

PART NUMBER: C14**DESCRIPTION:** panel mount optical encoder**ELECTRICAL SPECIFICATIONS**

| | |
|-------------------|---|
| supply voltage | 5 V dc $\pm 5\%$ (optional: 3.3 V dc $\pm 10\%$) |
| supply current | 20 mA max. (open collector) |
| output code | 2-bit Quadature, Channel A leads Channel B by 90° with clockwise rotation |
| power consumption | 100 mW |
| angle of throw | 22.5° for code change and 16 detent positions 11.25° for code change and 32 detent positions |

MECHANICAL SPECIFICATIONS

| | | |
|--------------------|----------------------|--|
| operational torque | without detent | 0.2 N·cm (20.4 gf·cm max.) |
| | 16 position w/detent | 0.4 ± 0.2 N·cm (40.8 ± 20.4 gf·cm) |
| | 32 position w/detent | 0.4 ± 0.2 N·cm (40.8 ± 20.4 gf·cm) |
| mounting torque | | 100 N·cm (10.2 kgf·cm) |
| shaft strength | radial | 10 N (1.02 kgf) |
| | thrust | 15 N (1.53 kgf) |
| rotational life | | 1,000,000 cycles |
| weight (approx) | | 11 g |

PUSH SWITCH SPECIFICATIONS

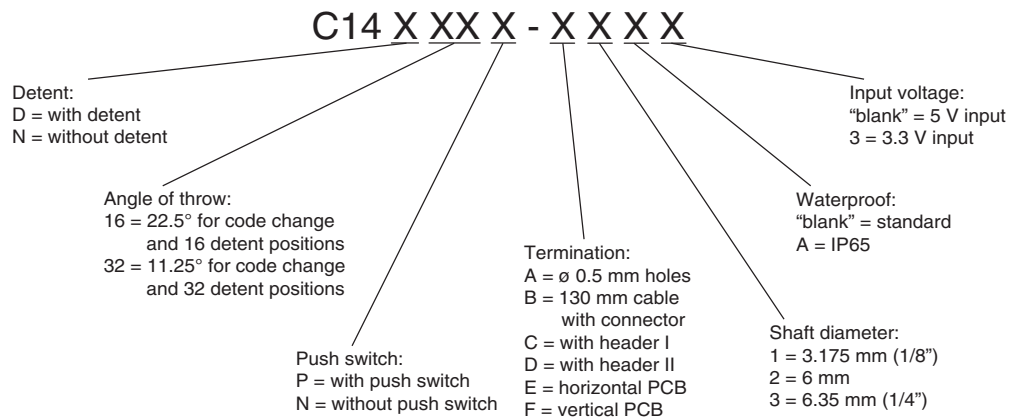
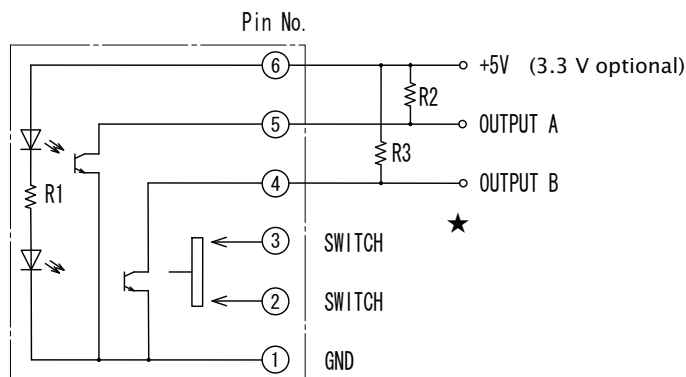
| | |
|-----------------------|-----------------------------------|
| rated voltage | 12 V dc, 50 mA |
| contact resistance | 200 m Ω max. |
| insulation resistance | 100 m Ω min. |
| voltage proof | 250 V ac for 1 minute |
| operating force | 4.5 \pm 1 N (459 \pm 102 g·f) |
| travel | 0.5 \pm 0.3 mm |
| bounce | 10 msec. |
| life | 1,000,000 |

