Schottky-diode based radar system

Sub-THz FMCW Radar transceiver

Ultra compact, reliable sub-THz radar transceiver for NDT applications

High dynamic range up to 100 dB, high measurement rate of 7.6 kHz

High spatial resolution up to 2 mm, positioning accuracy ±5 µm

Integrated ultra-stable linear hybrid-digital PLL

Integrated FPGA-based signal pre-processing

Refractive index extraction algorithm

Monostatic architecture

The FMCW radar transceiver is a sub-THz device based on state-of-the-art Schottky diode technology. Being a FMCW radar (frequency-modulated continuous-wave), it provides both amplitude and phase information contained in reflected signals along with a longitudinal profile, making it an excellent candidate for in-depth sensing. NDT radar has a remarkable dynamic range up to 100 dB, allowing to inspect various geometries from thick samples to absorbent materials. In addition, the high measurement rate (7.6 kHz) of NDT radar matches on-line quality control requirements for industries, ensuring optimal capabilities. Specifically, tailored imaging module options, scanning kits and dedicated signal processing software, are also available to suit specific applications. NDT radar is a fully integrated, plug and play system and remotely controlled via a user-friendly software, guarantying the best user experience. The combination between excellent penetrating and high imaging resolution achieved by NDT radar makes it a versatile sensing tool.

上海昊量光电设备有限公司 Phone: 4006-888-532 WeChat: Auniontech Website: www.auniontech.com E-mail: info@auniontech.com

Control:

- ✓ Remote with dedicated software via USB

Connectivity:

- ✓ Power supply: 100-240 V AC
- ✓ Ethernet link

Features :

- Compact & reliable FMCW transceiver
- Up to 100 dB dynamics
- Fast measurement rate of 7.6 KHz
- 2 mm spatial resolution in air
- Fully integrated, plug & play
- Custom imaging & scanning modules
- Advanced signal processing software

Applications :

- In-depth sensing for dielectric materials (Polymers, woods, ceramics, papers, composites, foods, rubber..)
- Volumetric imaging for quality control (Packing inspection, welding defect…)
- Contactless thickness measurement
- Precision positioning
- Material analysis
- Security screening

Specifications	FMCW radar transceiver	
Transceiver	Monostatic	
Operation mode	FMCW	
Frequency band	150 GHz	
Dynamic range	Up to 100 dB	
Measurement rate	7.6 KHz	
Positioning precision	< 5 µm	
Control	Remote USB	
Power supply	100-240 V AC	
Temperature range	0– 40 °C	
Dimension and weight		
H x L x W	25 cm x 25 cm x 10 cm	
Weight	3 Kg	
Extensions		
3D imaging		
Operation mode	Translation stages / robotic arm	
Software	Data visualisation, data processing	
Optics (THz lenses)	2" f= 5 cm	2"f=10 cm
Spatial resolution X/Y	2 mm	4 mm
Thickness measurement		
Thickness range	Sub-mm up to tens of cm	
Accuracy	±5 µm	