



### Description:

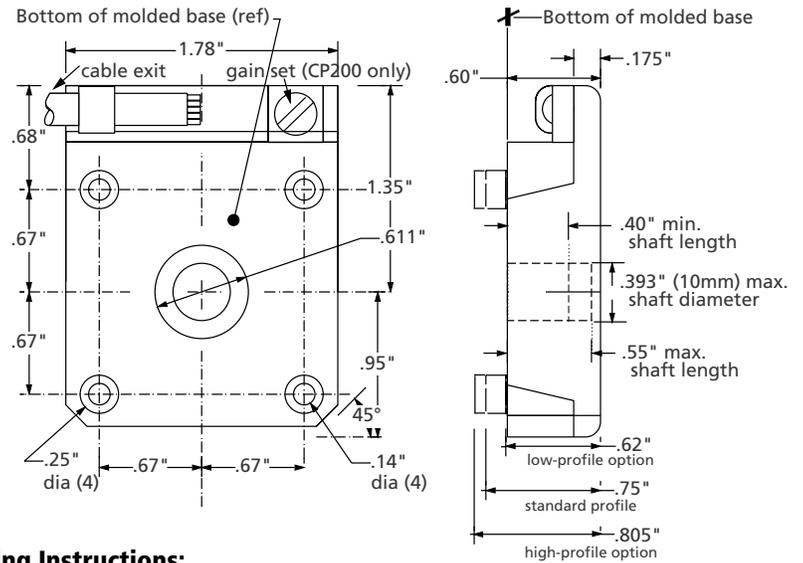
The CP-200 series modular encoders are easy to mount, rugged and with high datarates. The CP-200 is a sinusoidal "infinite resolution" encoder, specifically designed for digitizing the waveform. The CP-260 encoder, in addition to the traditional incremental output, also generates a DC tachometer signal proportional to the RPM's.

The CP-270 is very fast with a 500 kHz min. frequency @ 85°C for applications such as scanners etc. All models except the CP-260 are "through-shaft" capable for added flexibility.

### Options:

- custom linecounts and index configurations
- custom shaft configurations
- custom cable configurations

### Mechanical:



### Mounting Instructions:

- 1/ open cover by gently wedging the cover off with a small screwdriver at the slot opposite the wire exit. Leave the PCB in place.
- 2/ loosely mount the encoder to a motor with four mounting screws through the PCB
- 3/ unlock the locking ring by turning ccw (view from encoder end), access ring from the side
- 4/ gently press down hub into the locking mechanism and lock the hub by turning locking ring clockwise
- 5/ tighten set screw
- 6/ tighten the four mounting screws
- 7/ unlock the locking ring by turning ccw until it stops
- 8/ snap on cover



## CP-200, Incremental, Sine/Cosine

### Description:

The CP-200 encoder/ transducer is a cost-effective feedback device especially suited for applications where continuous position information is required, such as low and ultra-low speed servo control loops. As opposed to digital encoders where no information is available between transitions, the CP-200 supplies continuous information about the angular position of the system with a resolution only restricted by the digitizing electronics. With a guaranteed linearity of better than 1% up to the 45° crossover points it is possible, even with relatively simple digitizing schemes, to obtain equivalent resolutions of 256,000 discrete points per revolution. For "ditherless" detenting into a zero-crossing or an offset zero-crossing, either the A or B channel can be directly switched into the error amplifier of the system. This unit interfaces directly with the SGS™ low-cost servo-control L-290, L291 & L292 chipset. The CP-200 is a drop-in replacement for the Eleprint™ / MAE™ encoder type 100E.

### Ratings:

- supply voltage: ± 18 Vdc max, operating: ± 12 Vdc nominal
- temperature range: -30°C to +85°C
- storage temperature: -40°C to +95°C
- operating relative humidity: 90% @ 35°C
- storage relative humidity: 80% @ 45°C
- moment of inertia: 0.2 x 10<sup>-4</sup> in.oz sec<sup>2</sup>
- frequency response: ± 0.424 dB @ 20 kHz
- output current: 10 mA sink or source
- output voltage: ± 0.5 V, zero centered. Other output levels are optional.

