

Signet 3350/3550 Ultrasonic Flowmeter Quick-Start Guide



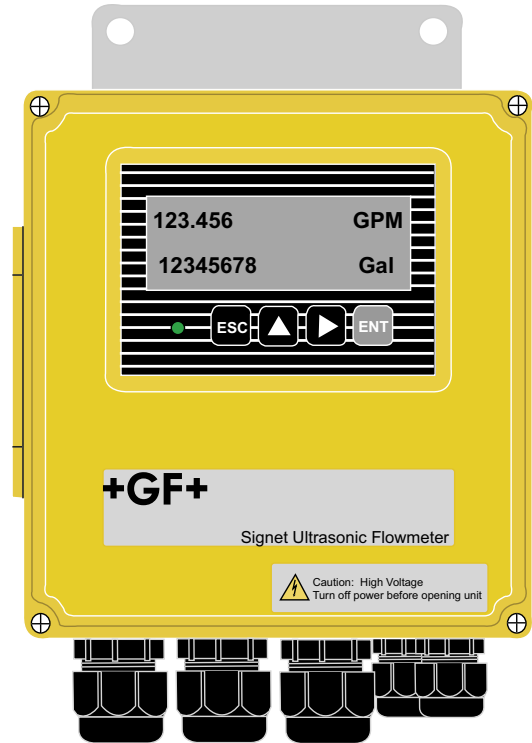
3-3350.091

A 11/05 English

This document contains the basic information required to install the 3550 Ultrasonic Flowmeter and to begin the measurement. Complete information and instructions can be found in the 3-3350.090 Instruction manual. This guide does not include information related to the setup and use of the output features of the flowmeter.

The installation and startup of this flowmeter is divided into seven steps. They are organized in the sequence they should be completed:

1. Select a mounting location and method for the 3350 electronics.
2. Select a location and mount the 3550 strap-on sensor assembly onto the pipe.
3. Connect the sensor cables and 24 VDC power to the electronics terminals.
4. Navigate to the MEASURE SETUP menu and enter the information for your pipe and fluid.
5. Record the PIPE PARAMETER number that is displayed after the pipe and fluid information is entered.
6. Position the two ultrasonic transducers at the spacing indicated by the PIPE PARAMETER and secure them in the frame.
7. Program the 3350 flowmeter electronics to reflect the remaining application requirements.

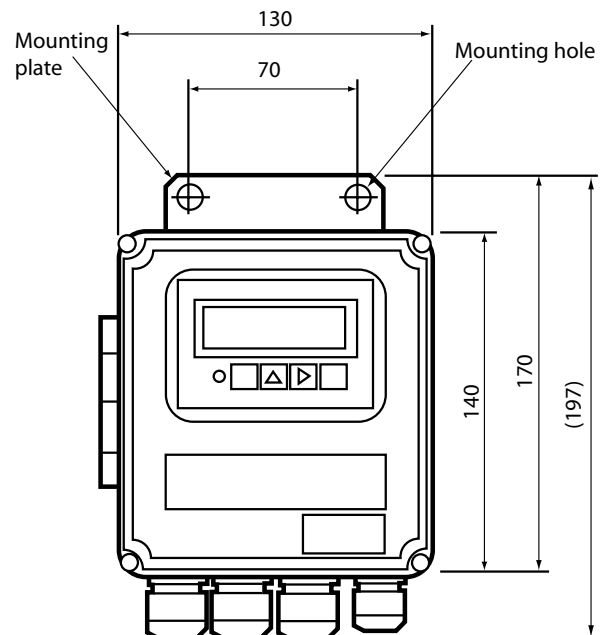


1.

Select a mounting location and method for the 3350 electronics.

The converter may be mounted on a wall or on a pipe stand.

- For wall mounting, use two M8 bolts. Drill holes based on the dimensions illustrated here.
- For pipe mounting, use the two U-bolts supplied with the unit.

