

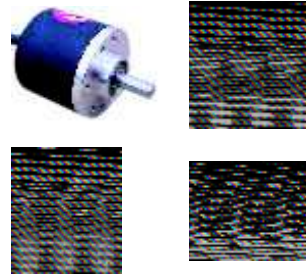
Incremental 38-mm-Dia. Rotary Encoder

MCT38A/MCT38B/MCT38C

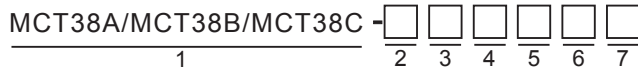
2 or 4 phase type

General purpose Encoder with External Diameter of 38mm

- Incremental model 2 or 4 phase type
- External diameter of 38mm
- Resolution available for 300/360/400/600.
- Various output type
- Solid shaft with Dia at 6 mm



Ordering Information



Section 1: Basic model name

- MCT38A:** 38mm Rotary Encoder(Mounting type A)
MCT38B: 38mm Rotary Encoder(IP64)(Mounting type B)
MCT38C: 38mm Rotary Encoder(Mounting type C)

Refer to drawings for the difference between MCT38A/MCT38B/MCT38C

Section 2: Shaft Size

- 6:** Solid shaft with Dia at 6 mm

Section 3: Resolution

- 300:** 300 ppr
360: 360 ppr
400: 400 ppr
600: 600 ppr

For 2 or 4 phase type, the option for resolution is limited to listed as above 300/360/400/600 PPR.other pulse is not available

Ratings and Specifications

- Power supply:** 8-30 VDC
Resolution: 300/360/400/600 ppr
Current consumption: 100mA(Load disconnected)
Load current: 50mA maximum per channel
Output type: NPN/PNP open collector/Complementary/Voltage/Line Driver/Push-Pull(HTL with reverse signal)
Frequency: 100K HZ Frequency=RPM*Resolution/60
Maximum permissible speed: 4000 rpm
Shaft loading radial: 10N
Shaft loading thrust: 20N
Weight: Approx 0.2KG
Protection level: IP50
Temperature: operation(-10°C~+70°C), storage(-30°C~+85°C)
Vibration resistance: 50m/s, 10-65 HZ, 1 mm double amplitude for 2 hours each in X, Y, and Z directions
Shock resistance: 980m/s, 6m/s 2 times each in X, Y, and Z directions
Starting torque: 1 x 10⁻³ N.m Maximum

Section 4: Output phase

- 2:** A B
4: A \bar{A} B \bar{B}

Section 5: Output type

- C:** Complementary(also known as Totem Pole)
N: NPN Open collector
P: PNP Open collector
V: Voltage output
L: Line driver(**Power source 5VDC ONLY,Phase 4**)
T: Push-Pull(**With inverted signal,Phase 4**)

Section 6: Power Supply

- 8:** 8-30 VDC(+/- 5%)
5: 5 VDC(+/- 5%)

Section 7: Cable outgoing type

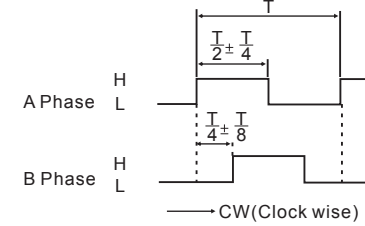
- G:** Side entry cable
E: Rear entry cable

▲Standard cable length is 2M

Output circuits and wave forms

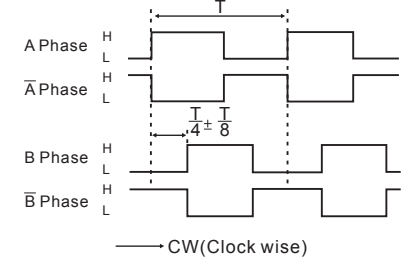
Wave forms

Complementary/Open collector(NPN&PNP)/Voltage output

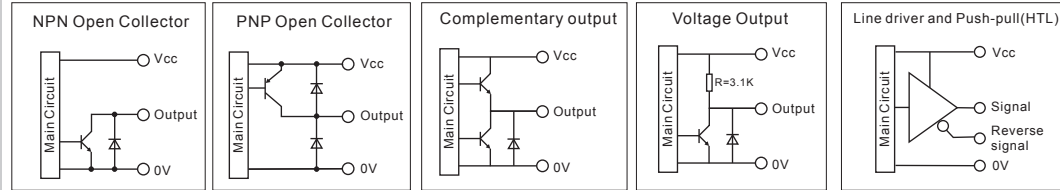


CW: As viewed from the shaft

Line Driver(RS422)/Push-pull(HTL with reverse signal)

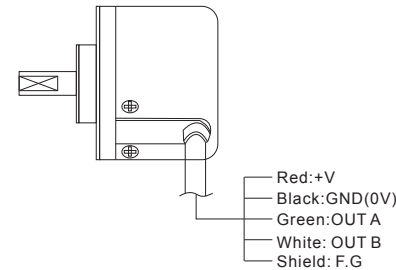


Output circuits

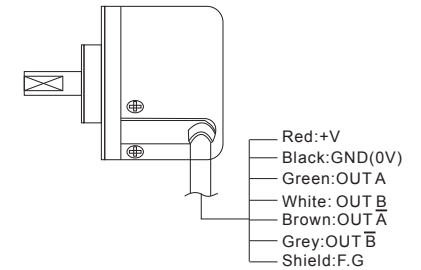


Wiring Details

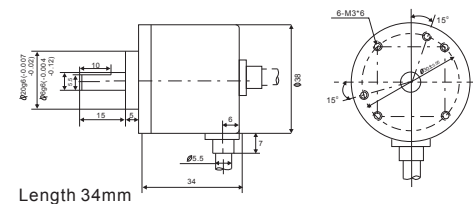
Complementary/Open collector(NPN/PNP)/Voltage output



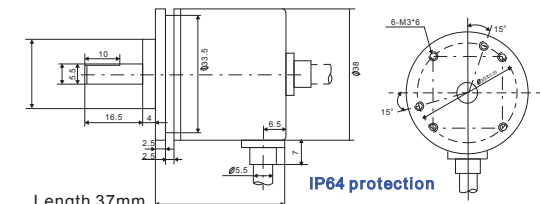
Line Driver/ Push-pull(HTL with reverse signal)



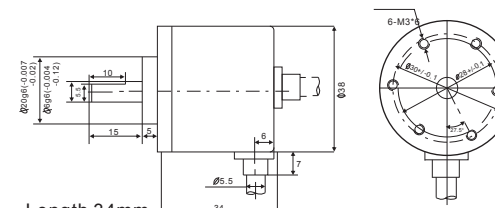
Mounting and Dimensions



MCT38A(Mounting Type A)



MCT38B(Mounting Type B)



MCT38C(Mounting Type C)

Incremental 40-mm-Dia. Rotary Encoder

MCT40A/MCT40B

2 or 4 phase type

General purpose Encoder with External Diameter of 40mm



- Incremental model 2 or 4 phase type
- External diameter of 40mm
- Resolution available for 100/200/500/1000/1024.
- Various output type
- Solid shaft with Dia at 6 mm

Ordering Information

MCT40A/MCT40B-

1	2	3	4	5	6

Section 1: Basic model name

MCT40A: 40mm Rotary Encoder(Mounting type A)
MCT40B: 40mm Rotary Encoder(Mounting type B)

Refer to drawings for the difference between MCT40A/MCT40B

Section 2: Shaft Size

6: Solid shaft with Dia at 6 mm

Section 3: Resolution

100: 100 ppr
200: 200 ppr
500: 500 ppr
1000: 1000 ppr
1024: 1024 ppr

Section 4: Output phase

2: A B
4: A \bar{A} B \bar{B}

Section 5: Output type

C: Complementary(also known as Totem Pole)
N: NPN Open collector
P: PNP Open collector
V: Voltage output
L: Line driver (**Power source 5VDC ONLY, Phase 4**)
T: Push-Pull (**With inverted signal, Phase 4**)

Section 6: Power Supply

8: 8-30 VDC(+/- 5%)
5: 5 VDC(+/- 5%)

Section 7: Cable outgoing type

G: Side entry cable
E: Rear entry cable

▲Standard cable length is 2M

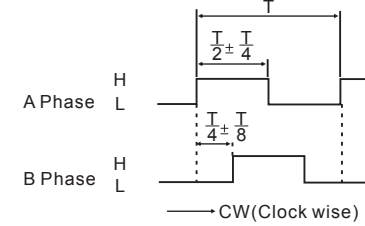
Ratings and Specifications

- Power supply:** 8-30 VDC
Resolution: 100/200/500/1000/1024 ppr
Current consumption: 100mA(Load disconnected)
Load current: 50mA maximum per channel
Output type: NPN/PNP open collector/Complementary/Voltage/Line Driver/ Push-Pull(HTL with reverse signal)
Frequency: 100K HZ Frequency=RPM*Resolution/60
Maximum permissible speed: 4000 rpm
Shaft loading radial: 10N
Shaft loading thrust: 20N
Weight: Approx 0.2KG
Protection level: IP50
Temperature: operation(-10°C~+70°C), storage(-30°C~+85°C)
Vibration resistance: 50m/s, 10-65 HZ, 1 mm double amplitude for 2 hours each in X, Y, and Z directions
Shock resistance: 980m/s, 6m/s 2 times each in X, Y, and Z directions
Starting torque: 1 x 10⁻³ N.m Maximum

Output circuits and wave forms

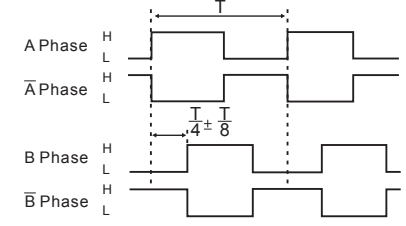
Wave forms

Complementary/Open collector(NPN&PNP)/Voltage output



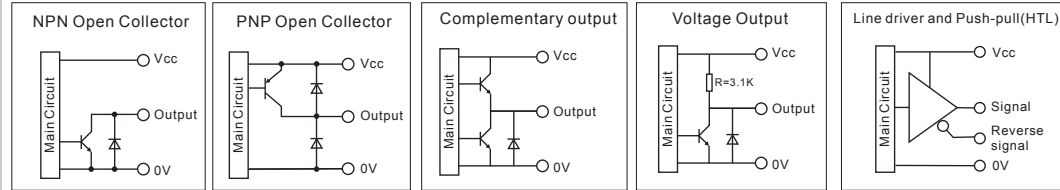
CW: As viewed from the shaft

Line Driver(RS422)/Push-pull(HTL with reverse signal)



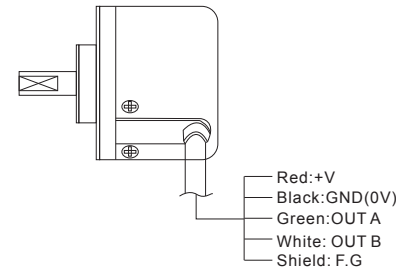
CW: As viewed from the shaft

Output circuits

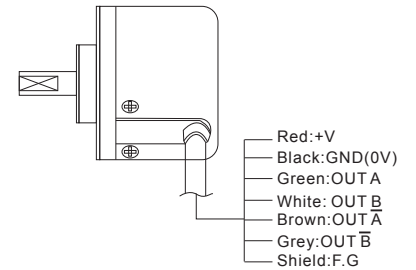


Wiring Details

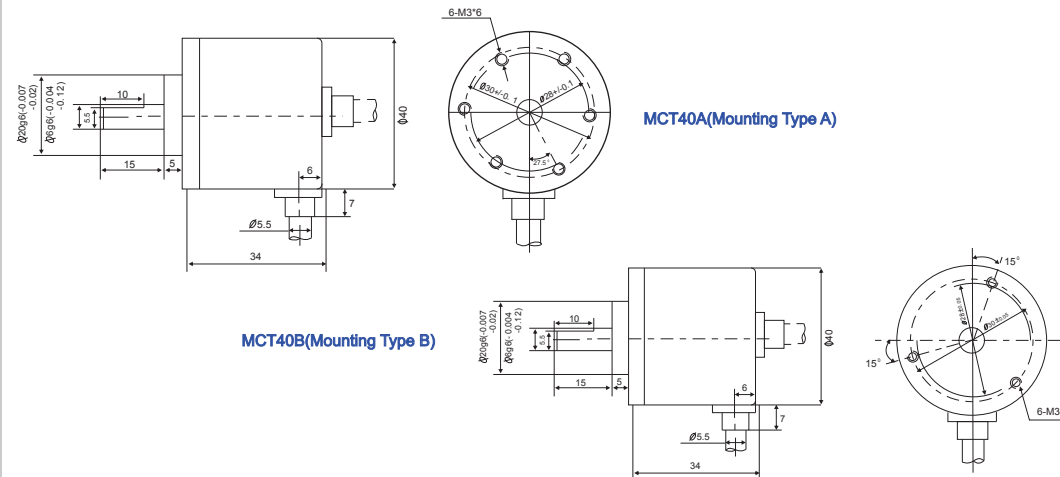
Complementary/Open collector(NPN/PNP)/Voltage output



Line Driver/ Push-pull(HTL with reverse signal)



Mounting and Dimensions



Incremental 30-mm-Dia. Rotary Encoder

M30SA

Ultra Small, Space saving

General purpose Encoder with External Diameter of 30mm



- Incremental model
- External diameter of 30mm
- Resolution up to 1200 ppr.
- Various output type
- Solid shaft with Dia at 4 mm

Ordering Information

M30SA------

1 2 3 4 5 6 7

Section 1: Basic model name

M30SA: 30mm Rotary Encoder(Mounting Type A)

Section 2: Shaft Size

4: Solid shaft with Dia at 4 mm

Section 3: Resolution

10: 10 ppr
20: 20 ppr

40 50 60 80 100 120 125 150
200 225 240 250 256 300 360 400 450
480 500 512 600 625 720 750 800 900
1000 1024 1080 ...up to 1200

Not indicated resolution is customizable

Section 4: Output phase

3: A B Z
6: A \bar{A} B \bar{B} Z \bar{Z}

Section 5: Output type

C: Complementary(also known as totem pole)
N: NPN Open collector
P: PNP Open collector
V: Voltage output
L: Line driver(**Power source 5VDC ONLY, Phase 6**)
T: Push-Pull(**With inverted signal, Phase 6**)

Section 6: Power Supply

8: 8-30 VDC(+/- 5%)
5: 5 VDC(+/- 5%)

Section 7: Cable outgoing type

E: Rear Entry Cable
Cable Can Only Entry From the Rear
▲Standard cable length is 2M

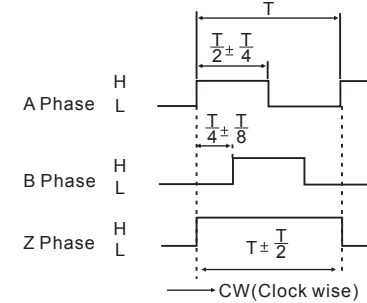
Ratings and Specifications

- Power supply:** 5 VDC / 8-30 VDC
Resolution: 5-1200 ppr
Current consumption: 100mA(Load disconnected)
Load current: 50mA maximum per channel 20mA maximum per channel (Line driver output)
Output type: NPN/PNP open collector/Complementary/Voltage/Line Driver/Push-Pull(HTL with reverse signal)
Frequency: 100K HZ Frequency=RPM*Resolution/60
Maximum permissible speed: 4000 rpm
Shaft loading radial: 10N
Shaft loading thrust: 20N
Weight: Approx 0.16KG
Protection level: IP50
Temperature: operation(-10°C~+70°C), storage(-30°C~+85°C)
Vibration resistance: 50m/s, 10-65 HZ, 1 mm double amplitude for 2 hours each in X, Y, and Z directions
Shock resistance: 980m/s, 6m/s 2 times each in X, Y, and Z directions
Starting torque: 1 x 10⁻³ N.m Maximum

Output circuits and wave forms

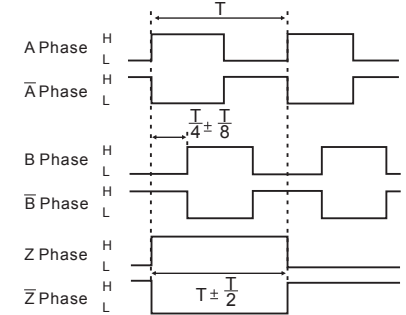
Wave forms

Complementary/Open collector(NPN&PNP)/Voltage output

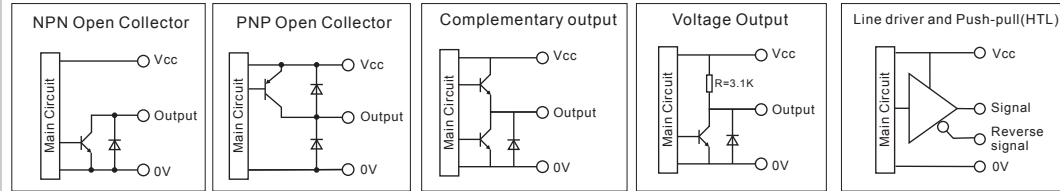


CW: As viewed from the shaft

Line Driver(RS422)/Push-pull(HTL with reverse signal)