### Standard Linecounts / rev:

96, 100, 110, 120, 128, 155, 192, 200, 210, 240, 254, 256, 280, 288, 300, 360, 384, 400, 480, 500, 512, 576, 1000, 1024

### Ordering Information:

CP-200-(counts/rev.)-(hub size, inch or mm)-(cable length, inch or mm). Maximum hubsize is 0.3935" Or 10 mm. Maximum shaft length is 0.55" or 14 mm, for longer shafts specify hole in cover.

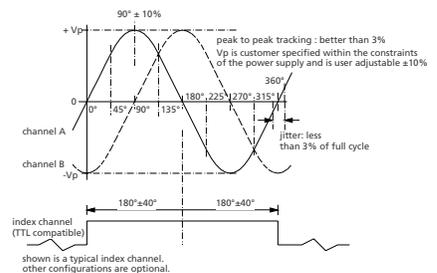
### Pinout Information:

	Pin#	pinout
	1	ground (shield)
	2	index (green)
	3	ch. B (black)
	4	ch. A (yellow)
	5	- 12 Vdc (white)
	6	open
	7	+ 12 Vdc (red)

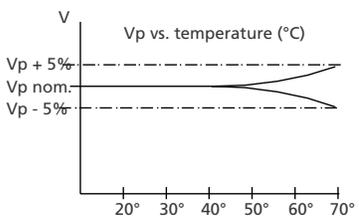
Molex™ 22-01-3077, 7 pin, 0.1" center, cable length 24" ± 0.5"

### Waveform:

ccw seen from cover end

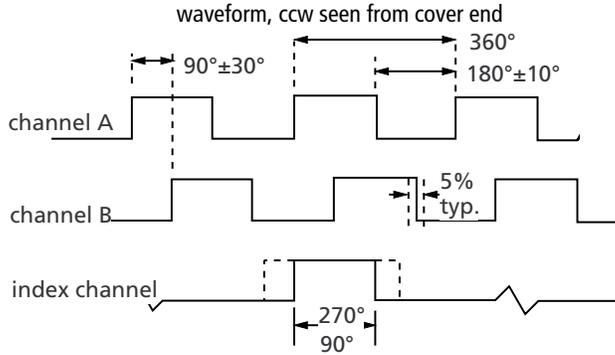


### Temperature Characteristics:



# Modular/Kit Encoders

## CP-250, Incremental, Digital



shown is a typical index channel, other configurations are optional

side exit pin option ordering: (SE) Connector: AMP™ 103324-3 or Equiv.		1 2 3 □ □ □ 4 5 6	pin 1: A channel pin 2: + Vdc pin 3: ground pin 4: B channel pin 5: index pin 6: n/c
rear exit pin option ordering: (RE) Connector: AMP™ 103324-3 or Equiv.		1 2 3 □ □ □ 4 5 6	pin 1: ground pin 2: + Vdc pin 3: index pin 4: n/c pin 5: A channel pin 6: B channel
cable option ordering: (C)	Connector: Molex™ 22-01-3077 or Equiv. cable length 24" standard, different cable lengths and terminations available on request.	1 □ □ □ □ □ 7	pin 1: n/c pin 2: index pin 3: B channel pin 4: A channel pin 5: ground pin 7: + 5Vdc

### Specifications:

supply voltage: 5 V @ 50 mA maximum  
 operating temp. range: -30°C to +85°C  
 storage temperature: -40°C to +95°C  
 operating relative humidity: 90% @ 35°C  
 storage relative humidity: 80% @ 45°C  
 moment of inertia: 0.2 x 10<sup>-4</sup> in.oz sec<sup>2</sup>  
 frequency response: 150 KHz (index)  
 output format: open collector with  
 output: 4.7k pullup resistors

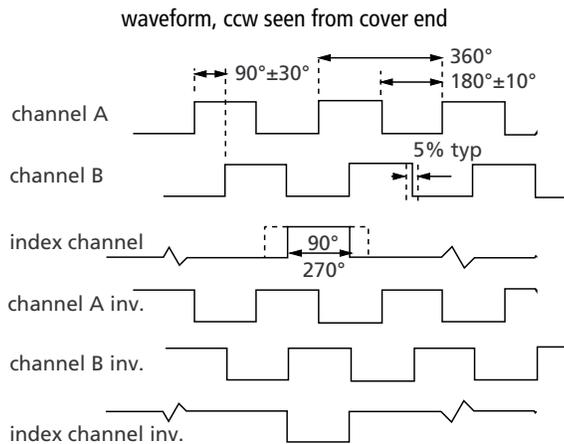
### Standard counts / revolution:

16, 32, 50, 96, 100, 110, 120, 128, 155, 192, 200, 210, 220, 240, 254, 256, 280, 288, 300, 310, 360, 384, 400, 480, 500, 508, 512, 560, 576, 600, 720, 768, 800, 850, 960, 1000, 1024 c/r.

