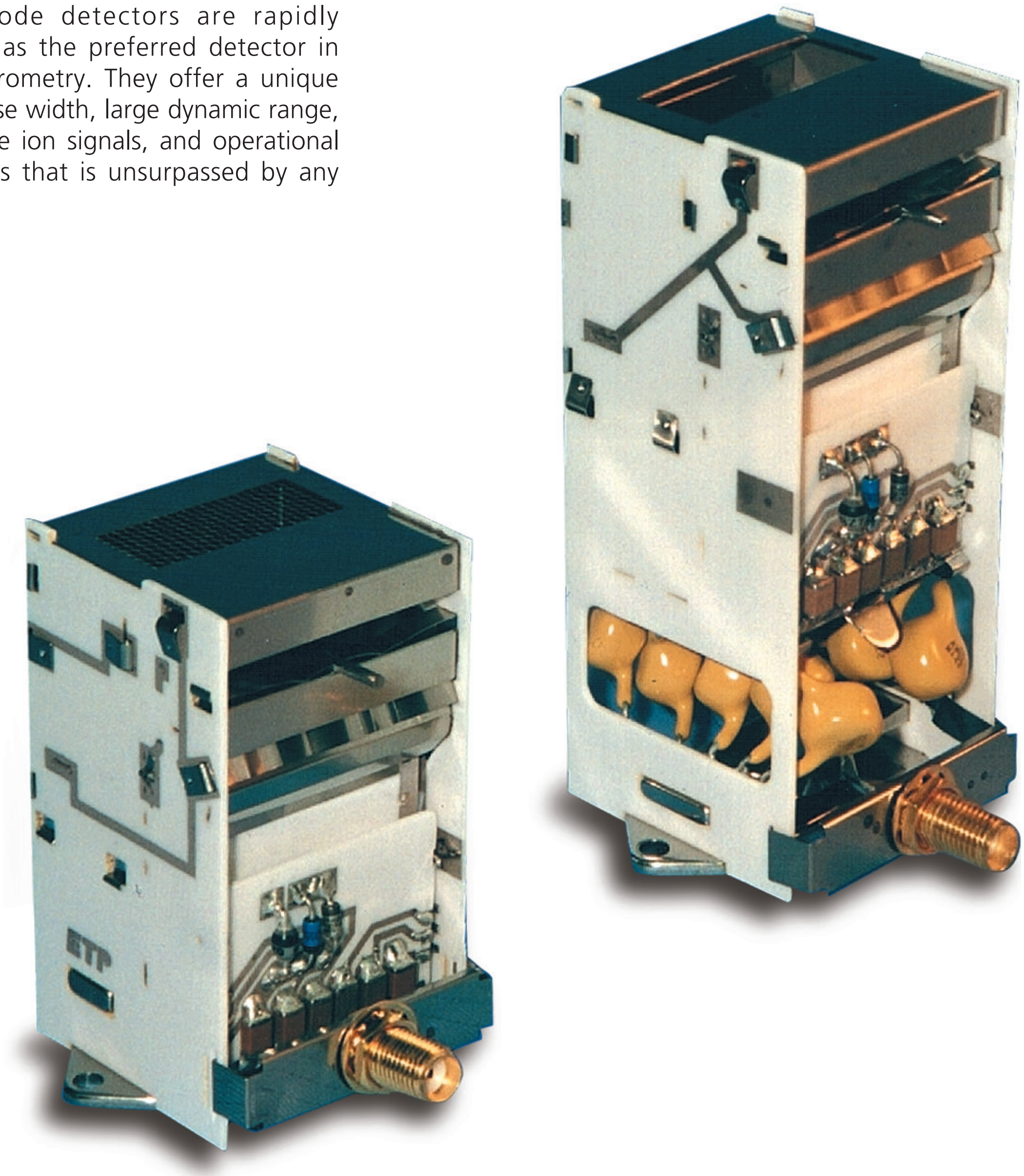
Fast Discrete Dynode TOF Detectors from ETP

ETP's fast discrete-dynode detectors are rapidly gaining wide acceptance as the preferred detector in Time-Of-Flight mass spectrometry. They offer a unique combination of narrow pulse width, large dynamic range, rapid recovery from intense ion signals, and operational and mechanical robustness that is unsurpassed by any other type of detector.



