USER'S GUIDE

Installation & Operation Instructions

Open Channel Flow Monitor
Model UF OC5000
Manual Series A.1.1

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INDEX

IMPORTANT NOTE: This instrument is manufactured and calibrated to meet product specifications. Please read this manual carefully before installation and operation. Any unauthorized repairs or modifications may result in a suspension of the warranty.

Available in Adobe Acrobat pdf format

CONNECTIONS:

POWER INPUT: The standard model requires AC power input between 100 to 240 VAC 50/60Hz. No adjustments are necessary for voltages within this range.

Optional DC: 9-32 VDC. Connect to + and - terminals.

Optional Thermostat and Heater modules are available rated for 115 VAC or 230 VAC.

IMPORTANT NOTE: To comply with CSA/UL electrical safety standards, AC power input and relay connection wires must have conduit entry to the instrument enclosure. Installation requires a switch, overcurrent fuse or circuit breaker in the building (in close proximity to the equipment) that is marked as the disconnect switch.
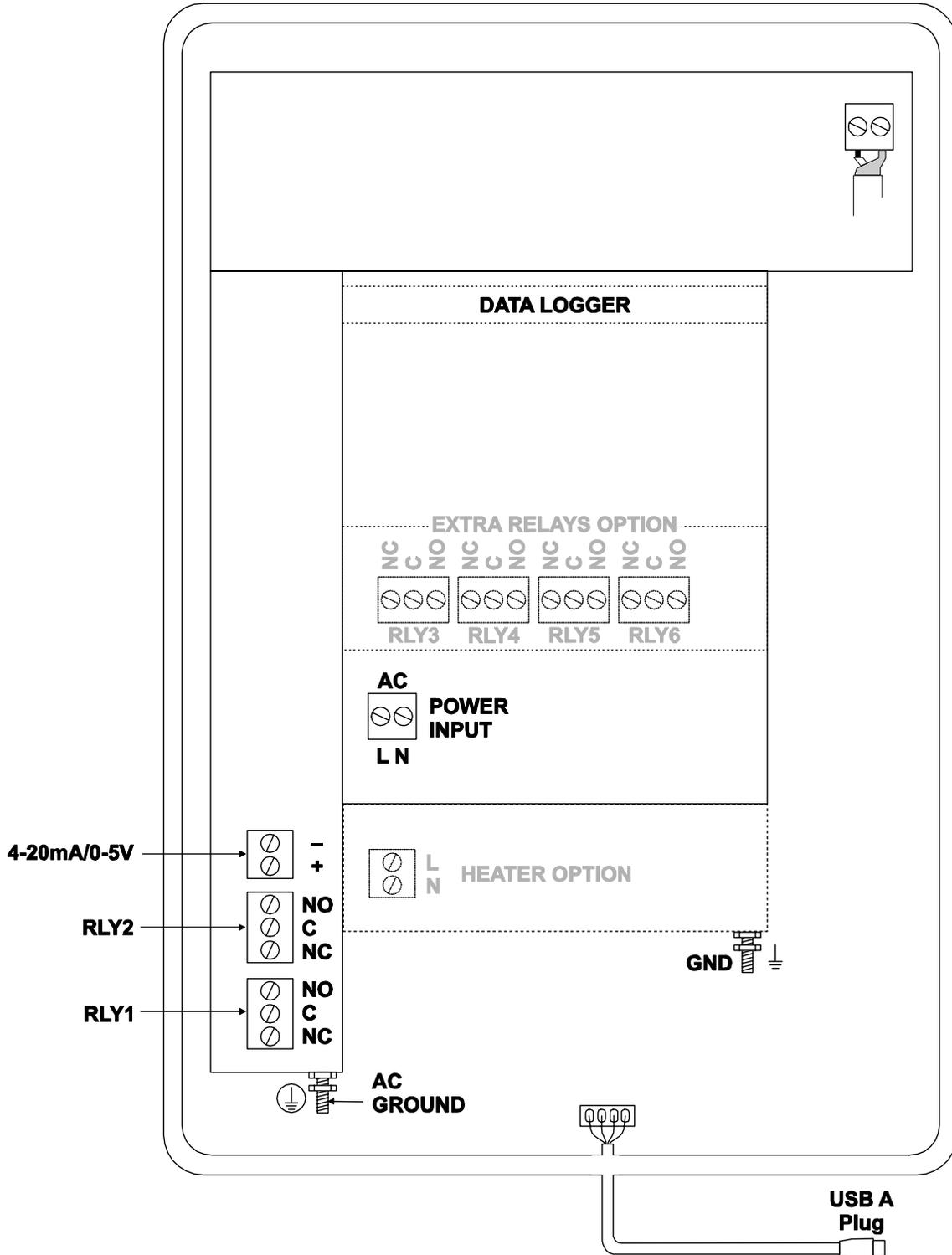
⚠ Risk of electric shock. Loosen cover screw to access connections. Only qualified personnel should access connections.

Note: Use of instrumentation over 40°C ambient requires special field wiring.

Note: User replaceable fuse is 2 Amp 250V (T2AL250V).

