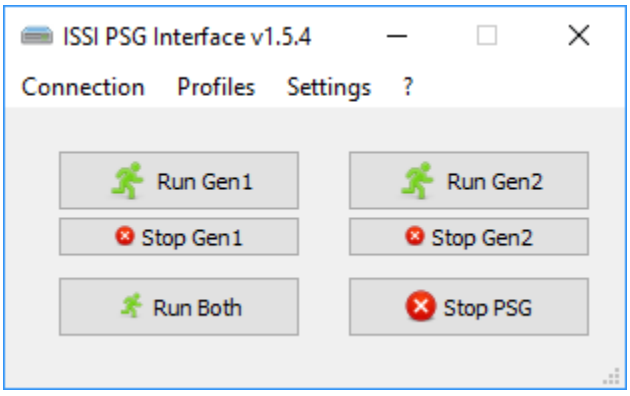

# Instrument Control

## Pulse Delay Generator

**PSG-3**

The pulse delay generator is a TTL instrument control device used for timing and synchronization. It can be used as a master clock for timing and delay control. The PSG-3 can be externally triggered and/or gated by an external event. The pulse delay generator features two independent clocks, a divide-by-N capability and high-current output for driving low impedance loads or signals over long distances. Pulse width, delay, repetition rate, and other timing parameters are controlled by one of two available interfaces.




## FEATURES

- Two dual-channel independently programmable pulse generators
- Input trigger thresholding
- Four high-current TTL outputs
- Divide-by-N circuit
- BNC inhibit input (TTL high level) to allow the PSG-3 to be gated by an external source
- Connect multiple devices and simultaneously control over a network
- 10/100 Mbps Ethernet Communication
- Multiple timing bases (s, ms, µs, ns)
- Easy to use software interface or TCP/IP API commands for integration



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## SPECIFICATIONS

| Feature | | Specification | PSG-3-1 | PSG-3-2 | PSG-3-3 |
|---|---|---|---|---|---|
| I/O Configuration | TTL Outputs | 4 Standard | X | X | X |
| | | 4 high-current (mirroring standard) | | | X |
| | Inputs | 1 Ext. Trig. Input | X | X | X |
| | | 1 Front Panel Inhibit | | X | X |
| | Divide-by-N | 1 input, 1 output | | X | X |
| Internal Generator | Repetition Rate | 0.100 Hz to 25.00 MHz | X | X | X |
| | Resolution | 20 nanoseconds | X | X | X |
| | Burst Mode | 1 – 131,072 pulses | X | X | X |
| | Output Modes | Single-shot, burst, continuous | X | X | X |
| | Master Clock | 50 MHz, +/- 30 ppm<br>Dual Clocks allow for independent repetition rates from one PSG-3 | X | X | X |
| | Timing Clock Settings | 20-, 40-, 80-, 160-ns | X | X | X |
| Programming | Control Mode | Internally triggered, externally triggered. Generator 1 & 2 can be independently set to internally or externally triggered. | X | X | X |
| | | Internally triggered, externally triggered and/or gated. Generator 1 & 2 can be independently set to internally or externally triggered. | | X | X |
| | Multiplex | None | | | |
| | Divide-by-N | 2-255 | | X | X |
| Trigger Input | Threshold | 0.05 - 5.0 V | | X | X |
| | Max Input Voltage | 7.0 V | X | X | X |
| | Max Input Frequency | 5 MHz | X | X | X |
| | Input Impedance | >1 M Ω | X | X | X |
| TTL Outputs | Output Impedance (Standard Outputs) | 50 Ω | X | X | X |
| | Output Impedance (High-Current Outputs) | 3 Ω | | | X |
| | Output Voltage | @ 50 Ω: 2.5 V (Standard outputs) | X | X | X |
| | | @ 1 K Ω: 4.0 V (High-current outputs) | | | X |
| | Pulse Width | 20 ns to 10.736 s | X | X | X |
| | Delay Width | 20 ns to 10.736 s | X | X | X |
| | Rise Time | 4 ns | X | X | X |
| | Fall Time | 4 ns | X | X | X |
| Communication Interfaces | Ethernet | 1 input, 10/100 Mbps | X | X | X |
| | USB 2.0 | 1 input, type B | X | X | X |
| | RJ-11 | 2, sync in and sync out (Master/slave config.) | X | X | X |
| Export | ECCN | EAR99 | X | X | X |

**PSG-3-3 is pictured in this datasheet

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