

## E-Compact HP UHF Digital TV Transmitters

E-Compact TV • High Efficiency • UHF • Air Cooled • Doherty Technology

**ISDB-T 580 to 7.200 Watts RMS**  
**ATSC 700 to 8.500 Watts RMS**  
**DVB-T2 600 to 7.700 Watts RMS**



### Highlights:

- 700 to 7.800 Watts RMS ISDB-T (Before Filter);
- 800 to 9.500 Watts ATSC (Before Filter);
- 750 to 8.800 Watts RMS DVB-T2 (Before Filter);
- UHF: 470 to 806MHz (Channel 14 to Channel 69);
- Power Amplifier Drawer with Doherty Technology Transistors, efficiency up to 42%;
- Compact structure, 19" cabinet mounting;
- 3U Compact Plug-In<sup>1</sup> Power Amplifier Drawer up to 860 WRMS;
- Easy Maintenance concept, Powers Supply Units featuring Plug-In connection, no wiring or cables required;
- Air Cooled: Cooling fans with rotation control as a function of temperature, increasing life span and reducing acoustic noise. Easy access for fan cleaning. Washable Protective Screens;
- Real Time A-DPD, Automatic digital pre-correction applied whenever changes occur in the output power of the equipment, recovering MER values in less than two seconds;
- Highly versatile, it operates in SFN and MFN;
- Inputs: ASI, TSolP, Satellite Tuner and Terrestrial Tuner;
- Configurable BTS decompression function;
- MCCB Module<sup>1</sup>: AC power distribution and Mains Protection Unit, composed of Surge Protection Devices – SPD (Optional) and Circuit Breakers that limit possible overvoltages of the AC mains, protecting the Equipment ;

### Included:

- Main Control Software, WEB Server and SNMP<sup>12</sup>;
- USB Communications Driver;
- RF Output with Sample Probe to monitor the RF Output signal after and before<sup>1</sup> the RF Mask Filter;
- Sample probe before RF Mask Filter inside Power Amplifier Drawer (only EC701HP);
- Control Module or Exciter Drawer;
- User Guide in digital media;

### Optional:

- UHF 8-Pole or 6-Pole Bandpass Filter
- Telesupervision Module, Telemetry through GPRS
- Double Exciter. Two Control Module or Two Exciter (Main and Backup) for Exciter Redundancy;
- Ethernet<sup>2</sup> Switch Module (Double Exciter);
- Instrumental embedded via software;
- Reference clock by GPS time base;
- UHF terrestrial tuner receiver (ISDB-T);
- DVB-S / DVB-S2 Satellite tuner receiver;
- DVB-S / DVB-S2 Satellite tuner receiver CAS<sup>3</sup> (Conditional Access System);
- License for BISS-1 decryption with up to eight services available on the display.
- AC power distribution with Surge Protection Devices – SPD;
- Printed user Guide;



**E-Compact**  
Less energy. More power.

Empresa Certificada  
**ISO 9001**  
10 anos de certificação

## General Specifications

- Power Amplifier Drawer up to 860 Watts RMS;
- High efficiency with Doherty technology;
- Transistor AGING compensation via exciter's front panel;
- Automatic GM compensation with temperature;
- Air cooled;
- Fans speed rotation automatic control: decrease noise levels, saving of electrical energy and life span increase;
- Powers Supplies featuring Plug-In connection, no wiring or cables required;
- Power Factor Correction better than 0.95;
- Measurements and alarms through front display or remotely (via WEB)<sup>12</sup>;
- Main Control Software, WEB Server and SNMP<sup>12</sup>;
- USB communication Drivers;
- Hardware Protection of VSWR and overdrive;
- Software Protection against module' overheat;
- Ethernet<sup>2</sup> port for Web and SNMP management<sup>12</sup>;
- SFN Operation;
- Automatic Digital Pre-distortion (Linear and Non-Linear);
- Configurable BTS decompressor compatible with most compression standards;
- IP Input: Ethernet<sup>1</sup> port for TS over IP streaming;
- 2 ASI inputs, 2 ASI outputs;
- Passive elements: Low-pass filter, before and after-filter probes;
- Isolated RF combiner, allow Hot Swap<sup>4</sup>;
- Conditional Access System (Satellite Tuner Receiver) with four simultaneous services and display availability of up to eight services on display, compatible with IRDETO, CONAX, NAGRAVISION and VERIMATRIX cards. (cards not included)<sup>3</sup>;
- Optional license for BISS-1 decryption with up to eight services available on the display.