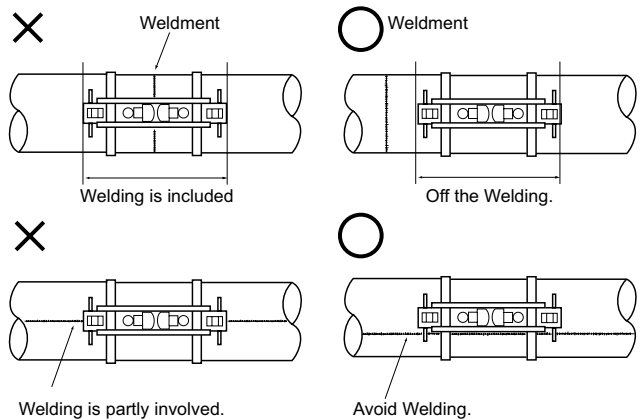
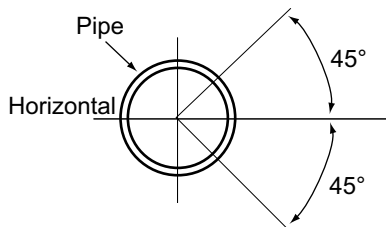
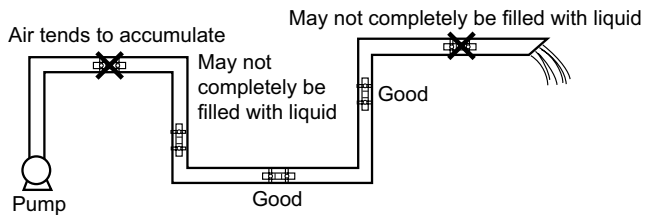


2A. Select a location for the 3550 strap-on sensor assembly.

The length of upstream and downstream straight pipe of the ultrasonic detector should be long enough to ensure accurate measurements.

- The sensor can be installed vertical, horizontal or at any posture provided that attention is paid to the following things.
- The piping must completely be filled with fluid when it flows.
- In case of horizontal piping, mount the detector within $\pm 45^\circ$ from the horizontal plane. Otherwise, the measurement could be impossible if bubbles stay in the upper part of piping or if deposits are accumulated in the lower part of piping.
- Use thinner, sandpaper, etc., to remove and surface corrosive, rust, etc, and to make the surface. rust, pitch, convex and concave from the pipe surface free of pits and distortions
- Do not mount the detector on a distorted section of pipe, or straddling a flange or weld seam.

| Name | Straight length of upstream piping | Straight length of downstream piping |
|----------|------------------------------------|--------------------------------------|
| 90° bend | | |
| Tee | | |
| Diffuser | | |
| Reducer | | |
| Valve | | |
| Pump | | |



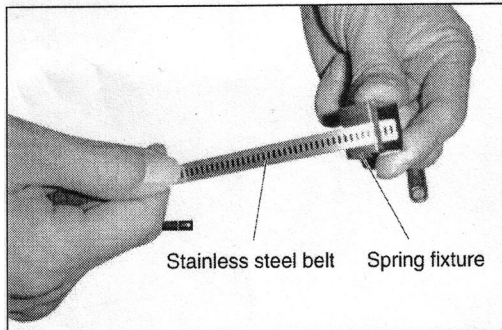
2B.

Mount the 3550 strap-on sensor assembly onto the pipe

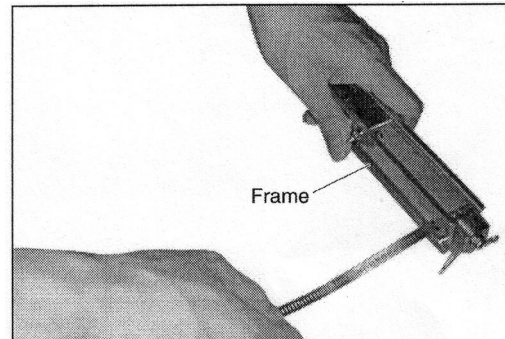


- Handle the steel mounting belts carefully to avoid injury.

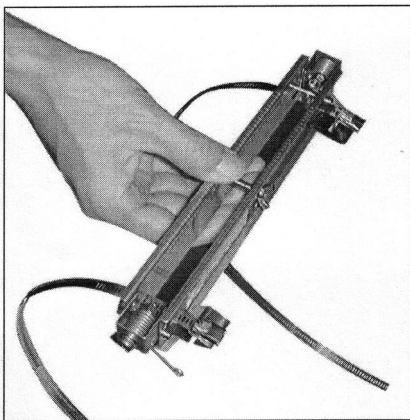
(1) Slide the spring fixture onto the stainless steel belt.



