



CTE

Digital Broadcast

FM TRANSMITTER 30W-3KW

BLUE SERIES

TOUCH SCREEN

1kW FM mod. TX1-BTH



3kW FM mod. TX3-BTH



LATEST HIGH EFFICIENCY TECHNOLOGY

CTE Digital Broadcast S.r.l.



Certificate N° 13-Q-0200544-TIC

Registered Office: Viale Piave,15 - I-20129, Milano (MI) - Italy

Manufacturing and Components Warehouse: Via E. Mattei, 7 - I-30039, Stra (Venice) - Italy

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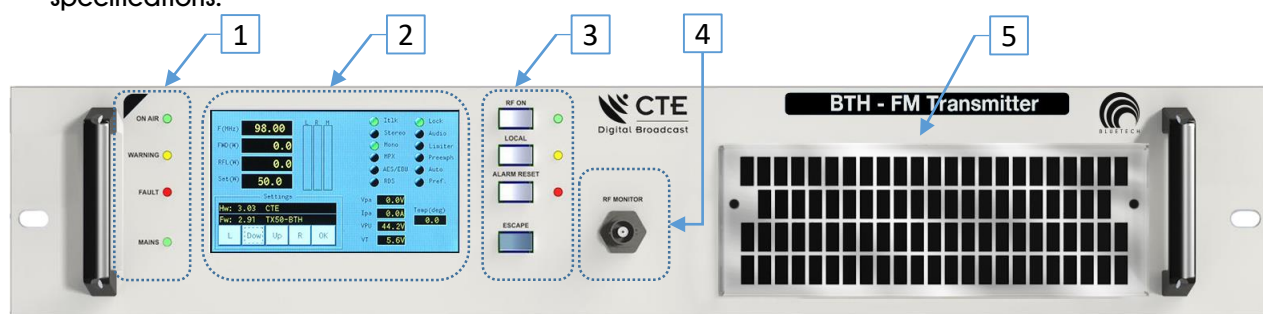
Cap. Soc.: € 100.000,00 I.V. - C.F.: Registro Imprese Milano 04912770288 - REA: MI 2081436 - P. IVA: EU VAT It n. 04912770288

"Blue Series" Technical Data

The new Blue FM Transmitters Series sets ultimate features by the evolution of RF technologies.

MAIN CHARACTERISTICS

- The BLUE technology represents the new set of innovative ideas implemented by "CTE Digital Broadcast" both for TV and FM transmitters: energy saving, small footprint, compact design, low operating cost, long-life duration are the most important benefits granted for a more sustainable broadcasting.
- Low operating cost is achieved basically by: immediate access to all the components including air cooling filters; the very high MTBF both for RF modules and power supply modules.
- Compact dimensions reduce transport costs and greatly simplify the relating logistics.
- High frequency stability is granted by Digital PLL including low drift VCTCXO.
- WEB SERVER SNMP, GSM or SMS remote control are available as options.
- Complete Remote Control via WiFi by WiFi Touch, available as an option.
- 10MHz External Reference Oscillator, available as an option.
- The BLUE SERIES meets or exceeds all the International standards for safety and electrical specifications.



FRONT PANEL DESCRIPTION

- | | | | |
|--------------------------------------------------------------------------------------------|-------------------------|---------------------------------------------------|------------------------------|
| 1. Indications Status LED:
a) ON-AIR operation;
b) Warning;
c) Fault;
d) Mains | 2. Touch Screen Display | 3. Key Board Functions:
a) RF ON;
b) Local; | c) Alarm Reset;
d) Escape |
| | | | 4. RF Monitor |
| | | | 5. Removable AIR Filter GRID |

HIGHLIGHTS

- Stereo Generator: Advanced built-in digital stereo encoder grants >65dB typical separation.
- Signal to Noise ratio: the >80dB value sets the new frontiers about audio quality.
- Input sensitivity and output deviation: easily adjustable by 0,05dB precision steps from the front panel display or remotely by Web interface.
- Pilot Tone: both level and phase are adjustable both from the front panel and by Web interface.
- AES/EBU: digital audio stereo input available as an option.
- Adjustable Modulation Limiter keeps the maximum frequency deviation in compliance with international requirements. Limiter levels can be set from the front panel.
- Switch-mode Power Supply with power factor control. Greatly over-rated power supply modules ensure low heating, low power consumption and top reliability. The power factor control circuitry meets the International requirements to eliminate mains network disturbances.
- Effective Cooling System: the temperature on the heat-sinks increases about 10°C only above ambient temperature, even in transmission sites with very heavy climate conditions.

