

# QUICKSTART GUIDE

## PCR2-XIO Industrial Object Counter with Digital Outputs

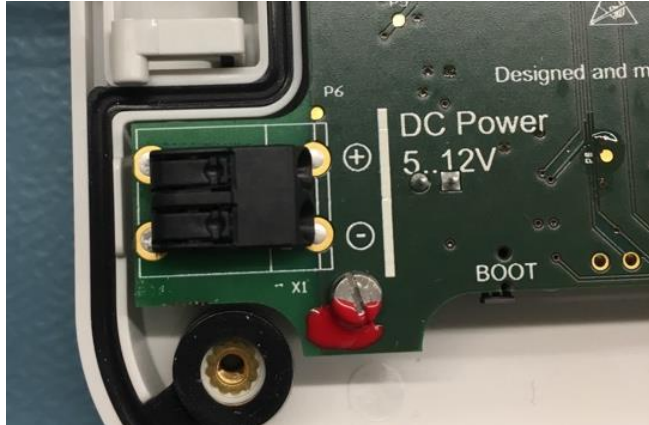
PCR2-XIO-EU868  
PCR2-XIO-US915  
PCR2-XIO-AU915  
PCR2-XIO-AS923



LoRaWAN Certified<sup>CM</sup> is a mark used under license from the LoRa Alliance<sup>TM</sup>.

# Installation Instructions

## Electrical Installation

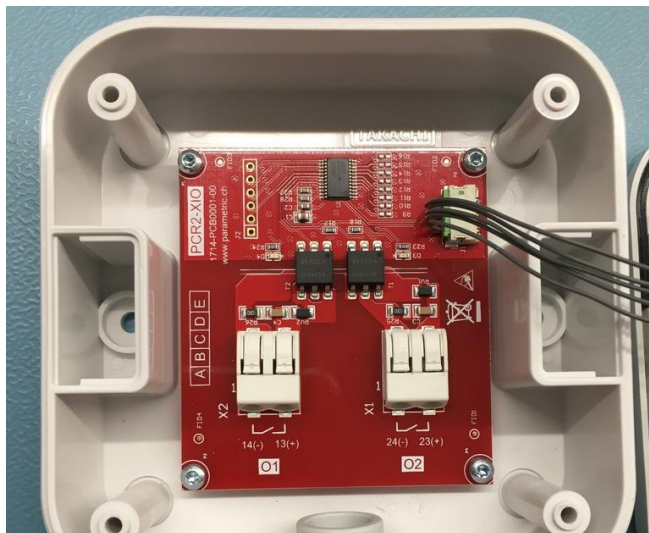


Use DC-Power Supply 5 ... 24V.

Cable diameter should not exceed 11mm.

Wires should be 22AWG ... 18AWG (0.2 – 0.75mm<sup>2</sup>).

## XIO Digital Outputs



Digital outputs are Solid State Relais that can switch up to 60V / 2A.

Wires should be 22AWG ... 18AWG (0.2 – 0.75mm<sup>2</sup>).

### **WARNING!**

- Do not exceed this maximum rating.
- Check polarity!

