

# 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.

# 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

## 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  $\mu$ -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/ $\sqrt{\text{Hz}}$
- EIN @ 0dBm: < 14 pA/ $\sqrt{\text{Hz}}$
- 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):  $\geq 51$  dB
- CSO (CENELEC 42 channels):  $\geq 60$  dBc
- CTB (CENELEC 42 channels):  $\geq 60$  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  $\pm 10\%$
- Power consumption maximum: 14.4 W
- Operating temperature: 5 - 45°C
- Storage temperature: -20 - 85°C
- Humidity: 5% - 95% (non-condensing)

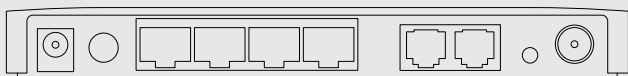
## PHYSICAL SPECIFICATIONS CASING

- 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
<b>i6901-20</b>	P2P MSGW	4xGE	2x	0	0	No	None	None	1 x	Printed: English ports + logo	FTU
<b>i6902-20</b>	P2P MSGW	4xGE	-	0	0	No	None	None	1 x	Printed: English ports	FTU
<b>i6905-20</b>	P2P MSGW	4xGE	2x	0	0	No	None	None	-	Printed: English ports + logo	FTU

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