

## OVERVIEW

The Kouba Interlocking Door Control System (MCIO-IDC) will integrate with any electronic access control system including older or legacy control systems.

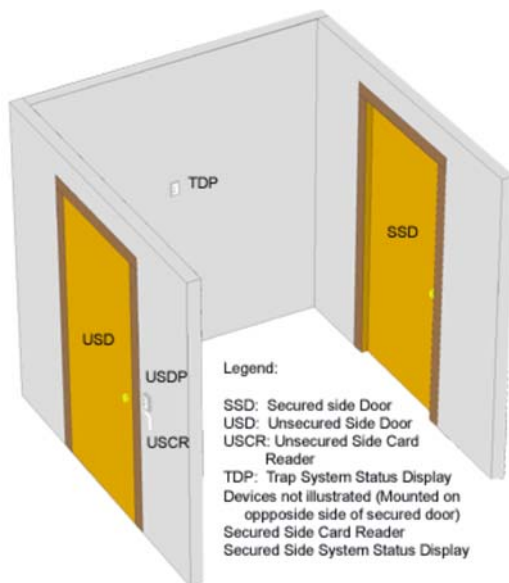
The MCIO-IDC uses Door Position Switches, an optional Presence Sensor and Request To Unlock signals from the Access Control System to monitor and control two or more interlocking doors. Only one door may be unlocked or open at the same time. The mantrap will not unlock a door if the other door is open, or if an alarm condition exists. The interlock alarm relay opens if both doors are open at the same time.

Lock Output Relays control the locks, display plates indicate system status to the persons using the system, and Alarm Relays communicate system status to the security control center.

Optional Tailgate monitoring is available to ensure that only one person enters the secured area for each valid card presented.

## FEATURES

- ◇ Interlocking Lock Control Relay Outputs
- ◇ System Status Display Plates
- ◇ Door Alarm Relay Output
- ◇ Interlock Alarm Relay Output
- ◇ Supervised Door Contact Monitoring
- ◇ Interlock System Bypass Input
- ◇ Audible Alarm Output
- ◇ Optional Tailgate Monitoring
- ◇ May use card readers or biometrics
- ◇ Field Selectable Operation
- ◇ Field Adjustable Time Delays
- ◇ Optional Remote Annunciation and Control Panel
- ◇ Application Specific Operation Available
- ◇ Alternate Display Text Available



**MT-DSP PLATE**

## SYSTEM OPERATION

**MANTRAP READY-** The mantrap or Interlocking Door Control System (MCIO-IDC) is empty, both doors are closed, no alarm condition exists, the displays indicate Ready.

**REQUEST TO UNLOCK -** An Access Control System uses Card Readers or Biometric Readers to grant access to persons using the Mantrap. The ACS generates a Request To Unlock (RTU) relay contact to the MCIO-IDC when a Valid Card or Biometric is read. The MCIO-IDC will unlock the door associated with the reader if the other door is not unlocked or open, and no alarm condition exists.

**ACCESS GRANTED –** When an RTU is received and the MCIO-IDC unlocks the door, the display at the unlocked door will indicate Proceed, and the display at the other door will indicate Busy

**DOOR OPEN –** While a door is open, the other door is locked, MCIO-IDC will not accept an RTU, and the displays indicate Busy.

**MANTRAP OCCUPIED with Double Verification Passage –** Card and/or Biometric Readers are located on both sides of each door. A valid read must be presented at each reader and the ACS activates an RTU for every time each door is to be opened. A person has entered the Mantrap, both doors are closed, the displays outside of the mantrap indicate Busy, and the Display inside the Mantrap indicates Ready The person must present a Card or Biometric to the Reader inside the Mantrap. Once a valid read is presented, then the 2nd door will unlock, and the person may open the door and complete passage through the mantrap. If the person does not present a valid read within an adjustable time delay, then the system will activate the Too Long In Mantrap Alarm.

