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C E R T I F I C A T E

No. Z10 020132 0289 Rev. 02

Holder of Certificate:

Pilz GmbH & Co. KG
Felix-Wankel-Str. 2
73760 Ostfildern
GERMANY

Certification Mark:

Product:

Automation Equipment, Safety Related
Programable Safety Systems

Model(s):

PSS 4000-R

Parameters:

Supply voltage:	24 VDC +25%/-30%
Operating temperature:	-40°C ... +70°C
IP code:	IP 20

The report and the user documentation in the currently valid revision are mandatory part of this certificate. The product complies with the below listed safety requirements only if the specifications documented in the currently vaild revision of this report are met. The certified components are listed in the report PO84267T.

Tested according to:

EN 50126-1:2017 (up to SIL 4)
EN 50129:2018/AC:2019 (up to SIL 4)
EN 50716:2023 (up to SIL 4)
EN 50159:2010/A1:2020
EN 50155:2021
EN 45545-2:2020/A1:2023 (up to HL2)

The product was tested on a voluntary basis and complies with the essential requirements. The certification mark shown above can be affixed on the product. It is not permitted to alter the certification mark in any way. In addition the certification holder must not transfer the certificate to third parties. This certificate is valid until the listed date, unless it is cancelled earlier. All applicable requirements of the Testing, Certification, Validation and Verification Regulations of TÜV SÜD Group have to be complied. For details see: www.tuvsud.com/ps-cert

Test report no.: PO84268C

Valid until: 2031-05-17

Date, 2026-05-18

(Peter Weiß)

TÜV SÜD Product Service GmbH • Certification Body • Ridlerstraße 65 • 80339 Munich • Germany

Liste zur Verfolgung der Versionsfreigaben der sicherheitsgerichteten Baugruppen des Systems:

List for tracking the version releases of safety related modules of the system:

PSS 4000-R

Hersteller / Manufacturer:

Pilz GmbH & Co. KG
Felix-Wankel-Straße 2
D-73760 Ostfildern

Bericht-Nr. / Report No.: **PO84267T**

Revision: **1.20**

Datum / Date: **2026-05-18**

Zertifikat / Certificate: **Z10 020132 0289 Rev. 02**

Prüflabor für Sicherheitskomponenten / Testing Laboratory for Safety Components:

TÜV SÜD RAIL GmbH
Westendstraße 199
80686 München

Zertifizierungsstelle / Certification body:

TÜV SÜD Product Service GmbH
Ridlerstraße 65
80686 München

Inhalt / Content

Änderungen zur Vorgängerversion / Changes of the previous version:

Revision	Kapitel	Baugruppe / Device	Version alt / old	Version neu / new
1.0 / 13.04.2012	-	erste Ausgabe / initial release	-	-
1.1 / 22.06.2012	4	aktualisierte Dokumente / updated documents	-	-
1.2 / 24.08.2012	1; 2; 4	SW Release 1.6	1.5	1.6
1.3 / 03.06.2013	1; 2; 3.5; 4	SW Release 1.6.1 Aktualisierung Änderungsauswirkungsanalyse für Release 1.5.x / Update Impact Analysis for Release 1.5.x Aussage zu nicht-sicherheitsrelevanten Baugruppen ergänzt / statement on non-safety modules added	1.6.0	1.6.1
1.4 / 20.11.2013	1; 2; 4	SW Release 1.8.1	1.6.1	1.8.1
1.5 / 06.02.2014	3.5	interne Version (TÜV) bereits bewertete Baugruppen aus Bericht in Freigabeliste ergänzt /modules contained in assessment report added to this version control list Aussage zu Verwendung Standardbaugruppen präzisiert / statement on usage ob standard modules more precise Anschrift TÜV SÜD Rail GmbH aktualisiert / address of TÜV SÜD Rail GmbH updated	-	-
1.6 /1 6.04.2014	3.1; 3.3	Aktualisierung HW Version Kopfmodule und PSSu E F 2DI 60-R, PSSu E F 2DOR 8-R.	-	-
1.7 / 12.05.2014	4	Korrektur Revisionsnr. Des Sicherheitsnachweises und Gutachtens /correction of saftey case revision and assessment report number	-	-
1.8 / 20.01.2015	1; 2; 4	SW Release 1.10.0	1.8.1	1.10.0
1.9 / 17.09.2015	Seite / page1; 13	Ergänzung Akkreditierungsinformation /addition of accreditation information	-	-
1.10 / 05.10.2015	1; 2; 4	SW Release 1.12.1	1.10.0	1.12.1
1.11 / 19.06.2017	1; 2; 4	TÜV Logo corrected SW Release 1.15.0	1.12.1	1.15.0
1.12 / 12.10.2017	1; 2; 3.1; 4	SW Release 1.17.0	1.15.0	1.17.0
		HW Kopfmodule / HW Head modules	04	04 und/and 04.01
1.13 / 28.11.2017	3.1	HW Kopfmodule / HW Head modules	04 und/and 04.01	04.xx
1.14 / 08.08.2018	1; 2; 3.1; 4	SW Release 1.18.0	1.17.0-	1.18.0

