

## E-Compact HP-BB3 Series UHF Digital TV Transmitters

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

**ATSC 3.0**  
**930 to 11200 Watts RMS**

**ATSC 1.0**  
**1100 to 13200 Watts RMS**

Hitachi's E-Compact transmitter Series offers optimal broadcasting features with power efficiency up to 44%.

The simplicity of its configuration and operation allows a fast startup and its high robustness ensures a smooth and safe operation.

The E-Compact HP-BB3 Series is comprised of air-cooled transmitters with output powers of 950W up to 11.2kW in ATSC 3.0 standard, and of 1.1kW up to 13.2kW in ATSC 1.0.

### Highlights:

- Devices assembled on a single rack<sup>1</sup>. Its compact design results in a smaller installation footprint;
- Excellent power density on PA module. 3U Compact Power Amplifier Drawer transmitting up to 1.3kWrms;
- Developed with Asymmetrical Doherty Technology, it provides high efficiency and consumption cost reduction of up to 60% when compared to conventional transmitters;
- The E-Compact line astonishes with its transmission versatility, allowing upgrade from ATSC1.0 to 3.0 through software configuration;
- Broadband: 470 to 608MHz;
- Easy assembly and maintenance, Powers Supplies featuring Plug-In connection, no wiring or cables required;
- Features two 2kW power supplies model GE CP2000AC54TE per PA Drawers, operate in shared mode, ensuring power redundancy;
- Automatic Fan Speed Control providing low noise level and increased lifespan;
- High versatility. Compatible with ATSC 1.0 / ATSC 3.0 Exciters. Excellent response to any pre-adaptive signal correction and high performance in SFN network transmission or MFN retransmission;
- AC Mains Protection Unit, composed of Surge Protection Devices (SPD) and Circuit Breakers that limit possible over voltages of the AC mains, protecting the Equipment;

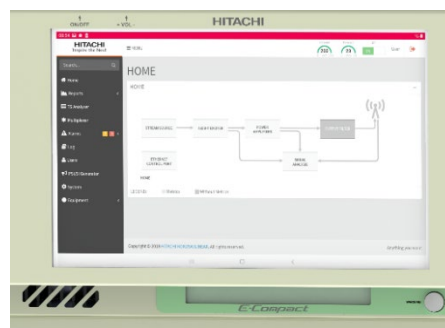
### Included:

- Control Module with management software, WEB interface, WEB Server and SNMP<sup>10</sup>;
- EIA RF Output Line with Sample Probe to monitor the RF Output signal after the RF Mask Filter;
- RF Low Pass Filter;
- Sample probe before RF Mask Filter;
- 19" Ethernet<sup>6</sup> Switch;
- Cleanable air filters;
- Mains AC Power distribution drawer<sup>2</sup>
- RF hybrid combiner with Unbalance Load Module<sup>2</sup>
- User Guide in digital media



### Optional:

- Telesupervision Module, Telemetry through GPRS;
- Dual Drive. Two Control Module (Main and Backup) for Exciter Redundancy;
- Printed user Guide;
- Interface color LCD touch screen display<sup>5</sup>. Full access to the equipment's functionalities, thanks to the complete and friendly web interface:



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

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

## General Specifications

- IP Input;
- Control Module;
- Ethernet<sup>5</sup> Switch Module;
- Power Amplifier Drawer ATSC 1.0 / ATSC 3.0;
- High efficiency with Doherty technology;
- Air cooled;
- Fans speed rotation automatic control: decrease noise levels, saving of electrical energy and useful life increase;
- Power supplies model GE CP2000AC54TE;
- Measures and alarms through front display and keypad or remotely<sup>10</sup>.
- VSWR and Overdrive protection via hardware with power reduction;
- Software oriented overheating protection for internal modules;
- Telemetry: WEB interface, WEB Server/SNMP<sup>10</sup>, for local or remote management (Optional);
- AGING transistor compensation via exciter's front panel;
- Automatic GM compensation with temperature;
- Gain and Phase adjustments per drawer;
- Isolated combiner, enabling Hot Swap<sup>3</sup>
- Main Control Software, WEB interface, WEB Server and SNMP<sup>10</sup>;
- Passive elements: Low-pass filter, before and after-filter RF probes;
- Transmitter Service/Access at top and front
- Rack 19" standard mount;

## General RF Performance

Modulation Standard	ATSC 3.0 A/300 / ATSC 1.0 A/53
RF Output Regulation	± 0.1 dB
UHF Operation Frequency	470MHz to 608MHz / Ch14 to Ch36
Bandwidth	6 MHz
RF Input Level	0dBm
ATSC 3.0 MER Performance	≥33dB
ATSC 1.0 MER Performance	≥36dB
Harmonics/Spurious	better than -60dBc

