



TTM8000

► 8 Channel Time to Digital Converter

Key Features

- 4 measurement modes:
 - 8 channels / 82.3ps resolution / continuous
 - 2 channels / 41.2ps resolution / multi stop
 - 2 channels / 27.4ps resolution / multi stop
 - 2 channels / 1ps resolution / single stop
- Delivers up to 25 million events per second
- Gigabit Ethernet
- Variable threshold voltage (for each trigger)
- Ready-to-Use software for Linux and Windows



The **Time Tagging Module TTM8000** is an 8 channel time-to-digital converter. Incoming signals are tagged with a 64 bit timestamp. The time resolution (bin size) depends on the selected measurement mode (between 82.3 and 1ps).

Hardware

- As unique feature, the TTM-8000 can continuously delivers up to 25 million Events per second.
- Gigabit Ethernet enables flexible access to the measurement device.
- Oven-controlled crystal oscillator (OCXO) guaranties high stability. The reference clock can be fine trimmed within ± 1.5 ppm via software.
- Up to 8 TTM8000 can be synchronized to obtain a higher number of channels.
- Threshold voltage for each trigger signal and external clock individually controllable (-4.1 to +4.1V) to accommodate a wide range of logic standards.
- User programmable analog and digital I/O to support your measurement.

Software

- Convenient C/C++ API (TTMLib) handles all the low-level access to the TTM-8000 hardware.
- Ready-to-Use software for Linux and Windows (GUI and command line oriented) to get you started as quickly as possible. The software is based on TTMLib and comes with full sources, so that you can easily expand it to match your specific needs
- Libraries to integrate the TTM-8000 into your LabVIEW™ application are available for Linux and Windows

Fields of Application

- Precision Time Measurement
- Jitter Measurement
- Correlation Measurement
- Time-of-Flight Measurement
- Single Photon Counting
- Time Correlated Photon Counting
- Quantum Optics
- Quantum Cryptography
Quantum Key Distribution
- High Energy Physics
- Particle Physics
- Fluorescence Microscopy
Fluorescence Lifetime Imaging
- Light Detection and Ranging (LIDAR)
- High Precision Timing Analysis
- Continuous High Precision Event Recording



Supported Measurement Modes

	Channels	Resolution	Measurement Range	counts/sec (burst/length)	max Start Retrigger	min Pulse Width (equal edge to edge)
I-Mode continuous	8	82.3ps	up to 3 years	25M (180M / 32)		2.5ns (5.5ns)
I-Mode multi hit per channel	8	82.3ps	0.0ns to 9.4µs	25M (180M / 32)	7 MHz	2.5ns (5.5ns)
G-Mode multi hit per channel	2	41.2ps	0.0ns to 65µs	20M (180M / 32)	5 MHz	1.5ns (5.5ns)
R-Mode multi (32) hit per channel	2	27.4ps	0.0ns to 40µs	20M (180M / 32)	9 MHz	1.5ns (5.5ns)
M-Mode single hit per channel	2	1.0-27.4ps <10ps variance	0.0ns to 40µs	1M	500 kHz	1.5ns

Electrical and Environmental Specifications:

Power Supply: 12Vdc (8 to 14Vdc) 1.5 A @12Vdc (max. 3.0A peak)
 Environment: Temperature: operation: 5... 35°C; storage. -10... 70°C
 Humidity: max. 85% RH, not condensing
 Dimensions: 119mm x 46mm x 185mm (width x height x depth)

Screenshots:

