

SmartPrecision™ Electronics Module

The Mercury 2000 encoder system includes the SS200c SmartPrecision electronics module. This compact, fully-featured signal processing system performs the following functions:

- Interpolation - up to 256X with 28.8 million quadrature states / sec.
- Programmable interpolation level and output bandwidth
- Accuracy optimization - sensor signals are automatically optimized to improve system accuracy and maximize repeatability
- Signal strength indication - red / yellow / green LEDs assist during setup and provide diagnostics at a glance
- Index centering - centers the bi-directional index output pulse for repeatability to +/-1LSB
- Power-indicating LED
- Computer interface - for programming and data acquisition using SmartPrecision software
- Superior EMI / RFI immunity - CE compliant
- Mounting options - all electronics are within the EMI-shielded connector housing and can be screwed directly into a mating connector that is bulkhead mounted, or the module may be mounted to the frame of your motion system and connected using an extension cable

Programmable Interpolation

The electronics module has programmable interpolation that is selectable over the range x4 to x256 in integer steps, providing output resolutions that can be matched to your application requirements. This feature provides linear resolutions from 5µm to 0.078µm in convenient increments (e.g. x200 interpolation = 0.1µm) and rotary resolutions from 6,600 CPR to 4.2M CPR. Specify the interpolation value at the time of ordering or select the interpolation at your site using SmartPrecision Software.

Programmable Maximum Output Frequency

For encoder applications combining high resolution and high speed, the SmartPrecision electronics module supports up to 28.8 million quadrature state changes per second**. By specifying the maximum output frequency to match your controller's capability - ranging from 900,000 up to 28.8 million quadrature state changes per second - the Mercury encoder system will never produce encoder counts faster than your controller can read them. Specify the encoder's maximum output frequency at the time of ordering or select the setting at your site using MicroE's SmartPrecision Software.

* The electronics module's serial computer programming interface can be translated to be RS-232 compatible using the MicroE SmartPrecision Computer Interface Adapter or a voltage translation circuit of your own design.

** "Quadrature state changes per second" is the reciprocal of "dwell time" or "edge separation". For example, 28.8 million states per second = 0.035µsec dwell time.

*** Future availability, contact MicroE.

All Specifications are subject to change. All data is accurate to the best of our knowledge. MicroE Systems is not responsible for errors.



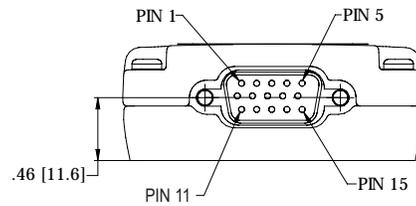
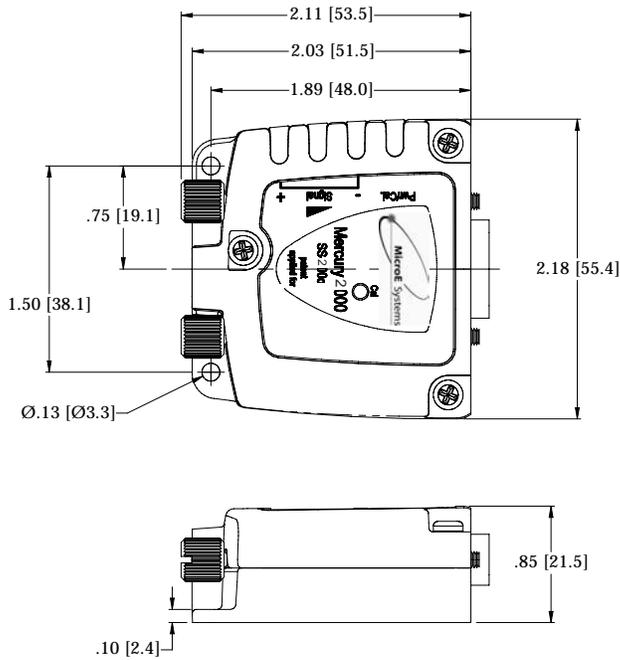
SmartPrecision module enclosure provides "Best-in-Class" noise immunity for high noise environments.

SS200c Outputs:

15-pin high density Male D-sub connector

PIN	FUNCTION
1	Reserved - do not connect
2	Serial programming interface -transmit*
3	Serial programming interface -receive*
4	A - quadrature
5	A + quadrature
6	Reserved - do not connect
7	Reserved - do not connect
8	Reserved - do not connect
9	B- quadrature
10	B+ quadrature
11	Reserved - do not connect
12	+5V
13	Ground
14	I+ index
15	I- index

Mechanical Information - electronics module

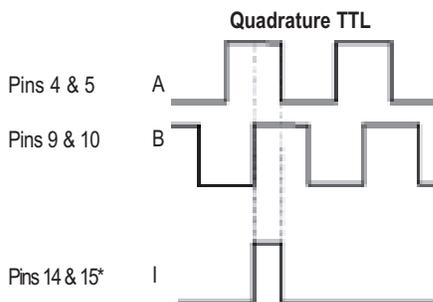


Male D connector

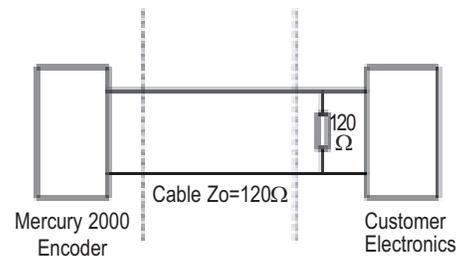
Maximum Quadrature Output Frequency

Output Frequency	A-quad-B Output Rate	Dwell Time (or edge separation)
7.2MHz	28.8M quadrature states / sec	0.035µsec
3.6MHz	14.4M quadrature states / sec	0.069µsec
1.8MHz	7.2M quadrature states / sec	0.139µsec
900kHz	3.6M quadrature states / sec	0.278µsec
450kHz	1.8M quadrature states / sec	0.555µsec
225kHz	900k quadrature states / sec	1.111µsec

Output Signals



Signal Termination for A-Quad-B and Index



*Note: The index pulse may be aligned with A- or B- at some interpolation values.

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