

High performance, cost-effective 1Vpp Sine/Cosine output magnetic encoders for harsh or difficult environments.

Admotec’s KA Series analog-output magnetic encoders provide high performance in measurement and feedback applications where optical encoders don’t work or don’t last. Perfect for industrial tachometers, spindle feedback, and servo motor commutation, these encoders offer original equipment manufacturers cost-effective solutions at any quantity—from prototype units all the way up to high-volume production.

Series KAL encoders operate with a large (up to 3mm) airgap between wheel and sensor allowing easy, non-critical “plug and play” assembly to your machine or motor. Common binary, angular, and decimal resolutions (up to 256 CPR) are available on a wide range of wheel diameters (up to 250mm).

Series KAS encoders offer enhanced performance with higher accuracy and resolution but operate with a smaller (0.3mm) airgap between wheel and sensor. A once-per-revolution index or Z (marker) output is also available. Common binary, angular, and decimal resolutions (up to 720 CPR) are available on a variety of wheel diameters (up to 229mm).

And if a standard Series KA encoder doesn’t fit your needs, completely customized solutions can also be designed for your application.

Admotec—the leader in motion and position sensing for original equipment manufacturers.

K A

MAGNETIC ENCODER

ANALOG SINE/COSINE OUTPUT

TYPICAL APPLICATIONS

- Industrial tachometer
- Motor feedback
- Angle measurement
- Position/speed display
- Machine synchronization
- Test and measurement
- High-speed spindles
- AC and DC servo motors
- Torque flanges
- Remote-controlled vehicles
- Health/mobility products
- Medical/Lab automation

FEATURES & BENEFITS

Non-contact design	No wear or aging
Magnetic, not optical	Immune to dust, dirt, oil, water, condensation, etc.
Radial sensing	Tolerates high end-play
Large through-hole capability	Direct mounting on large diameter and hollow shafts
Rugged construction	Tolerates high vibration and shock
Automatic gain and offset compensation	Increased interpolation accuracy
RoHS compliant	Worldwide application

GENERAL SPECIFICATIONS

Resolution	Up to 720 CPR
Maximum Speed	Up to 100,000 RPM
Channel Frequency	500 kHz maximum
Airgap	1.5mm or 0.3mm nominal
Angular Error	≤ 4 arc minutes (KAS) ≤ 10 arc minutes (KAL)
Operating Temperature	-40 to 110 °C
Supply Voltage	5.0 ±0.25 Vdc
Supply Current	40 mA typical

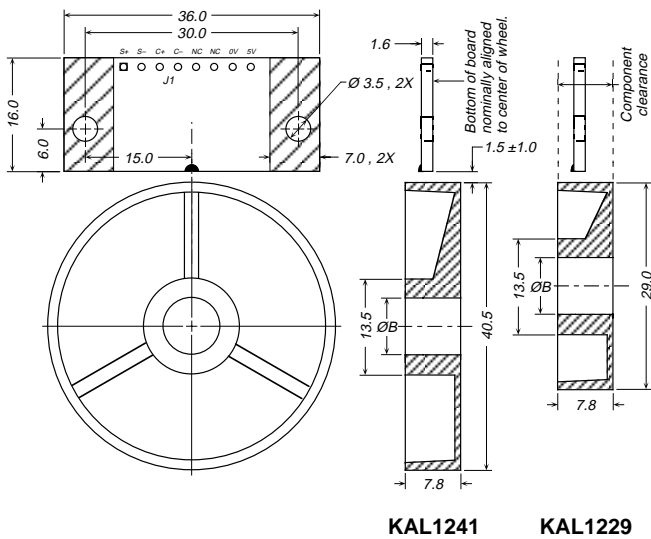
KAL

LARGE GAP ENCODER

SERIES KAL1200 AND KAL2200

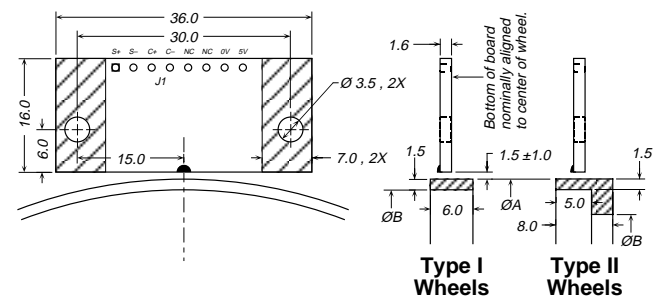
Series KAL1200 is a basic two-channel incremental magnetic encoder optimized for operation at large airgaps. Fixed-diameter (29mm and 40.5mm) molded wheels with standard metric and English (inch) bores allow direct mounting to many motors and small shafts. Industry-standard 1Vpp differential outputs at 32 cycles per revolution (CPR) interface directly to many drive systems. Large (1.5mm) airgap provides easy installation and maintenance for many applications.

