SI3000 MSAP

SI3000 Fiber Access

A member of the SI3000 MSAP product family

A move to IMS

ISKRATEL

Variety of deployment scenarios

The unique concept of Iskratel's modular product design with the SI3000 MSAP (Multi-Service Access Plane) product family enables service providers to respond to any network-deployment scenario, combining an optical or copper infrastructure: fiber-to-the-node, fiber-to-the-building or fiber-to-the-home. This means that service providers can cover urban, suburban and rural areas, supporting any of the required services.

Variety of subscriber interfaces and customer premises equipment

The SI3000 Fiber Access product covers a rich portfolio of subscriber interfaces, ranging from ADSL2+ and VDSL2 to FE and GE. In combination with a range of customer premises equipment, which is expanding very quickly, service providers can meet ever-more demanding end-user needs.

SI3000 Fiber Access BUSINESS BENEFITS

The pay-as-you-grow concept secures investment

Iskratel SI3000 Fiber Access Management products enables the adaptation to any changes in a service provider's future-proof broadband-network deployment scenario, without any expensive equipment upgrades and with full re-usability of the installed equipment.

Flexibility and scalability

The variety of the subscriber interfaces using different fiber interfaces (single-fiber bi-directional, dual-fiber single-mode, or dual-fiber multi-mode) provides a lot of flexibility for access providers to introduce their own fiber-optic access solutions with optimized customer coverage and investment costs.

Management infrastructure

The SI3000 Fiber Access Management and provisioning systems are designed to easily integrate with operators' existing Network Management Systems (NMS) and/or service call centers to provide a seamless changeover.

Rich set of advanced features

All advanced service provider features known from DSL home gateways are traversed in the FTTH product, which enables the carriers to easily continue with existing services together with advanced, new services enabled by the fiber connectivity.

P2P future-proof architecture

Using point-to-point or an active optical network (AON) architecture means that each customer is connected via a dedicated fiber pair. This architecture is derived from the widespread Ethernet model, making it the least complex of all the available fiber architectures. No sharing of common media means no security issues, and no advance network planning is involved. With Iskratel's solution you have the most effective, secure, upgradeable broadband-access technology on the market.

Carrier-class solution

The SI3000 Fiber Access products are robustly designed and meet all the ETSI's mechanical and electrical requirements for central office equipment. The Iskratel solution caters for redundancy modes of high MTBF.

Packaging diversity

Central office equipment suits the diversity of situations that a service provider faces when end-user fiber access is required. Hence, equipment can be delivered to cover indoor as well as outdoor installation, wall, on-floor or underground installation, delivered in ETSI or 19" packaging with remote powering or on-site powering for different densities of end-user distribution.

TECHNICAL SPECIFICATIONS

	Capacity depending on the enclosure type					
	20 plug-in slots with duplication	20 plug-in slots	10 plug-in slots	5 plug-in slots	3 plug-in slots	1U
No. of slots for blades	18	19	9	4	3	1
Max. # of ADSL2+ ports	864	912	432	192	96	48
Max. # of VDSL2 ports	432	456	216	96	48	24
Max. # of FE fiber ports	216	216	108	48	24	12
Max. # of 1Gb Ethernet fiber	180	190	90	40	20	10

Subscriber interface type	
FE fiber ports	100BaseFX, dual MMF 1310 nm – up to 2km
	100BaseFX, dual SMF, 1310 or 1550 nm – up to 10 or 40km
	100BaseBX, single SMF, 1310 nm (Rx), 1550 nm (Tx) – up to 20km
Gigabit Ethernet ports	1000 Base SX, MMF on 850 nm (SFP) – up to 500m
	1000 Base LX, SMF on 1310 nm (SFP) – up to 10km
	1000 Base LH, SMF on 1310 nm (SFP) – up to 35km
	1000 Base ZX, SMF on 1550 nm (SFP) – up to 80km
	1000 Base (SFP) BiDi Tx1310/Rx1550nm & Tx1550/Rx1310nm – up to 10km
	All 8 types of CWDM SFP modules (from 1470 to 11610)
Local Management interface over Ethernet Switch Blade	
Console	RS232, RJ-45
Fast Ethernet	100 BaseT, RJ-45 – Management port for whole chassis
Intelligent Platform Management Interface (IPMI) features	
Service blade identification	Position in chassis, serial number, service contact person
Identification of chassis	Geographical, topological position, role of application
Power consumption information	Power-consumption information of any blade
Temperature information	Four temperature sensors on each blade
Voltage information	Detailed voltage information at many places on the blade and blade voltage status
Blade management	Active, standby and fail status reading, activation, reset and shutdown
Fan management	Shutdown status of fans, rotation speed configuration and automatic adaptation
Hot pluggable	Blade shutdown at plug-out event detection
Dimensions	
20-slots chassis, 9U	(H x W x D) 400 x 500 x 275 mm – ETSI rack mountable
10-slot chassis, 6U	(H x W x D) 267 x 450 x 275 mm – 19" rack mountable
5-slot chassis, 3U	(H x W x D) 135 x 450 x 275 mm – 19" rack mountable
3-slot chassis, 2U	(HxWxD) 89 x 450 x 275 mm - ETSI rack, 19" rack
1-slot chassis, 1U	(HxWxD) 45 x 450 x 275 mm - ETSI rack, 19" rack, stand-alone
Environmental conditions	
Safety	IEC 60950-1:2001, UL 60950-1
EMC	EN 300 386:2001 v1.3.1, EN55022 Class B, FCC Class B
Storage	Temperature from -35 to 45°C, relative humidity 5–90%, as in ETS 300 019-1-1, class 1.1.
Transport	As in ETS 300 019-1-2, class 2.1.
Operation	Temperature -5 to 55°C, relative humidity 5–90%, as in ETS 300 019-1-3, class 3.1E
Other	
Supply voltage	-48V or -60V DC

