

LONG-RANGE TRANSMISSION & FLEXIBLE CURRENT OUTPUT

TMR ELEMENT CONTACTLESS ROTARY ANGLE SENSOR

CP36U series

RoHS compliant



FEATURES

- Contactless MR-Element Angle Sensor
- Effective Electrical Travel: 18° to 360°
- Absolute Linearity: $\pm 0.2\%$ F.S. (F.S. = 360°)
- Dual-Wire 4–20 mA Current Output
- Teach-In Function (Zero/Span Adjustment, etc.) Available
- Robust Housing: IP67-Rated Version Available

OPTIONS

- Available with a mounting plate

USEFUL TEACH-IN FUNCTION "ADJUSTING SWITCH UNIT (ASW-UNIT)"

The programmable type of CP36U Series provides the following user-adjustable functions by using the ASW-unit.



ASW-Unit

Offering two types of ASW-unit

[Fixed Cable type]: The ASW unit is integrated into the sensor's fixed cable and cannot be removed.

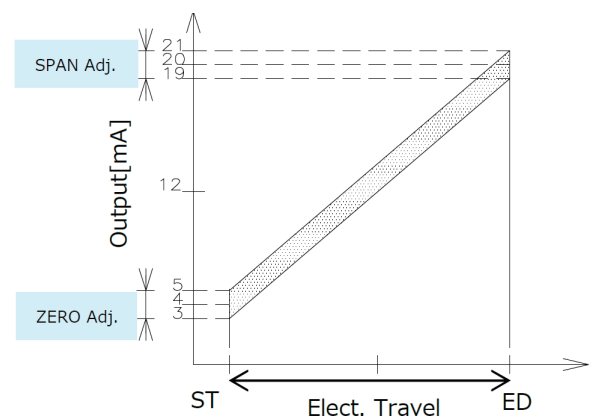
[Detachable Cable type]: The ASW unit can be detached from the sensor cable and shared with other programmable CP36U units. The ASW unit is also available for purchase separately.

- Teach-In Electrical Angle Range
 - ① Sets start (ST) and end (ED) positions arbitrarily.
Accuracy assurance range : F.S. = 18°*1 to 360°
F.S. adjustable range: 1° to 360°*2
- Zero/Span Adjustment
 - ② ZERO Adj. : 4 mA $\pm$ 1 mA
 - ③ SPAN Adj. : 20 mA $\pm$ 1 mA
Adjustment resolution: Approx. 4.55 μ A
- Output Direction Setting
 - ④ Configures output increasing direction to CW.
 - ⑤ Configures output increasing direction to CCW.

*1) An F.S. less than 18° can be set, but it is outside the accuracy assurance range.

*2) If the F.S. is set to less than 1° or more than 359°, it is automatically reset to 360°.

Zero-Span Adjustment



Misoperation Prevention Function

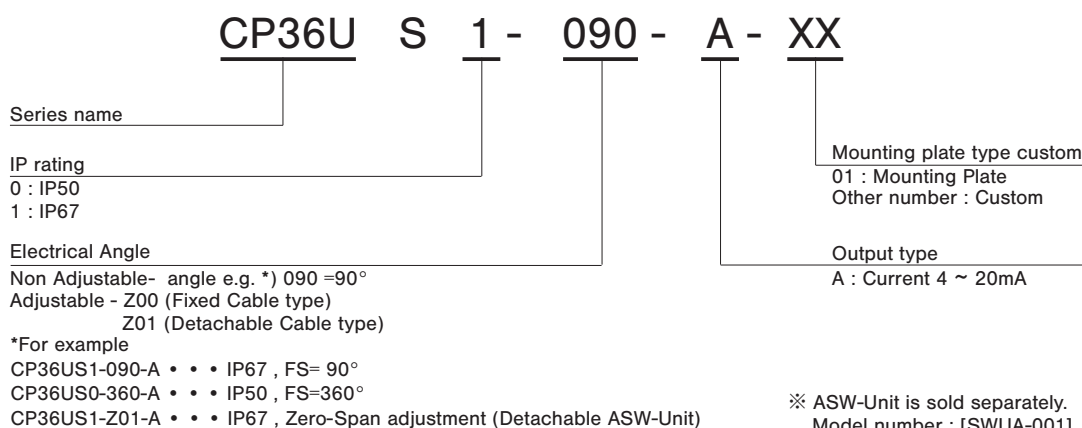
To prevent unintended adjustments, settings will not take effect until the "S (SET)" button is pressed.