KAL1200 OUTLINE & MOUNTING DIMENSIONS*



Series KAL2200 is a versatile two-channel incremental magnetic encoder optimized for operation at large airgaps using custom-configured wheels machined to the required size. Type I wheels offer large through-bore capability while Type II wheels offer an ID machined to your specifications. Resolutions from 16 to 256 cycles per revolution (CPR) on wheel diameters from 20mm to 250mm are available. Large (1.5mm) airgap provides easy installation and maintenance.

KAL2200 OUTLINE & MOUNTING DIMENSIONS*

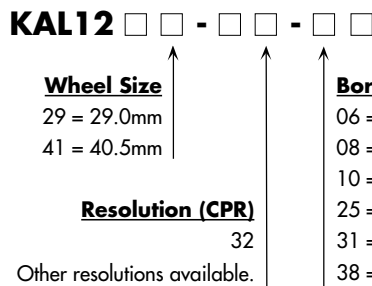


KAL2200 WHEEL DIAMETERS AND RESOLUTIONS

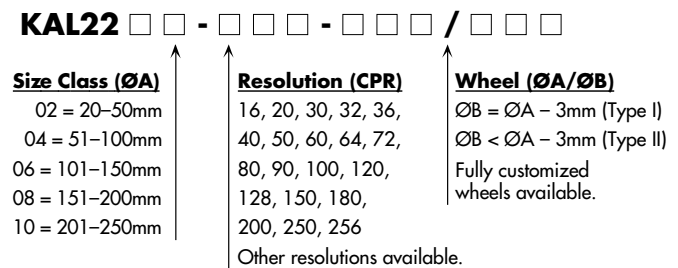
The ideal wheel OD ($\varnothing A$) in mm is equal to the desired resolution in cycles per revolution (CPR). ODs varying from the ideal by up to $\pm 25\%$ can also be used.

Size class 06 wheels have a 98mm minimum ID ($\varnothing B$); size class 08 wheels have a 140mm minimum ID ($\varnothing B$); size class 10 wheels have a 198mm minimum ID ($\varnothing B$).

KAL1200 ORDERING INFORMATION



KAL2200 ORDERING INFORMATION



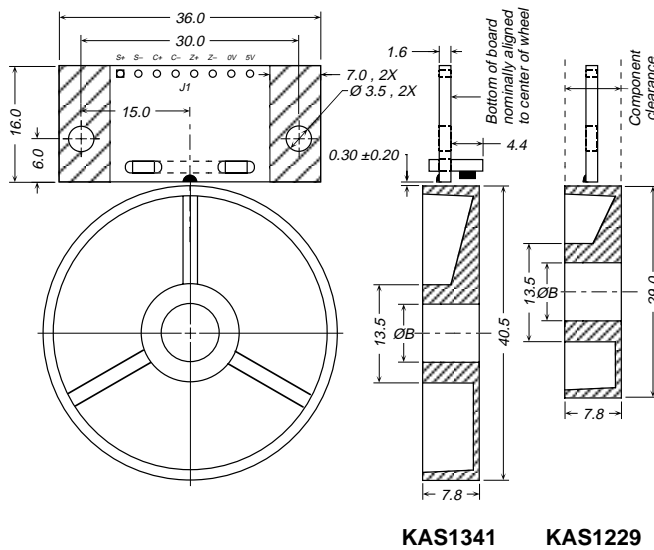
KAS

SMALL GAP ENCODER

SERIES KAS1000 AND KAS2000

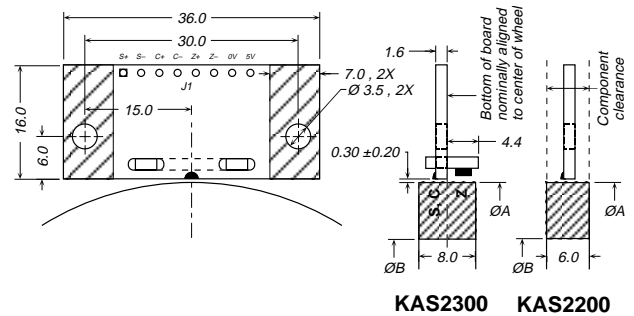
Series KAS1000 is a basic high-accuracy two- or three-channel incremental magnetic encoder using fixed-diameter (29mm and 40.5mm) molded wheels and a 0.3mm airgap. Standard metric and English (inch) wheel bores allow direct and easy mounting to many small shafts and motors. Industry-standard 1Vpp differential outputs at 90 or 128 cycles per revolution (CPR) interface directly to many drive systems to provide high performance for critical applications.

KAS1000 OUTLINE & MOUNTING DIMENSIONS*



Series KAS2000 is a versatile high-accuracy two- or three-channel incremental magnetic encoder using custom-configured wheels and a 0.3mm airgap. Resolutions from 36 to 720 cycles per revolution (CPR) depending on wheel diameter are available.

