CEM SYSTEMS
From Tyco Security Products

S700

Installation Manual

S700-IM-0088-1.72

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Support

If you require technical assistance using CEM products, please contact the CEM Support team using the following telephone number:

Telephone:+44(0)2890 456656

Email: cem.support@tycoint.com

• Please provide our support engineers with as much information as possible. This may include:

• Site name

• Product name and model

• CEM software version

• Description of the problem

Publication Date

February 2017

Warning - For FCC Labelled S700Terminals

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and

(2) This device must accept an interference received, including interference that may cause undesired operation.

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. End users must follow the specific operating instructions for satisfying RF exposure compliance. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Installation of this device shall be performed by a qualified person in accordance to all local regulations.

This system must be installed within the protected premise in accordance with the National Electrical Code (NFPA70), and the local authorities having jurisdiction.

Equipment changes or modifications without the approval of the party responsible for compliance could void the user's authority to operate the equipment and could create a hazardous condition.

Chapter 1

Introduction

The S700 reader is an access terminal that provides secure door control and access monitoring at the controlled location.

Used as part of the AC2000 system, the S700 reader controls access to restricted areas while also giving you a range of information tools and applications at the door.

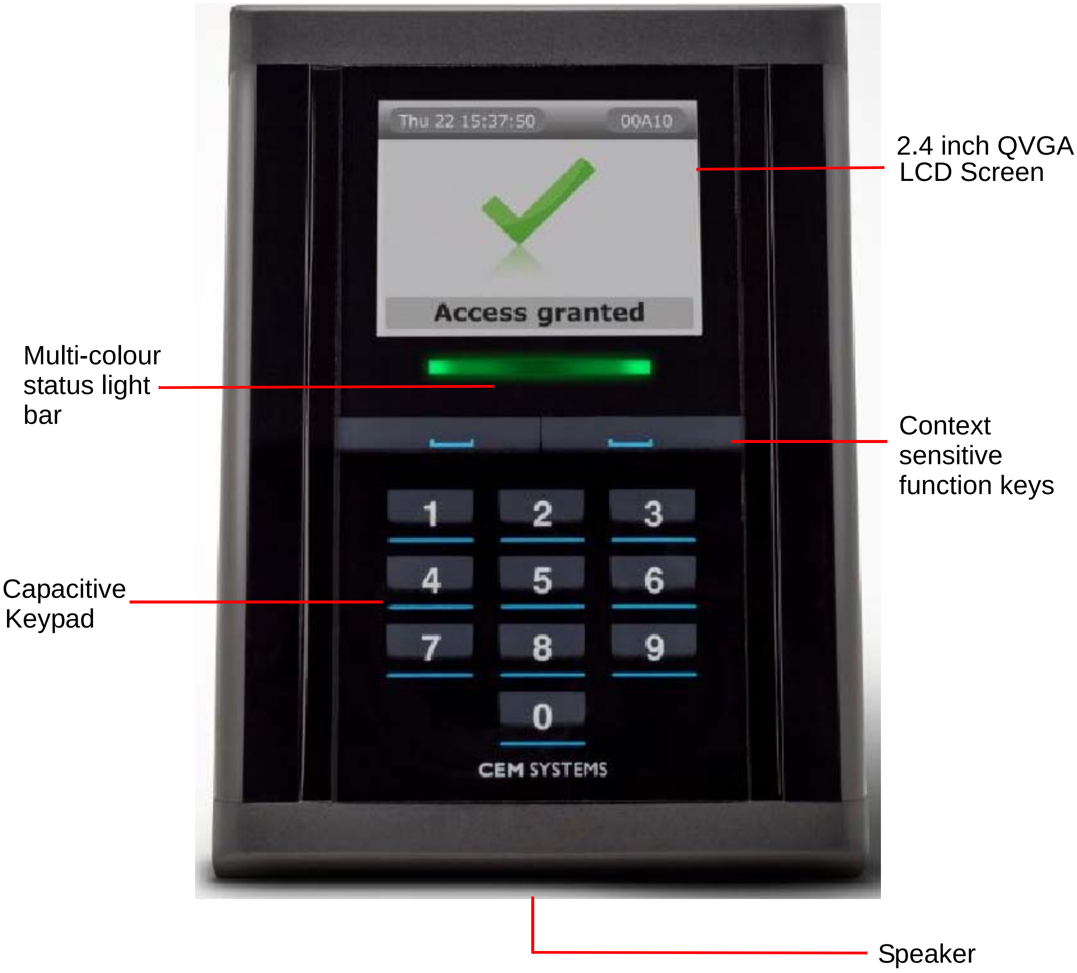


Figure 1 Photograph of the S700 terminal

1.1 Terminal user interface

Use the S700 interface to display information and enable user interaction to perform specific functions. The screen displays the date, time, and the reader system address.

Date and time: The date, time, and day are permanently displayed.

Reader address: The reader address displays a unique five-digit number for each terminal on the AC2000 system.

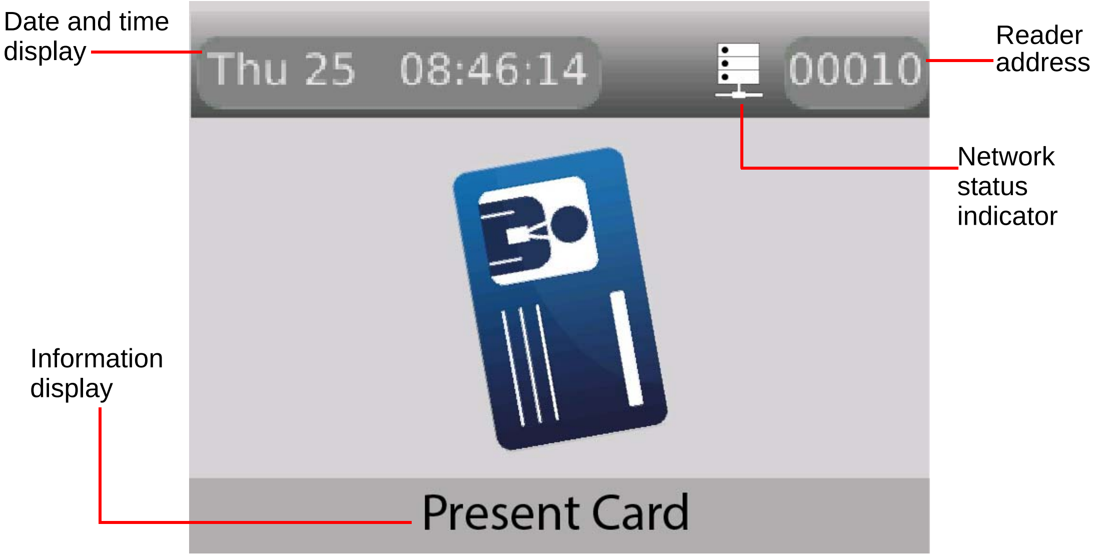


Figure 2 Terminal screen

1.2 Using the reader

The S700 is always in one of three modes:

- Door mode
- Free access
- Locked out mode

The home screen displays one of the following modes:

Door state

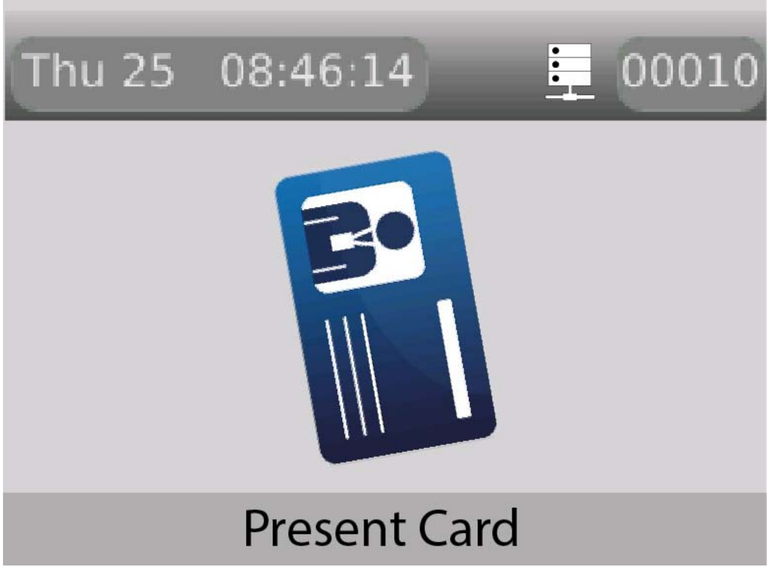


Figure 3 Door mode

Door mode enables access for all valid cardholders after a card is swiped.

Free access mode

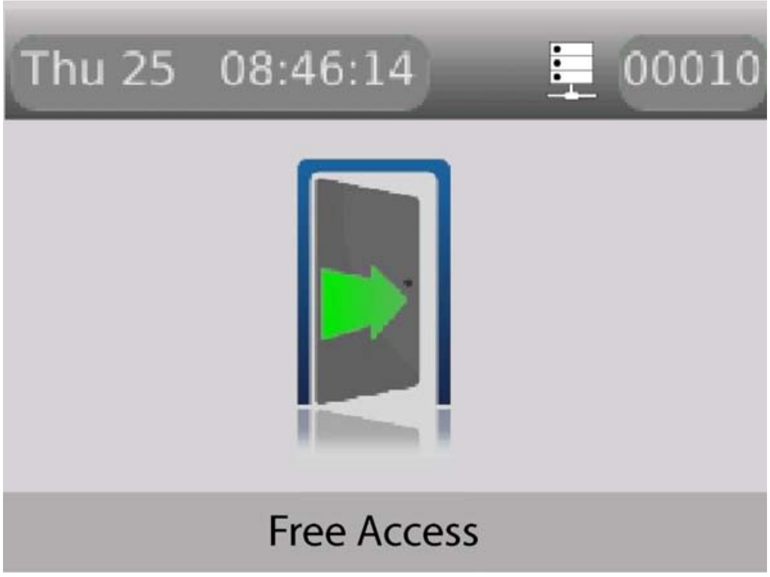


Figure 4 Free access mode

Free access mode means that no card swipe is necessary to gain entry or exit because the door is unlocked.

Locked out mode

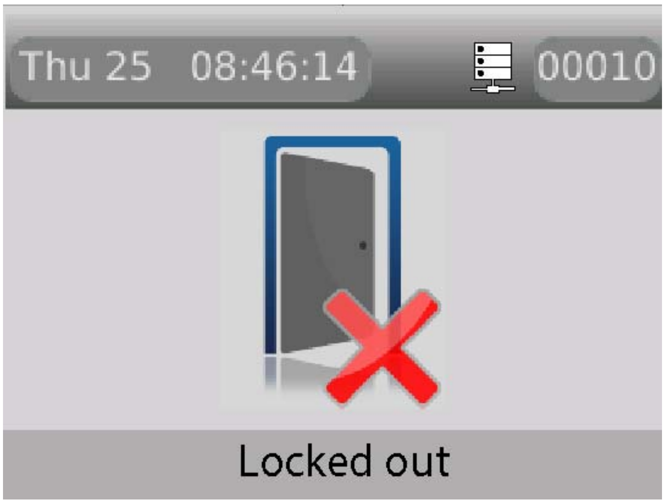


Figure 5 Locked out mode

Locked out mode means that the door is locked and no access is permitted.

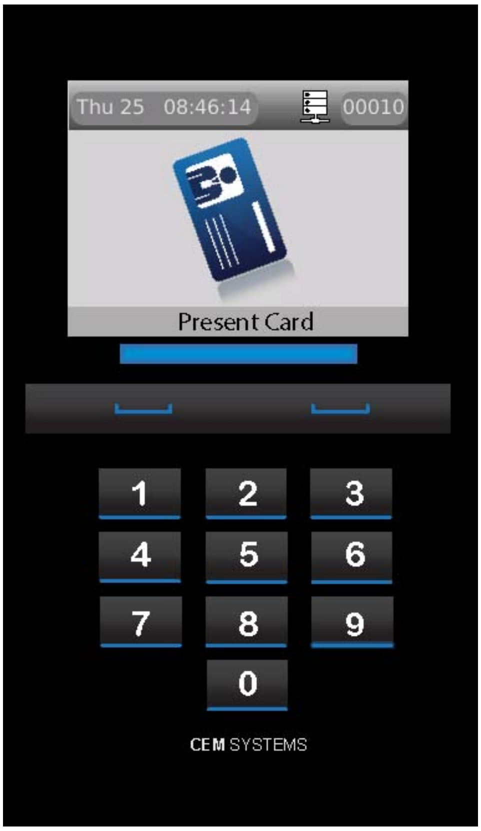
1.3 Presenting your card

To open a door, present your card to the access control card no more than 3 cm in front of the terminal. The multi-coloured LCD status of the terminal changes colour and the response screen displays.

Note: The read range depends on the card technology that is used and the mounting arrangement of the reader; 3 cm is the minimum read range that can be expected for all cards.

A typical card swipe takes you through the following steps:

1. **Home screen:** When the terminal is idle, the home screen is displayed.



2. **Swipe Card:** Swipe your card in close proximity to the terminal.

Thu 25 08:46:14
00010
Present Card
1
7
SYSTEMS

3. **Response screen:** The response screen appears and access is granted.

Thu 22 15:37:50
00A10
Access granted
1
2
3
4
5
6
7
8
7
0
CEM SYSTEMS

Response Screens

The response screens are described in *Table 1:* Response Screens for S700*:*

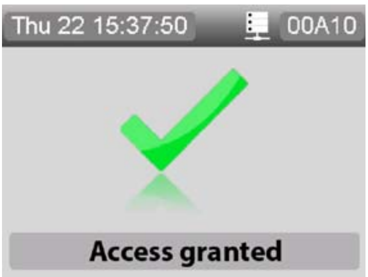
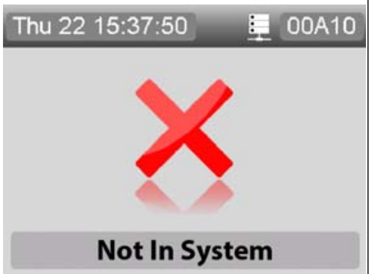
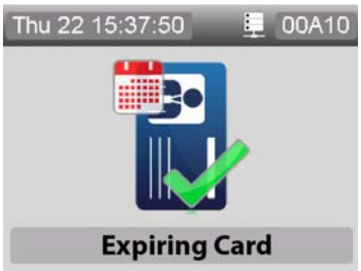
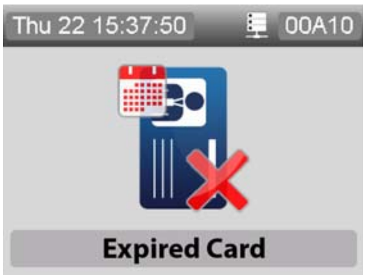
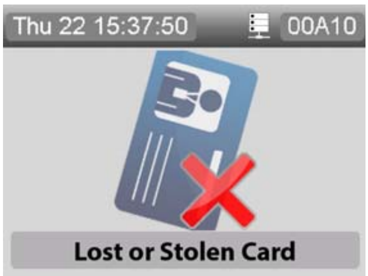
UI Screen	Message	Description	Multi-colour status light
 Thu 22 15:37:50 00A10 Access granted	Access granted	Access is granted	Green
 Thu 22 15:37:50 00A10 Not In System	Not in system	Access is not granted as card is not registered on the system	Red
 Thu 22 15:37:50 00A10 Expiring Card	Expiring Card	Access is granted and your card is set to expire within 14 days	Green
 Thu 22 15:37:50 00A10 Expired Card	Expired card	Access is not granted as your card has expired	Red
 Thu 22 15:37:50 00A10 Lost or Stolen Card	Lost or Stolen card	Access is not granted as your card has been reported as lost or stolen	Red

Table 1: Response Screens for S700

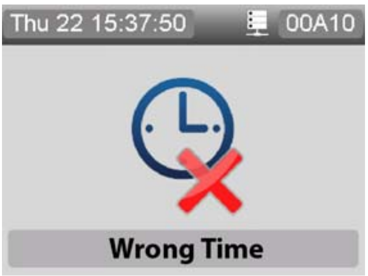
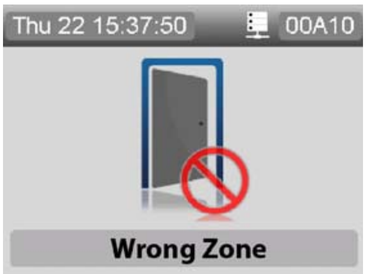
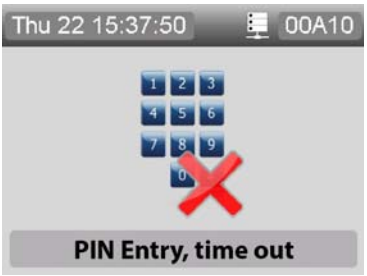
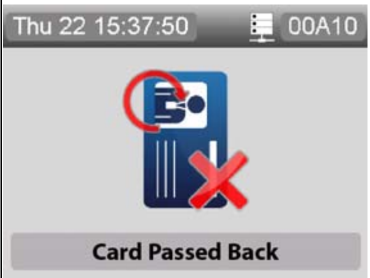
UI Screen	Message	Description	Multi-colour status light
 Thu 22 15:37:50 00A10 Wrong Time	Wrong time	Access is not granted as you are attempting to gain access outside the allocated time	Amber
 Thu 22 15:37:50 00A10 Wrong Zone	Wrong zone	Access is not granted as you do not have permission to enter this zone	Amber
 Thu 22 15:37:50 00A10 PIN Entry, time out	PIN Entry, time out	Access is not granted as you have taken too long to enter your PIN	Amber
 Thu 22 15:37:50 00A10 Card Passed Back	Card passed back	Access is not granted, you must comply with the anti-passback site access policy	Amber

Table 1: Response Screens for S700

1.4 Mode-specific response screens

Table 2: Mode-specific Response screens describes mode-specific response screens for the S700.

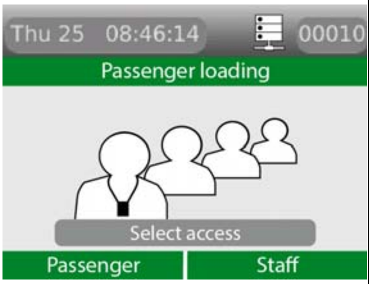
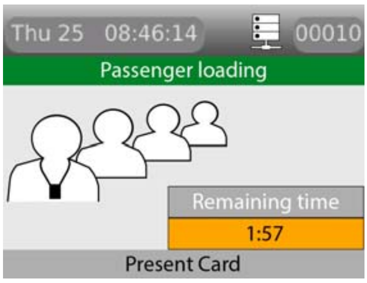
UI Screen	Message	Description
 Thu 25 08:46:14 00010 Passenger loading Select access Passenger Staff	Select access: Passenger or Staff	Press **Staff** or **Passenger** for extended or timed access. The countdown timer starts when the door is opened when Passenger mode is selected. Swipe your card to prompt the user to extend or end the mode.
 Thu 25 08:46:14 00010 Passenger loading Remaining time 1:57 Present Card	Present Card	In Passenger mode, the countdown timer has started. To set the time, select the device and use the Properties tab in the **Devices** application.

