TEC COOLED PMT

Feature

- High cathode sensitivity
  Luminous 450 µA\lM (Typ.)
  Radiant at 450nm (peak) 85 mA\W (Typ.)
  Quantum efficiency at 260 (peak) 26.3% (Typ.)
- High anode sensitivity
  Luminous 4500 A\lm (Typ.)
  Radiant at 450 nm (peak) 8.5 X 10 5 A\W(Typ.)
- Wide spectral response.....185 nm to 900 nm
- High signal to noise ratio

Application

- Bio fluorescence detection
- Laser scanning microscope
- Spectroscopy
- Environmental monitoring
- Fluorocytometer
- Pollen Monitor

Specifications

GENERAL

Parameter		R9220	Unit
Spectral Response		185 to 900	nm
Photocathode Material		Multialkali	—
PMT Gain		500V - 10^4	—
		1000V – 10^6	
Effective Area of PMT		8*24	mm
Operating Voltage		220-240	VAC
Operating Ambient Temperature		0 to 50	°C
Storage Temperature		0 to 50	°C
Window material		UV glass	
Dynode	Structure	Circular Cage	
	Number of stages	9	
Direct Interelectrode Capacitances	Anode to last dynode	4	pF
	Anode to all other electrodes	6	pF

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MAXIMUM RATING

Parameter				Unit
PMT Supply Voltage	Between anode and cathode	12		V
	Between anode and last dynode	250		V

CHARACTERISTICS (at 25 °C)

Parameter			Min.	Typ.	Max.	
Cathode Sensitivity [2]	Quantum Efficiency	At 260 nm	—	26.3	—	%
		At 260 nm		23.4		%
		At 260 nm		13.3		%
	Luminous		375	450	—	µA/lm
	Radiant	At 450 nm	—	85		mA/W
		At 633 nm	—	68		mA/W
	Red / White ratio		0.2	0.4		
	Blue sensitivity index			12.5		
Anode sensitivity	Luminous		1000	4500		A/lm
	Radiant at 450 nm (peak)		—	8.5×10^5	—	A/W
Gain			—	1.0×10^5	—	—
Anode Dark Current (After 30 min storage in darkness)			—	10	50	nA
Time Response	Anode Pulse Rise Time		—	2.2	—	ns
	Anode Pulse Fall Time		—	22	—	ns
	Transit Time Spread		—	1.2	—	ns

CONTROLLER

Parameter		Value / Description	Unit
Cooling Method		Thermoelectric (Forced Air Cooling)	—
Bandwidth limit		10 KHz – Rise Time: 35 µs	
		10 MHz – Rise Time: 35 ns	
Gain		1x,10x	
Offset adjustment		-3.3V to +3.3V	V
Connector type circular 11 position		LF13WBP-11S	
Cooling Time Required for Operation		Approx 30	min
Input Voltage (AC)		100 to 240 (±10 %) (50 Hz / 60 Hz)	V
Dimensions (W × H × L)	Module	100 × 186 × 150	mm
	Controller	102 × 131 × 279	
Weight	Module	Approx. 0.8	kg
	Controller	Approx. 1.3	
Min cooling temperature range		-5	C
Time to reach max cooling temperature		Approx 15	min
Max input voltage for thermoelectric cooler		12	V
Max input current for thermoelectric cooler		3	A

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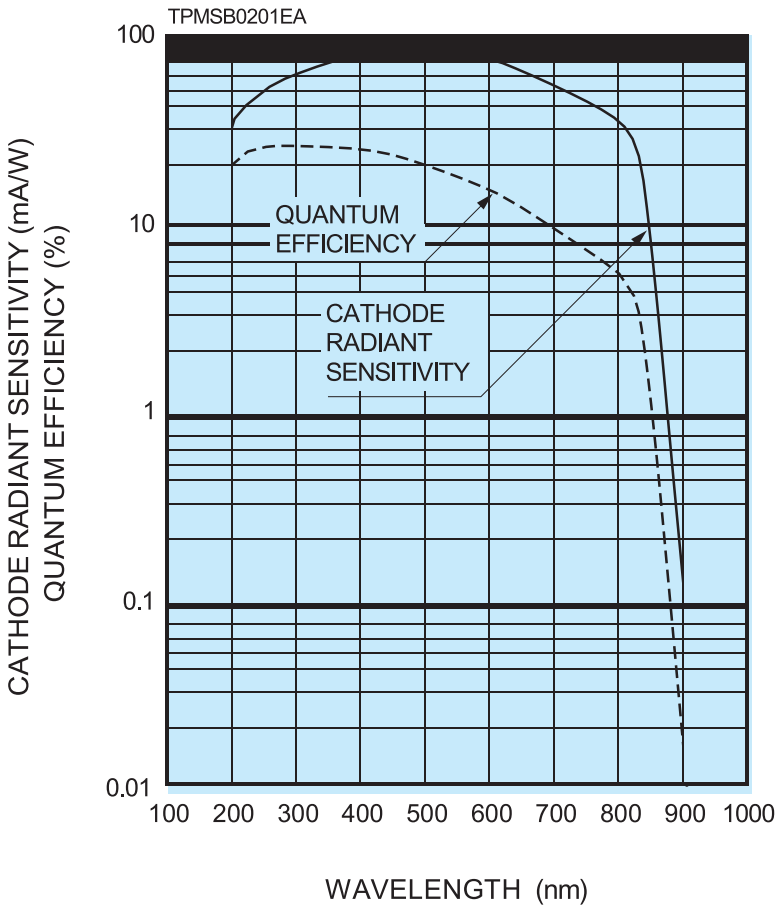
Pc Control Functions