Main parameters are fully controllable and adjustable by Web and SNMP interfaces:

- Operation Frequency.
- Output power.
- Input connector impedance for Left and Right connectors.
- Insertion and adjustment of the limiter.
- Choice of the active input connectors.
- Enabling of the input audio connectors.
- Audio sensitivity of all the inputs.
- Pre-emphasis value.
- Audio mode selection.
- Foldback VSWR threshold setting (in % value).
- Deviation for:
 - total input signal
 - 19 kHz pilot
 - RDS signal
 - SCA signal
 - AUX signal
 - AES/EBU signal
- Phase of 19kHz pilot.
- Warning levels for:
 - audio lower than a specific threshold set by the customer
 - audio over a specific threshold set by the customer
 - low power (the output power is lower than a specific threshold set by the customer)
 - VSWR (the reflected power is higher than a specific threshold set by the customer)
 - Audio low times (how much time the audio remains lower than the specific threshold)
 - Audio over times (how much time the audio remains higher than the specific threshold)
- Weekly scheduler page
- Network parameters settings:
 - MAC address
 - IP address
 - Subnet mask
 - Gateway
- SNMP parameters settings:
 - TRAP IP addresses
 - read community
 - write community
 - trap type
 - informs timeout
 - informs retries
- WEB accesses settings:
 - user name
 - password
- NTP parameters settings:
 - preferred and backup servers
 - update interval
 - time zone
 - status
- E-mails configuration (e-mail sent in case of alarm reporting the complete status of the unit and, as attachment, the log file in .txt format):
 - station ID (label to identify the station)
 - account Username
 - account Password
 - server SMTP URL
 - server SMTP port
 - security and Authentication mode
 - destination Addresses (up to 5 different addresses can receive the notification)

Parallel Remote Control Connector Interface (optional) with dry contact relay outputs and opto-isolated inputs with the following signals available: on/off, local/remote, alarm status, RF higher than a preset threshold, reset of alarms, change between 6 available memories (for 6 different configurations of the unit).



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REMOTE CONTROL

Parallel Remote Control Interface:	Available with dry contact relays outputs and opto-isolated inputs
Parallel Remote Signals (TLS):	On Local/remote Audio presence in the input Alarm status RF higher than a preset threshold Status of each of the 6 available memories (active / not active)
Parallel Remote Controls (TLC):	On Off Reset alarms Choice of the active memory among 6 possible configurations
Web log file	<ul style="list-style-type: none"> Up to 64000 events stored in the web board The log file is saved in the PC in common text format (.txt)
SNMP	SNMP v2c with Traps and Informs
Weekly scheduler page	Available for the modification of the basic parameters of the unit up to 4 times for each day

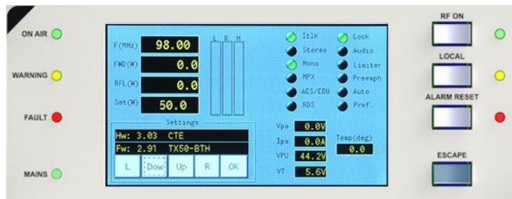
SOFTWARE

Update:	Available without proprietary tools Firmware remotely upgradable by TCP/IP for modulator board and web board Received software automatically controlled before being installed Possibility to return to the previous firmware release after new release has been installed Possibility to select by WEB / SNMP which release will run on air
Configuration download	The configuration of the active memory can be downloaded and stored in the PC. This file can be uploaded in another unit to set it with the same configuration without any other adjustment

BLUE SERIES, SIMPLY SMART!



The Blue Series' design was optimized to get minimum losses in the passive elements and excellent performances of the active elements. The final result is an overall AC efficiency better than 70%, for top savings in the energy cost.



Status at first glance: Easy!

The new BTH integrates an innovative user interface thanks to the Touch Screen Display and the Keypad for the most important functions. The most common setting and operation never seen so fast and so easy!

BTH is our new standard of quality and functionality: very high purity for the RF spectrum; 0,1dB accuracy Audio Setting, integrated RDS encoder and digital AES/EBU input.