The unit also features a protective cover to prevent accidental button presses.

CP36U

POTENTIOMETERS

■ PART NUMBER DESIGNATION



■ STANDARD SPECIFICATIONS

Item	Non-Adjustable type				Adjustable type
Part Number	CP36USx-360-A	CP36USx-270-A	CP36USx-180-A	CP36USx-090-A	CP36USx-Z0x-A
Electrical Angle	360°	270°	180°	90°	360 ~ 18°
Absolute Linearity	±0.2%FS	±0.3%FS		±0.5%FS	±0.2%FS (FS=360°)
Input Voltage	24±8 VDC				
Output Range	4 ~ 20 mA				Resettable (4±1 mA, 20±1 mA, CW, CCW)
Load Resistance	600 Ω max. (Vin = 24 VDC)				
Update Cycle	1 kHz ±10%				
Resolution	4.55 μA typ. (Calculated, approx. 12-bit)				Depends on the angle
Operating Temp. Range	-40 ~ 85°C				
Storage Temp. Range	-40 ~ 105°C				
Temp. Drift (Operating Temp.)	±1.5°			±1.0°	±1.5° (FS=360°)
IP Rating	IP50 / IP67 (Except cable exit), ASW-Unit : IP54				
Rotational Torque	1 mN·m max. (IP50) / 10 mN·m max. (IP67)				
Vibration	200 m/s², 5 to 500 Hz, 20 min/sweep, 2 hours each for 3 axes (JIS C 60068-2-6)				
Shock	1,000 m/s², 6 ms (3 times each in 6 directions, 3 axes) (JIS C 60068-2-27)				
EMS	100 V/m:10 kHz ~ 1 GHz (ISO 11452-2,3)				25V/m:10kHz ~ 1GHz (ISO11452-2,3)
EMI	CISPR25 CLASS2				
ESD	IEC 61000-4-2 Contact ±4 kV, Air ±8 kV, Criteria B				

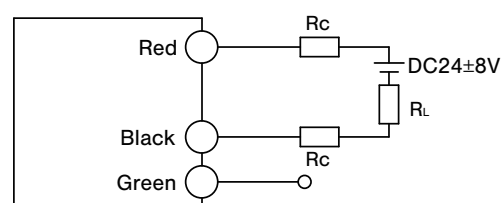
Note: In the product model numbers above, "x" represents either 0 or 1.

*For details on how to use the ASW-Unit, please refer to the document entitled "How to Use the ASW-Unit."

● Adjusting the operating angle range via the switch unit changes the accuracy and resolution based on the configured angle, as shown below.

Travel	Linearity	Resolution
FS=360°	0.2%FS	12bit approx.
>FS=180°	0.3%FS	12bit approx.
>FS=90°	0.5%FS	12bit approx.
>FS=45°	0.9%FS	11bit approx.
>FS=30°	1.3%FS	10bit approx.
>FS=18°	2.1%FS	9bit approx.

