Reliability Data for Safety of Machinery

Safety Components

OMRON Corporarion

18-May-2026

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E-9 means *10^{-9}.

Products	Model	Condition / Function	SIL	PFH_D	PL	Category	$MTTF_D$(Year)	DCavg (%)	$B10_D$	Note
E-STOP Switch	A165E series	Normally Closed contact	-	-	-	-	-	-	1.0E+5	Normally closed contact conforms to IEC60947-5-1 (Direct Opening Mechanism).
E-STOP Switch	A22E series	Normally Closed contact	-	-	-	-	-	-	1.0E+5	Normally closed contact conforms to IEC60947-5-1 (Direct Opening Mechanism).
E-STOP Switch	A22NE series	Normally Closed contact	-	-	-	-	-	-	1.0E+5	Normally closed contact conforms to IEC60947-5-1 (Direct Opening Mechanism).
Guard Lock Safety Key Selector Switch	A22LK-2RL[]	Normally Closed contact	-	-	-	-	-	-	1.0E+5	Normally closed contact has a structure that conforms to IEC60947-5-1 (Direct opening mechanism) only when the key is turned to right.
Key Selector Switch	A22TK-2[]L	Normally Closed contact	-	-	-	-	-	-	1.0E+5	Normally closed contact has a structure that conforms to IEC60947-5-1 (Direct opening mechanism) only when the key is turned to right.
Key Selector Switch	A22TK-2[]R	Normally Closed contact	-	-	-	-	-	-	1.0E+5	Normally closed contact has a structure that conforms to IEC60947-5-1 (Direct opening mechanism) only when the key is turned to left.
Enabling Switch	A4E	Enable output	-	-	-	-	-	-	1.0E+5	The enabling output has a structure that conforms to IEC60947-5-8 (Three-position enabling switch). The enabling output has a structure that conforms to IEC60947-5-1 (Direct Opening Mechanism) only when the switch is gripped.
Enabling Grip Switch	A4EG	Built-in enabling switch (A4E)　Enable Output	-	-	-	-	-	-	1.0E+5	The enabling output has a structure that conforms to IEC60947-5-8 (Three-position enabling switch). Enabling outputs conform to IEC60947-5-1 (Direct Opening Mechanism) only when the switch is gripped.
Enabling Grip Switch	A4EG	Built-in E-Stop (A165E) NC contact *only A4EG-BE2R041	-	-	-	-	-	-	1.0E+5	Normally closed contact conforms to IEC60947-5-1 (Direct Opening Mechanism).
Safety Limit Switch	D4B-[][]11N	Normally Closed contact	-	-	-	-	-	-	2.0E+7	It can be applicable as Type 1 interlocking switch according to ISO 14119. Normally closed contact conforms to IEC 60947-5-1 (Direct Opening Mechanism).
Safety Limit Switch	D4B-[][]15N	Normally Closed contact	-	-	-	-	-	-	2.0E+7	It can be applicable as Type 1 interlocking switch according to ISO 14119. Normally closed contact conforms to IEC 60947-5-1 (Direct Opening Mechanism).
Safety Limit Switch	D4B-[][]70N	Normally Closed contact	-	-	-	-	-	-	2.0E+7	It can be applicable as Type 1 interlocking switch according to ISO 14119. Normally closed contact conforms to IEC 60947-5-1 (Direct Opening Mechanism).
Safety Limit Switch	D4B-[][]71N	Normally Closed contact	-	-	-	-	-	-	2.0E+7	It can be applicable as Type 1 interlocking switch according to ISO 14119. Normally closed contact conforms to IEC 60947-5-1 (Direct Opening Mechanism).
Safety Door Switch	D4BL Series	Normally Closed contact	-	-	-	-	-	-	2.0E+6	It can be applicable as Type 2 interlocking switch according to ISO 14119. Normally closed contact conforms to IEC 60947-5-1 (Direct Opening Mechanism).
Safety Door Switch	D4BS Series	Normally Closed contact	-	-	-	-	-	-	2.0E+6	It can be applicable as Type 2 interlocking switch according to ISO 14119. Normally closed contact conforms to IEC 60947-5-1 (Direct Opening Mechanism).
Safety Limit Switch	D4F-[]02	Normally Closed contact	-	-	-	-	-	-	2.0E+7	It can be applicable as Type 1 interlocking switch according to ISO 14119. Normally closed contact conforms to IEC 60947-5-1 (Direct Opening Mechanism).
Safety Limit Switch	D4F-[]20	Normally Closed contact	-	-	-	-	-	-	2.0E+7	It can be applicable as Type 1 interlocking switch according to ISO 14119. Normally closed contact conforms to IEC 60947-5-1 (Direct Opening Mechanism).
Safety Door Switch	D4GL Series	Normally Closed contact	-	-	-	-	-	-	2.0E+6	It can be applicable as Type 2 interlocking switch according to ISO 14119. Normally closed contact conforms to IEC 60947-5-1 (Direct Opening Mechanism).
Safety Door Switch	D4GS-N Series	Normally Closed contact	-	-	-	-	-	-	2.0E+6	It can be applicable as Type 2 interlocking switch according to ISO 14119. Normally closed contact conforms to IEC 60947-5-1 (Direct Opening Mechanism).
Safety Door Switch	D4JL Series	Normally Closed contact	-	-	-	-	-	-	2.0E+6	It can be applicable as Type 2 interlocking switch according to ISO 14119. Normally closed contact conforms to IEC 60947-5-1 (Direct Opening Mechanism).
Safety Limit Switch	D4N-[][]20	Normally Closed contact	-	-	-	-	-	-	2.0E+7	It can be applicable as Type 1 interlocking switch according to ISO 14119. Normally closed contact conforms to IEC 60947-5-1 (Direct Opening Mechanism).
Safety Limit Switch	D4N-[][]20R	Normally Closed contact	-	-	-	-	-	-	2.0E+7	It can be applicable as Type 1 interlocking switch according to ISO 14119. Normally closed contact conforms to IEC 60947-5-1 (Direct Opening Mechanism).