INNOVATIVE SOLUTIONS

for the full range of requirements

Literally unlimited bandwidth, the ability to offer any known type of telecommunications service and cost-effective network deployment make SI3000 Fiber Access a perfect solution for demanding network operators and aggressive telecommunications service providers worldwide.

A fiber connection is the only truly future-proof access option for the service-delivery infrastructure options of today – and tomorrow. By combining voice, video and IP-based services into a single fiber, optical access provides a technologically superior way of implementing a single-access infrastructure to deliver every desired type of service. An optical interface provides symmetrical transmission speeds and may be used to interconnect any additional remote SI3000 MSAP product family.

The architectural design of the SI3000 Fiber Access products includes advanced network security, high reliability, high performance, quality-of-service mechanisms, and optimal utilization of network resources. The built-in multicast intelligence is provided as a support for the most up-to-date video applications, such as IPTV, HDTV and videoconference connections, since it enables the management of multicast signaling information and the replication of video streams on dedicated subscriber ports.

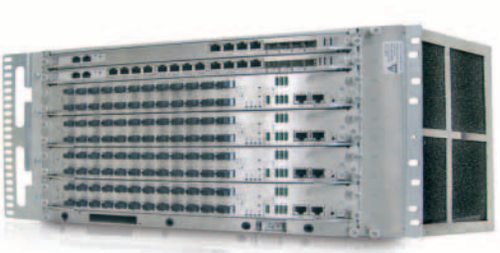
ADDITIONAL FEATURES

The operator can benefit from the SI3000 MSAP product family. Due to a unique, universal platform, different broadband-access technologies (FTTx, WiMAX, DSL, etc.) and narrowband-access technologies (POTS, ISDN, and IP telephony) can be combined to provide end-user connectivity in the most efficient way. In addition to different access technologies the operator can integrate a call-server or a voice-gateway blade into the same chassis to provide call control or to interconnect to a PSTN.

PACKAGING DIVERSITY

In order to provide low and mid-end cost-optimized network solutions, there are different sizes of chassis available:

- 9U, with 20 plug-in slots for ETSI rack mounting,
- 6U, with 10 plug-in slots for 19" rack mounting,
- 3U, with 5 plug-in slots for 19" rack mounting,
- 2U, with 3 plug-in slots for 19" rack mounting,
- 1U, with 1 plug-in slot for 19" rack mounting,
- 10 plug-in slots for wall mounting.



Iskratel's success in broadband markets has been closely connected with our ability to adapt to customer requirements. One of the first implementations of an IP DSLAM and the first IPTV over a DSL access network in Europe are the proof of that.

To support most up-to-date video applications, such as IPTV, HDTV and videoconference connections, carriers are rapidly deploying fiber-based access networks. Iskratel is building a unique approach in understanding these needs. Having in mind the broadband-access evolution of existing Ethernet broadband networks, Iskratel became a leading carrier-grade FTTH P2P equipment provider, providing unique functionality to carriers, such as:

- advanced network-security possibilities with subscriber privacy, line traceability, etc.,
- built-in multicast intelligence,
- various quality-of-service mechanisms and bandwidth control,
- management of residential gateways (TR-069),
- effective NMS.

