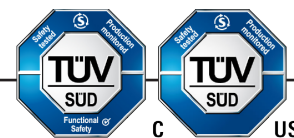


## Operating Instructions: Restart Switch Element



Core Elements

| Description                                                                                                                                                                                                                                                                 | TSR / TS3 / TSK                                                                                    |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>Restart switch operating on 1 Normally Open (N/O) and 1 Normally Closed (N/C).</li> <li>For safety relay reset.</li> <li>Works on own separate dual safety circuit.</li> <li>Safety circuit 1 opens on button depression.</li> </ul> |                                                                                                    |
| <p>Location</p> <ul style="list-style-type: none"> <li>Highest control element after E-Stop's.</li> </ul>                                                                                                                                                                   | <p><b>Laser Engraving Information</b><br/>Engraving for each button is 2 lines of 8 characters</p> |

| Technical Specifications  |                                |
|---------------------------|--------------------------------|
| Housing Materials         | Painted die cast aluminium     |
| Colour                    | Dark Grey                      |
| Ingress Protection        | IP65*                          |
| Mechanical Life           | 1,000,000 Operations           |
| Electrical Life           | 1,000,000 Operations           |
| Ambient Temperature       | -25°C to 40°C (-13°F to 104°F) |
| Environment               | Indoor use only                |
| Switches Conformance      | IEC 60947-5-1                  |
| Switching Contact Element | 1 N/O / 1 N/C                  |
| Switching Principle       | Positive Break                 |
| Switching Current         | 1mA MIN / 100mA MAX            |
| Switching Voltage         | 24V                            |
| Isolating Distance        | 2mm per switch element         |
| Contact Material          | Gold                           |

\*IP protection is to the tGard stack that this module attaches to, when correctly fitted according to installation and maintenance instructions.

