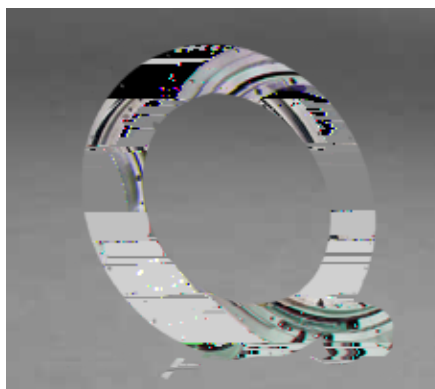


MILITARY / AEROSPACE RESOLVERS FOR POSITION, COMMUTATION, AND VELOCITY FEEDBACK



Resolvers provide accurate position and velocity feedback as well as commutation in precision equipment, without the structural or temperature restrictions imposed by other electronic feedback devices. They are resistant to the shock and vibration levels often encountered in military and aerospace applications.

These resolvers are available in standard sizes, or with custom modifications. Our engineering department is available for consultation to help tailor a resolver to fit your needs.

FEATURES

- 1, 2, 4, 8, 16, 32 and 36 speeds standard; others available
- 400 – 5,000 Hz frequency range standard; frequencies up to 20,000 Hz available
- High immunity to electrical noise
- Rugged design to meet demanding environments – no glass discs or optics to fail
- Compact design
- Mounts directly to shaft and housing – no coupling devices needed
- Brush or brushless designs
- High reliability – long-life design; no bearings or electronics
- Custom modifications available

INTEGRATION CAPABILITIES

- Ideal for vertical integration with brushless motors and slip ring assemblies
- Commutation of brushless motors
- Feedback sensor for servo systems
- Compatible with R / D converters

TYPICAL APPLICATIONS

Where precise position indication is required to interface with resolver to digital converters.

- Target acquisition systems
- Gun trunnions
- Forward-Looking-Infra-Red (FLIR) systems
- Electro-optical systems
- Radar systems
- Missile seekers
- Motor commutation

TYPES OF RESOLVERS

Pancake Resolvers

Pancake resolvers are so named for their physical dimensions – they typically have a diameter that exceeds their axial length. Pancake resolvers are supplied as separate rotor and stator assemblies, which are then mounted directly in the user's system. They are often supplied with a custom ring on the stator and hub on the rotor which facilitate mounting in the user's system. This also improves performance in the operating temperature ranges typically found in military systems. Figure A shows a typical physical configuration for a pancake resolver with a ring and hub.

A pancake resolver can also be supplied in a multispeed configuration. Multispeeds are mechanically and electrically similar to a standard pancake, but produce "N" cycles of electrical output for each mechanical revolution of the rotor. "N" is called the ratio or speed of the resolver. For example, an 8 speed resolver has one electrical output cycle in $360/8 = 45$ degrees of mechanical rotation. The individual electrical cycles can be distinguished from each other by inserting a single speed in the same slots with

the multispeed, creating a multiple speed unit. Figures B and C below show typical wiring schematics for single speed and multispeed resolvers, respectively. Mounting diameters A and B and overall thickness C (refer to Figure A) as well as electrical parameters for a variety of units are tabulated on page 194.

Brushless Pancake Resolvers

A rotary transformer can be added to a pancake resolver so that all of the leads exit from the stationary element. Since the rotor is energized through this rotary transformer, slip rings and brushes are not required in the user's system. This type of resolver is called a brushless pancake resolver and is described in the user manual.

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