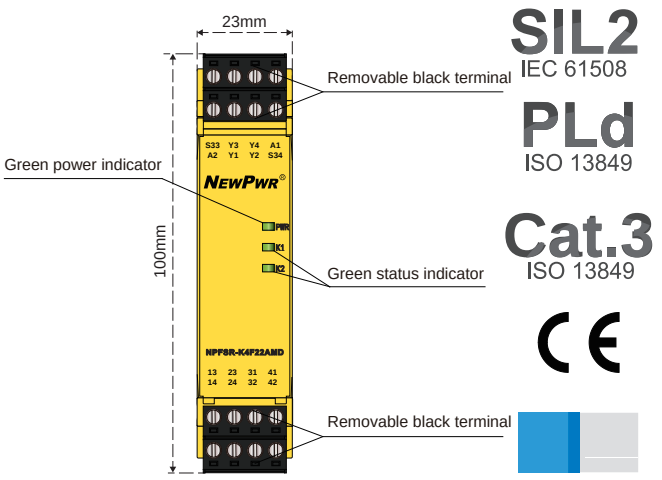
NPFSR-K4F22AMD

Input: 4-wire NO contact safety mat
Output: 2NO+2NC



SIL2 IEC 61508
PLd ISO 13849
Cat.3 ISO 13849

K series safety mat input safety relay is applicable to 4-wire NO contact safety mat input. When a certain weight is applied to the safety mat, the NO contact of the safety mat is closed, and the safety output contact of the control safety relay is open, so as to protect the operators in the dangerous area.

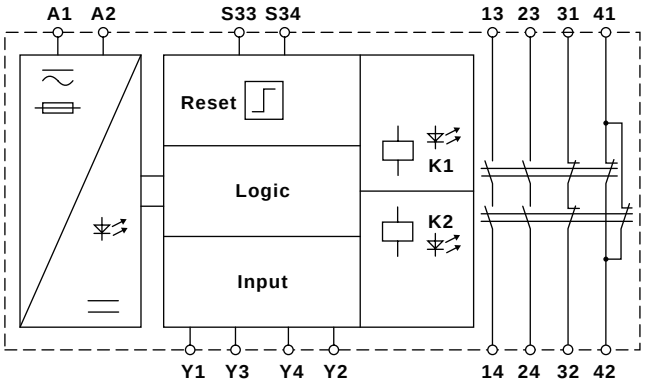
- 1oo2 architecture
- With detection of input breakage
- With auto reset and manual reset function
- The safety function remains effective in the case of a component failure
- The correct opening and closing of the safety function relays is tested automatically in each on-off cycle

Safety mat

Parameters

Voltage range	24V AC/DC
Voltage tolerance	0.85 ~ 1.1
AC frequency	50Hz ~ 60Hz
Power dissipation	≤ 2.2W/24V DC, ≤ 5.4VA/24V AC
Current consumption	≤ 50mA/24V DC
Cable resistance	≤ 15Ω
Input devices	4-wire NO contact safety mat
Signal type	2NO+2NC
Contact type	Forced guided
Contact material	$AgSnO_2$+0.2μmAu
Contact loading	AC-15: 5A/230V, DC-13: 5A/24V
Contact fuse protection	10A gL/gG(NO), 6A gL/gG(NC)
Switch-on	≤ 100ms
Release	Mat action: ≤ 30ms, Power failure: ≤ 100ms
Recovery time	Mat action: ≤ 30ms, Power failure: ≤ 100ms
Supply short interruption	20ms
EMC	According to IEC/EN 60947, IEC 61326-3-1, IEC/EN 61000-6-2, IEC/EN 61000-6-4
Rated insulation voltage	250V AC
Rated impulse voltage	6000V(1.2/50us)
Dielectric strength	1500V AC, 1 min
Clearance and creepage	According to IEC 60947-1
Vibration	10Hz ~ 55Hz, 0.35mm
Overvoltage category	III
Pollution degree	2
Protection type	IP20
Ambient temperature	-20°C ~ +60°C
Storage temperature	-40°C ~ +80°C
Operating altitude	≤2000m
Mechanical life	$10×10^6$ cycles

Functional Block Diagram



Safety Values

Performance level	PLd, according to ISO 13849
Category	Cat.3, according to ISO 13849
PTI (T_M)	20 years, according to ISO 13849
DC_{avg}	99%, according to ISO 13849
$MTTF_D$	162 years, according to ISO 13849
CCF	68, according to ISO 13849
SIL	SIL2, according to IEC 61508
SIL CL	SIL CL2, according to IEC 62061
HFT	1, according to IEC 62061
SFF	≥ 99%, according to IEC 62061
PFD_{avg}/PTI = 20 years	$1.65×10^{-5}$, according to IEC 62061
PFH	$1.91×10^{-10}$ 1/h, according to IEC 62061
Stop Category	0, according to IEC 60204