Emergency Stops and Lanyards –
"Mines Safety and Inspection Regulations 1995 – General duties relating to items of plant"

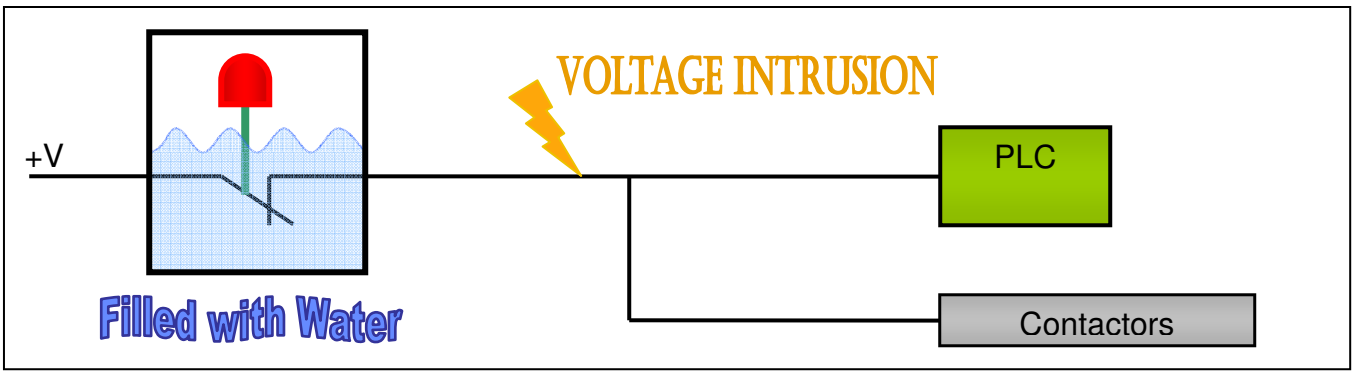
pilz
more than automation
safe automation

"Ensuring that emergency stop devices will not be affected by electrical or electronic circuit malfunction"

Typical Problems and their Solutions:

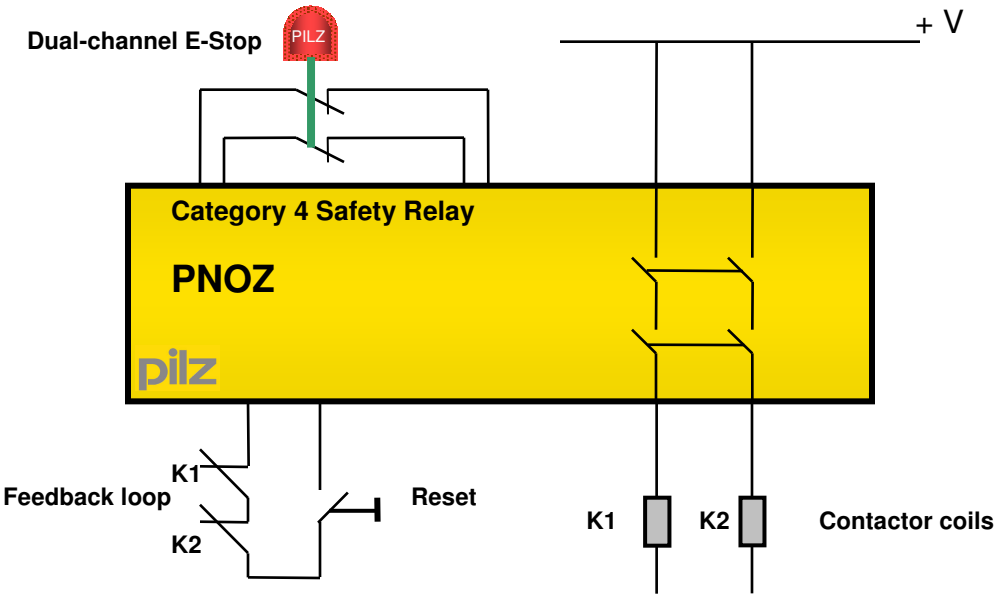
Problem 1 – Single field wiring faults causing loss of safety.

Circuit Setup



With this circuit setup, single faults shown will cause complete failure of your safety system without your knowledge (until you need it, then its too late!). Two typical situations are: (1) Voltage intrusions along wiring; (2) E-stop box filling with water or other contamination.

