

DU MONT

ALLEN B. DU MONT LABORATORIES, Clifton, N. J.

DIVISIONS OF **FAIRCHILD**
CAMERA AND INSTRUMENT
CORPORATION

TYPE 7860

INDUSTRIAL MULTIPLIER
PHOTOTUBE

Ruggedized 10-stage Multiplier Phototube



ACTUAL SIZE

SMALL SIZE FOR LIMITED SPACE USE

The type 7860 is a 10-stage multiplier phototube with a flat end-window type photocathode having an S-11 response. This tube employs silver magnesium dynodes. Silver magnesium is used because it has very stable secondary emitting characteristics over long periods of time.

RIGOROUS SHOCK AND VIBRATION TESTS

Du Mont multiplier phototubes are subjected to rigorous shock and vibration tests. The ruggedized 7860 is tested for VIBRATION at 10g, 25 to 2000 cycles and shock at 40g, 11 millisecond duration. Both tests are performed in each of 3 mutually perpendicular planes for increased reliability.

A potted base is used to keep the maximum diameter equivalent to that of the bulb, and to improve shock resistance.

SPECIFICATIONS

The Du Mont Type 7860 overall length has been shortened considerably over that of conventional types. In conjunction with its small diameter, it is ideally suited for applications where space considerations are of major importance. A potted base is used to keep the maximum diameter equivalent to that of the bulb, and to improve shock resistance. This tube type employs silver magnesium dynodes.

GENERAL CHARACTERISTICS

Electrical Data	Min.	Avg.	Max.	Units
Spectral Response		S-11		
Cathode luminous sensitivity at 210 volts, 0 cycles between cathode and all other electrodes	30	50		$\mu\text{A}/\text{Lumen}$
Anode luminous sensitivity at 105 volts/stage, 0 cycles	3	7.5		A/Lumen
Cathode sensitivity at maximum response at 210 volts between cathode and all other electrodes		.045		$\mu\text{A}/\mu\text{W}$
Anode dark current at 105 volts/stage (25°C.)			.05	μA
Current amplification at 105 volts/stage		150,000		
Wavelength at maximum response		4,400 \pm 500		Angstroms

FEATURES

- 10 Dynode Stage
- S-11 Response
- Small Size:
 - overall length — 3 $\frac{3}{8}$ "
 - Diameter bulb — $\frac{3}{4}$ "
- Silver Magnesium Dynodes
- Maximum Stability at high voltage
- Potted Base For:
 - a. Shock Resistance
 - b. Moisture Resistance
 - c. Socket Elimination
 - d. Noise Free Connections

APPLICATION

- Scintillation Probes
- Analysis Low Level Light Sources
- Oil Exploration
- Spectroscopy

PRINTED
IN
U.S.A.

DU MONT

ELECTRONIC TUBE SALES DEPARTMENT
750 Bloomfield Avenue
Clifton, New Jersey, U.S.A.

SPECIFICATIONS (Con't.)

Electrical Data

Wavelength at 10% of maximum response on long wavelength side
 Wavelength at 10% of maximum response on short wavelength side

Mechanical Data

Window dimensions, minimum
 Tube diameter
 Overall length
 Base — Resin (potted) flexible leads
 Mounting position
 Window index of refraction

Avg.

