

CP-800 Series Housed Encoders

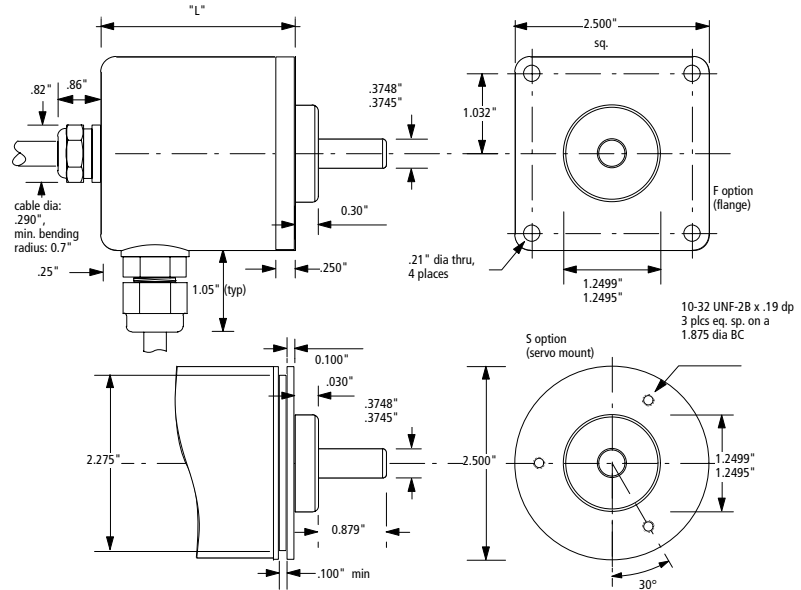


Description:

The CP-800 series size 25 is available as an incremental encoder with up to 12,000 c/r (48,000 measuring steps) "direct read" or 384,000 c/r (1,536,000 measuring steps) interpolated. The absolute versions range from 12 bits Gray Code to 24 bits multi-turn programmable and "optical potentiometer" variations. The light source for all is a single light emitting diode, the sensor a monolithic diode array. Some versions are available with an integral fiberoptic link for noise-free transmission of the signals over long distances or in particularly noisy environments.

Options:

- custom linecounts and index configurations
- through shaft
- custom shaft and cable configurations
- most available at other supply voltages
- connector options with rear and side exits
- shaft seals
- extended temperature range (-30 °C to +100°C)



Mechanical Data:

shaft diameter: .3748" / .3745"
 shaft loading: 40 lbs axial, 35 lbs radial
 shaft runout: .0005" T.I.R.
 starting torque: 1.5 oz.in max @ 20°C
 shaft rotation: continuous, reversible
 slew speed: 160 RPS
 bearings: ABEC 7, shielded
 shaft material: 416 stainless
 housing material: aluminum
 cover material: aluminum
 bearing life: manufacturer's specs
 moment of inertia: 4.1×10^{-4} oz.in.sec²
 weight: approx. 13 oz
 temperature: operating: -20°C to +90°C
 shock: 50 G's @ 11 ms
 vibration: 5-2,000 Hz @ 20 G's
 humidity: 98% without condensation
 protection: IP 65

Standard connectors, incremental:

DESIGNATION	10 pin conn.	7 pin conn.
chan. A	A	A
A inv.	G	n/a
chan. B	B	B
B inv.	H	n/a
index	C	C
index inv.	I	n/a
+5 Vdc	E	D
ground	F	F
frame	J	G

10 pin:
MS3102R-18-1P

7 pin:
MS3102R-16S-1P

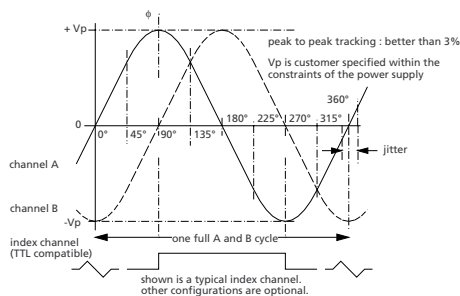
Ordering Information:

CP8XX--(2)
 (2): cable/connector designator A,B,C or D
 A=rear cable, B=side cable,
 C=rear connector, D=side connector
 Default cable length: 24"

Standard connector, absolute:

19 pin KPT00A-14-19P, designations indicated with individual units.

