



EN 50155  
EN 50126  
EN 50129



Pilsz  
PSS 4000

## Automation system PSS 4000 – Modules with approval for the railway sector

pilsz

Previous safety solutions in the railway sector have largely used proprietary, specialist technology. The new PSS 4000 modules with approval in accordance with CENELEC present a real alternative.

Modules with -R (Railway) in the type description are characterised by a particularly robust design and meet the increased requirements from the railway sector. Additional benefits include intuitive programming with standardised EN/IEC 61131-3 Editors and Ethernet-based communication.

### Your benefits at a glance

- ▶ A control system from the automation world - expanded to meet the special requirements of the railway
  - For use in the track area and on rolling stock
  - Special modules with railway approval (CENELEC, TÜV)
  - Compliance with relevant railway standards: EN 50121-3, EN 50121-3-2, EN 50121-4, EN 50155, EN 50126, EN 50128, EN 50129
- ▶ For safety functions in accordance with SIL 2, SIL 3, SIL 4
- ▶ For standard automation tasks – no feedback to the safety functions
- ▶ Less work involved for approval, reduced acceptance procedure thanks to the approved system
- ▶ High level of independence and transferability due to simple programming in accordance with EN/IEC 61131-3
- ▶ Integrated communication interfaces for standardised Industrial Ethernet protocols

the spirit of safety

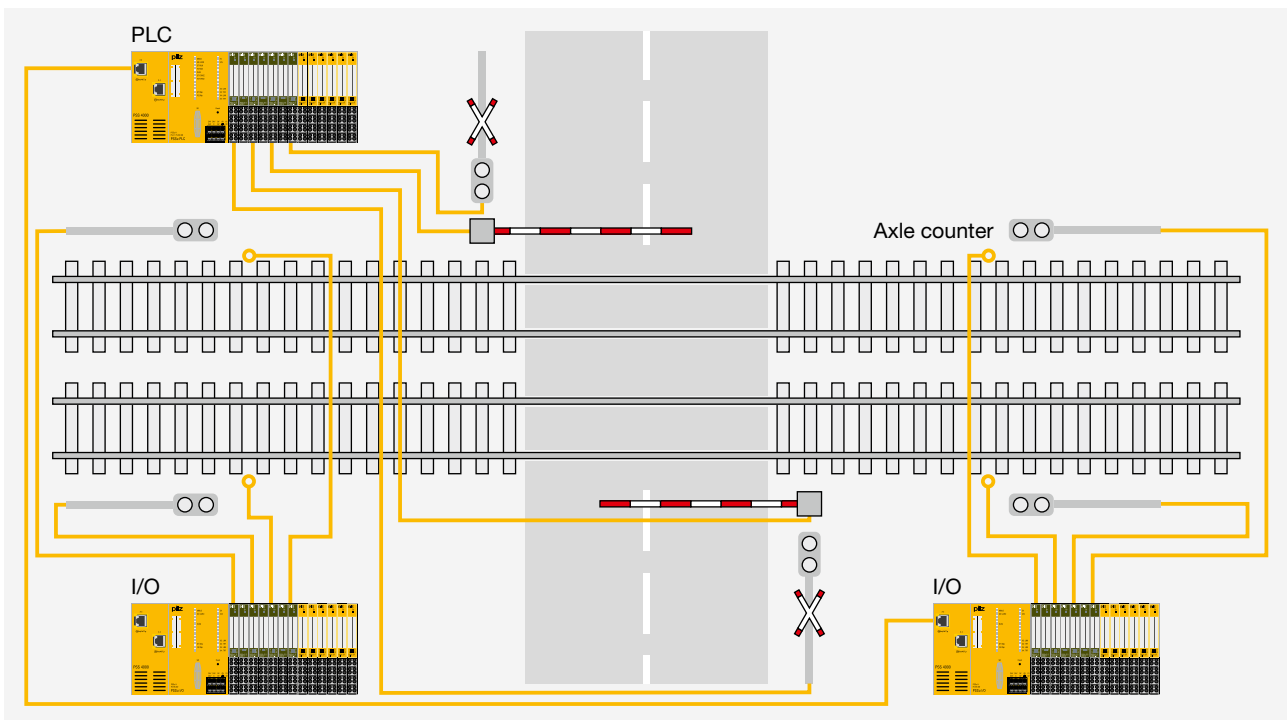
## Automation system PSS 4000 – Railway approvals as a system feature

Piiz components have previously been used regularly in the railway environment. However, this often involved a lot of work for a one-off approval – particularly with regard to safety standards.

