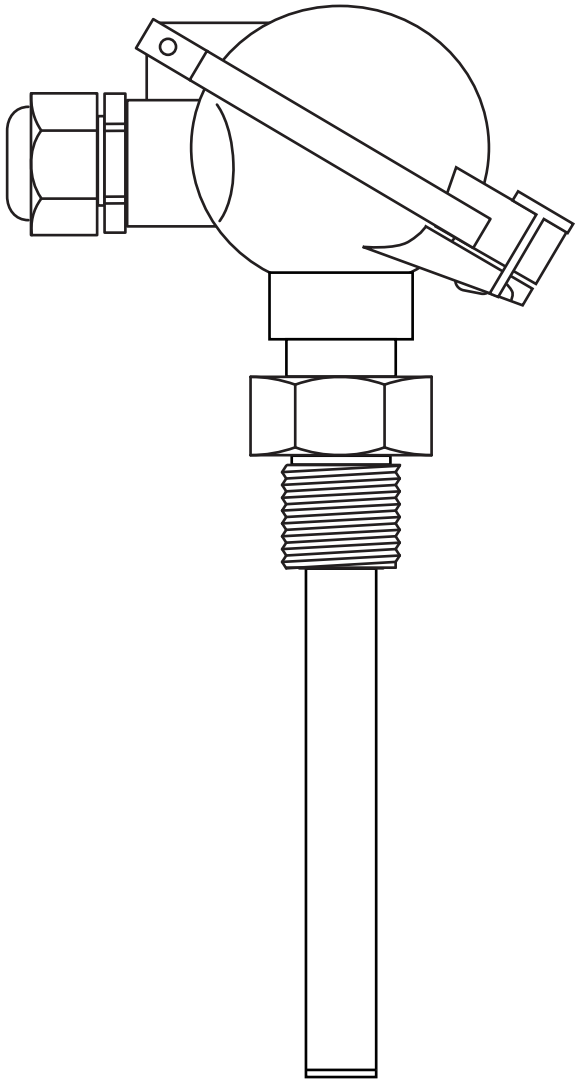
Advantage Controls — Manual

AC-FS-1000 Fouling Sensor *by Neosens*



Quick User Manual Installation Guide

Installation Instructions:

1. Install the probe on pipe. (see page 2)
2. Remove the screw from the sensor head.
3. Open the sensor head in a dry environment, away from water and humidity.
4. Unscrew seal connector and pass through the 6 wire cable (1 pair for power, 2 pairs for analog outputs).
5. Wire the 3 pairs following opposite schematics
6. Pull on cable and tighten the seal connector. Set jumper to organic or inorganic depending upon fouling most likely to experience based on installation point. (see page 3 & 4)
   (**Note**: Sensor cannot distinguish between organic and inorganic fouling)
7. Close the sensor head.
8. Reposition screw and tighten.

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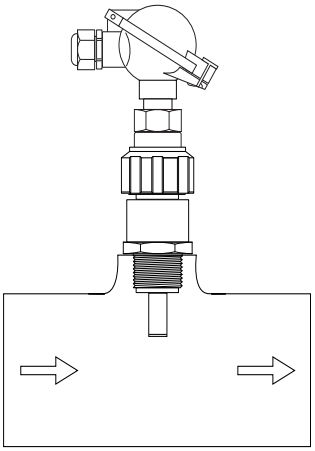
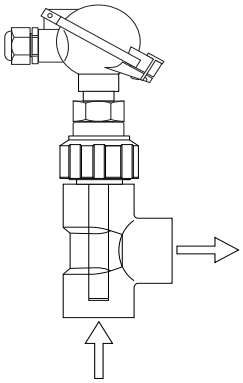
Analog Output	Measurement	Type	Range
#1	Biofilm/fouling thickness	Active 4-20mA @ 250 Ohms	0 to 1 or 5mm (0 to 0.039 or 0.197 in)
#2	Temperature	Active 4-20mA @ 250 Ohms	0 to 160°C (32 to 320°F)