## Mounting

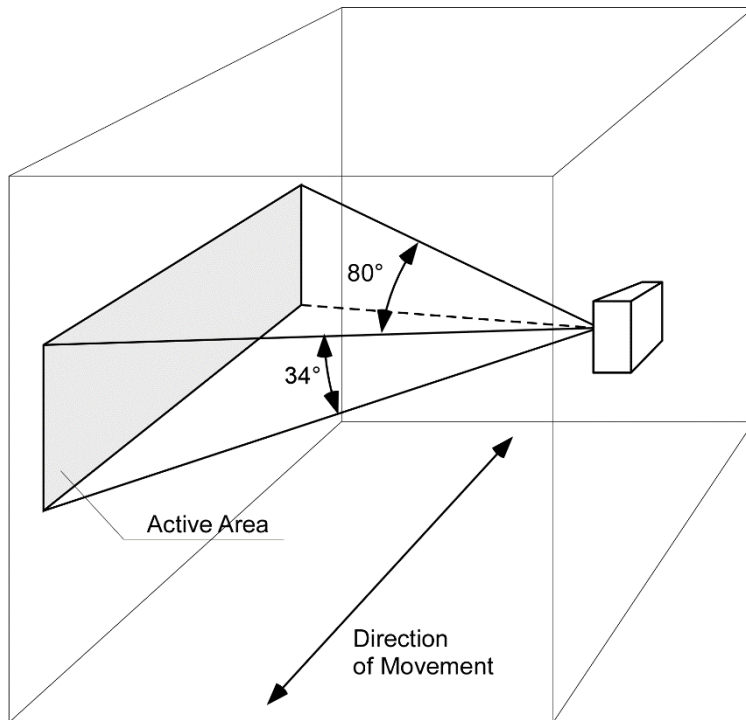


Ensure that the cable gland is fully tightened. Open the hatches on the front of the casing and drill two screws into the wall.

## Field of view and optimal placement

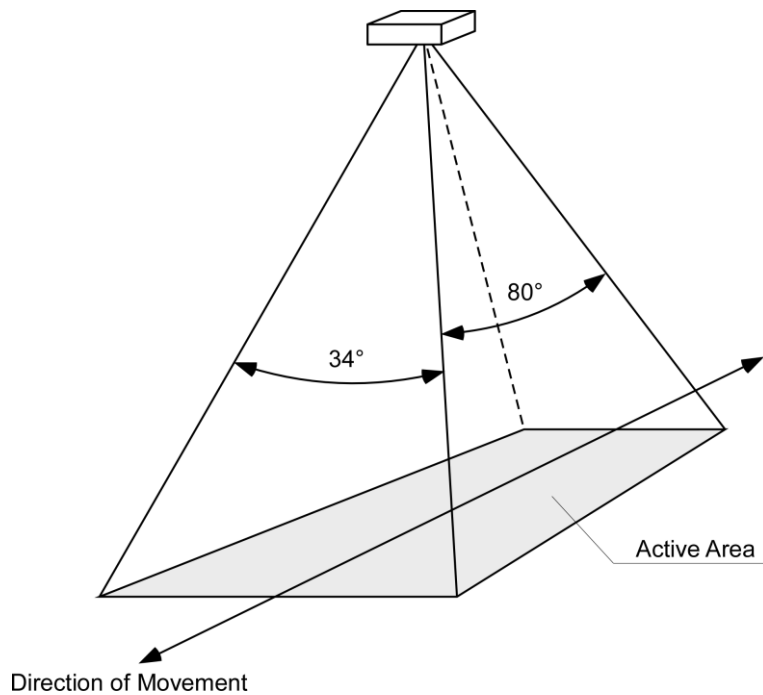
PCR2-XIO are 1D sensors measuring Peopleflow walking along a virtual line. The device can be mounted on walls, door frames or over-head.

### Wall mounting (recommended)



Installation height:	1.2...1.4m (4...5 feet) above floor
Installation direction:	Device surface parallel to peopleflow
Detection range:	6...10m depending on object size
Separation angle:	40° (Distance between persons)
Avoid:	<ul style="list-style-type: none"><li>- Side-by-side walking</li><li>- Groups</li><li>- Too close to each other</li></ul>

## Ceiling mounting



- Installation height: 0.5...4m above peoples heads
- Installation direction: Heading down, LEDs in line with direction of movement
- Separation angle: 40° (Distance between persons)
- Avoid:
- Side-by-side walking
  - Groups
  - Too close to each other
  - Too wide entries (detection angle is 34°)

