

ICED2 Installation and Operation Manual

Intelligent Control Egress Device (Contactless Door Exit Button with built-in Single Door Controller)

Package

ICED2-i:

- ICED-i X 1 as
- Stainless Steel screw M4 X 25mm X 2
- Install and Operation Manual X 1
- Remote control X 1*
- ICED-S X 1
- Diode X1

ICED2-S (have break glass functions):

- ICED-S X 1 as shown in Figure 4
- Glass X 2 as shown in Figure 5
- Testing Key X1 as shown in Figure 6
- Stainless Steel screw M4 X 25mm X 2 as shown in Figure 2
- Install and Operation Manual X 1
- Remote control X 1*
- Diode X1

*: Remote control is optional.

Installation:

- Wiring all wires on the correct places and set the jumpers on the suitable places.
- Put the whole module (Testing Key Hole adown) into the installation box and fixed by screw as Fig.1.
- There are 2 M-type buckles at the bottom of the cover Buckle them into the slot at the bottom of the module and push the upper part of the cover up a Fig.2

Operating Specification

- Operating Voltage : DC 10-16V;
- Operating Current: Less than 150mA;
- Alarm Output: dry contact,30Vdc with 1A (max)
- Electric Lock bypass relay: 30Vdc with 2A (max)
- Capacity: 8000 user cards, 255 access rights and with 100,000 offline events
- Triggered Range: > 35mm;
- Operating Temperature: -10°C-60°C
- The software supports up to 256 doors connection,

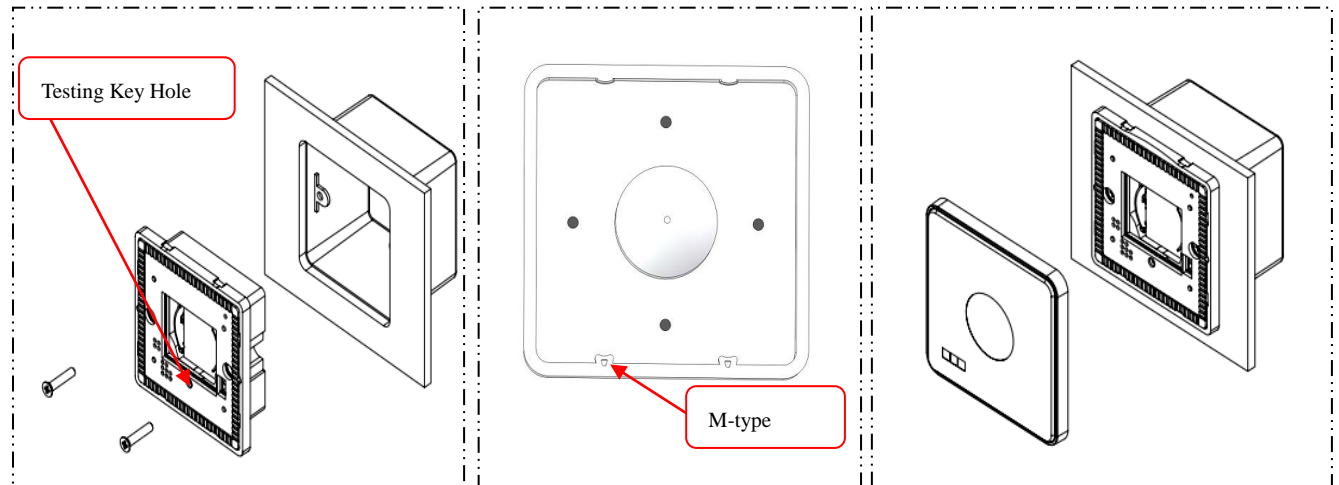
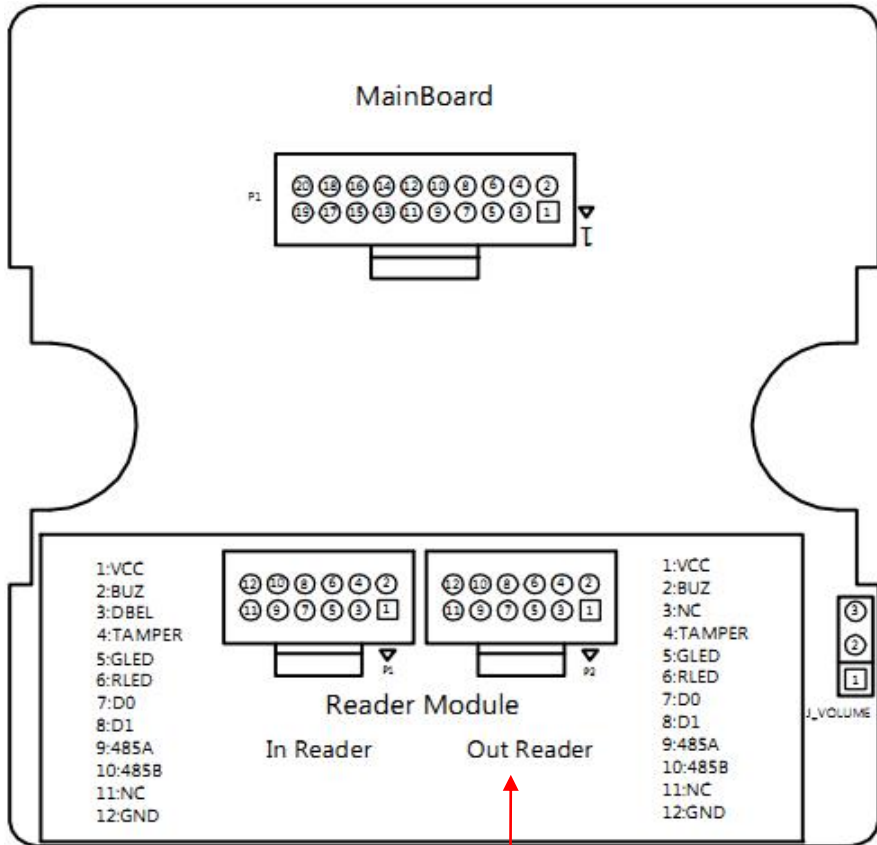


