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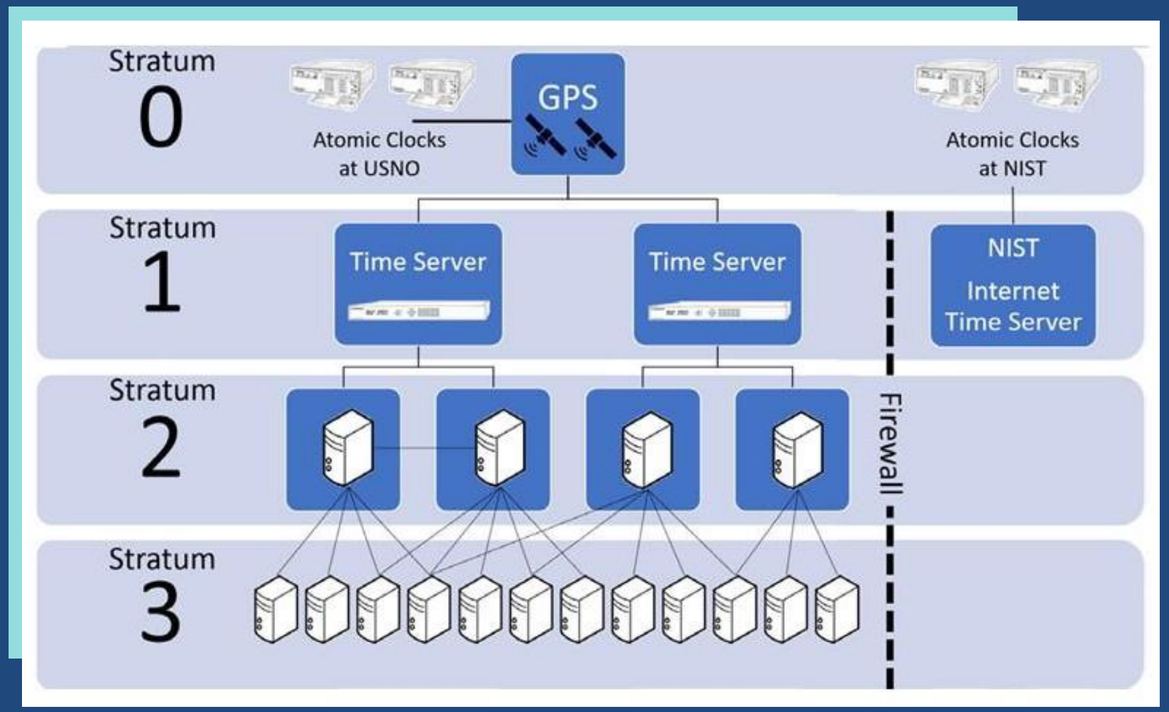
EKOSync 1588Series TimeServers

PTP & NTP TIME SERVERS



- A time server is a computer that reads real time from a reference clock and distributes it to clients using the same network.

- Time servers can use GPS or atomic clocks as time reference and can be used as dedicated devices or as existing network servers with additional software.

EKOSync 1558 Series

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1 Zaman Senkronizasyonu
- **Full IEEE 1588v2 PTP** Grandmaster & Slave fonksiyonu
- **NTP/ SNTP (IEC 61850)** Multicast & Broadcast sunucu
- **IRIG-B Zaman Kodu**
- **FREQ** 5-10-20-25MHz.

