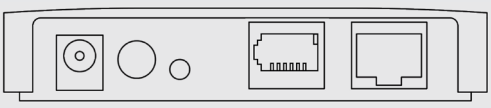
INCLUDED IN THE BOX

- ONT
- 12V PSU adapter
- FTU for Schuko installation (optional)
- 2x label with GPON SN

OPTIONAL EXTRAS

- SC/SC adapter
- Screws mechanical (M4) or threaded (D6)

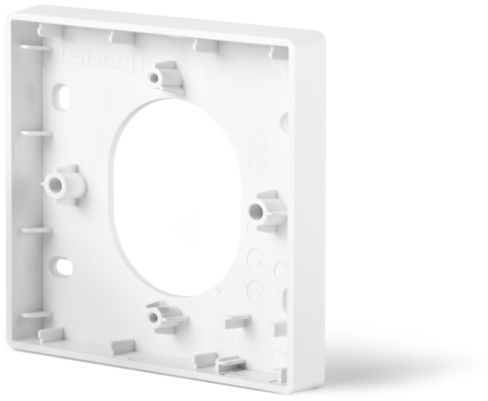
i5200 Residential GPON ONT
Configuration possibilities



Gateway Interface Configurations:

Model	LAN	VoIP	CATV	Termination	Size (mm)
i5204-00	1x		x	Patch	130x130
i5205-00	1x	x		FTU	100x100
i5208-00	1x			Patch	130x130

NOTE: Please contact Sales for further details on information listed and feature requests.



Wall plate

GPON LAYER 3 DEVICE

i5850-series

Residential ONT

The Icotera i5850 residential ONT integrates optical Ethernet-based gigabit data transmission with Layer 2-4 functionality, VoIP, 802.11ac & bgn Wi-Fi, CATV and USB 3.0.

- Best-in-class 4x4 Wave 2 MU-MIMO Wi-Fi
- Integrated ICONS remote monitoring solution
- Ease of use & installation
- OLT vendor independent
- Smart Home platform
- Award-winning industrial design

Powerful hardware platform
The Icotera i5850 fiber 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/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 becomes ever more important. The i5850 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 i5850 is capable of delivering 1700+300 Mbps and throughput which combined with MU-MIMO is able to deliver more than 1Gbps in real home and office environment.

Innovative feature set
The i5850 provides exceptional Layer 2 functionality that can effortlessly handle 16 bridging instances, 16 Wi-Fi APs over 2 radios, 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 (e.g. OMCI v2, SNMP v1/v2, syslog, SSH, Telnet and TR-069) is integrated and supported, which guarantees effortless control over the i5850. 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 i5850 also comes with dual-bank firmware.

Integrated Smart Home platform
The i5850 residential ONT supports 3rd party Smart Home platforms via state-of-the-art low-consuming wireless technology. A Smart Home platform offers great solutions for end-users within Alarm & Surveillance, Energy Management and Home automation. Via a cloud-based platform the i5850 connects to third party device-hardware, which makes the possibilities for connecting devices close to endless. For the network operator or service provider, a Smart Home platform offers a unique opportunity for additional revenue streams and higher customer loyalty.

i5850 Residential ONT

FEATURES

- Best-in-class Wi-Fi Wave 2 4x4 MU-MIMO solution
- OLT vendor-independent
- Award-winning industrial design
- Integrated CATV solution
- Low power consumption
- Optional operator branding
- Extensive IPv6 support
- Customized firmware
- Built-in Smart Home platform

NETWORK COMMUNICATION
GPON INTERFACE

- Single mode fiber (ITU-T G.652) SC/APC connector
- Data rate of 1.244Gbps/2.488Gbps (US/DS)
- Wavelength : TX 1310nm, RX 1490nm
- G.984.1,2,3,4,5 compliant
- Prepared co-existence for NG-PON
- OMCIv2 G.988 compliant
- Forward Error Correction (FEC)
- Ethernet GEM support
- Multiple T-CONTs/GEM ports per device
- AES encryption
- Dying Gasp
- Class B+ optics
  - Output level from +3 to +6dBm
  - Receiver sensitivity -30.5dBm

LAN INTERFACE

- 4x RJ45 connectors 10/100/1000 Base T(X)
- Auto-negotiation for speed and duplex
- Auto MDI/MDX
- Jumbo packets
- 802.1x
- Integrated cable tester, detects:
  - Short
  - Open
  - Impedance mismatch
  - Cable length

LAYER 2

- 16 bridge instances
- 64 byte forwarding at line rate
- Jumbo 9k packets
- IGMP v1/v2/v3 snooping
- 802.1p marking
- VLAN support
- Wi-Fi support
- Transparent IPv6 forwarding
- DHCP relay with option 82
- 2k address entries

Wi-Fi INTERFACES

802.11ac Wi-Fi

- 4x4 Wave 2 MU-MIMO
- 5 GHz band w/QAM256 and 80 MHz
- Authentication methods - Open - 802.1x - WEP64 - WEP128 - WPA-WPA2
- Up to 8 SSIDs
- MAC filtering
- Automatic channel selection
- Software Tx power control
- Extensive monitoring
- Neighbour scanning
- Beamforming
- LDPC + STBC
- Band steering

802.11bgn Wi-Fi

- 2T2R MIMO
- 2.4 GHz band w/QAM64 and 40 MHz
- Authentication methods - Open - 802.1x - WEP64 - WEP128 - WPA - WPA2
- Up to 8 SSIDs
- MAC filtering
- Automatic channel selection
- Software Tx power control
- Extensive monitoring
- Neighbour scanning
- Band steering

LAYER 3

- Virtual interfaces
- Multiple WAN interfaces in one router
- 64 byte forwarding at line rate with routing/NAT
- IGMP v1/v2/v3 proxy with fast-leave and monitoring
- Stateful Firewall
- IPv4 - SNAT, DNAT, DMZ - DNS proxy - DHCP client and server
- IPv6 - Prefix delegation RFC3769 - Auto configuration PPPoE (termination)
- 2k HW connection tracking
- SW connection tracking
- RTSP stateful proxy
- Protocol helpers for: SIP, FTP, TFTP

QoS

- 8 queues
- Layer 2 and 3 QoS features - Packet classification marking - Queuing - Scheduling - Rate-limiting
- Marking and Queuing w/ 802.1p, ToS, DiffServ classification
- Globally shared rate-limiting queues

USB

- 1x USB 2.0 host
- 1x USB 3.0 host

VoIP

- 2 separate POTS lines SIP (RFC3261)
- 5 REN support
- DTMF signalling - SIP INFO - Inband - Auto - RFC 2833
- Caller ID support (DTMF/FSK/DTMF DK)
- CLIR
- Advanced dialplan
- 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.729AB
- Modem/Fax detection
- Auto gain control
- Adaptive jitter buffer 10-300ms
- Silence suppression
- G.165 Echo Cancellation
- LEC (Line Echo Cancellation) 2-128ms
- VAD (Voice Activity Detection)
- CNG (Comfort Noise Generation)
- PLC (Packet Loss Concealment)

CATV (OPTIONAL)
OPTICAL PARAMETERS

- Saturation power: +2dBm
- Input level range: -10 to 0 dBm
- Input wave length: 1550 nm
- Optical connector: SC/APC
- ITU-T G.652 Single Mode fiber
- Software monitoring of RX level in 0.1 dB steps
- Low-signal LED configurable

