MSI

Motion Sensing Interlock

User Manual - Original Language Version

MSI-FSB-F-3-110A

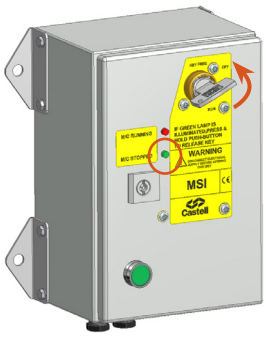
The MSI is designed to control access to rotating machinery that has a run-down time. The MSI relies on the detection of motion via two sensors. Only when both sensors detect zero movement can the key be released. The MSI has been designed to provide the highest level of safety when installed as part of an access control system for dangerous machinery.

Operation

The Castell MSI motion sensing interlocks are typically used for machine isolation in applications in order to protect the hazardous area from access while power is on.

MSI movement sensing interlock

1. **Power is on, key is trapped. Red LED is illuminated.**
2. **Turn the key to OFF position. Once zero movement of a motor has been detected, a signal is sent to the the unit energising the solenoid. The green LED illuminates. Release the key by pushing the green button.**
3. **Key is released, power is off and the motor stands still.**



1. **While the power is on and a motor is running, the key is trapped in the MSI motor sensing interlock. A red LED is illuminated.**
2. **Turn the key to OFF position to switch the power off. A movement sensor in the MSI unit gives a signal to the solenoid once zero movement has been detected. This will illuminate a green LED. The key can now be released by pushing the green button. This key can be taken to unlock the access lock on the motor unit.**
3. **The motor stands still and power is off until the key is replaced in the MSI motor sensing unit.**

Usage

The MSI movement sensing interlock is designed to be part of a safety system and is used to switch off the power and detect zero motor movements before releasing a key which is then used to gain access to a hazardous area via an access interlock such as the AI or Salus.

The MSI movement sensing interlock is not designed for security purposes.

Installation

The MSI movement sensing interlock should be mounted to a surface using suitable fasteners (please refer to drawing on page 4 for more details). The lock face should be sealed to the panel for ingress protection.

Cables should be connected to the switch in accordance with the applicable wiring diagrams. Ensure that the unit is bonded for earth continuity (please refer to drawing on page 5 for more installation details).

IMPORTANT:
The interlock should be mounted using anti-tamper fasteners to prevent unauthorised removal.

The MSI range of movement sensing interlocks must be installed by a competent and qualified person who has read and understood these instructions. Please retain this document in your technical file.

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.

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

Technical Data

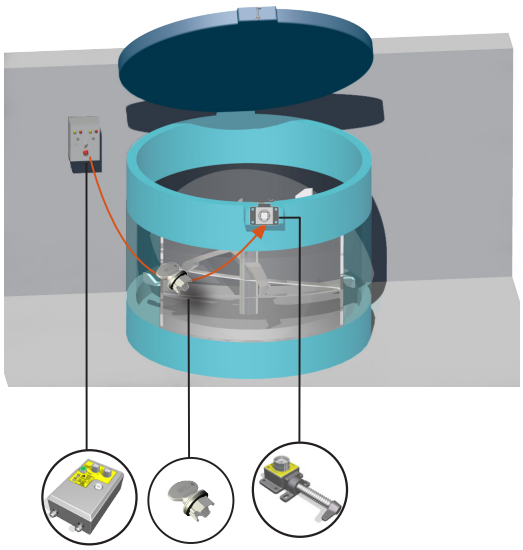
Temperature	Minimum: -5°C [23°F]
	Maximum: 55°C [131°F]
Type of mounting	Surface mount using suitable fasteners (please refer to drawing on page 4 for more details)
Attachment	Millimeters: 240mm(H) x 140mm(W)
	Inches: 9.45”(H) x 5.51”(W)
Weight	5.0 kg
Material	Brass or Stainless steel lock portions, powder coated mild steel enclosure
Standards	EN60439-1
Cable Size	M20 Gland x 2
IP Rating	IP65, NEMA 4 enclosure
Standards	Standstill detection components to UL
Contact Rating	Continuous, unattended, remote
Use	Engine switch, circuit-breaker or control switch
Voltage	24 VDC and 240 VAC, 120 VAC
Max Motor Voltage	600V
Max Power Consumption	20VA / 18W

Application

The MSI is designed to operate as part of an integrated safety system, controlling access to hazardous areas to motor driven, high risk applications where complete isolation of the power supply is required before access is granted. Two sensors are positioned on the rotating shaft, these are wired into the MSI unit.

