

Data Sheet IVS-167

Version 3.1 - 19.04.2013

designed and manufactured in Germany

PRODUCT FAMILY

K-Band VCO Transceiver

APPLICATIONS

- Industrial Applications
- Traffic Monitoring
- Level Measurement

	Movement
	Velocity
	Direction
	Presence
	Distance
	Angle

FEATURES:

- » VCO-Transceiver centered @ 24GHz
- » FMCW/FSK capable; therefore measurement of distance as well as recognition of stationary objects possible (depending on modulation)
- » stereo (dual channel) operation for direction of motion identification
- » compact outline dimensions



DESCRIPTION

The IVS-167 is a FMCW/FSK capable K-Band Transceiver with symmetrical antenna pattern.

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).

CONFIDENTIAL AND PROPRIETARY

The information contained in this document shall remain the sole and exclusive property of InnoSenT GmbH and shall not be disclosed by the recipient to third parties without prior consent of InnoSenT in writing.

ESD-INFO



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.

ELECTRICAL CHARACTERISTICS

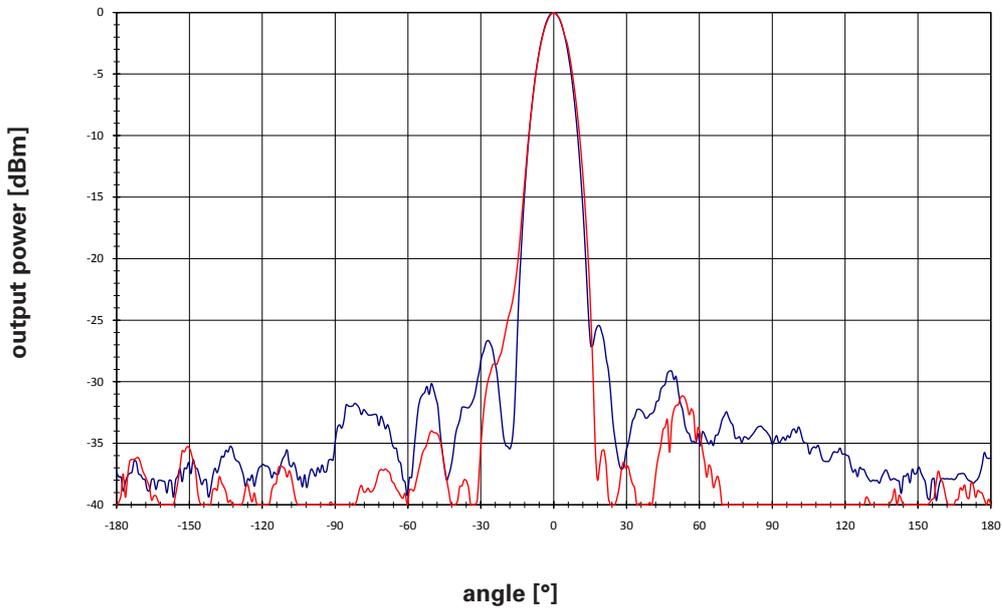
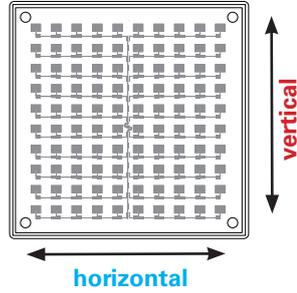
PARAMETER	CONDITIONS	SYMBOL	MIN	TYP	MAX	UNITS
Transmitter						
transmit frequencies	depending on V_{tune}	f	24.000 - 24.250			GHz
freq @ $V_{tune} = 2,5V$	@ 25°C	$f_{2,5V}$	24.100	24.125	24.150	GHz
varactor tuning voltage		V_{tune}	0.5		8	V
varactor tuning impedance				1		kΩ
modulation input					150	kHz
tuning slope				50		MHz/V
temperature drift (frequency)		Δf		-1		MHz/°C
output power (EIRP)	@ 25°C	P_{out}		18	20	dBm
Receiver						
I/Q balance		amplitude			6	dB
		phase	60	90	120	°
Antenna System Pattern (compare with antenna plot on page 3)						
full beam width @ -3dB	azimuth	horizontal		11		°
	elevation	vertical		11		°
side-lobe suppression	azimuth	horizontal		25		dB
	elevation	vertical		25		dB
Power supply						
supply voltage		V_{CC}	4.75	5.00	5.25	V
supply current		I_{CC}		33	40	mA
Environment						
operating temperature		T_{OP}	-20		+60	°C
storage temperature		T_{STG}	-40		+85	°C
Mechanical Outlines						
outline dimensions	compare drawing	height length width		11.0 ~ 75.0 75.0		mm

