Scanning Spindles

Motors, Encoders & Drives

Westwind scanning spindles use brushless DC motors and rotary incremental encoders to get the best possible performance from the spindles. These can be complemented by a Westwind D1580 drive enabling very high levels of speed stability and control.

Motors:

Westwind's three phase brushless DC motors are designed specifically for the scanning spindle range. They optimise performance by maximising power output whilst minimising torque ripple, heat generation and package size. The size and output of the motor are dependant on the spindle range chosen.

Encoders:

An encoder is essential to a scanning system where control is important. It provides the necessary feedback to allow the spindle's speed to be regulated and synchronised to the rest of the system. It also provides accurate feedback of the optic's position within a revolution allowing correct spot positioning. Westwind encoders include built in compensation to reduce long-term drift.

Encoder key specifications

Index pulse:

- Once per revolution
- RS422 standard
- Adjustable pulse width duration
- Edges can be synchronised with Count pulse output
- Typical Jitter <300ps

Count pulse:

- Line counts from 250 to 1440 (1000 Line is standard)
- Single Output or Quadrature options
- RS422 standard
- Duty cycle 50% (+/- 5%)
- Typical Jitter <300ps
- Bandwidth DC to >2MHz

Drives:

For accurate control of three-phase brushless DC motors Westwind can supply a high stability pulse width modulation (PWM) drive. This can be matched to the spindle characteristics to provide a complete solution.

Drive key specifications

- 24 +/- 4 volts DC (48 volt version also available)
- Excellent speed stability <1ppm rev-rev (dependant on optic type)
- Internal or external speed control (reference frequency)
- Fully re-programmable for different spindle / motor types
- Parameters for up to 256 different spindles can be stored
- Standard version can drive up to 200 Watts (48 Volt - 300 Watts)
- Maximum current limit can be preset
- Built in protection against reverse polarity connection, spindle seizure (will shut down outputs), overheating and over-current
- Fault output if fault condition occurs
- Buffered outputs of all encoder signals are provided