MEINBERG
The Synchronization Experts.

microSync^XS 200

Product Highlights

| A powerful and ultra-compact Stratum 1 NTP/PTP time server

| 1U chassis, specially constructed for installation in a 19" rack

| Engineered to order with a L1 Multi-GNSS 72 channel GNS receiver-clock

| OLED display for fast set-up and status monitoring

| Different oscillator options for advanced holdover performance

microSync^XS: Compact, Powerful, and Cost-Effective

Meinberg's microSync^XS joins the microSync series with the most compact and cost-efficient microSync^XS to date—but with an impressive feature set to boast.

Like the larger microSync^RX and microSync^HR, the microSync^XS features two PTP-capable network ports operable either in timeTransmitter (Master) or timeReceiver (Slave) mode, allowing it to operate as a high-accuracy grandmaster, boundary clock, or ordinary clock. With full support for practically every published PTP profile, the microSync^XS is particularly ideal as an ultra-compact PTP Grandmaster solution. It also serves as a powerful NTP server and programmable clock signal generator, capable of producing pulse-per-second, 10 MHz frequency, 48 kHz word clock, DCLS timecode and more via three programmable pulse outputs. The microSync^XS200 also has an OLED display with a rotary controller for initial network configuration and local status monitoring.

Equipped with a full version of the powerful, synchronization-centric meinbergOS operating system, the microSync^XS 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**.

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)

Management Interfaces

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

PTP (IEEE 1588) Support

PTP Versions	PTPv2 (IEEE 1588-2008)
IEEE 1588-2008 Profiles	**Default Profiles** - Default E2E IEEE 1588-2008 Profile - Default P2P IEEE 1588-2008 Profile **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 **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
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

PTP Performance Levels

Your microSync^XS 200 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 Requests per Second / Hybrid Mode	PTP Versions
PL-A	8	1024	PTPv2
PL-B	256	32768	PTPv2
PL-C	512	65536	PTPv1, PTPv2

Oscillator Options

The microSync^XS is shipped as standard with a "**OCXO SQ**" (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 SQ	± 65 µs	± 4.7 s
OCXO HQ	± 10 µs	± 788 ms

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	5,000 m (16,404 ft)
Atmospheric Pressure	540 to 1,600 hPa

Chassis Specifications

Form Factor	One-third of 19" rack unit
Dimensions (Only Chassis) [W x H x D]	149 mm x 44 mm x 239 mm (5.87 in x 1.73 in x 9.41 in)
Dimensions (including Connectors & Handles) [W x H x D]	149 mm x 44 mm x 270 mm (5.87 in x 1.73 in x 10.63 in)
Material	Sheet Steel
IP Rating	IP30

Support & Compliance

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.
Conformity Declarations	CE, UKCA
RoHS Compliance	The product is fully RoHS-compliant.
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.

Accessories Included

| 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 splitter and surge protector to accommodate your specific installation requirements. Please reach out to your Meinberg Sales Representative for more information.
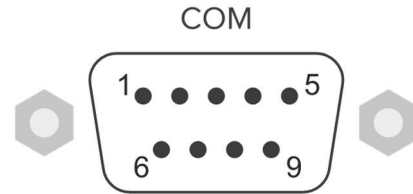
microSync-XS200 Connector Side View

① Power Supply - microSync^{XS}

Connector Type	Barrel connector (right angle): (Ø 5.5/Ø 2.5) L10.5 mm
Polarity	Positive internal conductor
Nominal Voltage (U_N)	48 V DC
Rated Voltage Range (U_{max})	20 V – 60 V DC
Nominal Current (I_N)	1.25 A DC
Power Consumption (P_{max})	30 W
Max. Thermal Output (E_{therm})	102.36 BTU/h (108 kJ/h)

② GNS Antenna Connector

Connector Type	SMA female
Termination	50 Ω
Recommended Cable	Belden H155 (max. 70 m)
Voltage Output	5 V

③ Serial Time String I/O

COM

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

Connector Type	D-Sub 9-pin, 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 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.

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 1000BASE, 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 - 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 - TACACS+/Radius/LDAP Auth, IEC 61850 MMS - Support for network link aggregation ("bonding") with multiple modes for load balancing or link redundancy

7 Programmable Pulse Outputs 1-3

Connector Type	SMA, female (for shielded coaxial cable)
Signal Level	TTL, 2.5 V_{pp} 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 - 48 kHz Frequency

8 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.

