

iSYS-6003 Multifunctional Radar



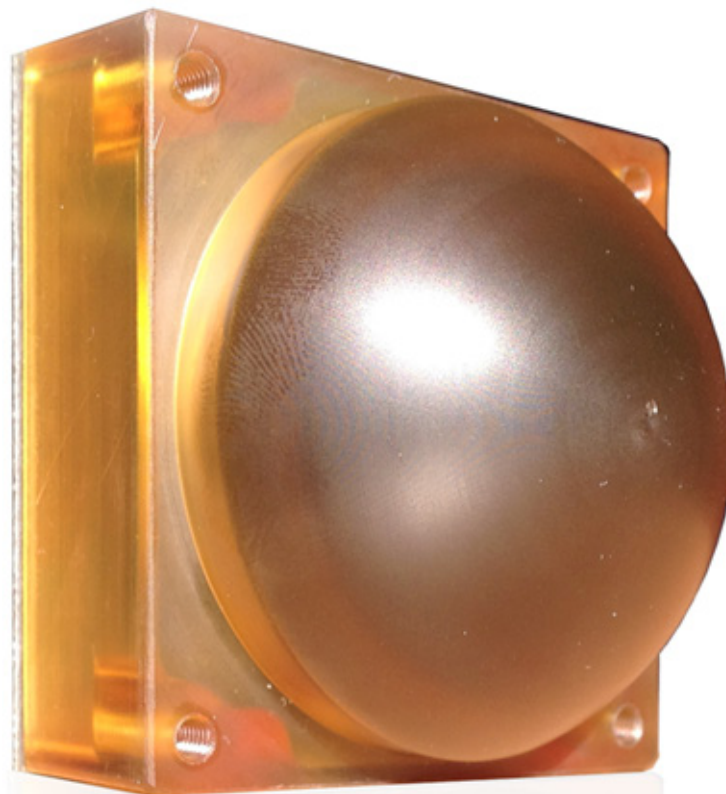
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iSYS-6003

Application data at a glance

61 GHz radar module with signal-processing for precise distance measurement for stationary or slow moving targets.

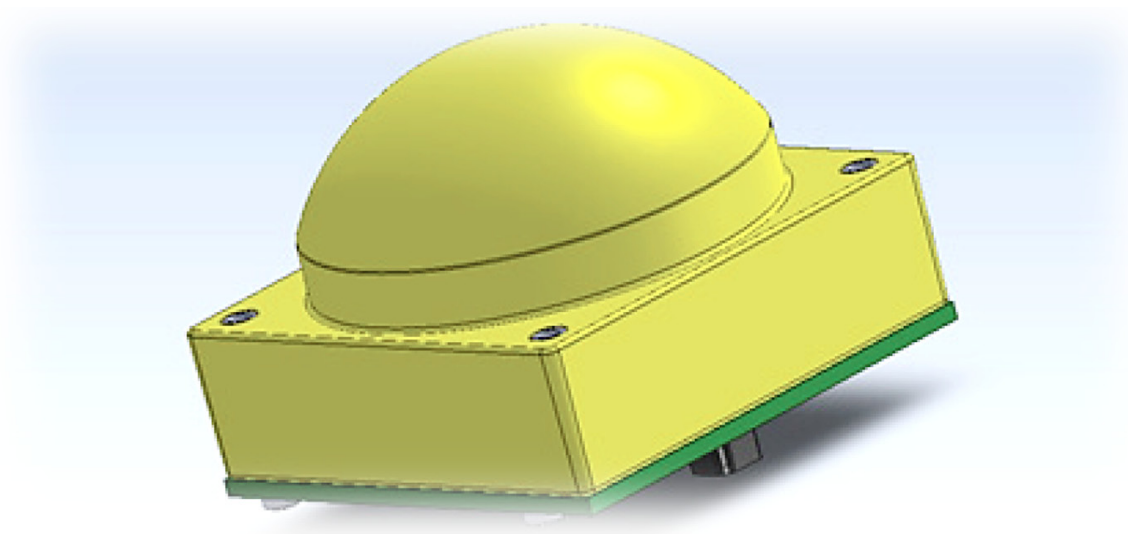


- Distance measurement with millimeter accuracy
- Small size (50mm x 50mm) for easy integration into customer housing
- Narrow beam width
- Client boards with USB or RS-485 interface available for fast initial operation
- Customer can reuse InnoSenT's client board layout and/or schematic to build their own specialized sensor solution

