FireLaser - Distributed Temperature Sensor

FireLaser is a Linear Heat Detector System specifically designed for use in Special Hazard fire detection applications. Designed specifically for industrial application environments, FireLaser is built to the highest reliability and with a flexible communication architecture to integrate with all standard control systems.

**Features**

- Location of fire related events to within 1m
- Based on single fiber optic sensing cable. No individual sensors, no metal or moving parts
- Robust and reliable instrumentation with no moving parts (fan free) and utilising high reliability telecom components

**Benefits**

- Ability to react to precise location of event for rapid action and effective troubleshooting
- Easy to install and low cost of ownership with low ongoing maintenance costs
- High percentage system uptime (Telcordia MTBF> 29 years) giving complete coverage at all times
# Measurement Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>Range</th>
<th>Temp Resolution</th>
<th>Number of Zones</th>
<th>Sampling Resolution</th>
<th>Meas. Time (per circuit)</th>
<th>No. of Channels</th>
</tr>
</thead>
<tbody>
<tr>
<td>FL-03-02-1CH</td>
<td>2km</td>
<td>0.5°C</td>
<td>250</td>
<td>1m</td>
<td>4 sec</td>
<td>1</td>
</tr>
<tr>
<td>FL-03-02-2CH</td>
<td>2km</td>
<td>0.5°C</td>
<td>250</td>
<td>1m</td>
<td>4 sec</td>
<td>2</td>
</tr>
<tr>
<td>FL-03-02-4CH</td>
<td>2km</td>
<td>0.5°C</td>
<td>250</td>
<td>1m</td>
<td>4 sec</td>
<td>4</td>
</tr>
<tr>
<td>FL-03-05-1CH</td>
<td>5km</td>
<td>0.5°C</td>
<td>500</td>
<td>1m</td>
<td>6 sec</td>
<td>1</td>
</tr>
<tr>
<td>FL-03-05-2CH</td>
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<td>0.5°C</td>
<td>500</td>
<td>1m</td>
<td>6 sec</td>
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<td>0.5°C</td>
<td>500</td>
<td>1m</td>
<td>6 sec</td>
<td>4</td>
</tr>
<tr>
<td>FL-03-10-2CH*</td>
<td>10km</td>
<td>1°C</td>
<td>1000</td>
<td>1m</td>
<td>10 sec</td>
<td>2</td>
</tr>
<tr>
<td>FL-03-10-4CH*</td>
<td>10km</td>
<td>1°C</td>
<td>1000</td>
<td>1m</td>
<td>10 sec</td>
<td>4</td>
</tr>
</tbody>
</table>

*Product release Q3 2019 Please contact Bandweaver for specification

## Example of System Architecture

![Diagram](image-url)
## Physical and Operating Characteristics

<table>
<thead>
<tr>
<th>No. of Alarm Zones</th>
<th>500 User configurable smart zones</th>
</tr>
</thead>
</table>
| Zone Based Alarm Types | • Maximum and minimum absolute temperature values  
• Deviation from average within zone  
• Rate of rise |
| System Interfaces | Internet ports  
RJ-45 100Mb/s  
Relay Ports  
50 way relay  
RS 232/485  
USB |
| Laser Safety | Class 1m laser safety |
| Operating Conditions | Operating Temperature  
-10 ~ 60°C*  
Storage Temperature  
-20°C ~ 85°C  
Humidity  
0%~95% RH NC |
| Physical Dimensions | Height  
131 mm  
Width  
432 mm  
Depth  
332mm  
Weight  
10kg |
| Power requirements | 15 to 40 w (25W typical)  
24 VDC |

## Sensing Fiber Characteristics

<table>
<thead>
<tr>
<th>Fiber Type</th>
<th>Multi Mode 62.5/125</th>
</tr>
</thead>
</table>
| Temperature Range | -60°C ~ 85°C (long term **)  
-60°C ~ 150°C (short term **) |
| Attenuation | < 2.5 / 0.8 dB/km @ 850/1300nm |
| Cable Specifications | See individual data sheets for  
FireFiber AT – Armoured tube based cable design  
Fire Fiber TT – Thermoplastic tube cable design |

* Standard operating temperature of DTS is -10 to +50°C. For 60°C please confirm HT model is selected  
** Based on standard fiber. Speciality high temperature cables available on request
System Design and Planning

Bandweaver or one of our partners can offer assistance in helping select which specific FireLaser system is appropriate for you specific application.

For example, for tunnel applications there are a number of different possible configurations depending on the end user safety requirements (see examples below)

\[\text{Examples of tunnel configurations}\]

Reliability, Certification and Approvals

Bandweaver is ISO 9001 certified and undergoes a rigorous continuous improvement program and tests all of its products to leading international standards

- More than 1,500 installed DTS units.
- Field operating MTBF of 74,000 hours (>8 years)
- Key components designed and tested to telecom standards > 29 years MTBF
- Products are designed for low maintenance and cost of ownership (e.g. fan free design..)

Bandweaver tests all of it’s equipment to leading international using internal facilities and internationally recognised 3rd party test houses