PTP Grand Master Clock
for 5G and Broadcasting in JAPAN
Time Server Pro. TS-2912/2914 TS-2950/TS-1550

SEIKO SOLUTIONS INC.
SEIKO and SEIKO Solutions Inc.

140 years history in “time” solution market

1881
• Clock Shop established

1892
• Name changed to Seiko sha

1937
• Dai-ni Seiko sha (Seiko Instruments Inc.) established

1975
• Seiko Systems Inc.

1996
• Seiko Precision Inc.

2013
• Seiko Solutions Inc.

2021
Company split out due to business diversification

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SEIKO Solutions Inc.

We provide customers with safety and satisfaction based on "reliable quality"

We are the first manufacture of PTP GMC in Japan!
PTP Products for Broadcasting and Telecom

Sync Generator TS-1550

Broadcasting market

PTP Grand Master TS-2950 series

PTP Grand master TS-291x series

Telecom market
PTP Interoperability challenges

Confirmed Brands:
- ALAXALA Networks
- Allied-Telesis
- Anritsu
- Apresia systems
- Arista Networks
- Calnex Solutions
- Cisco Systems
- Extreme Networks
- Ericsson
- HUAWEI
- IXIA
- Juniper Networks
- LAWO
- Meinberg
- Microchip (Microsemi)
- Mellanox
- NOKIA
- Oscilloquartz
- Qulsar
- Panasonic
- Sony
- Spirent
- Tektronix
- Tektron
- ZTE (in alphabetical order)
Latest update from Broadcasting market

PTP Grand Master for telecom market

TS-2910 is designed for 4G/5G Mobile network

Synchronization accuracy
- The accuracy of TS-2910 is UTC within 40 nsec. (PRTC-B)
- Compliant for G.8272, G.8265.1, and G.8275.1, G.8275.2

Flexibility
- Able to be deployed inside building or outdoor
- Upgradable both of hardware logic (FPGA) and system software by remote control, for future requirement or adaption to new standards.

Functions for stability
- Multi-GNSS: GPS, QZSS, Galileo, Glonass supported (configurable)
- Filters reflected signals at Urban Canyon and jamming
Deployment for 5G mobile network

- Edge/distribution Grand Master clock
  - Near CU to comply the requirement 5G 3GPP
  - Outdoor
  - At the station building with GNSS extender

**Fronthaul**

**Middlehaul**

**Backhaul**

Fronthaul

- CU

Middlehaul

- CU

- GNSS Antenna Extender
  - GNSS Extender (TX)
  - GNSS Extender (RX)

Backhaul

- 5G
- 5GC
- EPC
- 5G Core

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Roadmap

Sync Generator TS-1550

Broadcasting market

PTP Grand Master TS-2950 series

More PoC and deployment

PTP Grand master TS-291x series

Telecom market

- New types of hardware
- New functions

New technology and market

- Software based timing solution
- IEEE 802.1AS-2011 (gPTP)