microSync^{TRX} Broadcast

Product Highlights

- A powerful Stratum 1 NTP/PTP time server
- 1U chassis, specially constructed for installation in a 19” rack
- Engineered to order with various receiver-clocks
- OLED Display option for fast initial start of operation and status monitoring
- Different oscillator options for advanced holdover performance
- Video-Sync Generator and Video Input References (Black Burst, LTC and Word Clock)

Versatility and Reliability for Broadcast Applications

Meinberg’s microSync^{TRX} is a powerful dual-port PTP generator supporting SMPTE ST 2059-2 and many other PTP profiles, all within a 19-inch rack-mount case design. It offers a high level of efficiency and flexibility. This innovative, multipurpose synchronization solution provides various outstanding features, many of which you can also find in Meinberg’s IMS and LANTIME product families.

Key features include two PTP ports, two Management/NTP ports, Black Burst, LTC, Word Clock, and PPS input. This product combines a modern sync reference for IP-based devices and a Signal Pulse Generator for legacy video and audio devices; this makes it a perfect solution for broadcast environments or remote production use cases.

The microSync^{TRX} is not only suitable as a high-performance NTP server, but it can also be used as a highly accurate PTP grandmaster. The unit can be managed using the Meinberg Device Manager software which is available for Windows and Linux platforms.

In addition to the preconfigured inputs and outputs, the microSync can be ordered with different GNSS receivers, oscillator options, an additional OLED display with a rotary knob, and redundant AC and/or DC power supplies.

Equipped with a full version of the powerful, synchronization-centric meinbergOS operating system, the microSync^{TRX} offers up all 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**.

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Basic System Specifications

Processor	Intel Cyclone V dual-core SoC
Operating System	Custom meinbergOS based on Linux 6.x LTS kernel

Supported Protocols

Network Protocols	IPv4, IPv6 DHCP, DHCPv6 DSCP IEEE 802.1q VLAN filtering/tagging IEEE 802.1p QOS SNMPv1/v2/v3 Remote Syslog Support (UDP)
NTP	NTPv3, NTPv4, SNTP
PTP IEEE-1588	PTPv2, PTPv1*
PRP	IEC 62439-3

* with performance level C only

Monitoring & Alarms

Supported Protocols	SNMP v1, SNMP v2, SNMP v3
Notification Channels	Email (SMTP), syslog
Log Access	Logs can be viewed and downloaded in the Web Interface, downloaded via the FTP service, or accessed via the command line interface

NTP Support

NTP Protocols	NTP v2 (RFC 1119), NTP v3 (RFC 1305), NTP v4 (RFC 5905), SNTP v3 (RFC 1769), SNTP v4 (RFC 2030)
Security Features	Symmetric key-based authentication using MD5, SHA-1, or AES-128-CMAC hashes NTP v4 Autokey (private/public key pairs)
Performance	Up to 10,000 NTP requests per second
Accuracy	≤ 100 µs

Support for IEC 61850 Environments

MMS Server Support	meinbergOS >= 2024.12 incorporates new MMS server functionality that allows the microSync to communicate directly with other IEC 61850 devices and communicate various aspects of its current operating conditions to SCADA and HMI solutions in power systems.

Management Interfaces

Network	Web Interface (HTTP/HTTPS TLS v1.3) SSH v2 (command line interface) REST API (HTTP/HTTPS TLS v1.3)
Serial Console	Micro USB connector for serial terminal access
Local (Display Option)	OLED display with a rotary controller

PTP (IEEE 1588) Support

PTP Versions	PTPv2 (IEEE 1588-2008), PTPv1 from performance level C (PL-C)
IEEE 1588-2008 Profiles	**Default Profiles** - Default E2E IEEE 1588-2008 - Default P2P IEEE 1588-2008
	Power Profiles - IEEE C37.238-2011 (including profile extensions) - IEEE C37.238-2017 (including profile extensions) - IEC/IEEE 61850-9-3 Power Utility Profile (including profile extensions)
	Broadcast Profiles - DOCSIS 3.1 - SMPTE ST 2059-2 (including profile extensions) - AES67 Media - IEEE 802.1AS TSN/AVB
	Telecom Profiles - ITU-T G.8265.1 (including profile extensions) - ITU-T G.8275.1 (including profile extensions) - ITU-T G.8275.2
	Automotive Profiles - AUTOSAR
SyncE Support	- Compliant with ITU-T G.8261, G.8262 and G.8264 Ethernet synchronisation message channel (ESMC)
Packet Transmission Modes	Two-Step mode, One-Step mode
Clock Modes	- Multicast Master - Unicast Master - Multicast Slave - Unicast Slave - Multicast Auto (automated mode selection based on IEEE 1588 Best Master Clock Algorithm)
Other Features	- Hybrid Mode (Sync & Announce messages sent to multicast address, Delay Request & Delay Response messages sent as unicast) - Path Trace TLVs - Alternate Time Offset Indicator TLVs
Performance	Up to 65536 delay requests per second with performance level (PL-C)
Accuracy	≤ 20 ns

PTP Performance Levels

Your microSync[TRX] is provided with a license that provides one of three specified performance levels with the IEEE 1588 implementation in terms of the maximum number of unicast clients, PTPv1 support, and the maximum number of delay request messages per second. Please reach out to your Meinberg Sales Representative for more information.

