

# RFID Guard Locking Switch Metal: AYLOCK KLM-Z-4ST

## FEATURES & APPLICATION:



Spring to lock when actuator is inserted. Energise solenoid to unlock.

RFID anti-tamper coding and non-contact safety interlocking.

Front and end entry actuation.

Rotating head.

### Solenoid Locking Switch featuring RFID interlocking and incorporating machine control functions.

The KLM-Z-4ST incorporates all the switch features of the KLM-Z but offers extra machine control functions all in one housing incorporating standard 22mm push buttons (see p209 for push button options available).

The KLM-Z-4ST has a slim profile and has been designed specifically to fit on 50mm (2in.) frame sections or to applications where space is restricted. The head will rotate to offer end users flexibility by providing up to 8 actuator entry positions and includes front and entry sensing.

The KLM-Z-4ST housing will incorporate standard 22mm push buttons, lamps or switches which can be added to provide machine request or control functions all from one KLM-Z-4ST housing.

Robust Stainless Steel 316 head and Die-Cast metal body.

Choice of standard or flexible actuators.

## FUNCTIONAL SPECIFICATIONS:

Solid State OSSD Safety Outputs short circuit protected.

High Functional Safety to ISO13849-1, maintains PLe Interlocking via self-test technique when switches are connected in series to a safety controller or relay.

2 Safety Circuits - closed when switch is locked and machine able to run.

1 Auxiliary circuit for indication of Guard status (Guard open).

1 Auxiliary circuit for indication of Lock Status (Guard locked).

4 diagnostic LED's to display guard position, lock, input/output signals and fault status.



Unique design offering both Front or End entry actuation.

Head will rotate to give 8 actuator entry positions for full flexibility depending on application.



Front entry actuation direction.



End entry actuation direction.

## ACTUATOR OPTIONS:



AZ Standard Actuator



HFZ Flexible Actuator

**Standards:** IEC60947-5-3 ISO14119 ISO13849-1  
IEC62061 UL 60947-5-1

### Technical Specification:

|                                                 |                                                           |
|-------------------------------------------------|-----------------------------------------------------------|
| Supply Voltage                                  | 24Vdc (+/- 10%)                                           |
| Power Consumption                               | R+ (50mA Max.)<br>S+ (500mA Max.) (Solenoid)              |
| Safety Circuits (11-12, 21-22)                  | 24V 0.2A                                                  |
| Auxiliary Circuits (34 and 44)                  | 24Vdc 0.2A Max. output current                            |
| Rated Insulation Voltage                        | 500VAC                                                    |
| Holding Force (ISO14119)                        | F1 Max 3000N Fzh 2307N                                    |
| Actuator insertion distance for assured locking | 5mm                                                       |
| Sao Sar (RFID sensing)                          | Sao 10mm Sar 20mm                                         |
| Operating Frequency                             | 1Hz                                                       |
| Actuator entry minimum radius                   | 175mm Standard 100mm Flexible                             |
| Body Material                                   | Die cast metal (painted red)                              |
| Head Material                                   | Stainless Steel 316                                       |
| Actuator Material                               | Stainless Steel 316                                       |
| Enclosure Protection                            | IP65                                                      |
| Operating Temperature                           | -25C to +40C                                              |
| Mechanical Life Expectancy                      | 2.5 x 10 <sup>6</sup> cycles                              |
| Vibration                                       | IEC88-2-6, 10-55Hz + 1Hz<br>Excursion 0.35mm 1 octave/min |

### Characteristic data according to IEC62061 (used as a subsystem)

|                                    |                                       |
|------------------------------------|---------------------------------------|
| Safety Integrity Level             | SIL 3                                 |
| PFH (1/h)                          | 4.77 E-10 Corresponds to 4.8% of SIL3 |
| Proof Test Interval T <sub>1</sub> | 20a                                   |

### Characteristic data according to EN ISO13849-1

|                        |            |                                                                           |
|------------------------|------------|---------------------------------------------------------------------------|
| Performance Level      | e          | If both channels are used in conjunction with a SIL 3/PLc control device. |
| Category               | Cat 4      |                                                                           |
| MTTF <sub>d</sub>      | 1100a      |                                                                           |
| Diagnostic Coverage DC | 99% (high) |                                                                           |

## GATE SOLUTIONS - SAFETY INTERLOCKS WITH GUARD LOCKING

[www.idemsafety.com](http://www.idemsafety.com)