ENVIRONMENTAL SPECIFICATIONS

| | |
|-----------------------|---|
| operating temp. range | 0° to +60° C |
| storage temp. range | -20 ~ 80°C |
| vibration | frequency range: 10 ~ 55 Hz, peak to peak amplitude: 1.5 mm |
| shock | 50 G for 11 ms, half sine wave |
| cold proof | -20°C for 96 hours |
| heat proof | 80°C for 96 hours |
| change to temp. | -10 ~ 70°C for 30 minutes each |
| humidity | 90 ~ 95% for 96 hours at 40°C |

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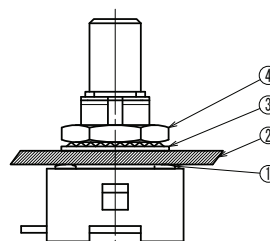
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ORDERING INSTRUCTIONS

CIRCUIT CONNECTION


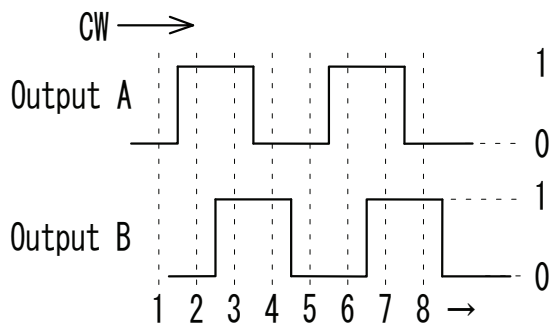
*R2,R3:External pull-up resistors 5.1KΩ

WATER PROOF MOUNTING

Protects against ingress of water from mounting panel side only.



| | |
|---|---------------------|
| 1 | Water proof washer |
| 2 | Panel |
| 3 | Toothed lock washer |
| 4 | Nut |

OUTPUT WAVEFORM


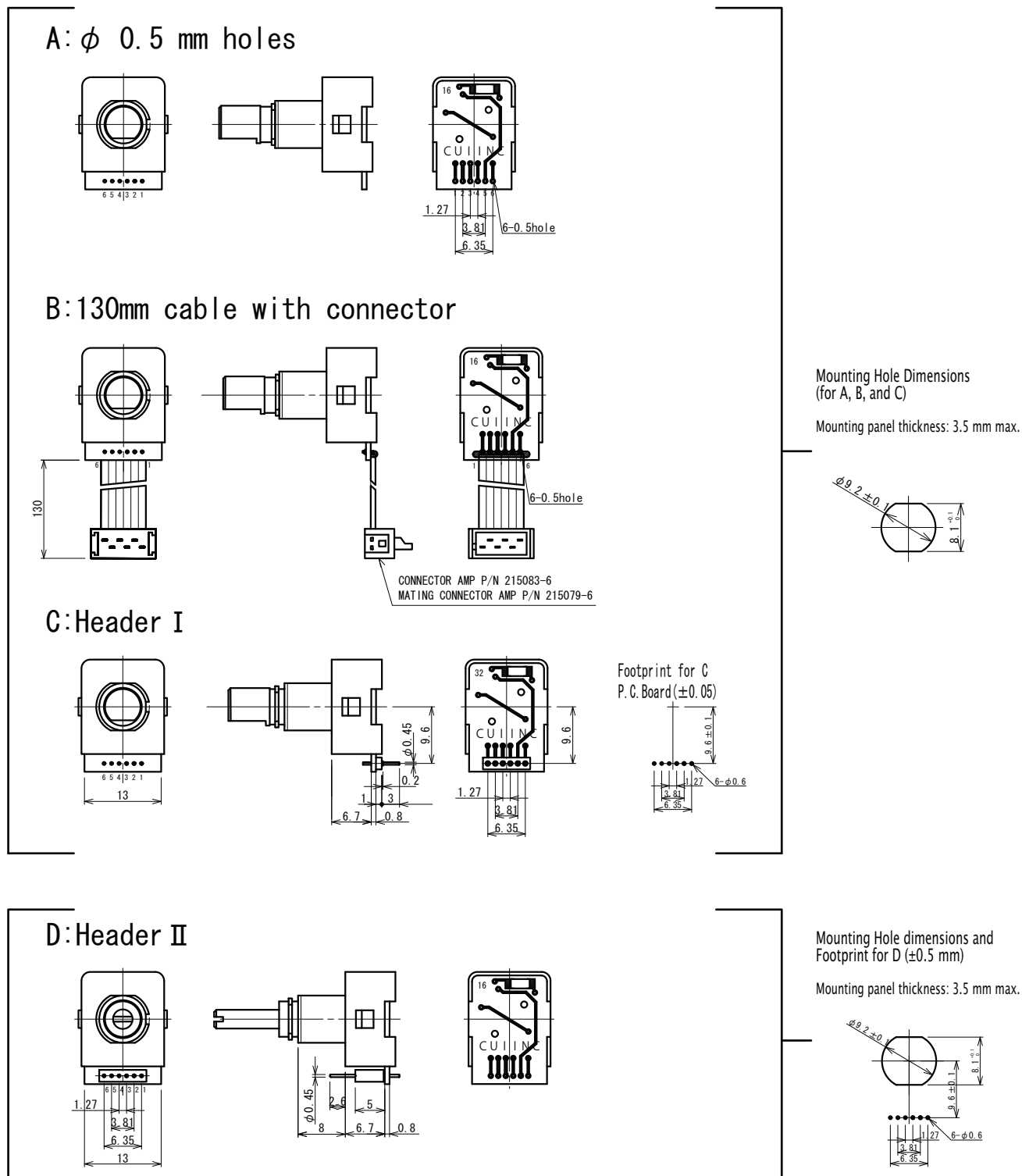
| Position \ Output | 1 | 2 | 3 | 4 | 5 |
|-------------------|---|---|---|---|---|
| A | 0 | 1 | 1 | 0 | 0 |
| B | 0 | 0 | 1 | 1 | 0 |