Performance Level	Max. Unicast Clients	Max. Delay Req./s (Multicast/Hybrid Mode)	PTP Versions
PL-A	8	1024	PTPv2
PL-B	256	32768	PTPv2
PL-C	512	65536	PTPv1*, PTPv2

* PTPv1 Mode selectable via meinbergOS Web Interface

Available Receiver Types

GPS Receiver*	12-channel L1 C/A code receiver for reception of signals from the GPS satellite constellation
GNS Receiver	72-channel receiver for reception of signals from the GPS (L1), Galileo (E1 B/C), BeiDou (B1I), and GLONASS (L1OF) satellite constellations
GNS-UC Receiver*	72-channel receiver for reception of signals from the GPS (L1 C/A code) and Galileo (E1 B/C) satellite constellations

* These receivers require the use of a Meinberg GPSANTv2 antenna (included with the system as standard).

Operating Specifications

Acoustic Noise Emissions	0 dB(A)
Operating Temperature	-20 °C to 55 °C (-4 °F to 131 °F)
Storage Temperature	-30 °C to 70 °C (-22 °F to 158 °F)
Relative Humidity	Max. 95 % at 40 °C (104 °F), non-condensing
Operating Altitude	4,000 m (13,123 ft) above sea level
Atmospheric Pressure	615 to 1,600 hPa

Oscillator Options

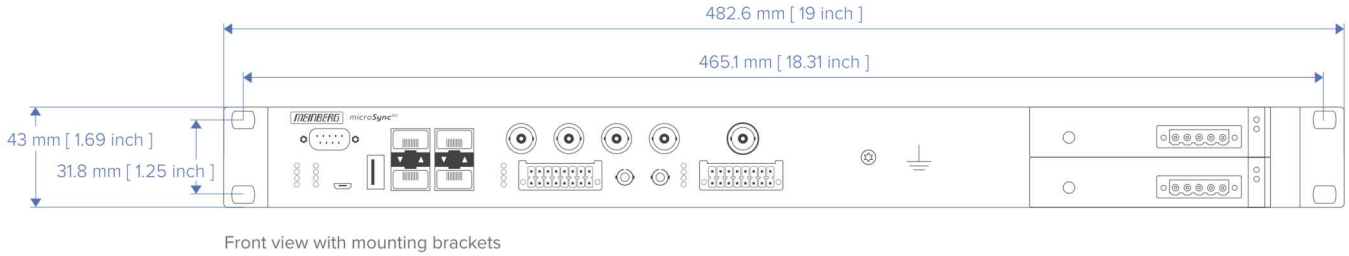
The microSync[RX] Broadcast is shipped as **standard** with a “OCXO HQ” (temperature-controlled crystal oscillator), which provides excellent holdover performance if your server loses synchronization with its upstream reference for any reason. The microSync may also be shipped on request with a more powerful holdover solution; the options available and their performance metrics are listed below:

Type	Holdover Performance (1 Day) *	Holdover Performance (1 Year) *
OCXO HQ	± 10 µs	± 788 ms
OCXO DHQ	± 4.5 µs	± 158 ms