**MANTRAP OCCUPIED with Single Verification Passage –** Readers are located at each door outside of the Mantrap. Only one valid read is required to pass through the mantrap. The person presents a valid read at the 1st door, the ACS generates an RTU, the MCIO-IDC unlocks the door, the person opens the door, walks into the mantrap, closes the door, and a short time after the 1st door is closed, then the 2nd door will unlock, and allow the person to complete passage through the mantrap.

**SYSTEM BYPASS –** The Bypass input to the MCIO-IDC is activated. If an alarm condition exists then the alarm is reset. The doors remain locked. Any RTU presented will unlock the door associated with the reader. The doors are not interlocked, and both doors may be unlocked and/or opened at the same time.

**LOCK CONTROL RELAY –** DPDT relay with an integrated LED that turns on when the relay is active. The relay activates when an RTU is presented and all other interlocked doors are closed and secured, or if the RTU is presented when the system is in Bypass.

**ALARM AUTOMATIC RESET –** The system automatically resets an alarm after the doors are closed and the mantrap is empty. The Automatic Reset feature may be disabled through the on board dip switches.

**SYSTEM STATUS DISPLAYS –** Single gang indicator plates with LED's to indicate system status to persons using the Mantrap are mounted adjacent to the readers. Typical indications are Ready, Proceed & Busy. Alternate text for the displays is available.

**AUDIABLE ALARM –** a Sounder Output Relay is activated when the unit is in alarm. This output may be connected to a 12 VDC sounder to indicate an alarm at the mantrap.

**ON BOARD ADJUSTMENTS AND INDICATORS–** The MCIO-IDC has on board time delay adjustments, function select dip switches, and input status LED indicators, and output status indicators. The indicators show the status of all inputs and outputs, and assist during system setup, verification or service.

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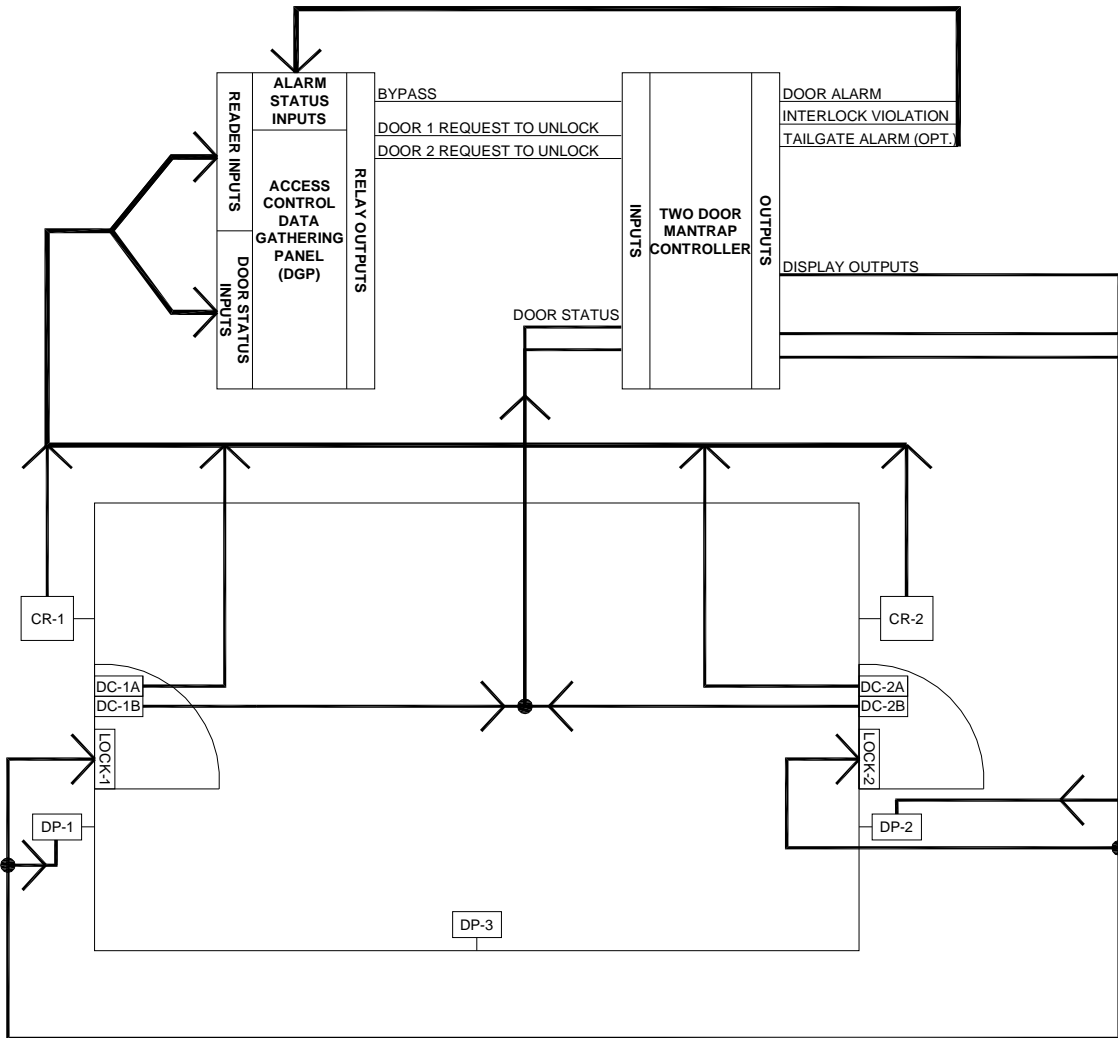
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## TECHNICAL SPECIFICATIONS

