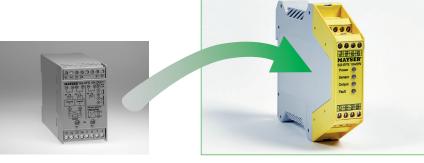


From SG-EFS 104 ZK2/1i 8k2

to SG-EFS 104/2W

A simple swap!



Туре	SG-EFS 104 ZK2/1i 8k2	SG-EFS 104/2W		
Safety classifications				
ISO 13856: Reset function	with/without	with/without		
ISO 13849-1:2015				
only control unit	Category 3 PL e	Category 3 PL d		
as a pressure-sensitive protection	n Category 3 PL d	Category 3 PL d		
device ISO 13856 MTTF _D	313 years	256 years		
DC _{avg}	90%	60%		
$B_{10D}[\times 10^6]$	2	1.8		
Times				
Reaction time	< 10 ms	< 15 ms		
Re-start time	< 250 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.)	10 mA / 2 A	- / 4 A		
Switching capacity (max.)	500 VA / 48 W	1000 VA / 96 W		
additional outputs	1 Signal circuit	1 Signal circuit		
Mechanical				
operating conditions				
Attachment	Mounting rail IEC 60715	Mounting rail IEC 60715		
IEC 60529: Degree of protection	IP20	IP20		
Operating temperature	-20 to +50 °C	-25 to +55 °C		
Dimensions (W \times H \times D)	45 × 75 × 105 mm	22.5 × 99 × 114.5 mm		
Variants	SG-EFS 104 ZK2/1i 8k2	SG-EFS 104/2W		
Part number	1005212	1005196		
Connecting voltage U _s	AC/DC 24 V	AC/DC 24 V		
Connections	44.42	A4 A2		
Supply voltage	A1, A2	A1, A2		
Sensor	Y1, Y2	Y1, Y3		
Switching channel 1 Switching channel 2	13, 14 23, 24	13, 14 23, 24		
Signal circuit	33, 34	23, 24 41, 42		
Signal output Sensor	33,34	AC: M1, S1 DC: M1, A2		
Signal output Sensor	_	AC: M1, 31 DC: M1, A2 AC: M2, S1 DC: M2, A2		
Reset manual	5, 6	\$1, \$3		
Reset automatic	7,8	S1, S2		



LED indicators

Until now			Now			
SG-EFS 104 Z	'K2/1i 8k2	Meaning	SG-EFS 104/2W			
K1	K2	LED off: ○ LED on: ●	Power	Sensor	Output	Fault
	\bigcirc	No supply voltage				\bigcirc
		Control unit ready for operation				\bigcirc
	\bigcirc	Sensor activated				\circ
		Fault at sensor		0		

Successful change: the last few steps

Inverting the signal circuit

With the SG-EFS 104 ZK2/1i 8k2, the signal circuit works the same way as the switching channels, whereas on the SG-EFS 104/2W it works opposite to the switching channels.

Invert the signal circuit with a downstream relay. Mayser recommends a top-hat relay (e.g. finder S48 or finder S7S).

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

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

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.

T = Follow-through time of the complete system

- t₁ = Response time safety edge
- t₂ = Stopping time of the machine
- t_{SX} = Response time of the sensor SX
- t_{SG} = Reaction time of the control unit SG

Check safety function

Until now		Now
SG-EFS 104 ZK2/1i 8k2	ISO 13849-1	SG-EFS 104/2W
3	Category	3
medium	DC_{avg}	low
high	MTTF _D	high
d	achieved PL	d

The change to an equivalent pressure-sensitive protective device now just needs to be documented in your safety assessment under the relevant protective function. Finished!