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Encoder Instructions

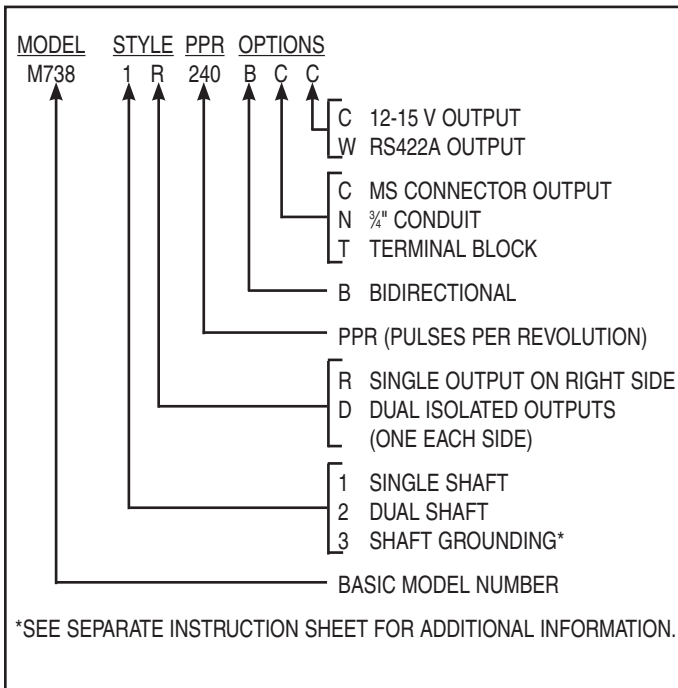
M738
 INACTIVE DESIGN
 Replaced by Model **AV485**

DESCRIPTION

The Model M738 Pulse Generator is a zero-speed rotary transducer, allowing operation down to zero RPM. The M738 generates a specific number of pulses for each rotation of its shaft. When coupled to a machine, its output is directly proportional to process travel (pulse count) or speed (pulse rate). The output signal is generated by a large, non-breakable disc rotating between an infrared source and four photo receptors. A rugged cast aluminum housing, steel shaft, and heavy-duty sealed bearings provide mechanical ruggedness required for industrial applications.

The M738's second output is electrically independent and totally isolated. For many applications, this feature provides a running spare by simply interchanging output connectors.

Various M738 options and how they are indicated in the M738 part number are shown below:



CAUTION

DO NOT open an M738. This will void the warranty.

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

Do not install M738s (or any other rotating equipment) where liquids will be sprayed or hosed onto them. If necessary, provide a shield.

DO NOT connect grounded oscilloscopes or any grounded instrument to M738 output.

DO NOT connect oscilloscope or any instrument common to any pulse generator connection other than common.

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 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 the M738.

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

SPECIAL APPLICATION NOTES

For bidirectional operation of the 2-phase M738, 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 end of the housing with the end plate (anti-drive end on units with single shaft extension).

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

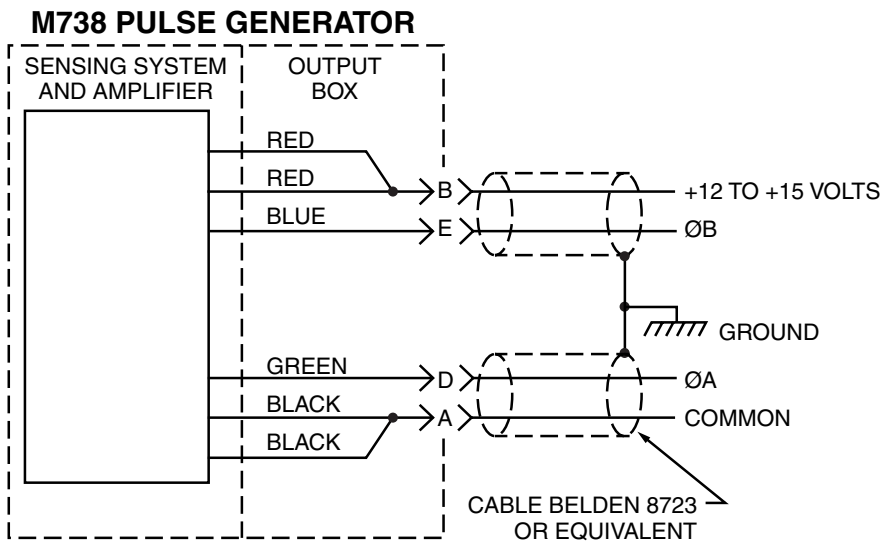
Physical properties of cable such as abrasion, temperature, tensile strength, solvents, etc., are dictated by the specific application. General electrical requirements are: stranded copper, 22 thru 16 gauge, braid or foil with drain wire, 0.05 μ F maximum total mutual or direct capacitance, outer sheath insulator, 1,000 ft. max.