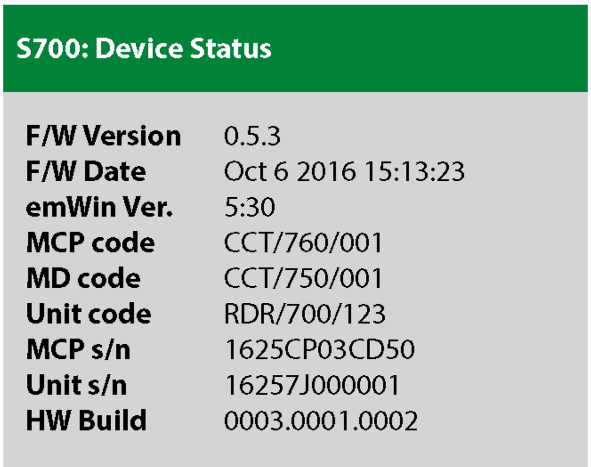
Table 2: Mode-specific Response screens

1.5 Checking the device status

When you have installed the S700 reader, you can use the device to ensure that you have the correct version number, or confirm the part and serial numbers in the event of a support call.

To check the product codes, part numbers, serial numbers, and build version of the S700 reader, complete the following step:

- Tap the left function key quickly at least three times. The **S700: Device Status** screen appears showing the device information, as shown in *Figure 6*.



S700: Device Status

F/W Version	0.5.3
F/W Date	Oct 6 2016 15:13:23
emWin Ver.	5:30
MCP code	CCT/760/001
MD code	CCT/750/001
Unit code	RDR/700/123
MCP s/n	1625CP03CD50
Unit s/n	16257J000001
HW Build	0003.0001.0002

Figure 6 Device status information

1.6 CEM S700 product codes

Contact CEM sales for further information.

Card Technology	Ethernet Host	Serial Host	Exit	FCC Approved Model
Prox, iCLASS / PicoPass “Multi Tech”	RDR/700/003	RDR/701/003	RDR/702/003	QABS700PXV1-00
MiFareDESFire / Prox Duel-tech Reader	RDR/700/004	RDR/701/004	RDR/702/004	QABS700PXV1-00
PicoPass	RDR/700/006	RDR/701/006	RDR/702/006	QABS700V1-00
DESFire	RDR/700/007	RDR/701/007	RDR/702/007	QABS700V1-00
iCLASS	RDR/700/008	RDR/701/008	RDR/702/008	QABS700V1-00

Table 3: List of CEM S700 product codes

Important: The correct card definitions must be loaded onto the CEM Central Database Computer (CDC). See *Loading card definitions* on page 97. If you are using DESFire EV1 cards, which are sourced outside of CEM Systems, see the ***User Defined Keys*** manual to configure card keys.

Using DESFire EV1

There are two different types of DESFire EV1 card. CEM Systems can provide a personalised DESFire EV1 card with pre-defined attributes or non-personalised DESFire EV1 cards you can use. If using non-personalised cards, refer to the **User Defined Keys** manual to configure card keys.

1.6.1 Terminal dimensions

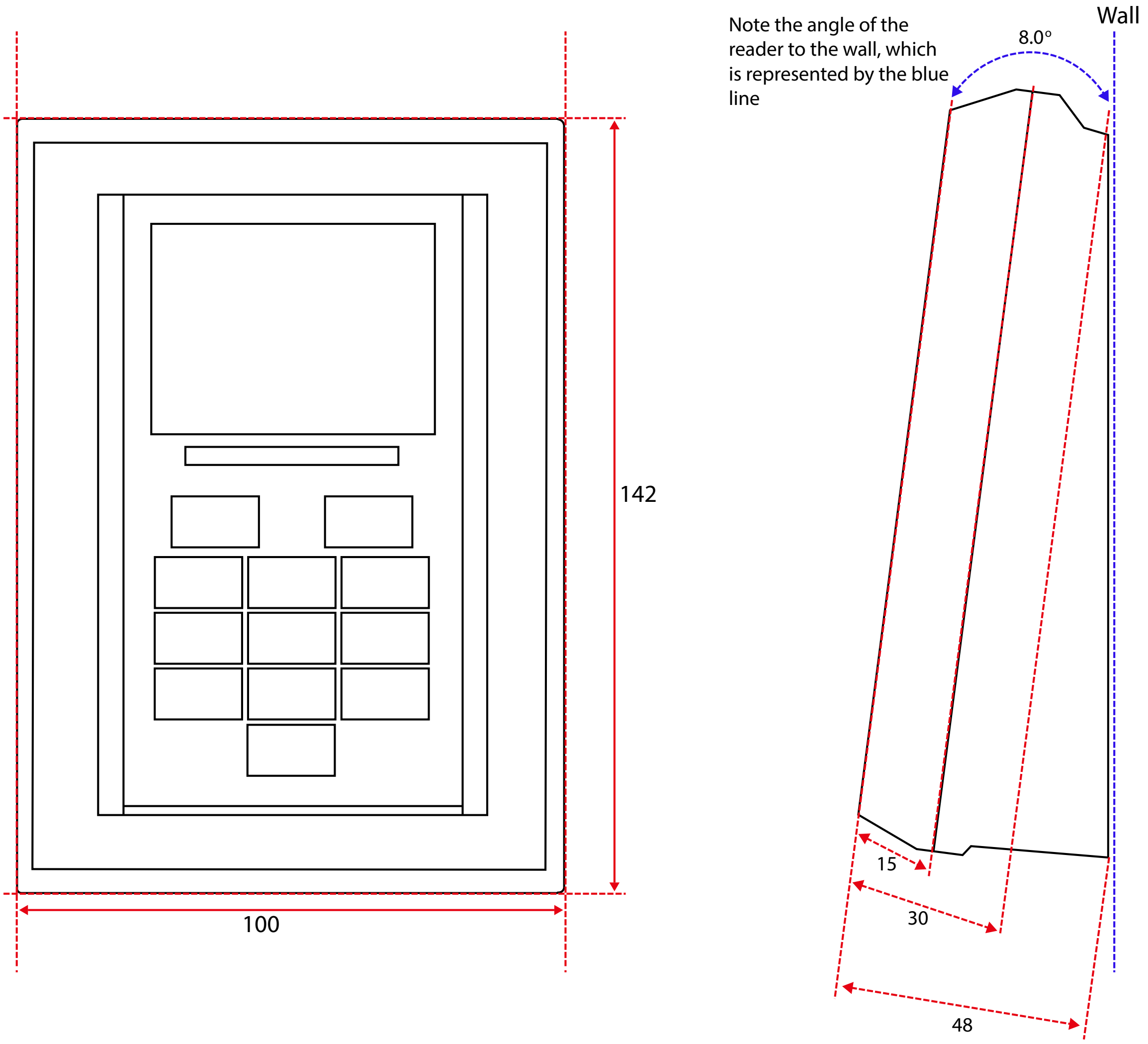

Note the angle of the reader to the wall, which is represented by the blue line
Wall
8.0°
142
100
15
30
48

Figure 7 Illustration of S700, including dimensions

Note: All dimensions are in mm.

1.6.2 Part ratings

The S700 has been tested and operates within the following ranges, which are shown in *Table 4:* Part ratings.

Part	Rating
Supply Voltage (Vdc)	9 to 28
Power (W)	Typical: 2.4 / Peak: 4.8
Inputs	Four analogue inputs - voltage supplied
Comms to exit reader	RS485 serial comms / Wiegand protocol
Comms to system host	10/100 Base-T TCP/IP CAT6 / RS485 serial comms
Dry contacts output	24 Vdc @ 2 A
Operating temperature (°C)	-20 to +70 (-4 °F to +158 °F)
IP rating	IP65

Table 4: Part ratings

1.6.3 Onboard memory

The system memory, 256 Mb RAM, 2 Gb NAND Flash, can hold the following:

- Up to 250,000 cardholder records - offline
- Up to 50,000 transactions - offline

1.6.4 Terminal key component parts

Figure 8 shows the key components of the S700 reader.

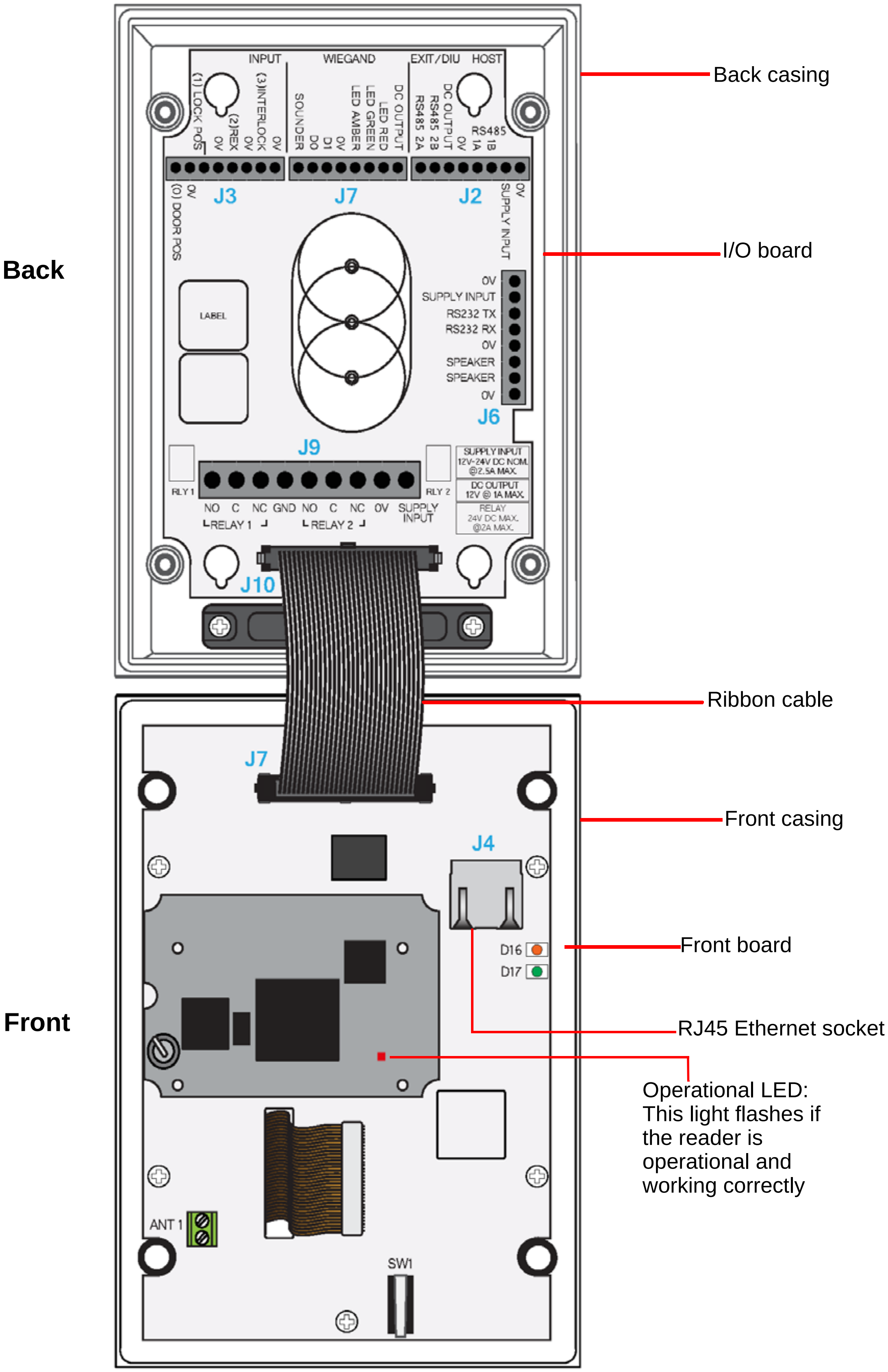


Figure 8 Illustration of the key component parts

1.7 Simplified AC2000 network topology

Figure 9 Network typology provides you with a basic illustration of a typical AC2000 network, including S700 configurations.

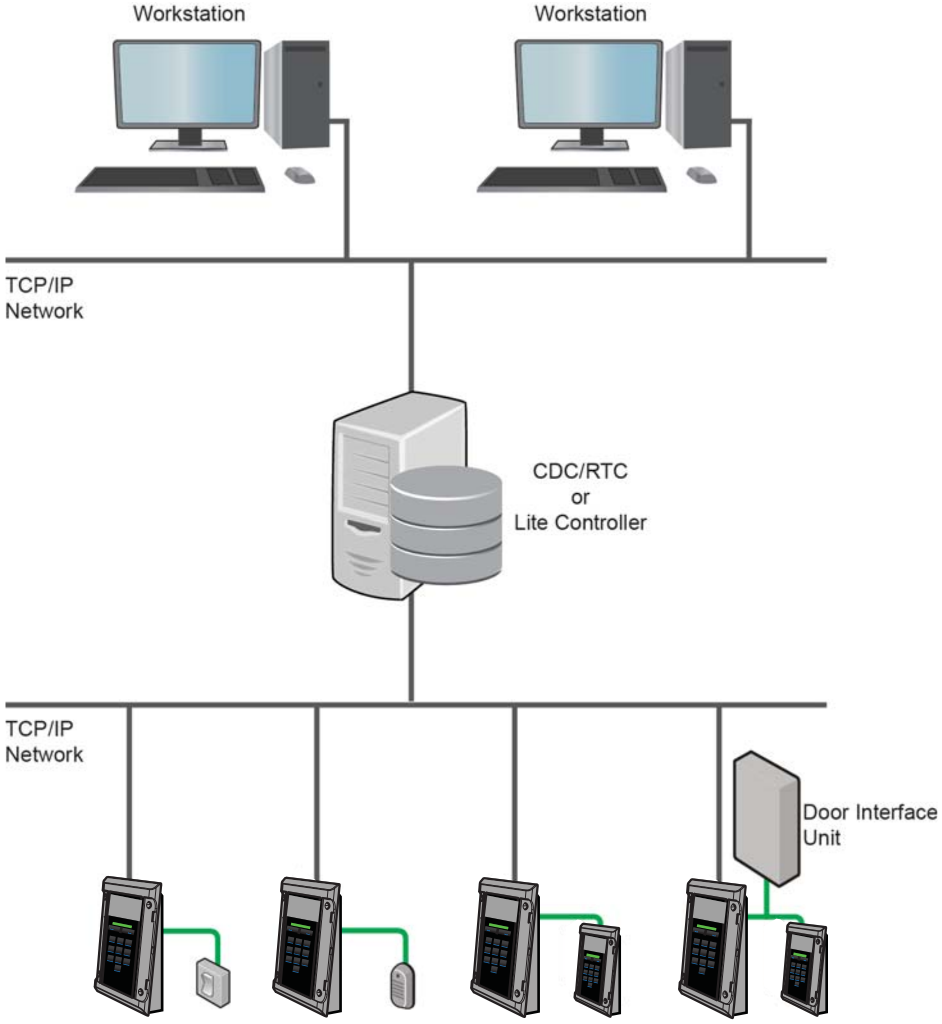
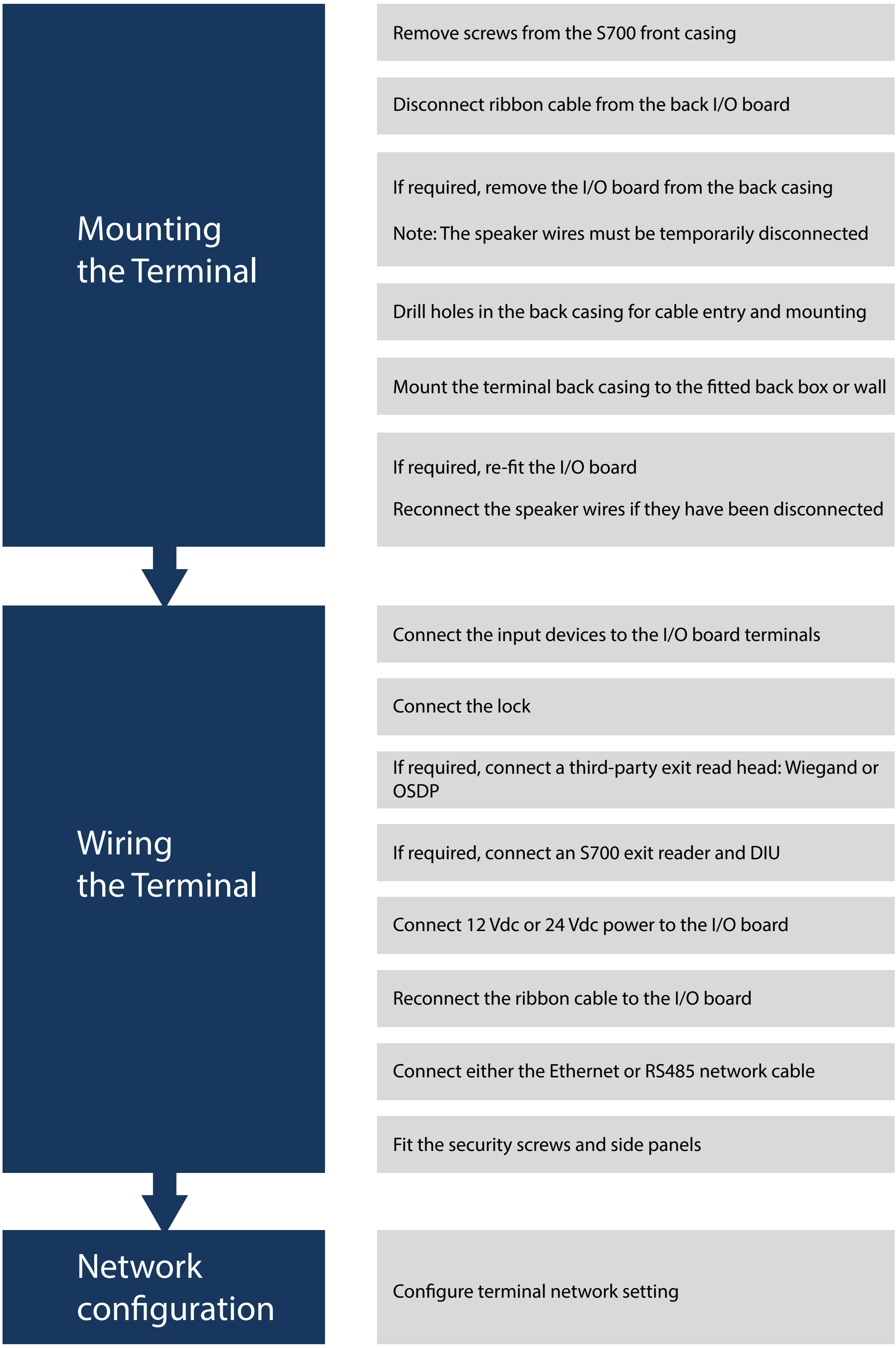


Figure 9 Network typology

1.8 Hardware installation process



Mounting the Terminal

Remove screws from the S700 front casing

Disconnect ribbon cable from the back I/O board

If required, remove the I/O board from the back casing

Note: The speaker wires must be temporarily disconnected

Drill holes in the back casing for cable entry and mounting

Mount the terminal back casing to the fitted back box or wall

If required, re-fit the I/O board

Reconnect the speaker wires if they have been disconnected

Wiring the Terminal

Connect the input devices to the I/O board terminals

Connect the lock

If required, connect a third-party exit read head: Wiegand or OSDP

If required, connect an S700 exit reader and DIU

Connect 12 Vdc or 24 Vdc power to the I/O board

Reconnect the ribbon cable to the I/O board

Connect either the Ethernet or RS485 network cable

Fit the security screws and side panels

Network configuration

Configure terminal network setting

Figure 10 Hardware installation flow chart

Chapter 2
Mounting the Terminal

You can mount the S700 terminal on the following standard electrical back boxes:

- UK single back box
- US single back box
- 75mm VESA mount

2.1 Preparing for mounting

Take care with the internal components when you are disassembling the terminal.