• *ETP's fast TOF detectors model 14880 (left) and 14882 (floating version, right).*

OPTIONS

Any combination of the following options are available for both the 14880 and the 14882.

OPTION 1 - JITTER COMPENSATION

The standard 14880 and 14882 TOF detectors provide very narrow pulse widths only for multiple positive ions over an energy dependant mass range (see publication "Taming the Jitter in a Discrete Dynode TOF Detector" for details). A jitter compensated option is available for both the 14880 and 14882 detectors and reduces their multiple ion pulse width to ~3 nanoseconds for both positive and negative ions of all masses and energies.

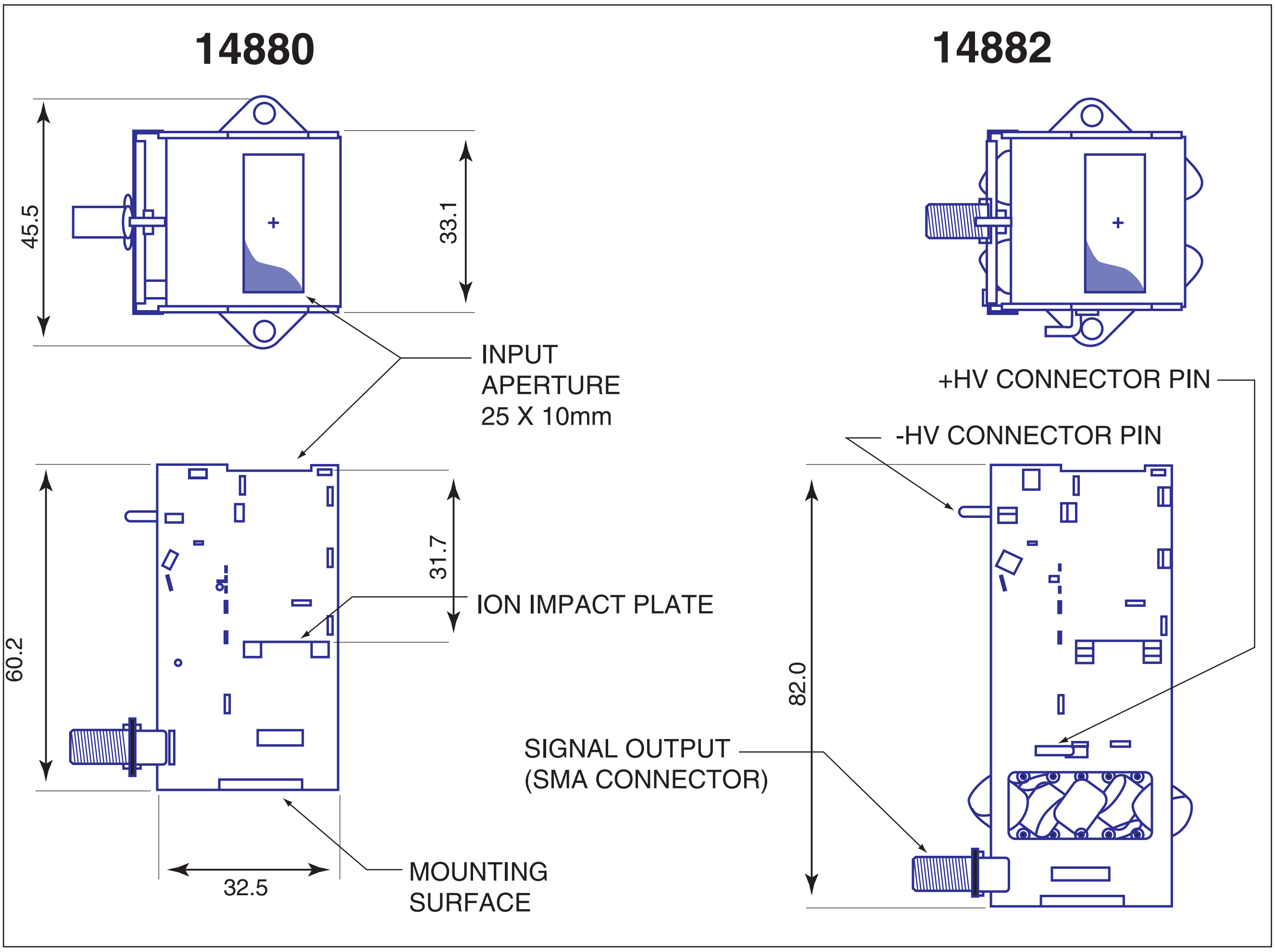
OPTION 2 – HIGH PRECISION MOUNTING ARRANGEMENT