Figure 1

Figure 2

Terminal and Jumper



Out Reader is optional, Default no Out Reader Port.

Jumper	Definition	More Details
J_VOLUME	1 & 2 = L volume	This jumper can change speaker's volume
	2 & 3 = H volume(default)	

Main Board Terminal	Definition	Terminal Reader	Definition
1-Red VCC	ICED Power (+12Vdc)	1-Red	Reader Power(+12Vdc)
2-Yelow LOCK - NC	Lock Dry Contact control – Normal Close	2-Brown	Reader Buzzer
3-Brown FIRE	Fire Alarm Input; NO Default(Active Low)	3- Purple	Reader Doorbell
4-Green LOCK - COM	Lock Dry Contact control – Common	4-Orange	Reader Tamper
5-White MAINSFALURE	Main power Failure Input	5-Blue	Reader GLED
6-Blue LOCK - NO	Lock Dry Contact control – Normal Open	6-Yellow	Reader RLED
7-Purple MANUAL_SW	Manual Open Input	7-Green	Reader Wiegand D0
8-Orange AOUT_ NC	Alarm Output Relay – Normal Close	8-White	Reader Wiegand D1
9-White & Purple D/C	Door Contact Input; NC by default (Active high)	9-Gray	Reader RS485A (N/A)
10-Pink AOUT_ COM	Alarm Output Relay – Common	10-Yellow/Green	Reader RS485B (N/A)
11-Yellow-Black	Interlock Input	11-N/A	N/A
12-Red & Yellow AOUT_ NO	Alarm Output Relay - Normal Open	12-Black	GND
13-Orange-White	Interlock Output		
14,15,16-Black GND	ICED GND		
17-Yellow & Green	Communication Interface-RS485B (T/R-)		
COM_485B (T/R-)			
18-Light purple COM_485Y	Communication Interface- RS485Y		
19-Gray COM_485A (T/R+)	Communication Interface-RS485A (T/R+)		
20-light green OM_485Z	Communication Interface- RS485Z		

