



NETSYNC^{PLUS}® PRR-10^{PLUS}



POWERFUL GPS PRIMARY REFERENCE RECEIVER/SOURCE

Cost-Effective Stratum 1 Network Synchronization Solutions
For Advanced Network/Central/Transit/Local/End Offices

- ✓ **GPS Source:** Up to 2 advanced GPS Engines
- ✓ **SynClock^{Plus}™:** Up to 2 Stratum 2E Rubidium^{Plus}™ and/or Stratum 3E Quartz^{Plus}™
- ✓ **Performance:** SmartHoldover^{Plus}™ technology
- ✓ **Output:** Up to 52 DS1/E1, SSM, CC, 1/5/10 MHz, TOD
- ✓ **Installation:** Easy pre-cabled antenna kit



*The Best Investment Today
for Delivering Superior Telecom Services!*



BEST NETWORK/TRANSIT/LOCAL SYNCHRONIZATION

NETSYNC^{PLUS} GPS SOURCE

The PRR-10 is an advanced Primary Reference Source based on the latest GPS integration technology. It's designed for telecom network operators to generate superior and highly reliable Stratum 1 synchronization signals for advanced networks.

KEY PRR-10 BENEFITS

Solution

- ✓ Cost-effective solution
- ✓ Full long-term investment protection
- ✓ Modular, flexible & redundant

Architecture

- ✓ Hot swappable modules
- ✓ Low maintenance cost
- ✓ Easy installation of the antenna
- ✓ Seamless integration of future requirements

GPS

- ✓ Single or dual GPS references
- ✓ Simultaneous tracking of multiple satellites
- ✓ UTC-traceable Stratum 1 signal
- ✓ High filtering of Selective Availability

GPS Antenna

- ✓ Up to 1000 ft/305 m cable
- ✓ Transient/Surge eliminator

SynClock

- ✓ Up to 2 Rubidium^{Plus}™ and/or Quartz^{Plus}™
- ✓ External from any vendor's co-located TSG/SSU clocks

Output

- ✓ Single or redundant DS1/E1
- ✓ Sync Status Messaging (SSM) on DS1/E1 for self-healing networks
- ✓ 1/5/10 MHz (sine)
- ✓ Composite Clock/8kHz
- ✓ TOD (Time-Of-Day) through EIA-232 port
- ✓ Up to 12 DS1/E1 outputs in the main unit
- ✓ Up to 52 DS1/E1 outputs with both main and expansion units

Communication/Management

- ✓ EIA-232 port
- ✓ Embedded TL1 interface
- ✓ Interactive ASCII-based interface
- ✓ PC-based Q3/CMIP interface for powerful TMN management
- ✓ PC-based SNMP interface

Standards

- ✓ Compliance with the latest and new industry standards is guaranteed
- ✓ Compliance with critical EMC standards for interference protection

INDUSTRY STANDARDS COMPLIANCE

The PRR-10 is designed to meet the latest and evolving industry standards, including ITU-T, ETSI, EIA, ANSI, Telcordia/Bellcore, and CE/AS.

PRR-10 NETSYNC^{PLUS} APPLICATIONS

The PRR-10 is designed to meet a broad range of requirements by simply changing the configuration of the unit. The key applications are:

- ❑ Network PRS (Primary Reference Source) for large offices with digital switches, multiplexers, cross-connect systems, SONET/SDH and ATM network elements
- ❑ Office PRS for upgrading any vendor's TSG/SSU that is configured with Stratum 2E/2/3E and Transit/Local clocks.
- ❑ Mobile/End office PRS for independent and reliable Stratum 1 timing signals

FLEXIBLE & REDUNDANT NETSYNC^{PLUS} ARCHITECTURE

The PRR-10 architecture is designed to accept the following modules in a flexible, fully redundant approach to seamlessly satisfy future requirements:

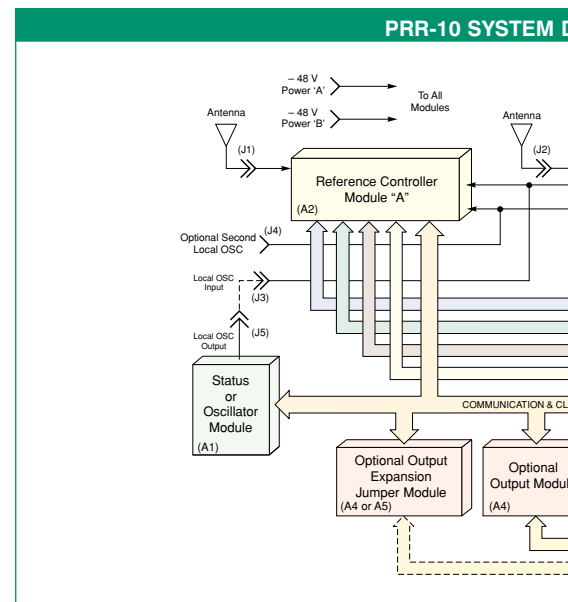
- ❑ Single or dual GPS reference module

- ❑ Single or dual Rubidium^{Plus}™ clock module (2nd module located in the expansion unit)
- ❑ Single or dual Quartz^{Plus}™ clock module (2nd module located in the expansion unit)
- ❑ Single or dual external clocks from any vendor's co-located TSG/SSU.
- ❑ Single or redundant output modules (max. 10 outputs)
- ❑ Expansion unit: single or redundant output modules (max. 50 outputs)

INTELLIGENT NETSYNC^{PLUS} MODULES



Each PRR-10 module integrates the latest hardware and software technologies for superior reliability, flexibility, and functionality. Modules can be removed or inserted while the unit is operating without any degradation of the output signals. Each module supports the management of critical, major, and minor alarms. Powerful management can be performed through the communication interface.



MOBILE/LOCAL/END OFFICE CLOCK SOLUTION



GPS^{Plus} Module

The GPS module utilizes an advanced multi-channel engine which simultaneously tracks all satellites above the horizon. Within 30 minutes of power-up, the GPS source automatically provides a fully UTC-traceable Stratum 1 output signal.

The GPS engine simultaneously ensembles the received carrier and code lock signals to filter out the effects of Selective Availability (SA). SA is further flattened through intelligent software.



SynClock^{Plus}™ Module

This module is available in different versions to meet specific holdover requirements. The following SynClock technologies are supported for Stratum 2E/2/3E and Transit/local offices:

- Enhanced Rubidium^{Plus}™
- Enhanced Quartz^{Plus}™
- Alternatively, external clocks from any vendor's co-located TSC/SSU can be fed to the PRR-10 for significant cost savings.

SmartHoldover^{Plus}™

In case of loss of GPS reference, the PRR-10 uses intelligent software to provide enhanced output performance beyond the SynClock's holdover stability.

Output^{Plus} Module

This module is available in different versions to meet specific requirements. The following output signals are supported:

- E1 (G.703/9 or G.703/13)
- DS1 (D4/SF or ESF)
- SSM quality status on DS1/E1
- Composite Clock/8kHz
- 1, 5, or 10 MHz (sine)

Comm^{Plus} SubModule

This submodule is integrated into the GPS module. Coupled with the optional NetSync^{Plus}™ Manager software, the comm submodule provides powerful fault, configuration, accounting, inventory, performance, security, and other optional management functionality. It supports the following communication interfaces:

- Embedded TL1
- Interactive ASCII-based mode
- PC-based Q3/CMIP interface for powerful TMN management (optional)
- PC-based SNMP interface (optional)

NETSYNC^{PLUS} SERVICES FAMILY

Extended NetSync services are provided to ensure our customer's success. Service programs include:

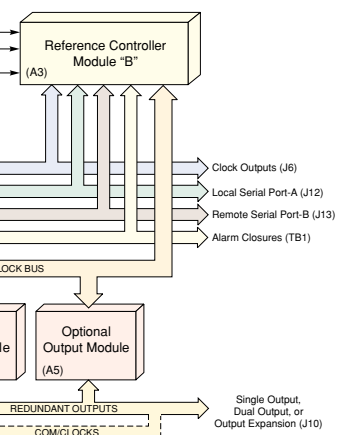
- ❑ Local 24-hour/day, 7-day/week support (phone, fax, email, web, and technician)
- ❑ Local inventory support
- ❑ NetSync design & planning
- ❑ NetSync installation
- ❑ NetSync commissioning & testing until acceptance
- ❑ NetSync maintenance

ONLINE DATA SUPPORT

Visit our web site today at www.datum.com for the latest information, including:

- ❑ NetSync application notes
- ❑ NetSync training
- ❑ NetSync seminar
- ❑ NetSync resources
- ❑ Q&A support
- ❑ Local and international NetSync experts