Safety Limit Switch	D4N-[][]22	Normally Closed contact	-	-	-	-	-	-	2.0E+7	It can be applicable as Type 1 interlocking switch according to ISO 14119. Normally closed contact conforms to IEC 60947-5-1 (Direct Opening Mechanism).
Safety Limit Switch	D4N-[][]25	Normally Closed contact	-	-	-	-	-	-	2.0E+7	It can be applicable as Type 1 interlocking switch according to ISO 14119. Normally closed contact conforms to IEC 60947-5-1 (Direct Opening Mechanism).
Safety Limit Switch	D4N-[][]26	Normally Closed contact	-	-	-	-	-	-	2.0E+7	It can be applicable as Type 1 interlocking switch according to ISO 14119. Normally closed contact conforms to IEC 60947-5-1 (Direct Opening Mechanism).
Safety Limit Switch	D4N-[][]2G	Normally Closed contact	-	-	-	-	-	-	2.0E+7	It can be applicable as Type 1 interlocking switch according to ISO 14119. Normally closed contact conforms to IEC 60947-5-1 (Direct Opening Mechanism).
Safety Limit Switch	D4N-[][]2GR	Normally Closed contact	-	-	-	-	-	-	2.0E+7	It can be applicable as Type 1 interlocking switch according to ISO 14119. Normally closed contact conforms to IEC 60947-5-1 (Direct Opening Mechanism).
Safety Limit Switch	D4N-[][]2H	Normally Closed contact	-	-	-	-	-	-	2.0E+7	It can be applicable as Type 1 interlocking switch according to ISO 14119. Normally closed contact conforms to IEC 60947-5-1 (Direct Opening Mechanism).
Safety Limit Switch	D4N-[][]2HR	Normally Closed contact	-	-	-	-	-	-	2.0E+7	It can be applicable as Type 1 interlocking switch according to ISO 14119. Normally closed contact conforms to IEC 60947-5-1 (Direct Opening Mechanism).
Safety Limit Switch	D4N-[][]31	Normally Closed contact	-	-	-	-	-	-	2.0E+7	It can be applicable as Type 1 interlocking switch according to ISO 14119. Normally closed contact conforms to IEC 60947-5-1 (Direct Opening Mechanism).
Safety Limit Switch	D4N-[][]31R	Normally Closed contact	-	-	-	-	-	-	2.0E+7	It can be applicable as Type 1 interlocking switch according to ISO 14119. Normally closed contact conforms to IEC 60947-5-1 (Direct Opening Mechanism).
Safety Limit Switch	D4N-[][]32	Normally Closed contact	-	-	-	-	-	-	2.0E+7	It can be applicable as Type 1 interlocking switch according to ISO 14119. Normally closed contact conforms to IEC 60947-5-1 (Direct Opening Mechanism).
Safety Limit Switch	D4N-[][]32R	Normally Closed contact	-	-	-	-	-	-	2.0E+7	It can be applicable as Type 1 interlocking switch according to ISO 14119. Normally closed contact conforms to IEC 60947-5-1 (Direct Opening Mechanism).
Safety Limit Switch	D4N-[][]62	Normally Closed contact	-	-	-	-	-	-	2.0E+7	It can be applicable as Type 1 interlocking switch according to ISO 14119. Normally closed contact conforms to IEC 60947-5-1 (Direct Opening Mechanism).
Safety Limit Switch	D4N-[][]62R	Normally Closed contact	-	-	-	-	-	-	2.0E+7	It can be applicable as Type 1 interlocking switch according to ISO 14119. Normally closed contact conforms to IEC 60947-5-1 (Direct Opening Mechanism).
Safety Limit Switch	D4N-[][]72	Normally Closed contact	-	-	-	-	-	-	2.0E+7	It can be applicable as Type 1 interlocking switch according to ISO 14119. Normally closed contact conforms to IEC 60947-5-1 (Direct Opening Mechanism).
Safety Limit Switch	D4N-[][]72R	Normally Closed contact	-	-	-	-	-	-	2.0E+7	It can be applicable as Type 1 interlocking switch according to ISO 14119. Normally closed contact conforms to IEC 60947-5-1 (Direct Opening Mechanism).
Safety Door Hinge Switch	D4NH Series	Normally Closed contact	-	-	-	-	-	-	2.0E+7	It can be applicable as Type 1 interlocking switch according to ISO 14119. Normally closed contact conforms to IEC 60947-5-1 (Direct Opening Mechanism).
Safety Door Switch	D4NL Series	Normally Closed contact	-	-	-	-	-	-	2.0E+6	It can be applicable as Type 2 interlocking switch according to ISO 14119. Normally closed contact conforms to IEC 60947-5-1 (Direct Opening Mechanism).

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Safety Door Switch	D4NS Series	Normally Closed contact	-	-	-	-	-	-	2.0E+6	It can be applicable as Type 2 interlocking switch according to ISO 14119. Normally closed contact conforms to IEC 60947-5-1 (Direct Opening Mechanism).
Safety Door Switch	D4SL Series, D4SL-N Series	Normally Closed contact	-	-	-	-	-	-	2.0E+6	It can be applicable as Type 2 interlocking switch according to ISO 14119. Normally closed contact conforms to IEC 60947-5-1 (Direct Opening Mechanism).
Safety Relay	G7S-[]-E	AC-1 AC250V 10A, DC-1 DC30V 10A	-	-	-	-	-	-	4.0E+5	This product conforms to IEC 61810-3 Forcibly Guided Contact Structure.
Safety Relay	G7S-[]-E	AC-15 240V 5A	-	-	-	-	-	-	2.0E+5	This product conforms to IEC 61810-3 Forcibly Guided Contact Structure.
Safety Relay	G7S-[]-E	AC-15 240V 1.5A	-	-	-	-	-	-	5.0E+5	This product conforms to IEC 61810-3 Forcibly Guided Contact Structure.