When the electric motor is running, the key of the MSI interlock cannot be removed, hence preventing access to the hazardous area. To gain access to the area, the electrical motor must be switched off by turning the key to OFF position. This changes the switches of the electrical supply to the machine to a safe condition. A movement sensing detector sends a signal to the MSI unit once a zero movement of the motor has been stated. A green LED illuminates. By pushing the green button, the key can now be removed and taken by the personnell to the AI access interlock.

The guard can only be opened when the electrical supply has been switched into a safe condition.The machine cannot be restarted until the door is closed and the key is removed and taken to the MSI movement sensing interlock.



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.

Empowered signatory:

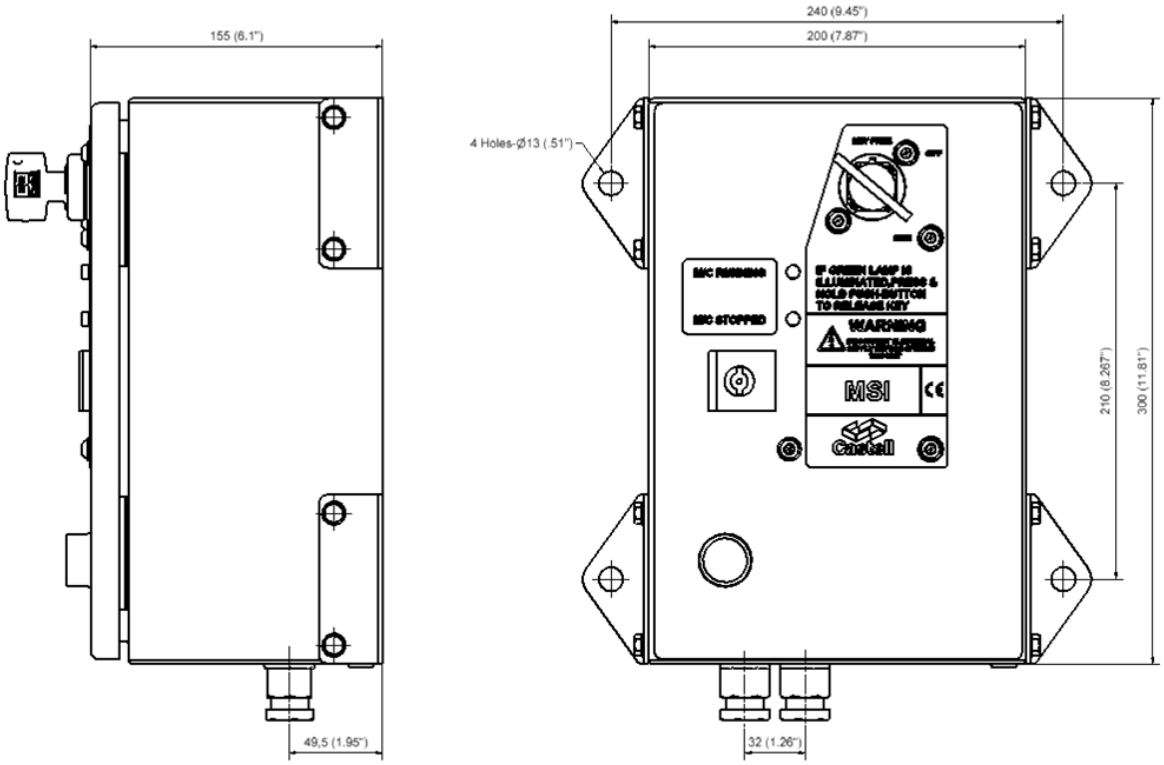
Mr T.C. Whelan
Managing Director

Drawing

Dimensions:
in mm

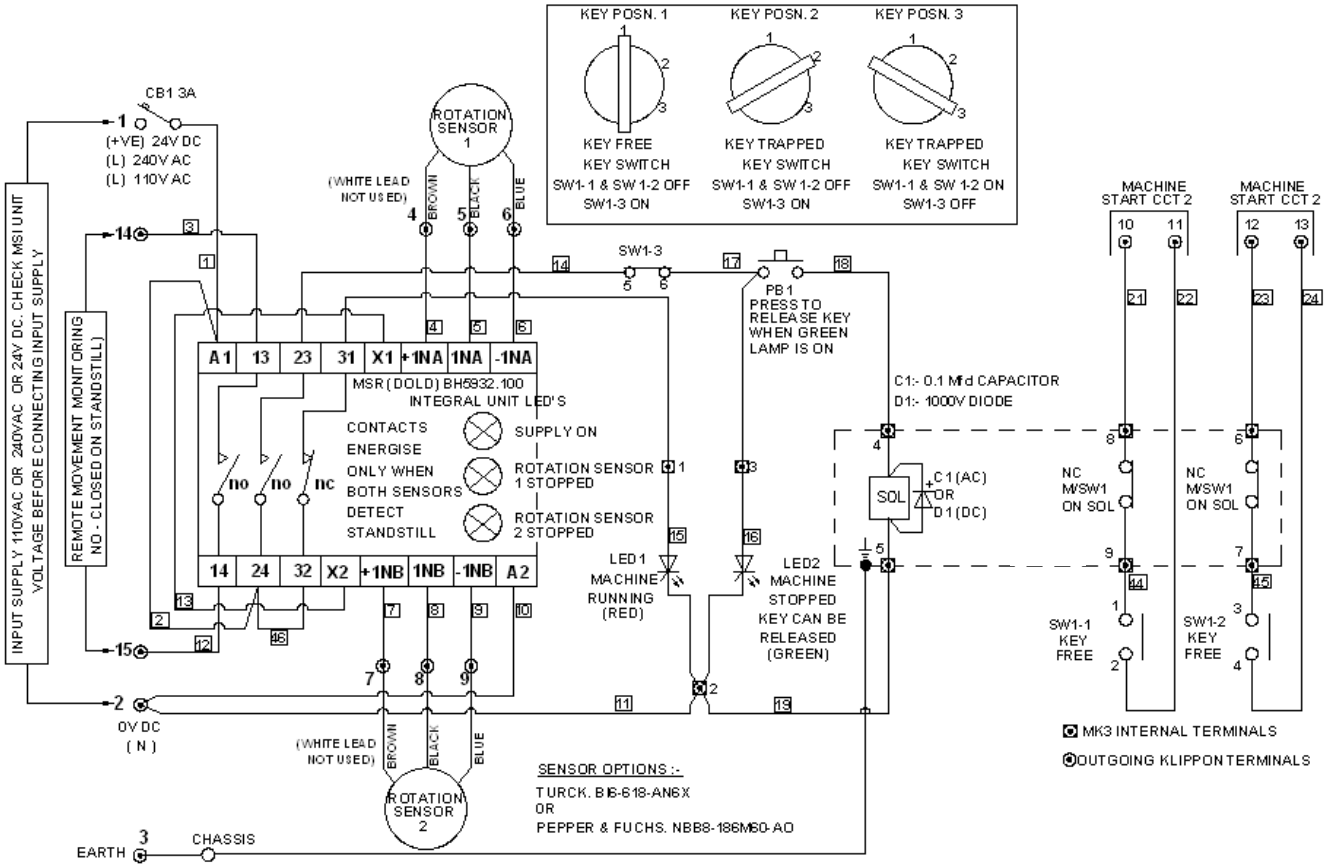
Note: *For safe mounting, use security screws*

MSI



Wiring Diagram

MSI



NOTES:
1. ALL CONTACTS SHOWN DE-ENERGISED.
2. UNIT OPERATING VOLTAGE OPTIONS: 110V AC, 240V AC & 24V DC. CHECK MSI UNIT VOLTAGE BEFORE CONNECTING INPUT SUPPLY VOLTAGE
