



Description:

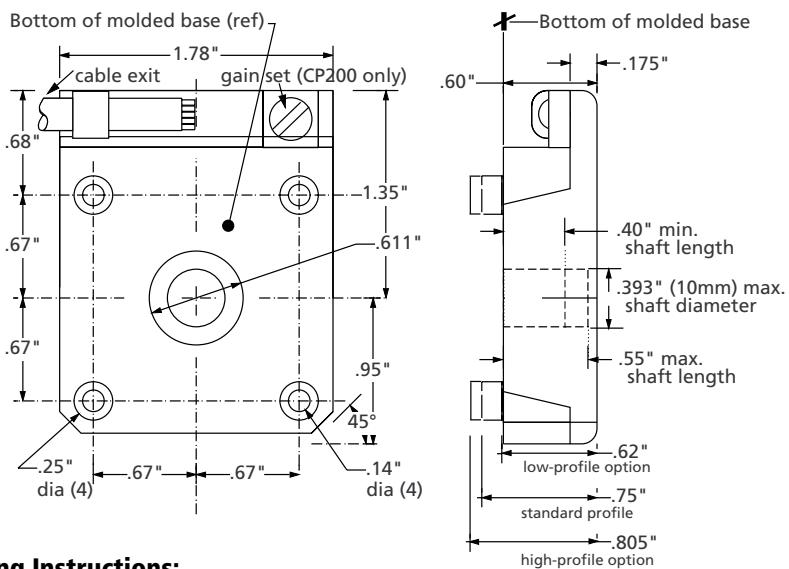
The CP-200 series modular encoders are easy to mount, rugged and with high datarates. The CP-200 is a sinusoidal "infinite resolution" encoder, specifically designed for digitizing the waveform. The CP-260 encoder, in addition to the traditional incremental output, also generates a DC tachometer signal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

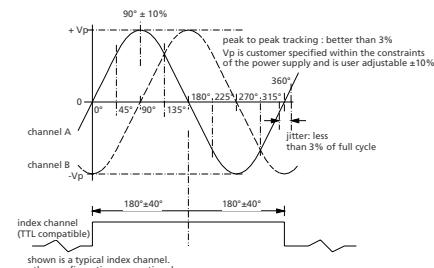
supply voltage: ± 18 Vdc max,
operating: ± 12 Vdc nominal
temperature range: -30°C to +85°C
storage temperature: -40°C to +95°C
operating relative humidity: 90% @ 35°C
storage relative humidity: 80% @ 45°C
moment of inertia: 0.2×10^{-4} in.oz sec²
frequency response: ± 0.424 dB @ 20 kHz
output current: 10 mA sink or source
output voltage: Vp nom = ± 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

Waveform:

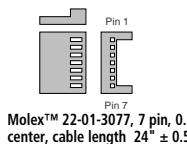
ccw seen from cover end



Ordering Information:

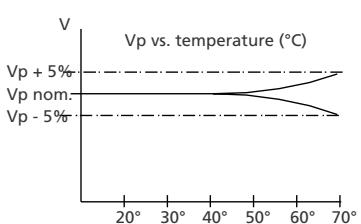
CP-200-(counts/rev.)-(hub size. inch or mm)-(cable length, inch or mm). Maximum hubsize is 0.3935" or 10 mm. Maximum shaft length is 0.55" or 14 mm, for longer shafts specify hole in cover.

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)

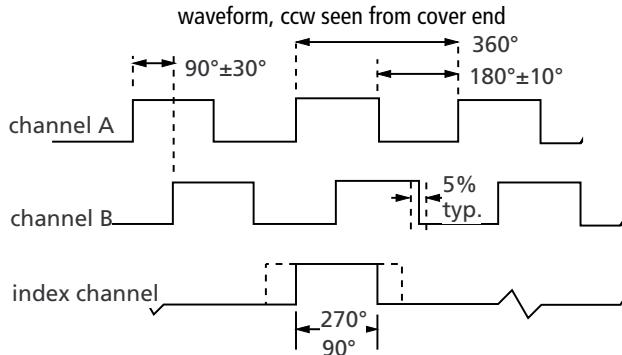
Temperature Characteristics:



Modular/Kit Encoders

2

CP-250, Incremental, Digital



shown is a typical index channel, other configurations are optional

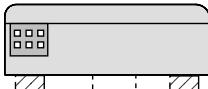
side exit pin option
ordering: (SE)
Connector: AMP™
103324-3 or Equiv.



