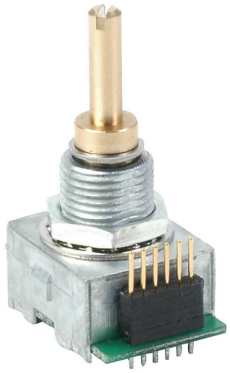
CUDEVICES

SERIES: C14 | DESCRIPTION: PANEL MOUNT ENCODER

FEATURES

- 2-bit quadrature output
- compact
- rugged metal design
- 1 million cycle life
- multiple termination options
- IP65 rating option
- plastic shaft options available for medical applications

RoHS



ELECTRICAL

parameter	conditions/description	min	typ	max	units
power supply	3.3Vdc input models 5Vdc input models	3.168 4.75	3.3 5	3.432 5.25	Vdc Vdc
supply current	3.3Vdc input models 5Vdc input models			40 20	mA mA
output	open collector				
output code	2-bit quadrature, channel A leads channel B by 90° with clockwise rotation				
power consumption	3.3Vdc input models 5Vdc input models			132 100	mW mW
output resolution	4 ppr (16 cpr), 8 ppr (32 cpr)				
angle of throw	16 detent postion models 32 detent postion models		22.5 11.25		° °

PUSH SWITCH SPECIFICATIONS

parameter	conditions/description	min	typ	max	units
rating	12 Vdc at 50 mA				
contact resistance				200	mΩ
isolation voltage	for 1 minute		250		Vac
insulation resistance		100			MΩ
operating push force		3.5	4.5	5.5	N
travel		0.2	0.5	0.8	mm
bounce				10	ms
push switch life			1,000,000		cycles

ENVIRONMENTAL

parameter	conditions/description	min	typ	max	units
operating temperature		-10		70	°C
storage temperature		-20		80	°C
vibration	10~55Hz with a peak to peak amplitude of 1.5mm				
shock	half sine wave for 11ms		50		G
cold test	at -20°C for 96 hours				
heat test	at +80°C for 96 hours				

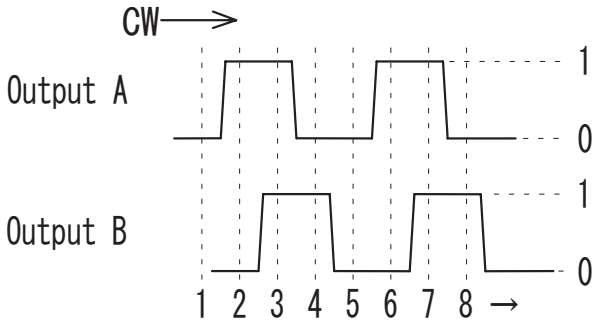
ENVIRONMENTAL (CONTINUED)

parameter	conditions/description	min	typ	max	units
temperature change test	at -10~70°C for 30 minutes each				
humidity test	at 40°C, 90~95% humidity for 96 hours				
RoHS	yes				

MECHANICAL

parameter	conditions/description	min	typ	max	units
shaft load	radial axial			10 15	N N
operational torque	without detent with detent	 0.2	 0.4	0.2 0.6	N·cm N·cm
mounting torque			100		N·cm
rotational life			1,000,000		cycles
weight			11		g

OUTPUT WAVEFORMS



* The code repeats from 1 to 4.

Position / Output	1	2	3	4	5
A	0	1	1	0	0
B	0	0	1	1	0

(1) 3.3V : "0" : 0.8V max. "1" : 2.3V min.

(2) 5V : "0" : 1.0V max. "1" : 3.0V min.

