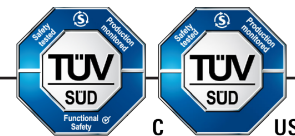






## Operating Instructions: Solenoid Lock & Safety Switches



Core Elements

Description	TSM DU, TSMEU, TSMFU, TSSEU	TSM DL, TSMEL, TSMFL, TSSEL
<ul style="list-style-type: none"> <li>TSS or TSM element incorporated to give dual safety circuits monitoring the door (or key) as well as 1 x N/O contact output (TSM only) for door monitoring (high when door open) and status LED. (Green when door closed, TSM only).</li> <li>1 input used to energise solenoid.</li> <li>Power to Lock and Power to Unlock options available.</li> </ul> <p>3 options for solenoid:</p> <ul style="list-style-type: none"> <li>TDU/L - Dual safety circuits wired in series with TSM dual safety circuits.</li> <li>TEU/L - No safety circuits for solenoid (solenoid monitor switch gives 24V on locked position)</li> <li>TFU/L - Dual safety circuits giving independent safety monitoring on solenoid in addition to TSS.</li> </ul> <ul style="list-style-type: none"> <li>1 x N/O contact output for solenoid monitoring (high when unlocked) and status LED. (Red when unlocked).</li> <li>Solenoid override key provided with power to unlock units.</li> </ul> <p>Location</p> <ul style="list-style-type: none"> <li>First element after all mechanical elements (Head, Internal Release and Locks).</li> </ul>	<p style="text-align: center;">Power to Unlock</p>  <p style="text-align: center;">Override key provided with power to unlock units.</p>  <p style="text-align: center;">Shown in a 4 way case</p>	<p style="text-align: center;">Power to Lock</p>   <p style="text-align: center;">Shown in a 4 way case</p>

Technical Specifications	
Housing Materials	Painted die cast aluminium
Colour	Dark Grey
Ingress Protection	IP65*
Retention Force Locked	2500N
Mechanical Life	1,000,000 Operations
Electrical Life	1,000,000 Operations
Maximum Frequency of Ops	1 per second
Ambient Temperature	-25°C to 40°C (-13°F to 104°F)
Environment	Indoor use only
Safety Switches	DC13: Le=0.5A, Ue=24V DC AC15: Le=1A, Ue=24V AC
Monitoring Switches	DC13: Le=0.5A, Ue=24V DC
Solenoid Rating	350mA max @ 24VDC
Contact Material	Silver
*IP protection is to the tGard stack that this module attaches to, when correctly fitted according to installation and maintenance instructions.	

# Operating Instructions: Solenoid Lock & Safety Switches

Safety Functions - Solenoid Controlled		Part No.	
Safety Function 1	Turns mechanical movement of head / lock into operation of safety contacts	TSM DL / TSM EL / TSSEL / TSM FL	TSM DU / TSMEU / TSSEU / TSMFU
Safety Function 2	Solenoid mechanism holds door locked		

Part Number Options	
Description	Part No.
Power to Unlock - head & solenoid safety in series	TSM DU
Power to Lock - head & solenoid safety in series	TSM DL
Power to Unlock - safety on head element only	TSMEU
Power to Lock - safety on head element only	TSM EL
Power to Unlock - four safety circuits	TSM FU
Power to Lock - four safety circuits	TSM FL
Power to Unlock - safety on head element only (no monitoring contact on head)	TSSEU
Power to Lock - safety on head element only (no monitoring contact on head)	TSSEL

Electrical Guidance					
Part No.	Inputs	Outputs	Safety Circuits	Solenoid Type	Solenoid Monitor Signal
TSM DU	1	2	2 = Head & Sol in Series	Power to Unlock	24V on Unlock
TSM DL	1	2	2 = Head & Sol in Series	Power to Lock	24V on Unlock
TSMEU	1	2	2 = Head Only	Power to Unlock	24V on Lock
TSM EL	1	2	2 = Head Only	Power to Lock	24V on Lock
TSM FU	1	2	4 = Head & Sol separate	Power to Unlock	24V on Unlock
TSM FL	1	2	4 = Head & Sol separate	Power to Lock	24V on Unlock
TSSEU	1	1	2 = Head Only	Power to Unlock	24V on Lock
TSSEL	1	1	2 = Head Only	Power to Lock	24V on Lock