Safety Relay	G7S-[]-E	AC-15 240V 0.75A	-	-	-	-	-	-	9.0E+5	This product conforms to IEC 61810-3 Forcibly Guided Contact Structure.
Safety Relay	G7SA	AC-1 AC250V 6A, DC-1 DC30V 6A	-	-	-	-	-	-	4.0E+5	This product conforms to IEC 61810-3 Forcibly Guided Contact Structure.
Safety Relay	G7SA	DC-13 DC24V 1A	-	-	-	-	-	-	3.0E+6	This product conforms to IEC 61810-3 Forcibly Guided Contact Structure.
Power Relay	G7Z	Main Contact AC-1 440V 40A Auxiliary Contact AC-1 440V 1A	-	-	-	-	-	-	8.0E+4	This product conforms to EN 60947-4-1 mirror contact mechanisms by using in combination of the relay and NC type of auxiliary contact blocks.
Magnetic Contactor	J7KC-12-[][]	AC-3 240VAC 12A	-	-	-	-	-	-	1.0E+6	This product conforms to EN 60947-4-1 mirror contact mechanisms when using with NC auxiliary contact, including auxiliary contact unit model J73KC-AM.
Frequency Inverter MX2 Series	3G3MX2-V1	Stop function in conformity to Stop Category 0	-	-	d	3	100	71	-	It has a structure that conforms to IEC60204-1 Stop Category 0. As a subsystem, it comforms to ISO13849-1 PLd.
Frequency Inverter MX2 Series Type V2	3G3MX2-V2	STO via hardwired signal	SIL3	2.0E-8	e	3	100	99	-	It has a structure that conforms to IEC61800-5-2 STO function. As a subsystem, it conforms to IEC61508 SIL3.
High-function General-purpose Inverters	3G3RX2 series	STO via hardwired signal	SIL3	1.2E-9	e	4	100	99	-	It has a structure that conforms to IEC61800-5-2 STO function. As a subsystem, it conforms to IEC61508 SIL3.
Non-conntact Door Switch	D40A	Safety Output	SIL2	2.4E-9	d	3	100	62	-	It can be applicable as Type 4 interlocking switch according to ISO 14119. The reliability of the whole system is determined upon it being combined with a connected dedicated controller (G9SX-NS*, G9SP series, or NX-S series).
Non-conntact Door Switch	D40A-2C[]	Safety Output	SIL3	7.8E-10	e	4	2500	95	-	It can be applicable as Type 4 interlocking switch according to ISO 14119. The reliability of the whole system is determined upon it being combined with a connected dedicated controller (G9SX-NS*, G9SP series, or NX-S series).
Non-conntact Door Switch	D40A-2D[]	Safety Output	SIL3	7.8E-10	e	4	2500	95	-	It can be applicable as Type 4 interlocking switch according to ISO 14119. The reliability of the whole system is determined upon it being combined with a connected dedicated controller (G9SX-NS*, G9SP series, or NX-S series).
Non-conntact Door Switch	D40Z	Safety Output	SIL3	1.5E-10	e	4	2500	98	-	It can be applicable as Type 4 interlocking switch according to ISO 14119. The reliability of the whole system is determined upon it being combined with a connected dedicated controller (G9SX-NS*, G9SP series, or NX-S series).
Safety Door Switch	D41D-[]CD	Safety Output	SIL3	6.8E-10	e	4	-	99	-	It can be applicable as Type 4 'high coded' interlocking switch according to ISO 14119. As a subsystem, it conforms to IEC61508 SIL3 and ISO13849-1 PLe.
Safety Door Switch	D41G-[]ZD[][]-[]	Interlocking function	SIL3	1,90E-09	e	4	-	99	-	It can be applicable as Type 4 'high coded' interlocking switch according to ISO 14119. As a subsystem, it conforms to IEC61508 SIL3 and ISO13849-1 PLe.
Safety Door Switch	D41G-[]YD[][]-[]	Interlocking function	SIL3	1,90E-09	e	4	-	99	-	It can be applicable as Type 4 'high coded' interlocking switch according to ISO 14119. As a subsystem, it conforms to IEC61508 SIL3 and ISO13849-1 PLe.
Safety Door Switch	D41G-[]YD[][]-[]	Guard locking function	SIL2	1,00-08	d	2	-	99	-	As a subsystem, it conforms to IEC61508 SIL2 and ISO13849-1 PLd.
Safety Door Switch	D41L-[]ZD[][]-[]	Interlocking function	SIL3	5.2E-10	e	4	-	99	-	It can be applicable as Type 4 'high coded' interlocking switch according to ISO 14119. As a subsystem, it conforms to IEC61508 SIL3 and ISO13849-1 PLe.
Safety Door Switch	D41L-[]YD[][]-[]	Interlocking function	SIL3	5.2E-10	e	4	-	99	-	It can be applicable as Type 4 'high coded' interlocking switch according to ISO 14119. As a subsystem, it conforms to IEC61508 SIL3 and ISO13849-1 PLe.
Safety Door Switch	D41L-[]YD[][]-[]	Guard locking function	SIL2	2.0E-9	d	2	-	99	-	As a subsystem, it conforms to IEC61508 SIL2 and ISO13849-1 PLd.
Safety Network Controller	DST1-ID12SL-1		SIL3	2.4E-10	e	4	-	-	-	As a subsystem, it conforms to IEC61508 SIL3.
Safety Network Controller	DST1-MD16SL-1		SIL3	2.4E-10	e	4	-	-	-	As a subsystem, it conforms to IEC61508 SIL3.
Safety Network Controller	DST1-XD0808SL-1		SIL3	2.4E-10	e	4	-	-	-	As a subsystem, it conforms to IEC61508 SIL3.
Safety Network Controller	DST1-MRD08SL-1		SIL3	5.1E-9	e	4	-	-	-	As a subsystem, it conforms to IEC61508 SIL3.
