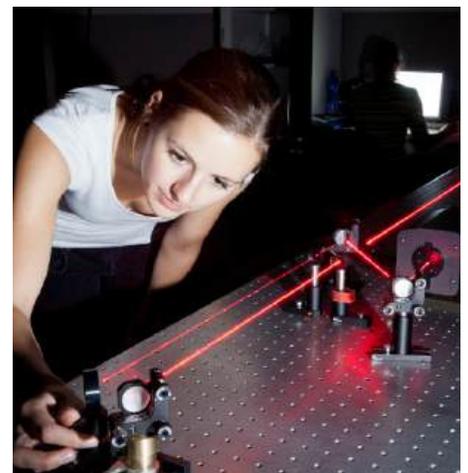
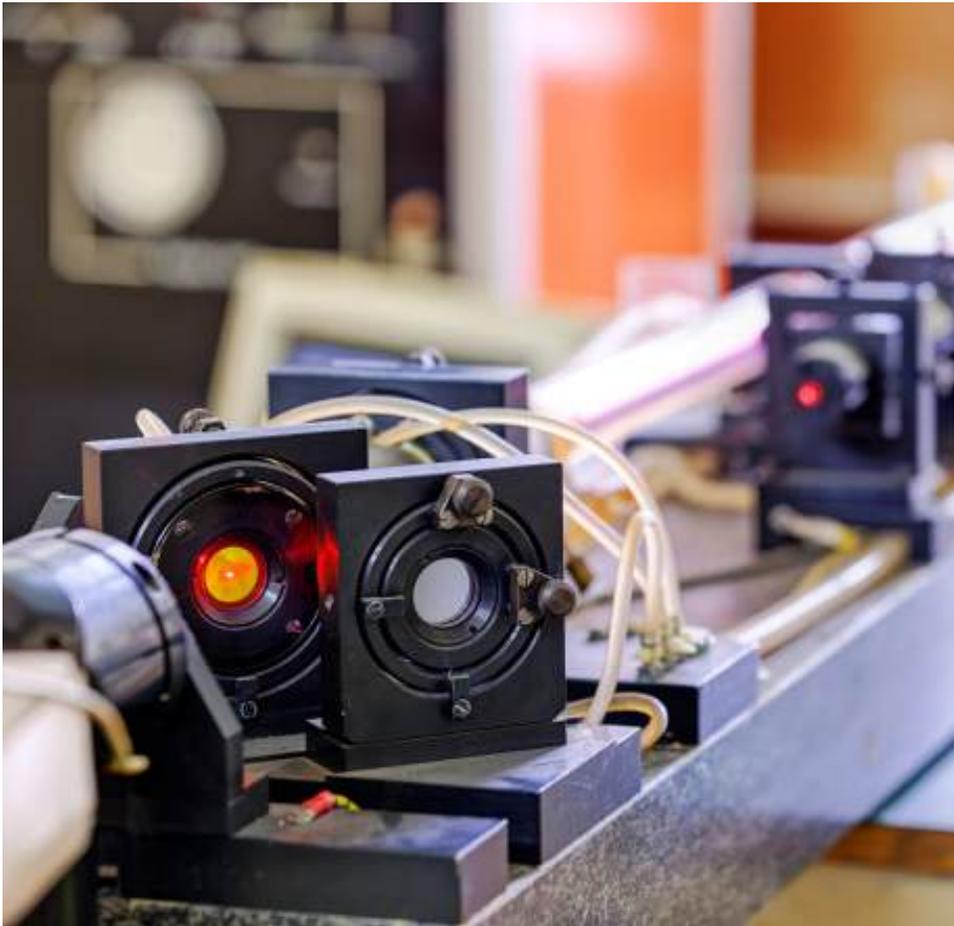


# Model 577 Pulse / Digital Delay Generator



## Features

- Outputs: 4 or 8 Independent Channel Outputs
- Pulse Width: 10 ns - 1000 s
- Pulse Delay: 0 ns - 1000 s
- Pulse and Delay Resolution: 250 ps

## Applications

- ICCD/PIV Testing
- Laser Triggering / Gating
- Pulse DUTs and Pump Lasers
- Radar / Sonar Simulation
- High Speed Photography



