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## Encoder Instructions

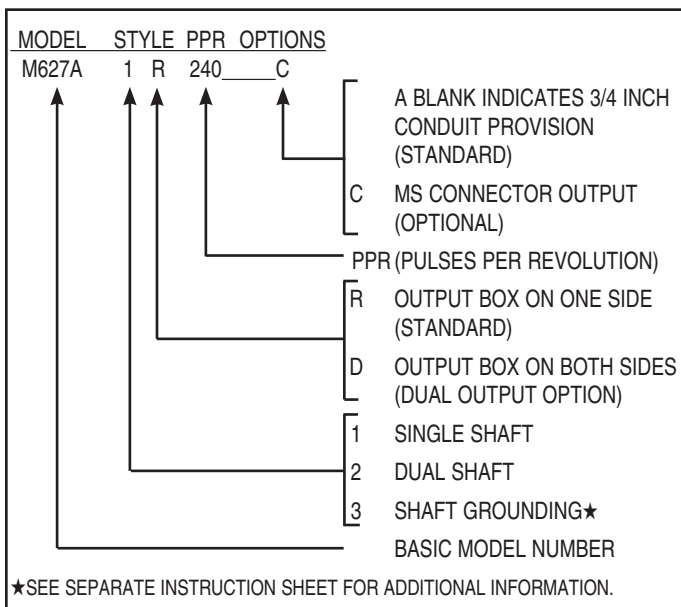
**M627A**  
INACTIVE DESIGN  
Replaced by Model **M628A**

### DESCRIPTION

The M627A is a heavy mill-duty reluctance-type rotary pulse generator for use with Avtron digital measurement systems.

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 M627A options and how they are indicated in the M627A part number are shown below:



### REPAIR OR REPLACEMENT

Service or repair of Avtron pulse generators requires special alignment, 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 pulse generator should be driven by a positive drive rather than a friction or V-belt drive. The following means of driving the pulse generator may be used when installed in accordance with the coupling manufacturer's recommendations: Direct Coupling, Timing Belt and Pulleys, Chain and Sprockets, Gears. 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 and pulleys should have just enough belt tension to insure proper engagement of teeth. Excessive tension will shorten belt and bearing life.

#### CAUTION

***Do not force or drive the coupling onto the shaft, or damage to the bearings may result. The coupling should slide easily on the shaft. Remove nicks or rust if necessary. Consider driving shaft endplay when positioning coupling.***

Electrical connections to the M627A are by either conduit connection or plug-in MS type connector. The output box cover may be removed and the box rotated in 90° increments allowing a selection of four different entry positions. Reinstall all gaskets when changing box positions. It is recommended (and national or electrical codes may require) 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 cables be used for interconnection of the Pulse Generator with the associated equipment. Refer to 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.

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

For units with 3/4 conduit provision:

1. Run the two-conductor shielded cable through the conduit to the pulse generator.
2. Strip back the outer insulation about four inches.
3. Trim back and insulate the exposed shielding with electrical tape.

4. Remove the output box cover plate for access to the transducer leads. Install a suitable conduit fitting and connect the conduit.

5. Splice the two cable conductors to the two leads from the pulse generator. 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.

6. Secure cover plate to the output box.

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

## M627A 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 MAX. (TYPICAL) INTO 2.2 K SERIES AND 0.01 MFD SHUNT LOAD
OUTPUT IMPEDANCE.....	600 OHMS
OUTPUT AVAILABLE .....	ONE (R) OR TWO (D). OUTPUTS ARE NOT PHASE RELATED
OUTPUT CONNECTIONS .....	8 INCH LEADS, CONDUIT ENTRY (MS CONNECTOR OPTIONAL)
PULSES PER REVOLUTION.....	60, 100, 160, 240, 320, 360 (STANDARD)
OPERATING SPEED.....	50-5000 RPM
OPERATING TEMP RANGE .....	-20° TO +85° C
STARTING TORQUE .....	3 OZ.-IN.
SHAFT INERTIA.....	0.38 OZ.-IN.-SEC <sup>2</sup>
ACCELERATION, MAXIMUM.....	5000 RPM/SEC
SHAFT LOADING, MAXIMUM .....	15 LBS. AXIAL, 50 LBS. RADIAL
COUPLING RECOMMENDED .....	ZERO BACKLASH, THOMAS MINIATURE FLEXIBLE OR EQUIVALENT. WHERE AXIAL ENDPLAY EXCEEDS +/-0.020 INCH, USE THOMAS CCX OR EQUIVALENT.
SHAFT EXTENSION .....	SINGLE (STANDARD), DUAL (OPTIONAL)
WEIGHT .....	13.5 LBS. SINGLE OUTPUT 14.5 LBS. DUAL OUTPUT

NOTE: AVTRON STANDARD WARRANTY APPLIES.  
COPIES AVAILABLE UPON REQUEST.