The standard 14880 and 14882 TOF detectors use a convenient mounting surface at the base of the detector. Using this standard mounting arrangement will ensure that the ion impact plate is parallel to the mounting surface with a tolerance of less than ±100 micrometers (microns). Option 2 may be used for more demanding applications where the detector is mounted on an extension of the impact plate. This reduces the parallelism tolerance to within ±20 microns.

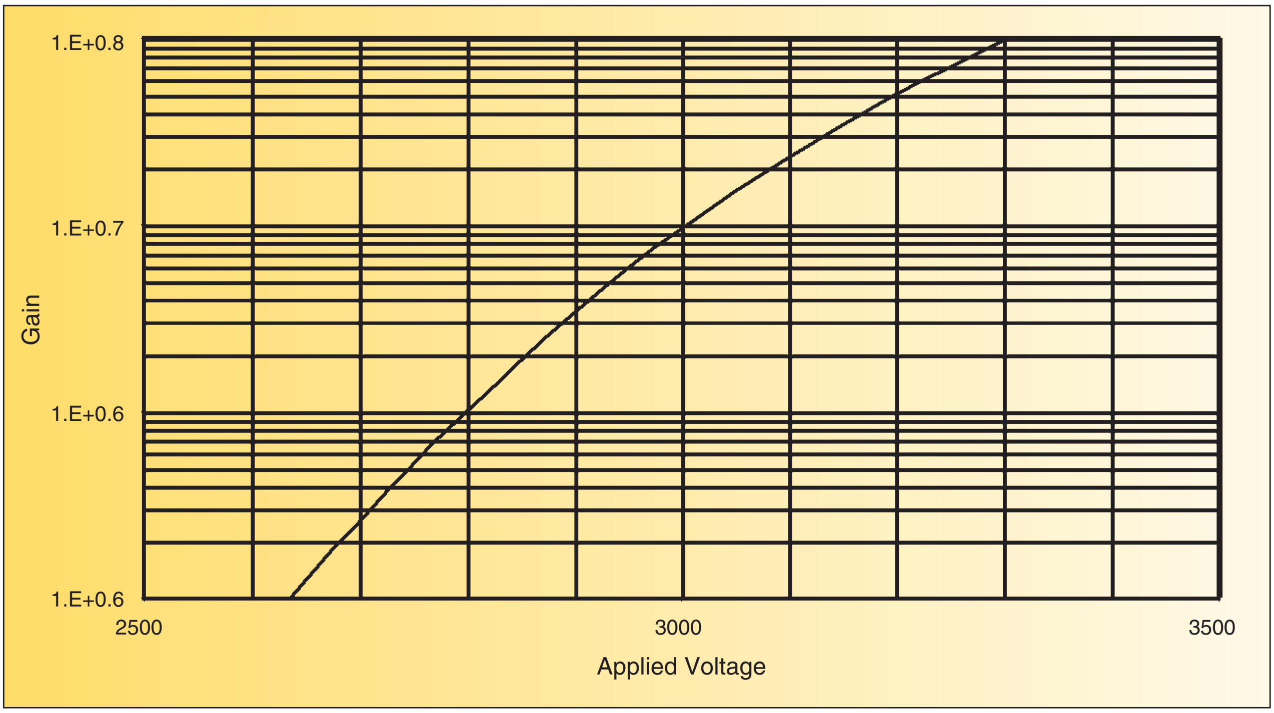
OPTION 3 - ENTRANCE GRID AT -HV

The standard 14880 and 14882 TOF detectors use internal circuitry to control the voltage of the ion entry grid to +250 volts with respect to the -HV connection and ion impact surface. This eliminates spurious signals (precursor peaks) that can arise from secondary electrons emitted from the ion entry grid. With option 3, the internal circuitry is altered so that the entry grid and ion impact plate are both held at -HV. This can cause precursor signals of up to ~0.1% of the primary peak, but may be preferable for some applications to simplify the system's ion optics arrangement.