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 6:
n/c or
key
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
humidity: 80% @ 45°C
storage relative humidity: 0.2 x 10⁻⁴ in.oz sec²
moment of inertia: 150 kHz (A & B)
frequency response: 150 KHz (index)
incremental output format: open collector with
output: 4.7k pullup resistors

Standard counts / revolution:

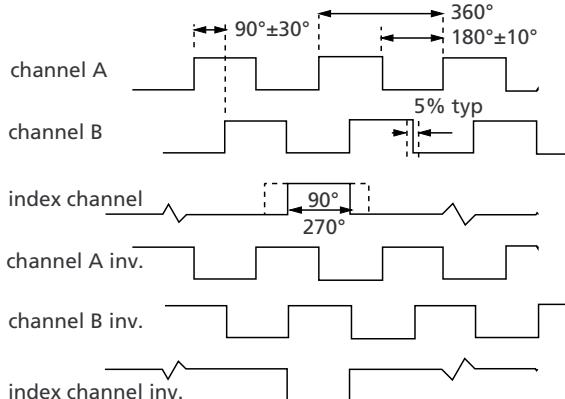
16, 32, 50, 96, 100, 110, 120, 128, 155, 192, 200, 210, 220, 240, 254, 256, 280, 288, 300, 310, 360, 384, 400, 480, 500, 508, 512, 560, 576, 600, 720, 768, 800, 850, 960, 1000, 1024 c/r.

Ordering Information:

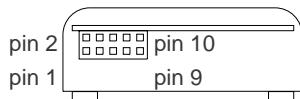
CP-250-(c/r)-(SE/RE/C)-(hub size, inch or mm)*
* maximum hub size : 0.3935" or 10 mm.

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

waveform, ccw seen from cover end



shown is a typical index channel, other configurations are optional



pin 1 + V_{in}
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

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

Specifications:

supply voltage V_{in} : 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 10⁻⁴ in.oz sec²
frequency response: 500 kHz (A & B)
250 KHz (index)
output format: incremental
output: linedriver

Output Levels:

outputs @ V_{in} = 4.75 Vdc: V_{low} 0.5 V @ 20 mA sink
V_{high} 2.5 V @ 20 mA source
(all 6 outputs)
outputs @ V_{in} = 30 Vdc: V_{low} 0.5 V @ 20 mA sink
V_{high} 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:	2.6×10^{-5} oz.in.sec ²
maximum acceleration:	500,000 radians/sec ²
maximum slew 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

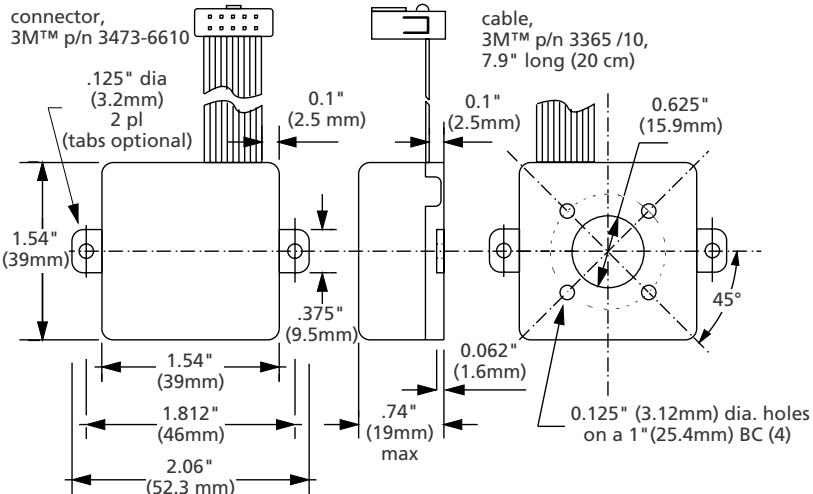
for cable, connector or rear shaft extension options, contact the factory.

Standard Linecounts:

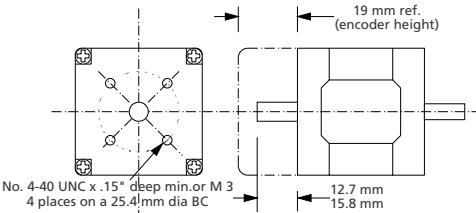
256,360,500,600,1000,1024, 2048, 2500, 4096 c/r.

Special linecounts and index configurations available on request.

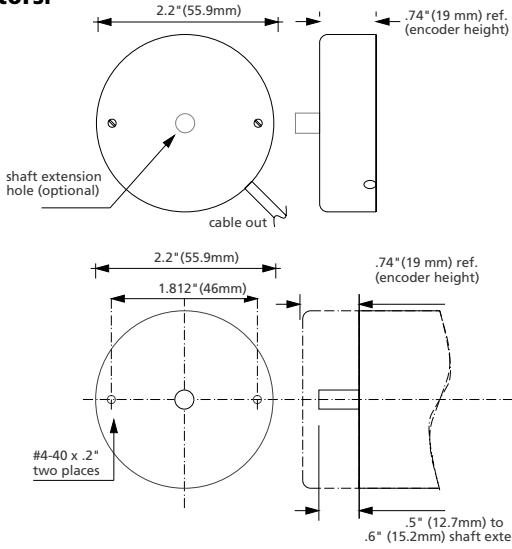
Mechanical:



Recommended hole pattern for square BDC/stepper motors:

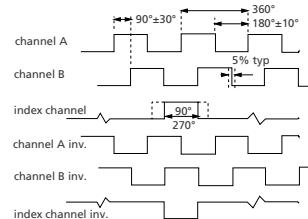


Recommended hole pattern for 2.2 inch motors:

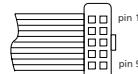


Incremental Digital Waveforms

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