The Swan-Ganz CCOmbo and CCOmbo VIP catheters and Vigilance monitor provide the traditional parameters of the Swan-Ganz catheter with the addition of continuous cardiac output and mixed venous oxygen saturation monitoring.

### CCCombo Catheter
- **Model:** 744F75, 744HF75
- **Length:** 110 cm
- **Size:** 7.5F
- **Recommended Introducer Size:** 8.5F – 9.0F

### CCCombo VIP Catheter
- **Model:** 746F8, 746HF8
- **Length:** 110 cm
- **Size:** 8F
- **Recommended Introducer Size:** 9.0F

#### Balloon Inflation Volume
- Appropriate inflation volume is 1.5 cc

#### PA Distal Port
- Transduce distal lumen – proper waveform is PA

#### VIP Port
- **Model:** 746F8, 746HF8
- **Length:** 30 cm from tip
- **Location:** RA/SVC

#### Thermistor
- **4 cm from tip**
- **In main body of PA**

#### Proximal Injectate Port
- **26 cm from tip**
- **Location:** RA or SVC
- **Note:** If incorrectly positioned in introducer sheath, Bolus CO measurement will be erroneously high due to reflux of injectate within introducer
- **Transduce Proximal Injectate Lumen – proper waveform is RA or SVC**

#### Thermal Filament
- **14 – 25 cm from tip**
- **Rests between RA and RV**
- **Should be free floating and avoid endocardial surface**
- **Erroneous CCO measurements may result if beyond pulmonic valve**

---

**Note:** Assess patient physiology. Atypical physiology and heart size may require special handling.
## Troubleshooting for Vigilance II CCO/SvO₂ Monitor

<table>
<thead>
<tr>
<th>Problem or Displayed Message</th>
<th>Possible Cause</th>
<th>Suggested Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>CCO measurements do not agree with Bolus CO measurements</td>
<td>• Catheter position&lt;br&gt;• Instrument configuration&lt;br&gt;• Faulty thermistor or injectate probe connection&lt;br&gt;• Unstable baseline temperature affecting bolus CO measurements</td>
<td>• Verify proper catheter position:  - Balloon inflation 1.5cc  - Check for PAWP tracing  - Transduce injectate (RA/Blue) Lumen&lt;br&gt;• Verify that injectate volume and catheter size OR computation constant have been correctly selected&lt;br&gt;• Check injectate probe and catheter connection&lt;br&gt;• Assess factors affecting PA temperature stability:  - Rapid bolus infusions  - Shivering  - Patient movement  - Fighting ventilator  - Wait 60 seconds between injections</td>
</tr>
<tr>
<td>&quot;Check Thermal Filament Position&quot;&lt;br&gt;&quot;Warm Injectate&quot; or &quot;Injectate Too Warm. Check Probe&quot;</td>
<td>• Flow around thermal filament may be reduced&lt;br&gt;• Injectate temperature within 8°C of blood temperature&lt;br&gt;• Injectate temperature &gt;30°C</td>
<td>• Verify proper catheter position&lt;br&gt;• Verify free floating state of catheter&lt;br&gt;• Use cooler injectate fluid:  - Maintain ice slush solution  - If prefilled syringes, remove from cold source and use within 15 seconds&lt;br&gt;• Check injectate probe connection&lt;br&gt;• Replace injectate temperature probe</td>
</tr>
<tr>
<td>&quot;SQI = 4&quot;</td>
<td>• Catheter too distal&lt;br&gt;• Low blood flow at catheter tip or catheter tip against vessel wall&lt;br&gt;• Change in Hgb/Hct values&lt;br&gt;• Catheter kinked or damaged</td>
<td>• Verify proper catheter position&lt;br&gt;• Verify patency of catheter&lt;br&gt;• Update Hgb/Hct values using UPDATE function&lt;br&gt;• Check catheter for kinking and recalibrate&lt;br&gt;• Replace catheter if required and recalibrate&lt;br&gt;• After all above troubleshooting measures are utilized, press OPTICAL RESET</td>
</tr>
<tr>
<td>&quot;Red/IR Transmit&quot;</td>
<td>• Optical Module contamination/Optical Module damage</td>
<td>• Disconnect catheter from OM&lt;br&gt;• Clean Optical connector on catheter and OM&lt;br&gt;• Reconnect, if Error message disappears, do INVIVO calibration&lt;br&gt;• If Error message remains, try different Optical Module&lt;br&gt;• If Error message remains, change catheter</td>
</tr>
</tbody>
</table>

For professional use. CAUTION: Federal (United States) law restricts this device to sale by or on the order of a physician. See instructions for use for full prescribing information, including indications, contraindications, warnings, precautions, and adverse events.

Edwards Lifesciences devices placed on the European market meeting the essential requirements referred to in Article 3 of the Medical Device Directive 93/42/EEC bear the CE marking of conformity.

Edwards, Edwards Lifesciences, the stylized E logo, CCOMbo, Swan-Ganz, Vigilance, Vigilance II, and VIP are trademarks of Edwards Lifesciences Corporation.

© 2013 Edwards Lifesciences Corporation.  
All rights reserved. AR10394