DRAW WIRE SENSOR

AWP 404

"High strength stainless steel wire"

LONG SERVICE LIFE | POTENTIOMETRIC MEASUREMENT | CANopen OUTPUT | ANALOG OUTPUT | SSI INTERFACE

- Different stroke (measuring) lengths between 0…1000 mm and 0…4000 mm
- ±0.5% FS linearity
- Potentiometric, 0-10 VDC, 4-20 mA, CANopen or SSI output options
- IP54 protection class (Optional IP67)
- Compact design and easy installation
- Shock/vibration resistant
- Aluminum body

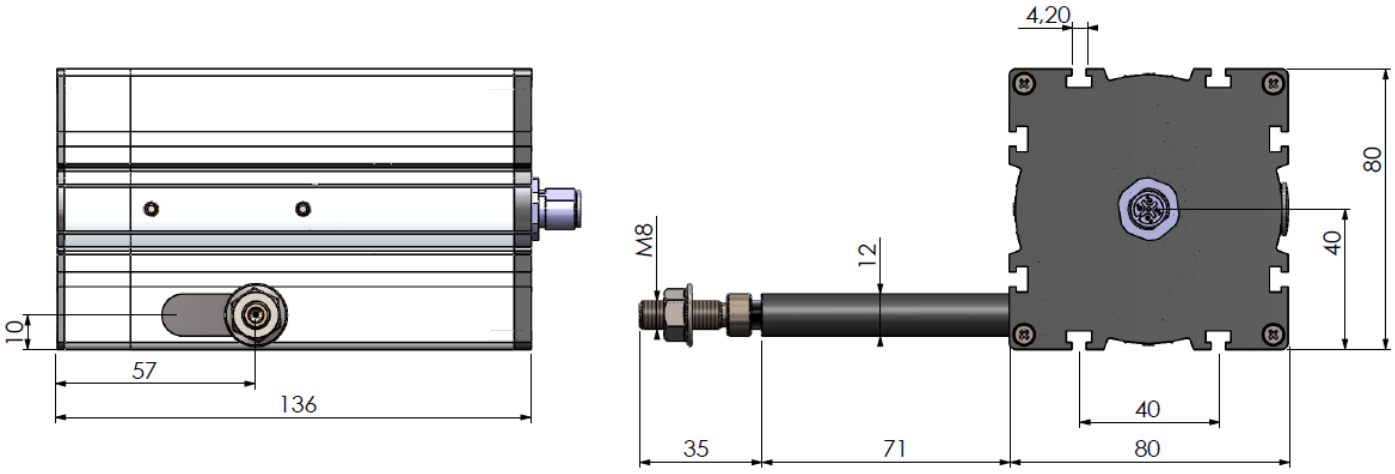
AWP 404 series draw wire sensors consists of a rotary potentiometer which is controled by stainless steel wire. They make measurement by pulling and rewinding stainless steel wire. They converts linear motion to potentiometric, analog, CANopen or SSI output.