2.1.1 Recommended tools

The recommended tools for mounting the terminal are as follows:

- 2.5 mm flat-head screwdriver for input and output connections
- 3 mm flat-head screwdriver for DC power connections
- Wire cutters and strippers
- Security hex screwdriver - size H20
- Pozi-head screwdriver - size PZ1

Product	CEM Product Code
Security screw driver handle	HTO/000/001
Security screw driver bit	HTO/000/000

Table 5: Security screwdriver product codes

2.1.2 Opening the terminal

Important: Take care not to strain the ribbon cable connecting the two halves of the terminal.

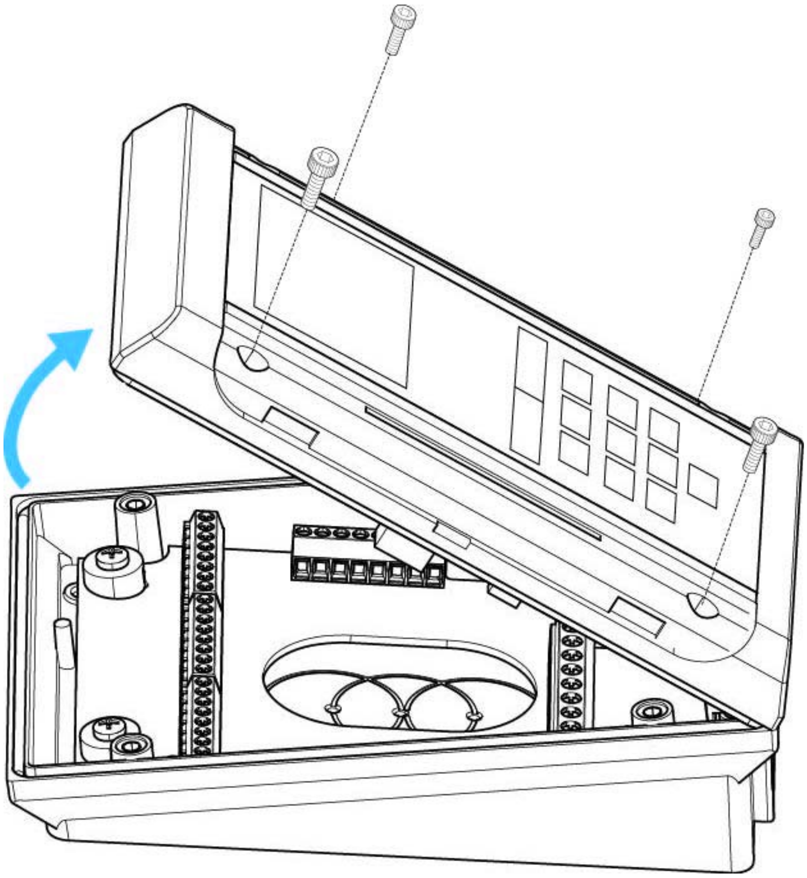


Figure 11 Opening the terminal

To open the terminal, complete the following steps:

1. Set the terminal on a stable, level surface to reduce the risk of the front of the terminal falling when it is disconnected.
2. Remove the four screws using a security hex screwdriver.
3. Carefully lift the top casing away from the back of the terminal, pivoting as shown in *Figure 11* Opening the terminal.
4. Disconnect the ribbon cable from the I/O board before you start wiring.

2.1.3 Mounting the terminal back casing

To access the mounting screw positions of the terminal, the I/O board must first be removed from the back box.

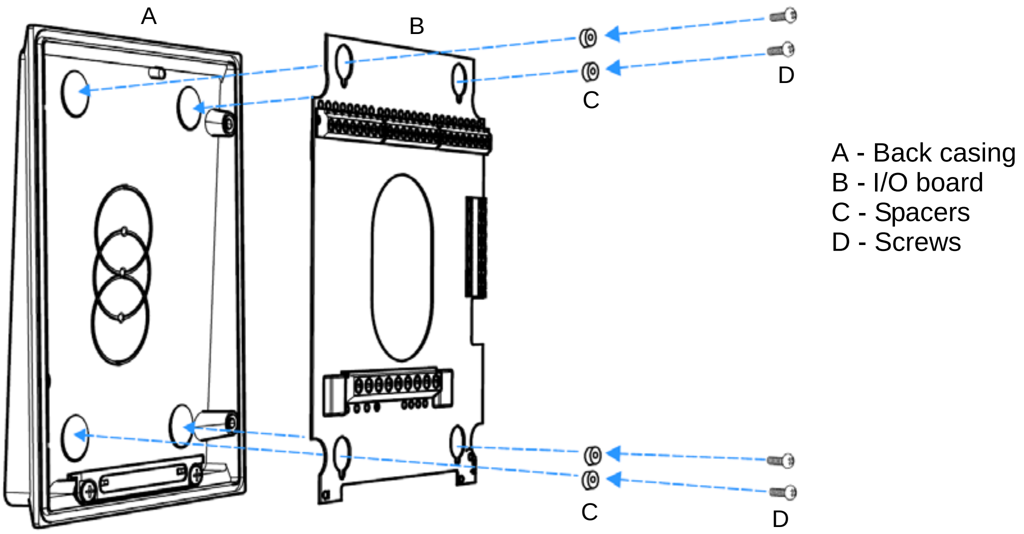


Figure 12 Exploded view illustration of the back casing and I/O board

To mount the terminal back casing, complete the following steps:

1. Remove the four screws and spacers using a Pozi-head screwdriver.
2. Disconnect the two yellow internal speaker wires from connector J6 on the I/O board using a 2.5 mm screwdriver.
3. Lift the I/O board away from the mountings.
4. Drill the back outer casing as required for cable access and back box mounting. For more information, see *Figure 12*.

Important: Ensure that the large case O ring and the 4 small O rings are in place.

5. Fit the back casing to the back box.

6. Re-attach the input/output Printed Circuit Board (PCB) to the back casing, ensuring you replace the spacers.
7. Connect the internal speaker to the I/O board. The yellow speaker wires can be wired to the J6 speaker terminal in any order.

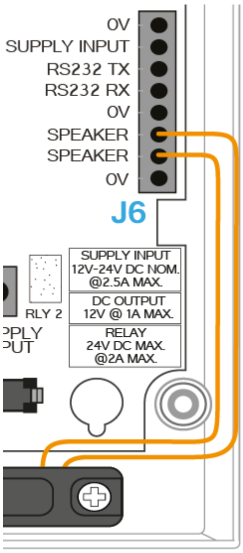


Figure 13 Speaker wiring

Drilling the back casing

Use the illustration in *Figure 14* and the information in *Table 6:* S700 mounting descriptions to drill the back casing.

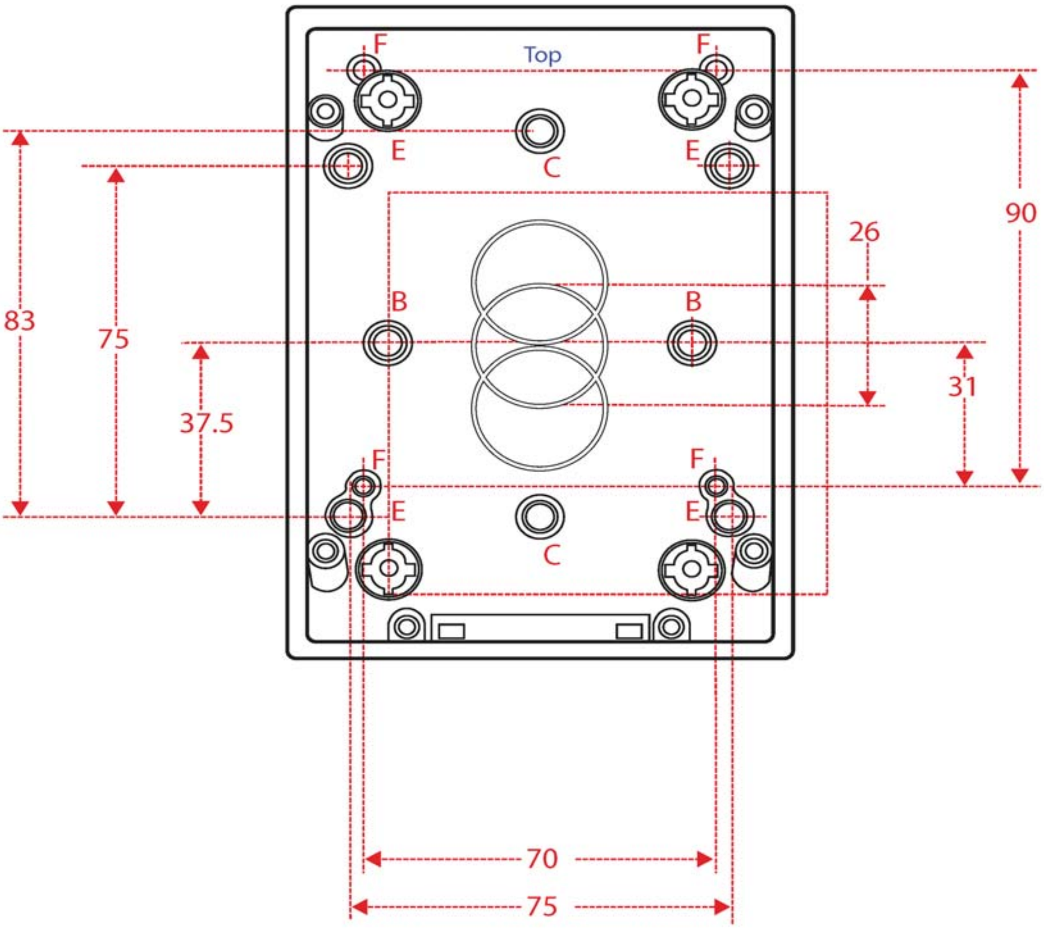


Figure 14 S700 back casing drill hole dimensions

Mounting hole	Description
B	UK single back box
C	US single back box
E	75mm VESA mount
F	S610 mounting holes

Table 6: S700 mounting descriptions

Note: All dimensions are in mm.

Chapter 3

Wiring the Terminal

3.1 Cabling requirements

Table 7: Terminal installation cabling requirements outlines the cabling requirements for each of the connectors on the S700 terminal.

Purpose	Recommended Cable	Connector
Ethernet comms	CAT 6	RJ45
12 Vdc or 24 Vdc power supplied separately	Recommend using a CEM Door Interface Unit 210/230	16 AWG Screw Terminal
Inputs	Belden 95XX (24 AWG shielded twisted pairs) or equivalent (XX = the number of pairs from 01 - 50)	16 AWG Screw Terminal
Outputs	Belden 9462 (22 AWG shielding twisted pair) or equivalent	16 AWG Screw Terminal
Connection with exit reader or DIU	Belden 8723 (22 AWG shielded twisted 2-pair) or equivalent	16 AWG Screw Terminal
Wiegand	Belden 9514 (7 x 22 AWG), Alpha 1229C(9 x 22 AWG) or equivalent	16 AWG Screw Terminal
Serial Comms	Belden 8723 (22 AWG shielded twisted 2-pair) or equivalent	16 AWG Screw Terminal

Table 7: Terminal installation cabling requirements

3.1.1 Ethernet communications

Ethernet communications must be cabled and terminated for 10/100Base-T operation according to IN ANSI/TIA/EIA-568-A / TIA/EIA-568-B.

Type	Cable	Connector	Location
Host	CAT6	RJ45 Socket	Terminal board

Table 8: Ethernet host

There must be enough spare cable left within the enclosure/back box to allow a service engineer to open the terminal case without straining the RJ45 connector. If the cable is subject to movement or vibration, stranded ethernet cable, and appropriate connectors, must be used.

3.2 The front board

The front PCB contains the main electronic components of the reader; it is also where ethernet communications must be connected.

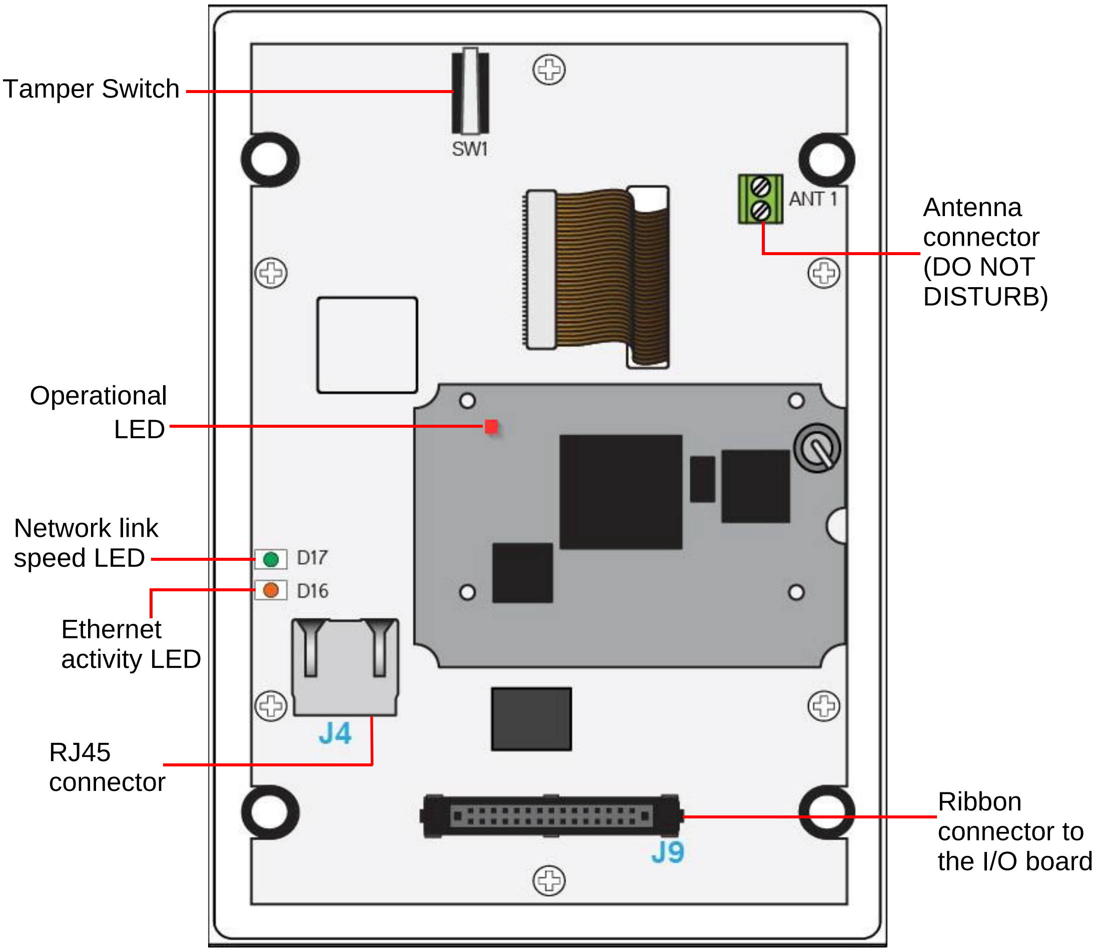


Figure 15 Illustration of the front board

Component	Description
RJ45 connector	Used for Ethernet communications
Ribbon connector	Connects the front PCB to the I/O PCB
Antenna Connector	This is used for the PROX antenna. If fitted, DO NOT remove or tamper with the wires from this connector
Operational LED	This light flashes if the reader is operational and working correctly
Ethernet activity LED	Flashing green indicates Ethernet activity
Network link LED	Orange indicates 100Base-T connection speed - unlit indicates 10Base-T connection speed
Tamper switch	Used to trigger an alarm when the case is opened

Table 9: Description of front board components

3.3 The input/output board

The input/output board provides the connections points for terminal power, inputs, outputs, third-party Wiegand read heads, communications with exit readers, and Door Interface Units (DIUs).

