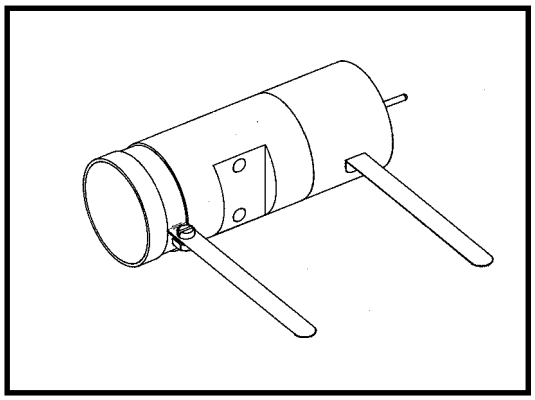
7550m
7551m

Electron Multipliers

Ceramic Channel Electron Multiplier for Pulse Counting

CERAMAX™: Maximize Your Instrument's Performance With Our Ceramic CEM



The Model 7550m and 7551m are K and M Electronic's channel electron multipliers (CEMs) preferred by instrumentation designers in such applications as Mass Spectrometry, Auger Electron Spectroscopy, Scanning Auger Microanalysis, Electron Spectrometry for Chemical Analysis, Secondary Ion Mass Spectrometry/Ion Microanalysis, Electron and Field Ion Microscopy and Vacuum UV Spectroscopy.

The MODEL 7550m has a high acquisition rate (5×10^6 counts per second at a gain of 3×10^7); the MODEL 7551m has an intermediate acquisition rate (9×10^5 counts per second at a gain of 3×10^7). The rugged monolithic ceramic design significantly extends multiplier life.

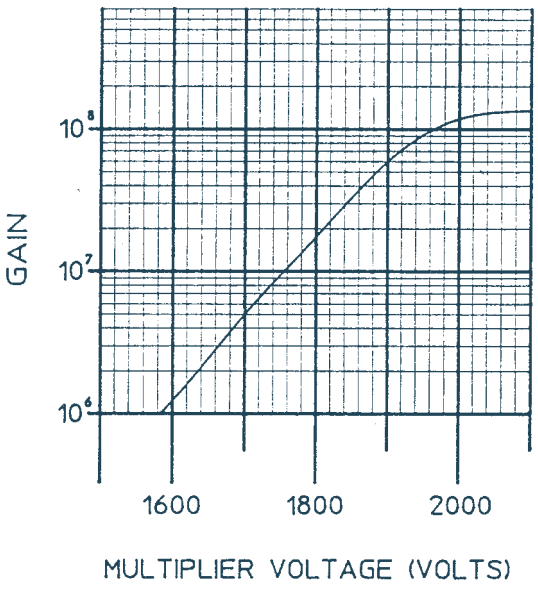


Figure 1 - Typical Gain Characteristics

Features

- Background signal less than instrument baseline noise, therefore, microphonics are virtually eliminated
- Capable of high output current - greater than 1mA
- Vacuum bakeable at 350°C
- Operable to 3×10^{-4} torr (He)
- Operable at elevated temperatures:
  MODEL 7550m: 120°C (heat sink req.)
  MODEL 7551m: 200°C
- Mounting holes provided for ease of installation

Benefits

- Extended multiplier life
- Gain up to 1×10^8
- Capable of absorbing high thermal and physical shock

SPECIFICATIONS

OPERATING PARAMETERS @ 23°C (1)

	7550m		7551m		
	MIN	MAX	MIN	MAX	Units
Supply Voltage	1200	3000	1200	3500	Vdc
Vacuum	--	$3x10^{-4}$	--	$3x10^{-4}$	torr (He)
	--	$5x10^{-5}$	--	$5x10^{-5}$	torr (air)
Dynode Power Dissipation	--	500	--	100	mW
Average Anode Current (60 sec)	--	20	--	15	mA
Resistance @ 10Vdc:					
Total (R_T)	20	28	100	180	MW
Anode Bias (R_A)	3	7	3	7	$\%R_T$
Thermal Coefficient of Resistance					
(TCR_{RT}, TCR_{RA})	--	-0.7	--	-0.7	%/ °C

	1600	1800	2000	Vdc
Gain(2) (typ; see fig. 1)	$1x10^6$	$2x10^7$	$1x10^8$	----
Background Signal:				
Output Dark Pulses (max)	0.05	0.05	0.05	counts/sec
Output Dark Current (typ)	$1x10^{-14}$	$2x10^{-13}$	$1x10^{-12}$	A

Notes: (1) For operation at elevated ambient temperatures, K and M Electronics can provide derating information. (2) Values specified for electron gain are those existing at the time of shipment. Gain typically decreases with use. Periodic supply voltage increases are required so as to maintain the gain above a specific level. Multipliers are shipped in sealed bags containing dry nitrogen - it is recommended that the seal not be broken until use.

Figure 2 - Dimensions for Models 7550m/7551m CEMs

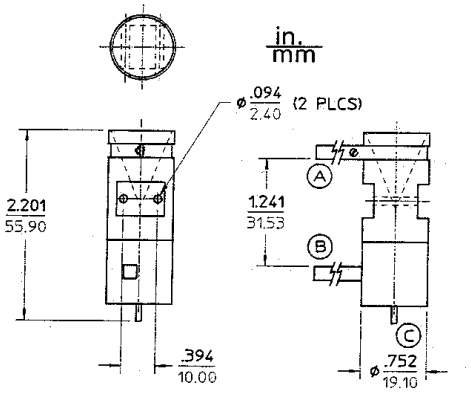
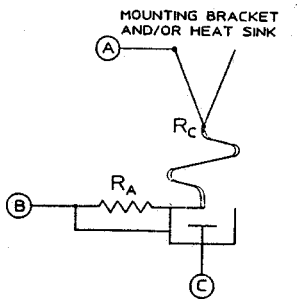


Figure 3 - Schematic



R_C : CHANNEL RESISTANCE
R_A : ANODE RESISTANCE (INSIDE ANODE HOUSING)
(A) CHANNEL INPUT LEAD
(B) CHANNEL OUTPUT LEAD
(C) SIGNAL OUT

K and M Electronics
11 Interstate Drive
West Springfield, MA 01089-4531 USA
(413) 263-6200 • 800-442-4334 • fax: (413) 737-0608
http://www.kandm.com

ITT Industries
Engineered for life