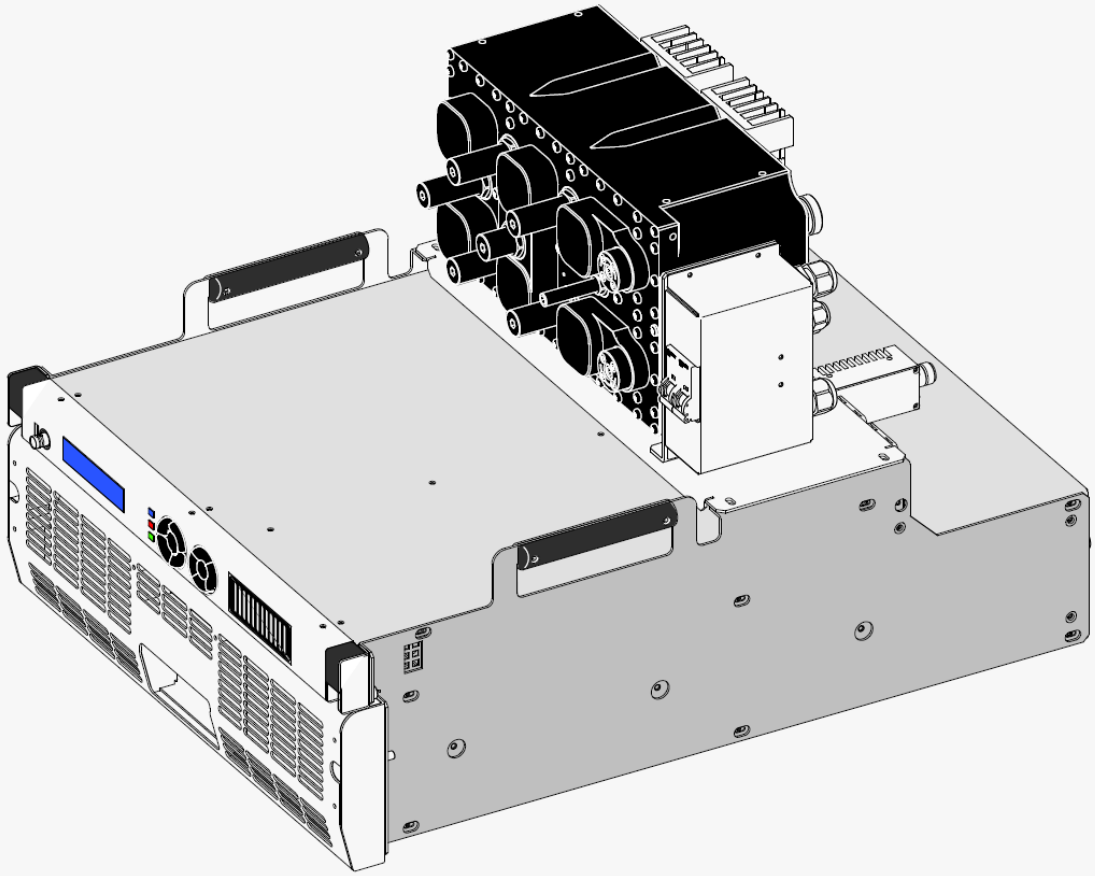
ALPANLINE

COMPACT TRANSMITTERS



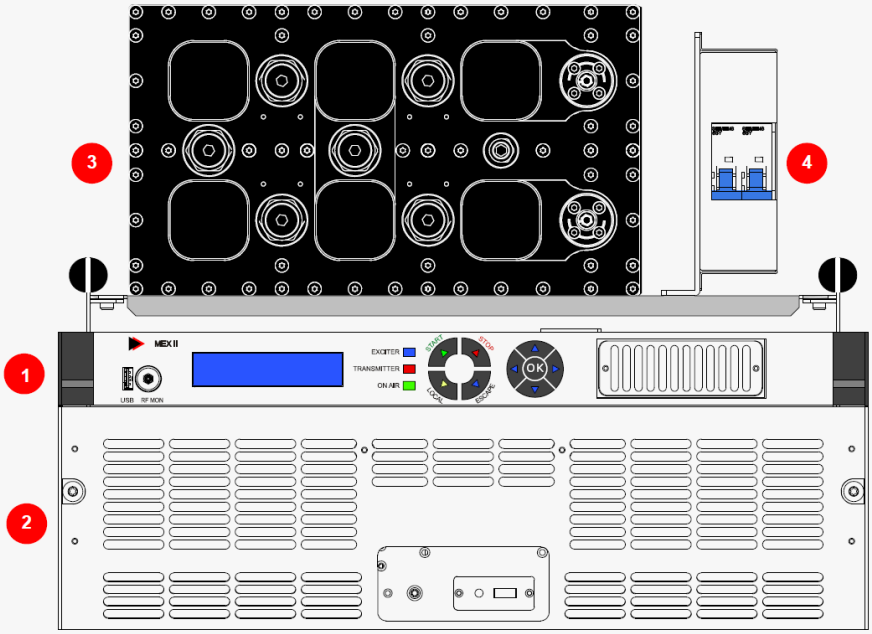
4HE | 7”