		HW Kopfmodule M12 / HW head modules M12	-	01.xx
1.15 / 06.07.2020	1; 2; 3.1; 3.3; 4	SW Release 1.21.0	1.18.0	1.21.0
		HW Kopfmodule / HW head modules	4.1	4.2
		HW Kopfmodule M12 / HW head modules M12	1.0	1.1
		PSSu E F 4DI-R description change	04 / 12	04 / 12
1.16 / 05.11.2020	1; 2; 4	SW Release 1.21.2	1.21.0	1.21.2
1.17 / 16.03.2021	1; 2;	PSS 4000 Runtime-Platform; PAS-Tool	1.21.2	1.21.x
	3	EMV und Umweltnormen ergänzt	-	-
	3.5	Produktbezeichnungen ergänzt und vereinheitlicht	-	-
	4	Sicherheitsnachweis aktualisiert	-	-
1.18 / 17.03.2021	5	Anmerkungen aktualisiert	-	-
1.19 / 11.07.2025	3.1	New modification PO105048T v1.0	-	-
1.20 / 18.05.2026	2	SW Release PAS 1.29.x ergänzt, Einschränkungen bei alten PAS Versionen bei retain persistent / struct hinzugefügt	1.21.x	1.29.x
	1-4	Prüfbericht mit “intern” ergänzt	-	-
	2	Hinweis ergänzt: Programm Editor ist ein “Tool which can directly affect safety” nach 50129	-	-
	4	Version und Verweis aktualisiert	-	-
	5	Kapitel “Normkonformität eingefügt”	-	-
	-	Unterschrift Hersteller entfernt	-	-

1 Runtime - Plattform

Name	Version[1)]	Interner Prüfbericht Internal Test Report	Bemerkung Remark
PSS 4000 Runtime-Plattform PSS 4000 Runtime plattform	1.5.x	PO84128G - R1.4	Die Software Version 1.5.x ist nur für Applikationen bis zu SIL2 zugelassen. Alle SIL3- oder SIL4- Systeme müssen (mindestens) auf das Release 1.6.0 aktualisiert werden. The software version 1.5.x is only applicable up to SIL 2. All systems of SIL3 or SIL4 have to be upgraded to (at least) version 1.6.0.
	1.6.x	PO84128G - R1.4	-
	1.8.0	PO84128G - R1.5	-
	1.10.0	PO84128G - R1.7	-
	1.12.1	PO84128G - R1.9	-
	1.15.0	PO84128G - R1.10	-
	1.17.0	PO84128G - R1.11	-
	1.18.0	PO84128G - R1.12	-
	1.21.x	PO84128G - R1.15	-

2 Programm Editor / Plattforms ("T3", classified according to EN 50129 as tool which can directly affect safety)

Name	Version[1)]	Interner Prüfbericht Internal Test Report	Bemerkung Remark
PAS-Tool PAS-Tool	1.6.x	PO84128G rev1.4	Die Software Version 1.5.x ist nur für Applikationen bis zu SIL2 zugelassen. Alle SIL3- oder SIL4- Systeme müssen (mindestens) auf das Release 1.6.0 aktualisiert werden. The software version 1.5.x is only applicable up to SIL 2. All systems of SIL3 or SIL4 have to be upgraded to (at least) version 1.6.0.
	1.8.x	PO84128G - R1.5	Einschränkung der Sicherheitsfunktion Bei PAS-Versionen 1.8.0 bis 1.29.0 wird es in folgenden seltenen Fällen zur Einschränkung der Sicherheitsfunktionen kommen: Bei Verwendung von nullspannungssicheren Variablen (VAR RETAIN PERSISTENT), die einen strukturierte Datentypen (STRUCT) verwenden. Weitere Details und Fehlerausschlüsse siehe Readme PAS4000 (Änderungen in Version 1.29.2 – PQC-75790) Restriction of the safety function In PAS versions 1.8.0 to 1.29.0, the safety function will be restricted in the following rare cases: when using non volatile variables (VAR RETAIN PERSISTENT), that use a structured data type (STRUCT). For further details and error exclusions, see the PAS4000 Readme (Changes in Version 1.29.2 – PQC-75790)
	1.10.0	PO84128G - R1.7	
	1.12.0	PO84128G - R1.9	
	1.15.0	PO84128G - R1.10	
	1.17.0	PO84128G - R1.11	
	1.18.0	PO84128G - R1.12	
	1.21.x	PO84128G - R1.15	
	1.29.x	PO105970T - R1.0	

3 Hardware

3.1 Kopfmodule / Head modules

Typ (Sach.Nr.)[2)] Type (Order No.)	Beschreibung / Description	HW- Version[1)]	Interner Prüfbericht Internal Test Report	Bemerkung Remark
PSSu H PLC1 FS SN SD-R (315070vv)	PLC-Kopfmodul für Failsafe und Standard mit SafetyNETp-Anschaltung PLC Head module for fail safe and standard with SafetyNETp interface	04.xx	PO84128G - R1.13 PO105048T - R1.0	-