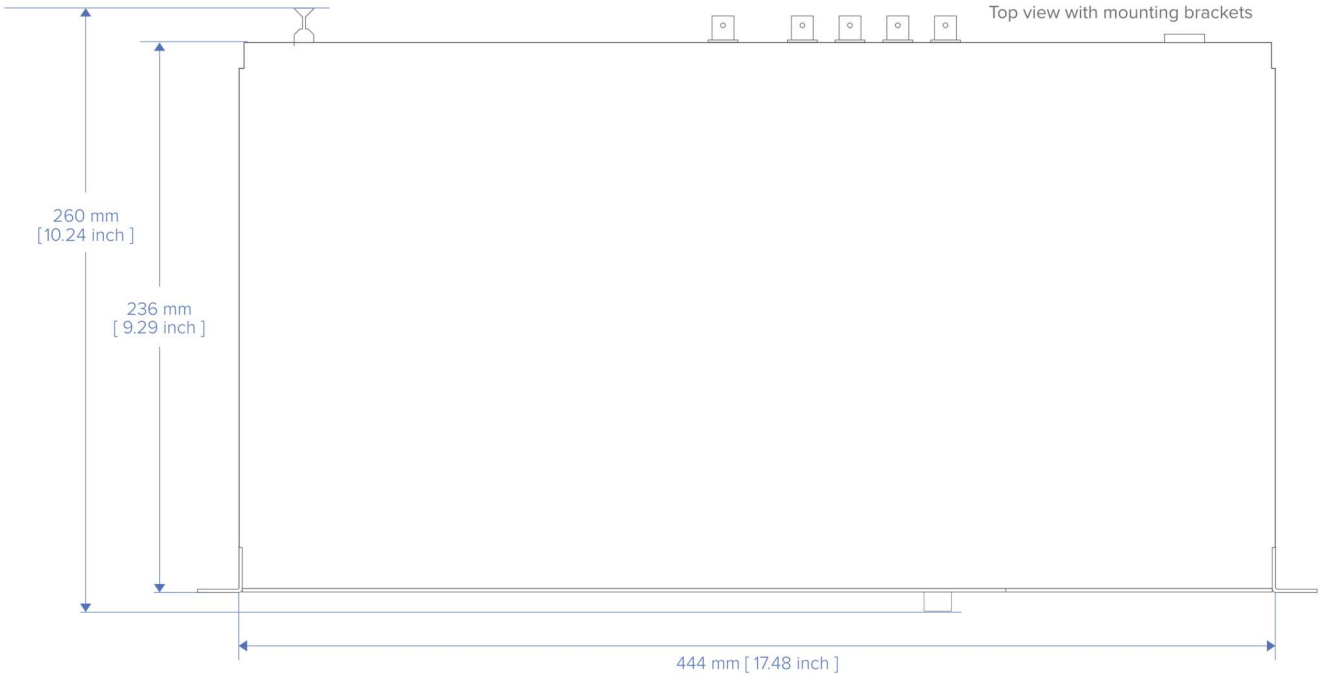
Mechanical Data

Housing Type	19" (Full-Rack), 1U
Housing Material	Steel
Weight (incl. Mounting Brackets)	approx. 3.7 kg (8.16 lbs), depending on built in Power Supplies

microSync^{TRX} Physical Dimensions



Front view with mounting brackets



Top view with mounting brackets

Support

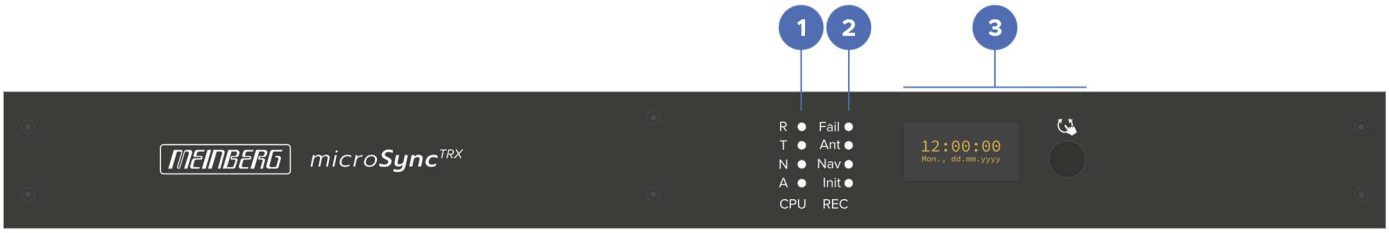
Technical Support	Free lifetime support via telephone and email, including firmware updates
Warranty	Three-year warranty, extendable upon request
Firmware Updates	Firmware is field-upgradable; updates can be installed via the Web Interface (upload via a web browser), or via the CLI (download from a server). meinbergOS allows you to install multiple firmware versions onto the device concurrently and select which one should be used when the system starts.

Accessories Included

- Two-part power cable (5-pin MSTB to IEC 60320 C14 cable, IEC 60320 C13 cable to local mains plug) or 5-pin MSTB connector for assembly of a suitable power cable for DC power sources.
- Printed setup guide explaining the basic setup process and antenna installation.
- Models with a GPS or GNS-UC clock receiver include a Meinberg GPSANTv2 antenna for outdoor installation, a mounting kit containing all the accessories required to mount the antenna on a pole or wall, and a 20 m (65.6 ft) RG 58 coaxial cable with pre-fitted connectors as standard*.
- Models with a GNS receiver clock include a multi-GNSS antenna for outdoor installation, a mounting kit containing all the accessories required to mount the antenna on a pole or wall, and a 20 m (65.6 ft) Belden H155 coaxial cable with pre-fitted connectors as standard*.

* Meinberg also offers customized antenna cables, antenna signal distribution solutions, and surge protectors to accommodate your specific installation requirements. Please reach out to your Meinberg Sales Representative for more information.

microSync^{TRX} Display Side View



1 On-Board CPU Status LEDs

R (Ref. Time)	Indicates whether the reference clock is providing a valid timebase.
T (Time Service)	If lit, the internal NTP service of the server is synchronized with the reference clock.
N (Network)	Shows whether there is a valid link-up on any of the configured network interfaces.
A (Alarm)	Advises of a general system fault that requires attention.

