



DIGITAL TRANSMITTER

Siel's technical experience, gained after years of continuous research, developed a wide FM transmitters/exciter.

Now is pleased to proposed new digital line in LD-MOS technology.

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2,5KW SOLID STATE DIGITAL FM TRANSMITTER

ETLFM2,5KS

Main Features

Innovative FM exciter, digitally synthesized direct to channel

The exciter, includes stereo coder, RDS coder and audio limiter

Mono aural, stereo (L+R), MPX and AES/EBU inputs

Complete solid state transmitter able to grant a HIGH PA EFFICIENCY thanks to the last high voltage LD-MOS technology

HIGH redundancy in the RF amplifiers and power supply

Amplifier specially designed to obtain HIGH LINEARITY to allow common amplification of both FM and IBOC DAB signal or DRM signal

Transmitter provides automatic restart after AC mains interruption; return to previous operational mode

The FM products joins to the new innovative technologies the traditional reliability that contraddistinguished Siel products since the beginning



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Siel is very glad to introduce the innovative 2,5 KW VHF FM transmitter model ETLFM2,5KS with single drive and dual drive configuration as option as it can be seen from the block diagram and lay-out given below.

The amplifier has been specially designed in order to obtain a high linearity to allow common amplification of both FM and IBOC DAB signal or DRM signal.

The innovative FM exciter, digitally synthesized direct to channel, is built in 2 units mainframe; the audio signal is entirely digital processed and amplified by a RF amplifier of 1 watt output power. No blower is therefore necessary for the cooling of the exciter. The exciter already includes the stereo coder, the RDS coder and audio limiter. Mono aural, stereo (L+R), MPX and AES/EBU signals may be normally applied.

The ETLFM2,5KS is a completely solid state transmitter able to grant a high PA efficiency thanks to the last high voltage LD-MOS technology and as it can be seen from the given block diagram, the transmitter has a very high built-in redundancy in the power amplifier section.

The 2,5KW power amplifier is composed by 4 paralleled RF amplifier board supplied by 4 power supply. In this way a graceful degradation of output power is obtained in case of failure of power supply and /or RF power amplifier board.

A blower, provide the cooling air flow necessary for the RF amplifier.

The power amplifier rack is provided with a transformer, that in addition of working as a step-down transformer, providing a 50V A.C. voltage that is feeding the 4 power supply of the RF power amplifier drawer contained in the rack, it is also acting as an isolation transformer. The RF power amplifier drawer as it's own breaker at the bottom of the rack so that in case of maintenance actions or failure each individual power amplifier can be isolated from the transmitter.

Individual breaker for the exciters, and switch-over logic unit are also provided.

Transmitter provides automatic restart after AC mains interruption; returns to previous operational mode.

The FM product joins to the new innovative technologies the traditional reliability that contraddistinguished Siel products since the beginning.

Siel products are ISO 9001 certified.

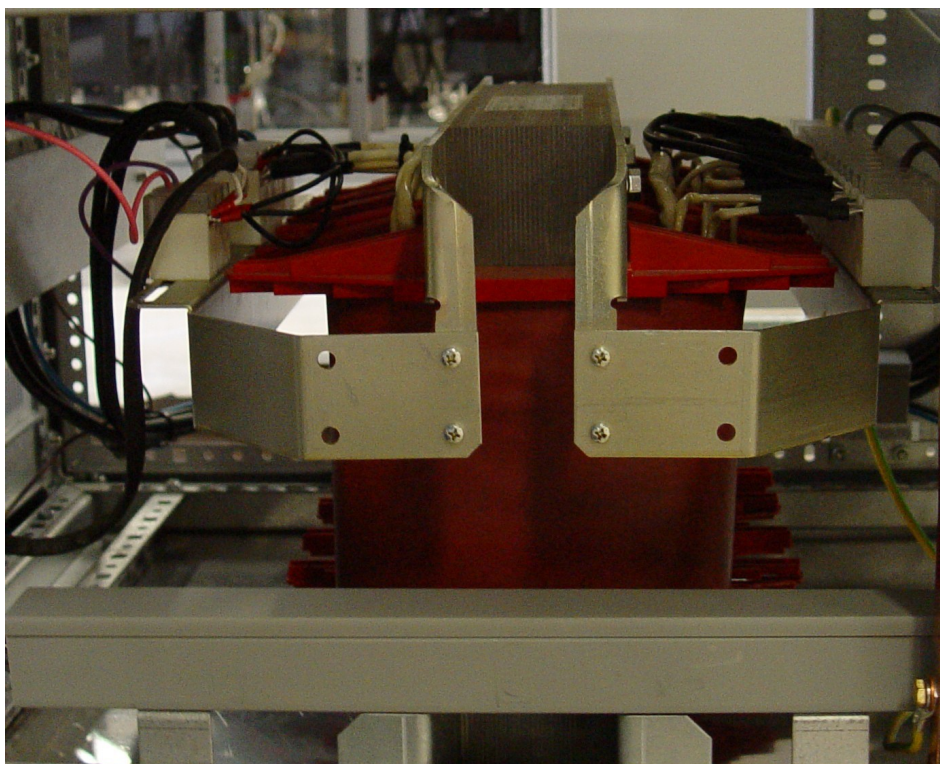
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POWER DIVIDERS