3 Hardware

3.1 Kopfmodule / Head modules

Typ (Sach.Nr.)[2)] Type (Order No.)	Beschreibung / Description	HW- Version[1)]	Interner Prüfbericht Internal Test Report	Bemerkung Remark
PSSu H FS SN SD-R (315085vv)	Kopfmodul für Failsafe und Standard mit SafetyNETp-Anschaltung Head module for fail safe and standard with SafetyNETp interface	04.xx	PO84128G - R1.13 PO105048T 1.0	-
PSSu H PLC1 FS SN SD M12-R (315071vv)	PLC-Kopfmodul für Failsafe und Standard mit SafetyNETp-Anschaltung (M12) PLC Head module for fail safe and standard with SafetyNETp interface (M12)	01.xx	PO84128G - R1.13 PO105048T - R1.0	Erfüllen zusätzlich die EMV Normen: Also complies with EMC standards: EN 50121-3-2:2015 EN 50121-4:2017
PSSu H FS SN SD M12-R (315086vv)	Kopfmodul für Failsafe und Standard mit SafetyNETp-Anschaltung (M12) Head module for fail safe and standard with SafetyNETp interface (M12)	01.xx	PO84128G - R1.13 PO105048T - R1.0	Erfüllen zusätzlich die EMV Normen: Also complies with EMC standards: EN 50121-3-2:2015 EN 50121-4:2017

3.2 Elektronikmodule / Electronic modules

Typ (Sach.Nr.)[2)] Type (Order No.)	Beschreibung / Description	Version HW / SW	Interner Prüfbericht Internal Test Report	Bemerkung Remark
PSSu E F AI I-R (315260vv)	Analog-Modul, 0 ... 25 mA Analog module, 0 ... 25 mA	01 / 01	PO84128G - R1.1	-

3.2 Elektronikmodule / Electronic modules

Typ (Sach.Nr.)[2)] Type (Order No.)	Beschreibung / Description	Version HW / SW	Interner Prüfbericht Internal Test Report	Bemerkung Remark
PSSu E F AI U-R (315265vv)	Analog-Modul, -10 ... +10 V Analog module, -10 ... +10 V	01 / 01	PO84128G - R1.1	-

3.3 PSSu - Elektronikmodule / PSSu electronic modules

Typ (Sach.Nr.)[2)] Type (Order No.)	Beschreibung / Description	Version HW / SW	Interner Prüfbericht Internal Test Report	Bemerkung Remark
PSSu E F 4DI-R (315200vv)	I/O-Modul, 4 digitale Eingänge, 2 Testtaktausgänge I/O Module, 4 digital Inputs, 2 test pulse outputs	04 / 12	PO84128G - R1.1	Erfüllen zusätzlich die EMV Normen: Also complies with EMC standards: EN 50121-3-2:2016 EN 50121-4:2016
PSSu E F 2DI 60-R (315201vv)	I/O-Modul, 2 digitale Eingänge, 60 Volt I/O Module, 2 digital Inputs, 60 Volt	02 / 01	PO84128G - R1.6	-
PSSu E F 2DO 2-R (315215vv)	I/O-Modul, 2 digitale Ausgänge, einpolig, 2 A I/O Module, 2 digital Outputs, single pole, 2 A	04 / 12	PO84128G - R1.1	Erfüllen zusätzlich die EMV Normen: Also complies with EMC standards: EN 50121-3-2:2016 EN 50121-4:2016
PSSu E F 4DO 0.5-R (315210vv)	I/O-Modul, 4 digitale Ausgänge, einpolig, 0,5 A I/O Module, 4 digital Outputs, single pole 0.5 A	04 / 12	PO84128G - R1.1	Erfüllen zusätzlich die EMV Normen: Also complies with EMC standards: EN 50121-3-2:2016 EN 50121-4:2016
PSSu E F 2DOR 8-R (315225vv)	I/O-Modul, 2 Relaiskontakte, potentialfrei, 8A I/O Moldule, 2 Relay contacts, potential free, 8A	07 / 15	PO84128G - R1.6	-

3.3 PSSu - Elektronikmodule / PSSu electronic modules

Typ (Sach.Nr.)[2)] Type (Order No.)	Beschreibung / Description	Version HW / SW	Interner Prüfbericht Internal Test Report	Bemerkung Remark
PSSu E F DI OZ 2-R (315220vv)	I/O-Modul, 1 digitaler Eingang, 1 digitaler, zweipoliger Ausgang, 2 A I/O Module, 1 digital Input, 1 digital Output, dual pole 2 A	05 / 12	PO84128G - R1.1	Erfüllen zusätzlich die EMV Normen: Also complies with EMC standards: EN 50121-3-2:2016 EN 50121-4:2016