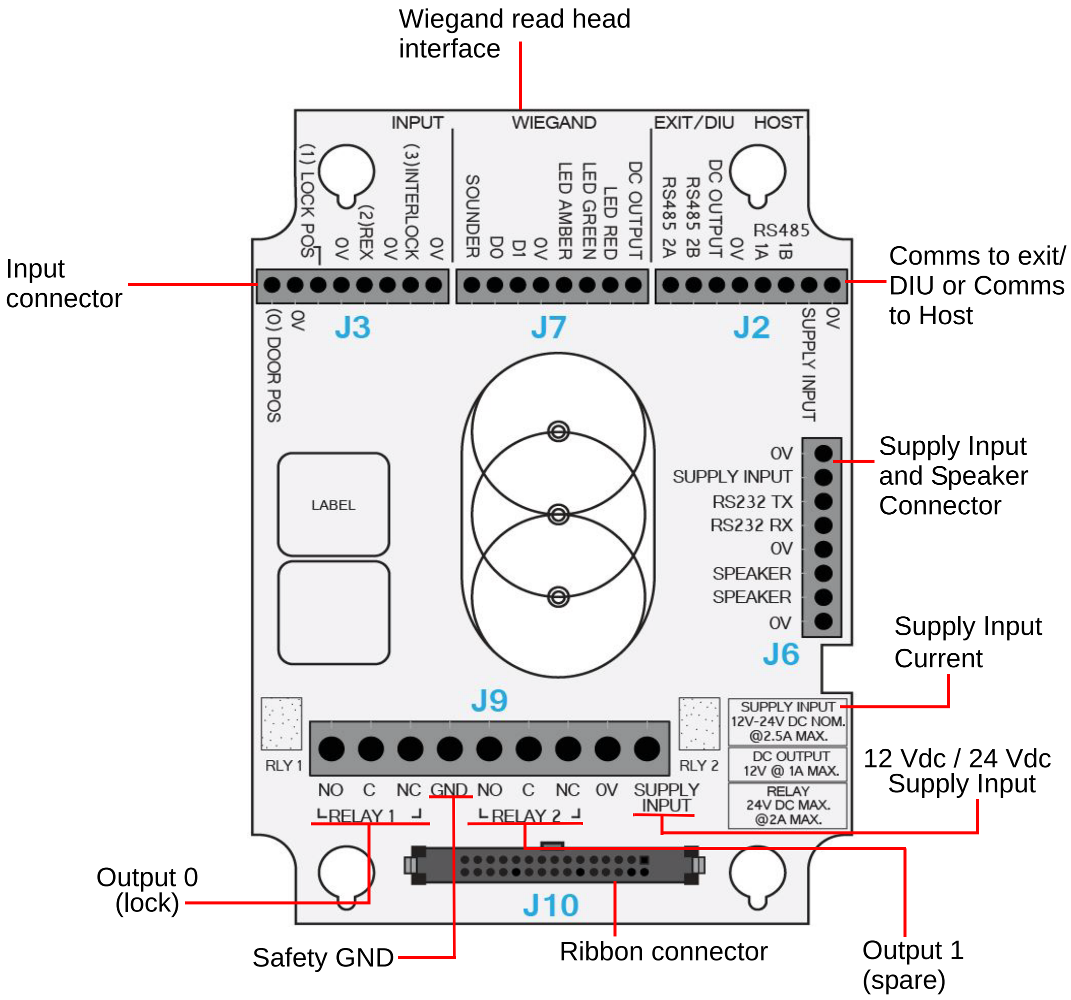


Figure 16 Illustration of the Input/Output board

Component	Description
Wiegand interface	Interface for third-party exit heads using Wiegand protocol
Supply Input and Speaker Connector	12 Vdc or 24 Vdc power, either from a CEM Door Interface Unit (DIU) or an appropriate power source must be supplied to this connector This is also the audio output for the internal speaker.
Output 0	Lock output, either 12 Vdc or 24 Vdc: voltage provided to relay common connection can be taken internally through the J9 Supply Input terminal or externally
Ribbon connector	Connects the I/O PCB to the front PCB
Output 1	Spare output. This output is also used when configuring the reader in interlock mode.

Table 10: Description of I/O board components

Component	Description
Comms to exit/DIU or Comms to Host	If this unit is configured as a serial host reader, ‘HOST’ can be used as an RS485 connection to the network. If serial communications to a CEM product, such as the S700 or DIU, is required, the ‘EXIT/DIU’ connection can be used as the connection to the DIU or exit reader. If the unit is configured as an exit reader ‘HOST’ can be used as a connection to the host.
Input connectors	Connection points for monitored inputs such as door position, lock sense and Request to Exit switches.

Table 10: Description of I/O board components

Note:

Supply Input Current:

The power requirement of 2.5 A is based on the following:

Host reader peak current @ 12 Vdc = 450 mA
Exit reader peak current @ 12 Vdc = 450 mA
Fully loaded DC output @ 12 Vdc = 1.6 A
Total = 2.5 A

This does not include anything that is connected to the DC Output.

DC Output Current:

The maximum guaranteed current that can be supplied from the 12 Vdc output.

Relay:

Nominal voltage and current that can safely be applied to the relay.

3.4 Wiring locks

The terminal supports lock types rated up to 24 Vdc at 2 A max current.

3.4.1 Wiring an internal voltage powered lock

It is possible to connect locks in a fail-safe or fail-secure configuration.

Fail-safe lock

If the terminal loses power, a fail-safe lock opens, allowing free access. Therefore, a lock that is constantly powered, such as a maglock, must be used.

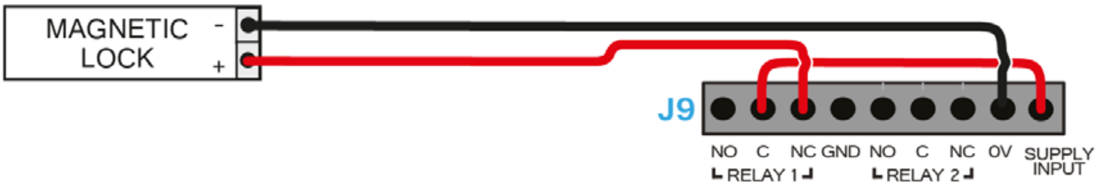


Figure 17 Magnetic lock

Fail-secure lock

In fail-secure configuration, if the terminal loses power, the lock remains closed. A lock that requires power to open, such as a mortice lock, must be used.

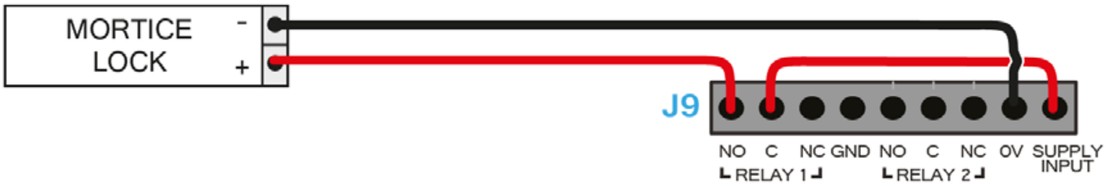


Figure 18 Mortice Lock

3.4.2 Wiring an external voltage powered lock

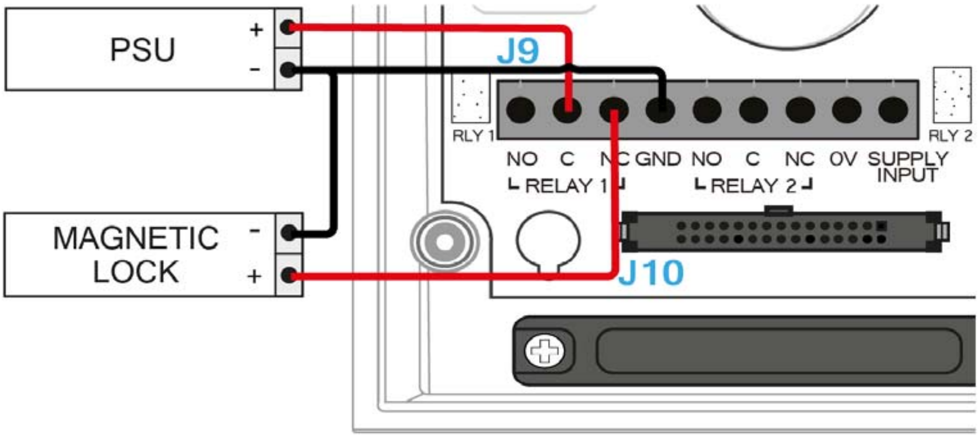


Figure 19 Illustration of wiring for lock with external power provided

When you use an external voltage supply to power the lock the power supply ground should be connected to GND on the I/O board and not 0V.

Note: All connections labelled 0V link to the same circuit.

3.4.3 Inputs not in use

Some inputs must be linked out when not in use, to allow the door control to operate and prevent alarms being generated on the AC2000 system.

This is particularly important for DIU inputs.

These inputs are outlined in the following list:

- Input 0 - door position sensor on terminal I/O board
- Fire input on a DIU
- Tamper input on a DIU
- Break Glass input on a Door Interface Unit

3.5 Terminal with Request to Exit switch

Figure 20 shows the wiring for a terminal with a Request to Exit switch.

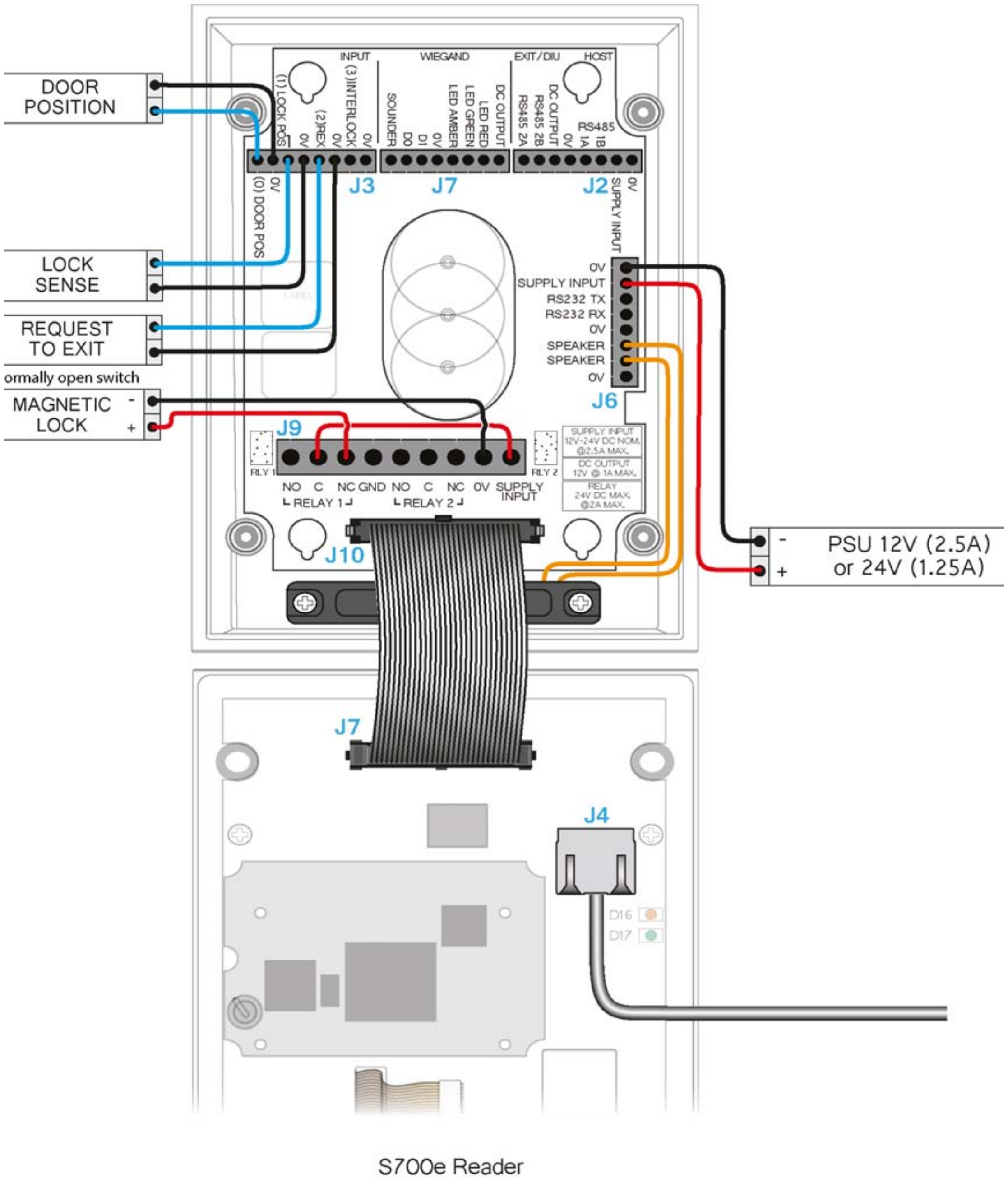


Figure 20 S700 master terminal with REX wiring diagram

3.6 Configuration information

Wiring an S700 terminal with a Request to Exit switch is a basic wiring configuration and is not recommended for use on high security doors.

Input configuration

Table 11: S700 and Request to Exit switch input configuration illustrates the configuration and operation of the inputs on the terminal when it is configured with a Request to Exit switch.

Input number	Input function	Default input trigger state change
0	Door position	short => open
1	Lock position	short => open
2	Request to exit	switch open => momentary short => open
3	Spare/Interlock	short => open

Table 11: S700 and Request to Exit switch input configuration

Note: Wiring diagram is for the installation of the S700 terminal in **Door Mode**.

3.7 Terminal with third-party OSDPv2 read head

The illustration in *Figure 21* shows the wiring for a terminal with a third-party OSDPv2 read head.

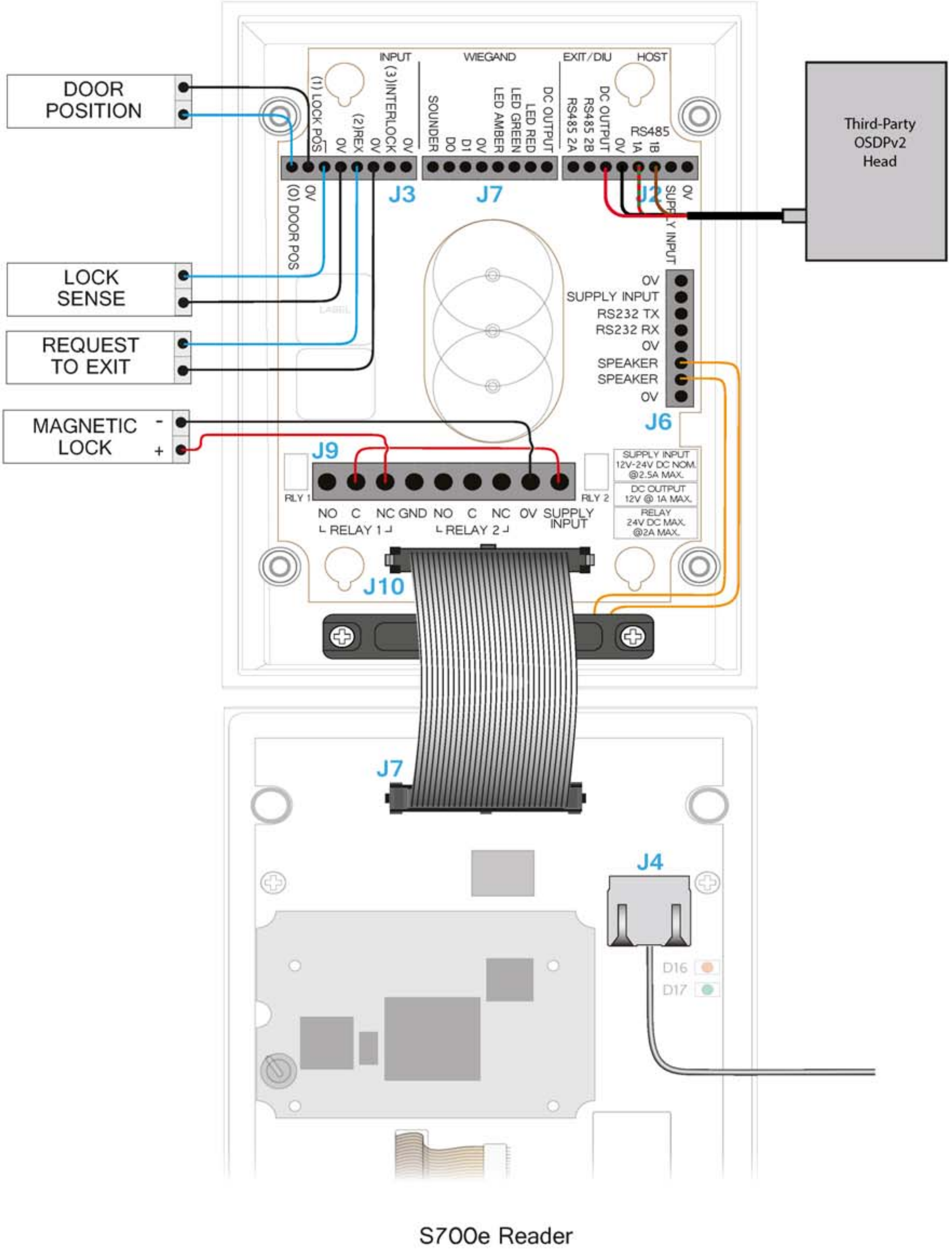


Figure 21 Wiring for terminal with third-party OSDPv2 read head

3.8 Terminal with third-party Wiegand read head

Figure 22 shows the wiring for a terminal with a third-party Wiegand read head.