Safety Data	
Standards	EN13849-1 EN13849-2 EN14119
Approvals	TÜV SÜD for Europe, Canada & USA
Category	Cat. 3, PLd (EN/ISO 13849-1) <b>Note:</b> EU and EL elements are only suitable for use above PLc when the equipment has no rundown time (i.e. the solenoid protects the process not people).
Functional Safety Data	B10d (for whole tGard device, which will contain multiple elements)/ 5,000,000

# Operating Instructions: Solenoid Lock & Safety Switches

Figure 1: Dimensional Drawing - TSMDU, TSMEU, TSMFU, TSSEU

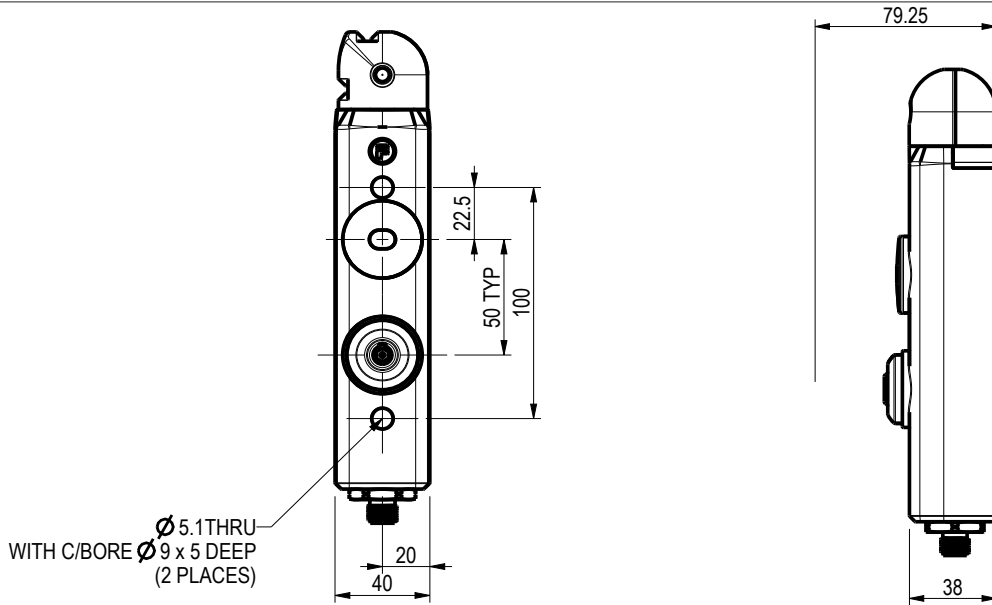
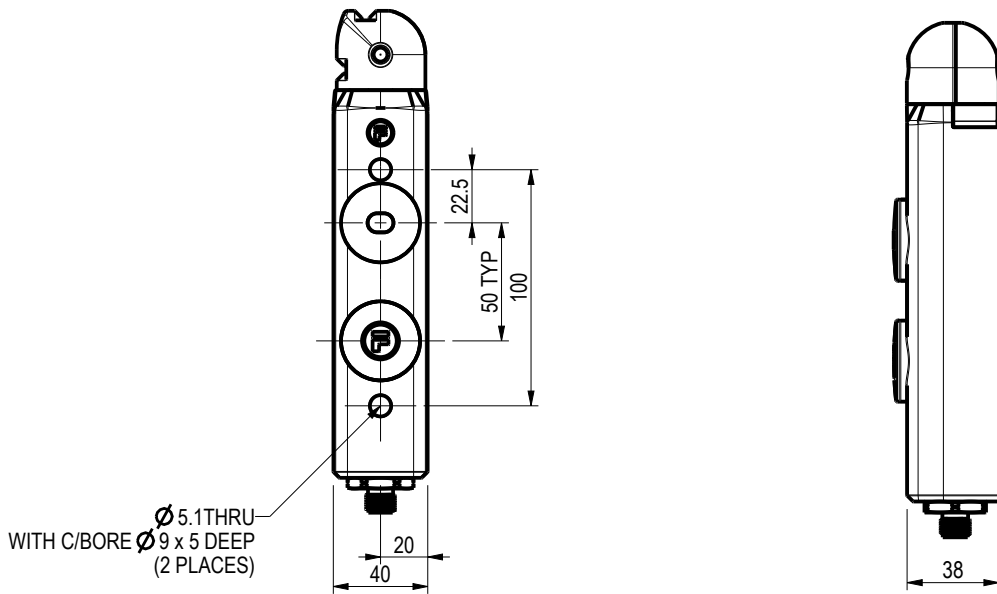