3.4 PSSu - Spannungsversorgungs-Modul / PSSu powersupply modules

Typ (Sach.Nr.) [2)] Type (Order No.)	Beschreibung / Description	Version HW / SW	Interner Prüfbericht Internal Test Report	Bemerkung Remark
PSSu E F PS-P-R (315185vv)	Spannungsversorgungs-Modul (Peripherie 24 V) Powersupply module (Periphery 24 V)	06 / 13	PO84128G - R1.1	-
PSSu E F PS2-R (315192vv)	Spannungsversorgungs-Modul (Peripherie 24 V und System 5V) Powersupply module (Periphery 24 V and System 5V)	02 / 03	PO84128G - R1.1	-

3.5 Nicht sicherheitsgerichete Standardmodule / non-safety related standard modules

Typ (Sach.Nr.) [2)] Type (Order No.)	Beschreibung / Description	Interner Prüfbericht Internal Test Report	Bemerkung Remark
PSSu E S 4DI-T (314400vv)	I/O-Modul, 4 digitale Eingänge I/O Module, 4 digital Inputs	PO84128G - R1.1	Für nicht sicherheitsgerichtete Steuerungsfunktionen können die "-T" - Baugruppen des Automatisierungssystems PSS 4000 eingesetzt werden. Diese Baugruppen arbeiten bezüglich der funktionalen Sicherheit rückwirkungsfrei zu den PSS 4000 "-R" Baugruppen.
PSSu E S 4DO 0.5-T (314405vv)	I/O-Modul, 4 digitale Ausgänge, 0,5 A I/O Module, 4 digital Outputs, 0.5 A	PO84128G - R1.1	
PSSu E S 2DO 2-T (314410vv)	I/O-Modul, 2 digitale Ausgänge, 2 A I/O Module, 2 digital Outputs, 2 A	PO84128G - R1.1	

3.5 Nicht sicherheitsgerichete Standardmodule / non-safety related standard modules

Typ (Sach.Nr.) [2)] Type (Order No.)	Beschreibung / Description	Interner Prüfbericht Internal Test Report	Bemerkung Remark
PSSu E S 2AI U-T (314440vv)	Analog-Modul, 2 Analoge Eingänge, -10 ... +10 V Analog module, 2 analog Inputs, -10 ... +10 V	PO84128G - R1.1	Die individuellen Anforderungen einer Bahnapplikation können jedoch u. U. von den "-T" - Baugruppen nicht vollständig erfüllt werden, es sind daher stets die Angaben im Datenblatt der verwendeten Baugruppen zu beachten. Eine Versionsbeschreibung der nicht sicheren Standardbaugruppen ist nicht notwendig, da sie konzeptbedingt rückwirkungsfrei zu den Sicherheitsbaugruppen sind. Rückwirkungsfrei bezieht sich auf die Sicherheitsfunktion und den sicheren Zustand. Auswirkungen auf die Verfügbarkeit sind im Fehlerfall möglich. The "-T" modules of the PSS 4000 automation system can be used for non-safety-related control functions. These modules operate nonreactive to the PSS 4000 "-R" modules in terms of functional safety. The individual requirements of railway applications may in some circumstances not be completely fulfilled by the "-T" modules. Therefore the details in the data sheet of the applied modules must be noted. A version description of the standard modules is not necessary as the freedom from interference is a conceptional property of the modules. Freedom of interference is related to the safety function and the safe state. Effects by means of availability in case of a failure are possible.
PSSu E S 4AI U-T (314445vv)	Analog-Modul, 4 Analoge Eingänge, -10 ... +10 V Analog module, 4 analog Inputs, -10 ... +10 V	PO84128G - R1.1	
PSSu E S 2DOR 2-T (314511vv)	I/O-Modul, 2 Relaiskontakte, potentialfrei, 2A I/O Moldule, 2 Relay contacts, potential free, 2A	PO84128G - R1.1	
PSSu E AI SHT1-T (314261vv)	Shunt-Adapter for PSSu E F AI I, 0,5 A Shunt Adaptor for PSSu E F AI I, 0,5 A	PO84128G - R1.1	
PSSu E S 2AI I se-T (314450vv)	Analog-Modul, 2 Analoge Eingänge, 0/4 - 20 mA Analog module, 2 analog Inputs, 0/4 - 20 mA	PO84128G - R1.1	
PSSU E S 2AO U-T (314460vv)	Analog-Modul, 2 Analoge Ausgänge, -10 ... +10 V Analog module, 2 analog Inputs, -10 ... +10 V	PO84128G - R1.1	
PSSu E S 4AO U-T (314465vv)	Analog-Modul, 4 Analoge Ausgänge, -10 ... +10 V Analog module, 4 analog Inputs, -10 ... +10 V	PO84128G - R1.1	
PSSu E S 2AO I-T (314470vv)	Analog-Modul, 2 Analoge Eingänge, 0/4 - 20 mA Analog module, 2 analog Inputs, 0/4 - 20 mA	PO84128G - R1.1	
PSSu E S ABS SSI-T (314480vv)	Zähler-Modul, 1 Eingang, Absolutwertgeber, SSI-Encoder Counter module, 1 input, absolute encoder, SSI encoder	PO84128G - R1.1	
PSSu E S INC-T (314485vv)	Zähler-Modul, 1 Eingang, RS422 Counter module, 1 input, RS323	PO84128G - R1.1	
PSSu XB F-T (314092vv)	Basis-Station-Modul, Erweiterungsmodul für kabelbasierte Modulbusverlängerung Base station module, expansion module for cable-based module bus extension	PO84128G - R1.1	
PSSu XR F-T (314093vv)	Remote-Station-Modul, Erweiterungsmodul für kabelbasierte Modulbusverlängerung Remote station module, expansion module for cable-based module bus extension	PO84128G - R1.1	

