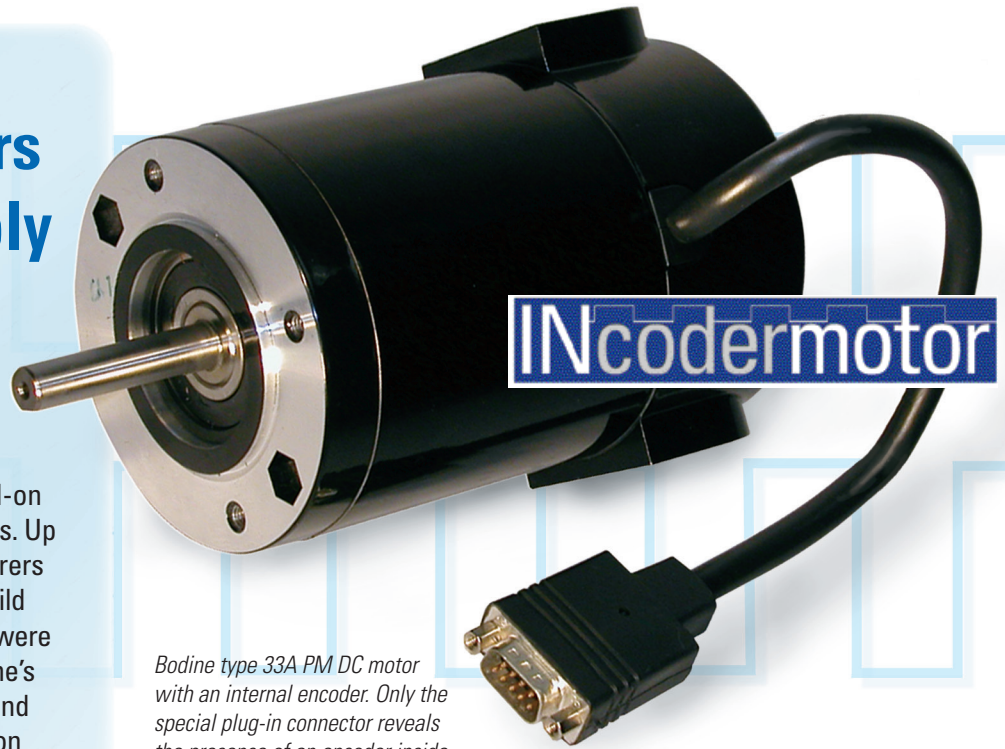


Built-in Encoders Reduce Assembly Costs, And Components

Encoders, which are used to measure speed and position, are common add-on components in motion control systems. Up to now, Original Equipment Manufacturers (OEMs) have been forced to either build or buy separate encoder units. These were attached and wired to the motor. Bodine's new Incodermotors are a pre-wired and fully tested motor-encoder combination that is ready to drop into the OEM's design. By specifying Incodermotors, OEMs can significantly reduce assembly time and cost of their products. Further, since the encoder is inside the motor, it is protected from harsh environments, and the overall size of the motor-encoder combination is not increased.

The 4.5-12V magnetic encoders are available with one or two hall sensor output signals in resolutions of 2, 4, 8, and 30 pulses/revolution. They work with digital tachometers or other electronic devices to measure speed, distance, and direction.

Bodine Incodermotors are designed for any application where low-res speed and position feedback is required. Some common uses include door and gate openers, guided vehicles, factory automation, and conveyor belts. Bodine's type 33A and 42A permanent magnet DC motors, and Bodine's type 22B and 34B Brushless DC motors or gearmotors are all available as custom-made Incodermotors. It is a custom option that must be specified on a special order.



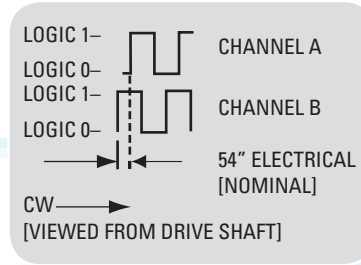
Bodine type 33A PM DC motor with an internal encoder. Only the special plug-in connector reveals the presence of an encoder inside.

ENCODER OPERATING PARAMETERS

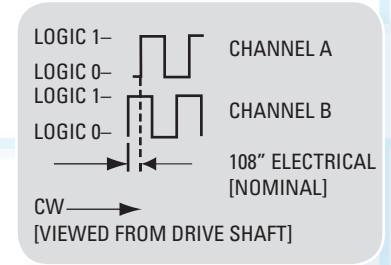
Resolution (PPR)	Voltage Range (VDC)	Max Sink Current (mA)	Output	Pull-up Resistor
2 Channels, 2 Pulses/Revolution				
2	4.5-12	5	Open Collector	Not provided on PCB
2 Channels, 4 Pulses/Revolution				
4	4.5-12	5	Open Collector	Not provided on PCB
2 Channels, 8 Pulses/Revolution				
8	4.5-12	5	Open Collector	Not provided on PCB
2 Channels, 30 Pulses/Revolution				
30	4.5-12	5	Open Collector	Not provided on PCB

ENCODER OUTPUT WAVEFORMS

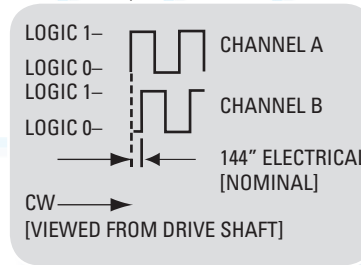
2 channel, 2 pulses/revolution



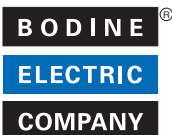
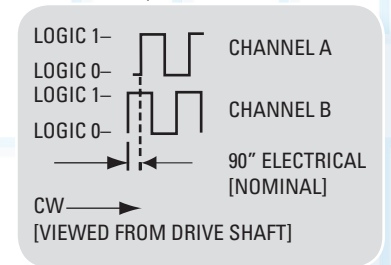
2 channels, 4 pulses/revolution



2 channels, 8 pulses/revolution



2 channels, 30 pulses/revolution



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