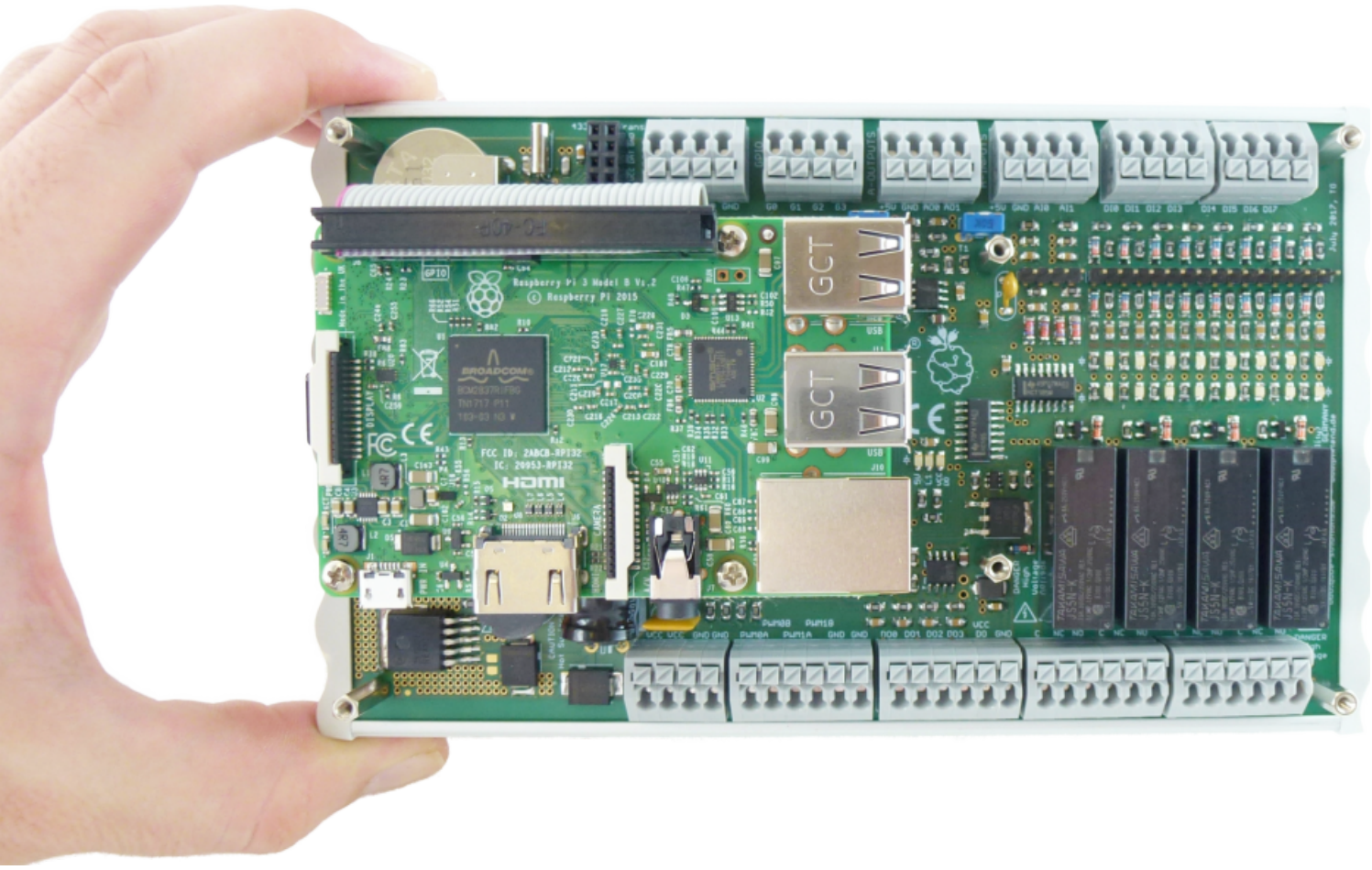
# PiXtend® V2 -S-



fast.
reliable.
versatile.

qube solutions

powered by Raspberry Pi®

# PiXtend®

fast, reliable, versatile.

## About us

In Dezember 2014 PiXtend V1 was released - the first Raspberry Pi based programmable logic controller (PLC).

The success of this product continues to this day and PiXtend has become the most important product in our portfolio.

qube solutions

We are passionate automation engineers & programmers who were dissatisfied with the tight boundaries and high prices of the classic PLC industry. Our goal is nothing less than to replace the established solutions - with fresh ideas and attractive products!

The company Qube Solutions was founded in 2009 and has been mainly doing hardware & software development for embedded and automation systems.