KLM-Z-4ST fitted to GBZ rotary handle with rear escape.

| LED 4 Solenoid        |     |
|-----------------------|-----|
| Solenoid Energised    | Red |
| Solenoid De-energised | Off |

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# RFID Guard Locking Switch Metal: KLM-Z-SKR-5ST

## FEATURES & APPLICATION:



**Keys Sold Separately (See p263)**  
**Pushbuttons Sold Separately (See p209)**



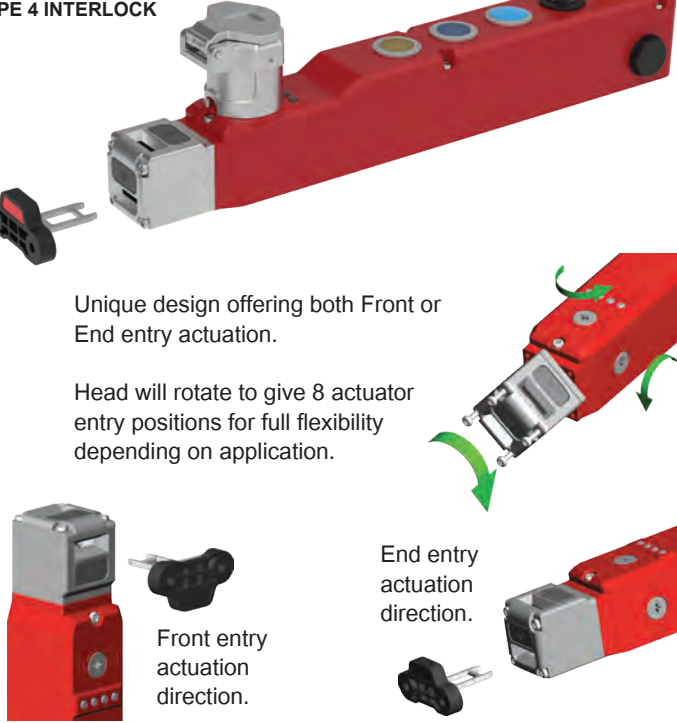
**LT:** All IDEM trapped key interlocks are available with a lockout dust cover.



**CK:** All IDEM trapped key interlocks are available with a custom key label.



**TYPE 4 INTERLOCK**



Unique design offering both Front or End entry actuation.

Head will rotate to give 8 actuator entry positions for full flexibility depending on application.

End entry actuation direction.

Front entry actuation direction.

## OVERVIEW:

**Introducing the Type 4 Guard Locking Switch with RFID interlocking, integrated machine control functions, and a trapped key.**

The KLM-Z-5ST builds on the features of the KLM-Z by offering additional machine control functions, accommodating up to five 22mm pushbuttons, and a coded trapped key, all housed in a durable casing (refer to p\*\* for available pushbutton options).

When entry is requested, the trapped key can be turned and removed, allowing the operator to take the key inside the safeguarded area, reducing the risk of accidental start-up.

The KLM-Z-5ST features a slim profile, designed specifically for 50mm (2in.) frame sections or applications where space is limited. Its head rotates to provide up to 8 actuator entry positions, offering flexibility and including front and entry sensing.

The KLM-Z-5ST housing can incorporate standard 22mm pushbuttons, lamps, or switches, enabling machine request or control functions all from one housing.

Constructed with a robust Stainless Steel 316 head and a Die-Cast metal body, the KLM-Z-5ST offers a choice of standard or flexible actuators.



## FUNCTIONAL SPECIFICATIONS:

- Solid State OSSD Safety Outputs short circuit protected.
- High Functional Safety to ISO13849-1. Guard interlocking and lock monitoring to CAT 4, PL e and SIL 3. Safety ratings are maintained with up to 30 devices in series.
- 2 Safety Circuits - closed when switch is locked and machine able to run.
- 1 Auxiliary circuit for indication of Guard status (Guard open).
- 1 Auxiliary circuit for indication of Lock Status (Guard locked).
- 4 diagnostic LED's to display guard position, lock, input/output signals and fault status.

