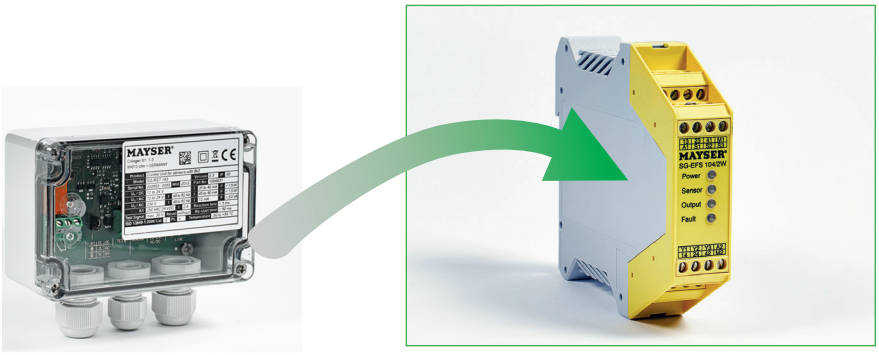
From SG-RST 153 to SG-EFS 104/2W

A simple swap!



Type	SG-RST 153	SG-EFS 104/2W	
Safety classifications			
ISO 13856: Reset function	without	with/without	
ISO 13849-1:2015			
only control unit	Category 2 PL c	Category 3 PL d	
as a pressure-sensitive protection device ISO 13856	Category 2 PL c	Category 3 PL d	
$MTTF_D$	33 years	256 years	
DC_{avg}	90%	60%	✓
B_{10D} [× 10^6]	0.18	1.8	
Times			
Reaction time	< 5 ms	< 15 ms	
Re-start time	< 50 ms	< 50 ms	
Control unit Inputs			
Types of sensors	SM, SP, SL, MSL, SB	SM, SP, SL, MSL, SB	
Monitoring type	Resistor 8k2	Resistor 8k2	✓
Monitoring circuits	1	1	
Control unit Outputs			
Switching channels	1× 2-channel	1× 2-channel	
Switching current (min. / max.)	– / 2 A	– / 4 A	
Switching capacity (max.)	500 VA / 48 W	1000 VA / 96 W	✓
additional outputs	–	1 Signal circuit	
Mechanical operating conditions			
Attachment	Surface mounting	Mounting rail IEC 60715	
IEC 60529: Degree of protection	IP65	IP20	
Operating temperature	-30 to +55 °C	-25 to +55 °C	
Dimensions (W × H × D)	120 × 107 × 55 mm	22.5 × 99 × 114.5 mm	
Variants	**SG-RST 153**	**SG-EFS 104/2W**	
Part number	1004931	1005196	
Connecting voltage U_S	AC/DC 12 to 24 V	AC/DC 24 V	
	SG-RST 153	A power supply unit must be connected upstream with a connecting voltage **AC/DC 12 V**. Mayser recommends a top-hat rail power supply with an output voltage of 24 V and output power of min. 5 W (e. g. Mean Well DDR-15G-12).	
	8104931	A power supply unit must be connected upstream with a connecting voltage **AC 230 V**. Mayser recommends a top-hat rail power supply with an output voltage of 24 V and output power of min. 5 W (e. g. Mean Well HDR-15-24).	✓
	AC 230 V		
Connections			
Supply voltage AC/DC 12 to 24 V	A1, A2	A1, A2	
Supply voltage AC 230 V	PE, N, L1	A1, A2	
Sensor	X1, X2	Y1, Y2	✓
Switching channel 1	13, 14	13, 14	

LED indicators

Until now				Now			
SG-RST 153			Meaning	SG-EFS 104/2W			
Power	Sensor	Fault	LED off: ○ LED on: ●	Power	Sensor	Output	Fault
○	○	○	No supply voltage	○	○	○	○
●	○	○	Control unit ready for operation	●	●	●	○
●	●	○	Sensor activated	●	○	○	○
○	○	●	Fault at sensor	●	○	○	●

Successful change: the last few steps

From surface-mounted to wall-mounted housing

The control unit SG-EFS 104/2W only has protection type IP20. When using it in the same installation location, use an additional wall-mounted housing with protection type of at least IP54.

Take reaction time into consideration

The slightly longer reaction time of the SG-EFS 104/2W is put into perspective if the follow-through time of the whole system is taken into consideration:

$$T = t_1 + t_2$$

where $t_1 = t_{SX} + t_{SG}$

$$T = t_{SX} + t_{SG} + t_2$$

- T = Follow-through time of the complete system
- t_1 = Response time safety edge
- t_2 = Stopping time of the machine
- t_{SX} = Response time of the sensor SX
- t_{SG} = Reaction time of the control unit SG

The reaction time of the control unit only makes up a small proportion of the follow-through time. However, the safety function should always be reviewed and – if critical – be calculated again.

Check safety function

Until now		Now
SG-RST 153	**ISO 13849-1**	SG-EFS 104/2W
2	Category	3
medium	DC_{avg}	low
high	$MTTF_D$	high
c	achieved PL	d

By changing to a higher quality pressure-sensitive protection device, it is no longer necessary for the control system to generate and evaluate the test impulse.
The change to a higher quality pressure-sensitive protective device now just needs to be documented in your safety assessment under the relevant protective function.
Finished!