Rack is included isolation transformer that function as a power dividers.



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RACK



Now is available for each transmitter rack already included in the price .

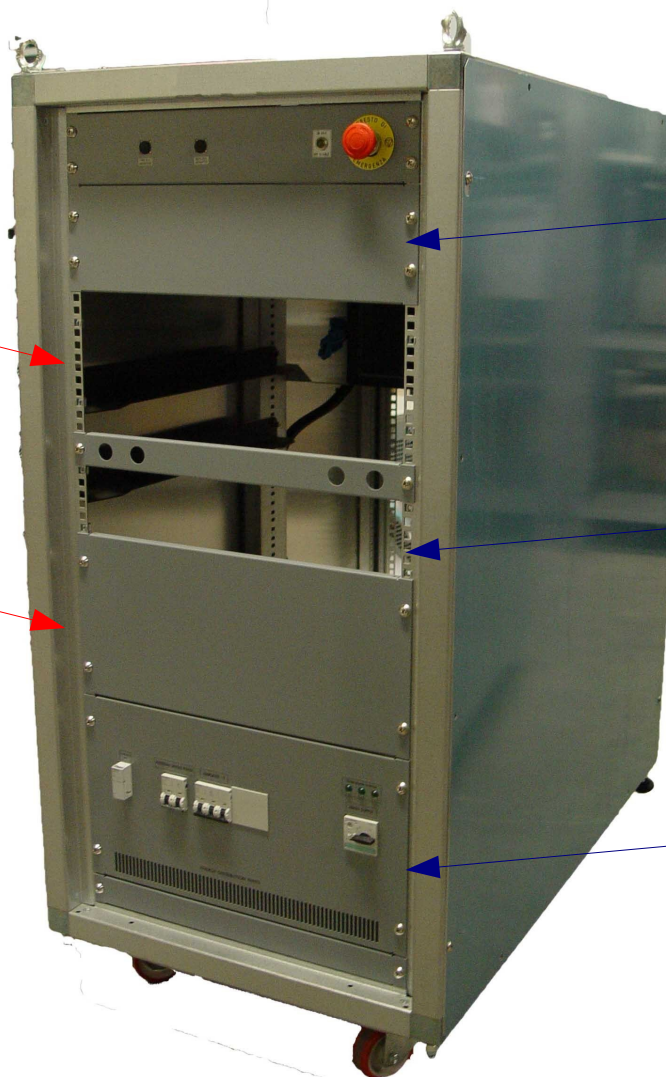
AMPLIFIER
2,5 Kw

OTHER
AMPLIFIER
2,5 Kw*

EMPTY SLOT

DIGITAL
EXCITER

TRANSFORMER



* Only for 5Kw version else empty slot.

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AMPLIFIER

The series ETLFMA4 FM R.F. Amplifier consists of one class “AB” driver stage, that feeds four class “AB” final RF amplifiers combined.

Other parts of this Amplifier are:

- Four identical switch mode power supply modules, a microprocessor controlled metering, alarm and protection module, a directional coupler.
- All these parts are assembled into a standard 4 unit 19 inch rack chassis.
- The four R.F. amplifier modules of the output stage are coupled together by means of three suspended substrate hybrid couplers.
- The R.F. amplifier modules are mounted on a massive heat sink in the upper part of the cabinet and the 4 switch mode power supplies are mounted at the bottom of the cabinet.