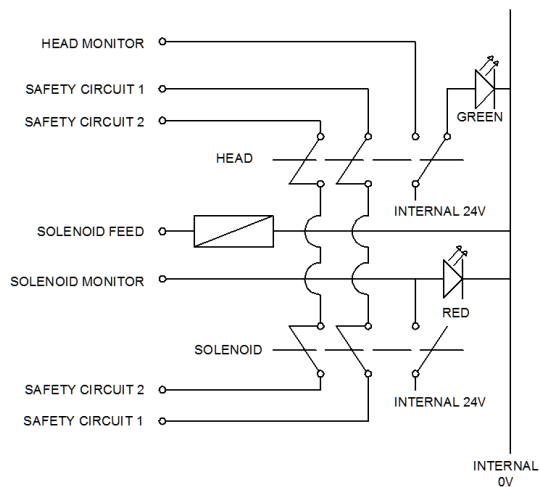
Figure 2: Dimensional Drawing - TSMDL, TSMEL, TSMFL, TSSEL



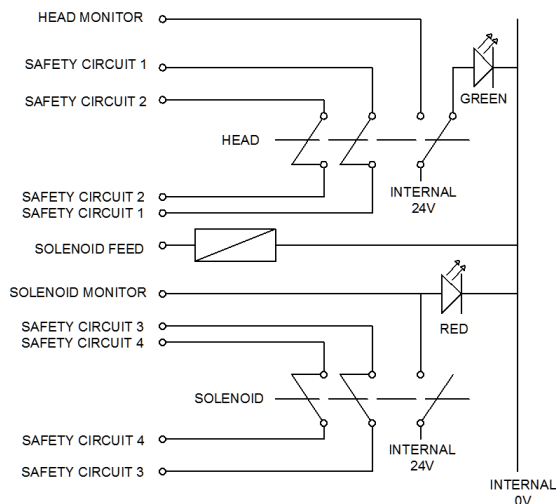
# Operating Instructions: Solenoid Lock & Safety Switches

## Wiring Diagrams -

### Solenoid Controlled Lock & Safety Switch Elements - TSM DU & TSM DL

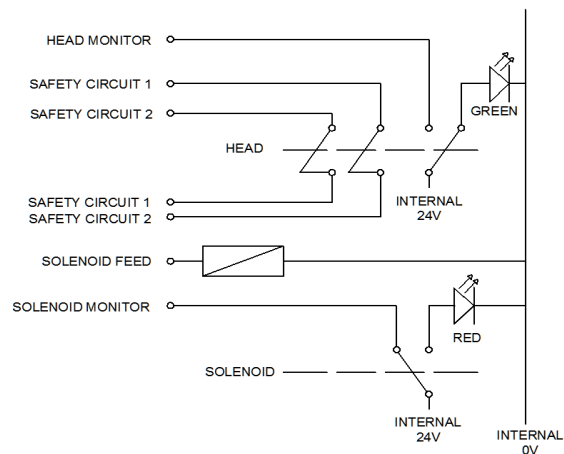


### Solenoid Controlled Lock & Safety Switch Elements - TSM FU & TSM FL



## Wiring Diagrams -

### Solenoid Controlled Lock & Safety Switch Elements - TSMEU & TSM EL



### Solenoid Controlled Lock & Safety Switch Elements - TSSEU & TSSEL