RF PARAMETERS

- RF connector: 75 Ohm "F"
- Frequency: 45-870MHz
- EIN @-10dBm: 4 pA/√Hz
- Tilt: 5 dB
- RF output AGC @-8 to 0 dBm (3.5% OMI): 80 dBuV
- Max. RF output @ 0 dBm (3.5% OMI): 96 dBuV
- CNR (CENELEC 42 channels): ≥ 51 dB
- CSO (CENELEC 42 channels): ≥ 60 dBc
- CTB (CENELEC 42 channels): ≥ 60 dBc
- RF filters (optional): up to 2
- Software adjustable RF output level w/AGC

MANAGEMENT & MONITORING

- Shared or separate IP interface (VLAN or virtual) for management
- L1-L3 filters for all local services
- SSHv2 with key authentication
- Telnet with authentication
- End-user oriented web interface (configurable) - Wi-Fi - PPPoE - LAN network - Port forwarding, NAT loopback, DMZ, DynDNS, Status and monitoring
- TR-069 supporting - TR-104 (VoIP) - TR-181 (Network)
- CLI with auto-completion
- SNMP v1/v2 (IF-MIB, ICOTERA private MIB)
- Extensive debug possibilities
- Packet dumping
- All settings are stored locally in flash
- Zero-touch configuration with DHCP/TFTP or TR-069
- Automatic firmware and configuration update (polling)
- Dual bank firmware w/ fail-safe upgrading
- Wake-on-LAN for WebUI and CLI

OPERATIONAL SPECIFICATIONS

- DC12V input ±10%
- Power consumption maximum: 14.4 W (excl. USB ports)
- Operating temperature: 0 – 45°C
- Storage temperature: -20 – 85°C
- Humidity: 5% – 95% (non-condensing)

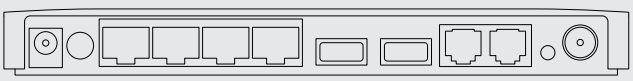
PHYSICAL SPECIFICATIONS
CASING

- Weight: 467 g
- Size: 233 x 162 x 41 mm (W x H x D)
- Front LEDs configurable by operator and/or end-user: - OLT link, Power/WAN status (link/traffic/provisioning) - VoIP port 1 - VoIP port 2 - Wi-Fi - CATV (status/signal power)
- LAN status LEDs (link/traffic, duplex) per interface
- LED auto off after timeout period

FIBER TERMINATION UNIT (OPTIONAL)

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

i5850 Residential ONT
Configuration possibilities



Gateway Interface Configurations:

Model	Uplink	LAN	USB	POTS	CATV	Wi-Fi	Antennas	Bottom
i5851-00	GPON	4x	2x	2x	1x	802.11b/g/n + 802.11ac	2x2 + 4x4 Int.	FTU/Patch
i5855-00	GPON	4x	2x	2x	-	802.11b/g/n + 802.11ac	2x2 + 4x4 Int.	FTU/Patch

NOTE: Please contact Sales for further details on information listed and feature requests.

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
- Integrated ICONS remote monitoring solution
- Ease of use & installation
- OLT vendor independent
- EasyMesh™ for 3rd party AP management
- Designed for Open Access / Wholesales 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, traffic switching/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 (e.g. 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 firmware.

Integrated Smart Home platform
The i5900 residential ONT supports 3rd party Smart Home platforms. A Smart Home platform offers great solutions for end-users within Alarm & Surveillance, Energy Management, and Home automation. Via a cloud-based platform the i5900 connects to third party device-hardware, which makes the possibilities for connecting devices close to endless. For the network operator or service provider, a Smart Home platform offers a unique opportunity for additional revenue streams and higher customer loyalty.

i5900 Residential ONT

FEATURES

- OLT vendor-independent
- Award-winning industrial design
- Optional integrated CATV solution
- Advanced QoS for multi-service provider wholesales
- Low power consumption
- Optional operator branding
- Extensive IPv6 support
- Customized firmware
- Built-in Smart Home platform

NETWORK COMMUNICATION GPON INTERFACE

- Single mode fiber (ITU-T G.652) SC/APC connector
- Data rate of 1.244Gbps/2.488Gbps (US/DS)
- Wavelength : TX 1310nm, RX 1490nm
- G.984.1,2,3,4,5 compliant
- Prepared co-existence for NG-PON
- OMCIv2 G.988 compliant
- Forward Error Correction (FEC)
- Ethernet GEM support
- Multiple T-CONTs/GEM ports per device
- AES encryption
- Dying Gasp
- Class B+ optics
  - Output level from +3 to +6dBm
  - Receiver sensitivity -30.5dBm

LAN INTERFACE

- 4x RJ45 connectors 10/100/1000 Base T(X)
- 1x RJ45 100/1000/2500 Base Tx
- Auto-negotiation for speed and duplex
- Auto MDI/MDX
- Jumbo packets
- 802.1x
- Integrated cable tester, detects:
  - Short
  - Open
  - Impedance mismatch
  - Cable length

LAYER 2

- 16 bridge instances
- 64 byte forwarding at line rate
- Jumbo 9k packets
- IGMP v1/v2/v3 snooping
- 802.1p marking
- VLAN support
- Transparent IPv6 forwarding
- DHCP relay with option 82
- 2k address entries

LAYER 3

- Virtual interfaces
- Multiple WAN interfaces in one router
- 64 byte forwarding at line rate with routing/NAT
- IGMP v1/v2/v3 proxy with fast-leave and monitoring
- IPv4/IPv6 stateful firewall
- IPv4 - SNAT, DNAT, DMZ - DNS proxy - DHCP client and server
- IPv6 - Prefix delegation RFC3769 - Auto configuration PPPoE (termination)
- 32k HW connection tracking
- RTSP stateful proxy
- Protocol helpers for: SIP, FTP, TFTP

QoS

- 8 queues
- Layer 2 and 3 QoS features - Packet classification marking - Queuing - Scheduling - Rate-limiting
- Marking and Queuing w/ 802.1p, ToS, DiffServ classification
- Globally shared rate-limiting queues

VoIP

- 2 separate POTS lines SIP (RFC3261)
- 5 REN support
- DTMF signalling - SIP INFO - Inband - Auto - RFC 2833
- Caller ID support (DTMF/FSK/DTMF DK)
- CLIR
- Advanced dialplan
- 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.729AB
- Modem/Fax detection
- Auto gain control
- Adaptive jitter buffer 10-300ms
- Silence suppression
- G.165 Echo Cancellation
- LEC (Line Echo Cancellation) 2-128ms
- VAD (Voice Activity Detection)
- CNG (Comfort Noise Generation)
- PLC (Packet Loss Concealment)

CATV (OPTIONAL) OPTICAL PARAMETERS

- Saturation power: +2dBm
- Input level range: -10 to 0 dBm
- Input wave length: 1550 nm
- Optical connector: SC/APC
- ITU-T G.652 Single Mode fiber
- Software monitoring of RX level in 0.1 dB steps
- Low-signal LED configurable