Mounting Diagrams:

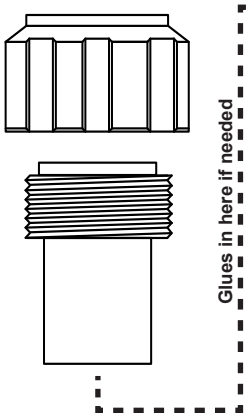


Direct Pipe Thread Mounting with included Adapters A and B (on existing pipe)

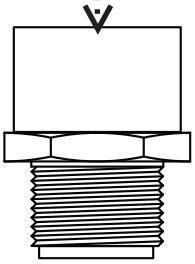


Tee Mounting with included Adapter A (tee not included)

Included Accessories:



Adapter A (1” male slip)



Adapter B (1” MNPT x 1” slip) Must be used in conjunction with Adapter A

Installation Notes

The sensor cannot distiguish between organic (biofouling) and inorganic (scale) fouling, but the type of fouling is influenced by the installation location.

Install the sensor in a cool, low flow area for monitoring biofouling.

Install the sensor immediately after the heat exchanger in the hottest part of the system for monitoring scale fouling.

Note: The PVC quick release adaptor may not have a temperature rating suitable for this installation point.

Set the jumper configuration shown on front page accordingly.

Specifications

Electrical:

- Input: 8-18 VDC @ 60mA
- Output: 4-20mA (500 Ω)

Environment:

- Ambient temperature - 0 to 180°F (without PVC adapter)
- Relative humidity - 0 to 100%
- Pressure - 125 PSI Max

Fouling Monitoring: 0-1 mm (0 to 0.039 in)

Accuracy: 1% of Full scale

Material: PEEK (body) & 316L SS (sensor tip)

Connection: Sensors are supplied with a 1” (2.54 cm) slip and a 1” MNPT PVC quick release adaptor. The PVC adaptor has a maximum temperature rating of 125°F.

- Peak sensor body has 1/2” straight BMPT

Shipping Weight: 4 lbs (1.814 kg)

Sensor Length: 9.375” (23.8 cm)
Insertion Depth: Approx. 3.375” (8.57 cm)

