The T-Ray® 5000 Dual Channel Control Unit (TCU54nm) is the same size, shape and weight as our successful single channel unit (TCU52nm) but with the added benefit of being able to control two terahertz sensors enabling a wide variety of multi-sensor applications.

Based on the same proven technology as the single channel unit, the TCU54nm is characterized by high precision, short measurement time, and a robust construction. It monitors and controls all aspects of THz generation and detection. It delivers precisely controlled optical signals to the terahertz transmitters and receivers, or the T-Gauge® Sensor Heads, enabling them to generate and receive terahertz signals. Measured data are processed within the Control Unit at a rate of up to 1 kHz, making the T-Ray® 5000 one of the fastest terahertz systems available. The processed waveforms enable multiple measurements to be made simultaneously with a single sensor head.

The T-Ray® 5000 Control Unit and accessories are linked with robust connection points and interfaces appropriate for industrial environments. Adequate connections are provided to allow seamless integration with most QC systems or experimental applications. The industry-standard interface connections make integration with the T-Gauge® Sensor straightforward.

**APPLICATIONS**

With the ability to make simultaneous measurements at two locations, some of the potential applications are:

- Differential measurement as coatings or layers are applied
- OD and ID of large diameter pipe
- Four point measurement of small diameter tubing
- Top and bottom balance of steel cord tire ply
- Two point calender control

**KEY FEATURES**

- Two reflection sensors
- New lightweight umbilical
- High speed measurement
- Independent measurement recipes
- Simple user interface
- Single fiber to each head
- Thickness measurement of material opaque to THz

**BENEFITS**

- Low cost per sensor
- High quality production
- Efficient line startup
- Integrates with web scanners and robots
- Provides measurements in engineering units
- Does not require specialty monitor or keyboard

**T-Ray® 5000 SERIES**

www.lunainc.com/thz terahertzsales@lunainc.com
## Parameter Specifications

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
<th>Units</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum measurement range</td>
<td>12, 25, 50 or 100</td>
<td>mm</td>
<td>Will vary with material measured</td>
</tr>
<tr>
<td>Measurement rate</td>
<td>100 and 1000</td>
<td>Hz</td>
<td>Determined by measurement range</td>
</tr>
<tr>
<td>External monitor connection</td>
<td>VGA</td>
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<tr>
<td>A/D dynamic range</td>
<td>16</td>
<td>bit</td>
<td></td>
</tr>
<tr>
<td>Operating temperature range</td>
<td>0 - 50</td>
<td>°C</td>
<td>20 - 90% RH non-condensing</td>
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<tr>
<td>Current required</td>
<td>&lt; 4</td>
<td>Amps</td>
<td>110/240 VAC, 50/60 Hz self-sensing</td>
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<tr>
<td>Size (W x H x D)</td>
<td>17.5 x 21.5 x 7.5</td>
<td>in</td>
<td>Minimum size</td>
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<tr>
<td>Weight</td>
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<td>kg</td>
<td></td>
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<tr>
<td>USB ports</td>
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<tr>
<td>Ethernet ports</td>
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<td>2 independent IP addresses</td>
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<tr>
<td>Digital interface</td>
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<td>Inputs and outputs</td>
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<tr>
<td>Encoder inputs</td>
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<td>High speed</td>
</tr>
</tbody>
</table>

### Typical Configuration

- Terahertz Controller
- Umbilical (5, 10, or 30 m)
- Online transceiver
- Wall, shelf or rack mount
- T-Ray® Server Basic and T-Gauge® Software

### Ordering Information

**Included**
- US standard line cord

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