* "0":1V max. "1":3V min.

*The code repeats from 1 to 4.

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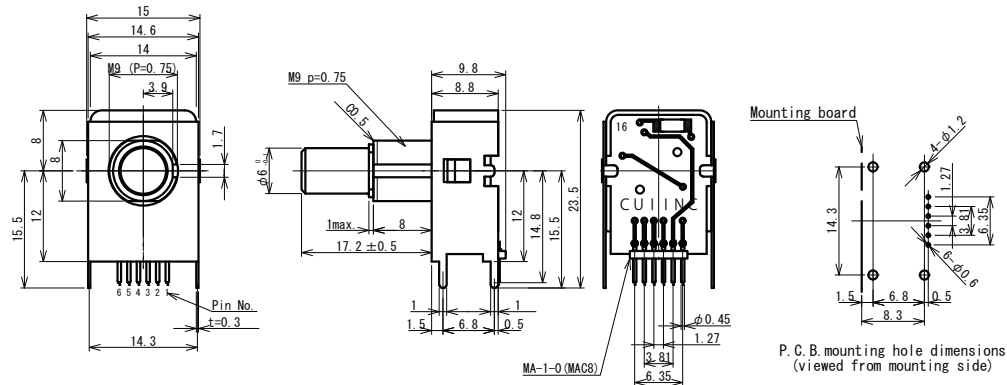
OPTIONS


