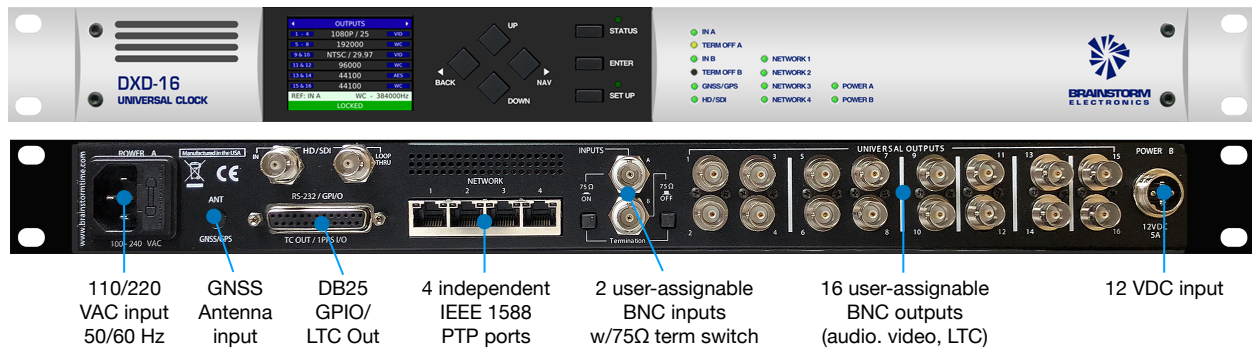


Universal Clock **DXD-16**



Designed to be the central source of time in a modern AV installation, the **DXD-16 Universal Clock** combines PTP network sync (AES67, ST2110, Dante, Ravenna, AVB...), GPS, NTP and traditional AV references including WC, AES, SD & HD Video Sync, time code and 10MHz. It is a complete sync solution with exceptional flexibility.

It is capable of being a PTP Slave (follower) or a PTP Master (leader) locked to its internal crystal, GPS or a traditional AV reference. It includes 6 independent high-precision reference generators with outputs perfectly aligned per ST-2059 and AES67. It can also generate 2 separate streams of Time Code (LTC).

FEATURES

- PTP Grandmaster w/ 4 independent Ethernet ports
- Includes support for PTP v1, PTP v2 and gPTP (AVB)
- Can synchronize to a PTP network, a GPS clock or a legacy reference (WC, AES, VID SYNC, 10MHz)
- TCXO internal oscillator (optional OCXO)
- Can be an NTP Server distributing its system time to other devices or an NTP Client receiving time from an external NTP Server, to jam its internal system time.
- 6 separate reference generators with 16 user-assignable BNC outputs (WC, AES, VID SYNC, 10MHz)
- 2 external reference inputs (BNC) with failover for redundancy and 75Ω termination switches
- GPIO: 3 inputs & 4 outputs - used for remote control and for alarms and monitoring
- Dual power sources, AC & DC, for redundancy
- Remote control via web browser

OPTIONS AVAILABLE

- **DXD/GPS:** Internal GPS/GNSS Receiver (hardware)
- **DXD/OCXO:** Oven Controlled Oscillator (hardware)
- **DXD/LTC:** Dual Time Code Generator (firmware)

