Alcatel-Lucent OmniSwitch 6855

HARDENED LAN SWITCH

Alcatel-Lucent® OmniSwitch™ 6855 Ethernet Hardened LAN Switch models are Alcatel-Lucent's industrial grade, managed, Gigabit Ethernet switches designed to operate reliably in harsh electrical and severe temperature environments. This superior, rugged hardware design coupled with the widely deployed and field proven Alcatel-Lucent Operating System (AOS), makes it ideal for industrial and mission-critical applications that require wider operating temperatures, more stringent EMC/EMI requirements and optimized features set for high security, reliability, performance and easy management.

The target applications for these versatile LAN switches are power utilities, transportation and traffic control systems, industrial factory floor installations, video surveillance systems and outdoor installations, which all require gigabit backbone connectivity.

Key features

- Ruggedized hardware design
- Convection cooling for fan-less models or temperature triggered fans for 24 port models
- 802.3af compliant PoE support on all copper models
- Redundancy at all levels including power supplies, software and hot swappable SFPs
- Wire-rate switching and routing at gigabit speeds. Advanced services incorporated in the OS: QoS, ACL, L2/L3, VLAN stacking, and IPv6
- Extensive security features for network access control, policy enforcement and attack containment

Key benefits

- Operates at a wider temperature range from -40°C to +75°C, withstands greater shock vibrations, temperature and EMI/EMC tests
- Increased reliability, and lower acoustic levels
- Enables converged applications by providing power to IP phones, surveillance cameras, and wireless access points
- A field upgradeable solution that ensures the network is highly available and delivers operating expense savings.
- Outstanding performance when supporting real-time voice, data, and video applications for converged future-proofed networks.
- Fully securing the networks at the edge, at no additional cost

Alcatel-Lucent OmniSwitch 6855 Models

The OmniSwitch 6855 (OS6855) family offers customers an extensive selection of Gigabit Ethernet fixed configuration switches and power supply options that accommodate most needs. Models offered include industrial-strength power over Ethernet (PoE) and non-PoE models in a 1U form factor.

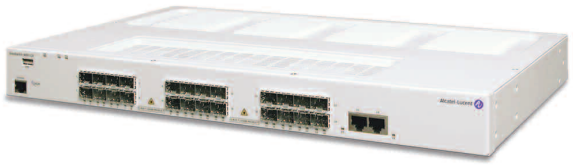
Fiber models

OmniSwitch 6855-U10

- Eight SFP ports
- Two RJ45 10/100/1000 copper ports
- Fan-less design

OmniSwitch 6855-U24

- 22 SFP ports
- Two combo ports



Copper models with power over Ethernet

OmniSwitch 6855-14

- 12 10/100/1000 RJ45 ports
- Four PoE capable ports
- Two SFP ports
- Fan-less design

OmniSwitch 6855-24

- 20 10/100/1000 RJ45 copper ports
- Four of which support PoE
- Four combo ports

Both models support 15.4W per port. PoE compliant with IEEE 802.3af

Specifications

Dimensions	OS6855-U10	OS6855-14	OS6855-U24	OS6855-24
Total 10/100/100 BaseT RJ45 ports	2	12	2	24
Total SFP connectors	8	2	24	4
PoE ports	0	4	0	4
Combo ports	0	0	2	4
Switch width	8.50”	8.50”	17.25"	17.25"
Switch height	1.73” (1RU)	1.73” (1RU)	1.73” (1RU)	1.73”(1RU)
Switch depth (no PS shelf attached)	10.25”	10.25”	10.775"	10.775"
Switch depth (with PS shelf attached)	17.50”	17.50”	17.60"	17.60"
Switch weight (no PS)	5.28lb/2.42kg	5.28lb/2.42kg	8.34lb/3.78kg	8.34lb/3.78kg
Switch weight (with one PS and tray)	7.78lb/3.55kg	7.78lb/3.55kg	11.8lb/5.35kg	11.8lb/5.35kg