2 GPS Clock Status LEDs

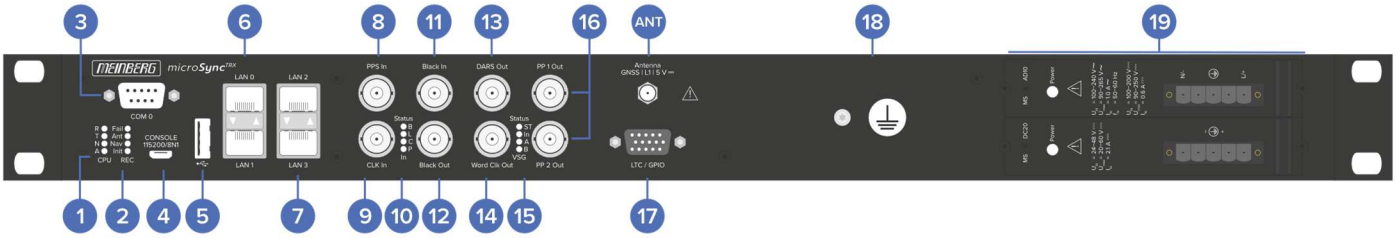
“Fail” LED	When lit, this reveals if that clock is having problems with synchronization.
“Ant.” LED	Indicates no functional connection to the antenna or that there is a short-circuit in the connection with the antenna.
“Nav.” LED	Shows the state of the geopositioning process.
“Init.” LED	Provides an indication of initialization state of the clock and onboard oscillator.

3 OLED Panel with Dial Control

The front OLED panel of the microSync^{TRX} can be used to display basic service information such as software and firmware versions, the current synchronization state of the reference clock, the current time & date, and the network configuration. In conjunction with the dial control, it can also be used to modify the network configuration of the network port *LAN0* to allow a device to access it over the network for management purposes.

microSync^{TRX} - Input/Output Connectors & Interfaces

This illustration represents an example configuration of an microSync^{TRX} rackmount system that provides an approximate indication of the general location of the various connectors on a given microSync^{TRX}. Please note that the exact location of specific connectors may vary depending on the specific configuration ordered. Should you require a data sheet for a specific microSync^{TRX} system configuration, please reach out to your Meinberg sales representative.



1 System Status LEDs

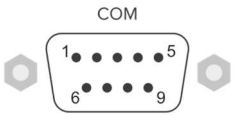
R (Ref. Time)	Indicates whether the reference clock is providing a valid timebase.
T (Time Service)	If lit, the internal NTP service of the server is synchronized with the reference clock.
N (Network)	Shows whether there is a valid link-up on any of the configured network interfaces.
A (Alarm)	Advises of a general system fault that requires attention.

2 GNSS Receiver Status LEDs

“Fail” LED	When lit, this reveals if that clock is having problems with synchronization.
“Ant.” LED	Indicates no functional connection to the antenna or that there is a short-circuit in the connection with the antenna.
“Nav.” LED	Shows the state of the geopositioning process.
“Init.” LED	Provides an indication of initialization state of the clock and onboard oscillator.

3 Serial Time String I/O

Pin	Function
1	PPS Input
2	RS-232 RxD (Receive)
3	RS-232 TxD (Transmit)
5	GND (Ground)



Connector Type	D-Sub 9, male
Supported Time Strings (Output)	Meinberg Standard *(Default)*, Meinberg Capture, Meinberg GPS, SAT, NMEA RMC, NMEA GGA, NMEA ZDA, NMEA RMC GGA *(RMC followed by GGA)*, NMEA GGA ZDA *(GGA followed by ZDA)*, Uni Erlangen, Computime, Sysplex 1, SPA, RACAL, ION, ION Blanked, IRIG-J-1, 6021, Freelance
Supported Time Strings (Input)	Meinberg Standard, NMEA RMC, NMEA ZDA, Uni Erlangen
Baud Rates	300, 600, 1200, 2400, 4800, 9600, 19200 *(Default)*
Framing Options	7N2, 7E1, 7E2, 8N1 (Default), 8N2, 8E1, 8O1
Supported Cable Type	Standard RS-232 (female) for time string output Modified RS-232 cable (female) with PPS signal on Pin 1 for synchronization with external time string + PPS signal

4 Serial Console Port (Terminal Access)

The serial console port is a standard USB interface with a Micro USB Type B female connector that can be used to establish a direct serial connection (115200 baud, 8N1 framing) between the microSync and any device running suitable terminal software (e.g., a laptop) for direct command line access. The connection can be established using any suitable USB Type A to Micro USB Type B cable.

5 USB Interface

This USB interface can be used for:

- saving a backup of the meinbergOS configuration to an external storage medium (such as a USB flash drive) and restoring this backup (or copying a standard configuration between multiple microSync servers)
- creating a backup of logfiles
- performing a local factory reset using a specially prepared “USB key”

6 Network Interfaces (LAN0 & LAN1)

Network Interfaces	2x SFP, not PTP capable
Network Protocols	- IPv4 (with DHCP support) - IPv6 (with DHCPv6 and Autoconf support)
Network Services	- HTTP(S) for web interface and REST API access - FTP for access to log files and uploading firmware updates - Telnet and SSH for command line access - SNMP for monitoring
Other Networking Features	- Full Parallel Redundancy Protocol (PRP) support as Doubly Attached Node - Support for network link aggregation (“bonding”) with multiple modes for load balancing or link redundancy