CONNECTIONS

DATA LOGGER

EXTRA RELAYS OPTION

NC	C	NO	NC	C	NO	NC	C	NO	NC	C	NO

RLY3   RLY4   RLY5   RLY6

AC
POWER INPUT
L N

4-20mA/0-5V   **−** **+**

L
N   HEATER OPTION

RLY2   **NO** **C** **NC**

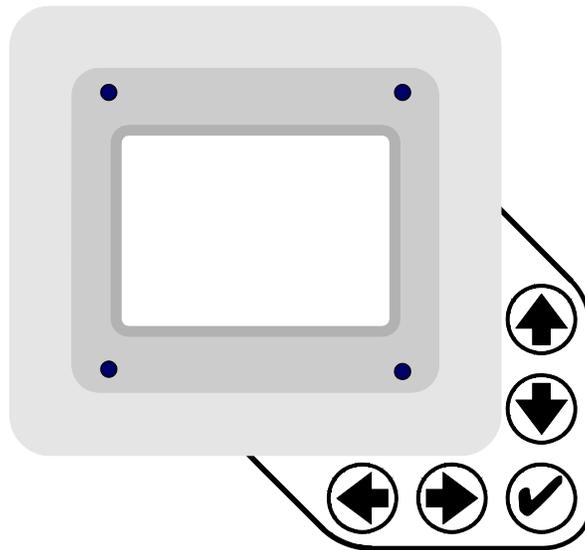**GND**

RLY1   **NO** **C** **NC**
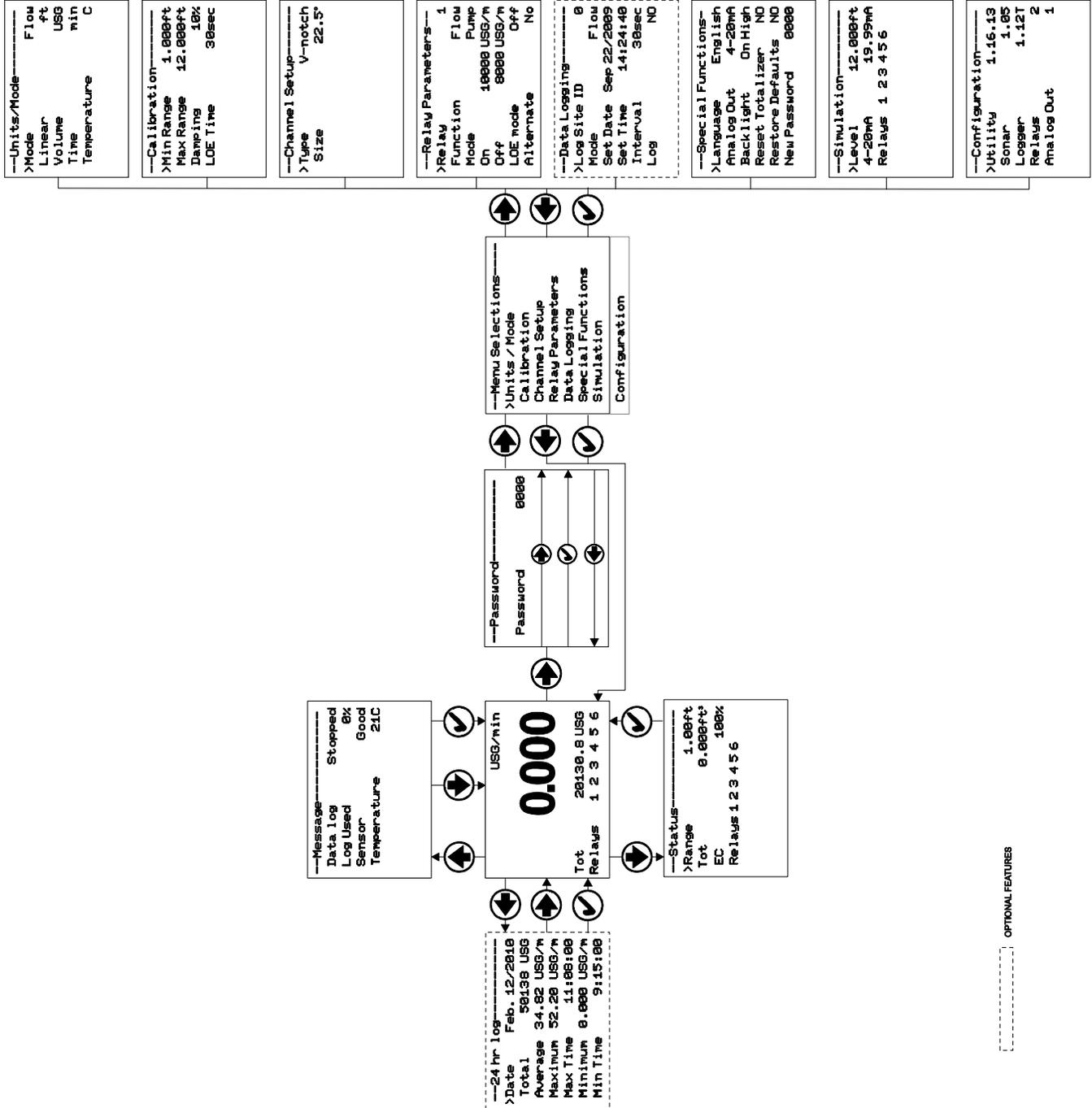
AC GROUND

USB A Plug

KEYPAD SYSTEM

The UF OC5000 uses a menu system. Arrows show the four directions to leave a menu box. Press a key to move to the next item in the direction shown. Move the cursor (underline) under numerals and increase or decrease numerals with the ⬆ and ⬇ keys.

To store calibration values permanently (even through power interruptions), press ✓.

CALIBRATION MENU


```
---Units/Mode---
>Mode           Flow
 Linear         ft
 Volume         USG
 Time           min
 Temperature    C
```

```
---Calibration---
>Min Range   1.000ft
 Max Range  12.000ft
 Damping       10%
 LOE Time     30sec
```

```
---Channel Setup---
>Type      V-notch
 Size        22.5°
```

```
---Relay Parameters---
>Relay          1
 Function     Flow
 Mode         Pump
 On      10000 USG/m
 Off      8000 USG/m
 LOE mode      Off
 Alternate     No
```

```
---Data Logging---
>Log Site ID    0
 Mode         Flow
 Set Date  Sep 22/2009
 Set Time  14:24:48
 Interval   30sec
 Log          NO
```

```
---Special Functions---
>Language      English
 Analog Out    4-20mA
 Backlight    On High
 Reset Totalizer   NO
 Restore Defaults  NO
 New Password    0000
```

```
---Simulation---
>Level      12.000ft
 4-20mA     19.99mA
 Relays  1 2 3 4 5 6
```

```
---Configuration---
>Utility    1.16.13
 Sonar        1.05
 Logger       1.12T
 Relays         2
 Analog Out     1
```

```
---Menu Selections---
>Units / Mode
 Calibration
 Channel Setup
 Relay Parameters
 Data Logging
 Special Functions
 Simulation
 Configuration
```

```
---Password---
 Password      0000
```

```
           USG/min
         0.000
 Tot      20130.8 USG
 Relays  1 2 3 4 5 6
```

```
---Message---
 Data log     Stopped
 Log Used        0%
 Sensor        Good
 Temperature    21C
```

```
---Status---
>Range       1.00ft
 Tot       0.000ft³
 EC           100%
 Relays 1 2 3 4 5 6
```

```
---24 hr log---
>Date    Feb. 12/2010
 Total     50130 USG
 Average  34.82 USG/m
 Maximum  52.20 USG/m
 Max Time  11:00:00
 Minimum  0.000 USG/m
 Min Time   9:15:00
```

OPTIONAL FEATURES

```
                    USG/min

       0.000

Tot           20130.8 USG
Relays      1  2  3  4  5  6
```

```
--Message------------
 Data log        Stopped
 Log Used             0%
 Sensor             Good
 Temperature         21C
```

```
--Status------------
>Range          1.00ft
 Tot          0.000ft³
 EC              100%
 Relays 1 2 3 4 5 6
```

```
--24 hr log-----------
>Date     Feb. 12/2010
 Total        50138 USG
 Average  34.82 USG/m
 Maximum  52.20 USG/m
 Max Time     11:08:00
 Minimum  0.000 USG/m
 Min Time      9:15:00
```

RUN

The main display shows the units selected from the Units/Mode menu, Level, Range, Flow, HRT, and Volume rate being measured, TOTALIZER and RELAY states. The UF OC5000 will start-up with this display and will return to this screen after a timeout if keys are not pressed in other menus.

MESSAGE

Press⬆ from the RUN display to view status of the data logger and error/warning messages provided by the instrument. The word `Message` will appear on the RUN display if error messages are being generated by the instrument. Refer to the manual section Error/Warning Messages for a description. Press ✓ to return to the main display.

STATUS

Press⬇ from the RUN display to view instrument status. Range will be displayed in linear units.

`Tot`   Displays the current totalizer reading.

`EC`   Displays echo confidence.

`Relays`   Energized relays will display as a white character on a black background.

24 HR LOG

Press⬅ from the RUN display to view a formatted flow report from instruments with a built-in data logger. Press ⬇ to scroll down one day or repeatedly to scroll to a specific date. Up to 365 days can be stored. Newest date will overwrite the oldest. Press ✓ to return to the main display.

```
--Password----------

Password          0000
          ➡
          ✔
  ◀       ◀
```
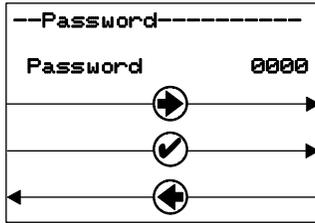
PASSWORD

The `Password` (a number from 0000 to 9999) prevents unauthorized access to the `Calibration` menu.

From the Run display press ➡ to get to `Password`. Factory default password is 0000 and if it has not been changed press the ✓ to proceed to the `Menu Selections` screen.

If a password is required, press ➡ to place the cursor under the first digit and ⬇ or ⬆ to set the number, then ➡ to the second digit, etc. Press ➡ or ✓ to proceed to the `Menu Selections` screen.

A new password can be stored by going to `Special Functions/New Password`.

```
--Units/Mode---------
>Mode              Flow
 Linear              ft
 Volume             USG
 Time               min
 Temperature          C
```

```
--Units/Mode---------
 Mode              Flow
>Linear              in
                     ft
                      m
                     mm
```

```
--Units/Mode---------

>Volume             USG
                    ft3
                    bbl
                      L
                     m3
                    IMG
                     IG
                   USMG
```

```
--Units/Mode---------
>Temperature          C
                      F
```

UNITS/MODE

From >Mode press the ➡ and then the ⬆ or ⬇ to select Level , Range, Flow , HRT or Volume .

Range   displays distance from the sensor to the target or liquid surface like a tape measure. Range mode is useful to measure the exact distance from the sensor to the zero level during calibration.

Level   used to measure tank level in linear units, or "Head" in an open channel for comparison with flow tables.

Volume   displays tank inventory in engineering units.

HRT   select Horizontal Round Tank mode to calculate and display volume units in a horizontal round tank.

Flow   calculates open channel flow through a flume or weir.

Volume ,HRT or Flow gives the additional choice of volumetric units:

ft3	-	cubic feet
USG	-	US gallons
USMG	-	US million gallons (FLOW only)
IG	-	Imperial gallons
IMG	-	Imperial million gallons (FLOW only)
m3	-	cubic meters
L	-	liters
bbl	-	U.S. oil barrel

Press ✓ to store the selection, then ⬇ to the next menu item and ➡ to enter.

