

# Photomultiplier

# XP2020

## 12-stage 51mm (2"), Round tube

### Application

- ✓ Energy physics

### Features

- ✓ Very Fast
- ✓ Very low noise
- ✓ Good linearity



### Description

Window material	Borosilicate glass
Photocathode	Bi-alkali
Refr. Index at 420nm	1.48
Multiplier structure	Linear focused

### Photocathode characteristics

	Min	Typ	Max	Unit
Spectral range :		270-650		nm
Maximum sensitivity at :		420		nm
Sensitivity :				
Luminous :		70		μA/lm
Blue * :	7.5	10		μA/lmf
Radiant, at 420nm		80		mA/W

### Characteristics with voltage divider A

	Min	Typ	Max	Unit
Gain slope (vs supp. Volt., log/log)		9		
For a gain of		3x10 <sup>7</sup>		V
Supply voltage *	1750	2000	2600	V
Anode dark current *		10	100	nA
Background noise *		900	2500	cps
Single electron spectrum resolution		70		%
Peak to valley ratio		2.5		%
Pulse amplitude resolution for <sup>137</sup> Cs		7.2		%
Gain halved for a magnetic field of :				
Perpendicular to axis "n" :		0.15		mT
Parallel to axis "n" :		0.12		mT

### For a supply voltage of : 2000V

	Min	Typ	Max	Unit
Linearity (2%) of anode current up to :		25		mA
Anode pulse :				
Rise time :		1.6		ns
Duration at half height :		3.7		ns
Transit Time :		28		ns

### Recommended Voltage Divider

Type A for maximum gain

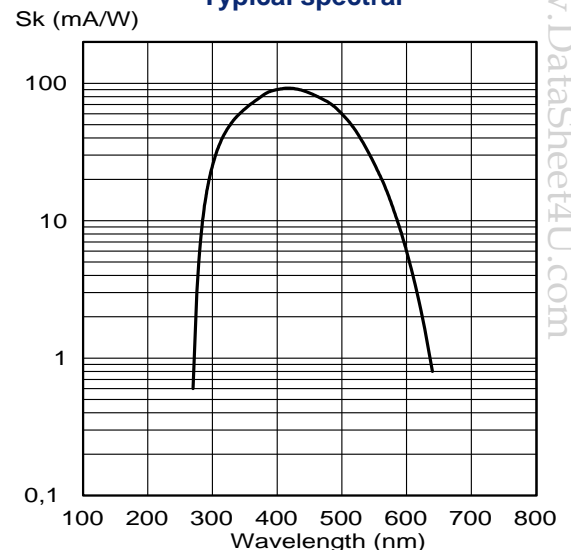
K	G	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	D11	D12	A
1.2	2.8	1.2	1.8	1	1	1	1	1	1	1	1	1	1	(total : 17)

Type C for linearity

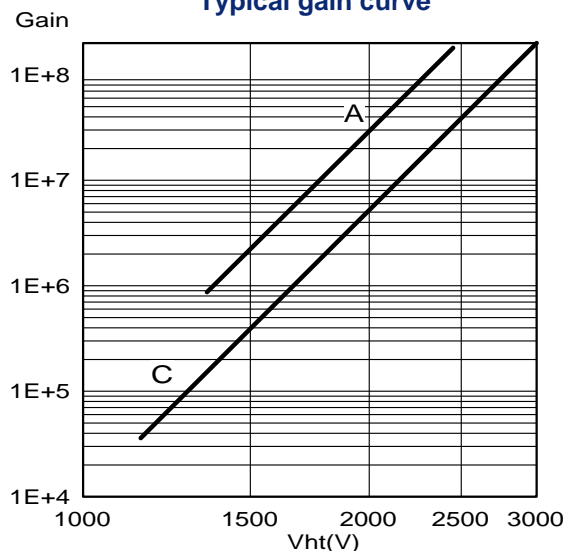
K	G	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	D11	D12	A
1.2	2.8	1.2	1.8	1	1	1	1	1	1	1.5	1.5	3	2.5	(total : 21.5)

\* characteristic measured and mentioned on the test ticket of each tube

Typical spectral



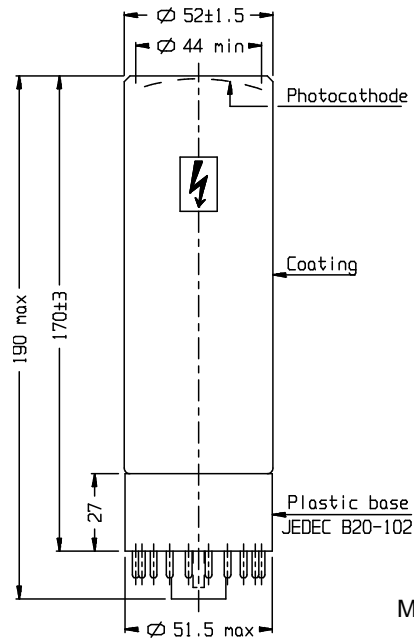
Typical gain curve



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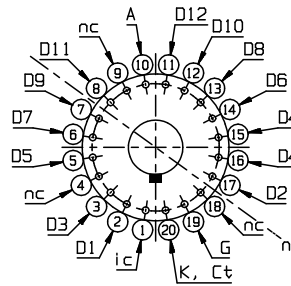
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## Outline (dimensions in mm)



Mass : 240g

Accessories :  
 Socket : FE1120  
 Mu-metal shield : MS172  
 Voltage divider : VD124K/T



K: cathode  
 sp: short pin  
 G: focusing electrode

Dn: dynode  
 ic: internal connection  
 n: plane of symmetry of the multiplier

A: anode  
 nc: not connected

nc: not connected  
 Ct: coating

Limiting values	Min	Max	Unit
Anode Luminous sensitivity		$2 \times 10^8$	
Supply voltage		3000	V
Continuous anode current		0.2	mA
Voltage between :			
G and photocathode :		300	V
First dynode and PK :	210	800	V
Consecutive dynode (except 11 & 12) :		400	V
Dynodes D11 and D12 :		600	V
Anode and D12:	80	700	V
Ambient temperature :			
Short operation (<30 mn) :	-30	+80	°C
Continuous operation & storage :	-30	+50	°C

## Variants

XP2020

### Finishing

**F** with flying leads  $\varnothing 0.5$   
**FB** with flying leads and plastic base

Also, other variants can be made. Please, contact us to discuss any specific product requirements.