VHF/UHF **air cooled**

ALPANLINE CONFIGURATIONS

Tab. 1 – Alpan line VHF configuration data

HPAs number		PWR (W)			RF OUT CONNECTOR	
		MIN	*TYP*	*MAX*	VHF	UHF
ALPAN 1	*DIGITAL TV standards*	350 *(MER 33dB)* 300 *(MER 36dB)*	350 *(MER 33dB)* 300 *(MER 36dB)*	350 *(MER 33dB)* 300 *(MER 36dB)*	$^{7}/_{16}$"	
	ATSC 1.0	350				
	DAB	350				
	ANALOG	700				
ALPAN 2	*DIGITAL TV standards*	700 *(MER 33dB)* 600 *(MER 36dB)*	700 *(MER 33dB)* 600 *(MER 36dB)*	700 *(MER 33dB)* 600 *(MER 36dB)*	$^{7}/_{16}$"	
	ATSC 1.0	700				
	DAB	700				
	ANALOG	1200				
ALPAN 3	*DIGITAL TV standards*	1000 *(MER 33dB)* 900 *(MER 36dB)*	1000 *(MER 33dB)* 900 *(MER 36dB)*	1000 *(MER 33dB)* 900 *(MER 36dB)*	$^{7}/_{16}$"	
	ATSC 1.0	1000				
	DAB	1000				
	ANALOG	2000				



1	MEX*II* MULTISTANDARD MODULATOR	3	BAND PASS FILTER *(OPTIONAL)*
2	AMPLIFIER MODULE	4	MAINS BREAKER

Itelco recently renewed its range of compact solid state transmitters for broadcasting market, in both VHF and UHF frequencies.

The new lines maintain the traditional safety features of Itelco transmitters and improve the ease of intervention by the operators thanks to the extremely simple design.

The homogeneity among all product lines and the manufacturing process optimization allow Itelco to be extremely competitive, meeting the customers needs in terms of operating costs reduction, ease of maintenance and spare parts management.

The compact transmitter line (ALPAN), that perfectly meets low power solution requirements, is capable of delivering up to 1.4kWps (600Wrms DVB−T/H/T2).

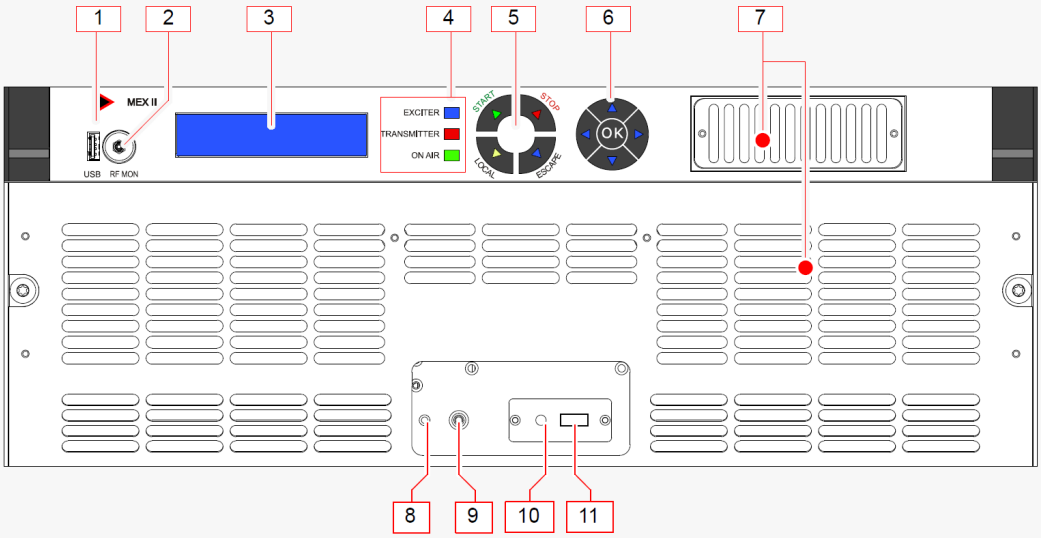
One outstanding feature of ALPAN transmitters is their Multi−Standard Capability which makes them compatible with all worldwide standards used for digital transmission, with a special attention to latest development. ALPAN line represents a Multi−Standard platform supporting DVB−T2, DVB−T/H, ISDB−T/Tb, ATSC, ATSC 3.0, DAB, and Analog TV.