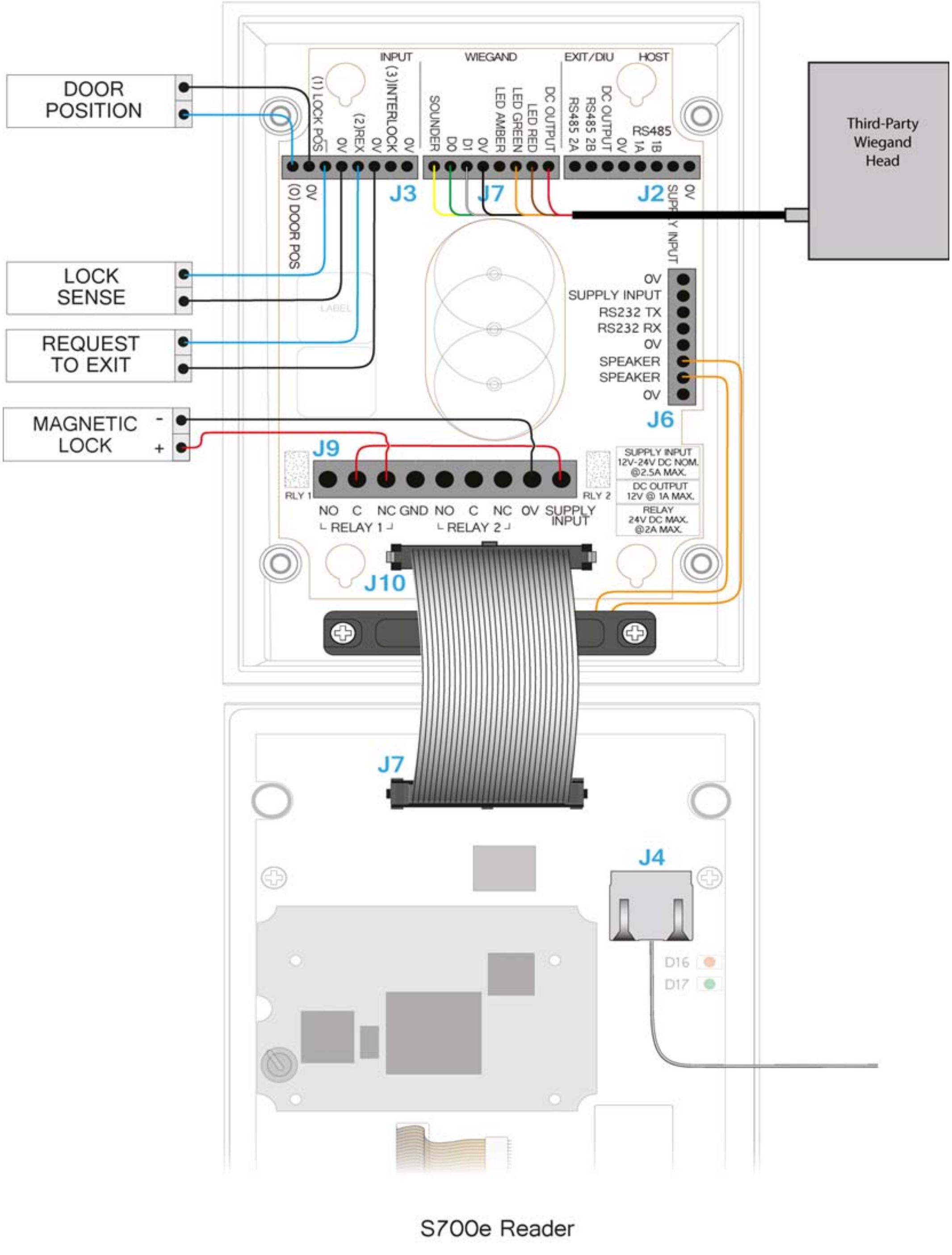


Figure 22 S700 master terminal with Wiegand read head wiring

3.9 Terminal with DIU 230 and third-party Wiegand read head

Figure 23 shows the wiring for a terminal with DIU 230 and third-party Wiegand read head.

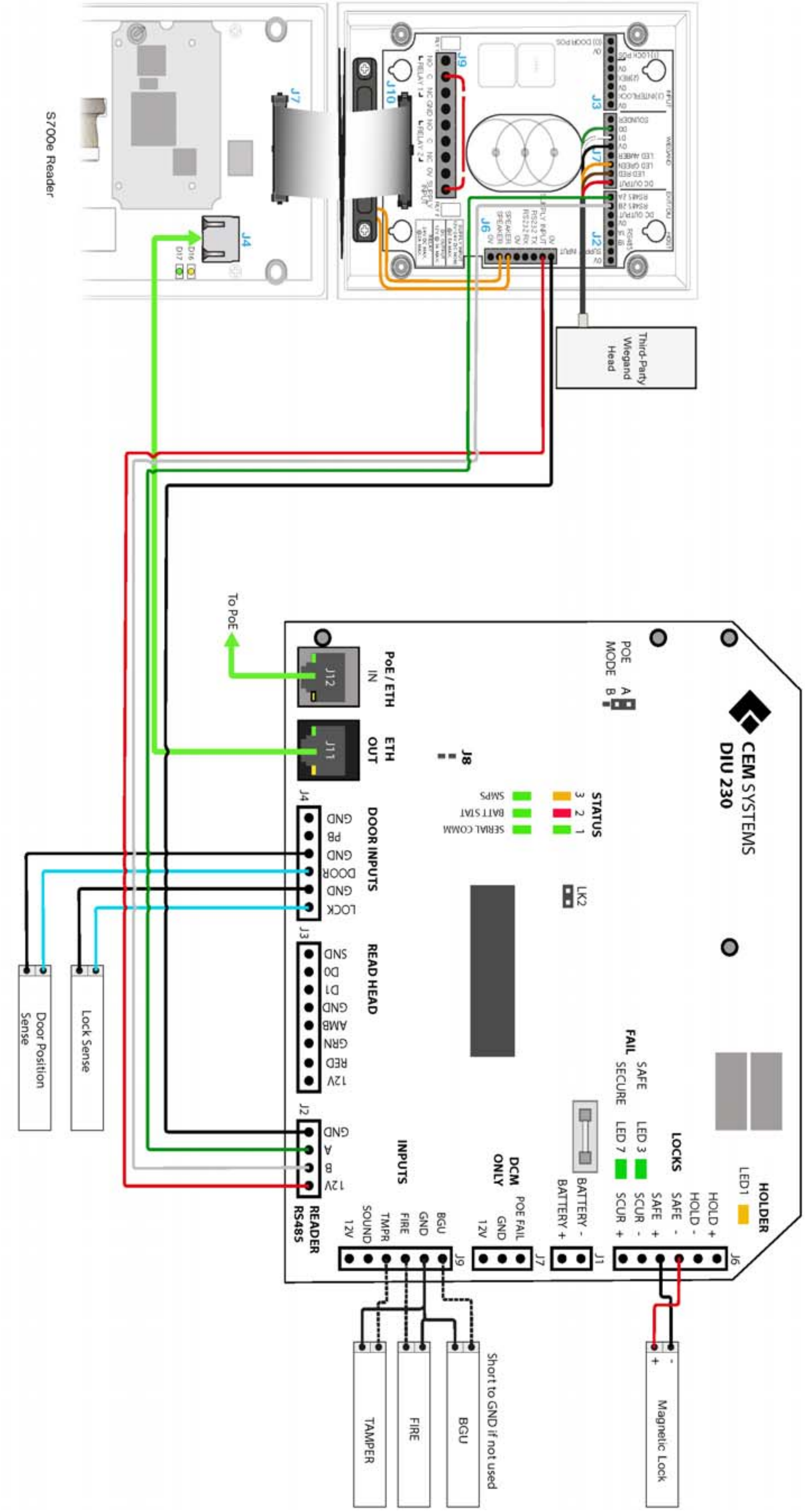


Figure 23 S700 terminal with DIU230 and Wiegand read head wiring

Note: To configure an exit reader as the master reader, see *Configuring a Third-Party Reader as a Master* on page 85.

Important: For regulatory compliance, the drain wire must be disconnected at the reader-end of the cable.

Table 12: Configuration and operation of terminal inputs contains the details for the configuration and operation of terminal inputs when configured with third-party Wiegand read heads.

Input number	Input location	Input function	Default input trigger state function
0	DIU	Door position	short => open
1	DIU	Lock position	short => open
2	DIU	Request to exit	switch open => momentary short => open
3	DIU	Fire	short => open
4	DIU	Breakglass	short => open
5	DIU	Mains power fail	Internally triggered
6	DIU	Battery low	Internally triggered
7	DIU	DIU tamper	short => open
8	Master terminal	Spare	short => open
9	Master terminal	Spare	short => open
A	Master terminal	Spare	short => open
B	Master terminal	Spare/Interlock	short => open

Table 12: Configuration and operation of terminal inputs

Important: If fire and break glass units are not required, the inputs must be connected to GND to ensure that the DIU functions normally. The tamper input must also be connected to the GND when it is not in use to prevent alarms being generated on AC2000.

3.9.1 Software configuration for terminal with DIU 230 and third-party Wiegand read head

To configure AC2000 for use with the terminal, a DIU 230 and a third-party Wiegand read head, complete the following steps:

1. Add the device in the **Devices** application as **S700+DIU+Slave**. For more information on the procedure for adding a device, see *Adding the device to AC2000* on page 56.
2. Enable the third-party read head. For more information on the procedure for enabling a third-party read head, see *Configuring a third-party read head* on page 57.

3.10 Configuration information

The S700 terminal facilitates the use of a third-party exit Wiegand head with three LEDs.

Supported third-party read heads

CEM support the use of HID R10 heads for reading Mifare and iClass cards.

Product	CEM Product Code
HID iClass SE R10 SmartCard Reader	HDS/053/010
HID iClass SE R30 SmartCard Reader	HDS/053/030
HID iClass SE R40 SmartCard Reader	HDS/053/040

Table 13: Read head product code

Typical Wiegand read head wiring

For specific read head wiring, consult the third-party manufacturer.

I/O board connection	Typical HID colour
GND	Black
Sounder	Yellow
Green LED	Orange
Amber LED	Not fitted
Red LED	Brown
Data 1	White
Data 0	Green
Head 12V	Red

Table 14: Typical Wiegand head wiring

Important: For regulatory compliance, the drain wire must be disconnected at the reader-end of the cable.

Input configuration

Table 15: S700 and third-party read head input configuration illustrates the configuration and operation of the inputs on the terminal when configured with a third-party Wiegand read head.

Input number	Input function	Default input trigger state change
0	Door position	short => open
1	Lock position	short => open
2	Request to exit	switch open => momentary short => open
3	Spare / Interlock	short => open

Table 15: S700 and third-party read head input configuration

3.11 S700e with S700s exit reader

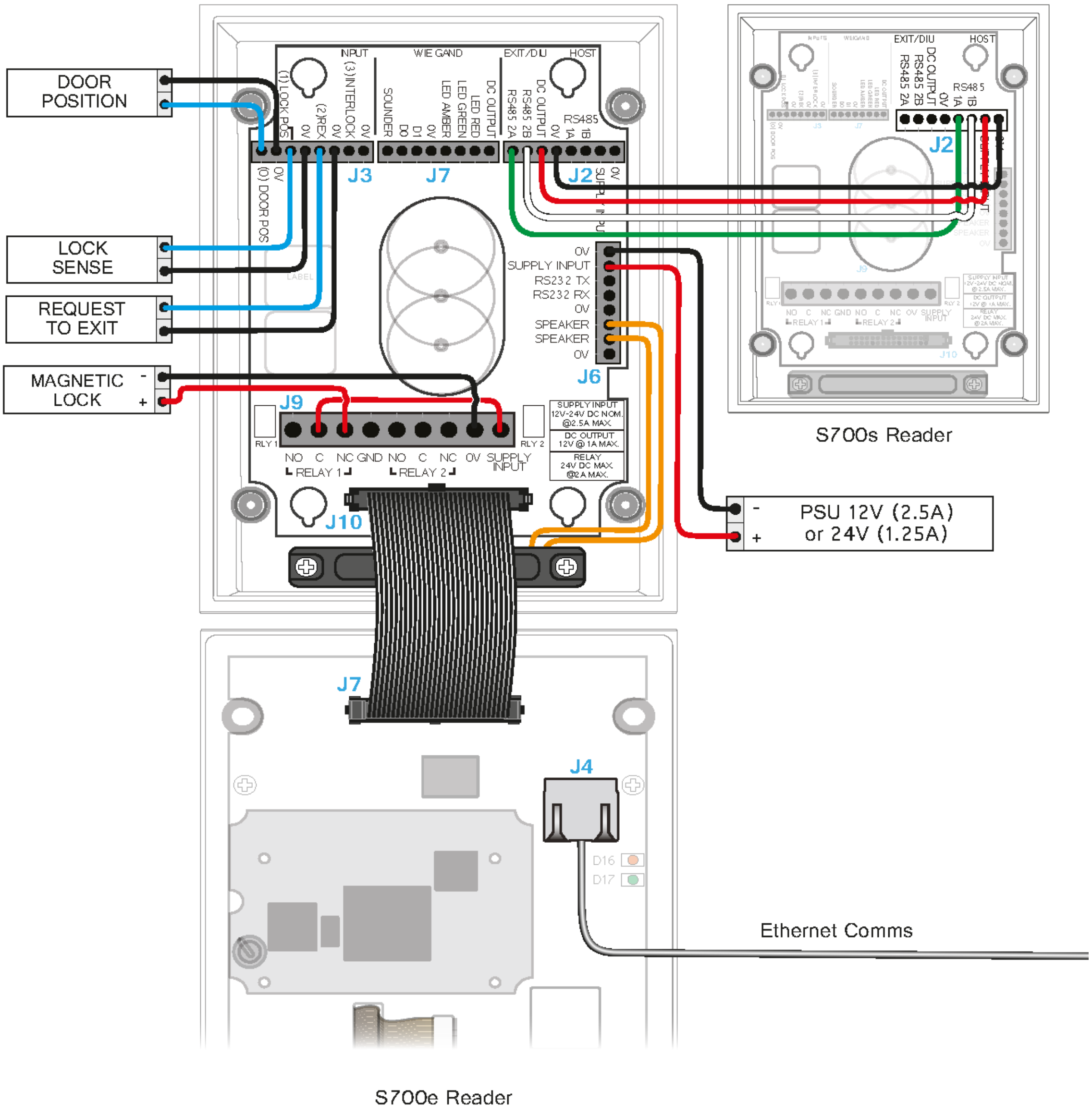


Figure 24 S700e with S700s exit reader

3.11.1 Configuration information

Using an S700 exit reader provides a higher level of security at the door than using a third-party read head.

Product	CEM Product Code
S700 Card Reader (DESfire)	RDR/702/007
S700 Card Reader (iCLASS)	RDR/702/008
S700 Card Reader (Pico Pass)	RDR/702/006

Table 16: S700 product codes

Input configuration

The S700 reader has four inputs and two relay outputs, which are spare in this configuration.

Input number	Input location	Input function	Default input trigger state change
0	Master terminal	Door position	short => open
1	Master terminal	Lock position	short => open
2	Master terminal	Request to exit	switch open => momentary short => open
3	Master terminal	Spare / Interlock	short => open
4	S700s exit	Spare	normally open
5	S700s exit	Spare	normally open
6	S700s exit	Spare	normally open
7	S700s exit	Spare	normally open

Table 17: S700e with S700s exit reader input configuration

3.12 S700 with DIU 210 and S700s exit reader

Figure 25 shows the wiring for an S700 master reader with a DIU 210.

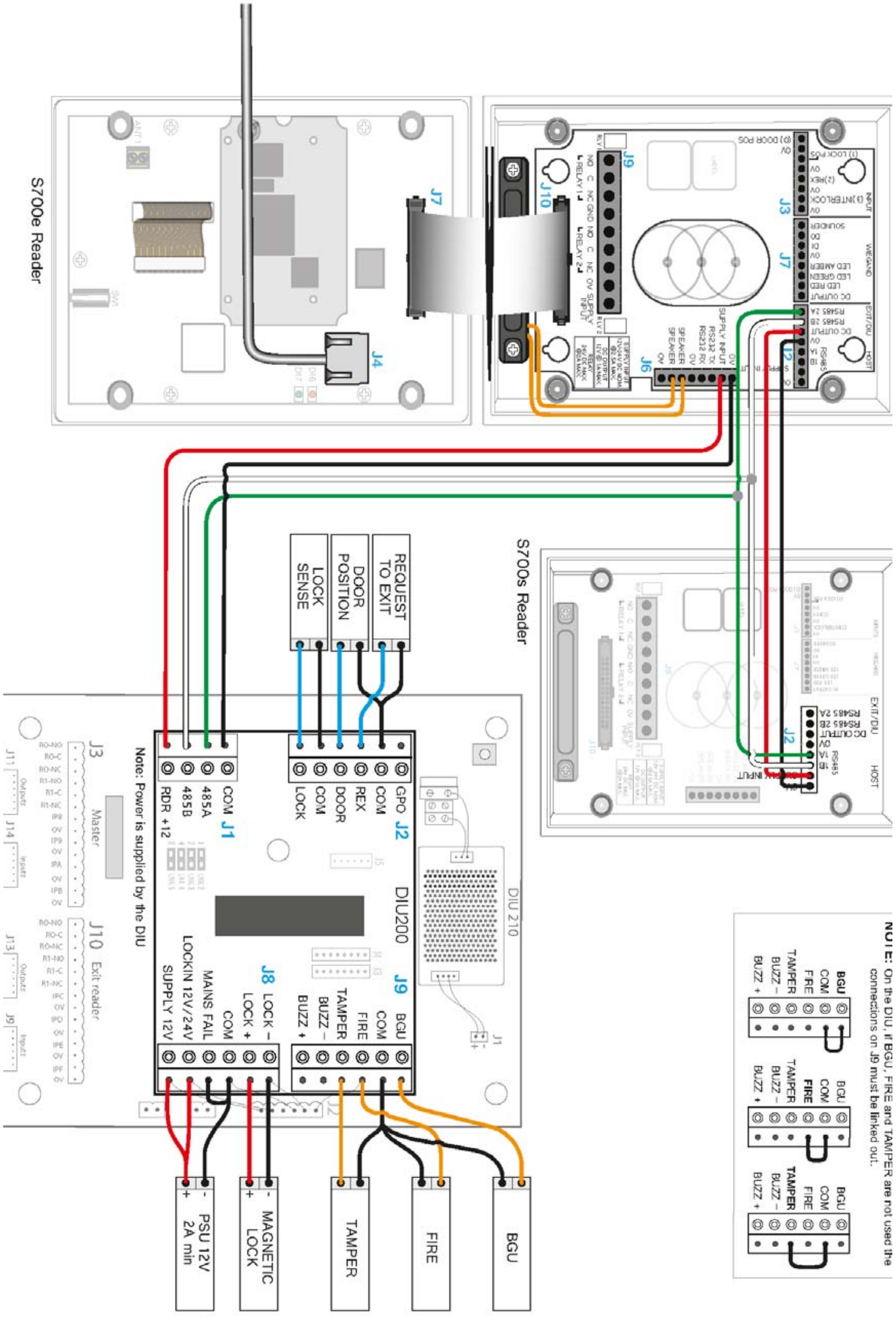


Figure 25 S700 master terminal with a DIU 210 wiring

3.12.1 Configuration information

Using a CEM DIU 210 provides the highest level of security at a door, removing power for the lock and input monitoring away from the door reader.

Product	CEM Product Code
DIU 200 (Compact board only DIU module)	DIU/700/200
DIU 210 Full DIU incl Enclosure/PSU (Does not include backup batteries)	DIU/700/210

Table 18: Door Interface Units product code

Important: The DIU210 uses mains electricity and must only be installed by qualified personnel.

Input configuration

When a DIU210 is used with a terminal, the DIU controls the main CEM reserved inputs and the inputs on the readers become spare. The exception to this is input three on the terminal, input B in Table 7 on page 29, which maintains its status as being used for interlock mode.

