VEGA
MODEL 2800503

RESOLVER TO ENCODER CONVERTER with HALL EFFECT SIMULATION FOR USE WITH KINETIX 350® AND KINETIX 6500®

*** APPLICATIONS ***

➤ **Ideal For Closed Loop Positioning Systems**
➤ **High Vibration Applications**
➤ **Machine Tools**
➤ **Servo Motor Control**
➤ **Spindle Motor Control**
➤ **PLC Positioning Control**
➤ **Index/Rotary Tables**
➤ **Transfer Lines**
➤ **Positioning Systems**
➤ **Robotic Applications**
➤ **Dispensing Systems**

RoHS Compliant

RESOLVER TO DIGITAL INTERFACE

➤ **Works with R11, R25, or most any Synchro/Resolver**
➤ **Incremental encoder output signals**
➤ **Fixed Excitation Frequency of 10 kHz**
➤ **Resolution of 2048 lines (8192 A-quad-B) with Index and complements**
➤ **Supports resolver transformation ratio's of 0.25 to 2.0**
➤ **Personality module supports up to 9 Hall Cycles per resolver cycle**
➤ **Thermal input for motors with thermal switches**

With the VEGA 2800 series of converter you can have both the ruggedness of a resolver and the digital simplicity of an encoder interface. The 2800 series can be used with almost any resolver. The INDEX/MARKER pulse (Channel Z) will occur once per transducer cycle at the zero degree position.

*** ADVANCED FEATURES ***

➤ **Easy to Use and No Set Up Required**
➤ **Automatic Gain Adjust for transformation ratio's**
➤ **Fast Non-Phase Locked Loop Design (<50 uSec)**
➤ **Highly Accurate**
➤ **Tuned Filter for Noise Immunity**
➤ **A-Quad-B, Index and Complements**
➤ **TTL/Line Driver Outputs**
➤ **Quadrature encoder signals to 4 mHz**
➤ **Single +5 vDC Supply Operation**
➤ **Loss of Signal Detection**
➤ **Fault Signal Output**
➤ **Status LED's for Power, Signal HI, and Fault**
➤ **Makes resolvers as easy to use as an encoder**
➤ **Compact Connector Design**

2800 SERIES SPECIFICATIONS

Excitation:	10 kHz
Resolver Input:	0.8 to 18 vpp
Power Requirements:	4.8-5.4 vDC @ 250 mA
Drive Capacity:	200 mA Peak
Mechanical:	1.485 x 4.58 x 0.85
Accuracy:	+/- 3 arc minutes typical

CONVERTER TRACKING RATE

The 2800 board was designed for high speed applications. The standard converter accuracy is +/- 3 arc minutes. The maximum tracking rate is a function of the excitation frequency. With a 10 kHz excitation the maximum tracking rate would be 36,621 RPM.

SIMULATED HALL EFFECT OUTPUTS

The 2800 Resolver to Digital Converter uses the resolver signals to produce three Hall type signals at TTL levels to duplicate the signals required by drives using Hall effect sensors to determine the shaft position for commutation purposes. This makes the 2800 IDEAL for retrofitting Drives for AC Servomotors requiring indicators of motor shaft position in order to properly commutate the winding power.

KINETIX 350® and KINETIX 6500® INTERFACE

Model	Motor Types
2800503.01.53	1326AB-Bxxx Motors
2800503.02.52	MPM Motors
2800503.03.57	1326AH-B3xx, 1326AH-B4xx, 1326AH-B4xx 1326AH-B5xx, 1326AS-B3xx, 1326AS-B4xx
2800503.04.56	MPL Motors, 1326AS-B6xx, SX-Series M47x

Custom Firmware for 3rd Party Motors Available

PEOPLE IN CONTROL OF MOTION

P1 RESOLVER CONNECTOR

PIN#	FUNCTION	COLOR
1	Return- (R1)	Green
2	Retrun+ (R2)	Wht/Grn
3	Cosine- (S2)	Red
4	Cosine+ (S4)	Wht/Red
5	Sine- (S1)	Black
6	Sine+ (S3)	Wht/Blk
7	Thermal+	Wht/Gry
8	Thermal - (GND)	Wht/Org
9	Shield (Isolated)	SHLD
10	*PUPV Reset (+24 vDC)	
11	!Fault (0 vDC = Fault)	
12	Fault IN (+24 vDC)	