RF PARAMETERS

- RF connector: 75 Ohm "F"
- Frequency: 45-870MHz
- EIN @-10dBm: 4 pA/√Hz
- Tilt: 5 dB
- RF output AGC @-8 to 0 dBm (3.5% OMI): 80 dBμV
- Max. RF output @ 0 dBm (3.5% OMI): 96 dBμV
- CNR (CENELEC 42 channels): ≥ 51 dB
- CSO (CENELEC 42 channels): ≥ 60 dBc
- CTB (CENELEC 42 channels): ≥ 60 dBc
- RF filters (optional): up to 2
- Software adjustable RF output level w/AGC

MANAGEMENT & MONITORING

- Shared or separate IP interface (VLAN or virtual) for management
- L1-L3 filters for all local services
- SSHv2 with key authentication
- Telnet with authentication
- End-user oriented web interface (configurable) - Wi-Fi - PPPoE - LAN network - Port forwarding, NAT loopback, DMZ, DynDNS, Status and monitoring
- TR-069 supporting - TR-104 (VoIP) - TR-181 (Network)
- CLI with auto-completion
- SNMP v1/v2 (IF-MIB, ICOTERA private MIB)
- Extensive debug possibilities
- Packet dumping
- All settings are stored locally in flash
- Zero-touch configuration with DHCP/TFTP or TR-069
- Automatic firmware and configuration update (polling)
- Dual bank firmware w/ fail-safe upgrading
- Wake-on-LAN for WebUI and CLI

OPERATIONAL SPECIFICATIONS

- DC12V input ±10%
- Power consumption maximum: 14.4 W
- Operating temperature: 0 – 45°C
- Storage temperature: -20 – 85°C
- Humidity: 5% – 95% (non-condensing)

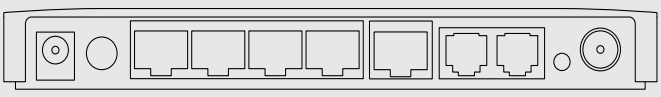
PHYSICAL SPECIFICATIONS CASING

- Weight: 467 g
- Size: 190 x 150 x 48 mm (W x H x D)
- Front LEDs configurable by operator and/or end-user: - OLT link, Power/WAN status (link/traffic/provisioning) - VoIP port 1 - VoIP port 2 - Wi-Fi - CATV (status/signal power)
- LAN status LEDs (link/traffic, duplex) per interface
- LED auto off after timeout period

FIBER TERMINATION UNIT (OPTIONAL)

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

i5900 Residential ONT
Configuration possibilities



Gateway Interface Configurations:

Model	Uplink	LAN ports	POTS ports	USB 2.0 ports	USB 3.0 ports	Micro SD card	Wi-Fi	Antennas	CATV output	Gateway top	Gateway bottom
i5901-00	GPON MSGW	5xGE	2	0	0	No	None	None	High output	Printed English port + logo	FTU

NOTE: Please contact Sales for further details on information listed and feature requests.

P2P LAYER 3 DEVICE

i6850-series

Residential Gateway

The Icotera i6850 residential gateway integrates optical Ethernet-based gigabit data transmission with Layer 2-4 functionality, VoIP, 802.11ac & bgn Wi-Fi, CATV and USB 3.0.

- Best-in-class 4x4 Wave 2 MU-MIMO Wi-Fi
- Integrated ICONS remote monitoring solution
- Ease of use & installation
- Vendor independent
- Smart Home platform
- Award-winning industrial design

Powerful hardware platform
The Icotera i6850 Fiber-to-the-Home (FTTH) 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/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 i6850 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 i6850 is capable of delivering 1700+300 Mbps and more than 1 Gbps of combined throughput in real home and office environment.

Innovative feature set
The i6850 provides exceptional Layer 2 functionality that can effortlessly handle 16 bridging instances, 16 Wi-Fi APs over 2 radios, 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 (e.g. SNMP v1/v2, syslog, SSH, Telnet and TR-069) is integrated and supported, which guarantees effortless control over the i6850. 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 i6850 also comes with dual-bank firmware.

Integrated Smart Home platform
The i6850 gateway supports 3rd party Smart Home platforms via state-of-the-art low-consuming wireless technology. A Smart Home platform offers great solutions for end-users within Alarm & Surveillance, Energy Management and Home automation. Via a cloud-based platform the i6850 connects to third party device-hardware, which makes the possibilities for connecting devices close to endless. For the network operator or service provider, a Smart Home platform offers a unique opportunity for additional revenue streams and higher customer loyalty.

i6850 Residential Gateway

FEATURES

- Best-in-class Wi-Fi Wave 2 4x4 MU-MIMO solution
- Vendor-independent
- Award-winning industrial design
- Integrated CATV solution
- Low power consumption
- Optional operator branding
- Extensive IPv6 support
- Customized firmware
- Built-in Smart Home platform

NETWORK COMMUNICATION
WAN INTERFACE

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

LAN INTERFACE

- 4 RJ45 connectors 10/100/1000 Base T(X)
- Auto-negotiation for speed and duplex
- Auto MDI/MDX
- Jumbo packets
- 802.1x
- Integrated cable tester, detects:
  - Short
  - Open
  - Impedance mismatch
  - Cable length

LAYER 2

- 16 bridge instances
- 64 byte forwarding at line rate
- Jumbo 9k packets
- IGMP v1/v2/v3 snooping
- 802.1p marking
- VLAN support
- Wi-Fi support
- Transparent IPv6 forwarding
- DHCP relay with option 82
- 2k address entries
- Rate-limit per switch port

Wi-Fi INTERFACES

802.11ac Wi-Fi

- 4x4 Wave 2 MU-MIMO
- 5 GHz band w/QAM256 and 80 MHz
- Authentication methods - Open - 802.1x - WEP64 - WEP128 - WPA-WPA2
- Up to 8 SSIDs
- MAC filtering
- Advanced channel selection
- Software Tx power control
- Extensive monitoring
- Neighbour scanning
- Beamforming
- LDPC + STBC
- Wireless Client Isolation
- Band steering

802.11bgn Wi-Fi

- 2T2R MIMO
- 2.4 GHz band w/QAM64 and 40 MHz
- Authentication methods - Open - 802.1x - WEP64 - WEP128 - WPA - WPA2
- Up to 8 SSIDs
- MAC filtering
- Advanced channel selection
- Software Tx power control
- Extensive monitoring
- Neighbour scanning
- Wireless Client Isolation
- Band steering

LAYER 3

- Virtual interfaces
- Multiple WAN interfaces in one router
- 64 byte forwarding at line rate with routing/NAT
- IGMP v1/v2/v3 proxy with fast-leave and monitoring
- Stateful Firewall
- IPv4 - SNAT, DNAT, DMZ - DNS proxy - DHCP client and server
- IPv6 - Prefix delegation RFC3769 - DHCP client
- PPPoE (termination)
- 2k HW connection tracking
- SW connection tracking
- RTSP stateful proxy
- Protocol helpers for: SIP, FTP, TFTP, PPTP, L2TP and IPSec
- DNS based Parental-Control
- Guest Access

QoS

- 8 queues
- Layer 2 and 3 QoS features - Packet classification marking - Queuing - Scheduling - Rate-limiting
- Marking and Queuing w/ 802.1p, ToS, DiffServ classification
- Globally shared rate-limiting queues

USB

- 1x USB 3.0 host
- 1x USB 2.0 host
- Prepared for: Z-Wave, ZigBee, CAT-iq, Storage, Printers