2 Hassasiyet
- **Doğruluk:** +/- 100 nS
- **Holdover:** VCTCXO (varsayılan): 10 mSec/24 hr
- OX-221 (opsiyonel): 30 µSec/24 hr

3 Güvenilirlik
- Tüm dünyada güvenilirliği kabul edilen PTP Çözümü

4 Kalite
- **Üretim Kalitesi**
  EKOS Electric mühendisleri tarafından garanti edilmiştir

5 Web Arayüzü
- **Çoklu Platform**
  Web tabanlı arayüz ile tüm işletim sistemlerinden yönetim ve konfigürasyon

6 Ethernet
- **NTP/PTP** Protokolleri
- **Telnet** Komut Satırı
- **HTTP** Protokolu
- **FTP** Protokolu
- **IPv4, IPv6** (Layer 2)

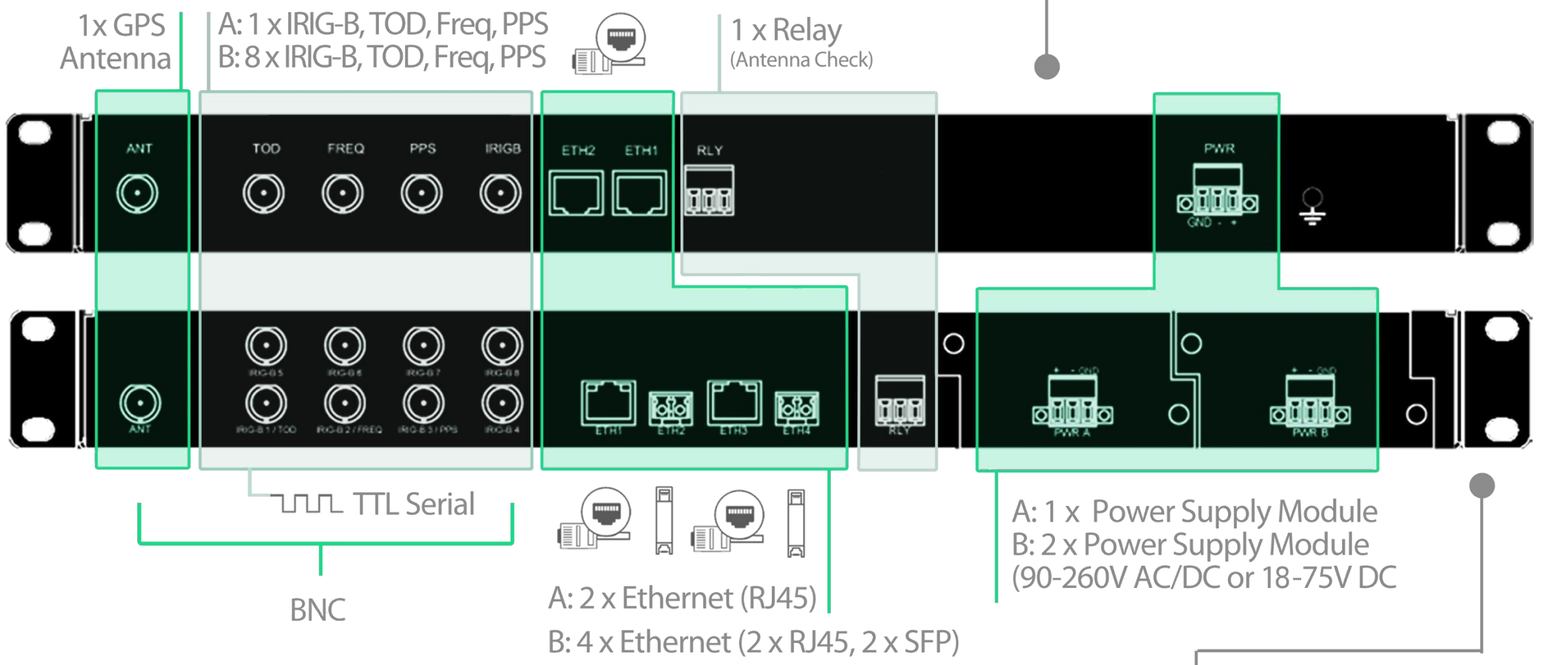
7 Sürdürülebilir Tasarım
- **Geri Dönüştürülebilir Malzemeler**
- **Enerji Tasarrufu:** Düşük güçlü bileşenler
- **Fansız Tasarım:** Fan arızası kaynaklı sorunları ortadan kaldırır

