

Data/Control Inputs and Outputs and Special Applications

The inputs/outputs described below are included on Hiden EQP / PSM / SIM / EQS / EPIC, IDP, IMP and 3F/PIC systems

Input/Output	Signal Specification	Application
Ion pulse output	TTL level, 25ns wide pulses. Gated by dwell timer or ungated (continuous)	Direct output of counts for use with a high-speed multichannel analyser
Gating input	TTL gate width 100 nanosec minimum	To enable or disable count for plasma afterglow measurements, TOF ESD and SIMS End Point Detection
External input for overpressure protection	Contact closure or TTL signal.	To protect multiplier and filaments
X & Y raster. Used only on HAL EQS/ HAL SIM systems	-10 to +10V for both X & Y outputs	Raster ion gun beam
Raster beam control output for EQS, SIM and IMP probes	Opto - isolated output	Ion gun beam on/off control
SIMS target bias voltage output for EQS, SIM and IMP probes	-370V to +370V	SIMS sample bias control
Reference Input. Included on HAL EQP systems with 1000V option	-1000 to +1000V	To allow probe to float on externally determined reference - instead of internal reference. Provides a lock to plasma conditions. If reference set to 500V and Quad Energy set to -100 to +100V scan, then 400 to 600 is scanned

Data/Control Inputs and Outputs and Special Applications ... continued

Input/Output	Signal Specification	Application
Analog Output. Single channel included, for multichannel option see below	10V at 10^7 cps or 10V at 10^5 cps	To follow transients
Multichannel analog O/P	Up to 20 analog O/P fitted as option	Process control
Analog inputs	Two inputs each $\pm 10V$ or $\pm 1V$ FSD Option available to extend to 9 inputs	Acquisition of user parameters synchronised with mass spectral data, temperature for example
Mass output	0 to 10V signal corresponding to demanded mass	External data logging
Mass input	0 to 10V signal corresponding to mass required	External control of mass scale
General purpose digital I/O	5 x TTL inputs and outputs	Synchronisation with external equipment and processes
Trip relays	2 x changeover relay contacts	Protection of external equipment and process signalling

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