

# PCR2 LoRaWAN™ Radar People Counter Indoor



PCR2 is a camera-less people counting sensor with LoRaWAN connectivity in a slim enclosure which is easy to mount.

The system includes powerful signal processing that enables directional counting of humans.

Counters are transmitted in regular intervals over a public or private LoRaWAN™ network.

All Parametric Sensors are equipped with USB or NFC for easy configuration with our freely available configuration tools.

## Features

- Directional counting of persons passing by
- Integrated dual channel Radar transmitter
- 2 LEDs for counting signalisation
- Vertically (wall) or horizontally (ceiling) mountable
- Slim-line design with hidden fixing points
- Integrated Antenna
- Wide range power supply input 5 - 12VDC or USB
- LoRaWAN™ V1.0.2 Class A device
- EU868/US915/AU915/AS923 configurations available
- LoRaWAN Alliance Certification Pending

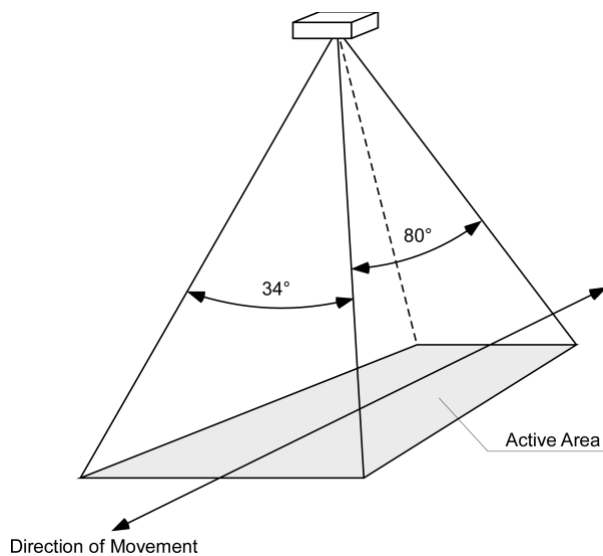
## Applications

- People counting in shops or malls
- People flow measurement for trade shows
- Facility management
- Indoor safety applications

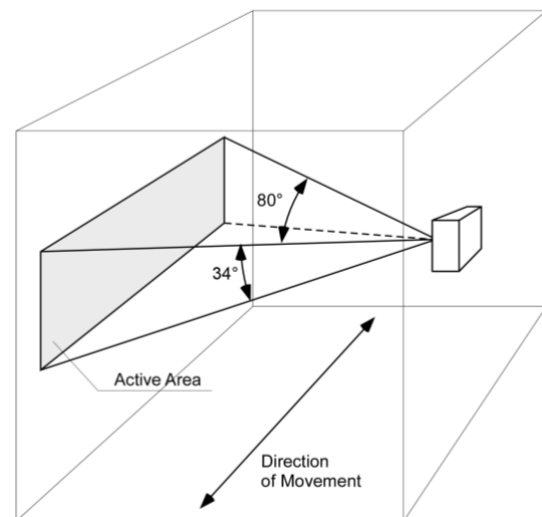
## Functions

Counting mode:	Bi-directional counting of persons passing by (left / right counting) Number of persons are incremented during a selectable counting interval
Counters:	Left-to-Right incrementing counter (0...65535 persons) Right-to-Left incrementing counter (0...65535 persons) Counters reset to 0 (zero) after successful transmit and ACK received.
Interval range:	1 min ... 1440 min
Temperature sensing:	Internal CPU temperature, -40 ... +70°C, precision $\pm 1.5^{\circ}\text{C}$

