

E-Compact HP-BB2 Series UHF Digital TV Transmitters

HITACHI
Inspire the Next

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-BB2 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 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 update;
- Broadband: 470 to 608MHz;
- Easy assembly and maintenance, Powers Sources featuring Plug-In connection, no wiring or cables required;
- Features three power supplies per PA Drawers, operate in shared mode, ensuring redundancy and perfect phase distribution in three-phase systems.
- 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:

- Main Control Software, WEB Server and SNMP¹⁰;
- USB Communications Drive;
- 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[®] Switch;
- Control Module Drawer;
- Washable air filters
- Mains AC Power distribution drawer²
- RF hybrid combiner with Unbalance Load Module²

Optional:

- Telesupervision Module, Telemetry though GPRS;
- Double Exciter. Two Control Module (Main and Backup) for Exciter Redundancy.



E-Compact
Less energy. More power.

Empresa Certificada
ISO 9001
10 anos de certificação

General Specifications

- IP Input;
- Control Module present;
- Switch Module present;
- 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 featuring Power Factor Correction better than 0.95;
- 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;
- Adaptive Digital Pre-correction (Linear and Non-Linear);
- Telemetry: 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 Server and SNMP¹⁰;
- USB communication Drivers;
- Passive elements: Low-pass filter, before and after-filter probes;
- Transmitter Service/Access at top and front
- Rack 19" standard mount, beige equipment color;

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: 180~254VAC Between Both wire. Wye Three-Phase 208Vac: 180~254VAC Between three Phases. Delta Three-Phase 240Vac: 180~254VAC Between three Phases. Single Phase 208Vac Wild Leg⁹: 180~254VAC Between Phases to Neutral (using Delta Three Phase 240Vac). Wye Three-Phase 380Vac⁹: 180~254VAC Between three Phases and Neutral.
Frequency AC mains	43 to 63Hz
Power Factor Correction	Typical 0.95, minimum 0.9

Interfaces

Communication Interfaces	USB / Ethernet ⁶ / SNMP
Format	Ethernet ⁶ (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-BB2		EC702HP-BB2		EC703HP-BB2		EC704HP-BB2		EC706HP-BB2		EC708HP-BB2		EC712HP-BB2	
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	A.F. ⁸	B.F. ⁸	A.F. ⁸	B.F. ⁸	A.F. ⁸	B.F. ⁸	A.F. ⁸
ATSC 3.0	1100	930	2200	1860	3300	2850	4400	3800	6500	5700	8800	7600	12200	11200
ATSC 1.0	1300	1100	2600	2200	3800	3300	5000	4400	7500	6600	10000	8800	14600	13200
50Ω Output connector	EIA 1-5/8"						EIA 3-1/8"							
Power modules	1 module		2 modules		3 modules		4 modules		6 modules		8 modules		12 modules	
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		16.90		22.50		33.70	
ATSC 1.0	3.15		6.15		9.17		12.20		18.25		24.30		36.38	
Typical heat dissipation (BTU/h)⁷														
ATSC 3.0	6620		12820		19220		25510		37690		50140		76030	
ATSC 1.0	6790		13150		19740		26210		38660		51430		78150	
Rack dimensions (RU)	8		25		25		25		40		40		40	
Numbers of racks	1		1		1		1		1		1		2	
Width (in)	22.44		22.44		22.44		22.44		22.44		22.44		44.88	
Depth (in)	35.43		43.31		43.31		43.31		43.31		43.31		43.31	
Weight (pound)	154		375		463		551		772		926		1543	

Notes:

¹Except EC712HP.

²Except EC701HP.

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

⁴Contact Hitachi Kokusai Linear for optional availability in each standard.

⁶ Ethernet is a trademark of Xerox Corporation.


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

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

⁸ B.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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