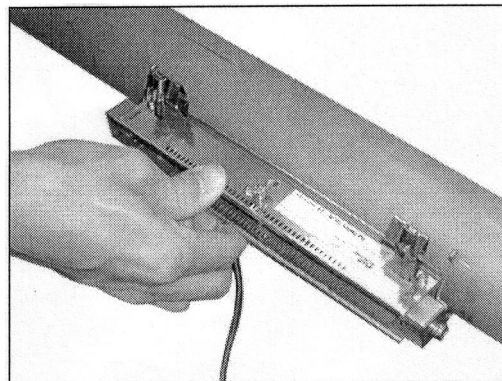
(2) Pass the stainless steel belt through 2 belt holes on the frame.



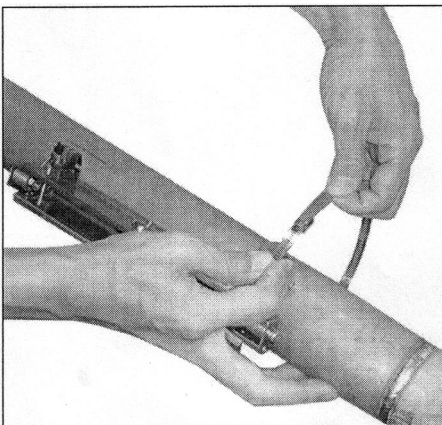
(3) Place the frame on a pipe smooth, clean section subjected to a surface treatment (see fig. 3-4).



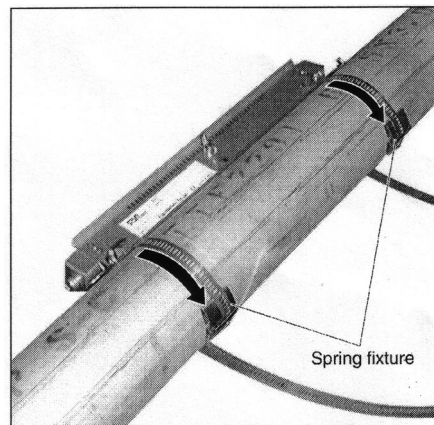
(4) Temporarily tighten the first stainless steel belt on the pipe (see fig. 3-5).



(5) Adjust the frame so it is parallel with the pipe, put the spring fixture to the side of the frame and tighten the stainless steel belt so that the frame will tightly be fitted. Mounting on pipe whose diameter is 150A or larger, connect 2 stainless steel belts (see fig. 3-6 and 3-7).



(6) After tightening both stainless steel belts, slide the spring fixture to the opposite to the frame.
Note: Frame must be relocated, use new stainless steel belts (see fig. 3-8).



2B.

Mount the 3550 strap-on sensor assembly onto the pipe (continued)

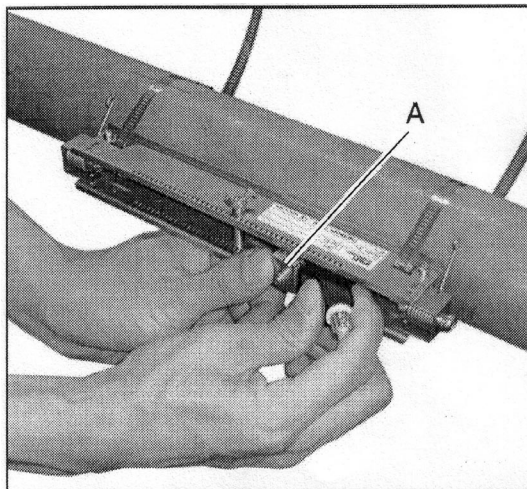
Before mounting the sensor unit into the frame, Apply silicone (or silicone-free grease Note) over the entire transmission surface of the sensor unit, taking care not to introduce bubbles.

Note) When using silicon-free grease, pay attention to the fluid temperature range. The fluid temperature range is shown below.

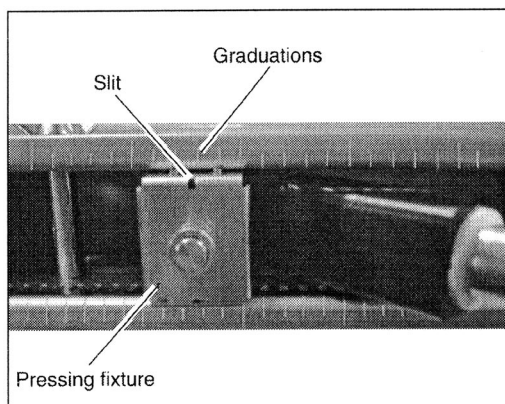
Silicon rubber: 20 to 100°C

Silicon-free grease: 0 to 60°C

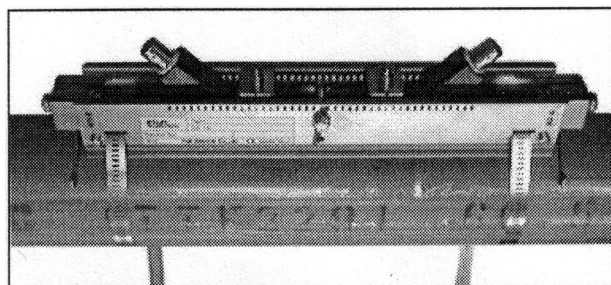
Silicon-free grease should be reapplied approximately once every 6 months. (Silicon rubber need not be reapplied.)