8 Bağlantı
- **RJ45 Ethernet** A ve B Modeli: 2 Adet
- **SFP Ethernet** B Modeli: 2 Adet
- **Zaman Çıktıları:**
  - Protokoller: NTP, PTP, IRIG-B
  - Sinyaller: 1PPS, Frekans, ToD

Power Substations | Industrial Automation | Telecom - LTE 4G-5G | Finance MiFID II (EU) CAT(USA) | Smart Grids | Data Centers | M.Critical IoT | Defence | Transportation

EKOSync 1588 Series Back Panel

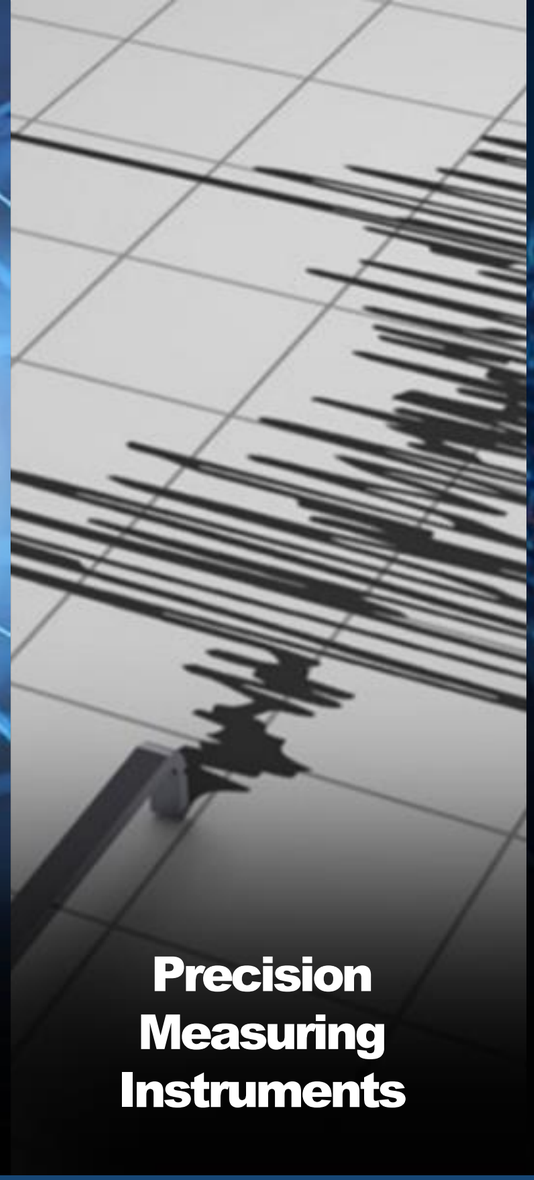
EKOSync 1588 A



Physical Interfaces

EKOSync 1588 B

EKOSync 1588 Use Scenarios



Industrial Usage Areas

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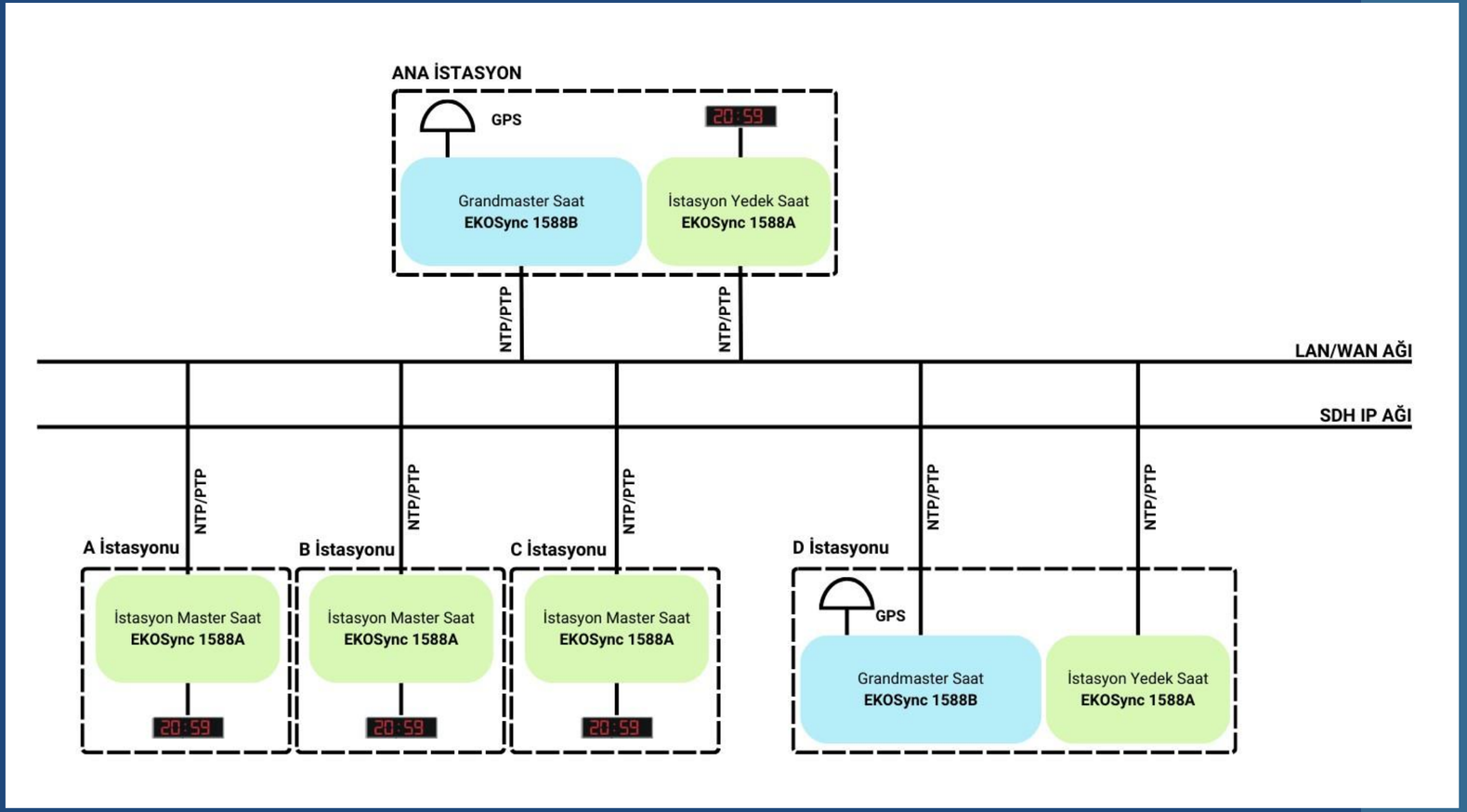
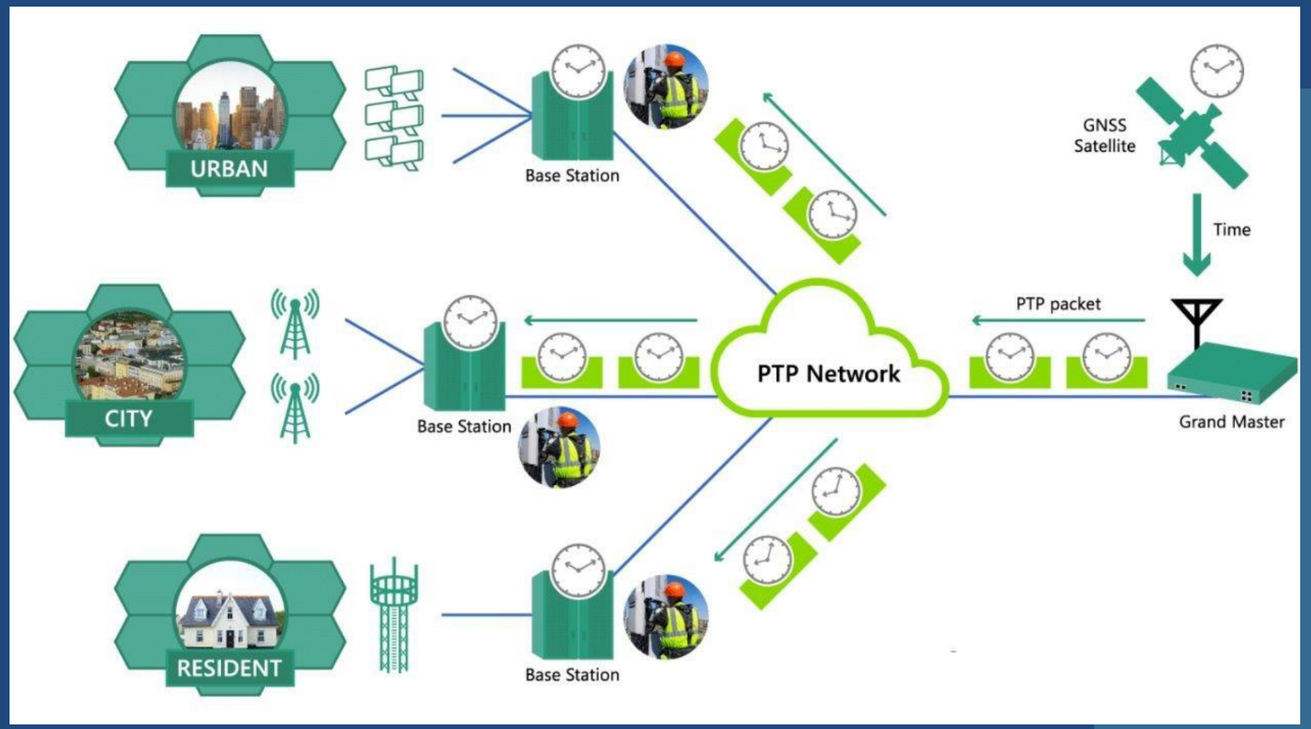
Railways – Synchronization Solution for Metro Rails