Jumper Settings & Wiring Diagram for MegaTron Connection

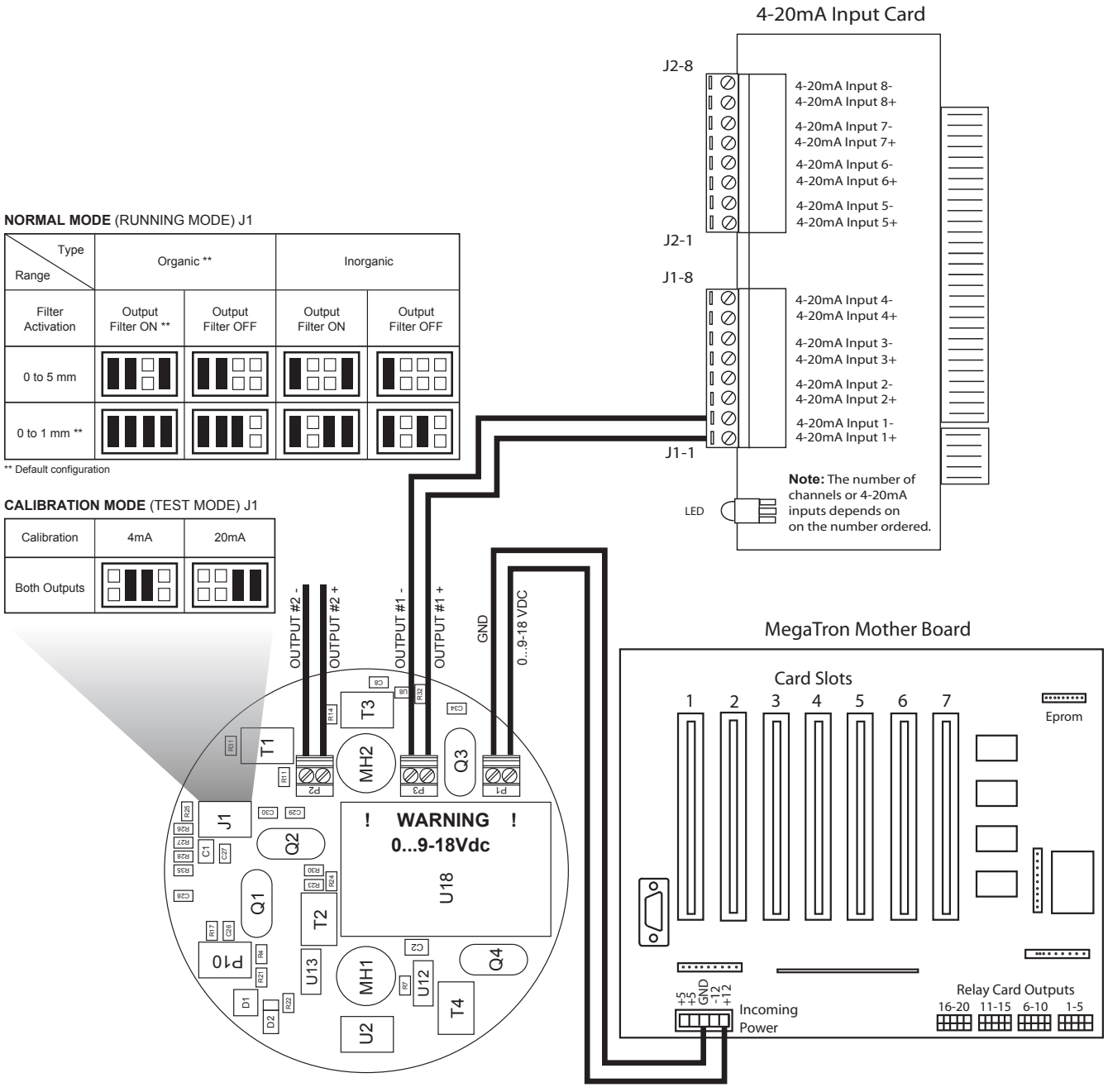
NORMAL MODE (RUNNING MODE) J1

Type / Range	Organic **		Inorganic	
Filter Activation	Output Filter ON **	Output Filter OFF	Output Filter ON	Output Filter OFF
0 to 5 mm				
0 to 1 mm **				