Operating conditions	OS6855-U10	OS6855-14	OS6855-U24	OS6855-24
Operating temperature	-40°C to + 70°C	-40°C to + 70°C	-40°C to + 75°C	-40°C to + 75°C
Storage temperature	-40°C to + 85°C	-40°C to + 85°C	-40°C to + 85°C	-40°C to + 85°C
Humidity (operating and storage)	5% - 95%	5% - 95%	5% - 95%	5% - 95%
MTBF*	508942	430389	488705	529644
Fan-less design	Yes	Yes	No	No
Acoustic (dB) at <50°C operating temp.	silent	silent	33	33
Acoustic (dB) with all fans on	n/a	n/a	52	57
Power consumption (system power only)	26W	24W	60W	59W
Heat dissipation**	88.7 BTU	66.6 BTU	164BTU	161.2 BTU

* MTBF values calculated at 25C for the switch only
**Sufficient spacing required for airflow and heat dissipation

Combo ports are ports individually configurable to be 10/100/1000BaseT or 1000BaseX that can support SFP transceivers for short, long and very long distances.
Gigabit fiber interfaces on the OS6855-U10 and OS6855-U24 support Gig SFP or 100BaseX SFP optical transceivers. See the full list of supported transceivers at the end of the datasheet.

Power supplies

- All of the OmniSwitch 6855 models support redundant, **hot-swappable AC, DC or PoE** power supplies.
- Primary as well as backup power supplies for all models are **external** to the device and hot-swappable which allows for easier maintenance and replacement
- Power supplies can also be remotely mounted using a special cable, which allows OmniSwitch 6855 to be used in areas with **reduced depth**.
- There is no interruption of service in case of a new PS is installed or an old one replaced

Power supplies for OS6855-14 and OS6855-U10

The power supplies for OS6855-U10 and OS6855-14 models come in the form of a **power brick** in either AC or DC. A separate power brick provides PoE power and is available for purchase when PoE is required.

Power Supply Models	Description
OS6855-PSS	External PSU for OS6855-14 and OS6855-U10; 90-240VAC, 50-60Hz AC; 40W, 12V, AC-DC
PS6855-PSS-P	External PSU for OS6855-14; 66W, 48V PoE, AC-DC
PS6855-PSS-D	External PSU for 6855-14 and OS6855-U10; 40W, -48V and 24V input to 12V DC-DC

Specification	Weight	Depth	Width	Height
Power brick (AC, DC or PoE)	1.30lb/0.65kg	5.50”	3.20”	1.6”
Power brick and tray	2.65lb/1.2kg	7.50"	8.50”	1.73” (1RU)

The power supply shelf holds two power bricks and can be mounted either in a side-by-side configuration with the switch for 19” rack mounting or attached at the back of the switch for bulkhead mounting options.

Power supplies for OS6855-24 and OS6855-U24

The primary as well as the backup power supplies for the OmniSwitch 6855-24 port models are external and connect to the rear of the unit. A power shelf provided with the unit, can slide into the rear of the switch and is used to hold two power supplies.

Power Supply Models	Description
OS6855-PSL	External PSU for OS6855-U24; 90-240VAC, 50-60Hz AC; 80W, 12V, AC-DC
PS6855-PSL-P	External PSU for OS6855-24; 90-240VAC, 50-60Hz AC; 160W, 48V PoE, 12V, AC-DC
PS6855-PSL-D	External PSU for OS6855-24 and OS6855-U24; 80W, -48V/12V DC-DC
PS6855-PSL-DL	External PSU for OS6855-24 and OS6855-U24; 80W, 24V/12V DC-DC

Specification	Weight	Depth	Width	Height
Power supply (AC, DC or PoE)	2.00lb/1.00kg	6.50"	6.30”	1.73” (1RU)
Power supply and Tray	3.52lb/1.60kg	7.00"	13.88”	1.73” (1RU)

Any power supply can be remotely connected using a cable, which enables rack mounting using the mounting ears provided with the unit. This feature allows for space sensitive installations requiring reduced-depth (e.g., a wall-mounted cabinet).