SPECIFICATIONS

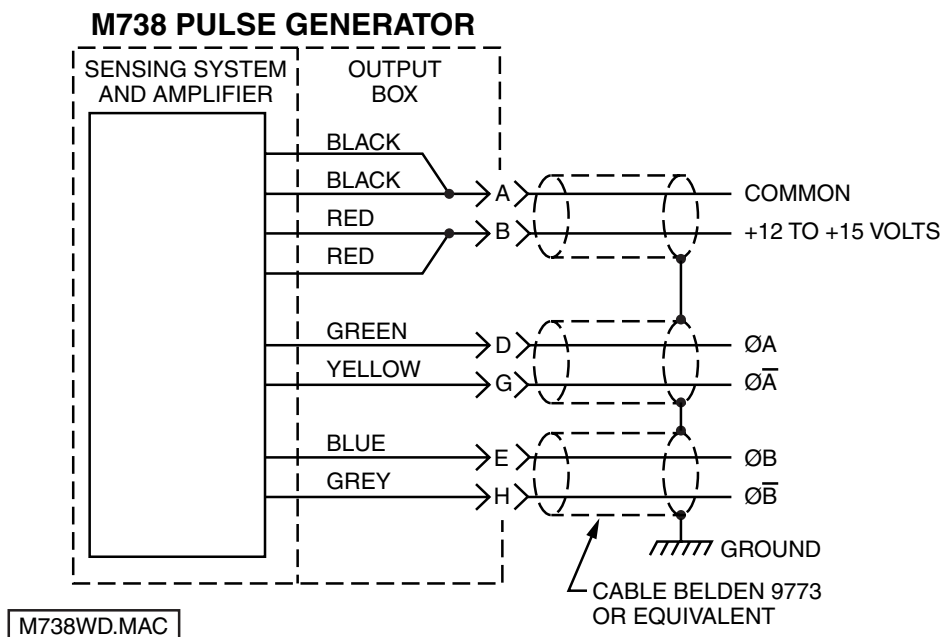
	“C” TRANSISTOR	“W” RS422A TYPE
SUPPLY VOLTAGE	12 to 15 VDC	12 to 15 VDC
SUPPLY CURRENT	140 mA (Outputs Unloaded)	160 mA (Outputs Unloaded)
OUTPUT SIGNAL	Square Wave, 50 +/- 15% Duty Cycle	Square Wave, 50 +/- 15% Duty Cycle
OUTPUT FORMAT	Two Outputs (\emptyset A & \emptyset B) in Quadrature with Complements	Two Outputs (\emptyset A & \emptyset B) in Quadrature with Complements
\emptysetA TO \emptysetB TRANSITION SEPARATION	15% Maximum	15% Maximum
PULSE TO ANY PULSE ACCURACY	+/- 2 Minutes of Arc (RMS)	+/- 2 Minutes of Arc (RMS)
PULSE TO ADJACENT PULSE	+/- 0.5 Minutes of Arc	+/- 0.5 Minutes of Arc
OUTPUT DRIVE	NPN Transistor HIGH: 1 Kilohm returned to supply voltage -1V LOW: 0.4V Max at 20 mA	RS422A Line Driver TTL Compatible HIGH: 2.5V Minimum at -10 mA LOW: 0.5V Maximum at 30 mA
OUTPUT PROTECTION	Output is short circuit protected to common	Output is short circuit protected to common
FREQUENCY RANGE	0-12 KHz at 3000 RPM	0-12KHZ at 3000 RPM
PULSES PER REVOLUTION	240	240
OPERATING TEMPERATURE	32° to 160°F Ambient	32° to 160°F Ambient
WEIGHT	15 lbs (Style 2D)	15 lbs (Style 2D)
MECHANICAL		
STARTING TORQUE	2.2 oz-in (Typical)	2.2 oz-in (Typical)
SHAFT INERTIA	0.1 oz-in-SEC ²	0.1 oz-in-SEC ²
ACCELERATION (MAX.)	5000 RPM/SEC	5000 RPM/SEC
COUPLING RECOMMENDED	Zero Backlash, Thomas Miniature Flexible or Equivalent. Where Axial Endplay Exceeds +/- 0.020 in, Use Thomas CCX or Equivalent.	Zero Backlash, Thomas Miniature Flexible or Equivalent. Where Axial Endplay Exceeds +/- 0.020 in, Use Thomas CCX or Equivalent.