| Technical Specification    |                                                            |
|----------------------------|------------------------------------------------------------|
| Standards                  | IEC60947-5-3, ISO14119, ISO13849-1, IEC62061, UL 60947-5-1 |
| Supply Voltage             | 24Vdc (+/- 10%)                                            |
| Power Consumption          | R+ (50mA Max.)<br>S+ (500mA Max) (Solenoid)                |
| Safety Circuits            | 24V 0.2A                                                   |
| Auxiliary Circuits         | 24Vdc 0.2A Max. output current                             |
| Rated Insulation Voltage   | 500VAC                                                     |
| Holding Force (ISO14119)   | F1 Max 3000N Fzh 2307N                                     |
| Operating Frequency        | 1Hz                                                        |
| Head Material              | Stainless Steel 316                                        |
| Body Material              | Die-Cast Metal                                             |
| Enclosure Protection       | IP67                                                       |
| Operating Temperature      | -25C to +40C                                               |
| Mechanical Life Expectancy | 2.5 x 10 <sup>6</sup> cycles                               |
| Vibration                  | IEC88-2-6, 10-55Hz + 1Hz<br>Excursion 0.35mm 1 octave/min  |

### Characteristic data according to IEC62061 (used as a subsystem)

|                                    |                                       |
|------------------------------------|---------------------------------------|
| Safety Integrity Level             | SIL 3                                 |
| PFH (1/h)                          | 4.80 E-10 Corresponds to 4.8% of SIL3 |
| Proof Test Interval T <sub>i</sub> | 20a                                   |

### Characteristic data according to EN ISO13849-1

|                        |            |                                                                            |
|------------------------|------------|----------------------------------------------------------------------------|
| Performance Level      | e          | If both channels are used in conjunction with a SIL 3/PL e control device. |
| Category               | Cat 4      |                                                                            |
| MTTF <sub>d</sub>      | 1100a      |                                                                            |
| Diagnostic Coverage DC | 99% (high) |                                                                            |

# RFID Guard Locking Switch Metal: KLM-Z-SKR-5ST

## INDICATION DIAGRAM:



| LED 1 Guard State |                  |
|-------------------|------------------|
| Guard Locked      | Green            |
| Guard Unlocked    | Green (Flashing) |
| Incorrect Code    | Red (Flashing)   |
| Guard Open        | Red              |

| LED 2 Input       |       |
|-------------------|-------|
| Safety Inputs On  | Green |
| Safety Inputs Off | Off   |

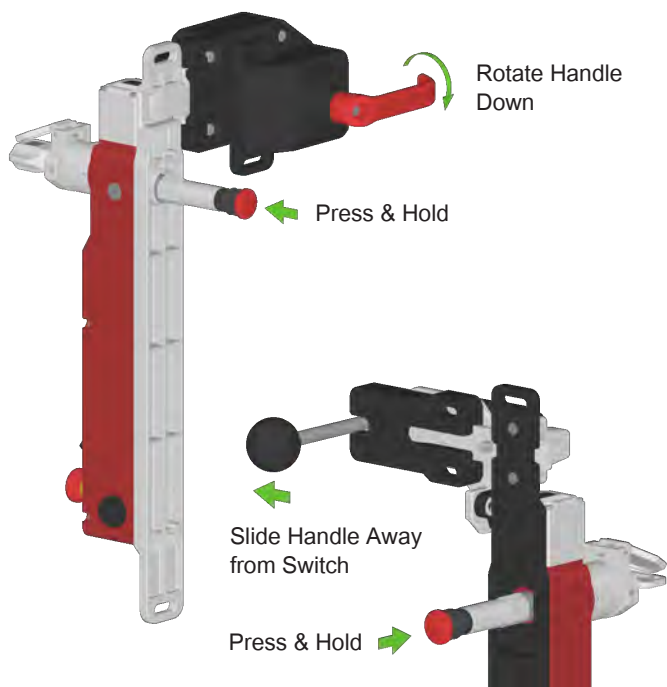
| LED 3 Output       |       |
|--------------------|-------|
| Safety Outputs On  | Green |
| Safety Outputs Off | Off   |

| LED 4 Solenoid        |     |
|-----------------------|-----|
| Solenoid Energised    | Red |
| Solenoid De-energised | Off |