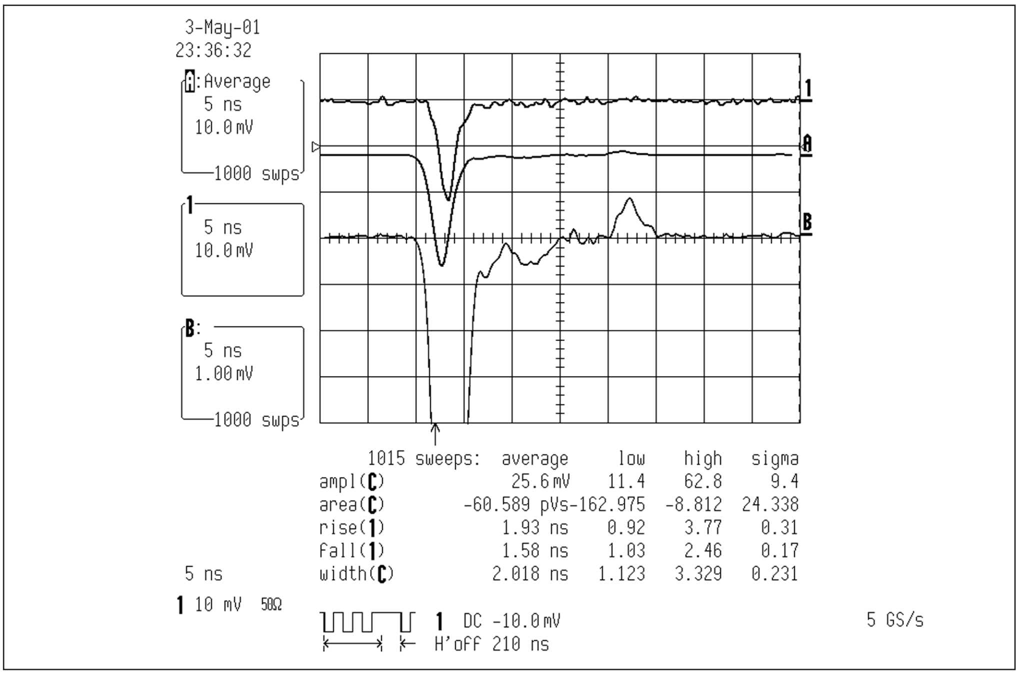
SPECIFICATIONS	14880	14882
Pulse width for single ion event (FWHM, typ.)	2.0ns	2.1ns
Pulse width for multiple ion event (FWHM typ.) (jitter compensated option equired to achieve this spec for some applications)	3ns	3ns
Recovery time after large pulse (500mV into 50Ω)	<5ns	<5ns
Sensitive area	10 x 25mm	10 x 25mm
Maximum sustained output current for linear operation	30μA	30μA
Peak output current for linear operation	10mA 500mv into 50Ω	10mA 500mv into 50Ω
Maximum charge in output pulse for linear response	109 electrons	109 electrons
Typical gain with 2.8kV applied voltage (Voltage applied between:)	1 x 106 (-HV and earth)	1 x 106 (-HV and +HV)
Maximum recommended applied voltage (Voltage applied between:)	4.5kV (-HV and earth)	4.5kV (-HV and +HV)
Maximum recommended applied voltage between +HV and earth with signal referenced to earth (float voltage)	Not Applicable	±10kV
Number of dynodes	24	24
Maximum dark counts at 107 gain	20 counts/min	20 counts/min
Internal resistance	19MΩ	19MΩ



