

# AIES Dual Key Access Interlock with Safety Switch



The AIES is a dual key access interlock complete with electrical contacts for use on hinged doors. The AIES contacts can be used to switch off the machine via its control circuitry or to initialise a signal to visual beacons/sounders. The switch is sealed to IP65 with 1N/O 2N/C contacts, it is rated to 10 amps making it ideal for use in cross monitored safety systems. The interlock is manufactured in a durable stainless steel.

## OPERATION

The AIES access interlock with safety switch is used for machine isolation in order to protect the hazardous area from full body access while power is on.

### AIES dual key access interlock with safety switch, **exchange key condition**

(bolt trapped - personnel key trapped - isolation key free)

- 1** Power is on, bolt is trapped. Isolation key is free, personnel key is trapped.



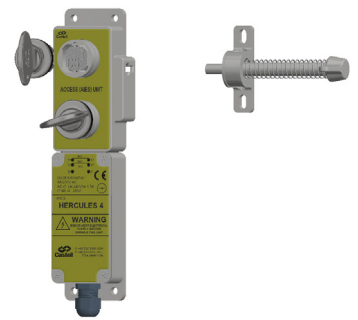
While the power in the hazardous area is on, the sidebolt of the AIES is trapped in the mechanism. The door is locked.

- 2** Insert and turn isolation key to change the switch contacts condition and release the bolt. Then release the personnel key.



By inserting and turning the isolation key, the contact condition is changed switching the power off. The bolt can now be released. This enables the release of the personnel key. The released personnel key should be taken by the operator into the hazardous area, ensuring the power cannot be turned on as long as the door is opened.

- 3** Power is off, isolation key is trapped. Bolt is free and personnel key is free.



The switch condition cannot be reversed until the personnel key is returned, the side bolt is trapped and the isolation key is released.

# AIES Dual Key Access Interlock with Safety Switch



## AIES dual key access interlock with safety switch, double key condition

(bolt trapped - keys free)

- 1 Power is on, bolt is trapped. Both keys are free.



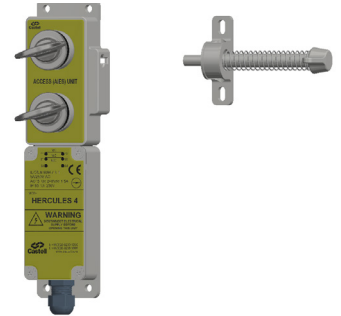
While the power in the hazardous area is on, the sidebolt of the AIES is trapped in the mechanism. The door is locked. Both keys are free.

- 2 Insert and turn both keys to change the switch contacts condition and release the bolt.



By inserting and turning both keys, the contact condition changes switching the power off. The bolt can now be released. This traps the keys.

- 3 Power is off, both keys are trapped.



The switch condition cannot be reversed until the sidebolt is trapped in the locking mechanism and the keys are turned and released.

## AIES dual key access interlock with safety switch, double key condition

(bolt trapped - keys trapped)

- 1 Power is on, bolt is trapped. Both keys are trapped.



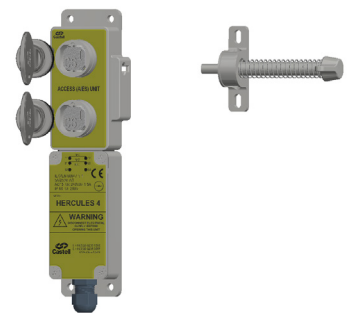
While the power in the hazardous area is on, the sidebolt of the AIES is trapped in the mechanism. The door is locked. Both keys are trapped.

- 2 Turn and release both keys to change the switch contact condition and release the bolt.



By turning and releasing both keys, the contact condition changes switching the power off. The bolt can now be released. Both keys can be released and should be taken by the personnel to the hazardous area.

- 3 Power is off, bolt is free. Both keys are free.



The switch condition cannot be reversed until both keys are returned, the side bolt is trapped and both keys are trapped in the AIES access interlock locking the door.

# AIES Dual Key Access Interlock with Safety Switch



## USAGE

The AIES access interlock with safety switch is designed to be part of a safety system and is used to isolate the power which then allows to gain access to a hazardous area.