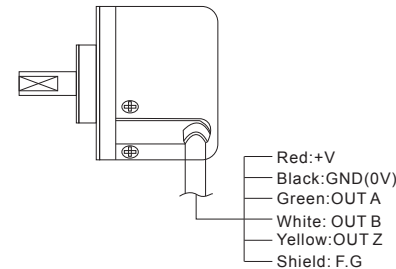


Output circuits

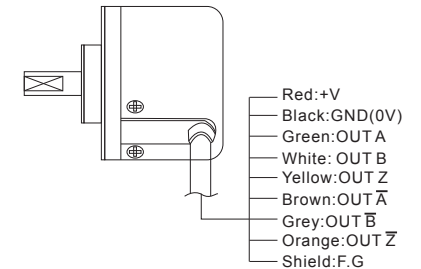


Wiring Details

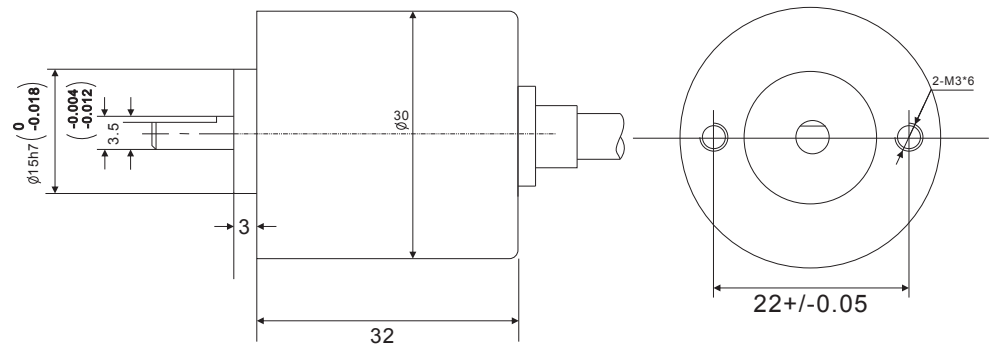
Complementary/Open collector(NPN/PNP)/Voltage output



Line Driver/Push-pull(HTL with reverse signal)



Mounting and Dimensions



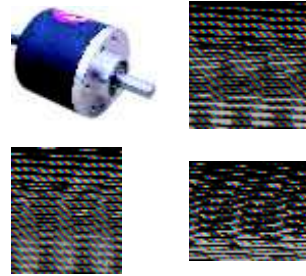
M30SA(Mounting Type A)

Incremental 38-mm-Dia. Rotary Encoder

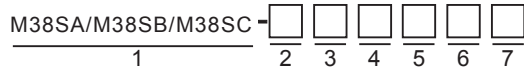
M38SA/M38SB/M38SC

General purpose Encoder with External Diameter of 38mm

- Incremental model
- External diameter of 38mm
- Resolution up to 3600 ppr.
- Various output type
- Solid shaft with Dia at 6 mm



Ordering Information



Section 1: Basic model name

- M38SA:** 38mm Rotary Encoder(Mounting Type A)
 - M38SB:** 38mm encoder(IP64)(Mounting Type B)
 - M38SC:** 38mm Rotary Encoder(Mounting Type C)
- Please refer to drawing for the difference between M38SA/M38SB/M38SC

Section 2: Shaft Size

- 6:** Solid shaft with Dia at 6 mm

Section 3: Resolution

- 10: 10 ppr
- 20: 20 ppr

- 40 50 60 80 100 120 125 150
- 200 225 240 250 256 300 360 400 450
- 480 500 512 600 625 720 750 800 900
- 1000 1024 1080 1200...up to 3600

Not indicated resolution is customizable

Section 4: Output phase

- 3:** A B Z
- 6:** A \bar{A} B \bar{B} Z \bar{Z}

Section 5: Output type

- C:** Complementary(also known as totem pole)
- N:** NPN Open collector
- P:** PNP Open collector
- V:** Voltage output
- L:** Line driver(**Power source 5VDC ONLY, Phase 6**)
- T:** Push-Pull(**With inverted signal, Phase 6**)

Section 6: Power Supply

- 8:** 8-30 VDC(+/- 5%)
- 5:** 5 VDC(+/- 5%)

Section 7: Cable outgoing type

- G:** Side entry cable
- E:** Rear entry cable

▲Standard cable length is 2M

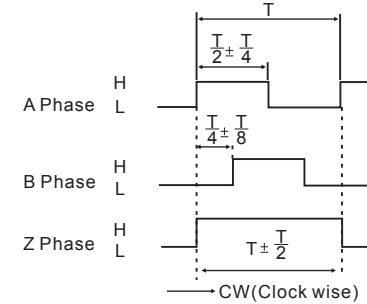
Ratings and Specifications

- Power supply:** 5 VDC / 8-30 VDC
- Resolution:** 5-3600 ppr
- Current consumption:** 100mA(Load disconnected)
- Load current:** 50mA maximum per channel 20mA maximum per channel (Line driver output)
- Output type:** NPN/PNP open collector/Complementary/Voltage/Line Driver/Push-Pull(HTL with reverse signal)
- Frequency:** 100K HZ Frequency=RPM*Resolution/60
- Maximum permissible speed:** 6000 rpm
- Shaft loading radial:** 10N
- Shaft loading thrust:** 20N
- Weight:** Approx 0.2KG
- Protection level:** IP50
- Temperature:** operation(-10°C~+70°C), storage(-30°C~+85°C)
- Vibration resistance:** 50m/s, 10-65 HZ, 1 mm double amplitude for 2 hours each in X, Y, and Z directions
- Shock resistance:** 980m/s, 6m/s 2 times each in X, Y, and Z directions
- Starting torque:** 1.5 x 10⁻³ N.m Maximum

Output circuits and wave forms

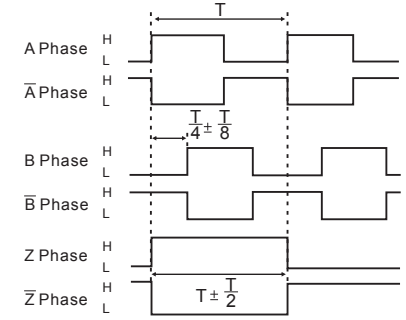
Wave forms

Complementary/Open collector(NPN&PNP)/Voltage output



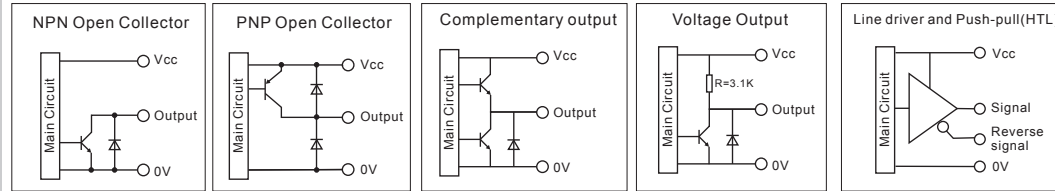
CW: As viewed from the shaft

Line Driver(RS422)/Push-pull(HTL with reverse signal)



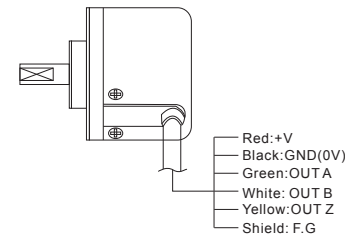
→ CW(Clock wise)

Output circuits

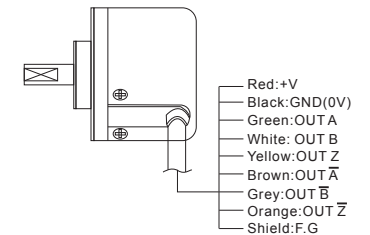


Wiring Details

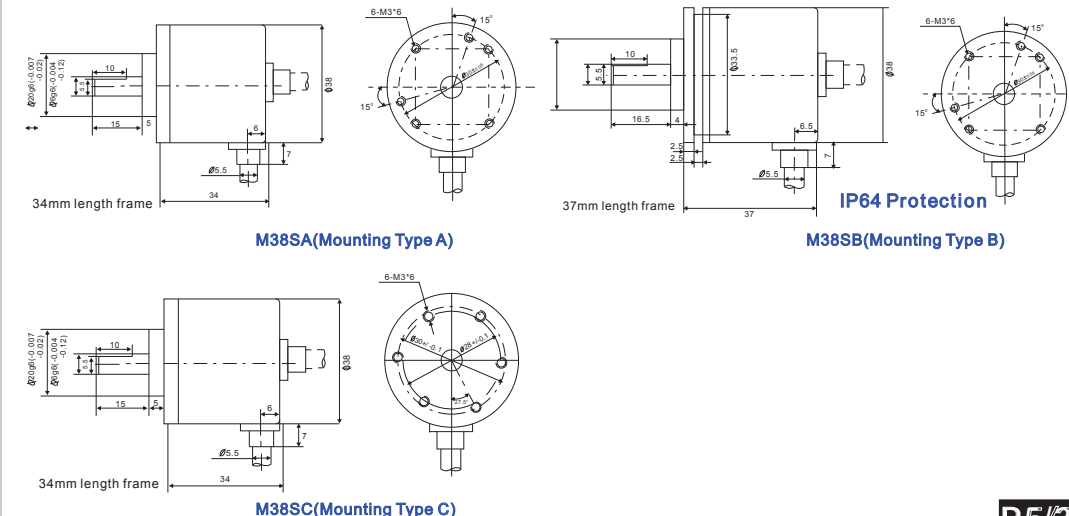
Complementary/Open collector(NPN/PNP)/Voltage output



Line Driver/Push-pull(HTL with reverse signal)



Mounting and Dimensions



Incremental 40-mm-Dia. Rotary Encoder

M40SA/M40SB

General purpose Encoder with External Diameter of 40mm

- Incremental model
- External diameter of 40mm
- Resolution up to 3600 ppr.
- Various output type
- Solid shaft with Dia at 6 mm



Ordering Information

M40SA/M40SB

1 2 3 4 5 6 7

Section 1: Basic model name

M40SA: 40mm Rotary Encoder(Mounting Type A)
M40SB: 40mm Rotary Encoder(Mounting Type B)

Refer to drawings for the difference between M40SA/M40SB

Section 2: Shaft Size

6: Solid shaft with Dia at 6 mm

Section 3: Resolution

10: 10 ppr
20: 20 ppr

40 50 60 80 100 120 125 150
 200 225 240 250 256 300 360 400 450
 480 500 512 600 625 720 750 800 900
 1000 1024 1080 1200...up to 3600

Not indicated resolution is customizable

Section 4: Output phase

3: A B Z
6: A \bar{A} B \bar{B} Z \bar{Z}

Section 5: Output type

C: Complementary(also known as totem pole)
N: NPN Open collector
P: PNP Open collector
V: Voltage output
L: Line driver(**Power source 5VDC ONLY, Phase 6**)
T: Push-Pull(**With inverted signal, Phase 6**)

Section 6: Power Supply

8: 8-30 VDC(+/- 5%)
5: 5 VDC(+/- 5%)

Section 7: Cable outgoing type

G: Side entry cable
E: Rear entry cable

▲Standard cable length is 2M

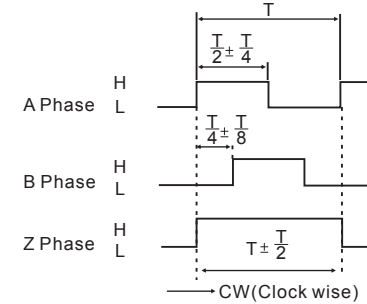
Ratings and Specifications

- Power supply:** 5 VDC / 8-30 VDC
- Resolution:** 5-3600 ppr
- Current consumption:** 100mA(Load disconnected)
- Load current:** 50mA maximum per channel 20mA maximum per channel (Line driver output)
- Output type:** NPN/PNP open collector/Complementary/Voltage/Line Driver/Push-Pull(HTL with reverse signal)
- Frequency:** 100K HZ Frequency=RPM*Resolution/60
- Maximum permissible speed:** 6000 rpm
- Shaft loading radial:** 10N
- Shaft loading thrust:** 20N
- Weight:** Approx 0.2KG
- Protection level:** IP50
- Temperature:** operation(-10°C~+70°C), storage(-30°C~+85°C)
- Vibration resistance:** 50m/s, 10-65 HZ, 1 mm double amplitude for 2 hours each in X, Y, and Z directions
- Shock resistance:** 980m/s, 6m/s 2 times each in X, Y, and Z directions
- Starting torque:** 1.5×10^{-3} N.m Maximum

Output circuits and wave forms

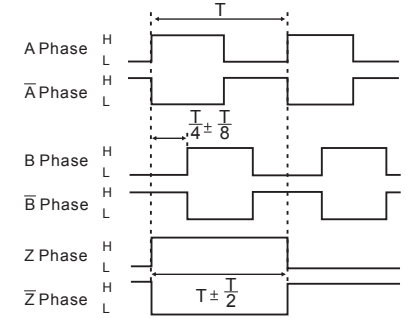
Wave forms

Complementary/Open collector(NPN&PNP)/Voltage output



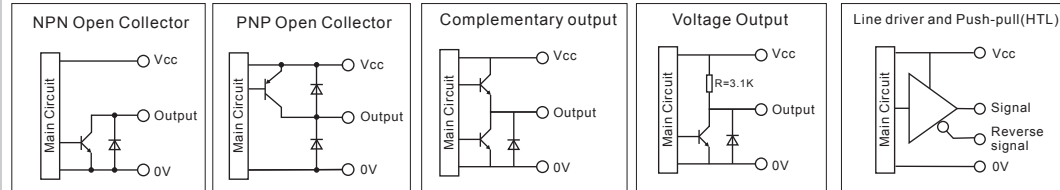
CW: As viewed from the shaft

Line Driver(RS422)/Push-pull(HTL with reverse signal)



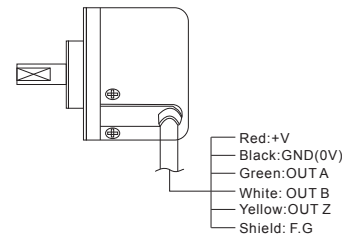
→ CW(Clock wise)

Output circuits

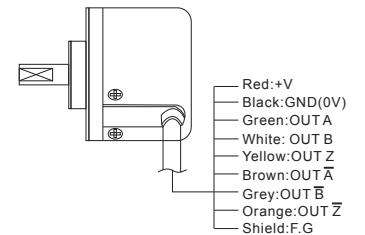


Wiring Details

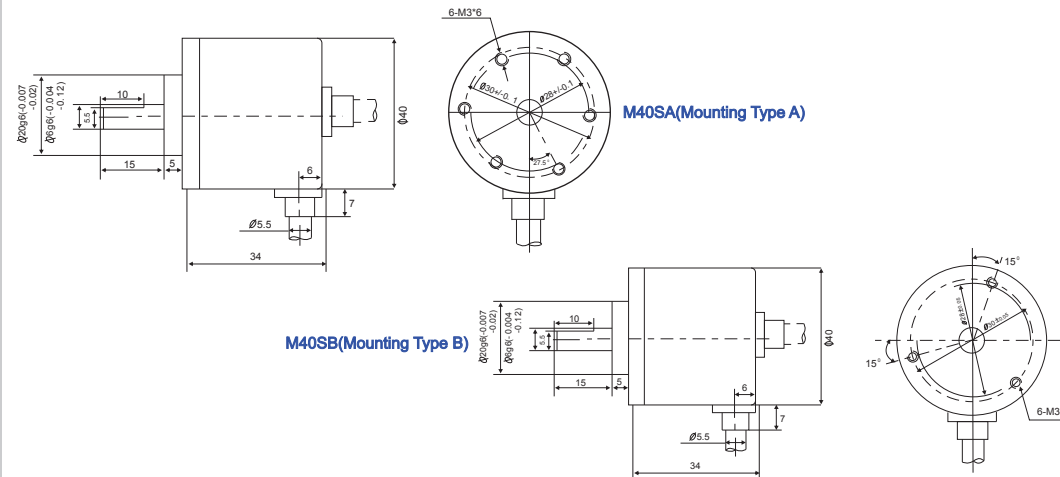
Complementary/Open collector(NPN/PNP)/Voltage output



