

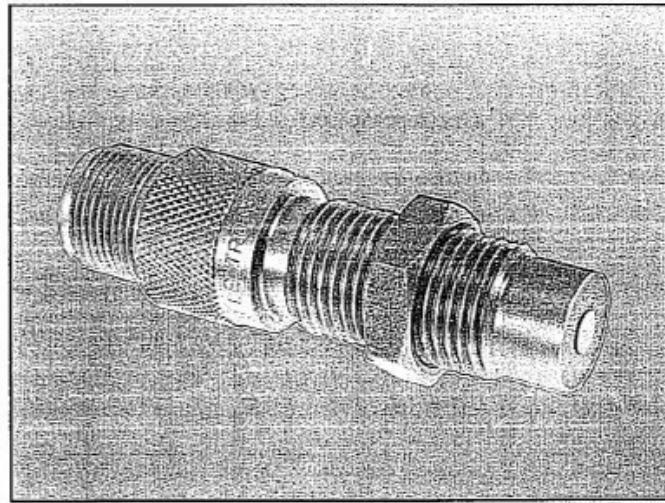
**WOODWARD**  
**PRODUCT**  
**SPECIFICATION**

# MAGNETIC PICKUPS (MPU)

For Sensing Prime Mover Speed

## FEATURES

- Produces Electrical Frequency
- Easily Installed on Engine
- Requires No Energizing Circuit from Control
- Used With All Electronic Controls
- Available for Hazardous Location Installation.



## FUNCTION

To control the speed of a prime mover, speed controls compare actual speed to desired, or set, speed. The speed sensor most often used for detecting prime mover speed is the magnetic pickup.

When a magnetic material (usually a gear tooth driven by the prime mover) passes through the magnetic field at the end of the magnetic pickup, a voltage is developed. The frequency of this voltage is translated by the speed control into a signal which accurately depicts the speed of the prime mover.

## INSTALLATION

The MPU is usually mounted radially to the gear, either through the housing or on a rigid bracket. If the MPU must be mounted off the face of the gear, be sure to check for gear end play in addition to gear runout.

The gap between the end of the MPU and the gear tooth is set at .010" to .040" (.25 mm to 1 mm) at the closest point. Most Woodward controls require a minimum of 1.5 Vac (rms) at the lowest speed. A properly installed MPU will provide as much as 50 Vac.

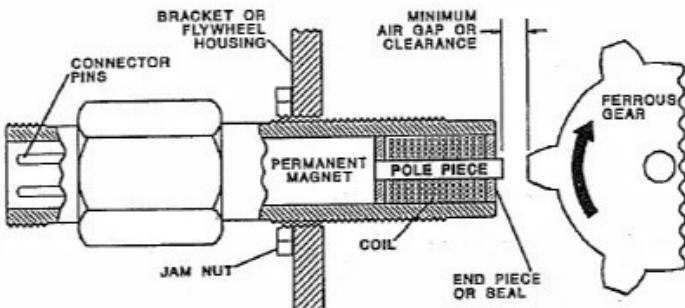
## TYPES OF MAGNETIC PICKUPS

Magnetic Pickups are available in different lengths and mounting thread sizes. Those commonly used with Woodward controls are listed in the following table.

The standard magnetic pickup requires a mating connector which is not included with the basic pickup. The table lists the assembly part number, which includes the complete connector assembly and the pickup. Unless a standard pickup is ordered as a replacement the complete assembly should be ordered to ensure that the connector will be available.

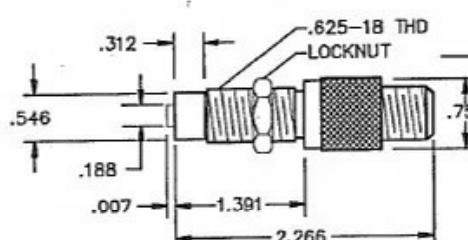
MPU TYPE	MPU PART NUMBER	ASSY PART NUMBER	MOUNTING THREAD LENGTH	APPROX. TOTAL LENGTH
Explosion Proof	1680-609	—	.625-18 x 1.5"	3.0"
	232205	—	.750-20 x 1.5"	3.0"
Standard Short	202816	5430-919	.625-18 x 1.4"	2.5"
Standard Long	1680-622	5430-929	.625-18 x 2.5"	3.5"
Standard X-Long	1680-631	5430-933	.625-18 x 4.5"	5.5"
Metric	1680-649	*	M 16 x 1.5 x 76 mm	100 mm