VoIP

- 2 separate POTS lines SIP (RFC3261)
- 5 REN support
- DTMF signalling - SIP INFO - Inband - Auto - RFC 2833
- Caller ID support (DTMF/FSK/DTMF DK)
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- Modem/Fax detection
- Auto gain control
- Adaptive jitter buffer 10-300ms
- Silence suppression
- G.165 Echo Cancellation
- LEC (Line Echo Cancellation) 2-128ms
- VAD (Voice Activity Detection)
- CNG (Comfort Noise Generation)
- PLC (Packet Loss Concealment)

CATV (OPTIONAL)
OPTICAL PARAMETERS

- Saturation power: +2dBm
- Input level range: -10 to 0 dBm
- Input wave length: 1270 - 1610 nm
- Optical connector: SC/APC
- ITU-T G.652 Single Mode fiber
- Software monitoring of RX level in 0.1 dB steps
- Low-signal LED configurable

RF PARAMETERS

- RF connector: 75 Ohm "F"
- Frequency: 45-870MHz
- EIN @-10dBm: 4 pA/√Hz
- EIN @ 0dBm: < 14 pA/√(Hz)
- Tilt: 5 dB
- RF output AGC @-8 to 0 dBm (3.5% OMI): 80 dBuV
- Max. RF output @ 0 dBm (3.5% OMI): 96 dBuV
- CNR (CENELEC 42 channels): ≥ 51 dB
- CSO (CENELEC 42 channels): ≥ 60 dBc
- CTB (CENELEC 42 channels): ≥ 60 dBc
- RF filters (optional): up to 2
- Software adjustable RF output level w/AGC

MANAGEMENT & MONITORING

- Shared or separate IP interface for management
- L1-L3 filters for all local services
- SSHv2 with key authentication
- Telnet with authentication
- End-user oriented web interface (configurable) - Wi-Fi - Guest network - LAN network - Port forwarding, NAT loopback, DMZ, DynDNS, Status and monitoring
- TR-069 supporting - TR-104 (VoIP) - TR-181 (Network)
- CLI with auto-completion
- SNMP v1/v2 (IF-MIB, ICOTERA private MIB)
- Multicast analyzer
  - Debugging of live Multicast streams
  - Provides detailed information from MPEG-TS and RTP layers
- Extensive debug possibilities
- Packet dumping
- All settings are stored locally in flash
- Zero-touch configuration with DHCP/TFTP/HTTP/FTP or TR-069
- Automatic firmware and configuration update (polling)
- Dual bank firmware w/ fail-safe upgrading
- LED brightness configurable by operator and/or End-User
- Hardware watchdog
- Wake-on-LAN for WebUI and CLI

OPERATIONAL SPECIFICATIONS

- DC12V input ±10%
- Power consumption maximum: 14.4 W (excl. USB ports)
- Operating temperature: 5 – 45°C
- Storage temperature: -20 – 85°C
- Humidity: 5% – 95% (non-condensing)

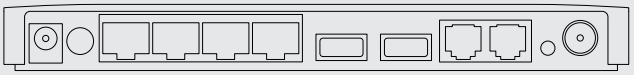
PHYSICAL SPECIFICATIONS
CASING

- Weight: 467 g
- Size: 233 x 162 x 41 mm (W x H x D)
- Front LEDs configurable by operator and/or end-user: Power/WAN status (link/traffic/provisioning) - VoIP port 1 - VoIP port 2 - Wi-Fi - CATV (status/signal power)
- LAN status LEDs (link/traffic, duplex) per interface

FIBER TERMINATION UNIT (OPTIONAL)

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

i6850 Residential Gateway
Configuration possibilities



Gateway Interface Configurations:

Model	Uplink	LAN	USB	POTS	CATV	Wi-Fi	Antennas	Bottom
i6851-00	BX20	4x	2x	2x	1x	802.11b/g/n + 802.11ac	2x2 + 4x4 Int.	FTU/Patch
i6855-00	BX20	4x	2x	2x	-	802.11b/g/n + 802.11ac	2x2 + 4x4 Int.	FTU/Patch

NOTE: Please contact Sales for further details on information listed and feature requests.

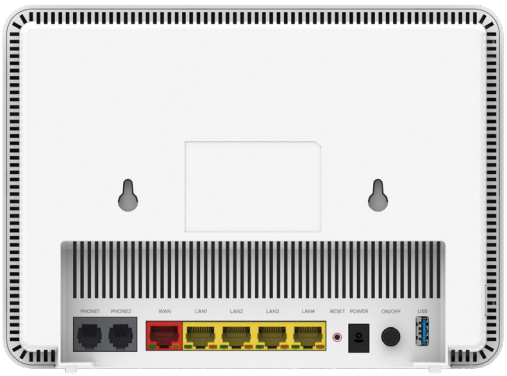
Wi-Fi 6 ETHERNET ROUTER

i4880-series

Residential Wi-Fi 6 Router

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

- Best possible Wi-Fi 6 configuration
- Non-blocking 2.5 Gbps architecture
- Modern Scandinavian design
- Fully managedAward-winning industrial design



Flexible installation
The i4880 is designed for all types of installations, both wallmount 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

- Possibility to run ISP own applications
- Enterprise 8x8+4x4 Wi-Fi 6 configuration
- Vendor-independent
- Non-blocking 2.5 Gbps architecture
- Wi-Fi Data Link speed above 8Gbps
- Low power consumption
- Possibility of operator branding
- Extensive IPv6 support
- Customized firmware
- IPv6 only operations

NETWORK COMMUNICATION

WAN INTERFACE

- 1 RJ45 connector 10/100/1000 BaseT(x)
- Full-duplex transmission
- Auto-negotiation for speed and duplex
- Auto MDI/MDX

LAN INTERFACE

- 4 RJ45 connectors 10/100/1000 BaseT(x)
- Auto-negotiation for speed and duplex
- Auto MDI/MDX
- Jumbo packets
- 802.1x
- Integrated cable tester, detects:
  - Short
  - Open
  - Impedance mismatch
  - Cable length

LAYER 2

- 16 bridge instances
- 64 byte forwarding at line rate
- Jumbo 9k packets
- IGMP v1/v2/v3 snooping
- 802.1p marking
- VLAN support
- Wi-Fi support
- Transparent IPv6 forwarding
- DHCP relay with option 82
- 2k address entries
- Multicast analyzer
- Flexible L1-3 Access Control List

Wi-Fi INTERFACES

- Authentication methods - Open - 802.1x - WPA2 - WPA3
- Up to 8 SSIDs
- EasyMesh™ Agent and Controller
- MAC filtering
- Airtime management
- Beamforming
- 802.11kvr band steering and client roaming
- Neighbour scanning
- Advanced channel selection
- Software Tx power control
- Extensive monitoring
- Wireless Client Isolation

802.11ax Wi-Fi

- 802.11AX 8x8:8 5 GHz + 4x4:4 2.4GHz
- BW support: 20 MHz, 40 MHz, 80 MHz
- Modulation support: MCS 0-11
- Downlink MU-MIMO and OFDMA
- Up to 1024QAM modulation
- Support for unequal MCS
- Support for LDPC, STBC
- Support for Dual Channel, Dual Concurrent Mode
- Support Target Wake Time
- HW Support for Singular Value Decomposition (SVD) for explicit Transmit Beamforming

