

## UHF Digital TV Transmitters

E-Compact TV • High Efficiency • Air Cooling • High Power



Hitachi's transmitter E-Compact Series offers optimal broadcasting features with power efficiency up to 42%. The simplicity of its configuration and operation allows a fast startup. The high robustness of the E-Compact Series ensures a smooth and safe operation. Its high power sub-family is comprised of air cooled transmitters with output powers (before filter) of 700W up to 7.8kW in the ISDB-T standard, of 750W up to 8.8kW in DVB-T2, and of 800W up to 9.5kW in ATSC.

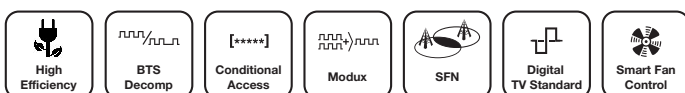
The equipment is mounted on a single rack.<sup>1</sup> Its compact design results in a small installation footprint. The PA module has an excellent power density. With 3RU and 19", each PA module is configured for transmitting up to 860Wrms.

Developed with Doherty Technology, it provides high efficiency and consumption cost reduction of up to 50% when compared to conventional transmitters.

The E-Compact line astonishes with its transmission versatility, either operating in SFN or in MFN retransmissions. The retransmission signal can be received through Satellite or Terrestrial tuners and through Ethernet<sup>2</sup> and ASI inputs. The EX8001 exciter features pre-correction, BTS decompression, and conditional access module, dismissing the need for other external equipment.

### E-Compact Highlights:

- Doherty Amplification Technology.
- Low energy consumption.
- Compact design, each power amplifier delivers up to 860Wrms in only 3RU.
- Easy assembly and maintenance:
  - Quick-coupling for PA Modules<sup>3</sup>.
  - Quick-coupling for Power Supplies.
- Automatic Fan Speed Control providing low noise levels and increased lifespan.



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

Certified Company  
**ISO 9001**  
10 years certified

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**Broadcasting, Video, and Communication Solutions from Brazil to the World.**

# UHF Digital TV Transmitters

## E-Compact TV - High Efficiency - Air Cooling - High Power

### GENERAL FEATURES

- IP Input;
- Modular power amplifiers;
- High efficiency with Doherty Technology;
- Air Cooling;
- Automatic Fan Speed Control: low noise levels, energy saving and increased lifespan;
- Power Supply with Power Factor Correction  $\geq 0.9$ ;
- Measurements and Alarms through front display and keyboard or via web;
- VSWR and Overdrive protection via hardware with power reduction;
- Overheating protection via software for the internal modules;
- Automatic Digital Pre-correction (Linear and No-Linear);
- Telemetry: WEB Server/SNMP, for local or remote management;
- AGING transistor compensation via exciter front panel;
- Automatic GM compensation with temperature;
- Gain and Phase adjustments per drawer;
- SFN Operation;
- Isolated combiner, enabling Hot Swap<sup>4</sup>

### INCLUDED:

General Control Software, WEB Server and SNMP;  
USB communication Drivers;  
PT-BR, US-EN or ESP manuals (digital formats).

### OPTIONALS:<sup>5</sup>

- Telemetry through GPRS interface;
- Exciter Redundancy;
- Measurement Software;
- Time base by GPS, inside the exciter;
- Terrestrial reception for UHF retransmission (connector N female);
- Satellite reception (DVB-S/S2) for UHF retransmission (connector F female);
- Conditional Access Module with up to four simultaneous services, and display of up to eight services;<sup>6</sup>
- Channel filter;
- Low-pass filter and after filter RF sample.

Communication Interfaces	USB / Ethernet <sup>2</sup> / SNMP
Frequency Stability	$\pm 1$ Hz (internal GPS)
Oscillator	PLL synthesized
Power Factor	better than 0.9
Operation Altitude	up to 2,500m a.s.l. <sup>7</sup>
Environment temperature range	from 0°C to +45°C
Environmental Humidity range	from 0 to 95% (non-condensing)

### BTS, TS or IP INPUTS

Formats	DVB-ASI 188 / 204 bytes Ethernet <sup>2</sup> (IEEE 802.3u) 10Base-T/100Base-TX
Connectors	BNC-Female RJ45
Impedance	75 $\Omega$

