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SyncBox/N2X: Converter for Outputting IRIG Time Code, 10MHz, PPS, DCF77 and Serial Time Strings Based on NTP or IEEE1588 Input

[1]

The SyncBox/N2X operates as an IEEE-1588 multicast slave clock or NTP client in a PTP / NTP network and with its interfaces this converter can synchronize many different systems. Our [2]IEEE-1588 PTP Grandmaster Clocks or a [3]LANTIME NTP Server can be used as a reliable time source.

Key Features

- Outputs for programmable pulses (PPS, PPM, PPH, TC DCLS, DCF77 Marks), 10 MHz, serial time string (Meinberg, Uni Erlangen, NMEA); optionally also outputs for AM time code and variable-frequency sine wave
- IEEE 1588-2008 (PTP V2) compatible ordinary clock
- Serial COM port for initial configuration and time string output
- Supported Protocols: IPv4, NTP, PTP / IEEE 1588-2008, DHCP
- Signal outputs optionally implemented as fiber-optic ST connectors
- Generates a variety of amplitude-modulated (AM) and pulse-width modulated (DCLS) IRIG time code signal formats
- Option: N2X chassis with clamp for 35mm railmount
- 10/100Base-T Ethernet interface - Power over Ethernet option available on request
- Configuration and montoring with Meinberg Device Manager Software

Description

The Meinberg SyncBox/N2X is synchronized by a PTP grandmaster or NTP server and can be used as a time source for equipment that requires IRIG AM, variable-frequency sine waves, serial time string, or a variety of other programmable pulse types (pulse-per-second, pulse-per-minute, pulse-per-hour, IRIG DCLS, cyclic pulses, single shot, timer, DCF77 marks, time sync, variable-frequency TTL signals, time slots) for synchronization.The SyncBox/N2X can be delivered with any of the following output configurations:

* 3 x PPO via BNC Out 1 - Out 3

* 2 x PPO via BNC Out 1 / Out 2 and TC AM Out 3

* PPO Out 1, Freq. Synth/Sine Out 2, TC AM Out 3

* Instead of three BNC connectors, the SyncBox N2X can also be equipped with three PhotoMOS outputs: 3 x PPOs with 2-pin sockets (MSTB-2),

* or with 3 x ST - fiber-optic female connectors

The SyncBox/N2X is configured and monitored using our free Meinberg Device Manager software.

The SyncBox supports a variety of network management systems with an extensive SNMP v1 interface, allowing all relevant system parameters to be monitored (including operating system parameters, network interface statistics, detailed NTP status information, as well as the complete system configuration) and can be used to modify the SyncBox's configuration via SNMP set commands, too.

The SyncBox's PTP stack implementation is fully compatible with all IEEE 1588 PTPv2 systems and supports PTP management messages.

The SyncBox N2X is equipped with a high precision "TCXO" oscillator. The oscillator determines the clock's long-term stability in holdover mode (i.e., when synchronization with the reference source fails). An upgrade to a different oscillator type (maximum OCXO HQ) is possible.

Characteristics

Available Output Signals	Programmable pulses (pulse-per-second, pulse-per-minute, pulse-per-hour, DCLS time code, DCF77 Marks), AM time code, serial time string (Meinberg, Uni Erlangen, NMEA), frequency-variable sine wave
Status Indicators	4 Status LEDs: * **ST - State** Blue: During initialization Green: Normal operation * **IN - Input** Red: No network connected (**Note:** network takes a few minutes to be detected after connection) Yellow: Signal is available but clock is not synchronized Green (flashing): Control by input signal, internal clock is synchronized but not accurate Green: Oscillator is disciplined, the internal clock is running accurately * **SP - Speed** Off: No cable connection Yellow: 10 Mbit Green: 100 Mbit * **LI - Link Activity** Off: No cable connection Yellow (flashing): Network traffic passing through with 10 Mbit link mode Green (flashing): Network traffic passing through with 100 Mbit link mode
Control Elements	[4]Meinberg Device Manager via RS-232 serial interface or network connector (RJ45 jack)
Accuracy of Pulse Outputs	**PTP:** +/- 100 ns (relative to the used IEEE 1588 Grandmaster Clock, after initial synchronization phase) **NTP:** +/- 1 ms (relative to NTP when using a local time server) ***** *after disciplining phase*
Interface	Single serial RS-232 interface
PWM Time Code Output	DCLS, TTL into 50 Ohm load (PWM DC signal) via BNC female connector, high active or via FO connector (fiber-optic)
AM Time Code Output	Optional IRIG AM sine wave signal via female BNC connector (Out 3): 3Vpp (MARK), 1Vpp (SPACE) at 50 Ohm load