4 Dokumentation / Documentation

Name Name	Version Version	Interner Prüfbericht Internal Test Report	Bemerkung Remark
Sicherheitsnachweis Teil 1: Definition des Systems PSS 4000-R	81525	PO106937T - R1.0	-
Sicherheitsnachweis Teil 2: Qualitätsmanagementbericht PSS 4000-R	81778	PO106937T - R1.0	-
Sicherheitsnachweis Teil 3: Sicherheitsmanagementbericht PSS 4000-R	81776	PO106937T - R1.0	-
Sicherheitsnachweis Teil 4: Technischer Sicherheitsbericht PSS 4000-R	81535	PO106937T - R1.0	-
Sicherheitsarchitekturen für Bahnanwendungen nach CENELEC SIL 2/3/4 (1002532-DE)	15 (81314)	PO106937T - R1.0	-

5 Normkonformität / Conformity with Standards

Die gelisteten Baugruppen erfüllen die folgenden Sicherheits-, EMV-, Umwelt- und Brandschutz-Normen: /
The listed components also fulfil the following standards of safety, EMC, environment and fire protection:

Norm / Standard	Titel der Norm / Title of standard
EN 50126-1:2017	Bahnanwendungen - Spezifikation und Nachweis von Zuverlässigkeit, Verfügbarkeit, Instandhaltbarkeit und Sicherheit (RAMS) Teil 1: Generischer RAMS-Prozess Railway Applications - The Specification and Demonstration of Reliability, Availability, Maintainability and Safety (RAMS) - Part 1: Generic RAMS Process
EN 50128:2011 + A2:2020	Bahnanwendungen - Telekommunikationstechnik, Signaltechnik und Datenverarbeitungssysteme Software für Eisenbahnsteuerungs- und Überwachungssysteme Railway Applications - Communication, Signalling and Processing Systems - Software for Railway Control and Protection Systems
EN 50129:2018 + AC:2019	Bahnanwendungen - Telekommunikationstechnik, Signaltechnik und Datenverarbeitungssysteme Sicherheitsbezogene elektronische Systeme für Signaltechnik Railway Applications - Communication, Signalling and Processing Systems - Safety Related Electronic Systemsfor Signalling
EN 50159:2010 + A1:2020	Bahnanwendungen - Telekommunikationstechnik, Signaltechnik und Datenverarbeitungssysteme Sicherheitsrelevante Kommunikation in Übertragungssystemen Railway Applications - Communication, Signalling and Processing Systems - Safety-Related Communication in Transmission Systems
EN 50121-1:2006	Bahnanwendungen - Elektromagnetische Verträglichkeit Railway applications - Electromagnetic compatibility
EN 50121-3-1:2006	Bahnanwendungen - Elektromagnetische Verträglichkeit - Teil 3-1: Bahnfahrzeuge - Zug und gesamtes Fahrzeug. Railway applications - Electromagnetic compatibility - Part 3-1: Railway vehicles - Train and complete vehicle.
EN 50121-3-2:2006	Bahnanwendungen - Elektromagnetische Verträglichkeit - Teil 3-2: Bahnfahrzeuge - Geräte Railway applications - Electromagnetic compatibility - Part 3-2: Railway vehicles - Equipment
EN 50121-4: 2006	Bahnanwendungen - Elektromagnetische Verträglichkeit Teil 4: Störaussendungen und Störfestigkeit von Signal- und Telekommunikationseinrichtungen Electromagnetic compatibility - Part 4: Emission and immunity of the signalling and telecommunications apparatus
EN 50122-1:2011	Ortsfeste Anlagen für Bahnanwendungen - Elektrische Sicherheit, Erdung und Rückleitung Teil 1: Schutzmaßnahmen gegen elektrischen Schlag Railway applications - Fixed installations - Electrical safety, earthing and the return circuit - Part 1: Protection against electric shock
EN 50122-2:2010	Ortsfeste Anlagen für Bahnanwendungen - Elektrische Sicherheit, Erdung und Rückleitung Teil 2: Schutzmaßnahmen gegen Streustromwirkungen durch Gleichstrombahnen Railway applications - Fixed installations - Electrical safety, earthing and the return circuit Part 2: Provisions against the effects of stray currents caused by DC traction systems;