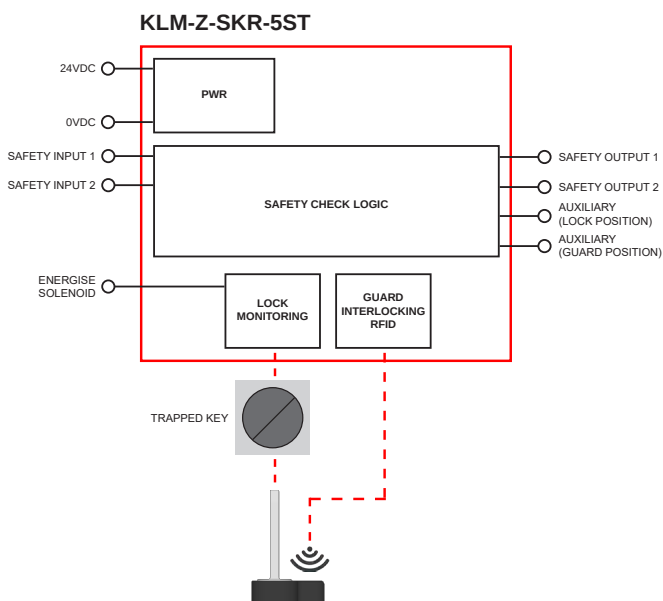
## CONNECTIVITY:

| Terminal | Function                 | Switch Circuit                  | Rating     |
|----------|--------------------------|---------------------------------|------------|
| R+       | 24V dc                   | Supply 24V dc                   | 50mA max.  |
| 0V       | 0V dc                    | Supply 24V dc (Ground)          |            |
| 11       | Safety Input 1           | Safety Circuit 1                | 200mA max. |
| 12       | Safety Output 1          |                                 |            |
| 21       | Safety Input 2           | Safety Circuit 2                | 200mA max. |
| 22       | Safety Output 2          |                                 |            |
| 44       | Auxiliary (Guard Open)   | Guard open signal +24V dc out   | 200mA max. |
| 34       | Auxiliary (Guard Locked) | Guard locked signal +24V dc out | 200mA max. |
| S+       | Unlocked                 | Unlock signal apply +24V dc     | 500mA max. |

## REAR ESCAPE:

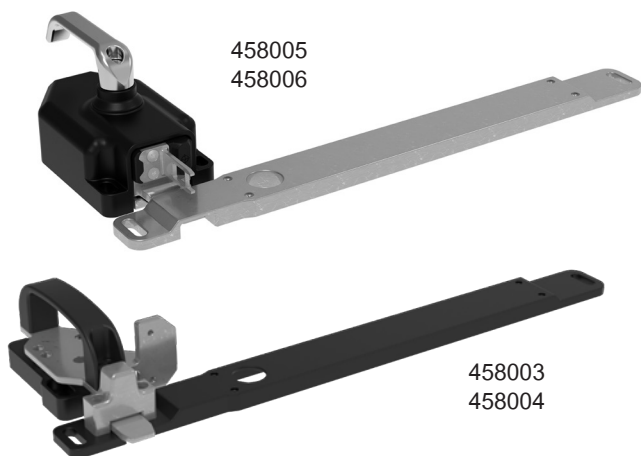


## CONNECTION DIAGRAM:



## ORDERING:

| KLM-Z-SKR-5ST<br>(Configuration Descriptor) | With Side Manual Release |          |        | Without Side Manual Release |          |        |
|---------------------------------------------|--------------------------|----------|--------|-----------------------------|----------|--------|
|                                             | M20                      | 1/2" NPT | M12-QC | M20                         | 1/2" NPT | QC-M12 |
| Standard (KLM-Z-SKR-5ST)                    | 457004                   | 457005   | 457006 | 457304                      | 457305   | 457306 |
| Rear Release (KLM-Z-SKR-5ST-RR)             | 457014                   | 457015   | 457016 | 457314                      | 457315   | 457316 |





## GATE SOLUTIONS - SAFETY INTERLOCKS WITH GUARD LOCKING

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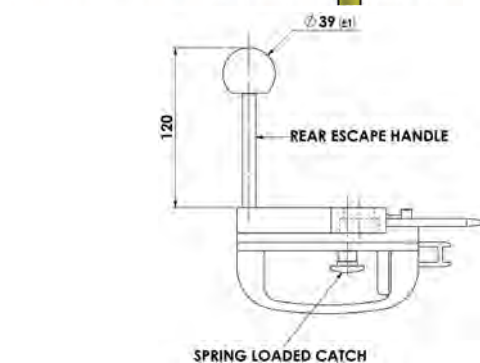
# Pilot Devices for UGB-KLT and KLM-Z-ST Models

22mm ACCESSORIES FOR UGB-KLT, KLM-Z-4ST & 5ST (to be ordered separately):



