Product Specifications

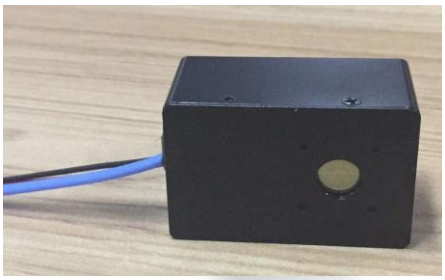
HOLITA TECHNOLOGY PHOTON MODULE

SINGLE PHOTON COUTING MODULE

SPCM-01 Series

Description

HOLITA'newly improved SPCM-01 series photon counting module with PMT operated in high voltage, are used to detect single photos over the wavelength range of 180nm to 920nm. This module has the following characteristics:



1 Positive voltage design, single 5V power supply;

2 In order to reduce the output deviation, the Cockcroft-Walton driving circuit is adopted.

3 Metal shielding case is used to reduce magnetic field interference.

4 High voltage controllable，maximum 1045V；

5 The unique single photon detection technology is used to increase the dynamic range.

6 Weak light 10^{-15}---10^{-9}W can be detected；

7 The output signal is SMA male;

8 Output TTL positive pulse signal 2V(50 ohm);

Applications：

1 Trace SO_2 NO_x analyzer；

2 High sensitive particle analyzer；

3 Bio-fluorescence analysis and bacterial detection；

4 Pharmaceutical fluorescence analysis；

5 Lidar detection；

6 RT-PCR；

7 Photoluminescence(PL) analysis；

Product Specifications

Productions ordering information:

TYPE No.	Spectral Response	Features
SPCM-01-110	230 - 700nm	Super Bialkali Photocathode,high sensitivity in visible range
SPCM-01-113	185 – 700nm	Super Bialkali Photocathode,For UV to red range
SPCM-01-210	230 - 700nm	Ultra Bialkali photocathode,high sensitivity in visible range
SPCM-01-01	230 - 870nm	Multiakali Photocathode,For UV to near IR range
SPCM-01-04	185 – 870nm	Multiakali Photocathode,For UV to near IR range
SPCM-01-20	230 – 920nm	Multiakali Photocathode,For UV to near IR range

Specifications

Parameter	Min	Typ	Max	Unit
Supply voltage(1)	4.75	5	5.25	V
Supply current		0.1	0.2	A
Case operating temperature(2)			50	℃
Active area diameter		Φ 8		mm
Peak Sensitivity Wavelength		400		nm

Count Sensitivity	SPCM-01-110	SPCM-01-210	SPCM-01-01	SPCM-01-20	
300nm	3.7×10^5	3.9×10^5	2.7×10^5	4.4×10^4	$S^{-1}*PW^{-1}$
400nm	4.9×10^5	6.1×10^5	3.6×10^5	1.4×10^5	
500nm	3.7×10^5	4.6×10^5	2.8×10^5	3.4×10^5	
600nm	1.1×10^5	1.3×10^5	2.0×10^5	3.5×10^5	
700nm	7.7×10^3	9.1×10^3	1.2×10^5	3.3×10^5	
800nm	--	--	3.0×10^4	2.4×10^5	

Dark Count(3)				
SPCM-01-110	10	50	100	Counts / second (CPS)
SPCM-01-113	15	55	110	
SPCM-01-210	10	50	100	
SPCM-01-01	100	600	1000	
SPCM-01-20	200(4)	1000	70000	

Output pulse width	6	8	10	ns
Dead time		16		ns
Recommended Load Resistance		50		Ω
Signal Output Logic		Positive logic		-
Output pulse amplitude @1K Ohm (50 Ohm)				V
TTL HIGH	4(2)	4.4(2.2)		V
TTL LOW			0.8	
Output count rate before saturation		40		Mc/s

1. Connection to incorrect voltage or reverse voltage may damage or destroy the module. The warranty is invalid should such damage occur. The green wire is analog voltage input for high voltage, the red wire is +5V and the black wire is GND.
2. No condensation.