PART NUMBER KEY

C14 X XX X - X X X X

Base Number

Detent:
D = with detent
N = without detent

Angle of throw:
16 = 22.5° for code change and 16 detent positions
32 = 11.25° for code change and 32 detent positions

Push Switch:
P = with push switch
N = without push switch

Termination:
A = Ø0.5 mm holes
B = 130 mm cable with connector
C = with header I
D = with header II
E = horizontal PCB
F = vertical PCB

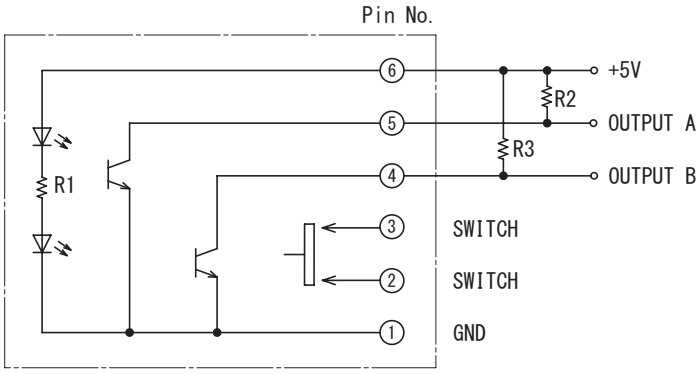
Shaft Diameter:
1 = Ø3.175 mm (1/8")
2 = Ø6 mm
2P = Ø6 mm, plastic
3 = Ø6.35 mm (1/4")
3P = Ø6.35 mm (1/4"), plastic