** Default configuration

CALIBRATION MODE (TEST MODE) J1

Calibration	4mA	20mA
Both Outputs		



Jumper Settings & Wiring Diagram for MegaTron SS Connection

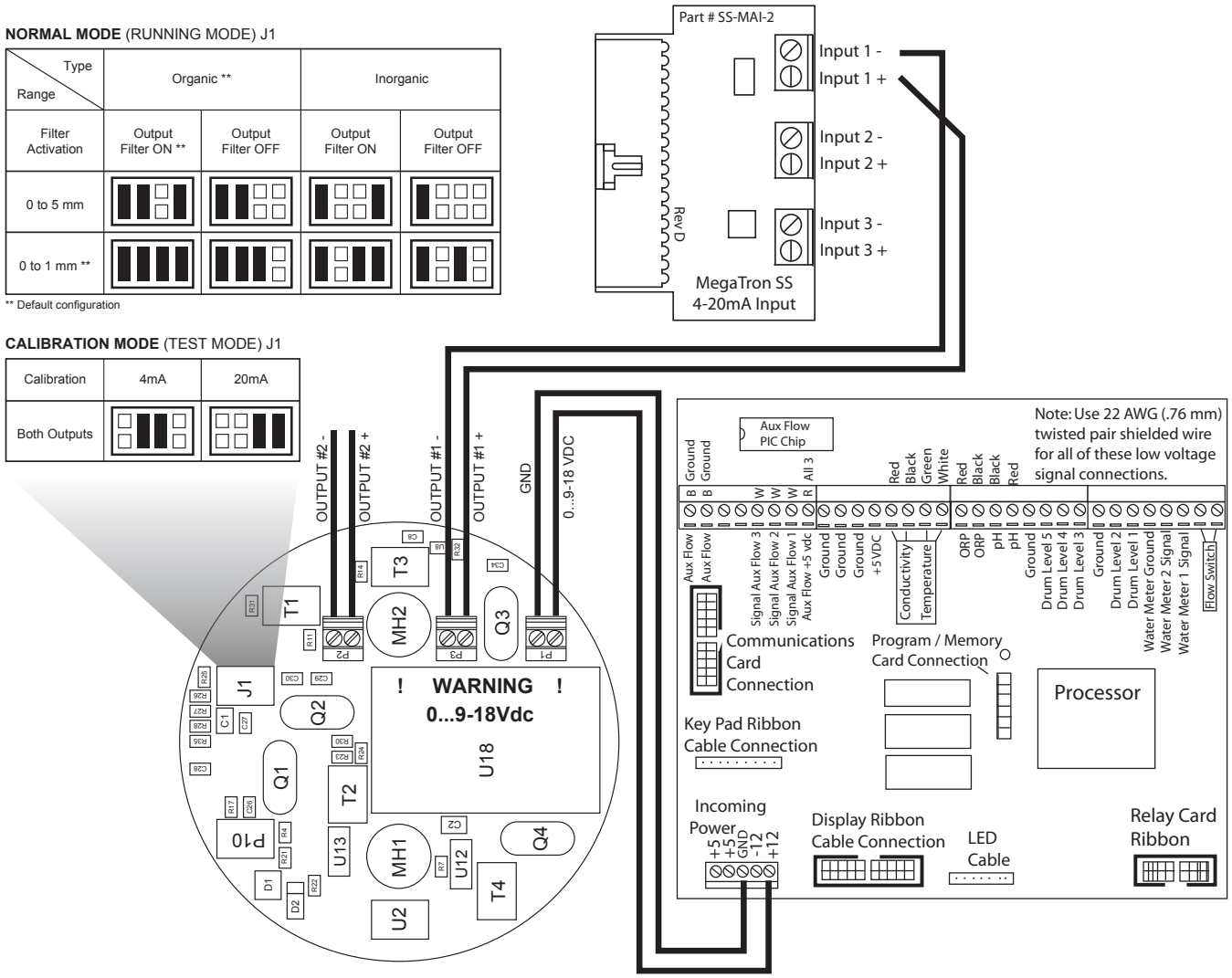
NORMAL MODE (RUNNING MODE) J1

Type / Range	Organic **		Inorganic	
Filter Activation	Output Filter ON **	Output Filter OFF	Output Filter ON	Output Filter OFF
0 to 5 mm				
0 to 1 mm **				

** Default configuration

CALIBRATION MODE (TEST MODE) J1

Calibration	4mA	20mA
Both Outputs		



MegaTron Menus • Customize Setup

Step 1:
First, push the **SET UP RUN** button to get this screen. From here push the **CUSTOMIZE** (Button 4) to go to the next screen.

```
          >HOME SETUP<

SETPOINTS                DATE/TIME
CALIBRATION              CONFIGURE
TIMERS                     HISTORY
CUSTOMIZE              WATER METER
ALARMS                      RELAYS
```

Step 2:
This is the Customize Screen. From here push the **mA IN** (Button 9) to go to the next screen.

```
          >CUSTOMIZE<

UNIT NAME
RELAY NAMES                NOTEPAD
SYS NAME
INPUT NAMES                 mA IN
                         RUN SCREEN
```

Step 3:
This is the mA IN screen. From here push **INPUT 1 OR 2** (Button 1 or 2) then go to the next screen.

```
      >CUSTOMIZE mA INPUTS<

INPUT 1
INPUT 2
```