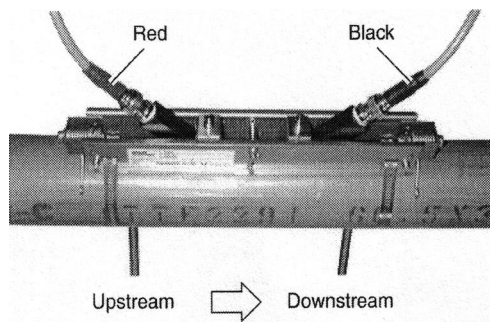
Insert the sensor unit into the frame, align the slit provided on the pressing fixture of the sensor unit with graduations located on the frame top surface and press the sensor unit until the fixture claws are engaged with the frame side square holes. Mount both sensor units so as to be roughly symmetrical with respect to the frame.



Position of the slit and the graduation
(Magnified view of section A)



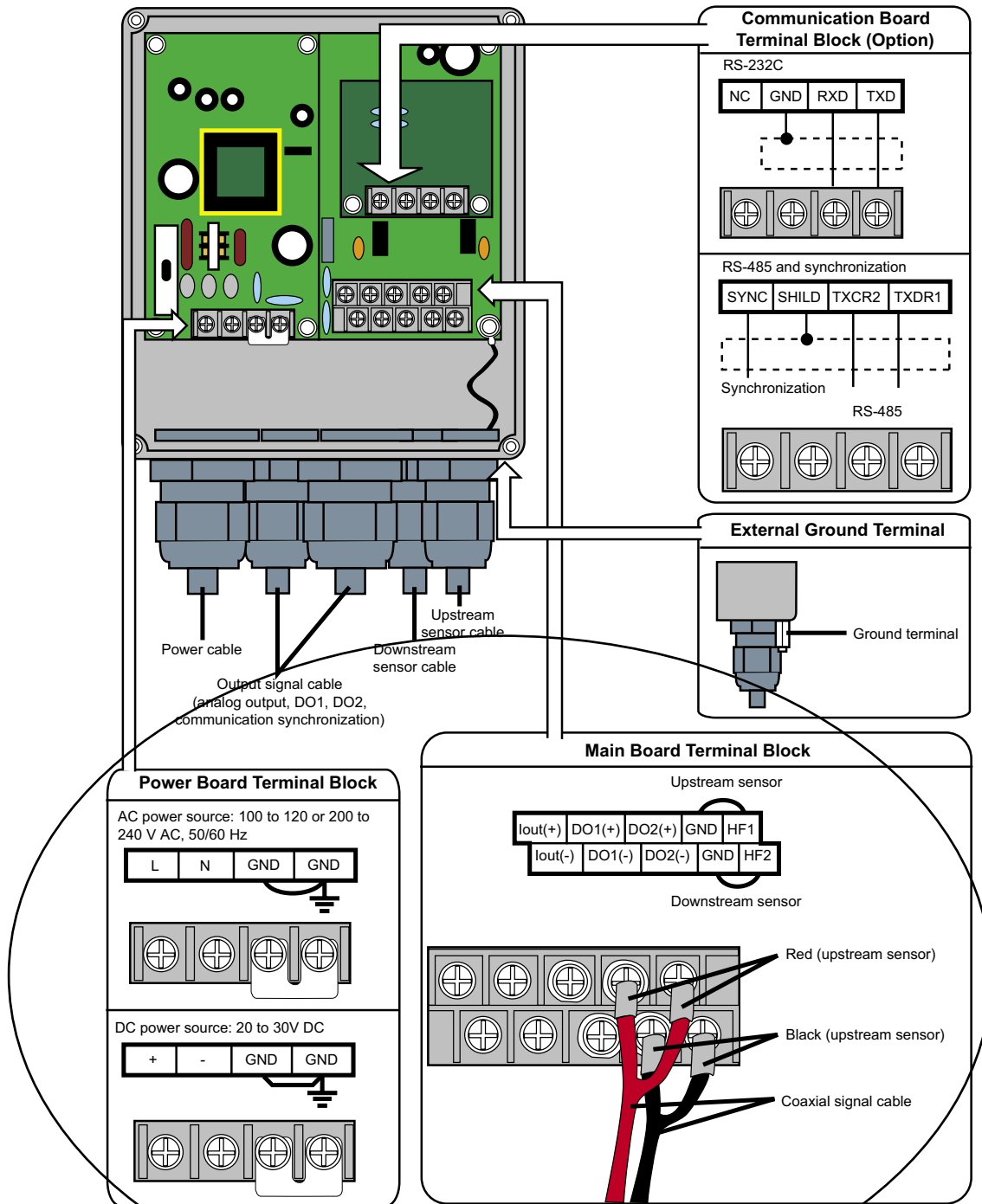
(4) Connect the signal line with BNC connectors to the sensor units. Engage the red BNC connector upstream, and the black BNC connector downstream (see fig.3-16).