## LED Signalisation



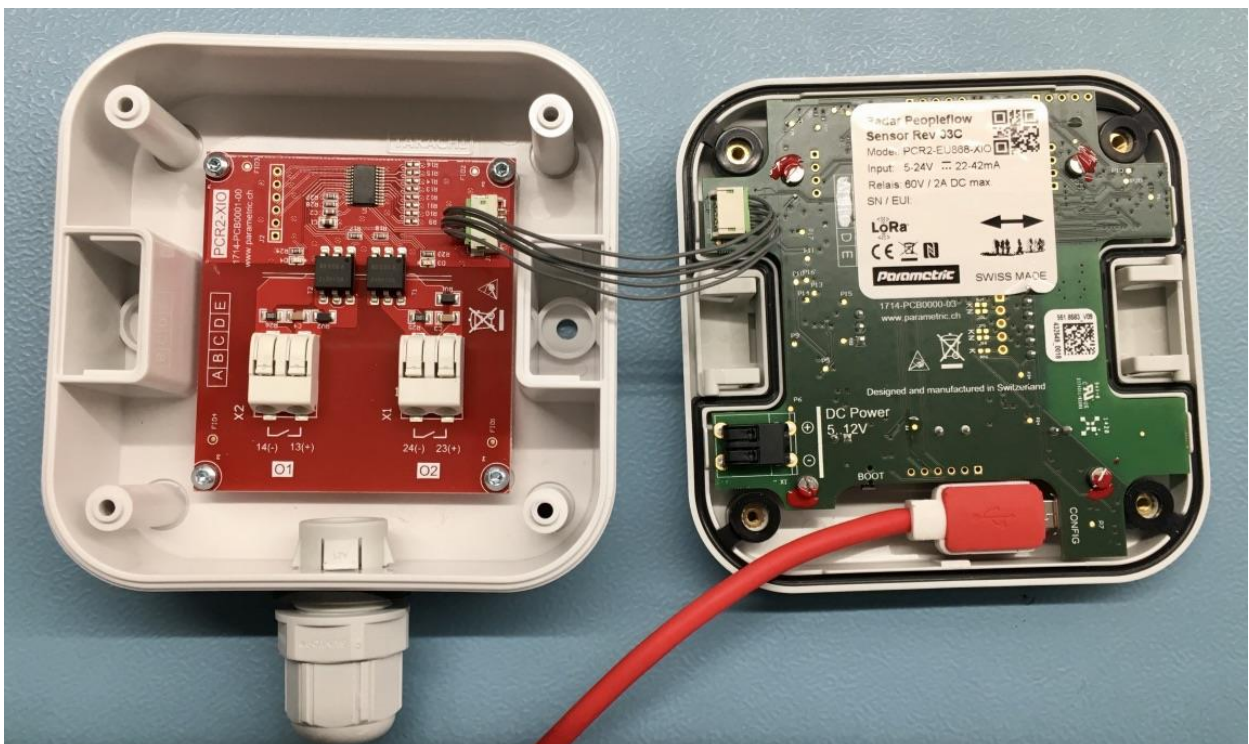
## Configuration

### Opening the Enclosure



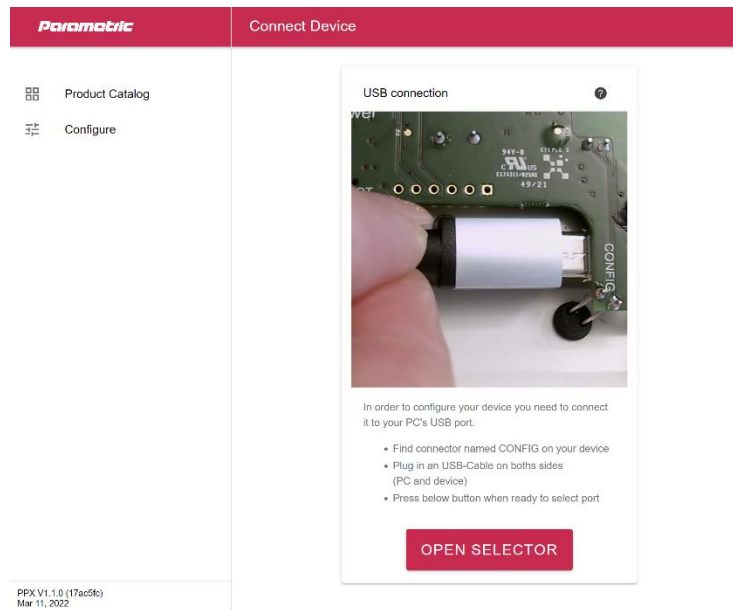
Remove the four screws from the casing to gain access to the device.

