Novanta PHOTONICS

ENGINEERED BY CAMBRIDGE TECHNOLOGY

CRS SERVO DRIVER

HIGH-PERFORMANCE RESONANT SCANNER SERVO DRIVER FOR HIGH FREQUENCY APPLICATIONS

Novanta develops photonics solutions through our globally recognized brands— ARGES, Cambridge Technology, Laser Quantum and Synrad— specializing in cutting-edge components and sub-systems for laser-based diagnostic, analytical, micromachining and fine material processing applications. Powerful lasers, coupled with advanced beam steering and intelligent sub-systems incorporating software and controls, deliver extreme precision and performance, tailored to our customers' demanding applications.

OPTICAL SCANNING

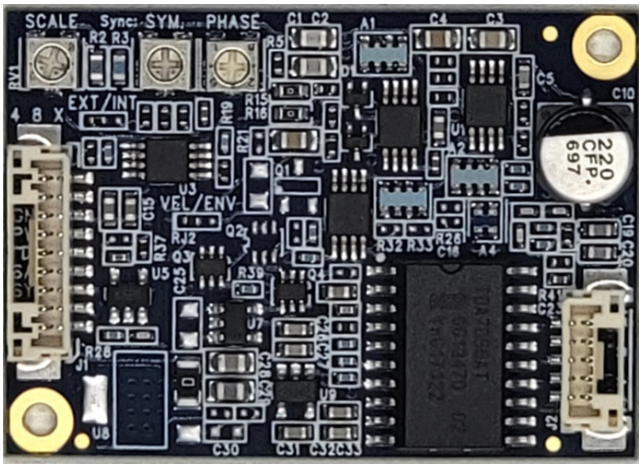
For maximum performance, our CRS (resonant scanners) work seamlessly with the CRS driver board featuring smooth and accurate control. Ideal for high-frequency applications such as:

- Fluorescent Microscopy
- Semiconductor Imaging
- Confocal Microscopy
- Process Verification
- Ophthalmic Imaging
- Mask inspection
- Machine vision
- Web inspection

The CRS servo supports all CRS models:

CRS	Max Angle*
4 kHz	24° opt p-p
8 kHz	26° opt p-p
12 kHz	10° opt p-p

*Check CRS manual about special conditions for operation at max angles



COMPLETE YOUR CRS SOLUTION

The CRS driver board maintains the scanner at mechanical resonance and controls its amplitude while providing useful signals for integration into a scanning subsystem. The board outputs a 3.3V LVCMOS sync signal for use with external clocks. The phase of this signal relative to mirror position is adjustable. The amplitude can be configured to be remotely set (or varied) via an external 0-5V analog voltage reference. The amplitude stabilization of 0.02% of peak amplitude is the result of the high bandwidth of the amplitude control loop.

Key features include:

- Drives all CRS models from 4KHz - 12KHz scan frequencies
- Provides accurate sync signal
- Compact, low cost
- Low power consumption

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Specifications	Model 711-80159
Power Requirements	• Single-rail, +12VDC. Contact factory for other power supply configurations. • 12V ~ 1A current
Angle Control	• Variable Angle Configuration. • In place of the on-board 5V reference, the user supplies an external 0-5V analog variable reference to adjust the angle from full field to minimum either statically or dynamically (zoom function).
Sync Signal	• Sync signal occurs at each change in scan direction. • Phase adjustment range relative to mirror position: 45 degrees. • Symmetry adjustment of the trigger point for a zero crossing on the rising or falling edge of the sync signal to compensate for DC offset. • Symmetric sync signal edge rate: 50 nanoseconds.
Output Drive Signal	Clean sinusoidal drive sign minimizes crosstalk between velocity and drive coils.
Integration Features	• Locking connectors • Single 9-pin interface connector
Mounting	• The driver is equipped with a mounting kit that includes double-sided thermal tape and an optional heatsink and insulating film. For some applications, simply attaching the board to a metal mass (e.g. galvo block) with the thermal tape is sufficient. Otherwise, the optional heat sink can be provided that attaches to the thermal tape. In this case, standoffs and mounting screws are used to mount the driver. • Two mounting holes in opposite corners (spaced 1.0” x 1.5” and sized for #2 screws) are also provided.
Dimensions (L x W)	30.5mm x 43mm (1.2” x 1.7”)
Quality	RoHS Compliant