Line Driver/Push-pull(HTL with reverse signal)



Mounting and Dimensions



Incremental 50-mm-Dia. Rotary Encoder

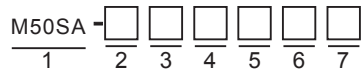
M50SA

General purpose Encoder with External Diameter of 50mm

- Incremental model
- External diameter of 50mm
- Resolution up to 5000 ppr.
- Various output type
- Solid shaft with Dia at 8 mm



Ordering Information



Section 1: Basic model name

M50SA: 50mm Rotary Encoder(Mounting Type A)

Section 2: Shaft Size

8: Solid shaft with Dia at 8 mm

Section 3: Resolution

10: 10 ppr
20: 20 ppr

40 50 60 80 100 120 125 150
200 225 240 250 256 300 360 400 450
480 500 512 600 625 720 750 800 900
1000 1024 1080 1200...up to 5000

Not indicated resolution is customizable

Section 4: Output phase

3: A B Z
6: A \bar{A} B \bar{B} Z Z

Section 5: Output type

C: Complementary(also known as totem pole)
N: NPN Open collector
P: PNP Open collector
V: Voltage output
L: Line driver(**Power source 5VDC ONLY, Phase 6**)
T: Push-Pull(**With inverted signal, Phase 6**)

Section 6: Power Supply

8: 8-30 VDC(+/- 5%)
5: 5 VDC(+/- 5%)

Section 7: Cable outgoing type

G: Side entry cable
E: Rear entry cable

▲Standard cable length is 2M

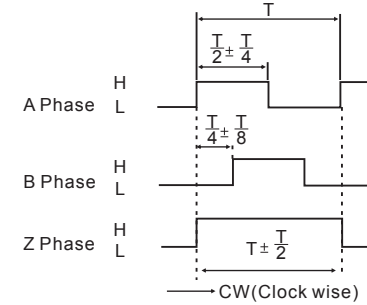
Ratings and Specifications

- Power supply:** 5 VDC / 8-30 VDC
Resolution: 5-5400 ppr
Current consumption: 100mA(Load disconnected)
Load current: 50mA maximum per channel 20mA maximum per channel (Line driver output)
Output type: NPN/PNP open collector/Complementary/Voltage/Line Driver/Push-Pull(HTL with reverse signal)
Frequency: 100K HZ Frequency=RPM*Resolution/60
Maximum permissible speed: 6000 rpm
Shaft loading radial: 10N
Shaft loading thrust: 20N
Weight: Approx 0.25KG
Protection level: IP50
Temperature: operation(-10°C~+70°C), storage(-30°C~+85°C)
Vibration resistance: 50m/s, 10-65 HZ, 1 mm double amplitude for 2 hours each in X, Y, and Z directions
Shock resistance: 980m/s, 6m/s 2 times each in X, Y, and Z directions
Starting torque: 1.5 x 10⁻³ N.m Maximum

Output circuits and wave forms

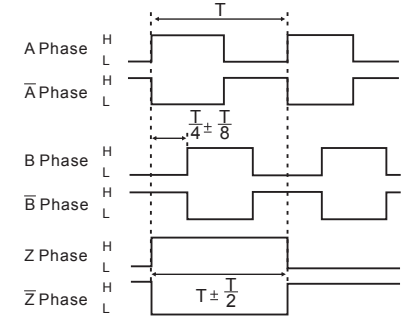
Wave forms

Complementary/Open collector(NPN&PNP)/Voltage output



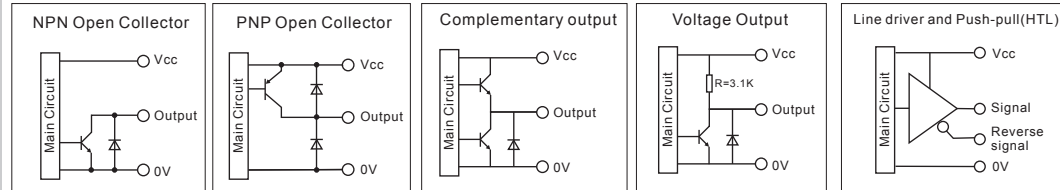
CW: As viewed from the shaft

Line Driver(RS422)/Push-pull(HTL with reverse signal)



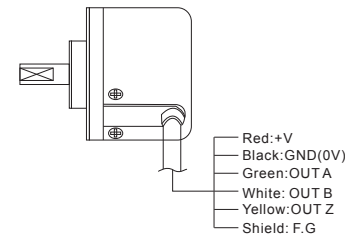
→ CW(Clock wise)

Output circuits

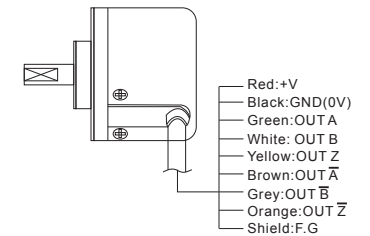


Wiring Details

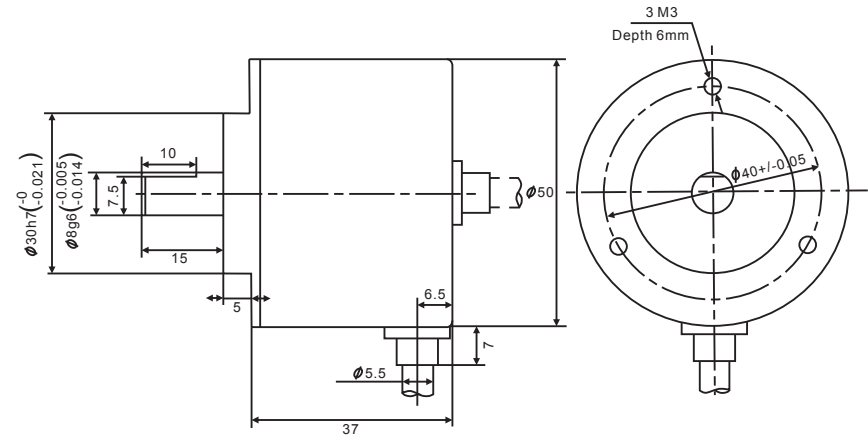
Complementary/Open collector(NPN/PNP)/Voltage output



Line Driver/Push-pull(HTL with reverse signal)



Mounting and Dimensions



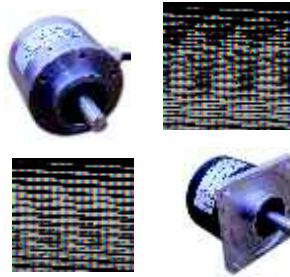
M50SA(Mounting Type A)

Incremental 58-mm-Dia. Rotary Encoder

M58SA/M58SB/M58SC/M58SD

General purpose encoder with external Diameter of 58mm

- Incremental model
- External diameter of 58mm
- Resolution up to 5400 ppr.
- Various output type
- Solid shaft with Dia at 5/6/10 mm



Ordering Information

M58SA/M58SB/M58SC/M58SD -

1 2 3 4 5 6 7

Section 1: Basic model name

- M58SA:** 58mm Rotary encoder (Mounting type A)
- M58SB:** 58mm Rotary encoder (Mounting type B)
- M58SC:** 58mm Rotary encoder (Mounting type C)
- M58SD:** 58mm Rotary encoder (Mounting type D)

Refer to drawings for the difference between M58SA/M58SB/M58SC/M58SD

Section 2: Shaft Size

- 5:** Solid shaft with Dia at 5 mm
- 6:** Solid shaft with Dia at 6 mm
- 10:** Solid shaft with Dia at 10 mm

Section 3: Resolution

- 10:** 10 ppr
- 20:** 20 ppr

40 50 60 80 100 120 125 150
200 225 240 250 256 300 360 400 450
480 500 512 600 625 720 750 800 900
1000 1024 1080 1200...up to 5400

Not indicated resolution is customizable

Section 4: Output phase

- 3:** A B Z
- 6:** A \bar{A} B \bar{B} Z \bar{Z}

Section 5: Output type

- C:** Complementary (also known as totem pole)
- N:** NPN Open collector
- P:** PNP Open collector
- V:** Voltage output
- L:** Line driver (Power source 5VDC ONLY, Phase 6)
- T:** Push-Pull (With inverted signal, Phase 6)

Section 6: Power Supply

- 8:** 8-30 VDC (+/- 5%)
- 5:** 5 VDC (+/- 5%)

Section 7: Cable outgoing type

- G:** Side entry cable
- X:** Side entry plug

▲ Standard cable length is 2M

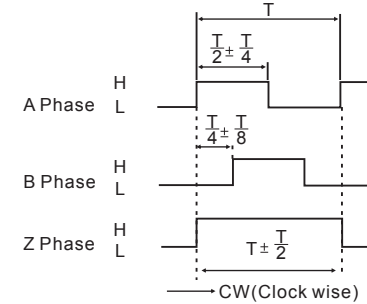
Ratings and Specifications

- Power supply:** 5 VDC / 8-30 VDC
- Resolution:** 5-5400 ppr
- Current consumption:** 100mA (Load disconnected)
- Load current:** 50mA maximum per channel 20mA maximum per channel (Line driver output)
- Output type:** NPN/PNP open collector/Complementary/Voltage/Line Driver/Push-Pull (HTL with reverse signal)
- Frequency:** 100K HZ Frequency=RPM*Resolution/60
- Maximum permissible speed:** 6000 rpm
- Shaft loading radial:** 30N
- Shaft loading thrust:** 40N
- Weight:** Approx 0.3KG
- Protection level:** IP50
- Temperature:** operation(-10°C~+70°C), storage(-30°C~+85°C)
- Vibration resistance:** 50m/s, 10-65 HZ, 1 mm double amplitude for 2 hours each in X, Y, and Z directions
- Shock resistance:** 980m/s, 6m/s 2 times each in X, Y, and Z directions
- Starting torque:** 6 x 10⁻³ N.m Maximum

Output circuits and wave forms

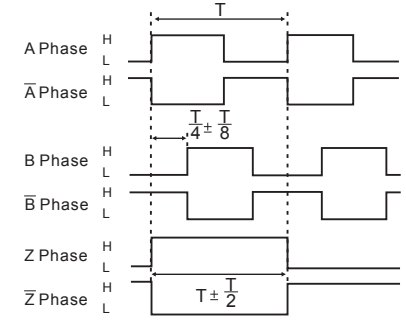
Wave forms

Complementary/Open collector(NPN&PNP)/Voltage output



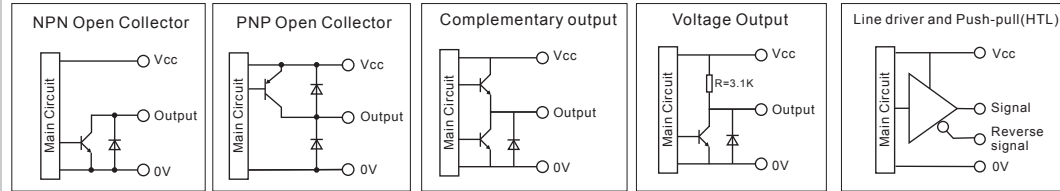
CW: As viewed from the shaft

Line Driver(RS422)/Push-pull(HTL with reverse signal)



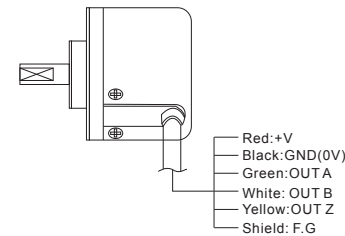
→ CW (Clock wise)

Output circuits

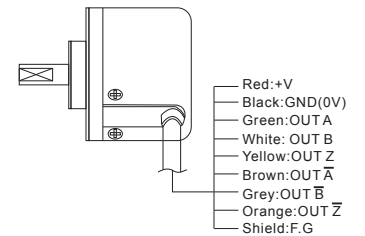


Wiring Details

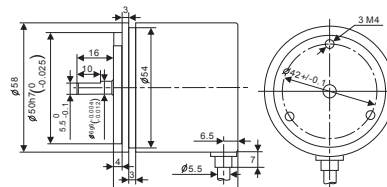
Complementary/Open collector(NPN/PNP)/Voltage output



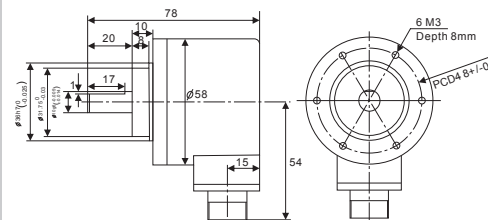
Line Driver/Push-pull(HTL with reverse signal)



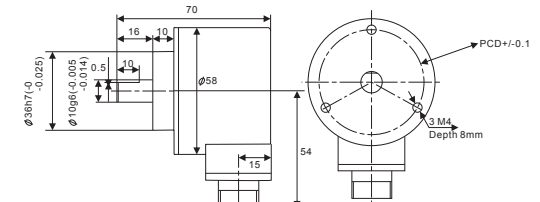
Mounting and Dimensions



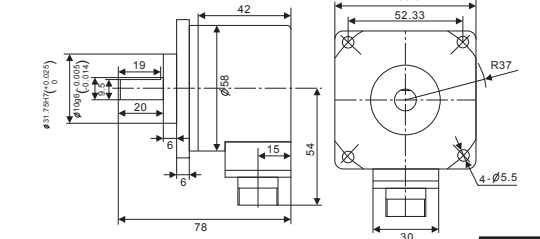
M58SA (Mounting Type A) IP64 Protection degree



M58SC (Mounting Type C)



M58SB (Mounting Type B)



M58SD (Mounting Type D, with Flange)

Incremental 68-mm-Dia. Rotary Encoder

M68SA/M68SB

with mounting flange

General purpose encoder with external Diameter of 68mm



- Incremental model
- External diameter of 68mm
- Resolution up to 5400 ppr.
- Various output type
- Solid shaft with Dia at 15 mm
- **With mounting flange**

Ordering Information

M68SA/M68SB -

1 2 3 4 5 6 7

Section 1: Basic model name

M68SA: 68mm Rotary Encoder(Shape A)
M68SB: 68mm Rotary Encoder(Shape B)

Refer to drawings for the difference between M68SA/M68SB

Section 2: Shaft Size

15: Solid shaft with Dia at 15 mm

Section 3: Resolution

10: 10 ppr
20: 20 ppr

40 50 60 80 100 120 125 150
 200 225 240 250 256 300 360 400 450
 480 500 512 600 625 720 750 800 900
 1000 1024 1080 1200...up to 5400

Not indicated resolution is customizable

Section 4: Output phase

3: A B Z
6: A \bar{A} B \bar{B} Z \bar{Z}

Section 5: Output type

C: Complementary(also known as totem pole)
N: NPN Open collector
P: PNP Open collector
V: Voltage output
L: Line driver(**Power source 5VDC ONLY, Phase 6**)
T: Push-Pull(**With inverted signal, Phase 6**)

Section 6: Power Supply

8: 8-30 VDC(+/- 5%)
5: 5 VDC(+/- 5%)

Section 7: Cable outgoing type

G: Side entry cable
X: Side entry plug

▲Standard cable length is 2M

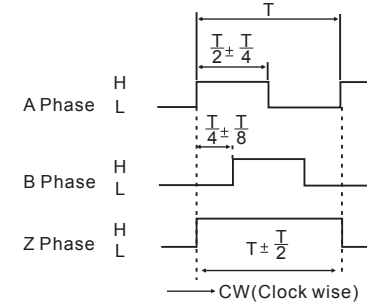
Ratings and Specifications

- Power supply:** 5 VDC / 8-30 VDC
Resolution: 5-5400 ppr
Current consumption: 100mA(Load disconnected)
Load current: 50mA maximum per channel 20mA maximum per channel (Line driver output)
Output type: NPN/PNP open collector/Complementary/Voltage/Line Driver/Push-Pull(HTL with reverse signal)
Frequency: 100K HZ Frequency=RPM*Resolution/60
Maximum permissible speed: 6000 rpm
Shaft loading radial: 50N
Shaft loading thrust: 85N
Weight: Approx 0.6KG
Protection level: IP54(IP64 available on request)
Temperature: operation(-10°C~+70°C), storage(-30°C~+85°C)
Vibration resistance: 50m/s, 10-200 HZ, 1 mm double amplitude for 2 hours each in X, Y, and Z directions
Shock resistance: 980m/s, 6m/s 2 times each in X, Y, and Z directions
Starting torque: 5 x 10⁻² N.m Maximum

