

EW9955A/AR

— NTP Server with GPS common view—

E3 Design, Inc.



Introduction

EW9955A/AR is Stratum 1 Network Time Server that use GPS as a time synchronization source. It provide secure, accurate, and reliable time inside your domain. It always synchronize to national time and frequency standard of NICT via GPS satellites using the GPS commonview method. So user can easily achieve precise time-transfer at out-of-the-way place with an accuracy of approximately $\pm 20ns$.

Features

- Precise time and frequency transfer using the GPS common-view method.
- Easy to synchronize to the UTC(NICT) - National Institute of Communication Technology, Japan time and frequency standard.
- Easy to achieve Stratum 1 NTP server. (Built-in software NTP function)
- High performance hardware-SNTP server option (EB9964) is available. (1000,000 ntp request/sec)
- Compact 1U size - EIA 19 inches rack mountable.
- EW9955A/AR is developed under technology license from NICT (National Institute of Communication Technology, Japan).



図 1: EW9955A/AR front view

Section	Parameter	EW9955A/AR specification Description
GPS receiver function		
	Receiver type	L1 frequency, C/A Code
	Channels	32 Channels, 8192 time/frequency search windows
	GPS antenna power	$+5V \pm 5\%/100mA(max)$, $+3.3V \pm 5\%/50mA(max)$ (Software setting)
	Acquisition	Cold Start: 28s, Warm Start: 28s, Hot Start: 1s
	Sensitivity	<i>Tracking</i> : $-162dBm$, <i>Reacquisition</i> : $-160dBm$, <i>ColdStarts</i> : $-148dBm$
NTP server function		
	hardware	CPU: Intel N270 / Memory: 2Gbyte / SSD: 120Gbyte
	Operation System	Linux, Kernel 3.2.65-pps01-rt94
	ntpd version	4.2.8p2 (http://www.ntp.org)
	Performance	5000 requests/s
Time transfer function		
	Data exchange format	GGTTS format version 1
	GGTTS data source	http://tb.nict.go.jp/ (default)
	Synchronization to UTC	σ 10ns (standard deviation)
	1pps accuracy	$\pm 60nS(max)$
Rubidium time source(EW9955AR only)		
	Short term stability	$3 \times 10^{-11}/s$, $1 \times 10^{-11}/10s$, $3 \times 10^{-12}/100s$
	Long term stability	$2 \times 10^{-12}/day$, $3 \times 10^{-11}/month$ (typical)
	Warm-up time	12min
	Phase noise	$-75dBc/Hz$ at $1Hz$, $-89dBc/Hz$ at $10Hz$, $-128dBc/Hz$ at $100Hz$, $-140dBc/Hz$ at $1kHz$
	Sprious	$-80dBc$
OCXO time source(EW9955A and AR)		
	Short term stability	$5 \times 10^{-11}/sec(Typical)$
	Long term aging	$\pm 0.7ppm(1st\ year)$, $\pm 4.0ppm(10years)$
	Warm-up time	60sec
	Phase noise	$-100dBc/Hz$ at $10Hz$, $-130dBc/Hz$ at $100Hz$, $-140dBc/Hz$ at $1kHz$
Input/Output		
	1PPS IN	SMA $\times 1$ / 5V-TTL, 50 Ω (50 Ω with/without termination)
	1PPS OUT	SMA $\times 2$ / 5V-TTL, 50 Ω , 100 μs
	10MHz OUT	SMA $\times 1$ / 5V-TTL, 50 Ω
	IRIG-B OUT	SMA $\times 1$ / 5V-TTL, 50 Ω , software selectable on 1PPS OUT2 port.
	GPS ANT IN	SMA $\times 1$
	GPS 1PPS OUT	SMA $\times 1$ / 5V-TTL, 50 Ω (GPS module raw output), 100 μs
	1PPS COM OUT	D-Sub9(F) $\times 1$ / (external 1PPS output.RS-232C(DCD))
	LCD display	status, localtime, number of GPS satellites, etc.
	LED display	Internal PPS, External 1PPS, Rb lock status, etc.
	Expansion slot	Half-size PCI $\times 1$
Log/GGTTS diff file store		
	Geodetic systems	WGS-84
	Measuring schedule	built-in BIPM common-view schedule
	GGTTS data store	2 weeks(default)
	GGTTS diff data store	2 weeks(default)
	15s log	2 weeks(default)
	1s log	2 weeks(default)
	error log	2 weeks(default)
	info log	2 weeks(default)

note¹ note²¹The performance will be achieved with at least 5 GPS satellites.²In accordance with our policy of continuous improvement, we reserve the right to modify the specification of product without prior notice.

EW9955A/AR Specification		
Section	Parameter	Description
Power	Supply Voltage	AC100V..AC240V(50Hz/60Hz)
	Input power	80W(max) (EW9955AR)
		60W(max) (EW9955A)
Operating environmental		
	Temperature	+10.. + 40 °C
	Humidity	10%..80%
Physical		
	Size	431.5mm(W) × 431.5mm(D) × 43.0mm(H) 19 inches EIA rack mount 1U size.
	Weight	6.5kg(EW9955AR)
		6.3kg(EW9955A)
Accessories		
	AC cable	AC100V 2m



图 2: Rear view

EW9955A/AR Options		
Section	Parameter	Description
GPS antenna		
EW9955-20	Novatel/GPS701GG	http://www.novatel.com/assets/Documents/Papers/GPS701_702GG.pdf
EW9955-21	Trimble/BULLET III	http://trl.trimble.com/docushare/dsweb/Get/Document-8420/ (Recommended)
Hardware SNTP server board		
EW9964-WS		EB9964 Hardware SNTP board with Web interface software.

Contact Information

E3 Design, Inc.

Martell House 2F,

2-28-3 Sekimachi-Kita, Nerima-ku,

TOKYO 177-0051, JAPAN

Phone: +81-3-6279-7802 / Fax: +81-3-6279-7803

URL: <http://www.e3design.jp> / MAIL: sales@e3design.jp