### Field of view and optimal placement



Ceiling mounted



Wall mounted

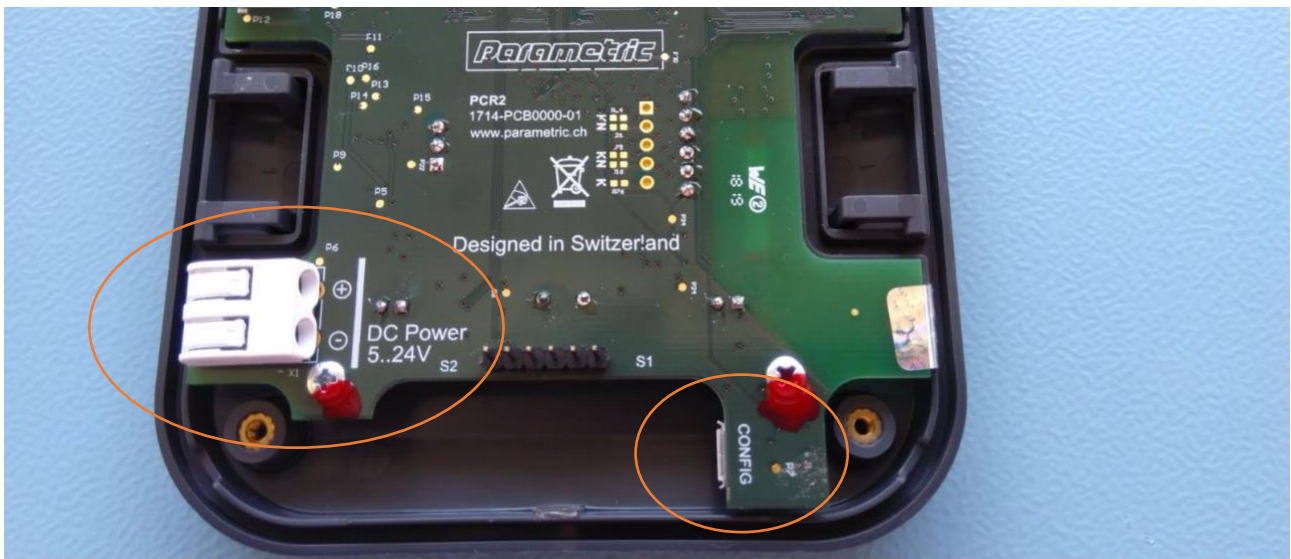
Field of detection	80°/ 34° beam
Detection range	Up to 10m depending on surface
Distance between persons:	Min. 2m
Detection direction	Parallel to the device' surface
Optimal placement	Ceiling mounted: 50cm distance above persons' head Wall mounted: 1.2 ... 1.4 m above floor

**There should be no constantly moving objects like escalators or revolving doors in the field-of-view!**

## Specification

### Electrical

Operating Voltage:	5 – 12 VDC or Micro USB Power Supply
Power Consumption:	0.4W
Connector “DC Power”	Dual Push-in CAGE CLAMP for use with 5 – 12 VDC Power Supply Recommended wire diameter is 24 to 18 AWG (0.2 – 0.75 mm <sup>2</sup> )
Connector “CONFIG”	Micro-USB Socket for use with USB Power-Supply



### Radar Transceiver

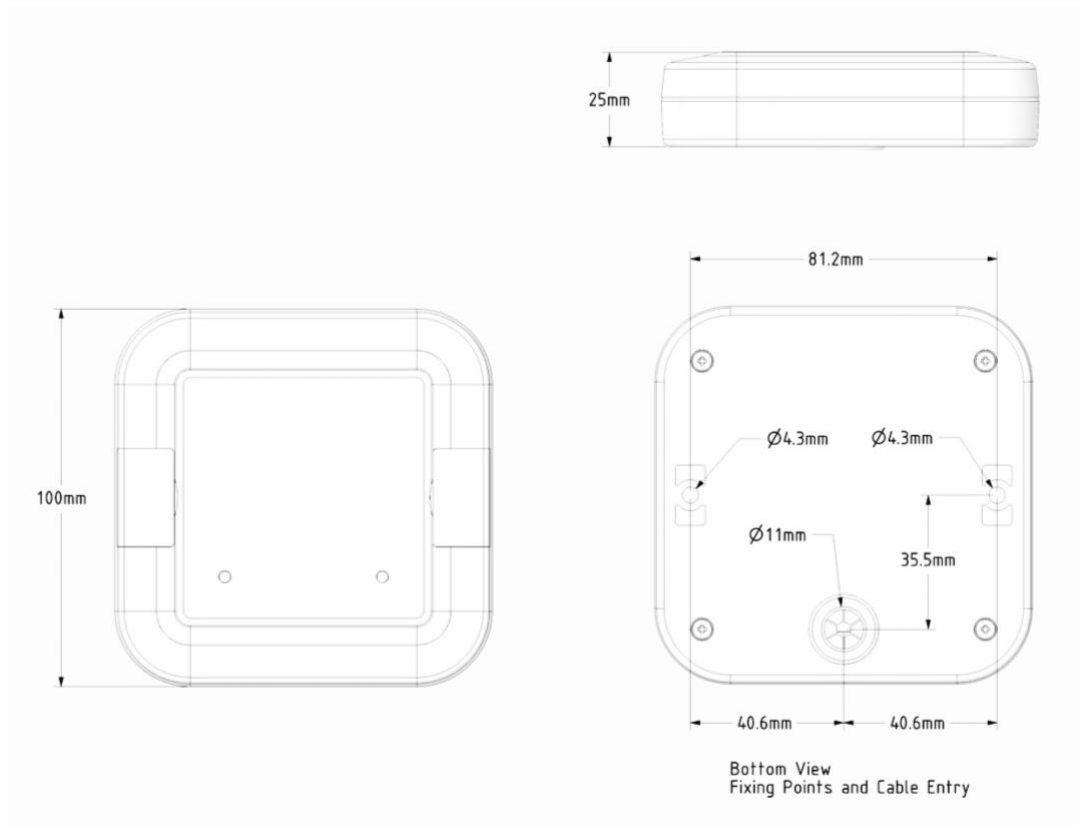
Frequency:	24.125 GHz
Output Power EIRP:	12 dBm