Waterproof:
"blank" = standard
A = IP65

Input Voltage:
"blank" = 5 V input
3 = 3.3 V input

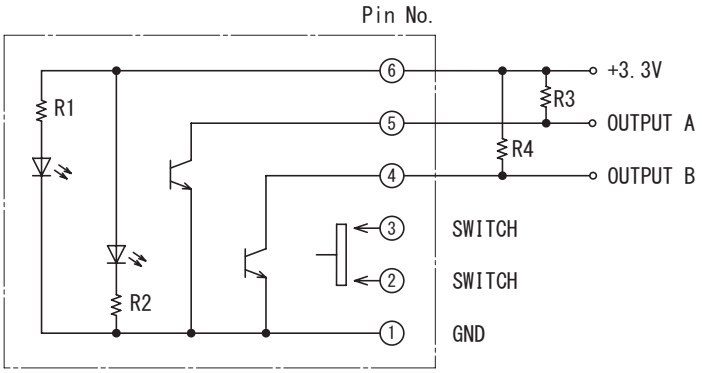
OUTPUT CIRCUIT

5V Input



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

3.3V Input

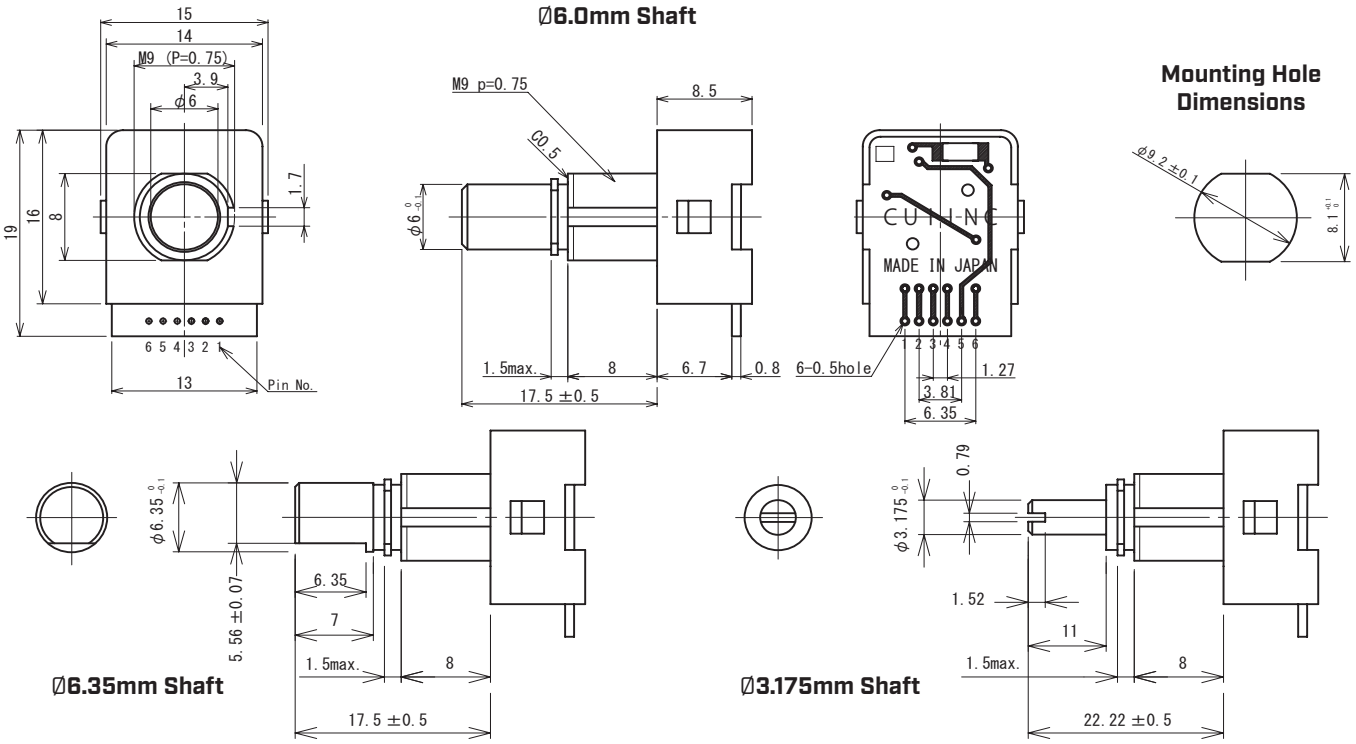


＊R3, R4:External pull-up resistors 5.1KΩ

MECHANICAL DRAWING

5V INPUT, WITH PUSH SWITCH

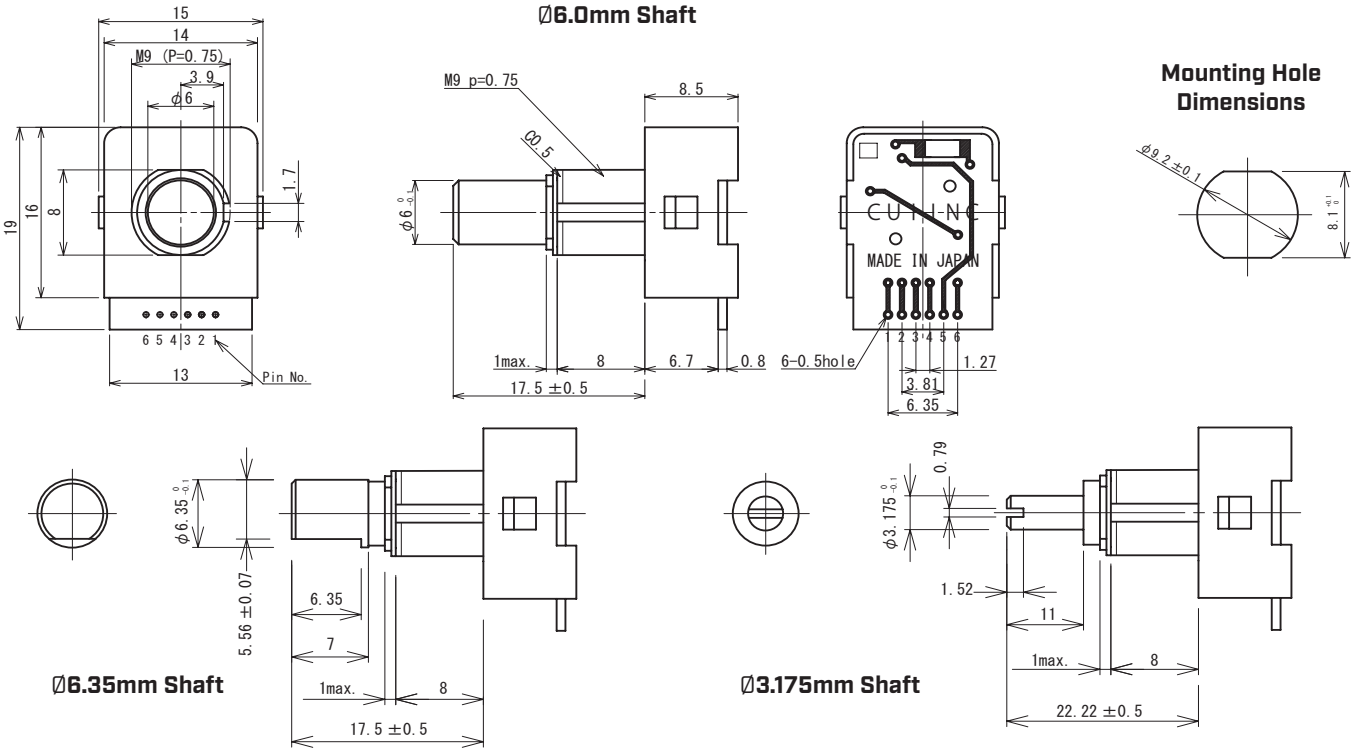
units: mm



MECHANICAL DRAWING (CONTINUED)

