



RELEASE 1.0

TimeProvider 100

GPS Timing and Frequency Reference

KEY FEATURES

- Small form factor
- Superior holdover
- Provides 10MHz and 1PPS
- Configurable output signals
- SNMP and CLI management

KEY BENEFITS

- Cost Effective
- Small footprint
- High Reliability
- Onboard Diagnostics
- Integrated Network Management

VALUE PROPOSITION

- Enables rapid deployment
- Enables rapid migration of backhaul from TDM to Ethernet
- Comprehensive management

PRODUCT OVERVIEW

TimeProvider 100 is a cost-effective GPS-disciplined timing and frequency source device. The system receives GPS satellite signals to control an onboard oscillator and to provide 10MHz and 1 PPS output signals and four channels of E1.

With superior clock holdover performance and its compact size, the TimeProvider 100 enables rapid deployment for remote offices, street cabinets, and wireless base stations. It is designed to provide precise time and synchronization for locations where cost and space are a limitation.

TimeProvider 100 features a configurable output signal to support a variety of framer signals. This provides the flexibility to easily integrate into specific application environments. This device is fully manageable by local and remote management using RS232 and its Ethernet port.

With password-protected management capability, users and administrators can easily and securely configure

and monitor the performance of the device using CLI, SNMP and Telnet. TimeProvider 100 supports remote configuration of system settings, automating saving and restoration, and installation of new software when needed.

For system monitoring, system diagnostics are available in the form of history and system logs. SNMP traps and status LEDs provide alarms when TimeProvider 100 needs attention.

APPLICATIONS

With 1PPS and 10MHz output signals and configurable telecom outputs, TimeProvider 100 supports a variety of applications for synchronization such as:

- WiMax wireless base stations
- DAB/DVB broadcast equipment
- Remote offices
- Sync islands
- Street cabinets (such as MSAN)
- BTS/NodeB using Ethernet backhaul
- Any site where SLA assurance is needed



TimeProvider 100 GPS Receiver

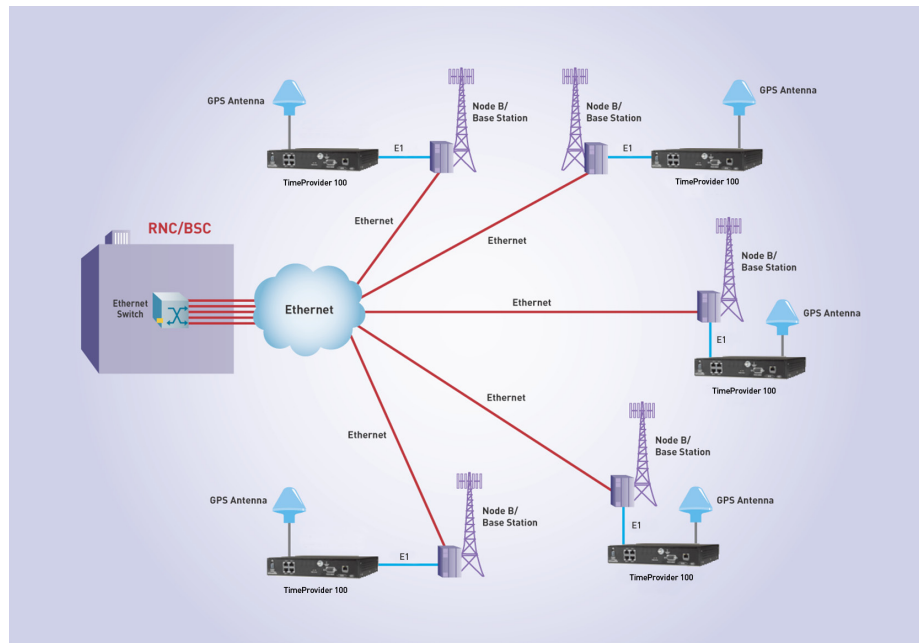


FIG 1: E1 Timing-Ethernet Backhaul

TimeProvider 100 Specifications

INPUTS

- Standard L1 GPS
- 5V @ 80 ma antenna current
- SMA connector, female

OUTPUTS

- 10MHz Sine @ 50Ω, 4-7 dBm, BNC connector, female
 - Phase noise [typical] @ 1Hz offset : -82 dBc/Hz
 - @ 10Hz : -120 dBc/Hz
 - @ 100Hz : -140 dBc/Hz
 - @ 1kHz : -140 dBc/Hz
 - @ 10kHz : -140 dBc/Hz
 - @ 100kHz : -145 dBc/Hz
- 1PPS TTL @50Ω, Pulse width 50 micro sec (typical) into 50Ω, BNC connector, female
- Four configurable E1 outputs @75Ω on BNC connector
 - 2.048MHz: Square wave, G.703 compliant
 - 2.048 Mbps: G.703 compliant framing
 - Frames: G.704 or unframed (AIS)
 - Signaling: CAS, CCD, CAS+CRC4, CCS+ CRC4
 - Line code: HDB3
- Jitter and Wandering tolerance: G.824 sync interface compliant

MANAGEMENT INTERFACE

- 10/100 Base-T on RJ45
- RS232 on DE9 connector

MANAGEMENT

- CLI and SNMP management
- Firmware upgrade
- Configuration save/restore
- System diagnostics for history and system logs

1PPS TIMING ACCURACY

- 100 ns locked to GPS

1PPS TIMING HOLDOVER

- < 1μs over 2 hours [-5°C to +55°C]

FREQUENCY ACCURACY

- < 1 x 10⁻¹² (24 hour average)
- G.811 quality when locked to GPS

FREQUENCY HOLDOVER

- Long-term stability: 1 x 10⁻¹⁰/day, 2x10⁻⁸/year
- Frequency stability: 6 x 10⁻¹⁰ [-5°C to +55°C]
- Compliant with G.812 Type I

ANTENNA

- Type: Active antenna
- Cable Type: LMR 400 with N connector
- Total Cable Length:
 - 115 meters or less, no amplifier needed
 - 115 to 240 meters, one amplifier needed
 - 240 to 360 meters, two line amplifiers needed
- Operating temperature: -40°C to +85°C

POWER SUPPLY

- -40 to -72 VDC
- 15 W Max, 10W Steady State

ENVIRONMENTAL SPECIFICATIONS

- Operating temperature: -5°C to +55°C
- Storage temperature: -25°C to +70°C

PHYSICAL SPECIFICATIONS

- Weight: 1.05kg (2 pounds, 5 ounces)
- 215.9mm W X 203.2mm D X 40.64mm H (8.5 in W X 8.0 in D X 1.6 in H)

INSTALLATION OPTIONS

- 19" and ETSI rack mountable, 1 RU
- Two units side-by-side mountable (19" 1U)

SAFETY

- UL / cUL
- CE Mark
- 6 of 6 RoHs
- IEC 60950-1
- EN60950-1