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Pulse Generator Instructions M460

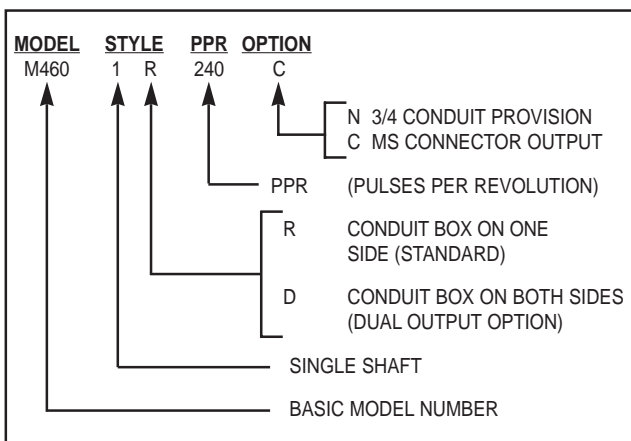
DESCRIPTION

The M460 is a heavy mill-duty reluctance type rotary pulse generator for use with Avtron digital measurement systems.

The M460 is designed for face mounting between two drive system elements, typically a motor and DC tachometer generator, having NEMA C mounting face and drive dimensions.

This unit requires no external operating power. A magnetic transducer generates a signal pulse each time a tooth of a rotating steel gear passes its magnetic tip. Coupling the pulse generator to a machine shaft then produces an output frequency directly proportional to the rotational speed of the shaft.

Various M460 options and how they are indicated in the M460 part number are shown below:



REPAIR OR REPLACEMENT

Service or repair of Avtron pulse generators requires special alignment and test equipment and trained personnel. It is recommended that broken or otherwise inoperative pulse generators be returned to Avtron for repair. Units not under the original equipment warranty will be restored for a nominal charge on a short turnaround basis. It is recommended that units which are badly damaged or become inoperative after years of service be replaced by re-manufactured units (subject to availability) or new units. Re-manufactured units are restored to like-new condition and carry the same one-year warranty as new units, at a lower replacement cost.

INSTALLATION

The M460 is designed for face mounting between two drive system elements, typically a motor and DC tachometer generator. The hollow input shaft of the M460 aligns to, and is supported by, the shaft and bearing of the mating unit. The 3/16" square key and the 3/8-16 x 1" bolts required for mounting are provided. Direct drive of the combination assembly through a flexible drive coupling is required, and attachment should follow the coupling manufacturer's installation procedures. Prior to coupling and assembly, the misalignments shall not exceed .010" T.I.R. The pulse generator shall not be exposed to any axial thrust or to side loads from drives such as belt, chain, and gear.

CAUTION

DO NOT force or drive coupling member onto the shaft, or damage to the internal runout absorbing spring may result. Provide clearance between extension of M460 and the coupled driving shaft to allow for thermal expansion and end play.

WIRING

For electrical connection of Model M460, with conduit box termination, remove the cover from its conduit box. The magnetic transducer, located inside the conduit box, is provided with two wire leads. It is recommended that the interconnecting cable be run in conduit, even though the cable includes its own electrostatic shield. The conduit will protect the cable against damage and extend service life and reliability.

It is recommended that two-conductor shielded cable be used for interconnection of the pulse generator with the associated equipment. Reference system drawings for specific cable requirements where applicable. Physical properties of cable such as abrasion, temperature, tensile strength, solvents, etc., are dictated by the specific applications. General electrical requirements are: stranded copper, 22 thru 16 gauge; braid or foil shield with drain wire, 0.05 MF maximum total mutual or direct capacitance; outer shield insulator, 1,000 ft. maximum. A typical installation might use Belden 8412 or 8762.

The following procedure may be used for making cable and conduit connections at the pulse generator:

1. Remove the conduit box cover plate and remove knock-out plug on the box surface convenient for the conduit run.
2. Install a suitable conduit fitting and connect the conduit.
3. Run the signal cable through the conduit to the pulse generator.
4. Strip back the outer insulation about three inches.
5. Trim back and insulate the exposed shielding with electrical tape. The shield is not connected at this end (only at the equipment end).
6. Splice the two cable conductors to the two transducer leads. Use rosin core solder (60% tin, 40% lead) such as Ersin "Multicore" or Kester "Resin Five." Do not use acid core solder or paste fluxes. Insulate the splices.
7. Secure the cover plate to the conduit box.
8. At the digital equipment end, the cable should be connected to the cable plug or terminal strip in accordance with the wiring instructions for that equipment.

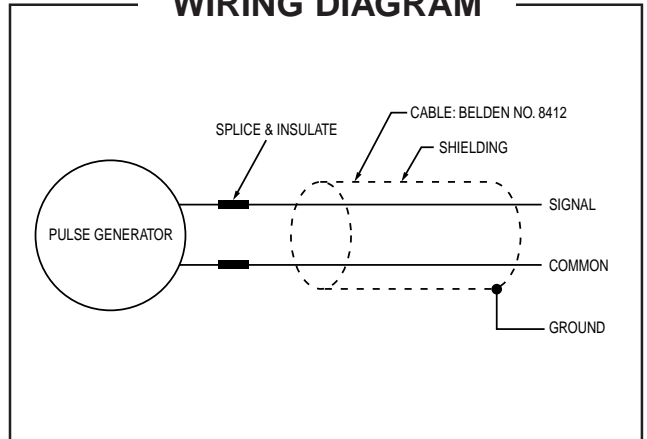
For units with MS Connector option, fabricate the cable into the connector plug as follows:

1. Unscrew endbell from connector plug.
2. Loosen two screws on cable clamp.
3. Feed cable through bushing, cable clamp, and endbell.
4. Strip outside insulation of cable (approximately 1.00").
5. Cut back and insulate shield with tape or sleeving to avoid shorting of a shield to another terminal or wire.
6. Strip the insulation from the wire so that after soldering, the insulation will be as close as possible to the solder joint (terminal) but not be integrated into the solder joint. In no case should the insulation of the wire be stripped back more than 1/8" from the connection.
7. Solder the two leads into the connector using only rosin core solder as indicated previously.
8. Screw endbell back onto connector.
9. Screw cable clamp to endbell.
10. Tighten two screws on cable clamp.

SPECIFICATIONS

OUTPUT WAVEFORM	Sine Wave
OUTPUT FREQUENCY	50 Hz to 12 KHz
OUTPUT LEVEL	0.5 v P-P Min. to 10 v P-P (typical) into 2.2 K series and .01 MFD Shunt Load
OUTPUT IMPEDANCE	600 Ohms
OUTPUT CONNECTIONS.....	8" Leads, Conduit Box Entry (MS Connector Optional)
PULSES PER REVOLUTION	60, 100, 160, 240, 320 (Standard)
OPERATING SPEED.....	50 - 5000 RPM
OPERATING TEMP RANGE.....	-20° to +85°C
STARTING TORQUE.....	4 oz. -in.
SHAFT INERTIA	0.2 oz. -in. -sec.
ACCELERATION, MAX.	10,000 RPM/SEC.
SHAFT LOAD	Maintains BC46 Specification
COUPLING RECOMMENDED	Zero backlash type, Thomas DBZ or equal (where axial end play exceeds ± .020", use Thomas CCX or equal).
WEIGHT	8.5 lbs single output - 9.5 lbs dual output

WIRING DIAGRAM



OUTLINE DRAWING

All dimensions are in inches.