microSync^{XS}200 - Display Side View
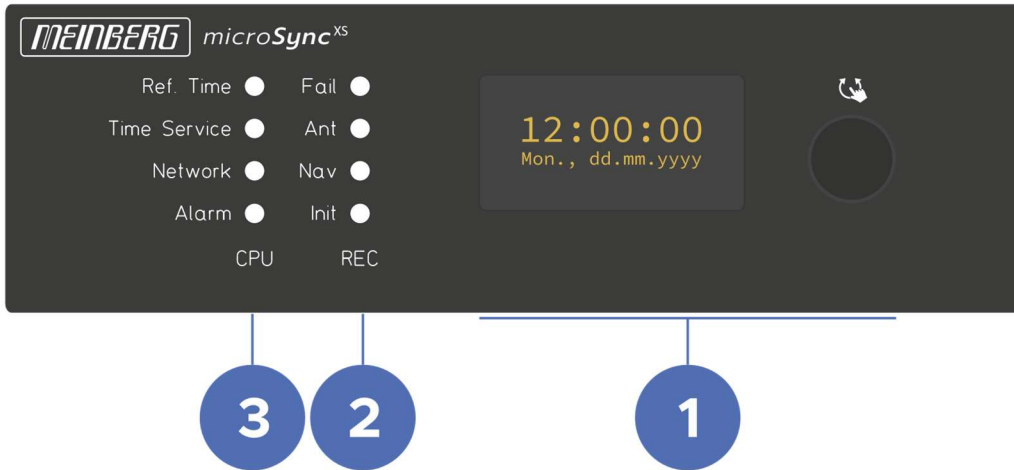
① OLED Panel with Dial Control

The front OLED panel of the microSync 19" Rackmount Systems 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.

③ 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 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.

Dimensions of microSync^{XS}
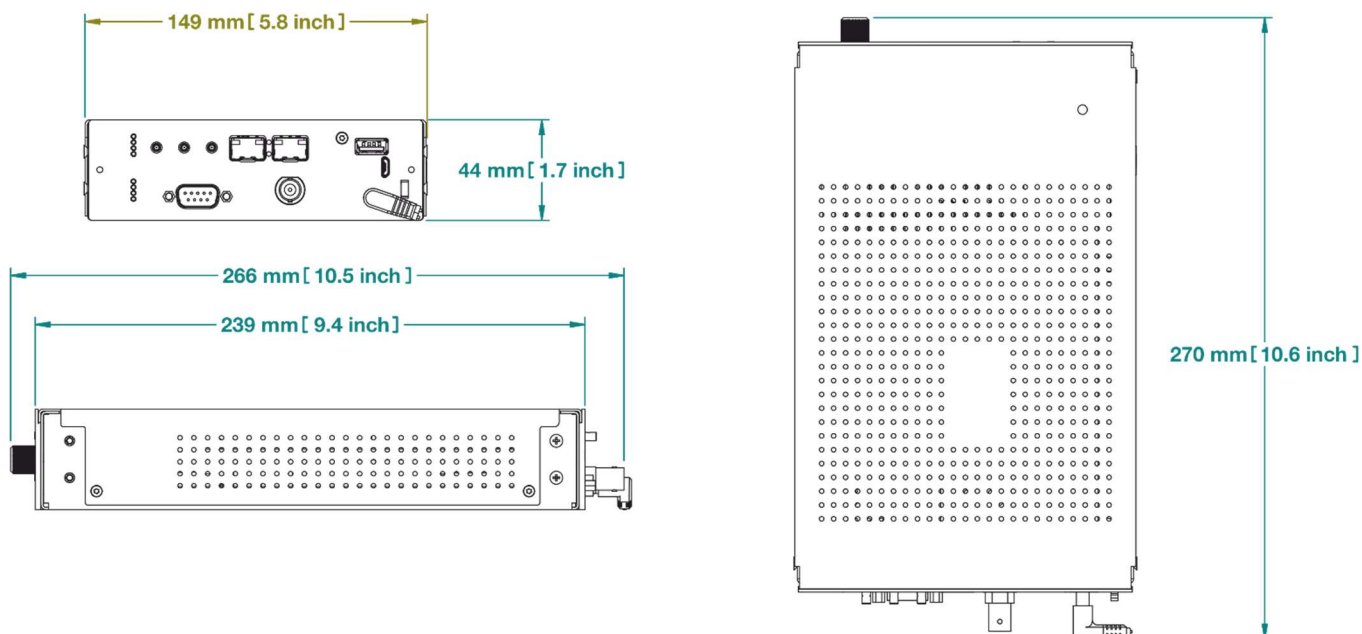
Supported SFP Modules

Type	Mode	Connector Type	Max. Connection Length
Avago ABCU-5740RZ	Copper (1000BASE-T)	RJ45	100 m
Finisar FCLF8521P2BTL	Copper (1000BASE-T)	RJ45	100 m
Avago AFCT-5710PZ	Fiber-optic, single-mode (1000BASE-LX)	Duplex LC	10000 m
Finisar FTLF1318P3BTL	Fiber-optic, single-mode (1000BASE-LX)	Duplex LC	10000 m
Avago AFBR-5710PZ	Fiber-optic, multi-mode (1000BASE-SX)	Duplex LC	550 m (50/125 µm) 275 m (62.5/125 µm)
Finisar FTLF8524P3BNL	Fiber-optic, multi-mode (1000BASE-SX)	Duplex LC	300 m (62.5/125 µm)

Order Codes

microSync^{XS} 200

Oscillator	Order Code
With SQ Oscillator	03400274
With HQ Oscillator	03400275

Accessories

Power Supply	Order Code
Desktop Power Supply	00263091

Bracket Sets	
For 1 System	03400241
For 2 Systems*	03400253
For 3 Systems*	03400254

Adapter	
2-pin Terminal to Barrel Connector for DC adapter	00263092

* For mounting two or three microSync^{XS} side by side