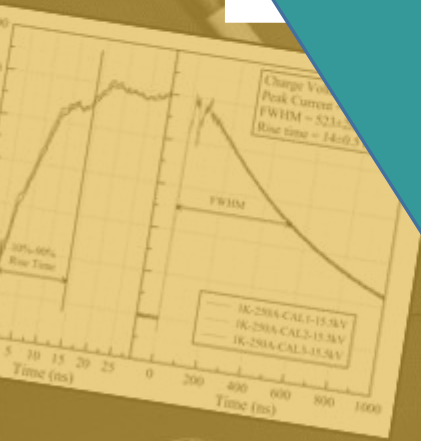




Short Pulse Acceptance Test Set: SPCI-1K & SPCI-2.5K with power supply, safety equipment, and control panel.

MIL-STD-188-125-1/2 PCI TEST EQUIPMENT

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ABOUT MIL-STD-188-125 PULSE TESTING AND SARA

Scientific Applications and Research Associates, Inc. (SARA) offers several pulse generators (pulsers) in support of MIL-STD-188-125-1/2 Appendix B pulse current injection (PCI) tests. The pulse generators are field-proven, rugged units designed by engineers for real-world test environments with designs that have evolved from more than a decade of EMP field tests. SARA offers three short pulse generators and two intermediate pulse generators which are listed in the table below.

| MIL-STD-188-125 PCI Test Pulse Generators | | |
|---|------------------------------|--------------------------|
| Pulser Model | Output Range | Waveform |
| SPCI-1K (Rev F) | 25-1000 Amps | Short Pulse* (E1) |
| SPCI-2.5K (Rev B) | 1000-2500 Amps | Short Pulse* (E1) |
| SPCI-5K (Rev E) | 1700-5000 Amps | Short Pulse* (E1) |
| IPCI-250x1 (Rev C) | 10-250 Amps (Single Channel) | Intermediate Pulse^ (E2) |
| IPCI-250x4 (Rev B) | 10-250 Amps (Four Channel) | Intermediate Pulse^ (E2) |
| * - Short Pulse: ≤ 20 ns Rise Time, 500-550 ns FWHM, $\geq 60 \Omega$ | | |
| ^ - Intermediate Pulse: $\leq 1.5 \mu\text{s}$ Rise Time, 3-5 ms FWHM, $\geq 10 \Omega$ | | |

All pulse generators include a 1 year limited warranty, training at customer facilities within the continental US, and operations manuals. Additionally, there are no expensive greenhouse gases (SF₆) required, and all systems can be shipped to and from test locations using standard shipping. All pulsers are fabricated in Colorado Springs, CO using domestic vendors for all components.

SHORT PULSE CURRENT INJECTION (SPCI) SYSTEMS

SARA offers several different pulse generators to support MIL-STD-188-125-1 short pulse (E1) acceptance and verification tests. SARA offers a small (SPCI-1K) pulse generator which can generate from a few Amps (used for small line testing) up to 1000 Amps. For acceptance tests, a 1000 Amp to 2500 Amp pulser is available (SPCI-2.5K). A higher current verification test pulser (SPCI-5K) is also available to span from 1500 Amps to 5000 Amps. All short pulse (SPCI) generators are MIL-STD-188-125-1 compliant (≤ 20 ns Rise Time, 500-550 ns FWHM), including output cable effects. No special adapter cables or removal of the output connection is necessary to meet the specification.