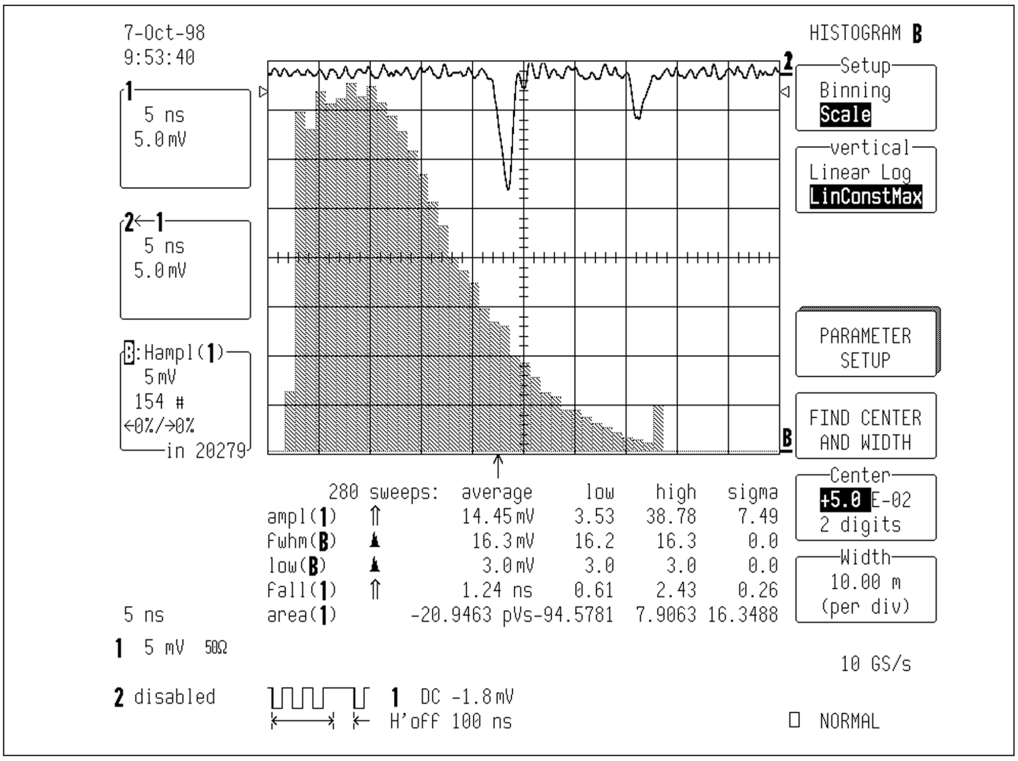
• *Mechanical Details.*



• *Typical Gain Curve.*



• *Typical Pulse Shape.*



• *Typical Pulse Height Distribution.*

ETP electron multipliers

ETP Electron Multipliers
ABN: 35 078 955 521
Address: 31 Hope Street,
Melrose Park NSW 2114
Australia
Tel: +61 (0)2 8876 0100
Fax: +61 (0)2 8876 0199
Email: info@etp-ms.com
Web: www.etp-ms.com