MECHANICAL DATA

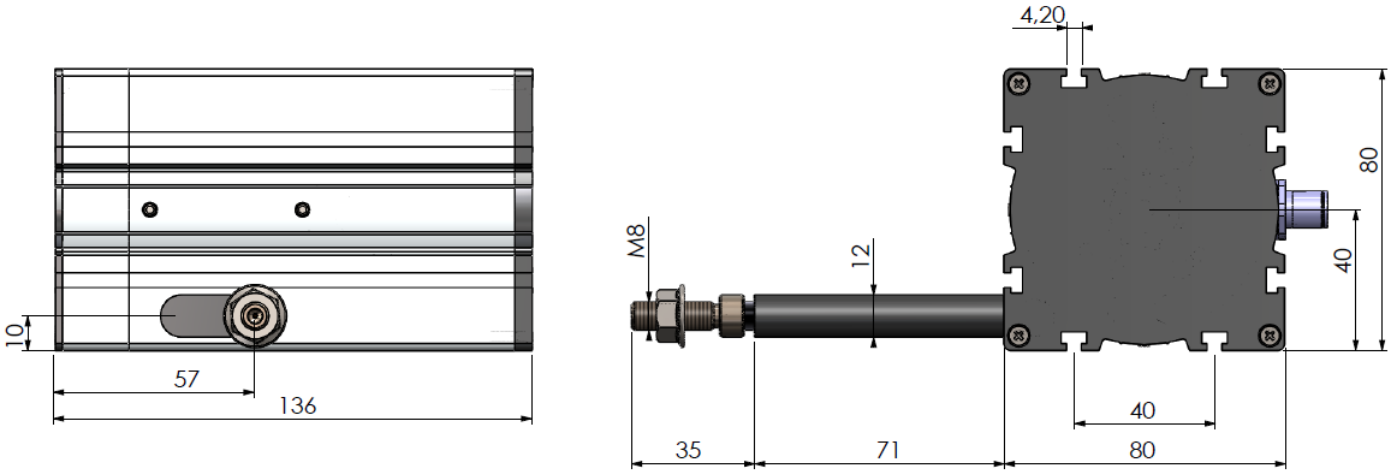
Mechanical and Environmental Data		
Stroke (measuring) Length	Different measuring lengths between 0…1000 mm and 0…4000 mm	
Linearity	±0.5% FS	
Maximum Speed	0.5 m/s	
Required Force	5N	
Protection Class	IP54 (Optional IP67)	
Operating Temp.	-25°C … +85°C	
Relative Humudity	%95	
Materials	Body	Aluminum/plastic
	Measuring Wire	Stainless steel

MECHANICAL DIMENSIONS (mm)