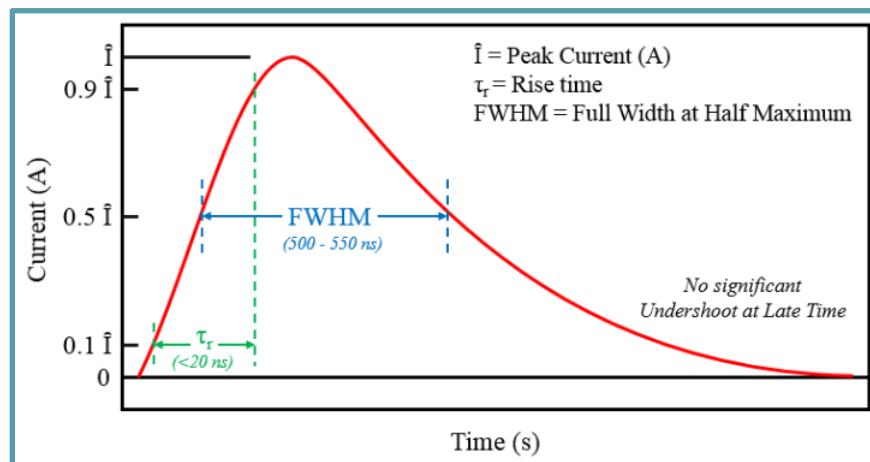


Figure 1: Short Pulse Current Pulse Shape Requirements from MIL-STD-188-125-1

AC power, compressed dry air, and dielectric oil are all that is required to operate the short pulse (SPCI) pulsers. All oil-filled pulse generators (SPCI pulsers) have sealed input/output connections that allow the pulsers to be moved without draining or oil-spillage.

SPCI-1K

Product Description: The SPCI-1K short circuit output current is a field-ready verification test pulser with an output range of just a few amps to over 1000 amps. The pulse generator is filled with dielectric oil and requires dry pressurized air for operation. The purchase price of the pulser includes current sensors, control box, dielectric oil, an operation manual, a high voltage power supply, and on-site training.



Figure 2: SPCI-1K (Rev. F)

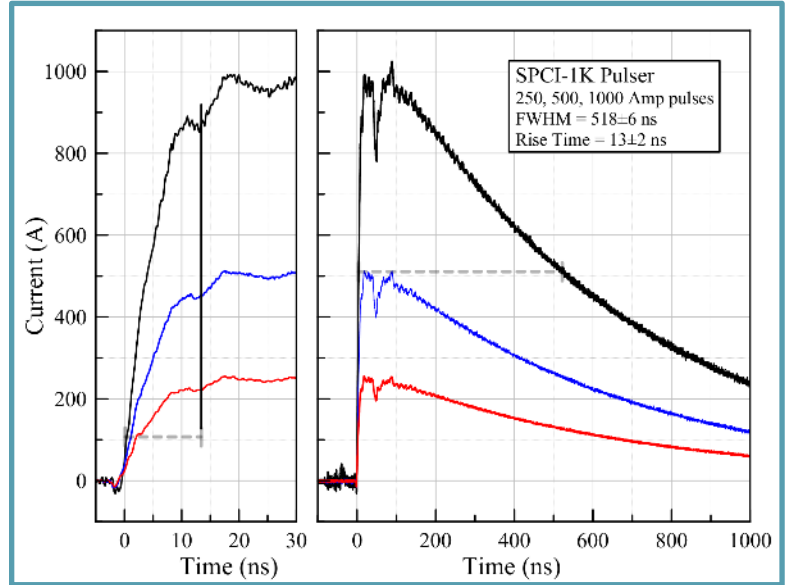


Figure 3: SPCI-1K Calibration Data

| MIL-STD-188-125-1 PCI Test Pulse Generators | |
|---|-----------------------------|
| Pulser | SPCI-1K (Rev. F) |
| Dimensions | 12" x 10" x 8" |
| Weight | ~ 37 lbs. dry, ~50 lbs. wet |
| Connections | 2 high voltage, 1 air |
| Maximum Charge voltage | 75 kV |
| Charge time | < 8 seconds |
| Output rise time | ≤ 20 ns (12-16 ns typical) |
| Output pulse width (FWHM) | 500 – 550 ns |
| Max short circuit current | 1000 Amps |
| Source Impedance | ≥ 60 Ω |
| Price | \$55,000 |
| Delivery | 20-24 Weeks |

SPCI-2.5K

Product Description: The SPCI-2.5K is an acceptance test pulser with an output range of 1000 Amps up to over 2500 Amps. The pulse generator is filled with dielectric oil and requires dry pressurized air for operation. The purchase price of the pulser includes current sensors, control box, dielectric oil, an operation manual, a high voltage power supply, and on-site training.



