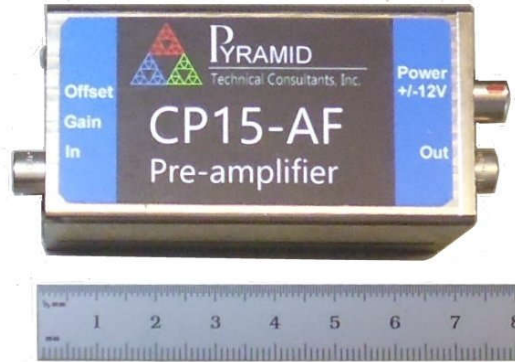


Compact, Cost-Effective Pulse Pre-amplifier for Sodium Iodide Scintillation Detectors

Features

- DC-coupled, 50 ohm input impedance.
- Output matched to 50 ohm
- Built-in filtering to produce clean output pulse from sodium iodide scintillation detectors
- Very compact package.
- Gain and offset adjustment
- Choice of inverting or non-inverting
- Typical conversion gain 400 mV pC-1 at 50% gain setting



<p>Applications</p>	<ul style="list-style-type: none"> • Readout of sodium iodide scintillation/photomultiplier detectors • Pulse counting applications • Pulse height analysis applications • Companion pre-amplifier for C400 pulse-counting detector controller
<p>Options</p>	<ul style="list-style-type: none"> • Inverting or non-inverting (internal jumper setting)

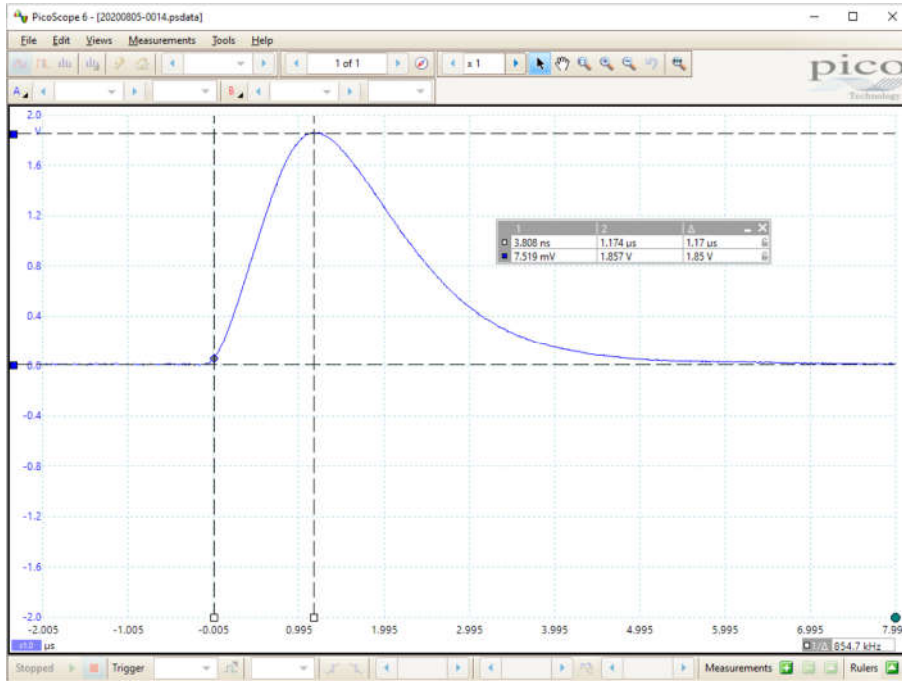
Specifications

Input impedance	50 ohms (when powered).
Conversion gain	Pulse height 400 mV per pC input charge at 50% gain setting
Output pulse timing	Time to peak 1.2 μ sec Full width at 10% of maximum 3.8 μ sec
Linearity	Linear up to > 1.5 V peak height (into 50 ohms) 3.0 V (into high Z)
Output impedance	50 ohms
Noise	<= 1 mV RMS at output, DC to 100 kHz
Output drive capability	Up to 3 V into 50 ohms monotonic
Maximum output cable length	Able to drive >= 30 metre RG-58 (via adaptor), RG-174 or RG-316