DIAGRAM





STANDARD FEATURES

Frequency Stability (basic GPS module)		
Overall Performance	Stratum 1 PRS per ANSI T1.101-1994, Bellcore GR-2830-CORE, GR-1244-CORE, and ITU-T G.811	
External Holdover Clock	External clock(s) from any vendor's co-located TSC/SSU (single or dual input)	
Outputs		
	<ul style="list-style-type: none"> ■ 2 DS1 or E1-G.703/9 on the rear panel ■ 1 TOD (Time-Of-Day) through EIA-232 port 	
Warm-Up Time	Less than 30 minutes	
Communications		
Port	2 x RS-232 (Port 1 for craft interface; Port 2 for remote interface)	
Speed	Up to 19.2 kbps	
Language	TL1 and interactive ASCII-based mode	
Alarm	Critical, Major, Minor (Visual, NO/NC relay contacts, and through EIA-232 port)	
Power Supply		
Voltage DC Range	-38 to -59 V (-48 V nominal - positive/negative ground)	
Consumption	< 60 W, < 85 W with optional Rubidium ^{Plus} ™ Clock	
Size and Weight		
	Size (H x W x D)	Weight
Receiver	5.25" x 19" x 12" (13.3 cm x 48.26 cm x 30.5 cm)	8 lbs (3.6 kg)
GPS antenna	6.44" x 3.0" diameter (16.35 cm x 7.6 cm)	7.2 oz (0.2 kg)
Environmental		
EMC Compliance	FCC part 15 Class A & CISPR 22 Class A	
Operating temperature	Receiver: 0-50° Antenna: -40 to 75° C	
Storage temperature	Receiver: -20 to 75° C Antenna: -40 to 75° C	
Humidity	Receiver: 0 to 95% (non-condensing) Antenna: 100% (not immersed)	
Telecom Configuration	NEBS compliant	

OPTIONS (Check all that apply unless otherwise specified)

Dual GPS Modules	<input type="checkbox"/> Yes	
Antenna Cable Length (max. 1000 ft/305 m)	<input type="checkbox"/> 100 ft/30 m <input type="checkbox"/> 300 ft/91 m Other, specify: <input type="checkbox"/>	
Internal Holdover Clock (select only one; single or dual)		
		Dual
Rubidium ^{Plus} ™	<input type="checkbox"/> Stability < 5 x 10 ⁻¹¹ /day	<input type="checkbox"/> Yes
Quartz ^{Plus} ™	<input type="checkbox"/> Stability < 5 x 10 ⁻¹⁰ /day	<input type="checkbox"/> Yes
Output Signals - Main Unit (select only one)		
10 x DS1	<input type="checkbox"/> SF & ESF (sync status messages per ATIS/T1 TR-33)	
10 x E1	<input type="checkbox"/> G.703/9 (2.048 Mbps) - CAS/CCS, CRC4 on/off, HDB3/AMI (sync status messages per ITU-T G.704 - 1995)	
	<input type="checkbox"/> G.703/13 (2.048 MHz)	
8 x CC	<input type="checkbox"/> Composite Clock (with 2 additional 8 kHz outputs)	
4 x 1/5/10 MHz	<input type="checkbox"/> User selectable frequency	
Output Impedance (select only one)		
	<input type="checkbox"/> 50 Ω (sine) <input type="checkbox"/> 75 Ω (E1)	
	<input type="checkbox"/> 100 Ω (DS1) <input type="checkbox"/> 120 Ω (E1)	
Output Connector	<input type="checkbox"/> BNC <input type="checkbox"/> Wire wrap Other, specify: <input type="checkbox"/>	
Output Expansion Unit (max. 50 mixed outputs; single or redundant)		
		Redundant
DS1	<input type="checkbox"/> 10 <input type="checkbox"/> 20 <input type="checkbox"/> 30 <input type="checkbox"/> 40 Other, specify: <input type="checkbox"/>	<input type="checkbox"/> Yes
E1	<input type="checkbox"/> 10 <input type="checkbox"/> 20 <input type="checkbox"/> 30 <input type="checkbox"/> 40 Other, specify: <input type="checkbox"/>	<input type="checkbox"/> Yes
CC	<input type="checkbox"/> 8 <input type="checkbox"/> 16 <input type="checkbox"/> 24 <input type="checkbox"/> 32 Other, specify: <input type="checkbox"/>	<input type="checkbox"/> Yes
1/5/10 MHz (user selectable)	<input type="checkbox"/> 8 <input type="checkbox"/> 16 <input type="checkbox"/> 24 <input type="checkbox"/> 32 Other, specify: <input type="checkbox"/>	<input type="checkbox"/> N/A
PC-Based Management/Communications		
TMN NetSync ^{Plus} ™ Manager	<input type="checkbox"/> Q3/CMIP interface	
SNMP NetSync ^{Plus} ™ Manager	<input type="checkbox"/> SNMP interface	