The AIES access interlock is not designed for security purposes.

## INSTALLATION

The housing of the AIES access interlock with safety switch should normally be mounted on the static frame of the guard and the bolt to the hinged door using suitable fasteners. Fixed bolt bracket is highly tolerant to misaligned guards and should be fitted with suitable fasteners. Please refer to the drawing on page 4 for mounting hole details and maximum and minimum mounting distance for the housing and bolt. The AIES interlocks are available in Hand 1 and Hand 2 version suitable for left or right hinged doors, respectively. Anti vibration pads should be used on machines that generate a high level of vibration



**IMPORTANT:** The AIES access interlock should be mounted on the guard using anti-tamper fasteners to prevent unauthorised removal.



The AIES access interlock must be installed by a competent and qualified person who has read and understood these instructions. Please retain this document in your technical file.



You must use M6 anti-tamper stainless steel screws secured using threadlock set to a torque of 5 N/M.



Alignment limits of 0.5mm must be set in all planes. Angular displacement +/- 1° between lock and bolt.



The manufacturer should be consulted when use in a corrosive environment is planned.



Use middle strength threadlock on all four switch lid fixing screws and tighten to a torque of a 5 N/M to retain IP65 rating.

## MAINTENANCE

Periodic visual checks should be carried out by the site manager / safety officer.

Do not lubricate lock barrel with oil or grease, use CK Dry Powder Graphite if necessary.



The interlock must be inspected every 6 months. Safety checks should include ensuring the keys and lock bolt can only be removed in the correct safety operating conditions (see page 1).



Check the limit switch is operating correctly with a continuity checker.



In case of defects being detected please contact your nearest Castell Support Department for further actions. Please see Contact section for contact details.

# AIES Dual Key Access Interlock with Safety Switch



## TECHNICAL DATA

<b>Temperature rating</b>	-30°C to 80°C
<b>Type of mounting</b>	Surface mount using M6 stainless steel anti-tamper fasteners
<b>Weight</b>	2.5 kg
<b>Material</b>	Stainless steel
<b>Control isolation</b>	10 A
<b>Motor isolation (AC Values)</b>	250 V AC rated insulation voltage
<b>Switch approvals &amp; standards</b>	UL CSA IP65 EN60947-1 EN60947-5-1
<b>Operation</b>	Suitable for 1,000,000 operations.
<b>B10d</b>	1,250,000
<b>Shock &amp; vibration</b>	450 Hz, 25 g, not activated, upright position, head up 59 g, 11 ms, semi-sinusoidal, not activated, upright position, head up
<b>Conformity declaration</b>	CE
<b>Retention force</b>	3.4 KN
<b>Environment</b>	Suitable for IP65 rating
<b>PL rating</b>	PLd

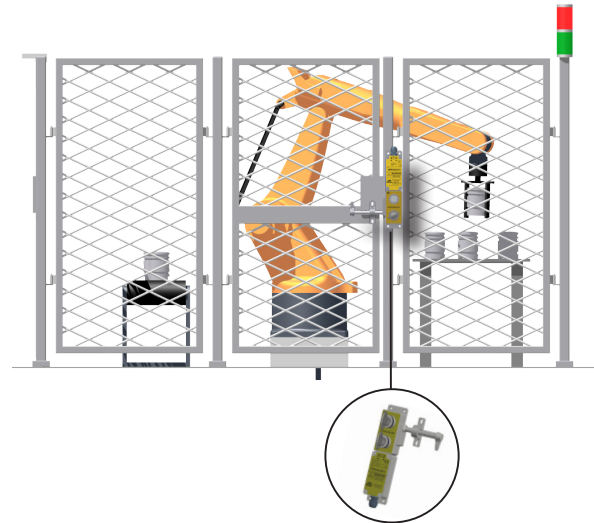
## APPLICATION

A typical application of the AIES Access interlock with Safety switch is machine guarding.

The AIES safety component is used as part of an integrated safety system.