Output circuits and wave forms

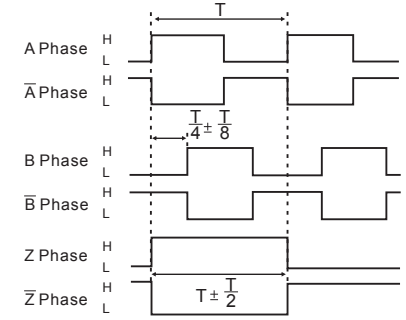
Wave forms

Complementary/Open collector(NPN&PNP)/Voltage output



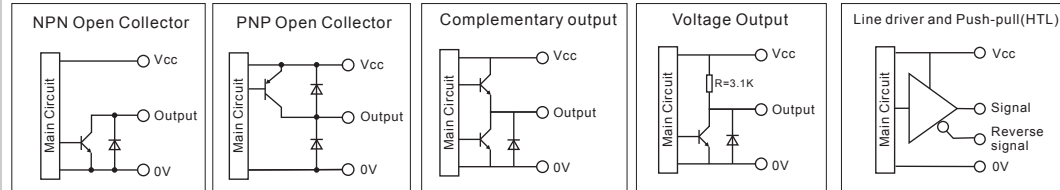
CW: As viewed from the shaft

Line Driver(RS422)/Push-pull(HTL with reverse signal)



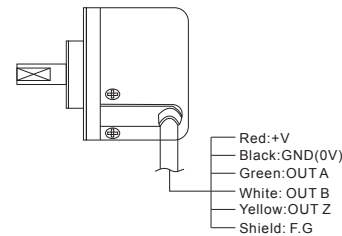
→ CW(Clock wise)

Output circuits

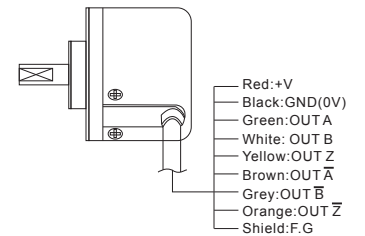


Wiring Details

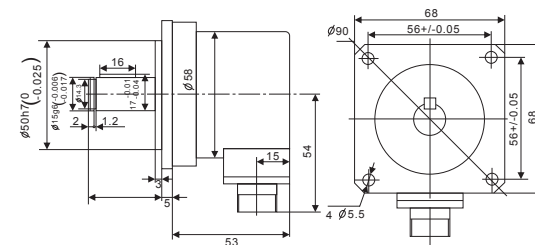
Complementary/Open collector(NPN/PNP)/Voltage output



Line Driver/ Push-pull(HTL with reverse signal)

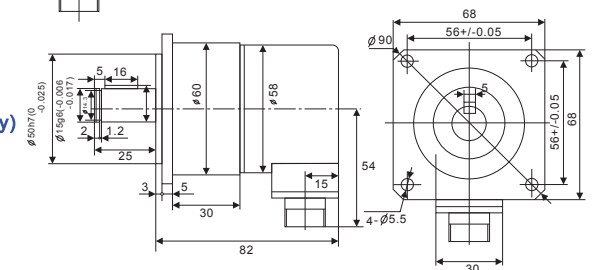


Mounting and Dimensions



M68SA(Shape A, Shorter encoder Body, popular)

M68SB(Shape B, Longer encoder body)



Incremental 70-mm-Dia. Rotary Encoder

M70SA

General purpose encoder with external Diameter of 70mm

- Incremental model
- External diameter of 70mm
- Resolution up to 5400 ppr.
- Various output type
- Solid shaft with Dia at 8 mm



Ordering Information

M70SA -

1 2 3 4 5 6 7

Section 1: Basic model name

M70SA: 70mm Rotary Encoder(Mounting Type A)

Section 2: Shaft Size

8: Solid shaft with Dia at 8 mm

Section 3: Resolution

10: 10 ppr
20: 20 ppr

40 50 60 80 100 120 125 150
200 225 240 250 256 300 360 400 450
480 500 512 600 625 720 750 800 900
1000 1024 1080 1200...up to 5400

Not indicated resolution is customizable

Section 4: Output phase

3: A B Z
6: A \bar{A} B \bar{B} Z \bar{Z}

Section 5: Output type

C: Complementary(also known as totem pole)
N: NPN Open collector
P: PNP Open collector
V: Voltage output
L: Line driver(**Power source 5VDC ONLY, Phase 6**)
T: Push-Pull(**With inverted signal, Phase 6**)

Section 6: Power Supply

8: 8-30 VDC(+/- 5%)
5: 5 VDC(+/- 5%)

Section 7: Cable outgoing type

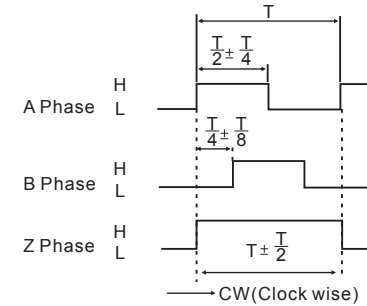
G: Side entry cable
X: Side entry plug

▲ Standard cable length is 2M

Output circuits and wave forms

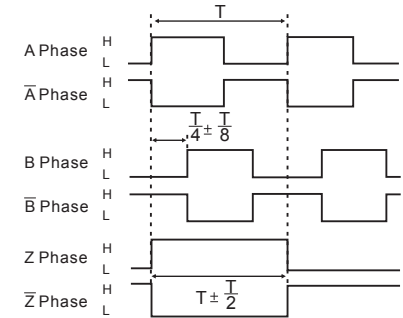
Wave forms

Complementary/Open collector(NPN&PNP)/Voltage output



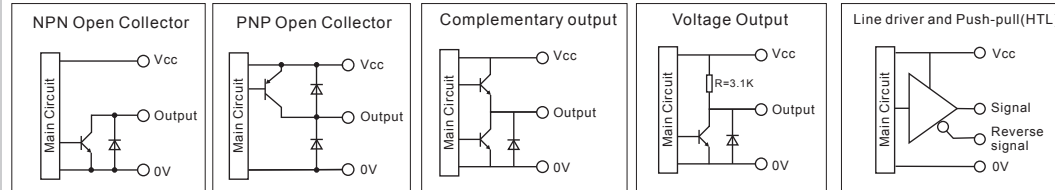
CW: As viewed from the shaft

Line Driver(RS422)/Push-pull(HTL with reverse signal)



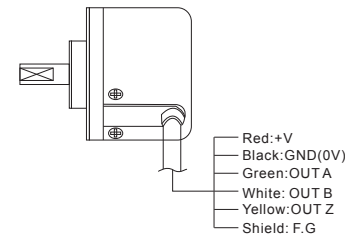
→ CW(Clock wise)

Output circuits

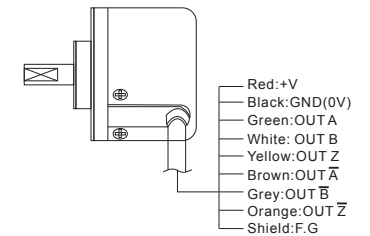


Wiring Details

Complementary/Open collector(NPN/PNP)/Voltage output



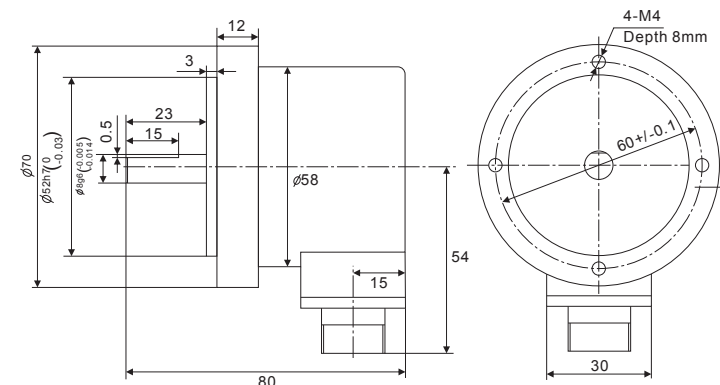
Line Driver/ Push-pull(HTL with reverse signal)



Ratings and Specifications

- Power supply:** 5 VDC / 8-30 VDC
- Resolution:** 5-5400 ppr
- Current consumption:** 100mA(Load disconnected)
- Load current:** 50mA maximum per channel 20mA maximum per channel (Line driver output)
- Output type:** NPN/PNP open collector/Complementary/Voltage/Line Driver/ Push-Pull(HTL with reverse signal)
- Frequency:** 100K HZ Frequency=RPM*Resolution/60
- Maximum permissible speed:** 6000 rpm
- Shaft loading radial:** 25N
- Shaft loading thrust:** 35N
- Weight:** Approxi 0.38KG
- Protection level:** IP50
- Temperature:** operation(-10°C~+70°C), storage(-30°C~+85°C)
- Vibration resistance:** 50m/s, 10-200 HZ, 1 mm double amplitude for 2 hours each in X, Y, and Z directions
- Shock resistance:** 980m/s, 6m/s 2 times each in X, Y, and Z directions
- Starting torque:** 5 x 10⁻³ N.m Maximum

Mounting and Dimensions



M70SA(Mounting Type A)

Incremental 78-mm-Dia. Rotary Encoder

M78SA/M78SB

General purpose encoder with external Diameter of 78mm

- Incremental model
- External diameter of 78mm
- Resolution up to 5400 ppr.
- Various output type
- Solid shaft with Dia at 10 mm



Ordering Information

M78SA/M78SB-

1 2 3 4 5 6 7

Section 1: Basic Model Name

M78SA: 78mm Rotary Encoder(Mounting Type A)
M78SB: 78mm Rotary Encoder(Mounting Type B)

Refer to drawings for the difference between M78SA/M78SB

Section 2: Shaft Size

10: Solid shaft with Dia at 10 mm

Section 3: Resolution

10: 10 ppr
20: 20 ppr

40 50 60 80 100 120 125 150
 200 225 240 250 256 300 360 400 450
 480 500 512 600 625 720 750 800 900
 1000 1024 1080 1200...up to 5400

Not indicated resolution is customizable

Section 4: Output phase

3: A B Z
6: A \bar{A} B \bar{B} Z \bar{Z}

Section 5: Output type

C: Complementary(also known as totem pole)
N: NPN Open collector
P: PNP Open collector
V: Voltage output
L: Line driver(**Power source 5VDC ONLY, Phase 6**)
T: Push-Pull(**With inverted signal, Phase 6**)

Section 6: Power Supply

8: 8-30 VDC(+/- 5%)
5: 5 VDC(+/- 5%)

Section 7: Cable outgoing type

G: Side entry cable
X: Side entry plug

▲Standard cable length is 2M

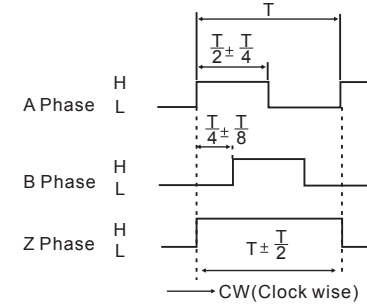
Ratings and Specifications

- Power supply:** 5 VDC / 8-30 VDC
Resolution: 5-5400 ppr
Current consumption: 100mA(Load disconnected)
Load current: 50mA maximum per channel 20mA maximum per channel (Line driver output)
Output type: NPN/PNP open collector/Complementary/Voltage/Line Driver/Push-Pull(HTL with reverse signal)
Frequency: 100K HZ Frequency=RPM*Resolution/60
Maximum permissible speed: 6000 rpm
Shaft loading radial: 25N
Shaft loading thrust: 35N
Weight: Approx 0.42KG
Protection level: IP50
Temperature: operation(-10°C~+70°C), storage(-30°C~+85°C)
Vibration resistance: 50m/s, 10-200 HZ, 1 mm double amplitude for 2 hours each in X, Y, and Z directions
Shock resistance: 980m/s, 6m/s 2 times each in X, Y, and Z directions
Starting torque: 5 x 10⁻³ N.m Maximum

Output circuits and wave forms

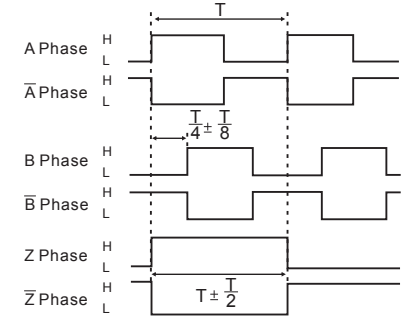
Wave forms

Complementary/Open collector(NPN&PNP)/Voltage output

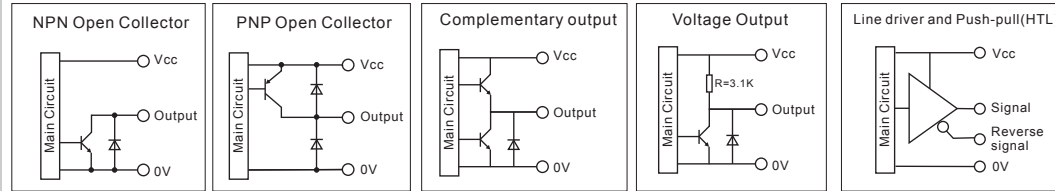


CW: As viewed from the shaft

Line Driver(RS422)/Push-pull(HTL with reverse signal)

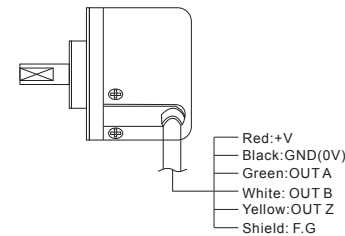


Output circuits

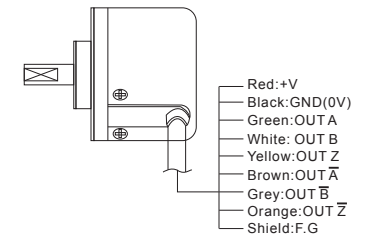


Wiring Details

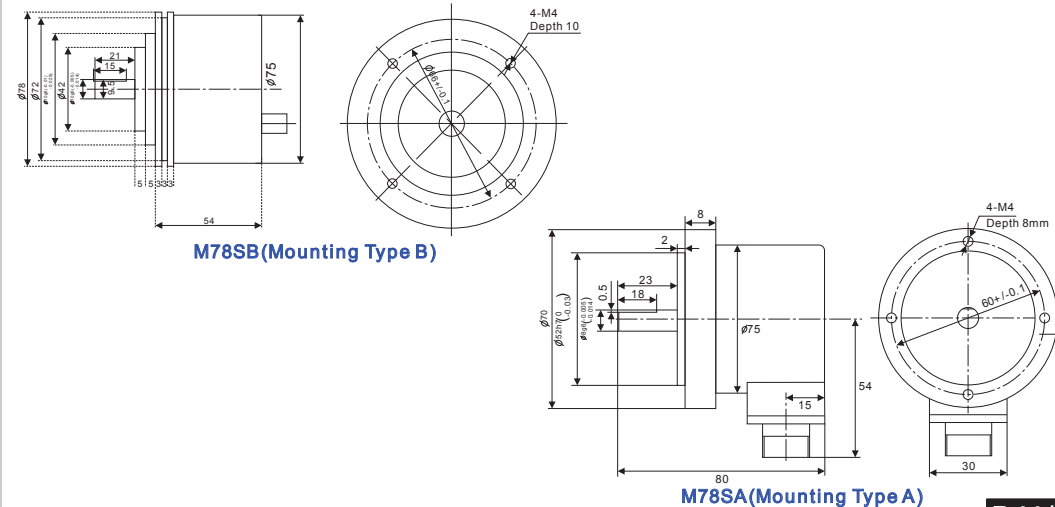
Complementary/Open collector(NPN/PNP)/Voltage output



Line Driver/Push-pull(HTL with reverse signal)



Mounting and Dimensions



Incremental 115-mm-Dia. Rotary Encoder

M115SA

General purpose encoder with external Diameter of 115mm

- Incremental model
- External diameter of 115mm
- Resolution up to 5400 ppr.
- Various output type
- Solid shaft with Dia at 11 mm



Ordering Information

M115SA-

1 2 3 4 5 6 7

Section 1: Basic model name

M115SA: 115mm Rotary Encoder(Mounting Type A)

Section 2: Shaft Size

11: Solid shaft with Dia at 11 mm

Section 3: Resolution

10: 10 ppr
20: 20 ppr

40 50 60 80 100 120 125 150
200 225 240 250 256 300 360 400 450
480 500 512 600 625 720 750 800 900
1000 1024 1080 1200...up to 5400

Not indicated resolution is customizable

Section 4: Output phase

3: A B Z
6: A \bar{A} B \bar{B} Z \bar{Z}

Section 5: Output type

C: Complementary(also known as totem pole)
N: NPN Open collector
P: PNP Open collector
V: Voltage output
L: Line driver(**Power source 5VDC ONLY, Phase 6**)
T: Push-Pull(**With inverted signal, Phase 6**)