802.11ac Wi-Fi

- 802.11AC Wave-2 8x8:8
- BW support: 20 MHz, 40 MHz, 80 MHz, 80+80 MHz, 160 MHz
- MU-MIMO
- TurboMAC for optimized legacy performance
- Support for LDPC, STBC
- Modulation support: MCS 0-11
- Up to 1024QAM modulation

802.11bgn Wi-Fi

- 802.11B/G/N 4x4:4
- MIMO
- Modulation support: MCS 0-76

LAYER 3

- Virtual interfaces
- Multiple WAN interfaces in one router
- 64 byte forwarding at line rate with routing/NAT
- IGMP v1/v2/v3 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 RFC3769 - DHCP client - DS-lite - Multicast
- PPPoE (termination)
- 32k HW connection tracking
- RTSP stateful proxy
- Protocol helpers for: SIP, RTSP, FTP, TFTP, PPTP, L2TP and IPSec
- DNS based Parental-Control
- Guest Access

QoS

- Advanced WMM designed for long-range and resilient video and voice delivery
- 8 queues
- Support SP and WFQ
- Layer 2 and 3 QoS features - Packet classification marking - Queuing - Scheduling - Rate-limiting
- Marking and Queuing w/ 802.1p, ToS,DiffServ classification
- Globally shared rate-limiting queues

USB

- 1 x USB 3.0 host for ISP own applications

VoIP - Optional

- 2 separate POTS lines SIP (RFC3261)
- 5 REN support
- DTMF signalling - SIP INFO - Inband - Auto - RFC 2833
- Caller ID support (DTMF/FSK)
- CLIR
- Advanced dialplan
- 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.729AB
- Codec negotiation
- Modem/Fax detection
- Auto gain control
- Adaptive jitter buffer 10-300ms
- Silence suppression
- G.165 Echo Cancellation
- LEC (Line Echo Cancellation) 2-128ms
- VAD (Voice Activity Detection)
- CNG (Comfort Noise Generation)
- PLC (Packet Loss Concealment)

MANAGEMENT & MONITORING

- IPv6 only operations
- Shared or separate IP interface for management
- Monitoring via Telemetry Streaming (ICONS)
- L1-L3 filters for all local services
- SSHv2 with key authentication
- Optional Telnet with authentication
- End-user oriented web interface (configurable) - Wi-Fi - Guest network - LAN network - Port forwarding, NAT loopback, DMZ, DynDNS, Status and monitoring
- TR-069 with TLS supporting - TR-104 (VoIP) - TR-181 (Network)
- SNMP v1/v2 (IF-MIB, ICOTERA private MIB)
- Multicast analyzer
  - Debugging of live Multicast streams
  - Provides detailed information from MPEG-TS and RTP layers
- Extensive debug possibilities
- Packet dumping
- All settings are stored locally in flash
- Zero-touch configuration initiated DHCP or DNS-SD supporting TFTP/ HTTP/FTP or TR-069
- Automatic firmware and configuration update (polling)
- Dual bank firmware w/ fail-safe upgrading
- LED brightness configurable by the operator and/or End-User
- Hardware watchdog
- Wake-on-LAN for WebUI and CLI

OPERATIONAL SPECIFICATIONS

- DC12V input ±10%
- Power consumption maximum: 40 W
- Operating temperature: 5 – 45°C
- Storage temperature: -20 – 85°C
- Humidity: 5% – 95% (non-condensing)

PHYSICAL SPECIFICATIONS

CASING

- Size: 220x160x60 mm (W x H x D)
- Weight: 1000 g
- Front LEDs configurable by operator and/or end-user: Power/WAN status (link/traffic/provisioning) - VoIP port 1 - VoIP port 2 - Wi-Fi
- LAN status LEDs (link-speed/traffic, duplex) per interface
- WPS button

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 & bgn Wi-Fi, and USB 3.0.

- State of the art 4x4 Wave 2 MU-MIMO Wi-Fi
- Ease of use & installation
- Vendor independent
- Smart Home platform
- 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 1700+300 Mbps and throughput which combined with MU-MIMO is able to deliver more than 1Gbps in real home and office environment.

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

Ease of control
A great variety of management protocols (e.g. 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 firmware.

Integrated Smart Home platform
The i4850 ethernet router supports 3rd party Smart Home platforms via state-of-the-art low-consuming wireless technology. A Smart Home platform offers great solutions for end-users within Alarm & Surveillance, Energy Management and Home automation. Via a cloud-based platform the i4850 connects to third party device-hardware, which makes the possibilities for connecting devices close to endless. For the network operator or service provider, a Smart Home platform offers a unique opportunity for additional revenue streams and higher customer loyalty.

Icotera

i4850 Residential Router

FEATURES

- Best-in-class Wi-Fi solution
- Vendor-independent
- Award-winning industrial design
- Low power consumption
- Optional operator branding
- Extensive IPv6 support
- Customized firmware
- Built-in Smart Home platform

NETWORK COMMUNICATION

WAN INTERFACE

- 1 RJ45 connector 10/100/1000 Base T(X)
- Full-duplex transmission
- Auto-negotiation for speed and duplex
- Auto MDI/MDX

LAN INTERFACE

- 4 RJ45 connectors 10/100/1000 Base T(X)
- Auto-negotiation for speed and duplex
- Auto MDI/MDX
- Jumbo packets
- 802.1x
- Integrated cable tester, detects:
  - Short
  - Open
  - Impedance mismatch
  - Cable length

LAYER 2

- 16 bridge instances
- 64 byte forwarding at line rate
- Jumbo 9k packets
- IGMP v1/v2/v3 snooping
- 802.1p marking
- VLAN support
- Wi-Fi support
- Transparent IPv6 forwarding
- DHCP relay with option 82
- 2k address entries
- Rate-limit per switch port

Wi-Fi INTERFACES

802.11ac Wi-Fi

- 4x4 Wave 2 MU-MIMO
- 5 GHz band w/QAM256 and 80 MHz
- Authentication methods - Open - 802.1x - WEP64 - WEP128 - WPA-WPA2
- Up to 8 SSIDs
- MAC filtering
- Advanced channel selection
- Software Tx power control
- Extensive monitoring
- Neighbour scanning
- Beamforming
- LDPC + STBC
- Wireless Client Isolation
- Airtime management
- Client roaming
- Band steering
- Meshing

802.11bgn Wi-Fi

- 802.11B/G/N 2x2:2 MIMO
- 2.4 GHz band w/QAM64 and 40 MHz
- Authentication methods - Open - 802.1x - WEP64 - WEP128 - WPA - WPA2
- Up to 8 SSIDs
- MAC filtering
- Advanced channel selection
- Software Tx power control
- Extensive monitoring
- Neighbour scanning
- Wireless Client Isolation
- Band steering

LAYER 3

- Virtual interfaces
- Multiple WAN interfaces in one router
- 64 byte forwarding at line rate with routing/NAT
- IGMP v1/v2/v3 proxy with fast-leave and monitoring
- Stateful Firewall
- IPv4 - SNAT, DNAT, DMZ - DNS proxy - DHCP client and server
- IPv6 - Prefix delegation RFC3769 - DHCP client
- PPPoE (termination)
- 2k HW connection tracking
- SW connection tracking
- RTSP stateful proxy
- Protocol helpers for: SIP, FTP, TFTP, PPTP, L2TP and IPSec
- DNS based Parental-Control
- Guest Access

