

USER MANUAL

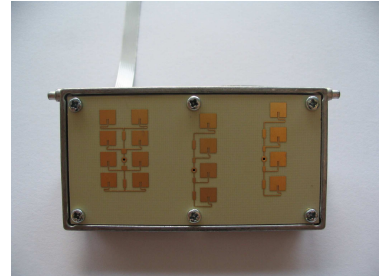
Product Family: K-Band Transceiver
Range of use: advanced door applications

Module Number: **IPQ-420_US**

Description:

Basic Features IPQ-420_US:

- radar-based motion detector working in the 24GHz ISM Band
- stereo (dual channel) operation for direction of motion identification
- integrated IF-amplifier
- split transmit and receive path for maximum gain
- two different receive antenna patterns



Electrical Characteristics:

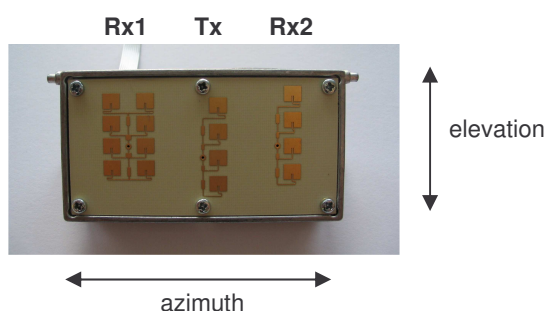
Parameter	Symbol	min.	typ.	max.	units	comment
transmit frequency	f_{US}	24.075	24.125	24.175	GHz	
	f_{UK}	24.150		24.250	GHz	
output power (EIRP)	P_{out}			20	dBm	
temperature drift	Δf		-1,0		MHz/°C	
I/Q balance	amplitude			6	dB	
	phase	60	90	120	°	
IF-amplifier	gain		34		dB	
	bandwidth	4Hz		1.5kHz		
supply voltage	V_{CC}	7	8	9	V	
supply current	I_{CC}		45	55	mA	
mod input		0		5	V	digital input (0V / 5V)
operating temperature	T_{OP}	-20		70	°C	
outline dimensions	according to drawing 102-290.109.927 C				mm	

Interface:

The sensor provides a 0.5mm pitch 8 pin ZIF-Connector with skinning on both sides

Pin #	Description	Typ	Comment
1	nc	---	not connected
2	Mod	input	modulation signal (digital Input 0V / 5V)
3	Vcc	input	supply voltage (+8V)
4	GND	input	analog ground
5	S4	output	Rx1 Signal Q(uadrature) / narrow antenna pattern
6	S3	output	Rx1 Signal I(nphase) / narrow antenna pattern
7	S2	output	Rx2 Signal I(nphase) / broad antenna pattern
8	S1	output	Rx2 Signal Q(uadrature) / broad antenna pattern

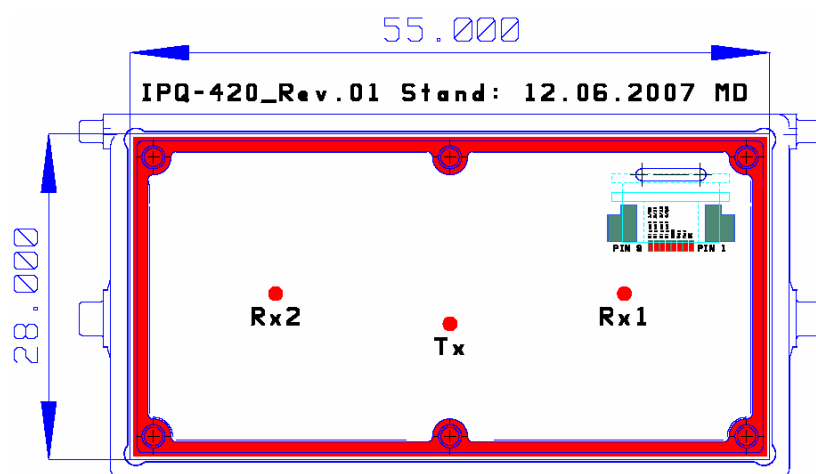
Antenna Characteristics:



Parameter	Symbol	min.	typ.	max.	units	comment
antenna pattern Tx (3dB)	horizontal		75		°	azimuth
	vertical		38		°	elevation
antenna pattern Tx (10dB)	horizontal		135		°	azimuth
	vertical		70		°	elevation
squinting angle	vertical		10		°	elevation
side lobe suppression Tx	horizontal			15	dB	azimuth
	vertical			12	dB	elevation
antenna pattern Rx1 (3dB)	horizontal		44		°	azimuth
	vertical		46		°	elevation
antenna pattern Rx1 (10dB)	horizontal		83		°	azimuth
	vertical		85		°	elevation
squinting angle	vertical		11		°	elevation
side lobe suppression Rx1	horizontal			15	dB	azimuth
	vertical			12	dB	elevation
antenna pattern Rx2 (3dB)	horizontal		75		°	azimuth
	vertical		38		°	elevation
antenna pattern Rx2 (10dB)	horizontal		135		°	azimuth
	vertical		70		°	elevation
squinting angle	vertical		10		°	elevation
side lobe suppression Rx	horizontal			15	dB	azimuth
	vertical			12	dB	elevation

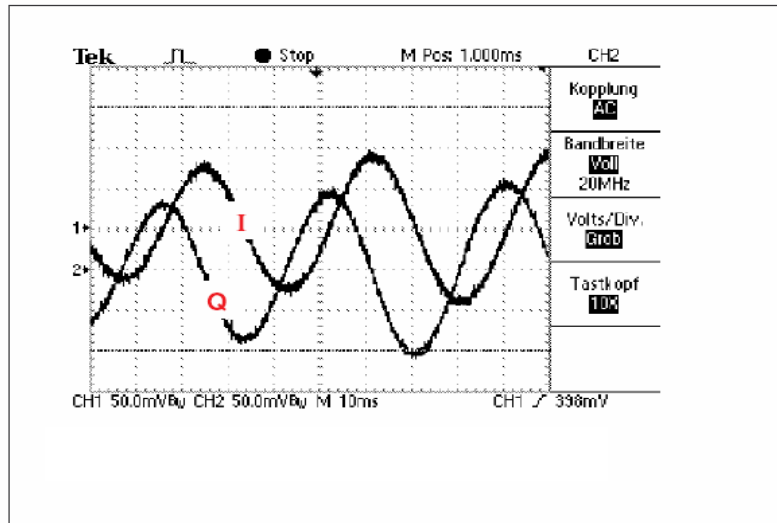
Mechanical Outlines:

all dimensions in Millimeter / for details compare with drawing 102-290.109.927 C



I/Q-Definition:

If the movement is toward to the radar, signal Q is advances



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 IPQ-420_US modules are authorized to use the FCC Grants and IC Certificates of the IPQ-420_US 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: QKR-IPQ420US".