TeraMetrix™

Dual Channel Terahertz Control Unit

T-Ray® 5000 TCU54nm

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

Parameter	Specification	Units	Comments
Maximum measurement range	12, 25, 50 or 100	mm	Will vary with material measured
Measurement rate	100 and 1000	Hz	Determined by measurement range
External monitor connection	VGA		
A/D dynamic range	16	bit	
Operating temperature range	0 - 50	°C	20 - 90% RH non-condensing
Current required	< 4	Amps	110/240 VAC, 50/60 Hz self-sensing
Size (W x H x D)	17.5 x 21.5 x 7.5	in	Minimum size
Weight	18.2	kg	
USB ports	4		
Ethernet ports	3		2 independent IP addresses
Digital interface	16		Inputs and outputs
Encoder inputs	6		High speed

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® Server Basic and T-Gauge® Software

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.

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