



# SJE RHOMBUS.<sup>®</sup>

## SUB-X™ Submersible Level Transmitter Installation Instructions

**A WARNING**
**ELECTRICAL SHOCK HAZARD**

Disconnect power before installing or servicing this product. A qualified service person must install and service this product according to applicable electrical and plumbing codes.


**A WARNING**
**EXPLOSION OR FIRE HAZARD**

Do not use this product with flammable liquids. Do not install in hazardous locations as defined by National Electrical Code, ANSI/NFPA 70.



Failure to follow these precautions could result in serious injury or death. Replace product immediately if cable becomes damaged or severed. This product must be installed in accordance with National Electric Code, ANSI/NFPA 70 so as to prevent moisture from entering or accumulating within boxes, conduit bodies, fittings, or cable. Keep these instructions after installation.

### IMPORTANT INFORMATION

- Applications: sewage and effluent lift stations, stormwater pump stations, non-potable water systems, tanks, wet wells, and reservoirs.
- SJE Rhombus<sup>®</sup> recommends the use of a desiccant filter or bellows to protect against moisture entering the vent tube.
- Do not bend cable radius smaller than 1.5 inches (38 mm) to avoid kinking the vent tube.
- When installing, lower the transmitter slowly and avoid impact with objects in the wet well.
- Do not press against the transmitter diaphragm with a sharp object.

### SPECIFICATIONS

- Measuring Ranges: 3.62 PSI (8.36 ftWC), 7.25 PSI (16.7 ftWC), and 14.50 PSI (33.4 ftWC)
- Accuracy: 1% full scale
- Operating Temp: 32-122°F (0-50°C)
- Output: 4-20 mA, loop powered
- Excitation Voltage: 8-32 VDC reverse polarity protection
- Overpressure Protection: 58 PSI (133.6 ftWC)
- IP Rating: IP 68 for permanent submersion
- Wetted Materials:
  - Sensor Housing: PVC
  - Cable Seal: EPDM
  - Diaphragm: VITON<sup>®</sup>, 1.25" diameter (32mm)
  - Cable: TPE, 18 AWG - 2 wire shielded with vent tube, 0.3" diameter (8mm)

SUB-X™ Analog Input Scaling Table

mA	%	TRANSMITTER 0-8.36 ftWC		TRANSMITTER 0-16.7 ftWC		TRANSMITTER 0-33.4 ftWC	
		Ft (cm)	In (mm)	Ft (cm)	In (mm)	Ft (cm)	In (mm)
20	100	8.33 (245)	100 (2450)	16.7 (509)	200 (5090)	33.4 (1180)	400 (10180)
16	75	6.25 (190.5)	75 (1905)	12.5 (382)	150 (3820)	25 (764)	300 (7635)
12	50	4.16 (127)	50 (1270)	8.4 (254)	100 (2540)	17 (508)	200 (5090)
8	25	2.08 (63.5)	25 (635)	4.2 (127)	50 (1270)	8.5 (254)	100 (2540)
4	0	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)

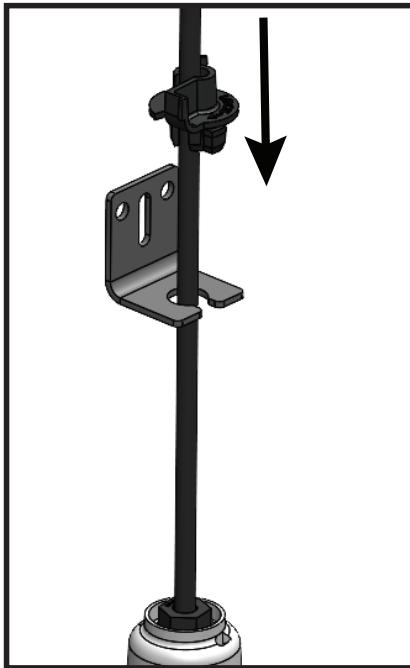
## MOUNTING BRACKET

The SUB-X™ Transmitter is supplied with a stainless steel mounting bracket and a strain relief cord grip.