iSYS-6003

Technical Specifications

The goal was the design of a multifunctional radar system for the use in the wide area of high accurate distance measurement. The result is the iSYS-6003 unit.



General

- Radar module type: 61 GHz broad band
- Modulation type: FMCW
- Frequency band: 57 .. 64 GHz
- Interface (on module): 14 pol Pin Headers, 1.27mm Pitch, Vertical,
- Supply voltage (module): 4,8 Volt .. 5,2 Volt
- Current consumption: < 450 mA
- Temperature range: -25°C .. +60°C
- Reference target: metal plate (30cm x 25cm)
- Size: 50mm x 50mm (length x breadth),
approx. 48mm (height with lens)
- Interface (on client boards): USB or RS-485 for data, current source 4-20 mA

Measurement Modes

Depending on your needs the iSYS-6003 offers two measurement modes to fit perfectly to your application.

MULTITARGET MODE

- Output power: 10 dBm
- Bandwidth: > 3,5 GHz
- Measurement distance: up to 40 m
- Accuracy of distance measurement : +/- 2 mm (0.1m to 20m)
- maximum number of targets 30 targets @ 38400 or higher baud rate
19 targets @ 19200 baud rate
- Modulation: FMCW
- Update rate: 5 Hz
- Output format: Single target or target list

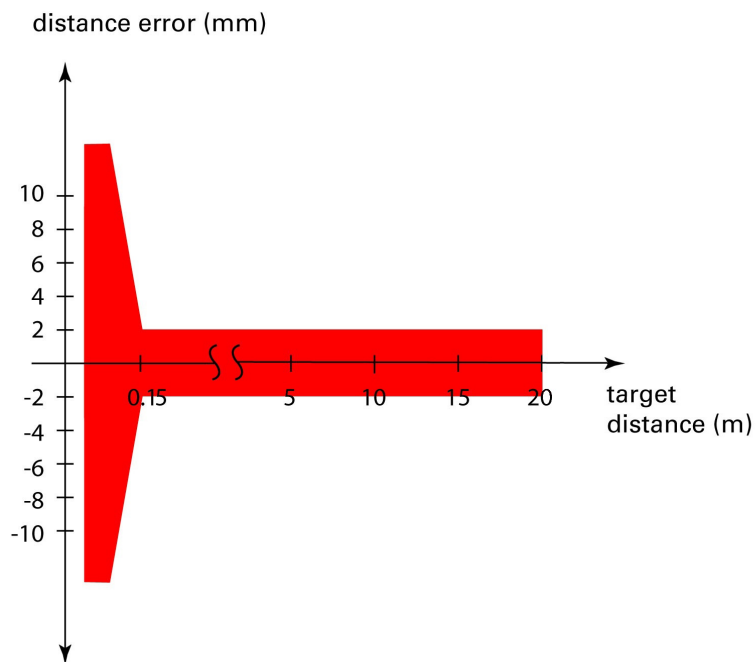
SINGLE TARGET MODE

- Output power: 10 dBm
- Bandwidth: > 3,5 GHz
- Measurement distance: up to 40 m
- Accuracy of distance measurement : +/- 2 mm (0.1m to 20m)
- Modulation: FMCW
- Update rate: 20 Hz
- Output format: Single target