Product specifications

Features

Simplified manageability and ease of use

- Intuitive Alcatel-Lucent command line input (CLI)
- Easy-to-use, point-and-click web based element manager (WebView) with built-in help
- Full configuration through SNMP- v1/v2/v3
- Supports RFC 2819 RMON group (1-Statistics, 2-History, 3-Alarm and 9-Events)
- Extensive user manuals with examples
- Remote telnet management or secure shell access using SSH
- Out-of-bound management through console
- Secured file upload using SFTP or SCP
- Dual image and dual configuration file storage provides backup
- Human readable ASCII based configuration files for offline editing and bulk configuration
- BootP/DHCP client allows auto-config of switch IP information to simplify deployment
- Auto-negotiating 10/100/1000 ports automatically configure port speed and duplex setting
- Auto MDI/MDIX automatically configures transmit and receive signals to support straight through and crossover cabling
- DHCP relay to forward client requests to a DHCP server
- Integration with SNMP manager OmniVista for network-wide management
- Network Time Protocol (NTP) for network wide time synchronization
- Alcatel-Lucent Mapping Adjacency Protocol (AMAP) for building topology maps within OmniVista
- 802.1AB – Link Layer Discovery Protocol (LLDP) with MED extensions
- GVRP for 802.1Q-compliant VLAN pruning and dynamic VLAN creation
- Auto QoS for switch management traffic as well as traffic from Alcatel-Lucent IP phones

Troubleshooting

- Port-based mirroring
- Remote-port mirroring
- Policy-based mirroring - Allows selection of the type of traffic to mirror by using QoS policies
- Port monitoring feature that allows capture of Ethernet packets to a file, or for on-screen display to assist in troubleshooting
- sFlow v5 support to monitor and effectively control and manage the network usage
- Local (on the flash) and remote logging (Syslog)
- IP tools: ping and trace
- 802.1ag Ethernet OAM (L2 ping and trace)

High availability

- Ring Rapid Spanning Tree optimized for ring topology to provide less than 100ms convergence time
- 802.1w Rapid Recovery Spanning Tree allows sub-second failover to redundant link
- Alcatel-Lucent per-VLAN spanning tree (1x1)
- 802.1D spanning tree for loop free topology and link redundancy
- 802.1s multiple spanning tree
- Fast forwarding mode on user ports to bypass 30-second delay for spanning tree
- Static and 802.3ad dynamic link aggregation that supports automatic configuration of link aggregates with other switches
- Broadcast storm control
- BPDU blocking – automatically shuts down switch ports being used as user ports if a spanning tree BPDU packet is seen
- Unidirectional Link Detection Protocol (UDLD) for detecting one way connections
- Graceful Protocol Restart – OSFP
- VRRP
- Redundant 1:1 power provided by the OmniSwitch 6855 backup power supplies

Quality of Service

- Priority queues: eight hardware-based queues per port
- Traffic prioritization: Flow-based QoS with internal and external (a.k.a., remarking) prioritization
- Bandwidth management: flow based bandwidth management, ingress policing/egress shaping and port based egress shaping
- Queue management: Random Early Detect/Discard (RED), configurable de-queuing algorithm; strict priority, weighted and deficit round robin.

