

# Laser Synchronization Modules and Pulse Delay Generators

## SY4000

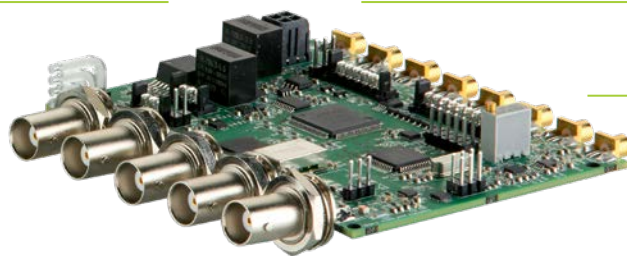
Pulse synchronization module with delay generator is designed to create up to 8 delayed output pulse sequences precisely synchronized to internal or external clock.

The SY4000 module is a timing generator dedicated to the synchronization of laser components: AOM drivers, Pockels cell drivers, laser diode and flash lamp drivers, detectors, data acquisition systems, etc.

Photo detector or electrical signal can be used as input source to be synchronized with. Generator gives possibility to create different sequences like delayed triggering, or any delayed precisely timed series. Particularly, Ekspla recommend using SY4000 to create sets of pulses to control PCD-UHR series pockels cell drivers with one, two or 4 triggering inputs.

### Encased Version

Preserves all specifications as SY4000 in additionally communication ports RS232, USB, LAN, WLAN are added. Powering from mains 90...264 V, 50–60 Hz or 12 V DC. Power consumption less than 15 W. Ideal solution for your lab and/or evaluation before switching to OEM version.



SY4000 Synchronization module and pulse delay generator encased

### SY4000 Main Features

- Compact design
- OEM (single board) and encased options
- 8 independent output channels
- Ultra-stable internal clock 0.2 ppm (optional)
- Precise delay control in range 2 ns to 150 ms
- 25 ps timing resolution
- Hi-accuracy synchronization to external pulse train
- DAC output
- Both 50  $\Omega$  and differential outputs present
- Measurement of
  - Optical clock frequency
  - Triggering frequency
  - Delay
- Frequency divider
- Frequency divider for photodetectors

# SY4000 General Specifications

PULSE GENERATION	
Channel modes	Single shot, burst, normal, duty cycle, frequency divider
Delay range	0 to 150 ms
Negative delay	-150 ms
Pulsewidth	2 ns to 150 ms
Resolution	25 ps
Accuracy	25 ps + 0.000001 × delay
Time base	100 MHz, 0.2 ppm
Jitter	< 30 ps
Burst mode	1 to 65535
EXTERNAL TRIGGER	
Rate	DC to 20 MHz
Thershold	1.3 V
Input level	LVTTTL, TTL
Slope	rising
Jitter	< 100 ps RMS
Delay	< 13 ns; < 70 ns
INTERNAL GENERATOR	
Mode	Duty cycle
Rate	50 ns to 100 sec
Resolution	10 ns; 300 ps
Accuracy	5 ns + 0.000001 × period
Jitter	100 ps RMS
Burst	0 ... 65535
OUTPUTS	
Output level	2.5 V, 4 V
Impedance	50 Ω
Slew rate	1.5 V/ns

## COMMUNICATIONS

CAN, RS232, USB, LAN, WLAN

## OPERATING REQUIREMENTS

Power requirements  
**12 V DC, 500 mA**

## DIMENSIONS (not including connectors)

OEM board (W × D × H)  
**100 × 77 × 20 mm**

Encased version (W × D × H)  
**105 × 86 × 85 mm**