- As Grandmaster at the main station The EKOSync 1588B time server is used to synchronize the main and sub-stations.
- At the sub-stations, the EKOSync 1588A time server synchronizes the entire IT system to the main station.
- In this way, all stations spread over a large area have precise time information from the satellite.
- Time integrity and data readability are ensured in the system.

Telecommunication Usage Area

The seamless transmission of voice, video, data and other services in telecom networks is made possible by synchronizing packets.



- TDMA (Time Division Multiple Access)
- LTE (Long Term Evolution) (4G)
- 5G
- TETRA
- PMR applications

Electricity Transmission and Distribution Usage Area

ELECTRICITY TRANSMISSION

The electricity transmission sub-segment uses GNSS timing in systems that provide frequent measurements of network status and also to locate faults along a transmission line.

The PMU can be used for two purposes:

Network Monitoring: This is the main current use case. Operators collect data to know the state of the network. This is not a very critical application. Customer acceptance is now very high, but this is a process that takes about 10 years to implement.

Automatic Protection: Only 5 or 6 pilot projects have been launched. This is a critical application that requires a very high level of redundancy at PMU level.

Equipment/Function	Power Grid/Smart Grid Areas						
	Gen.	Trans.	Dist.	Ops.	Market	Serv. Prov.	Cust.
Transmission Line Fault Location	1 µs						
Synchrophasors/Phasor MeasurementUnits	< ± 1 µs	< ± 1 µs	< ± 1 µs				
Substation Control	1 µs – 1 ms	1 µs – 1 ms					
Protection Relays	1 ms	1 ms					
Lightning Strike Measurement	1 ms	1 ms					
Power Quality Measurement	1 ms				1 ms	1 ms	
Control Center/EMS/SCADA/RTU	1 ms	1 ms					
Frequency Measurement	1 ms	1 ms					
Internet Based Market Operations(NTP)	1 ms	1 ms					
Disruption Monitoring Event Recorders	2 ms	2 ms					
Stack Measurement	0.5 sec	0.5 sec					
Customer Facility Measurement	1 sec						1 sec
Smart Meters/Home Area Network	0.5 sec						0.5 sec
Distributed Energy Resources	< ± 1 µs						< ± 1 µs
SCADA Networks	1 ms	1 ms					
Synchrophasor Networks	< 26 µs	< 26 µs					
Strictest Timing	< ± 1 µs	< ± 1 µs	< ± 1 µs	26 µs	1 ms	1 ms	< ± 1 µs