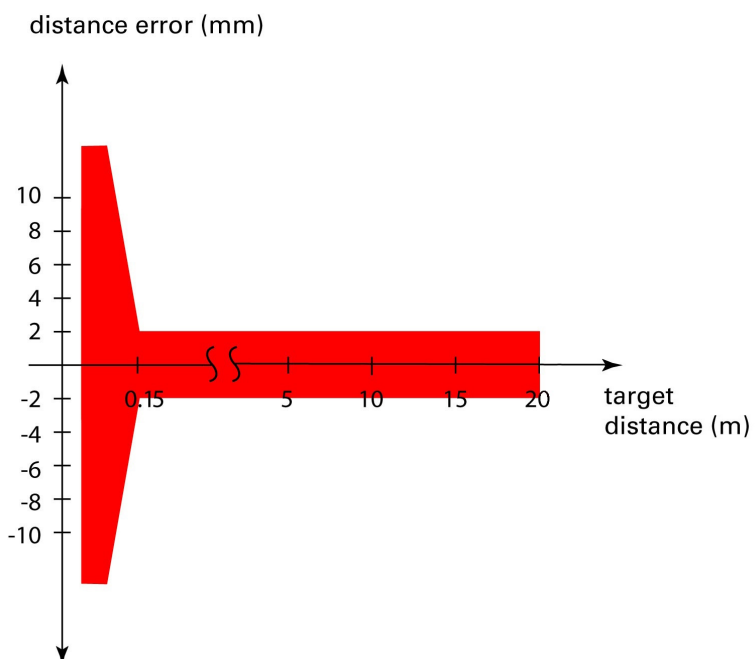
Distance Error

Measurements were done with a iSYS-6003 prototype.

MULTI TARGET MODE:



SINGLE TARGET MODE:

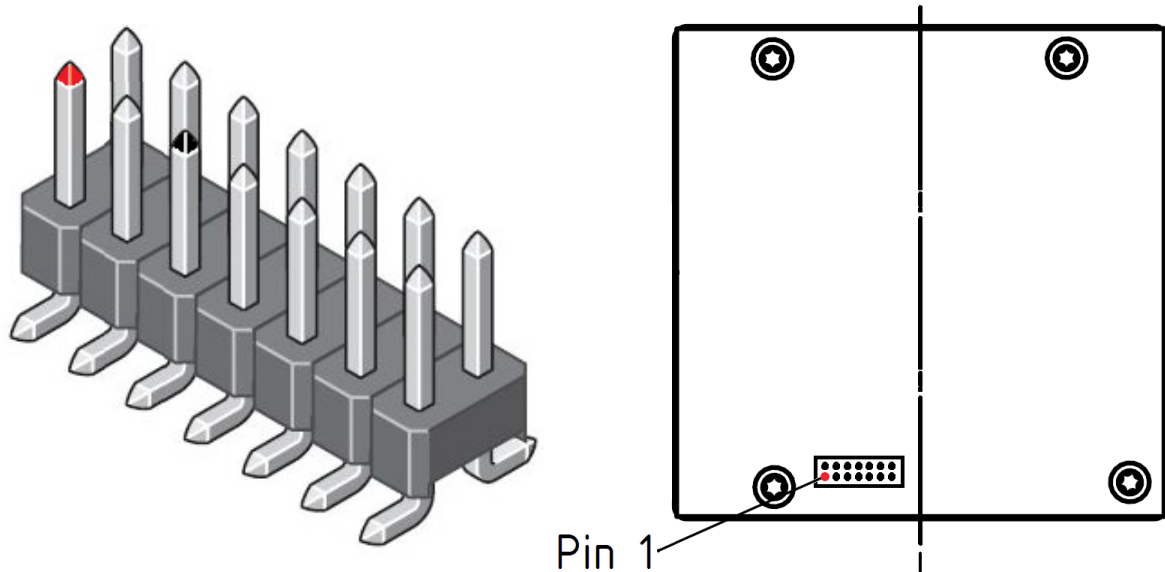


Interface

Pin Headers, 1.27mm Pitch, Vertical, Double Row

The sensor provides an Connector type: W+P 7075-0XX-16-10-00-PPTR

Compatible Female Headers is: W+P 6060-0XX-46-00-00-00-PPST



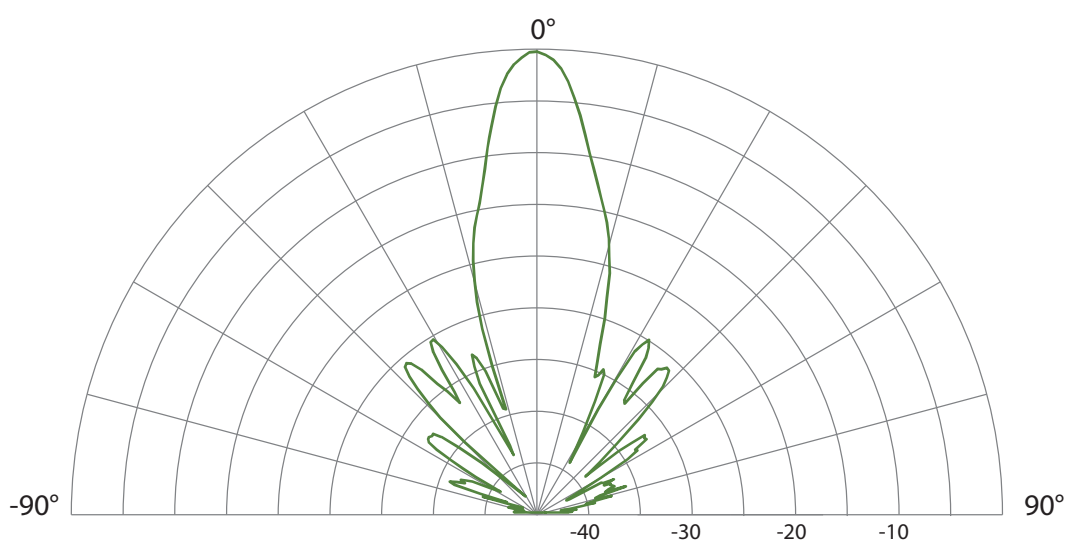
Pin Description

Connector type:		W+P 7075-0XX-16-10-00-PPTR	
PIN	SIGNAL	IN/OUT	COMMENT
1	V_IN	IN	5V supply voltage
2	SCI_RX	IN	UART Data in
3	GND	-	Ground
4	TX_ENABLE	OUT	TX_enable_RS485
5	GND		Ground
6	SCI_TX	OUT	UART Data out
7	OUTPUT 3	OUT	Configurable Output
8	SPI_C_CS	OUT	
9	STATUS	OUT	high mean ready
10	SPI_C_MOSI	OUT	
11	OUTPUT 1	OUT	Configurable Output
12	SPI_C_CLK	OUT	
13	OUTPUT 2	OUT	Configurable Output
14	D.N.C		do not connect