7 Network Interfaces (LAN2 & LAN3)

Network Interfaces	2x SFP, PTP master & slave capable
Network Protocols	- IPv4 (with DHCP support) - IPv6 (with DHCPv6 and Autoconf support)
Network Services	- HTTP(S) for web interface and REST API access - FTP for access to log files and uploading firmware updates - Telnet and SSH for command line access - SNMP for monitoring
Other Networking Features	- Full Parallel Redundancy Protocol (PRP) support as Doubly Attached Node, including for PTP and NTP - Support for network link aggregation (“bonding”) with multiple modes for load balancing or link redundancy

Supported SFP Modules

Type	Mode	Connector Type	Max. Connection Length
FS SFP-GE-T	10/100/1000BASE-T SFP Copper	RJ45	100 m
BlueOptics	1000BASE-SX SFP, 850 nm multi mode	Duplex LC	100 m
BlueOptics	1000 BASE-LX SFP, BO05C13610D 1310 nm single mode	Duplex LC	10,000 m

8 PPS In (Pulse Per Second Input)

Connector Type	BNC, female (for shielded coaxial cable)
Input Signal	PPS (pulse per second)
Signal Level	TTL
Pulse Length	≥5µs, active high

9 CLK In (Clock Input)

Connector Type	BNC, female (for shielded coaxial cable)
Input Signal	Word Clock Input with programmable frequency range
Signal Level	TTL
Signal Range	1 kHz to 10 MHz

10 Status Indicators Signal Inputs

B	Status of Blackburst Input
L	Status of LTC Input
C	Status of Word Clock Input
P	Status of PPS Input

11 Black In (Black Burst Input)

Connector Type	BNC, female (for shielded coaxial cable)
Signal Input	PAL (625i) / NTSC (525i) Input with VITC Reader Input with Prescaler mode (Frequency only)
Signal Level	300 mV_{pp} into 75 Ω unbalanced
Time Code Formats	SMPTE ST309 / SMPTE ST309 MJD ITU-R BT.1353

12 Black Out (Black Burst Output)

Connector Type	BNC, female (for shielded coaxial cable)
Signal Output	PAL, NTSC and Tri-Level Sync with VITC Support
Signal Level	300 mV_{pp} into 75 Ω unbalanced
Formats	**PAL (625i)** Timecode Mode: VITC Timecode Options: SMPTE 12M / SMPTE ST309 / SMPTE ST309 MJD / ITU-R BR.1353 **NTSC (525i)** Timecode Modes: VITC / VITC with daily jam VITC with daily jam and drop frame Timecode Options: SMPTE 12M / SMPTE ST309 SMPTE ST309 MJD / ITU-R BR.1353 <u>Tri-Level Sync</u> • 720p 50 Hz • 720p 59,94 Hz • 1080p 23,98 Hz • 1080p 24 Hz • 1080p 25 Hz • 1080p 29,97 Hz • 1080p 30 Hz • 1080i 50 Hz • 1080i 59,94 Hz • 1080pSF 23,98 Hz • 1080pSF 24 Hz Timecode Modes: VITC / VITC with daily jam* VITC with daily jam and drop frame* * *only if 720p 59,94 Hz or 1080i 59,94 Hz is selected* Timecode Options: SMPTE 12M / SMPTE ST309 SMPTE ST309 MJD / ITU-R BR.1353

13 DARS Out

Connector Type	BNC, female (for shielded coaxial cable)
Output Signal	DARS
Signal Level	TTL, 2.5 V_p into 75 Ω
Base Frequencies	44.1 kHz and 48 kHz

14 Word CLK Out (Word Clock Output)

Connector Type	BNC, female (for shielded coaxial cable)
Output Signal	Word Clock
Signal Level	TTL, 2.5 V_p into 75 Ω
Base Frequencies	**Base Frequency 44.1 kHz:** Scales: 1/32, 1/16, 1/8, 1/4, 1/2 , 1, 2, 4, 8, 16, 32 Frequency Range: 1.378125 kHz - 1.4112 MHz **Base Frequency 48 kHz:** Scales: 1/32, 1/16, 1/8, 1/4, 1/2 , 1, 2, 4, 8, 16, 32 Frequency Range: 1.5 kHz - 1.536 MHz

15 Status Indicators Video Sync Generator (VSG)

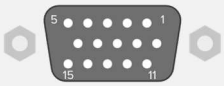
ST	Status of internal VSG)
IN	Synchronization status
A	Status of Black Burst output
B	Status of LTC output

16 Programmable Pulse Output 1 & 2

Connector Type	BNC, female (for shielded coaxial cable)
Signal Level	TTL, 2.5 V_p with 50 Ω load (unbalanced)
Supported Modes*	- Idle - Timer - Single Shot - Cyclic Pulse - Pulse Per Second, Minute, Hour - DCF77 Marks - Position OK - Time Sync - All Sync - DCLS Time Code - Serial Time String - DCF77-like M59 - Synthesizer Frequency - PTTI 1 PPS - 1 MHz Frequency - 5 MHz Frequency - 10 MHz Frequency

* Selectable via meinberg OS Web Interface:
„Configuration → Clock – I/O Config" Tab