While the machine is running, the door is closed and both keys are trapped in the AIES. The removal of the first key isolates the electrical supply to the machine and allows the second key to be removed. The sidebolt can then be removed.

The machine can not be restarted until the door is closed, the side bolt is trapped and both replaced in the AIES access interlock.



AIES Access interlock with safety switch

## EC-DECLARATION

We, the manufacturers, declare that the components detailed herein and placed on the market comply with all the essential health and safety requirements applying to them.

ISO 13849-1:2015 Safety of Machinery

2006/42/EC Machinery Directive

Empowered signatory:

Kirstie Van Oerle  
Business Unit Director 

# AIES Dual Key Access Interlock with Safety Switch

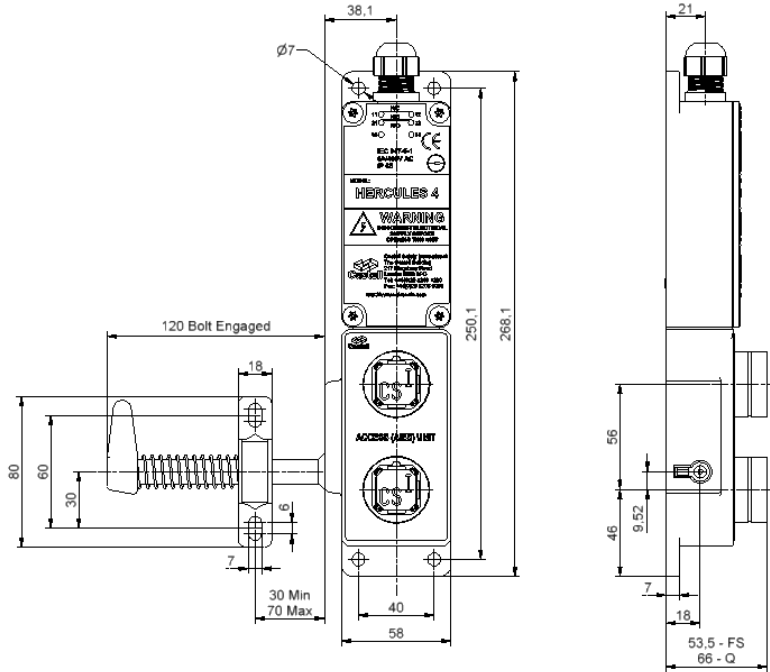


## DRAWING

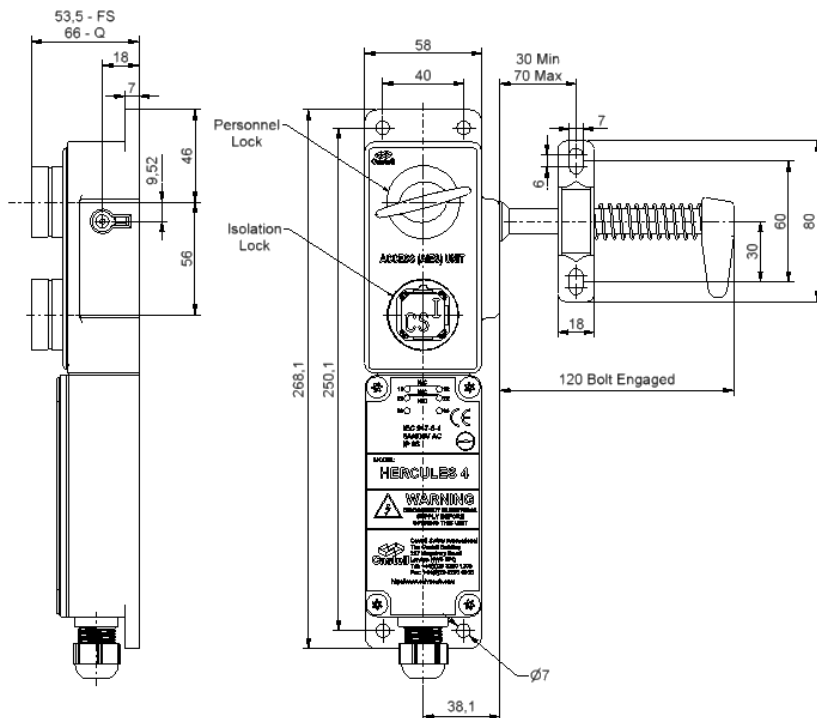
Dimensions: in mm

**Note:** For safe mounting, use security screws

### AIES, Hand 1, double key condition



### AIES, Hand 2, exchange key condition

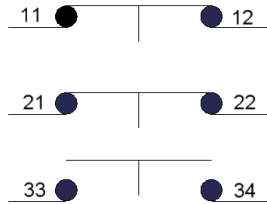


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## WIRING DIAGRAM

### 2NC/1NO



### Contacts as shown in the following positions:

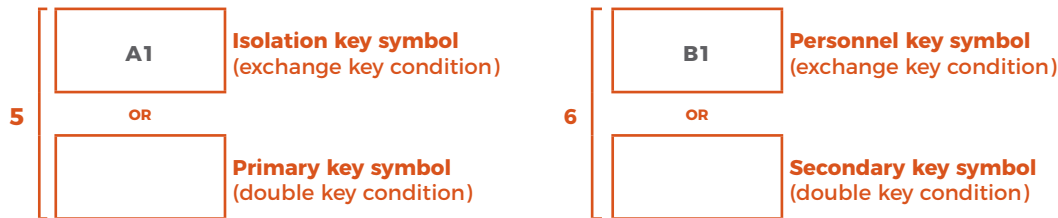
	Isolation Key	Personnel Key	Bolt
Version 1 - Exchange Key	FREE	TRAPPED	TRAPPED
