# Service Robotics Modules – ready for service tasks in industry

## Service Robotics Modules

**Service Robotics Modules for industrial environments**

Our Service Robotics Modules offer you the possibility of creating your own, customised service robotics application. Pilz Service Robotics Modules consist of the manipulator module, a control module, an operating module and the ROS modules. A high level of safety is guaranteed by the safety functions STO and SBC. Thanks to the plug&play principle, you can put the modules into operation quickly and easily. Intuitive programming is performed using the operating and visualisation software – supplied with the operating module. Together the modules form a package for efficient use in industrial environments which is certified according to the industrial robotics standard EN ISO 10218-1.

**Your benefits at a glance**

- Combinable modules customised according to the specific needs of the user
- Manipulator module, control module and operating module form a DGUV*-certified package that complies with EN ISO 10218-1 (*German Social Accident Insurance)
- Fast commissioning thanks to the plug&play principle
- Intuitive programming
- High level of safety due to the safety functions STO and SBC as well as the robotics safety functions implemented in the safety controller (operating mode selector switch, E-STOP, enabling switches and other functions)
- Open interfaces, e.g. ROS and CANopen
- Long service life due to robust and high-quality components

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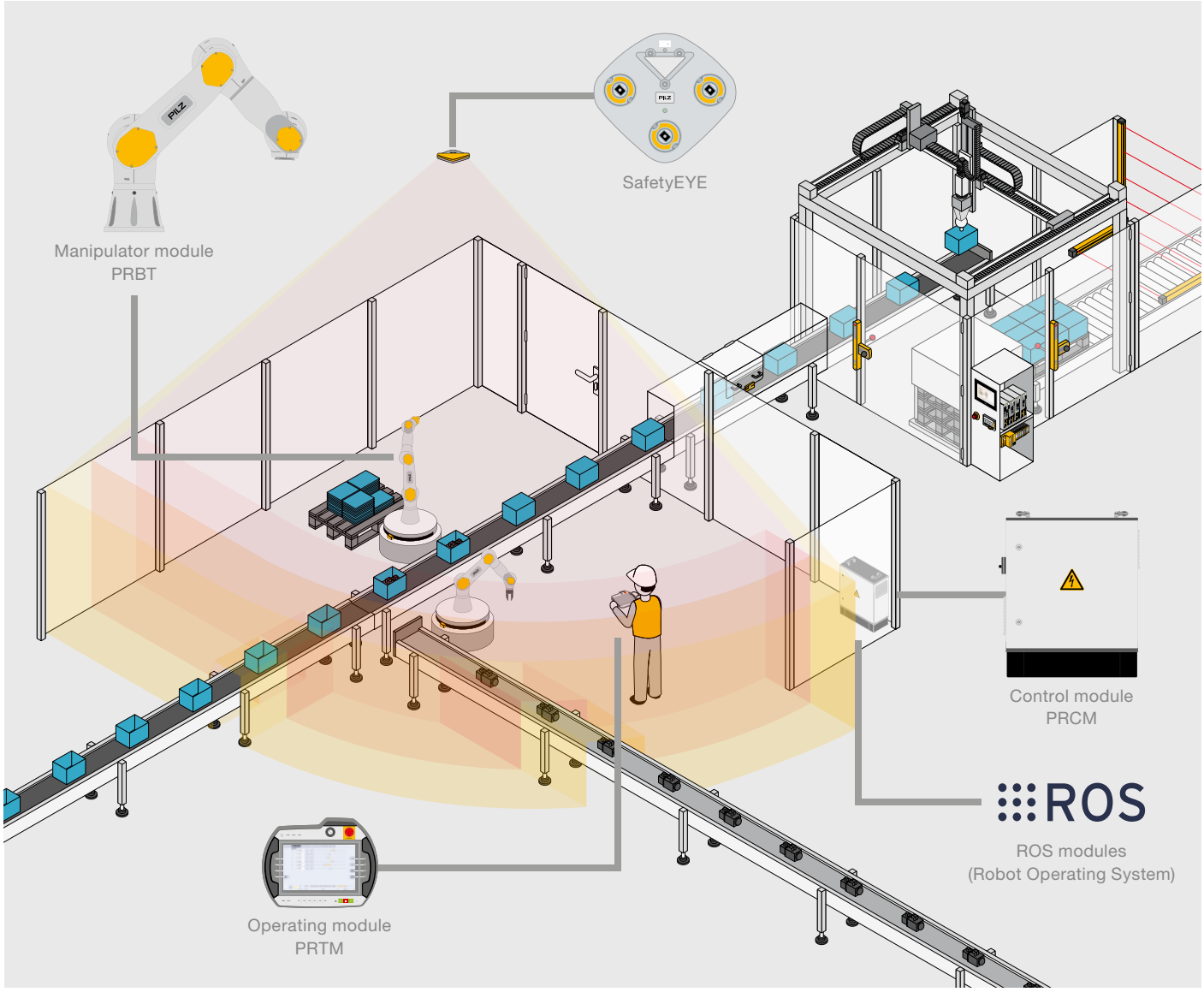
THE SPIRIT OF SAFETY

