Terahertz Control Unit
T-Ray® 5000 TCU52nm

The T-Ray® 5000 Control Unit is appropriate for use in industrial, non-destructive testing, and scientific applications. 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 data generated by the T-Gauge® Sensor Heads and processed by the T-Ray® 5000 Control Unit enable multiple measurements of a product simultaneously.

One T-Gauge® Sensor can measure the basis weight, caliper thickness, multi-layer thicknesses, density and moisture content of a sample in a single pass.

Attached to a separate transmitter and receiver, the T-Ray® 5000 Control Unit can perform spectroscopic measurements as well as transmission and reflection imaging.

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

- Industrial process control: commercial roofing; foam density; coating thickness; plastic extrusion; asphalt shingles
- Nondestructive materials inspection: aircraft; packaged goods; radome inspection; spacecraft; pipeline repairs
- Converting applications: paper coating; multilayer films; tire
- Scientific applications: Terahertz Imaging (transmission and reflection); Time Domain Spectroscopy

KEY FEATURES

- Compact enclosure
- Mates to fiber coupled sensor head
- Integrated data processor
- Standard monitor and USB connections
- Digital inputs available for measurement control

BENEFITS

- Easy to install
- Integrates with web scanners and robots
- Provides measurements in engineering units
- Does not require specialty monitor or keyboard
- Triggers for bin boundaries or data tagging
Industry Leading Regulatory Compliance

The T-Ray 5000 intelligent TCU has been certified by Underwriters Laboratories has received the CE mark, is fully compliant with FDA CDRH laser safety regulations, and has been tested to meet FCC part 18 regulations.

ORDERING INFORMATION

Included

- US standard line cord

Typical Configuration

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

<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>
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<tr>
<td>Measurement rate</td>
<td>100 and 1000 Hz</td>
<td>Hertz</td>
<td>Determined by measurement range</td>
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<tr>
<td>External monitor connection</td>
<td>VGA</td>
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<tr>
<td>A/D dynamic range</td>
<td>16 bit</td>
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<tr>
<td>Operating temperature range</td>
<td>0 - 50 °C</td>
<td></td>
<td>20 - 90% RH non-condensing</td>
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<tr>
<td>Current required</td>
<td>&lt; 4 Amps</td>
<td></td>
<td>110/240 VAC, 50/60 Hz self-sensing</td>
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<tr>
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<td>17.5 x 21.5 x 7.5</td>
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<td>Minimum size</td>
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<tr>
<td>Encoder inputs</td>
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<td>High speed</td>
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</table>

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