Single-Beam Safety sensor	E3ZS-T81A	Used in combination with OMRON's dedicated controller	-	-	c	2	100	90	-	When combined with a connected dedicated controller, it conforms to both ISO 13849-1 PLc and IEC 61496-1 TYPE 2. When use without dedicated controller does NOT conform to IEC 61496-1 and Category 2. On the left is the reliability data excluding the dedicated controller. To meet the Category 2, at least 100 diagnostic tests must be undertaken between two safety demands. E3ZS-T81A requires external diagnostic test to comply TYPE 2 / Category 2. Periodic diagnostic test interval can be find in instruction manual of dedicated controler to be connected.
Multi-beam Safety Sensor	F3SG-4PGA[]		SIL3	3.0E-9	e	4	780	98	—	It conforms to IEC 61496-1 TYPE 4. As subsystem, it conforms to IEC61508 SIL 3 and ISO13849-1 PL e.
Safety Light Curtain	F3SG-2RA[]		SIL1	1.1E-8	c	2	100	98	-	It conforms to IEC 61496-1 TYPE 2. As subsystem, it conforms to IEC61508 SIL 1 and ISO13849-1 PL c. For a cascade configuration, multiply the PFHD value by the number of sensor segments cascaded. The MTTFD value changes to 50 years in 2-segment cascade connection and 33 years in 3-segment cascade connection.
Safety Light Curtain	F3SG-4RA[]		SIL3	1.1E-8	e	4	223	98	-	It conforms to IEC 61496-1 TYPE 4. As subsystem, it conforms to IEC61508 SIL 3 and ISO13849-1 PL e. For a cascade configuration, multiply the PFHD value by the number of sensor segments cascaded.The MTTFD value changes to 111 years in 2-segment cascade connection and 74 years in 3-segment cascade connection.
Safety Light Curtain	F3SG-2RE[]		SIL1	9.1E-9	c	2	100	98	-	It conforms to IEC 61496-1 TYPE 2. As subsystem, it conforms to IEC61508 SIL 1 and ISO13849-1 PL c. For a cascade configuration, multiply the PFHD value by the number of sensor segments cascaded.The MTTFD value changes to 50 years in 2-segment cascade connection and 33 years in 3-segment cascade connection.
Safety Light Curtain	F3SG-4RE[]		SIL3	9.1E-9	e	4	266	98	-	It conforms to IEC 61496-1 TYPE 4. As subsystem, it conforms to IEC61508 SIL 3 and ISO13849-1 PL e. For a cascade configuration, multiply the PFHD value by the number of sensor segments cascaded.The MTTFD value changes to 133 years in 2-segment cascade connection and 88 years in 3-segment cascade connection.
Safety Light Curtain	F3SG-4RR[]		SIL3	1.1E-8	e	4	223	98	-	It conforms to IEC 61496-1 TYPE 4. As subsystem, it conforms to IEC61508 SIL 3 and ISO13849-1 PL e. For a cascade configuration, multiply the PFHD value by the number of sensor segments cascaded.The MTTFD value changes to 111 years in 2-segment cascade connection and 74 years in 3-segment cascade connection.
Safety Light Curtain	F3SG-2SR[]	Type 2, Detection capability is 14, 25, 45, or 85 mm dia.	SIL1	7.7E-9	c	2	100	98	—	It conforms to IEC 61496-1 TYPE 2. As subsystem, it conforms to IEC61508 SIL 1 and ISO13849-1 PL c. For a cascade configuration, multiply the PFHD value by the number of sensor segments cascaded.The MTTFD value changes to 50 years in 2-segment cascade connection and 33 years in 3-segment cascade connection.

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Safety Light Curtain	F3SG-4SR[]	Type 4, Detection capability is 14, 25, 45, or 85 mm dia.	SIL3	7.7E-9	e	4	210	98	—	It conforms to IEC 61496-1 TYPE 4. As subsystem, it conforms to IEC61508 SIL 3 and ISO13849-1 PL e. For a cascade configuration, multiply the PFHD value by the number of sensor segments cascaded.The MTTFD value changes to 105 years in 2-segment cascade connection and 70 years in 3-segment cascade connection.
Safety Light Curtain	F3SJ-A0245P14 to A0461P14		SIL3	1.7E-8	e	4	-	-	-	The data is applicable for the models with a protective hight from 245 to 461mm. It comforms to IEC 61496-1 TYPE 4. As subsystem, it conforms to IEC61508 SIL3 and ISO13849-1 PLe.
Safety Light Curtain	F3SJ-A0533P14 to A0875P14		SIL3	2.5E-8	e	4	-	-	-	The data is applicable for the models with a protective hight from 533 to 875mm. It comforms to IEC 61496-1 TYPE 4. As subsystem, it conforms to IEC61508 SIL3 and ISO13849-1 PLe.
Safety Light Curtain	F3SJ-A0983P14 to A1271P14		SIL3	3.3E-8	e	4	-	-	-	The data is applicable for the models with a protective hight from 983 to 1271mm. It comforms to IEC 61496-1 TYPE 4. As subsystem, it conforms to IEC61508 SIL3 and ISO13849-1 PLe.
Safety Light Curtain	F3SJ-A1487P14 to A1631P14		SIL3	4.0E-8	e	4	-	-	-	The data is applicable for the models with a protective hight from 1487 to 1631mm. It comforms to IEC 61496-1 TYPE 4. As subsystem, it conforms to IEC61508 SIL3 and ISO13849-1 PLe.
Safety Light Curtain	F3SJ-A1784P14		SIL3	4.5E-8	e	4	-	-	-	The data is applicable for the models with a protective hight 1784mm. It comforms to IEC 61496-1 TYPE 4. As subsystem, it conforms to IEC61508 SIL3 and ISO13849-1 PLe.
Safety Light Curtain	F3SJ-A0245N14 to A0461N14		SIL3	2.0E-8	e	4	-	-	-	The data is applicable for the models with a protective hight from 245 to 461mm. It comforms to IEC 61496-1 TYPE 4. As subsystem, it conforms to IEC61508 SIL3 and ISO13849-1 PLe.