Today, the company‘s core competences and emphases lies on the continous development of the PiXtend system, as well as on training and support for commercial PiXtend customers.
In addition, we offer customer-specific hardware and software development in the areas of embedded systems and control technology.

„With PiXtend, we are closing the gap between two worlds - the classical industrial automation and affordable, open development systems“

Tobias Gall (M.Sc.)
Founder & CEO

„Appliance and machine manufacturers also want to benefit from platforms such as Arduino and Raspberry Pi. The full CODESYS V3 support of PiXtend, makes this finally possible.“

Robin Turner (Dipl.-Ing. FH)
Head of Software Development

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## What is PiXtend?

PiXtend is a programmable logic controller (PLC) based on the powerful Raspberry Pi single board computer. It's numerous digital and analog inputs and outputs allow connections to a wide range of sensors and actuators found in industrial applications and in the Maker scene.
The connection to other devices, controls and computer systems is established via standard serial interfaces (RS232, Ethernet, WiFi).
All interfaces and I/Os have a robust design and comply with the PLC standard (IEC 61131-2).

With the new product V2 -S- existing functions have been optimized and innovative features were added:

### Easy Design-In

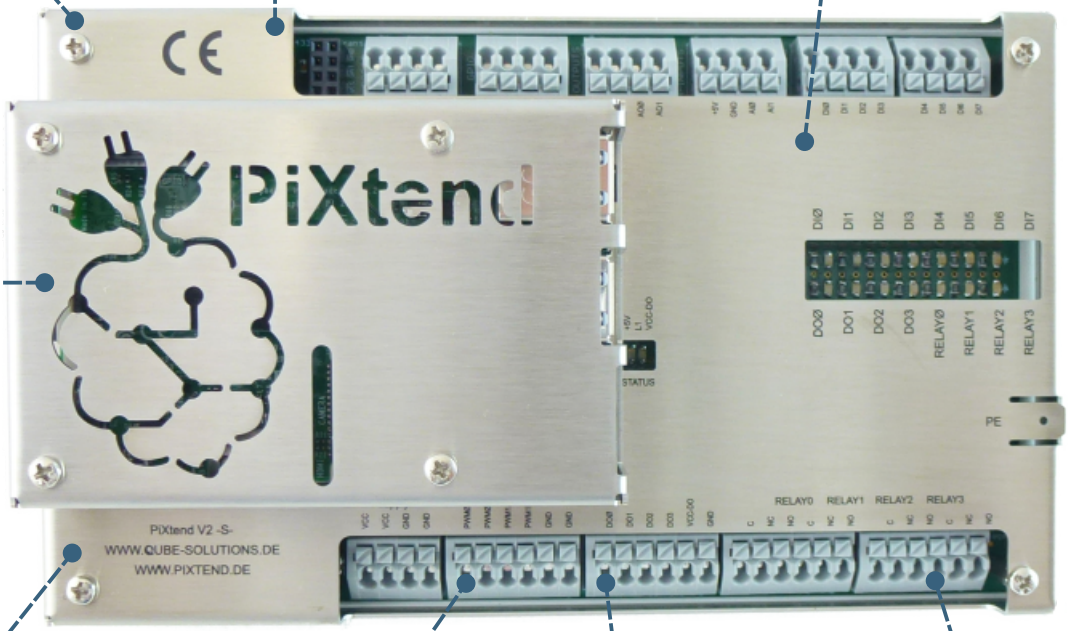
using connection planner, 3D models & detailed manuals

### Rapid Cycle Time

10x faster* (2,5 ms), control with 400 Hz

### Compact Design

applying modern SMD technology and function integration




### Lasting

Long-term availability up to 2027** guaranteed

### Retain Memory

secures important data in the event of a power failure

### Quad PWM

operate drives & RC servos without expensive additional modules

### Industrial Outputs

High Side Switches with separate supply, fully protected

### Ideal Connections

high quality terminals, optional pluggable version

* compared to the previous version „PiXtend V1.3"
** Available as either the identical or functionally compatible device.
Upgrades to new Raspberry Pi versions are evaluated and realized by us. No expenses or costs will incur for you.

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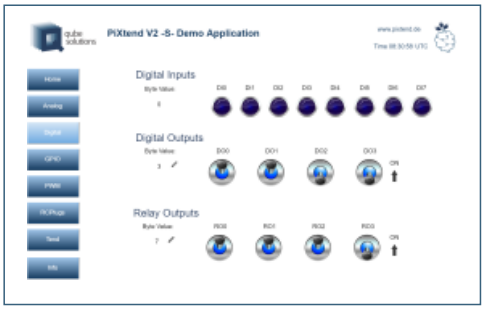
## Software Support

Programmable logic controllers are programmed worldwide using standardized PLC languages (IEC 61131-3). With CODESYS V3 and PiXtend you can utilize all these languages in your own automation projects.

