



## OUTDOOR UNIT

**The Outdoor Unit (ODU) is an extremely compact and light weatherproof (IP65) box, designed for easy and quick deployment**

- Fully Synthesized Microwave Unit
- MMIC Technology
- Full Software Programmability of main RF Parameters
- Extended (Software) Frequency Agility
- Configuration Independent (Same ODU for both 1+0 and 1+1 Conf.)
- Capacity Independent (Same ODU for all Capacities)
- Excellent short and long term Frequency Stability
- Modulation Independent (same ODU for 4 QAM and 16 QAM)
- Built-in ATPC functionality

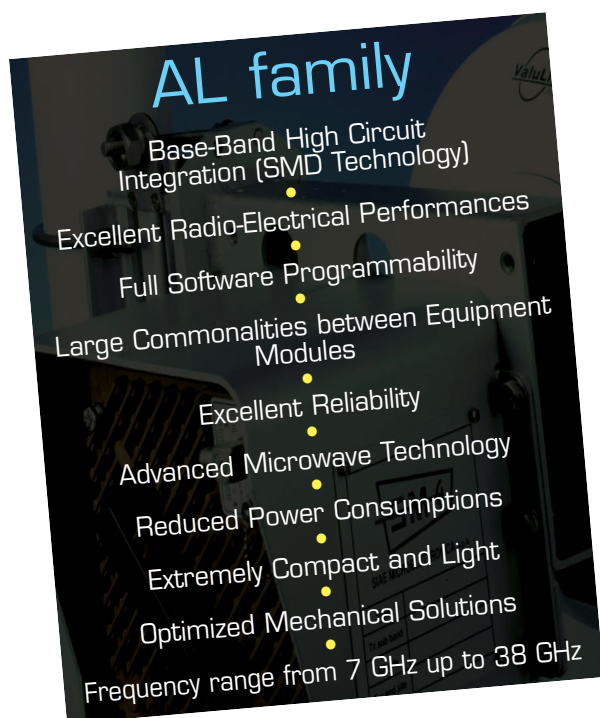
AL38 is a "fully programmable" PDH Radio Equipment, working in the 37,0 ÷ 39,5 GHz Frequency Band; it has been designed in order to meet any low & medium capacity transmission need with a wide range of available interfaces. AL38 is a "split-mount" Equipment, supporting all PDH traffic capacities ranging from 2 Mbit/s up to 16x2 Mbit/s (or 34 Mbit/s). 32x2/2x34 Mbit/s version is also available with 16 QAM Modulation. Ethernet/Fast Ethernet LAN interfaces are also supported.



## INDOOR UNIT

**The Indoor Unit (IDU) carries payload traffic and auxiliary signals and is frequency and modulation independent**

- Same IDU for all Frequency Bands
- Full Digital Modem supporting 4 QAM and 16 QAM Mod. (Software selectable)
- Software programming of System Parameters (RF channel, Tx Power, etc.)
- Hitless Switching for 1+1 Configuration
- 19" Mechanical arrangement (ETSI compatible)
- 1+0 "Not Expandable" version: capacity from 2 Mbit/s up to 4x2 Mbit/s ( 1/2 Unit Height)
- 1+0 / 1+1 version: capacity 32x2 Mbit/s (2 Unit Height)
- 1+0 / 1+1 "Compact" version: capacity from 2x2 Mbit/s up to 34 / 16x2 / 2x34 Mbit/s (1 Unit Height)
- 1+0 / 1+1 "Fully Duplicated" version: capacity from 2x2 Mbit/s up to 34 / 16x2 Mbit/s (2 Unit Height), supporting Tributary Protection
- Laptop Interface for setting Radio Link Configuration, Parameters, Alarms, etc.
- Network Management through SNMP Protocol
- Powerful FEC circuit
- Extended Use of DSP Techniques
- EOW and Data Interfaces
- Local and Remote Loopbacks Option



