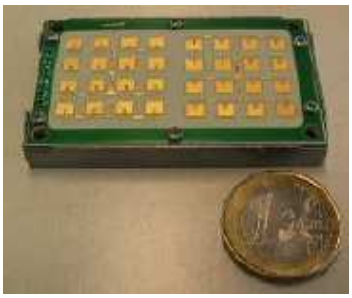
USER MANUAL

Product Family: K-Band Transceiver
Range of use: traffic monitoring

Module Number: **IPS-146_F**

Description:

- radar-based motion detector
- advanced PHEMT-oscillator with low current consumption
- RF-pre-amplifier for lowest noise operation
- split transmit and receive path for maximum gain
- stereo (dual channel) operation for direction of motion identification
- IF-pre-amplifier, bandwidth limited for lowest noise performance
- enable input for oscillator shut down
- small outline dimensions



Absolute Maximum Ratings:

Parameter	Symbol	Rating	Units
supply voltage	V_{CC}	5.5	V
operating temperature (out of spec)	T_{OP}	- 40 / + 85	°C
storage temperature	T_{STG}	+ 90	°C

Electrical Characteristics:

Parameter	Symbol	min.	typ.	max.	units	comment
transmit frequency	$f_{IPS\text{-}146\_F}$	24.075	24.125	24.175	GHz	
output power (EIRP)	P_{out}		18		dBm	
temperature drift	Δf		- 1		MHz/°C	
antenna pattern	horizontal		30		°	azimuth
	vertical		32		°	elevation
side lobe suppression	horizontal		20		dB	azimuth
	vertical		20		dB	elevation
I/Q balance	amplitude			6	dB	
	phase	60	90	120	°	
IF output	voltage offset		$V_{CC}/2$		V	
IF-amplifier	gain		50		dB	
	bandwidth		50 – 10k		Hz	
supply voltage	V_{CC}	4.75	5.0	5.25	V	
supply current	I		60	80	mA	IF-amp included
operating temperature	T_{OP}	- 20		+ 60	°C	
outline dimensions	60 x 37 x 9				mm	

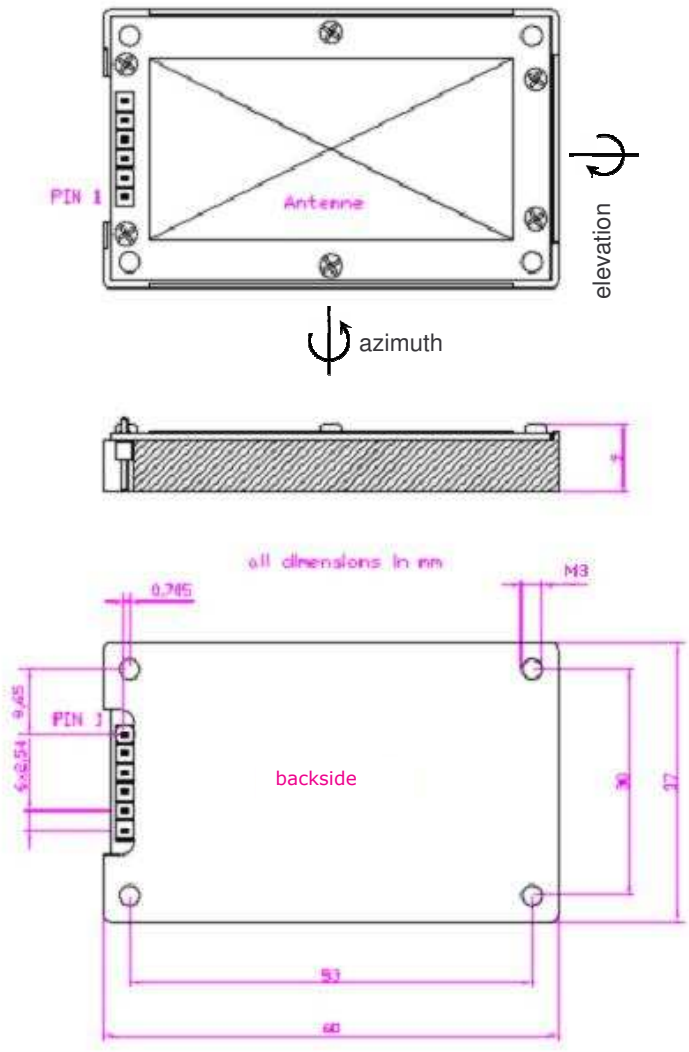
Interface:

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

Pin #	Description	In/Out	Comment
1	NC		not connected
2	enable	input	active low
3	V_{CC}	input	supply voltage
4	GND	input	analog ground
5	IF2	output	Signal Q(uadrature)
6	IF1	output	Signal I(nphase)

Mechanical Outlines:

(dimensions in mm)



Certification and environment protection:

InnoSenT GmbH has established and applies a quality system for:
Development, production and sales of radar sensors for commercial and industrial sensors

An audit was performed, Report No. 010350 Proof has been furnished that the requirements according to DIN EN ISO 9001:2000 are fulfilled.

TÜV CERT
DIN EN ISO 9001:2000
Zertifikat: 01 100 010350

This InnoSenT product is compliant to the restriction of hazardous substances (RoHs – European Union directive 2002/95/EG).

RoHs - compliant 2002/95 EG

FCC-Approval

- This device complies with Part 15 of the FCC Rules and with RSS-210 of Industry Canada.

  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.

- Warning: Changes or modifications made to this equipment not expressly approved by InnoSenT GmbH may void the FCC authorization to operate this equipment.

- Manufacturers of mobile or fixed devices incorporating IPS-146_F modules are authorized to use the FCC Grants and IC Certificates of the IPS-146_F modules for their own final products according to the conditions referenced in these documents. In this case, the FCC label of the module shall be visible from the outside, or the host device shall bear a second label stating "Contains FCC ID: **xxx**-IPS146F".

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