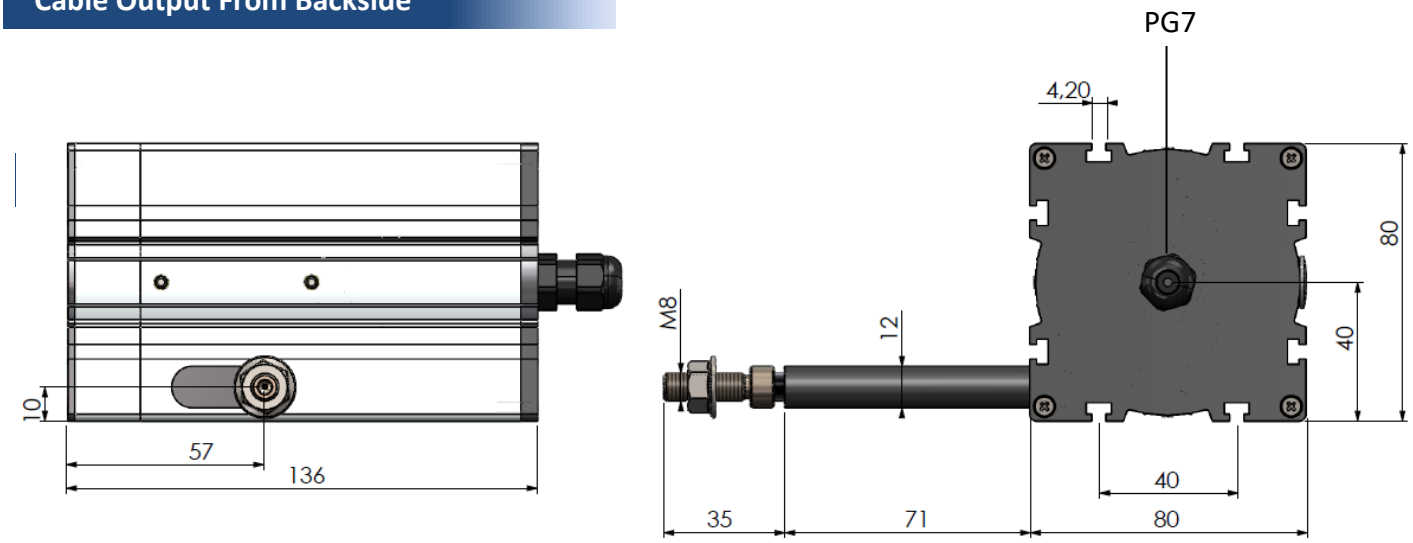
M12 Connector Output From Backside



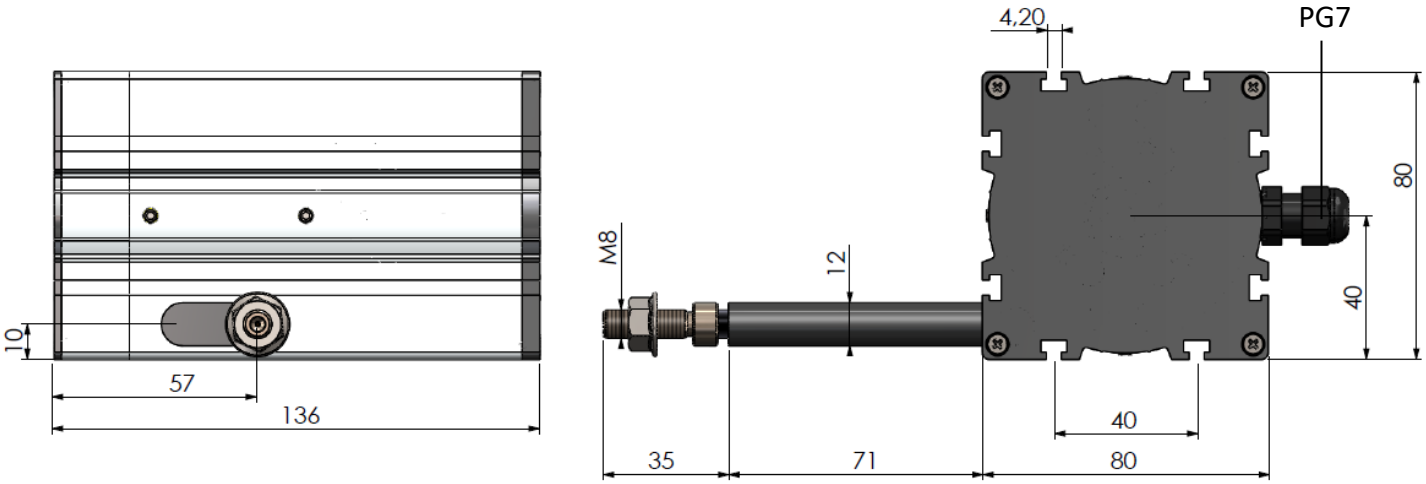
M12 Connector Output From Side



Cable Output From Backside



Cable Output From Side



SAMPLE APPLICATION FIELDS

- Elevators
- Press machines
- Crane systems
- Wood processing machines
- Marble processing machines
- Storage positioning
- Dam protections
- Sluice gate control
- Air compressors
- Glass processing machines
- Lifting platforms
- Applications in medical technologies (operating table etc.)
- Forklifts
- Screw machines
- Paper machines
- Sewing machines
- Hydraulic machines
- Sheet metal machines
- Printing machines
- Horizontal control equipments
- Construction machines
- Industrial robots
- Injection machines
- X-Y axis displacement
- Liquid level measurements and position control

ELECTRICAL DATA

ANALOG AND POTENTIOMETRIC OTUPUT

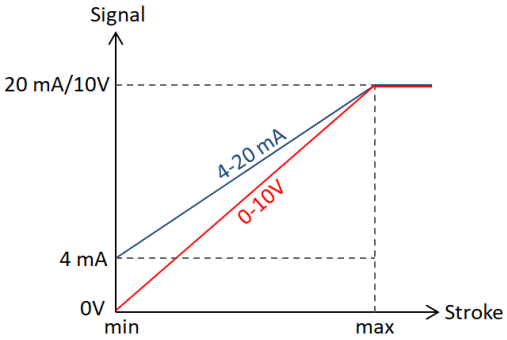
Measuring Type	Potentiometric		
Output Signals	Potentiometric	0 … 10 V	4 … 20 mA
Resistance	5 KΩ (standard), 10 KΩ	-	-
Supply Voltage	42V max.	12…30 VDC	12…30 VDC
Reverse polarity protection	Yes		
Short circuit protection	Yes		
Electrical Connection	3x0,14 mm^2 shielded cable or M12 connector (optional others)		

0-10V or Potentiometer Connection

Signal	Cable Color	M12 5 pin male connector
Earth	Silver	Pin 1
+V	Red	Pin 2
0V	Black	Pin 3
0-10V / Pot	Yellow	Pin 4
-	-	Pin 5

4-20 mA Connection

Signal	Cable Color	M12 5 male connector
Earth	Silver	Pin 1
+V	Red	Pin 2
-	-	Pin 3
4-20 mA	Yellow	Pin 4
-	-	Pin 5



* 1 pcs M12 5 pin male connector is used as standard.
* Different connector models can be requested optionally.