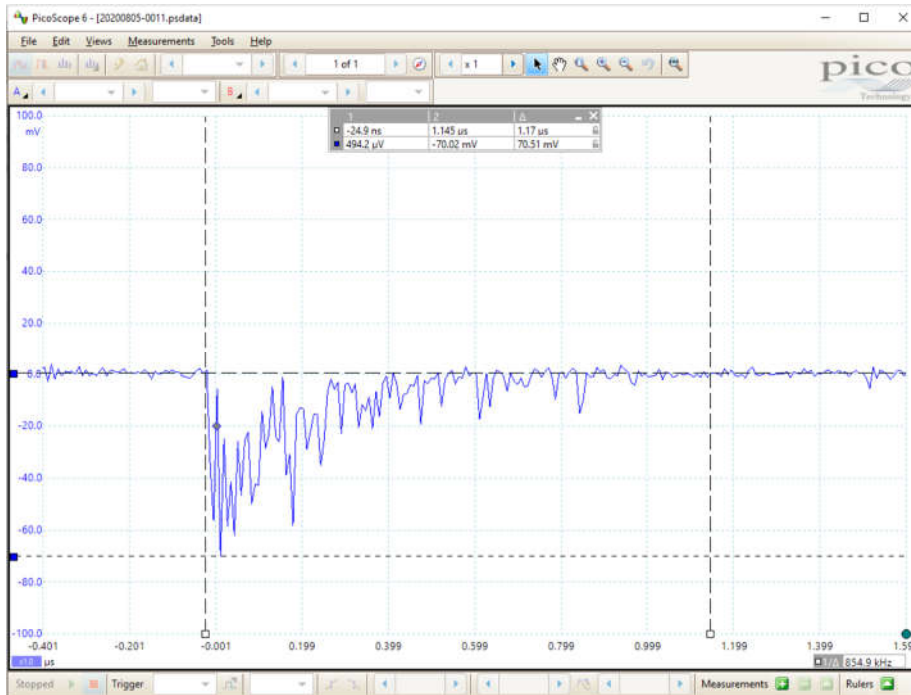


Specifications (continued)

Output peak shape (60 keV X-ray, FMB-Oxford C30NA sodium iodide scintillation detector)

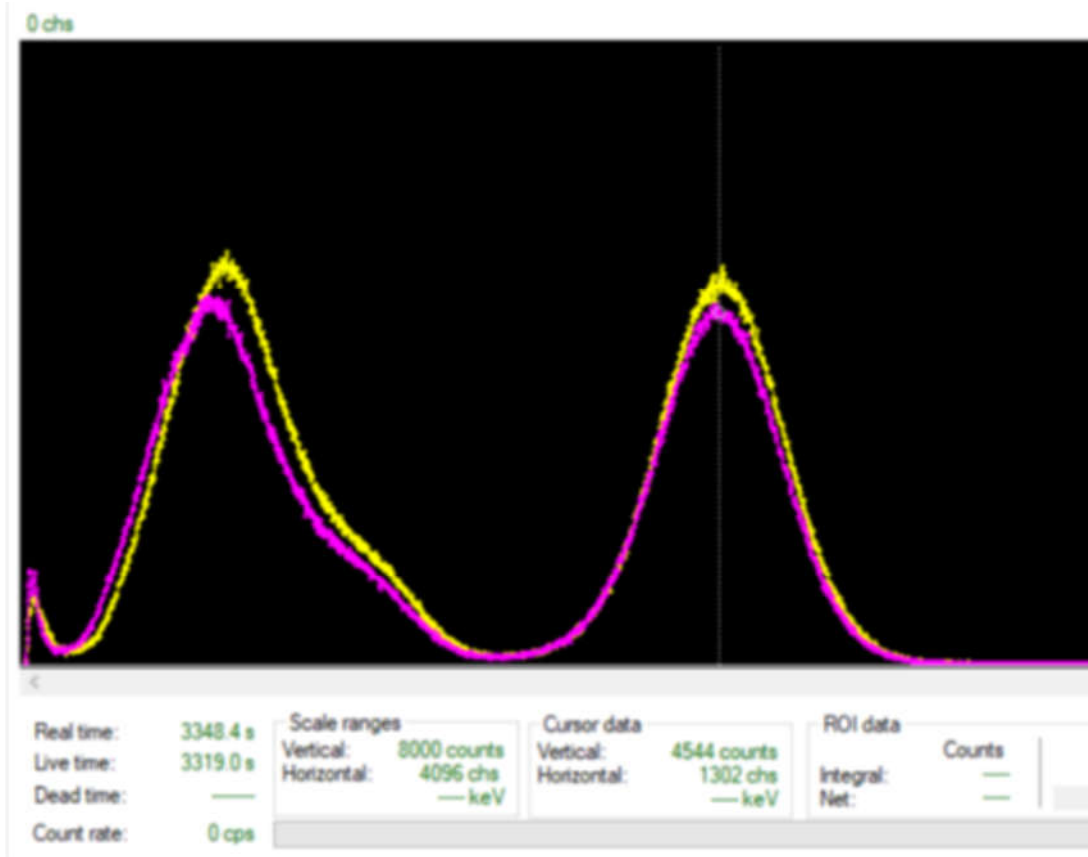


Corresponding unfiltered detector signal (measured with CP10B fast pre-amplifier)