Input number	Input location	Input function	Default input trigger state change
0	DIU	Door position	short => open
1	DIU	Lock position	short => open
2	DIU	Request to exit	switch open => momentary short => open
3	DIU	Break glass	short => open
4	DIU	Fire	short => open
5	DIU	Mains power fail	Internally triggered
6	DIU	Battery low	Internally triggered
7	DIU	DIU tamper	short => open
8	Master terminal	Spare	short => open
9	Master terminal	Spare	short => open
A	Master terminal	Spare	short => open
B	Master terminal	Spare / Interlock	short => open
C	Exit reader	Spare	normally open
D	Exit reader	Spare	normally open
E	Exit reader	Spare	normally open
F	Exit reader	Spare	normally open

Table 19: S700 and DIU210 input configuration

Important: If fire and break glass units are not required, the inputs must be connected to GND to ensure that the DIU functions normally. The tamper input must also be connected to GND when not in use to prevent alarms being generated on AC2000.

3.13 S700 terminal with DIU 230

Figure 26 shows the wiring for the S700 terminal with DIU 230.

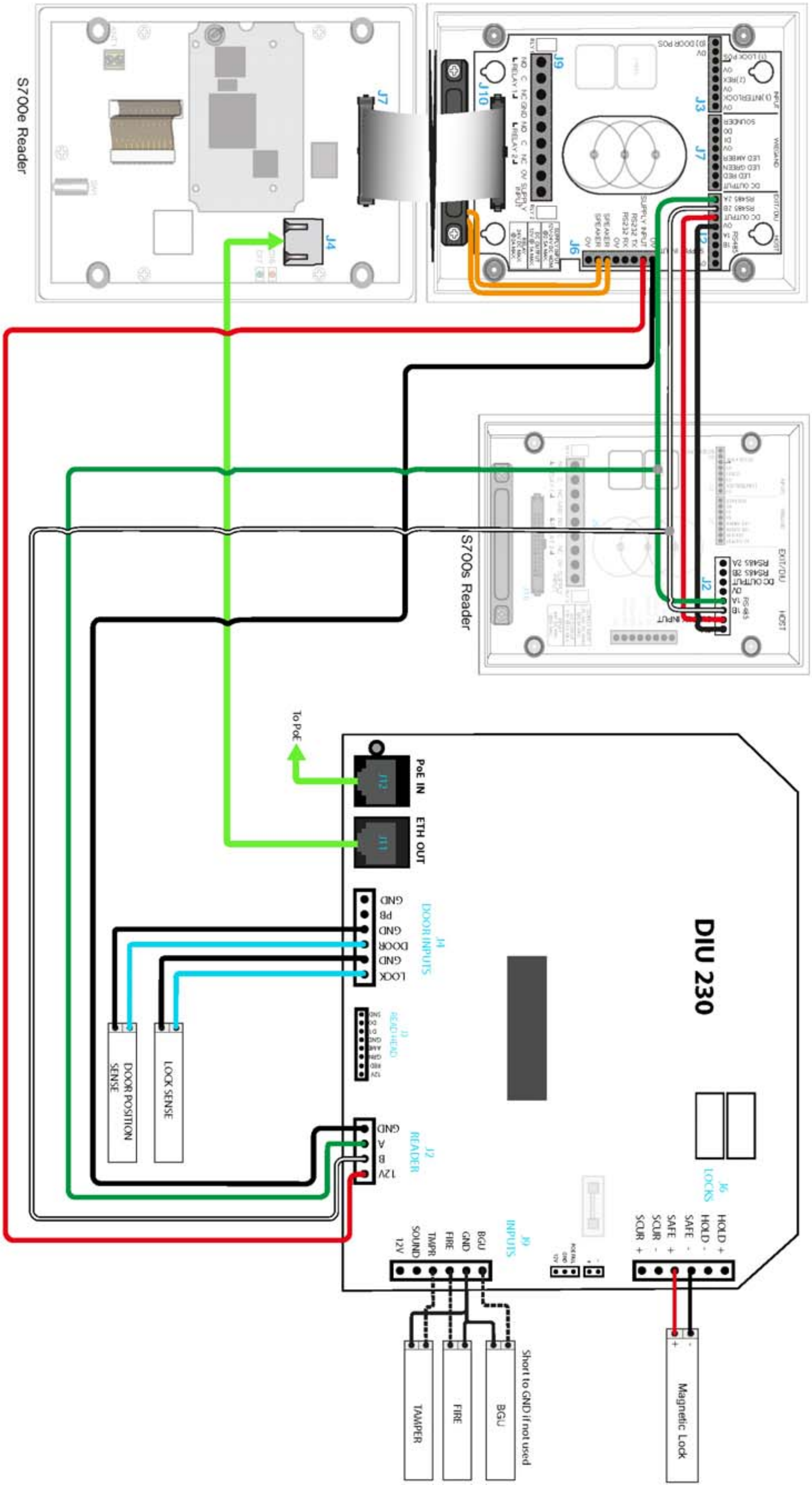


Figure 26 S700 terminal with DIU 230 wiring

3.13.1 Configuration information

Using a CEM DIU230 also provides the highest level of security at a door, removing power for the lock and input monitoring away from the door reader. The DIU is a PoE+ device and does not require specialist electrical qualifications to install.

Product	CEM Product Code
DIU 230 PoE+ (board only)	DIU/700/230
DIU 230 PoE+ (with enclosure)	DIU/700/231

Table 20: DIU230 product codes

Input configuration

When a DIU230 is used with an S700 terminal, the DIU controls the main CEM reserved inputs and the inputs on the readers become spare. The exception to this is input three on the S700 terminal, input B in the *Table 21:* S700 and DIU230 input configuration, which maintains its status as being used for interlock mode**.**

Input number	Input location	Input function	Default input trigger state change
0	DIU	Door position	short => open
1	DIU	Lock position	short => open
2	DIU	Request to Exit	switch open => momentary short => open
3	DIU	Fire	short => open
4	DIU	Breakglass	short => open
5	DIU	Mains power fail	Internally triggered
6	DIU	Battery low	Internally triggered
7	DIU	DIU tamper	short => open
8	Master terminal	Spare	short => open
9	Master terminal	Spare	short => open
A	Master terminal	Spare	short => open
B	Master terminal	Spare / Interlock	short => open
C	Exit reader	Spare	normally open
D	Exit reader	Spare	normally open
E	Exit reader	Spare	normally open
F	Exit reader	Spare	normally open

Table 21: S700 and DIU230 input configuration

Important: If fire and break glass units are not required, the inputs must be connected to GND to ensure that the DIU functions normally. The tamper input must also be connected to GND when it is not in use to prevent alarms being generated on the AC2000 system.

3.14 Tamper detection on reader inputs

Terminal inputs can be monitored for 4-state tampering, open, close, tamper short, and tamper cut. If an input is tampered with, an alarm is triggered in the AC2000 software. The alarm is a universal tamper alarm and does not distinguish between the four different states. To monitor inputs for tamper short and tamper cut, a resistor network must be installed on the input sensor wiring and the AC2000 software configured to monitor the input.

3.14.1 Wiring the resistor network

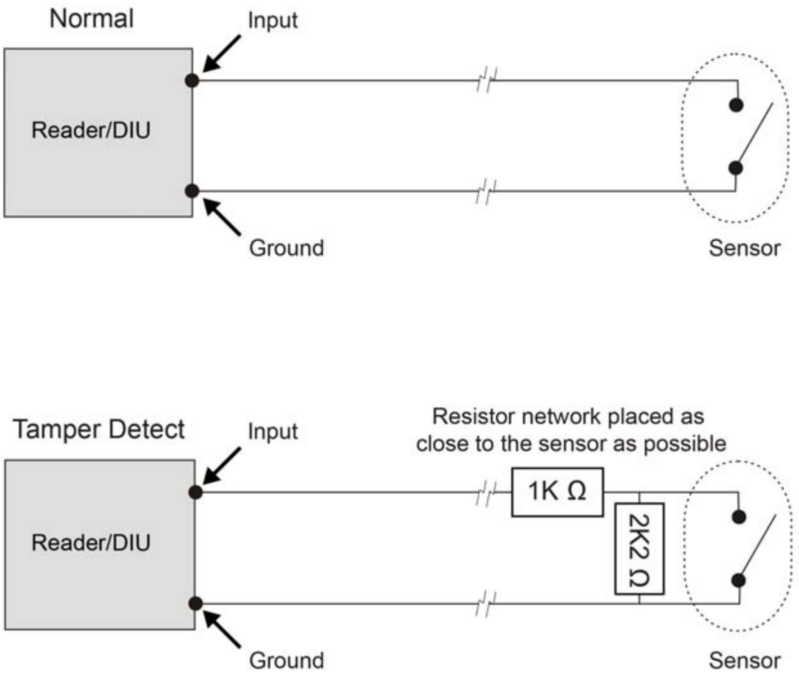


Figure 27 Illustration of the resistor network for four state tamper detection on inputs

Important: It is imperative that the tamper resistor network is wired as close to the sensor as possible.

3.14.2 Configuring software for tamper detection

To configure software for tamper detection, complete the following steps:

1. From the **AC2000 Floatbar**, click **Device Configuration**, and click **Devices**.
2. Select the device on which inputs are to be configured for 4-state tamper detection.
3. Select the **Configuration** tab.
4. Select the **Input Config** tab.
5. Select each input element to be configured for four state and tick the **4 state** check box.
6. Click **Save**.

3.14.3 Re-assembling the terminal

To re-assemble the terminal, complete the following steps:

1. Ensure that there is adequate cable length available to reach the connectors comfortably for each of the following:

   – 12 or 24 Vdc

   – CAT6 cable for communications

   – Output wiring for lock

   – Wiring for inputs, for example, door position sensor, lock sense

Important: To maintain the IP65 rating of the terminal, the cable access hole must be adequately sealed before completing the installation process.

Note: Ensure the speaker is connected.

2. Attach the front pane of the terminal using the ribbon connector.
3. Attach the front of the terminal to the back casing and fix in places with the screws.
4. Attach the protective side panels to the terminal.

Note: If the terminal needs to be opened after installation, the side panels can be removed by inserting an access card into the slot under the centre of the panel and sliding along the length of the panel.

Chapter 4

Reader Network Configuration

The network settings are accessed using the installer configuration menu on the terminal.

4.1 Checking the network status of the S700

The network status is continuously displayed on the home screen of the reader.

Network status indicator

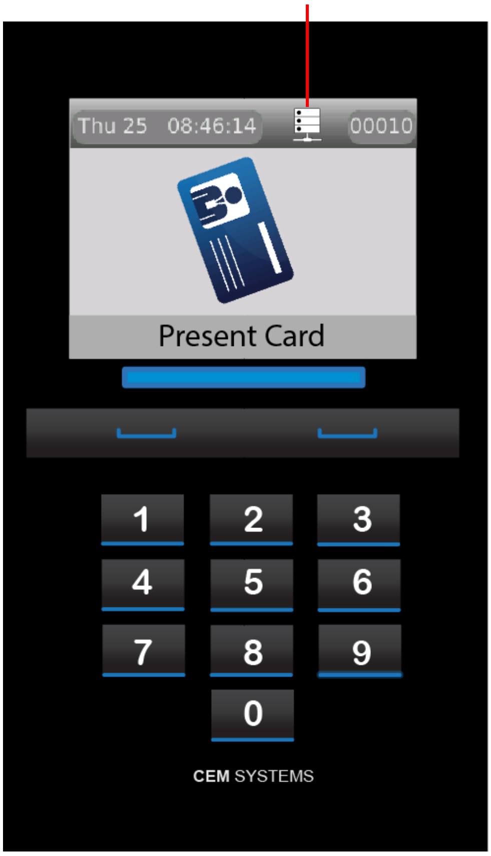
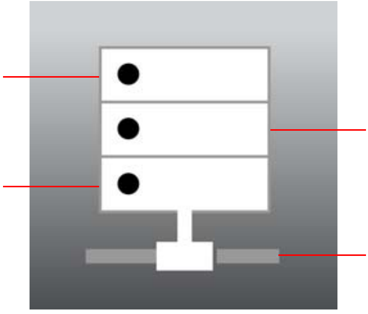


Figure 28 Checking the network status

Each section of the status indicator represents a different aspect of the network connectivity. The presence or absence of a block indicates whether or not the connection is good.



The top block indicates that the terminal has received its onboard database of cardholders, timezones and so on

The bottom block indicates that the terminal is connected with the RTC

The centre block indicates that the terminal has received its configuration settings from the CDC

The TCP/IP indicator shows Ethernet connectivity

Figure 29 The network status indicator

4.2 Accessing the System Configuration Menu

To access the configuration menu, complete the following steps:

1. On the terminal keypad, quickly tap the right function key at least three times.
2. When you are prompted to **Enter Setup PIN**, type the default code: 67670000.

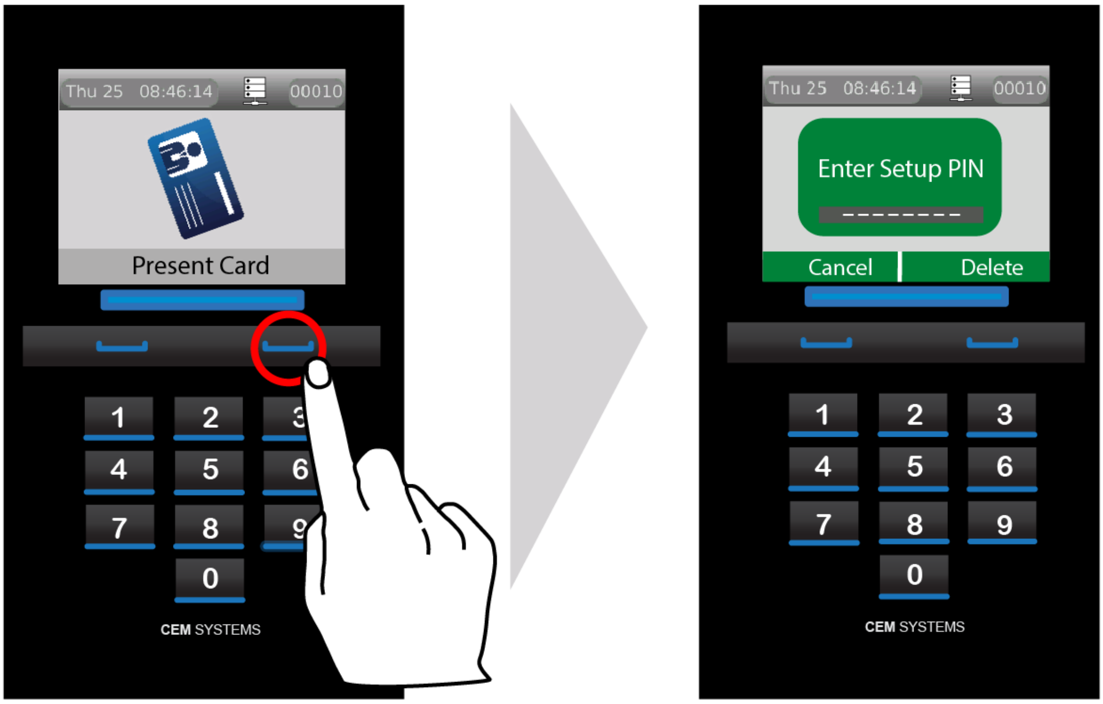


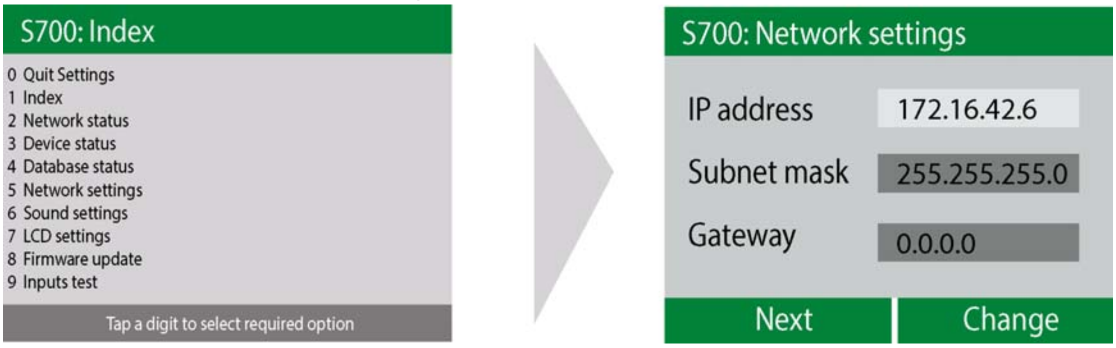
Figure 30 Accessing the configuration menu

Note: After the AC2000 system setup is complete, the pass code is 6767XXXX, where XXXX is the code set by the system. The final four digits of this PIN are configurable for the terminal in the **Devices** application; for more information on configuring passcodes, see section *Accessing the system configuration menu* on page 67.

4.2.1 Setting the terminal IP address, gateway, and subnet mask

To set the IP address, gateway, and subnet mask of the terminal, complete the following steps:

1. To access the **Network Settings** menu, press key 5.



IP address 172.16.42.6

Subnet mask 255.255.255.0

Gateway 0.0.0.0

Figure 31 Configuring the terminal network settings

2. Select **Next** to highlight the relevant field.
3. Select **Change** to edit the selected field.
4. Enter the **IP Address**, **Subnet mask** and **Gateway** settings using the keypad. Press the left function for a ‘.’
5. To exit settings, press key 0 and select **Save** to save the new settings, or **Quit** to discard changes.

Chapter 5

AC2000 Software Configuration

This section of the manual focuses on the initial addition and configuration of the device and input alarms. All other advanced configuration options are covered in the relevant function sections. The S700 terminal is added to the AC2000 system and configured using the Devices application.

Note: This manual assumes access to the necessary AC2000 applications and should be performed by persons trained in its use.

5.1 Reader addressing

The AC2000 system communicates with all devices on the access control network using the CEM reader addressing system.

All devices are allocated a five-digit reader address, the address is displayed in the top right of the terminal display.

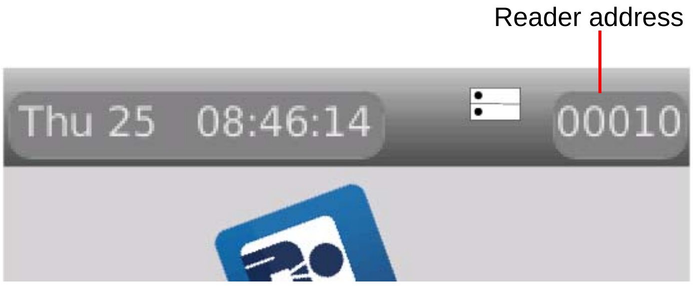

Reader address

Figure 32 Location of the reader address on the screen

Each digit of the reader address signifies a position on the Devices hierarchy.