ORDER CODE

Model

Resistance (1)
No Code: Analog output
5K: 5 KΩ (standard)
10K: 10 KΩ

Cable or Connector Direction
B : From backside
S : From side

Protection Class
No code : IP54 (std)
E067 : IP67

AWP 404	-	XXXX	-	XXX	-	XXX	-	X	-	X	-	XXXX

Stroke Length
Different measuring lengths between 0…1000 mm and 0…4000 mm

Electrical Connection(2)
3M : 3 m cable
5M : 5 m cable
10M : 10 m cable
S13F : M12 5 pin female conn.
S13M : M12 5 pin male conn.

Output Signals
No Code : Potentiometric
V : 0-10 VDC
A : 4-20 mA

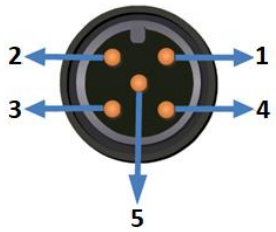
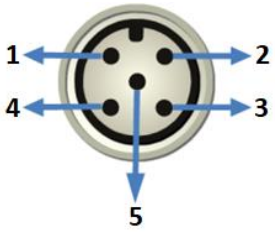
(1) For products with analog output, resistance value is not selected. Please contact for other resistance options for potentiometric output products.
(2) The product can be requested with cable or connector.
As standard 1 pcs M12 5 pin male connector (S13M) is used.
Please contact us for other connector model requests.

Sample 1 (Potentiometric output): AWP 404-4000-5K-S13M-S
AWP 404 series, 4000 mm stroke, 5K resistance, M12 5 pin male connector, side connector outlet, potentiometric output
Sample 2 (Analog output): AWP 404-4000-3M-S-A
AWP 404 series, 4000 mm stroke**,** 3 meters cable output, side cable outlet, current output

CANopen OUTPUT

Measuring Type	Potentiometric
Device Type	CANopen, CiA DS406
Communication profile	CiA 301
Node ID	Between 1 and 127, it can be adjusted with LSS or SDO
Baud Rate	10 kBit/s, 20 kBit/s, 50 kBit/s, 100 kBit/s, 125 kBit/s, 250 kBit/s, 500 kBit/s, 800 kBit/s, 1
PDO Data Rate	500 ms
Error Control	Heartbeat, Emergency Message
PDO	2 Tx PDO
PDO Modes	Event/Time triggered, Synch/Asynch
SDO	1 server
Position Information	Object Dictionary 6004
Termination Resistance	Optional, specify at the order stage.
Supply Voltage	10…30 VDC
Reverse polarity protection	Yes
Short circuit protection	Yes
Electrical Connection	6x0,34 mm^2 twisted shielded cable or M12 5 pin male + M12 5 pin female connector

***Click for CANopen EDS (electronic datasheet).**

Signal	Cable Color	M12 5 pin male connector	M12 5 pin female connector
			
CAN_SHIELD	Silver (mesh)	Pin 1	
+V (10…30 VDC)	Red	Pin 2	
GND (0V)	Black	Pin 3	
CAN_H	Yellow	Pin 4	
CAN_L	Green	Pin 5	

* CANopen models have 2 outputs. 1 pcs M12 5 pin male and 1 pcs M12 5 pin female connectors are used as standard.
***** Different connector models can be requested optionally.

ORDER CODE

Model

Electrical Connection (1)
3M : 3 m cable
5M : 5 m cable
10M : 10 m cable
S13FM: M12 5 pin female + M12 5 pin male conn.

