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microSyncRX/TRX: Powerful PTP Grandmaster and NTP Server

[1]

Meinberg's microSync series is a range of reliable, versatile synchronization solutions for a diverse range of industries and applications.

The microSyncRX and microSyncTRX servers are efficient, 19" rack-mounted time servers with a wealth of features, among them an impressive, densely-packed array of inputs and outputs and optional power supply redundancy.

Key Features

- Selectable Reference Time Sources: GPS: Satellite receiver for the GPS constellation (using Meinberg's downconverter technology for reliable GNSS signal transmission over long distances) - Recommended for fixed-site applications GNS-UC: Satellite receiver for the GPS and Galileo constellations (using Meinberg's downconverter technology for reliable GNSS signal transmission over long distances) - Recommended for both fixed-site and mobile applications GNS: Multi-GNSS satellite receiver with support for all four of the main constellations: GPS, GLONASS, Galileo, and BeiDou - Recommended for both fixed-site and mobile applications
- High-performance NTP Server (NTP & SNTP v2, v3, v4)
- Versatile and easy-to-use Web Interface for configuring and monitoring the status of your microSync system
- PTPv2 time server with support for all major PTPv2 profiles
- Fully integrated version of the PTP monitoring solution, PTP Track Hound
- Optional power supply redundancy with support with AC and DC power sources
- Different oscillator options for advanced holdover performance
- Many models include an OLED display with a rotary controller for initial network set-up and status monitoring.
- All microSync models offer a wide range of multiple output signals, allowing devices to be synchronized over a network via NTP or PTP or directly "on the wire" using a variety of electrical and optical signals.
- 10,000 NTP requests per second

Description

All microSyncRX and microSyncTRX models offer key features such as multiple programmable output signals (two over fiber-optic ST connectors), four Gigabit Ethernet interfaces and the ability to synchronize both NTP and PTP devices.

With two of the network ports being PTP-capable in both Master and Slave mode, the microSyncRX and microSyncTRX models are operable as powerful GNSS-synchronized PTP Grandmasters that offer a high level of accuracy and support all major PTP profiles: in addition to the standard IEEE1588 profiles it also supports power, telecom (frequency and phase profiles), SMPTE 2059-2, AES67/RAVENNA and IEEE802.1AS profiles.

The sheer diversity of outputs and interfaces makes the microSyncRX and microSyncTRX ideal for a large range of industries and applications. Various different models featuring different inputs, outputs, and GNSS receivers are available to suit specific application demands.

GNSS Receivers

A microSync system can be fitted with a GPS-only receiver, a combination GPS/Galileo receiver, or a multi-GNSS solution capable of supporting all four of the main GNSS constellations: GPS, Galileo, BeiDou, and GLONASS.

Inputs/Outputs

In addition to two custom 16-pin DFMC connectors providing a multitude of programmable pulse outputs with RS-422 and optocoupler signaling, the various models also provide different options in terms of I/O over BNC connectors, with various combinations of AM time code outputs, programmable pulse outputs, 10 MHz TTL inputs/outputs, 10 MHz sine-wave outputs, PPS inputs all possible.

OLED Display

microSyncRX models can optionally be fitted with an OLED display on the same side as the connectors, while the corresponding microSyncTRX models are equipped with an OLED display on the opposite side to the connectors. This provides flexibility for a diverse range of rack configurations and arrangements.

The OLED display provides an easily readable, well-lit status readout at all times, showing the current time & date, the clock & receiver status, and the current network configuration.

In conjunction with the rotary controller, the OLED display also provides an easy method of configuring the port *LAN0* (IP address, netmask, gateway, and DHCP) for use as a network-reachable management port during set-up.

meinbergOS Operating System

Equipped with a fully-featured version of the powerful, synchronization-centric meinbergOS operating system, the microSync(T)RX offers up all of the security and flexibility that the microSync family is known for. These include the new features introduced in the latest meinbergOS versions, specifically LDAP, TACACS+, and RADIUS authentication, native PRP for NTP and PTP traffic, industry-specific network functionality such as IEC 61850 MMS support, detailed analysis features for GNSS reception and clock performance, and also a fully integrated version of Meinberg's PTP monitoring solution, PTP Track Hound.

The version of PTP Track Hound in the meinbergOS firmware is pre-activated with a Capture license, which means that in addition to evaluating PTP traffic locally via its own PTP-capable network interfaces, it can also forward traffic data to one or several central PTP Track Hound Professional instances for combined analysis.

Configuration and Monitoring with meinbergOS WebUI meinbergOS Versions $\geq 2024.12.0$ offer a web interface that can be used to perform all configuration and monitoring tasks efficiently and easily. You can access the web interface directly via a standard web browser, provided that the system is accessible via HTTP(S) on the network.

