

Data Sheet IPM-365

Version 2.1 - 03.11.2014

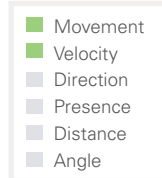
designed
and manufactured
in Germany

PRODUCT FAMILY

Low Cost K-Band Transceiver

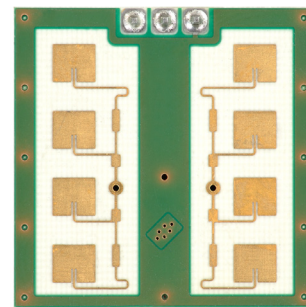
APPLICATIONS

- Security applications
- Door openers
- Industrial applications



FEATURES:

- » radar-based motion detector working in the 24GHz - ISM - Band
- » available in different frequency ranges for worldwide use
- » advanced LCO-oscillator with low current consumption
- » split transmit and receive path for maximum gain
- » very compact outline dimensions



DESCRIPTION

The IPM-365 is a 24GHz Doppler module with an asymmetrical wide beam for detection of moving objects. Low power consumption components are quickly enabled supporting duty cycles for battery or solar panel operation. A continuous wave signal is generated by a 24GHz oscillator and partly transmitted via a planar microstrip antenna. If the transmitted wave is reflected by an object, the return signal includes a frequency that gives information about the velocity of the detected

CERTIFICATES

InnoSenT GmbH has established and applies a quality system for: development, production and sales of radar sensors for industrial and automotive sensors.



ADDITIONAL INFORMATION

InnoSenT Standard Product. Changes will not be notified as long as there is no influence on form, fit and within this datasheet specified function of the product.

RoHS-INFO

This product is compliant to the restriction of hazardous substances (RoHS - European Union directive 2011/65/EU).

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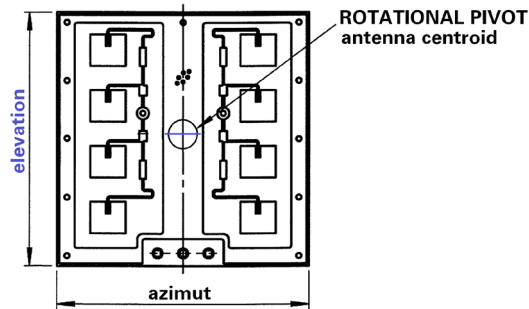
ELECTRICAL CHARACTERISTICS

PARAMETER	CONDITIONS	SYMBOL	MIN	TYP	MAX	UNITS
Oscillator						
transmit frequency	@ 25°C	f_{standard}	24.000	24.125	24.250	GHz
	US-frequency band @ 25°C	f_{F}	24.075	24.125	24.175	GHz
	UK-frequency band @ 25°C	f_{UK}	24.150	24.200	24.250	GHz
output power		P_{out}		13	20	dBm
temperature drift		Δf		-1		MHz/°C
Receiver						
IF-output		voltage offset	-300		300	mV
Noise level		R			116	mV
Antenna Pattern						
full beam width @ -3dB	azimuth	horizontal		80		°
	elevation	vertical		35		°
side-lobe suppression	azimuth	horizontal		12		dB
	elevation	vertical		13		dB
Antenna gain				9.5		dBi
Power supply						
supply voltage		V_{CC}	2.85	3.00	3.30	V
supply current		I_{CC}		30	40	mA
Environment						
operating temperature		T_{OP}	-20		+60	°C
storage temperature		T_{storage}	-20		+60	°C
Mechanical Outlines						
outline dimensions		height length width		25 25 7 (12.7)		mm