Output Signal
C : CANopen

AWP 404	-	XXXX	-	XXXX	-	X	-	X	-	XXXX

Stroke Length
Different measuring lengths between 0…1000 mm and 0…4000 mm

Cable or Connector Direction
B : From backside
S : From side

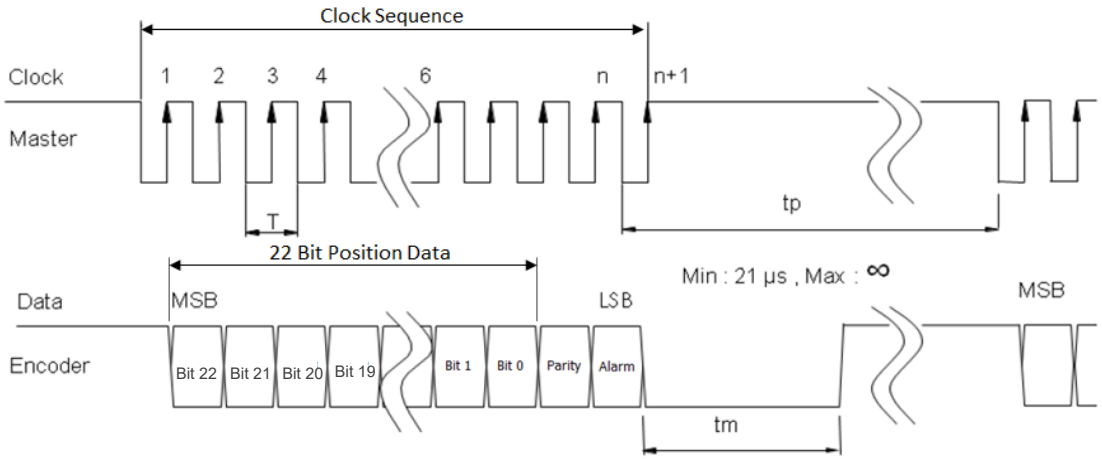
Protection Class
No code : IP54 (std)
E067 : IP67

(1) The product can be requested with cable or connector.
As standard;
1 pcs. M12 5 pin female + 1 pcs. M12 5 pin male connector (S13FM) is used.
Please contact us for other connector model requests.

SSI OUTPUT

Measuring Type	Potentiometric
Signal Output	SSI 24 bit
Encoding	Gray
Parity	Even or Odd
Data update rate	500 Hz (2 ms)
Frame Format	MSB First -[22 Bit Position] +[1 Bit Parity] + [1 Bit Alarm] - LSB
Max. Cable Length	13m @2 MHz, 44m @1 MHz, 85m @600 kHz, 300m @200 kHz, 750m @80 kHz It is recommended to use twisted pair cables that comply with the RS-422 standard.
Physical Interface	RS-422
Max clock rate	2 MHz
Monoflop time (tm)	20 µs
Resolution	16 bit
Independent Linearity	≤ ± %0.5
Supply voltage	6 - 33 VDC
Overvoltage protection	36 V
Current consumption without load	12 mA typ.
Current consumption	30 mA typ.
Power consumption without load	0.3 Watt @ 24VDC
Initializing time	<250 ms (after powered)
Supply polarity protection	Yes
Short circuit protection	Yes (Short circuit to 0V, when power supply is applied correctly)
Output Load	120 ohm

➢ SSI TIMING DIAGRAM



T = Clock Signal Period
tp = Pause time
tm = Monoflop Time

MSB = Most Significant Bit
LSB = Least Significant Bit

Tm = 20 ± 1 µs

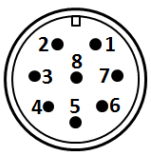
If the device resolution is less than 22 Bits, the remaining bit fields from the MSB are filled with 0.

The device indicates this situation with the Alarm bit when it is turned on after the locking state.

Alarm: If 1, there is an alarm
If 0, there is no alarm

MCU lock up alarm

MCU watchdog alarm

M12 / 8 pin male connector 	**Cable Color**	**Signal**
1	Red	+VDC
2	Black	GND
3	Yellow	Data +
4	Green	Data -
5	White	Clock +
6	Blue	Clock -
7	N/C	N/C
8	N/C	N/C

ORDER CODE

Model

Electrical Connection (1)

3M : 3 m cable
5M : 5 m cable
10M : 10 m cable
S14M: M12 8 pin male conn.