17 LTC / GPIO (Linear Time Code / General Purpose I/O)

Connector Type	15 pin D-SUB, female  LTC / GPIO
Signal Input/Output	**Linear Time Code** 25 fps, 23.98 fps, 29.97 fps, 29.97 fps Drop Frame
Signal Level	TTL, > 2.5 V_{pp} into 50 Ω (Pin 14 + 15)
Pin Assignment	1 LTC_out – LTC symmetric HI Pot. Output 2 LTC out + LTC symmetric Lo Pot. Output 3 LTC_in + LTC symmetric HI Pot. Input 4 LTC in – LTC symmetric Lo Pot. Input 5 LTC in, TTL level, Input 6 GND 7 GND 8 GND 9 GND 10 GND 11 DARS + DARS symmetric Hi Pot. Output 12 DARS – DARS symmetric Lo Pot. Output 13 NC (not connected) 14 TIME_SYN TS output, TTL Level 15 LTC TTL out LTC output, TTL Level

ANT GNSS Antenna Connector Options

Antenna for GPS and GNS-UC Receiver	GPSANTv2*
Connector Type	Bayonet Neill-Concelman (BNC) connector for coaxial cable
Input Impedance	50 Ω
Input Signal	35.4 MHz intermediate frequency
Power Supply	15 V, 100 mA to antenna via antenna cable
Supported Cable Length	Max. 300 m (RG 58) Max. 700 m (RG 213) Max. 1100 m (H2010 Ultraflex)

Antenna for GNS Receiver	GNS L1 Multi Band Antenna
Connector Type	SMA female
Impedance	50 Ω
Recommended Cable	Belden H155 (max. 70 m / 230 ft)
Output Voltage	5 V DC (used to power antenna),
Output Current	max. 120 mA

For more detailed information on the recommended antenna, request a copy of the manufacturer data sheet from your Meinberg Sales Representative, or download it directly from the Meinberg website:

http://www.mbg.link/gnss-antennas

18 Grounding Terminal

The grounding terminal is provided for optionally grounding the chassis of the microSync. Note that the device is already grounded via the ground pin of the the power connector.

19 AD10 Power Supply

Connector Type	5-pin MSTB female connector
Nominal Voltage Range (U_N)	100 V – 240 V AC / 100 V – 200 V DC
Rated Voltage Range (U_{max})	90 V – 265 V AC / 90 V – 250 V DC
Nominal Current (I_N)	1.0 A (AC) / 0.6 A (DC)
Nominal Frequencies (f_N)	50 Hz – 60 Hz
Rated Frequency Range (f_{max})	47 Hz – 63 Hz
Power Consumption (P_{max})	50 W
Max. Thermal Output (E_{therm})	180.00 kJ/h (170.61 BTU/h)

DC20 Power Supply

Connector Type	5-pin MSTB female connector
Nominal Voltage Range (U_N)	24 V – 48 V DC
Rated Voltage Range (U_{max})	20 V – 60 V DC
Nominal Current (I_N)	2.1 A DC
Power Consumption (P_{max})	50 W
Max. Thermal Output (E_{therm})	180.00 kJ/h (170.61 BTU/h)

Type Tests

Safety Tests

IEC 62368-1 Safety Requirements	Overvoltage Category	II
	Protection Class	1
	Degree of Pollution	2
IEC 60529	Protection Rating / IP Code	IP30

Environmental Tests

IEC 60068-2-1	Cold	–5 °C (–23 °F), 16 h
IEC 60068-2-2	Dry heat	55 °C (131 °F), 16 h
IEC 60068-2-14	Change of temperature	–5 to 55 °C (23 to 131 °F), 5 cycles, 1 °C (34 °F)/min
IEC 60068-2-30	Damp heat, cyclic (12 h + 12 h)	55 °C (131 °F), 97 % RH, 6 cycles
IEC 60068-2-78	Damp heat, steady state	40 °C (104 °F), 93 % RH, 240 h
IEC 60255-21-1	Vibration (sinusoidal) [1] Class 1	10–150 Hz, 0.5 g_n, 2 sweeps, 3 axes 10–150 Hz, 1 g_n, 40 sweeps, 3 axes
IEC 60255-21-2	Shock [1] Class 2	5 g_n, 11 ms, ±3 shocks, 3 axes 15 g_n, 11 ms, ±3 shocks, 3 axes 10 g_n, 16 ms, ±1000 shocks, 3 axes
IEC 60255-21-3	Seismic [1, 2] Class 1	4-35 Hz, 0.5 g_n, 1 sweep, hor. axes 4-35 Hz, 1 g_n, 1 sweep, ver. axis

[1] *In order to withstand the tests for vibration, shock and seismic, special mounting brackets are optionally available.*

[2] *The frequency range deviates from the values required by the standard. In this test, a frequency range of 4-35 Hz instead of 1-35 Hz was used.*

Electromagnetic Compatibility – Emission

CISPR 16-1-2 and CISPR 16-2-1	Conducted disturbance voltage measurements
CISPR 16-2-3	Radiated radio disturbance
CISPR 32	Conducted disturbance current measurements
FCC 47 CFR Part 15 section 15.107 (b) [3] RSS-Gen Issue 4 section 8.8 [4]	Conducted emission
FCC 47 CFR Part 15 section 15.109 (b) [3] RSS-Gen Issue 4 section 8.9 [4]	Radiated emission
ETSI EN 303 413	Standard for GNSS receiver