**Model 577 Datasheet**  
4 or 8 Channel Pulse / Digital Delay Generator







# MODEL 577

## Model 577 Pulse / Digital Delay Generator

### Model 577 Specifications

| Internal Rate Generator                              |   |
|--|---|
| Rate (T <sub>0</sub> period)                         | 0.001 Hz to 20.000 MHz (1000 s – 50 ns)   |
| Resolution   | 5 ns  |
| Accuracy   | 1 ns + (0.0001 x period)  |
| T <sub>0</sub> Period Jitter                         | < 50 ps RMS   |
| Time Base  | 100 MHz, low jitter PLL   |
| Oscillator   | 50 MHz, 50 ppm crystal oscillator   |
| System Output Modes                                  | Single, Normal, Burst, Duty Cycle, External Gate/Trigger                                      |
| Burst Mode   | 1 to 10,000,000 pulses  |
| Duty Cycle Mode                                      | 1 to 10,000,000 pulses ON and/or OFF  |
| Pulse Control Modes                                  | Internally triggered, externally triggered or external gate                                   |
| Timing Generator                                     |   |
| Pulse Width Range                                    | 10 ns - 1000 s  |
| Width Accuracy                                       | 1 ns + 0.0001 x width setting   |
| Width Resolution                                     | 250 ps  |
| Pulse Delay Range                                    | 0 - 1000s   |
| Delay Accuracy                                       | 1 ns + 0.0001 x delay setting   |
| Delay Resolution                                     | 250 ps  |
| Jitter (channel to channel)                          | < 50ps RMS  |
| Output Multiplexer                                   | Any/all channels may be OR'd to any/all outputs.  |
| Time Base  | Same as the internal rate generator   |
| Channel Output Modes                                 | Single, Normal, Burst, Duty Cycle   |
| Burst Mode   | 1 to 10,000,000 pulses  |
| Duty Cycle Mode                                      | 1 to 10,000,000 pulses ON and/or OFF  |
| Wait Counts  | 1 to 10,000,000 pulses  |
| Channel Control Modes                                | Internally triggered or external gated. Each channel may be independently set to either mode. |
| Standard Module Specification                        |   |
| TTL/Adjustable Dual Channel Output Module (Standard) |   |
| TTL/CMOS Mode  |   |
| Output Impedance                                     | 50 Ω  |
| Output Level   | 4.0 V (typical) into 1 kΩ   |
| Rise Time  | <3ns (1.5ns typical)  |
| Jitter (channel to channel)                          | < 50 ps RMS   |
| Adjustable Mode                                      |   |
| Output Level   | 2 V to 20 VDC into Hi-Z<br>1 V to 10 VDC into 50 Ω  |
| Amplitude Resolution                                 | 10 mV   |
| Current  | 200 mA typical, 400 mA (short pulses)   |
| Rise Time  | 15 ns (typical) @ 20V into Hi-Z<br>25 ns typ @ 10V into 50 Ω                                  |
| Slew Rate  | > 0.1V/ns   |
| Overshoot  | < 1 V + 10% of pulse amplitude  |



# MODEL 577

## Model 577 Pulse / Digital Delay Generator

| Trigger/Gate Dual Input Module (Standard)      |  |
|--|--|
| Trigger Input                                  |  |
| Function                                       | Generate individual pulses, start a burst or continuous stream |
| Rate   | DC to 1/ (200 ns + longest active pulse). Maximum of 5 MHz     |
| Slope  | Rising or Falling  |
| Threshold                                      | 200 mV to 15 VDC   |
| Maximum Input                                  | 60 V Peak  |
| Resolution                                     | 10 mV  |
| Trigger Accuracy                               | ±3% of Threshold Voltage                                       |
| Impedance                                      | 1.2K ohm   |
| Trigger Jitter                                 | < 800 ps RMS   |
| Insertion Delay                                | < 110 ns   |
| Minimum Pulse Width                            | 20 ns  |
| Pulse Inhibit Delay                            | < 150 ns RMS   |
| Output Inhibit Delay                           | < 100 ns RMS   |
| Gate Input                                     |  |
| Mode   | Pulse Inhibit or Output Inhibit                                |
| Polarity                                       | Active High or Active Low                                      |
| <b>Options</b>                                 |  |
| <b>Option TZ50 - TTL 50 Ω Output Impedance</b> |  |
| TTL/CMOS Mode                                  |  |
| Output Level                                   | 4.0 V typ into 50 Ω  |
| Rise Time                                      | <3 ns (2ns typical)  |
| Slew Rate                                      | 0.5 V/ns   |
| Jitter - Channel to Channel                    | < 50 ps RMS  |
| Adjustable Mode                                |  |
| Output Level                                   | 2 V to 20 VDC into 1 kΩ or 1 V to 10 VDC into 50 Ω             |
| Amplitude Resolution                           | 10 mV  |
| Current  | 200 mA typical, 400 mA (short pulses)                          |
| Rise Time (10% - 90%)                          | 15 ns (typical) @ 20V into Hi-Z (25 ns typ @ 10V into 50 Ω)    |
| Slew Rate                                      | > 0.1V/ns  |
| Overshoot                                      | < 1 V + 10% of pulse amplitude                                 |
| <b>Option AT35 - 35V Adjustable Output</b>     |  |
| TTL/CMOS Mode                                  |  |
| Output Level                                   | 4.0 V typ into Hi-Z  |
| Rise Time                                      | <3 ns (2ns typical)  |
| Slew Rate                                      | 0.5 V/ns   |
| Jitter - Channel to Channel                    | 50 ps RMS  |
| Adjustable Mode                                |  |
| Output Amplitude                               | 5 V – 35 V into 50Ω load at 200 Hz                             |
| Resolution                                     | 10 mV  |
| Rise Time (10% - 90%)                          | < 30 ns  |
| Accuracy                                       | 500 mV   |
| Max. Frequency (Internal & External)           | 4 kHz  |