Electrical Interface

SSI: SSI

Protection Class

No code : IP54 (std)
E067 : IP67

AWP 404	-	XXXX	-	XXX	-	X	-	XXX	-	X	-	XXXX

Stroke Length

Different measuring lengths between 0…1000 mm and 0…4000 mm

Cable or Connector Direction

B : From backside
S : From side

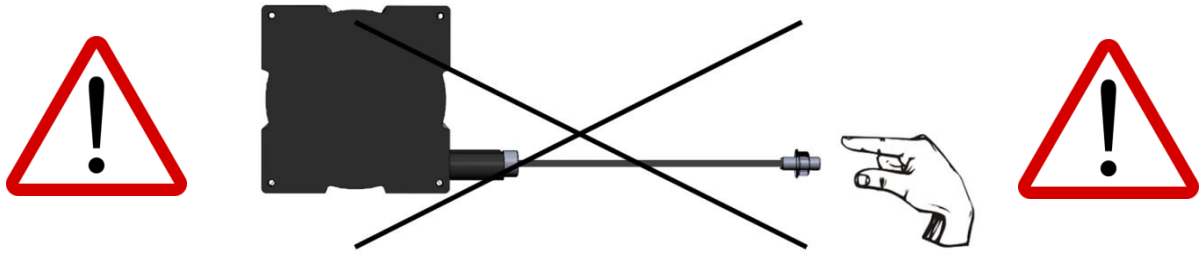
Output Signal

24G : SSI 24 bit, Gray

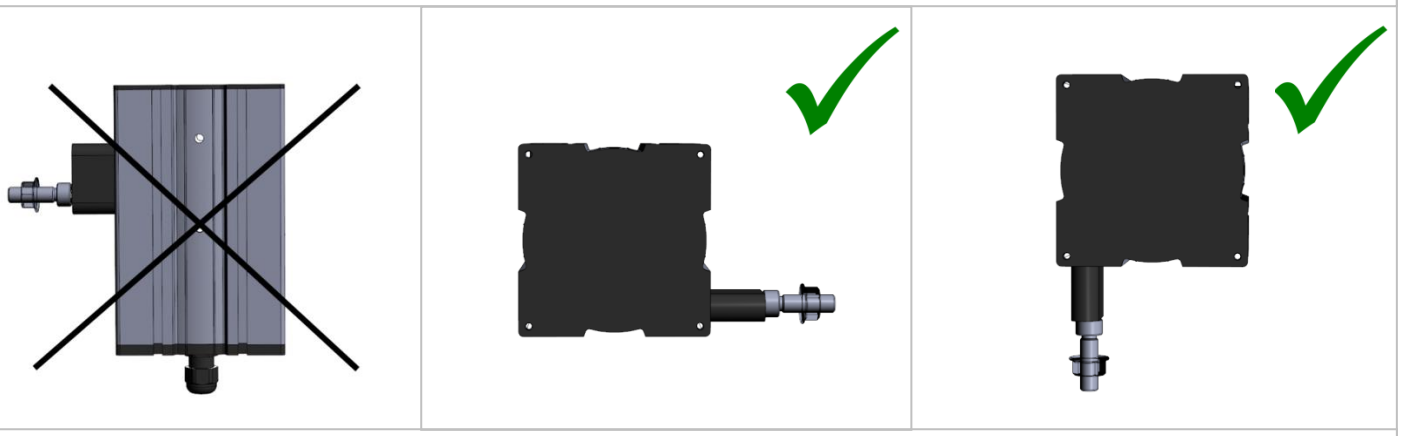
(1) The product can be requested with cable or connector.
As standard;
1 pcs. M12 8 pin male connector (S14M) is used.
Please contact us for other connector model requests.