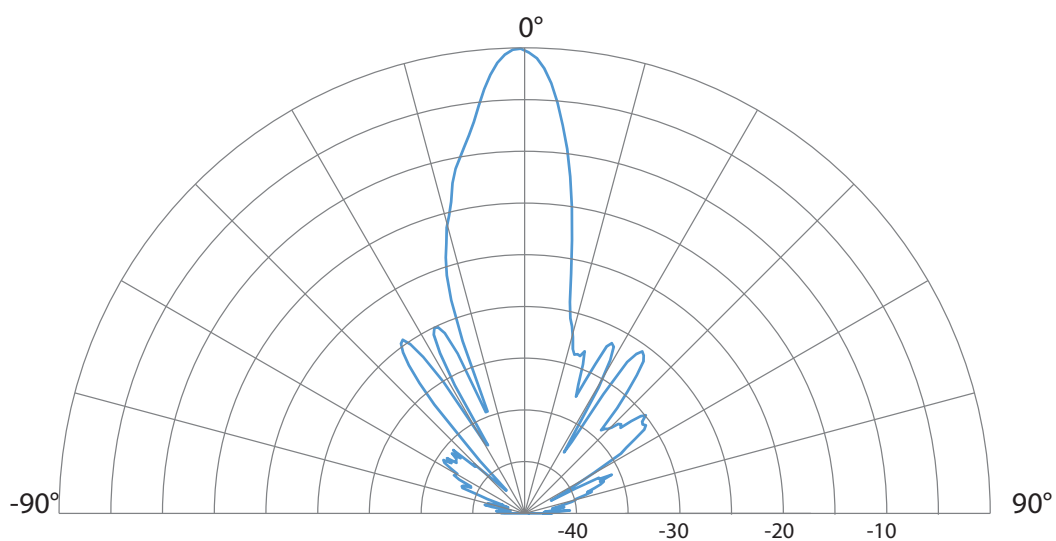
Antenna Characteristics

Tx-Pattern	Azimuth			Elevation	
	min.	max.		min.	max.
3dB-Beamwidth (FBW)	7°	9°		7°	9°
10dB-Beamwidth (FBW)	17	20°		17	20°
side lobe supression		15dB			15dB
squintin angle	-2°	2°		-2°	2°

Azimuth (measured @61GHz)



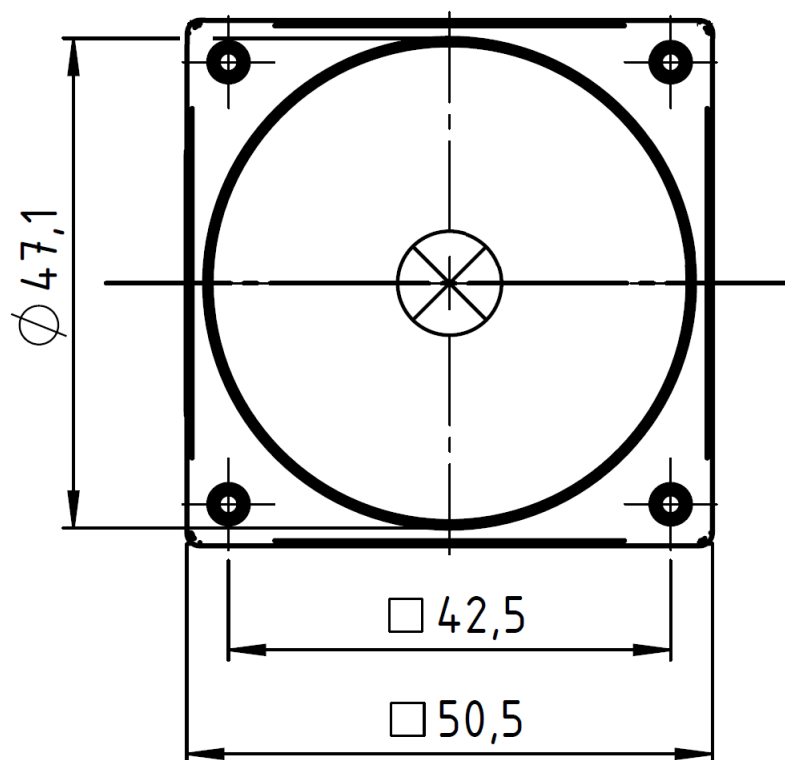
Elevation (measured @61GHz)