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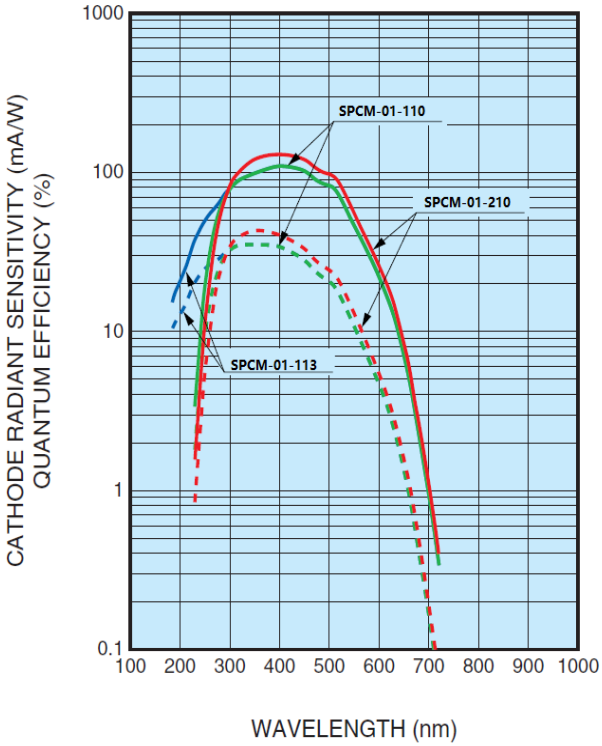
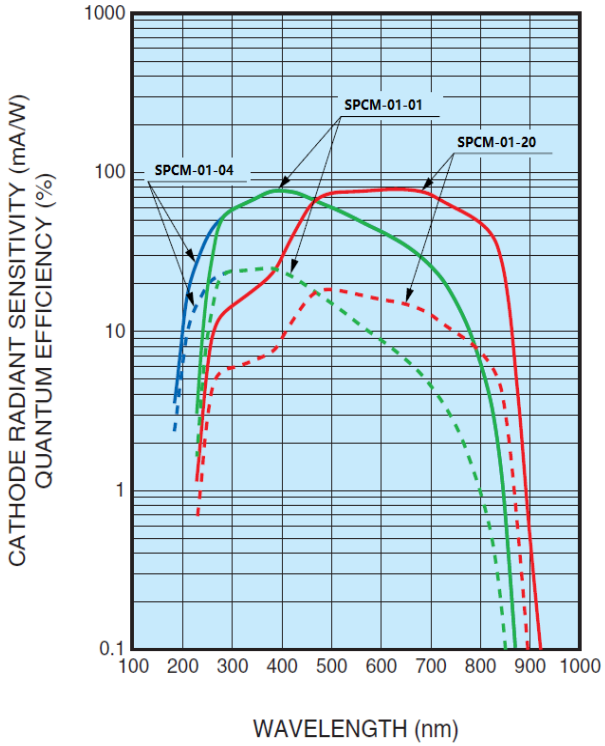
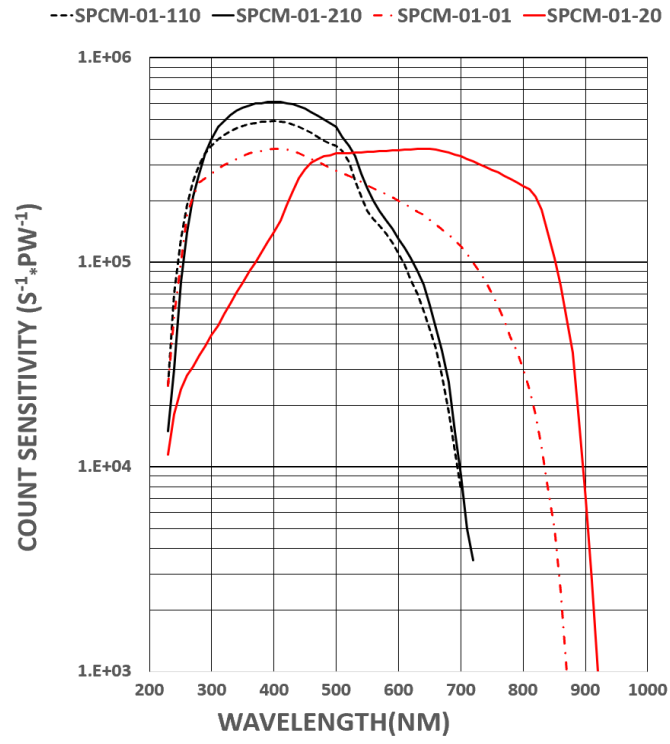
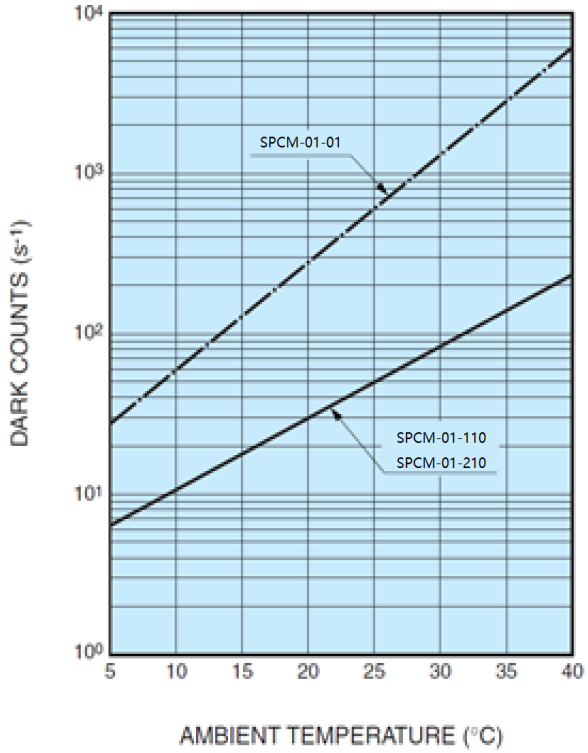
3. After 30 minutes storage in darkness.
4. With colder module.