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OPTIONS CONTINUED

E: Horizontal PCB

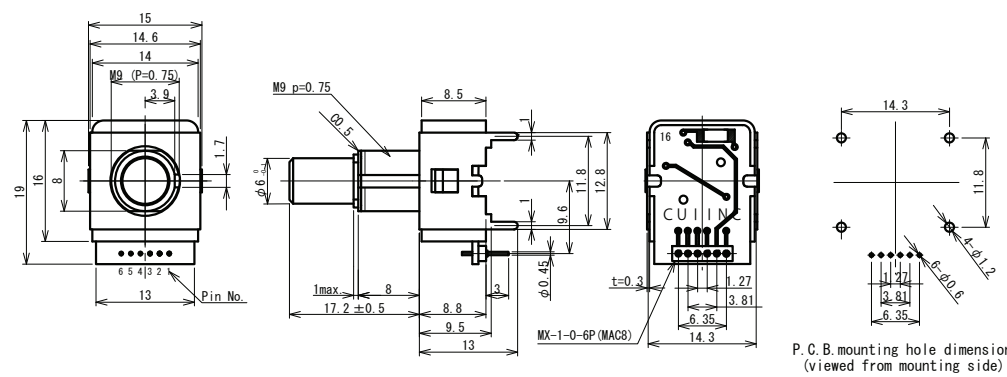


P. C. B. mounting hole dimensions (viewed from mounting side)

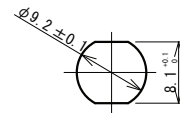
Mounting Hole Dimensions (for E and F)

Mounting panel thickness: 3.5 mm max.

F: Vertical PCB

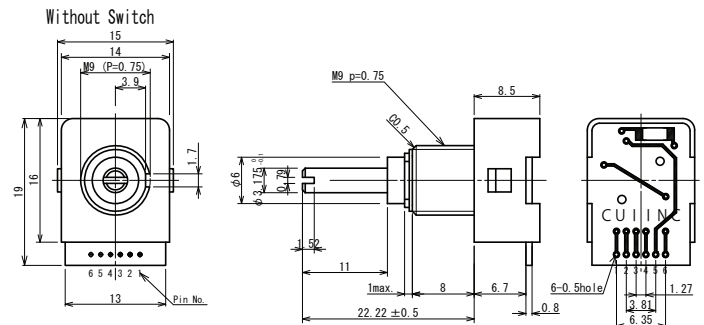
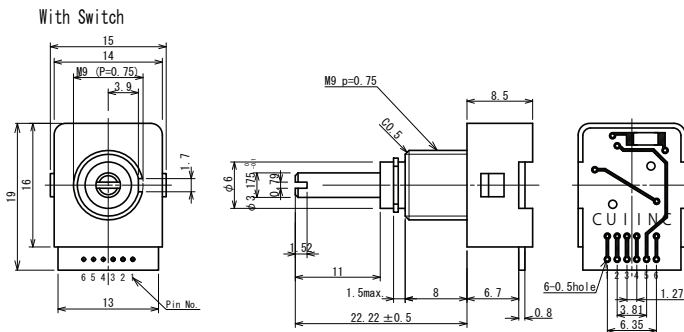
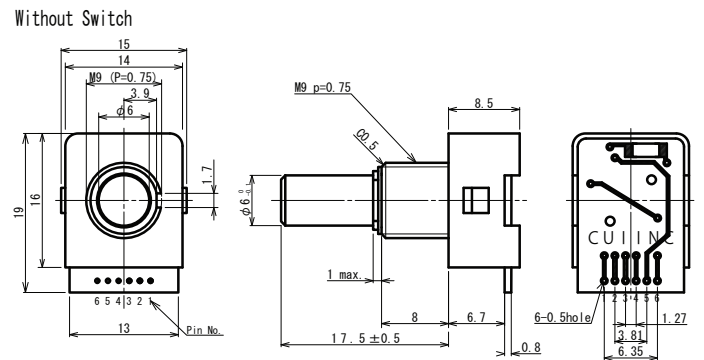
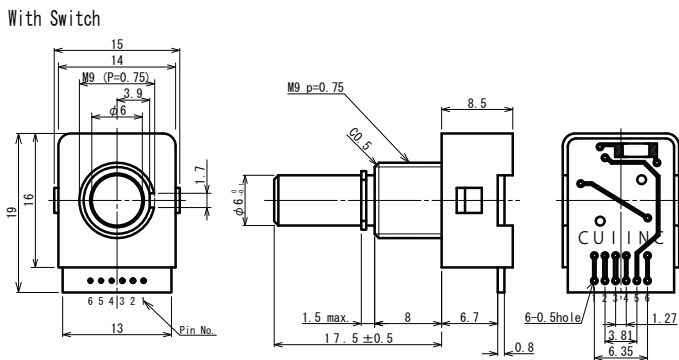


P. C. B. mounting hole dimensions (viewed from mounting side)



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MECHANICAL DRAWING
3.175 mm

6.0 mm

6.35 mm