- High Voltage (HV) control (0–1200V)
- TEC cooling temperature monitoring and control
- Real-time photon counting display
- Gain monitoring and control
- Bandwidth limit monitoring and control

Figure 2: Typical spectral response



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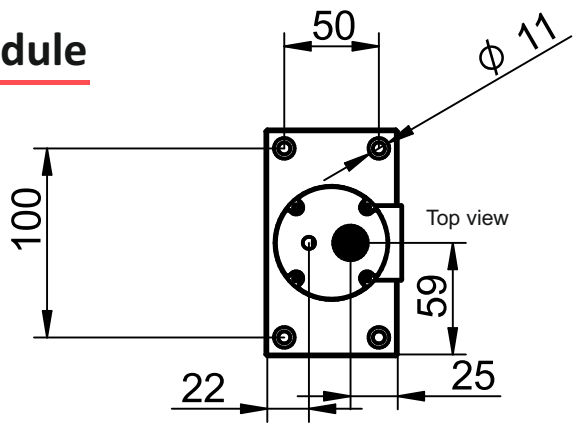
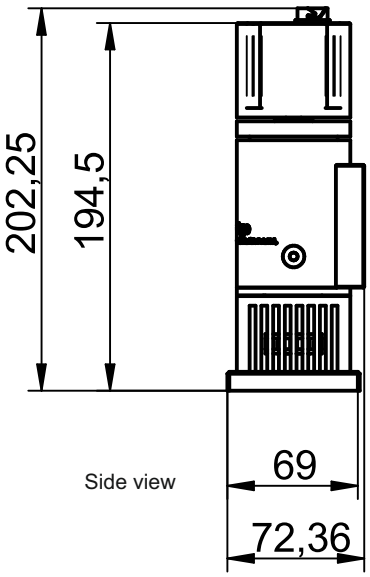
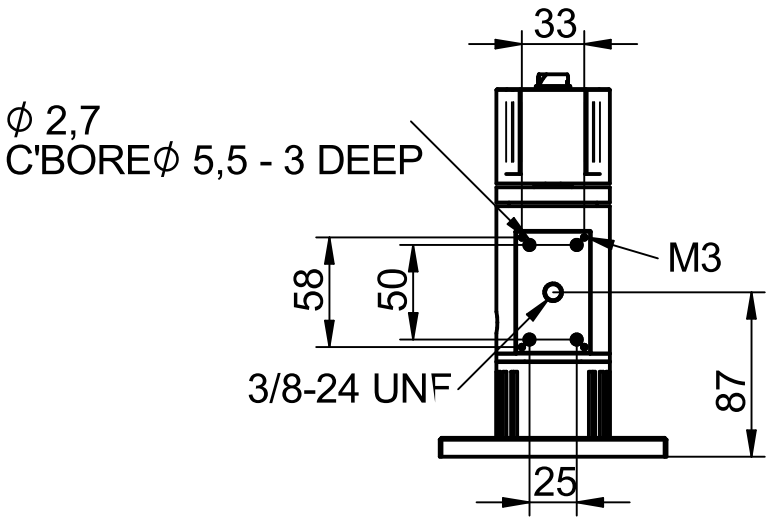
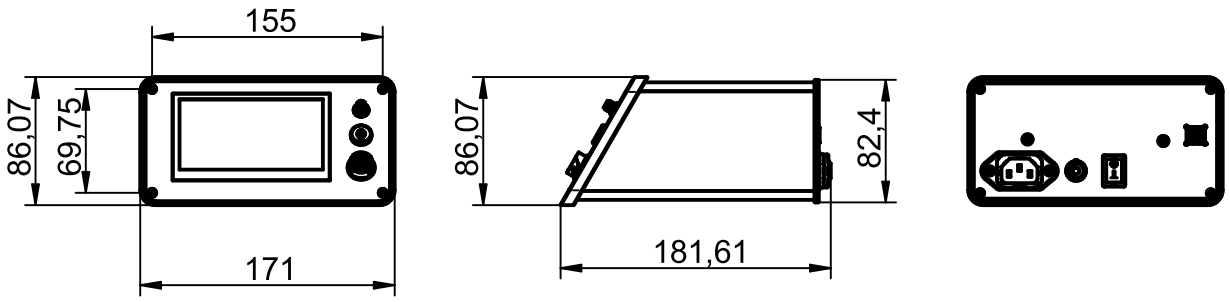
Module







Controller



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