



POINT TO POINT

ALFO

AccessLink Series

ALFO series is a full-outdoor digital radio system for point-to-point applications, it has been designed to target LAN-to-LAN applications for Enterprise market segment in which the typical requirements are Ethernet connections with high data throughput. ALFO series supports Ethernet throughput ranging from 4 Mbit/s up to 100 Mbit/s, using the most appropriate modulation scheme (4/16/32 QAM).

OUTDOOR UNIT

A lightweight, compact, weatherproof box contains the transceiver, baseband unit, line interface and lightning protection.

- Compact, lightweight design for easy and quick deployment
- Weather proofing class IP 65
- MMIC technology
- Excellent interference rejection
- Excellent short and long term frequency stability
- Automatic transmit power control
- Automatic modulation selection vs. received signal quality
- Strong Forward Error Correction (Reed Solomon)
- Embedded High-Performance Ethernet switch with VLAN management
- E1 way-side software selectable with built-in ITU-T 2¹⁵-1 Pseudo-Random Pattern Generator, Error Detector and loops
- Software programming of system parameters (RF frequency, TX power, spectrum occupancy, RX threshold, transmission capacity, etc.)
- Internal Alarms Recorder (1000 Events)
- In-band or out-of-band management via IP Network



Two ODU models are available.

Each ODU version supports only two different space channels and three capacity range

- 1+0 configurations
- LC (Low Capacity) from 4 to 16 Mbit/s
- HC (High Capacity) from 16 to 100 Mbit/s

Capacity	4Mb		8Mb		16Mb		34Mb		68Mb	100Mb
Modulation	4QAM	16QAM	4QAM	16QAM	4QAM	16QAM	4QAM	16QAM	4QAM	32QAM
LC	✓	✓	✓	✓	-	-	-	-	-	-
HC	-	-	-	-	✓	✓	✓	✓	✓	✓
Channel BW [MHz]	3.5	3.5	7	7	14	14	28	28	28	28

- ▶ ALFO7 7.11 - 7.90
- ▶ ALFO8* 7.70 - 8.50
- ▶ ALFO10* 10.50 - 10.70
- ▶ ALFO13 12.75 - 13.25
- ▶ ALFO15 14.40 - 15.35
- ▶ ALFO18 17.70 - 19.70
- ▶ ALFO23 21.20 - 23.60
- ▶ ALFO25 24.50 - 26.50
- ▶ ALFO28 27.50 - 29.50
- ▶ ALFO32* 31.80 - 33.40
- ▶ ALFO38 37.00 - 39.50

*Under development

ACCESS LINK FULL OUTDOOR SERIES

- Advanced Microwave Technology
- Hitless modulation switch based on signal quality
- High Circuit Integration
- Data Cyphering (128bit)
- Automatic hop length measurement
- Lightning Protection
- Reduced Power Consumptions
- Excellent Reliability
- Easy Installation and Maintenance
- Frequency range from 7 GHz up to 38 GHz

TYPICAL APPLICATIONS

- LAN to LAN connections
- Last Mile access for SME and Corporate segments
- Private networks
- Simultaneous Ethernet and E1 service
- Back-up routes for data network
- Emergency links

CHARACTERISTICS

- Full Software Capacity and Modulation Selection
- Fast Installation & Commissioning
- Easy Configuration Upgrade
- Low Cost O&M (high Reliability and fast restoring of replaceable Units)
- Integrated Ethernet R-MON statistics and G.828 Performance Monitoring, Alarm History Log, etc.
- Full Availability of O&M Tools (Loopbacks, distance measurement, field measurement, etc.)
- Integrated under SIAE NMS element manager

TECHNICAL SPECIFICATIONS(*)

• Supported Configurations		1+0						
• Modulation Schemes		4/16 QAM (with adaptive modulation scheme) 32 QAM (only for 100 Mbit/s)						
• Supported PDH Capacities (Mbit/s)		1xE1						
• Supported Ethernet throughput		4 to 100 Mbit/s						
• Demodulation (fully Digital)		Coherent						
• RF Channel Spacing (MHz)		4Mb	8Mb	16Mb	34Mb	68Mb	100Mb	
	4 QAM	3.5	7	14	28	-	-	
	16 QAM	-	3.5	7	14	28	-	
	32 QAM	-	-	-	-	-	28	
• Traffic Interfaces		Ethernet 10/100 BaseT, E1 120 Ω						
• Output Power at Point C' Standard:		7/8 GHz	13/15 GHz	18 GHz	23 GHz	25 GHz	28 GHz	38 GHz
	4 QAM	+27	+25	+20	+20	+20	+19	+17
	16 QAM	+22	+20	+15	+15	+15	+14	+13
	32 QAM	+20	+20	+15	+15	+15	+14	+13
• Receiver Sensitivity at BER 10 ⁻³ at point C (1+0 conf., RF filter losses included)								
Capacity 34 Mbit/s	4 QAM	-87	-86,5	-86	-86	-85,5	-85	-84
	16 QAM	-83	-82,5	-82	-82	-81,5	-81	-80
Capacity 100 Mbit/s	32 QAM	-77	-76,5	-76	-76	-75,5	-75	-74
• Frequency Stability		± 5 ppm						
• ATPC		40 dB range implemented in 1 dB steps						
• Transmitter Power Attenuation		Software programmable, up to 40 dB in 1 dB steps						
• RTPC		up to 40 dB in 1 dB steps, software programmable						
• Service Channels		VOIP						
• ODU Connector		IP67 25pin SUB-D style and IP67 M12						
• Management Interfaces	TMN	Ethernet 10/100 BaseT						
• Mechanical Dimensions ODU (W x H x D):		256.5 x 256.5 x 114 (mm)						
• Power Supply		25 ÷ 57.6Vdc floating						
• Power Consumption (perTerminal)		≤ 30 W in 1+0 configuration (f ≤ 15 GHz) ≤ 25 W in 1+0 configuration (f > 15 GHz)						
• Environmental Performance								
ODU weather proofing class:		IP65						
ODU temperature range:		from -35 °C to +55 °C						
• Layer-2 Switch Functionalities		MAC Address Switching, Ageing and Learning VLAN (IEEE 802.1q) Ethernet QoS (IEEE 802.1p) Flow Control (IEEE 802.3x) IP-V4 ToS / DSCP						
• Compliant with		ETSI EN 302 217						
• Accessories		19" cable termination rack Battery back-up unit						

(*) Nominal values