Advanced security

- MAC limiting – learned port security
- Allowed MAC addresses
- 802.1X multi-client, multi-VLAN support for per client authentication and VLAN assignment
- IEEE 802.1X with group mobility
- IEEE 802.1X with MAC based authentication, group mobility or "guest" VLAN support
- 802.1x with VoIP VLAN support
- MAC-based authentication for non-802.1X host
- Authenticated VLAN
- Captive portal – an embedded web portal for user authentication .*
- Automatic quarantine
- PKI authentication for SSH access
- Support for host integrity check and remediation VLAN
- Support for Alcatel-Lucent OmniVista 2770 Quarantine Manager and quarantine VLAN
- Traffic Anomaly Detection (TAD) – embedded
- RADIUS and LDAP admin authentication
- TACACS+ client allows for authentication authorization and accounting with a remote TACACS+ server
- Secure Shell (SSH), Secure Socket Layer (SSL) for HTTPS access and SNMPv3 for encrypted remote management communication
- Access control lists (ALC) to filter out unwanted traffic including denial of service attacks
- Flow based filtering in hardware (L1-L4); port based, VLAN based ACLs
- ACL editing
- Support of Microsoft Network Access Protection
- Switch protocol security
  - ¬ MD5 for RIPv2, OSPFv2 and SNMPv3
  - ¬ SSH for secure CLI session with PKI support
  - ¬ SSL for secure HTTP session

Metro Ethernet Services

- QinQ (VLAN stacking) - 802.1ad – provider bridge
- VLAN translation
- Ethernet OAM compliant with 802.1ag version 7.0
- Ethernet OAM compliant with 802.3ah*
- DHCP Snooping, DHCP IP Spoof protection
- DHCP Option 82 – relay agent information
- MEF 9 and 14 certified

L3 routing protocols (IPv4 and IPv6)

IP routing

- Static routing
- RIP v1 and v2, RIPng
- OSPF v2, v3
- GRE tunnels
- IP/IP tunnels

* Contact for availability

Multicast
- IGMP v1/v2/v3
- IGMP snooping, MLD snooping
- PIM-SM, PIM-DM
- DVMRP

Network protocol
- TCP/IP stack
- ARP
- DHCP relay
- Generic UDP relay per VLAN

Layer-3 routing (IPX): IP routing, static routing, RIP/SAP

Specifications

Indicators
- Per port LEDs: link / activity /PoE
- System LEDs: OK (switch HW/SW status)
- PS1/PS2: primary and/or redundant power supply status

Compliance and Certification Commercial
EMI/EMC
- FCC CRF Title 47 Subpart B (Class A and Class B* limits)
- VCCI (Class A and Class B* limits
- AS/NZS 3548 (Class A and Class B*)
- CE marking for European countries (Class A and Class B*)
- EN 55022: 2006 (Emission Standard)
- EN 61000-3-3: 1995
- EN 61000-3-2: 2006
- EN 55024: 1998 (Immunity Standards)
  - ¬ EN 61000-4-2: 1995+A1: 1998
  - ¬ EN 61000-4-3: 1996+A1: 1998
  - ¬ EN 61000-4-4: 1995
  - ¬ EN 61000-4-5: 1995
  - ¬ EN 61000-4-6: 1996
  - ¬ EN 61000-4-8: 1994
  - ¬ EN 61000-4-11: 1994
- IEEE802.3: Hi-Pot Test (2250 VDC on all Ethernet ports)

Industrial
- IEC 60870-2-2 (operational temperature)
- IEC 60068-2-1 (temperature type test – cold)
- IEC 60068-2-2 (temperature type test – hot)
- IEC 60721-3-1: Class 1K5 (storage temperature)
- IEC 68-2-30 95% non-condensing humidity
- IEC 60255-21-2 (mechanical shock)
- IEC 60255-21-1 (vibration)

EMI/EMC
- EN 61131-2
- EN 55024: 1998 (Immunity Standards)
  - ¬ IEC 61000-4-3
  - ¬ IEC 61000-4-12
  - ¬ IEC 61000-4-16
  - ¬ IEC 61000-4-17
  - ¬ IEC 61000-4-29
- IEC 60255-5
- IEC 61850-3 (Electric power Substations)
- IEEE 1613 (C37.90.x)
  - ¬ C37.90.3 (ESD)
  - ¬ C37.90.2 (Radiated RFI)
  - ¬ IEEE1613 C37.90.1 (Fast Transient)
  - ¬ IEEE1613 C37.90.1 (Oscillatory)
  - ¬ IEEE1613 C37.90 (H.V. Impulse)
  - ¬ IEEE1613 C37.90 (Dielectric Strength)

