

OL 750-423

Pulsed Measurements with the OL Series 750

The OL Series 750 can be configured to measure the spectral energy output of pulsed sources. The following should be noted when configuring the OL Series 750 for pulsed source measurements:

1. The OL Series 750 must be equipped with both the OL 750-423 Source Spectral Analysis and OL 750-423P Pulsed Integration Software.
2. The OL Series 750 must be equipped with both the OL 750-SDS-210 DC Signal Detection System and OL 750-SDS-230 Pulse Integration Signal Detection System.
3. Only silicon, germanium, InGaAs, or PMT detectors can be used with the OL Series 750 for pulse integration measurements. Thus, the wavelength range for pulse integration measurements is restricted to 200 to 1800 nm.
4. An OL 750-611 or OL 750-612 Detector Head Adapter is needed to interface the appropriate Detector Head to the BNC on the rear panel of the OL 750C Controller. Non-TE cooled detectors (silicon, PMT) require the OL 750-611 Detector Head Adapter. TE cooled detectors (Ge, InGaAs) require the OL 750-640 TE Cooler for OL 750-HSD TE Cooled Detectors, and the OL 750-612 TE Cooled Detector Head Adapter. Note, a Detector Support Module is not needed for pulse integration measurements.

OL 750-423P Pulse Integration Software

The OL 750-423P enables the system to measure the spectral energy output of pulsed sources with the aid of the OL 750-SDS-230 Pulse Integration Signal Detection System. The 750-423P is similar in operation as the 750-423; however, appropriate commands have been added at select locations in order to control the pulse integrator in the OL 750-C Controller.

In addition to the normal parameters such as: beginning wavelength; ending wavelength; and wavelength increment, the user is required to enter the amount of time in units of milliseconds that is necessary for the pulsed source to recharge after firing. The program will automatically wait this period of time between consecutive flashes.

The OL 750-423P uses the same calibration factor data files as used with the 750-423; however, where the 750-423 uses amperes, the 750-423P uses coulombs.

The OL 750-423P controls the following functions on the Pulse Integrator:

- *Source synchronization pulse width*
- *Source synchronization mode (internal, external, or keyboard triggered)*
- *The autozero circuit (nulls detector dark current)*

OL 750-SDS-230 Pulse Integrator Signal Detection System

The OL 750-SDS-230 features software controlled automatic and manual source synchronization modes. When operating in automatic synchronization mode, the source may be triggered by a TTL pulse provided by the OL 750-C Controller, or the pulse integrator may be triggered externally by the source to begin the pulse measurement sequence. When operating in manual mode, the user presses a key and the OL 750-C triggers the source and the pulse measurement sequence is initiated. High-isolation relays providing very low leakage currents are used. High or low dark current compensation may be selected for using detectors that exhibit low dark current levels such as silicon, or detectors that exhibit high dark current levels (PMTs).

Electrical

Inputs	Pulse Signal In
.....	External Trigger In
Outputs.....	Sync Out
Dynamic Range	10^{-4} to 10^{-10} Coulombs
Resolution	to 10^{-13} Coulombs
Accuracy	$\pm 2\%$
Sync Output	TTL
External Trigger Input.....	TTL



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