Characteristics

Supported PTP Profiles

Default Profiles:

- E2E IEEE 1588-2008 Profile
- P2P IEEE 1588-2008 Profile

Power Profiles:

- IEEE C37.238-2011 *
- IEEE C37.238-2017 *
- IEC/IEEE 61850-9-3 Power Utility Profile *

Telecom Profiles:

- ITU-T G.8265.1 *
- ITU-T G.8275.1 *
- ITU-T G.8275.2

Broadcast Profiles:

- DOCSIS 3.1
- SMPTE ST 2059-2 *
- AES67 Media

AVB/TSN:

- IEEE 802.1AS

Automotive Profile:

- AUTOSAR

* including profile extensions

Operating Mode

* PTP V2

* PTP V1 (Option: Performance Level C only)

* NTP

Synchronous Ethernet

Master and Slave Capability
Compliant to ITU-T G.8261, G.8262 and G.8264
Ethernet Synchronization Messaging Channel (ESMC)

Controls

Optional OLED display with rotary controller for initial set-up and status monitoring.

Display

OLED display (present on optional microSyncRX models and all microSyncTRX models)
Indicates:

* Time and date

* Status of synchronization source

* Firmware version

* Model and serial number

Network Protocols

IPv4, IPv6
NTPv3, NTPv4
PTPv2
IEC 62439-3 (PRP)
DHCP, DHCPv6
DSCP
IEEE 802.1q VLAN filtering/tagging
IEEE 802.1p QOS
SNMPv1/v2/v3

Remote Syslog Support (UDP)
LDAP, TACACS+, RADIUS authentication

Optical Outputs	2 x programmable pulse outputs, fiber-optic ST connectors
Interface	Single serial RS-232 interface
Available PTP Performance Level	microSyncs are provided with a license that allows a specific performance level to be achieved with the IEEE1588 implementation. There are three Performance Levels available: Performance Level Max. Unicast Clients Max. Delay Requests per Second / Hybrid Mode PL-A 8 1024 PL-B 256 32768 PL-C 512 65536
Network Interface	4x SFP connectors with support for up to Gigabit Ethernet <u>LAN 0, LAN 1</u>: 10/100/1000Base-T (RJ45) or 1000Base-FX (FO) Management, NTP <u>LAN 2, LAN 3</u>: 10/100/1000Base-T (RJ45) or 1000Base-FX (FO) Management, NTP, PTP (Master and Slave)
Universal Serial Bus (USB) Ports	USB Type-A, usable for the following purposes: * Backing up and restoring a microSync configuration (or rolling a shared configuration out to multiple devices) * Backing up log files * Uploading and downloading cryptographic certificates * Installing firmware updates * Restoring factory settings using a specially prepared 'USB key'
BNC Connectors	4 x BNC female connectors for different output signals - e.g. programmable pulses, frequency synthesizer, AM time code
Multi-Function Connector	2x DFMC type connectors, 16-pin DMC X1 Programmable pulse signals (TTL, optocoupler-isolated) Error relay DMC X2 Programmable pulse signals (TTL, optocoupler-isolated) Programmable pulse signals (RS-422) DCLS time code input/output (TTL, isolated)

Oscillator Options	OCXO SQ 1 Day Holdover Performance: $\pm 65 \mu\text{s}$ 1 Year Holdover Performance: $\pm 4.7 \text{ s}$
	OCXO HQ 1 Day Holdover Performance: $\pm 10 \mu\text{s}$ 1 Year Holdover Performance: $\pm 788 \text{ ms}$
	OCXO DHQ 1 Day Holdover Performance: $\pm 4.5 \mu\text{s}$ 1 Year Holdover Performance: $\pm 158 \text{ ms}$
Power Consumption	Maximum 30 W
Operating Voltage	Rated Voltage Ranges: Combination AC/DC Power Supply Unit: 90-265 V AC (47-63 Hz) 90-250 V DC
	DC Power Supply Unit: 20-60 V DC
Form Factor	Chassis Type: 19", 1U 444 mm x 248 mm x 43 mm (17.48 in x 9.76 in x 1.69 in (W x D x H) Material: Sheet steel
Atmospheric Pressure	615 to 1,600 hPa
Operating Altitude	Up to 4,000 m (13,123 ft) above sea level
IP Rating	IP30
Supported Temperature	-20 °C to 55 °C (-4 °F to 131 °F)
Storage Temperature	-30 °C to 70 °C (-22 °F to 158 °F)
Supported Humidity	5 % to 95 % at 40 °C, non-condensing
Compliances	
* CB Scheme * CE * FCC * UL * CSA * WEEE, Waste of Electrical and Electronic Equipment * RoHS, Restriction of Hazardous Substances * REACH, Registration, Evaluation, Authorization and Restriction of Chemicals	

Contents of Shipment	The product is shipped with a suitable antenna in a waterproof housing and with all necessary accessories for outdoor installation and a pre-assembled antenna cable.
Warranty	Three-year warranty
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

There is no online manual available for this product.: [2][Contact us](#)

Links:

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

[2] <mailto:info@meinberg.de>