# MODEL 577

## Model 577 Pulse / Digital Delay Generator

| Option TZ35 - TTL 50 Ω Output Impedance + 35V Adjustable Output |                                    |
|---|------------------------------------|
| TTL/CMOS Mode   |                                    |
| Output Level  | 4.0 V typ into 50 Ω                |
| Rise Time   | <3 ns (2ns typical)                |
| Slew Rate   | 0.5 V/ns                           |
| Jitter - Channel to Channel                                     | < 50 ps RMS                        |
| Adjustable Mode   |                                    |
| Output Amplitude  | 5 V – 35 V into 50Ω load at 200 Hz |
| Resolution  | 10 mV                              |
| Rise Time (10% - 90%)   | < 30 ns                            |
| Accuracy  | 500 mV                             |
| Max. Frequency (Internal & External)                            | 4 kHz                              |

| Option AT45 - 45V High and Low Impedance  |   |
|---|---|
| Amplitude   | 4V - 45V  |
| Resolution  | 20 mV   |
| Accuracy  | +/-1.5%   |
| Rise Time (10%-90%)   | < 2ns into 50 Ω (typ)<br>< 9ns into Hi-Z (typ)  |
| Fall Time (90%-10%)   | < 9ns into 50 Ω (typ)<br>< 9ns into Hi-Z (typ)  |
| Frequency (Internal & External)   | DC – 100 kHz  |
| Overshoot   | < 35% Typical for Fast Rise Time  |
| Polarity  | High Impedance Mode: Active High or Active Low<br>Low Impedance (50 Ω) Mode: Active High Only |
| Pulse Width Range   | High Impedance Mode: 10 ns to DC<br>Low Impedance (50Ω) Mode: 10 ns to 10 seconds             |
| Max Current   | 35 mA (Hi-Z @10 ms width)<br>900 mA (50 Ω @ 10 ms width)                                      |
| * Due to the power consumption and heat restrictions, a maximum of four AT45 channels can be installed on a single unit |   |
| ** Deletes TTL and ADJUSTABLE mode selection and replaced by LOW and HIGH Impedance selection                           |   |

| Option L82 or Option L130 - Optical Outputs |                 |
|---|-----------------|
| Wavelength                                  | 820nm or 1300nm |
| Maximum Signal Rate                         | 5 MBd           |
| Maximum Link Dist.                          | 1.5 km          |
| Connector Type                              | ST              |

| Option IL82 or Option IL130 - Optical Inputs |                 |
|--|-----------------|
| Wavelength                                   | 820nm or 1300nm |
| Maximum Signal Rate                          | 5 MBd           |
| Maximum Link Dist.                           | 1.5 km          |
| Connector Type                               | ST              |
| Insertion Delay                              | < 300 ns        |
| Jitter                                       | < 1.4 ns RMS    |

**DT15** - Dual Trigger. Enable Gate Input to act as second trigger  
**COM** - Extended Communications – Adds Ethernet & GPIB



# MODEL 577

## Model 577 Pulse / Digital Delay Generator

|  |  |
|--|--|
| <b>EU - Replace North American Cord with European Cord</b> |  |
| <b>MEMORY and CONNECTIVITY</b>                             |  |
| Memory Storage   | 16 Memory Location   |
| USB  | USB 2.0 Standard   |
| RS-232   | DE-9F Connector using RS-232 Communications Standard             |
| External Clock In  | 10 MHz – 100 MHz user selectable in discrete values              |
| External Clock Out   | To or Ref out (10 to 100 MHz) user selectable in discrete values |
| <b>PHYSICAL and ENVIRONMENTAL</b>                          |  |
| Dimensions   | 10.5" x 8.25" x 5.5" [267 x 210 x 140mm]                         |
| Weight   | 8 lbs [3.6 kg]   |
| Power  | 100 - 240 VAC 50/60 Hz <3 A                                      |
| Fuse   | 3.15 A, 250 V Time-lag (Qty 2)                                   |
| Operating Temp   | 32 - 104°F [0 - 40°C]  |
| Transportation & Storage Temp                              | -40 - 158°F [-40 - 70°C]   |