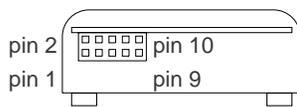
### Ordering Information:

CP-250-(c/r)-(SE/RE/C)-(hub size, inch or mm)\*  
 \* maximum hub size : 0.3935" or 10 mm.

## CP-270, Incremental, Digital, 5-30V



shown is a typical index channel, other configurations are optional



Connector: SAMTEC™  
 TSW-105-25-S-D-RA or Equiv.

pin 1	+ V <sub>in</sub>
pin 2	channel A
pin 3	channel A inverted
pin 4	channel B inverted
pin 5	channel B
pin 6	index
pin 7	index inverted
pin 8	ground
pin 9	n/c
pin 10	n/c

### Specifications:

supply voltage V<sub>in</sub> : 4.75 Vdc to 30 Vdc @ 50 mA max.  
 operating temp. range: -30°C to +85°C  
 storage temperature: -40°C to +95°C  
 operating relative humidity: 90% @ 35°C  
 storage relative humidity: 80% @ 45°C  
 moment of inertia: 0.2 x 10<sup>-4</sup> in.oz sec<sup>2</sup>  
 frequency response: 500 KHz (A & B)  
 250 KHz (index)  
 output format: incremental  
 output: linedriver

### Output Levels:

outputs @ V<sub>in</sub> = 4.75 Vdc: V<sub>low</sub> 0.5 V @ 20 mA sink  
 V<sub>high</sub> 2.5 V @ 20 mA source  
 (all 6 outputs)  
 outputs @ V<sub>in</sub> = 30 Vdc: V<sub>low</sub> 0.5 V @ 20 mA sink  
 V<sub>high</sub> 27 V @ 20 mA source  
 (EIA standard RS422 and DIN 66259 part 3 compatible, thermally protected).

### Standard counts / revolution:

16, 32, 50, 96, 100, 110, 120, 128, 155, 192, 200, 210, 220, 240, 254, 256, 280, 288, 300, 310, 360, 384, 400, 480, 500, 508, 512, 560, 576, 600, 720, 768, 800, 850, 960, 1000, 1024, 2000, 2048 c/r.

### Ordering Information:

CP-270-(c/r)- (hub size, inch or mm\*)-T (through hole)  
 \* maximum hub size : 0.3935" or 10 mm

## CP-3500, Kit Encoder



### Description:

The CP-3500 encoder was specifically designed to be mounted on 39 mm square and size 22 (2.2" diameter) BDC / stepper motors. Two covers are available: a 39 mm square version with a flat ribbon cable and a 2.2" round cover with a flat ribbon or shielded round cable. All available CP-300/500 series encoder electronics are available in this configuration: digital incremental, sinusoidal incremental, 8 and 10 bit absolute, incremental + commutation. Factory installation and alignment with the motor BEMF is included in the prices quoted.

### Mechanical Data:

- hub diameter: up to 0.25" (6.35 mm)
- moment of inertia:  $2.6 \times 10^{-5}$  oz.in.sec<sup>2</sup> maximum
- acceleration: 500,000 radians/sec<sup>2</sup> maximum
- slow speed: 10,000 RPM maximum
- base material: Ryton 4™ (PPS with a 40 % glassfill)
- cover material: Ryton 4™ (PPS with a 40 % glassfill)
- mounting: two tabs at 1.812" or four holes on a 1" BC
- shaft extension (no hole in cover): 0.5" ± .1" (12.7mm ± 1.3mm)

### Electrical Data:

per CP-300/500 datasheets:

- incremental digital: CP-3500-(linecount)
- incremental sine/cosine: CP-3000-(linecount)
- absolute: CP-3500-08GC, -10GC
- absolute linear: CP-3500-08AN
- commutating: CP-5X50-(linecount) - (polecount)

### Environmental Data:

- temperature: operating: -20°C to +100°C
- shock: 50 G's @ 11 ms
- vibration: 5-2,000 Hz @ 20 G's
- humidity: 98% without condensation