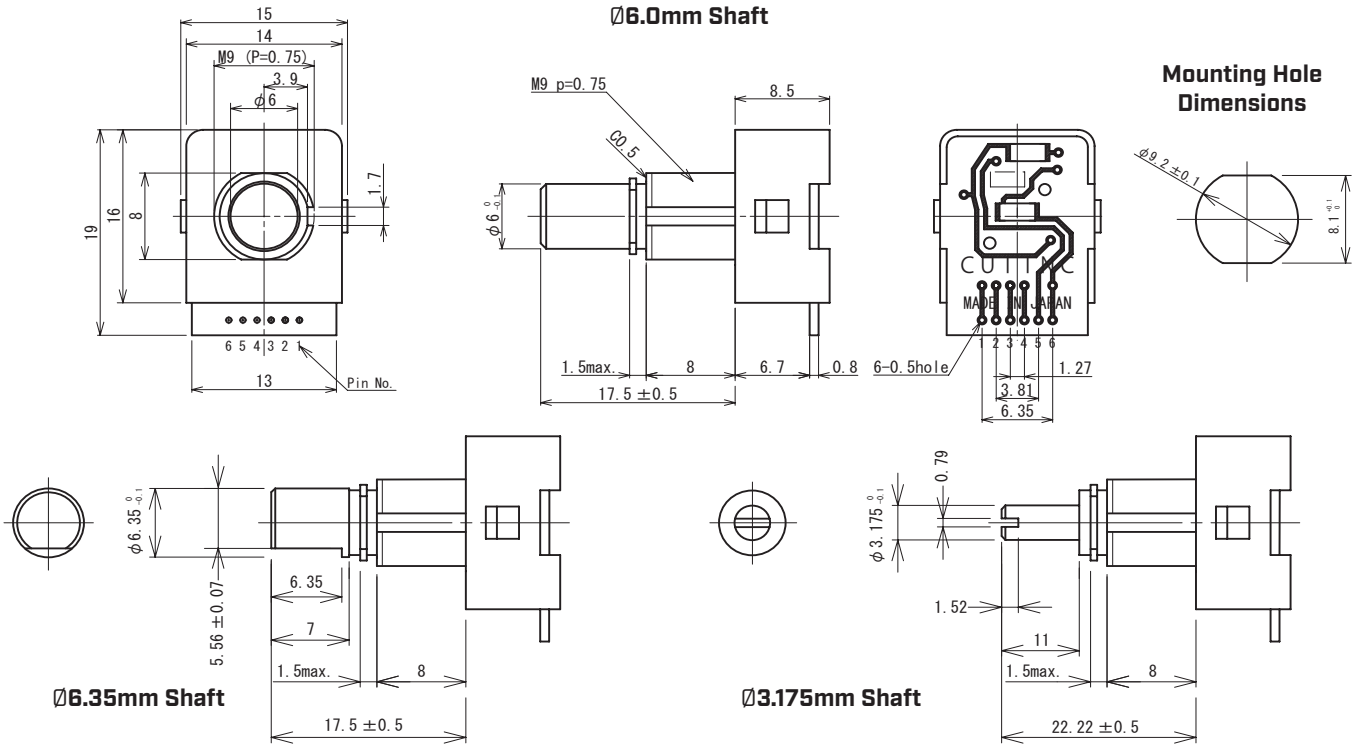
5V INPUT, WITHOUT PUSH SWITCH

units: mm



3.3V INPUT, WITH PUSH SWITCH

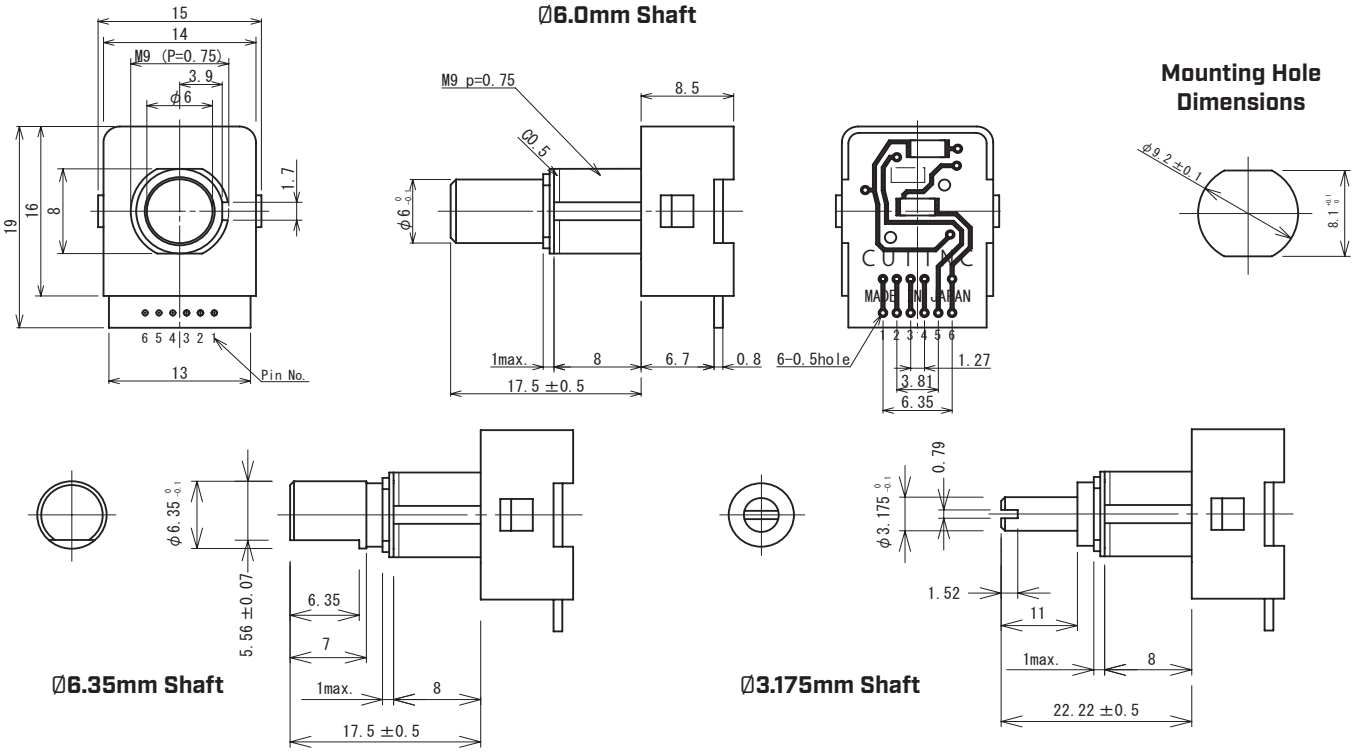
units: mm



MECHANICAL DRAWING (CONTINUED)