\*Metric MPU connector mates with MS 3106A-10SL-4S

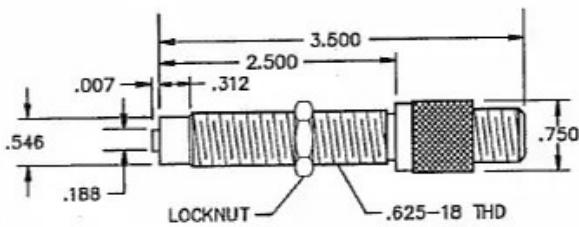


OUTPUT FREQUENCY OF MAGNETIC PICKUP IN HERTZ  
 $Hz = \frac{No. of Gear Teeth \times Gear RPM}{60}$

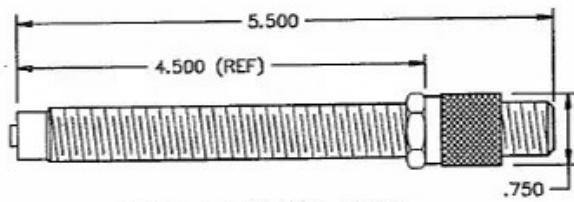
EN-0122



202-816 STANDARD SHORT MAGNETIC PICKUP



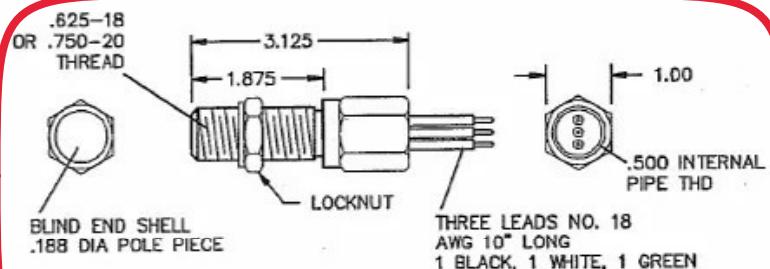
1680-622 STANDARD LONG MAGNETIC PICKUP



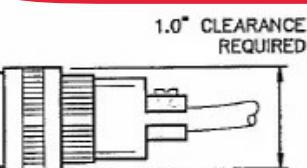
1680-631 EXTRA-LONG  
STANDARD MAGNETIC PICKUP

SETTING THE GAP

If the gap between the pickup and the gear cannot be measured directly, it can be determined by counting the number of turns the pickup is backed away from the gear. One full turn counterclockwise will move the pickup out 0.0555 of an inch (1.5 mm for the metric model). A gap of .010" to .040" (.25 mm to 1 mm) at the closest point to the gear is recommended. Voltage decreases as the MPU is moved farther from the gear. The MPU will be damaged if it touches the moving gear. Most Woodward controls require a minimum of 1.5 Vac (rms) at the lowest speed.

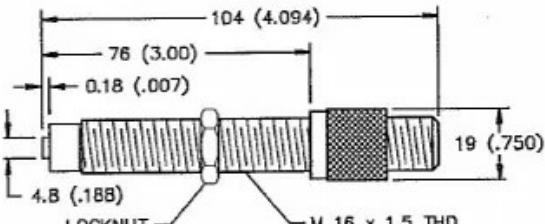


EXPLOSION-PROOF MAGNETIC PICKUP (SEE NOTE)



MATING CONNECTOR

NOTE:  
 0.625 INCH -18 THREAD (P/N 1680-609) AND 0.750 INCH -20 THREAD (P/N 232205) ARE UL LISTED AND CSA CERTIFIED FOR HAZARDOUS LOCATIONS, CLASS 1, DIVISION 1, GROUP A, B, C, D OR CLASS 2, DIMENSION 1, GROUPS E, F, G.



1680-649 STANDARD METRIC THREAD PICKUP

823-104

Registered Firm  
 ISO 9001/Q91  
 Certificate QSR-36



REGISTRAR  
ACCRREDITATION BOARD



DUTCH COUNCIL  
FOR CERTIFICATION

Engine Controls • 1000 East Drake Rd., Fort Collins, CO 80525 U.S.A.

## WOODWARD GOVERNOR COMPANY

Engine Controls • P.O. Box 1519, Fort Collins, CO 80522-1519 U.S.A. • Phone: (303) 482-5811 • Fax: (303) 498-3058

Corporate Headquarters • Aircraft Controls • P.O. Box 7001 • Rockford, IL 61125-7001 U.S.A. • Phone: (815) 877-7441, Fax: (815) 877-0001

International Locations: Reading, Berkshire, England, Phone: 44 (734) 752727, Fax: 44 (734) 751599  
 Hoofddorp, The Netherlands, Phone: 31-2503-13241, Fax: 31-2503-36529 • Tomisato, Chiba, Japan, Phone: 81 (476) 93-4661, Fax: 81 (476) 93-7939  
 Singapore, Phone: 65-270-0081, Fax: 65-271-6250 • Kingsgrove, Australia, Phone: 61 (2) 758-2322, Fax 61 (2) 750-6272

Campinas, S.P., Brazil, Phone: 55 (192) 42-4788, Fax: 55 (192) 42-2992