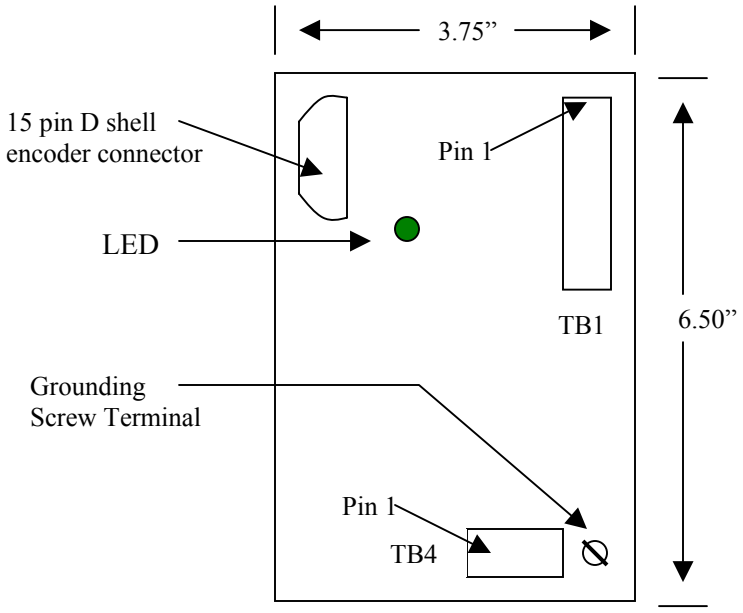
The AMCI RD141S connects to an AMCI resolver system, which consists of an AMCI resolver and resolver interface module, and outputs differential A, B, and Z pulses. The RD141S is designed to interface with a resolver excited by a 5kHz 7V reference voltage, and with a 0.95 transformation ratio.

The number of A and B pulses per revolution of the resolver is fixed at 1024.

An outline drawing of the RD141S is shown below.



Terminal Block TB4
External Power

Pin	Function
1	+24Vdc
2	24Vdc Power Supply Common
3	Shields

A shielded cable is recommended for connecting the +24Vdc power supply to the RD141S

Terminal Block TB1, Resolver Connections

Pin	Function	AMCI Cable Color (Beldin 9873 or 9730)
1	Shields	
2	Shields	
3	S1 & S2	White & Black (Green)
4	S4	Green
5	Shields	
6	S1 & S2	White & Black (Green)
7	S3	Black (White)
8	Shields	
9	R1	Black (Red)
10	R2	Red

- The color in the parenthesis indicates the colored wire that is paired with the black wire.
- Shield pins 1, 2, 5, and 8 are internally connected together. They are also connected to the RD141S's metal housing.
- Pin 3 and Pin 6 must receive the same signals. To simplify the connection, run the two wires to one of the terminals and then use a jumper wire to make the connection to the second terminal.

15 Pin D shell Connector, Encoder Connections

Pin	Function
1	Encoder A+
2	Encoder A-
3	Encoder B+
4	Encoder B-
5	Encoder Z+
6	5Vdc Power Supply Common
7	No Connection
8	No Connection
9	No Connection
10	Encoder Z-
11	No Connection
12	No Connection
13	No Connection
14	+5Vdc
15	No Connection

Wiring Information

- Both the resolver input signals and the encoder outputs signals are low voltage and low power signals. If you are using A-B guidelines for cabling installation, treat these cables as Category 2 cables. They can be installed in conduit along with other low power cabling such as communication cables and low power ac/dc I/O lines. It cannot be installed in conduit with ac power lines or high power ac/dc I/O lines.
- The shields of the cables must be connected to Earth Ground only at one point in the system. This can either be the electronic module that supplies the reference voltage or at the RD141S. It cannot be earth grounded at both points.
- If you must splice the transducer cable, it must be done in a grounded junction box. When splicing, treat the shield as a signal-carrying conductor. Do not connect the shield to earth ground at the junction box or transducer. If your transducer cable has individually shielded pairs, then ideally the shields in the cable are also kept isolated from each other in the junction box as well.
- The resolver connections shown above will result in increasing readings when the motors shaft is rotated in the Counter Clockwise direction. For Clockwise increasing readings, reverse the S1 and S3 wires.
- The index pulse is generated at the zero position of the resolver, S1 and S3 will be at zero and S2 and S4 will be at their maximum values. Reversing the S2 and S4 wires will cause the Z pulse to be generated at the resolver's 180 degree position.
- The Grounding Screw Terminal is connected to all of the connector TB1's shield pins as well as to the RD141S's metal housing. If the RD141S is not grounded through its mounting, this terminal must be connected to earth ground.
- At power up, the RD141S measures the resolver signals and determines a valid range for these signals. If the resolver's signals were not correct when the RD141S was initialized, the unit may not correctly indicate when the resolver signals are not present.

Power Requirements

- 170mA @ 24Vdc
- 150mA @ 5Vdc

LED Function

- Blinking Green: RD141S initializing
- Solid Green: Normal operation
- Blinking Red: Resolver signals not present

Note: If the resolver's signals were not correct when the RD141S was initialized, the unit may not correctly indicate when the resolver signals are not present.

Encoder Output Specifications

- 1024 A & B pulses per revolution of the resolver
- 1 Z pulse per revolution of the resolver (gated, 90° wide, when both A and B are high)
- Differential Output Sinks or Sources a maximum of 40mA
- 3.5Vdc to 4Vdc typical output pulse signal level

Environmental Specifications

- Operating Temperature: 0 to 60° C
- Relative Humidity: 5 to 95% non-condensing

Compatible Resolver

- Input Voltage: 7V
- Input Frequency: 5kHz
- Transformation ratio: 0.95

Additional Information

At power up, the RD141S requires approximately one second to determine the reference voltage level and frequency of the resolver interface module. The resolver must not be rotating during this power up sequence.

Revision History

There are three differences between the Rev A and the Rev – versions of the RD141S.

- The Rev A version's 24Vdc supply is now located on TB4.
- The Rev – version did not have the status LED.
- The locations of the +Z pulses signals on the D connector have been reversed on the Rev A version. That is, +Z is now located on pin 5 and –Z is now located on pin 10. The Rev – version had +Z located on pin 10 and –Z located on pin 5.