■ SCHEMATIC

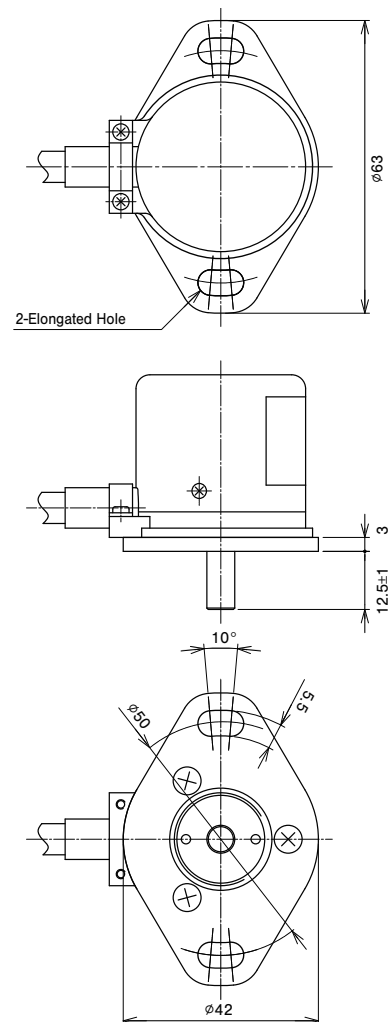


- Red, Black, and Green: Harness colors
- Green: Shield drain wire (Ground if necessary)
- R_c : Transmitting wire resistance
- R_L : Load resistance

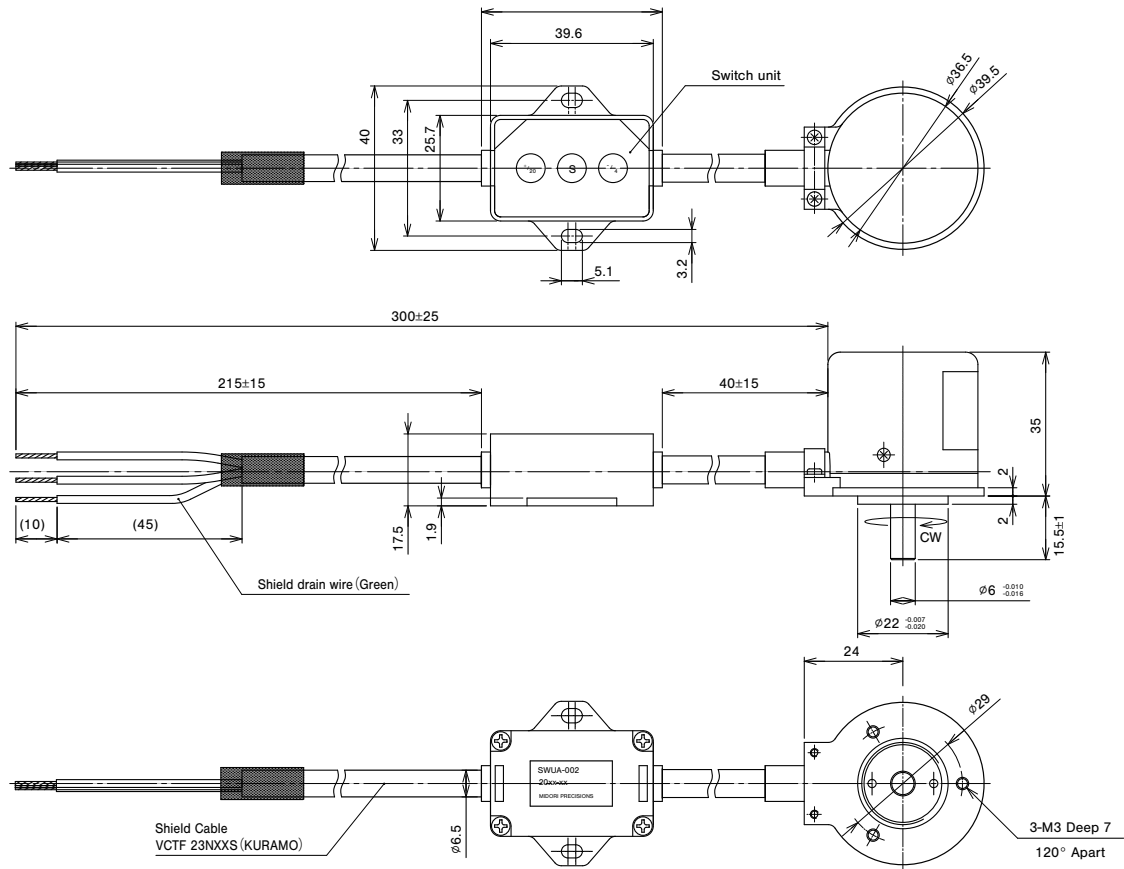
■ OUTLINE DIMENSIONS

(Unit:mm)