### Connecting the Programming Cable



Connect the sensor to your Computer using a USB Cable.

## Open PPX Configurator Tool



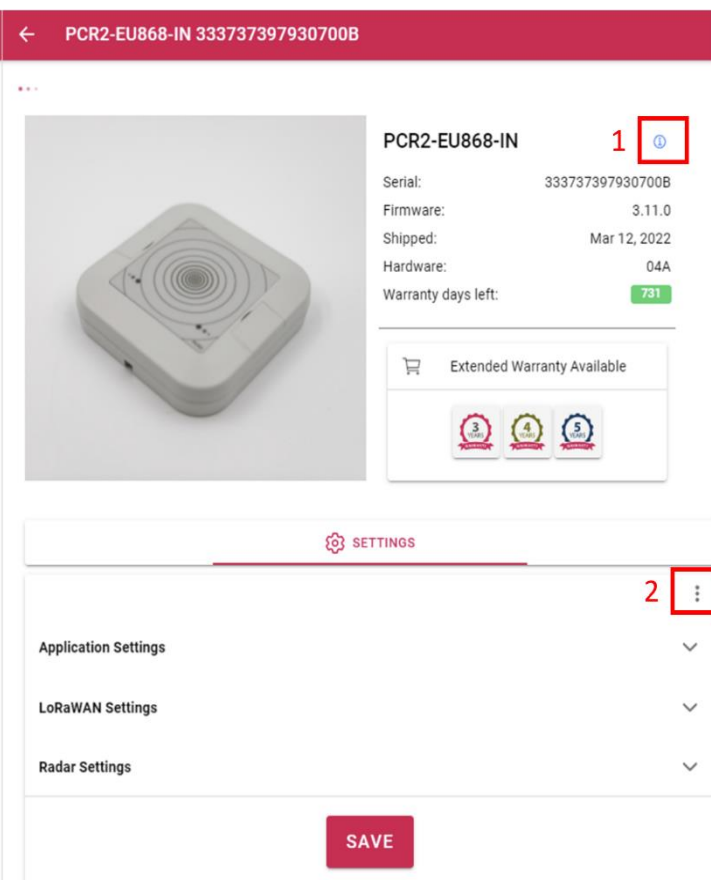
Open the free Parametric Product Explorer (PPX) Tool by opening the following URL:

<https://ppx.parametric.ch/connect>

In order to configure your device you need to connect it to your PC's USB port.

- Find connector named CONFIG on your device
- Plug in an USB-Cable on both sides (PC and device)
- Press "Open Selector" button when ready to select port

## Overview PPX Configurator Tool



Start the PPX Configurator tool. After some seconds you will see the device information and settings.

Device information includes: sensor type, serial number, firmware, shipping date, hardware, and warranty days left.

Clicking the "Information" icon (1) leads to the device's product catalogue page where you can find the device documentation.

Clicking the three dots (2) sets the default settings.

Extended Warranty Available leads you to the Parametric Store to upgrade your device's warranty.

Re-Power the device to start the Join procedure. After a successful connection the sensor LED will stop blinking.

Always press 'Save' after changing settings.

## Settings

### Overview of Application Settings

Operation Mode	Timespan
Inactivity Timeout	120
Trigger Hold Off [s]	0
Uplink Interval [min]	10

#### Operation Mode

Timespan – count objects and send sum after interval.

