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# Encoder Instructions

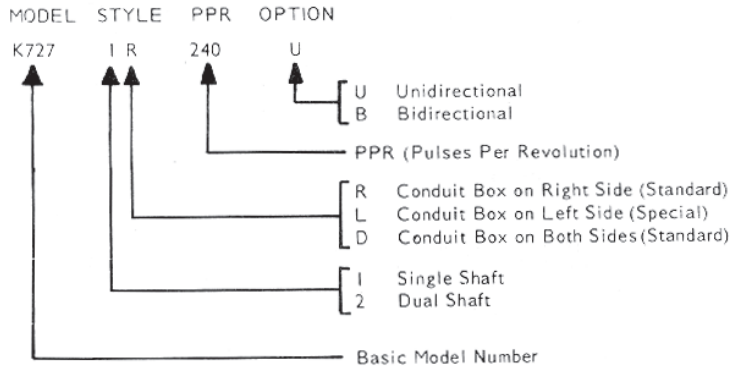
## K727

**INACTIVE DESIGN**  
 Replaced by Model AV485

### Description

The Model K727 Pulse Generator is a zero-speed rotary transducer; that is, it can operate effectively down to zero RPM. The K727 generates a specific number of pulses for each rotation of its shaft. When the K727 is 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 optical disc, rotating between an LED source and photo detector in an epoxy encapsulated sensing assembly to provide long life and high reliability. A rugged cast aluminum housing, hardened steel shaft, heavy-duty sealed bearings and slinger disc on shaft extension provide mechanical ruggedness required for industrial applications.

Various K727 options and how they are shown in the K727 part number are shown below:



### CAUTION

The K727 is often used for speed feedback in drive systems, where any failure can cause a machine shutdown. While the K727 is designed for continuous mill operation, it is extra important to follow proper procedures with this unit.

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

DO NOT open a K727, or remove the sensor. This will void the warranty, as it can break a seal or cause the pickup to be misaligned.

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

DO NOT remove the connector from an unused output on a dual output K727. Otherwise, when it comes time to use the second output, the pins may be corroded.

DO NOT install K727s (or any other rotating equipment) where liquids drip onto them. If necessary, provide a cover.

DO NOT connect grounded oscilloscopes, K761, or any grounded instrument to K727 output.

DO NOT connect oscilloscope or any instrument "common" to any pulse generator connection other than "common" (Pin A).

### Common Specifications

Load Impedance.....K727 output is short circuit protected to common

Speed Range.....0 to 3000 rpm (240 ppr unit)  
 0 to 5000 rpm (120 ppr or less)

Operating Temperature.....32° to 140° F ambient

Weight..... 15 lbs. (Style 2D)

Mechanical

Starting Torque.....2.2 oz. - in. (typ.)

Shaft Inertia.....0.373 oz. - in. - sec<sup>2</sup>

Acceleration (max.)..... 5000 rpm/sec.

### Specifications

#### Unidirectional (U) Option

Operating Power (each pickup).. 12 to 15 VDC at approx. 50 ma.

Output Signal (std. connection) Single channel (Single-Phase)

Pulses per revolution..... 30, 60, 120, 240 ppr.

Wave Shape..... Square Wave

Voltage Swing (No load).....0 to operating voltage (12-15 VDC)

Frequency.....0 to 12 kHz max. at 3000 rpm (240 ppr)  
 0 to 10 kHz max. at 5000 rpm (120 ppr)

Output Signal (opt. connection)..Not Applicable

Output Impedance..... 1000 Ohms pull up, 10 ma. sink

#### Bidirectional (B) Option

10 to 15 VDC at approx. 90 ma.

Two channels in quadrature (two-phase)

30, 60, 120, 240 ppr.

Square Wave

0.5 to 4.5 v. (with respect to common)

0 to 12 kHz max. at 3000 rpm (240 ppr)  
 0 to 10 kHz max. at 5000 rpm. (120 ppr)

Single-phase square wave with double the two-phase pulse rate.

150 Ohms pull up, 10 ma. sink

## Installation

For best accuracy, 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.

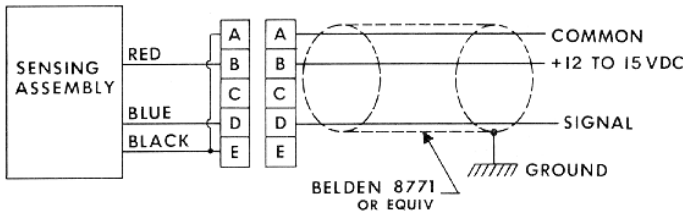
If a direct drive is used, use a flexible coupling and align the shafts as accurately as possible. (Misalignment should not exceed .010 inches). The pulse generator should not be subjected to any axial thrust. Overhung loads should also be minimized. Installations using timing belts/pulleys should have just enough belt tension to eliminate belt sag. Excessive tension will shorten belt and bearing service life.

## CAUTION

Do not force or drive coupling member onto the output shaft, or damage to the bearings, pickup, or the rotor disc will result. Provide clearance between shaft end of K727 and the coupled driving shaft to allow for thermal expansion and end play.

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

## Wiring Diagram (Unidirectional Unit)



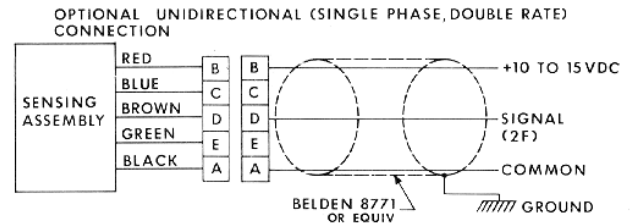
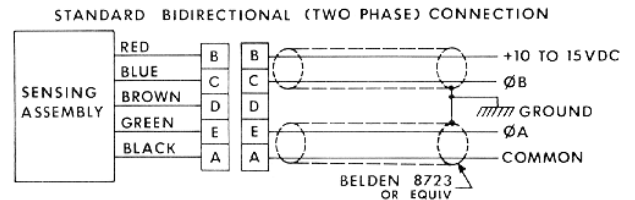
## Special Application Notes

As indicated in SPECIFICATIONS, the bidirectional K727 has optional connections for twice the output pulse rate (single phase only). Therefore, the bidirectional (2-phase) K727 can be used to extend the maximum PPR rating of the unidirectional (single phase) K727; that is  $240 \times 2 = 480$  PPR (effective).

For bidirectional operation of the two-phase K727, 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 below are based on typical applications with cable lengths limited to about 500 feet. Cable length, operating frequency, and receiving equipment affect choice of cable. Consult factory for recommendations for other conditions.

## Wiring Diagram (Bidirectional Unit)



## Outline Drawing

