

Low VHF 10W COFDM, 12W ATSC, 50Wps 10 W VHF-BI TV TRANSMITTER



TV TRANSMITTER

The PCM 10 BI is the compact air cooled low VHF TV Transmitter from PCM Line. 10 Wrms COFDM, 12 Wrms ATSC and 20 W p.s.

Low Consumption, Compact and Easy to maintain, with a clear and intuitive design, it is Syes next generation of air cooled transmitters, available in band I, III and IV-V.

The PCM family is designed to be the most efficient, robust and high performance amplifiers in the DTV era.

- ☐ Multistandard: ATSC (including ATSC3.0), ISDB-T, DTMB, DVB-T/T2, Analog.
- ☐ 2x ASI with Hitless switch, 2x IP Ethernet, A/V for analog broadcasting.
- ☐ The most advanced manual, automatic and adaptive linear and nonlinear pre-corrector.
- ☐ Fully frequency agile without need for any tuning or trimming.
- ☐ ON Board GNSS receiver (GPS, GLONASS, BEIDU, GALILEO).
- ☐ USB input to fast save/load configurations.
- ☐ Highest performances in terms of MER, BER and shoulders.
- ☐ Nr. 2 Independent temperature controlled low-noise fans.
- ☐ Use of tools is reduced almost to zero including pallets replacement.
- ☐ Remote control via SNMP, friendly web browser GUI, no need of plug-in or apps, dry contacts.

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TECHNICAL SPECIFICATIONS	
RF OUTPUT	
Output power*	• 10 Wrms COFDM • 12 Wrms ATSC • 50 Wp.s. ANALOG
Spurious / Harmonics	EN 302-296-2
Shoulders/MER	Typical: >50dB/>35dB
Connector/ Impedence	N, other available
Bandwidth	Low VHF Band I (470MHz-800MHz)
Frequency stability	1 Hz
Amplification Class:	AB class
Final Stage	N° 1 palllet with two transistors
GENERAL	
<u>Mechanical</u>	
Composition	Stand alone transmitter 1 S.U.
Dimensions (WxHxD mm - Weight)	482 mm / 44 mm / 450 mm 6 kg
<u>Cooling</u>	
Cooling System	Air Cooled
Cooling redundancy	Dual fan
<u>Environmental</u>	
Relative humidity	95% max. (non-condensing)
Operation temperature range	0° to 50°C
Storage temperature range	-20° to 70°C
Max. installation altitude	4.800 m a.s.l. (higher altitudes kit on request)
<u>Power supply & Safety</u>	
Voltage	90-264 Wide Range @ 47 to 63 Hz (auto range p.s.) power factor > 0.98
Safety /EMC	EN 60215 (IEC 215), EN301-489-53, FCC-73, IS09001-2010. RED 2014/53/UE, RoHS 2002/93/EC

*: Power outputs are subject to change due to out-of-band regulations and the required shoulder attenuation / MER, voltage, channel of operation and type of RF output filter.

** : HE High Efficiency Syes transmitting platform are WIDE BAND native, without any need for software or hardware change, tuning or other setting. Efficiency depends on several parameters such as operating standard and frequency, output power settings, spectrum performances, environmental conditions etc.