### Ordering Information:

CP-3500-(linecount)-(1)-(2)

- (1) : linedriver=L, TTL=T, open collector=O
- (2) : square cover with tabs=T, without tabs=NT, round cover=R

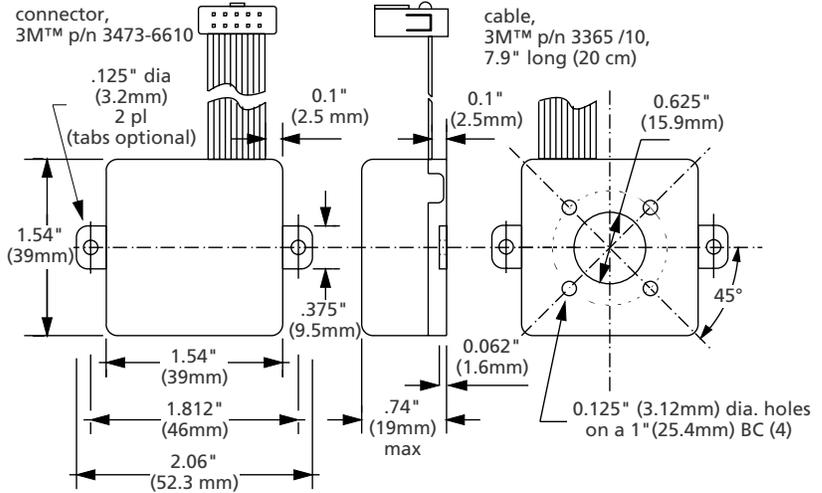
for cable, connector or rear shaft extension options, contact the factory.

### Standard Linecounts:

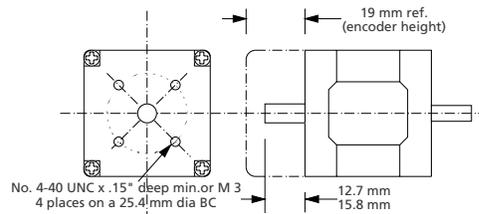
256,360,500,600,1000,1024, 2048, 2500, 4096 c/r.

Special linecounts and index configurations available on request.

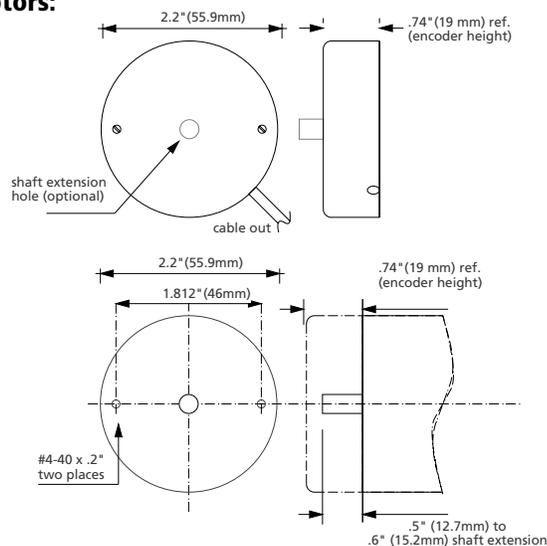
### Mechanical:



### Recommended hole pattern for square BDC/stepper motors:

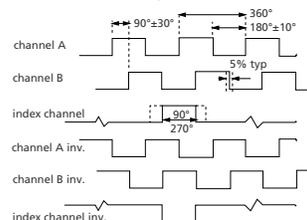


### Recommended hole pattern for 2.2 inch motors:



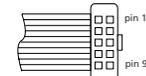
### Incremental Digital Waveforms

(CW from encoder end)



cable, 3M™ p/n 3365 /10, 20 cm ± 1 cm long

connector, 3M™ p/n 3473-6610



#### pinout line drivers:

- 1 +5 Vdc
- 2 +5 Vdc
- 3 channel A inv.
- 4 channel A
- 5 channel B inv.
- 6 channel B
- 7 index channel
- 8 ground
- 9 index channel inv.
- 10 ground

#### pinout TTL:

- 1 channel A
- 2 +5 Vdc
- 3 ground
- 4 channel A
- 5 ground
- 6 ground
- 7 +5Vdc
- 8 channel B
- 9 n/c
- 10 index channel