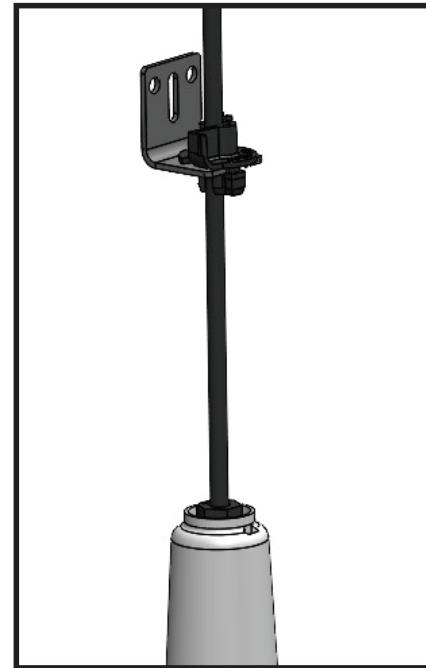
Step 1



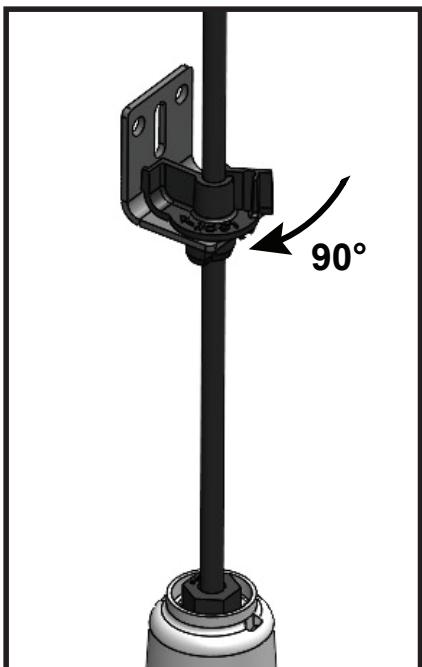
Step 2



Step 3



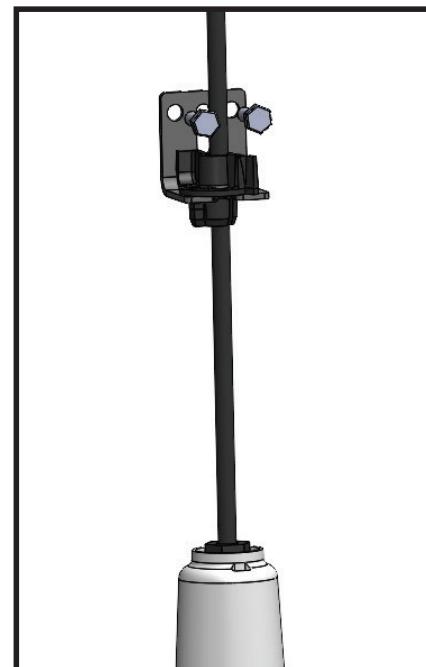
Step 4



Step 5 (option 1)



Step 5 (option 2)