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DIGITAL EXCITER

Siel is very glad to introduce the innovative FM exciter fully digital based, that goes direct to channel, is built in 2 units mainframe;
The audio signal is entirely digital processed and amplified by a RF amplifier of 1 watt output power.

No blower is therefore necessary for the cooling of the exciter.

The exciter already include:

RDS (radio data system)

Digital Stereo coder > 75dB

Audio Limited

Audio input (left right, multiplex and digital signal AES/EBU)

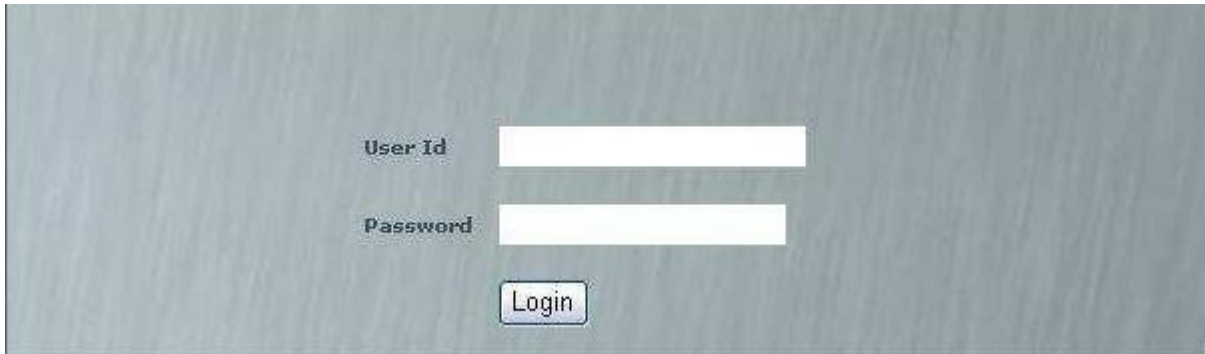


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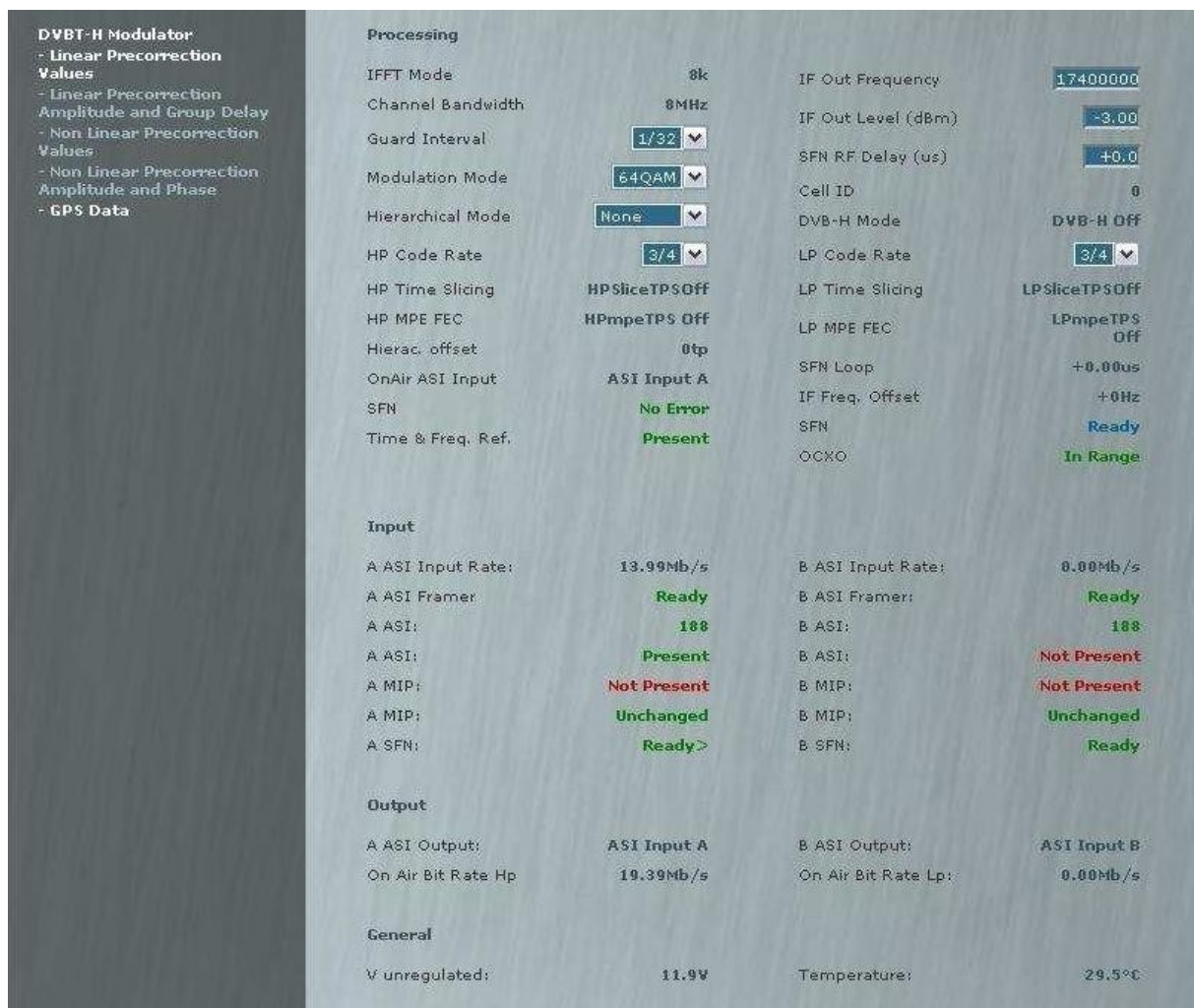
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WEB SERVER