NEBs **
- GR-63-CORE (temp, humidity, altitude, contamination)
- GR-1089-CORE Issue 4 (section 2-3)
- GR-1089-CORE Issue 4 (section 3.2, 4-10)

Military
- MIL-STD-810F (shock and vibration)
- MIL-STD-901D (shock) **
- MIL-STD-167-1 (vibration)**
- MIL-STD-810F, Methods 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 512, 514, 515, 516, 520, 521 **
- MIL-STD-461E: CE101, CE102, CS101, CS114, CS115, CS116, RE101, RE 102, RS101, RS103 **

Safety Agency Certifications
- US UL 60950
- IEC 60950-1:2001; all national deviations
- EN 60950-1: 2001; all deviations
- CAN/CSA-C22.2 No. 60950-1-03
- NOM-019 SCFI, Mexico
- AS/NZ TS-001 and 60950:2000, Australia
- UL-AR, Argentina
- UL-GS Mark, Germany
- EN 60825-1 Laser, EN60825-2 Laser
- CDRH Laser

IEEE
Standards
- IEEE 802.1D (STP)
- IEEE 802.1p (CoS)
- IEEE 802.1Q (VLANs)
- IEEE 802.1ad (Provider Bridge) QinQ(VLAN stacking)
- IEEE 802.1ag (Connectivity Fault Management)
- IEEE 802.1s (MSTP)
- IEEE 802.1w (RSTP)
- IEEE 802.1X (Port Based Network Access Protocol)
- IEEE 802.3i (10BaseT)
- IEEE 802.3u (Fast Ethernet)
- IEEE 802.3x (Flow Control)
- IEEE 802.3z (Gigabit Ethernet)
- IEEE 802.3ab (1000BaseT)
- IEEE 802.3ac (VLAN Tagging)
- IEEE 802.3ad (Link Aggregation)
- IEEE 802.3af (Power-over-Ethernet)

IETF Standards
IPv4
- RFC 2003 IP/IP tunneling
- RFC 2784 GRE tunneling

OSPF
- RFC 1253/1850/2328 OSPF v2 and MIB
- RFC 1587/3101 OSPF NSSA Option
- RFC 1765 OSPF Database Overflow
- RFC 2154 OSPF MD5 Signature
- RFC 2370/3630 OSPF Opaque LSA
- RFC 3623 OSPF Graceful Restart

RIP
- RFC 1058 RIP v1
- RFC 1722/1723/2453/1724 RIP v2 and MIB
- RFC 1812/2644 IPv4 Router Requirement
- RFC 2080 RIPS ng

IP Multicast
- RFC 1075 DVMRP
- RFC 1112 IGMP v1
- RFC 2236/2933 IGMP v2 and MIB
- RFC 2362 PIM-SM
- RFC 2365 Multicast
- RFC 2715/2932 Multicast Routing MIB
- RFC 2934 PIM MIB for IPv4
- RFC 3376 IGMPv3

IPv6
- RFC 1886 DNS for IPv6
- RFC 2292/2373/2374/2460/2462 IPv6
- RFC 2461 NDP
- RFC 2463/2466 ICMP v6 and MIB
- RFC 2452/2454 IPv6 TCP/UDP MIB
- RFC 2464/2553/2893/3493/3513 IPv6
- RFC 3056 IPv6 Tunneling
- RFC 3542/3587 IPv6

Manageability
- RFC 854/855 Telnet and Telnet options
- RFC 1155/2578-2580 SMI v1 and SMI v2
- RFC 1157/2271 SNMP
- RFC 1212/2737 MIB and MIB-II
- RFC 1213/2011-2013 SNMP v2 MIB
- RFC 1215 Convention for SNMP Traps
- RFC 1573/2233/2863 Private Interface MIB
- RFC 1643/2665 Ethernet MIB
- RFC 1901-1908/3416-3418 SNMP v2c
- RFC 2096 IP MIB
- RFC 2570-2576/3411-3415 SNMP v3
- RFC 2616 /2854 HTTP and HTML
- RFC 2667 IP Tunneling MIB
- RFC 2668/3636 IEEE 802.3 MAU MIB
- RFC 2674 VLAN MIB
- RFC 4251 Secure Shell Protocol architecture
- RFC 4252 The Secure Shell (SSH) Authentication Protocol
- RFC 959/2640 FTP