Ekosync is Preferred for Structural Safety Monitoring!

In accordance with AFAD's Building Health Monitoring System Application Directive, EKOSync1588 Series Time Server was preferred in Europe's tallest building to ensure operational durability by enabling simultaneous acceleration measurements of critical structures in earthquake risk zones.

In this 66-story megastructure, a time server was placed on every 10 floors to ensure precise data collection from sensors. This arrangement made it possible to synchronize measurements throughout the building.

Operating with a latency of 200 ms, EkoSync1588 devices ensured that the data was tagged with accurate timestamps and processed with high accuracy. This low latency is vital for building monitoring systems.

With 44 channels and 14 sensors integrated throughout the building, the performance of the time servers is maximized. This demonstrates that the devices are able to process large data loads efficiently.

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EKOSync 1588 A

Technical Specifications

Ethernet
10/100/1000 Mbps GE

PTP Master
- Accuracy: ± 100 ns, ± 25 ns (Typically)
- Holdover: VCTCXO(default): 10 ms / 24 sa, OCXO(optional): 30 µs / 24 sa

PTP Slave
- One step and two step master support
- Accuracy: ± 100 ns, ± 25 ns (Typically)
- Holdover: VCTCXO(default): 10 ms / 24 sa, OCXO(optional): 30 µs / 24 sa

Input Synchronization Interfaces
- PTP: Ethernet (L2), UDP IPv4, IPv6

Output Synchronization Interfaces
- PTP: Ethernet (L2) veya UDP IPv4, IPv6

4 Output Option:
- IRIG-B
- PPS output: with 1µs resolution 2kHz
- ToD output: TTL 4800 /9600 bps
- Frequency Output: 5/10/20/25 MHz

ToD Format
- ASCII: YYYY-MM-DD HH:MM
- NMEA & China Mobile format
- Binary

System Specs.
- IEEE 1588 v2 Grand Master
- Power, Telecom, Exchange and Data Center profiles full compliance
- PRP BMC algoritması (optional)
- IRIG-B
- Frequency accuracy better than 1ppb
- Advanced synchronization and network performance metrics

Network Interface
- 10/100/1000 Mbps RJ45
- Other Features
- DHCP client
- FTP server
- TELNET server Configuration via command line
- Web User Interface
- Dimensions: 1RU 19”

Physical Interfaces
- Alarm relay
- ToD and PPS output
- 2 10/100/1000 BaseT Ethernet Connection point

Operating Characteristics
- Power Source: 90-260 VAC/DC or 18-75 VDC
- Operating Temp. -20°C to 70°C
- RoHS compatible

IEEE 1613 (C37.90.X) EMI BAĞIŞIKLIK TİP TESTLERİ

IEEE 37.90.3: ESD	EnclosureContact	+/-2kV,+/-4kV,+/-8kV
	Enclosure Air	+/-4kV,+/-8kV,+/-15kV
IEEE 37.90.2: Radiated RFI	Enclosure Ports	35 V/m
IEEE 37.90.1: Fast Transient	Signal Ports	+/-4kV @ 2.5kHz
	DC Power Ports	+/-4kV
IEEE 37.90.1 Oscillatory	Signal Ports	2.5kV common mode@1MHz
	DC Power Ports	2.5kV com. 1kV diff.@1MHz
IEEE 37.90 HV Impulse	Signal Ports	5kV (fail-safe relay output)
	DC Power Ports	5kV
IEEE 37.90 Dielectric Str.	Signal Ports	2kVAC
	DC Power Ports	2kVAC

