

CTL4200 GPS Timing Unit



Ultra-high sensitivity assisted GPS technology

The CTL4200 GPS timing units are designed for when a compact, low cost source of highly accurate time is required, and when electrically isolated 1pps output signals are required.

Utilising the very latest state of the art GPS technology that allows ultra high sensitivity satellite tracking to levels as low as -160dBm , this low level signal capability can enable GPS timing in very weak signal areas such as under dense foliage, in severe urban canyons and even inside buildings. This high sensitivity is useful for applications which require easier, lower cost antenna installation (as the antenna does not need to have a clear view of the sky and can therefore be easier to install).

Applications

- Telecom
- Energy
- Utilities
- Industry

The CTL4200 has multiple fibre-optic outputs that deliver highly accurate 1PPS output signals, and is housed in a DIN rail enclosures for use in industrial applications.



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Key Features

- GPS disciplined TCXO/OCXO oscillator
- Multiple fibre optic 1PPS outputs
- RS422 serial port
- Internal lightning strike protection
- +24V DC input voltage
- Ultra-high GPS sensitivity
- Easier antenna location
- 30ns RMS timing accuracy
- Achieves ITU/ETSI PRC MTIE mask
- Self-survey and single satellite timing capability
- Lower power
- DIN mounted enclosures

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Other features of the CTL4200 include the capability to perform a self survey and enter a fixed position mode of operation. This allows GPS timing with only one satellite being tracked as low as -160dBm thereby greatly extending the ability of the unit to output GPS steered time and reducing holdover requirements. In addition, the unit will autonomously scale the self survey window based on initial reported GPS position to allow entry into fixed position mode even in very weak signal areas.

Specification

Physical	
Enclosure Size:	100 x 90 x 50mm (DIN mounting)
Inputs	
Antenna:	SMA (lightning protected)
Antenna Power:	+5V filtered and current limited
Voltage:	+5V DC
Outputs	
1pps:	Fibre Optic SC (x4)
Serial Port:	RS422
Data Output:	NMEA0183 (including Time of Day)
GPS	
Frequency:	L1 1575.42MHz 12 channels
Sensitivity:	-159dBm acquisition (A-GPS)
Sensitivity:	-160dBm tracking
Timing Accuracy	
1pps:	30ns RMS (clear view of sky)
1pps:	$<1\mu\text{s}$ (weak signal strength) (note 1)
Environmental	
Operating Temperature:	0°C to $+70^{\circ}\text{C}$
Storage Temperature:	-10°C to $+80^{\circ}\text{C}$
Compliance	
CE Mark; 6 of 6 RoHS; UL60950; EN61000; EN55022	



Note 1

With a clear view of the sky, the CTL4200 series units will provide 30ns RMS timing accuracy. In areas of very weak GPS signals, the timing accuracy can degrade out to levels of $<1\mu\text{s}$ due to signal multipath. Such multipath will also degrade the short term frequency accuracy

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