



M B Control &  
Systems Pvt. Ltd.

Innovative Electronics For You



# **MB EKOSync 1588B**

## **PTP TIME SERVER**

# MB EKOSync 1588B PTP Time Server



## CONTEMPORARY PRECISE TIME SYNCHRONIZATION FOR POWER SYSTEMS

Emerging applications in power substations, industrial automation, mobile infrastructure and smart grid have higher precision time synchronization needs. Every device in power systems must use the same sync source for coordinated action. Traditional synchronization methods are either costly or less accurate. The EKOSync 1588B implements a time & frequency synchronization system using packet timing to deliver a full, high performance, reliable timing solution.

The EKOSync 1588B can be quickly integrated into a system and works in two configurations:

- EKOSync 1588B Slave only mode: extracts time from a PTP stream and produces stable frequency and time outputs
- EKOSync 1588B Ordinary clock mode: produces frequency and phase outputs, and can operate as a slave or grandmaster to slaves downstream, generating streams of PTP packets

### Integration

The EKOSync 1588B enables an easy path to quickly integrate a precision synchronization system. The EKOSync 1588B can be integrated into an end-point where precision timing signals are required as well as systems that need to provide Grandmaster functionality.

Precise synchronized signals are generated and are available at rear BNC connectors as 5/10/20/25 MHz and a PPS. The "Time of Day" (ToD) information is available in NMEA or ASCII format.

The EKOSync 1588B has industry leading algorithms that enable it to extract precise time signals from packets impeded over the network by traffic load, congestion and delay variation (PDV).

Client software should support PTPv2 (IEEE1588-2008), 1-step or 2-step clock and SNTPv3,v4.

EKOSync 1588B supports SNTP by default.

### Features

- Full IEEE 1588v2 PTP Grandmaster & Slave functionality
- Supports one-step & two-step clock
- SNTP support
- Flexible holdover performance levels
- IRIG-B
- Gigabit Ethernet (EKOSync 1588B)

### Applications

- Power substations
- Power grid time synchronization systems
- Industrial automation timing systems
- Internet of things with precise time synchronization
- EMS System
- ABT Metering
- Numerical relays
- PLC/DCS/SCADA

## MB EKOSync 1588B

### System Features

- IEEE 1588-2008 Master and / or Slave clocks
- Fully compliant to telecom, power & defaults profiles
- Best master clock algorithm

- 8 x IRIG-B

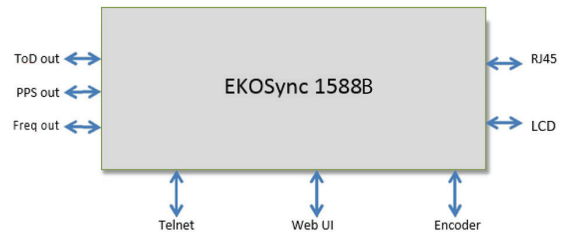
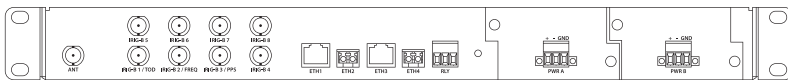
- Frequency accuracy better than 0,5 ppb

- Enhanced synchronization & network performance metrics

### Network Interface

- 10/100/1000 Mbps RJ45 – 1Gbps SFP
- Second management port
- IPv4 and IPv6 (PTP)

## TECHNICAL SPECIFICATION



### GPS Receiver

- Time Accuracy :  $\leq 3$  ns
- Positioning Accuracy : 2.0 m
- Input Frequency : 1574 - 1606 MHz
- Tracking from no. of satellites : 72 channels
- Acquisition time : Cold Start : 26 s

### Antenna

- Type : Dome Antenna
- Antenna Gain : 40dB
- Antenna cable Details : 50 ohm coaxial cable
- Operating Temperature : -40 to +85° C
- Coverage : GPS L1, GLONASS G1, and SBAS (WAAS, EGNOS & MSAS)
- Weight : 135 g
- Ingress Protection : IP67
- Axial Ratio : 1 dB typ.
- Noise Figure : 1 dB typ.
- Supply Voltage : 2.5 to 16 VDC

### Displayed data's on the screen

- Time and data information
- Local time offs.
- Synchronization mode

### Configuration programming

- Parameters programmable by :
  - ◆ LCD Screen ◆ Web Brouser ◆ Telnet

### Ethernet

- 10/100/1000 Mbps GE
- 1 Gbps FO
- Base Product : 1 x Copper Ethernet Port  
1 x SFP Port