### LPWAN

Antenna:	Integrated Dipole 1.4 dBi
Protocol:	LoRaWAN™ V1.0.2 with LoRaWAN Regional Parameters v1.0.2rB
LoRaWAN™ Activation:	OTAA, ABP
LoRaWAN™ Settings:	ADR enabled, Confirmed/Unconfirmed Selectable, LinkCheckReq enabled, LinkStatusAns enabled, FSB selectable on US915 and AU915 devices
LoRaWAN™ Regions:	EU868 (EU 863-870MHz ISM Band) US915 (US 902-928MHz ISM Band) AU915 (Australia 915-928MHz ISM Band) AS923 (Asia 923-925Mht ISM Band)

## Mechanical

### Main dimensions and fixing points



Material:	ABS Plastics UL94V-0 (flame resistant)
Color:	Charcoal grey
Protection Class:	IP30 (IEC 60529)
Cable diameter:	Max. 11 mm
Weight:	145g
Operating temperature:	-20 ... 70°C
Storage temperature:	-40 ... 85°C

## Ordering information

### Available Models

PCR2-EU868-IN	Indoor Model for use in European LoRaWAN networks
PCR2-US915-IN	Indoor Model for use in US and Canadian LoRaWAN networks
PCR2-AU915-IN	Indoor Model for use in Australian LoRaWAN networks
PCR2-AS923-IN	Indoor Model for use in Asian LoRaWAN networks

### Where to buy

You can find a list of distributors and solution providers on the product website:

[www.parametric.ch/product/pcr2-in](http://www.parametric.ch/product/pcr2-in)

Evaluation kits are available for interested integrators or solution providers.

## Document revisions

2018-11-23	Revision 5	Added AS923, PSU 5-12V DC, Additional LoRaWAN Configuration
2018-08-13	Revision 4	LoRaWAN Stack Update, Power Supply, Temperature
2018-07-19	Revision 3	Improved Comprehensibility
2018-07-17	Revision 2	Added Radar Data Spec
2018-07-06	Revision 1	Added FoV Illustrations
2018-07-04	Revision 0	Initial Version

## Disclaimer

© Parametric GmbH 2018. All Rights Reserved. All trademarks mentioned in this document are the property of their respective owners. Information in this document is subject to change without notice and does not represent a commitment on the part of Parametric GmbH. Parametric GmbH provides this document “as is,” without warranty of any kind, either expressed or implied, including, but not limited to, the implied warranties of fitness or merchantability for a particular purpose. Parametric may make improvements and/or changes in this document or in the product(s) and/or the service(s) described in this manual at any time. This document could include technical inaccuracies or typographical errors. Changes are periodically made to the information herein; these changes may be incorporated in new editions of the publication and may be published on our website.