5 Normkonformität / Conformity with Standards

Die gelisteten Baugruppen erfüllen die folgenden Sicherheits-, EMV-, Umwelt- und Brandschutz-Normen: /
The listed components also fulfil the following standards of safety, EMC, environment and fire protection:

Norm / Standard	Titel der Norm / Title of standard
EN 50124-1:2001 + A1:2003 + A2:2005	Bahnanwendungen - Isolationskoordination Teil 1: Grundlegende Anforderungen - Luft- und Kriechstrecken für alle elektrischen und elektronischen Betriebsmittel Railway applications - Insulation coordination - Part 1: Basic requirements - Clearances and creepage distances for all electrical and electronic equipment
EN 50125-1:2014	Bahnanwendungen - Umweltbedingungen für Betriebsmittel - Teil 1: Betriebsmittel auf Bahnfahrzeugen Railway applications - Environmental conditions for equipment - Part 1: Rolling stock and on-board equipment
EN 50125-3:2003 + Cor.:2010	Bahnanwendungen - Umweltbedingungen für Betriebsmittel Teil 3: Umweltbedingungen für Signal- und Telekommunikationseinrichtungen Environmental conditions for equipment - Part 3: Equipment for signalling and telecommunications
EN 50153:2002	Bahnanwendungen - Fahrzeuge - Schutzmaßnahmen in Bezug auf elektrische Gefahren Railway applications - Rolling stock - Protective provisions relating to electrical hazards
EN 50155:2021	Bahnanwendungen - Fahrzeuge - Elektronische Betriebsmittel; Railway applications - Rolling stock - Electronic equipment
EN 50657:2017	Anwendungen für Schienenfahrzeuge - Software auf Schienenfahrzeugen Railways Applications - Rolling stock applications - Software on Board Rolling Stock
EN 50716:2023	Bahnanwendungen - Anforderungen für die Softwareentwicklung Railway Applications - Requirements for software development
EN 45545-2:2020+A1:2023	Bahnanwendungen - Brandschutz in Schienenfahrzeugen Teil 2: Anforderungen an das Brandverhalten von Materialien und Komponenten Railway applications - Fire protection on railway vehicles - Part 2: Requirements for fire behavior of materials and components
EN 61373:2010/AC:2017	Bahnanwendungen - Betriebsmittel von Bahnfahrzeugen - Prüfungen für Schwingen und Schocken Railway applications - Rolling stock equipment - Shock and vibration tests
DIN VDE 0831:2006	Bahnanwendungen - Telekommunikationstechnik, Signaltechnik und Datenverarbeitungssysteme Sicherheitsrelevante Kommunikation in Übertragungssystemen Railway applications - Communication, signalling and processing systems - Safety-related communication in transmission systems

6 Anmerkungen / Remarks

[1] **Version:**
X: Zahl im Bereich 0...9 / Number can range 0...9
XX: Zahl im Bereich 00…99 oder leer / Number can range 00…99 or empty

[2] **Typ (Sach-Nr.) / Type (Order No.):**
VV: Zahl im Bereich 00...99 oder AA-ZZ oder leer / Number can range 00...99 or AA-ZZ or empty

Die SW Version in diesem Bericht weicht von den Angaben im Sicherheitsnachweis ab. Im Sicherheitsnachweis wird teilweise die Versionsbezeichnung der Entwicklungsabteilung angegeben. In diesem Bericht wird die Versionsbezeichnung so angegeben, wie sie beim Auslesen der Baugruppendaten erscheint.

The SW revision number in this report differs from the values given in the saftey case document.The versioning scheme of the safety case partly uses the development format. This report uses the versioning scheme as it appears when reading it from the device.

Das Qualitätsmanagement des Gutachters unterlag dem Qualitätsmanagementsystem der Inspektionsstelle gemäß DIN EN ISO/IEC 17020.

The quality management of the assessor follows the quality management system of the inspection body according to DIN EN ISO/IEC 17020.

	Freigabe Prüfstelle: **Release by Test Body:**	**Freigabe Zertifizierstelle:** **Release by Certification Body:**
Datum / Unterschrift: Date:/ Signature:	Volker Sperling 2026.05.18 11:07:17 +02'00'	Peter Weiß 2026.05.18 13:42:40 +02'00'

Add value.
Inspire trust.