SYES

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DTV MODULATIONS	
ATSC 3.0	
Standard	ATSC 3.0: TG3/S32 Physical Layer. STL
Inputs ****	2xASI BNC (H) , ohm / 2x TSolP 10/100/1000 RJ45.
FFT Size	8K, 16K. 32K.
Code rate	2/15, 3/15, 4/15, 5/15, 6/15, 7/15, 8/15, 9/15, 10/15, 11/15, 12/15, 13/15
Guard interval	192, 384, 512, 768, 1024, 1536, 2048, 2432,3072, 3648, 4096 and 4864
Constellation	QPSK, 16QAM, 64QAM, 256QAM, 1024QAM, 4096QAM
DVB-T/-H-T2	
Standard	EN300744. EN302304. EN302755. TS 102831. TS 102 773 (T2-MI)
Inputs ****	2*ASI BNC, 75 ohm / 3xTSolP 10/100/1000 RJ45.
FFT Size	1K (DVB-T2), 2K, 4K. 8K, 16K (DVB-T2), 32K (DVB-T2) incl. ext. carrier modes
Code rate	1/2. 2/3. 3/4. 5/6. 3/5 (DVB-T2). 4/5 (DVB-T2) plus 1/3, 2/5 for T2 Lite
Guard interval	1/32,1/16. 1/8.1/4. 19/256 (DVB-T2), 19/128 (DVB-T2), 1/128 (DVB-T2)
Constellation	QPSK. 16QAM. 64QAM. 256QAM (DVB-T2). Rotated and no rotated (DVB-T2)
ISDB-Tb	
Standard	ARIB STB-B31, TR-B14
Inputs ****	2xASI BNC, 75 ohm / 3xTSolP 10/100/1000 RJ45
FFT Size	2K, 4K, 8K
Code rate	1/2, 2/3, 3/4, 5/6, 7/8
Guard interval	1/4, 1/8, 1/16, 1/32
Hierarchical Transmission	Up to 3 layers
Constellation	QPSK, 16QAM, 64QAM
ATSC	
Standard	ATSC A/53. A/S4. A/64. A/1S3. A/110B. SMPTE-310M
Inputs ****	2xASI BNC (F)>. 75 ohm /2xTSolP 10/100/1000 RJ45.
Constellation	8VSB
Symbol rate	0.76 Mmblos/s
Data rate	19.39 Mbits/s
Trellis coding	2/3
Reed-Solomon encoder	207 / 187 / 10
DTMB	
Standard	DTMB (GB20200/2006)
Inputs ****	2xASI BNC (H), 75 ohm /2xTSolP 10/100/1000 RJ45
FFT Size	Single carrier/ 3780
Constellation	64 QAM, 32 QAM, 16QAM, 4QAM, 4QAM NR
Code rate	0,4-0,6-0,8
Data rate	24,365 Mb/s
Frame header	420 Symbols/595 Symbols/ 945 Symbols
**** Type and number of inputs depends on Exciter HW configuration	
DIGITAL ADAPTIVE PRECORRECTION	
Type	Linear / non linear; selectable
Clipping	12 dB
Operation mode	Continuous / Automatic (triggering: time/shoulder level)
Precorrection status	Running/Stopped
PAPR	Provided

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ANALOGUE MODULATIONS	
Standard	PAL std. B/G, H, K, 1, 11, M, N - NTSC Std. M - SECAM D/K
Ref. Standard	ITU-R BT.470-6
Audio	Stereo or Mono IRT
Modulation /amplification	Common
Video input	1V pp (0.5 to 2 V) (OC component level in the range -5 to 5 V) - Ret. loss better than -30 dB (0 to 6 MHz) (75 W)
Audio input	6 dBm $\pm$ 6 dB (Df= 25 to 50 kHz) - Ret. loss: better than -30 dB (40 Hz to 15 kHz) (600 W, bai.)
Video Connector	1xBNC female. 75 Ohm
Audio Connector	DB9 with patch cable for 2xXLR female, 600 W (IRT config.: 2 inputs)
REPEATER	
Type	SFN gap filler, transposer and MFN re transmitter
RF input	N-Connector
Rfm frequency range	146 to 861 MHz
Input level	-10dBm to -60dBm (SFN Gap filler) -20dBm to -70dBm (QEF reception)
Input ret. Loss	better than -16 dB
RF in connector	N type . 50 Ohm
Echo cancellation	Resilient to static and dynamic echoes
Residual echo suppression	up to more than 30 dB (30dB are obtained at 0dB input echo)
Noise figure	max 10 dB (SFN Gap filler) max 8 dB (Transposer)
Immunity to other channel	
N+1	OFDM/OFDM > 30 dB
others	OFDM/OFDM > 40 dB
SATELLITE TRANSPOSER	
SatTV standard	DVB-S - DVB-S2 - EN300421
Frequency range	950 - 2150 MHz (Ku band)
Signal level	-65 to -25 dBm
Connector	SMA f - CAM slot (Cond. Access)
LNB control	Available through RF input. PS, polarity / band selection: by standard 13/18VDC and 22kHz signaling
CLOCK AND SYNCHRONIZATION	
Internal clock	OCXO single oven or dual oven (optional)
External 10 MHz reference	BNC (F). Impedance: 50 ohm / high (selectable). Level: -5 to +10 dBm
External 1pps reference	BNC (F). Impedance: 50 ohm / high (selectable)
SFN	SFN resolution 1100 ns SFN configurable delay $\pm$ 500 ms
Stability	time: max $\pm$ 10-7 /year - temperature: max $\pm$ 2.5 10-8 (-20°C to +70 °C)
MONITORING	
LC Display	Local operation through LCD display and keyboard located on the front panel
Front RJ-45	Local operation through a Web Server Graphical User Interface, Remote
Rear RJ-45	Network management (via SNMP)
GUI	Web Server Graphical User Interface xHTML based
SNMP	V2c / V3 provided

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