Typical applications and advantages delivered:

- Very-high-speed internet access

- Symmetrical bandwidth

- HDTV and multimedia services

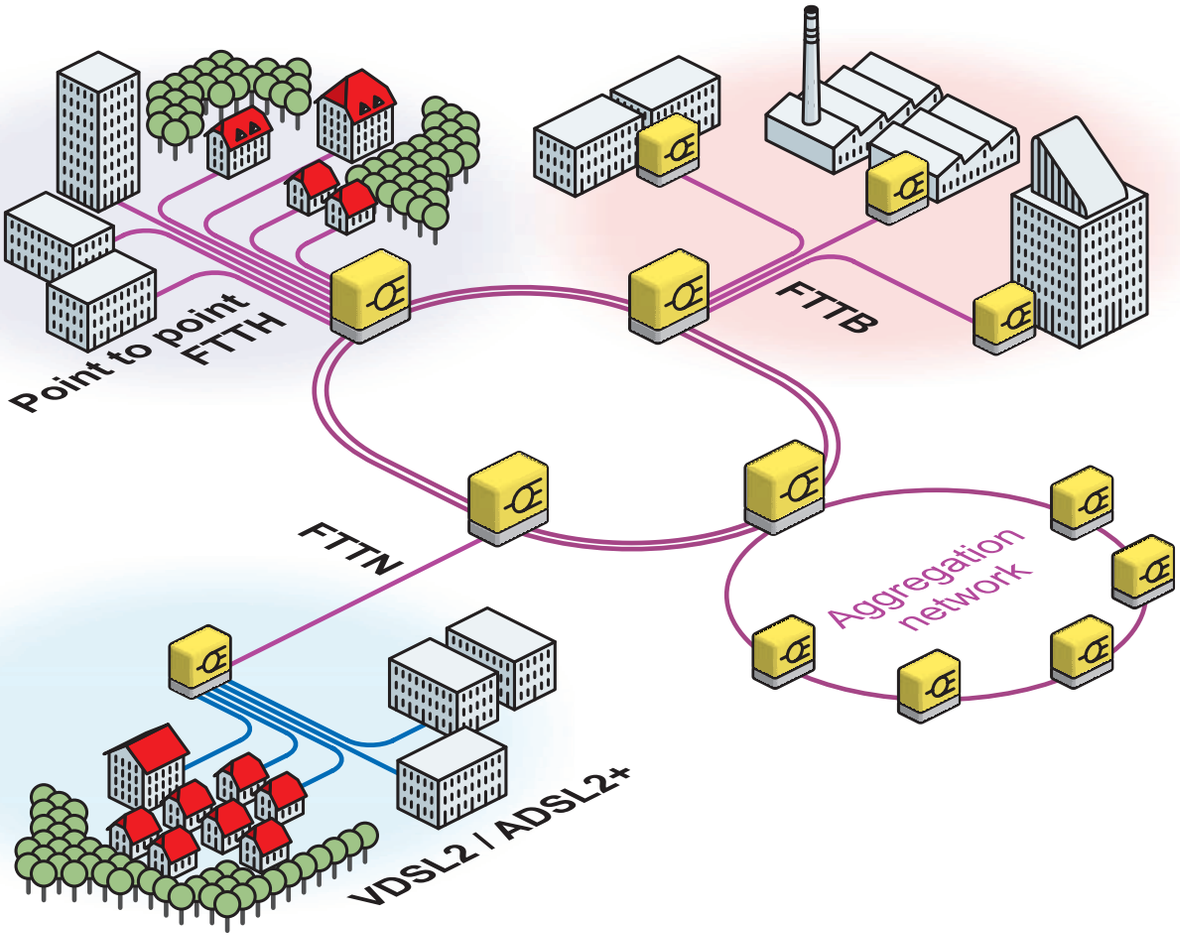
- VoIP and video conferencing

- Business VPN services

- DSL aggregation

- CATV services

CONNECTING INNOVATION WITH EXPERIENCE



Typical networking solutions for: - Telecoms (incumbent operators) - Alternative operators - Greenfield n

DIVERSITY OF SI3000 Fiber Access

NETWORK-DEPLOYMENT SCENARIOS

SI3000 Fiber Access includes numerous FTTX possibilities and carrier-Ethernet features in an ETSI-compliant shelf to cover all the main FTTX network-deployment scenarios: fiber-to-the-home (with optical access to the home from a central office location, optical access in a neighborhood and/or in an apartment block), fiber-to-the-node (with optical-copper access to the neighborhood and/or cabinet and/or curb) and fiber-to-the-building (with optical-copper access in a building and/or in an apartment block).

Fiber-to-the-home (FTTH)

Different FTTH network-deployment scenarios are possible:

- **Optical access from a central office location up to each end user.** In this case the point-to-point Ethernet access architecture is used to connect the central office SI3000 Fiber Access to each end-user premises.