QoS

- 8 queues
- Layer 2 and 3 QoS features - Packet classification marking - Queuing - Scheduling - Rate-limiting
- Marking and Queuing w/ 802.1p, ToS, DiffServ classification
- Globally shared rate-limiting queues

USB

- 1x USB 3.0 host
- 1x USB 2.0 host
- Prepared for: Z-Wave, ZigBee, CAT-iq, Storage, Printers

VoIP

- 2 separate POTS lines SIP (RFC3261)
- 5 REN support
- DTMF signalling - SIP INFO - Inband - Auto - RFC 2833
- Caller ID support (DTMF/FSK/DTMF DK)
- CLIR
- Advanced dialplan
- 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.729AB
- Codec negotiation
- Modem/Fax detection
- Auto gain control
- Adaptive jitter buffer 10-300ms
- Silence suppression
- G.165 Echo Cancellation
- LEC (Line Echo Cancellation) 2-128ms
- VAD (Voice Activity Detection)
- CNG (Comfort Noise Generation)
- PLC (Packet Loss Concealment)

MANAGEMENT & MONITORING

- Shared or separate IP interface for management
- L1-L3 filters for all local services
- SSHv2 with key authentication
- Telnet with authentication
- End-user oriented web interface (configurable) - Wi-Fi - Guest network - LAN network - Port forwarding, NAT loopback, DMZ, DynDNS, Status and monitoring
- TR-069 supporting - TR-104 (VoIP) - TR-181 (Network)
- CLI with auto-completion
- SNMP v1/v2 (IF-MIB, ICOTERA private MIB)
- Multicast analyzer
  - Debugging of live Multicast streams
  - Provides detailed information from MPEG-TS and RTP layers
- Extensive debug possibilities
- Packet dumping
- All settings are stored locally in flash
- Zero-touch configuration with DHCP/TFTP/HTTP/FTP or TR-069
- Automatic firmware and configuration update (polling)
- Dual bank firmware w/ fail-safe upgrading
- LED brightness configurable by operator and/or End-User
- Hardware watchdog
- Wake-on-LAN for WebUI and CLI

OPERATIONAL SPECIFICATIONS

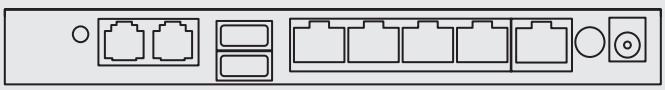
- DC12V input ±10%
- Power consumption maximum: 14.4 W (excl. USB ports)
- Operating temperature: 5 – 45°C
- Storage temperature: -20 – 85°C
- Humidity: 5% – 95% (non-condensing)

PHYSICAL SPECIFICATIONS

CASING

- Weight: 597 g
- Size: 215 x 215 x 50 mm (W x H x D)
- Front LEDs configurable by operator and/or end-user: Power/WAN status (link/traffic/provisioning) - VoIP port 1 - VoIP port 2 - Wi-Fi
- LAN status LEDs (link/traffic, duplex) per interface
- WPS button

i4850 Residential Router
Configuration possibilities



Gateway Interface Configurations:

Model	Uplink	LAN	USB	POTS	Wi-Fi	Antennas
i4850-00	RJ45	4x	2x	2x	802.11b/g/n + 802.11ac	2x2 + 4x4 Int.

NOTE: Please contact Sales for further details on information listed and feature requests.

Wi-Fi 6 ACCESS POINT

i3560-series

Residential Wi-Fi 6 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 solution
- Award-winning industrial design
- Low power consumption
- Optional operator branding
- Customized firmware

NETWORK COMMUNICATION
LAN INTERFACE

- 2x RJ45 connectors 10/100/1000 Base T(x)
- Auto-negotiation for speed and duplex
- Auto MDI/MDX
- Jumbo packets

LAYER 2

- 64 byte forwarding at line rate
- Jumbo 9k packets
- IGMP v1/v2/v3 snooping
- 802.1p marking
- VLAN support
- Transparent IPv6 forwarding
- 2k address entries

Wi-Fi INTERFACES

- Authentication methods - Open - WPA2 - WPA3
- Up to 8 SSIDs
- MAC filtering
- Beamforming
- 802.11kvr band steering and client roaming
- Neighbour scanning
- Advanced channel selection
- Software Tx power control
- Extensive monitoring
- Wireless Client Isolation

802.11ax Wi-Fi

- 802.11AX 5x5:5 5 GHz + 4x4:4 2.4GHz
- BW support: 20 MHz, 40 MHz, 80 MHz
- Up to 8.6Gbps PHY/Data Link Speed
- Modulation support: MCS 0-11
- MU-MIMO and OFDMA
- Up to 1024QAM modulation
- Support for unequal MCS
- Support for LDPC, STBC
- Support for Dual Channel, Dual Concurrent Mode
- Support Target Wake Time
- HW Support for Singular Value Decomposition (SVD) for explicit Transmit Beamforming

802.11ac Wi-Fi

- 802.11AC Wave-2 5x5:5
- MCS 0-9 and MCS 10-11 support
- BW support: 20 MHz, 40 MHz, 80 MHz, 160 MHz
- MU-MIMO
- TurboMAC for optimized legacy performance
- Support for LDPC, STBC

802.11bgn Wi-Fi

- 802.11B/G/N 4x4:4
- MIMO
- Modulation support: MCS 0-76

QoS

- 8 queues
- Advanced WMM designed for long-range and resilient video and voice delivery
- Marking and Queuing w/ 802.1p, ToS,DiffServ classification

MANAGEMENT & MONITORING

- Shared or separate IP interface (VLAN or virtual) for management
- L1-L3 filters for all local services
- End-user oriented web interface (configurable) - Wi-Fi - LAN network
- TR-069 supporting - TR-181 (Network)
- SNMP v1/v2 (IF-MIB, ICOTERA private MIB)
- Extensive debug possibilities
- All settings are stored locally in flash
- Zero-touch configuration with TR-069 or via the local gateway
- EasyMesh 2.0 ready
- Automatic firmware and configuration update (polling)
- Dual bank firmware w/fail-safe upgrading
- Monitoring via Telemetry Streaming (ICONS)

OPERATIONAL SPECIFICATIONS

- DC12V input ±10%
- Operating temperature: 0 – 45°C
- Storage temperature: -20 – 85°C
- Humidity: 5% – 95% (non-condensing)

PHYSICAL SPECIFICATIONS
CASING

- Size: 150 x 150 x 30 mm (W x H x D)
- Front RGB LEDs con gurable by operator and/or end-user: Power/WAN status (link/traffic/provisioning) - Wi-Fi - LAN status LEDs (link/traffic, duplex) per interface
- LED auto off
- WPS button

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, meshing, beamforming, and band steering
- Ease of use & installation
- Vendor independent
- Award-winning industrial design
- Lowest Total Cost of Ownership

Remote management
CWMP (TR-069, TR-181) support. Also supports local Web UI, 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 n' 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, meshing and secure authentication.

Guest access
Both on cabled and wireless media, your private network is protected against the untrusted devices you allow into your home and network.

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 are 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.

Power efficient
Product goes to Network standby mode immediately if there is no LAN or Wireless activity.