CP-800, Incremental, Sine/Cosine



Electrical Data:

power supply: + 5Vdc @ 50 mA max, ± 12 Vdc @ 50 mA max.
 code: incremental
 cycles per revolution: up to 4000
 output format: A and B channel in quadrature, Index TTL 084 op-amp flat up to 75 kHz
 output: TTL 084 op-amp flat up to 75 kHz
 frequency response: 300 kHz min. @ 85 °C
 absolute accuracy of zero-crossings: ± 12 arcseconds typ.
 overall Length: L_{max} = 2.5"

Ordering Information:

please contact factory

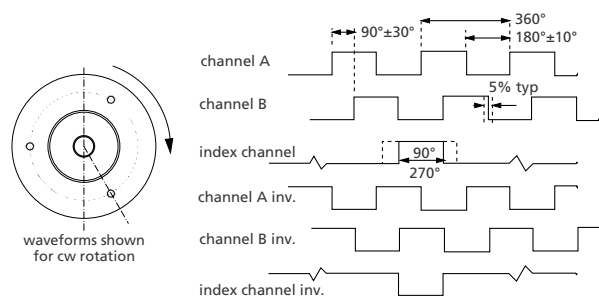
Standard Linecounts:

96, 100, 110, 120, 128, 155, 192, 200, 210, 220, 240, 254, 256, 280, 288, 300, 310, 360, 384, 400, 480, 500, 576, 600, 720, 800, 850, 1000, 1024, 1100, 1250, 1800, 2000, 3600, 5000, 5625, 6000 c/r.

Wire Color Assignments:

channel A: white / orange stripe
 channel B: blue / white stripe
 index channel: green / white stripe
 + 5 Vdc: white / gray stripe
 ground: gray / white stripe
 + 12 Vdc: brown / white stripe
 - 12 Vdc: white / brown stripe
 frame: white / brown stripe
 cable shield

CP-850, Incremental, Digital



Electrical Data:

power supply: + 5Vdc ± 10% @ 100 mA max (no load)
 output format: incremental
 frequency response: 300 kHz min. @ 85 °C
 linedriver output: 26LS31, EIA std. RS 422 & DIN 66259 compatible
 TTL output: 74LS04
 overall length: L_{max} = 2.5"

Ordering Information:

CP-850-(linecount)-(1)-(2)-(3)-(4)
 (1): linedriver=L, TTL=T
 (2): F=flange, S=servo mount
 (3): cable/connector designator A,B,C or D
 (4): R = shaft seal

Standard Linecounts:

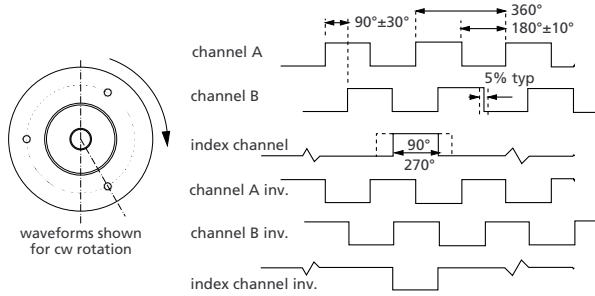
16, 32, 50, 96, 100, 110, 120, 128, 155, 192, 200, 210, 220, 240, 254, 256, 280, 288, 300, 310, 360, 384, 400, 420, 480, 500, 508, 512, 560, 576, 600, 720, 768, 800, 850, 960, 1000, 1024, 1152, 1200, 1440, 1700, 2000, 2028, 3600, 4000, 4096, 5000, 7200, 8192, 10000, 11250, 12000, 16384 c/r

Wire Color Assignments:

channel A: white/orange stripe
 A inv.: orange/white stripe
 channel B: blue/white stripe
 B inv.: white/blue stripe
 index: green/white stripe
 index inv.: white/green stripe
 + 5 Vdc: white/gray stripe
 ground: gray/white stripe
 frame: white/gray stripe
 cable shield

CP-800 Series Housed Encoders

CP-870, Incremental, Linedriver 8-30V



Electrical Data:

power supply: +8 Vdc to +30 Vdc @ 150 mA max (no load)
output format: incremental
cycles/revolution: see CP-850
frequency response: 300 kHz min. @ 85 °C
output: EIA std. RS 422 and DIN 66259 (part 3) compatible
output @ Vin=4.75V: V_o 0.5 V@20 mA sink
V_o 2.5V@20 mA source
output @ Vin=30 V: V_o 0.5 V@20 mA sink
V_o 27 V@20 mA source
overall length: L_{max} = 2.5"