Figure 5: SPCI-2.5K (Rev. B)

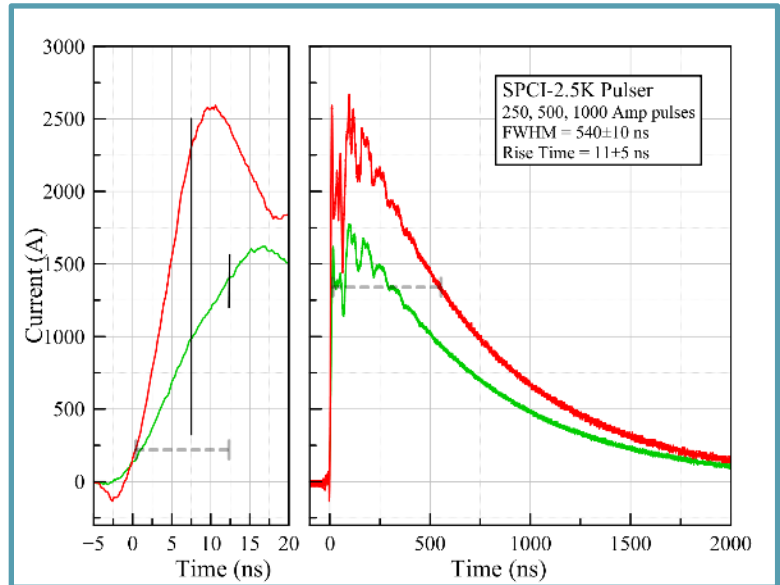


Figure 4: SPCI-2.5K Calibration Data

| MIL-STD-188-125-1 PCI Test Pulse Generators | |
|---|-------------------------------|
| Pulser | SPCI-2.5K (Rev. B) |
| Dimensions | 18" x 18" x 24" |
| Weight | ~ 120 lbs. dry, ~250 lbs. wet |
| Connections | 2 high voltage, 3 air |
| Maximum Charge voltage | 45 kV |
| Charge time | < 15 seconds |
| Output rise time | ≤ 20 ns |
| Output pulse width (FWHM) | 500 – 550 ns |
| Max short circuit current | 2500 Amps |
| Source Impedance | ≥ 60 Ω |
| Price | \$150,000 |
| Delivery | 20-24 Weeks |

SPCI-5K

Product Description: The SPCI-5K is a verification test pulser with an output range of 1700 Amps up to over 5000 Amps. The pulser is field ready and includes a rugged shipping container to support field operations. The pulse generator requires dielectric oil and dry pressurized air for operation. There are no additional gases required. The purchase price of the pulser includes current sensors, control box, dielectric oil, an operation manual, a high voltage power supply, and on-site training.



