ECRESO FM
5kW / 10kW

FM Transmitters
Up to 10 kW

POWERFUL PERFORMANCE
- 1+1 redundancy level
- Digital modulator «Direct to Channel»
- 5-Band Sound Processor*
- MPX over AES compatibility

POWERFUL CONTROL
- TCP/IP, SNMP management and Email Notifications
- Advanced Measurement Interface
- 24h graphical history log
- Expert Maintenance Reporting (EMR)

POWERFUL SAVINGS
- Up to 76% efficiency + SmartFM
- Hot swappable amplifiers, PSU and fans
- Built-In functionality
- Increased life span

SMARTFM®
Artificial intelligence for radio

www.worldcastsystems.com
Key Benefits

1+1 LEVEL OF REDUNDANCY*
- Dual mains breakers
- Up to 8 x 3500W power supplies with load sharing
- Up to 6 x 2300W power amplifiers
- Passive coupler with maximum robustness
- Oversized coupling loads for unlimited operation on fault
- Redundant digital exciters
- Redundant fans cross fed by redundant PSU’s
- Stay ON AIR even on control unit fault
- Intelligent design, maximum reliability and redundancy.
*Figures given in this chapter may vary depending on the transmitter power level and version

DIGITAL EXCITER
- Digital FM modulator « direct to channel»
- Highest signal quality
- Perfect audio fidelity
- Several built-in broadcast tools
- Control of all signal parameters

5 BAND SOUND PROCESSOR
- Hosted in direct to frequency Digital Modulator
- Highest quality processing from audio input to RF output
- Powerful DSP-based processing
- Complete 5-band architecture
- Factory presets for all formats
- Easy to fine tune through intuitive GUI
- Real-time meters at each stage
- No additional hardware: maximum reliability, no maintenance.

ADVANCED CONTROL
- Advanced Measurement Interface (AMI)
- Expert Maintenance Reporting (EMR)
- Intuitive Web Interface
- Full SNMP Management

UP TO 76% EFFICIENCY
- 6th MOSFET generation and new planar design
- Reduced consumption and operational costs
- Reduced heat and cooling costs
- Customized air flow configuration
- Hot swappable power amplifiers, power supplies and fans
- Reduced maintenance costs

Ecreso offers a standard warranty of 3 years
on all our FM transmitters and up to 10 Years, yes TEN YEARS Warranty on our range of compact FM transmitters for a small additional charge. No other FM Transmitter Manufacturer even comes close to that commitment or confidence! We can offer the 10 Year Warranty with confidence thanks to:
- Our exceptional design quality
- The outstanding efficiency of our transmitters
- Advanced diagnostics capabilities
Built-in Features

**Advanced Communication**
- Intuitive and secured Web Interface (TCP/IP)
- Advanced Measurement Interface
- Full SNMP Management
- Audio Backup on µSD card

**Dynamic RDS Encoder**
- Supports PI, PS, TP, TA, MS, PTY, PTYN, DI, CT, AF, RT
- Dynamic PS Scrolling
- Pure and stable signal thanks to Digital Modulator
- Delivers Audemat’s expertise in RDS

**Scheduler***
- Automatic change of preset
- RF Power scheduling and consumption saving
- Schedule any parameter of your ECRESO FM

**Email Notifications***
- Alarm sending by SMTP
- Easy configuration of each notification
- Same notifications can be sent by SNMP

**Digital Stereo Encoder**
- High speed DSP circuitry
- Subcarrier Perfect synchronization
- Amazing signal quality

**Multiband Sound Processor***
- DSP based 5-band or wide-band processing
- Presets for all applications and formats
- Intuitive GUI to fine tune your sonic signature
- Low distortion Final Limiter
- MPX Power Limiter (ITU 412)

**Single Frequency Network**
- 10 MHz input for RF Carrier synchronization
- Adjustable program delay (on audio / MPX inputs)

**MPX Over AES Input***
- Improved MPX signal quality
- No hardware change
- Compatible with MPX over IP APT codecs

**Expert Maintenance Reporting (EMR)**
EMR is a proactive service which sends regular reports on the status of key parameters such as temperatures, currents and voltages, plus information on the performance and lifespan of components such as the fan and the power supply of the transmitter. Thanks to a powerful firewall-friendly Web protocol, EMR works securely over a regular Internet connection (ADSL, 3G, ...) even when the connection bandwidth is limited.
## Technical Features