Section 6: Power Supply

8: 8-30 VDC(+/- 5%)
5: 5 VDC(+/- 5%)

Section 7: Cable outgoing type

G: Side entry cable
X: Side entry plug

▲Standard cable length is 2M

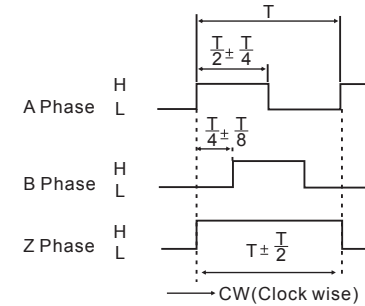
Ratings and Specifications

- Power supply:** 5 VDC / 8-30 VDC
Resolution: 5-5400 ppr
Current consumption: 100mA(Load disconnected)
Load current: 50mA maximum per channel 20mA maximum per channel (Line driver output)
Output type: NPN/PNP open collector/Complementary/Voltage/Line Driver/Push-Pull(HTL with reverse signal)
Frequency: 100K HZ Frequency=RPM*Resolution/60
Maximum permissible speed: 6000 rpm
Shaft loading radial: 25N
Shaft loading thrust: 35N
Weight: Approx 0.65KG
Protection level: IP50
Temperature: operation(-10°C~+70°C), storage(-30°C~+85°C)
Vibration resistance: 50m/s, 10-200 HZ, 1 mm double amplitude for 2 hours each in X, Y, and Z directions
Shock resistance: 980m/s, 6m/s 2 times each in X, Y, and Z directions
Starting torque: 5 x 10⁻³ N.m Maximum

Output circuits and wave forms

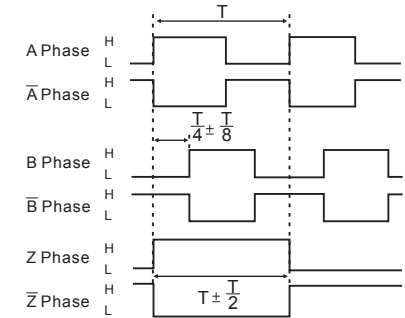
Wave forms

Complementary/Open collector(NPN&PNP)/Voltage output

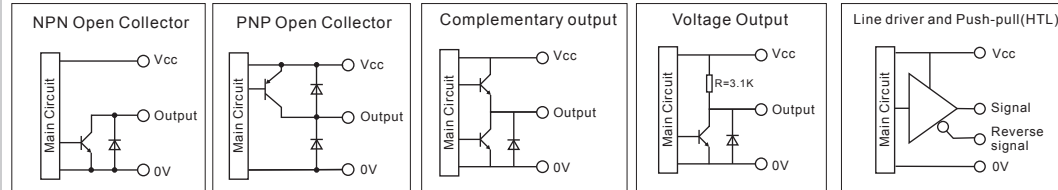


CW: As viewed from the shaft

Line Driver(RS422)/Push-pull(HTL with reverse signal)

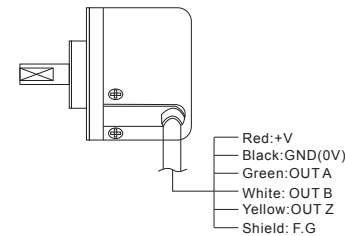


Output circuits

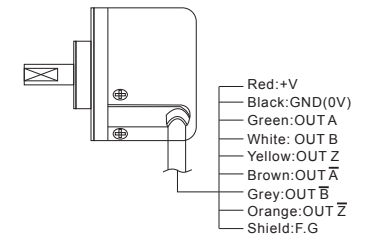


Wiring Details

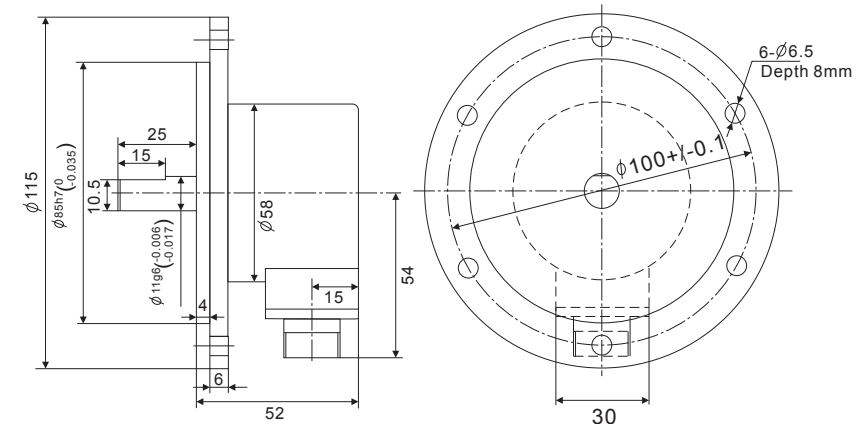
Complementary/Open collector(NPN/PNP)/Voltage output



Line Driver/Push-pull(HTL with reverse signal)



Mounting and Dimensions



M115SA(Mounting Type A)

Incremental 38 mm Dia. Rotary Encoder

M38H/M38HB

Hollow shaft type/Built-in type

General purpose Encoder with External Diameter of 38mm

- Incremental model
- External diameter of 38mm
- Resolution up to 3600 ppr.
- Various output type
- Hollow type and built-in type



Ordering Information

M38H/M38HB-

Section 1: Basic model name

- M38H:** 38mm Rotary Encoder(Hollow Shaft)
M38HB: 38mm Rotary Encoder(Semi-Hollow Shaft)
 Refer to drawings for the difference between M38H/M38HB

Section 2: Inner shaft size

- 5:** 5mm
6: 6mm
6.35: 6.35mm Standard bore size is 8mm
8: 8mm
10: 10mm
12: 12mm

Section 3: Resolution

- 10:** 10 ppr
20: 20 ppr

40 50 60 80 100 120 125 150
 200 225 240 250 256 300 360 400 450
 480 500 512 600 625 720 750 800 900
 1000 1024 1080 1200...up to 3600

Not indicated resolution is customizable

Section 4: Output phase

- 3:** A B Z
6: A \bar{A} B \bar{B} Z \bar{Z}

Section 5: Output type

- C:** Complementary(also known as totem pole)
N: NPN Open collector
P: PNP Open collector
V: Voltage output
L: Line driver(**Power source 5VDC ONLY, Phase 6**)
T: Push-Pull(**With inverted signal, Phase 6**)

Section 6: Power Supply

- 8:** 8-30 VDC(+/- 5%)
5: 5 VDC(+/- 5%)

Section 7: Cable outgoing type

- G:** Side entry cable
 ▲Standard cable length is 2M

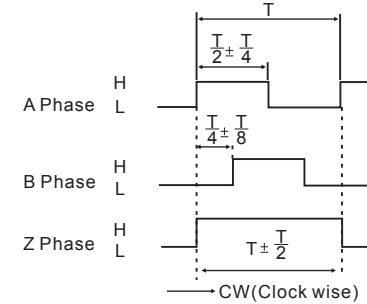
Ratings and Specifications

- Power supply:** 5 VDC / 8-30 VDC
Resolution: 1-3600 ppr
Current consumption: 100mA(Load disconnected)
Load current: 50mA maximum per channel 20mA maximum per channel (Line driver output)
Output type: NPN/PNP open collector/Complementary/Voltage/Line Driver/Push-Pull(HTL with reverse signal)
Frequency: 100K HZ Frequency=RPM*Resolution/60
Maximum permissible speed: 4000 rpm
Shaft loading radial: 10N
Shaft loading thrust: 20N
Weight: Approx 0.2KG
Protection level: IP50
Temperature: operation(-10°C~+70°C), storage(-30°C~+85°C)
Vibration resistance: 50m/s, 10-65 HZ, 1 mm double amplitude for 2 hours each in X, Y, and Z directions
Shock resistance: 980m/s, 6m/s 2 times each in X, Y, and Z directions
Starting torque: 1.5 x 10⁻³ N.m Maximum

Output circuits and wave forms

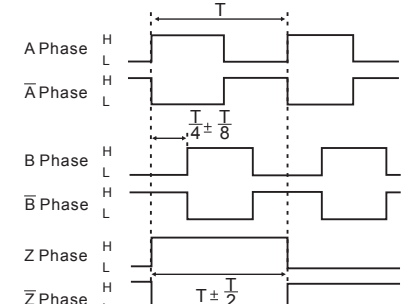
Wave forms

Complementary/Open collector(NPN&PNP)/Voltage output



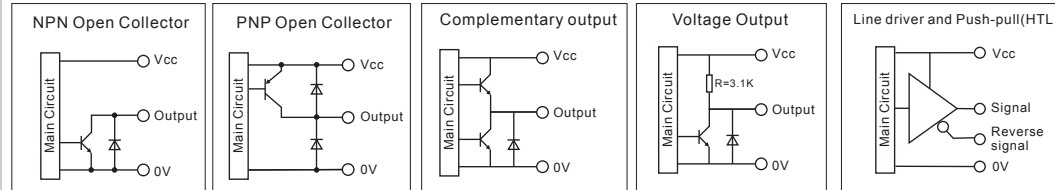
CW: As viewed from the shaft

Line Driver(RS422)/Push-pull(HTL with reverse signal)



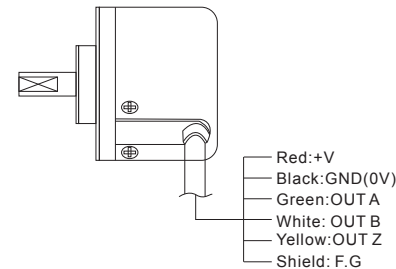
CW(Clock wise)

Output circuits

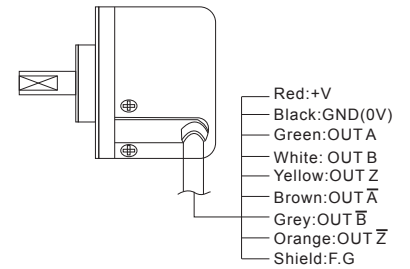


Wiring Details

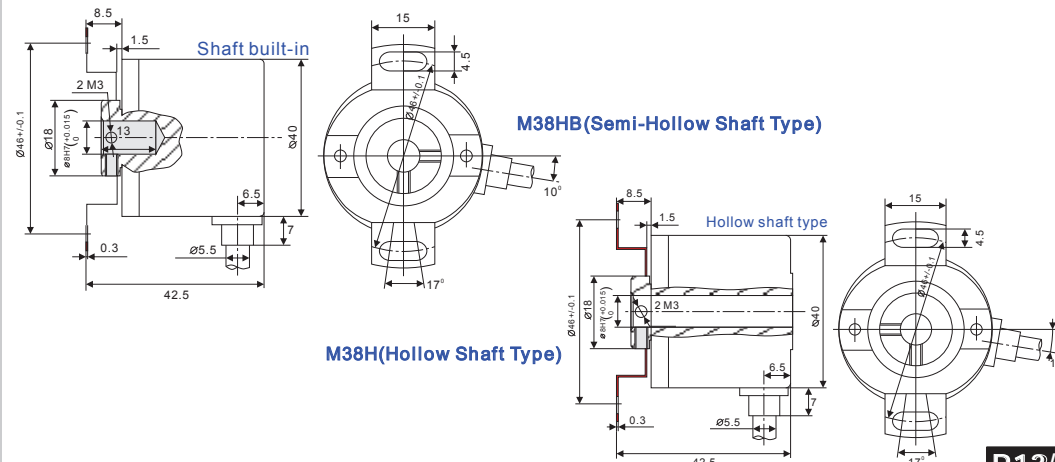
Complementary/Open collector(NPN/PNP)/Voltage output



Line Driver/ Push-pull(HTL with reverse signal)



Mounting and Dimensions



Incremental 40 mm Dia. Rotary Encoder

M40H

Hollow shaft type

General purpose Encoder with External Diameter of 40mm

- Incremental model
- External diameter of 40mm
- Resolution up to 3600 ppr.
- Various output type
- Hollow type



Ordering Information

M40H-

1 2 3 4 5 6 7

Section 1: Basic model name

M40H: 40mm Rotary Encoder(Hollow Shaft)

Section 2: Inner shaft size

5: 5mm
6: 6mm
6.35: 6.35mm Standard size is 12mm
8: 8mm
10: 10mm
12: 12mm

Section 3: Resolution

10: 10 ppr
20: 20 ppr

40 50 60 80 100 120 125 150
 200 225 240 250 256 300 360 400 450
 480 500 512 600 625 720 750 800 900
 1000 1024 1080 1200...up to 3600

Not indicated resolution is customizable

Section 4: Output phase

3: A B Z
6: A \bar{A} B \bar{B} Z \bar{Z}

Section 5: Output type

C: Complementary(also known as totem pole)
N: NPN Open collector
P: PNP Open collector
V: Voltage output
L: Line driver (**Power source 5VDC ONLY, Phase 6**)
T: Push-Pull (**With inverted signal, Phase 6**)

Section 6: Power Supply

8: 8-30 VDC(+/- 5%)
5: 5 VDC(+/- 5%)

Section 7: Cable outgoing type

G: Side entry cable
▲ Standard cable length is 2M

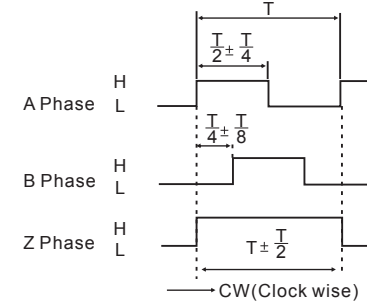
Ratings and Specifications

- Power supply:** 5 VDC / 8-30 VDC
Resolution: 1-3600 ppr
Current consumption: 100mA(Load disconnected)
Load current: 50mA maximum per channel 20mA maximum per channel (Line driver output)
Output type: NPN/PNP open collector/Complementary/Voltage/Line Driver/Push-Pull(HTL with reverse signal)
Frequency: 100K HZ Frequency=RPM*Resolution/60
Maximum permissible speed: 4000 rpm
Shaft loading radial: 10N
Shaft loading thrust: 20N
Weight: Approxi 0.2KG
Protection level: IP50
Temperature: operation(-10°C~+70°C), storage(-30°C~+85°C)
Vibration resistance: 50m/s, 10-65 HZ, 1 mm double amplitude for 2 hours each in X, Y, and Z directions
Shock resistance: 980m/s, 6m/s 2 times each in X, Y, and Z directions
Starting torque: 1.5 x 10⁻³ N.m Maximum

Output circuits and wave forms

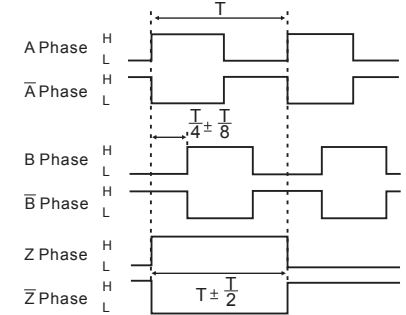
Wave forms

Complementary/Open collector(NPN&PNP)/Voltage output

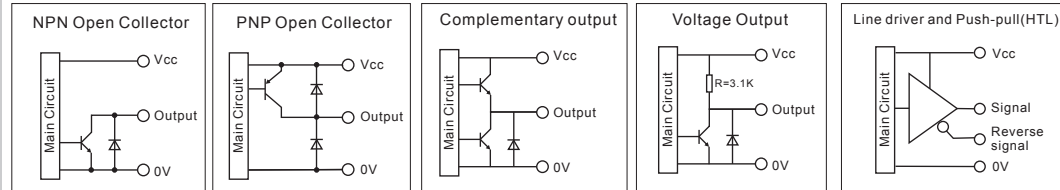


CW: As viewed from the shaft

Line Driver(RS422)/Push-pull(HTL with reverse signal)