ÇEVRESEL TİP TESTLERİ

EN60068-2-1: Cold Temperature	A -20°C / B -40°C
EN60068-2-2: Dry Heat	+70°C
EN60068-2-30: Humidity	95% (non-condensing)
EN60255-21-1: Vibration	2g @ 10-150 Hz
EN60255-21-2: Shock	30g @ 11mS

EKOSync 1588 B

Technical Specifications

Ethernet

10/100/1000 Mbps GE

PTP Master

- Accuracy: ± 100 ns, ± 25 ns (typically)
- Holdover: VCTCXO(default): 10 ms / 24 sa,
  OCXO(optional): 30 µs / 24 sa

PTP Slave

- One step and two step master support
- Accuracy: ± 100 ns, ± 25 ns (typically)
- Holdover: VCTCXO(default): 10 ms / 24 sa,
  OCXO(optional): 30 µs / 24 sa

Input Synchronization Interfaces

- PTP: Ethernet (L2), UDP IPv4, IPv6

Output Synchronization Interfaces

- PTP: Ethernet (L2) veya UDP IPv4, IPv6

8 Output Option:

- IRIG-B
- PPS output: 1µs resolution
- 2kHz
- ToD output: TTL 4800 /9600 bps
- Frequency output: 5/10/20/25 MHz

ToD Format

- ASCII: YYYY-MM-DD HH:MM:SS
- NMEA & China Mobile format
- Binary

System Specifications

- IEEE 1588 v2 Grand Master
- Power, Telecom, Exchange and Data Center profiles •
  full compliance
  BMC algorithm enabling PRP
  (optional)IRIG-B
  Enhanced synchronization and network performance measurements

Network Interface

- 1 Gbps SFP
- 10/100/1000 Mbps RJ45

Other Features

- DHCP client
- FTP server
- TELNET server
- Web User Interface
- Dimensions: 1RU 19”

Physical Interfaces

- Alarm relay
  ToD and PPS output
  - 2 1GE SFP
- 2 10/100/1000 BaseT RJ45

Operating Characteristics

- Redundant Power supply : 90-265 V AC/DC
- Operating Temp.: -40 °C / 70°C
- RoHS compatible

