

4500 W DAB

4,5 kW DAB TV TRANSMITTER LQ



DAB TRANSMITTER


HIGH EFFICIENCY


HOT PLUG-IN POWER
SUPPLY/PSU


MULTI-PLATFORM


MULTI INPUT


MULTI-STANDARD
DVB-T/T2 ATSC/ATSC 3.0
ISDB-Tb DTMB NTSC (analog)


MONITORING
SNMP, WEB BASED GUI,
DRY CONTACTS


WIDE BAND


HOT SWAPPABLE
AMPLIFIER


LIQUID COOLED


GNSS
(GPS, GLONASS, BEIDU, GALILEO)



FRONT VIEW



The P75 Line is the multi amplifier liquid cooled Transmitter family from SYES.

P75-03 is equipped with Driver (Dual Driver Option) and N° 3 plug-In Amplifiers.

It is equipped with High Efficiency Wideband DAB state-of-the-art amplifiers characterized by high-power density and excellent signal quality granting optimal parameters such as shoulder attenuation and MER.

The P75 amplifiers are hot pluggable and are equipped with 3x redundant Hot Plug-in power supplies each, assuring the maximum reliability and the easiest maintenance.

- ☐ Multimode platform: Transmitter, Heterodyne Transposer, Regenerative Transmitter, Gap Filler and Single Frequency Echo Canceller
- ☐ Multi Input: Nr.2 Hitless EDI/ETI switches+ 1xSFP (optical/electrical), Nr.1 SAT (DVB-S2/SX with CAMSlot)
- ☐ Double Transmitter: Includes the ability to transmit two DAB+ frequencies with the same transmitter
- ☐ COT Feature (Continuity of Transmission) : null packet insertion to compensate for micro input interruptions
- ☐ The most advanced manual, automatic and adaptive linear and nonlinear pre-corrector.
- ☐ Sky-High efficiency to minimize energy consumption and OPEX up to 51%;
- ☐ Fully frequency agile without need for any tuning or trimming.
- ☐ ON Board GNSS receiver (GPS, GLONASS, BEIDU, GALILEO) for SFN Applications.
- ☐ USB input to fast save/load configurations.
- ☐ Hot Pluggable Power Amplifiers (option);
- ☐ Power Amplifiers with triple redundant Hot Plug-in power supplies;
- ☐ Use of tools reduced almost to zero including pallet replacement.
- ☐ Dual Independent temperature controlled redundant pumps for better efficiency and performance (plug-in tool free pump swap)
- ☐ •Dual Blower Heat exchanger
- ☐ •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*	• 4500 Wrms DAB
Spurious / Harmonics	EN 302-296-2 / EN 302 077
Shoulders/MER	Typical: >50dB/>35dB
Connector / Impedance	1 5/8", other available - 50 Ohm
Bandwidth	DAB
Frequency stability	1 Hz
Amplification Class:	Either High efficiency (Doherty type) or AB class available
Final Stage:	No. 3 Amplifiers each with No. 6 Pallets with 4 final transistors each (LDMOS latest technology).
GENERAL	
Mechanical	
Composition (Main components in one rack 44U)	• 1x Exciter (Dual Driver Option) • 3x P75-V Amplifier • 1x Tx control logic • 1x cooling drawer, close vase type, dual pump.
Dimensions (WxHxD) mm - Weight	600x2320x1100 - 360 kg
Rack Input Connections	Mains, Input and Cooling from TOP of Rack. Rear, Side, Bottom inputs are available without additional HW
Cooling	
Cooling System	Liquid cooling, close vase type
Cooling redundancy	Single or dual pump / single or dual heat exchanger
Environmental	
Relative humidity	95% max. (non-condensing)
Operation temperature range	0° to 50°C
Storage temperature range	-20° to 70°C
Max. installation altitude	4.600 m a.s.l. (higher altitudes kit on request)
Power supply & Safety	
Voltage***	208/ 400 Vac (three phase) 47 to 63 Hz (auto range p.s.) power factor > 0.98
Power Supply	3x Power supplies In hot plug-in configuration each amplifier. 2+1 PS redundancy configuration available
Efficiency** (typical value referred to OFDM modulation)	Up to 50%
Safety /EMC	EN 60215 (IEC 215), EN301-489-53, FCC-73, IS09001-2010. RED 2014/53/UE, RoHS 2002/93/EC
Safe Operations	Interlock Circuit provided and configurable.
DTV MODULATIONS	
DAB	
Standard	DAB, DAB+ (Ref. Standards EN 3000401, EN 302077-2, EN 300799) DMB, TS 102428
Inputs	2xETI hitless switching (SFN), 2xEDI ProMPEG COP3 - Electrical + 1xSFP GBE (Opt./Elec)
DAB modes	I, II, III, IV
RF channel Bandwidth	1.536 MHZ blocks

*: 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. VSWR: 2:1

** : 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.

***: Single mains supply per cabinet, with power isolator switch, accessible from the outside

SYES

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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
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 / 1pps reference	BNC (F). Impedance: 50 ohm / high (selectable).
NTP Server	Available
SFN	SFN resolution 1100 ns SFN configurable delay ± 500 ms
Stability	time: max $\pm 10^{-7}$ /year - temperature: max $\pm 2.5 \cdot 10^{-8}$ (-20°C to +70 °C)
MONITORING	
Local Full Monitoring and Control	Local operation through LCD display and keyboard located on the front panel
Front RJ-45 Rear RJ-45	Local operation through a Web Server Graphical User Interface, Remote Network management (via SNMP)
FW & SW Upgrade	Via web pages, self-upgrade function available via OTA or remote server.
GUI	Web Server Graphical User Interface xHTML based
SNMP	V2c / V3 provided

SY
Yes