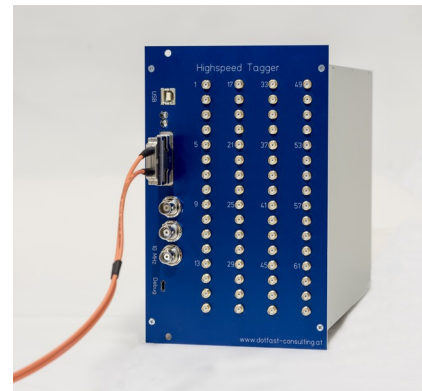


# TDM800 / TDM1600 Data Sheet

- > High data rate
- > High number of inputs
- > Cascadable (optional)
- > Continuous time-tagging
- > High precision OCXO time base
- > Rubidium time base (optional)
- > Can synchronize to external time base (10 MHz)
- > Synchronization with GPS date/time
- > Variety of software options: .NET, C++, Python, TimetagExplorer



## Hardware Specifications TDM800 / TDM1600

Timing		Units
Timing resolution	15.625	ps
Typical timing jitter <sup>12</sup> (RMS)	20	ps
Dead time (pair resolution)	< 4	ns
Adjustable input delay <sup>3 4</sup>	0-260	µs
Delay increment	15.625	ps
<b>Inputs</b>		
Input definition	SMA, 50 Ohm	
Max input range <sup>5</sup>	-2.5 to 5	V
Edge detection	rising or falling	
Minimum input signal	50	mV
Voltage threshold range	-2.4 to +2.4	V
Voltage threshold increment	1.22	mV
10 MHz Input <sup>6</sup>	BNC , 1 kOhm termination, 1 Vpp, AC coupled	
1 PPS (fiducial) input X1	BNC, no termination, 0-3.3 V, 2 kHz max rate	
Serial input X2	BNC, no termination, 0-3.3 V	

1 Time histogram between any two inputs, fed by the same signal

2 TTL pulses

3 Only 1024 pulses may occur in the delay period.

4 Please note that the data stream is sorted by corrected time.

5 1 ms max.

6 The 10 MHz input also has got a AC coupled 50 ohm termination. Therefore it also can be driven by a rectangular signal without having reflections.

<b>Time base (OCXO)</b>		Units
Initial Frequency Offset	±50	ppb
Yearly Aging	±500	ppb
Aging after 10 years	±3	ppm
Warm up	3	min
<b>Time base (rubidium)</b>		
Initial Frequency Offset	±0.05	ppb
Yearly drift	±1.5	ppb
Time to lock	8	minutes
<b>Power</b>	+12 V 2.5 A Provided by NIM crate or external power source (Option SO)	

## Data Transmission TDM800 / TDM1600

<b>Data Rate TDM800<sup>7</sup></b>		
Maximum tag rate <sup>8</sup>	900	Mcps <sup>9</sup>
Sustained tag rate <sup>10</sup>	800	Mcps
<b>Data Rate TDM1600</b>		
Maximum tag rate <sup>11</sup>	1800	Mcps
Sustained tag rate <sup>12</sup>	1600	Mcps
<b>64 bit software interface</b>		
Maximum data rate	250	Mcps

Please note: The high level software interface is designed for user convenience. It provides a 64 bit time value, that is referenced to the start of measurement. At the moment it is not fully optimized. Please contact factory.

<sup>7</sup> The maximum data rate can be achieved by: Storing to disk, streaming to other FPGA card, processing raw tags in software

<sup>8</sup> At this rate the system starts losing data. Please note that all time values are correct nevertheless. The missing parts are indicated in the data stream.

<sup>9</sup> Mega counts per second

<sup>10</sup> This rate can be maintained over several hours without using any data.

<sup>11</sup> At this rate the system starts losing data. Please note that all time values are correct nevertheless. The missing parts are indicated in the data stream.

<sup>12</sup> This rate can be maintained over several hours without using any data.

# Ordering information

	Performance	Width	Dimensions(mm) w * h * d
TDM800-16	800 Mcps, 16 SMA inputs	2/12 NIM	68 x 221 x 246
TDM1600-16	1600 Mcps, 16 SMA inputs	2/12 NIM	68 x 221 x 246
TDM800-32	800 Mcps, 32 SMA inputs	3/12 NIM	102 x 221 x 246
TDM1600-32	1600 Mcps, 32 SMA inputs	3/12 NIM	102 x 221 x 246
TDM800-64	800 Mcps, 64 SMA inputs	4/12 NIM	136 x 221 x 246
TDM1600-64	1600 Mcps, 64 SMA inputs	4/12 NIM	136 x 221 x 246
Option SO	Stand alone Comes with housing and power supply		
Option RB	Rubidium Time Base		
Option Logic	Includes the coincidence counting capability of the Logic-64 device.	Contact factory	
Cascadable Option	Up to 4 devices can be synchronized with the same time base and same start pulse.	Contact factory	
High precision option	The -16 unit can be ordered with high-precision option: 16 inputs @ 8 ps or 4 inputs @ 4 ps	Contact factory	

Disclaimer: All specifications and external appearances are subject to change without notice. All information stated here is provided to the best knowledge of Dotfast, however, no responsibility is assumed for possible inaccuracies or omissions.

## Standalone option

When you order the device with standalone option, it comes with a handle on top, rubber feet and an external power supply.