With the integrated CODESYS web visualization, you can display your controls, diagrams and signal lamps on your smartphone, tablet and PC.
The remote access via internet was never that easy!




Our professional device drivers simplify access to all PiXtend I/Os and configurations. We provide sample projects that illustrate their usage.

Switching over from other CODESYS controls is easy - we gladely assist you during this process.

In the Linux world it is possible to utilize a wide veriety of free programming systems. For PiXtend, we have selected some of the most important ones and have created libraries and sample programs for it.

Integrating functions from the Python and C librarys into your own project is simple and described in detail in the software manual of PiXtend V2.

Due to the openness (GPL v3) of the libraries, these can be used without license fees of any kind in your commercial products.

Educational institutions benefit from the deep insights into the functionalities of a Linux-based automation system.

Several times a year, we publish application notes on current topics. Let's take the MQTT protocol for example and see how easy it is to turn PiXtend into an IoT device.

The FourZero™ platform for distributed control systems according to IEC 61499 paves the way for your „Industry 4.0" solution.

Further information on programming systems like FHEM and OpenPLC can be found on our homepage.

python powered

THE C PROGRAMMING LANGUAGE

openPLC

Fhem

FOURZERO™
An Embedded Computing Platform

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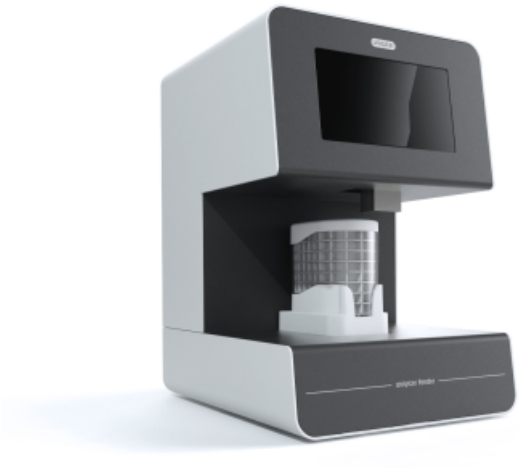


## Customer References

The Dutch company Canister Solutions shows how Raspberry Pi & PiXtend can be used in creating innovative products.

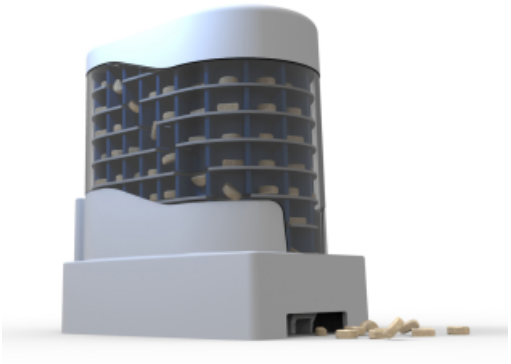
The multi-award winning „Uniqster Feeder“ automatically fills magazines with up to 160 tablets.

Both, devices and magazines are used in medical environments, for example in hospitals and large pharmacies.

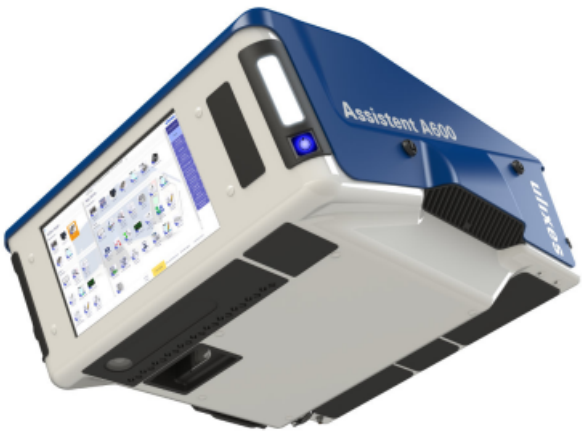
The device is operated by CODESYS-Webvisu on the 7 inch Raspberry Pi touch display.

PiXtend is the central control unit of the device and does not only serve the classic I/O functions, but also incorporates essential features such as logging and user management, which are mandatory in medical applications.

The customer was trained and supported by us throughout the realization of the software & visualization.