Figure 7: SPCI-5K (Rev. E) on Bottom

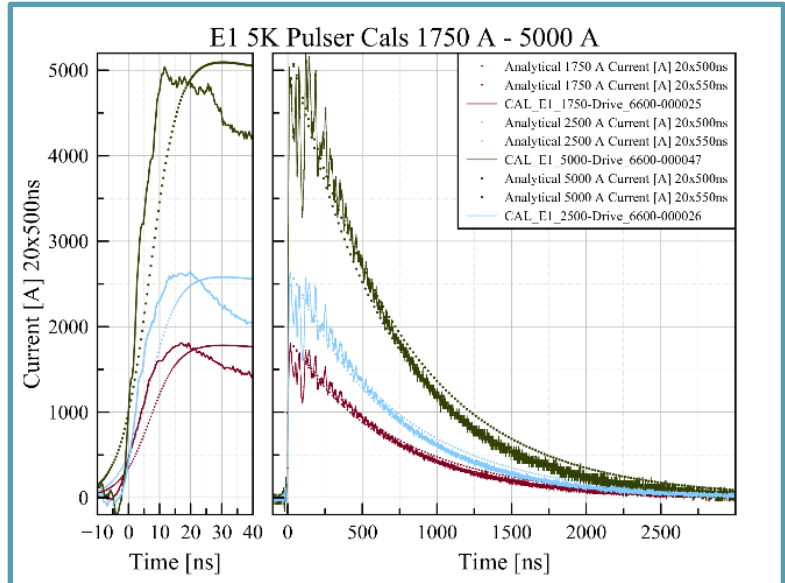


Figure 6: SPCI-5K Calibration Data

| MIL-STD-188-125-1 PCI Test Pulse Generators | |
|---|-------------------------------|
| Pulser | SPCI-5K (Rev. E) |
| Dimensions | 20" x 20" x 26" |
| Weight | ~ 155 lbs. dry, ~300 lbs. wet |
| Connections | 2 high voltage, 4 air |
| Maximum Charge voltage | 80 kV |
| Charge time | < 30 seconds |
| Output rise time | ≤ 20 ns |
| Output pulse width (FWHM) | 500 – 550 ns |
| Max short circuit current | 5000 Amps |
| Source Impedance | ≥ 60 Ω |
| Price | \$205,000 |
| Delivery | 20-24 Weeks |

IPCI-250: SINGLE AND FOUR CHANNELS

Product Description: The IPCI-250 is a verification test pulser with an output range of 10-250 Amps. The pulser is self-contained in a pelican case requiring only AC power for operation. The primary pulser switch is solid state and no external injection fixtures are required for verification testing. The pulser can be single output (x1 model) or four-channel (x4 model) to support synchronous testing of multiple POE devices or phases (A, B, C, N, & CM) at a time. The purchase price of the pulser includes current sensors, a remote control, an operation manual, and on-site training.



Figure 9: IPCI-250x1 (Rev. C)

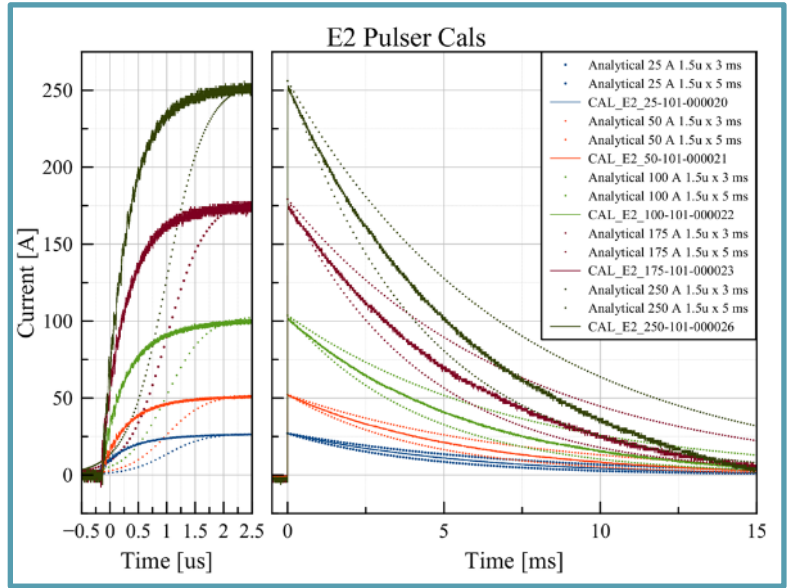


Figure 8: IPCI-250 Calibration Data

| MIL-STD-188-125-1 PCI Test Pulse Generators | |
|---|-----------------|
| Pulser | IPCI-250 |
| Dimensions | 32" x 20" x 22" |
| Weight | ~ 120 lbs. |
| Connections | 120 VAC |
| Maximum Charge voltage | 3 kV |
| Charge time | < 20 seconds |
| Output rise time | ≤ 1.5 μs |
| Output pulse width (FWHM) | 3 – 5 ms |
| Max short circuit current | 250 Amps |
| Source Impedance | ≥ 10 Ω |
| Price x1 | \$110,000 |
| Price x4 | \$135,000 |
| Delivery | 18-22 Weeks |

CONTACT US

All products, prices, and lead times are subject to change. Please inquire for a formal quotation. For more information regarding any of the MIL-STD-188-125-1 PCI Test equipment or any other pulse generators not specified here, please call, email, or visit the SARA corporate website.

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