NotZero – Same as Timespan but does not send if counters are 0 (zero).

Trigger – Send on every detection. Use Hold Off Time to prevent sending on every event.

CapacityAlert – Set limit on how many people may enter a shop.

#### Trigger Hold Off [s]

Time to re-arm trigger.

0...600s (0 = no suppression).

#### Uplink Interval [min]

Set the sending interval in minutes (1...1440 minutes).

During this time, all persons will be counted and sums are transferred. After transfer, counters will be reset.

### Overview of LoRaWAN Settings

Modem Enabled	
Device Class	A
Confirmed Uplinks	
Link Check Interval	1440
DevEUI	333737397930700B
AppEUI	8CAE49CFFFFFFF01
AppKey	5ED3553AD10E5ADE41F44AA4E4823F0B
Channels	All
Payload Type	CayenneLPP

#### Confirmed Uplinks

Send uplinks with ACK requests.

#### LinkCheck Interval

After this interval, send LinkCheckReq with next uplink.

Set to zero to disable Linkcheck completely.

#### DevEUI, AppEUI, AppKey

Enter your LoRaWAN Keys

#### Payload Type

Choose between Parametric and Cayenne LPP compatible payload formats.

### Overview of Radar Settings

Radar Enabled	
Autotune	
Min Distance	50
Max Distance	200
Beam Angle	40
Sensitivity	60
Channels	LOW Frequency

#### Autotune

If enabled, the sensor will measure up to 20 objects passing by. Then the radar sensitivity will be set automatically.

#### Radar Sensitivity [%]

You can set the radar module from 10% (fairly sensitive) to 100% (very sensitive).

## XIO Modes

Off: Both Relais are always off  
RC: Remote Controlled by Downlink  
Pulse: Generate a 500ms pulse on O1 if RTL is detected,  
O2 if LTR is detected  
Detection: if LTR or RTL is detected, O2 will be on during  
HoldOff time  
CapacityAlert: O1 on when Sum < CapacityLimit,  
otherwise O2 is on

## EU Declaration of Conformity



**Parametric GmbH declares that the following equipment is compliant to the RoHS (2015/863/EU) and Radio Equipment Directive (2014/53/EU)**

Model: PCR2

Product Description: LoRaWAN™ Radar People Counter bidirectional

Conformity is assured by compliance to the following Standards:

EN 60950-1: 2006+A11: 2009+A1:2010+A12:2011+A2:2013 (2014-01-02)  
EN 55032:2012+AC:2013 (2017-03-05); CISPR32:2012 (2012-1-30) AS/NZS CISPR32:2013 (2013-6-20)<sup>[SEP]</sup>  
EN 61000-3-2: 2014 (2015-03-30)  
EN 61000-3-3: 2013 (2014-3-18)<sup>[SEP]</sup>  
EN 55024:2010 (2011-09-01)<sup>[SEP]</sup>  
IEC 61000-4-2:2008 (2008-12-09)<sup>[SEP]</sup>  
IEC 61000-4-3:2006+A1:2007+A2:2010 (2010-04-27)  
IEC 61000-4-4:2012 (2012-04-30)  
IEC 61000-4-5:2014 (2014-05-15)  
IEC 61000-4-6:2013 (2013-10-23)  
IEC 61000-4-8:2009 (2013-10-23)  
IEC 61000-4-11:2004 (2004-03-24)  
EN 301 489-1 V2.2.1 (2017- 02)  
EN 301 489-17 V2.2.1 (2017-02)  
EN 300 328 V2.1.1 (2016-11)

Signature:

Andreas Koschak, CEO

## Disclaimer

In the interest of continuous further development of our equipment, we have to make changes to the scope of delivery in form, technology and equipment reserved.

We also ask for your understanding that no claim can be derived from data and illustrations of this manual.



Parametric GmbH  
Waldeggstrasse 82  
3800 Interlaken  
Switzerland

[www.parametric.ch](http://www.parametric.ch)