PerkinElmer instruments.
ORTEC Products

480 Pulser

- Simulates detector output signals
- May be calibrated to read directly in terms of equivalent energy deposition in semiconductor detectors
- Exponential pulse shape with <10-ns rise time and 200- or 400-µs decay time constant
- Line frequency pulse rate
- Positive or negative polarity
- Direct 0 to 10-V output
- Attenuated output with 1000:1 attenuation range

The ORTEC Model 480 Pulser simulates the output signal from a solid-state or scintillation detector and provides a means of checking electronic instruments in a pulse processing system. It has 1% overall accuracy, good stability as a function of temperature and time, and front-panel controls that allow the instrument to be calibrated to read directly in terms of equivalent energy deposited in a detector. The Model 480 has a stable internal reference voltage that is effectively independent of any modular power supply or ac line voltage changes. Four toggle switches in a pi-attenuator arrangement in the attenuated output line provide a maximum attenuation of 1000:1. The direct output precedes the attenuator switches and provides a means of stable oscilloscope triggering. A charge terminator and a 100-Ω voltage terminator are provided with this instrument. The use of the charge terminator allows the voltage pulse to be converted to a charge pulse for subsequent amplification by a charge-sensitive preamplifier. The use of the voltage terminator allows the voltage pulse to be input directly to other instruments such as amplifiers, discriminators, and ADCs. A holder is provided on the rear panel to store the charge terminator when it is not in use.

The Model 480 Pulser is designed to meet the interchangeability standards of DOE/ER-0457T. An ORTEC NIM bin and power supply provides all necessary power through the rear module connector. All signal levels and impedances are compatible with all other ORTEC NIM-standard modules.

PERFORMANCE

TEMPERATURE INSTABILITY <±0.01%/°C, 0 to 50°C.

LINE VOLTAGE INSTABILITY <±0.005% per 10% change in line voltage.

RIPPLE AND NOISE 0.003% of pulse amplitude.

NONLINEARITY <±0.25% of full scale.

RISE TIME Exponential waveform, 610 ns (10 to 90%).

FALL TIME Exponential decay with 200- or 400-µs time constant (depending on whether or not the direct output is terminated).

ELECTRICAL AND MECHANICAL

CONTROLS

CAL 22-turn potentiometer on front panel covers 62:1 amplitude span for normalization of Pulse Height control to read directly in equivalent energy.

PULSE HEIGHT Front-panel potentiometer controls output pulse height from 0 V to the maximum determined by the Attenuator switches, the Cal control setting, and the termination load.

ATTENUATOR Front-panel switches provide step attenuation over 1000:1 range with 1% resistors (X2, X5, X10, X10).

OFF/ON Front-panel slide switch allows internal relay to be driven from the ac line.

NEG/POS Front-panel slide switch determines polarity of the output signal.

POWER REQUIRED +24 V, 60 mA; –24 V, 60 mA; +12 V, 0 mA; –12 V, 0 mA; 117 V ac, 8 mA (used only to drive relay).

WEIGHT
Net 0.9 kg (2.1 lb).
Shipping 1.8 kg (4.1 lb).

DIMENSIONS NIM-standard single-width module 3.43 X 22.13 cm (1.35 X 8.714 in.) per DOE/ER-0457T.

INCLUDED ACCESSORIES

VOLTAGE TERMINATOR A standard 100-Ω resistive terminator is attached to the Direct Output connector on the front panel to terminate the output correctly when only the Attenuated Output is being used.

CHARGE TERMINATOR A specially constructed terminator is mounted in a rear-panel clip and should be used to properly terminate the pulser output and feed a charge signal into the signal input of a charge-sensitive preamplifier when the output pulses are being furnished for this type of test.

OUTPUTS

ATTEN Front-panel BNC connector provides positive or negative attenuated dc-coupled output with an impedance of 100 Ω. Amount of attenuation is set by the Attenuator switches.

DIRECT Front-panel BNC connector provides positive or negative dc-coupled 0 to 1 0 V pulse into a high impedance and 0 to 5 V maximum pulse into 100 Ω. This is equivalent to a range of 0 to 220-MeV energy referred to a silicon detector, when used with associated charge terminator.