Solution 1



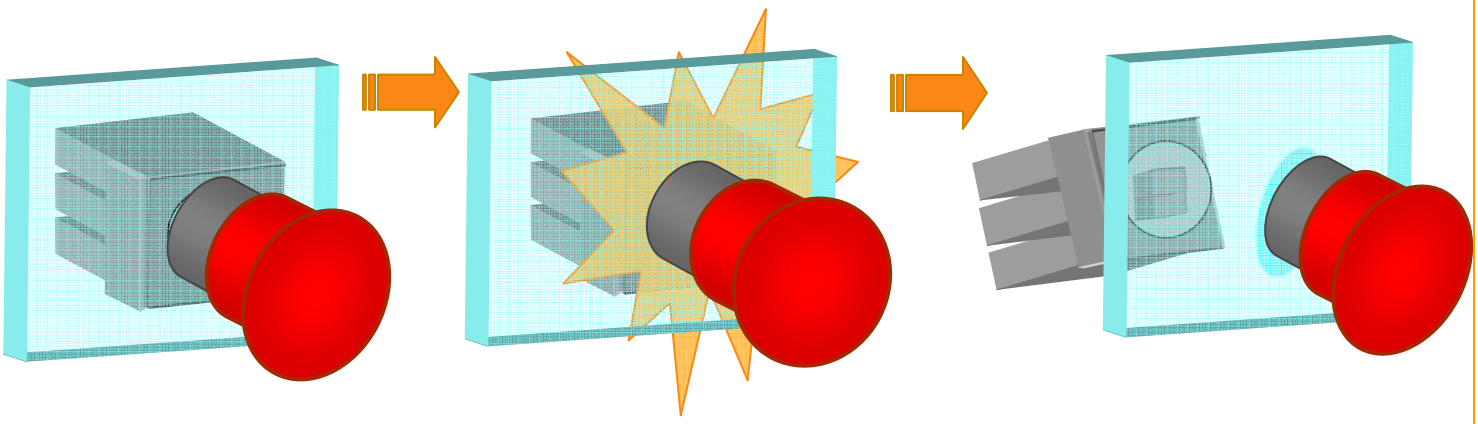
In the above circuit,

- all field wiring faults detected (e.g. intrusion, cross-shorts, earth faults)
- failsafe controller (monitored redundant outputs)
- dual-contactors (where risk assessment requires it, as per AS4024-1)

} safe stop achieved when fault detected; reset prevented until fault fixed.

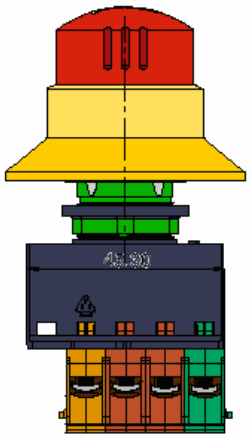
Problem 2 – Contact Blocks Falling off Emergency Stop Buttons

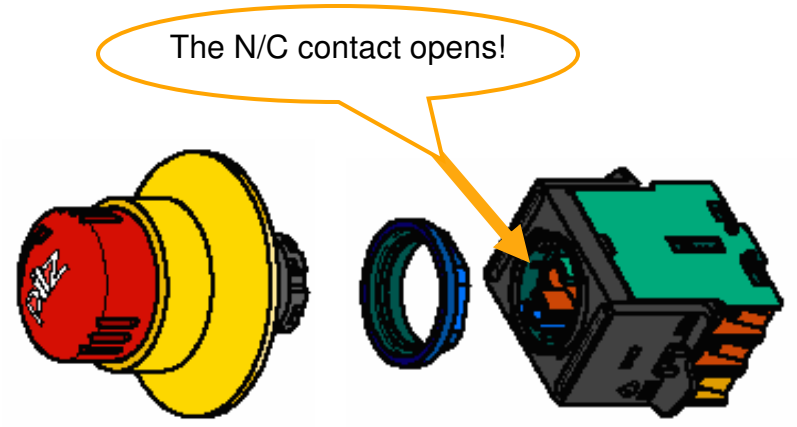
If you have panel mounted Emergency stops that look like this:



then, if the block falls off (that is, the N/C contacts remain closed) through poor mounting, vibration or mechanical failure, you will not know (until you need it, then its too late!)…

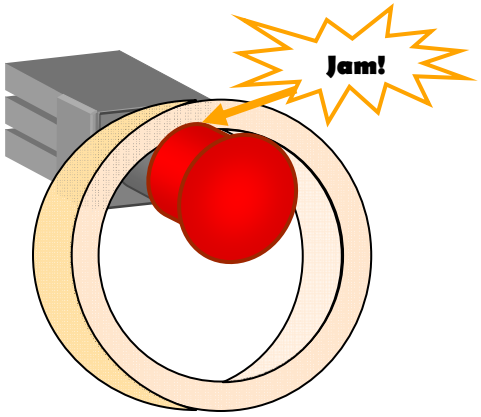
Solution 2





Block position detected – the N/O breakaway contact is in series with the one N/C. Therefore, if the contact block separates from the actuator, one safety channel opens, stopping the process, even if the pushbutton has not yet been actuated.

Problem 3 – Mechanical Jamming of Actuator
If you have a panel or box mounted Emergency-stop that looks like this:



Then an object placed behind the actuator could mechanically defeat the pushbutton.

Solution 3

Design evaluations have been made for the Pilz Emergency-stop, so that the actuator goes **inside** the collar, to prevent jamming situations from occurring.

Our Pilz PIT Range:

Panel mounting with safety contact block

	• **PITestop Set 1.2** • Includes: Actuator PIT es1.11 and Safety contact block PITesb1.3 • Part number: 400411 • Current pricing: $66.20

PITestop surface mounting

	• **PITestop set 2.2** • Actuator PIT es 1.11 Surface mount housing PIT es box Contact block PITesb2.3 • Part number: 400421 • Current pricing: $79.60

Please note:
- Typical Pilz monitoring safety relay: PNOZ X2P (Part number: 777303; Current pricing: $291.20)
- Key-lockable, illuminated, IP69K and black button versions are also available.

If you have any questions or queries, please contact us.

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