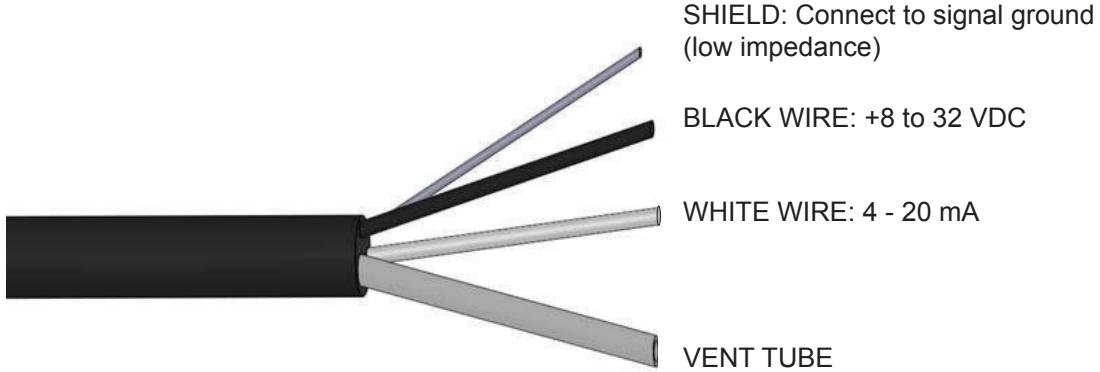


## INSTALLATION

- Anchoring:** Install the SUB-X™ in a stilling well when possible, to prevent damage from impact. It is acceptable to suspend the transmitter without a protective stilling well provided extra care is taken to prevent damage to the transmitter and cable. Do not mount the transmitter to a pump or piping.
- Submersion:** Damage to the cable will lead to failure of the transmitter. The SUB-X™ cable has a rugged jacket material to minimize the risk of cuts and abrasions. Carefully lower your transmitter into the well, make sure the cable does not contact sharp edges. Do not drop the transmitter.
- Condensation Protection:** The size of the vent tube is designed to minimize the intrusion of water vapor when the cable is terminated inside a clean and dry control panel. In areas of high humidity, use a drying tube (desiccant) or bellows to prevent water vapor from entering the vent tube. Contact SJE Rhombus® for ordering information. Never terminate the transmitter cable in a junction box in the wet well.
- Cable:** The SUB-X™ cable is flexible; however, the vent tube inside the cable must not be kinked during installation. Do not bend cable to a radius smaller than 1.5 inches (38 mm). If a liquid tight cord grip is used with the transmitter cable, do not over tighten. This may cause damage to the cable and restrict the vent tube.
- Mounting position:** The SUB-X™ must be installed in a vertical position with cable on top.

## ELECTRICAL CONNECTION

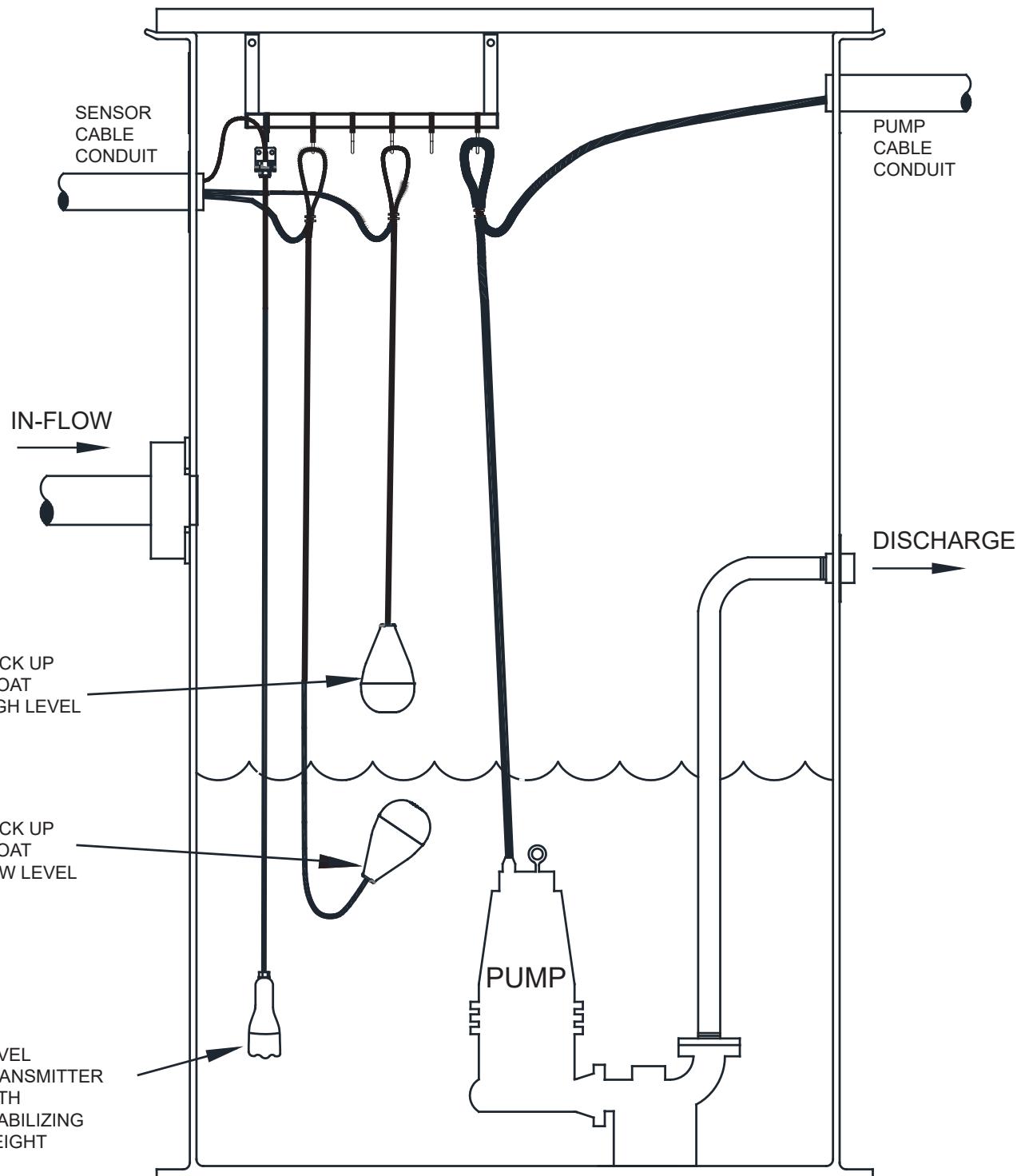
The SUB-X™ is a loop transmitter (2-wire) designed to operate within a specific voltage range.