3. MSR CONTACTS ENERGISE ONLY WHEN BOTH CHANNELS DETECT STANDSTILL.
4. IN THE EVENT OF ROTATION SENSOR FAILURE MSI UNIT FAILS SAFE BUT INPUT SUPPLY MUST BE RESET ON SENSOR CHANGE.

Order Information

	Product Type	1	2	3	4*	5	6	7
Part Number	MSI							
Example	MSI	FS	B	F	1S	3	110	A

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ABC

1	**Lock portion type**	FS (1) / Q (1)
2	**Material**	B = Brass (standard)
3	**Mounting**	F = Front of board mount, with enclosure (standard)
4*	**Secondary lock portion(s)** Secondary lock portions are provided for personnel keys, primary lock posrtion for the isolation key	1S / 2S = 1 or 2 secondary lock portions respectively
5	**Number of poles**	3, standard
6	**Control voltage**	110 / 24 / 240 (standard)
7	**Current**	AC (use for 110V and 240V) / DC (use for 24V)
8	**Lock portion symbol**	FS (1) up to 3 characters / Q (1) up to 6 characters

(1) **FS - Lock type** Up to 3 characters **Q - Lock type** Up to 6 characters

Special construction available upon enquiry

Accessories

	Product	Part number
	Flip Cap	FLIP-S

Contact Information

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