Another important change is given by remote control with Internet that allows to monitor and change key parameters of the transmitter from anywhere in the world.

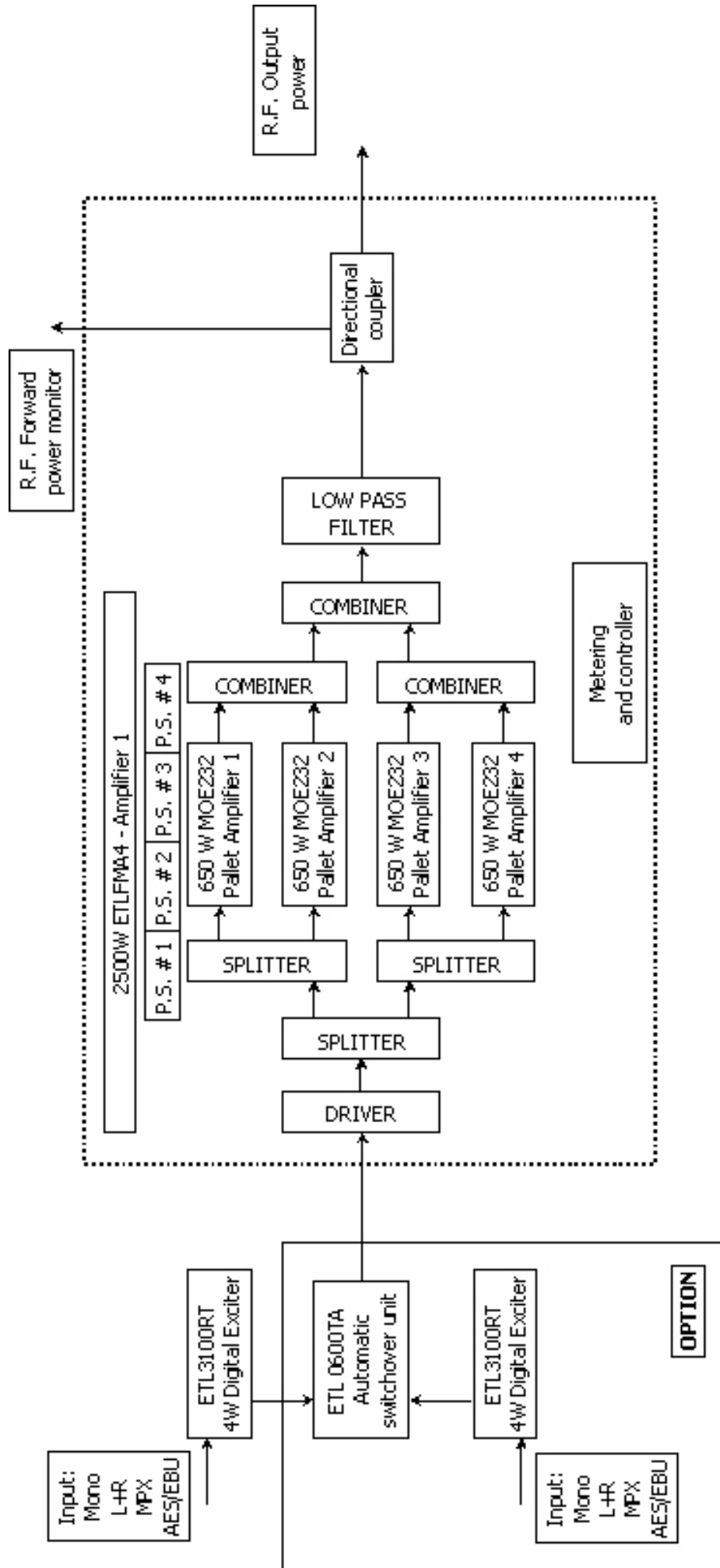


It requires only a web browser, without installing any software.

A screenshot of a web server control panel for a DVBT-H Modulator. The interface is divided into several sections: 'Processing', 'Input', 'Output', and 'General'. Each section contains a list of parameters with their current values and status. The 'Processing' section includes parameters like IFFT Mode (8k), Channel Bandwidth (8MHz), Guard Interval (1/32), Modulation Mode (64QAM), Hierarchical Mode (None), HP Code Rate (3/4), HP Time Slicing (HPSliceTPSOFF), HP MPE FEC (HPmpeTPSOFF), Hierac. offset (0tp), OnAir ASI Input (ASI Input A), SFN (No Error), and Time & Freq. Ref. (Present). The 'Input' section shows A ASI Input Rate (13.99Mb/s), A ASI Framer (Ready), A ASI (188), A ASI (Present), A MIP (Not Present), A MIP (Unchanged), and A SFN (Ready). The 'Output' section shows A ASI Output (ASI Input A), On Air Bit Rate Hp (19.39Mb/s), B ASI Input Rate (0.00Mb/s), B ASI Framer (Ready), B ASI (188), B ASI (Not Present), B MIP (Not Present), B MIP (Unchanged), and B SFN (Ready). The 'General' section shows V unregulated (11.9V) and Temperature (29.5°C). The left sidebar contains a menu with options like 'Linear Precorrection Values', 'Non Linear Precorrection Values', and 'GPS Data'.