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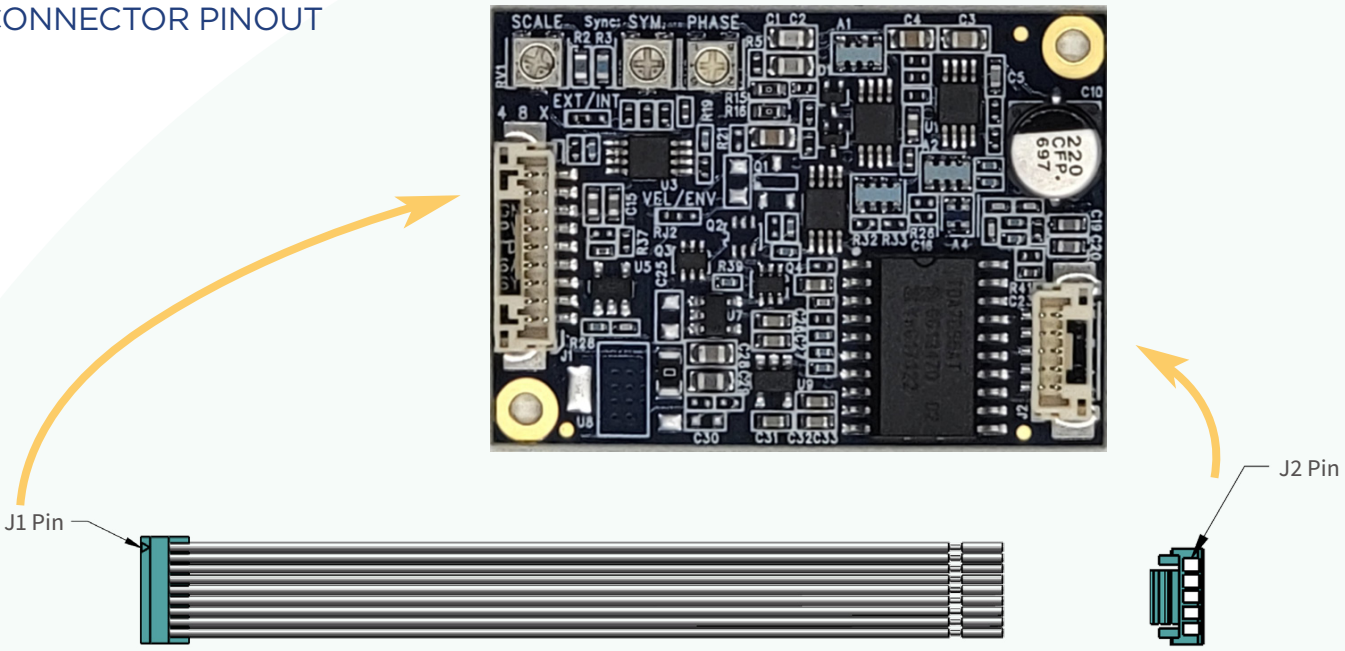
CONNECTOR PINOUT



J1 Pin	Signal	Comments
1	GND	
2	Velocity	For safety verification
3	Sync	At each change in direction
4	Fault	Integrator Saturated
5	Disable	Pull down to disable servo
6	Power	12V DC, model dependent
7	GND	
8	GND	
9	Ext. Amplitude Control/Potentiometer	0-5V DC for 0 to full scan angle, 6° per volt

J2 Pin	Signal
1	Ground
2	Velocity Coil Start
3	Velocity Coil Return
4	Drive Coil Return
5	Drive Coil Return

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