Safety Light Curtain	F3SJ-A0551N14 to A0911N14		SIL3	2.7E-8	e	4	-	-	-	The data is applicable for the models with a protective hight from 551 to 911mm. It comforms to IEC 61496-1 TYPE 4. As subsystem, it conforms to IEC61508 SIL3 and ISO13849-1 PLe.
Safety Light Curtain	F3SJ-A0983N14 to A1271N14		SIL3	3.5E-8	e	4	-	-	-	The data is applicable for the models with a protective hight from 983 to 1271mm. It comforms to IEC 61496-1 TYPE 4. As subsystem, it conforms to IEC61508 SIL3 and ISO13849-1 PLe.
Safety Light Curtain	F3SJ-A0245P20 to A0755P20		SIL3	1.7E-8	e	4	-	-	-	The data is applicable for the models with a protective hight from 245 to 755mm. It comforms to IEC 61496-1 TYPE 4. As subsystem, it conforms to IEC61508 SIL3 and ISO13849-1 PLe.
Safety Light Curtain	F3SJ-A0785P20 to A1505P20		SIL3	2.5E-8	e	4	-	-	-	The data is applicable for the models with a protective hight from 770 to 1505mm. It comforms to IEC 61496-1 TYPE 4. As subsystem, it conforms to IEC61508 SIL3 and ISO13849-1 PLe.
Safety Light Curtain	F3SJ-A1565P20 to A2255P20		SIL3	3.3E-8	e	4	-	-	-	The data is applicable for the models with a protective hight from 1565 to 2255mm. It comforms to IEC 61496-1 TYPE 4. As subsystem, it conforms to IEC61508 SIL3 and ISO13849-1 PLe.
Safety Light Curtain	F3SJ-A2405P20 to A2495P20		SIL3	4.0E-8	e	4	-	-	-	The data is applicable for the models with a protective hight from 2405 to 2495mm. It comforms to IEC 61496-1 TYPE 4. As subsystem, it conforms to IEC61508 SIL3 and ISO13849-1 PLe.
Safety Light Curtain	F3SJ-A0245N20 to A0755N20		SIL3	2.0E-8	e	4	-	-	-	The data is applicable for the models with a protective hight from 245 to 755mm. It comforms to IEC 61496-1 TYPE 4. As subsystem, it conforms to IEC61508 SIL3 and ISO13849-1 PLe.
Safety Light Curtain	F3SJ-A0785N20 to A1505N20		SIL3	2.7E-8	e	4	-	-	-	The data is applicable for the models with a protective hight from 785 to 1505mm. It comforms to IEC 61496-1 TYPE 4. As subsystem, it conforms to IEC61508 SIL3 and ISO13849-1 PLe.
Safety Light Curtain	F3SJ-A1655N20 to A2255N20		SIL3	3.5E-8	e	4	-	-	-	The data is applicable for the models with a protective hight from 1655 to 2255mm. It comforms to IEC 61496-1 TYPE 4. As subsystem, it conforms to IEC61508 SIL3 and ISO13849-1 PLe.
Safety Light Curtain	F3SJ-A2405N20 to A2495N20		SIL3	4.3E-8	e	4	-	-	-	The data is applicable for the models with a protective hight from 2405 to 2495mm. It comforms to IEC 61496-1 TYPE 4. As subsystem, it conforms to IEC61508 SIL3 and ISO13849-1 PLe.
Safety Light Curtain	F3SJ-A0260P25 to A0940P25		SIL3	1.7E-8	e	4	-	-	-	The data is applicable for the models with a protective hight from 260 to 940mm. It comforms to IEC 61496-1 TYPE 4. As subsystem, it conforms to IEC61508 SIL3 and ISO13849-1 PLe.
Safety Light Curtain	F3SJ-A1020P25 to A1900P25		SIL3	2.5E-8	e	4	-	-	-	The data is applicable for the models with a protective hight from 1020 to 1900mm. It comforms to IEC 61496-1 TYPE 4. As subsystem, it conforms to IEC61508 SIL3 and ISO13849-1 PLe.
Safety Light Curtain	F3SJ-A2060P25 to A2500P25		SIL3	3.3E-8	e	4	-	-	-	The data is applicable for the models with a protective hight from 2060 to 2500mm. It comforms to IEC 61496-1 TYPE 4. As subsystem, it conforms to IEC61508 SIL3 and ISO13849-1 PLe.
Safety Light Curtain	F3SJ-A0260N25 to A0940N25		SIL3	2.0E-8	e	4	-	-	-	The data is applicable for the models with a protective hight from 260 to 940mm. It comforms to IEC 61496-1 TYPE 4. As subsystem, it conforms to IEC61508 SIL3 and ISO13849-1 PLe.
Safety Light Curtain	F3SJ-A1020N25 to A1900N25		SIL3	2.7E-8	e	4	-	-	-	The data is applicable for the models with a protective hight from 1020 to 1900mm. It comforms to IEC 61496-1 TYPE 4. As subsystem, it conforms to IEC61508 SIL3 and ISO13849-1 PLe.
Safety Light Curtain	F3SJ-A2060N25 to A2500N25		SIL3	3.5E-8	e	4	-	-	-	The data is applicable for the models with a protective hight from 2060 to 2500mm. It comforms to IEC 61496-1 TYPE 4. As subsystem, it conforms to IEC61508 SIL3 and ISO13849-1 PLe.
Safety Light Curtain	F3SJ-A0245P30 to A1195P30		SIL3	1.7E-8	e	4	-	-	-	The data is applicable for the models with a protective hight from 245 to 1195mm. It comforms to IEC 61496-1 TYPE 4. As subsystem, it conforms to IEC61508 SIL3 and ISO13849-1 PLe.
Safety Light Curtain	F3SJ-A1270P30 to A2495P30		SIL3	2.5E-8	e	4	-	-	-	The data is applicable for the models with a protective hight from 1270 to 2495mm. It comforms to IEC 61496-1 TYPE 4. As subsystem, it conforms to IEC61508 SIL3 and ISO13849-1 PLe.
