Tendeka's Distributed Sensing System (DTS) comprises of downhole and surface fiber optic equipment to provide high resolution, permanent monitoring of well temperature.

Tendeka's DTS System uses a combination of variations in back-scattered light intensity and time reflectometry to create temperature against distance profiles. The fiber acts as both a sensing element and transmission medium.

SureSight DTS Cable
The SureSight range of DTS cables provide maximum protection to the sensing fiber, providing the operator with more visibility as to what is happening in the reservoir.

The construction of the SureSight cable consists of a dual-barrier design with two metal tubes providing mechanical protection and a barrier against chemical and gas ingress. Coatings on the fiber can be used to prevent damage caused by hydrogen. 11mm x 11mm encapsulation can be used to add an extra layer of protection to the cable.

The SureSight DTS Cable is available in a range of sizes and structures which vary depending on the application and downhole conditions.
## Selection Criteria

<table>
<thead>
<tr>
<th>OD</th>
<th>Wall Thickness</th>
<th>Working Pressure Rating</th>
<th>Tensile Strength</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/8&quot;</td>
<td>0.022&quot;</td>
<td>0 - 25,000psi</td>
<td>316L</td>
</tr>
<tr>
<td>1/4&quot;</td>
<td>0.028&quot;</td>
<td>0 - 10,000psi</td>
<td>105,000psi</td>
</tr>
<tr>
<td>1/4&quot;</td>
<td>0.036&quot;</td>
<td>0 - 15,000psi</td>
<td>105,000psi</td>
</tr>
<tr>
<td>1/4&quot;</td>
<td>0.049&quot;</td>
<td>0 - 20,000psi</td>
<td>105,000psi</td>
</tr>
</tbody>
</table>

**Tubing material recommended for use in oil or gas base annular fluids (no water)**

- Use 316L stainless steel when $H_2S$ is not present
- Use A825 when $H_2S$ is present in any amount

**Tubing material recommended for use in water base annular fluids**

- Use 316L stainless steel if $CO_2$ is present in concentrations <1% and no chlorides are present in any concentration, and BHT >110°C
- Use A825 when $H_2S$ is present in any amount
- Use A825 if $CO_2$ is present in concentrations >1%
- Use A825 if $CO_2$ is present in concentrations <1% and chlorides are present in any concentration and BHT >110°C

**Tubing encapsulation recommended for use in oil or gas base annular fluids (no water)**

- Use Polyamide when BHT <150°C and no water is present
- Use FEP when BHT >150°C and no water is present

**Tubing encapsulation recommended for use in water based annular fluids**

- Use Polyolefin when BHT <125°C and gas with $CO_2$ is present
- Use ECTFE when BHT is >125°C <150°C and gas with $CO_2$ is present
- Use Polyolefin when BHT <150°C and gas without $CO_2$ is present
- Use ECTFE when BHT is <150°C and petroleum is present
- Use FEP when BHT >150°C

**Fiber recommendation when no hydrocarbon is present**

- Use VHM2000 Std. Acrylate when BHT <85°C and MM is required
- Use VHS 100 Std. Acrylate when BHT <85°C and SM is required
- Use VHM2000 MTDA when BHT >85°C <150°C and MM is required
- Use VHS100 MTDA when BHT >85°C <150°C and SM is required

**Fiber recommendation when hydrocarbon is present**

- Use VHM2000 C/A when BHT <85°C and MM is required
- Use VHS100 C/A when BHT <85°C and SM is required
- Use VHM2000 C/MTDA when BHT >85°C <150°C and MM is required
- Use VHS100 C/MTDA when BHT >85°C <150°C and SM is required

**Fiber recommendation when BHT is above 150°C**

- Use VHM2000 C/P when BHT <200°C and MM is required
- Use VHS300 C/P when BHT <200°C and SM is required
- Use VHM3000 C/P when BHT >200°C <300°C and MM is required
- Use VHS300 C/P when BHT >200°C <300°C and SM is required