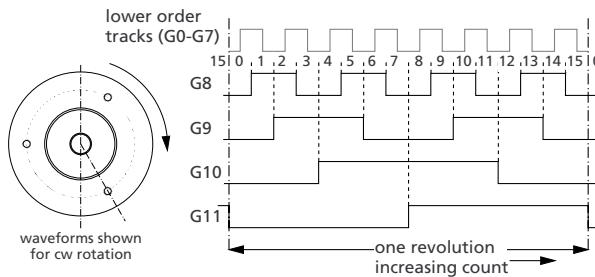
Wire Color Assignments:

channel A white/orange stripe
A inv. orange/white stripe
channel B blue/white stripe
B inv. white/blue stripe
index green/white stripe
index inv. white/green stripe
+5 Vdc white/grey stripe
ground grey/white stripe
frame cable shield

Ordering Information:

CP-870-(linecode)-(1)-(2)-(3)
(1): F=flange, S=servo mount
(2): cable/connector designator A,B,C or D
(3): R = shaft seal

CP-850-12GC, Absolute, 12 bit Gray Code



Electrical Data:

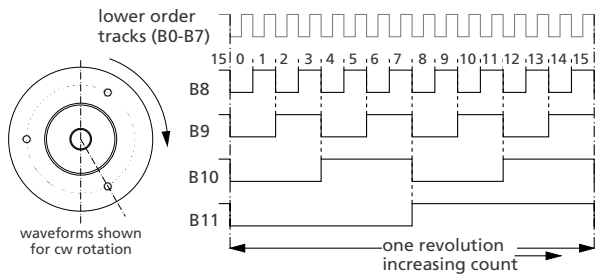
power supply: +5 Vdc ± 10% @ 100 mA max (no load)
output format: 12 bit parallel, Gray code
frequency response: 100 kHz min. wordrate
output: TTL compatible
overall length: L_{max} = 2.5"

Ordering Information:

CP-850-12GC-(1)-(2)-(3)
(1): F=flange, S=Servo mount
(2): cable/connector designator A,B,C or D
(3): shaft seal : R

Signal	Conn. Pin	Wire Color
G0	A	black/white
G1	B	brown/white
G2	C	red/white
G3	D	orange/white
G4	E	yellow/white
G5	F	green/white
G6	G	blue/white
G7	H	violet/white
G8	J	grey
G9	K	white
G10	M	orange
G11	N	yellow
+5 Vdc	V	red
ground	T	black
frame	S	green

CP-850-12NB, Absolute, 12 bit Binary



Electrical Data:

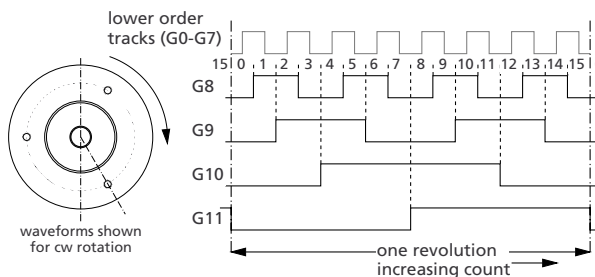
power supply: +5Vdc ± 10% @ 100 mA max (no load)
output format: 12 bit parallel, natural binary
frequency response: 100 kHz min. wordrate
output: TTL compatible
direction control input: TT/CMOS (5V)
overall length: L_{max} = 2.5"

Ordering Information:

CP-850-12NB-(1)-(2)-(3)
(1): F=flange, S=Servo mount
(2): cable/connector designator A,B,C or D
(3): shaft seal : R

Signal	Conn. Pin	Wire Color
B0	A	black/white
B1	B	brown/white
B2	C	red/white
B3	D	orange/white
B4	E	yellow/white
B5	F	green/white
B6	G	blue/white
B7	H	violet/white
B8	J	grey
B9	K	white
B10	M	orange
B11	N	yellow
dir.select	L	green
+5 Vdc	V	red
ground	T	black
frame	S	shield

CP-850-12GC/3600, Absolute



Electrical Data:

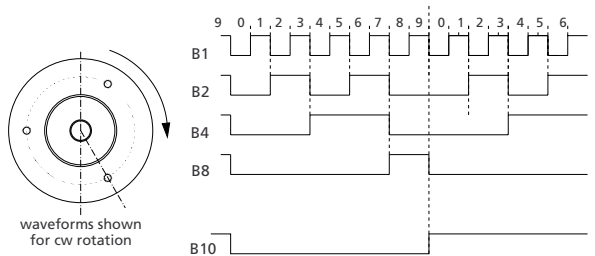
power supply: +5Vdc ± 10% @ 100 mA max (no load)
output format: 12 bit parallel, Gray code
12 bit excess 248
frequency response: 100 kHz min. wordrate
output: TTL compatible
overall length: L_{max} = 2.5"

Ordering Information:

CP-850-12GC3600-(1)-(2)-(3)
(1): F=flange, S=Servo mount
(2): cable/connector designator A,B,C or D
(3): shaft seal : R

Signal	Conn. Pin	Wire Color
G0	A	black/white
G1	B	brown/white
G2	C	red/white
G3	D	orange/white
G4	E	yellow/white
G5	F	green/white
G6	G	blue/white
G7	H	violet/white
G8	J	grey
G9	K	white
G10	M	orange
G11	N	yellow
+5 Vdc	V	red
ground	T	black
frame	S	green

CP-850-12BD, Absolute, BDC Output



Electrical Data:

power supply: +5Vdc ± 10% @ 100 mA max (no load)
output format: parallel BCD
frequency response: 100 kHz min. wordrate
output: standard TTL/CMOS
overall length: L_{max} = 2.5"

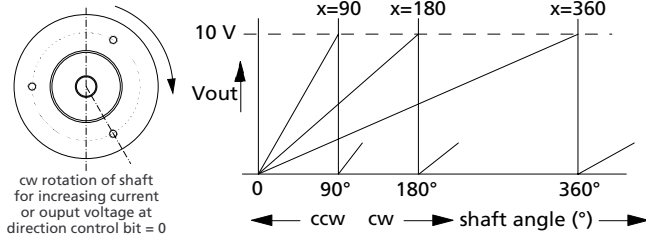
Ordering Information:

CP-850-12BD-(1)-(2)-(3)-(4)
(1): F=flange, S=Servo mount
(2): cable/connector designator A,B,C or D
(3): steps/revolution, e.g. 360=360 steps/rev.
(4): shaft seal : R

Signal	Conn. Pin	Wire Color
B1	A	white+black
B2	B	green+black
B4	C	blue+black
B8	D	yellow+black
B10	E	brown+black
B20	F	orange+black
B40	G	white+red
B80	H	green+red
B100	J	blue+red
B200	K	yellow+red
B400	M	brown+red
B800	N	orange+red
B1000	P	yellow+green
B2000	R	brown+green
B4000	U	blue+green
direction	L	green+white
ground,+5V	T,V	black+red pair
frame	S	cable shield

CP-800 Series Housed Encoders

CP-850-12ANx, Absolute, Analog



Electrical Data:

power supply V_{in} : 12.6 Vdc to 16.6 Vdc @ 100 mA max
 voltage output V_{out} : 0 - 10 V standard,
 current output I_{out} : 4 - 20 mA (optional)
 resolution: 12 bits (4096 steps)
 stability: $\pm 0.02\%$
 direction control input: TTL/CMOS (5 V)
 overall length: $L_{max} = 2.5"$

Signal Conn. Pin Wire Color

I out	A	blue/white
I out return	B	white/blue
V out	C	orange/white
V out return	D	white/orange
dir. input	E	green/white
+15 Vdc	F	white/grey
ground	G	grey/white
frame	H	cable shield

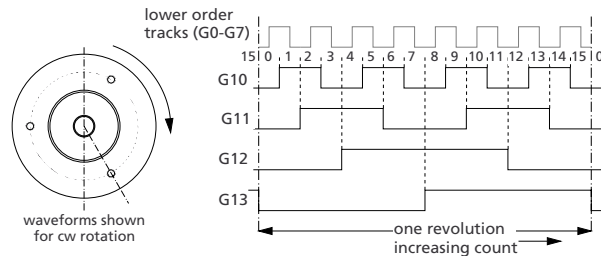
Ordering Information:

CP-850-12AN(x)-(1)-(2)-(3)-(4)
 (1): F=flange, S= servo mount
 (2): cable/connector designator A,B,C or D
 (3): V= V_{out} only, I= I_{out} and I_{out}
 (4): R = shaft seal

Options	x = 90	x = 180	x = 360
Rotation	90°	180°	360°
Resolution	5.28 arcmin	5.28 arcmin	5.28 arcmin
mV/step	9.77 mV	4.88 mV	2.44 mV

connector: MS3102R-16S-1P. The connector output supports either voltage or current out, cable out both.

