Operating Principles
The Discrete Interval Sampler (DIS) allows samples to be taken from distinct levels within a well. The sampler is pressurized at the surface to prevent water from entering the device as it is being lowered to the desired sampling depth. The pressure is then released allowing the Discrete Interval Sampler to fill under hydrostatic pressure. The Discrete Interval Sampler is repressurized to maintain chemical stability of the sample as the DIS is retrieved. At the surface, the sample is removed using the Sample Release Device.

Sampling with the Discrete Interval Sampler

Note: The Sample Release Device NEVER goes down the well.

1. Before using the Discrete Interval Sampler, there are two important pieces of information needed.
   i) Desired Sampling Depth   ii) Static Water Level
2. With the tubing connected to the Discrete Interval Sampler (see Assembly on Page 2), and the air pump assembled, connect the air pump to the Pressure Inlet.
3. Turn the Pressurize/Vent Valve to Pressurize.
4. At this point you must make a calculation to ensure that you are operating at the proper pressure using one of the following formulas, or the chart at lower left.

   Setting the Operating Pressure

<table>
<thead>
<tr>
<th>Feet</th>
<th>Meters</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sampler depth below grade (ft.) - static water level below grade (ft.) x 0.43 + 10 psi</td>
<td>Sampler depth below grade (m) - static water level (m) x 9.8 + 70 kPa</td>
</tr>
</tbody>
</table>

Example

Sampling Depth is 100 ft. - Static Water Level at 30 ft.

x 0.43 + 10 psi = 40 psi

Therefore the Discrete Interval Sampler should be pressurized to 40 psi for proper operation.

5. Using the air pump, pressurize the Discrete Interval Sampler to the required pressure.
6. Disconnect the air pump from the reel before lowering sampler into the well.
7. Lower the Discrete Interval Sampler down the well to the desired sampling depth. If you have not marked your tubing, you may want to attach a measuring tape or Tag Line (See Model 103 Data Sheet) to the Lowering Bracket to measure to the proper sampling depth.
8. Once the sampler is at the desired sampling depth, turn the Pressurize/Vent Valve to Vent. Wait for 1-3 minutes to allow the Discrete Interval Sample to fill.
9. Turn the Pressurize/Vent Valve to Pressurize.
10. Connect the air pump to the Pressure Inlet on the reel and repressurize the system as determined in step 4.
11. Once pressurized, disconnect the air pump and bring the sampler to the surface.
12. When the sampler is at the surface, and you are ready to retrieve your sample, turn the Pressurize/Vent Valve to Vent.
13. Hold the Discrete Interval Sampler over your sample bottle and press the Sample Release Device Stem up into the Lowering Bracket to bring the Sampler out of the well.

Note: The Sample Release Device NEVER goes down the well.

For sampling at depths greater than 200 ft. (60 m) below water level use the following method to increase safety.

Before Sampling: Pressurize the sampler to 100 psi (700 kPa) then lower the sampler to a depth of about 160 ft. (50 m) below water.

At that level increase the pressure to the maximum required, as determined when setting the operating pressure. Then lower the sampler to the appropriate level and continue as per the operating instructions.

After Sampling: Raise the sampler to a depth of about 160 ft. (50 m) below water, then decrease the pressure on the sampler to 100 psi (700 kPa). Continue to raise the sampler and follow the instructions to properly remove the sample.

Recommended Operating Pressure

<table>
<thead>
<tr>
<th>Depth (ft.) below water</th>
<th>Pressure psi</th>
<th>Depth (m) below water</th>
<th>Pressure kPa</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>20</td>
<td>7.6</td>
<td>145</td>
</tr>
<tr>
<td>50</td>
<td>30</td>
<td>15.2</td>
<td>220</td>
</tr>
<tr>
<td>100</td>
<td>50</td>
<td>30.5</td>
<td>370</td>
</tr>
<tr>
<td>200</td>
<td>95</td>
<td>61.0</td>
<td>670</td>
</tr>
<tr>
<td>300</td>
<td>140</td>
<td>91.4</td>
<td>965</td>
</tr>
<tr>
<td>500</td>
<td>225</td>
<td>152.4</td>
<td>1,565</td>
</tr>
</tbody>
</table>

Discrete Interval Sampler Capacity

<table>
<thead>
<tr>
<th>Size</th>
<th>Capacity</th>
<th>Size</th>
<th>Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1&quot; x 2 ft.</td>
<td>6 oz</td>
<td>25.4 mm x 610 mm</td>
<td>175 ml</td>
</tr>
<tr>
<td>1.66&quot; x 2 ft.</td>
<td>15 oz</td>
<td>38 mm x 610 mm</td>
<td>450 ml</td>
</tr>
<tr>
<td>2&quot; x 2 ft.</td>
<td>27 oz</td>
<td>50.8 mm x 610 mm</td>
<td>800 ml</td>
</tr>
</tbody>
</table>
Assembly

**Note:**

The PTFE check ball sinks in water.
The Polypropylene check ball floats in water.

1. Push the V-010 o-ring inside the Bottom Platen.
2. Place a V-203 o-ring inside the Bottom Platen.
3. Ensure a V-116 o-ring is installed over the Bottom Platen.
4. Drop the PTFE check ball into the Bottom Platen.
5. Push a Check Ball Retainer into the Bottom Platen until it seats.
6. Thread the Bottom Platen into the Sampler Body until finger tight.
7. Place the other V-203 o-ring into the Top Platen.
8. Ensure there is a V-116 o-ring installed over the Top Platen.
9. Drop the Polypropylene check ball into the Top Platen.
10. Push the other Check Ball Retainer into the Top Platen until it seats.
11. Thread the Top Platen into the Sampler Body until finger tight. Ensure the Compression Fitting is threaded into the Top Platen.
12. Attach the tubing by tightening the compression fitting nut to the compression fitting thread union until finger tight. Using a wrench tighten until snug (no more than 1/8 or 1/4 turns).

**Tubing Connection** (Hanger Bracket Assembly)

- Tubing
- Ferrules (2 pieces)*
- Upper Check Ball Body
- Compression Fitting Nut with Lowering Bracket
- Compression Fitting Thread Union

*Spare Set of 10 Ferrules (109113)

**Decontamination**

**Notes:**

1. Always follow your local guidelines and standard protocols.
2. Replace worn o-rings.

The Discrete Interval Sampler should be decontaminated after each sampling event.

1. Disassemble the Sampler.
2. Wash all Discrete Interval Sampler parts in a phosphate-free soap.
3. Rinse all parts thoroughly with deionized water and dry.
4. Reassemble the Sampler.