# Application areas for Service Robotics Modules

Application areas of the Service Robotics Modules can be found in service robotics and industrial environments. Furthermore, the modules are ideal for the following applications:

- Pick&place applications in industrial environments, ranging from assembly and quality control to machine feeding
- Modular, partially automated small-scale robotic cells in industrial environments
- Applications with automated guided vehicles (AGVs)
- Applications in university and R&D environments



# Overview of Service Robotics Modules


Manipulator module
PRBT

Control module
PRCM1

Operating module
PRTM1

ROS

ROS modules
(Robot Operating System)

**Manipulator module PRBT**

- The manipulator module has a load capacity of 6 kg.
- Thanks to safe 24 V DC drives that comply with IEC 61800-5-2, the module is ideal for mobile applications, e.g. for use on automated guided vehicles (AGVs).
- The compact design and the low weight of 19 kg also support flexible and mobile use.

**Control module PRCM1**

- The control module is open for functional expansion through ROS or IEC 61131-3.
- Plug&play makes commissioning easy.
- The motion control system enables additional axes to be controlled, e.g. grippers, linear slider carriages.

**Operating module PRTM1**

- The graphical user interface features intuitive touchscreen operation.
- PRTM1 has the following functions: operating mode selector switch, E-STOP, teaching and diagnostics.

**ROS modules (Robot Operating System)**

- The sophisticated ROS packages meet industrial quality requirements and are ready for immediate use in industrial as well as service robotics environments
- The ROS software packages from Pilz are used to control the manipulator.


## Manipulator module PRBT

Manipulator module PRBT

Mounting direction

| Features | Order number |
|---|---|
| ▸ Number of axes: 6<br>▸ Max. load capacity: 6 kg<br>▸ Repetition accuracy: +/– 0.15 mm<br>▸ Mounting direction: any<br>▸ Weight: 19 kg<br>▸ Flange height: 1004.3 mm<br>▸ Max. operating range: 741 mm<br>▸ Drives: brushless servomotors<br>▸ Brakes: Spring force<br>▸ Encoder: absolute, magnetic<br>▸ Wrist flange: flat change system<br>- 6 free lines<br>- Voltage supply 24 V, 3 A<br>▸ IP class: IP54<br>▸ Power supply: 24 V DC, max. 15 A<br>▸ Interface: CANopen<br>▸ Max. axis speed (axis 1–6): 90°/s<br>▸ Max. axis acceleration (axis 1–6): 200°/s²<br>▸ Safety functions:<br>- STO (safe torque off)<br>- SBC (safe brake control)<br>▸ Control: control modules PRCM, ROS<br>▸ Operating temperature: 0 … 45 °C | 685 000 |

## Control module PRCM1

PRCM1

| | |
|---|---|
| ▸ Robot control<br>▸ Safety controller<br>▸ Supply voltage: 200 … 240 V AC<br>▸ Mains frequency: 50 … 60Hz | 9C000001 |

## Operating module PRTM1

PRTM1

| | |
|---|---|
| ▸ Robot operation<br>▸ Display: 10.1", 1280 x 800 pixels<br>▸ Operating mode selector switch<br>▸ E-STOP pushbutton<br>▸ 2x enabling switches, 3-stage<br>▸ Operator pushbuttons for teaching are on the rear of the operating module. | 9D000001 |

## ROS modules

ROS

ROS modules

| | |
|---|---|
| ▸ Configuration package with robot model (kinematics)<br>▸ Trajectory generator for the commands PTP, LIN, CIRC, BLEND implemented as MOVEit plugins<br>▸ Python API for robot programming | - |

We are represented internationally. Please refer to our Homepage www.pilz.com
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