The UGB-KLT Gate Box (incorporating an RFID interlock switch) is designed to fit to the leading edge of machine guard doors to provide robust guard locking and provide a double tamper resistant interlock mechanism. They are designed to provide position interlock detection for moving guards and will keep the guard locked until a voltage is applied to the switch solenoid. They will hold guards closed up to 4000N. They can be used in conjunction with delay timers to provide the solenoid energise signal only after a pre-determined time has run down. The UGB-KLT housings incorporate standard 22mm pushbuttons, switches or lamps to facilitate machine request functions and diagnostics all in one housing.

Operation:
The UGB-KLT is rigidly mounted to the fixed frame of the guard or machine. The actuator is fitted to the moving part (frame) of the guard and is aligned to the switch entry aperture. The mechanical tongue actuator profile is designed to match a cam mechanism within the switch head and provides a positively operated not easily defeatable mechanical interlock. There is also an RFID coded actuator which aligns with a programmed receiver inside the switch housing during closing of the guard. Only when both actuators are in place and the RFID coding is verified correctly can the safety contacts close and allow the machine start circuit to be enabled. When the solenoid is energised the safety contacts are positively opened and the machine control circuit is broken. Optional features are Sliding Handles, Rotary Handles and Rear Escape function.

Important:
- Record any RFID codes as required by factory rules or with reference to any risk assessment for the particular application.
- The risk assessment for the particular application should include the risk of spare actuators. Spare actuators should not be readily available and must be securely controlled.
- The safety functions and mechanics must be tested regularly. For application where infrequent guard access is foreseeable, the system must have a manual function test to detect a possible accumulation of faults. At least once per month for PLa Cat 3/4 or once per year for PLd Cat 3 (ISO14119-1). Where possible it is recommended that the control system of the machine demands and monitors these tests, and stop or prevents the machine from starting if the test is not done (see ISO14119).

Installation:
1. Installation of all IDEM interlock switches must be in accordance with a risk assessment for the individual application. Installation must only be carried out by competent personnel and in accordance with these instructions.
2. M5 mounting bolts must be used to fix the switch and actuator mounting. The tightening torque to ensure reliable fixing is 4.0 Nm.
3. If installing the UGB-KLT without using a Sliding or Rotary Handle then always fit a mechanical stop to the guard to prevent damage to the front of the switch.
   - If fitted, the Manual override function is achieved by use of a tool and is to be used in exceptional circumstances. The release can be protected by use of a tamper coating to protect against unintended operation. If operated this tamper protection must be restored.
4. If fitting Sliding or Rotary Handles, ensure that M6 mounting bolts are used to fix the appropriate mounting plates. The tightening torque to ensure reliable fixing is 4.0 Nm.
5. The Front and Rear Rotary Handles can be adjusted for desired position by loosening the locking bolt which fixes the handle to the switch body.
6. The RFID code is factory set. For instances where replacement of the RFID actuator is required please contact IDEM via e-mail: technical@idemsafety.com
7. The Interlock Switch is supplied with removable conductor links fitted 41/42 and 31/32. If required by the control circuit these may be removed to offer independent monitoring of the solenoid locking function or the actuator position.
8. Always check the electrical ratings of any 22mm devices fitted. Never exceed these ratings.
9. After installation check operation of all control circuits, the locking function and rear escape functions. For applications with a run down time after removing power, ensure that the correct timing allowance has been made before the solenoid is energised.

Maintenance:
Every month: Check correct operation of all circuits and the Lock function. If any part of the UGB-KLT displays mechanical damage then remove and replace.
IDM will not accept responsibility for failure of the switch functions if the installation and maintenance requirements shown in this sheet are not implemented.
Every 6 months: Isolate power and remove cover. Check screw terminal tightness and check for signs of moisture ingress. Re-check Installation conditions above.
Never attempt to repair any switch.

THESE INSTRUCTIONS FORM PART OF THE PRODUCT WARRANTY.
LED DIAGNOSTICS (Interlock switch)

<table>
<thead>
<tr>
<th>Switch State</th>
<th>LED 1 (Green/Yellow)</th>
<th>LED 2 (Red)</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Guard Open</td>
<td>Off</td>
<td>ON</td>
<td>Off</td>
</tr>
<tr>
<td>Guard Closed + Locked</td>
<td>Steady Green</td>
<td>ON</td>
<td>Safety outputs ON</td>
</tr>
<tr>
<td>Guard Closed + Unlocked</td>
<td>Flashing Green</td>
<td>OFF</td>
<td>OFF</td>
</tr>
<tr>
<td>Guard Closed + Misaligned / Wrong Actuator</td>
<td>Alternate Flashing Green/Yellow</td>
<td>OFF</td>
<td>OFF</td>
</tr>
<tr>
<td>Fault</td>
<td>Steady Yellow</td>
<td>OFF</td>
<td>See reset procedure</td>
</tr>
</tbody>
</table>

SPECIAL INSTRUCTION: RFID actuator – RESET.

