

4 channel Tausand Tempico time-to-digital converter



Features

- 4 time-to-digital converters (TDCs).
- Common start, multiple stop inputs.
- Start-stop resolution of 56ps.
- Start-stop times from 12ns up to 4ms.
- Start time stamp resolution of 1us.
- SMA inputs coupled at 50Ω.
- 5V tolerant inputs.
- Optional gating input.
- Adjustable settings:
 - Input voltage threshold: 0.9V to 1.6V.
 - Multi-cycle averaging.
 - Multiple stops on same input: 1 to 5.
 - Measures on rising or falling edges.
- Power and status LED indicators.
- Python and LabView libraries for USB data and settings communication.
- Ideal to measure time differences in particle detection, microscopy, and quantum optics experiments.

Specifications

Timing performance

	Min	Typ	Max
Start-stop time resolution	52ps	56ps	60ps
Pulse width for inputs	10ns		
Start time resolution		1us	
Mode 1	Min	Typ	Max
Time between start and stop	12ns		250ns
Time between 2 stop signals in same input	67ns		
Time from start to last stop			250ns

Mode 2	Min	Typ	Max
Time between start and stop	125ns		4ms
Time between 2 stop signals in same input	125ns		
Time from start to last stop			4ms

Inputs

SMA female connectors. If BNC connectors are required, external SMA-to-BNC adapters may be used.

Inputs accept 5V, 3.3V, 2.5V, TTL, LVTTTL and CMOS.

	Min	Typ	Max
Voltage input low	0V		
Voltage input high	0.9V		5.5V
Voltage input threshold, rising edge (adjustable)	0.9V	1.0V	1.6V
Start and stops input impedance		50Ω	
Gate low voltage (disable)	0V		0.4V
Gate high voltage (enable)	2.0V	3.3V	5.5V

Inputs are enabled when gate input is not connected. Gate input enables/disables all inputs.

USB interface

Configuration and data read is made via USB-C port.

- Python library available.
- Tempico software to be released.
- LabView library to be released.

Electrical and mechanical

Power is provided by the USB-C port itself.

	Min	Typ	Max
USB supply voltage	4.75V	5V	5.25V
USB supply current		70mA	
Weight		100g	
Dimensions		10.5 x 6.5 x 3.3cm	

