

# Model 21000E

## Speed Sensor

### Balancing Accessory



#### PHOTOELECTRIC SPEED SENSOR FOR BALANCING

##### DESCRIPTION:

The Model 21000E photoelectric speed sensor is used with IRD balancing instruments to detect the rotating speed of a part. This speed sensor operates on a retro-reflective principle and requires reflective tape to be attached to the rotor. The optical system is coaxial and minimizes problems associated with ambient light. For best performance, the sensing axis of the photocell should be placed at a slight angle from perpendicular to the reflective tape. An indicator light on the side of the sensor tells when the sensor is being triggered by the tape. Two threaded mounting nuts are supplied. This sensor is furnished as a standard accessory with most IRD Balancing instruments.

This is a direct replacement for all earlier versions of the 21000 speed sensor.

##### GENERAL SPECIFICATIONS:

- Sensing Distance: 25 - 610 mm (1 - 24 inches)
- Speed Range: 10 to 500 000 RPM
- Trigger Source: Reflective tape
- Light Source: Visible red LED, axial
- Indicator Light: Green LED on side (Light is on when triggered)
- Output: TTL compatible pulse  
0 volt (non-triggered) to +5 volt (triggered) into a 10K ohm load. Trigger occurs on the leading edge of the reflective tape.  
(Note: Models 21000D and earlier trigger on the trailing edge)



- Orientation: It is recommended that the axis of the speed sensor be placed at a slight angle (15 degrees) from perpendicular so that only a trigger from the reflective tape will be sensed.
- Standard Accessories: (2) mounting nuts
- General configuration:
  - Dim: 117.5 x 31.8 x 31.8 mm (l x w x h)  
(4.63 x 1.25 x 1.25 in) (l x w x h)
  - Mounting Thread: 3/4 -20 UNF-2A
  - Thread Length: 25 mm lg (1 in)
  - Weight: 170 g (0.4 lb)
  - Material: Aluminum (Case and nuts)
  - Input Power: 5 to 30 VDC at 24 ma
  - Connector: MS3102A 14S 2P
  - Connections: Pin A -Input power  
Pin C -Sig/Pwr Ground  
Pin D -Signal output  
(Case isolated from signal ground)

- General configuration (cont):
  - Temperature: -10 to +80° C  
(15 to +180° F)
  - Humidity: 0 to 95% at 40° C  
non-condensing

##### OPTIONAL ACCESSORIES:

- Reflective tape
- Different length interconnect cables
- Mounting arm for balancing machine
- Flexible magnetic arm for mounting speed sensor on in-situ machines

**STANDARD CONFIGURATIONS:**

Part Number	Brief Description	Detailed Description
E21000	Photoelectric speed sensor, retro-reflective	Photoelectric speed sensor, Model 21000E, retro-reflective trigger, 25 to 610 mm sensing distance with visible red LED light source and on-target indicator light. This speed sensor requires reflective tape which must be purchased separately.

Part Number	Options, Accessories, and Supplies
E21200	Reflective tape for use with speed sensor, adhesive backed, roll, 6 mm wide x 47.5 m (0.25 wide x 150 ft)
E47256	Reflective tape for use with speed sensor, adhesive backed, roll, 6 mm wide x 1.5 m (0.25 wide x 5 ft)
E11689	Cable for P/N E21000 photoelectric speed sensor, 1.5m L (5 ft). Connects to IRD 236, 246, 290, B01/S and B02/S.
E10179	Cable for P/N E21000 photoelectric speed sensor, 7.6 m L (25 ft). Connects to IRD 236, 246, 290, B01/S and B02/S.
E25863	Cable for P/N E21000 photoelectric speed sensor, 15.2 m L (50 ft). Connects to IRD 236, 246, 290, B01/S and B02/S.

Part Number	Options, Accessories, and Supplies
E26720	Universal mounting arm assembly for attaching the speed sensor to the pedestal tube of an IRD balancing machine. This has two adjustable position arms for holding the speed sensor. The universal mounting bracket fits tubes (not provided) with outside diameters 25, 40 and 55 mm (1, 1.66 and 2.25 inch).
E26383	Magnetic flexible arm holder for speed sensor. This is a general purpose mounting device for in-situ (field) balancing. Magnet base pull strength – 800 N (180 lb) Flexible arm length – 275 mm (11 in).

**OTHER AVAILABLE IRD SPEED SENSORS:**

- E47240 Laser speed sensor, 5Vdc, reflective tape trigger, 100- 2000 mm range.
- E47255 Infrared speed sensor, 12Vdc, light/dark trigger, 100-150 mm range.

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Specifications are subject to change without prior notice.

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