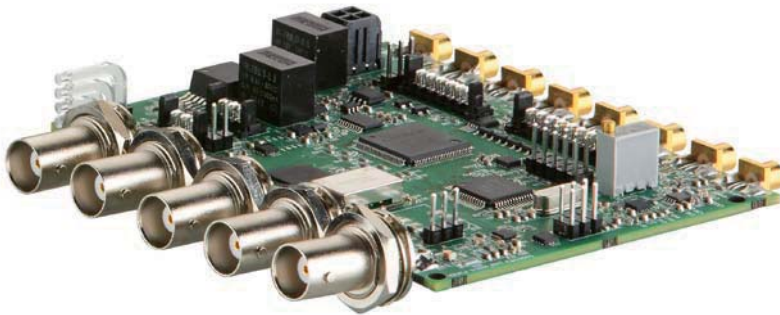


# Laser Synchronization Modules

## SY4000 SYNCHRONIZATION MODULE AND PULSE DELAY GENERATOR



SY4000 Synchronization module and pulse delay generator encased

### 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

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



## SPECIFICATIONS

| Model  | SY4000  |
|--|---|
| <b>PULSE GENERATION</b>                      |   |
| Channel modes                                | Single shot, burst, normal, duty cycle, frequency divider |
| Delay range                                  | 0 to 150 ns   |
| Negative delay                               | -150 ns   |
| Pulsewidth                                   | 2 ns to 150 ns  |
| Resolution                                   | 25 ps   |
| Accuracy                                     | 25 ps + 0.000001 × delay                                  |
| Time base                                    | 100 MHz, 0.2 ppm  |
| Jitter                                       | < 30 ps   |
| Burst mode                                   | 1 to 65535  |
| <b>EXTERNAL TRIGGER</b>                      |   |
| Rate   | DC to 20 MHz  |
| Threshold                                    | 1.3 V   |
| Input level                                  | LVTTTL, TTL   |
| Slope  | rising  |
| Jitter                                       | < 100 ps RMS  |
| Delay  | < 13 ns; < 70 ns  |
| <b>INTERNAL GENERATOR</b>                    |   |
| 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   |
| <b>OUTPUTS</b>                               |   |
| Output level                                 | 2.5 V, 4 V  |
| Impedance                                    | 50 Ω  |
| Slew rate                                    | 1.5 V/ns  |
| <b>COMMUNICATIONS</b>                        |   |
| Communications                               | CAN   |
| <b>OPERATING REQUIREMENTS</b>                |   |
| Power requirements                           | 12 V DC, 500 mA   |
| <b>DIMENSIONS (not including connectors)</b> |   |
| OEM board (W × D × H)                        | 100 × 77 × 20 mm  |
| Encased version (W × D × H)                  | 105 × 86 × 85 mm  |