### Specification

<table>
<thead>
<tr>
<th>Specification</th>
<th>ECRESO FM 5 kW</th>
<th>ECRESO FM 10 kW</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency Range</td>
<td>87.5 to 108 MHz in 10 kHz Steps</td>
<td></td>
</tr>
<tr>
<td>Frequency Stability</td>
<td>$&lt; 10^{-6}$ per Year</td>
<td></td>
</tr>
<tr>
<td>HF Output</td>
<td>15/8 Type, 50 Ω</td>
<td></td>
</tr>
<tr>
<td>Power range</td>
<td>0.5-5.5 kW</td>
<td>1-11 kW</td>
</tr>
<tr>
<td>Power setting</td>
<td>0-6kW</td>
<td>0-12kW</td>
</tr>
<tr>
<td>Power factor</td>
<td>$&gt; 0.95$</td>
<td></td>
</tr>
<tr>
<td>VSWR</td>
<td>$&lt; 1.35$, optimal performance: $&lt; 1.1$, protection: $&gt; 1.5$</td>
<td></td>
</tr>
<tr>
<td>Spurious and harmonic suppression</td>
<td>$&gt; 82$ dBc</td>
<td>$&gt; 85$ dBc</td>
</tr>
<tr>
<td>Efficiency</td>
<td>up to 76%</td>
<td></td>
</tr>
<tr>
<td>Voltage</td>
<td>3 phase wye + neutral, 340-457 VAC, 47-63 Hz</td>
<td></td>
</tr>
<tr>
<td>Fuses</td>
<td>10 AT (Exciter and Control Unit)</td>
<td></td>
</tr>
<tr>
<td>Analog input (LINE1)</td>
<td>2 XLR connectors, balanced, $&gt; 10$ kΩ (600 Ω jumpers selectable), Software adjustable level (-18/+18 dBu range)</td>
<td></td>
</tr>
<tr>
<td>AES Input (LINE2)</td>
<td>1 XLR connector, balanced, $&gt; 110$ kΩ, Software adjustable level (-20 to 0 dBFS range), AES 16, 24, 32 bits, up to 192 kHz</td>
<td></td>
</tr>
<tr>
<td>2 Composite (MPX/SCA/RDS) inputs</td>
<td>2 BNC type, unbalanced, $&gt; 5$ kΩ, Software adjustable level (-18/+18 dBu range)</td>
<td></td>
</tr>
<tr>
<td>Composite operation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bandwidth</td>
<td>$&gt; 40$ Hz to 53 kHz @ 0.1 dB, $&gt; 20$ Hz to 60 kHz @ 0.2 dB, $&gt; 60$ Hz to 80 kHz @ 0.4 dB</td>
<td></td>
</tr>
<tr>
<td>Intermodulation distortion</td>
<td>$&lt; 0.02$ %</td>
<td></td>
</tr>
<tr>
<td>FM S/N ratio</td>
<td>$&gt; 80$ dB RMS @ 75 kHz deviation</td>
<td></td>
</tr>
<tr>
<td>AM noise</td>
<td>$&gt; 55$ dB, weighted/unweighted, sync/async, RMS/CCIR (20-20 000 Hz)</td>
<td></td>
</tr>
<tr>
<td>Stereo operation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bandwidth</td>
<td>$&gt; 40$ Hz to 53 kHz @ 0.1 dB, $&gt; 20$ Hz to 60 kHz @ 0.2 dB, $&gt; 60$ Hz to 80 kHz @ 0.4 dB</td>
<td></td>
</tr>
<tr>
<td>38 kHz discontinuance</td>
<td>$&gt; 50$ dB</td>
<td></td>
</tr>
<tr>
<td>Stereophonic crosstalk</td>
<td>$&gt; 50$ dB</td>
<td></td>
</tr>
<tr>
<td>Mono operation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bandwidth</td>
<td>$&gt; 40$ Hz to 15 kHz @ 0.1 dB</td>
<td></td>
</tr>
<tr>
<td>Out of band rejection</td>
<td>$&gt; 40$ dB @ 19 kHz</td>
<td></td>
</tr>
<tr>
<td>Preemphasis</td>
<td>0 µs, 50 µs or 75 µs</td>
<td></td>
</tr>
<tr>
<td>Environmental / Physical specifications</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overall dimensions</td>
<td>29U x 600mm x 1040mm</td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td>$~ 330$ kg</td>
<td>$~ 400$ kg</td>
</tr>
<tr>
<td>Operating temperature</td>
<td>Nominal: 5°C to 45°C, Maximum: 0°C to 50°C</td>
<td></td>
</tr>
<tr>
<td>Warehouse temperature</td>
<td>-20°C to +70°C, $&lt; 10$ years</td>
<td></td>
</tr>
<tr>
<td>Humidity</td>
<td>5 - 95 % non-condensing relative humidity</td>
<td></td>
</tr>
<tr>
<td>Altitude</td>
<td>Up to 3900 m</td>
<td></td>
</tr>
<tr>
<td>Cooling</td>
<td>Customized external or Internal air cooling configurations</td>
<td></td>
</tr>
<tr>
<td>Marking</td>
<td>CE, FCC</td>
<td></td>
</tr>
<tr>
<td>Standards</td>
<td>2014 30 UE, 2014 53 UE, ETS 302 018 (EMC), ETS 300 384 (Radio), NF EN 60215 (Safety)</td>
<td></td>
</tr>
</tbody>
</table>

### Order information

#### STANDARD VERSION

<table>
<thead>
<tr>
<th>REF</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>On request</td>
<td>ECRESO FM 5kW</td>
</tr>
<tr>
<td>On request</td>
<td>ECRESO FM 10kW</td>
</tr>
</tbody>
</table>

Several configurations available (redundancy, cooling, mains...): contact us!

#### Software Option

- CD00103: SmartFM
- CD00106: Dynamic RDS
- CD01001: 5 Band Sound Processor

#### Hardware Options

- ST01792: SFN Option
- On request: On/Off mains switch
- On request: External Surge Protector

10 year warranty

#### ON DEMAND SERVICES

- Dummy loads, adapters, cables
- Cavity filters, combiners and antenna systems
- Coverage Study
- Turnkey solutions for broadcasting site

Technical specification are subject to change without prior notice – 11/2018