

# E-STOP, Safety gate, Safety light curtain input safety relay

E-STOP, safety gate, safety light curtain

## NPFSR-K131AMD

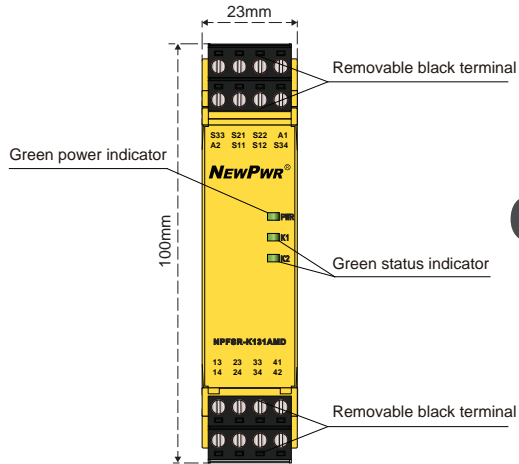
**Input:** E-STOP, Safety gate, PNP safety light curtain  
**Output:** 3NO+1NC

The inputs of K series E-STOP, safety gate, safety light curtain input safety relays are normally closed contact signals, which are used for emergency braking or the protection of people entering dangerous areas, and widely used in machining and other industries.

- 1oo2 architecture
- With detection of shorts across contacts
- 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

### Parameters

<b>Voltage range</b>	24V AC/DC
<b>Voltage tolerance</b>	0.85 ~ 1.1
<b>AC frequency</b>	50Hz ~ 60Hz
<b>Power dissipation</b>	≤ 2.2W/24V DC, ≤ 5.4VA/24V AC
<b>Current consumption</b>	≤ 50mA/24V DC
<b>Cable resistance</b>	≤ 15Ω
<b>Input devices</b>	E-STOP button, Safety gate, PNP safety light curtain
<b>Signal type</b>	3NO+1NC
<b>Contact type</b>	Forced guided
<b>Contact material</b>	AgSnO <sub>2</sub> +0.2μmAu
<b>Contact loading</b>	AC-15: 5A/230V, DC-13: 5A/24V
<b>Contact fuse protection</b>	10A gL/gG(NO), 6A gL/gG(NC)
<b>Switch-on</b>	Auto: ≤ 300ms, Manual: ≤ 150ms
<b>Release</b>	E-stop: ≤ 30ms, Power failure: ≤ 100ms
<b>Recovery time</b>	E-stop: ≤ 30ms, Power failure: ≤ 100ms
<b>Supply short interruption</b>	20ms
<b>EMC</b>	According to IEC/EN 60947, IEC 61326-3-1, IEC/EN 61000-6-2, IEC/EN 61000-6-4
<b>Rated insulation voltage</b>	250V AC
<b>Rated impulse voltage</b>	6000V(1.2/50us)
<b>Dielectric strength</b>	1500V AC, 1 min
<b>Clearance and creepage</b>	According to IEC 60947-1
<b>Vibration</b>	10Hz ~ 55Hz, 0.35mm
<b>Overvoltage category</b>	III
<b>Pollution degree</b>	2
<b>Protection type</b>	IP20
<b>Ambient temperature</b>	-20°C ~ +60°C
<b>Storage temperature</b>	-40°C ~ +80°C
<b>Operating altitude</b>	≤2000m
<b>Mechanical life</b>	10×10 <sup>6</sup> cycles



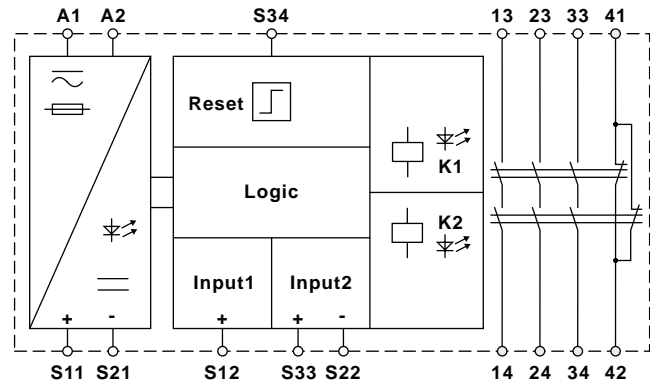
**SIL3**  
IEC 61508

**PLe**  
ISO 13849

**Cat.4**  
ISO 13849



### Functional Block Diagram



### Safety Values

<b>Performance level</b>	PLe, according to ISO 13849
<b>Category</b>	Cat.4, according to ISO 13849
<b>PTI (T<sub>m</sub>)</b>	20 years, according to ISO 13849
<b>DC<sub>avg</sub></b>	99%, according to ISO 13849
<b>MTTF<sub>D</sub></b>	164 years, according to ISO 13849
<b>CCF</b>	68, according to ISO 13849
<b>SIL</b>	SIL3, according to IEC 61508
<b>SIL CL</b>	SIL CL3, according to IEC 62061
<b>HFT</b>	1, according to IEC 62061
<b>SFF</b>	≥ 99%, according to IEC 62061
<b>PFD<sub>avg</sub>/PTI = 20 years</b>	1.29×10 <sup>-5</sup> , according to IEC 62061
<b>PFH</b>	1.49×10 <sup>-10</sup> 1/h, according to IEC 62061
<b>Stop Category</b>	0, according to IEC 60204