CONFIDENTIAL AND PROPRIETARY

The information contained in this document shall remain the sole and exclusive property of InnoSenT GmbH and shall not be disclosed by the recipient to third parties without prior consent of InnoSenT in writing.

TX- ANTENNA PATTERN

Antenna Orientation:



PARAMETER	CONDITIONS	SYMBOL	MIN	TYP	MAX	UNITS
full beam width @ -3dB		horizontal		11		°
		vertical		11		°
side-lobe suppression		horizontal		25		dB
		vertical		25		dB

CONFIDENTIAL AND PROPRIETARY

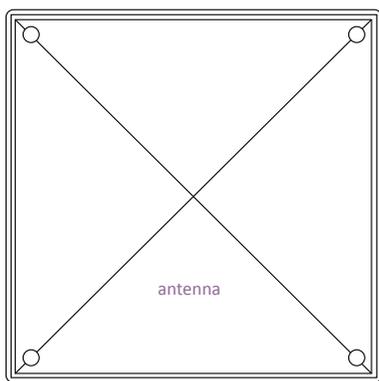
The information contained in this document shall remain the sole and exclusive property of InnoSenT GmbH and shall not be disclosed by the recipient to third parties without prior consent of InnoSenT in writing.

INTERFACE

The sensor provides a 2.54mm grid, single row pin header (square pin \square 0.635mm).

PIN #	DESCRIPTION	IN / OUT	COMMENT
1	IF1	output	signal I(nphase)
2	IF2	output	signal Q(uadrature)
3	GND	input	analog ground
4	V _{cc}	input	supply voltage (+5V)
5	V _{tune}	input	vractor tuning voltage

MECHANICAL OUTLINES

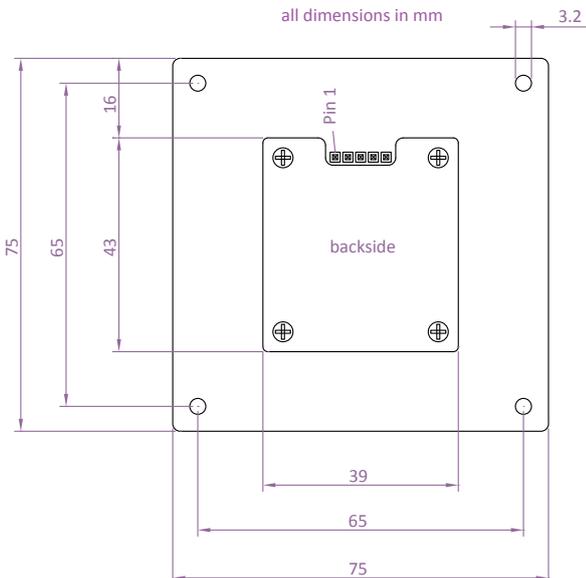


top view



side view

all dimensions in mm



bottom view

CONFIDENTIAL AND PROPRIETARY

The information contained in this document shall remain the sole and exclusive property of InnoSenT GmbH and shall not be disclosed by the recipient to third parties without prior consent of InnoSenT in writing.

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
3.1	19.04.2013	new layout

InnoSenT GmbH

Am Rödertor 30
97499 Donnersdorf
GERMANY

Tel.: +49 (0) 9528 - 9518 - 0
E-Mail: info@innosent.de
URL: www.innosent.de