



# ANDHRA ELECTRONICS LIMITED

Smart, Low-Cost & High-Performance GPS Rubidium Reference Source

## GPSource

Smart GPS/SRO Reference Source  
SmarTiming<sup>+</sup>® 1ns-Resolution Disciplining Technology Inside



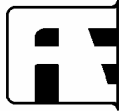
### APPLICATIONS

Synchronization | Timing | Reference/Test Source | Time/Frequency Source

Plot Nos.34 & 35, Industrial Development Area, KAKINADA - 533 005, INDIA.  
Phone: 91-884-2342203 / 2341850 / 2379407 ♣ Fax: 91-884-2341145 / 2341698  
E-mail: [info@andhraelec.com](mailto:info@andhraelec.com) ♣ [www.andhraelec.com](http://www.andhraelec.com)



ISO 9001:2000



# ANDHRA ELECTRONICS LIMITED

## KEY FEATURES

- GPS disciplined Rb clock : Auto-adaptive SmarTiming+ loop time constant, running at 1ns resolution
- Power supply voltage : AC input 85-264VAC / 47-63Hz
- Compact : 1U rack mount chassis
- Reference Frequency : Integrated GPS-locked Rubidium clock
- Output Frequency : 4x 10MHz / 4x 1PPS or 8 x 10 MHz
- User programmable SYNTH output
- Integrated smart auto calibration
- Internal Bit Alarm
- RS232 standard interface : 9600 b/s
- Software application : Windows 98, XP
- GPS antenna types : Patch or rooftop



# ANDHRA ELECTRONICS LIMITED

## SPECIFICATIONS

### ELECTRICAL

Spec		GPSource	
Reference module		Standard	Options
RFOUT Frequency	Number of Output	10MHz 4x backplane 1x faceplate	10MHz 8x backplane 1x faceplate <b>(ordering code: 8RF)</b>
PPSOUT	Functionality Number of Output	1PPS See SmartTiming section 4x backplane 1x faceplate	1PPS <b>(ordering code: 8RF)</b> 1x faceplate
Short Term Stability	1s 10s 100s	3E-11 1E-11 3E-12	<b>(ordering code: S)</b> 1E-11 3E-12 1E-12
Phase Noise (dBc/Hz) (RFOUT: 10 MHz)	1Hz 10Hz 100Hz 1kHz 10kHz	-75 -95 -125 -145 -145	<b>(ordering code: S)</b> -80 -100
Aging (Measured after 3 months of continuous operation)		< 5E-11 / month (typical: 3E-11 / month)	
Frequency Retrace	Off/On	< 5E-11 24 hr / 1 hr	
(In stable temperature, gravity, pressure and magnetic field conditions)			
RFOUT Levels	Output Impedance Harmonics Spurious $f_0 \pm 100\text{kHz}$ (SYNTH Off)	Sine wave, 0.5 Vrms ( $\pm 10\%$ / 50 $\Omega$ ), 1x faceplate **Sine wave, 1.0 Vrms ( $\pm 10\%$ / 50 $\Omega$ ), 4x backplane <b>(* ordering code: 8RF 8x)</b> 50 $\Omega \pm 20\%$ < -25dBc < -80dBc	
SYNTHESIZER (SYNTH)	Output level Frequency range Resolution Spurious	Square wave 3.3V LV CMOS 0 to 20 MHz 3.97mHz (Fout= N $\times$ 60'000'000/2 <sup>32</sup> ) -35dBc (1-10 MHz) -30dBc (10-20 MHz)	
GPS Antenna Connector		SMA	

### SMARTIMING+<sup>®</sup> FUNCTIONALITY

Spec		GPSource
		Standard
PPSOUT	Output level Pulse width (PW) or duty cycle	1PPS CMOS 0-5V (+- 20 mA sink/source) User settable, 0 to 1s in 133ns/step
PPSOUT to PPSREF Sync Error	In Sync mode	< 50 ns No GPS PPSRef noise, $\pm 1^\circ\text{C}$ temp fluctuations
PPSOUT to PPSREF (DE) Programmable delay (In Track mode)		0 to 1 s in 133 ns steps
PPSOUT Holdover Time Stability		Within $\pm 2^\circ\text{C}$ 1 $\mu\text{s}$ /24 hr

Plot Nos.34 & 35, Industrial Development Area, KAKINADA - 533 005, INDIA.  
Phone: 91-884-2342203 / 2341850 / 2379407 \* Fax: 91-884-2341145 / 2341698  
E-mail: [info@andhraelec.com](mailto:info@andhraelec.com) \* [www.andhraelec.com](http://www.andhraelec.com)



ISO 9001:2000



# ANDHRA ELECTRONICS LIMITED

Smart Loop Time Constant Phase/Frequency User settable	Auto-adaptive 1000 to 100,000 sec User settable Sync/Track mode ** Selected by RS232 interface <i>** Sync: phase/time alignment; Track: frequency alignment</i>
--	--

## GPS ANTENNA

Spec	GPS Source	
	Standard	Option
Antenna Types	Patch antenna kit	Rooftop antenna kit
Cable Length	6 m / 19.7'	5+15m / 16.4' + 49'
Lightening Surge Protector	Not applicable	Included <b>(ordering code: RA)</b>

## POWER

Spec	GPS Source	
	Standard	
Power Supply	AC input 85-264VAC	
Power Input Fluctuation	±10% of nominal supply voltage (230V~)	
Input Frequency	47 – 63 HZ	
Power Consumption @25°C	< 25W after warm-up	
Connector Type	IEC plug	

## ENVIRONMENT

Spec	GPS Source	
	Standard	
Operating Temperature	0 to 40°C <i>(Relative humidity: 10-85%)</i>	
Storage	-25 to 55°C	
Transportation	-25 to 70°C	

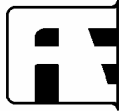
## PHYSICAL

Spec	GPS Source	
	Standard	Option
Size	445 x 300 x 44 mm (1U)	
Weight	2.2 Kg	
Mounting	Tabletop feet	19" rack mountable ears <b>(ordering code: E)</b>

Plot Nos.34 & 35, Industrial Development Area, KAKINADA - 533 005, INDIA.  
Phone: 91-884-2342203 / 2341850 / 2379407 ♣ Fax: 91-884-2341145 / 2341698  
E-mail: [info@andhraelec.com](mailto:info@andhraelec.com) ♣ [www.andhraelec.com](http://www.andhraelec.com)



**ISO 9001:2000**



# ANDHRA ELECTRONICS LIMITED

## SYSTEM SUPPLY

Type	GPSource
1x	GPSource
1x	GPS patch antenna kit (with option code RA : Rooftop antenna kit)
1x	Cables SUB-D male/female for PC serial COM
1x	Power cable
2x	19" rack mountable ears or tabletop feet
1x	iSyncMgr software & Operating manual & specifications on CD-ROM

## ORDERING INSTRUCTIONS

GPSource / XX / YY / .....

↓                      ↓                      ↓  
Type                  Option 1              Option 2

Plot Nos.34 & 35, Industrial Development Area, KAKINADA - 533 005, INDIA.  
Phone: 91-884-2342203 / 2341850 / 2379407 ♣ Fax: 91-884-2341145 / 2341698  
E-mail: [info@andhraelec.com](mailto:info@andhraelec.com) ♣ [www.andhraelec.com](http://www.andhraelec.com)



**ISO 9001:2000**