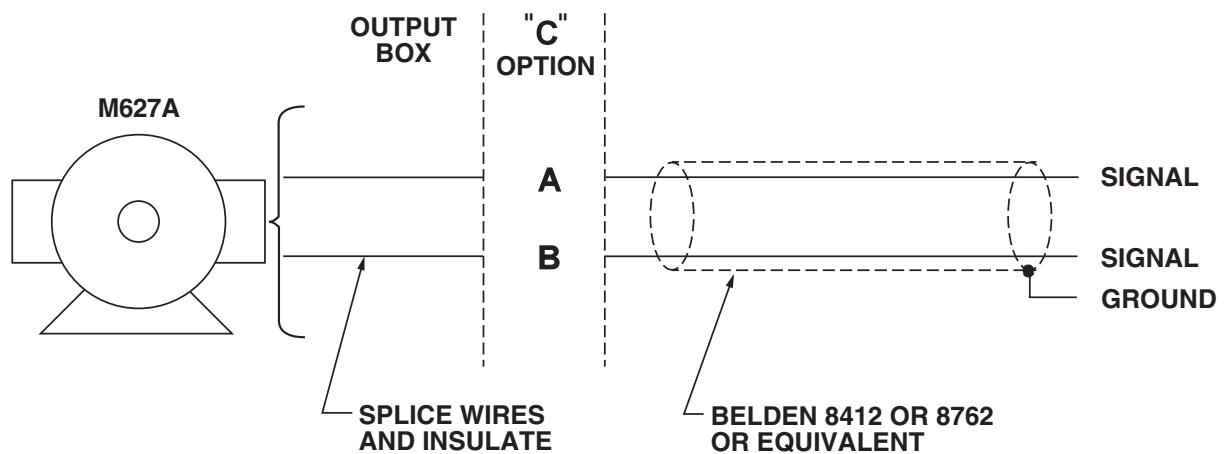
SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE.

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 (approx. 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 inch from the connection.

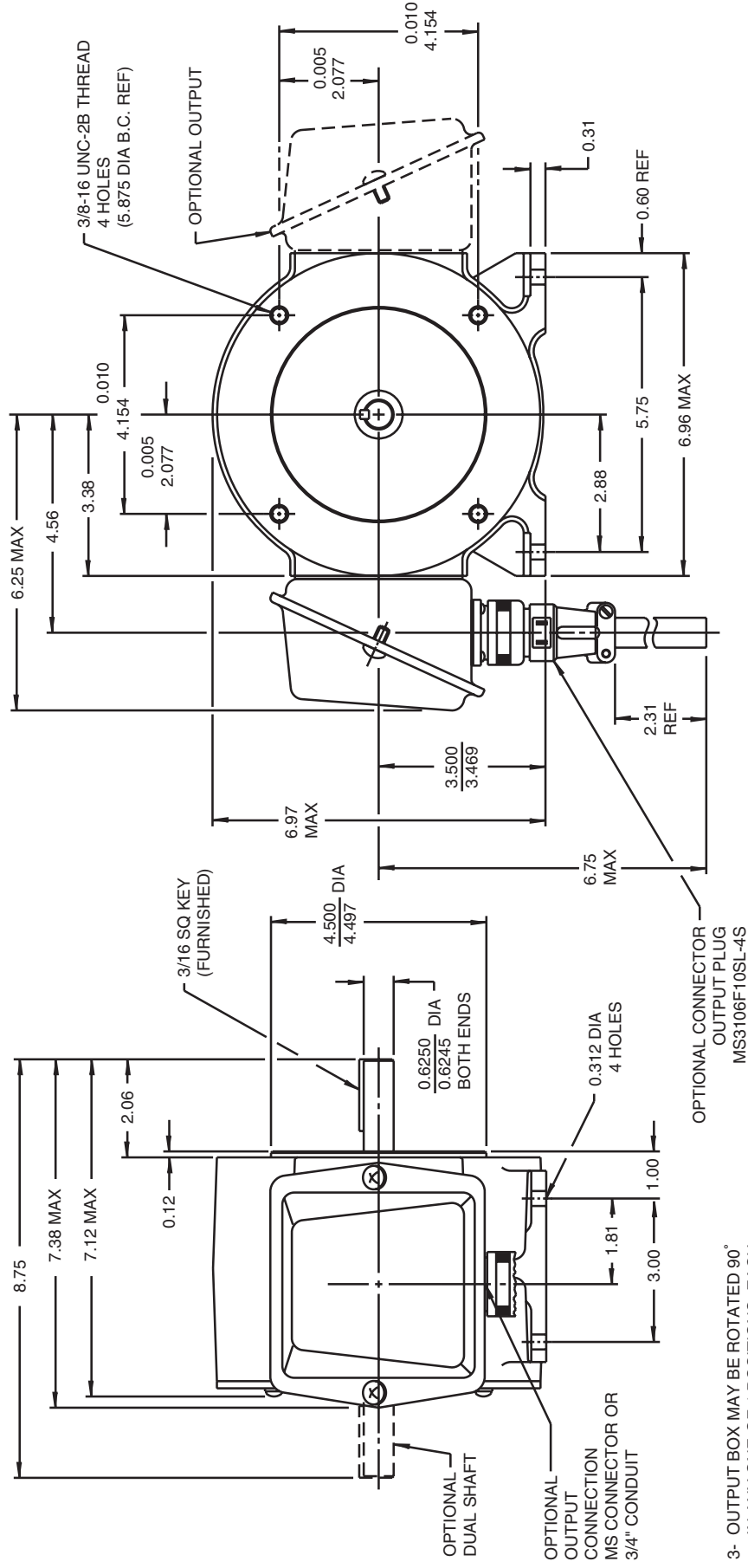
7. Solder the two leads into the connector using only rosin core solder as indicated previously.
8. Screw endbell back onto connector.
9. Screw cable clamp to endbell.
10. Tighten two screws on cable clamp.

## WIRING DIAGRAM



M627AWDMAC

NOTE: OUTPUT CONNECTORS ARE SHOWN FACING DOWN FOR CLARITY. CONNECTORS WILL BE POSITIONED TOWARDS "C" FACE FOR SHIPMENT FROM FACTORY.



3- OUTPUT BOX MAY BE ROTATED 90° IN ANY ONE OF 4 POSITIONS. EACH OUTPUT BOX CONTAINS ONE ELECTRICALLY ISOLATED OUTPUT.

2- PILOT MOUNTING CONFORMS TO A NEMA 56C FACE.

1- ALL DIMENSIONS ARE IN INCHES.



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