## RF Performance

|                              |                                                          |
|------------------------------|----------------------------------------------------------|
| Modulation Standard          | ISDB-T / ATSC 1.0 A-53 / DVB-T2                          |
| Operation Frequency          | 470MHz to 806MHz (UHF) CH14 to CH69                      |
| Bandwidth                    | 6 MHz / 8MHz                                             |
| Minimum operating power      | 10% output power <sup>10</sup> - 10W power step          |
| MER Performance <sup>9</sup> | ISDB-T / DVB-T2 ≥ 34dB<br>ATSC 1.0 ≥ 36dB                |
| Harmonics/Spurious           | better than -60dBc                                       |
| Intermodulation              | -50dB @ ±3,15MHz (BW=6MHz)<br>-50dB @ ±4,20MHz (BW=8MHz) |
| Oscillator                   | Synthesized by PLL                                       |
| Frequency Stability          | ±1Hz (with internal GPS)                                 |

## Technical Table

| Model:                                              | EC701HP           |                   | EC702HP                   |                   | EC703HP           |                   | EC704HP           |                   | EC706HP           |                   | EC708HP                                                |                   | EC712HP           |                   |
|-----------------------------------------------------|-------------------|-------------------|---------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|--------------------------------------------------------|-------------------|-------------------|-------------------|
| <b>Output power (W) <sup>9</sup></b>                | B.F. <sup>7</sup> | A.F. <sup>8</sup> | B.F. <sup>7</sup>         | A.F. <sup>8</sup> | B.F. <sup>7</sup> | A.F. <sup>8</sup> | B.F. <sup>7</sup> | A.F. <sup>8</sup> | B.F. <sup>7</sup> | A.F. <sup>8</sup> | B.F. <sup>7</sup>                                      | A.F. <sup>8</sup> | B.F. <sup>7</sup> | A.F. <sup>8</sup> |
| ISDB-T                                              | 700               | 580               | 1400                      | 1200              | 2100              | 1800              | 2700              | 2400              | 4000              | 3600              | 5400                                                   | 4800              | 7800              | 7200              |
| ATSC                                                | 800               | 700               | 1600                      | 1400              | 2400              | 2100              | 3200              | 2900              | 4800              | 4200              | 6500                                                   | 5600              | 9500              | 8500              |
| DVB-T2                                              | 750               | 600               | 1500                      | 1300              | 2200              | 1900              | 3000              | 2600              | 4500              | 3900              | 6000                                                   | 5200              | 8800              | 7700              |
| <b>50Ω Output connector</b>                         | EIA 1-5/8"        |                   |                           |                   |                   |                   | EIA 3-1/8"        |                   |                   |                   |                                                        |                   |                   |                   |
| <b>Power modules</b>                                | 1                 |                   | 2                         |                   | 3                 |                   | 4                 |                   | 6                 |                   | 8                                                      |                   | 12                |                   |
| <b>AC mains</b>                                     | M220<br>B220      |                   | M220 / B220 / T220 / T380 |                   |                   |                   |                   |                   |                   |                   | M220 <sup>11</sup> / B220 <sup>11</sup><br>T220 / T380 |                   |                   |                   |
| <b>AC typical consumption (kW)<sup>9</sup></b>      |                   |                   |                           |                   |                   |                   |                   |                   |                   |                   |                                                        |                   |                   |                   |
| ISDB-T                                              | 1,93              |                   | 3,81                      |                   | 5,68              |                   | 7,56              |                   | 11,31             |                   | 15,06                                                  |                   | 22,62             |                   |
| ATSC                                                | 2,06              |                   | 4,01                      |                   | 5,96              |                   | 7,92              |                   | 11,82             |                   | 15,73                                                  |                   | 23,57             |                   |
| DVB-T2                                              | 2,05              |                   | 4,00                      |                   | 5,95              |                   | 7,91              |                   | 11,81             |                   | 15,71                                                  |                   | 23,51             |                   |
| <b>Typical heat dissipation (BTU/h)<sup>9</sup></b> |                   |                   |                           |                   |                   |                   |                   |                   |                   |                   |                                                        |                   |                   |                   |
| ISDB-T                                              | 4590              |                   | 8690                      |                   | 12840             |                   | 17050             |                   | 25920             |                   | 34060                                                  |                   | 51840             |                   |
| ATSC                                                | 4540              |                   | 8550                      |                   | 12660             |                   | 16620             |                   | 25110             |                   | 33600                                                  |                   | 50980             |                   |
| DVB-T2                                              | 4860              |                   | 9060                      |                   | 13320             |                   | 17650             |                   | 26770             |                   | 35580                                                  |                   | 53210             |                   |
| <b>Rack dimensions (RU)</b>                         | 8                 |                   | 25                        |                   | 25                |                   | 25                |                   | 40                |                   | 40                                                     |                   | 40                |                   |
| <b>Numbers of racks</b>                             | 1                 |                   | 1                         |                   | 1                 |                   | 1                 |                   | 1                 |                   | 1                                                      |                   | 2                 |                   |
| <b>Width (mm)</b>                                   | 570               |                   | 570                       |                   | 570               |                   | 570               |                   | 570               |                   | 570                                                    |                   | 1140              |                   |
| <b>Depth (mm)</b>                                   | 900               |                   | 1100                      |                   | 1100              |                   | 1100              |                   | 1100              |                   | 1100                                                   |                   | 1100              |                   |
| <b>Weight (Kg)</b>                                  | 70                |                   | 170                       |                   | 210               |                   | 250               |                   | 350               |                   | 420                                                    |                   | 700               |                   |