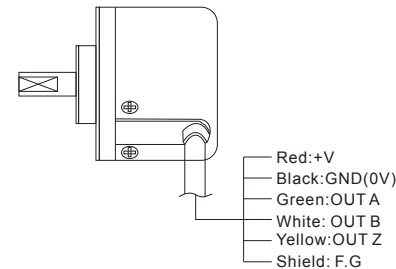


Output circuits

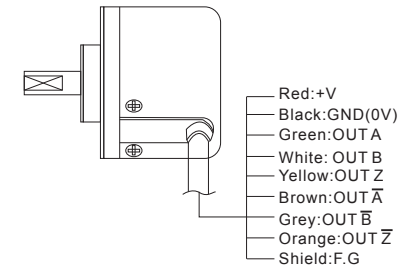


Wiring Details

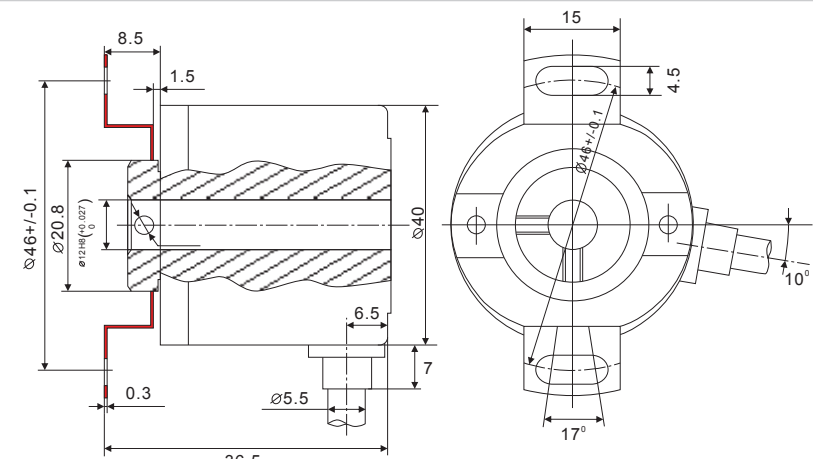
Complementary/Open collector(NPN/PNP)/Voltage output



Line Driver/ Push-pull(HTL with reverse signal)



Mounting and Dimensions



M40H(Hollow Shaft Type)

Incremental 50 mm Dia. Rotary Encoder

M50H/M50HB

Hollow shaft type/Built-in type

General purpose Encoder with External Diameter of 50mm



- Incremental model
- External diameter of 50mm
- Resolution up to 5400 ppr.
- Various output type
- Hollow type and built-in type

Ordering Information

M50H/M50HB-

1 2 3 4 5 6 7

Section 1: Basic model name

M50H: 50mm Rotary Encoder(Hollow Shaft)
M50HB: 50mm Rotary Encoder(Semi-Hollow Shaft)

Section 2: Inner shaft size

12: 12mm
8: 8mm
9.52: 9.52mm
10: 10mm

Section 3: Resolution

10: 10 ppr
20: 20 ppr

40 50 60 80 100 120 125 150
 200 225 240 250 256 300 360 400 450
 480 500 512 600 625 720 750 800 900
 1000 1024 1080 1200...up to 5400

Not indicated resolution is customizable

Section 4: Output phase

3: A B Z
6: A \bar{A} B \bar{B} Z \bar{Z}

Section 5: Output type

C: Complementary(also known as totem pole)
N: NPN Open collector
P: PNP Open collector
V: Voltage output
L: Line driver(**Power source 5VDC ONLY, Phase 6**)
T: Push-Pull(**With inverted signal, Phase 6**)

Section 6: Power Supply

8: 8-30 VDC(+/- 5%)
5: 5 VDC(+/- 5%)

Section 7: Cable outgoing type

G: Side entry cable

▲Standard cable length is 2M

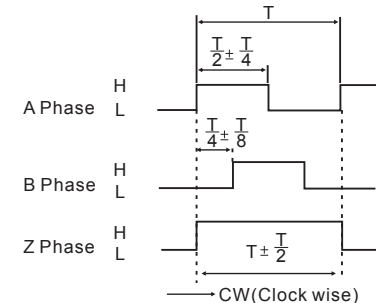
Ratings and Specifications

- Power supply:** 5 VDC / 8-30 VDC
Resolution: 5-5400 ppr
Current consumption: 100mA(Load disconnected)
Load current: 50mA maximum per channel 20mA maximum per channel (Line driver output)
Output type: NPN/PNP open collector/Complementary/Voltage/Line Driver/Push-Pull(HTL with reverse signal)
Frequency: 100K HZ Frequency=RPM*Resolution/60
Maximum permissible speed: 6000 rpm
Shaft loading radial: 25N
Shaft loading thrust: 35N
Weight: Approx 0.25KG
Protection level: IP50
Temperature: operation(-10°C~+70°C), storage(-30°C~+85°C)
Vibration resistance: 50m/s, 10-65 HZ, 1 mm double amplitude for 2 hours each in X, Y, and Z directions
Shock resistance: 980m/s, 6m/s 2 times each in X, Y, and Z directions
Starting torque: 5x 10⁻² N.m Maximum

Output circuits and wave forms

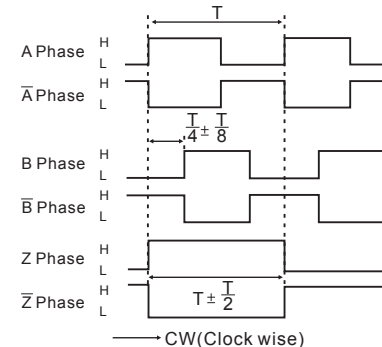
Wave forms

Complementary/Open collector(NPN&PNP)/Voltage output

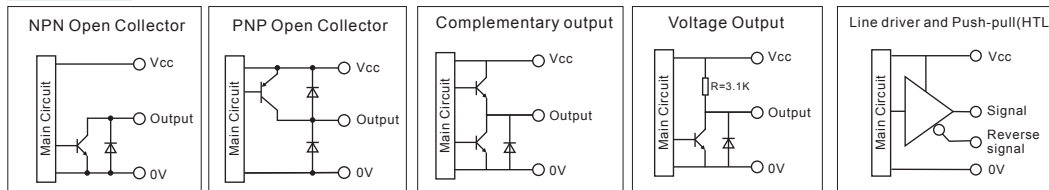


CW: As viewed from the shaft

Line Driver(RS422)/Push-pull(HTL with reverse signal)

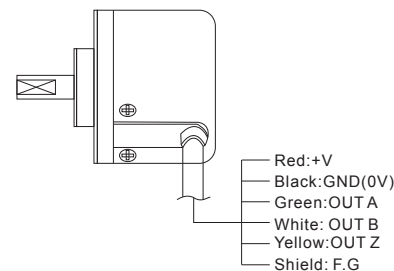


Output circuits

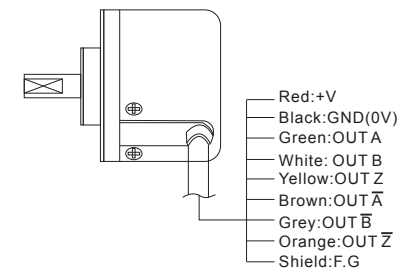


Wiring Details

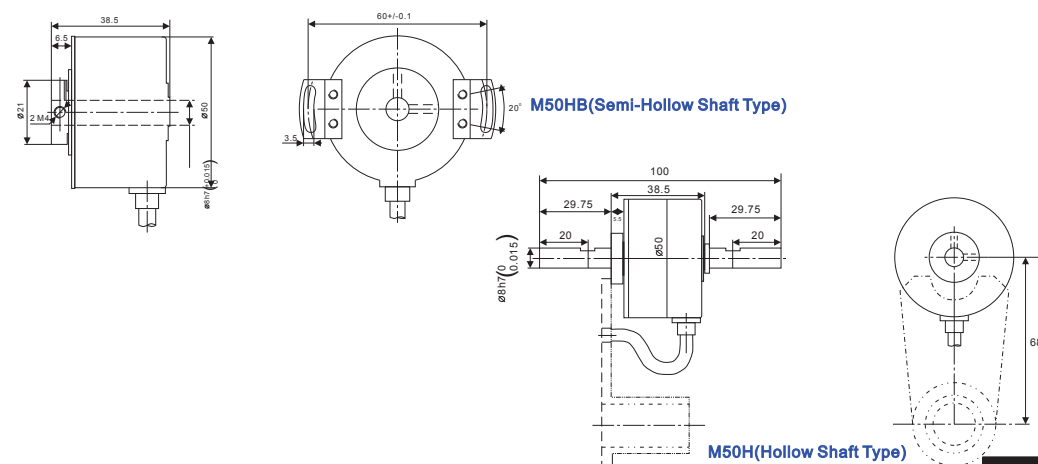
Complementary/Open collector(NPN/PNP)/Voltage output



Line Driver/ Push-pull(HTL with reverse signal)



Mounting and Dimensions



Incremental 58-mm-Dia. Rotary Encoder

M58H/M58HB

Hollow shaft type/Built-in Type

General purpose Encoder with External Diameter of 58mm

- Incremental model
- External diameter of 58mm
- Resolution up to 5400 ppr.
- Various output type
- Hollow shaft type and built-in type



Ordering Information

M58H/M58HB-
 1 2 3 4 5 6 7

Section 1: Basic model name

- M58H:** 58mm Rotary Encoder(Hollow Shaft Type)
M58HB: 58mm Rotary Encoder(Semi-Hollow Shaft Type)

Section 2: Inner shaft size

- 6:** 6mm **12:** 12mm
8: 8mm **14:** 14mm
9.52: 9.52mm **15:** 15mm
10: 10mm

Section 3: Resolution

- 10:** 10 ppr
20: 20 ppr

40 50 60 80 100 120 125 150
 200 225 240 250 256 300 360 400 450
 480 500 512 600 625 720 750 800 900
 1000 1024 1080 1200...up to 5400

Not indicated resolution is customizable

Section 4: Output phase

- 3:** A B Z
6: A \bar{A} B \bar{B} Z \bar{Z}

Section 5: Output type

- C:** Complementary(also known as totem pole)
N: NPN Open collector
P: PNP Open collector
V: Voltage output
L: Line driver(**Power source 5VDC ONLY, Phase 6**)
T: Push-Pull(**With inverted signal, Phase 6**)

Section 6: Power Supply

- 8:** 8-30 VDC(+/- 5%)
5: 5 VDC(+/- 5%)

Section 7: Cable outgoing type

- G:** Side entry cable
X: Side entry plug
▲ Standard cable length is 2M

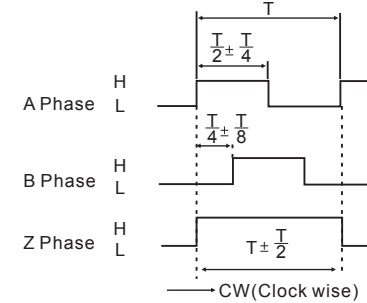
Ratings and Specifications

- Power supply:** 5 VDC / 8-30 VDC
Resolution: 5-5400 ppr
Current consumption: 100mA(Load disconnected)
Load current: 50mA maximum per channel 20mA maximum per channel (Line driver output)
Output type: NPN/PNP open collector/Complementary/Voltage/Line Driver/Push-Pull(HTL with reverse signal)
Frequency: 100K HZ Frequency=RPM*Resolution/60
Maximum permissible speed: 6000 rpm
Shaft loading radial: 30N
Shaft loading thrust: 50N
Weight: Approx 0.36KG
Protection level: IP50
Temperature: operation(-10°C~+70°C), storage(-30°C~+85°C)
Vibration resistance: 50m/s, 10-65 HZ, 1 mm double amplitude for 2 hours each in X, Y, and Z directions
Shock resistance: 980m/s, 6m/s 2 times each in X, Y, and Z directions
Starting torque: 5x 10⁻² N.m Maximum

Output circuits and wave forms

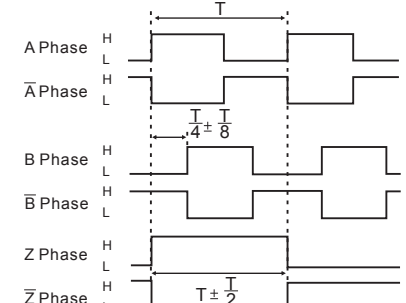
Wave forms

Complementary/Open collector(NPN&PNP)/Voltage output



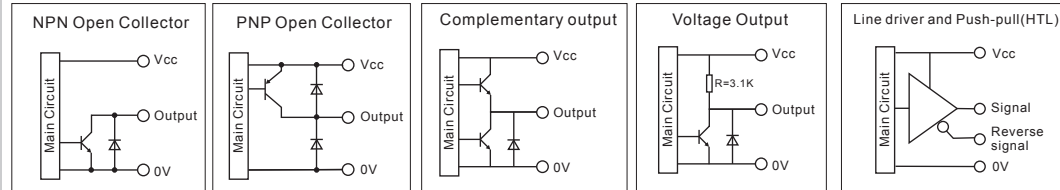
CW: As viewed from the shaft

Line Driver(RS422)/Push-pull(HTL with reverse signal)



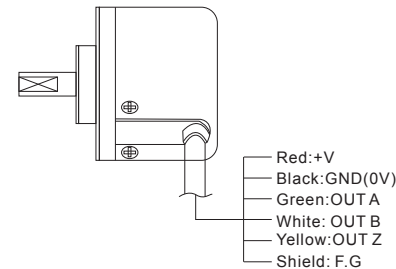
CW(Clock wise)

Output circuits

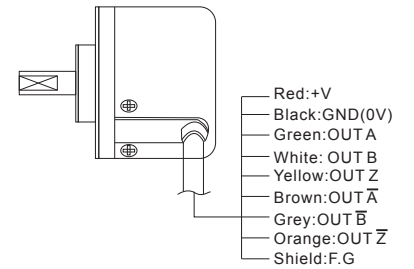


Wiring Details

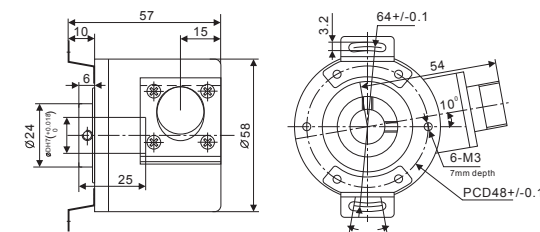
Complementary/Open collector(NPN/PNP)/Voltage output



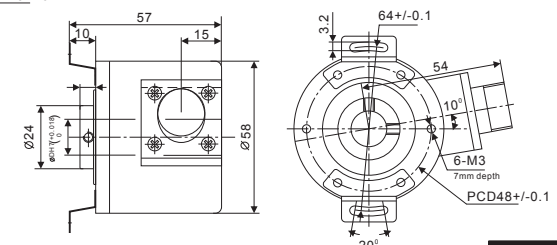
Line Driver/ Push-pull(HTL with reverse signal)



Mounting and Dimensions



M58HB(Semi Hollow Shaft Type)



M58H(Hollow Shaft Type)

Incremental 80-mm-Dia. Rotary Encoder

M80H

Hollow shaft type

General purpose Encoder with External Diameter of 80mm

- Incremental model
- External diameter of 80mm
- Resolution up to 2500 ppr.
- Various output type
- Hollow shaft type



Ordering Information

M80H

1 2 3 4 5 6 7

Section 1: Basic model name

M80H: 80mm Rotary Encoder(Hollow Shaft)

Section 2: Inner shaft size

- 25:** 25mm
- 28:** 28mm
- 30:** 30mm
- 32:** 32mm
- 35:** 35mm

Section 3: Resolution

- 10:** 10 ppr
- 20:** 20 ppr

40	50	60	80	100	120	125	150			
200	225	240	250	256	300	360	400	450		
480	500	512	600	625	720	750	800	900		
1000								1024	1080	1200...up to 2500

Not indicated resolution is customizable

Section 4: Output phase

- 3:** A B Z
- 6:** A \bar{A} B \bar{B} Z \bar{Z}

Section 5: Output type

- C:** Complementary(also known as totem pole)
- N:** NPN Open collector
- P:** PNP Open collector
- V:** Voltage output
- L:** Line driver (**Power source 5VDC ONLY, Phase 6**)
- T:** Push-Pull (**With inverted signal, Phase 6**)

Section 6: Power Supply

- 8:** 8-30 VDC(+/- 5%)
- 5:** 5 VDC(+/- 5%)

Section 7: Cable outgoing type

- G:** Side entry cable

▲Standard cable length is 2M

Ratings and Specifications

Power supply: 5 VDC / 8-30 VDC

Resolution: 5-2500 ppr

Current consumption: 100mA(Load disconnected)

Load current: 50mA maximum per channel 20mA maximum per channel (Line driver output)

Output type: NPN/PNP open collector/Complementary/Voltage/Line Driver/Push-Pull(HTL with reverse signal)

Frequency: 100K HZ Frequency=RPM*Resolution/60

Maximum permissible speed: 2500 rpm

Shaft loading radial: 20N

Shaft loading thrust: 40N

Weight: Approx 0.5KG

Protection level: IP50

Temperature: operation(-10°C~+70°C), storage(-30°C~+85°C)

Vibration resistance: 50m/s, 10-65 HZ, 1 mm double amplitude for 2 hours each in X, Y, and Z directions