## MAINTENANCE

- Periodically check the cable and housing for damage.
- Carefully remove excessive buildup on sensor.
- Periodically check the operation and output signal of the transmitter.
- Replace the product immediately if any damage is found or suspected.
- Use only SJE Rhombus® replacement parts.

## TYPICAL LIFT STATION WITH TRANSMITTER AND FLOAT BACK UP



### **WARNING:**

Keep floats and transmitter clear of pumps, pipes, and motor cables.

Ensure floats and transmitter cannot reach pump suction.

Do not run pump and level sensor cables in the same conduit.

PART NUMBER	DESCRIPTION	DATE INSTALLED
1107758	XMTR, SUB-X 8.3 - 25, INTERNAL WEIGHT	
1107759	XMTR, SUB-X 8.3 - 50, INTERNAL WEIGHT	
1107760	XMTR, SUB-X 8.3 - 75, INTERNAL WEIGHT	
1107761	XMTR, SUB-X 8.3 - 100, INTERNAL WEIGHT	
1107762	XMTR, SUB-X 8.3 - 150, INTERNAL WEIGHT	
1107763	XMTR, SUB-X 16.7 - 25, INTERNAL WEIGHT	
1107764	XMTR, SUB-X 16.7 - 50, INTERNAL WEIGHT	
1107765	XMTR, SUB-X 16.7 - 75, INTERNAL WEIGHT	
1107766	XMTR, SUB-X 16.7 - 100, INTERNAL WEIGHT	
1107767	XMTR, SUB-X 16.7 - 150, INTERNAL WEIGHT	
1107768	XMTR, SUB-X 33.4 - 25, INTERNAL WEIGHT	
1107769	XMTR, SUB-X 33.4 - 50, INTERNAL WEIGHT	
1107770	XMTR, SUB-X 33.4 - 75, INTERNAL WEIGHT	
1107771	XMTR, SUB-X 33.4 - 100, INTERNAL WEIGHT	
1107772	XMTR, SUB-X 33.4 - 100, INTERNAL WEIGHT	

\*Backed by a 2-year limited warranty.



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