Power	12 VDC @ 1 Amp
Inputs	Normally Closed door contacts. One for each interlocked door. Contacts may be supervised. 1K ohm = closed, 2K ohm = open, short or cut = supervision fault. Request To Unlock (RTU). One Momentary Normally Open Contact for each door. (1 sec. max.) Optional Tailgate Sensors. This optional sensor detects the direction and count of persons walking through the doors of the Mantrap. If a person walks into the Mantrap without first presenting a valid read, then a Tailgate Alarm is generated, and the mantrap is locked. Optional Presence Sensor. One Normally Open Presence Sensor located inside the Mantrap. Used to detect if a person is inside the Mantrap. This is an optional input and is not necessary for basic interlocking operation. It is recommended to insure that persons outside of the mantrap know when the system is busy or available for use. System Bypass. One maintained Normally Open input for the interlock bypass. A momentary activation of this Input is also an alarm reset.
Outputs	1 Normally Closed Interlock Violation Alarm Relay. Relay opens when more than one door is open at the same time. 1 Normally Closed Door Alarm Relay. Relay opens when a door is forced open, or when a door is held open past the Door Prop Alarm Delay. 1 Normally Closed Tailgate Alarm Relay. Relay opens when a Tailgate Violation occurs. Output Relays may be re-defined in firmware to indicate supervision fault, bypass status, or other location specific alarm conditions. Sounder Output Relay. Sounder is on during alarm. Output is 12 VDC @ 250 ma. Output to drive the LED's located in the System Status Displays Lock Control Relay's double pole double throw rated @ 8 Amps
Field Adjustments	Unlock Time Delay - adj. 0 - 20 sec. Time allocated to open the door after a valid access credential is presented. Interlock Delay - adj. 0 - 20 sec. Sets the amount of time a person is allowed to be inside the Mantrap. PIR Activation Delay - adj. 0 - 20 sec. Delay allocated to allow the presence sensor to settle before monitoring the Presence Sensor input. Presence Sensor is enable once the doors are closed and room is supposed to be empty. Door Prop Delay - adj. 0 - 20 sec. Sets the length of time that the door can be held before activating the Door Prop Alarm.
Mode Selection	Switch 1 – Too Long Inside Mantrap Delay; factory preset off allows the delay to be adjustable from 0-20 sec. If switched on sets a fixed time of 5 minutes to allow for deliveries. Switch 2 – Enable or Disable Tailgate Monitoring; factory preset off unless unit has tailgate option. If the switch is set to off, unit requires a Presence Sensor inside of the Mantrap. Switch 3 – Double or Single Verification Operation Enable or Disable; factory preset off for Double Verification (requires two valid accesses granted to pass through the mantrap). Single Verification switch 3 on requires only one valid access granted to pass through the Mantrap. Switch 4 – Tailgate Monitoring Entry and Exit or Entry Only Enable Disable; factory set with the switch off for entry and exit monitoring. Switch 4 on monitors entry tailgate only and requires a presence sensor for exit. These settings only work if switch two is set on for tailgate monitoring. Switch 5 – Double Verification in and single verification out switch 3 and switch 5 both have to be on for this mode. Switch 6 – Card Stacking Enabled; card stacking allows multiple persons to present valid reads, and pass through the Mantrap at the same time. switch 6 and switch 2 (tailgate enable switch) both have to be on. Card stacking only works in conjunction with Tailgate Monitoring. Switch 7 – Alarm Auto Reset Enable Disable; factory preset off disables the Alarm Auto Reset. With switch 7 on the unit will reset after an alarm condition if all doors are closed and secured and the Mantrap is empty.