Great esthetic 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 LEDs if there is actually something to tell – and that in the most intuitive way possible.

Wireless high-data transmission
Support for secured & prioritised high data connections between i3550 and e.g. Internet enabled TV's, STB or other Wi-Fi access points. This functionality enhances the distribution of Wi-Fi throughout the home and the Quality of Experience for the end user.

Icotera

i3550 Residential Access Point

FEATURES

- Best-in-class Wi-Fi solution
- Award-winning industrial design
- Low power consumption
- Optional operator branding
- Customized firmware

NETWORK COMMUNICATION
LAN INTERFACE

- 2 RJ45 connectors 10/100/1000 Base T(X)
- Auto-negotiation for speed and duplex
- Auto MDI/MDX
- Jumbo packets
- 802.1x

LAYER 2

- 16 bridge instances
- 64 byte forwarding at line rate
- Jumbo 9k packets
- IGMP v1/v2/v3 snooping
- 802.1p marking
- VLAN support
- Wi-Fi support
- Transparent IPv6 forwarding
- 2k address entries

Wi-Fi INTERFACES

802.11ac Wi-Fi

- 4x4 Wave 2 MU-MIMO
- 5 GHz band w/QAM256 and 80 MHz
- Authentication methods - Open - 802.1x - WPA2
- Up to 4 SSIDs
- MAC filtering
- Advanced channel selection
- Background DFS scan
- Software Tx power control
- Extensive monitoring
- Neighbour scanning
- Beamforming
- LDPC + STBC
- Wireless Client Isolation
- Airtime management
- Client roaming
- Band-steering
- Meshing
- Wi-Fi Multimedia

802.11bgn Wi-Fi

- 802.11B/G/N 2x2:2 MIMO
- 2.4 GHz band w/QAM64 and 40 MHz
- Authentication methods - Open - 802.1x - WEP64 - WEP128 - WPA - WPA2
- Up to 4 SSIDs
- MAC filtering
- Advanced channel selection
- Software Tx power control
- Extensive monitoring
- Neighbour scanning
- Wireless Client Isolation
- Band-steering
- Wi-Fi Multimedia

QoS

- 8 queues
- Layer 2 and 3 QoS features - Packet classification marking - Queuing - Scheduling - Rate-limiting
- Marking and Queuing w/ 802.1p, ToS, DiffServ classification

MANAGEMENT & MONITORING

- Shared or separate IP interface (VLAN or virtual) for management
- L1-L3 filters for all local services
- End-user oriented web interface (configurable) - Wi-Fi - LAN network
- TR-069 supporting - TR-181 (Network)
- SNMP v1/v2 (IF-MIB, ICOTERA private MIB)
- Extensive debug possibilities
- Packet dumping
- All settings are stored locally in flash
- Zero-touch configuration with DHCP/TFTP or TR-069 or via the local gateway
- Automatic firmware and configuration update (polling)
- Dual bank firmware w/ fail-safe upgrading

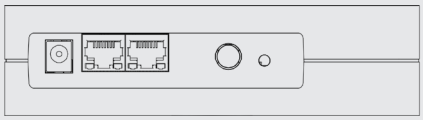
OPERATIONAL SPECIFICATIONS

- DC12V input ±10%
- Operating temperature: 0 – 45°C
- Storage temperature: -20 – 85°C
- Humidity: 5% – 95% (non-condensing)

PHYSICAL SPECIFICATIONS
CASING

- Front RGB LEDs configurable by operator and/or end-user: Power/WAN status (link/traffic/provisioning) - Wi-Fi - LAN status LEDs (link/traffic, duplex) per interface
- LED auto off
- WPS button

i3550 Residential Access Point
Configuration possibilities



Gateway Interface Configurations:

Model	LAN	Wi-Fi
i3550-00	2x	11.BGN 2x2:2 + 11.ANAC 4x4:4

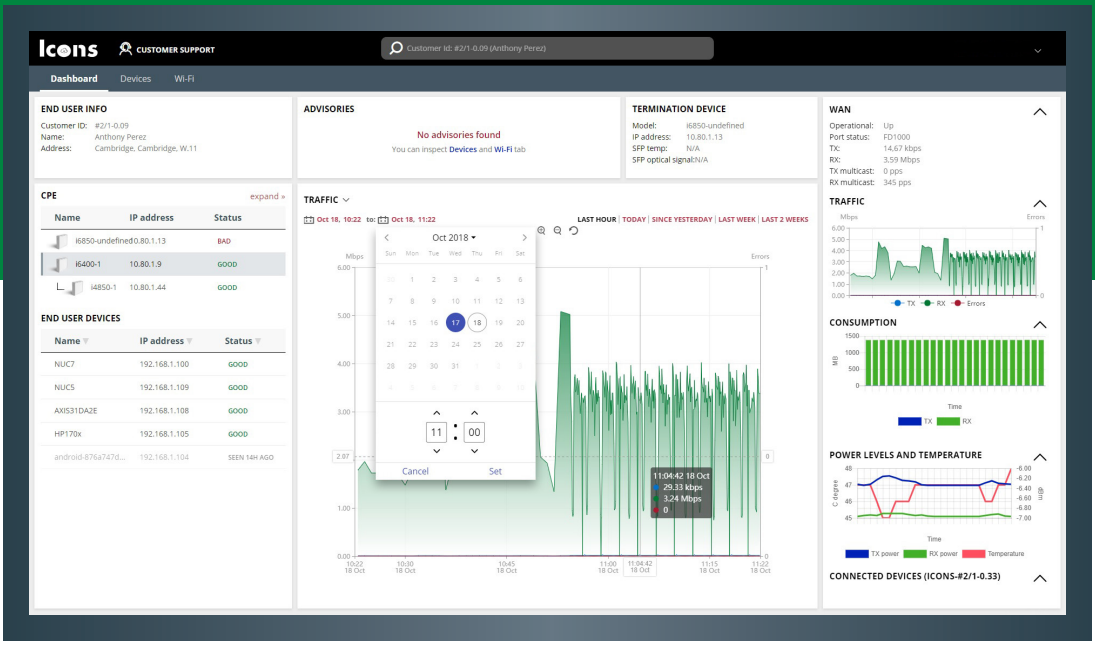
NOTE: Please contact Sales for further details on information listed and feature requests.

END-TO-END REAL TIME NETWORK MONITORING

- including in-home end-user devices

- End-to-end in-home monitoring incl. Wi-Fi
- Proactive fault handling based on insights
- Reduce and shorten support calls
- Better customer insight
- Increased customer satisfaction
- Reduce OPEX

Icons
ICOTERA NETWORK SURVEILLANCE



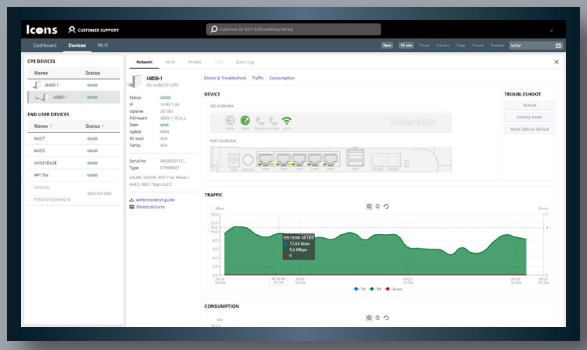
Dashboard section provides a thorough overview showing end-user info, proactively advisories, CPE and end-user specific data and system version. Look-back function allows to troubleshoot issues happening back in time.