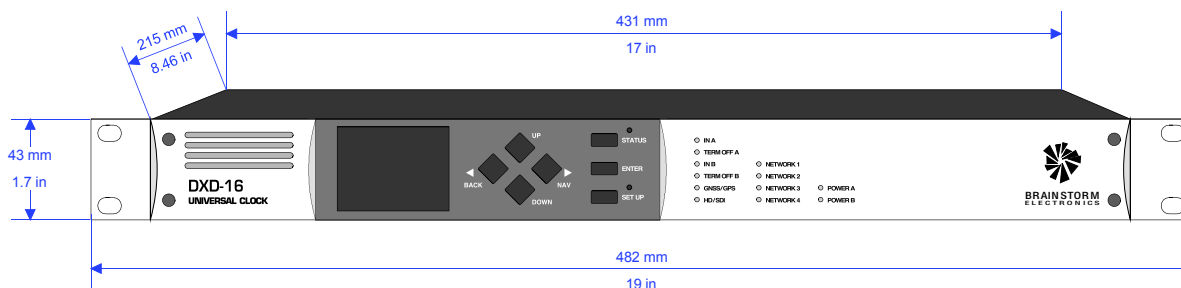
APPLICATIONS

- Post-Production
- House of Worship
- Broadcast
- OB truck

TECHNICAL SPECIFICATIONS

PTP	4 independent Gigabit Ethernet ports (RJ-45 connector)	
	Configurable as a Grandmaster, slave or Boundary clock	
	Multicast & limited Unicast operation	
	Supported PTP versions: v1 (2002), v2 (2008), v2.1 (2019), AVB 2011, AVB 2020	
	Supported PTP profiles: Standard PTP, AES67, SMPTE ST2059	
NTP	NTP Server distributes its internal System Time to other devices	
	Pseudo NTP Client receives time from an external NTP Server that can be used to jam the DXD System Time, or its internal Realtime Clock (RTC)	
Internal Crystal	TCXO: +/- 1 ppm	
	OCXO (option): +/- 10 ppb	
External Sync Sources	PTP	AES
	GPS (option)	Video Sync (SD or HD)
	Word Clock	10 MHz
Reference Generator	Generates simultaneously 6 different rates in any of these formats:	
	• Word clock - rates from 32 to 384 KHz	
	• AES - rates from 32 to 96 KHz	
	• Video sync:	
	- NTSC/PAL black burst:	525/29.97/30i 625/23.98/24/25i
	- HD tri-level sync:	720/23.98/24/25/29.97/30/50/59.94/60P 1080/25/29.97/30i 1080/23.98/24/25/29.97/30sF 1080/23.98/24/25/29.97/30/50/59.94/60p 1080/47.952/48/100/119.88/120p (non standard)
	• 10 MHz	
	• Time Code (option)	
Reference Inputs	Connectors: BNC (x 2) w/ 75Ω termination switches	
	Signal type: Word Clock, AES, Video Sync, 10 MHz	
	Level: 0.5V~5.0V(p-p, 32kHz~13MHz), abs max 12V	
	Input Impedance: 75 Ω; switched	
Reference Outputs	Connectors: BNC (x 16) - in 6 groups - output signals are user-assignable	
	Signal type: Word Clock, AES, Video Sync, 10 MHz, Time Code (LTC)	
	Level, into 75 Ω termination:	
	- Word Clock:	0~3.75VDC
	- AES:	+/- 0.5V
	- Video Sync:	+/- 0.3V
	- 10 MHz:	+/- 0.5V
	- Time Code:	+/- 1.0V
	Output Impedance: 75 Ω	
DB-25 connector	3 GPIO inputs + 4 GPIO outputs (4th can be configured as a 1PPS output)	
	2 Balanced Time Code outputs (option)	
GNSS Receiver (option)	Connector: SMA Female	
	Satellites constellations: GPS, GLONASS, Galileo, QZSS, SBAS	
	Antenna impedance: 50Ω	
Display	2.4" TFT LCD – 240 x 320 resolution	
Power	Dual, redundant	
	• Internal: 80~275VAC, 47~63Hz, EMI filter	
	• External: 12 VDC @ 5A	
	AC Connector: IEC C14 inlet with Fuse Holder (1 pole 5 x 20mm)	
	DC Connector: Circular 4-pin male GX12 (with thread for female socket)	
	Power Usage: Typ: 22 Watts / Abs max: 50 Watts	

Dimensions (w x d x h)	19 x 8.46 x 1.70 in (482 x 215 x 431 mm)
Weight	3.97 lbs (1.80 kg)
Enclosure	Chassis: Metal, black finish
	Faceplate: Machined aluminum with black insert
	Mounting: 1 RU 19" rack-mountable



SPECIFICATIONS STATEMENT

The device shall be a master clock capable of generating sync signals required for both network and legacy A/V equipment.

It shall support PTP sync (v1, v2 & gPTP) as well as traditional 'legacy' A/V sync including Word Clock, AES, SD Video Sync, HD Video Sync and 10 MHz, be able to lock to GNSS and generate LTC (longitudinal time code).

It shall include 4 independent Ethernet ports, 16 user-assignable BNC outputs, 2 user-assignable BNC inputs with 75Ω termination switches and two separate sources of power (100/240 VAC and 12VDC).

The device shall be able to be a PTP Master (leader) or Slave (follower), according to the IEEE-1588 and IEEE 802.1AS standards and support the SMPTE ST2059 and the AES-67 PTP profiles.

The 4 Ethernet ports shall be independent and no data shall be able to be transferred from one port to another through the device. Each port shall have the ability to act either as an independent PTP master or as part of a PTP Boundary Clock with other ports.

A GNSS receiver that can accept GPS, Glonass and Galileo shall be available to provide timing and Time-of-Day. An oven controlled oscillator reference shall also be available.

The 2 BNC inputs shall accept Word Clock, AES, SD or HD video sync. and 10MHz. These inputs shall each have a 75Ω termination switch.

The device shall accept as external reference: PTP, GNSS, video sync (SD & HD), word clock, AES or 10 MHz. When using video sync, word clock, AES or 10 MHz, another source shall provide Time-of-Day.

The device shall be able to operate as an NTP Server, distributing its internal system time (Time-of-Day) to other devices and as an NTP Client, receiving time from an external NTP Server to jam its internal time.

The 16 BNC outputs shall be assignable by the user for all the different types and formats of references generated by the device including Word Clock, AES, SD or HD video sync, 10 MHz and Time Code. All generated sync signals shall be anchored to the PTP epoch and perfectly aligned with the master reference. The unbalanced BNC outputs shall have an output impedance of 75Ω. Two balanced outputs shall also be available for Time Code.

The device shall have 3 user-assignable General Purpose Inputs for remote control and 4 outputs for alarms and monitoring.

Either of the two power sources shall be able to power the device and they shall each act as a redundant source in case of failure of the other.

All parameters shall be accessible for configuration and monitoring through a graphical user interface (GUI) viewed with a browser via embedded web pages.

The device shall be housed in a 1U 19" enclosure.