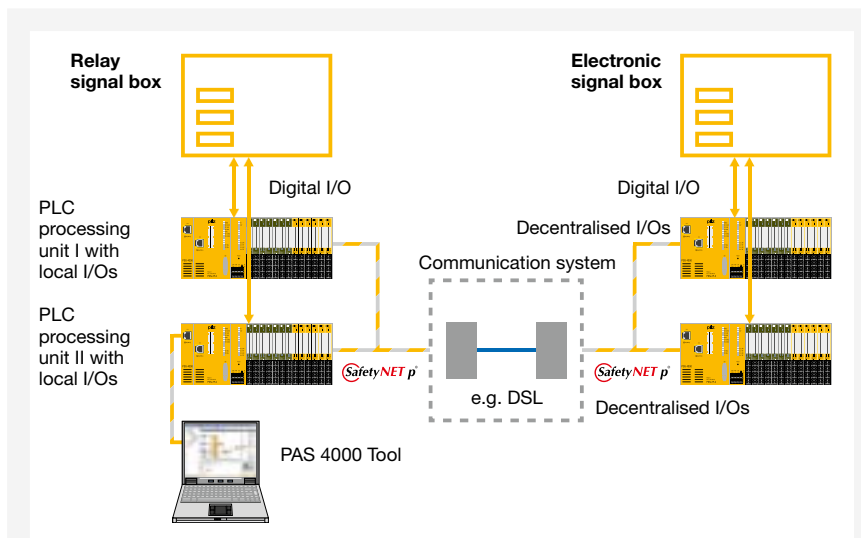
Components in the automation system PSS 4000-R already include the essential approvals for railway applications as a product feature – keeping verification work to a minimum. Thanks to its scalability, the automation system can be used for SIL 2, SIL 3 and SIL 4 applications.

Various applications can be implemented using the -R modules in the automation system PSS 4000:

- ▶ Control functions in the transport sector, such as track laying machinery, traction units
  - SIL 2/SIL 3 applications
- ▶ Control functions/monitoring functions in the signalling area, such as signal monitoring on level crossings, control and safety technology, signal box connection
  - SIL 2/SIL 3/SIL 4 applications



Implementation of a level crossing in accordance with SIL 3.



Implementation of a signal box connection in accordance with SIL 4.

## Benefits of the automation system PSS 4000 – In the railway sector

### Subsequent modifications:

With PSS 4000 it is possible to adapt your architecture retrospectively - thanks to modularisation, reusability of identical components and flexible customisation of hardware and software (scalability). So you can expand or retrofit your existing projects at a later date.

### Standardised programming languages:

Standardised editors in accordance with EN/IEC 61131-3 are now available in the automation system PSS 4000. What's more, the Block Editor can be used to create customised blocks, which can be encapsulated/protected and reused at any time. So areas of responsibility and authority can be clearly defined and your applications expertise protected.

### Ethernet-based communication:

The control systems are networked using the Ethernet-based safety protocol – long distances of several kilometres can easily be bridged. So the control system in the railway station/signal box can communicate safely with the control system on the level crossing, for example. The system also supports other standardised Industrial Ethernet protocols.

### Automation system PSS 4000

#### Hardware

- ▶ Safe PLC, I/O systems, I/O modules PSSuniversal
- ▶ Visualisation devices PMI

#### Software

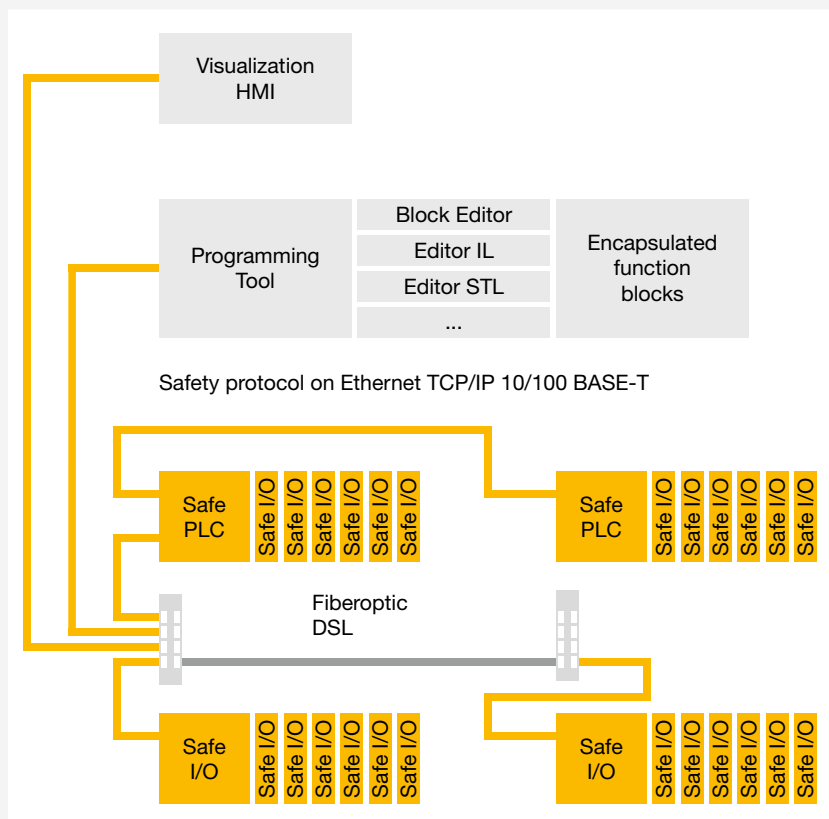
- ▶ EN/IEC 61131-3 Editors PAS IL, PAS STL
- ▶ Graphics Editor PASmulti
- ▶ Encapsulated blocks
- ▶ ActiveX, OPC, PVIS