## General Electrical Features

Power Requirement	<b>Single Phase 240Vac:</b> 185~277VAC Between Both wire. <b>WYE Three-Phase 208Vac:</b> 185~277VAC Between three Phases. <b>Delta Three-Phase 240Vac:</b> 185~277VAC Between three Phases. <b>Single Phase 208Vac Wild Leg<sup>9</sup>:</b> 185~277VAC Between Phases to Neutral (using Delta Three Phase 240Vac). <b>WYE Three-Phase 380Vac<sup>9</sup>:</b> 185~277VAC Between three Phases and Neutral.
(specify configuration at equipment purchase order)	
Frequency AC mains	47 to 66Hz
Power Factor Correction	Typical 0.95, minimum 0.9

## Interfaces

Communication Interfaces	Ethernet <sup>5</sup> / SNMP
Format	Ethernet <sup>5</sup> (IEEE 802.3u) 10Base-T/100Base-TX

## Environment Features

Operation altitude	up to 8200ft ASL <sup>6</sup>
Environment temperature range	+32°F to +113°F (+77°F recommended) 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

## Technical Table – Equipment with 6-poles mask filter

Model:	EC701HP-BB3		EC702HP-BB3		EC703HP-BB3		EC704HP-BB3		EC706HP-BB3		EC708HP-BB3		EC712HP-BB3	
<b>Output power (W)<sup>7</sup></b>	B.F. <sup>8</sup>	A.F. <sup>8</sup>	B.F. <sup>8</sup>	A.F. <sup>8</sup>	B.F. <sup>8</sup>	A.F. <sup>8</sup>	B.F. <sup>8</sup>	A.F. <sup>8</sup>	B.F. <sup>8</sup>	A.F. <sup>8</sup>	B.F. <sup>8</sup>	A.F. <sup>8</sup>	B.F. <sup>8</sup>	A.F. <sup>8</sup>
<b>ATSC 3.0</b>	1100	930	2200	1860	3300	2850	4400	3800	6500	5700	8800	7600	12200	11200
<b>ATSC 1.0</b>	1300	1100	2600	2200	3800	3300	5000	4400	7500	6600	10000	8800	14600	13200
<b>50Ω Output connector</b>	EIA 1-5/8"								EIA 3-1/8"					
<b>Power Amplifiers</b>	1		2		3		4		6		8		12	
<b>AC mains</b>	Single Phase 240Vac / Wye Three-Phase 208Vac / Delta Three-Phase 240Vac Single Phase 208Vac Wild Leg <sup>9</sup> / Wye Three-Phase 380Vac <sup>9</sup>													
<b>AC typical consumption (kW)<sup>7</sup></b>														
<b>ATSC 3.0</b>	2.90		5.70		8.50		11.30		16.90		22.50		33.70	
<b>ATSC 1.0</b>	3.15		6.15		9.17		12.20		18.25		24.30		36.38	
<b>Typical heat dissipation (BTU/h)<sup>7</sup></b>														
<b>ATSC 3.0</b>	6620		12820		19220		25510		37690		50140		76030	
<b>ATSC 1.0</b>	6790		13150		19740		26210		38660		51430		78150	
<b>Rack dimensions (RU)</b>	10		27		27		27		36		40		40	
<b>Numbers of racks</b>	1		1		1		1		1		1		2	
<b>Width</b>	600mm (23,62in)		600mm (23,62in)		600mm (23,62in)		600mm (23,62in)		600mm (23,62in)		600mm (23,62in)		1200mm (47,25in)	
<b>Depth</b>	900mm (35,43in)		1100mm (43,31in)		1100mm (43,31in)		1100mm (43,31in)		1100mm (43,31in)		1100mm (43,31in)		1100mm (43,31in)	
<b>Height</b>	600mm (21,65in)		1349mm (53,1in)		1349mm (53,1in)		1349mm (53,1in)		1703mm (67,05in)		1881mm (74,05in)		1881mm (74,05in)	
<b>Weight</b>	70Kg (154lb)		170Kg (375lb)		210Kg (463lb)		250Kg (551lb)		350Kg (772lb)		420Kg (926lb)		700Kg (1543lb)	

### Notes:

<sup>1</sup>Except EC712HP-BB3.

<sup>2</sup>Except EC701HP-BB3.

<sup>3</sup>The PA modules can be removed / inserted with the transmitter in operation, although the PA being removed / inserted must be switched off.

<sup>4</sup>Contact Hitachi Kokusai Linear for optional availability in each standard.

<sup>5</sup> For EC701HP-BB3 on request.

<sup>6</sup> Ethernet is a trademark of Xerox Corporation.

<sup>7</sup> Above 8200ft on request; ASL: Above Sea Level

<sup>8</sup> May change depending on MER value, channel and output power.

<sup>9</sup> B.F.: Before Filter / A.F.: After Filter

<sup>10</sup>Electric grid on request.

<sup>11</sup>Consult factory when using transmitter's web interface on same network as a multicast stream.

## Hitachi Kokusai Linear Equipamentos Eletrônicos S/A.

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