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TECHNICAL SPECIFICATIONS

General

Primary power	Selectable 220 / 380 / 400 / 415 VAC Tri-phase $\pm 15\%$ 47 to 60 Hz Consumption: 4,5 kW Typical.
Cooling	Forced air.
Operating temperature range	0°C to +45°C.
Altitude	3000 m.
Humidity	95% max, non-condensing
Storage temperature range	-10 to +70°C.
Nominal RF output power	2,5kW

Input Parameters

Operation modes	Mono, Stereo (L+R), MPX, AES/EBU
Impedance L&R	600 Ohm or > 3000 Ohm

Output Parameters

Output frequency range	BAND: 87,5 - 108 MHz, 100KHz or 10KHz step.
Output impedance	50 Ω , unbalanced.
Permissible VSWR	<1.5:1
Standard Output power	2,5 kW
Spurious suppression	> 70 dB.
Harmonic suppression	> 70 dB.

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Stereo Transmission Quality

(with driver series ETL3100RT)

Preemphasis	0, 50,75 μ s selectable.
Deviation	\pm 75 KHz Nominal.
Pilot Deviation	\pm 7,5 KHz Nominal.
Amplitude Frequency response	0.3 dB, 20Hz to 15KHz Typical.
THD	0,03% Typical.
Crosstalk	> 75 dB, 20Hz to 15KHz Typical.
S/N Weighted	> 70 dB
S/N unweighted	> 70 dB

Dimensions and Weight

Dimensions	1 Standard 19" frame H=1170mm, D=1000mm, W=600mm without wheels. H=1270mm, D=1000mm, W=600mm with wheels. H=1430mm, D=1000mm, W=600mm with wheels and air tube.
Weight	250 kg.