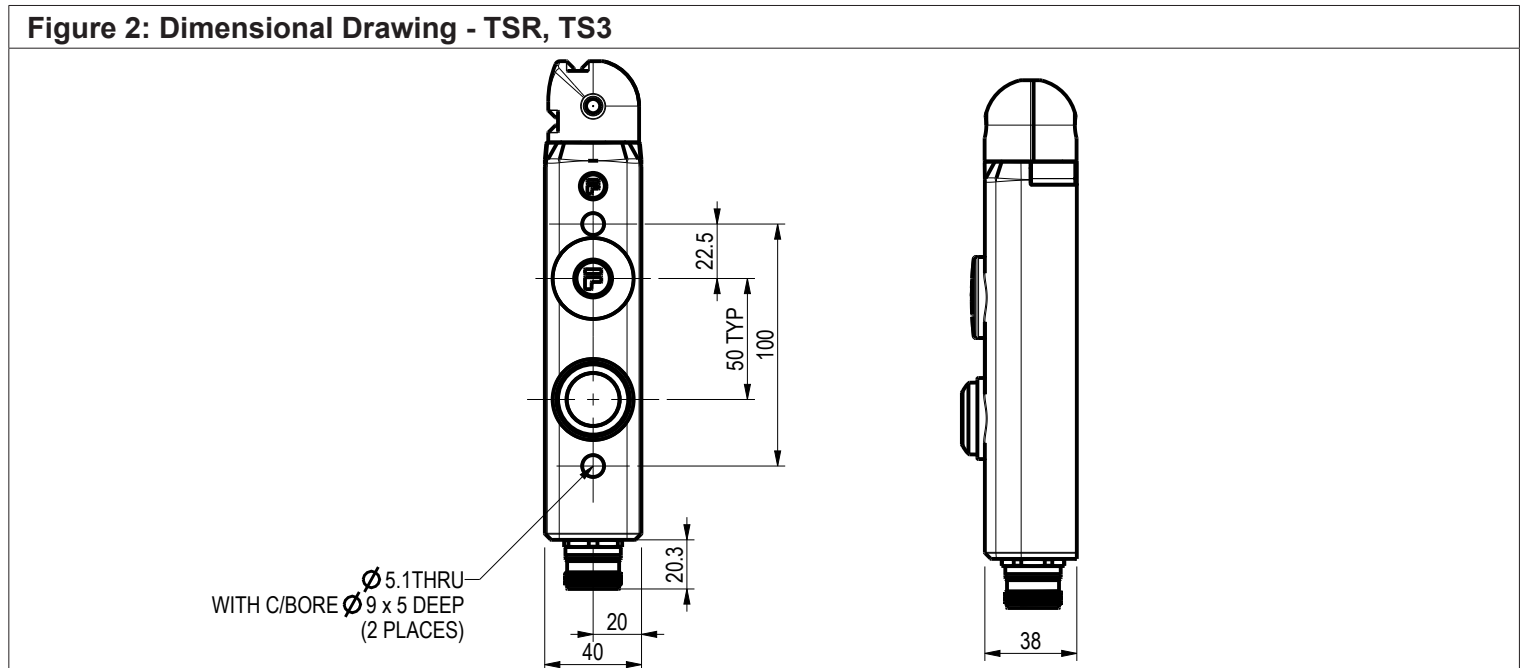
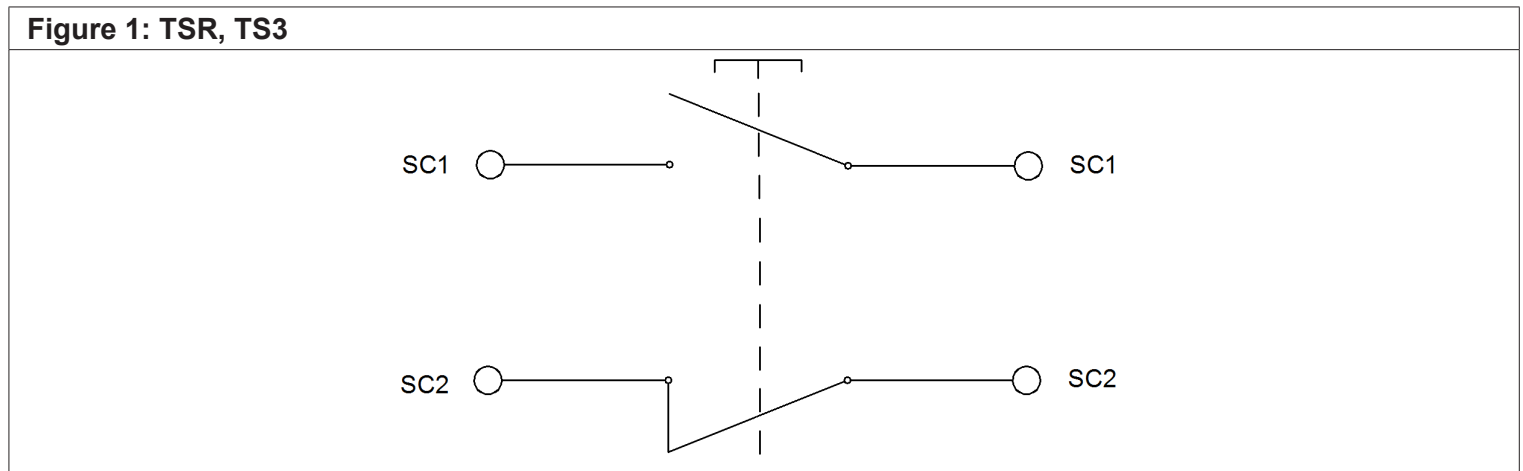
| Safety Related Data                                                                                               |                                                                   |
|-------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| Standards                                                                                                         | EN60957-5-5 (Low-voltage switchgear and control gear).            |
| Approvals                                                                                                         | TÜV SÜD for Europe, Canada & USA                                  |
| Functional Safety Data                                                                                            | B10d 1,300,000                                                    |
| The table below is an extract from EN13849-1, which shows the relationship between the two concepts (PL and SIL). |                                                                   |
|                                                                                                                   | (IEC 61508-1, for information) high/continuous mode of operation. |
| PL                                                                                                                | SIL                                                               |
| a                                                                                                                 | No correspondence                                                 |
| b                                                                                                                 | 1                                                                 |
| c                                                                                                                 | 1                                                                 |
| d                                                                                                                 | 2                                                                 |
| e                                                                                                                 | 3                                                                 |

# Operating Instructions: Restart Switch Element

| tGard Restart Safety Functions |                                           | Part No.        |
|--------------------------------|-------------------------------------------|-----------------|
| Safety Function 1              | Provides means to reset safety controller | TSR / TS3 / TSK |

| Part Number Options             |          |
|---------------------------------|----------|
| Description                     | Part No. |
| Restart Switch - Blue           | TSR      |
| Restart Switch - Green          | TS3      |
| Restart Switch - Black Mushroom | TSK      |

| Electrical Guidance |         |                                        |                                           |
|---------------------|---------|----------------------------------------|-------------------------------------------|
| Inputs              | Outputs | Module operates on the safety circuits | Order of pin assignment from base to head |
| 0                   | 0       | Yes                                    | -                                         |



# Operating Instructions: Restart Switch Element

Figure 3: Dimensional Drawing - TSK