P3 KINETIX 350® and KINETIX 6500® CONNECTOR

PIN#	FUNCTION
1	Channel A+
2	Channel A-
3	Channel B+
4	Channel B-
5	Channel Z+
6	DC Ground
7	No Connect
8	Hall C+ (S3)
9	No Connect
10	Channel Z-
11	Thermal Fault (0 vDC = Fault)
12	Hall A+ (S1)
13	Hall B+ (S2)
14	+5 vDC
15	No Connect

FAULT OUTPUT

The 2800 series will Tri-State the A-Quad-B signals during a Fault condition (HI or LO signal level). This interface will allow an immediate Fault sense by equipment with loss of signal detection. The 2800 series will also open the contacts of the solid state relay between P1-12 and P1-11 to indicate a fault has occurred. This solid state relay can drive a 600 mAmp load.

LED STATUS INDICATORS

PWR = Power Status Indicator
FLT:
    1 Flash = Low Signal
    2 Flash = High Signal
    3 Flash = PUPV Fault (Power Up Position Valid)
        power up position detected +/- 15 Counts of Error
    4 Flash = Low Signal Intermittent
    5 Flash = High Signal Intermittent
HSG = High Signal Indicator

REPAIR and TECHNICAL SUPPORT

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QUADRATURE OUTPUT

The VEGA 2800 series of converter boards use RS-422-A differential drivers to provide 40 mA into a 100 ohm differential load. These outputs are also TTL compatible.

The output latency is dependent on the excitation frequency. With a 10.0 kHz excitation the response will be less than 50 uSec.

Quadrature is provided via Channel A+, Channel A-, Channel B+ and Channel B-. A count is considered to occur whenever there is a transition in either the Channel A or Channel B output signals. The Channel Z (Index) occurs once per resolver cycle.

QUADRATURE OUTPUT FORMAT
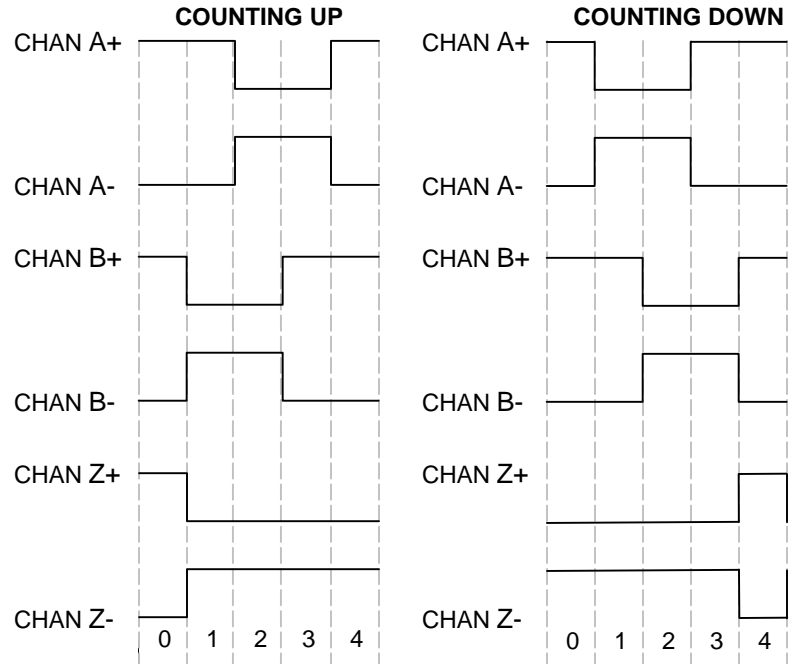
HALL EFFECT OUTPUT

Motors with Hall Effect Sensors and magnet are arranged to provide an output from the sensors to which the magnet is adjacent. The magnet may be adjacent to one sensor or between two sensors. When it is between two sensors, both sensors output a signal. This permits the detection circuitry to resolve the motor shaft position into 6 different sectors. The 2800 series produce signals that emulate the Hall Effect sensors for a seamless interface. The 2800 series supports up to 10 hall cycles per resolver cycle.

HALL EFFECT OUTPUT FORMAT

| ABC State | 101 | 001 | 011 | 010 | 110 | 100 | 101 | 001 |