# AL Family

## Typical Applications

- 2G/3G Cellular Networks Infrastructure
- Private data Networks (WANs, LANs, etc.);
- Utility Networks (Railways, Pipelines, etc.)
- Back-up transmission medium to Optic Fiber
- Spur Links for Backbones / Rings
- Digital Terminal Connection (PABX, etc.)
- Leased Lines

# AL Family

## Characteristics

- Full Software Capacity Selection
- Fast Installation & Commissioning
- Easy Configuration Upgrade
- Low Cost O&M (high Reliability and fast restoring of replaceable Units)
- Integrated G.821/G.826/G.828 Performance Monitoring, Alarm History Log, etc.
- Full Availability of O&M Tools (Loopbacks, Switch Manual Forcing, etc.)
- Extended Environmental Compatibility

## TECHNICAL SPECIFICATIONS

• Frequency Range	37.0 ÷ 39.5 GHz	(ITU-R F.749)				
• TX/RX Duplex Frequency Separation	1260 MHz					
• RF Tuning Range (via Software)	560 MHz					
• Supported Configurations	1+0 / 1+1 MHSB / 1+1 S.D. / 1+1 F.D.					
• Modulation	4 QAM / 16 QAM (software selectable)					
• Supported Capacities (Mbit/s)	2 / 2x2 / 4x2 / 8x2 / 16x2 / 34 / 32x2 (*) / 2x34 (*) 10 / 100 BaseT Ethernet (IEEE 802.3) (*) 16 QAM Modulation					
• Demodulation (fully Digital)	Coherent					
• Adjacent channel separation						
Capacity (Mbit/s)	2	2x2	4x2	8x2	16x2/34	32x2/2x34
Frequency channel spacing (MHz)	4 QAM: 1.75	3.5	7	14	28	-
	16 QAM: 1	1.75	3.5	7	14	28
• Output Power at point C'	4 QAM: +18 dBm					
	16 QAM: +13 dBm					
• Receiver Sensitivity for BER 10 <sup>-3</sup> at point C (1+0 conf., RF filter losses included):						
Capacity (Mbit/s)	2	2x2	4x2	8x2	16x2/34	32x2/2x34
Rx Power (dBm)	4 QAM: -92 dBm	-89 dBm	-86 dBm	-83 dBm	-80 dBm	-
	16 QAM: -88 dBm	-85 dBm	-82 dBm	-79 dBm	-76 dBm	-73 dBm
• Frequency Stability	± 5 ppm					
• Frequency Agility	250 KHz minimum step (software programmable)					
• RF Channel Identification	255 selectable link identifier numbers					
• Spurious Emissions	According to applicable ETSI Standard					
• Base-band Equalizer	Adaptive, 3 "taps"					
• ATPC	20 dB range, implemented in 1 dB steps					
• Transmitter Power Attenuation	Software programmable, up to 40 dB in 1 dB steps					
• Service Channels	EOW, V.11/V.28, RS232C, G.703 64 Kbit/s					
• IDU/ODU interconnection	One 50 Ω Coaxial Cable per RT N-type connectors Maximum Cable length: 300 m (Helix LDF 1/4")					
• Mechanical Dimensions:						
1+0 "Not Expandable" config. (W x H x D):	480 x 22 x 260					
1+0 / 1+1 "Compact" config. (W x H x D):	480 x 45 x 260					
Outdoor Unit (W <sub>max</sub> x H <sub>max</sub> x D <sub>max</sub> ):	250 x 100 x 250					
• Power Supply	- 48 Vdc – 15%, + 20% - 24 Vdc (via an add-on Panel, 1/2 Unit Height)					
• Power Consumption (per Terminal)	1+0 config.: 30 W 1+1 config.: 50 W					
• Environmental Performance						
ODU weather proofing class:	IP65					
IDU temperature range:	from –5 °C up to +50 °C					
ODU temperature range:	from –35 °C up to +55 °C					



# AL 38

Access Link



POINT TO POINT

SINCERT



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AL 38  
Access Link

PDH Digital Radio