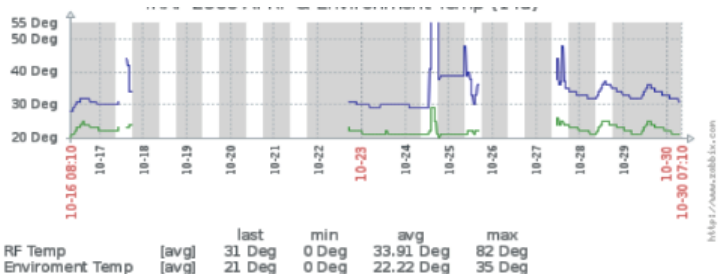


Hot-plug fans: Friendly!

5 min are enough for the replacement. No need to open or turning the unit off.



BTH= new concept for remote control thanks to the SNMP interface and the dedicated CTE BLUE Broadcast Manager.



GENERAL

Frequency range	87.5 to 108 MHz adjustable with 10kHz step
Output impedance	50 Ω
Output connectors	N from 30W up to 500W DIN 7/16 for 1kW EIA 7/8" for 2kW and 3kW
Deviation capability	±75 kHz, up to ±200 kHz with distortion < 0.5%
Short term stability	± 1 ppm from -5 to +45 °C
RF harmonics	Exceeds CCIR/FCC requirements
RF spurious	Exceeds CCIR/FCC requirements
Pre-emphasis	0, 25, 50, 75 us (selectable)
Modulation monitoring	BNC connector
Pilot tone	Phase and Amplitude adjustable from display and WEB interface
Log file	Up to 200 dated events saved in the transmitter memory, accessible from display and WEB interface

MODEL	OUTPUT POWER (W)	POWER CONSUMPTION	DIMENSIONS
TX30-BTH	30	75VA@30W	19" x 2U
TX50-BTH	50	110VA@50W	19" x 2U
TX100-BTH	100	200VA@100W	19" x 2U
TX300-BTH	300	550VA@300W	19" x 2U
TX05-BTH	500	700VA@500W	19" x 2U
TX1-BTH	1000	1380VA@1000W	19" x 2U
TX2-BTH	2000	2750VA@2000W	19" x 3U
TX3-BTH	3000	4150VA@3000W	19" x 3U

All specifications are subject to change without notice.

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AUDIO INPUTS

Modulating input signal	Mono, Stereo (Left, Right, Left + Right), Encoded stereo (MPX), SCA, RDS, AUX, Digital AES/EBU
Input sensitivity adjustment	With 0,05dB steps by front panel display interface or by WEB interface
Limiter	It can be enabled/disabled and adjusted from 30 kHz to 180 kHz by front panel display and WEB interface
Internal RDS coder	Synchronized with the 19kHz pilot of the internal stereo coder or the 19kHz pilot of an external MPX signal

MONO

Audio input levels for +/- 75 kHz deviation	Adjustable from -9 to +18 dBu
Audio response	±0.3 dB (30 Hz to 15 kHz)
THD+N on encoded channels	< 0.06% (typ. 0.03%) (30 Hz to 15 kHz)
Audio Impedance	600Ω Balanced
Audio connector	XLR

STEREO

Audio input levels for +/- 75 kHz deviation	Adjustable from -9 to +18 dBu
Audio response	±0.3 dB (30 Hz to 15 kHz)
THD+N on encoded channels	< 0.03% (30 Hz to 15 kHz)
Audio Impedance	10 kΩ Unbalanced or 600Ω Balanced
Audio connector	XLR (Left & Right)

MPX (External coder)

Audio input levels for +/- 75 kHz deviation	Adjustable from -6 to +6 dBu or from +6 to +18 dBu (selectable at order)
THD+N on encoded channels	< 0.03% (30 Hz to 100 kHz)
Audio Impedance	> 5 kΩ Unbalanced
Audio connector	BNC

RDS/SCA/AUX (with separated connectors)

Audio input levels for +/- 75 kHz deviation	Adjustable from -19.5 to +7.5 dBu
Audio Impedance	2 kΩ (others on request) Unbalanced
Audio connector	BNC