Specifications (continued)

Pulse height spectrum comparison with Gaussian shaping amplifier (Am-241 spectrum, FMB-Oxford C30NA sodium iodide scintillation detector)



Pink curve Pulse height spectrum measured with CP15AF

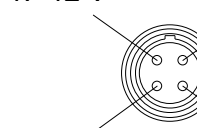
Yellow curve Pulse height spectrum measured with CR10 fitted with 1 μ sec Gaussian shaping amplifier



Specifications (continued)

Power input	+12V (+2/-4 V) DC, 50 mA and -12V (+4/-2 V), 50 mA
Displays	Power on LED
Controls	DC offset adjust trimpot Gain trimpot (0 - 100%)
Case	Machined Al alloy case with tapped hole pattern for mounting.
Dimensions	79 x 35 x 24 mm (see drawing)
Weight	95 g (3.4 oz)
Operating environment	10 to 35 C (15 to 25 C recommended to reduce drift and offset) , < 70% humidity, non-condensing, vibration < 0.1g all axes (1 to 100 Hz)
Shipping and storage environment	-10 to 50 C, < 80% humidity, non-condensing, vibration < 0.5 g all axes, 1 to 100 Hz

Connectors

Signal input	Lemo coaxial size 00	
Power	Lemo 0B four-pin female (mating cable connector FGG.0B.304)	<p>1: -12 V 4: +12 V</p>  <p>2: AGnd (cable scrn) 3: AGnd</p> <p>(view on CP10 connector / solder side of mating cable connector)</p>
Signal output	Lemo coaxial size 00	

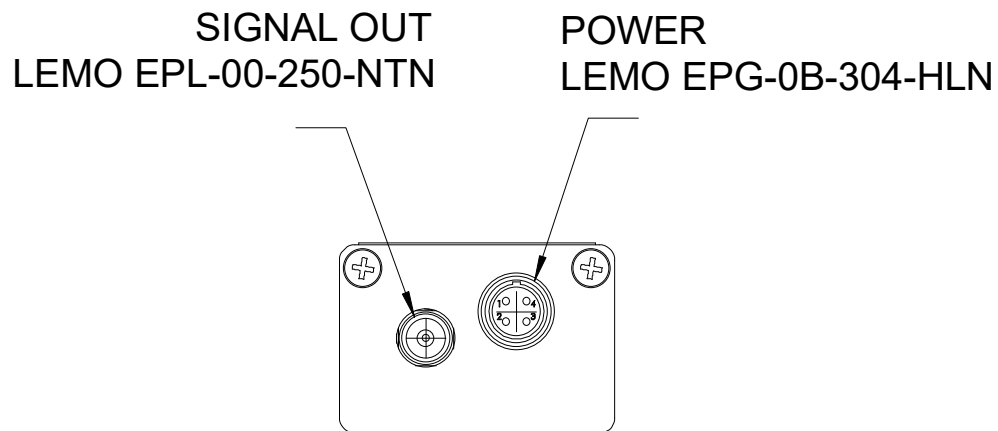
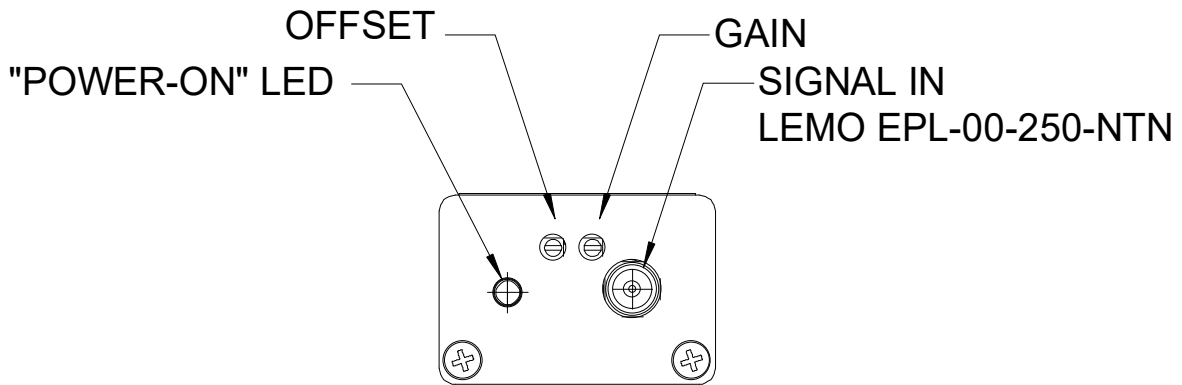
Ordering information

