

The logo for Meinberg, featuring the word "MEINBERG" in a bold, blue, italicized sans-serif font. The letters are closely spaced, and the 'M' and 'B' have a distinctive slanted design. The logo is enclosed within a blue rectangular border with rounded corners.

MEINBERG

The Synchronization Experts.

Company Introduction

A solid blue triangle pointing downwards, centered horizontally between the company introduction box and the event details.

North American SynchroPhasor Initiative
Meeting and Vendor Show

October 18-19, 2022
Charlotte, NC.



Founded in 1979

- HQ in Bad Pyrmont, Northern Germany
- Entirely Focused on Synchronization
- Global NTP & PTP Technology Leader
- Consistent Track Record of Growth



The Synchronization Experts.

<https://www.meinberg-usa.com/>

The logo for Meinberg, featuring the word "MEINBERG" in a stylized, blue, italicized sans-serif font. The letters are closely spaced, and the "M" and "B" are particularly prominent. The logo is set against a white rectangular background with a thin blue border.

MEINBERG

**Entirely Focused on
Synchronization**

Since 1979

**Meinberg HQ
Bad Pyrmont,
Germany
Est. 1979**



**Oregano Systems,
a Meinberg Company
Vienna,
Austria
Est. 2001**

A photograph of the Meinberg USA building in Santa Rosa, CA, USA. The building is a modern, multi-story structure with a large glass facade and a flat roof. It is situated on a green lawn with a fountain and a waterfall in the foreground. The sky is blue with some clouds.

**Meinberg USA
Santa Rosa, CA,
USA
Est. 2020**



Meinberg Serves Many Markets

Emerging: Power Grid, Broadcast, Finance
Established: Datacenter, Telecom, Defense

Why does the Network need to be Synchronized?

MEINBERG

The Synchronization Experts.



Power Grid

- Match power generation to demand
- Measure power flows in multiple substations simultaneously
- Protect equipment from overload and outages



Broadcast

- “Lip Sync”
- Synchronize audio and video inputs from multiple sources, local and remote



Finance

- Time stamp orders and trades
- Prove that banks execute trades in order submitted (follow the law)
- Measure speed of trading algorithms

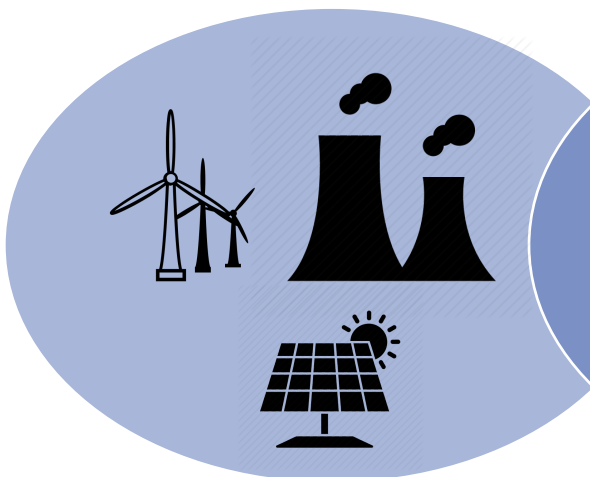
MEINBERG

POWER GRID

- Frequency Deviation Monitoring
- Substation Automation
- SCADA System: IEDs, MUs, PMUs
- Synchrophasor Measurements
- Travelling-wave Fault Detection
- Anti-Jamming & Anti-Spoofing

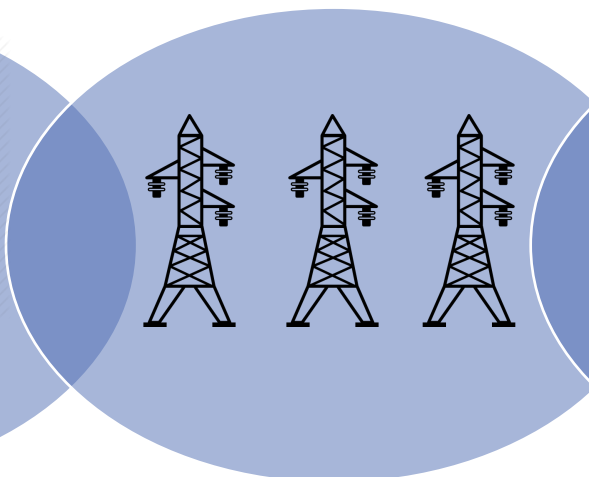
- Digital Substation Evolution
IRIG → NTP → PTP
- IEEE 1588 PTP v2
- IEEE C.37.238
- IEC/IEEE 61850-9-3
- IEC 62439-3 HSR/PRP