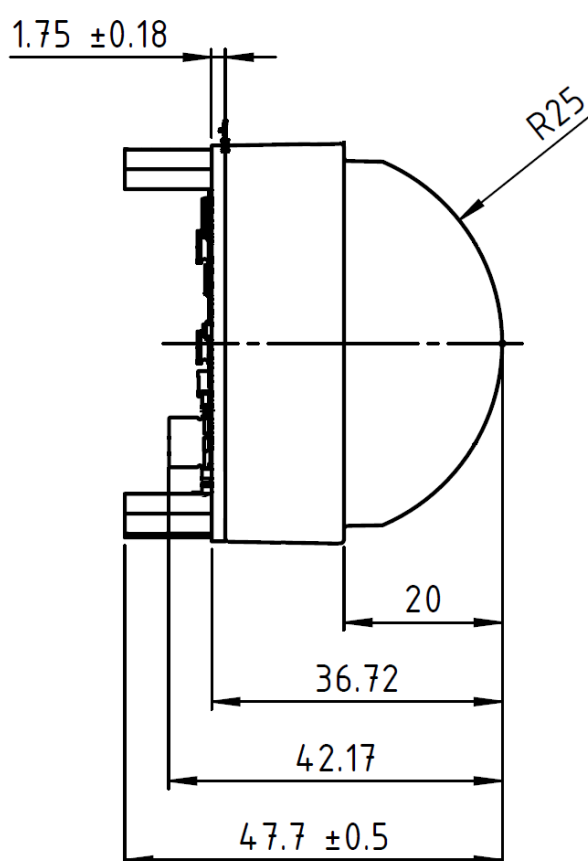
Dimensions

For detailed dimensions compare to corresponding Datasheet.

top view



side view



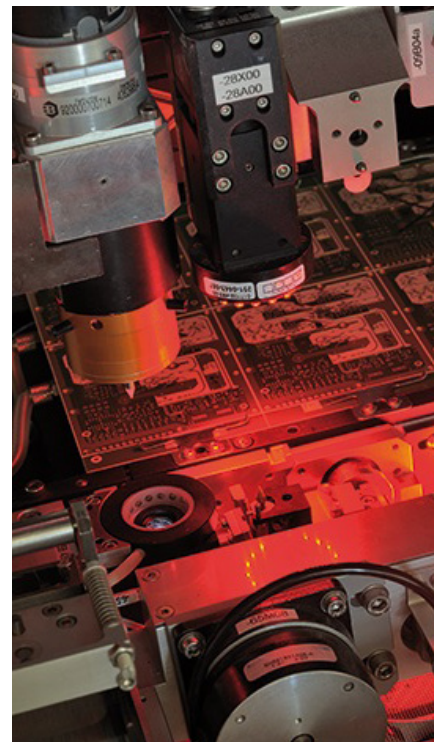
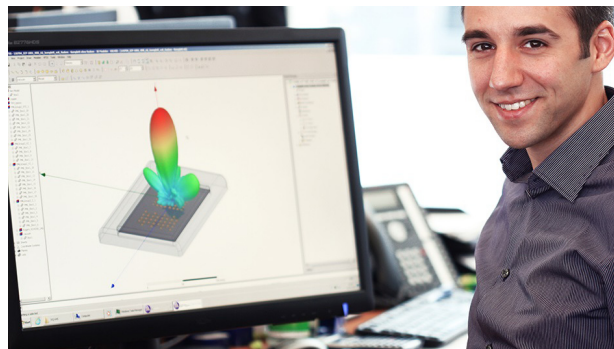
About InnoSenT

Founded in 1999 around a key team of 3 people with the vision to make radar technology affordable for industrial and automotive applications InnoSenT is nowadays with more than 3 million built sensors per year one of the market leader in 24GHz radar sensor technology.

InnoSenT is one of the world's largest sensor and systems manufacturers in the radar industry. Some key facts:

- InnoSenT develops and manufactures radar hardware
- mass production with over 3,4 million devices in 2014
- main focus on ISM Band sensors working at 24GHz, 61GHz and 77GHz for automotive applications
- product portfolio ranges from analog radar frontends up to complete sensor systems with a digital interface
- standard product portfolio as well as customer specific developments
- certified according ISO TS 16949:2009; ISO 9001:2008; ISO 14001:2004
- automotive quality grade is also applied for industrial business unit
- worldwide market presence for automotive and industrial business unit

InnoSenTs main focus is to find the perfect solution for your applications. We would be delighted to discuss the details with you.



Contacts

Customer satisfaction - the most important goal here at InnoSenT. To achieve this InnoSenT built up a worldwide network of representatives.

To offer the best support to our customers InnoSenT works close together with selected representatives all over the world..

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