Linear   press ➡ and then ⬆ or ⬇ to select units of measurement. Press ✓ to store the selection.

Temperature press ➡ then ⬆⬇ to select C or F (Centigrade or Fahrenheit).

Press ⬅or ✓ to return to the Menu Selections screen.

```
--Calibration--------
>Min Range    1.000ft
 Max Range   12.000ft
 Damping          10%
 LOE Time       30sec
```

CALIBRATION

Press ⬇ to `Calibration` and ➡ to enter. Use ⬇ or ⬆ to position ❯ before each menu item and ➡ to enter. When settings are completed press ✓ to store and return to the Calibration menu.

`MaxVol`   For Volume and HRT mode only. Enter the maximum volume of the vertical or horizontal tank.

`Damping`   Minimum damping allows fast response to level changes. Increasing damping slows the UF OC5000's response to level changes and is ideal to smooth the display and outputs in turbulent conditions. Damping value is shown in percent (0-99%). Some experimentation may be required to select the optimum damping value. A value of 1% is recommended for most applications and for fast level changes (up to ½ inch/sec - 13 mm/sec).

`LOE Time`   Press ➡ and ⬆ or ⬇ to change the number of seconds without receiving an echo before the UF OC5000 displays ECHO LOSS, and Control relays change state as calibrated under Relay Parameters.

Factory default is 30 seconds and is recommended for most applications, Minimum is 1 second and maximum is 99 seconds.

Press ✓ from the `Units/Mode` display to return to Menu Selections.

**TANK INVENTORY
LEVEL MODE**
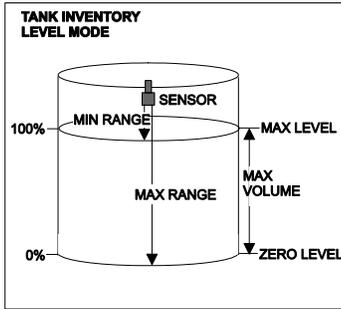
CALIBRATION
- for Level/Inventory Applications

1. Before starting the calibration determine:

    a) MAX RANGE = _____
       (Maximum range = distance from Sensor to Zero level)

b)   MAX LEVEL   = _____
       (Maximum level of product being measured)

c)   MIN RANGE   = _____
       (Distance from sensor to Max Level)
       Minimum range = MAX RANGE - MAX LEVEL
       (must be at least 203 mm / 8" depending on sensor model)

**TANK INVENTORY
RANGE MODE**
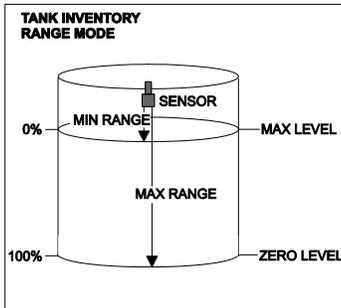
2. Check the maximum range with the sensor installed:

a)   When liquid is at zero level press ⬇ to view the Range reading in the
       Status menu. Use this range measured by the UF OC5000 as the `Max Range`
       setting.
       or
b)   Carefully measure distance from sensor to zero level with a tape measure,
       and use this measurement as the `Max Range` setting.

**TANK INVENTORY
HORIZONTAL ROUND TANK (HRT) MODE**
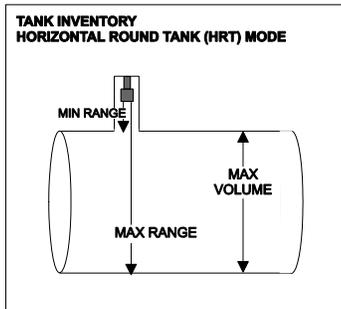
MINIMUM RANGE:

 In the `CALIBRATION`   menu

       - Press ⬇ to get to `Min Range`
       - Press ➡ to move the cursor under the digits
       - Use ⬇ or ⬆ to set the minimum range

Note: `Min Range` must be at least 30.5 cm (12") for PZ32T sensors, 40.6 cm (16")
for PZ52T and PZ34 sensors and 8" for PZ15 sensors. For correct tank
volume calculation in `Hrt` mode `Min Range` must be the actual distance from
the end of the sensor to the top of the tank.

MAXIMUM RANGE:

       Press ⬇ to get to `Max Range`
       Enter `Max Range` determined above.

PALMER BOWLUS

SENSOR

MIN RANGE

MAX LEVEL

MAX RANGE

ZERO LEVEL
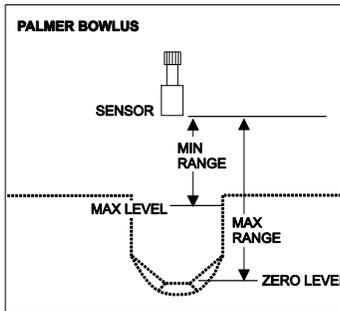
CALIBRATION
- for Open Channel Flow

1. Before starting the calibration determine:

a)   MAX RANGE   = _____
        (Maximum range = distance from the Sensor to Zero flow point)

b)   MAX LEVEL   = _____
        (Maximum level of flow through flume or weir)

c)   MIN RANGE   = _____
        (Distance from sensor to Max Level)
        Minimum range = MAX RANGE - MAX LEVEL
        (must be at least 20.3 cm / 8" depending on sensor model).

V-NOTCH

SENSOR

MIN RANGE

MAX LEVEL

MAX RANGE
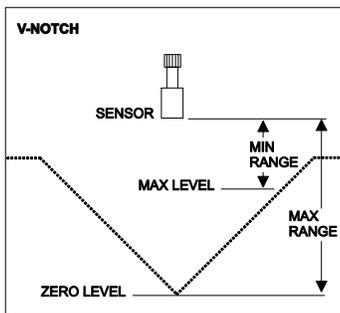
ZERO LEVEL

2. Check the maximum range with the sensor installed by:

a)   When liquid is at zero level press ⬇ to view the `Range` reading in the
        `Status` menu. Use this range measured by the UF OC5000 as the `Max`
        `Range` setting.
        or
b)   Carefully measure distance from sensor to zero level with a tape measure,
        and use this measurement as the `Max Range` setting.

NOTE: The UF OC5000 will not detect targets beyond user entered `Max Range.`

CHANNEL SETUP

```
--Channel Setup------
>Type            V-notch
                 Custom
                 Khafagi
            Rect Weir w/EC
                Rect Weir
              Trapezoidal
             Leopld-Lagco
            Palmer Bowlus
                 Parshall
```

```
--Channel Setup------
>Type            V-notch
 Size             22.5°
                  120°
                   90°
                   60°
                   45°
                   30°
```

```
--Channel Setup------
>Type             Custom
 K                0.0000
 n                0.0000
```

```
--Channel Setup------
>Type            Khafagi
 Height          0.000ft
```

```
--Channel Setup------
>Type     RECT Weir w/EC
 Height          0.000ft
```

```
--Channel Setup----
>Type          RECT Weir
 Height          0.000ft
```

```
--Channel Setup------
>Type        Trapezoidal
 Size   Extra large 60°
                Large 60°
                Small 60°
           12in 45° SRCRC
             2in 45° WSC
                  8in 60°
```

```
--Channel Setup------
>Type       Leopld-Lagco
 Size              36in
                   30in
                   24in
                   18in
                   12in
                   10in
                    8in
                    6in
```

```
--Channel Setup------
>Type       Palmer Bowlus
 Size              48in
                   42in
                   36in
                   30in
                   27in
                   24in
                   21in
                   18in
                   15in
                   12in
                   10in
                    8in
                    6in
                    4in
```

```
--Channel Setup------
>Type           Parshall
 Size              12ft
                   10ft
                    8ft
                    6ft
                    5ft
                    4ft
                    3ft
                    2ft
                   18in
                   12in
                    9in
                    6in
                    3in
                    2in
                    1in
```

```
--Relay Parameters--
>Relay              1
 Function        Flow
 Mode            Pump
 On      10000 USG/m
 Off      8000 USG/m
 LOE mode         Off
 Alternate         NO
```

RELAY PARAMETERS

Relay   Press ➡ and ⬇ or ⬆ to select a relay (2 relays are standard, 4 additional are optional).

```
--Relay Parameters--
>Relay              1
 Function Temperature
 On             0.0C
 Off            9.0C
```

Function Press ⬇ or ⬆ to select Off, Temperature, Pulse and Level.