MOUNTING AND WARNINGS

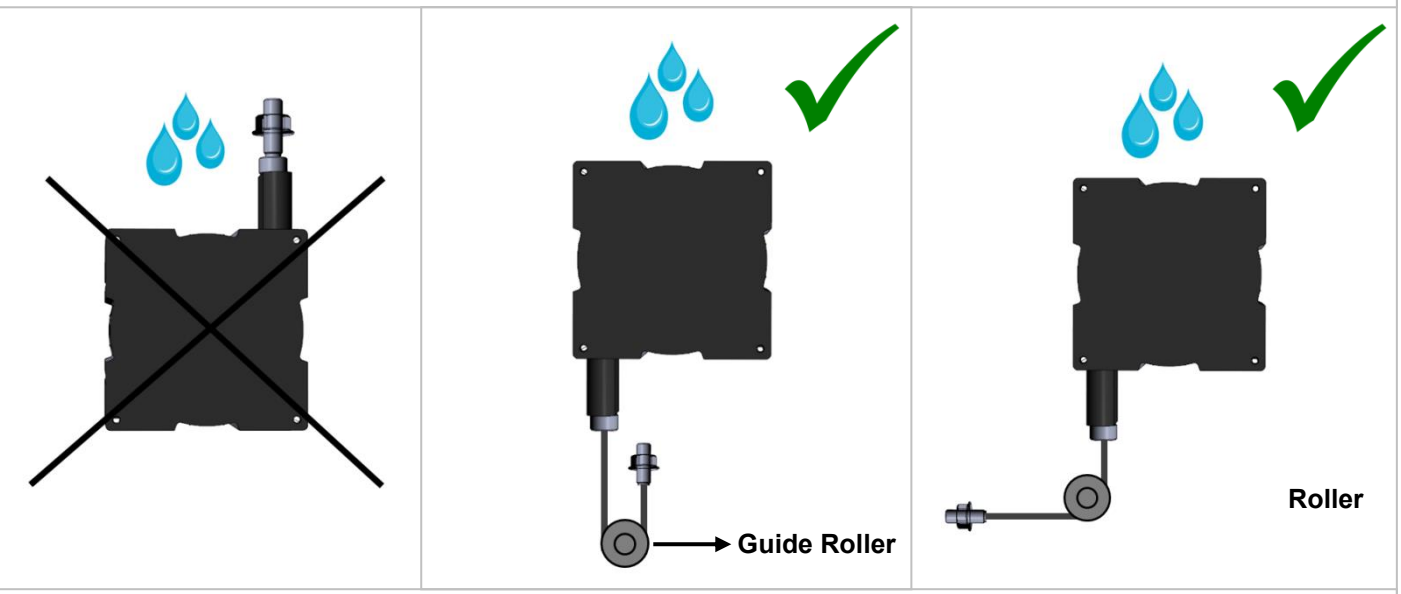
1. Never release the wire after pulling. Otherwise, the coil spring will be damaged.



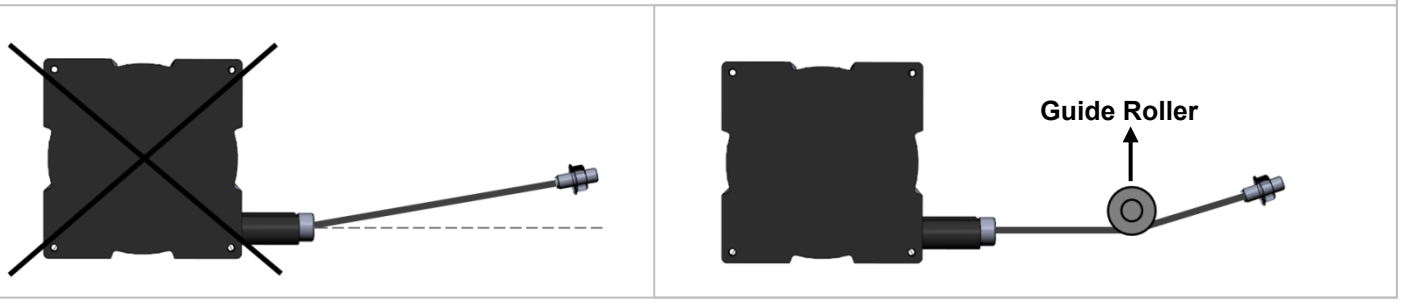
2. Mount the sensor according to the mounting directions shown below.



3. If there is a trickle of water (like a rain), the wire outlet must not be a drip of water upstream. If needed please use guide rollers.



4. The wire should not be pulled in angular. If needed, please use guide rollers.



Important Note(!): Failure to comply with these recommendations, the malfunctions that may occur will not be under the warranty.