A band pass filter (*available as option*) can be arranged on the suitable plate close to the mains breaker.

Its compactness, modularity and redundancy have been applied to the design of the transmitter as well as of the cooling system. ALPAN UHF transmitter line is characterized by:

MAIN FEATURES

- **Multi−Standard operation** (DVB−T/H/T2, ATSC, ATSC 3.0, ISDB−T/Tb, DAB, Analog −*all standards*)
- **Dual−Cast operation** (*optional*)
- **Fully broadband** on UHF frequencies
- **Low power consumption**
- **Doherty technology** (*optional*)
- **Latest LDMOS** technology for HPA
- **Hot−pluggable** HPA
- **USB port** for HPA section
- **MEX−II** multi−standard exciter
- **Seamless inputs** between ASI and/or IP (with priority) all combinations in SFN
- **Adaptive precorrection**
- **2 ASI**
- **GbE** available inputs (*optional*)
- **Extremely compact** design
- **Modular** design
- **Easy installation** and maintenance
- **Band−pass filter** option
- **SNMP / Web Server** remote control
- **CAN−bus** internal communication
- **Internal GPS** for SFN operation (*optional*)
- **Remote** software/firmware upgrade
- **High Efficiency** air cooling system



1	USB		USB port used only by *Itelco* for maintenance purposes. *Not used for communication with DVB−T2 modulator.*
2	RF MONITOR		Connector (SMB; female) for monitoring the RF output signal of the unit.
3	DISPLAY		High contrast LCD display (blue−white with bright backlight).
4	SET OF 4 LED INDI-CATORS	EXCITER	(*multicolor*); indicates MEX status according to the colours, as follows *BLUE* MEX is delivering its nominal RF output power; *BLUE* (*blinking*) warm up at the switching−on (approx. 30sec); within this time interval all alarms are inhibited; *BLUE/RED* (*blinking*) *warning* condition of MEX (MEX is still working); *OFF* MEX is in *STOP* condition (*EXCITER RF OFF*).
		TRANSMITTER	(*multicolor*); it is active only when MEX operates also as control logic of the transmitter where it is housed.: *BLUE* the transmitter is delivering its nominal RF output power; *BLUE/RED* (*blinking*) *warning* condition of the transmitter (transmitter is still working); *RED* failure condition of the transmitter (no RF ouput power); *OFF* when the transmitter is in *STOP* condition.
		ON AIR	(*green*); it indicates the on−air unit for TXs without *CCU* in dual−drive configuration or in 1+1 sytems without *CCU*.
5	START/STOP LOCAL/ESCAPE		Keyboard. It allows *starting/stopping* the unit and setting *local/remote* operating mode. *ESCAPE* key allows quitting from current menu.
6			Controller keyboard. It allows accessing the menu (listed on right−hand side of the display) and setting the functioning parameters of the unit.
7	GRID		Grid for cooling air inlet.

8	Push−button; it allows resetting logic section of the unit.
9	Connector (SMB, female); it allows monitoring RF output of the amplifier module.
10	Indicator led (multicolor); depending on the unit status it is lit:
	SOLID GREEN when the unit is AC supplied, but it does not deliver RF output power;
	SOLID BLUE when the unit is AC supplied and it delivers RF output power (normal operating conditions).
	BLINKING BLUE/RED when an alarm with *Warning level* has occurred (transmitter goes on).
	SOLID RED when an alarm with *Critical level* has occurred (transmitter stops).
11	USB port; PC connection for monitoring the amplifier status. A dedicated software is needed.