Characteristics (Count Sensitivity, Dark count @1000V)









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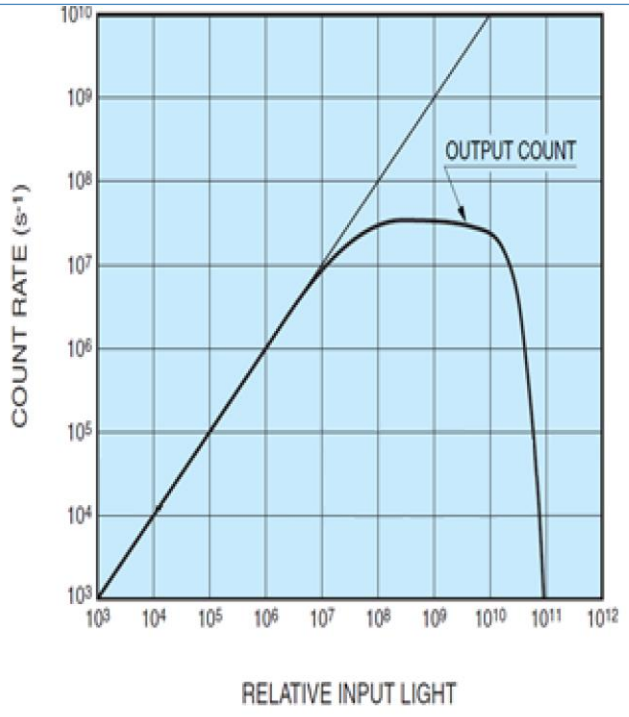
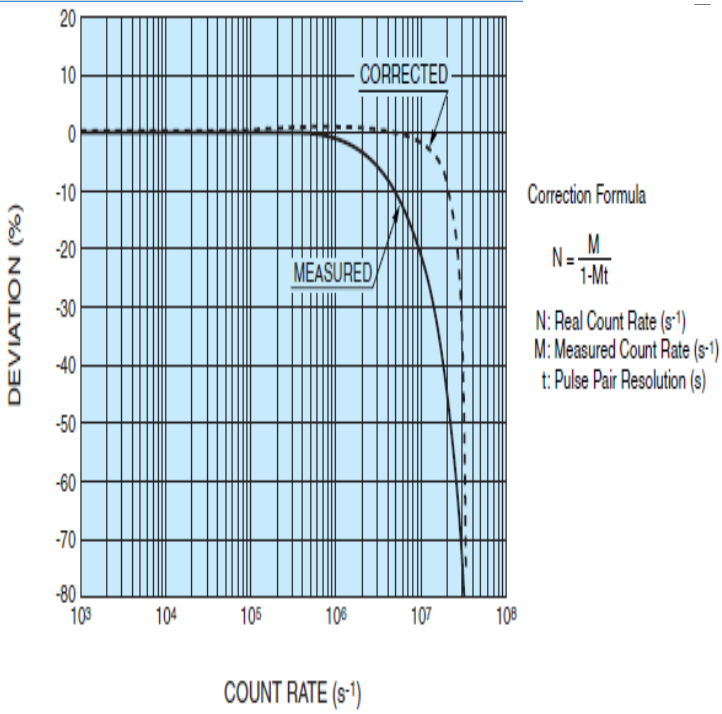
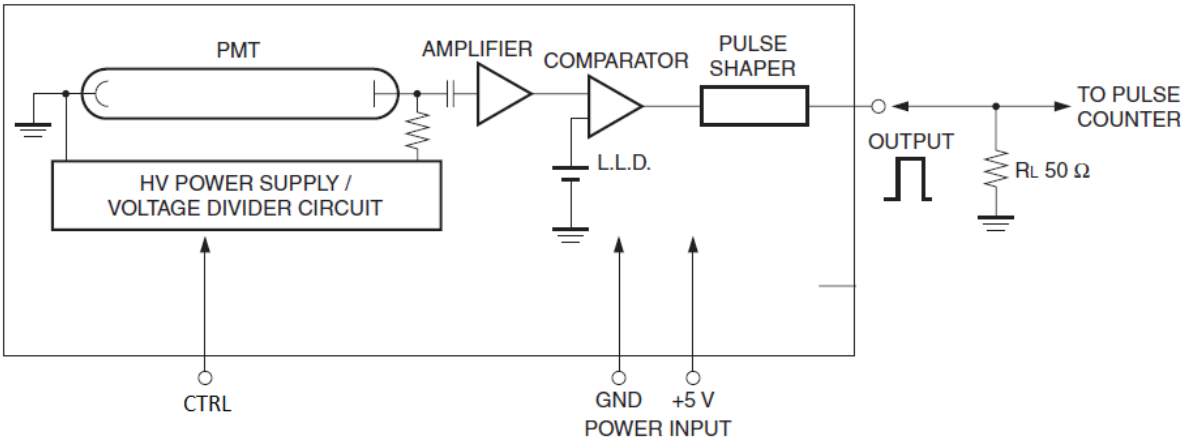




Warning：The above indicators are measured at PMT with 1000V.

Module Block Diagram:



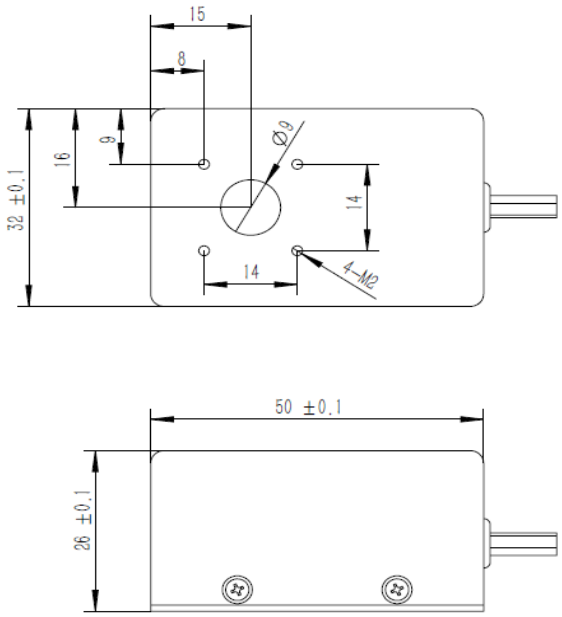
High voltage setting:

The green signal is used to control the high voltage for PMT, and the supply voltage of PMT meets the following formulas:

$$V_{PMT} = (3.558 - V_{CTRL}) * 293.1 + 1.255.$$

Note：If the maximum voltage(1045V)is used，the green signal can be connected to GND; if green signal is suspended, the PMT volvage is 733V.

Dimensional Outline (unit : mm)



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