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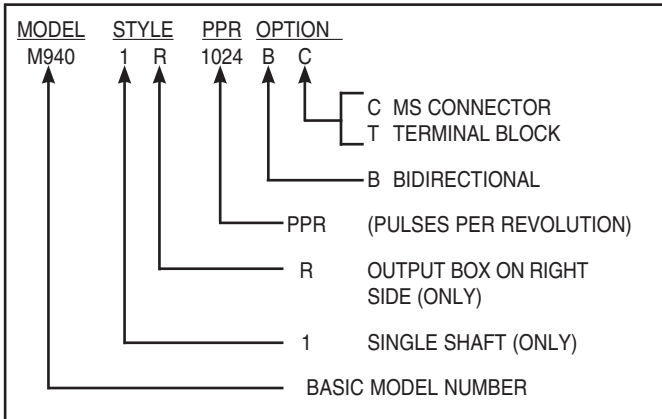
Encoder Instructions

M940
 INACTIVE DESIGN
 Replaced by Model AV485

DESCRIPTION

The Model M940 Pulse Generator is a zero-speed rotary transducer; that is, it can operate effectively down to zero RPM. The M940 generates a specific number of pulses for each rotation of its shaft. When the M940 is coupled to a machine, its output is directly proportional to process travel (pulse count) or speed (pulse rate). A rugged cast aluminum housing, 5/8" steel shaft, and heavy-duty sealed bearings provide the mechanical ruggedness required for industrial applications.

The various M940 options and how they are indicated in the M940 part number are shown below:



CAUTION

The M940 is often used for speed feedback in drive systems, where any failure can cause a machine shutdown. While the M940 is designed for continuous mill operation, it is important to follow proper procedures with this unit.

DO NOT force or drive a coupling onto the shaft. This can damage bearings so that a failure will happen at a later time.

REPAIR of defective units requires returning the unit to the factory, where there is special test equipment. Turn-around time is minimal, and charges are nominal for out-of-warranty units.

DO NOT connect grounded oscilloscope or any grounded instrument to M940 output.

DO NOT connect oscilloscope or any instrument common to any pulse generator connection other than common (pin F).

M940 SPECIFICATIONS

OPERATING POWER	24 VDC @ 60 mA (TYP), 100 mA (MAX)
OUTPUT SIGNAL	TWO CHANNELS IN QUADRATURE (TWO-PHASE, BIDIRECTIONAL, A, B)
PULSES PER REVOLUTION.....	1024, 2048 – OTHERS AVAILABLE UPON REQUEST.
WAVE SHAPE.....	SQUARE WAVE
A TO B TRANSITION SEPARATION.....	18% MINIMUM (90 ±25 ELECTRICAL DEGREES)
VOLTAGE OUTPUT.....	HIGH: 21 VOLTS MIN., 5 mA SOURCE LOW: 1.3 VOLTS MAX., 16 mA SINK
FREQUENCY	50 KHz MAX. (100 KHz. MAX. FOR 2048 PPR ONLY)
CONNECTIONS.....	MS3106E-14S-6P (MATING PLUG MS3106E-14S-6S NOT FURNISHED)
SPEED RANGE	0 TO 3000 RPM
OPERATING TEMPERATURE	0° TO 140° F AMBIENT
WEIGHT	15 LBS.
MECHANICAL	
STARTING TORQUE.....	2.2 Oz. - In. (TYP.)
SHAFT INERTIA.....	0.1 Oz. - In. - Sec ²
ACCELERATION (MAX.).....	5,000 RPM/Sec.
COUPLING RECOMMENDED.....	ZERO BACKLASH, THOMAS DBZ OR EQUAL. (WHERE AXIAL END PLAY EXCEEDS ± 0.020", USE THOMAS CCX OR EQUAL).

INSTALLATION

The pulse generator must be driven by a positive drive rather than a friction drive. The following means of coupling are acceptable when properly installed: Direct Coupling, Timing Belt/Pulleys, Chain/Sprockets.

With a direct drive, use a flexible coupling and align the shafts as accurately as possible. The pulse generator should not be subjected to any axial thrust. Overhung loads should also be minimized. Installations using timing belts/pulleys should have just enough belt tension to eliminate belt sag. Excessive tension will shorten belt and bearing service life. If a rubber slinger disc is used, position it on the shaft so it will rotate freely.

CAUTION

Do not force or drive coupling member onto the shaft, or damage to the bearings, pickup, or the rotor disc will result. Coupling must slide easily on shaft. Remove nicks or rust if necessary. Consider driving shaft end play when positioning coupling.

For more details and special considerations in specifying and installing drive components, refer to separate installation instructions, Avtron Pulse Generator Handbook.

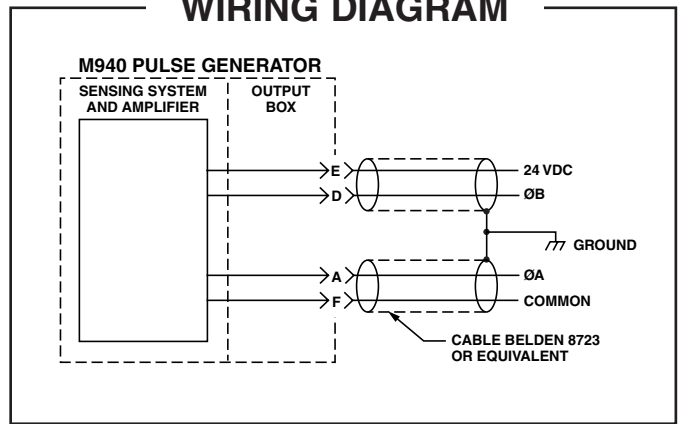
SPECIAL APPLICATION NOTES

For bidirectional operation of the 2-phase M940, proper phasing of the two output channels is important. Phase A channel leads phase B for clockwise rotation of the shaft as viewed from the anti-drive end of the housing.

Interconnection cables specified in the wiring diagrams below are based on typical applications. Reference system drawing for specific cable requirements where applicable.

Physical properties of cable such as abrasion, temperature, tensile strength, solvents, etc., are dictated by the specific application. General electrical requirements are: stranded copper, 22 thru 16 gauge; braid or foil with drain wire, 0.05 MF maximum total mutual or direct capacitance; outer sheath insulator, 1,000 ft. max. A typical installation might use Belden 8723. If used with K661, consult K661 instructions.

WIRING DIAGRAM



OUTLINE DRAWING