Icotera

New level of ISP support

Through intelligent insights, ICONS allows Network Operators and Service providers to reduce and shorten support calls by offering enhanced capabilities for end-user support and network performance diagnostics. In real-time ICONS gathers, analyses and process information that enables Operations to initiate proactive/ preemptive fault handling and gives the customer support center a much faster problem-solving time. ICONS shows live mode and historical data of devices connected to in-home routers, switches and access points.

Most relevant information is placed in easy to read overview and data is displayed in tables, interactive lines and graphs.
The look-back function opens the possibilty to troubleshoot at periodically performance issues at any given point of time. This leads to a more efficient customer support and helps increase customer satisfaction.



Devices section shows specific CPE data: LED & Ports status (on/off & connected/disconnected ports), traffic patterns etc.

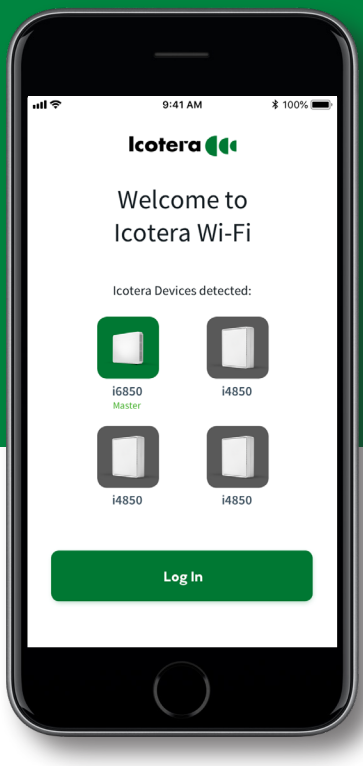
Wi-Fi section displays a comprehensive overview of all in-homeconnected devices and how they are performing in the network.

Wi-Fi network analysis

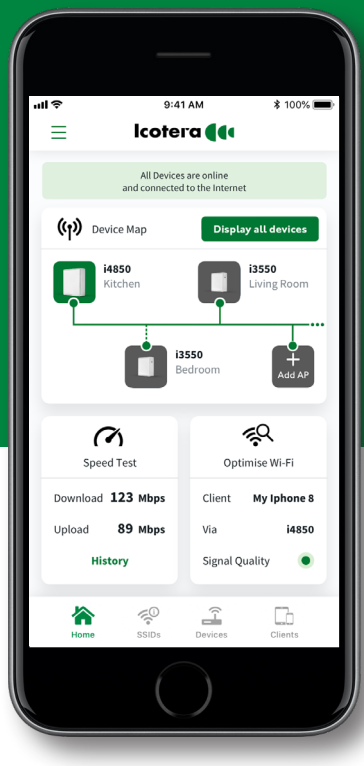
ICONS perform full Wi-Fi network analysis. Based on given parameters, an advisory module finds the concerned in-home devices, and analyses the history and current state. Drawn conclusion is used to present not only an identified issues but also to suggest remedy. This way ICONS help Network Operators and Service providers to optimize the end-user support.

MAKE THE MOST OF YOUR WIRELESS NETWORK

- Intelligent Smartphone App secures the best in-home Wi-Fi experience



When activating the intelligent App, it automatically finds all Devices.



Main screen provides overview and easy access to all key functions.

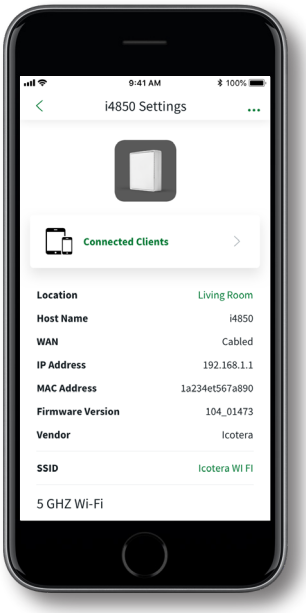
Optimise customer's Wi-Fi experience with an intuitive and comprehensive Smartphone App - Company branded. Through few intuitive steps, the App helps customers set-up the in-home wireless network to deliver the best possible performance. The App provides access to Wi-Fi optimisation, easy network overview and status while giving easy access to settings, enabling customers to modify SSIDs, device names, etc. The App even suggests re-positioning and need of additional Access Points when needed.

- Increase customer satisfaction
- Reduce load on helpdesk and support
- Reduce customer churn
- Increase further sales
- Co-brand for complete Wi-Fi portfolio

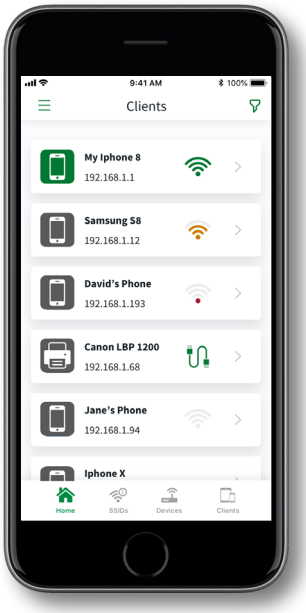
Intelligent App monitors and optimises the Wi-Fi experience

The Icotera Smartphone App has full access to all known Access Points in the in-home wireless network. Whenever an additional Access Point is added to the network, the App will detect it right away. All 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.

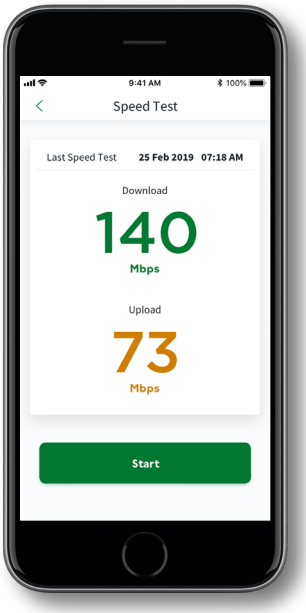
The specially designed 'Optimise Wi-Fi' feature will help the user change the location of the Access Points to achieve optimal Wi-Fi coverage and performance throughout the house.
In daily usage the App makes it very easy to change or share the SSID & password with guests. All active Clients are easily observed and if a Client has no connectivity or internet performance issues, the App can be used to quickly investigate what might be the problem.



The Device pages are used to configure all the detailed Wi-Fi settings.



All Clients are easily identified and their connectivity status checked.



Quick speed test shows current performance.

Optimise the placement of your Access Point

Often users experience poor network coverage where they use the internet the most. Icotera's intelligent Wi-Fi will assess your network coverage at every important location, where you connect to the internet and will determine if your Access Points are optimally placed to deliver the greatest Wi-Fi experience where you use it the most. Once you have re-positioned your Access Points following the recommendations from the intelligent Wi-Fi App, you can measure the result.

- Intuitive initial Access Point scan and login procedure
- Configure Wi-Fi settings for each Access Point
- Change & share SSID & password
- Optimise Access Point location to increase coverage and performance
- Notice if something is not right
- Great overview of all connected Clients
- Easily add new Access Points
- Speed test check

Icotera A/S
Vibeholms Allé 16
2605 Brøndby
Denmark

Phone: +45 7010 0033
Mail: info@icotera.com
Web: www.icotera.com