SPECIFICATIONS

RF DATA		
Frequency range		
■ VHF band III	174 to 254 MHz	
■ UHF band IV−V	470 to 860 (870) MHz 470 to 800	*class AB* *Doherty mode*
RF Output power	*refer to Tab. 1, Tab. 2*	
RF Output connector	*refer to Tab. 1, Tab. 2*	
Shoulder	> 38 dB	
MER	> 35 dB (DAB > 30 dB)	
Crest factor	8.5 to 9.5 dB	
Spurious Emissions	<−60 dBc (< −70 dBc with filter)	
Harmonic Emissions	<−60 dBc (< −70 dBc with filter)	
In band Spurious Emissions	<−70 dBc	
STANDARDS		
■ ***Digital TV***		
Standards	DVB−T *(fully compliant with EN 300 744, TS 101 191)* DVB−T2 *(EN 302 755, TS 102 773; TR101 290; TS 102 2831)* ISDB−T/T_b *(ARIB STB−B31, TR−B14)* ATSC, ATSC Mobile DTV, ATSC 3.0 DTMB	
Channel Bnadwidth		
• DVB−T	5/6/7/8 MHz	
• DVB−T2	1.7/5/6/7/8 MHz	
• ISDB−T/T_b	6/8 MHz	
• ATSC 3.0	6 MHz, 7 MHz, 8 MHz	
• DTMB	8 MHz	
Inputs		
• DVB−T/T2, ISDB−T/T_b, DTMB	2 BNC 75 Ω, DVB ASI, TS 188/204 packets, continuous and burst mode, 1 RJ45 GbE	
• ATSC, ATSC 3.0	2 SMPTE310M or 2 ASI, 75 Ω BNC, 2 RJ45	
■ ***Digital Radio/Mobil tv in VHF band***		
Standards	DAB, DAB+, T−DMB	
Channel Bnadwidth	1.536 MHz	
Inputs		
• ETI	2 BNC 75 Ω, (NI, G703), (NA, G7049 5376, (NA,G704) 5592 and jitter tolerance according to G.823	
• EDI	2 RJ45, IP, RTP, UDP, IGMP (v2 & v3)	
■ ***Analog TV***		
Standards (compliance to CCIR report 642−2 volume XI part I, ETS 300 384)	B/G/D/K/K1/M/N//I/I1/L	
Color transmission	PAL, NTSC, SECAM	
Sound transmission	IRT dual−sound config, FM single sound and NICAM728 (−13 dB/−20 dB) *optional*, FM single sound (−10 dB)	
Inputs		
• Video	2 BNC 75 Ω, 1 V_{pp} ± 6 dB. Manual Gain or AGC on ITS line, DC Restore, White Limiter (85−95%), Sync Restore (20−30%)	
• Audio	2 XLR 600 Ω/5 kΩ balan/unbal, 0 dBm −3 dB +19 dB. In wideband mode input 2 works up to 120kHz (MPX)	
• Additional Audio	1 BNC 50 Ω/5 kΩ for MPX (up to 120 kHz) and 1 BNC 50 Ω for auxiliary services for standard M	
• NICAM audio	2 XLR 600 Ω/5 kΩ balan/unbal, 0 dBm ± 10 dB	
• NICAM data input	1 BNC TTL 728 Kbit/s ext. data, 1 BNC TTL 728 kHz ext. clock	
MAINS SUPPLY VOLTAGE		
Ac supply	208V_{ac} – 230V_{ac} single phase	
Frequency	50/60 Hz ± 4%	
Power factor	> 0.95	
Efficiency (COFDM)	*VHF:* up to 27% *class AB* / 35% *Doherty* *UHF:* up to 22% *class AB* / 30% *Doherty*	
THD	< 6%	
Safety	EN 60215/EN 60950	
EMC	EN 301489	

REMOTE INTERFACES	
Local control	Display(s), Keyboard(s), and USB ports
Remote control	Ethernet for HTTP (Web Server)/SNMP/NTP/SSL, RS232, Parallel
Test points	RF out monitor, RF amp output, RF exciter output
SYNCHRONIZATION	
Reference frequency	Internal (OCXO or integrated GPS)/Internal locked to the External (BNC 50 Ω, 10 MHz)
Reference pulse	1pps Internal (integrated GPS)/External (BNC 50 Ω, TTL)
Internal reference Accuracy	$\pm 1 \cdot 10^{-8}$ (0 to 70 °C) $\pm 5 \cdot 10^{-10}$ per day (after 30 day) $\pm 1 \cdot 10^{-7}$ per year
METERING	
■ ***Digital TV***	
	– forward output power – refleted power
■ ***Analog TV***	
	– vision carrier output power – sound carrier output power – forward output power – refleted power
COOLING	
	forced air
MECHANICAL	
DIMENSIONS (W x H x D, in mm)	482 x 372 x 635
WEIGHTS (kg)	30
COLOUR	light grey
ENVIRONMENTAL	
Ambient temperature range	0 °C to +55 °C
Storage temperature range	−30 °C to +70 °C
Relative humidity (@ 40 °C)	95% without condensation
Max. Operating altitude (asl)	Up to 3000 meters
Safety rules	EN 60215 / EN 60950
EMC	EN 301489

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Issue *F/11*.18