Generation



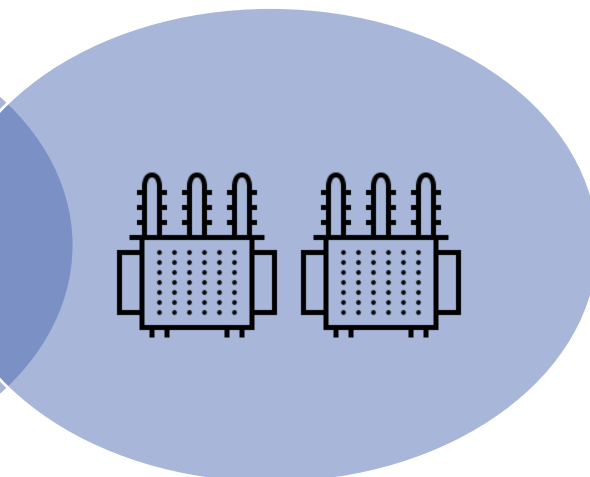
M3000

Transmission



M1000

Distribution



M500



microSync



Displays, Slave Clocks,
& Signal Distribution

MEINBERG BROADCAST

- Blackburst (PAL/NTSC) with VITC
- Tri-Level Sync
- DARS
- LTC
- AES Genlock/Word Clock

SDI ➔ IP

- SMPTE ST 2022
- SMPTE ST 2110
- SMPTE ST 2059
- AES67

Remote Sports & News Collection
Outside Broadcast Van



microSync

Studio
Production



M1000

Distribution & Streaming
Infrastructure



M3000

LANTIME NTP Servers



M200



M300

microSync PTP Grandmasters



microSync HR



microSync RX

IMS = Intelligent Modular System



M1000



M3000

Meinberg Products

Three Main Platforms

Meinberg Accessory Products

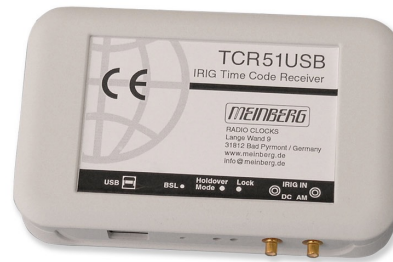
- **Signal Distribution Unit (SDU)** – 1:12 or 1:24 fanout of PPS, 10 Mhz, IRIG, and E1/T1 signals
- **Fiber-Optic Converter (CON)** – enables long-distance (2k or 10 km) transmission of PPS, 10 MHz, IRIG, and RS232 signals over fiber
- **SyncBox N2X** – converts NTP or PTP to IRIG, 10 MHz, PPS, DCF77, and serial time telegrams