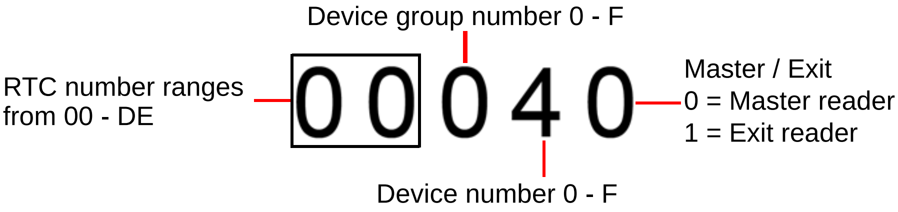
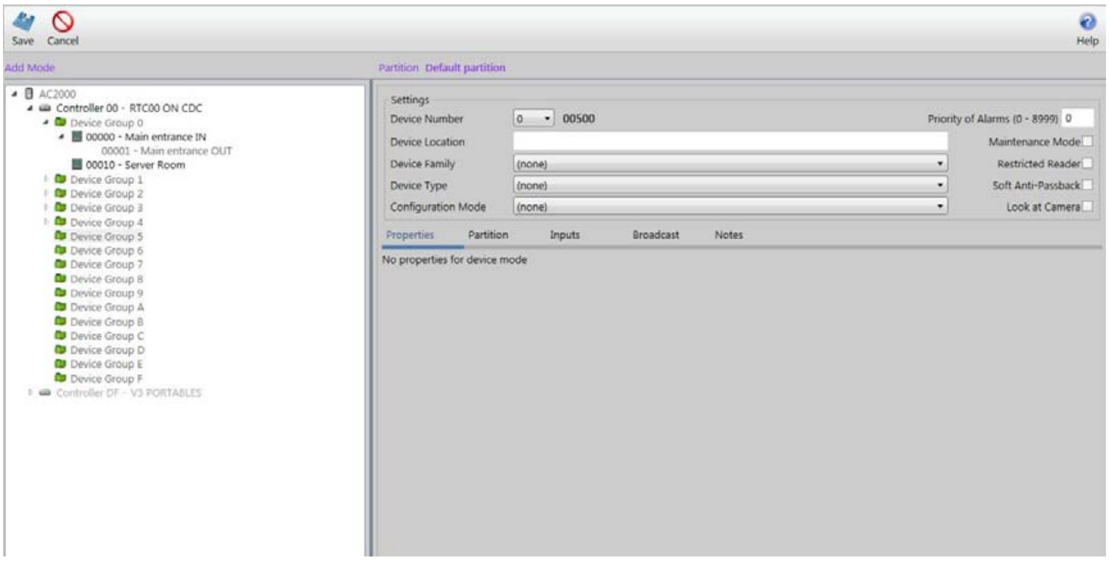


Figure 33 Illustration describing AC2000 reader addressing

5.2 Adding the device to AC2000

To add the address of a device to AC2000, complete the following steps:

1. Log on to the **AC2000 Floatbar**, click **Device Configuration**, and click **Devices**.
2. Select the controller and device group to which the device is being added.
3. Click **Add** and select **Add Device**, or, right-click on the device group and select **Add Device**.
   The Devices application enters **Add Mode**. You can add a device.



Settings

Device Number 0 00500

Priority of Alarms (0 - 8999) 0

Device Location

Device Family (none)

Device Type (none)

Configuration Mode (none)

Maintenance Mode □

Restricted Reader □

Soft Anti-Passback □

Look at Camera □

No properties for device mode

Figure 34 The Devices application in Add mode

4. Use the drop-down **Device Number** list to select the device number.
5. Into the **Device Location** field, enter the device location.
   Mixed case is available for the description of the device location.

Note: It is advisable that you use a naming convention for the location of each device, especially if the AC2000 system is partitioned. This minimises the chance of calling two devices by the same name, for example, Partition 1: Server Room and Partition 2: Server Room.

6. Select the **Device Family** drop-down list to choose the device family. For the S700, select **700E (Ethernet)**.
7. Select the **Device Type** drop-down list to choose the device type.[1] For the S700, the device type is **S700 + Slave**.
8. Select the **Configuration Mode** drop-down list to choose **S700E + Slave**.[2]
9. Select one of the following check boxes if the setting is relevant to your device setup:
   - Maintenance Mode
   - Restricted Mode
   - Soft Anti-Passback
   - Look at Camera

[1] If an exit or auxiliary device is added to the master reader, ensure to select the correct type, that is, an S700 device with an Exit Reader has a **Device Type** of **S700 + Slave**. This configures the Master device with an attached exit reader. Any exit reader added to a master appears as a child node in the Overview Pane of the master reader with which it is associated.

[2] The configuration mode contains default settings, however these can be user defined. for more information on creating a configuration mode, see the *Setup Guide* for the AC2000 system.

10. If an exit reader has been added by including it in the **Device Type**, enter a unique **Slave Location** to describe the location of the exit reader.

11. Select the **Settings** tab. Enter the unique **MAC Address** or **IP Address** of the device into the relevant fields.
    The unique address of the device is found by navigating from the **Configuration Menu** to the **Network Status** menu on the S700 itself.

12. Select the **Offline Database** drop-down list and select one of the following two options for the device:

    i. Card Number

    ii. Card Number, Timezone, Status, PIN

13. Click **Save**. This adds the device to the AC2000 system.

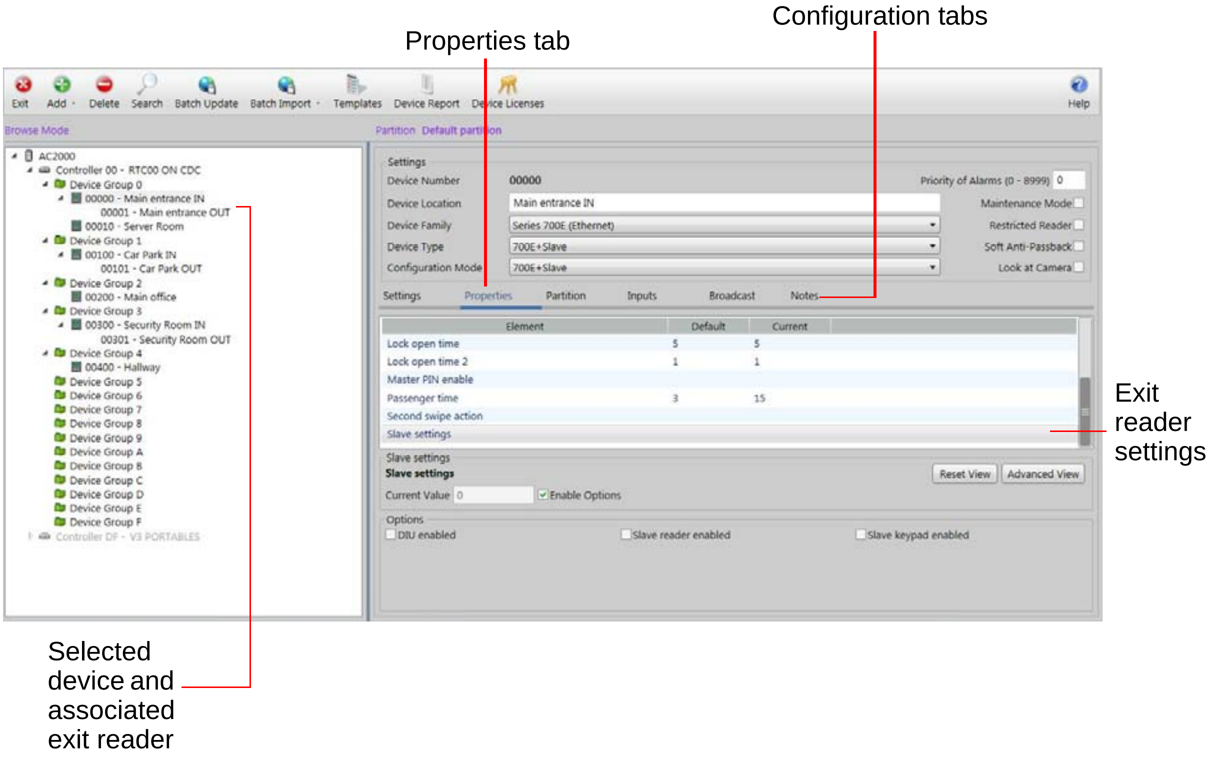
Note: Threat groups are only used if threat levels have been activated on AC2000. For further information, see the **AC2000 Threat Levels** manual.

5.2.1 Configuring a third-party read head

To configure the **Slave** to be a third-party read head only, complete the following steps:

Note: Following the instructions, *Adding the device to AC2000* on page 56, a **Slave** is added to a master reader. The master reader configured the exit reader by default.

1. Log on to the **AC2000 Floatbar**, click **Device Configuration**, and click **Devices**.



Partition Default partition

- AC2000
  - Controller 00 - RTC00 ON CDC
    - Device Group 0
      - 00000 - Main entrance IN
        - 00001 - Main entrance OUT
      - 00010 - Server Room
    - Device Group 1
      - 00100 - Car Park IN
        - 00101 - Car Park OUT
    - Device Group 2
      - 00200 - Main office
    - Device Group 3
      - 00300 - Security Room IN
        - 00301 - Security Room OUT
    - Device Group 4
      - 00400 - Hallway
    - Device Group 5
    - Device Group 6
    - Device Group 7
    - Device Group 8
    - Device Group 9
    - Device Group A
    - Device Group B
    - Device Group C
    - Device Group D
    - Device Group E
    - Device Group F
  - Controller DF - V3 PORTABLES

Settings

Device Number 00000

Device Location: Main entrance IN

Device Family: Series 700E (Ethernet)

Device Type: 700E+Slave

Configuration Mode: 700E+Slave

Priority of Alarms (0 - 8999): 0

Maintenance Mode □

Restricted Reader □

Soft Anti-Passback □

Look at Camera □

Element	Default	Current
Lock open time	5	5
Lock open time 2	1	1
Master PIN enable		
Passenger time	3	15
Second swipe action		
Slave settings		

Slave settings

Slave settings

Current Value: 0 ☑ Enable Options

Options

□ DIU enabled □ Slave reader enabled □ Slave keypad enabled

Figure 35 Third-party read head configuration

2. Select the device, with associated exit reader, to be configured.

3. Select the **Properties** tab.
   Properties contains the most commonly used tabs. To access more specialised tabs, click **Advanced View**.

4. Select **Slave Settings** from the list in the **Properties** pane.

5. In the **Slave Settings** pane at the bottom of the interface, ensure the **Slave reader enabled** check box is clear.

6. Select **Save**.

The Exit reader associated with the master device is now configured as a third-party read head and not an Exit reader.

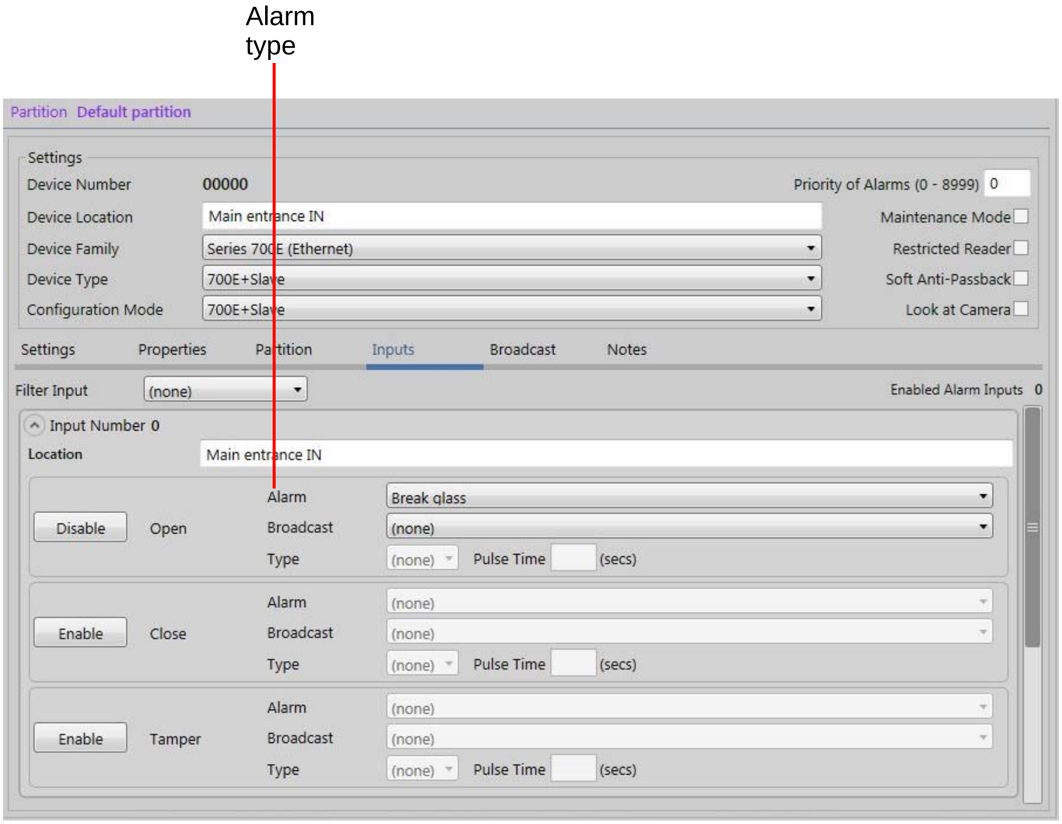
5.3 Configuring devices

Use the Devices application to configure the inputs that are used to trigger alarms or events in the AC2000 system.

5.3.1 Adding an input alarm

To add an input alarm to a device, complete the following steps:

1. Log on to the **AC2000 Floatbar**, click **Device Configuration**, and click **Devices**.
2. Select the device to configure from the overview pane on the left of the screen.
3. Select the **Inputs** tab on the main pane.
4. Click **Enable** and the **Alarm** and **Broadcast** drop-down lists became active.



Alarm type

Partition Default partition

Settings

Device Number 00000

Priority of Alarms (0 - 8999) 0

Device Location: Main entrance IN

Maintenance Mode □

Device Family: Series 700E (Ethernet)

Restricted Reader □

Device Type: 700E+Slave

Soft Anti-Passback □

Configuration Mode: 700E+Slave

Look at Camera □

Filter Input: (none)

Enabled Alarm Inputs 0

Input Number 0

Location: Main entrance IN

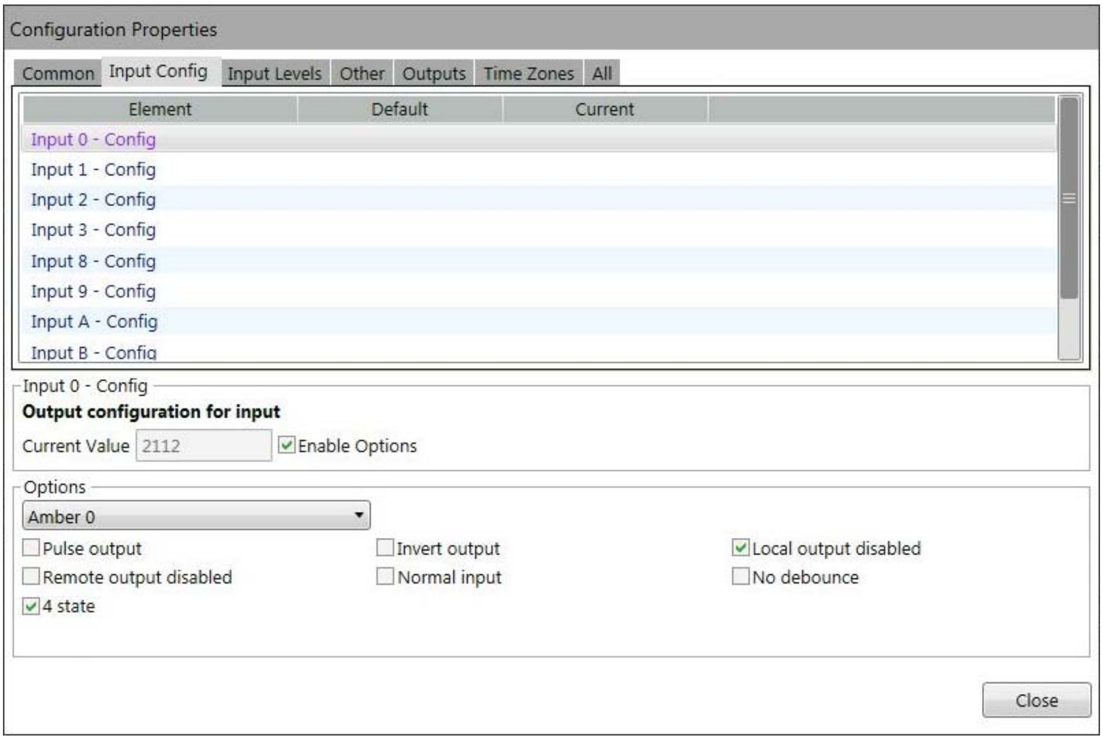
Disable	Open	Alarm	Break glass
		Broadcast	(none)
		Type	(none) Pulse Time (secs)
Enable	Close	Alarm	(none)
		Broadcast	(none)
		Type	(none) Pulse Time (secs)
Enable	Tamper	Alarm	(none)
		Broadcast	(none)
		Type	(none) Pulse Time (secs)

Figure 36 Adding inputs dialog with example input 0 configuration

5. From the **Alarm** drop-down list, select an alarm type.
6. From the **Broadcast** drop-down list, select a broadcast type.
7. Select the alarm **Type** from the drop-down list.
8. In the **Pulse Time** box, set the time in seconds.
9. Click **Save**.

5.3.2 Configuring 4-state tamper inputs

To configure the 4-state tamper inputs, complete the following steps:



Element	Default	Current
Input 0 - Config		
Input 1 - Config		
Input 2 - Config		
Input 3 - Config		
Input 8 - Config		
Input 9 - Config		
Input A - Config		
Input B - Config		

Input 0 - Config

Output configuration for input

Current Value 2112 ☑ Enable Options

Options

Amber 0

☐ Pulse output ☐ Invert output ☑ Local output disabled

☐ Remote output disabled ☐ Normal input ☐ No debounce

☑ 4 state

Figure 37 4-state tamper

1. Log on to the **AC2000 Floatbar**, click **Device Configuration**, and click **Devices**.
2. Select the device to configure from the overview pane on the left of the screen.
3. Select the **Properties** tab, and click **Advanced View**.
4. Select the **Input Config** tab.
5. Select each input element to be configured and select the **4 state** check box.
6. Click **Save**.

Note: The following instructions are only required if the settings need to be edited during or after terminal installation.