● **Mounting plate type / Option**



(Unit:mm)

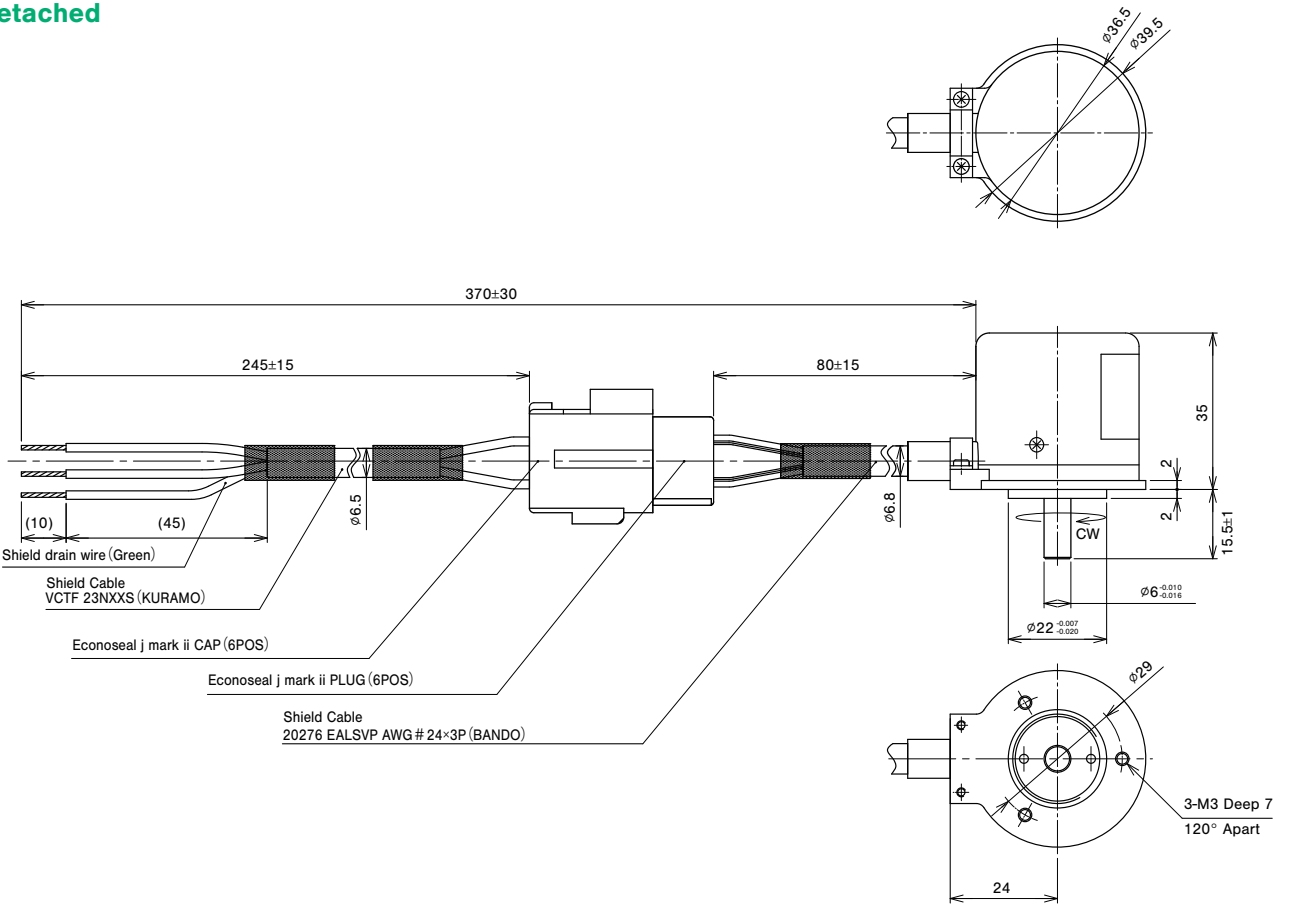


CP36U