Temperature Air temperature at the sensor location. Press ⬇ and ➡ and set the relay On and Off for specific temperatures.

Pulse   Press ⬇ and set digits to the flow volume increment required between relay pulses. Use this feature for remote samplers, chlorinators or totalizers. Minimum time between pulses is 2.25 seconds and pulse duration is 350 milliseconds.

```
--Relay Parameters--
>Relay              1
 Function       Pulse
 On        10.000ft³
```

Level   Level, Range, Volume or HRT modes only. Press ⬇ to R Function and ➡ to select Pump, LoAlm (low alarm) or HiAlm (high alarm).

Press ✓ to return to Menu Selections.

```
--Relay Parameters--
>Relay              1
 Function       Level
 Mode            Pump
 On         12.000ft
 Off         3.000ft
 LOE mode         Off
 Alternate         NO
```

```
--Data Logging-------
>Log Site ID        00
                    99
 Mode            Level
                 Range
                  Flow
                   HRT
                Volume
 Set Date  Feb 18/2008
           Mar 19/2009
 Set Time    11:27:40
             12:28:41
 Interval      10sec
               60min
               30min
               10min
                5min
                2min
                1min
               30sec
 Log           Start
                Stop
               Delete
```

DATA LOGGING

Setup

Select Data Logging from Menu Selections.

`Log Site ID`	Enter a number from `00` to `99`. The site ID will become part of the downloaded file name to help distinguish downloads from different instruments. Press ✓ to store the setting.
`Mode`	Select `Level`, `Range`, `Flow`, `HRT` and `Volume`. `Flow` (e.g. USGPM or l/sec). Press ✓ to store the setting.
`Set Date`	Press ⬆ or ⬇ to scroll and select Month, Day and Year. Press ✓ to store the setting.
`Set Time`	Press ⬆ or ⬇ to select the current time in Hours, Minutes and Seconds. Press ✓ to store the setting.
`Interval`	Press ⬆ or ⬇ to select the logging interval. Flow rate reading will be stored at each time interval. Press ✓ to store the setting. Note: Press ⬇ to Log ➡ and ⬆ or ⬇ to Delete and ✓ to delete the log file. Press ➡ and ⬆ or ⬇ to Start and ✓ to restart the logger.
`Log`	`Stop`, `Start` or `Delete` the log file. Delete old file and start a new log to apply any changes that have been made to the `Log Site ID`, `Mode` or `Interval`.

RETRIEVE LOG FILE

Plug a USB Flash Memory Drive (not supplied by Micronics) into the USB output cable from the instrument. The instrument display will show the message Downloading until the log file is transferred to the memory card and then display Completed. The USB flash drive may be removed.

Download file names will appear in this format:

$$OCF\_\_00A.LOG$$

       MODEL   TAG DOWNLOAD

Tag is set according to the Log Site ID entered in the instrument Data Logging menu.

Download letter will be A for the first download from an instrument. B for the second, then C etc. At the letter Z a - character will appear indicating that the maximum number of downloads for that instrument are on the USB flash drive. Older files can be erased or moved from the flash memory drive or a new memory drive can be used.

OPENING LOG FILES

Install Micronics Logger on your PC or laptop. Refer to the Help menu in the program for detailed instructions.

Select File/Open/Instrument Log (.log) to open the log file from your USB flash drive.

```
--Special Functions-
>Language      English
 Analog Out    4-20mA
 Backlight    On High
 Reset Totalizer    NO
 Restore Defaults   NO
 New Password     0000
```

```
--Special Functions-
 Language      English
>Backlight    On High
               On Med
               On Low
             Key Hi/Lo
             Key High
              Key Med
              Key Low
                  Off
```

SPECIAL FUNCTIONS

Language   Select English , French or Spanish and press ✓.

Analog Out   Select 4-20mA or 0-5V mode for the analog output.

Backlight   Select On High , Medium or Low for continuous backlight.

                            Select Key Hi/Lo for high backlight (for 1 minute) after a keypress and then Lo backlight until a key is pressed again.

                            Select Key High , Med or Low for backlight after a keypress and then backlight off until a key is pressed again.

Reset Totalizer   Press ➡ and select Yes to erase and restart the totalizer at zero.

Restore Defaults   Select Yes and press ✓ to erase all user settings and return the instrument to factory default settings

New Password   Select any number from 0000 to 9999 and press ✓. Default setting of 0000 will allow direct access to the calibration menus. Setting of any password greater than 0000 will require the password to be entered to access the calibration menus.

Press ✓ to return to Menu Selections .

```
--Simulation--------
>Level        9.981ft
 4-20mA       18.52mA
 Relays  1 2 3 4 5 6
```

SIMULATION

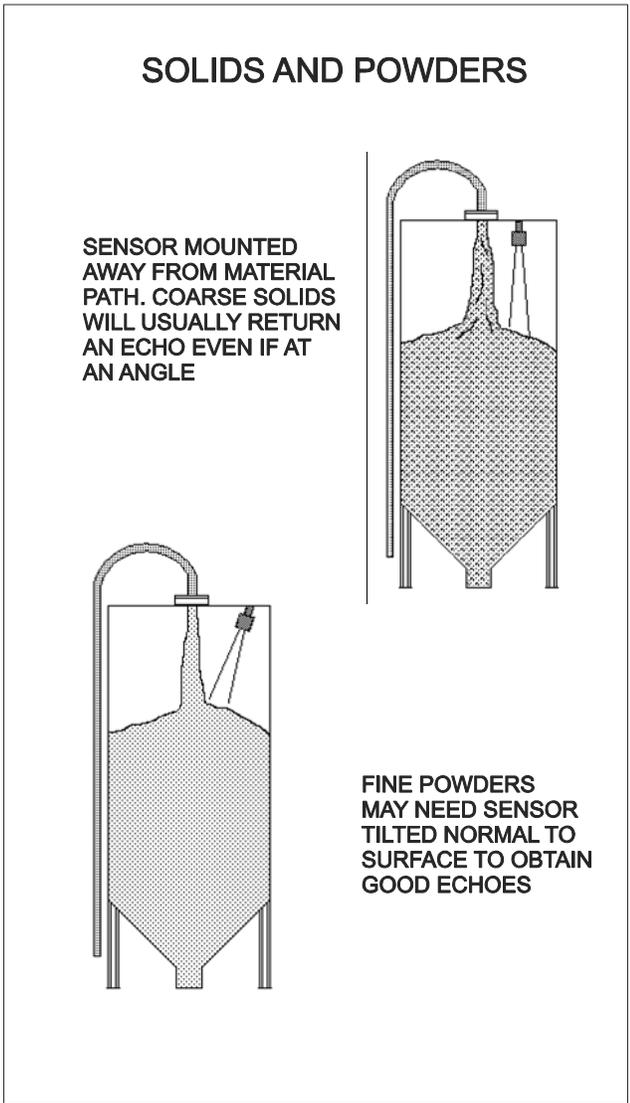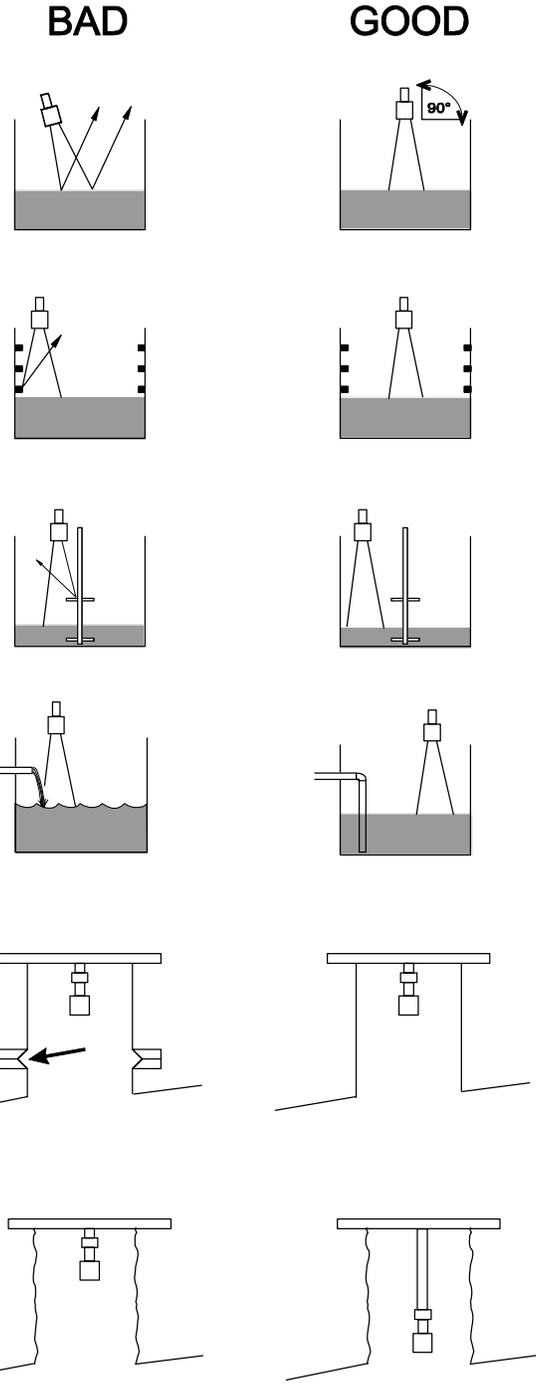Exercises the 4-20mA output, digital display and control relays.