* Note: Class A with UTP cables and Class B with STP cables
** Contact for availability

Security

- RFC 1321 MD5
- RFC 2104 HMAC Message Authentication
- RFC 2138/2865/2868/3575/2618 RADIUS Authentication and Client MIB
- RFC 2139/2866/2867/2620 RADIUS Accounting and Client MIB
- RFC 2228 step
- RFC 2284 PPP EAP
- RFC 2869/2869bis RADIUS Extension

Quality of Services

- RFC 896 Congestion control
- RFC 1122 Internet Hosts
- RFC 2474/2475/2597/3168/3246 DiffServ
- RFC 3635 Pause Control

Others

- RFC 791/894/1024/1349 IP and IP / Ethernet
- RFC 792 ICMP
- RFC 768 UDP
- RFC 793/1156 TCP/IP and MIB
- RFC 826/903 ARP and Reverse ARP
- RFC 919/922 Broadcasting internet datagram
- RFC 925/1027 Multi LAN ARP / Proxy ARP
- RFC 950 Subnetting
- RFC 951 Bootp
- RFC 1151 RDP
- RFC 1191 Path MTU Discovery
- RFC 1256 ICMP Router Discovery
- RFC 1305/2030 NTP v3 and Simple NTP
- RFC 1493 Bridge MIB
- RFC 1518/1519 CIDR
- RFC 1541/1542/2131/3396/3442 DHCP
- RFC 1757/2819 RMON and MIB
- RFC 2131/3046 DHCP/BootP Relay
- RFC 2132 DHCP Options
- RFC 2251 LDAP v3
- RFC 2338/3768/2787 VRRP and MIB
- RFC 3060 Policy Core
- RFC 3176 sFlow
- RFC 3021 Using 31-bit prefixes

OmniSwitch 6855 Models

PART NUMBER	DESCRIPTION
OS6855-14 **OS6855-14D**	OS6855-14 Hardened Gigabit Ethernet L3 fixed configuration fan-less switch in a 1U form factor designed to operate in harsh environments. It has 12 RJ-45 connectors individually configurable to 10/100/1000BaseT, four of which are PoE capable and two SFP ports which support various distances. The bundle comes with OS6855-PSS or OS6855-PSS-D power supply respectively
OS6855-U10 **OS6855-U10D**	OS6855-U10 Hardened Gigabit Ethernet L3 fixed configuration fan-less switch in a 1U form factor designed to operate in harsh environments. It has two RJ-45 connectors individually configurable to 10/100/1000BaseT, and eight SFP ports which support various distances. The bundle comes with OS6855-PSS or OS6855-PSS-D power supply respectively
OS6855-24	OS6855-24 Hardened Gigabit Ethernet L3 fixed configuration switch in a 1U form factor designed to operate in harsh environments. It has 20 RJ-45 connectors individually configurable to 10/100/1000BaseT, four of which provide PoE and four combo ports. On the combo ports, either copper or fiber can be used on a one-for-one basis. The bundle comes with OS6855-PSL-P power supply .
OS6855-24DL **OS6855-24D**	OS6855-24 Hardened Gigabit Ethernet L3 fixed configuration switch in a 1U form factor designed to operate in harsh environments. It has 20 RJ-45 connectors individually configurable to 10/100/1000 BaseT, four of which are PoE capable and four combo ports. On the combo ports, either copper or fiber can be used on a one for one basis. The bundle comes with OS6855-PSL-DL or OS6855-PSL-D power supply respectively. PoE is not supported when DC power supplies are used.
OS6855-U24 **OS6855-U24DL** **OS6855-U24D**	OS6855-U24 Hardened Gigabit Ethernet L3 fixed configuration switch in a 1U form factor designed to operate in harsh environments. It has 22 SFP ports which support various distances, and two combo ports. On the combo ports, either RJ-45 connectors individually configurable to 10/100/1000BaseT, or fiber SFP can be used on a one-for-one basis. The bundle comes with OS6855-PSL OS6855-PSL-DL or OS6855-PSL-D power supply respectively

