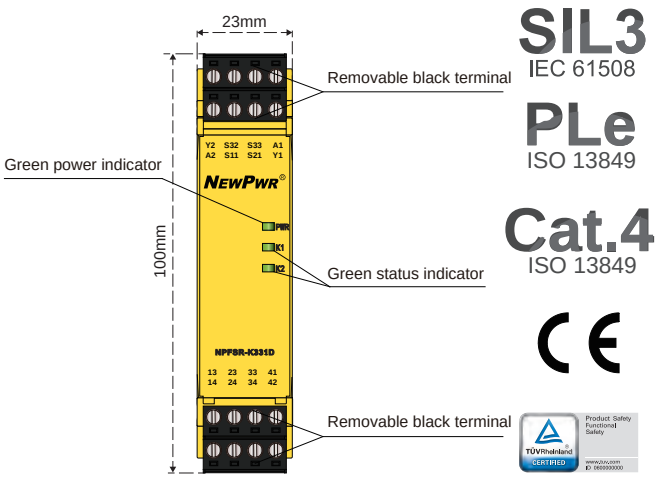
NPFSR-K331D

Input: Two-hand modules
Output: 3NO+1NC



SIL3 IEC 61508
PLe ISO 13849
Cat.4 ISO 13849

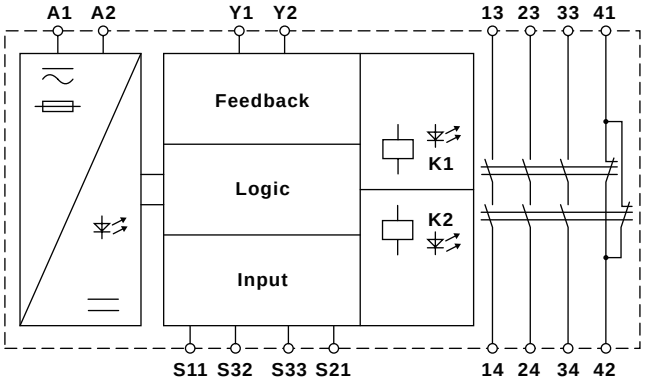
K series two-hand control safety relays are used to ensure that the operator's hands are kept away from the dangerous area and avoid injury during the hazardous movement. Used in mechanical presses or safety circuits with safety requirements.

- Support two-hand module (according to EN 574, Type III C)
- With detection across contacts
- Synchronous detection function less than 0.5s
- 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

Parameters

Voltage range	24V AC/DC
Voltage tolerance	0.85 ~ 1.1
AC frequency	50Hz ~ 60Hz
Power dissipation	≤ 2.2W/24V DC, ≤ 4.8VA/24V AC
Current consumption	≤ 50mA/24V DC
Cable resistance	≤ 15Ω
Input devices	Two-hand module (according to EN574, Type IIIC)
Signal type	3NO+1NC
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	≤ 30ms
Release	≤ 15ms
Recovery time	≤ 250ms
Simultaneity	≤ 500ms
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	PLe, according to ISO 13849
Category	Cat.4, according to ISO 13849
PTI (T_M)	20 years, according to ISO 13849
DC_{avg}	99%, according to ISO 13849
$MTTF_D$	164 years, according to ISO 13849
CCF	68, according to ISO 13849
SIL	SIL3, according to IEC 61508
SIL CL	SIL CL3, according to IEC 62061
HFT	1, according to IEC 62061
SFF	≥ 99%, according to IEC 62061
PFD_{avg}/PTI = 20 years	$1.35×10^{-5}$, according to IEC 62061
PFH	$1.57×10^{-10}$ 1/h, according to IEC 62061
Stop Category	0, according to IEC 60204