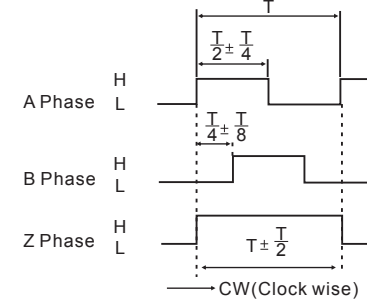
Shock resistance: 980m/s, 6m/s 2 times each in X, Y, and Z directions

Starting torque: 5x 10⁻² N.m Maximum

Output circuits and wave forms

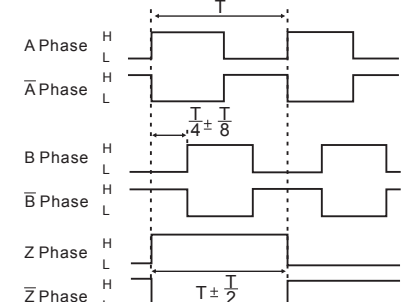
Wave forms

Complementary/Open collector(NPN&PNP)/Voltage output



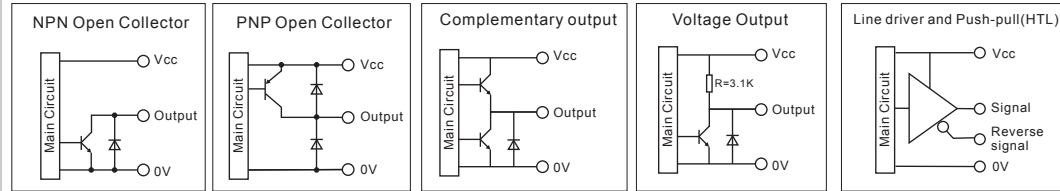
CW: As viewed from the shaft

Line Driver(RS422)/Push-pull(HTL with reverse signal)



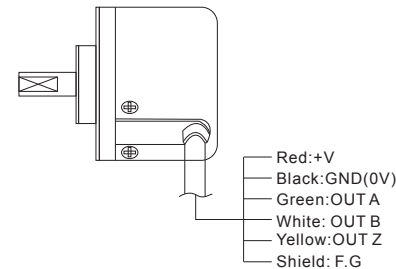
CW(Clock wise)

Output circuits

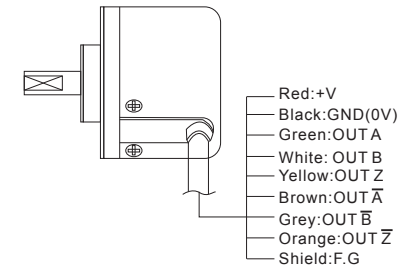


Wiring Details

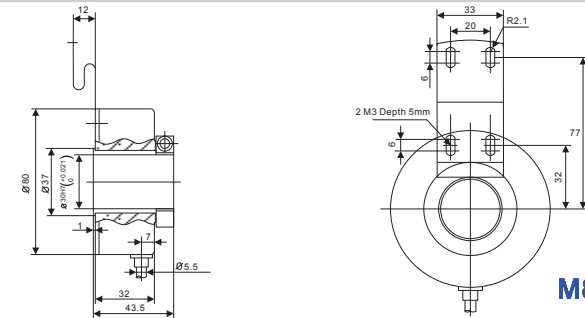
Complementary/Open collector(NPN/PNP)/Voltage output



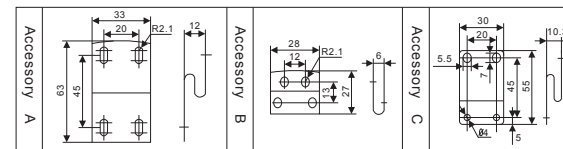
Line Driver/ Push-pull(HTL with reverse signal)



Mounting and Dimensions



M80H(Hollow Shaft Type)



Incremental 100-mm-Dia. Rotary Encoder

M100H

Hollow shaft type

Encoder for elevators
External Diameter of 100mm

- Incremental model
- External diameter of 100mm
- Resolution up to 2500 ppr.
- Various output type
- Hollow shaft type
- D-Sub Connector available



Ordering Information

M100H-

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Section 1: Basic model name

M100H: 100mm Rotary Encoder(Hollow Shaft Type)

Section 2: Inner shaft size

35: 35mm
38: 38mm
40: 40mm
42: 42mm
45: 45mm

Section 3: Resolution

10: 10 ppr
20: 20 ppr

40 50 60 80 100 120 125 150
200 225 240 250 256 300 360 400 450
480 500 512 600 625 720 750 800 900
1000 1024 1080 1200...up to 2500

Not indicated resolution is customizable

Section 4: Output phase

3: A B Z
6: A \bar{A} B \bar{B} Z \bar{Z}

Section 5: Output type

C: Complementary(also known as totem pole)
N: NPN Open collector
P: PNP Open collector
V: Voltage output
L: Line driver(**Power source 5VDC ONLY, Phase 6**)
T: Push-Pull(**With inverted signal, Phase 6**)

Section 6: Power Supply

8: 8-30 VDC(+/- 5%)
5: 5 VDC(+/- 5%)

Section 7: Cable outgoing type

G: Side entry cable
X: Side entry D-Sub Connector

▲ **Standard cable length is 2M**

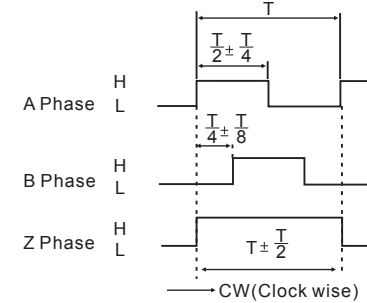
Ratings and Specifications

- Power supply:** 5 VDC / 8-30 VDC
Resolution: 5-2500 ppr
Current consumption: 100mA(Load disconnected)
Load current: 50mA maximum per channel 20mA maximum per channel (Line driver output)
Output type: NPN/PNP open collector/Complementary/Voltage/Line Driver/Push-Pull(HTL with reverse signal)
Frequency: 100K HZ Frequency=RPM*Resolution/60
Maximum permissible speed: 2500 rpm
Shaft loading radial: 20N
Shaft loading thrust: 40N
Weight: Approx 0.5KG
Protection level: IP50
Temperature: operation(-10°C~+70°C), storage(-30°C~+85°C)
Vibration resistance: 50m/s, 10-65 HZ, 1 mm double amplitude for 2 hours each in X, Y, and Z directions
Shock resistance: 980m/s, 6m/s 2 times each in X, Y, and Z directions
Starting torque: 5x 10⁻² N.m Maximum

Output circuits and wave forms

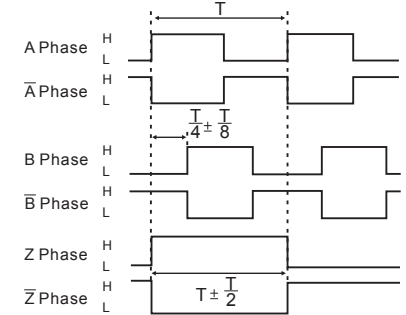
Wave forms

Complementary/Open collector(NPN&PNP)/Voltage output

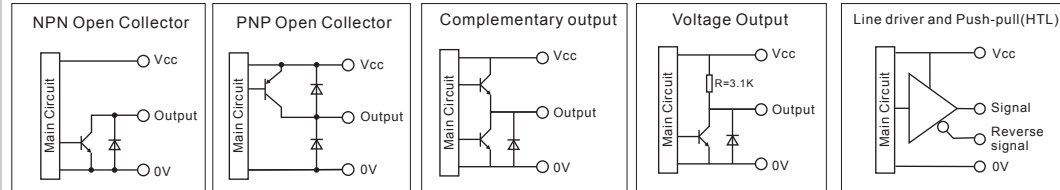


CW: As viewed from the shaft

Line Driver(RS422)/Push-pull(HTL with reverse signal)

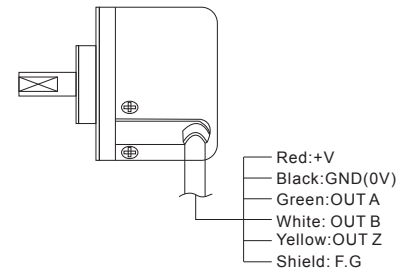


Output circuits

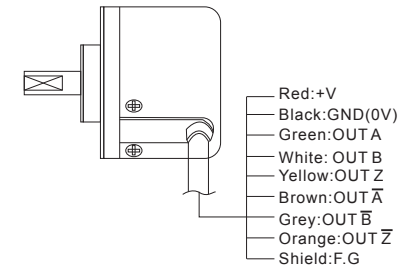


Wiring Details

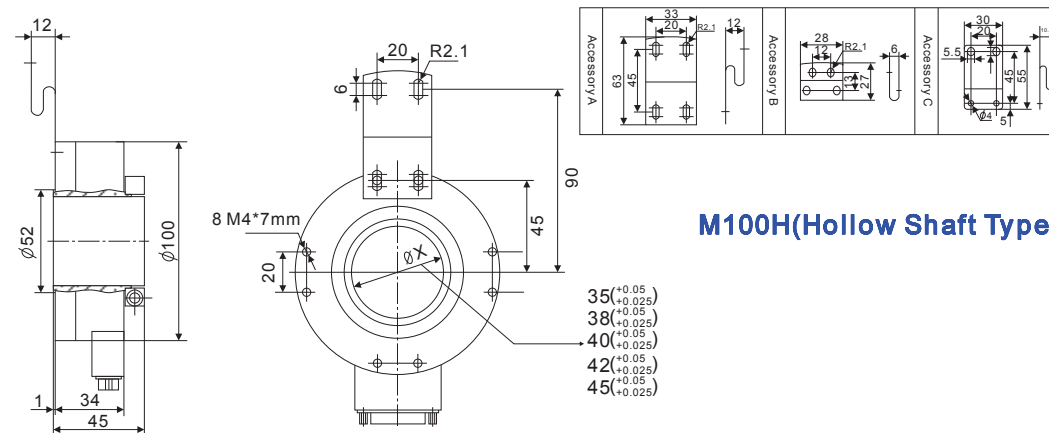
Complementary/Open collector(NPN/PNP)/Voltage output



Line Driver/HTL with reverse signal



Mounting and Dimensions



M100H(Hollow Shaft Type)

Incremental 120-mm-Dia. Rotary Encoder

M120H

Hollow shaft type

External Diameter of 120mm

- Incremental model
- External diameter of 120mm
- Resolution up to 4096 ppr.
- Various output type
- Hollow shaft type
- D-Sub Connector available



Ordering Information

M120H-

1	2	3	4	5	6	7

Section 1: Basic model name

M120H: 120mm Rotary Encoder(Hollow Shaft)

Section 2: Inner shaft size

50: 50mm
55: 55mm
60: 60mm
65: 65mm

Section 3: Resolution

10: 10 ppr
20: 20 ppr

40	50	60	80	100	120	125	150	
200	225	240	250	256	300	360	400	450
480	500	512	600	625	720	750	800	900
1000	1024	1080	1200	...up to 4096				

Not indicated resolution is customizable

Section 4: Output phase

3: A B Z
6: A \bar{A} B \bar{B} Z \bar{Z}

Section 5: Output type

C: Complementary(also known as totem pole)
N: NPN Open collector
P: PNP Open collector
V: Voltage output
L: Line driver(**Power source 5VDC ONLY, Phase 6**)
T: Push-Pull(**With inverted signal, Phase 6**)

Section 6: Power Supply

8: 8-30 VDC(+/- 5%)
5: 5 VDC(+/- 5%)

Section 7: Cable outgoing type

G: Side entry cable
X: Side entry D-Sub Connector

▲ **Standard cable length is 2M**

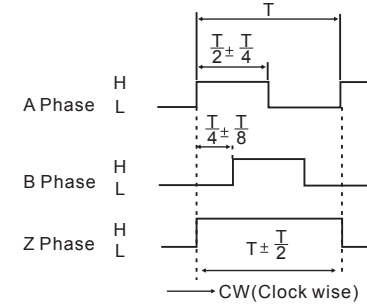
Ratings and Specifications

- Power supply:** 5 VDC / 8-30 VDC
- Resolution:** 5-4096 ppr
- Current consumption:** 100mA(Load disconnected)
- Load current:** 50mA maximum per channel 20mA maximum per channel (Line driver output)
- Output type:** NPN/PNP open collector/Complementary/Voltage/Line Driver/Push-Pull(HTL with reverse signal)
- Frequency:** 100K HZ Frequency=RPM*Resolution/60
- Maximum permissible speed:** 3000 rpm
- Shaft loading radial:** 20N
- Shaft loading thrust:** 40N
- Weight:** Approx 0.65KG
- Protection level:** IP50
- Temperature:** operation(-10°C~+70°C), storage(-30°C~+85°C)
- Vibration resistance:** 50m/s, 10-65 HZ, 1 mm double amplitude for 2 hours each in X, Y, and Z directions
- Shock resistance:** 980m/s, 6m/s 2 times each in X, Y, and Z directions
- Starting torque:** 5x 10⁻² N.m Maximum

Output circuits and wave forms

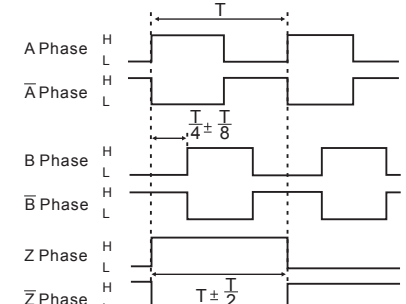
Wave forms

Complementary/Open collector(NPN&PNP)/Voltage output



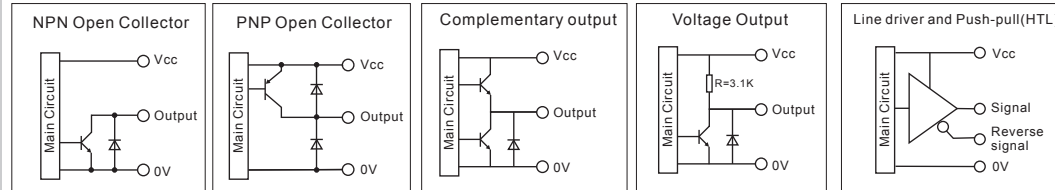
CW: As viewed from the shaft

Line Driver(RS422)/Push-pull(HTL with reverse signal)



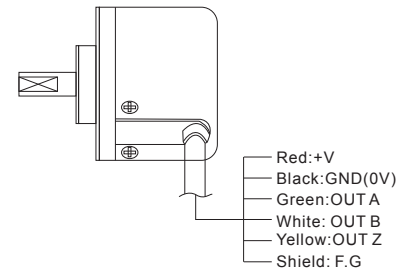
→ CW(Clock wise)

Output circuits

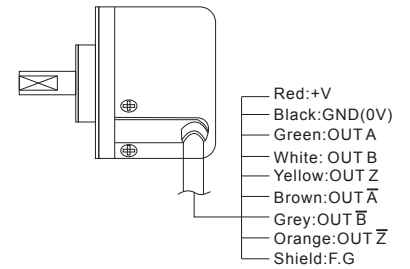


Wiring Details

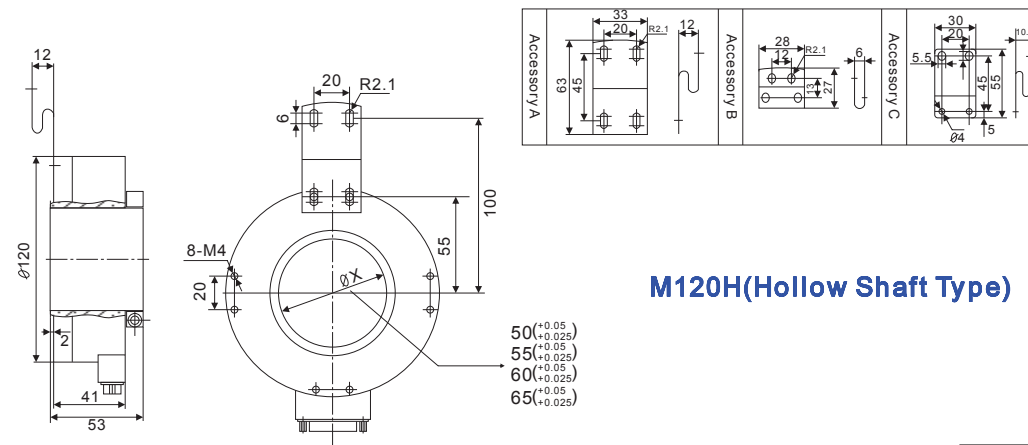
Complementary/Open collector(NPN/PNP)/Voltage output



Line Driver/ Push-pull(HTL with reverse signal)



Mounting and Dimensions



M120H(Hollow Shaft Type)