Report

on the

Certificate

Z10 020132 0289 Rev. 02

of the

Generic Logic Device
PSS 4000-R

Applicant

Pilz GmbH & Co. KG

Felix-Wankel-Straße 2
73760 Ostfildern
Germany

Report No.: PO84268C

Version 1.8 of 2026-05-18

Certification Body

TÜV SÜD Product Service GmbH

Ridlerstraße 65
80339 München

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Modification History

Rev.	Status	Date	Author	Modification / Description
1.0	Replaced	13.04.2012	Guido Neumann	Initial Release
1.1	Replaced	22.05.2012	Guido Neumann	New certification with SIL 4
1.2	Replaced	22.08.2012	Guido Neumann	SW Release 1.6; New condition of use A.9:
1.3	Replaced	03.06.2013	Guido Neumann	SW Release 1.6.1 according to EN 50128:2011 Manual updated (D/3.2.4/; A.1:) Conditions of use updated (A.6:A.7:A.9:A.10:)
1.4	Replaced	26.10.2015	Guido Neumann	Accreditation information added (3.1) Mark of Accreditation body added (title page) Address updated (Westendstraße 199) incl. footer Information to basic automation system according EN 61508 Ed. 2 added (2.1)
1.5	Replaced	10.08.2018	Jiayi Dong	Windows 7 and Windows 10 instead of Microsoft XP (2.3.3.2) Manual listed without version (3.2.2) EN 50159:2010 added (3.3)
1.6	Replaced	16.03.2021	Jiayi Dong	Certificate number updated Standards updated (3.3, 3.4)
1.7	Replaced	2025-07-11	Natalia Paredes	New modification PO105048T v1.0
1.8	Active	2026-05-18	Volker Sperling	Update for new revision of certificate, modification PO106937T Adjustments for template v28

Table 1: Modification history

1 Target of Evaluation (ToE)

The company Pilz GmbH & Co. KG has assigned TÜV SÜD Rail GmbH for testing and certifying of the safety-related system PSS 4000-R.

In December 2024 the company Pilz GmbH & CO.KG assigned TÜV SÜD for testing and certifying the modification to have an additional supplier for plug-in terminals, pin headers and screw terminals of the PSS 4000-R according to the standard listed in clause 4 of this report. The project number related to this Technical Report is 717531569.

The Report on the Certificate presents the summary of the application-related results of the testing and certification steps for the PSS 4000-R system. It is based on the requirements from the Chapter 3 and the documentation listed in Chapter 3.1.

In November 2025 Pilz GmbH & Co. KG requested TÜV SÜD Rail GmbH to update the certification of the PSS 4000-R according to the standards listed in clause 4 of this report. The related project number is 717533727.

The ToE is a safety programmable logic controller used in safety related railway applications. The PSS 4000-R is a Generic Logic Device approved for

- Up to SIL 4 according to EN 5012x
- Up to HL2 according to EN 45545-2

2 Scope of Testing

2.1 Test Specimen

The PSS 4000-R is a Generic Logic Device used in safety related railway applications.

The safety function of the PSS 4000-R is defined by the application.

The mission of the PSS 4000-R is to read inputs, calculate a user programmed logic and set outputs accordingly.

The safe state is defined as “de-energized” (logical “0”) for input and output.

2.2 Nomenclature and Identification of PSS 4000-R

The PSS 4000-R tested is identified by hardware and software as defined in **PO84267T** (List for tracking the version releases of safety related modules of the automation system PSS 4000-R).

3 Certification Requirements

The certification of the PSS 4000-R is according to the regulations and standards listed in clause 4 of this document. This certifies the successful completion of the following test segments.

I. Functional Safety including

- Functional safety management (FSM) and safety lifecycle
- Applied safety development process
- Analysis of the product structure / architecture (Block-Diagram-FMEA)
- Analysis of the hardware (FMEDA on component or block level, quantitative analysis)
- Analysis of the software
- Verification and validation procedures/activities
- Fault simulations and software tests
- Approval of fault avoidance measures
- Functional tests

II. Electrical Safety

III. Susceptibility to environmental errors including

- Climate and temperature
- IP degree of protection
- Mechanical effects

IV. Electromagnetic compatibility (EMC)

- Immunity
- Emission

V. Safety information in the product documentation (safety manual, user manual, installation and operating instructions)

VI. Product-Related Quality Assurance in Manufacture and Product Development

3.1 Certification Documentation

The detailed technical evaluation is documented in the most recent version of the Technical Report:

Document No.	Description	Project No.
PO84128G	Assessment Report (Bericht zur Begutachtung)	717511957
PO84267T	List for tracking the version releases of safety related modules of the automation system PSS 4000-R	717511957
Safety related requirements, conditions and restrictions can be found in the following user documentation		
[INST_BAHN]	Safety architectures railway application - Operational Manual 1002532-DE-11	717511957

Table 2: Technical Report

Modifications have been evaluated and tested and are documented in the most recent version of the Technical Report of Modifications (TRM):

Document No.	Modification Description	Project No.
Report on the Certificate v1.6		
PO84128G	Assessment Report (Bericht zur Begutachtung)	717522574
PO84267T	List for tracking the version releases of safety related modules of the automation system PSS 4000-R	717522574
Safety related requirements, conditions and restrictions can be found in the following user documentation		
[BAHN-HANDBUCH]	Safety architectures railway application - Operational Manual 1002532-DE-12	717517881
Report on the Certificate v1.7		
PO105048T	additional supplier for plug-in terminals, pin headers and screw terminals	717531569
Safety related requirements, conditions and restrictions can be found in the following user documentation		
[BAHN-HANDBUCH]	Safety architectures railway application - Operational Manual 1002532-DE-12	717517881