Step 4:
This is the Customize mA Input 1 Screen. From here push the **NAME** (Button 1) to go to the next screen.

```
      >CUSTOMIZE mA INPUT 1<

NAME      FOULING
UNITS     mm
NUMBER    x.xxx
```

Step 5:
This is the Customize mA Name screen. From here enter the name of the mA Input (i.e. FOULING) by using the Arrow buttons. Then press **ENTER** to confirm and return to the previous screen.

```
      >CUSTOMIZE mA INPUT 1<

NAME      FOULING
UNI
NUM
   mA INPUT 1 NAME
            [FOULING        ]
   USE ARROW KEYS TO CHANGE, PRESS
   ENTER TO ACCEPT OR BACK TO ERASE
```

Step 6:
From here push the **UNITS** (Button 2) to go to the next screen.

```
      >CUSTOMIZE mA INPUT 1<

NAME      FOULING
UNITS     mm
NUMBER    x.xxx
```

Step 7:
This is the Customize mA Units screen. From here select the type of units (i.e. mm) by using the Arrow buttons. Then press **ENTER** to confirm and return to the previous screen.

```
      >CUSTOMIZE mA INPUT 1<

NAME      FOULING
UNI
NUM
   TYPE OF UNITS
                -> mm
   USE UP/DOWN KEYS TO CHANGE
   PRESS ENTER TO ACCEPT
```

Step 8:
From here push the **NUMBER** (Button 3) to go to the next screen.

```
      >CUSTOMIZE mA INPUT 1<

NAME      FOULING
UNITS     mm
NUMBER    x.xxx
```

Step 9:
This is the Customize mA Number Format screen. From here select the number format (i.e. x.xxx) by using the Arrow buttons. Then press **ENTER** to confirm and **HOME** to return to the Home screen.

```
      >CUSTOMIZE mA INPUT 1<

NAME      FOULING
UNI
NUM
   NUMBER FORMAT
              -> X.XXX
   USE UP/DOWN KEYS TO CHANGE
   PRESS ENTER TO ACCEPT
```

MegaTron Menus • Calibration Setup

Step 1:
First, push the **SET UP RUN** button to get this screen. From here push the **CALIBRATION** (Button 2) to go to the next screen.

```
          >HOME SETUP<

SETPOINTS                DATE/TIME
CALIBRATION              CONFIGURE
TIMERS                     HISTORY
CUSTOMIZE              WATER METER
ALARMS                       RELAYS
```

Step 2:
This is the Calibration Screen. From here push the **mA IN** (Button 7) to go to the next screen.

```
          >CALIBRATION<

SENSORS                      mA OUT
                             mA IN
```

Step 3:
This is the Curren Loop Calibration screen. From here push **INPUT 1 OR 2** (Button 1 or 2) then go to the next screen.

```
    >CURRENT LOOP CALIBRATION<

INPUT 1
INPUT 2
```

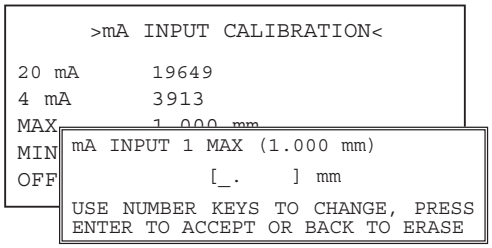
Step 4:
This is the mA Input Calibration Screen. From here choose the **MAX or MIN** (Button 3 and 4) to go to the next screen.

```
      >mA INPUT CALIBRATION<

20 mA      19649
4 mA       3913
MAX        1.000 mm
MIN        0.000 mm
OFFSET     Enabled
```

Step 5:
This is the mA Input MAX screen. From here adjust the MAX reading by using the number keys (MAX should be set to 1.000 mm and MIN should be set to 0.000 mm). Then press **ENTER** to confirm and return to the previous screen.

Note: All other mA Input Calibration settings can be adjusted in the same fashion beginning at Step 4.



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