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AES/EBU							
Audio input levels for +/- 75 kHz deviation	Adjustable from -15 to 0 dBFS						
Audio Impedance	110 Ω						
Audio connector	XLR						
FRONT PANEL							
Front panel menu	Accessible from LCD display						
Direct function push buttons	Available on the front panel for the following functions: <ol style="list-style-type: none"> ON/OFF (Stand-by) Local/Remote Reset Alarms 						
Status leds	Presence of leds to indicate the status of the unit at the first glance						
Working parameters leds:	<table border="0"> <tr> <td>Audio Status:</td> <td> <ul style="list-style-type: none"> AES/EBU input signal active STEREO operation with internal stereo coder </td> </tr> <tr> <td> <ul style="list-style-type: none"> RDS/AUX input signal present <ul style="list-style-type: none"> Audio presence on the input (Left or Right) Limiter inserted Pre-emphasis insertedMPX input signal active </td> <td> <ul style="list-style-type: none"> MONO operations </td> </tr> <tr> <td>Control Status</td> <td> <ul style="list-style-type: none"> Interlock PLL locked </td> </tr> </table>	Audio Status:	<ul style="list-style-type: none"> AES/EBU input signal active STEREO operation with internal stereo coder 	<ul style="list-style-type: none"> RDS/AUX input signal present <ul style="list-style-type: none"> Audio presence on the input (Left or Right) Limiter inserted Pre-emphasis insertedMPX input signal active 	<ul style="list-style-type: none"> MONO operations 	Control Status	<ul style="list-style-type: none"> Interlock PLL locked
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AC POWER REQUIREMENTS							
AC supply voltage	115 / 230 VAC \pm 15%, single-phase						
AC supply frequency	50 Hz or 60 Hz, \pm 5%						
Power factor	> 0.9						
ENVIRONMENT							
Cooling	Forced air						
Service	Continuous 24/24h						
Operating temperature	-5°C to +45°C Derate 3°C per 500 m above 2000 mt asl						
Relative humidity	Up to 95%						
AVAILABLE OPTIONS							
/L+R	L+R audio input option for mono and stereo operation (XLR connectors)						
/S	Built-in Stereo Coder board. To mount this option is necessary to include also the /L+R Audio Input option						
/AEBU	Digital audio input, AES-EBU						
/IO	I/O board for complete telesignal and telecontrol interface. Opto-isolated inputs and dry output contacts						
/WB-SNMP-2C	WEB/SNMP version 2C. Includes complete monitoring of all parameters and remote software upgrade via WEB						
/SMS-2C	Complete monitoring and control of all parameters via SMS (Short messages on portable phone)						
/RDS	Fully PC programmable built-in Radio Data System						

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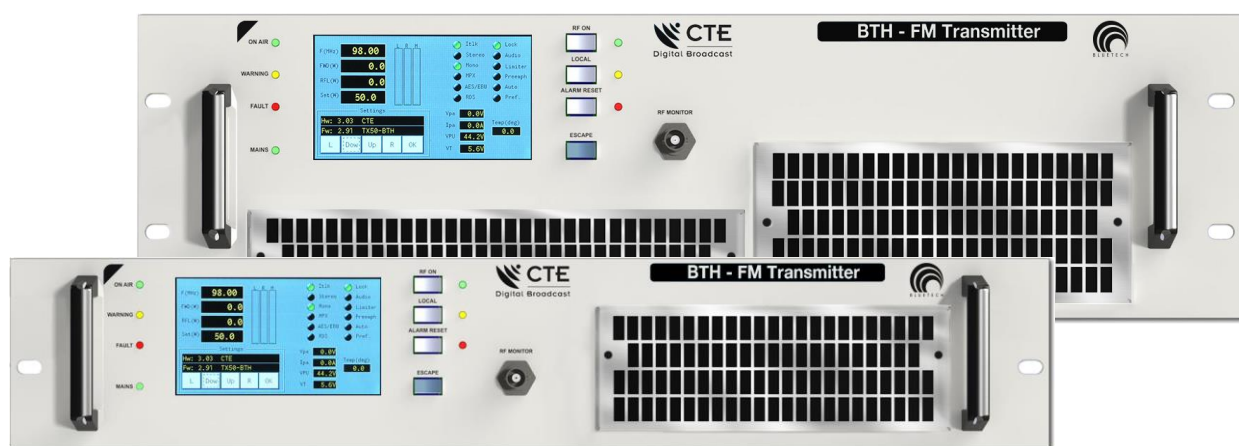
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BLUE SERIES TOUCH SCREEN



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LEGAL OFFICE

Viale Piave, 15 - I-20129, Milan, Italy

MANUFACTURING and COMPONENTS WAREHOUSE

Via E. Mattei, 7 - I-30039, Stra (Venice) - Italy

TECHNICAL and R&D DEPT.

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