CP15AF	Pre-amplifier suitable for NaI(Tl) scintillator / photomultipliers.
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Related products and accessories

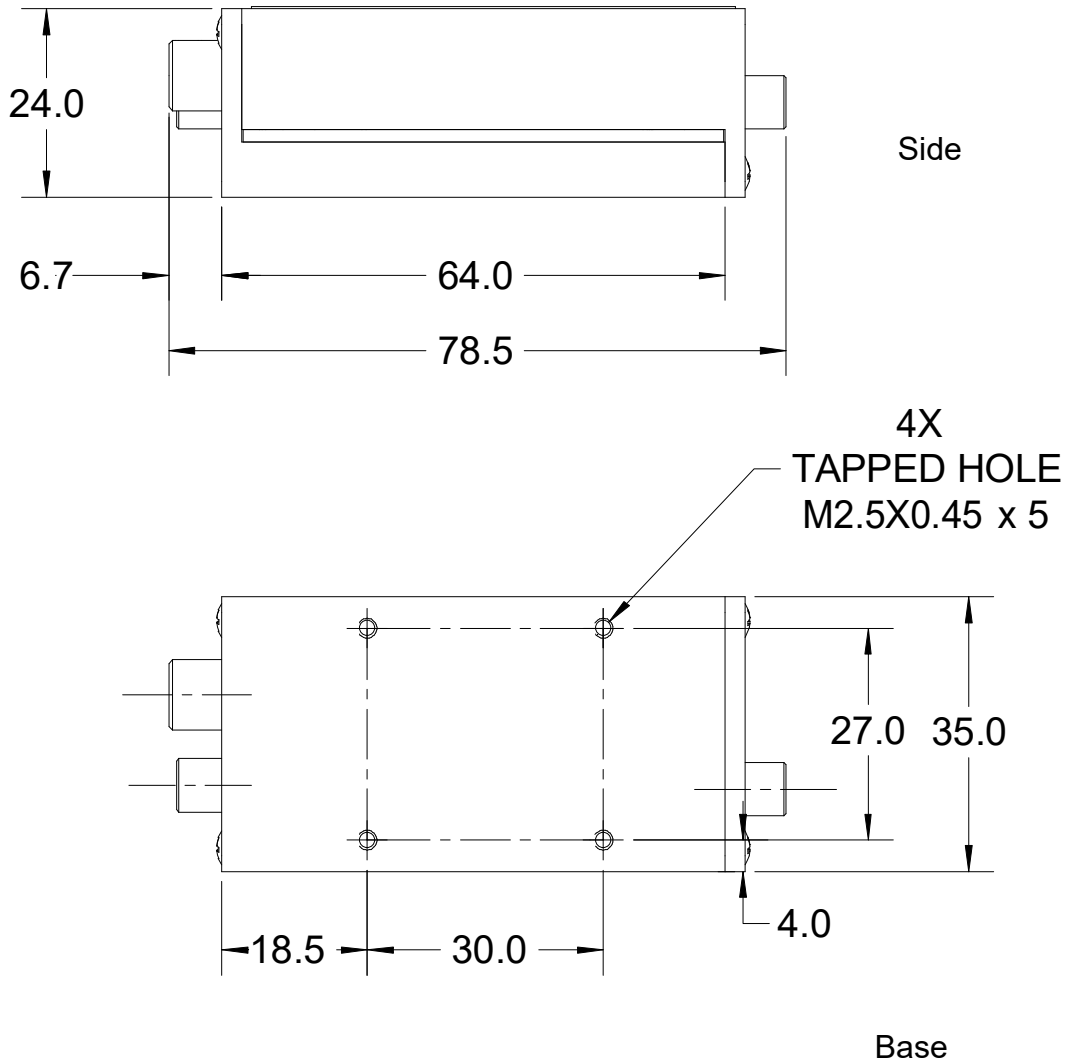
CP10A	Fast pre-amplifier (suitable for LaCl ₃ , LaBr ₃ and plastic scintillation detectors)
CP10B	Very fast pre-amplifier (suitable for plastic scintillators, electron multipliers)
C400	Four channel pulse detector controller (fast window discriminators and scalers, supplies HV bias and pre-amp power).
PSU1212	+24 VDC to +/-12 VDC power converter
PSU24-25-1	+24 VDC power supply, universal, IEC C8 line connection





Datasheet

CP15AF



Dims mm

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CP15AF_DS_200926



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PTC System Controls and Diagnostics