

MEINBERG

The Synchronization Experts.

**Universal
Synchronization
Solutions.**

Since 1979.

Meinberg Synchronization Solutions

**Allan Armstrong
CEO, Meinberg USA Inc.**





Introducing



The Synchronization Experts.

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.

Global Leadership

Meinberg products synchronize a lot of critical infrastructure on this planet

- Mobile
- Datacenter
- Defense
- Air Traffic Control





Industry-Specific
Synchronization Solutions

THREE MAIN PLATFORMS



The Synchronization Experts.



M200



microSync HR



IMS M1000



M300



microSync RX



IMS M3000

	LANTIME	microSync	IMS
Modularity	Internal	No	Full, hot-swap
Satellites	GPS, Galileo, GLONASS, Beidou, DCF77	GPS, Galileo, GLONASS, Beidou	GPS, Galileo, GLONASS, Beidou, DCF77
Oscillators	TCXO, OCXOs (5)	OCXOs (4)	OCXOs (4), Rb
1 pps, 10 MHz	✓	✓	✓
IRIG	✓	✓	✓
NTP (requests/s)	5k	15k	25k-4M
PTP (delay requests/s)	--	Up to 131 k	Up to 2.6M

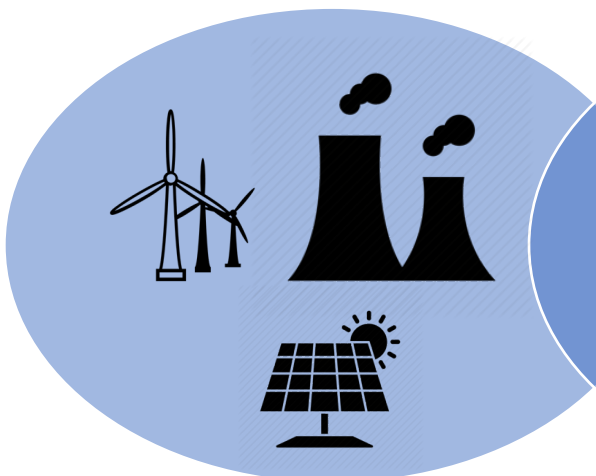
MEINBERG

POWER GRID

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

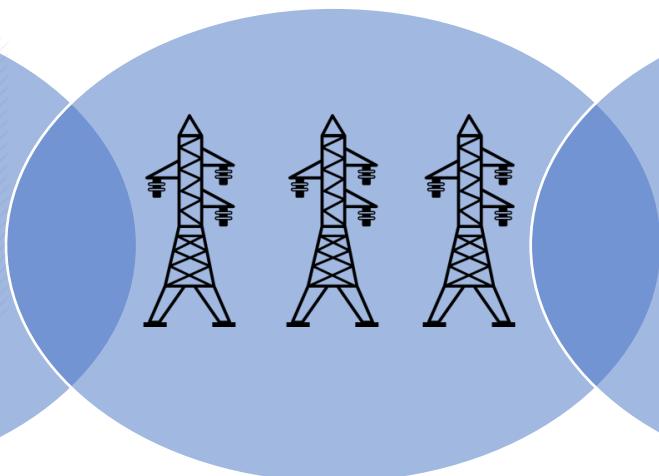
- Digital Substation Evolution
IRIG → NTP → PTP
- IEEE 1588 PTP v2
- IEEE C.37.238
- IEC/IEEE 61850-9-3
- IEC 62439-3 HSR/PRP

Generation



M3000

Transmission

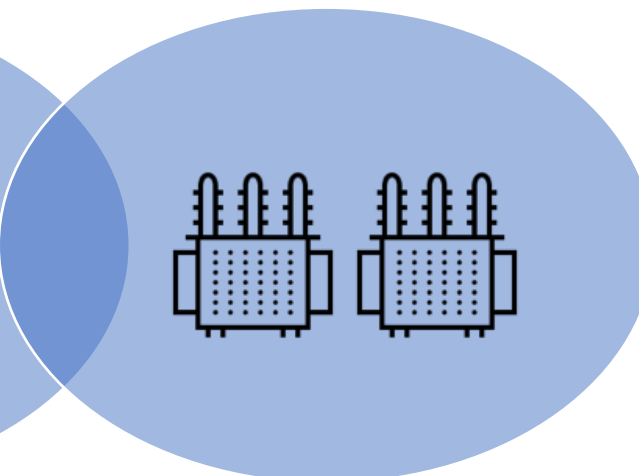


M1000



M500

Distribution



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



FINANCE

Standards

- MiFID II & MiFIR
- FINRA
- CAT NSM
- SEC Rule 613
- ESMA

Capacity & Density = Scalability

M3000: 3U chassis

- Up to 20,480 unicast clients
 - Up to 2,621,440 delay requests/s
- 3x more than closest competitor



**Entirely Focused on
Synchronization**

Since 1979

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



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



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





Life is going to
get a
LOT BETTER !!!





We Look Forward to
Working with YOU !!!



Thank You !!!
Dankeschön!!!