Press ➡ and then ⬇ or ⬆ to change the simulated output. Press ✓ to begin simulation. The 4-20mA value and relay states will be displayed.

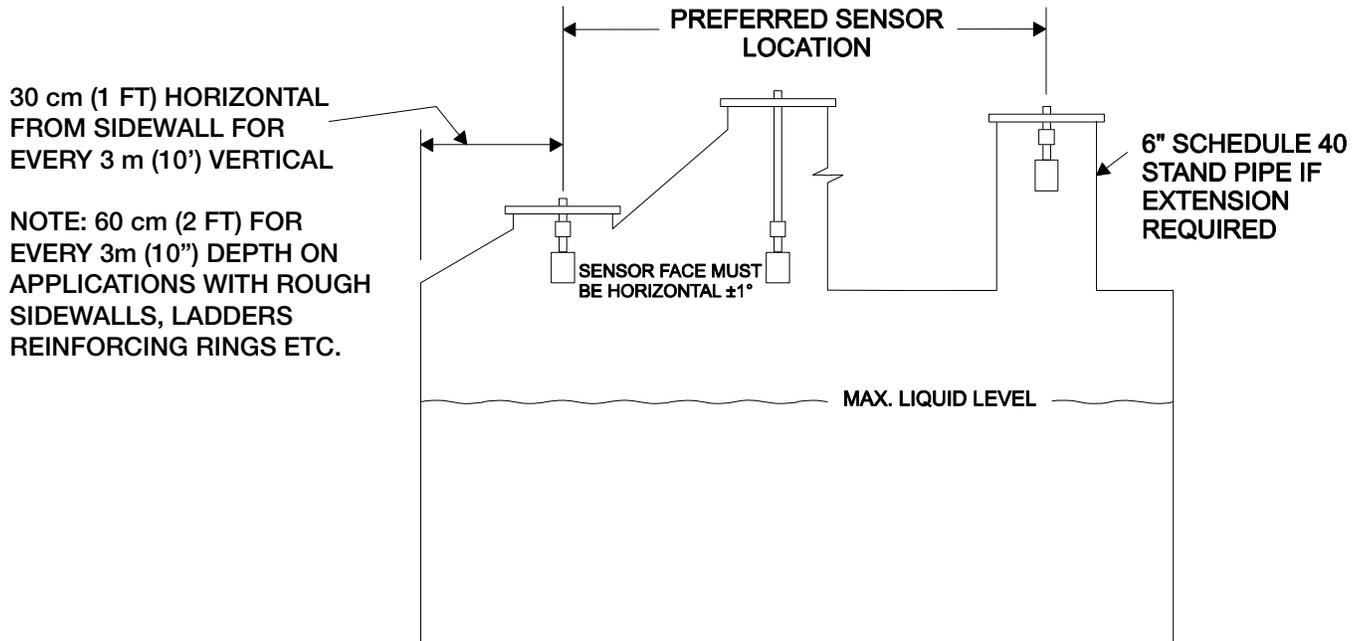Press the ✓ to terminate simulation and return to the Menu Selections screen.

SENSOR MOUNTING/LOCATION
- Tank Level/Inventory Applications

Each UF OC5000 Level Transmitter includes a non-contacting ultrasonic sensor. The sensor must be installed in a position to obtain unobstructed echoes from the liquid or material being measured.

Mount the sensor away from pipes, ladders, or structural members which might cause continuous false echoes.

BAD   GOOD

SOLIDS AND POWDERS

SENSOR MOUNTED AWAY FROM MATERIAL PATH. COARSE SOLIDS WILL USUALLY RETURN AN ECHO EVEN IF AT AN ANGLE

FINE POWDERS MAY NEED SENSOR TILTED NORMAL TO SURFACE TO OBTAIN GOOD ECHOES

SENSOR MOUNTING LOCATION
- Tank Level/Inventory Applications

SENSOR MOUNTING

Each sensor is equipped with a ¾ inch "isolation coupling" which MUST be used in your installation. A threaded nipple or length of conduit may be used to position the sensor at the desired height.

The sensor should be hand-tightened (like a light bulb) by turning the sensor stem only. DO NOT use a wrench and do not over tighten. DO NOT clamp the sensor below the isolation coupling.

ENCLOSURE INSTALLATION

Locate the enclosure within 6 m (20 ft) of the sensor (150 m -500 ft optional). The enclosure can be wall mounted with the four mounting screws (included) or panel mounted with Option PM Panel Mount kit from Micronics Limited.

Avoid mounting the enclosure in direct sunlight to protect the electronics from damage due to overheating and condensate. In high humidity atmospheres, or where temperatures fall below freezing, Option TH Enclosure Heater and Thermostat is recommended. Seal conduit entries to prevent moisture from entering enclosure.

NEMA4X (IP66) WITH CLEAR COVER

1. Open hinged enclosure cover.

2. Insert #8 screws (supplied) through the four enclosure mounting holes to secure the enclosure to the wall or mounting stand.

Additional conduit holes can be cut in the bottom of the enclosure when required. Use a hole saw or Greenlee-type hole cutter to cut the required holes.

DO NOT make conduit/wiring entries into the top of the enclosure.
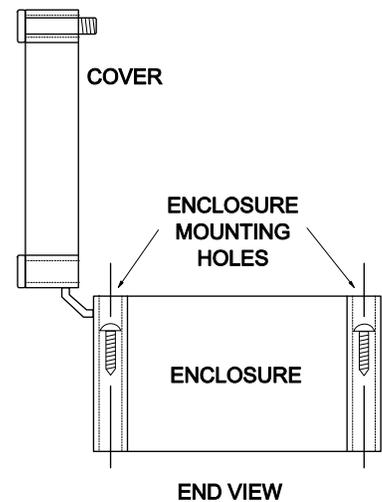
Note: This non-metallic enclosure does not automatically provide grounding between conduit connections. Grounding must be provided as part of the installation. Ground in accordance with the requirements of the National Electrical Code. System grounding is provided by connecting grounding wires from all conduit entries to the steel mounting plate or another point which provides continuity.

CLEANING

Cleaning is not required as a part of normal maintenance.

PZxx Series Sensors

Troubleshooting

Resistance measured (between the shield and centre wire) across the coaxial cable ends by mulitmeter indicates ambient temperature.

