



PMC-150

Cooled High Speed PMT Module for TCSPC

Fast TCSPC Instrument Response: < 150 ps FWHM

Internal Cooler: Low Dark Count Rate

Internal GHz Preamplifier: High Output Amplitude

Internal High Voltage Power Supply

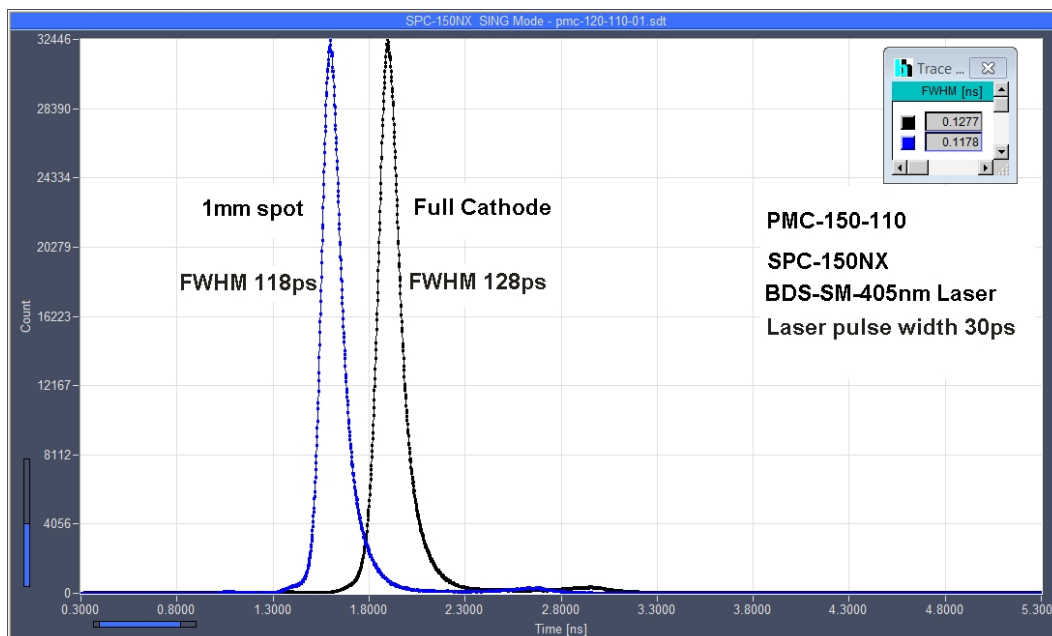
Direct Interfacing to all bh Photon Counting Devices

Power supply, Gain Control and Overload Shutdown via bh DCC-100 module

Standard C Mount Adapter



The PMC-150 is a cooled PMT module for TCSPC applications. It contains a fast miniature PMT along with a Peltier cooler, a high voltage generator, a GHz pulse amplifier and a current sensing circuit. Due to the high gain and bandwidth of the device a single photon yields an output pulse with an amplitude in the range of 100 to 200 mV and a pulse width of 1.5 ns. Due to the high gain and the efficient shielding noise pickup is minimised. Therefore the PMC-150 yields high time resolution and high counting efficiency. The TCSPC instrument response function (IRF) has a width of less than 150 ps FWHM. Overload conditions are detected by sensing the PMT output current. Overload is indicated by an LED, an acoustic signal, and a logical overload signal. The PMC-150 is operated by the bh DCC-100 detector controller card. The DCC delivers the operating voltage for the PMT, the current for the Peltier cooler, controls the detector gain, and shuts down the PMT in case of overload. Compared to its predecessor, the PMC-100, the PMC-150 has a shorter IRF width and a better IRF uniformity over the active area.