OmniSwitch 6855 Backup Power Supplies

For OS6855-14 and OS6855-U10

PART NUMBER	DESCRIPTION
OS6855-PSS	OS6855-PSS power brick AC power supply. Provides only system power. Does not provide PoE.
OS6855-PSS-P	OS6855-PSS-P power brick AC power supply. Provides PoE only power to one OS6855-14.
OS6855-PSS-D	OS6855-PSS-D power brick 24V or -48V input DC power supply. Provides only system power to one switch. Does not provide PoE.

For OS6855-24 and OS6855-U24

PART NUMBER	DESCRIPTION
OS6855-PSL	OS6855-PSL modular AC backup power supply. Provides backup system power to one OS6855-U24 switch.
OS6855-PSL-P	OS6855-PSL-P modular AC backup power supply. Provides backup system and PoE power to OS6855-24 switch.
OS6855-PSL-D	OS6855-PSL-D modular -48V input DC backup power supply. Provides backup system power to one 24 port OS6855 switch
OS6855-PSL-DL	OS6855-PSL-DL modular 24V input DC backup power supply. Provides backup system power to one 24 port OS6855 switch.

Transceivers	All optical transceivers qualified for OmniSwitch 6855 operate at wider operating temperature range then the corresponding commercial types.
PART NUMBER	DESCRIPTION
iSFP-GIG-LH70	1000BaseLH Industrial Gigabit Ethernet optical transceiver (SFP MSA). Supports single mode fiber over 1550nm wavelength (nominal) with an LC connector. Typical reach of 70 Km on 9/125 µm SMF.
iSFP-GIG-LH40	1000BaseLH Industrial Gigabit Ethernet optical transceiver (SFP MSA). Supports single mode fiber over 1310 nm wavelength (nominal) with an LC connector. Typical reach of 40 Km on 9/125 µm SMF.
iSFP-GIG-LX	1000BaseLX Industrial Gigabit Ethernet optical transceiver (SFP MSA). Supports single mode fiber over 1310nm wavelength (nominal) with an LC connector. Typical reach of 10 Km on 9/125 µm SMF.
iSFP-GIG-SX	1000BaseSX Industrial Gigabit Ethernet optical transceiver (SFP MSA). Supports multimode fiber over 850nm wavelength (nominal) with an LC connector. Typical reach of 300m on 62.5/125 µm MMF or 550m on 50/125 µm MMF.
iSFP-100-MM	100BaseFX Industrial SFP transceiver with an LC type interface. This transceiver is designed for use over multimode fiber optic cable.
iSFP-100-SM15	100BaseFX Industrial SFP transceiver with an LC type interface. This transceiver is designed for use over single mode fiber optic cable up to 15KM.
iSFP-100-SM40	100BaseFX Industrial SFP transceiver with an LC type interface. This transceiver is designed for use over single mode fiber optic cable up to 40KM.
iSFP-100-BX-U	100BaseBX Industrial SFP transceiver with an SC type interface. This bi-directional transceiver is designed for use over single mode fiber optic on a single strand link up to 20KM point-to-point. This transceiver is normally used in the client (ONU) transmits 1310nm and receives 1550nm optical signal
iSFP-100-BX-D	100BaseBX Industrial SFP transceiver with an SC type interface. This bi-directional transceiver is designed for use over single mode fiber optic on a single strand link up to 20KM point-to-point. This transceiver is normally used in the central office (OLT) transmits 1550nm and receives 1310nm optical signal

Alcatel·Lucent