6,125 ± 275
 3,250 ± 250

Units

Angstroms
 Angstroms
 Inch Dia.
 Inch
 Inches

1/2
 3/4 ± 1/32
 3 3/8 ± 1/4

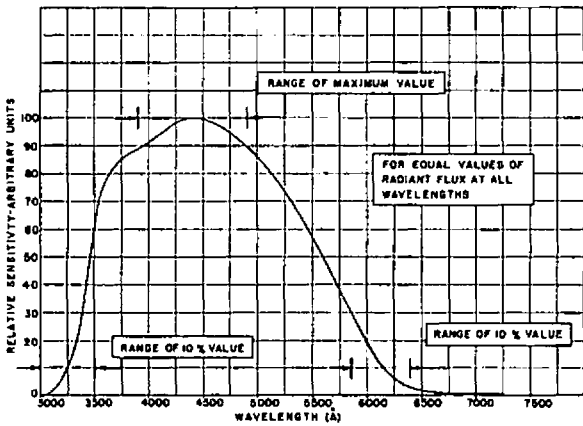
Any
 1.5

MAXIMUM RATINGS

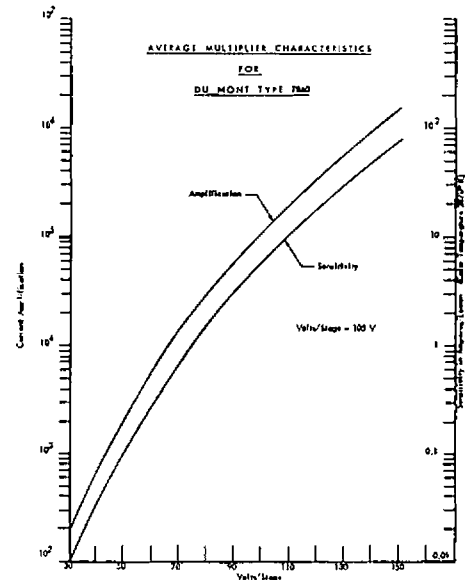
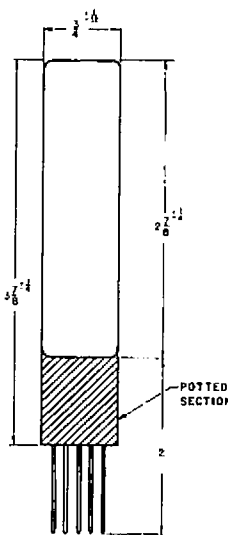
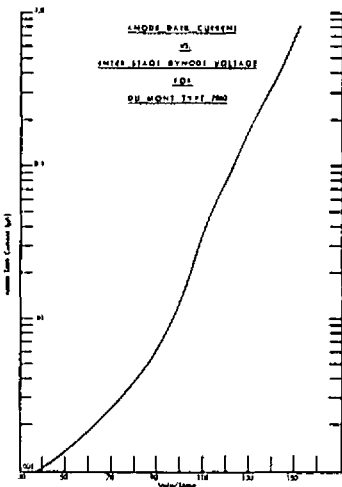
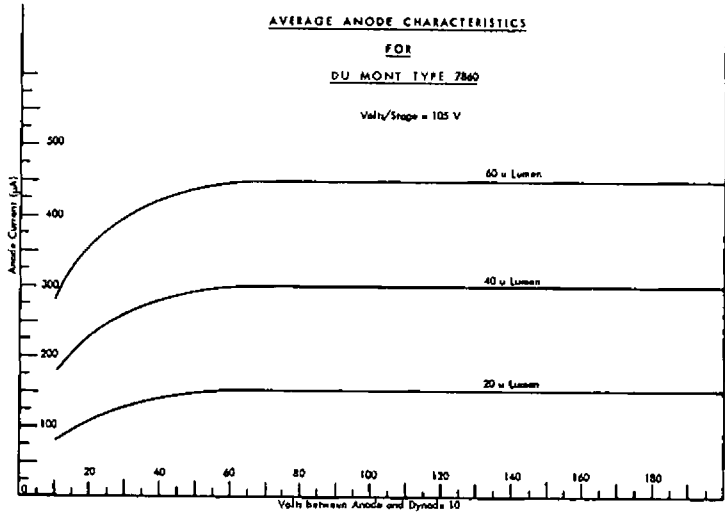
	Max.	Units		Max.	Units
Peak cathode current ¹	10	μA	Supply voltage between last dynode and anode (DC or peak AC)	125	Volts
Average anode current ²	1	mA	Supply voltage between cathode and first dynode (DC or peak AC)	250	Volts
Average anode dissipation ²	0.5	W	Ambient temperature	75°	C
Peak anode dissipation	2.0	W			
Supply voltage between anode and cathode (DC or peak AC)	1,300	Volts			

NOTES

1. The cathode current given here is that current at which the response of the cathode ceases to be a linear function of the light intensity because of cathode resistance. In general, the cathode current must be kept well below this value in order to satisfy the maximum ratings on the anode current.
2. Averaged over a 30 second interval maximum.



SPECTRAL RESPONSE OF S11 PHOTOCATHODE



JOINT ELECTRON DEVICE ENGINEERING COUNCIL



Supplementary Information
of
Electron Device Type Registration

Release No. 3137

March 6, 1961

2260 SALMON TOWER
11 WEST FORTY-SECOND STREET
NEW YORK 36, N. Y.
TELEPHONE - LONGACRE 5-0717

E. I. A.
REGISTRATION
FILE

The Joint Electron Device Engineering Council announced the registration of the following electron device designation

7860

on February 6, 1961, under the sponsorship of Allen B. Du Mont Laboratories, Clifton, New Jersey.

The specification for registration of type 7860 failed to show the basing diagram. Please note the following:

Pin 1	Dynode	No. 1
Pin 2	Dynode	No. 3
Pin 3	Dynode	No. 5
Pin 4	Dynode	No. 7
Pin 5	Dynode	No. 9
Pin 6	Anode	
Pin 7	Dynode	No. 10
Pin 8	Dynode	No. 8
Pin 9	Dynode	No. 6
Pin 10	Dynode	No. 4
Pin 11	Dynode	No. 2
Pin 12	Cathode and Focussing Electrode (Shield)	

The first lead counter-clockwise from the red lead is Pin No. 1 (viewing from bottom of tube).