
DATA SHEET

Product Family: Multifunctional K-Band Transceiver
Range of use: Traffic Monitoring / Industrial Applications

Module Number: **IMS-944**

General Information:

- The IMS-944 (InnoSenT **M**ultifunctional **S**ensor) is the advanced version of the famous InnoSenT K-Band Transceiver IPS-144.
- The sensor provides a special RF-Design for maximum sensitivity in long range applications like traffic monitoring or speed enforcement.
- New and smart features like programmable Tx-frequency or 2 power options give the user new options in the field of marketing and stock keeping.



Description:

Basic Features IMS-944:

- radar-based motion detector operating in the 24GHz ISM Band
- stereo (dual channel) operation for direction of motion identification
- integrated RF-pre-amplifier
- programmable IF-amplifier
- 2 selectable output power levels (ETSI / FCC)
- automatic gain control (AGC) of output power over temperature
- integrated PLL-circuit for high frequency stability
- frequencies are programmable by customer
 - one constant frequency
 - changing of frequencies by customers by external programming

Factory settings:

- programmed frequency: 24.160GHz
- programmed IF-gain: 53dB

CONFIDENTIAL AND PROPRIETARY

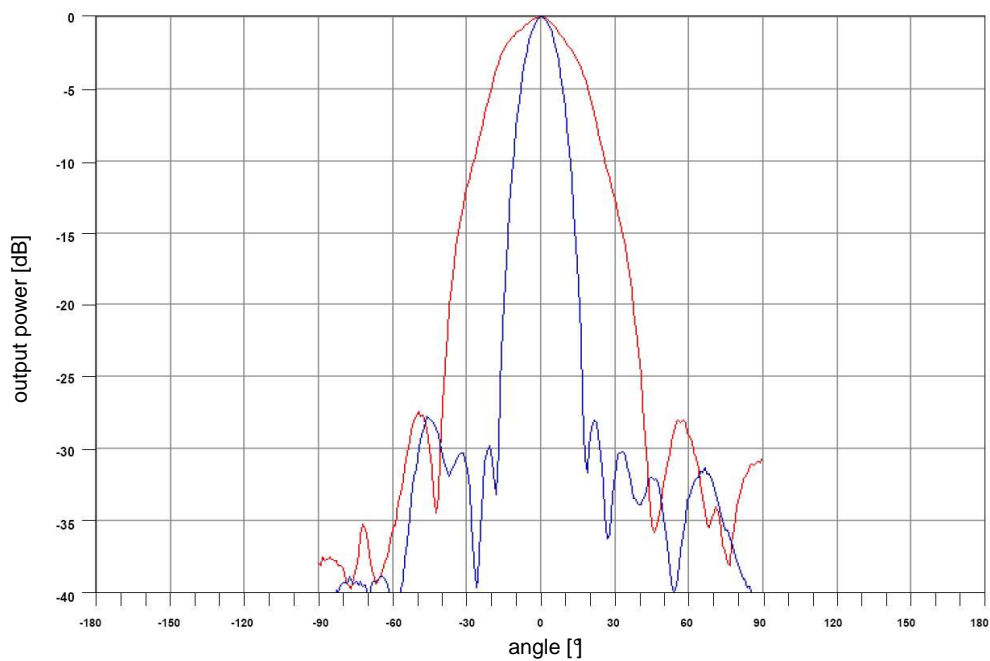
The information contained in this document is the exclusive property of InnoSenT GmbH and must not be disclosed by the recipient to third parties

Electrical Characteristics:

Parameter	Symbol	min.	typ.	max.	units	comment
Oscillator						
transmit frequency	F	24.000		24.250	GHz	programmable
channel spacing			4		MHz	
temperature drift frequency	Δf		< 10		kHz/°C	
output power (ETSI)	P_{out}		20		dBm	controlled by AGC
output power (FCC)	P_{out}		26		dBm	

Parameter	Symbol	min.	typ.	max.	units	comment
Antenna						
antenna pattern (-3 dB)	horizontal		32		°	azimuth
	vertical		14		°	elevation
side lobe suppression	horizontal		25		dB	azimuth
	vertical		25		dB	elevation

Antenna pattern:



Parameter	Symbol	min.	typ.	max.	units	comment
Receiver						
IF-amplifier	gain	20		53	dB	programmable
	upper corner	150			kHz	@53dB
	lower corner			40	Hz	
output impedance			100		Ω	
signal level ¹			190		mV _{RMS}	InnoSenT test setup
noise level ²			3.3		mV _{RMS}	InnoSenT test setup
voltage offset			1.65		V	
I/Q balance	amplitude			3	dB	
	phase	60		120	°	
output signal range		0		3.3	V	
Power supply						
positive supply voltage	V _{CC}		5		V	
positive supply current	I _{CC}			170	mA	
Environment						
operating temperature	T _{OP}	-20		60	°C	
outline dimensions		65.8 x 70.0 x 9 (17.7)			mm	compare drawing

¹ for known RCS, distance and speed of an object

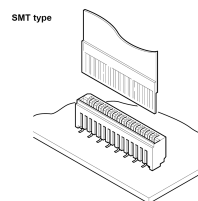
² @ InnoSenT Test setup and delivery status

Interface:

The sensor provides a JST Low insertion Force (FFC) Connector Type 14FMN-BMT-A-TF

Mating part:

Lead Pitch 1mm
 Lead width 0.7mm
 Thickness 0.3±0.05mm



Pin #	Description	In/Out	Comment
1	VCC	IN-analog	5V supply voltage
2	PLL_LD	OUT- mixed	Programmable FOLD-Output of LMX2310U (PIN9), e.g. Lock Detect
3	CProg	IN-digital	Enable Customer Programming – Active Low
4	LP	IN-digital	Low Power – Active Low
5	GAIN_LE	IN-digital	SPI-Latch-Enable for Gain Setting
6	PLL_LE	IN-digital	SPI-Latch-Enable for PLL-Settings
7	SPI_DA/MOSI	IN-digital	SPI-Data / μ C programming input
8	SPI_CL/MISO	IN-digital	SPI-Clock / μ C programming input
9	SCK	IN-digital	μ C programming input
10	RES	IN-digital	μ C programming input
11	GND	IN-analog	
12	Q	OUT-analog	LF-output signal
13	I	OUT-analog	LF-output signal
14	NC	X	do not connect

CONFIDENTIAL AND PROPRIETARY

The information contained in this document is the exclusive property of InnoSenT GmbH and must not be disclosed by the recipient to third parties

FCC approval:

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and
- (2) this device must accept any interference received, including

interference that may cause undesired operation.

Usually this is followed by the following FCC caution:

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

IC approval:

Operation is subject to the following two conditions:

- (1) this device may not cause interference, and
- (2) this device must accept any

interference, including interference that may cause undesired operation of the device.

Usually this is followed by the following RSS caution:

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment

Contact Information:

InnoSenT GmbH
Am Roedertor 30
97499 Donnersdorf
Germany

Phone: +49 (0) 9528-9518-0
Fax: +49 (0) 9528-9518-99

E-Mail: info@InnoSenT.de
Web: www.InnoSenT.de

CONFIDENTIAL AND PROPRIETARY

The information contained in this document is the exclusive property of InnoSenT GmbH and must not be disclosed by the recipient to third parties