- **Optical access is concentrated at the neighborhood or at the apartment block.** In this case a curb-switched Ethernet access architecture is used. The SI3000 Fiber Access (located in the neighborhood or at the apartment block) is concentrated in a smaller, compact chassis. This node is equipped with the main aggregation switch and the subscriber plug-in boards, which allow Fast Ethernet optical interfaces, and is connected to the central office SI3000 Fiber Access over an optical Gigabit Ethernet connection or 10 GE.

In all these scenarios the central office SI3000 Fiber Access aggregation switch can be duplicated and single or double fiber can be used to provide maximum reliability. The strength of the optical signal supports communications up to 20 km, which ensures coverage of the entire area covered by the access node.

Fiber-to-the-node (FTTN) and fiber-to-the-building (FTTB)

In the FTTN network-deployment scenario the fiber is pulled between the central office SI3000 Fiber Access node and the street cabinet, curb or similar, located in the neighborhood's vicinity. Existing copper pairs are used to connect the end-user with this node. The SI3000 Fiber Access located in the neighborhood is usually set up in a smaller, compact chassis and equipped with subscriber plug-in boards that allow DSL access over a copper pair. These boards usually use ADSL2+ or VDSL2 technology.

In the FTTB network deployment scenario the fiber is pulled between the central office SI3000 Fiber Access node and the building (usually in common-use areas, basements or similar). Existing copper pairs are used as the transmission medium between the end user (an apartment or office) and this node. This node is connected to the central office SI3000 Fiber Access over an optical Gigabit Ethernet connection or 10 GE and equipped with subscriber plug-in boards, which allow either DSL access over a copper pair or Ethernet access over a UTP connection. DSL boards normally use ADSL2+ or VDSL2 technology; Ethernet units use Fast Ethernet interfaces with electrical RJ-45 ports, which support up to 100 or 1000 Mbps symmetrical transfer over a range of up to 100 meters.

In both scenarios the connection to the central office SI3000 Fiber Access over an optical Gigabit Ethernet connection or 10 GE can be used.

rks (utilities, municipalities) - Cable operators

RICH PORTFOLIO OF CUSTOMER PREMISES EQUIPMENT

Customer premises equipment represents an essential networking device, since it plays an important role in achieving a positive user experience. Iskratel's Broadband CPE portfolio represents a complete offer that meets end-user needs and follows triple-play network deployment.

VDSL2 HOME GATEWAYS

The **Proteus series** represents home gateways for VDSL2 market that is designed for triple play services. Extended router and firewall features with an embedded terminal adapter and remote management capabilities share the same principles with optical home gateway. As such, these enable service providers to unify next generation broadband strategy regardless of access technology. Future remote upgrades are possible, those saving OPEX and CAPEX of future oriented service providers.

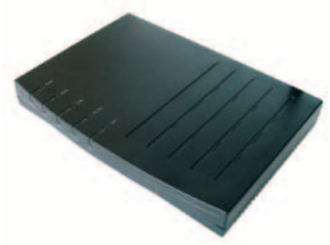
OPTICAL HOME GATEWAYS

Iskratel offers a range of optical CPE equipment from simple converters to advanced home gateways.

The **Prospero series** is a high-end modem intended for demanding triple-play users. It has a high-performance router, a firewall, and a simplified, intuitive and ergonomic GUI. With four Ethernet LAN ports, an integrated terminal adapter and USB interfaces it supports a variety of applications.

The **Cressida series** is a future-oriented gigabit Ethernet home gateway. It is intended for the most demanding customers and represents our top-of-the-range product.

All Iskratel optical home gateway series can be upgraded with a CATV converter to support the distribution of analog TV services. Such an approach enables the cost-effective reception of multiple CATV and radio stations across an overlay fiber CATV infrastructure.



	Proteus series	*Prospero series*	*Cressida series*
Technology	VDSL2	100baseFX	1000baseLX
# Ethernet ports	4	4	4
FXS	2	2	2
USB master	2	2	2
WiFi	Optional	Optional	Optional
ACS (TR-069)	Yes	Yes	Yes
CATV receiver	No	Optional	Optional

There are no problems but challenges

Iskratel is a leading developer of customized and highly integrated communication solutions for quickly evolving convergent networks.

Excellence in providing cutting-edge network elements and infrastructural configurations places the company among the global technological visionaries.

By combining experience and know-how with creativity and innovation Iskratel meets the challenges of supporting the existing networks and establishing IP-based convergent architectures, adaptable to the demands of regional specifics and subscriber preferences.

With over 1,100 employees and over 450 in affiliated companies in 20 countries, Iskratel offers integrated telecommunications solutions for fixed telephony, mobile telephony, IP-based convergent networks and network management.

OUR EXPERIENCE - YOUR SUCCESS

Iskratel's presence in different countries ensures the full compatibility of our network solutions, while our innovative broadband provides a range of business benefits that enhance carrier revenues.

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