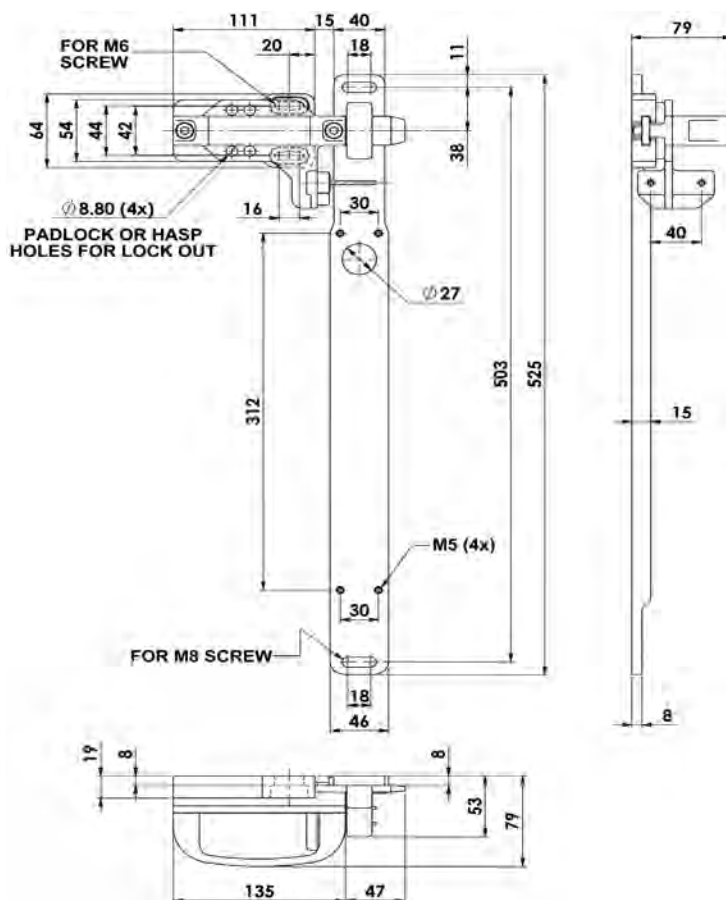
| SALES NUMBER | CONTACTS or VOLTAGE | DESCRIPTION                                                                                                                      | ELECTRICAL                                                                    |
|--------------|---------------------|----------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|
| 522201       | 2NC                 | Compact Stop, Twist to Reset, Red 30mm Mushroom Head                                                                             | AC-15<br>120Vac 1.5A<br>240Vac 1.0A<br><br>DC-13<br>24Vdc 0.3A<br>125Vdc 0.2A |
| 522202       | 1NC 1NO             | Compact Stop, Twist to Reset, Red 30mm Mushroom Head                                                                             |                                                                               |
| 522203       | 2NC                 | Compact Stop, Twist to Reset, Red 30mm Mushroom Head with Reset Key                                                              |                                                                               |
| 522204       | 1NC 1NO             | Compact Stop, Twist to Reset, Red 30mm Mushroom Head with Reset Key                                                              |                                                                               |
| 522205       | 2NC                 | Compact Stop, Twist to Reset, Red 40mm Mushroom Head                                                                             |                                                                               |
| 522206       | 1NC 1NO             | Compact Stop, Twist to Reset, Red 40mm Mushroom Head                                                                             |                                                                               |
| 522207       | 2NC                 | Compact Stop, Twist to Reset, Red 40mm Mushroom Head with Reset key                                                              |                                                                               |
| 522208       | 1NC 1NO             | Compact Stop, Twist to Reset, Red 40mm Mushroom Head with Reset key                                                              |                                                                               |
| 522209       | 2NC                 | Compact Illuminated Stop, Twist to Reset, Red 32mm Mushroom Head with plug-in Spade Terminals (2.8 x 0.5mm), RED LAMP (5-30Vdc). | AC-15<br>120Vac 3A 24Vac 1.5A<br><br>DC-13<br>24Vdc 3A 250Vdc 0.27A           |
| 522210       | 1NC 1NO             | Compact Illuminated Stop, Twist to Reset, Red 32mm Mushroom Head with plug-in Spade Terminals (2.8 x 0.5mm), RED LAMP (5-30Vdc). |                                                                               |
| 522251       | 1NC 1NO             | Compact 2 Positions Plastic Selector Switch                                                                                      | AC-15<br>120Vac 1.5A<br>240Vac 1.0A<br><br>DC-13<br>24Vdc 0.3A<br>125Vdc 0.2A |
| 522252       | 2NC                 | Compact 2 Positions Plastic Selector Switch                                                                                      |                                                                               |
| 522301       | 1NC 1NO             | Compact Push Button Momentary - RED                                                                                              |                                                                               |
| 522302       | 1NC 1NO             | Compact Push Button Momentary - GREEN                                                                                            |                                                                               |
| 522303       | 1NC 1NO             | Compact Push Button Momentary - YELLOW                                                                                           |                                                                               |
| 522304       | 1NC 1NO             | Compact Push Button Momentary - BLUE                                                                                             |                                                                               |
| 522305       | 1NC 1NO             | Compact Push Button Momentary - WHITE                                                                                            |                                                                               |
| 522310       | 2NC                 | Compact Push Button Momentary - RED                                                                                              |                                                                               |
| 522311       | 2NC                 | Compact Push Button Momentary - GREEN                                                                                            |                                                                               |
| 522312       | 2NC                 | Compact Push Button Momentary - YELLOW                                                                                           |                                                                               |
| 522313       | 2NC                 | Compact Push Button Momentary - BLUE                                                                                             |                                                                               |
| 522314       | 2NC                 | Compact Push Button Momentary - WHITE                                                                                            |                                                                               |
| 522321       | 1NO                 | Compact Illuminated Push Button Momentary - RED (Lamp 24V ac/dc)                                                                 |                                                                               |
| 522322       | 1NO                 | Compact Illuminated Push Button Momentary - GREEN (Lamp 24V ac/dc)                                                               |                                                                               |
| 522323       | 1NO                 | Compact Illuminated Push Button Momentary - YELLOW (Lamp 24V ac/dc)                                                              |                                                                               |
| 522324       | 1NO                 | Compact Illuminated Push Button Momentary - BLUE (Lamp 24V ac/dc)                                                                |                                                                               |
| 522325       | 1NO                 | Compact Illuminated Push Button Momentary - CLEAR (Lamp 24V ac/dc)                                                               |                                                                               |
| 522401       | 24V ac/dc           | Pilot Light LED - YELLOW                                                                                                         | 24V ac/dc                                                                     |
| 522402       | 24V ac/dc           | Pilot Light LED - RED                                                                                                            |                                                                               |
| 522403       | 24V ac/dc           | Pilot Light LED - GREEN                                                                                                          |                                                                               |
| 522404       | 24V ac/dc           | Pilot Light LED - BLUE                                                                                                           |                                                                               |
| 522405       | 24V ac/dc           | Pilot Light LED - CLEAR                                                                                                          |                                                                               |
| 522451       |                     | Legend Holder for use with 22 mm Devices                                                                                         |                                                                               |
| 522452       |                     | Blanking Plug for sealing unused 22mm holes                                                                                      |                                                                               |