ONAY VE SERTİFİKASYON

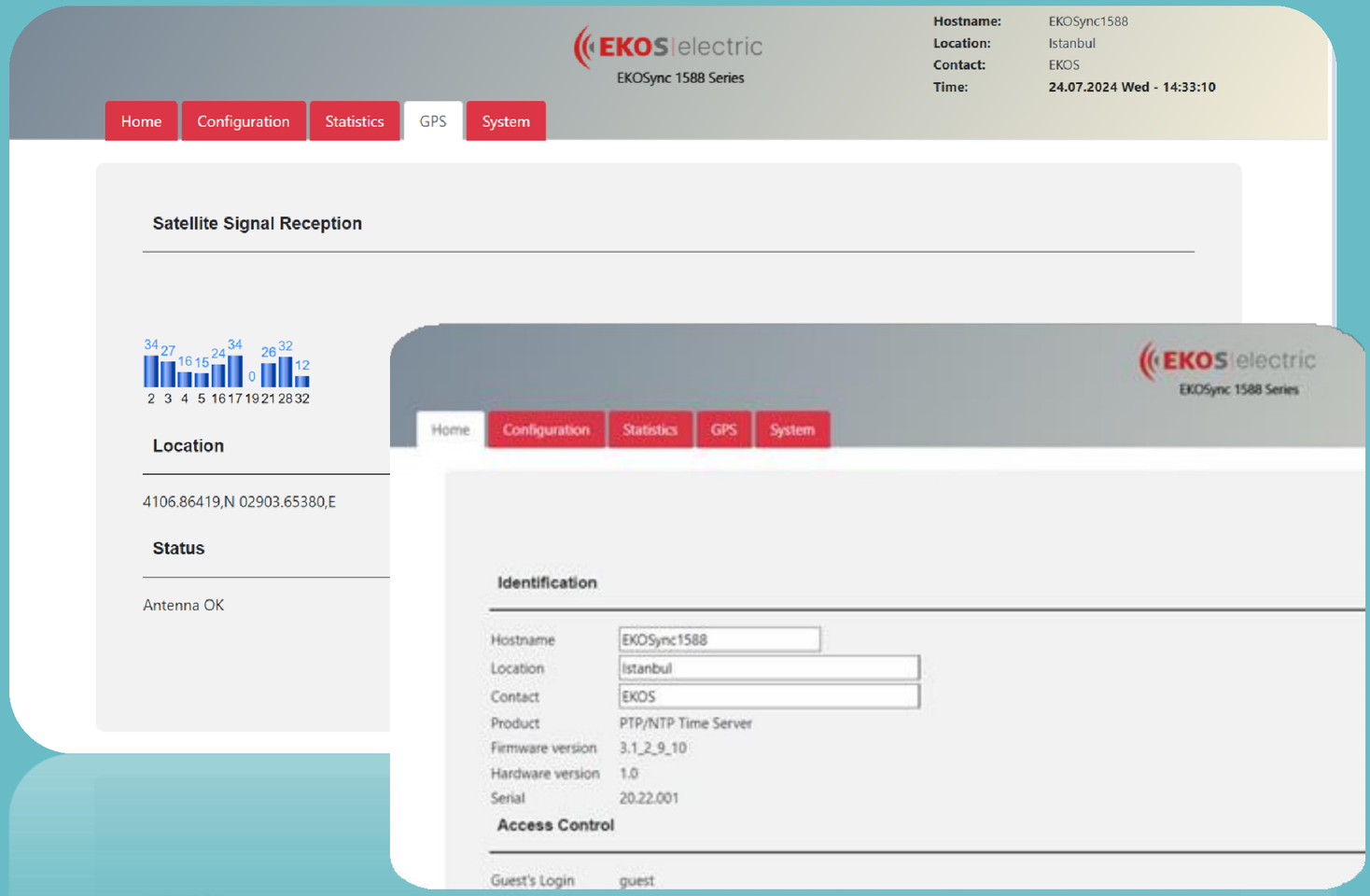
-CE compliance : Low voltage directive EN60950-1
-EMC directive: EN61000-6-2, EN61000-6-4
-Radiated & Conducted: EN55022 (CISPR22) Class A
-Emission

IEC 61850-3 EMI TİP TESTLERİ

-ESD: EN61000-4-2 Level 4
-RF Immunity: EN61000-4-3 20V/m
-Burst (Fast Transient): EN61000-4-4 Level 4
-Surge Immunity: EN61000-4-5 Level 4
-Conducted RF Immunity: EN61000-4-6 Level 3
-Magnetic Field: EN61000-4-8 Level 3
-Voltage Dip & Interrupt: EN61000-4-29
-Ripple on DC Power: EN61000-4-17 Level 3
-Damped Oscillatory: EN61000-4-12 Level 3
-Mains Freq. Voltage: EN61000-4-16 Level 4
-Dielectric Strength: EN60255-5 2kV
-HV Impulse: EN60255-5 5kV

EKOSync Web Server

The EKOSync 1588A and 1588B's web-based interface includes many important features, from configuring the device's basic time and date information, to editing network settings, monitoring the device's performance statistics and monitoring GPS/GNSS information.



Referances

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ENKA

TCDD TAŞIMACILIK

KANDİLLİ RASATHANESİ VE DEPREM ARAŞTIRMA ENSTİTÜSÜ 1868

ENERJİSA

HITACHI

ASTOR®

ABB

yeo

TÜBİTAK

SIEMENS

TEİAŞ

Kontrolmatik Technologies

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