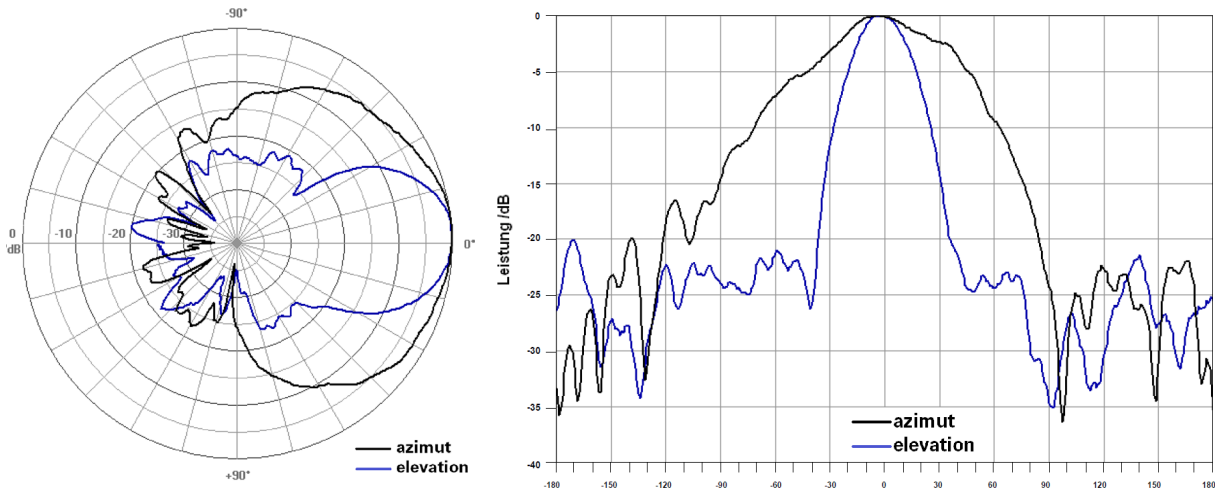
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ANTENNA ORIENTATION:



TX / RX-ANTENNA PATTERN:



PARAMETER	CONDITIONS	SYMBOL	MIN	TYP	MAX	UNITS
TX-antenna pattern / RX-antenna pattern						
Tx antenna pattern (3dB width)	horizontal	azimuth		80		°
	vertical	elevation		35		°
side-lobe suppression	horizontal	azimuth		12		°
	vertical	elevation		13		°
squinting angle				0		°
Antenna gain				9.5		dBi

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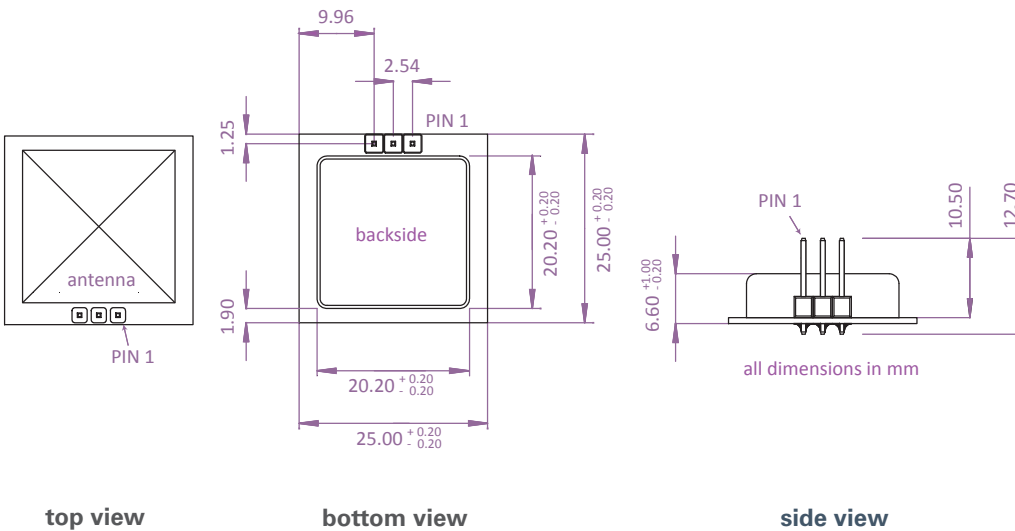
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INTERFACE

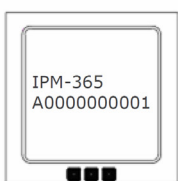
The sensor provides a 2.54mm grid, single row pin header (square pin $\square 0.635\text{mm}$)

PIN #	DESCRIPTION	IN / OUT	COMMENT
1	V_{CC}	input	supply voltage (2.85 - 3.3V)
2	IF1	output	signal I(nphase)
3	GND	input	analog ground

MECHANICAL OUTLINES



Labeling



IPM-365



IPM-365_UK



IPM-365_F

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ESD-INFORMATION



This InnoSenT sensor is sensitive to damage from ESD. Normal precautions as usually applied to CMOS devices are sufficient when handling the device. Touching the signal output pins has to be avoided at any time before soldering or plugging the device into a motherboard.

APPROVAL

This Data Sheet contains the technical specifications of the described product. All previous versions of this Data Sheet are no longer valid.

The sensor uses Hydrocarbon based material which may change its dielectric properties when used in an oxidative environment. This may vary based on temperature. Therefore InnoSenT recommends evaluating this influence within the specific environment.

VERSION	DATE	COMMENT
2.1	03.11.2014	new layout

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