### FEATURES & APPLICATION:



**IDEM GBZ-4ST GATE BOLT SUITABLE FOR KLM-Z-4ST SWITCHES**

**Spring Loaded Catch:** To prevent accidental actuation after opening of the handle.



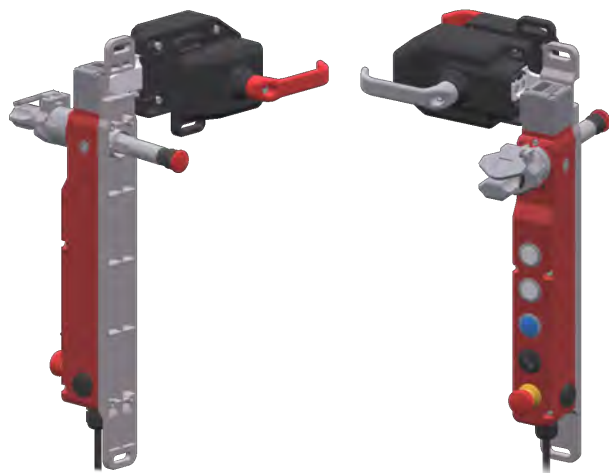
| DESCRIPTION<br>(Accessories)              | SALES<br>NUMBER |
|-------------------------------------------|-----------------|
| Rear Handle (can be fitted later)         | 210005          |
| Spring Loaded Catch (can be fitted later) | 210006          |

# Gate Bolt for KLM-Z-SKR-ST: GBZ Rotary Gate Bolt

## FEATURES & APPLICATION:



**Type: GBZ-ST Rotary Handle**  
Shown fitted with KLM-Z-5ST-RR switch with rear rotary release.



### IDEM GBZ-ST ROTARY GATE BOLT SUITABLE FOR KLM-Z-4ST & 5ST SWITCHES

GBZ-ST Rotary Gate Bolts are manufactured with a rugged die-cast metal and steel construction and provide shearing forces up to 10,000N (F1Max) on large hinged doors.

