



Product Overview

With consumer applications in mind, the uTevo maximizes functionality whilst minimizing footprint and cost.

In a compact 19 X 19 mm it delivers:-

- SigNav's unique *subATTO*™, high sensitivity, A-GPS receiver with advanced ambiguity resolution for operation in environments previously considered hostile, dismissing concerns about GPS operation indoors.
- Indoor positioning for geofencing or other location based services (e.g. E911, E110 or E112)
- Satellite synchronized Programmable PPS and Even Second (PP2S) for highly accurate indoor timing applications
- Satellite synchronized, low phase noise, ultra stable frequency output suitable for use as a system clock

Market leading performance in Weak Signal environments.

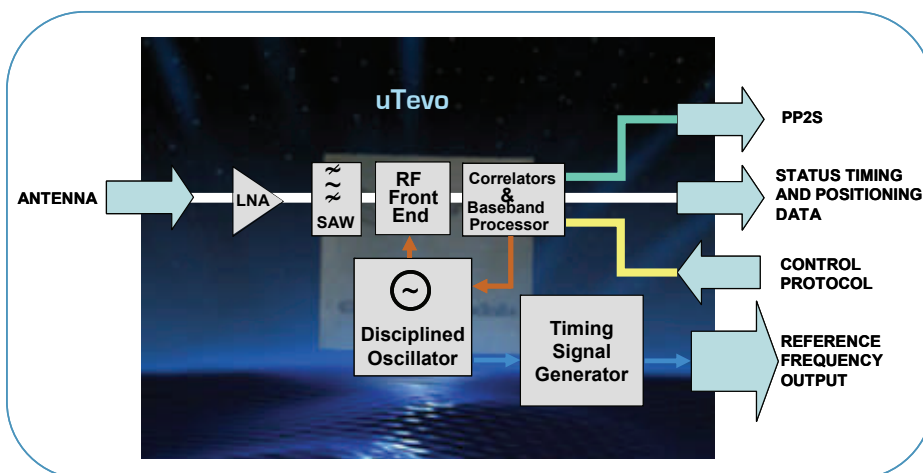
Unlike its competitors, *subATTO*'s advanced ambiguity resolution enables it to start and synchronize in exclusively weak signal environments even if its

position is unknown. Not only can it operate in a wider range of environments, it is also far easier to install and requires less support than other solutions making it ideal for consumer applications such as the emerging femtocell market.

Quantization or Sawtooth Error Elimination

In conventional receivers the PPS is asynchronous with GPS time resulting in constantly variable sawtooth or alignment errors between the two. To compensate for this error and improve accuracy, expensive external circuitry must be added

In contrast, the uTevo's PPS and frequency output are precisely aligned to GPS time, eliminating the need for expensive "correction mechanisms", dramatically simplifying implementations. Coupled with ultra low phase noise, the frequency output can act as the host's system clock, relieving the need for yet another clock to be implemented and providing even further cost savings.



Key Features

- High sensitivity (-157 dBm) extends operation into a wider range of environments; especially indoors
- Advanced ambiguity resolution = start up & operation in environments with *ONLY* weak signals simplifying installation & support requirements making it ideal for consumer products
- Sawtooth Error Elimination & low phase noise = ultra stable frequency output suitable for host's system clock, reducing costs
- Low phase noise 19.2, 26 or 30.72 MHz for precise clocking (*13 MHz available on request*)
- Programmable PPS and Even Second (PP2S) timing outputs providing the ultimate application flexibility
- Position-hold & Sawtooth Error Elimination = superior accuracy
- Self-survey, precisely determining position at start up for geofencing or other location based services
- Rapid acquisition minimizing Time To First Fix (TTFF) and Time To Time Lock (TTTL)
- Time-Receiver Autonomous Integrity Monitoring (T-RAIM) eliminating errors from inaccurate satellite signals
- Conventional or Assisted GPS modes of operation providing flexible deployments
- Compensation for antenna and cable delays

Satellites & Signal Strengths required for Start & Sync

Position Accuracy	uTevo	Other Receivers
PA < 3 km	1 x Weak	1 x Strong
3 km < PA < 75 km	4 x Weak	1 x Strong + 3 x Weak
PA > 75 km	4 x Weak	4 x Strong

Weak Satellite Signal < -142 dBm
Strong Satellite Signal > -142 dBm

Specifications

Features	Receiver	Type	L1 GPS (1575.42 MHz) 12 Channels			Protocols	NMEA 0183 with SigNav extensions and the essential Motorola message set		
	Sensitivity	Acquisition	-155 dBm			Tracking	-157 dBm		
Time To First Fix (TTFF) -Typical	Condition	Satellite Signal Strength				TTFF (Seconds)			
	Cold start	> -142 dBm				60			
	Warm Start	> -142 dBm				48			
	Hot Start	> -142 dBm				10			
	Hot Start	-142 dBm to -153 dBm				60			
Electrical	Supply	3.3 V							
	Consumption	200 mW @ 3.3 V							
	I/O Level	3 volt							
Physical (micromodule)	Weight	4 grams							
	Dimensions	19 x 19 x 3 mm							
Environmental	Temperature	- 40 to 85 deg Celsius							
	Humidity	5% to 95%, non condensing							
Programmable PPS Output (nPPS)	Wave Shape	Pulse							
	Period Options	2 ms, 4 ms, 5 ms, 10 ms, 20 ms, 25 ms, 50 ms, 100 ms, 200 ms, 250 ms, 500 ms, 1 s, 2 s, 3 s, 4 s, 5 s, 6 s, 7 s, 8 s, 9 s, 10 s							
	Pulse Width Range	1 ms to Period less 1 ms							
	Alignment	GPS or UTC second							
	Timing Accuracy/Jitter	< 10 ns jitter @ > - 142 dBm signal strength < 15 ns jitter @ - 142 dBm to -157 dBm signal strength < 1 µs error indoors in Position Hold							
Even Second –PPS2	Wave Shape	Pulse							
	Alignment	GPS or UTC second							
	Timing Accuracy/Jitter	See Programmable PPS Output							
Frequency Output	Waveshape	Nominally Square							
	Frequencies	19.2, 26 or 30.72 MHz (13 MHz available on request)							
	Alignment	GPS or UTC second							
Deviation Accuracy/Jitter	Satellite Signal Strength (dBm)	Frequency Accuracy	Alignment	Allan Variance	MTIE				
	> -142 dBm	10 ppb	< 10 ns jitter						
	-142 to -157dBm	30 ppb	< 15 ns jitter						
	Indoors in Position Hold, GPS Lock		< 1 µs error	< 30 ppb (τ = 100 s)					
Indoors, GPS Holdover					< 80 ns (τ = 1 s)				
Phase Noise	Frequency	100 Hz	1 KHz	10 KHz	100 KHz				
	Phase Noise	-100 dBc/Hz	-120 dBc/Hz	-135 dBc/Hz	-135 dBc/Hz				
Ordering Information	Part Number	uTevo-T-19.2	uTevo Timing Micromodule 19.2 MHz						
		uTevo-T-26	uTevo Timing Micromodule 26 MHz						
		uTevo-T-30.72	uTevo Timing Micromodule 30.72 MHz						

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