CP-850-14GC, Absolute, 14 bit Gray Code



Electrical Data:

power supply: +5Vdc $\pm 10\%$ @ 100 mA max (no load)
 output format: 14 bit parallel, Gray code
 frequency response: 100 kHz min. wordrate
 output: TTL compatible
 overall length: $L_{max} = 2.5"$

Signal Conn. Pin Wire Color

G0	P	green
G1	S	brown
G2	A	black/white
G3	B	brown/white
G4	C	red/white
G5	D	orange/white
G6	E	yellow/white
G7	F	green/white
G8	G	blue/white
G9	H	violet/white
G10	J	grey
G11	K	white
G12	M	orange
G13	N	yellow
+5 Vdc	V	red
ground	T	black

Ordering Information:

CP-850-14GC-(1)-(2)-(3)
 (1): F=flange, S=Servo mount
 (2): cable/connector designator A,B,C or D
 (3): shaft seal : R

CP-880, Absolute, 24 bit Optical Multiturn + Incremental Shaft Encoder



Description:

The CP-880 size 25 encoder combines a fully independent absolute multiturn encoder with an independent high-speed incremental encoder.

The multiturn encoder may be configured per the CP-850-24MT datasheet, and the incremental unit per the CP-850-XXXX standard datasheets.

Options:

incremental portion

- incremental output up to 12,000 c/r
- complementary outputs

absolute portion

- 12 bit resolution per turn
- 4096 turns
- 1000 hr autonomy

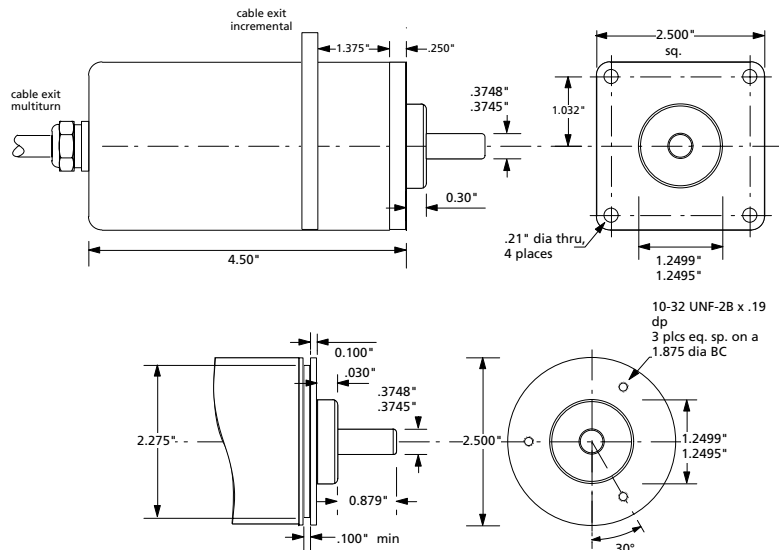
Ordering Information:

incremental portion

- per CP-850-xxxx datasheet

absolute portion

- per CP-850-24MT datasheet



Mechanical Data:

shaft diameter: .3745" / .3748"
 shaft loading: 40 lbs axial, 35 lbs radial
 shaft runout: .0005" T.I.R.
 starting torque: 1.5 oz.in max @20°C
 shaft rotation: continuous, reversible
 slew speed: 160 RPS
 bearings: ABEC 7, shielded
 shaft material: 416 stainless
 housing material: aluminum
 cover material: aluminum
 bearing life: manufacturer's specs
 moment of inertia: 4.1×10^{-4} oz.in.sec²
 weight: approx. 13 oz
 temperature: operating: -20°C to +90°C
 shock: 50 G's @ 11 ms
 vibration: 5-2,000 Hz @ 20 G's
 humidity: 98% without condensation

Electrical Data:

absolute

code: gray or binary, analog
 power supply: 5 or 11-17 Vdc @ 150 mA
 output format: parallel or serial + analog
 frequency response: 25 RPS (1500 RPM) max.
 update rate: 10 ms
 serial output: 9600 Baud standard

incremental

code: A and B in quadrature index
 frequency response: 300 kHz min, @ 65° C