Electromagnetic Compatibility – Immunity

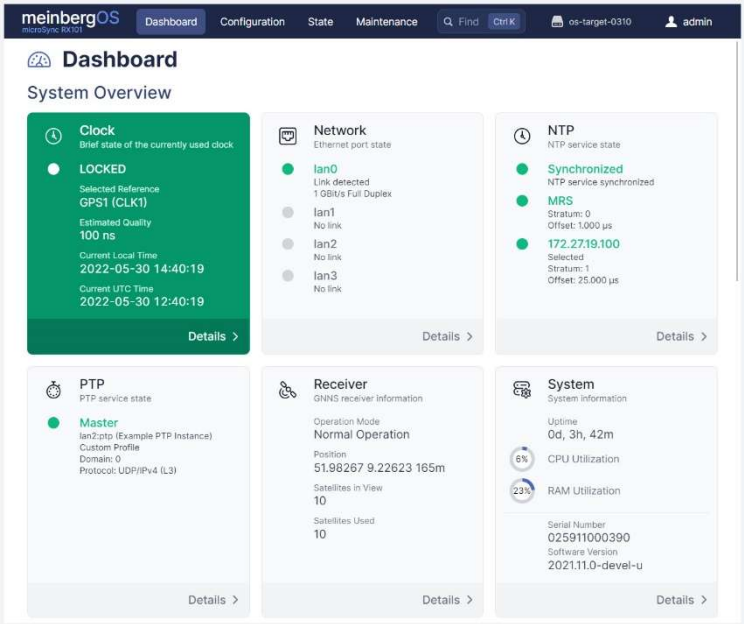
IEC 61000-4-2	Immunity test to electrostatic discharges	±4 kV contact discharge ±8 kV air discharge
IEC 61000-4-3	Immunity test to radiated, radio-frequency, electromagnetic fields	10 V/m, 80-1000 MHz, 80% AM (1 kHz) 3 V/m, 1400-2700 MHz, 80% AM (1 kHz)
IEC 61000-4-4	Immunity test to electrical fast transients (Burst)	±2 kV, DC main lines ±1 kV, Signal lines
IEC 61000-4-5	Immunity test to surges	**DC main lines:** up to ±0.5 kV line to line up to ±0.5 kV line to earth **Signal lines:** up to ±1 kV line to earth
IEC 61000-4-6	Immunity test to conducted disturbances, induced by radio-frequency fields	10 V, 0.15-80 MHz, 80% AM (1 kHz)
IEC 61000-4-8	Immunity test to power frequency magnetic fields	30 A/m
IEC 61000-4-11	Immunity tests to voltage dips, short interruptions and voltage variations	ΔU 30 % for 1 period ΔU 60 % for 50 periods ΔU 100 % for 5 periods ΔU 100 % for 50 periods
IEC 61000-4-29	Immunity test to voltage dips, short interruptions and voltage variations	ΔU 30 % for 100 ms ΔU 60 % for 100 ms ΔU 100 % for 50 ms

Compliance

ISO9001	The product is developed and manufactured in compliance with all relevant quality standards, which are defined by an ISO 9001-certified quality management system.
CE	The product has the CE mark and fulfils the basic requirements of the EU directives regarding safety, health and environmental protection, which confirms its conformity with European standards.
UKCA	The product has the UKCA (UK Conformity Assessed) mark and therefore meets the requirements of UK health and safety regulations, confirming its compliance with UK standards post-Brexit.
UL	The device complies with Underwriters Laboratories (UL) safety standards and has the UL mark, which indicates its compliance with the strict requirements for safety and performance in North America.
CB Scheme	The product is certified by the CB Scheme of IECEE.
FCC	The product complies with the requirements of the Federal Communications Commission (FCC) and has been certified accordingly
RoHS	The device complies with the requirements of the EU RoHS (Restriction of Hazardous Substances) Directive and is free from harmful substances such as lead, mercury, cadmium and other hazardous chemicals.
REACH	The product fulfills the requirements of the EU REACH regulation (Registration, Evaluation, Authorization and Restriction of Chemicals) and does not contain any substances that violate this regulation.
WEEE Status	The purchase of this product is considered to be a “B2B” transaction (non-household product) for the purposes of the EU Waste of Electrical and Electronic Equipment Directive; the product falls under Category 6, “Small IT and Telecommunications Equipment”. For disposal, it can be returned to the manufacturer to ensure WEEE compliance. Any transportation expenses for returning this product (at end-of-life) must be covered by the end user, while Meinberg will cover the costs for the waste disposal itself.

Configuration and Monitoring

From meinbergOS version 2022.05.1, a microSync system provides you with a comprehensive web interface with which you can carry out most configurations and status monitoring on your device.