Resistance vs. Temperature

Values are in Ohms

Temp °C	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
0	10000.0	10039.0772	10078.1429	10117.1970	10156.2396	10195.2706	10234.2901	10273.2980	10312.2944	10351.2792
10	10390.2525	10429.2142	10468.1644	10507.1030	10546.0301	10584.9456	10623.8496	10662.7420	10701.6229	10740.4922
20	10779.3500	10818.1962	10857.0309	10895.8540	10934.6656	10973.4656	11012.2541	11051.0310	11089.7964	11128.5502
30	11167.2925	11206.0232	11244.7424	11283.4500	11322.1461	11360.8306	11399.5036	11438.1650	11476.8149	11515.4532
40	11554.0800	11592.6952	11631.2989	11669.8910	11708.4716	11747.0406	11785.5981	11824.1440	11862.6784	11901.2012
50	11939.7125									

Values are in Ohms

Temp °F	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
30			10000.0	10021.7110	10043.4184	10065.1223	10086.8226	10108.5193	10130.2125	10151.9021
40	10173.5881	10195.2706	10216.9495	10238.6249	10260.2967	10281.9649	10303.6295	10325.2906	10346.9481	10368.6021
50	10390.2525	10411.8993	10433.5426	10455.1823	10476.8184	10498.4510	10520.0800	10541.7054	10563.3273	10584.9456
60	10606.5604	10628.1716	10649.7792	10671.3832	10692.9837	10714.5806	10736.1740	10757.7638	10779.3500	10800.9327
70	10822.5118	10844.0873	10865.6593	10887.2277	10908.7925	10930.3538	10951.9115	10973.4656	10995.0162	11016.5632
80	11038.1067	11059.6466	11081.1829	11102.7156	11124.2448	11145.7704	11167.2925	11188.8110	11210.3259	11231.8373
90	11253.3451	11274.8493	11296.3500	11317.8471	11339.3406	11360.8306	11382.3170	11403.7999	11425.2792	11446.7549
100	11468.2270	11489.6956	11511.1606	11532.6221	11554.0800	11575.5343	11596.9851	11618.4323	11639.8759	11661.3160
110	11682.7525	11704.1854	11725.6148	11747.0406	11768.4629	11789.8816	11811.2967	11832.7082	11854.1162	11875.5206
120	11896.9215	11918.3188	11939.7125							

APPLICATIONS HOTLINE

For applications assistance, advice or information on any Micronics Limited contact your Sales Representative, write to Micronics or phone the Applications Hotline below:

      Tel: +44 (0)1628 810456   Fax: +44 (0)1628 531540

Email:	sales@micronicsltd.co.uk
Web Site:	www.micronicsflowmeters.com

Micronics Limited.
Knaves Beech Business Centre,
Davies Way, Loudwater,
High Wycombe, Buckinghamshire,
United Kingdom, HP10 9QR

PRODUCT RETURN PROCEDURE

Instruments may be returned to Micronics for service or warranty repair.

1) Obtain an RMA Number from Micronics -
Before shipping a product to the factory please contact Micronics by telephone, fax or email to obtain an RMA number (Returned Merchandise Authorization). This ensures fast service and correct billing or credit.

When you contact Micronics please have the following information available:

1. Model number / Software Version
2. Serial number
3. Date of Purchase
4. Reason for return (description of fault or modification required)
5. Your name, company name, address and phone number

2) Clean the Sensor/Product -

Important: unclean products will not be serviced and will be returned to the sender at their expense.

1. Rinse sensor and cable to remove debris.

2. If the sensor has been exposed to sewage, immerse both sensor and cable in a solution of 1 part household bleach (Javex, Clorox etc.) to 20 parts water for 5 minutes. Important: do not immerse open end of sensor cable.

3. Dry with paper towels and pack sensor and cable in a sealed plastic bag.

4. Wipe the outside of the enclosure to remove dirt or deposits.

5. Return to Micronics for service.

3) Ship to Micronics -

After obtaining an RMA number please ship the product to the appropriate address below:

> Customers:
>
> Micronics Limited.
> Knaves Beech Business Centre,
> Davies Way, Loudwater,
> High Wycombe, Buckinghamshire,
> United Kingdom, HP10 9QR

RMA#

LIMITED WARRANTY

Micronics warrants, to the original purchaser, its products to be free from defects in material and workmanship for a period of one year from date of invoice. Micronics will replace or repair, free of charge, any Micronics product if it has been proven to be defective within the warranty period. This warranty does not cover any expenses incurred in the removal and re-installation of the product.

If a product manufactured by Micronics should prove defective within the first year, return it freight prepaid to Micronics along with a copy of your invoice.

This warranty does not cover damages due to improper installation or handling, acts of nature, or unauthorized service. Modifications to or tampering with any part shall void this warranty. This warranty does not cover any equipment used in connection with the product or consequential damages due to a defect in the product.

All implied warranties are limited to the duration of this warranty. This is the complete warranty by Micronics and no other warranty is valid against Micronics. Some states do not allow limitations on how long an implied warranty lasts or limitation of incidental or consequential damages, so the above limitations or exclusions may not apply to you.

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.
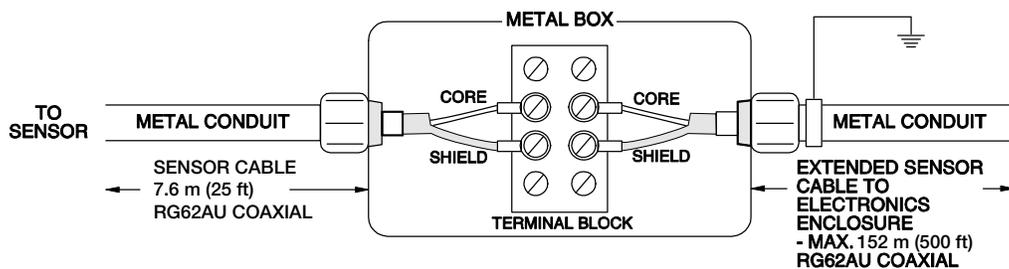
Micronics Limited.

APPENDIX A - OPTIONS

### *EXTRA SENSOR CABLE*
(OPTION XC)

Each Micronics UF OC5000 includes 7.6 m (25 ft) RG62AU coaxial cable. Additional RG62AU coaxial cable and Cable Junction Box (Option JB) may be ordered with the Flow Monitor, or the cable may be spliced and extended up to 152 m (500 ft) as required during installation. No adjustment is required when the sensor cable is extended or shortened. Use only RG62AU (or RG62U) coaxial cable which is available from Micronics Limited or your local distributor. Nominal impedance of RG62AU cable is 93 ohms.

Extended sensor cable must be installed in metal conduit to prevent interference. Do not use BNC coaxial connectors (TV cable type). Recommended installation with a metal junction box is illustrated below:

Note: Optional Watertight steel NEMA4 Junction Boxes with terminal strips (Option JB) are available from Micronics Limited.
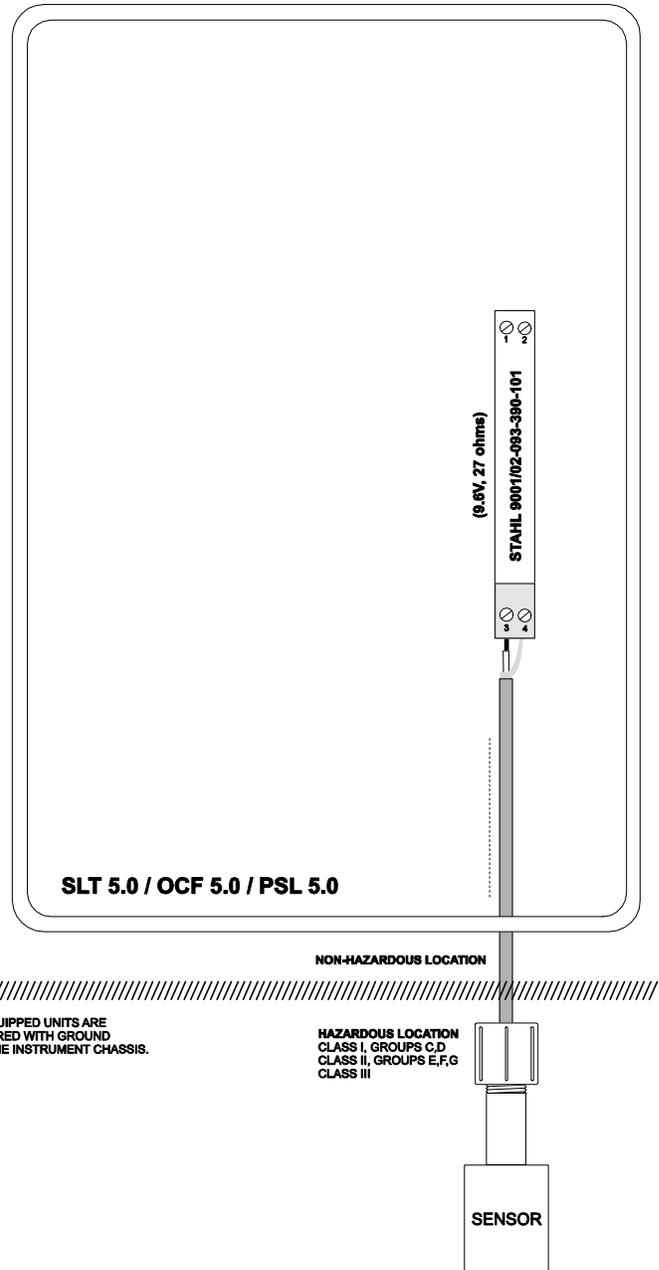
DIMENSIONS
OPTION JB - JUNCTION BOX
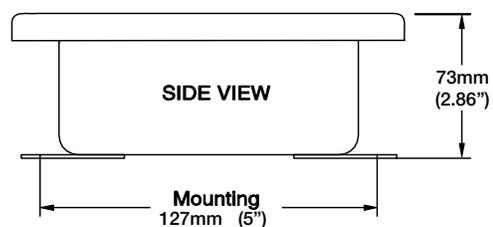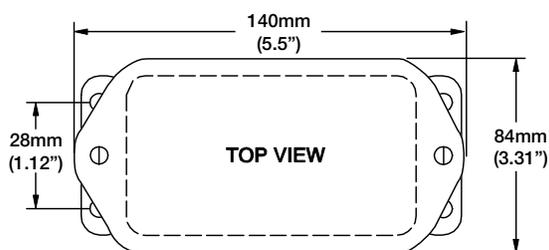
SENSOR INTRINSIC SAFETY (OPTION ISB)