WIRING DIAGRAMS

FOR SINGLE ENDED APPLICATIONS

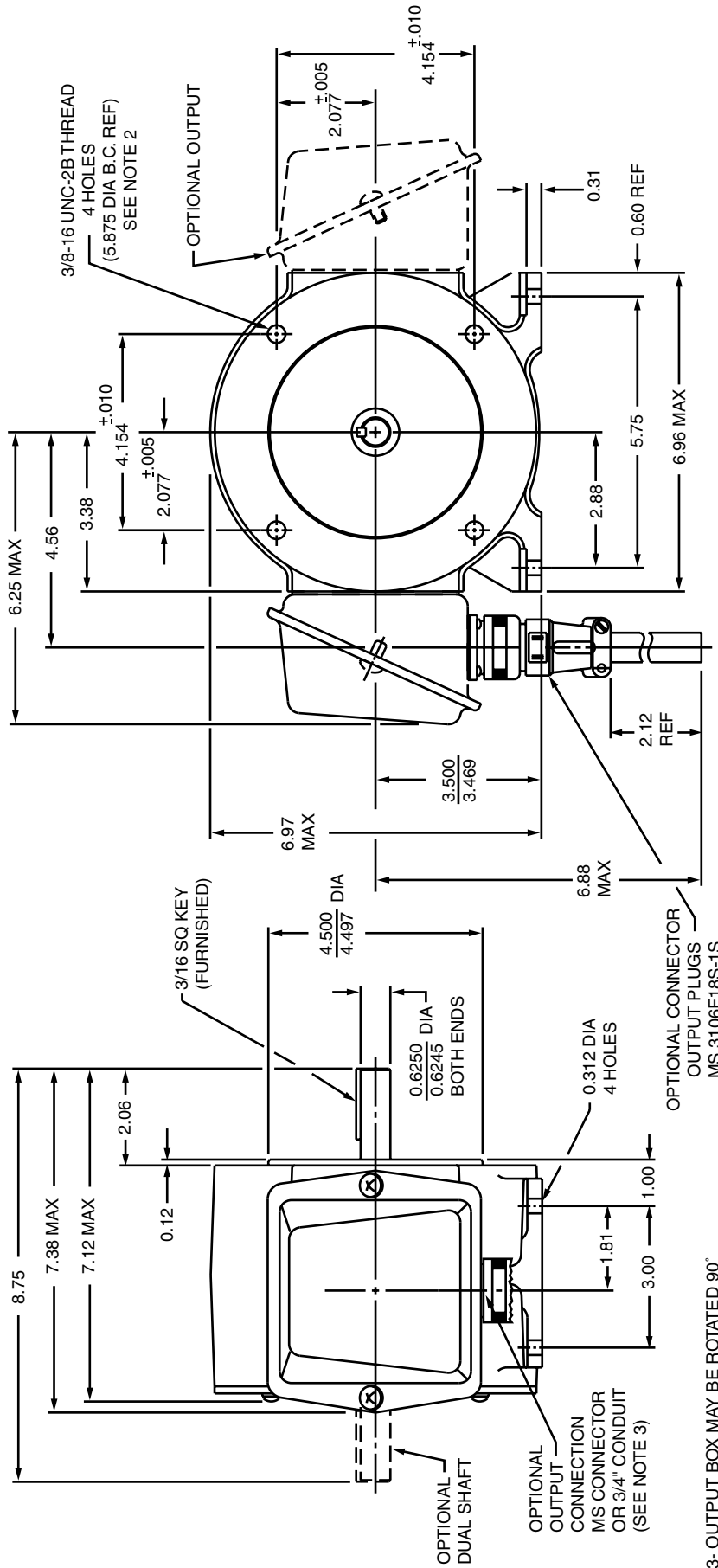


FOR DIFFERENTIAL APPLICATIONS



M738WD.MAC

NOTE: OPTIONAL 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.

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

1- ALL DIMENSIONS ARE IN INCHES.



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