Easy to install on hinged or sliding guards. (2 x M6 and 2 x M8 Mounting Bolts).

Once installed there is no need for extra brackets or door handles.

Not susceptible to misalignment damage.

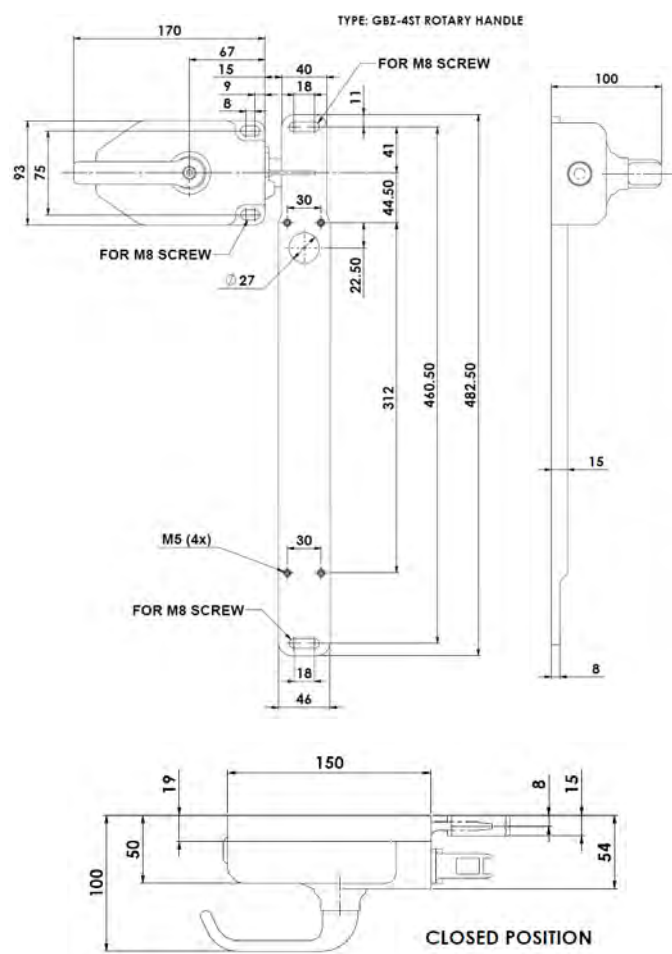
Operators are required to manually close the guard, they cannot close accidentally.

Padlock holes are provided as a means of locking open the handle to prevent the guard from being closed and the machine started during maintenance.

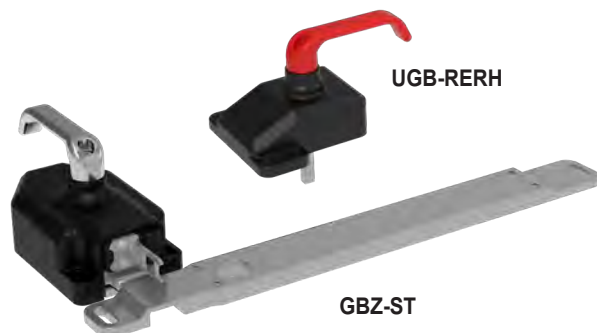
### Optional Accessories:

Rear Handle where there is a requirement to move the handle from inside the guarded area.

## DIMENSIONS:



## ORDERING:



| DESCRIPTION<br>(Suitable for Switch Types: KLM-Z-4ST and 5ST) |                   | SALES<br>NUMBER |
|---------------------------------------------------------------|-------------------|-----------------|
| Rotary Gate Bolt Lock                                         | GBZ-ST Left Hand  | 458005          |
| Rotary Gate Bolt Lock                                         | GBZ-ST Right Hand | 458006          |

| DESCRIPTION<br>(Accessories) |                       | SALES<br>NUMBER |
|------------------------------|-----------------------|-----------------|
| Rear Rotary Handle           | UGB-RERH-M Left Hand  | 527005-L        |
| Rear Rotary Handle           | UGB-RERH-M Right Hand | 527005-R        |