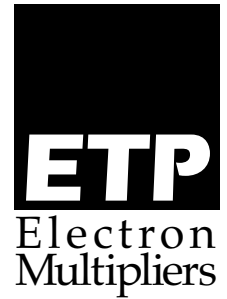


# Models 14520 and 14521

## for General Quadrupole Analogue applications



PRODUCT DATA

ETP has, by now, significantly more than nine years manufacturing experience.

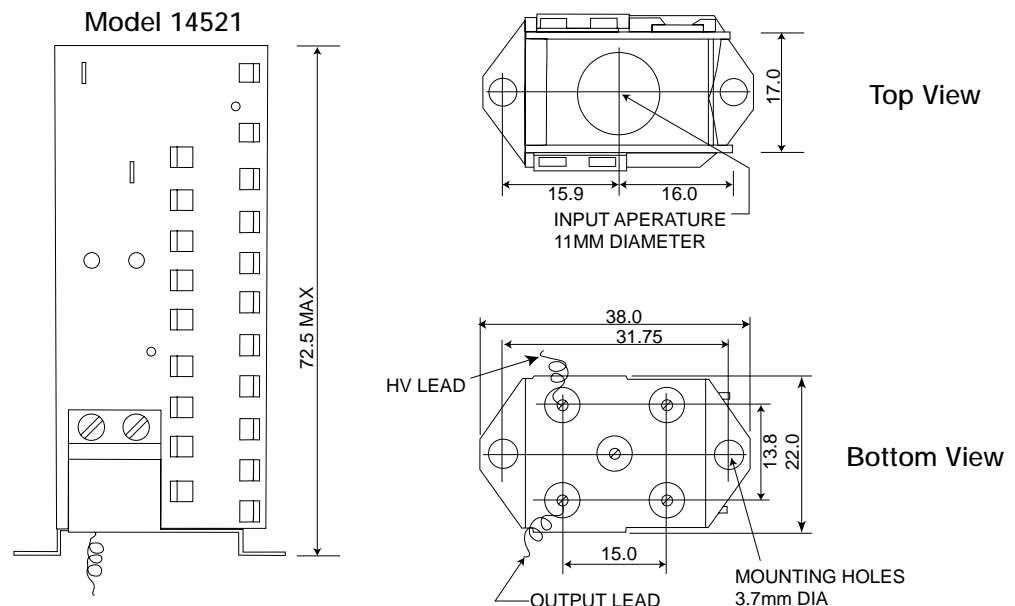
Six years of directed research and development and nine years of electron multiplier manufacturing experience have been combined to produce a completely new electron multiplier with exceptional gain, operating life, dynamic range and noise characteristics. ETP Active Film Multipliers employ a newly developed dynode material in an optimized dynode structure to achieve an order of magnitude improvement in most significant performance features.

ETP Active Film Multipliers offer a real performance improvement over alternative electron multipliers.

### Features

- Exceptional Gain  $> 10^5$  at 1.5 KV
- Exceptional Linearity, linear output currents  $> 50$  Microamps
- Low Noise  $< 10^{-12}$  Amps at 2.5 KV
- Long Life expectancy
- Bakeable in vacuum to 350°C
- Repeated or long term exposure to air has no effect on performance

Figure 1



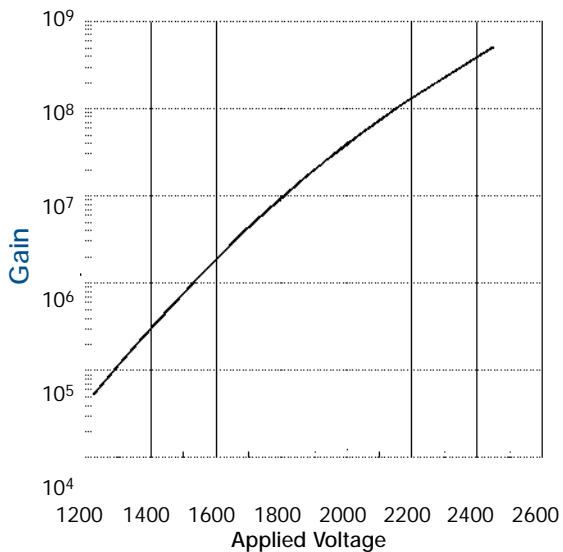
## Application Notes

ETP's Active Film multipliers model 14521, and 14521H were specifically designed for positive ion detection in quadrupole mass spectrometers. The first dynodes are shielded from line-of-sight radiation and neutrals so that the multipliers are sensitive only to positive ions. Model 14521 is a high current version which enables linear response with output currents up to 50 microamps when operated at 1300 volts. This linear output current limit increases proportionally with increased operating voltage. Design flexibility enables alternative configuration for special requirements.

## Extended Operating Life Of Active Film Multipliers

Accelerated life testing, theoretical predictions and field data all indicate that 14521 and 14521H Active Film Multipliers have an operating life five or more times longer than alternative multipliers under similar conditions.

| Specifications  | 14521       | 14521H       |
|---|-------------|--------------|
| Maximum Voltage Required to Achieve $10^5$ Gain           | 1.5KV       | 1.5KV        |
| Maximum linear output current when operated at 1300 volts | 5 Microamps | 50 Microamps |
| Maximum dark current when operated at 2.5KV (Picoamps)    | 1           | 1            |
| Maximum Bakeout Temperature in Vacuum                     | 350°C       | 350°C        |
| Maximum input ion energy                                  | 25eV        | 25eV         |
| Number of Dynodes   | 18          | 18           |
| Total Internal Resistance (Megohms)                       | 25.9        | 2.6          |



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