



The Model 1530 Neutron Gamma Pulse Shape Discriminator (PSD) provides 4 independent channels for classifying applied pulses as gamma or neutron interactions. In addition, a semi-Gaussian shaped signal with 1 μ s peaking time is provided for each channel. The module provides these high-density functions in a single width CAMAC form factor.

All interfaces to the module are provided on the front panel or through the CAMAC bus. Connectors include two 18 pin ribbon headers and 15 Lemo compatible connectors. One header provides analog Time-to-Amplitude (TAC) and shaped pulses for each channel, while the other provides ECL digital signals for an onboard Constant Fraction Discriminator (CFD) and the Neutron identification signal. A group of three Lemo connectors is provided for each channel for applying the detector pulse to the module, monitoring an analog pseudo-bipolar shaped signal, and monitoring a fast NIM version of the CFD signal. A separate bank of three Lemo connectors provides monitoring functions including a multiplicity output for the neutron classification signals, a logic OR of the neutron signals, and a logic OR of the CFD signals. These are provided as fast NIM except the multiplicity, which sinks 50 mV per channel from 50 Ω . In addition, a status LED provides visible indication when the module is addressed by the CAMAC controller.

The CAMAC interface allows the module to be configured via the CAMAC controller. The CFD offset and the input polarity of each channel can be configured independently. An SCA low and high threshold can also be set independently for each channel. The SCA thresholds act upon the TAC signal to provide a window which determines the amplitude corresponding to a Neutron event.

The input impedance of each preamplifier channel is 50 Ω which makes it compatible with a variety of NIM and CAMAC modules. All outputs drive 50 Ω loads. The Multiplicity output provides 50 mV per CFD channel into 50 Ω .

PERFORMANCE	γ-η Separation	Nominally 50 ns
	Classification Time	Nominally 550 ns for η , TAC remains for 1.5 μ s
	Neutron Pulse Width	Nominally 375 ns \pm 30 ns
	CFD Offset/Walk Shaped Pulse	0 to 256mV in 256 steps of 1 mV 1 μ s peaking time, four pole active filter
ELECTRICAL	Power	< 6 Watts from \pm 6 V CAMAC Supply
	Current	< 1 Ampere from \pm 6 V CAMAC Supply
MECHANICAL	Dimensions	Standard CAMAC single-width module 1.70 X 22.15 cm (0.67 X 8.72 in.)
	Weight	1.0 kg (2.2 lb) Net
		1.4 kg (3.0 lb) Shipping
FRONT PANEL	Connectors	15 x Lemo 2 x 18 pin 0.1 in. pin spacing shrouded headers
	Displays	Green LED indicates CAMAC activity
CAMAC	Offset and SCA Polarity	Function 16, Sub-address 1, 12 bit word Function 16, Sub-address 4, 4 bit word