After connecting the signal line, make sure the red LED on the flow transmitter has turned green. It takes about 10 seconds until the color changes to green.

The green color indicates the received signal is normal. The red color indicates the received signal is abnormal. If the LED remains red and does not turn green, examine the sensor installation status (sensor spacing, sensor orientation, claw engagement, etc.) and parameter settings, and check whether the piping is filled with fluid.

3. Connect Power and Signal cables



Notes:

1. All screws are M3 on the terminal block. Use crimp-style terminals for M3 and whose outer diameter is ≤ 5.8 or smaller.
2. Be sure to connect to ground the power board terminal block or external ground terminal (class D ground).
3. For output signal, use multiple core cable as required.

4.

Navigate to the MEASURE SETUP menu and enter the necessary pipe information

The PIPE PARAMETER section of the Measure Setup menu calculates the correct spacing between the two Ultrasonic electrodes. The following pages will guide the user through each step.


















The operating procedure is as follows (from measurement mode).

If the parameter protection is set at "PROTECTION ON", change it to "PROTECTION OFF".

If ID NO. is set at this time, ID NO. must be inputted.

Press:

Display shows:

| | | |
|---|---|--|
|  | 3x. | 1st line: [MEASURE SETUP] |
|  | | 1st line: [SYSTEM UNIT]. |
|  | 3x. | 1st line: [PIPE PARAMETER]. |
|  | | 1st line: [OUTER DIAMETER]. 2nd line: [60.00 mm] |
|  | | Cursor blinks on 2nd line. |
|  | and  | Input the outer diameter of a measurement pipe. piping data is located in section 3.2. |
|  | | Registered after [**COMPLETE**] is indicated about 1 second on 2nd line. |
|  | | 1st line: [PIPE MATERIAL]. 2nd line: [PVC] * As selected currently. |
|  | | Cursor blinks on 2nd line. |
|  | | Select the pipe material from menus. If there is no corresponding menu, input the sound velocity of the pipe material at the end of its, See piping data in section 3.2. |
|  | | Registered after [**COMPLETE**] is indicated about 1 second on 2nd line. |
|  | | 1st line: [WALL THICKNESS]. 2nd line: [4.50mm] * As selected currently. |
|  | | Cursor blinks on 2nd line. |
|  | and  | Input the wall thickness of a measurement pipe. As necessary, check the piping data in section 3.2. |
|  | | Registered after [**COMPLETE**] is indicated about 1 second on 2nd line. |

4.

Navigate to the MEASURE SETUP menu and enter the necessary pipe information (continued)

Press:



Display shows:

1st line: [LINING MATERIAL]. 2nd line: [NO LINING].

* As selected currently. If pipe is not lined, press key to go to selection of next fluid to be measured.



Cursor blinks on 2nd line.



Select the lining material from menus. If there is no corresponding menu, input the sound velocity of lining material on sound velocity input screen whose menu is located at the last. As necessary, see lining data in section 6.6.



Registered after [**COMPLETE**] is indicated about 1 second on 2nd line.



1st line: [LINING THICKNESS]. 2nd line: [2.00 mm]. * As selected currently. Note: This setting only appears if a lining material is selected above.



Cursor blinks on 2nd line.



and



Input the lining thickness.



Registered after [**COMPLETE**] is indicated about 1 second on 2nd line.