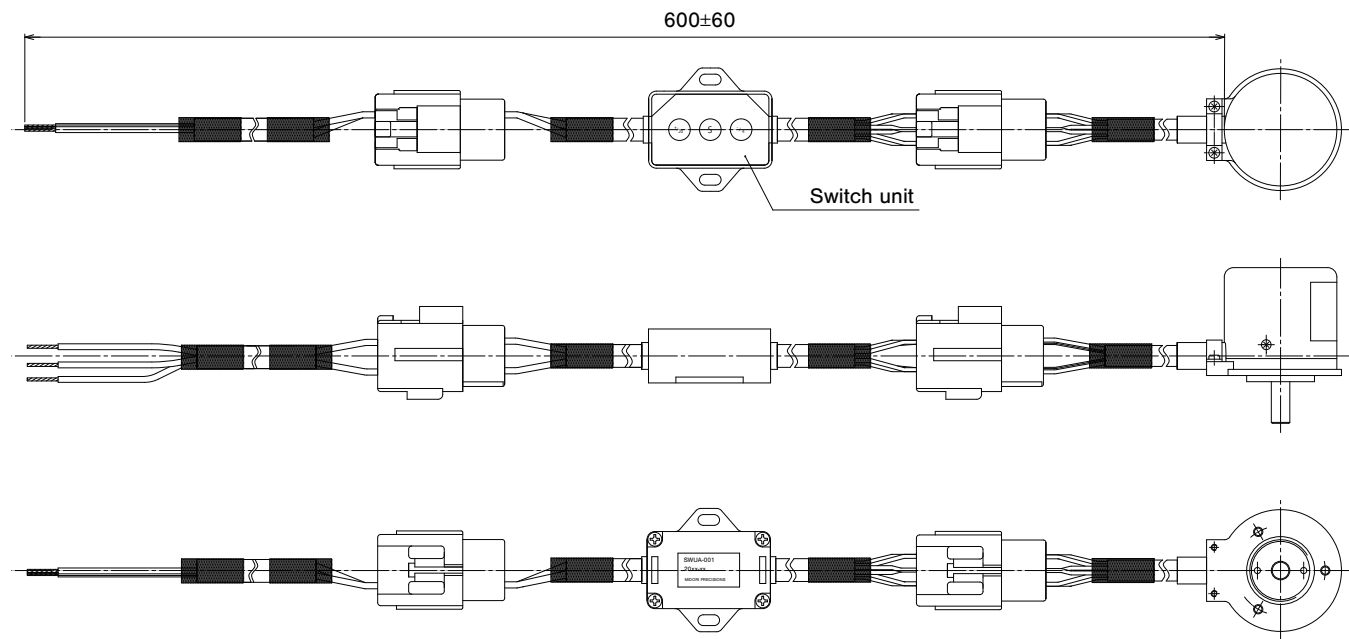
POTENTIOMETERS

- Adjustable type / Detachable Cable type
- Detached

(Unit:mm)