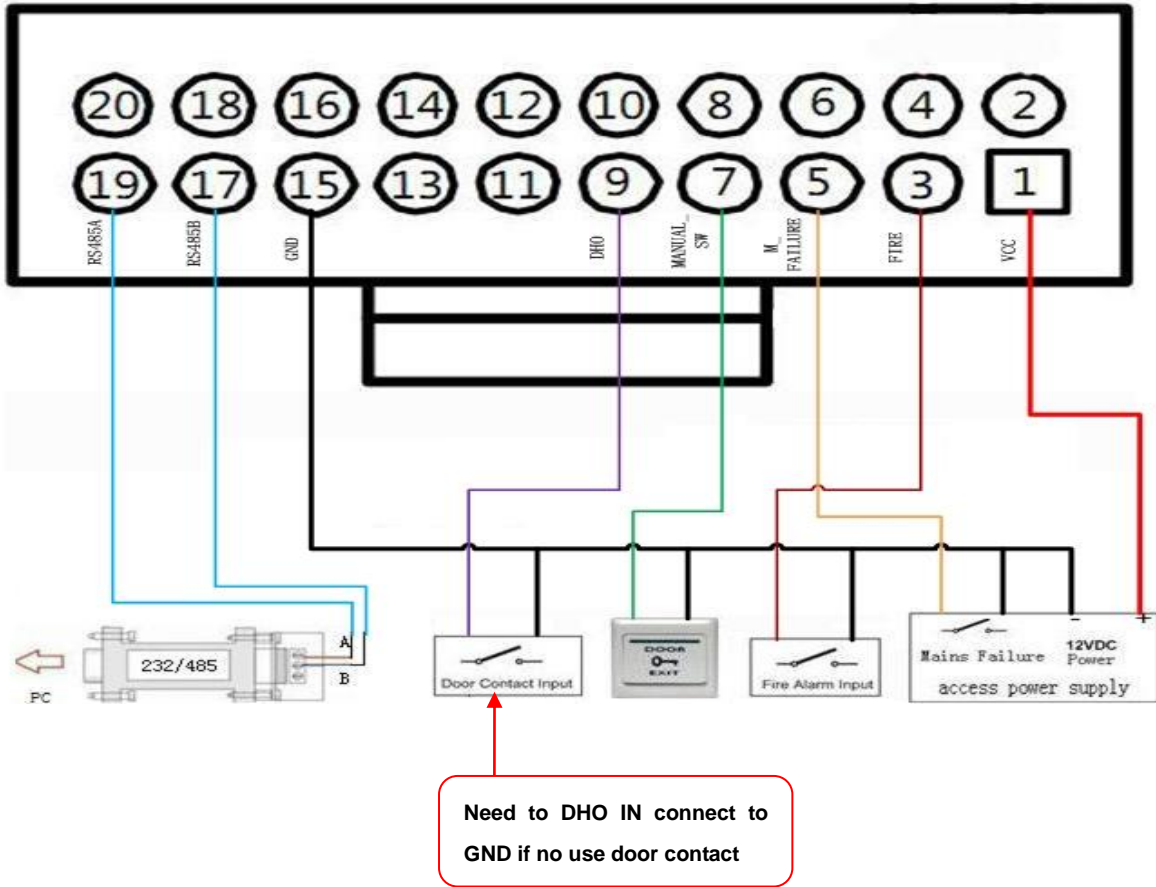
Main board Dip Switch Definition

Dip Switch		Standalone	Reader Color Response (Only for 3 rd party Wiegand output reader)	RS485 Networks				
1	2			RS485 Addressable Setting (From 0 to 63)	1	ON	1	1No.1-6 are used for RS485's setting address : ON = Binary 1; OFF = Binary 0; No.1 is the low bit, No.6 is the high bit; For example: If we set #3 and #6 to "ON", the RS485's address will be: $0+0+4+0+0+32 = 36$, RS485 The decimal address is 36 (decimal numeral)
ON	OFF	Configure a "Add User Card" function card	Green LED flash slow and long beep if success			OFF	0	
OFF	ON	Configure a "Delete User Card" function card	Red LED flash slow and long beep if success		2	ON	2	
ON	ON	Configure a "Clear Memory Card" function card	Alternate Green & Red LED fast flash		OFF	0		
OFF	OFF	Default (Connect to our own reader)			3	ON	4	
3	ON	Connected with a keypad reader (With keypad reader, it requires customer to enter PIN when add the user card)			OFF	0		
	OFF	Connected with a Non-key pad reader (Default)			4	ON	8	
4	ON	Request-to-exit Sensor & DHO triggered with buzzing (Default)			OFF	0		
	OFF	Request-to-exit Sensor & DHO trigger without buzzing			5	ON	16	
5	ON	Reserved			OFF	0		
	OFF	Reserved		6	ON	32		
6	ON	Master PIN(Keypad Programming Mode) reset to default (1234)		OFF	0			
	OFF	N/A						