Safety Light Curtain	F3SJ-A0245N30 to A1195N30		SIL3	2.0E-8	e	4	-	-	-	The data is applicable for the models with a protective hight from 245 to 1195mm. It comforms to IEC 61496-1 TYPE 4. As subsystem, it conforms to IEC61508 SIL3 and ISO13849-1 PLe.
Safety Light Curtain	F3SJ-A1270N30 to A2495N30		SIL3	2.7E-8	e	4	-	-	-	The data is applicable for the models with a protective hight from 1270 to 2495mm. It comforms to IEC 61496-1 TYPE 4. As subsystem, it conforms to IEC61508 SIL3 and ISO13849-1 PLe.
Safety Light Curtain	F3SJ-A0270P55 to A2470P55		SIL3	1.7E-8	e	4	-	-	-	The data is applicable for the models with a protective hight from 270 to 2470mm. It comforms to IEC 61496-1 TYPE 4. As subsystem, it conforms to IEC61508 SIL3 and ISO13849-1 PLe.
Safety Light Curtain	F3SJ-A0270N55 to A2470N55		SIL3	2.0E-8	e	4	-	-	-	The data is applicable for the models with a protective hight from 270 to 2470mm. It comforms to IEC 61496-1 TYPE 4. As subsystem, it conforms to IEC61508 SIL3 and ISO13849-1 PLe.
Safety Light Curtain	F3SJ-B0185P25 to B1025P25		SIL3	1.2E-8	e	4	-	-	-	The data is applicable for the models with a protective hight from 185 to 1025mm. It comforms to IEC 61496-1 TYPE 4. As subsystem, it conforms to IEC61508 SIL3 and ISO13849-1 PLe.
Safety Light Curtain	F3SJ-B1105P25 to B2065P25		SIL3	1.8E-8	e	4	-	-	-	The data is applicable for the models with a protective hight from 1105 to 2065mm. It comforms to IEC 61496-1 TYPE 4. As subsystem, it conforms to IEC61508 SIL3 and ISO13849-1 PLe.
Safety Light Curtain	F3SJ-B0185N25 to B1025N25		SIL3	1.2E-8	e	4	-	-	-	The data is applicable for the models with a protective hight from 185 to 1025mm. It comforms to IEC 61496-1 TYPE 4. As subsystem, it conforms to IEC61508 SIL3 and ISO13849-1 PLe.
Safety Light Curtain	F3SJ-B1105N25 to B2065N25		SIL3	1.9E-8	e	4	-	-	-	The data is applicable for the models with a protective hight from 1105 to 2065mm. It comforms to IEC 61496-1 TYPE 4. As subsystem, it conforms to IEC61508 SIL3 and ISO13849-1 PLe.
Safety Light Curtain	F3SJ-E0185P25 to E1105P25		SIL3	1.2E-8	e	4	-	-	-	The data is applicable for all models. It comforms to IEC 61496-1 TYPE 4. As subsystem, it conforms to IEC61508 SIL3 and ISO13849-1 PLe.
Safety Light Curtain	F3SJ-E0185N25 to E1105N25		SIL3	1.2E-8	e	4	-	-	-	The data is applicable for all models. It comforms to IEC 61496-1 TYPE 4. As subsystem, it conforms to IEC61508 SIL3 and ISO13849-1 PLe.
Safety Light Curtain	F3SR-430B0190 to 430B0990		SIL3	1.4E-8	e	4	-	-	-	The data is applicable for the models with a protective hight from 190 to 990mm. It comforms to IEC 61496-1 TYPE 4. As subsystem, it conforms to IEC61508 SIL3 and ISO13849-1 PLe.
Safety Light Curtain	F3SR-430B1070 to 430B2270		SIL3	2.1E-8	e	4	-	-	-	The data is applicable for the models with a protective hight from 1070 to 2270mm. It comforms to IEC 61496-1 TYPE 4. As subsystem, it conforms to IEC61508 SIL3 and ISO13849-1 PLe.

Reliability Data for Safety of Machinery

Safety Components

OMRON Corporarion

18-May-2026

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E-9 means *10^{-9}.

Products	Model	Condition / Function	SIL	PFH_D	PL	Category	$MTTF_D$(Year)	DCavg (%)	$B10_D$	Note
Safety Relay Unit	G9SA-300-SC		-	-	e	4	100	99	-	As a subsystem, it conforms to ISO13849-1 PLe.
Safety Relay Unit	G9SA-301		-	-	e	4	100	99	-	As a subsystem, it conforms to ISO13849-1 PLe.
Safety Relay Unit	G9SA-321-T	Instantaneous Safety Output	-	-	e	4	82	99	-	As a subsystem, it conforms to ISO13849-1 PLe.
Safety Relay Unit	G9SA-321-T	Release delayed safety output	-	-	d	3	62	60	-	As a subsystem, it conforms to ISO13849-1 PLd.
Safety Relay Unit	G9SA-501		-	-	e	4	100	99	-	As a subsystem, it conforms to ISO13849-1 PLe.
Safety Relay Unit	G9SA-EX301	Instantaneous Safety Output	-	-	e	4	100	99	-	As a subsystem, it conforms to ISO13849-1 PLe.
Safety Relay Unit	G9SA-EX031-T	Release delayed safety output	-	-	d	3	65	90	-	As a subsystem, it conforms to ISO13849-1 PLd.
Safety Relay Unit	G9SA-TH301		-	-	e	4	86	99	-	It has a structure of a controller, when combined with the Two-Hand Control Device that conforms to EN574 Type IIIC. As a subsystem, it conforms to ISO13849-1 PLe.
Safety Relay Unit	G9SB series (except G9SB-3010)		-	-	e	4	100	99	-	As a subsystem, it conforms to ISO13849-1 PLe.
Safety Relay Unit	G9SB-3010		-	-	d	3	100	99	-	As a subsystem, it conforms to ISO13849-1 PLd.
