

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.

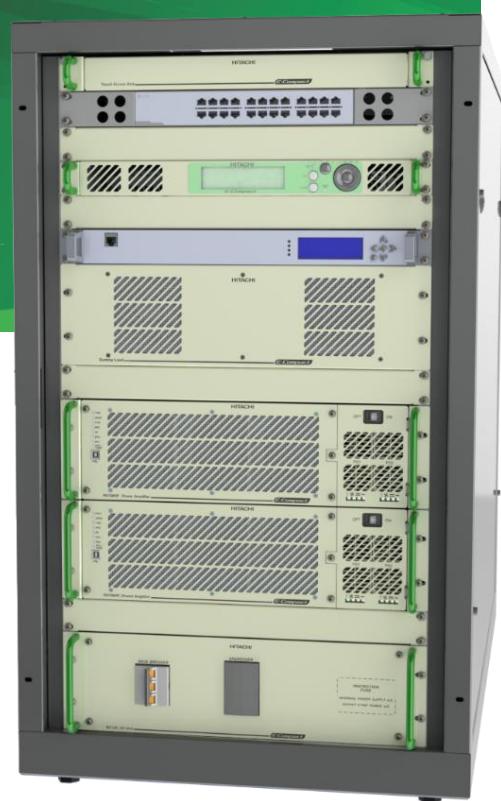
The E-Compact HP-BB3 Series is comprised of air-cooled transmitters with output powers of 950W up to 11.2kW in ATSC 3.0 standard, and of 1.1kW up to 13.2kW in ATSC 1.0.

Highlights:

- Devices assembled on a single rack¹. 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 overvoltages of the AC mains, protecting the Equipment;

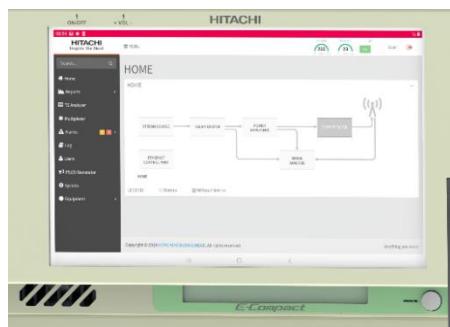
Included:

- Control Module with management software, WEB interface, WEB Server and SNMP¹⁰;
- 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" Ethernet⁵ Switch;
- Cleanable air filters;
- Mains AC Power distribution drawer²
- RF hybrid combiner with Unbalance Load Module²
- User Guide in digital media



Optional:

- Telesupervision Module, Telemetry though GPRS;
- Dual Drive. Two Control Module (Main and Backup) for Exciter Redundancy;
- Printed user Guide;
- Interface color LCD touch screen display⁶. Full access to the equipment's functionalities, thanks to the complete and friendly web interface:



High Efficiency



Redundant Power Supply



SFN



Digital TV Standard



Smart Fan Control



RoHS Compliant



ATSC 3.0
ATSC 1.0
Standard

General Specifications

- IP Input;
- Control Module;
- Ethernet⁵ 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 remotely¹⁰.
- VSWR and Overdrive protection via hardware with power reduction;
- Software oriented overheating protection for internal modules;
- Telemetry: WEB interface, WEB Server/SNMP¹⁰, 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 Swap³
- Main Control Software, WEB interface, WEB Server and SNMP¹⁰;
- 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 (specify configuration at equipment purchase order)	Single Phase 240Vac: 185~277VAC Between Both wire.
	Wye Three-Phase 208Vac: 185~277VAC Between three Phases.
	Delta Three-Phase 240Vac: 185~277VAC Between three Phases.
	Single Phase 208Vac Wild Leg ⁹ : 185~277VAC Between Phases to Neutral (using Delta Three Phase 240Vac).
	Wye Three-Phase 380Vac ⁹ : 185~277VAC Between three Phases and Neutral.

Frequency AC mains

Frequency AC mains	47 to 66Hz
Power Factor Correction	Typical 0.95, minimum 0.9

Interfaces

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

Environment Features

Operation altitude	up to 8200ft ASL ⁶
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						
Output power (W)⁷	B.F. ⁸	A.F. ⁸	B.F. ⁸	A.F. ⁸	B.F. ⁸	A.F. ⁸	B.F. ⁸						
ATSC 3.0	1100	930	2200	1860	3300	2850	4400						
ATSC 1.0	1300	1100	2600	2200	3800	3300	5000						
50Ω Output connector													
Power Amplifiers	1	2	3	4	6	8	12						
EIA 1-5/8"													
AC mains	Single Phase 240Vac / Wye Three-Phase 208Vac / Delta Three-Phase 240Vac												
Single Phase 208Vac Wild Leg ⁹ / Wye Three-Phase 380Vac ⁹													
AC typical consumption (kW)⁷													
ATSC 3.0	2.90		5.70		8.50		11.30						
ATSC 1.0	3.15		6.15		9.17		12.20						
Typical heat dissipation (BTU/h)⁷													
ATSC 3.0	6620		12820		19220		25510						
ATSC 1.0	6790		13150		19740		26210						
Rack dimensions (RU)	10		20		24		28						
Numbers of racks	1		1		1		1						
Width	600mm (23,62in)		600mm (23,62in)		600mm (23,62in)		600mm (23,62in)						
Depth	900mm (35,43in)		1100mm (43,31in)		1100mm (43,31in)		1100mm (43,31in)						
Height	600mm (21,65in)		993mm (39,10in)		1019mm (40,10in)		1349mm (53,1in)						
Weight	70Kg (154lb)		170Kg (375lb)		210Kg (463lb)		250Kg (551lb)						
Notes:													
¹ Except EC712HP-BB3.													
² Except EC701HP-BB3.													
³ The PA modules can be removed / inserted with the transmitter in operation, although the PA being removed / inserted must be switched off.													
⁴ Contact Hitachi Kokusai Linear for optional availability in each standard.													
⁵ For EC701HP-BB3 on request.													

⁵Ethernet is a trademark of Xerox Corporation.

⁶Above 8200ft on request; ASL: Above Sea Level

⁷May change depending on MER value, channel and output power.

⁸B.F.: Before Filter / A.F.: After Filter

⁹Electric grid on request.

¹⁰Consult factory when using transmitter's web interface on same network as a multicast stream.

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