7	ON	Reset the ICED back to factory default when power up the device. After, the dip switch need to set back to OFF and power up again				Identical with Stand-alone Version		
	OFF	Default				Identical with Stand-alone Version		
8	ON	N/A				The last device on RS485 communication line (120 Ohm resistance is selected when it's on)		
	OFF	N/A				NOT the last device		

Module Dip Switch Definition

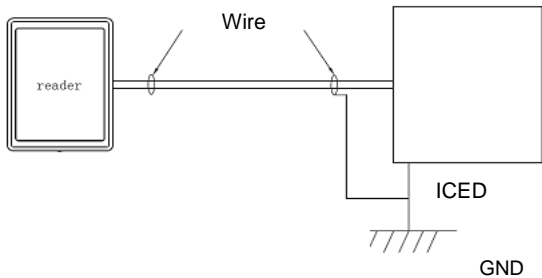
Dip Switch		Definition
1	ON	IN Reader only(Default)
	OFF	Both IN and OUT Reader
2	ON	When Dip Switch 1 is OFF, door will not open when touch off(Default)
	OFF	When Dip Switch 1 is OFF, door will open when touch off
3	ON	Single Mode(Default)
	OFF	Network Mode
4	ON	ICED2-1 (Default)
	OFF	ICED2-S
5	ON	Normal firmware
	OFF	Specific firmware
6	7	Keypad Input Access Mode
OFF	OFF	Staff No. + PIN
ON	OFF	Custom No. + Staff No. + PIN (Default) (Custom No. is fixed as 3 digits)
OFF	ON	PIN only
ON	ON	Disable password only function. (Do not take effect when in Card + Password entry mode)
8	ON	RS485 Version
	OFF	N/A

ICED System Diagram:



*: When set as Password only, Door unlocks will not limited by access rights.

Connecting Diagram between Reader and ICED:

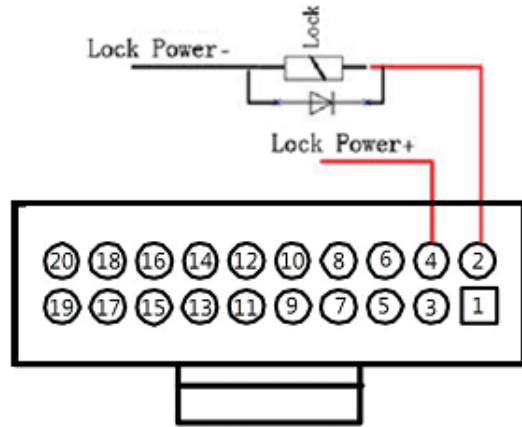


- 22 or 24 AWG Shielded wire
- Grounded at one end as the diagram

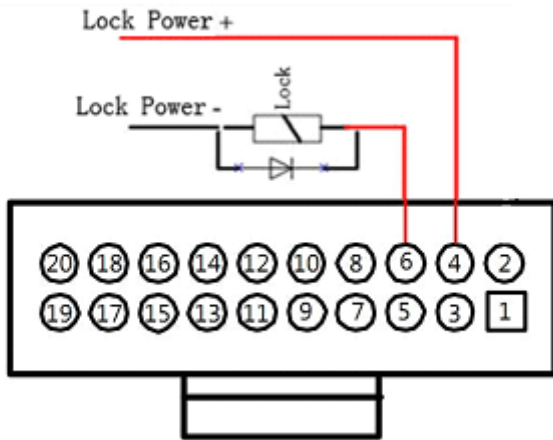
Electric lock wiring diagram:

(Recommend to separate the power supply between the electric lock and ICED)

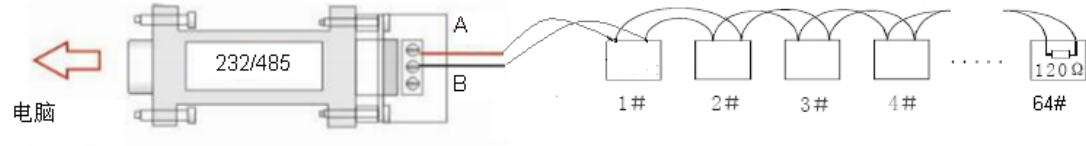
Fail Safe:(Door open when power failure)



Fail Secure: (Door lock when power failure.)



RS485 Network Connection:

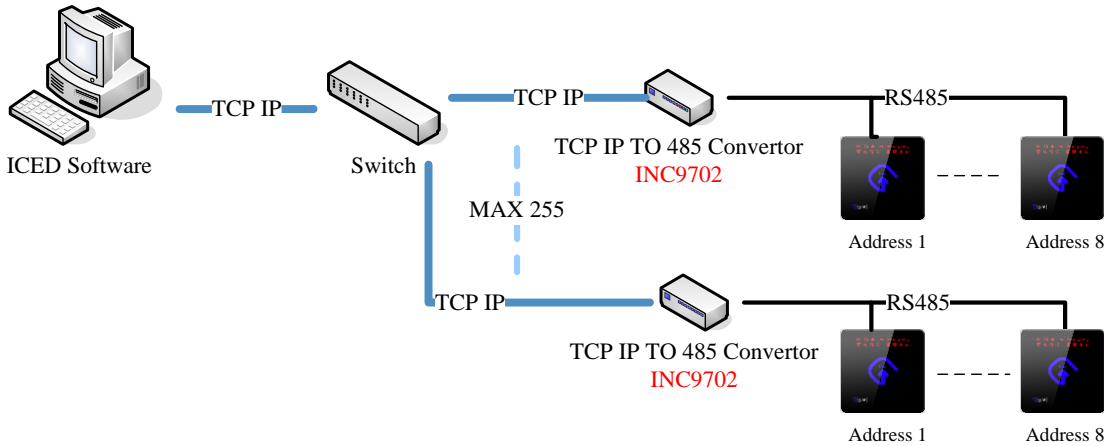


- Shift the Module Dip Switch #3 OFF and #8 ON to work on 485 mode.
- Recommend to use 232 to 485 converter with power supply.
- Strongly recommend to use Shielded Twisted paired cable for RS485 connection. The ICED devices are to be connected in daisy chain.
- Add terminating 120 Ohm resistance to last ICED device in the daisy chain (Shift the Main Board Dip Switch #8 ON)

*: Connect a reversed diode to prevent electrical interference caused by the lock operations.

TCP/IP Network

- Shift the Module Dip Switch #3 OFF and #8 ON to work on TCP IP network mode.
- TCP/IP Network mode requires Smarfid's TCP/IP to RS485 converter to connect the ICEDs . Each Converter can connect up to 8 ICEDs from address 1 to address 8 (by DIP Switch setting) as illustrated as below:



TCP/IP RS485 Operation Manual

- Operating Voltage: DC 10-16V;
- Operating Current: < 60mA@12V
- Operating Temperature: -10°C-60°C