In the event that a Fault condition requires reset, follow the reset instructions:
1. Turn off all power to the switch and open the guard.
2. Remove the switch cover.
3. Using a 2mm terminal screwdriver hold down the RESET button inside the switch housing and turn on the switch power (see Fig.2).
4. Release the RESET button, the yellow LED will flash, close the guard and the yellow LED will turn steady yellow.
5. Turn power off and then on, the green LED will illuminate.
6. Re-fit the switch cover.
7. Open and close the guard ensuring all safety functions are correct – refer to any risk assessment for the particular guard application.

Specification:

Technical Data: Standards

<table>
<thead>
<tr>
<th>Characteristic data according to IEC62061 (used as a subsystem)</th>
<th>IEC60947</th>
<th>EN ISO13849-1 (used as a subsystem)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safety Integrity Level</td>
<td>SIL 1</td>
<td>SIL 3</td>
</tr>
<tr>
<td>PFH (1/h)</td>
<td>10%</td>
<td>10%</td>
</tr>
<tr>
<td>Description</td>
<td>Corresponds to 4.8% of SIL3</td>
<td>Corresponds to 4.2% of SIL3</td>
</tr>
<tr>
<td>Proof Test Interval T1</td>
<td>20a</td>
<td></td>
</tr>
</tbody>
</table>

Characteristic data according to EN ISO13849-1

<table>
<thead>
<tr>
<th>Performance Level</th>
<th>e</th>
</tr>
</thead>
<tbody>
<tr>
<td>Category</td>
<td>Cat 4</td>
</tr>
<tr>
<td>Diagnostic Coverage DC</td>
<td>99% (High)</td>
</tr>
</tbody>
</table>

- Number of operating days per year: \( d_a = 365d \)
- Number of operating hours per day: \( h_o = 24h \)

When the product is usage differs from these assumptions (different load, operating frequency, etc.) the values have to be adjusted accordingly.

Information with regard to UL 508: Type 1 enclosure. Maximum temperature 45°C.

Use 16-28AWG copper conductors (rated 90°C). Terminal Torque 6 lb ins. (0.7Nm). Intended for same polarity use.

A300 Pilot Duty, 240V, 3A. PF 0.38 or greater tested for 6,000 cycles endurance. Use one polymeric conduit connection. Not suitable for connection to rigid metal conduit. (Earth bonding terminal inside enclosure if required – use 16-12AWG conductors.)
Gate Box with Safety Interlocking & RFID

Application Example: 4 STATION (UGB4) with Front Rotary Handle, Rear Escape Button and Rear Escape Rotary Handle

Viewed from OUTSIDE GUARDED AREA

Viewed from INSIDE GUARDED AREA

1. PRESS AND HOLD REAR RELEASE BUTTON

2. TURN REAR HANDLE ANTI-CLOCKWISE

### FRONT HANDLE

- Dimensions: 135 x 160

### REAR HANDLE

- Dimensions: 135 x 160

### REAR RELEASE BUTTON

- Dimensions: 61 x 40

### SWITCH WITH REAR RELEASE

- Dimensions: 61 x 40
Gate Box with Safety Interlocking & RFID

Application Example: 2 STATION (UGB2) with Front Rotary Handle, Rear Escape Button and Rear Escape Rotary Handle

Viewed from OUTSIDE GUARDED AREA

Viewed from INSIDE GUARDED AREA

1. PRESS AND HOLD REAR RELEASE BUTTON

2. TURN REAR HANDLE ANTI-CLOCKWISE

TO OPEN USING REAR HANDLE

Dimensions:
- FRONT HANDLE: 135 x 160 mm
- REAR HANDLE: 160 x 135 mm
- REAR RELEASE BUTTON: 25 mm

15

61

67

195

170

40

40
Gate Box with Safety Interlocking & RFID

Product Dimensions – Type: UGB 4-KLT-SS-RFID

Product Dimensions – Type: UGB 4 Rotary Handle SS (4 x APP)

Product Dimensions – Type: UGB Rotary Rear Handle
Gate Box with Safety Interlocking & RFID

Product Dimensions – Type: UGB 4 Sliding Handle SS (4 x APP)

Product Dimensions – Type: UGB 2-KLT-SS-RFID
Connection Example:

Connected to IDEM VIPER SCR-31-I Safety Relay (internal wire links not removed).
UGB 4-KLT-SS-RFID shown with Rotary Handle and fitted with Latching STOP, START and RESET BUTTONS and INDICATOR LAMP.