Safety Relay Unit	G9SE-201		SIL3	2.8E-8	e	4	100	98	-	As a subsystem, it conforms to IEC 62061 SIL3.
Safety Relay Unit	G9SE-401		SIL3	5.1E-8	e	4	53	99	-	As a subsystem, it conforms to IEC 62061 SIL3.
Safety Relay Unit	G9SE-221-T[]	Instantaneous Safety Output, Release delayed safety output	SIL3	5.1E-8	e	4	53	99	-	As a subsystem, it conforms to IEC 62061 SIL3.
Safety Controller	G9SP-N10D		SIL3	1.2E-10	e	4	2500	99	-	As a subsystem, it conforms to IEC61508 SIL3.
Safety Controller	G9SP-N10S		SIL3	9.4E-11	e	4	2500	99	-	As a subsystem, it conforms to IEC61508 SIL3.
Safety Controller	G9SP-N20S		SIL3	1.1E-10	e	4	2500	99	-	As a subsystem, it conforms to IEC61508 SIL3.
Flexible Safety Unit	G9SX-AD		SIL3	5.7E-9	e	4	292	97	-	As a subsystem, it conforms to IEC61508 SIL3.
Flexible Safety Unit	G9SX-ADA		SIL3	5.7E-9	e	4	331	97	-	As a subsystem, it conforms to IEC61508 SIL3.
Flexible Safety Unit	G9SX-BC		SIL3	4.1E-9	e	4	489	96	-	As a subsystem, it conforms to IEC61508 SIL3.
Flexible Safety Unit	G9SX-EX		SIL3	5.8E-11	e	4	2500	99	-	As a subsystem, it conforms to IEC61508 SIL3.
Flexible Safety Unit	G9SX-GS		SIL3	9.0E-9	e	4	315	97	-	As a subsystem, it conforms to IEC61508 SIL3.
Low-speed Monitoring Unit	G9SX-LM	Integrated system of G9SX-LM and E2E proximity	-	-	d	3	50	86	-	As a subsystem integrated with the E2E (E2E-X1R5F1, -X2MF1, -X2F1, -X5MF1, -X5F1, -X10MF1), it conforms to ISO13849-1 PLd.
Low-speed Monitoring Unit	G9SX-LM	Without proximity sensor	SIL3	1.2E-8	d	3	100	82	-	As a subsystem, the G9SX-LM alone conforms to ISO13849-1 PLd. The DC of the proximity sensor to be connected to the rotation detection input is 90%.
Flexible Safety Unit	G9SX-NS	Noncontact switch input (D40A or D40Z)	SIL3	4.2E-9	e	4	484	97	-	As a subsystem, it conforms to IEC61508 SIL3. The PL of the whole system is determined upon it being combined with a non-contact switch (D40Z or D40A).
Flexible Safety Unit	G9SX-NSA	Noncontact switch input (D40A or D40Z)	SIL3	5.5E-9	e	4	357	95	-	As a subsystem, it conforms to IEC61508 SIL3. The PL of the whole system is determined upon it being combined with a non-contact switch (D40Z or D40A).
Standstill Monitoring Unit	G9SX-SM		SIL3	4.8E-9	e	4	356	97	-	As a subsystem, it conforms to IEC61508 SIL3.
Safety I/O terminal	GI-SID1224		SIL3	8.5E-11	e	4	1170	97		As a subsystem, it conforms to IEC61508 SIL3. The value of PFHD is not including the PFHD of CIP safety connection, but it is negligible small.
Safety I/O terminal	GI-SMD1624		SIL3	1.3E-9	e	4	560	98		As a subsystem, it conforms to IEC61508 SIL3. The value of PFHD is not including the PFHD of CIP safety connection, but it is negligible small.
Safety Mat Controller	MC3		SIL2	4.8E-8	d	3	78	97	-	When combined with a connected safety mat, it conforms to both ISO 13849-1 PLd and ISO 13856-1.
Safety Light Curtain	MS4800 series		SIL3	5.9E-8	e	4	-	-	-	It comforms to IEC61508 SIL3 and IEC 61496-1 TYPE 4
Safety Network Controller	NE1A-SCPU01-V1		SIL3	5.1E-10	e	4	2500	99	-	As a subsystem, it conforms to IEC61508 SIL3.
Safety Network Controller	NE1A-SCPU02		SIL3	6.5E-10	e	4	2500	99	-	As a subsystem, it conforms to IEC61508 SIL3.
NX-series Safety Control Unit	NX-SID800		SIL3	4.3E-10	e	4	2500	98	-	As a subsystem, it conforms to IEC61508 SIL3.The value of PFHD is not including the PFHD of FSoE connection. Users must add PFHD of a FSoE connection (1.0E-9) to the system PFHD for calculating the PL of the system according to IEC 61784-3:2016.
NX-series Safety Control Unit	NX-SIH400		SIL3	3.1E-10	e	4	2500	98	-	As a subsystem, it conforms to IEC61508 SIL3.The value of PFHD is not including the PFHD of FSoE connection. Users must add PFHD of a FSoE connection (1.0E-9) to the system PFHD for calculating the PL of the system according to IEC 61784-3:2016.
NX-series Safety Control Unit	NX-SL3300		SIL3	3.1E-10	e	4	2500	96	-	As a subsystem, it conforms to IEC61508 SIL3.The value of PFHD is not including the PFHD of FSoE connection. Users must add PFHD of a FSoE connection (1.0E-9) to the system PFHD for calculating the PL of the system according to IEC 61784-3:2016.
NX-series Safety Control Unit	NX-SL3500		SIL3	3.0E-10	e	4	2500	96	-	As a subsystem, it conforms to IEC61508 SIL3.The value of PFHD is not including the PFHD of FSoE connection. Users must add PFHD of a FSoE connection (1.0E-9) to the system PFHD for calculating the PL of the system according to IEC 61784-3:2016.