TCP/IP RS485 Converter Connection Port Definitions

VCC	GND	IPS	A	B	Z	Y	GND
Power Supply (Positive)	IPS GND	IP Setting	RS485-A	RS485-B	N/A	N/A	Power Supply (Ground)

IP address setting Manual:

- The converter's IP address can be set by 8-toggles dip switch when IPS and IPS GND are connected:

1		2		3		4		5		6		7		8	
ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF
1	0	2	0	4	0	8	0	16	0	32	0	64	0	128	0

e.g., Shift dip switches #1,#3 and #5 ON and the remaining # OFF, the converter's IP address is: 1+0+4+0+16=21 (Decimals)

The converter's default IP is 192.168.1.2 that can be set by the software in computer when IPS disconnects from IPS GND. The software can connect to the converter when using any IP address start with 192.168.1.XXX.

TCP/IP RS485 Converter connects to ICED

- Connect the Ports A,B of Converter to corresponding ICED Ports A,B. Shielded twisted pair cable (2 pairs) is encouraged to be used for this connection; AB connections to be done in a twisted pair. The maximum distance for this connection is 1000m.

Standalone Keypad Programming Function

Keypad Operation	Enter Keypad	Remark
Lock door with Keypad	#11 # 888888 #	
Use Super PIN to unlock door	#22 # 4-8digits PIN #	The Super PIN must be set before use.
Programming Functions	Enter Keypad	Remark
Enter Keypad Programming Mode	#99 # Master PIN #	Default PIN :1234
Modify Master PIN	50 # 1 #0000# New Master PIN # Re-type New Master PIN #	Password fixed at 4 digits
Add User Card by keypad (Only available for 26bits Format)	51 # Staff Number #Facility Code # Card Number # PIN(4-8 digits) # Re-type PIN #	The first digit of the PIN can be "0", staff No. 1~5 digits, Max. 65535, can't set as 0
Delete User Card by keypad (Only available for 26bits Format)	53 # Facility Code # Card Number#	
Set Super PIN	54 # Super PIN 4-8digits # Re-type in Super PIN 4-8 digits#	New set PIN will overwrite the old PIN
Set Door Unlock Duration	55 # Time (3 digits in second) # For example: 10seconds, type in 010;	From 001 to 120 seconds
Set Reader Mode	56 # (0-Card; 1-Card+PIN) #	Stand-alone version only
Set DHO Detection Time	57 # Time (3 digits in second) # For example: 20seconds, type in 020;	From 015 to 255 seconds after Door Unlock Duration
Delete Card(All Format)	58 #Staff No.#	Staff No. 1~5 digits, Max. 65535, can't set as 0
Exit Keyboard Model	66 #	

Beeper/Buzzer General Response

- **Program Success** – Green LED will turn ON together with a long beep (500 ms)
- **Program Failed** – Red LED will flash 3 times as well as the buzzer (50ms each)

Program Function Card in Standalone mode with our own Reader

If the Function Card s is not programmed, every time ICED power up, the reader will open different windows as the sequence below: (1 & 2 Dip switch setting shall set at OFF position)

- 1) Reader Configuration Card window: Reader will flash GREEN for 5 seconds maximum. If a valid Reader Configuration Card read is success, you will hear a long beep.
- 2) Clear Memory Function Card window: Reader will flash BLUE for 5 second maximum. User can use any card, if a card read is success, you will hear a long beep.
- 3) Delete Card Function Card window: Reader will flash RED for 5 second maximum. User can use any card, if a card read is success, you will hear a long beep.
- 4) Add Function Card window- Reader will flash GREEN (again) for 5 second maximum. User can use any card, if a card read is success, you will hear a long beep.

How to use function cards

- 1) Connect IN reader only: Wave hand on the ICED and present the card on the reader within 5 sec.. Reader will enter into function mode which the function card you presented. Present the function card again on the reader to exit.
- 2) If IN and OUT readers are used in an ICED, flash the function card once on the OUT reader and then flash once on the IN reader. Depending on the function card flashed, reader will enter into the below corresponding function mode. Flash the same function card again on the IN reader to exit the function mode.