### Input Synchronization Interfaces

- PTP : Ethernet (L2), UDP IPv4 / IPv6 (L3)

### PTP Master

- Accuracy : +/- 25 ns
- Holdover : 40  $\mu$ s in 24 hours
- Output sync rate : upto 128 Hz
- Number of slaves : upto 250

### PTP Slave

- Supports 1-step and 2-step masters
- Input sync rate : upto 128 Hz
- Accuracy : upto +/- 50 ns
- Holdover : 40  $\mu$ s in 24 hours

### Output Synchronization Interfaces & Accuracy

- Freq out : 5/10/20/25 MHz  
Accuracy : 1 ppb
- IRIG-B : DC level shift  
Accuracy : 50 ns
- PPS out : upto 2 kHz with 1  $\mu$ s resolution  
Accuracy : 25 ns
- PTP : Ethernet (L2) or UDP IPv4 / IPv6 (L3)  
Accuracy : 25 ns

### ToD Format

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

### Operating Specifications

- Power Supply : 90-265V DC
- Operating temperature -40°C to 70°C
- RoHS compliant
- Dimensions : 1RU 19"

### Physical Interfaces

- Alarm relay
- ToD and PPS output & synchronized frequency
- Two 1GE SFP
- Two 10/100/1000 BaseT RJ45

### Telnet server connection details and configurable parameters

- All PTP, NTP and OS parameters

### Other Features

- DHCP client
- FTP server
- TELNET server
- SSH server
- Remote firmware upgrade
- Command line interface configuration (Telnet, SSH)
- SNMP v1, v2c, v3
- Web UI

# APPROVAL AND CERTIFICATION

CE compliance

Low voltage directive  
EMC directive  
EN55022 (CISPR22)

EN60950-1  
EN61000-6-2, EN61000-6-4  
Class A

Radiated & Conducted  
Emission

## IEC 61850-3 EMI

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

## IEEE 1613 (C37.90.X) EMI IMMUNITY

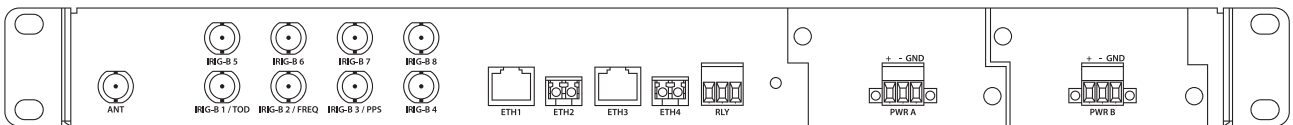
IEEE 37.90.3	ESD	Enclosure Contact Enclosure Air	+/-2kV,+/-4kV,+/-8kV +/-4kV,+/-8kV,+/-15kV
IEEE 37.90.2	Radiated RFI	Enclosure Ports	35 V/m
IEEE 37.90.1	Fast Transient	Signal Ports DC Power Ports	+/-4kV @ 2.5kHz +/-4kV
IEEE 37.90.1	Oscillatory	Signal Ports DC Power Ports	2.5kV common mode@1MHz 2.5kV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

## ENVIRONMENTAL

EN60068-2-1	Cold Temperature	-20°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

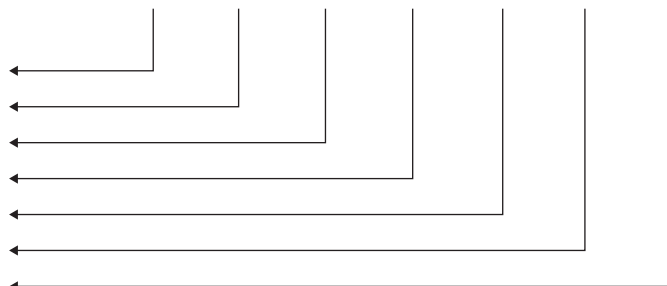
## ORDERING CODE

### MB EKOSync 1588B PTP Time Server



### MB EKOSync 1588B – A – B – C – D – E – F – G

- Redundant Power Supply
- Second Copper Ethernet Port
- Second SFP Port
- TOD Output
- Frequency Output
- PPS Output
- Additional 4 × IRIG-B Output



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