### Notes:

<sup>1</sup>Except EC701HP.

<sup>2</sup>Ethernet is a trademark of Xerox Corporation.

<sup>3</sup>SMARTCARD not included. Compatible with IRDETO, CONAX, NAGRAVISION and VERIMATRIX systems.

<sup>4</sup>Power Drawers can be removed or inserted while the Transmitter is in operation, but the Power Drawer to be removed or inserted must have the AC switches on its front panel in the OFF position.

<sup>5</sup>Above 8200ft on request.

<sup>6</sup>ASL: Above Sea Level.

<sup>7</sup>B.F. Before Filter.

<sup>8</sup>A.F. After Filter.

<sup>9</sup>May change depending on MER value, channel and output power.

<sup>10</sup>Except EC701HP. 50W minimum power.

<sup>11</sup>For EC708HP and EC712HP, Electric grid on request

<sup>12</sup>Consult factory when using transmitter's web interface on same network as a multicast stream.

## Electrical Features

|                                                     |                                                        |
|-----------------------------------------------------|--------------------------------------------------------|
| Power Requirement                                   | Single Phase 220VAC (M220)<br>Biphasic 220VAC (B220)   |
| (specify configuration at equipment purchase order) | Three phase 220VAC (T220)<br>Three phase 380VAC (T380) |
| AC Power                                            | 180~254VAC (43~63Hz)                                   |
| Power Factor Correction                             | Typical 0.95, minimum 0.9                              |

## Inputs: BTS, TS, TSoIP and Sync


|                                  |                                                                 |
|----------------------------------|-----------------------------------------------------------------|
| ASI                              | DVB-ASI 188 / 204 bytes<br>BNC-F 75Ω                            |
| IP                               | Ethernet <sup>2</sup> (IEEE 802.3u 10 Base-T / 100Base-TX RJ45) |
| 10MHz (reference)                | BNC-F 50Ω                                                       |
| 1PPS (reference)                 |                                                                 |
| GPS Antenna (optional)           | SMA-F 50Ω                                                       |
| Sample Before Filter             |                                                                 |
| Sample After Filter              |                                                                 |
| Satellite Tuner (optional)       | L Band<br>DVB-S / DVB-S2<br>Connector: SMA-F<br>Impedance: 75Ω  |
| UHF Tuner Terrestrial (optional) | UHF Band<br>ISDB-T<br>Connector: SMA-F<br>Impedance: 50Ω        |

## Interfaces

|                             |                                                         |
|-----------------------------|---------------------------------------------------------|
| Monitor / Control Interface | Web GUI and SNMP:<br>Ethernet <sup>2</sup> via RJ-45    |
| Communication Interfaces    | USB / Ethernet <sup>2</sup> / SNMP                      |
| Format                      | Ethernet <sup>2</sup> (IEEE 802.3u) 10Base-T/100Base-TX |

## Environment Features

|                               |                                                                         |
|-------------------------------|-------------------------------------------------------------------------|
| Operation altitude            | up to 8200ft <sup>5</sup> ASL <sup>6</sup>                              |
| Environment temperature range | +32°F to +113°F (+77°F recommended)<br>0°C to +45°C (+25°C recommended) |
| Environment humidity range    | 0 to 95% (non-condensing)                                               |
| Power Amplifier Cooling       | Forced ambient air, front to back flow using integral high volume fans  |

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