Connect IN and OUT readers: Present the function card on the OUT reader and present on the IN reader. Reader will enter into function mode which the function card you presented. Present the function card again on the reader to exit.

LED & Buzzer Response

Use of Function Cards	LED Response	Access Status	LED Response
Add card by Add Card Function Card	Green LED and Beeper will activate 2 times every 3 sec	Access Granted	Green LED will be ON for defined Unlock Duration
Delete card by Delete Card Function Card	Red LED and Beeper will activate 2 times every 3 sec	Access Denied	Red LED will be flash 3 times and Beep 3 times
Clear memory by Clear Memory Function Card	Green and Red LED will be flash twice every 3 seconds. After present Clear Memory Function Card again, Red LED will light up. It means that the data is formatting, a long buzzing will come up when finished formatting.	Enter PIN	Green LED will be flash slowly
Upload User Card Data	Green and Red LED will activate at the same time. Swipe card is invalid at this moment.	Door Unlock	Green LED will be ON as long as the door is unlocked

Alarm Status

Attention:

Apart form the alarms caused by ICED fount plate removed and door force open, rest of the alarms as well as the alarm relay are able to be configured. You can refer to the below table for their status and permitted responses.

Visible and Auditable alert—the red LED on ICED and reader will flash with sound buzzing from the speaker.

Alarm input release-Alarm input back to normal state.

Function	Status	Remove Status (If the alarm relay is set as "Follow", the alarm relay will stop active until the alarm input released)
ICED Front Plate Removed	Alarm Relay Active	Install the Front Plate
Glass Broke(ICED-S)	Yellow LED, Alarm Relay and Beeper will activate, door unlocked	<ol style="list-style-type: none"> 1. Replace the glass inside (Alarm reset) 2. Release the Audible and Visual Alarm via software 3. Activate the RTE three times in 10 seconds to reset the Visible and Auditable alert)
Temper Alarm	Visible and Auditable alert Alarm relay active.	<ol style="list-style-type: none"> 1. Make sure the reader is installed well onto the metal back plate (Alarm reset) 2. Release the Audible and Visual Alarm via software 3. (Activate the RTE three times in 10 seconds to reset the Visible and Auditable alert)
Fire Alarm Input	<p>Fire Alarm Indicator light up (Red)</p> <p>Visible and Auditable alert Alarm relay active; Lock release</p> <p>The status remains even after the alarm input release. Reset the alarm by using either release actions on the right column.</p>	<ol style="list-style-type: none"> 1. Release the Audible and Visual Alarm via software 2. (Activate the RTE three times in 10 seconds to reset the Visible and Auditable alert)
Mains Failure Input	<p>The Mains Power Failure indicator will flash at the frequency of 5Hz.</p> <p>If this alarm lasted more than 10 minutes or 15 minutes (Adjustable; the default time is 10 minutes), alarm relay, audible and Visual Alarms will be activated.</p>	<ol style="list-style-type: none"> 1. Input release 2. Release the Audible and Visual Alarm via software 3. (Activate the RTE three times in 10 seconds to reset the Visible and Auditable alert)
Door Held Open	<p>DHO Indicator light up (Blue)</p> <p>Visible and Auditable alert Alarm relay active; Lock release</p> <p>If buzzer is enable, the buzzer will beep according to the set frequency (The default frequency is every 5 seconds). DHO Indicator will flash at the same time.</p>	<ol style="list-style-type: none"> 2. Input release 2. Release the Audible and Visual Alarm via software 3. (Activate the RTE three times in 10 seconds to reset the Visible and Auditable alert, DHO indicator will be off when door contact is closed)
Door Force Open	<p>DHO Indicator light up (Blue)</p> <p>Visible and Auditable alert Alarm relay active; Lock release</p> <p>The alarming buzzes in a setting frequency (The defaulted frequency is every 5 seconds)</p>	<ol style="list-style-type: none"> 1. Release the Audible and Visual Alarm via software 2. (Activate the RTE three times in 10 seconds to reset the Visible and Auditable alert, DHO indicator release when door contact is closed)