3.3V INPUT, WITHOUT PUSH SWITCH

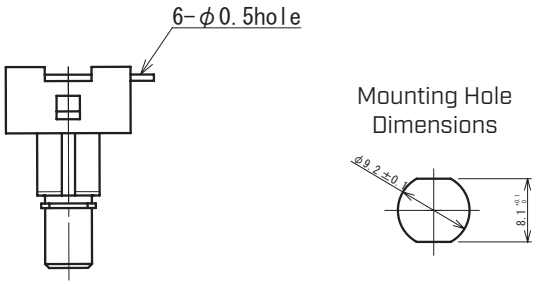
units: mm



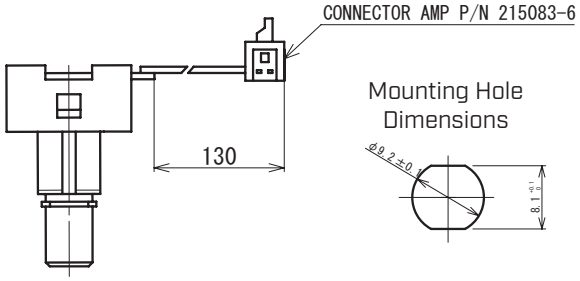
MECHANICAL DRAWING, TERMINATION OPTIONS

units: mm

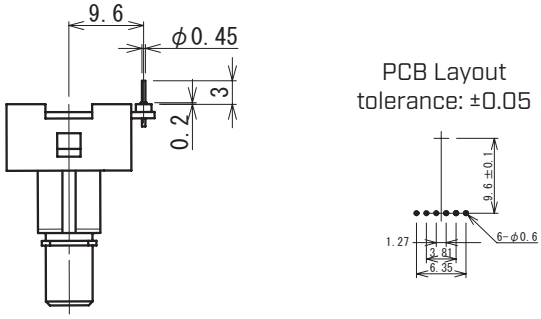
OPTION A: Ø0.5MM HOLES



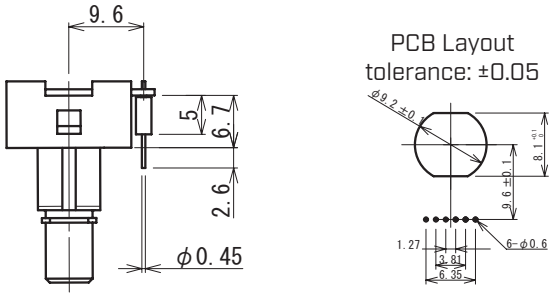
OPTION B: 130MM CABLE WITH CONNECTOR



OPTION C: HEADER I



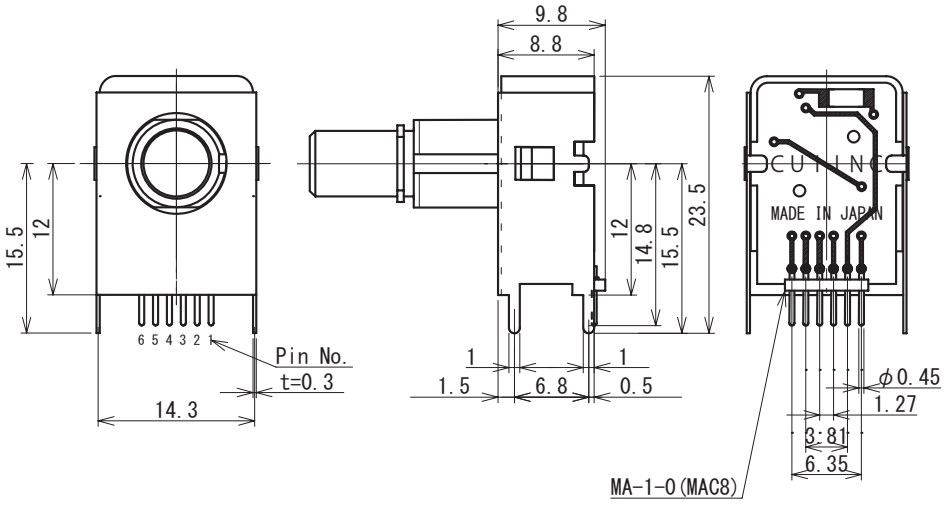
OPTION D: HEADER II



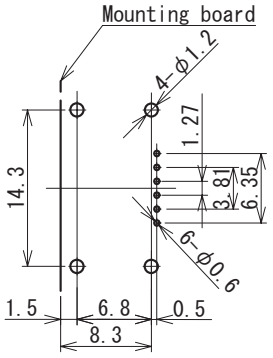
MECHANICAL DRAWING, TERMINATION OPTIONS (CONTINUED)

units: mm

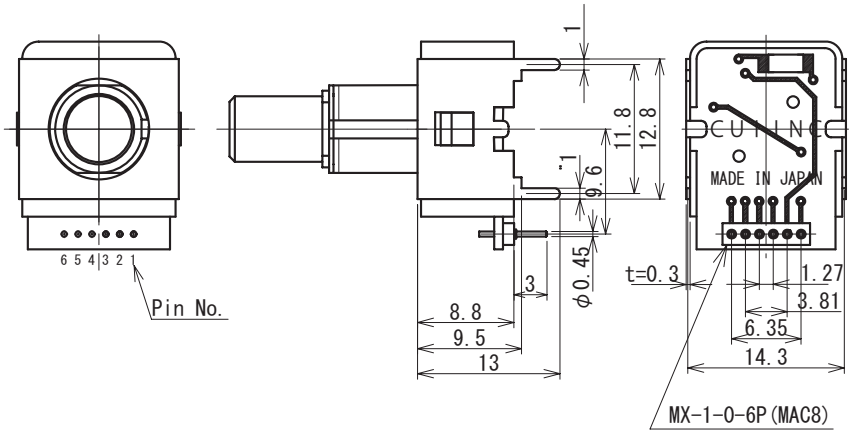
OPTION E: HORIZONTAL PCB



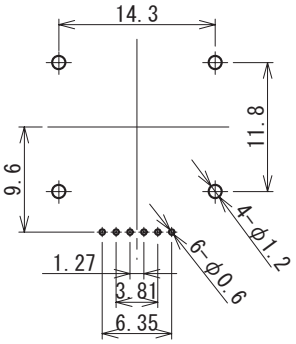
PCB Layout
tolerance: ±0.05



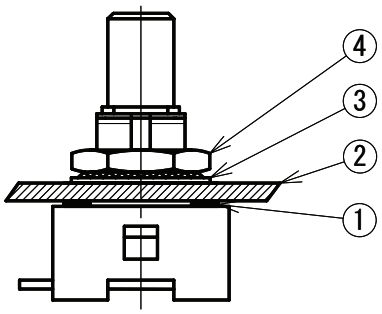
OPTION F: VERTICAL PCB



PCB Layout
tolerance: ±0.05



WATERPROOF MOUNTING



No.	Qty.	Component
1	1	waterproof washer
2	1	panel
3	1	toothed lock washer
4	1	nut

Note: 1. Protects against ingress of water (IP65) from front side of panel only.

REVISION HISTORY

rev.	description	date
1.0	initial release	02/25/2009
1.01	applied new spec template, updated operating temperature, updated 3.3V PCB	05/20/2014
1.02	brand update	10/04/2019
1.03	added plastic shaft models	10/14/2020
1.04	logo, datasheet style update	08/05/2022

The revision history provided is for informational purposes only and is believed to be accurate.

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