1st line: [KIND OF FLUID]. 2nd line: [WATER]. * As selected currently.



Cursor blinks on 2nd line.



Select [WATER] or [SEA WATER]. If the fluid is other than these selections, fluid, input the sound velocity of fluid on sound velocity input screen whose menu is located at the last. As necessary, see piping data in section 6.6.



Registered after [**COMPLETE**] is indicated about 1 second on 2nd line.



1st line: [KINEMATIC VISCO]. 2nd line: [1.0038E-6m²/s].

Kinematic viscosity of water is factory set. If fluid to be measured is other than water, input the kinematic viscosity referring to piping data in section 6.6.



Cursor blinks on 2nd line.



and



Input the kinematic viscosity.



Registered after [**COMPLETE**] is indicated about 1 second on 2nd line.



2X

1st line: [SENSOR TYPE]. 2nd line: [3-3350]. * As selected currently.



Cursor blinks on 2nd line.



Select [3-3350.100] or [3-3350.200].



Registered after [**COMPLETE**] is indicated about 1 second on 2nd line.



1st line: [PIPE PARAMETER]. 2nd line: [S= 16 (48mm)]

Use this value to secure the two sensors at the correct spacing.



1st line: [MEASURE SETUP]



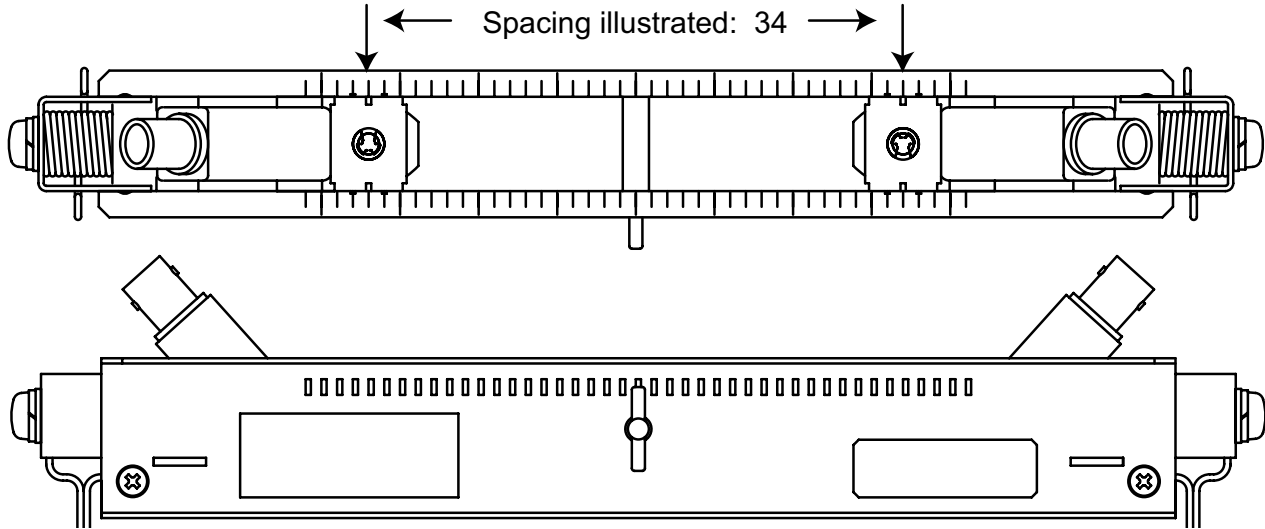
2x.

Measurement mode is resumed.



6.

Position the two ultrasonic transducers at the spacing indicated by the PIPE PARAMETER and secure them in the frame.



7.

Program the 3350 flowmeter electronics to reflect the remaining application requirements.

The 3350 is now ready to begin providing flow information, with the flow rate in units of meters per second and the totalizer in cubic meters. These settings and many additional settings and features in the 3350 are not addressed in this document. Please refer to the complete 3350 Operating manual for instructions on how to program these features.

+GF+

George Fischer Signet Inc., 3401 Aerojet Avenue, El Monte, CA 91731-2882 U.S.A. • Tel. (626) 571-2770 • Fax (626) 573-2057
For Worldwide Sales and Service, visit our website: www.gfsignet.com • Or call (in the U.S.): (800) 854-4090

GEORGE FISCHER +GF+ Piping Systems
3-3350.091 (A-11/05) English

© George Fischer Signet Inc. 2005

Printed in U.S.A. on Recycled Paper