## ADDITIONAL OPTIONS

- **24" Tailgate** – Used to determine the direction and count of persons passing through the doorway and provides an additional alarm if multiple people try to enter on one valid access granted.
- **36" Tailgate** – Same as above but provides additional sensing technology to allow pull through briefcases and luggage through the system.
- **36" or 72" Overhead Array** – Used to detect side by side passages through the doorway. Used in conjunction with the 24" or 36" tailgates.
- **System Status Displays** – Additional displays that can be purchased with any MCIO-IDC system to inform the user of the status of the unit.



CR-1 DOOR 1 EXTERIOR CARD READER  
 DC-1A DOOR 1 N/C DOOR CONTACT TO DGP  
 DC-1B DOOR 1 N/C DOOR CONTACT TO INTERLOCK CONTROLLER  
 LOCK-1 DOOR 1 ELECTROMECHANICAL LOCKING HARDWARE (FAIL SAFE OR SECURE)  
 DP-1 DOOR 1 MANTRAP OPERATIONAL STATUS DISPLAYS

CR-2 DOOR 2 EXTERIOR CARD READER  
 DC-2A DOOR 2 N/C DOOR CONTACT TO DGP  
 DC-2B DOOR 2 N/C DOOR CONTACT TO INTERLOCK CONTROLLER  
 LOCK-2 DOOR 2 ELECTROMECHANICAL LOCKING HARDWARE (FAIL SAFE OR SECURE)  
 DP-2 DOOR 2 MANTRAP OPERATIONAL STATUS DISPLAYS

DP-3 INSIDE TRAP OPERATIONAL STATUS DISPLAYS

INPUTS: 2-NORMALLY CLOSED DOOR STATUS  
 2-NORMALLY OPEN REQUEST TO UNLOCK  
 1-NORMALLY OPEN BYPASS

OUTPUTS: 2-DOUBLE POLE DOUBLE THROW FORM C LOCK RELAYS  
 3-OPERATIONAL STATUS DISPLAYS  
 1- DOOR ALARM RELAY  
 1-INTERLOCK VIOLATION ALARM RELAY  
 1- TAILGATE ALARM RELAY (OPTIONAL)

POWER: 12 VDC @ 1 AMP

TYPICAL 2 DOOR MANTRAP SINGLE VERIFICATION  
 WITH 3 DISPLAYS (BLOCK DIAGRAM)