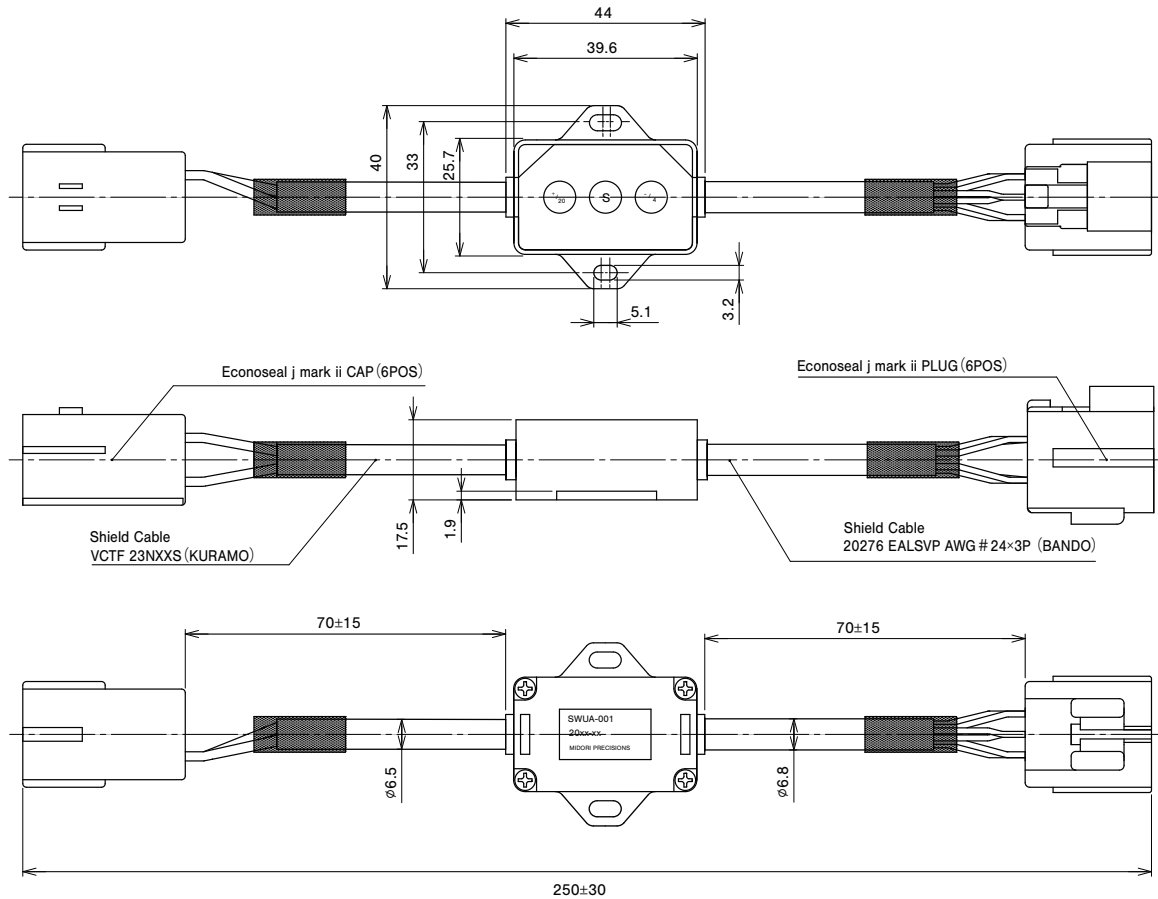
- Adjustable type / Detachable Cable type
- Attached ASW-Unit



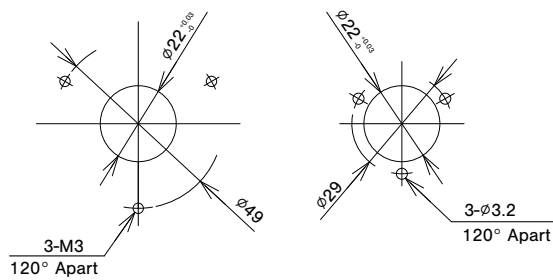
CP36U POTENTIOMETERS

■ ASW-Unit (Selling separately)

(Unit:mm)



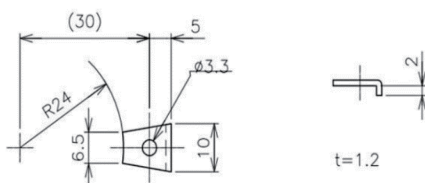
■ Mounting



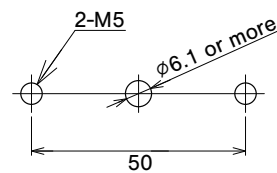
Servo mount

Screw mount

Accessories: Cleats 3 pcs.

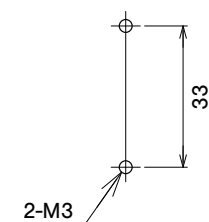


■ Mounting plate type / Option



Accessories: Flat-Washers 2 pcs.

■ Mounting For ASW-Unit



Accessories: Protection Cover 1 pcs.