#### Real-time Ethernet

- ▶ SafetyNET p
- ▶ 10/100 BASE-T
- ▶ TCP/IP, Modbus/TCP, UDP raw

#### Network components

- ▶ Ethernet switches PSSnet
- ▶ DSL modems



## Automation system PSS 4000 – Head modules with railway approval



PSSu PLC

### Technical features

#### PSSu H PLC1 FS SN SD-R

- ▶ PLC head module with 2 x SafetyNET p interface
- ▶ SD card to store the device project and configuration data
- ▶ Scope: Failsafe, standard

#### PSSu H FS SN RF

- ▶ I/O head module
- ▶ SD card to store the configuration data
- ▶ Scope: Failsafe, standard

### Order number

- |                          |        |
|--------------------------|--------|
| ▶ PSSu H PLC1 FS SN SD-R | 315070 |
| ▶ PSSu H FS SN SD-R      | 315085 |

## Automation system PSS 4000 – I/O modules



PSSu E F 2DOR 8-R



PSSu E F 4DI-R

### Technical features

#### PSSu E F PS-P-R

- ▶ Power supply, periphery 24 VDC

#### PSSu E F PS2-R

- ▶ Power supply for system and periphery, additional buffering, 24 VDC

#### PSSu E F 4DI-R

- ▶ 4 digital inputs 24 V

#### PSSu E F 4DO 0.5-R

- ▶ 4 digital semiconductor outputs, 0.5 A

#### PSSu E F 2DO 2-R

- ▶ 2 digital semiconductor outputs, 2 A

#### PSSu E F DI OZ 2-R

- ▶ 1 digital input
- ▶ 2 digital semiconductor outputs, dual-pole

#### PSSu E F 2DOR 8-R

- ▶ 2 relay outputs, volt-free 8 A, e.g. for volt-free connection of signal box signals

#### PSSu E F AI I-R

- ▶ Analogue input, passive 0 ... 25 mA, e.g. for current monitoring, lamp current on signal lights

#### PSSu E F AI I

- ▶ Analogue input, passive -10 ... +10 V, e.g. for voltage monitoring, status of signal lights

#### PSSu E F 2DI 60-R

- ▶ 2 digital inputs, 60 V<sup>1)</sup>

#### PSSu E AI SHT-1-T

- ▶ Shunt module to extend the measuring range of analogue values, e.g. monitoring flashing lights

### Order number

- |                      |        |
|----------------------|--------|
| ▶ PSSu E F PS-P-R    | 315185 |
| ▶ PSSu E F PS2-R     | 315192 |
| ▶ PSSu E F 4DI-R     | 315200 |
| ▶ PSSu E F 4DO 0.5-R | 315210 |
| ▶ PSSu E F 2DO 2-R   | 315215 |
| ▶ PSSu E F DI OZ 2-R | 315220 |
| ▶ PSSu E F 2DOR 8-R  | 315225 |
| ▶ PSSu E F AI I-R    | 315260 |
| ▶ PSSu E F AI U-R    | 315265 |
| ▶ PSSu E F 2DI 60-R  | 315201 |
| ▶ PSSu E AI SHT-1-T  | 314261 |

<sup>1)</sup> Like other common PLC control systems, PSSuniversal operates with the usual 24 V power supply. However, an input module for a 60 V switching level is available specifically for the railway sector.



Webcode

7472

Online information at [www.pilz.com](http://www.pilz.com)

