



POINT TO POINT

# ALS23

## Access Link Synchronous Family

ALS23 is SIAE solution for transport and access SDH radio network applications in the 22.00 ÷ 23.60 GHz frequency band. The ALS equipment family provides scalable data rates from 155 to 622 Mbit/s in a single hardware platform across the full range of licensed frequency bands. A wide range of tributary interfaces and system configurations offers maximum versatility in system engineering and network planning. Modularity options, commonalities and extensive software management capabilities allow for ALS cost-effectiveness and scalability, yielding a product that will easily adapt to changing needs in the future.

# ALS23

Access Link Synchronous Family

- ▶ ALS6L 5.92 - 6.42
- ▶ ALS6U 6.42 - 7.11
- ▶ ALS7 7.11 - 7.75
- ▶ ALS7U 7.40 - 7.90
- ▶ ALS8 7.72 - 8.27
- ▶ ALS11 10.70 - 11.70
- ▶ ALS13 12.75 - 13.25
- ▶ ALS15 14.40 - 15.35
- ▶ ALS18 17.70 - 19.70
- ▶ ALS23 22.00 - 23.60
- ▶ ALS25 24.50 - 26.50
- ▶ ALS28 27.50 - 29.50
- ▶ ALS32\* 31.80 - 33.40
- ▶ ALS38 37.00 - 39.50

\*Under development



OUTDOOR UNIT

### OUTDOOR UNIT

The outdoor unit is a compact, light and waterproof (IP65) box designed for easy and quick deployment

- Frequency bands: from 6 to 38 GHz
- Fully synthesized microwave unit
- MMIC technology
- Full software programmability of main RF parameters
- Extended software-programmable frequency agility
- Configuration, capacity and modulation independent
- Excellent short and long term frequency stability
- Three emission power levels (Low power, Standard, High power)
- Supports co-channel operation

### INDOOR UNIT

Best-in-class IDU compactness supporting scalable data rates from STM-1 to STM-4 and 32 / 128 BCM modulation schemes in one unit rack space

- Supported capacities: STM-1, 2xSTM-1, 3xSTM-1, 4xSTM-1, STM-4
- Full digital modem supporting 32 and 128 BCM (software selectable)
- Tributary interfaces:
  - electrical / optical STM-1
  - optical STM-4
  - fast / gigabit Ethernet
  - 63xE1
- System configurations: 1+0, 1+1 HSB / SD / FD / SD+FD, 2+0
- Modular design supporting SDH, PDH and Ethernet interfaces
- Frequency, capacity and modulation independent
- Integrated XPIC functionality
- Hitless switching in protected configurations
- Embedded SNMP Agent
- Out-band and in-band communication ports for TMN connections
- Service channels: 1x2 Mbit/s wayside channel per STM-1 (maximum 2), 1xV.11 64 kbit/s
- Powerful FEC employing BCM
- Overhead bytes used in accordance with ITU-T and ETSI specifications
- 19" mechanical arrangement



INDOOR UNIT

## ACCESS LINK SYNCHRONOUS FAMILY

- Scalable capacity from 155 to 622 Mbit/s
- Reduced Power Consumption
- Electrical and Optical Line Interfaces
- Full Software Programmability
- Support SDH, PDH and Ethernet traffic
- Easy Installation and Maintenance
- High system commonalities
- XPIC feature for Co-channel operation
- Compact and Space-saving Solution
- Excellent Reliability



## ALS FAMILY • Typical Applications

- 2G/3G Cellular Network Infrastructure
- Back-up transmission medium to Fiber Optics Links
- Spur Links for Optical SDH Backbones / Rings
- Wireless SDH Radio Ring Deployment up to STM-4
- High Capacity SDH Access Networks

## ALS FAMILY • Characteristics

- Full Software Capacity and Modulation Selection
- Easy Configuration Upgrade
- Low O&M Cost (high reliability and commonality)
- Integrated G.821 / G.826 / G.828 Performance Monitoring
- Extensive remote maintenance facilities
- Extended Environmental Compatibility
- Integrated under SIAE NMS5-UX element manager

## TECHNICAL SPECIFICATIONS

• Frequency Range	22.00 ÷ 23.60 GHz (ITU-R F.637 and ERC/T/R 13-02)		
• RFTuning Range (via software)	112 MHz		
• TX/RX Duplex Frequency Separation	1008 MHz		
• Supported Configurations	1+0 / 1+1 HSB / 1+1 SD / 1+1 FD / 2+0		
• Modulation Schemes	32 / 128 BCM		
• Supported Capacities	STM-1 / 2xSTM-1 / 3xSTM-1 / 4xSTM-1 / STM-4		
• Demodulation	Coherent (fully digital)		
• Output Power at Point C':	STM-1 (32 BCM)	STM-1 (128 BCM)	2xSTM-1 / 4xSTM-1 / STM-4 (128 BCM)
Low Power Version (dBm)	+ 17	+ 14	+ 14
Standard Version (dBm)	+ 20	+ 16	+ 16
High Power Version (dBm)	+ 22	+ 18	+ 18
• Receiver Sensitivity at BER 10 <sup>-3</sup> at point C (1+0 conf., RF filter losses included)			
Rx Power (dBm) Low PowerVersion	- 73	- 68	- 65
Rx Power (dBm) Standard/High PowerVersion	- 73	- 68	- 65
• Frequency Stability	± 5 ppm		
• ATPC	20 dB range implemented in 1 dB steps		
• RTPC	up to 40 dB in 1 dB steps, software programmable		
• Tributary Interfaces	Electrical / Optical STM-1 Optical STM-4 Fast / Gigabit Ethernet 63xE1		
• Service Channels	1x2 Mbit/s wayside channel per STM-1 (maximum 2) 1xV.11 64 Kbit/s		
• IDU/ODU Interconnection (per terminal)	One 50 Ω Coaxial Cable per RT N-type connectors		
• Power Supply	- 48Vdc (- 15%, + 20%)		
• Power Consumption (per Terminal)	55 W in 1+0 configuration 110 W in 1+1 configuration		
• Environmental Performance	ODU Weather Proofing Class	IP65	
	IDU Temperature Range	- 5 °C to + 50 °C	
	ODU Temperature Range	- 35 °C to + 55 °C	
• Compliant with	ETSI EN 302 217		

## RF CHANNEL SPACING

- STM-1      56 MHz (32 BCM) or  
              28 MHz (128 BCM)
- 2xSTM-1    55 MHz (128 BCM) or  
              27.5 MHz Co-Channel with XPIC (128 BCM)
- 4xSTM-1 / STM-4    55 MHz Co-Channel with XPIC (128 BCM)



# ALS23

Access Link Synchronous Family

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