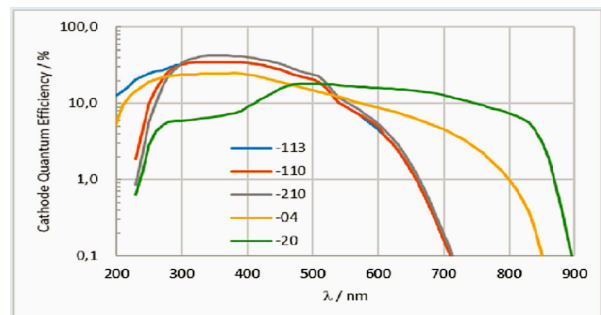
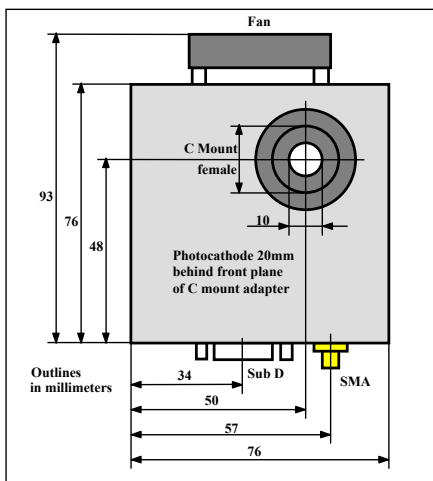
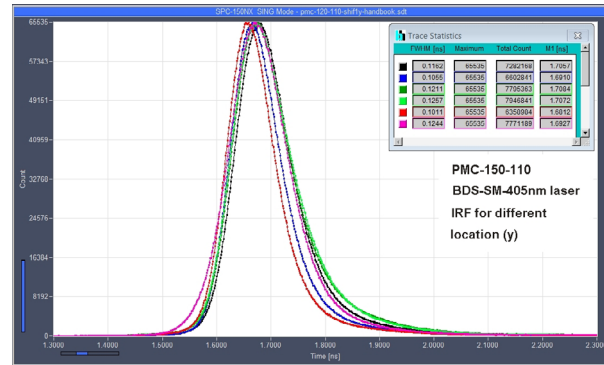
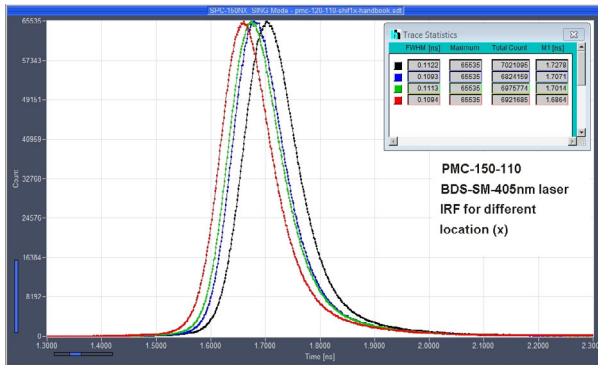


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PMC-150

	PMC-150-04	PMC-150-110	PMC-150-113	PMC-150-210	PMC-150-20
Cathode type	Multialkali, UV	Super Bialkali	Super Bialkali, UV	Ultra Bialkali	Extended Red
Wavelength Range (nm)	185 to 870	230-700	185 to 700	230 to 700	300 to 900
Dark Counts (Icool = 1A, Tamb = 22°C, typ. value)	20	5	5	10	500
Cathode Diameter			8 mm		
IRF width, 1mm spot / full cathode area, typ., FWHM			120 ps / 130 ps		
Transit time variation with x-y position, see diagrams			50 ps		
Single Electron Response Width			1.5 ns, FWHM, typ. value		
Single Electron Response Amplitude			100 to 200 mV, Vgain = 0.9 to 1V		
Output Polarity			negative		
Count Rate (Continuous)			> 5 MHz		
Count Rate (Peak, < 1 us)			> 100 MHz		
Overload Indicator			LED and acoustic signal		
Overload Signal			TTL / CMOS, active low		
Detector Signal Output Connector			SMA		
Output Impedance			50 Ω		
Power Supply (from DCC-100 Card)		+ 12 V, -12V (fan only), Cooler current 0.5 to 1A			
Dimensions (width x height x depth)		76 mm x 111 mm x 56 mm			
Optical Adapter		C-Mount female			
Fibre Coupling		SMA 905 or FC, on request			



Pin Assignment of 15 pin sub-d-hd connector

1	not used	9	Peltier -
2	Peltier +	10	+12V
3	Peltier +	11	-12 (Fan)
4	Peltier +	12	not used
5	GND	13	Gain Control, 0 to +0.9V
6	not used	14	/OVLD
7	Peltier -	15	GND
8	Peltier -		

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