Source: Canister Solutions B.V. - www.uniqster.nl

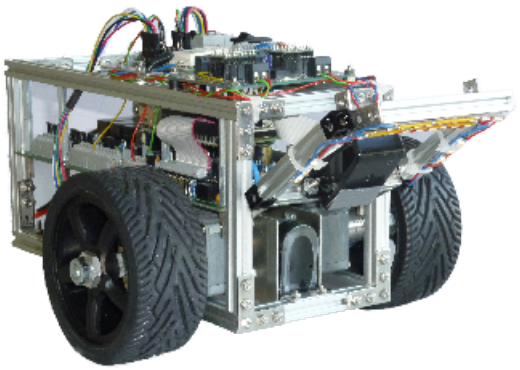



Source: Ulixes Robotersysteme GmbH, www.ulixes.de

The „Assistent“ from Ulixes Robotersysteme GmbH supports workers at assembly and dispatch workstations.

Using projection, visual controls can be displayed on workbenches and the workers actions are evaluated by an integrated camera system. In addition, 24 V inputs and outputs are offered to connect external sensors and actuators. PiXtend also measures temperature and humidity in the device.

Source: Duale Hochschule Baden-Württemberg, www.dhbw-stuttgart.de/horb/



PiXtend is also very popular in the field of education - from vocational schools to universities.

Experimental setups for energy management, smart home and robotic vehicles are only a few examples in which PiXtend is used worldwide.

Time and again, we are positively surprised by the variety of projects and ideas realized with our products.

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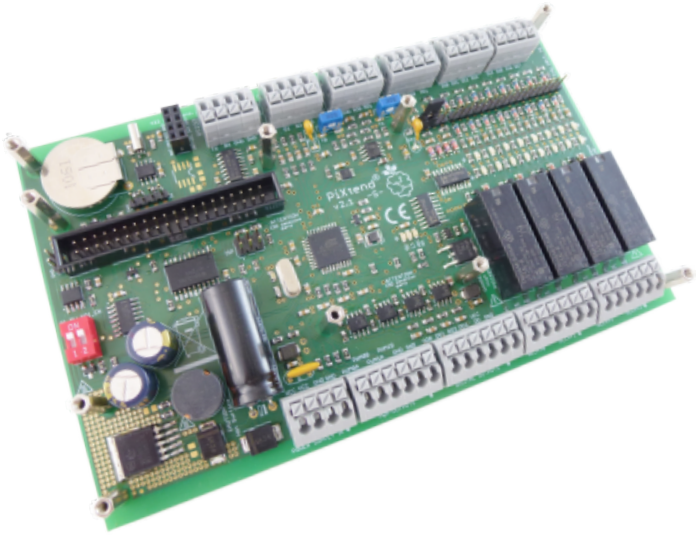
## I/Os & Interfaces



- 8x digital inputs, 3,3 / 5 / 12 / 24 V
- 4x digital outputs, 5 / 12 / 24 V, 0.5 A
- 4x PWM / servo outputs
- 4x relays, max. 230 V / 6 A

- 2x analog voltage inputs, 0..5 V / 0..10 V
- 2x analog voltage outputs, 0..10 V

- Serial interface: RS232

- Real Time Clock (RTC), battery buffered
- Supports up to four
  DHT11 / DHT22 / AM2302
  temperature & humidity sensors
- 433MHz transmitter, pluggable (not included)

- Up to four GPIOs
- Onboard voltage regulator
  - Input: 12 - 24 V (max. 30 V)
- Retain/Persistent memory,
  32 bytes flash ROM
- Interfaces & I/Os are short-circuit proof
  Supply voltage with inverse-polarity and thermal overload protection - self resetting

## Compatible

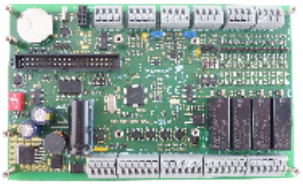
with original Raspberry Pi components

- Raspberry Pi model B+ / 2 B / 3 B / 3 B+
- Raspberry Pi 7" touch display
- Raspberry Pi camera module

- with industrial grade sensors and actuators using standardized inputs, outputs and interfaces.

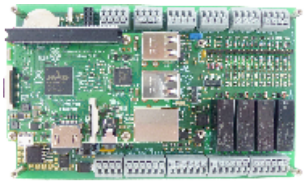
## Models

### Extension Board



- already soldered & tested
- without Raspberry Pi
- connect a RPi & start

### ePLC® Basic



- complete unit - basic version
- with Raspberry Pi
- pre-installed SD card

### ePLC® Pro


- complete unit - professional version
- with Raspberry Pi
- pre-installed SD card
- DIN rail housing
- brushed stainless steel hood

Start your project now with PiXtend®!

www.eplc.biz
www.pixtend.com

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qube solutions