Version 2 - Double Key, KF (Keys free, bolt trapped)	FREE	FREE	TRAPPED
Version 3 - Double Key, KT (Keys trapped, bolt trapped)	TRAPPED	TRAPPED	TRAPPED

# AIES Dual Key Access Interlock with Safety Switch

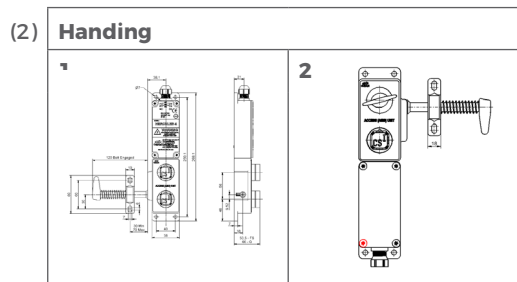
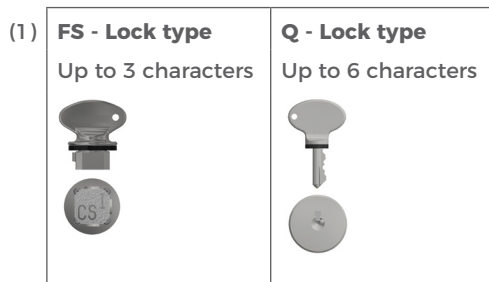


## ORDER INFORMATION

	<b>Component type</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
Part number	AIES					
Example	AIES	FS	S	E	KT	1



1	Lock portion type	FS <sup>(1)</sup> / Q <sup>(1)</sup>
2	Material	S = Stainless steel (standard)
3	Key Condition 1	E = exchange key Condition D = double key Condition
4	Key condition 2 - in bolt trapped condition (applies for double key condition only, see item 3)	KT = keys are trapped while bolt is trapped KF = keys are free while bolt is trapped
5	Handing	1 = left hinged door <sup>(2)</sup> 2 = right hinged door <sup>(2)</sup>
6	Lock portion symbol: Isolation key symbol (for exchange key condition) Primary key symbol (for double key condition, lock next to the bolt)	FS <sup>(1)</sup> up to 3 characters / Q <sup>(1)</sup> up to 6 characters
7	Lock portion symbol: Personnel key symbol (for exchange key condition) Secondary key symbol (for double key condition)	FS <sup>(1)</sup> up to 3 characters / Q <sup>(1)</sup> up to 6 characters



Special construction available upon enquiry

## CONTACT INFORMATION

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