KAS2000 OUTLINE & MOUNTING DIMENSIONS*

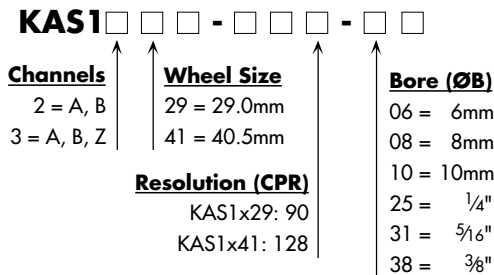


KAS2000 RESOLUTIONS AND WHEEL DIAMETERS

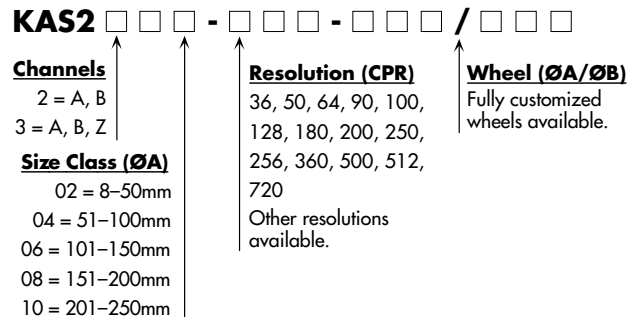
Resolution (CPR)	Wheel OD ØA (mm)	Size Class	Minimum ØB (mm)
36	11	02	
50	15	02	
64	20	02	
90	28	02	
100	31	02	
128	40	02	
180	57	04	
200	63	04	
250	79	04	
256	81	04	
360	114	06	98.0
500	159	08	140.0
512	162	08	140.0
720	229	10	198.0

Additional wheel diameters available.

KAS1000 ORDERING INFORMATION

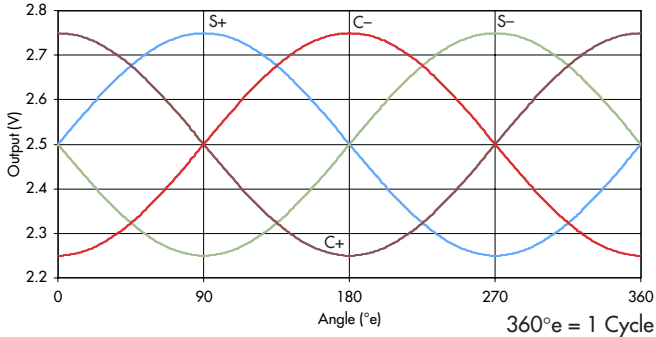


KAS2000 ORDERING INFORMATION

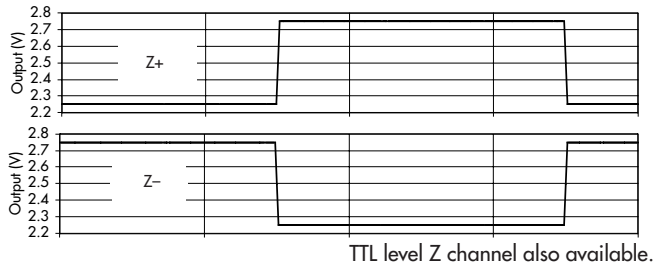


OUTPUT SIGNAL FORMAT

KA Series analog outputs (S and C) are differential 1Vpp sine waves with a DC bias of 2.5V as shown below. Outputs can drive 120Ω input impedance and are short-circuit protected.

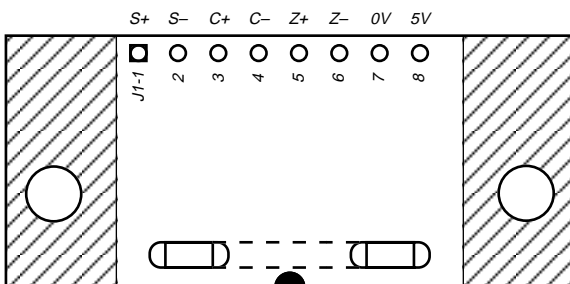


KAS1300 and KAS2300 models add a marker or index channel (Z) as shown below.



ELECTRICAL CONNECTIONS

KA Series encoders are connected using wires soldered into the 8 holes on 2.54mm (0.1") centers labeled J1 along the rear edge of the board. The pinout of J1 is shown below. Recommended cable is 28AWG flat ribbon cable for short (<1m) runs and Belden 9504 or equivalent for long (>1m) runs.



CUSTOM OPTIONS

In addition to the standard products, KA Series magnetic encoders may be fully customized to your needs. Available optional features include (but are not limited to) those shown below. Contact the factory for more information on these and other options.

- Additional resolutions and wheel diameters
- Larger nominal airgap—up to 3mm (KAL only)
- Custom wheel features
 - Flanges
 - Bolt hole circles
 - Chamfers
 - Aluminum or steel hubs
- TTL-level marker
- Multiple markers
- Low voltage (3.3Vdc) operation
- Input filtering for reduced bandwidth
- Axial instead of radial airgap
- Custom PC board size and shape