NX-series Safety Control Unit	NX-SL5500		SIL3	5.0E-11	e	4	-	97	-	As a subsystem, it conforms to IEC61508 SIL3.The value of PFHD is not including the PFHD of FSoE connection. Users must add PFHD of a FSoE connection (1.0E-9) to the system PFHD for calculating the PL of the system according to IEC 61784-3:2016.
NX-series Safety Control Unit	NX-SL5700		SIL3	5.0E-11	e	4	-	97	-	As a subsystem, it conforms to IEC61508 SIL3.The value of PFHD is not including the PFHD of FSoE connection. Users must add PFHD of a FSoE connection (1.0E-9) to the system PFHD for calculating the PL of the system according to IEC 61784-3:2016.
NX-series Safety Control Unit	NX-SOD400		SIL3	5.5E-10	e	4	2500	98	-	As a subsystem, it conforms to IEC61508 SIL3.The value of PFHD is not including the PFHD of FSoE connection. Users must add PFHD of a FSoE connection (1.0E-9) to the system PFHD for calculating the PL of the system according to IEC 61784-3:2016.
NX-series Safety Control Unit	NX-SOH200		SIL3	3.6E-10	e	4	2500	98	-	As a subsystem, it conforms to IEC61508 SIL3.The value of PFHD is not including the PFHD of FSoE connection. Users must add PFHD of a FSoE connection (1.0E-9) to the system PFHD for calculating the PL of the system according to IEC 61784-3:2016.
Safety Laser Scanner	OS32C		SIL2	8.3E-8	d	3	-	-	-	It comforms to IEC 61496-1 TYPE 3. As subsystem, it conforms to IEC61508 SIL2 and ISO13849-1 PLd.
AC Servo System 1S-series	R88D-1SAN[]-ECT	When use only STO, SS1, or SBC function(s)	SIL3	1.1E-8	e	3	100	90	-	As a subsystem, it conforms to IEC61800-5-2 SIL3 and IEC61508 SIL3. Depending on the system configuration and function settings, applications may be restricted up to SIL 2. Refer to the user's manual for details. The value of PFHD is not including the PFHD of FSoE connection. Users must add PFHD of a FSoE connection (1.0E-9) to the system PFHD for calculating the PL of the system according to IEC 61784-3:2016.
AC Servo System 1S-series	R88D-1SAN[]-ECT	When use SS2, SOS, SLS, SDI, or SLP function(s)	SIL3	4.2E-8	e	3	100	90	-	As a subsystem, it conforms to IEC61800-5-2 SIL3 and IEC61508 SIL3. Depending on the system configuration and function settings, applications may be restricted up to SIL 2. Refer to the user's manual for details. The value of PFHD is not including the PFHD of FSoE connection. Users must add PFHD of a FSoE connection (1.0E-9) to the system PFHD for calculating the PL of the system according to IEC 61784-3:2016.
AC Servo System 1S-series	R88D-1SN[]-ECT-51	When use only STO or SS1 function(s) in EtherCAT	SIL2	1.6E-9	d	3	100	99	-	It has a structure that conforms to IEC61800-5-2 STO,SS1 function. As a subsystem, it conforms to IEC61508 SIL2.The value of PFHD is not including the PFHD of FSoE connection. Users must add PFHD of a FSoE connection (1.0E-9) to the system PFHD for calculating the PL of the system according to IEC 61784-3:2016.
AC Servo System 1S-series	R88D-1SN[]-ECT-51	When use SLS function	SIL2	6.5E-9	d	3	65	94	-	It has a structure that conforms to IEC61800-5-2 SLS function. As a subsystem, it conforms to IEC61508 SIL2.The value of PFHD is not including the PFHD of FSoE connection. Users must add PFHD of a FSoE connection (1.0E-9) to the system PFHD for calculating the PL of the system according to IEC 61784-3:2016.
AC Servo System 1S-series	R88D-1SN[]-ECT-51	STO via hardwired signal	SIL3	2.0E-11	e	3	100	86	-	It has a structure that conforms to IEC61800-5-2 STO function. As a subsystem, it conforms to IEC61508 SIL3.
AC Servo System 1S-series	R88D-1SN[]-ECT	STO via FSoE	SIL2	1.6E-9	d	3	100	99	-	It has a structure that conforms to IEC61800-5-2 STO function. As a subsystem, it conforms to IEC61508 SIL2.The value of PFHD is not including the PFHD of FSoE connection. Users must add PFHD of a FSoE connection (1.0E-9) to the system PFHD for calculating the PL of the system according to IEC 61784-3:2016.
AC Servo System 1S-series	R88D-1SN[]-ECT	STO via hardwired signal	SIL3	2.0E-11	e	3	100	86	-	It has a structure that conforms to IEC61800-5-2 STO function. As a subsystem, it conforms to IEC61508 SIL3.

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AC Servo Driver G5 Series	R88D-KT/KN	STO function (STO input and EDM output)	SIL2	2.8E-8	d	3	-	-	-	It has a structure that conforms to IEC61800-5-2 STO function. As a subsystem, it conforms to IEC61508 SIL2.
Safety Edge	SGE	sensor (without controller)	-	-	-	-	-	-	-	It conforms to ISO 13856-2, and is eligible for fault exclusions for the use of up to PL d according to ISO 13849-2:2012 Table D.8.
Edge Controller	SCC-1224A		SIL3	6.5E-9	d	3	100	99	-	When combined with a connected safety edge, it conforms to both ISO 13849-1 PLd and ISO 13856-2. When combined with a connected safety mat, it conforms to both ISO 13849-1 PLd and ISO 13856-1.
Safety Mat	UM	sensor (without controller)	-	-	-	-	-	-	-	It conforms to ISO 13856-1, and is eligible for fault exclusions for the use of up to PL d according to ISO 13849-2:2012 Table D.8.
Safety Mat	UMA	sensor (without controller)	-	-	-	-	-	-	-	It conforms to ISO 13856-1, and is eligible for fault exclusions for the use of up to PL d according to ISO 13849-2:2012 Table D.8.