Document No.	Modification Description	Project No.
Report on the Certificate v1.8		
PO84267T	List for tracking the version releases of safety related modules of the automation system PSS 4000-R	717533727
PO100906G	Fire Safety Inspection according to EN 45545-2 automation system PSS4000R G1	717533727
PO106937T	Assessment for updated standards	717533727
Safety related requirements, conditions and restrictions can be found in the following user documentation		
[INST_BAHN]	Safety architectures railway application - Operational Manual 1002532-DE-15	717533727

Table 3: Reports on Modifications

Based on the specified purpose of use of the PSS 4000-R in safety critical process applications, the certification is based on the set of standards listed in clause 4 of this document. The issuance of the certificate states compliance with these references unless specifically noted otherwise.

4 Standards and Guidelines

The regulations and guidelines which form the basis of the type testing are listed in the “List for tracking the version releases of safety related modules of the automation system PSS 4000-R” PO84267T.

4.1 Safety Information in the Product Documentation (safety manual, operating instructions, labelling)

No.	Reference	Description
/N1/	EN 50129:2018 / AC:2019	Railway applications - Communication, signalling and processing systems - Safety related electronic systems for signalling

Table 4: Safety information standards

4.2 Quality Management System

No.	Reference	Description
[M1]	QMS	Quality Management System TÜV SÜD Rail GmbH

Table 5: Quality Management System

5 Safety Parameters

5.1 Functional Safety

Pilz GmbH & Co. KG provided user documents including Safety-Related Application Conditions (SRAC) and covering the required contents of a generic product safety case (GPSC) in accordance with EN 50129.

The tests performed and quality assurance measures implemented by the Pilz GmbH & Co. KG have shown that the PSS 4000-R complies with the safety parameters as specified in clause 1 subject to the conditions defined in clause 6 and is suitable for safety-related use in applications up to

- SIL 4 in accordance with EN 50126-1 / EN 50129 / EN 50716 / EN 50159.

5.2 Development of the application program

Application programs have to be developed according to the specifications in the safety manual using the tool PAS.

The development environment and the PSS 4000-R devices provide basic mechanisms for protection against unauthorized access.

5.3 Fire Protection

As result of the assessment documented in PO100906G, the automation system PSS4000R-G1 meets the requirements of the listed acknowledged codes of practice:

- DIN EN 45545-2:2020 hazard levels HL1 to HL2*
- DIN EN 45545-2:2023 hazard levels HL1 to HL2*

*Groupings according to DIN EN 45545-2 section 4.3.2 to be considered for installation in the vehicles, if the distance of the grouped components from a non-qualified component is less than ≤ 20 mm horizontally and ≤ 200 mm vertically:

- Product fulfils HL2, if groupings in end-use-condition are < 500 g

For regular intended operation the required level of safety for passengers and staff is ensured.

At the time of the assessment and based on the test reports provided, the validity of the fire protection technical verification within the framework of EC conformity test procedures is confirmed until 2031-01-01.

6 Recommendations

Rec 1. Safety Qualification Tests according to EN 50129:2018 Chapter 5.3.12 (TSR Section 6) are not part of the referred assessment report. A safety qualification with independent safety supervision units may be conducted based on the existing safety acceptance tests documented hereby. It has to be assured that the functionality of the PSS 4000-R can be monitored and logged to evaluate the target achievement.

Rec 2. For every first-time acceptance of a generic and/or specific application the completeness of the application test must be proven by the application manufacturer.
For modifications the necessary verification and validation testing must be determined based on a modification impact analysis.

Rec 3. In case a generic or specific application needs details on the used standards beyond the statements in manuals and SRACs Pilz GmbH & Co KG should provide an export of the related chapters of the document [RailReq].

7 Implementation Conditions and Restrictions

The use of the PSS 4000-R shall comply with the current version of the safety parts of the user manual, and the following implementation and installation requirements have to be followed, if the PSS 4000-R is used in safety-related installations.

CoU 1. The guidelines and requirements specified by the Safety-Related Application Conditions (SRAC) shall be followed.

CoU 2. Only modules certified for safety-related operation shall be used for safety-critical functions.

CoU 3. The application manufacturer shall consider the railway manuals which include the safety related application conditions at their latest valid release.

The applicable manuals and details on the modules are documented in the “List for tracking the version releases of safety related modules of the automation system PSS 4000-R” (see clause 3.1).

8 Certificate Number

This report specifies technical details and implementation conditions required for the application of PSS 4000-R to the certificate:

Z10 020132 0289 Rev. 02

Technical Certifier

Peter Weiß
2026.05.18
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