### OUTPUT

Operation Frequency	470MHz to 806MHz (UHF)
Bandwidth	6 / 7 / 8 MHz
Power	up to 9.5kW <sub>rms</sub> before filter
Minimum Operation Power (after filter)	10% of nominal power (increased in steps of 10W) <sup>8</sup>
TV Standard	ISDB-T, ATSC and DVB-T2
Intermodulation	-50dB @ $\pm 3.15$ MHz (BW=6MHz) <sup>5</sup> -50dB @ $\pm 4.2$ MHz (BW=8MHz)
Harmonics / spurious	better than -60dBc
MER	34dB to 38dB

### TECHNICAL TABLE (typical values)

Model	EC701HP		EC702HP		EC703HP		EC704HP		EC706HP		EC708HP		EC712HP	
Output Power (W) <sup>9</sup>	B.F. <sup>10</sup>	A.F. <sup>10</sup>	B.F. <sup>10</sup>	A.F. <sup>10</sup>	B.F. <sup>10</sup>	A.F. <sup>10</sup>	B.F. <sup>10</sup>	A.F. <sup>10</sup>	B.F. <sup>10</sup>	A.F. <sup>10</sup>	B.F. <sup>10</sup>	A.F. <sup>10</sup>	B.F. <sup>10</sup>	A.F. <sup>10</sup>
ATSC	800	700	1,600	1,400	2,400	2,100	3,200	2,900	4,800	4,200	6,500	5,600	9,500	8,500
DVB-T2	750	600	1,500	1,300	2,200	1,900	3,000	2,600	4,500	3,900	6,000	5,200	8,800	7,700
ISDB-T	700	580	1,400	1,200	2,100	1,800	2,700	2,400	4,000	3,600	5,400	4,800	7,800	7,000
AC Mains (43 to 63Hz)	M220 B220		M220 B220 T220 T380		M220 B220 T220 T380		M220 B220 T220 T380		M220 B220 T220 T380		M220 <sup>11</sup> B220 <sup>11</sup> T220 T380		M220 <sup>11</sup> B220 <sup>11</sup> T220 T380	
Output Connector	EIA 1-5/8"		EIA 1-5/8"		EIA 1-5/8"		EIA 1-5/8"		EIA 3-1/8"		EIA 3-1/8"		EIA 3-1/8"	
PA Modules	1 module		2 module		3 module		4 module		6 module		8 module		12 module	
Typical AC Consumption(W) <sup>9</sup>	ATSC 2,055		4,009		5,964		7,918		11,827		15,736		23,575	
	DVB-T2 2,051		4,002		5,954		7,905		11,807		15,710		23,515	
	ISDB-T 1,935		3,810		5,685		7,560		11,310		15,060		22,620	
Typical Heat Dissipation (BTU/h) <sup>9</sup>	ATSC 4,539		8,551		12,656		16,618		25,111		33,600		50,983	
	DVB-T2 4,857		9,058		13,320		17,647		26,773		35,584		53,206	
	ISDB-T 4,595		8,688		12,840		17,052		25,921		34,060		51,840	
Rack dimensions (RU)	8		25		25		25		40		40		40	
Number of Racks	1		1		1		1		1		1		2	
Rack total width (mm)	570		570		570		570		570		570		1,140	
Rack total depth (mm)	900		1,100		1,100		1,100		1,100		1,100		1,100	
Transmitter weight (kg)	70		170		210		250		350		420		700	

### Remarks / Notes

- <sup>1</sup> Except EC712HP.
- <sup>2</sup> Ethernet is a registered trademark of Xerox Corporation
- <sup>3</sup> Except EC701HP.
- <sup>4</sup> The PA modules can be removed / inserted with the transmitter in operation, although the PA being removed / inserted must be switched off.
- <sup>5</sup> Contact Hitachi Kokusai Linear for optionals availability in each standard.
- <sup>6</sup> DVB-CA Standard (conditional access)  
- DVB Common-Interface (DVB-CI) Module card of type PCMCIA CAM (Irdeto systems, Conax)  
Card and jacket not included.
- <sup>7</sup> Altitudes above 2,500m under consultation.  
a.s.l.: above sea level.
- <sup>8</sup> Except for model EC701HP, nominal power of 580W, in which the minimum power is 50W.
- <sup>9</sup> May change depending on MER value, channel and output power. For details, consult Hitachi Kokusai Linear.
- <sup>10</sup> B.F.: Before Filter / A.F.: After Filter
- <sup>11</sup> Under consultation.

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