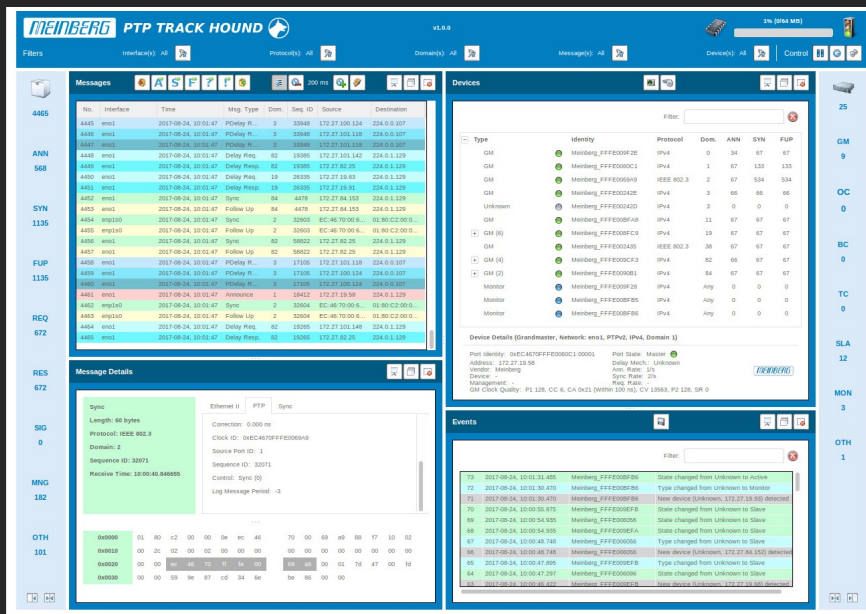
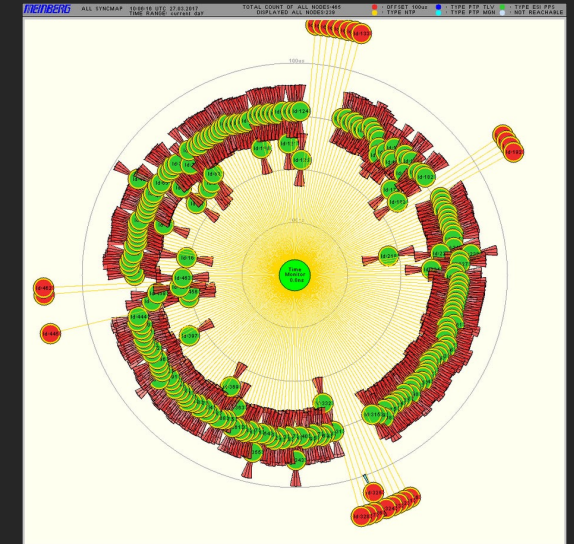
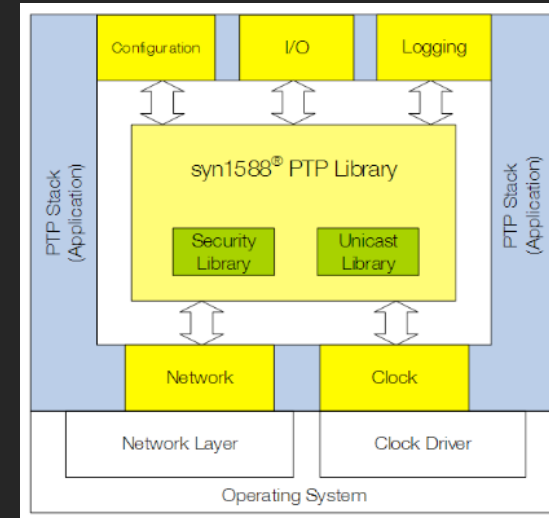
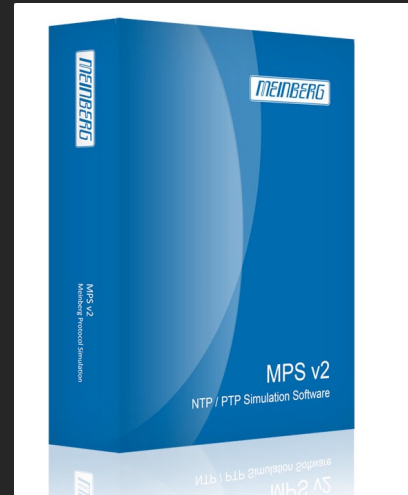
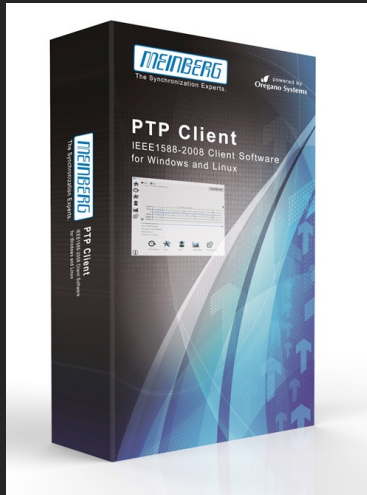
Very popular in power grid and defense applications



PC Clock Products

- **PCIe Clocks** – GPS clocks and IRIG Time Code Receiver & Generators
- **USB Clocks** – converts IRIG to USB
- **IEEE-1588 PCIe NICs** – PTP time stamping





Meinberg Software Products

- Meinberg PTP Client
- MPS v2 NTP/PTP Simulation Software
- Oregano PTP Stack
- NetSync Monitor
- PTP Track Hound (FREE)

Thank You!

Visit our booth

MEINBERG

The Synchronization Experts.