DRAWING NO: GN3SPEC-INST-03

When connected through Intrinsic Safety Barriers, Micronics PZ** Series sensors are certified for installation in a hazardous location rated:

Class I, Groups C,D
Class II, Groups E,F,G
Class III

The Intrinsic Safety Barrier may be ordered with the Micronics instrument and is supplied mounted in the Micronics instrument enclosure. Replacement barrier fuses (Part No. ISB- 011239) may be purchased separately. The instrument enclosure containing the ISB Intrinsic Safety Barrier must be installed in a non-hazardous location.

STAHL 9001/02-093-390-101

(9.6V, 27 ohms)

SLT 5.0 / OCF 5.0 / PSL 5.0

NON-HAZARDOUS LOCATION

NOTE:
BARRIER-EQUIPPED UNITS ARE
FACTORY-WIRED WITH GROUND
THROUGH THE INSTRUMENT CHASSIS.

HAZARDOUS LOCATION
CLASS I, GROUPS C,D
CLASS II, GROUPS E,F,G
CLASS III

SENSOR

ENCLOSURE HEATER AND THERMOSTAT - Option TH

Instruments can be factory-equipped with an Enclosure Heater and Thermostat or the module can be customer-installed. The Thermostat is factory set to turn ON at 4.5°C (40°F) and OFF at 15.5°C (60°F). Power consumption is 15 Watts.

TO AC POWER SUPPLY
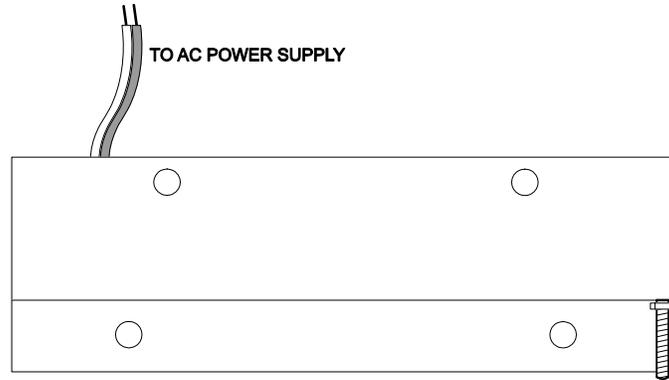
ENCLOSURE SUNSCREEN - Option SCR

Do not mount instrument electronics in direct sunlight. Overheating will reduce the life of electronic components and condensate may form during the heat/cool cycles and cause electrical shorts.

Note:

Exposure to direct sunlight can cause overheating and moisture condensation which will reduce the operating life of electronics.

Protect Instruments from direct sunlight with this iridite finished aluminum sun screen (Micronics Option SCR).

Seal conduit entries with caulking compound to further reduce moisture condensation.

280 mm / 11"

280 mm
11"

127 mm
5"
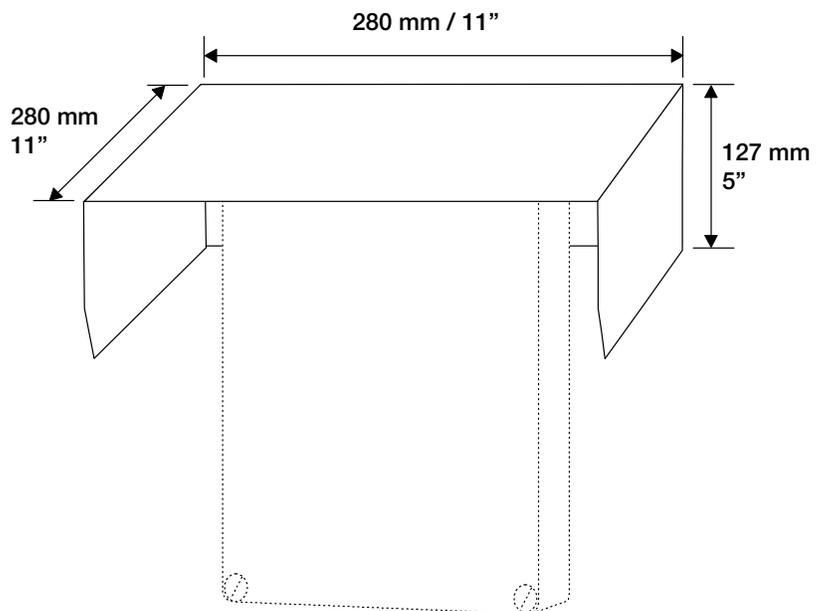
POWER INPUT OPTION
9-32VDC

UF OC5000 Level & Flow Monitors may be ordered factory-configured for 9-32VDC power input.

QUICK BENCH TEST:

Connect Sensor as shown below, then Power. When properly connected figures will show on the large LCD display. Test operation of the UF OC5000 by holding the sensor steadily and aiming at a flat, stable target 305 to 711mm (12 to 28") away from the end of the sensor. Allow a few seconds for the UF OC5000 to lock onto the target before displaying its distance. The UF OC5000 will now display Range in cm or ft (factory calibration).

CONNECTIONS:

POWER INPUT: Connect 9-32VDC/0.5 Amps to the + and - terminals. The Power Input GND must be connected to the nearest Ground pole. A 1 amp fuse in line is recommended.
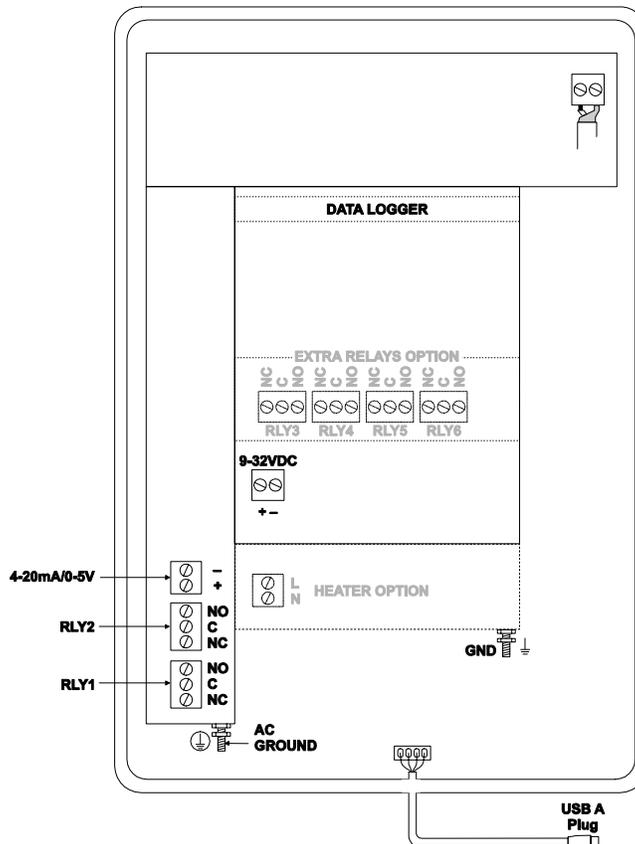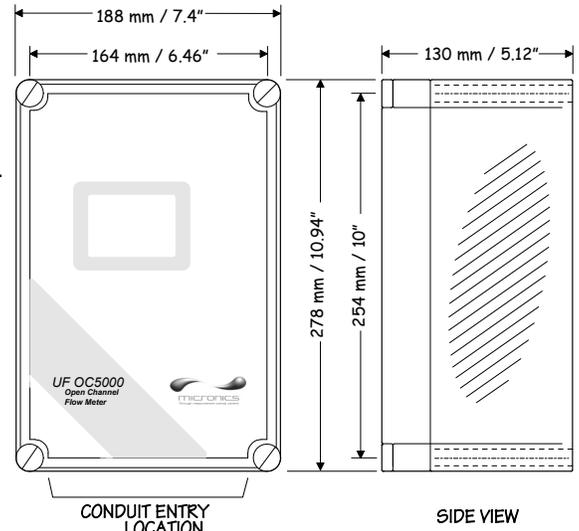
CONVERSION GUIDE		
FROM	TO	MULTIPLY BY
US GALLONS	CUBIC FEET	0.1337
US GALLONS	IMPERIAL GALS	0.8327
US GALLONS	LITRES	3.785
US GALLONS	CUBIC METERS	0.003785
LITRES/SEC	GPM	15.85
LITRES	CUBIC METERS	0.001
BARRELS	US GALLONS	42
BARRELS	IMPERIAL GALS	34.9726
BARRELS	LITRES	158.9886
INCHES	MM	25.4
DEGREES F	DEGREES C	(°F-32) x 0.556
POUNDS	KILOGRAMS	0.453
PSI	BAR	0.0676
FOOT²	METER²	0.0929

VOLUME CALCULATION FOR ROUND TANKS: $3.142 \times R^2 \times H$
R = TANK RADIUS (½ TANK DIAMETER)
H = TANK HEIGHT

SPECIFICATIONS

188 mm / 7.4"
164 mm / 6.46"
130 mm / 5.12"
278 mm / 10.94"
254 mm / 10"

UF OC5000
Open Channel
Flow Meter

CONDUIT ENTRY
LOCATION

SIDE VIEW

|	
Accuracy:	±0.25% of Range or 2 mm, whichever is greater Repeatability and Linearity: 0.1% F.S.
Displays:	White, backlit matrix - displays flow rate, totalizer, relay states, operating mode and calibration menu
Calibration:	built-in 5-key calibrator with English, French or Spanish language
Power Input:	100-240VAC, 50/60Hz, 30 Watts or 9-32VDC, 9 Watts max
Output:	Isolated 4-20mA (1000 ohm load max.)
Control Relays:	Qty 2, rated 5 amp 240VAC SPDT, programmable flow alarm and/or proportional pulse
Enclosure:	watertight, dust tight NEMA4X (IP 66) polycarbonate with a clear shatter-proof face
Environmental Conditions:	Relative humidity up to 60°C to 80% -23 ambient temperature, maximum 5000 m altitude, pollution degree 4, Installation Category II.
Sensitivity:	adjustable. Damping: adjustable
Electrical Surge Protection:	Sensor, 4-20mA output and AC power input
Approximate Shipping Weight:	4.5 kg (10 lbs)

Standard Sensor PZ15

7.6 m (25 ft) RG62AU
COAXIAL CABLE
(15 m 50 ft OR
30 m 100 ft OPTIONAL)

3/4" NPT

ISOLATION
COUPLING
(SUPPLIED)

108 mm
(~ 4.25")
OVERALL

3/4" NPT

79.4 mm
3.125"

28.6 mm
(1.125")

53 mm (2.1")

Maximum Range:	4.57 m (15 ft)
Minimum Range (Deadband):	203.2 mm (8")
Operating Frequency:	92 KHz
Beam Angle:	8°
Operating Temperature:	-40° to 65°C (-40° to 150°)
Temperature Compensation:	Automatic, continuous
Max. Operating Pressure:	20 psi (1.35 bar)
Sensor Face:	PVC
Sensor Body:	PVC
Mounting:	¾" NPT
Cable Length:	7.6 m (25 ft.) continuous RG62AU coaxial. Optional 15 m (50 ft.) continuous
Max. Cable Length:	152 m (500 ft.) RG62AU coaxial (splice)
Hazardous Rating:	CSA rated Intrinsically Safe Class I, Groups C,D, Class II, Groups E,F,G with Optional Intrinsic Safety Barrier.
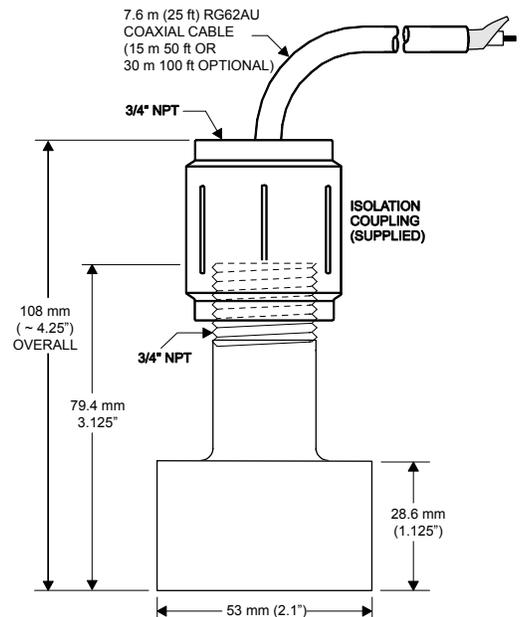
Optional Sensor PZ32T

Maximum Range:	10 m (32 ft.)
Deadband (blanking):	Programmable, minimum 305 mm (12")
Beam Angle:	8° at 3 DB
Temperature Compensation:	Automatic, continuous
Operating Frequency:	42 KHz
Exposed Materials:	PVC and Teflon
Operating Temperature:	-40° to 65°C (- 40° to 150°F)
Operating Pressure:	20 psi (1.35 Bar) maximum
Mounting:	¾" NPT (PVC isolation coupling supplied)
Sensor Cable:	RG62AU coaxial, 7.6 m (25 ft.) standard
Hazardous Rating:	with optional Intrinsic Safety Barrier: CSA, Class I,II,III, Div. I,II, Groups C,D,E,F,G Note: Max Range reduced to 7.6 m (25 ft) with ISB option.
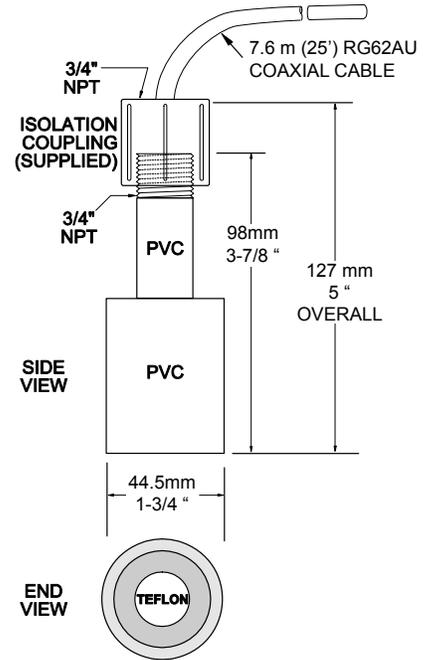
Optional Sensor PZ32TE

Maximum Range:	10 m (32 ft.)
Deadband (blanking):	Programmable, minimum 305 mm (12")
Beam Angle:	8° at 3 DB
Temperature Compensation:	Automatic, continuous
Operating Frequency:	42 KHz
Exposed Materials:	Teflon
Operating Temperature:	-40° to 76°C (-40° to 170°F)
Operating Pressure:	20 psi (1.35 Bar) maximum
Mounting:	¾" NPT (Teflon isolation coupling supplied)
Sensor Cable:	RG62AU coaxial, 7.6 m (25 ft.) standard
Hazardous Rating:	with optional Intrinsic Safety Barrier: CSA, Class I,II,III, Div. I,II, Groups C,D,E,F,G, Note: Max Range reduced to 7.6 m (25 ft.) with ISB option.