- Access to the most important configuration options of the microSync system and monitoring of the system status
- The microSync system allows you to install firmware versions and archive old versions
- Automated updates of the web interface via a firmware update of the meinbergOS device

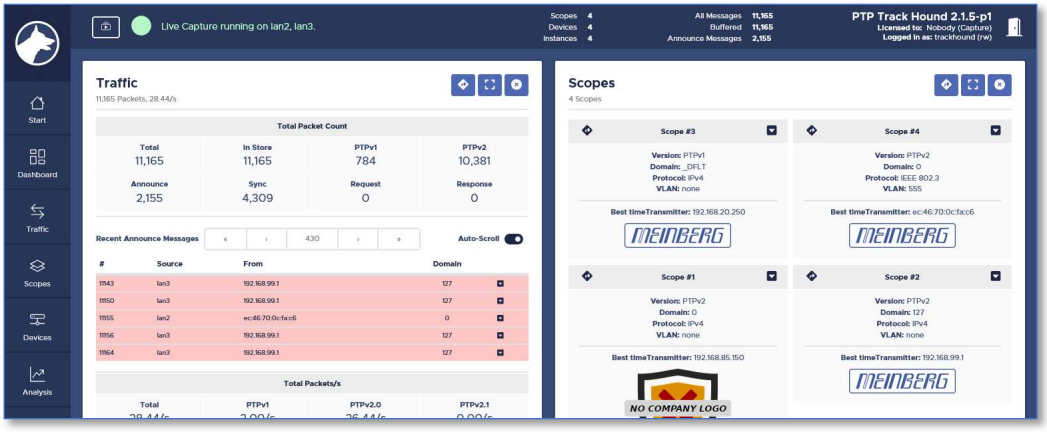
Firmware Management

The integrated firmware management of meinbergOS allows to install multiple firmware versions in parallel and choose which one to run. All integrated components and modules (e.g. the GPS receiver part) can be updated with the latest firmware if required.

Self-Diagnosis

The system continuously carries out background checks of various parameters such as system resources, port and receiver states. The user is notified when an incident occurs.

Integrated PTP Track Hound



PTP Track Hound is Meinberg's powerful PTP monitoring toolkit that provides a wealth of functions for monitoring PTP clock networks. These functions support both native PTP functions for measuring path delay and asymmetry and acquiring diagnostic data as well as a variety of proprietary extensions integrated in compliance with the IEEE 1588 standard.

meinbergOS >= *2024.12* features PTP Track Hound integrated into the firmware, allowing your microSync to operate as a PTP Track Hound monitoring station in its own right. The PTP Track Hound installation in the meinbergOS firmware is included and pre-activated as 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. It is also possible to upgrade the license via the meinbergOS Web Interface to a Basic or Professional license to allow the microSync to serve as the central instance in its own right and benefit from additional features such as NetSync Monitor and Capture Time Offsets.

Further information on PTP Track Hound is available at **https://www.ptptrackhound.com**.

MRS - Multiple Reference Sources

The microSync system is able to handle input signals of Multiple Reference Sources (MRS) simultanously.

The following input signals can be used in a user-configurable order:

- GNSS
- PPS Input
- Serial Time String + PPS
- Black Burst Input
- Clock Input
- LTC – Linear Time Code Input
- PTP
- NTP

In case the signal which has the highest priority is lost, the system will switch to the next available source.

Intelligent Reference Selection Algorithm

In case that a master signal fails the Intelligent Reference Selection Algorithm (IRSA) takes care that the switching to the next reference signal in the priority list runs automatically and smoothly.

If the next selectable source has an offset that is <10 µs compared to the previous one the system will slowly adjust to this offset without causing a phase jump. If the offset is larger than 10µs, the system will set the time immediately.

In the event that the original source comes back, the system will again use that source for synchronization.

The IRSA also takes the highly stable holdover performance of the local oscillator into account. It ensures that switching from the superior reference signal to the less accurate one is delayed as long as the highly stable oscillator can provide better accuracy in holdover than the next available reference signal in the priority list.

Model Code

	Model Code						Description
	AAA	11	2	BB(B)	CC33	DD44	
Housing Type	TRX						19” Rack-Mount, 1U with Front Display
Series		80					**Input Signals:** Pulse Per Second Input Word Clock Input Black Burst Input **Output Signals:** Black Burst Output DARS Out Word Clock Output Programmable Pulse Outputs Linear Time Code / General Purpose I/O
Receiver			0				GNS: L1 Multi-GNSS, 72-Channel
			1				GPS: Meinberg GPS, 12-Channel
			2				GNS-UC: Meinberg GPS/Galileo, 72-Channel
Oscillator				HQ			OCXO HQ
				DHQ			OCXO DHQ
Power Supply					AD10		U_N: 100–240 V AC, 50–60 Hz / 100–200 V DC U_{max}: 90–265 V AC, 47–63 Hz / 90–250 V DC
					DC20		U_N: 24–48 V DC U_{max}: 20–60 V DC
Power Supply (Redundant Configuration)						AD10	U_N: 100–240 V AC, 50–60 Hz / 100–200 V DC U_{max}: 90–265 V AC, 47–63 Hz / 90–250 V DC
						DC20	U_N: 24–48 V DC U_{max}: 20–60 V DC