Incremental 150-mm-Dia. Rotary Encoder

M150H

Hollow shaft type

External Diameter of 150mm



- Incremental model
- External diameter of 150mm
- Resolution up to 4096 ppr.
- Various output type
- Hollow shaft type

Ordering Information

M150H-

1 2 3 4 5 6 7

Section 1: Basic model name

M150H: 150mm Rotary Encoder(Hollow Shaft)

Section 2: Inner shaft size

60: 60mm
65: 65mm
70: 70mm
75: 75mm

Section 3: Resolution

10: 10 ppr
20: 20 ppr

40 50 60 80 100 120 125 150
 200 225 240 250 256 300 360 400 450
 480 500 512 600 625 720 750 800 900
 1000 1024 1080 1200...up to 4096

Not indicated resolution is customizable

Section 4: Output phase

3: A B Z
6: A \bar{A} B \bar{B} Z Z \bar{Z}

Section 5: Output type

C: Complementary(also known as totem pole)
N: NPN Open collector
P: PNP Open collector
V: Voltage output
L: Line driver (**Power source 5VDC ONLY, Phase 6**)
T: Push-Pull (**With inverted signal, Phase 6**)

Section 6: Power Supply

8: 8-30 VDC(+/- 5%)
5: 5 VDC(+/- 5%)

Section 7: Cable outgoing type

G: Side entry cable
X: Side entry D-Sub Connector

▲ **Standard cable length is 2M**

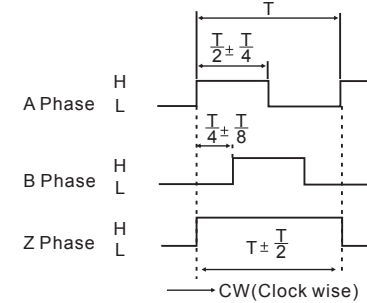
Ratings and Specifications

- Power supply:** 5 VDC / 8-30 VDC
Resolution: 5-4096 ppr
Current consumption: 100mA(Load disconnected)
Load current: 50mA maximum per channel 20mA maximum per channel (Line driver output)
Output type: NPN/PNP open collector/Complementary/Voltage/Line Driver/Push-Pull(HTL with reverse signal)
Frequency: 100K HZ Frequency=RPM*Resolution/60
Maximum permissible speed: 2000 rpm
Shaft loading radial: 20N
Shaft loading thrust: 40N
Weight: Approx 0.65KG
Protection level: IP50
Temperature: operation(-10°C~+70°C), storage(-30°C~+85°C)
Vibration resistance: 50m/s, 10-65 HZ, 1 mm double amplitude for 2 hours each in X, Y, and Z directions
Shock resistance: 980m/s, 6m/s 2 times each in X, Y, and Z directions
Starting torque: 5x 10⁻² N.m Maximum

Output circuits and wave forms

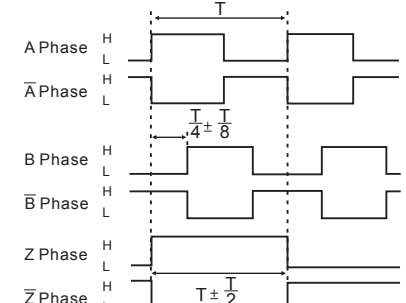
Wave forms

Complementary/Open collector(NPN&PNP)/Voltage output



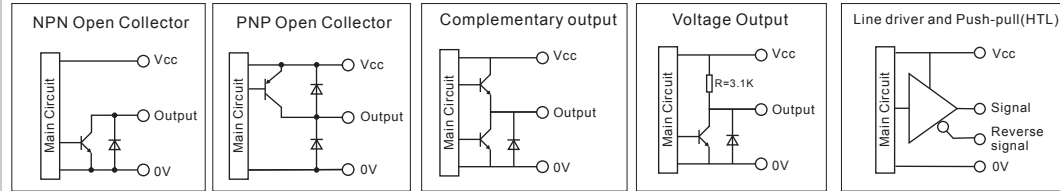
CW: As viewed from the shaft

Line Driver(RS422)/Push-pull(HTL with reverse signal)



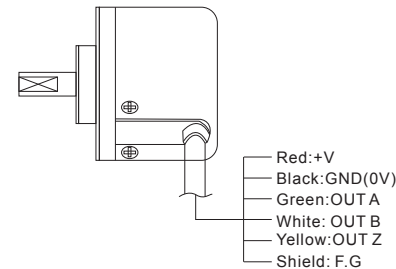
→ CW(Clock wise)

Output circuits

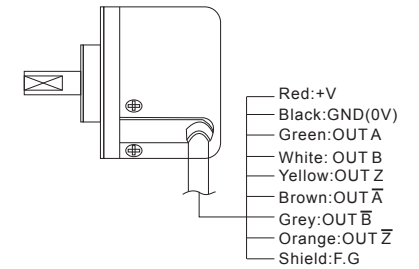


Wiring Details

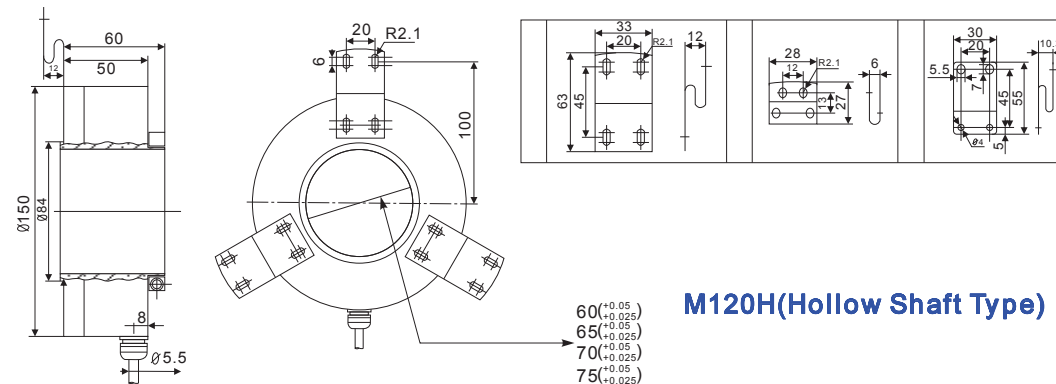
Complementary/Open collector(NPN/PNP)/Voltage output



Line Driver/ Push-pull(HTL with reverse signal)



Mounting and Dimensions



M120H(Hollow Shaft Type)

60^(+0.05/-0.025)
 65^(+0.05/-0.025)
 70^(+0.05/-0.025)
 75^(+0.05/-0.025)

Incremental 60&80-mm-Dia. Manual Rotary Encoder

SM60/SM80

Manual handled type

External Diameter of 60mm&80mm

- Incremental model
- External diameter of 60mm&80mm, 25mm&28mm length
- Resolution available with 25/50/100 ppr.
- Various output type
- Connection terminal at the back
- Output phase A B



Ordering Information

SM60 -

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Section 1: Basic model name

- SM60:** Manual handle encoder (60mm external Dia)
SM80: Manual handle encoder (80mm external Dia)

Section 2: Resolution

- 25:** 25 ppr
50: 50 ppr
100: 100 ppr

Section 3: Output phase

- 2:** A B
4: A \bar{A} B \bar{B}

Section 4: Output type

- C:** Complementary (also known as totem pole)
N: NPN Open collector
P: PNP Open collector
V: Voltage output
L: Line driver (Power source 5VDC ONLY)

Section 5: Power Supply

- 8:** 8-30 VDC (+/- 5%)
5: 5 VDC (+/- 5%)

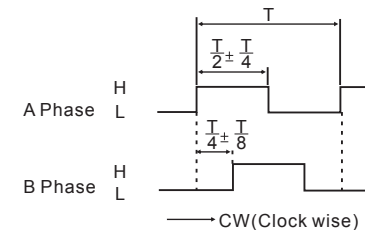
Section 7: Cable outgoing type

- G:** Connector at the back

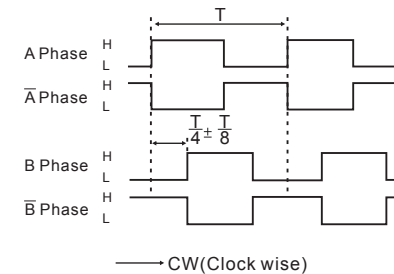
Output circuits and wave forms

Wave forms

Complementary/Open collector(NPN&PNP)/Voltage output

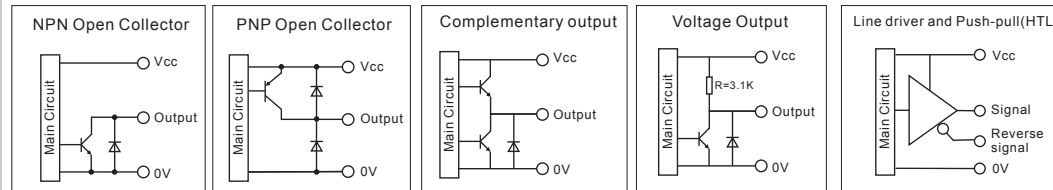


Line Driver(RS422)/Push-pull(HTL with reverse signal)

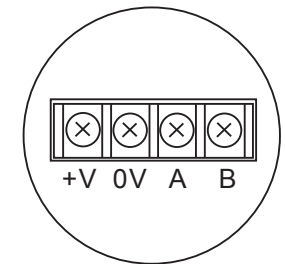
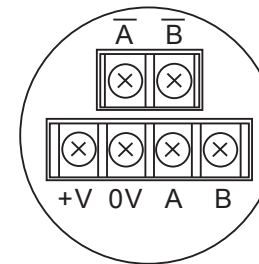


CW: As viewed from the shaft

Output circuits



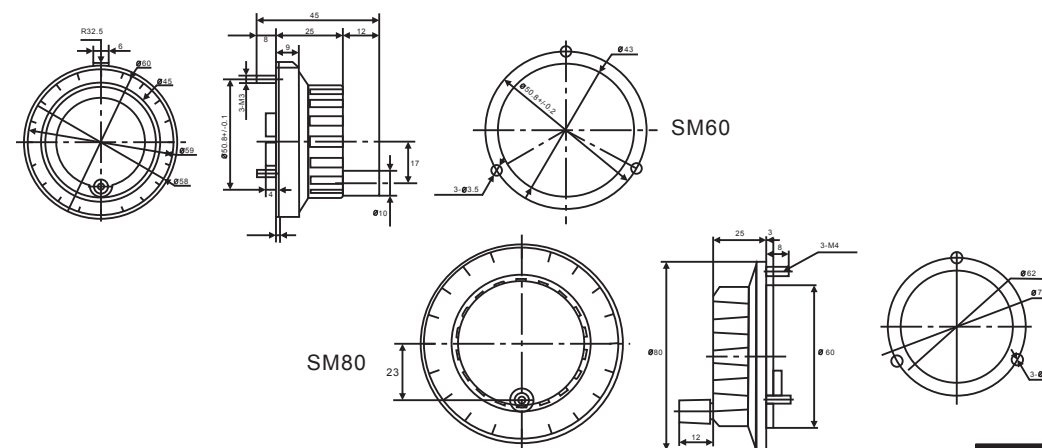
Wiring Details



Ratings and Specifications

- Power supply:** 5 VDC / 8-30 VDC
Resolution: 25/50/100 ppr
Current consumption: 100mA (Load disconnected)
Load current: 30mA maximum per channel 20mA maximum per channel (Line driver output)
Output type: NPN/PNP open collector/Complementary/Voltage/Line Driver
Frequency: 20K HZ Frequency=RPM*Resolution/60
Maximum permissible speed: 600 rpm
Weight: Approx 0.3KG
Protection level: IP50
Temperature: operation(-10°C~+70°C), storage(-20°C~+70°C)
Vibration resistance: 50m/s, 10-65 HZ, 1 mm double amplitude for 2 hours each in X, Y, and Z directions
Shock resistance: 100m/s, 6m/s 2 times each in X, Y, and Z directions

Mounting and Dimensions



Measuring Wheel

MNC

Hollow shaft type



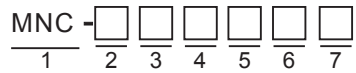
Features:

Suitable for measuring the length or speed of target moving successively by wheel type
The output waveform is proportional to the limit of the international measurement type (meter or inch)
Power supply: 5VDC, 12-24VDC +/- 5%

Application:

Packing machine, sheet manufacturing, textile machinery, and general industrial plants

Ordering Information



Section 1: Basic model name

MNC: MNC series measuring wheel

Section 2: Output Phase

2: Phase A and B

Section 3: Minimum Measuring Unit

- 1: 1mm
- 2: 1cm
- 3: 1M
- 4: 0.01 yd
- 5: 0.1 yd
- 6: 1 yd

Section 4: Output

- C:** Complementary(also known as totem pole)
- N:** NPN Open collector
- V:** Voltage output

Section 5: Power Supply

- 8:** 8-30 VDC(+/- 5%)
- 5:** 5 VDC(+/- 5%)

Section 6: Cable

- G:** Side entry cable
- X:** Side entry D-Sub Connector

Section 7: Pulse per round

- 100:** 100 ppr
 - 500:** 500 ppr
- to be specified by customers

Ratings and Specifications

Power supply: 5 VDC / 8-30 VDC

Resolution: 5-5400 ppr

Current consumption: 100mA(Load disconnected)

Load current: 50mA maximum per channel

Output type: NPN open collector/Complementary/Voltage

Frequency: 100K HZ Frequency=RPM*Resolution/60

Maximum permissible speed: 6000 rpm

Shaft loading radial: 25N

Shaft loading thrust: 35N

Weight: Approx 0.25KG

Protection level: IP50

Temperature: operation(-10°C~+70°C), storage(-30°C~+85°C)

Vibration resistance: 50m/s, 10-65 HZ, 1 mm double amplitude for 2 hours each in X, Y, and Z directions

Shock resistance: 980m/s, 6m/s 2 times each in X, Y, and Z directions

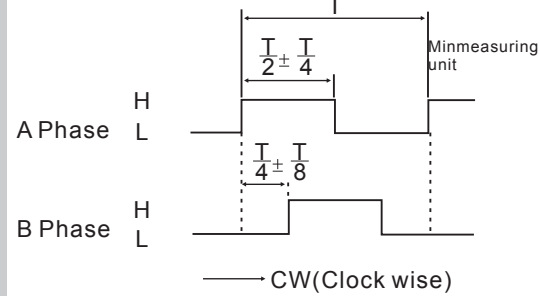
Starting torque: 5x 10⁻² N.m Maximum

Cable with connector are available on request

Output circuits and wave forms

Wave forms

Complementary/Open collector(NPN&PNP)/Voltage output

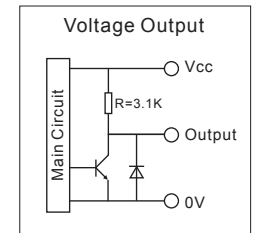
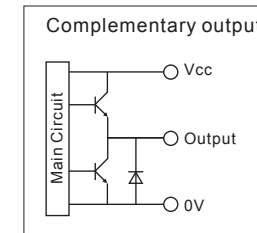
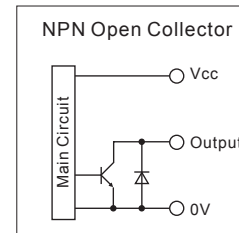


CW: As viewed from the shaft

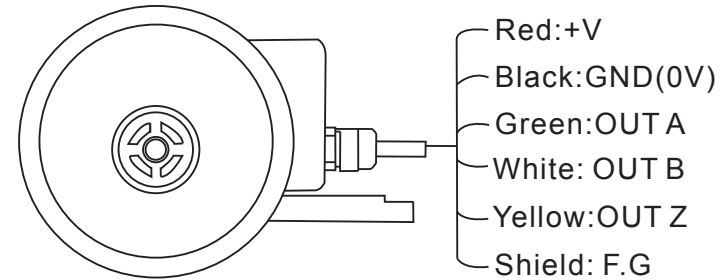
Resolution

NO	Minimum measuring unit	Moving distance per 1 pulse	Gear rotation	Wheel circumference	Slit(P/R)
1	1mm	1mm/pulse	1:1	250mm	
2	1cm	1cm/pulse	4:1	250mm	
3	1m	1m/pulse	4:1	250mm	
4	0.01yd	0.01yd/pulse	4:1	228.6mm (0.25yd)	
5	0.1yd	0.1yd/pulse	4:1	228.6mm (0.25yd)	
6	1yd	1yd/pulse	4:1	228.6mm (0.25yd)	

Output circuits



Wiring Details



Counter clockwise(CCW)

Unused wires must be insulated

The metal case and shield wire of encoder should be grounded(F.G)