



Westinghouse Electric Corporation  
Relay-Instrument Division  
Coral Springs, FL 33060

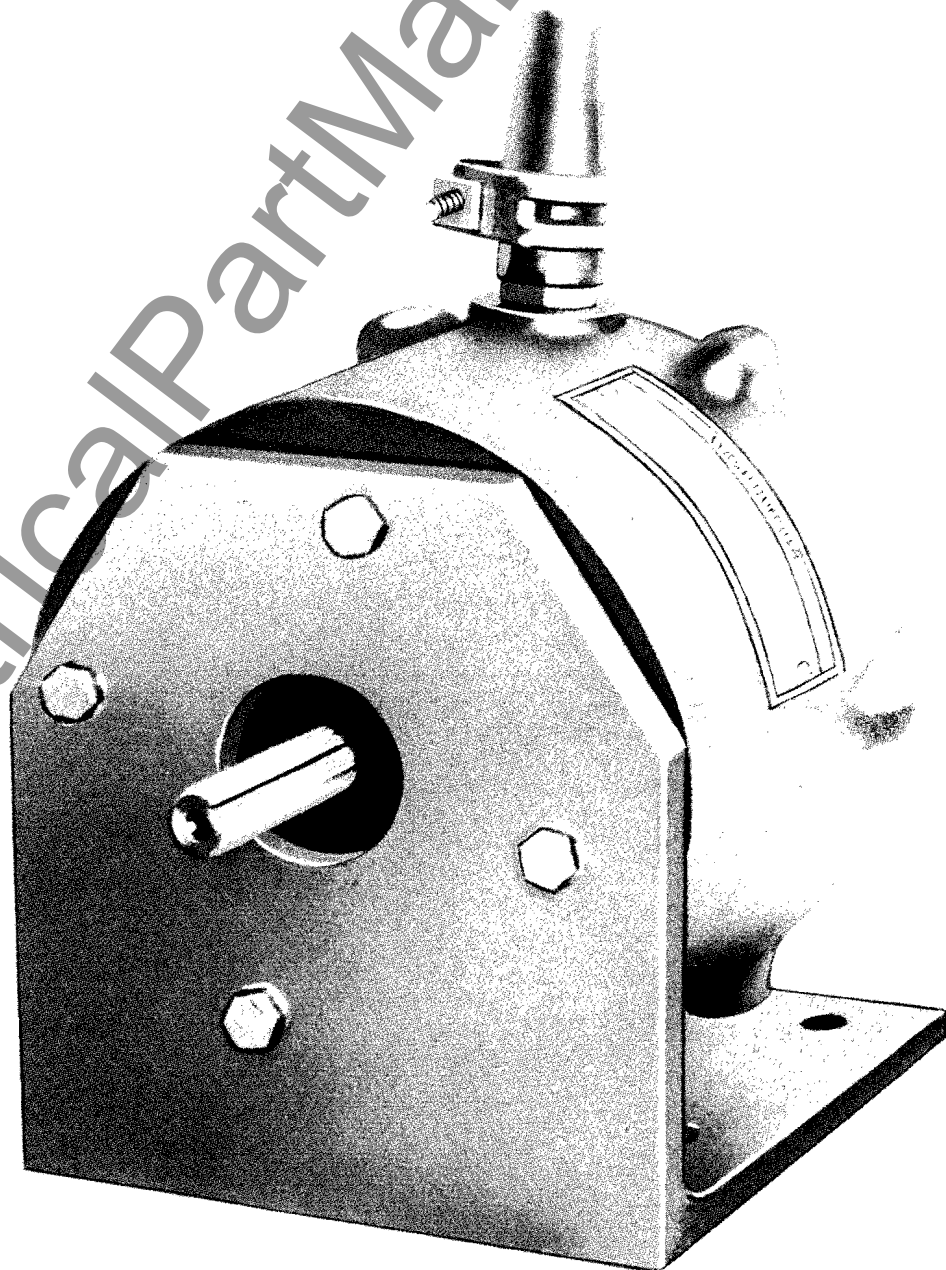
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## Pulse Tachometers Type B-801



### B-801 Pulse Tachometer

#### Digital Output

For producing pulses corresponding to speed input..

Pulse tachometers are ideally suited to all systems of speed and length measurement which use a digital input to the logic measuring element.

The type B-801 tachometer produces an electrical pulse (or output) for a given angular displacement of its shaft. Measurement of the number of pulses generated provides an accurate measurement of revolutions or length. Integration of these impulses with respect to time provides a speed measurement.

#### B-801 Features

- no commutator or brushes
- universal mounting
- inherent accuracy of digital output
- speed increaser gear unit available for special applications
- simple wiring connections
- wide range of application
- rugged splash proof construction

### Construction and Operation

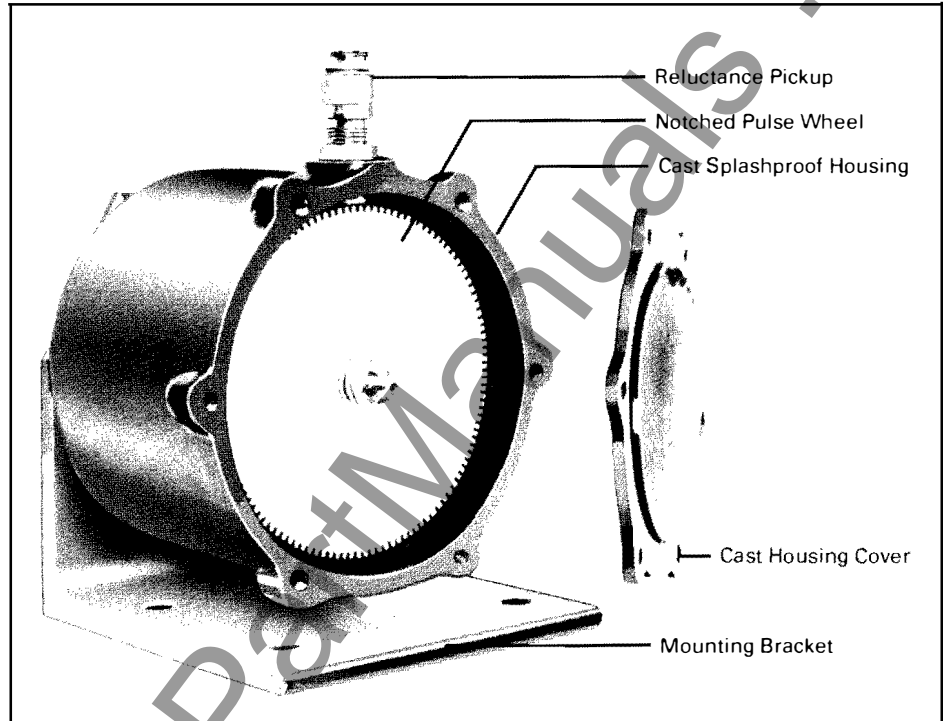


Figure 1

The Westinghouse type B-801 pulse tachometer consists of a magnetic material notched wheel and a reluctance type magnetic pickup device mounted in close proximity to the periphery of the wheel. A cast splashproof housing supports both components, along with a shaft extension to connect the tachometer to the driving machine. Figure 1 shows the unit with cover removed.

In operation, rotation of the notched wheel generates electrical impulses in the coil of the reluctance pickup device. One impulse is produced for each notch passing the pickup head. Thus, if the notched wheel had 60 notches, each revolution of the tachometer would produce 60 impulses. And if the tachometer were driven at 1000 rpm, the output frequency would be 1000 cycles/second

$$\frac{1000}{60}$$

$$60 \times 60 = 1000.$$

This pulse output of the tachometer may be used in various ways to measure speed, length, speed differential, etc. One of its principal uses is for the measurement of speed, linear footage, and "draw" speed, in the paper industry. In such applications, several pulse tachometers are mounted on the paper machine, feeding pulses into a digital logic and programming control unit where the pulses, in turn, are

counted and compared, along with a timing circuit, to provide a visual or printed record of the speed, "draw" speed, or length, as desired.

For measurement of speed or speed differential, the B-801 pulse output is fed into a pulse transducer, which converts the pulse rate to a d-c millivolt output directly proportional to the rate of incoming pulses. The pulse transducer employed is essentially a digital to analog converter utilizing a pulse (or frequency) sensitive network of solid state components.

The B-801 tachometer is furnished complete with a notched wheel of the specified number of notches to suit the particular application, shaft, splashproof cast housing, mounting bracket, reluctance pickup, 6 feet of shielded cable, and waterproof junction box. It may be mounted in any position, and connected to the driving member of the machine in any convenient manner. For optimum accuracy, slippage between the machine and tachometer should be avoided.

The B-801 tachometer may be used in any application where it will be driven at speeds of 100 to 5000 rpm. Notched wheels can be supplied with any number of notches from 20 to 120, to provide a pulse output range to suit most any requirement.



### 8-801 Pulse Generator

Complete with 6' Shielded Cable with splicing box and mounting bracket

| Pulses Per Revolution | Style No   | Pulses Per Revolution | Style No.  |
|-----------------------|------------|-----------------------|------------|
| 6                     | 186A601A22 | 64                    | 186A601A26 |
| 12                    | 186A601A23 | 70                    | 186A601A16 |
| 15                    | 186A601A24 | 78                    | 186A601A09 |
| 20                    | 186A601A21 | 80                    | 186A601A15 |
| 30                    | 186A601A20 |                       |            |
|                       |            | 90                    | 186A601A14 |
| 35                    | 186A601A25 | 100                   | 186A601A11 |
| 40                    | 186A601A19 | 110                   | 186A601A13 |
| 50                    | 186A601A18 | 120                   | 186A601A12 |
| 60                    | 186A601A17 |                       |            |

### Reluctance Pickup

From machine using any suitable notch or slug which passes across variable reluctance pickup at frequency rate proportional to speed to be measured.

| Description                                                        | Style No.  |
|--------------------------------------------------------------------|------------|
| Pickup                                                             | 408C468H01 |
| Shielded Cable (pickup connector one end, splice box on other end) | 409C811G01 |

### Separate Pulse Wheels

May be installed on any shaft accessible to pickup head 4.784", outside diameter, 1/2" bore, .188" thick.

| Wheel | Pulses Per Revolution | Style No. | Pulses Per Revolution | Style No. |
|-------|-----------------------|-----------|-----------------------|-----------|
| 20    | 409C996H28            | 78        | 409C996H02            |           |
| 30    | 409C996H13            | 80        | 409C996H08            |           |
| 40    | 409C996H12            | 90        | 409C996H07            |           |
| 50    | 409C996H11            | 100       | 409C996H03            |           |
| 60    | 409C996H10            | 110       | 409C996H06            |           |
| 70    | 409C996H09            | 120       | 409C996H04            |           |

### 8-801 Characteristics

Speed Range, Rpm  
100 minimum; 5000 maximum.

### Bearings

Sealed ball, lubricated for long, trouble-free service at any mounting angle.

Drive Shaft Eccentricity  
0.05-inch maximum

Output Voltage  
See figure 2

Output Circuit Resistance  
See figure 2.

Weights (with mounting bracket, 6-foot cable, and conduit box)  
Net: 20 lbs. Shipping: 26 lbs.

### 8-801 Representative Output Voltage

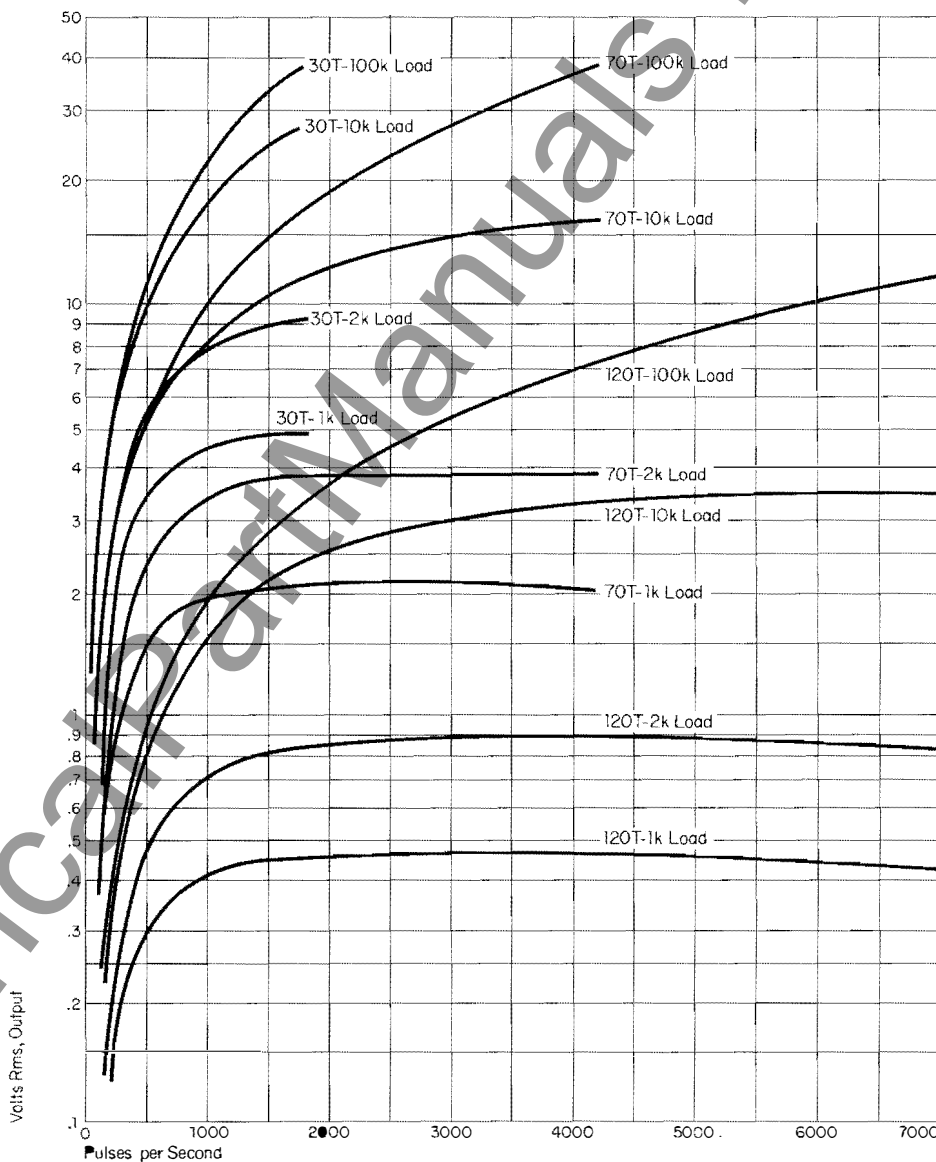


Figure 2

### Further Information

Prices and Ordering Information:  
Catalog 43-200B

Application Data:  
AD 43-842  
AD 43-860, Parts I, II and III

Pulse Transducers:  
Price List 43-860  
Descriptive Bulletin 43-861



Dimensions in Inches (Millimeters)