Supported Timecode Formats	**IRIG B002:** 100pps, DCLS signal, no carrier, BCD time-of-year **IRIG B122:** 100pps, AM sine wave signal, 1 kHz carrier, BCD time-of-year **IRIG B003:** 100pps, DCLS signal, no carrier, BCD time-of-year, SBS time-of-day **IRIG B123:** 100pps, AM sine wave signal, 1kHz carrier, BCD time-of-year, SBS time-of-day **IRIG B006:** 100 pps, DCLS Signal, no carrier, BCD time-of-year, year **IRIG B126:** 100 pps, AM sine wave signal, 1 kHz carrier frequency, BCD time-of-year, Year **IRIG B007:** 100 pps, DCLS Signal, no carrier, BCD time-of-year, year, SBS time-of-day **IRIG B127:** 100 pps, AM sine wave signal, 1 kHz carrier frequency, BCD time-of-year, year, SBS time-of-day **IEEE1344:** Code according to IEEE1344-1995, 100pps, AM sine-wave signal, 1kHz carrier, BCD time-of-year, SBS time-of-day, IEEE1344 expansion for date, time zone, daylight saving and leap second in Control Functions segment **C37.118:** Like IEEE1344 - with inverted sign bit for UTC offset **AFNOR:** Code according to NFS-87500, 100pps, AM sine-wave signal, 1kHz carrier, BCD time-of-year, complete date, SBS time-of-day
Network Interface	RJ-45 Network Connection 10/100 MBit
Power Consumption	5 W
Operating Voltage	20-60 V DC; Option: PoE (Power over Ethernet - IEEE802.3af compliant), 36-60 V DC
Form Factor	Aluminium Desktop Case TUG 05 160 L MS (like GOAL / DOAL). Physical Dimensions: 105 mm x 45 mm x 160mm (W x H x D)
Network Protocols OSI Layer 7 (Application Layer)	SNMP V1 - Monitoring of system parameters
Network Time Protocol (NTP)	* Up to seven configurable external NTP time server * min. and max. polling interval (8s
Precision Time Protocol (IEEE 1588)	* UDP/IPv4 (L3) or IEEE802.3 (L2) Multicast * E2E, E2E Hybrid or P2P Delay Mechanism * PTP Subdomains (0-255) * Power Profile compatible

Supported Temperature	Operational: 0 - 50 °C (32 - 122 °F) Storage: -20 - 70 °C (-4 - 158 °F)
Supported Humidity	Max. 85 % (non-condensing) at 40 °C
Contents of Shipment	SyncBox and 5-pin DFK clamp (DC power supply only).
Technical Support	Meinberg offers free lifetime technical support via telephone or e-mail.
Warranty	Three-year warranty
Firmware Updates	Firmware is field-upgradeable, updates can be installed directly at the unit via serial connection and with MBGFLASH tool. Software updates are provided free of charge, for the lifetime of your Meinberg product.
RoHS Status of Product	This product is fully RoHS-compliant.
WEEE Status of Product	This product is handled as a B2B (Business to Business) category product. To ensure that the product is disposed of in a WEEE-compliant fashion, it can be returned to the manufacturer. Any transportation expenses for returning this product (at end-of-life) must be covered by the end user, while Meinberg will bear the costs for the waste disposal itself.

Manual

The English manual is available as a PDF file: [5]Download (PDF)

Links:

[1] https://www.meinbergglobal.com/english/products/
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