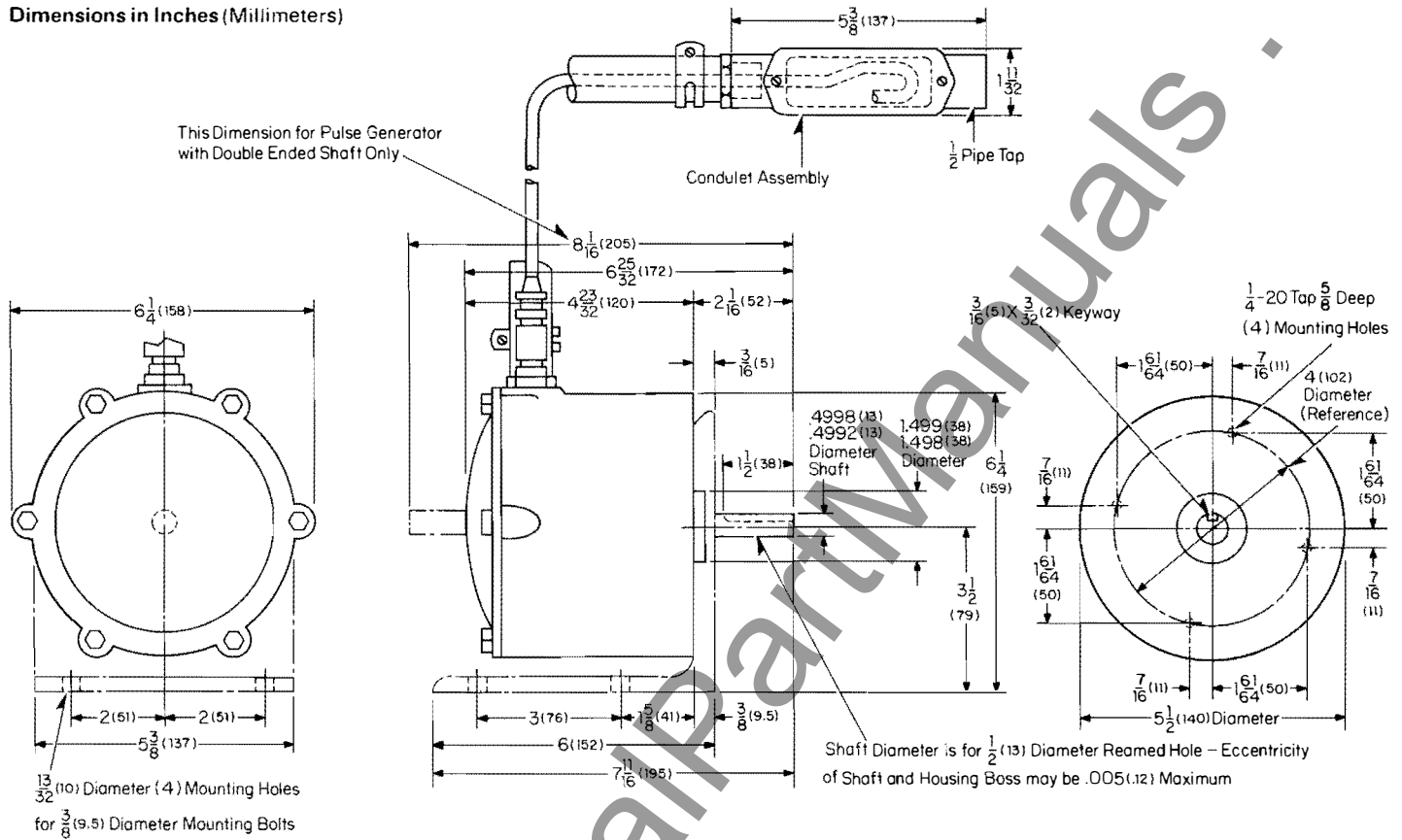
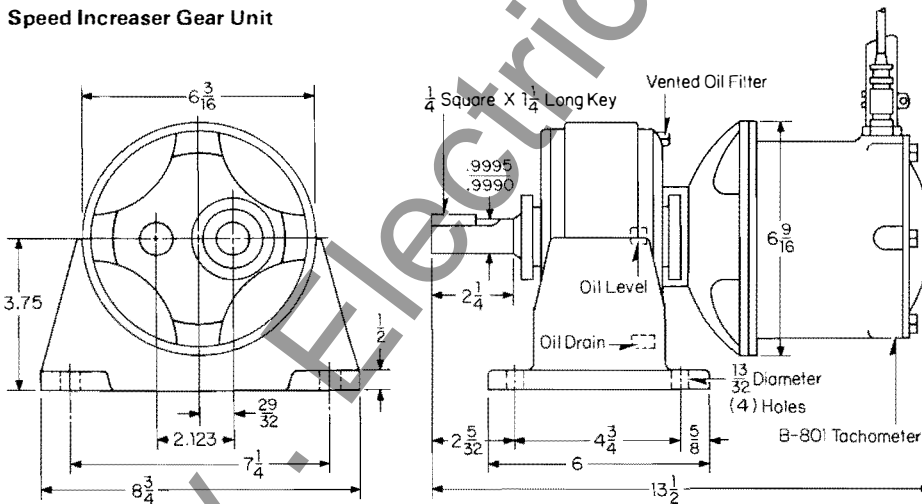


Figure 3

409C812 sub 10

Speed Increaser Gear Unit

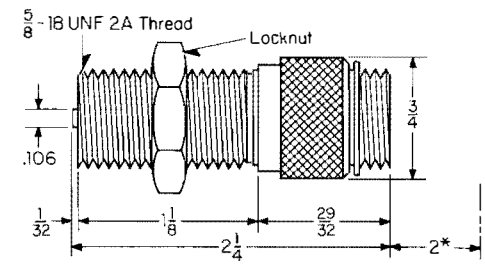


Oil Capacity:  $\frac{3}{8}$  Quart. Unit Does not Contain Oil when Shipped  
Shaft Rotation: Input Shaft can Rotate in Either Direction

Figure 4

408C574 sub 2

magnetic pickup



\*Approximate Minimum Clearance for Connector and Cable

Figure 5