5.3.3 Editing device properties

To edit the device properties, complete the following steps:

1. Select the master device in the overview pane.
2. Make the required changes and click **Save**.

5.3.4 Editing a device input

To edit a device input, complete the following steps:

1. Select the Input and the Input State that is to be edited from the **Device Inputs** list.
2. Click **Save** when changes have been completed.

Note: Save is only displayed when a change has been made.

5.3.5 Deleting a device input

To delete a device input, complete the following steps:

1. Select the input from the **Device Inputs** list.
2. Click **Delete**.
3. From the window that appears, click **Delete** to delete the device from the system or **Cancel** to cancel the process.

Note: Care should be taken when deleting an input as no warning message appears.

5.3.6 Input alarms

The following input tables describe the set-up for each of the S700 configurations outlined in this manual, including the AC2000 alarms that must be selected for each sensor state where appropriate:

Input table for S700 with REX and S700 with third-party read head:

Input number	Input function	Sensor state	AED alarm
0	Door position	Open	Door forced
		Closed	Door closed
1	Lock position	Open	Lock not engaged
		Closed	Lock engaged
2	Request to exit		No default
3	Spare / interlock		No default

Table 22: S700 and REX / Third-party read head input alarms

Input table for S700 with S700s exit reader

Input number	Input function	Sensor state	AED alarm
0	Door position	Open	Door forced
		Closed	Door closed
1	Lock position	Open	Lock not engaged
		Closed	Lock engaged
2	Request to exit		No default
3	Spare / interlock		No default
4	Spare		No default
5	Spare		No default
6	Spare		No default
7	Spare		No default

Table 23: S700 and S700s exit reader input alarms

Input table for S700 with DIU210 and S710s exit reader:

Input number	Input function	Sensor state	AED alarm
0	Door position	Open	Door forced
		Closed	Door closed
1	Lock position	Open	Lock not engaged
		Closed	Lock engaged
2	Request to exit		No default
3	Break glass	Open	Breakglass
		Closed	Breakglass reset
4	Fire	Open	Fire alarm
		Closed	Fire alarm reset
5	Mains power fail	Open	Mains power fail
		Closed	Mains OK
6	Battery low	Open	DIU battery low
7	DIU tamper switch	Open	DIU tamper
8	Spare		No default
9	Spare		No default
A	Spare		No default
B	Spare / interlock		No default
C	Spare		No default
D	Spare		No default
E	Spare		No default
F	Spare		No default

Table 24: S700 and DIU210 input alarms

Input table for S700 with DIU230 and S700s exit reader

Input number	Input function	Sensor state	AED alarm
0	Door position	Open	Door forced
		Closed	Door closed
1	Lock position	Open	Lock not engaged
		Closed	Lock engaged
2	Request to exit		No default
3	Fire	Open	Fire alarm
		Closed	Fire alarm reset
4	Break glass	Open	Break glass
		Closed	Break glass reset
5	Mains power fail	Open	Mains power fail
		Closed	Mains OK
6	Battery low	Open	DIU battery low
7	DIU tamper switch	Open	DIU tamper
8	Spare		No default
9	Spare		No default
A	Spare		No default
B	Spare / interlock		No default
C	Spare		No default
D	Spare		No default
E	Spare		No default
F	Spare		No default

Table 25: S700e with DIU230 and S700s input alarms

Input table for four-state tamper configuration

Input number	Input function	Sensor state	AED alarm
0	Door position	Open	Door forced
		Closed	Door closed
		Tamper	Input Tamper
1	Lock position	Open	Lock not engaged
		Closed	Lock engaged
		Tamper	Input Tamper

Table 26: Input table for four-state tamper configuration

5.4 Next steps

The S700 terminal is fully installed. The remainder of the manual details how to perform more complex tasks with the terminal including:

- Using the system configuration menu to view maintenance information and perform terminal tests
- Configuring the terminal in additional modes such as Passenger Mode and Door Control.

- Upgrading terminal firmware
- Configuring device settings using the **Device Settings Remote Application**

Important: Advanced configuration of the terminal must only be carried out by users that have completed CEM AC2000 installer training.

Chapter 6

The System Configuration Menu

The S700 utilises a Graphical User Interface (GUI) to access terminal functionality. At the basic level, the screen is used to display messages regarding the current card swipe transaction. The more advanced options allow the user to access information and reports that are relevant to them.

The S700 screen is a high quality, full colour, LCD screen. This is complimented by a capacitive touch keypad, which is highly responsive in multiple weather conditions. The reader interface provides access to a variety of tools, reports and information, such the as the following:

- Terminal configuration options
- Diagnostics and tests
- Software and hardware versions

6.1 Menu overview

The following image is an overview of the System Configuration Menu.

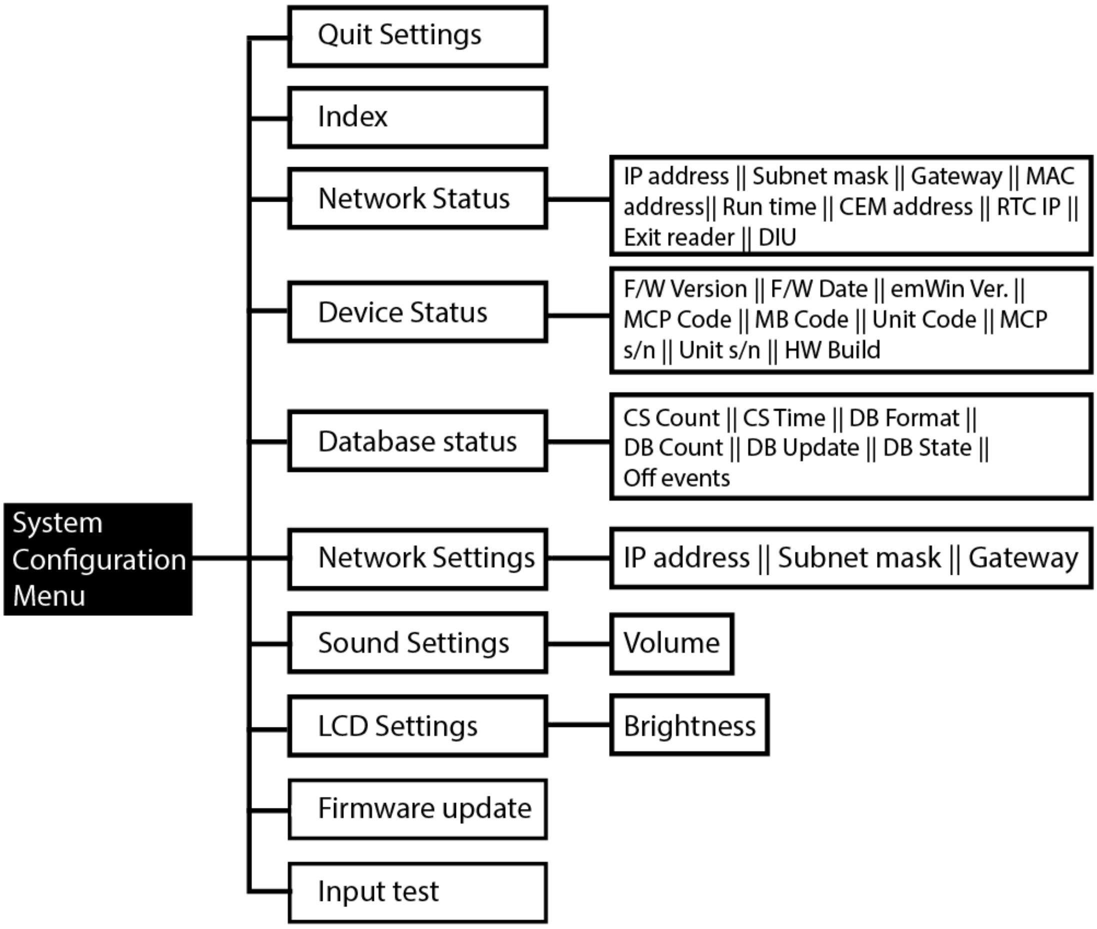
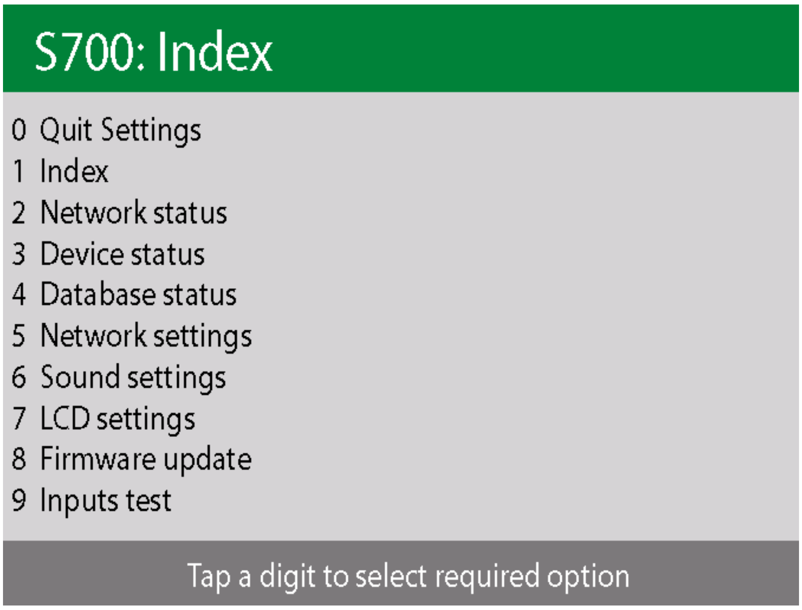

System Configuration Menu
Quit Settings
Index
Network Status
IP address || Subnet mask || Gateway || MAC address|| Run time || CEM address || RTC IP || Exit reader || DIU
Device Status
F/W Version || F/W Date || emWin Ver. || MCP Code || MB Code || Unit Code || MCP s/n || Unit s/n || HW Build
Database status
CS Count || CS Time || DB Format || DB Count || DB Update || DB State || Off events
Network Settings
IP address || Subnet mask || Gateway
Sound Settings
Volume
LCD Settings
Brightness
Firmware update
Input test

Figure 38 Overview of the System Configuration Menu

6.2 Navigation

You can access the menus on the terminal by touching the number on the keypad that corresponds to the menu designation.



S700: Index

0 Quit Settings
1 Index
2 Network status
3 Device status
4 Database status
5 Network settings
6 Sound settings
7 LCD settings
8 Firmware update
9 Inputs test

Tap a digit to select required option

Figure 39 Expanding and closing reader menus

6.3 Accessing the system configuration menu

To access the configuration menu, complete the following steps:

1. On the keypad terminal, quickly tap the right function key at least three times.
2. When prompted to enter a passcode, type 6767000.

Note: See Accessing the System Configuration Menu on page 52 for more details on passcodes.

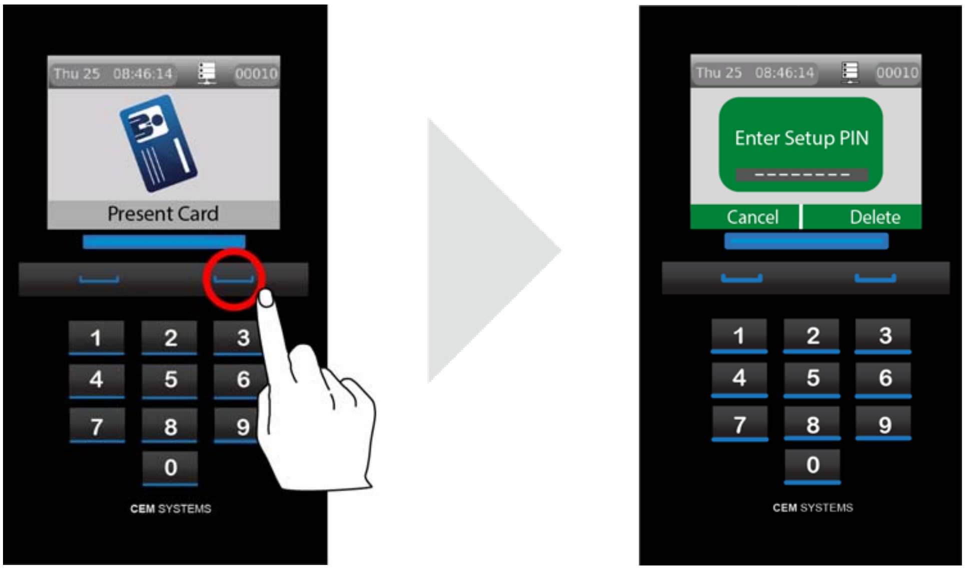


Figure 40 Accessing the configuration menu

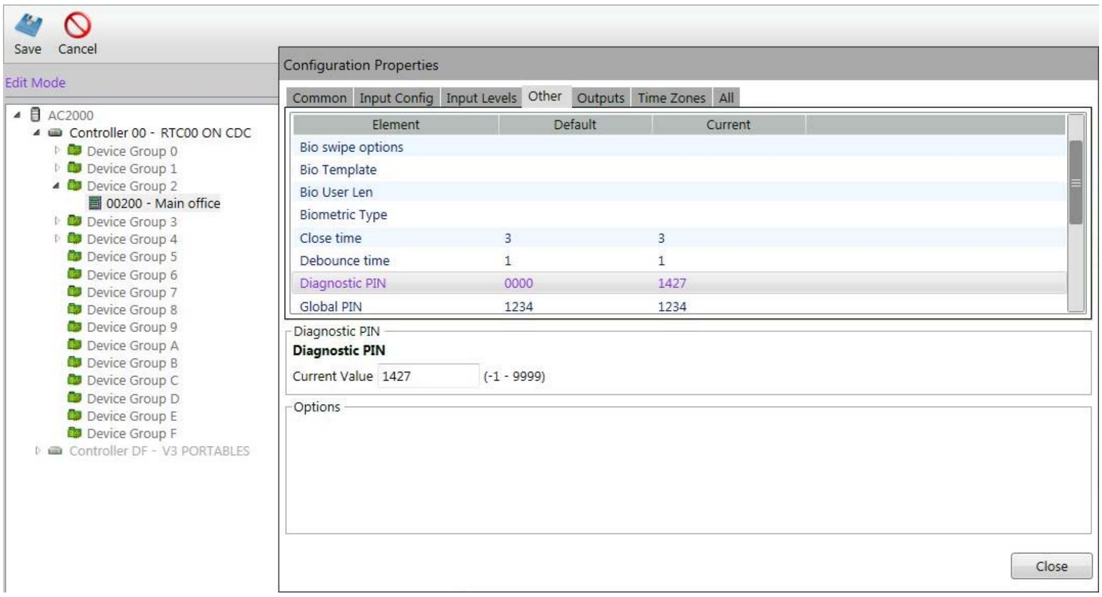
Configuring the passcode

To configure the passcode, complete the following steps:

Note: You can change the final four digits of the passcode, making it specific to a site or reader.

1. Access the AC2000 system through the **AC2000 workstation** interface. enter your username and password.
2. Log on to the **AC2000 Floatbar** and open the **Device**s application.
3. In **Devices**, select the relevant reader.
4. Select the **Properties** tab and click **Advanced View**.
5. Select **Other** and click **Diagnostic PIN** from the options.

Note: You must scroll down to locate the **Diagnostic PIN** option.



Element	Default	Current
Bio swipe options		
Bio Template		
Bio User Len		
Biometric Type		
Close time	3	3
Debounce time	1	1
Diagnostic PIN	0000	1427
Global PIN	1234	1234

Diagnostic PIN

Diagnostic PIN

Current Value 1427 (-1 - 9999)

Figure 41 Diagnostic PIN

6. Into the **Current Value** field, type your new PIN and click **Close**.

7. To save the new PIN, click **Save**.

The System Configuration Menu has a 10-option list, each of which contains specific terminal maintenance functions.

6.3.1 Device settings menu

Important: You must have the following information before contacting CEM Support with any issues.

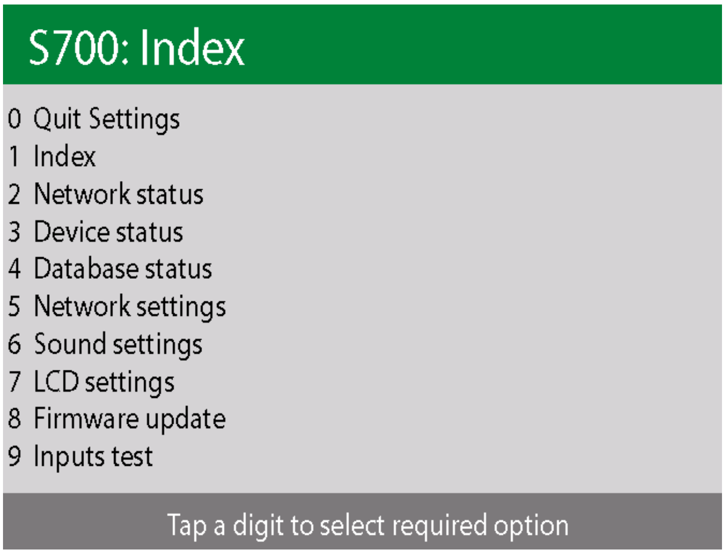


Figure 42 The system configuration menu

You can access the following settings through the System Configuration Menu. The following settings are available:

Quit Settings: key 0

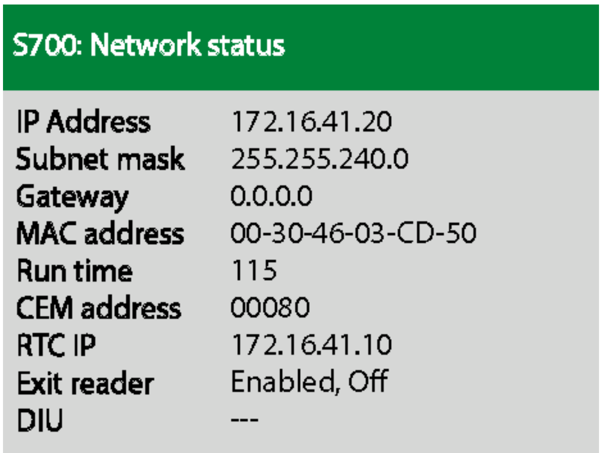
Use this setting to exit the System Configuration Menu and return to the terminal home screen.

Index: key 1

Use the index to return to the System Configuration Menu from any point in the menu system.

Network status: key 2

Use the **Network status** information section to view details about terminal network settings.



S700: Network status

IP Address	172.16.41.20
Subnet mask	255.255.240.0
Gateway	0.0.0.0
MAC address	00-30-46-03-CD-50
Run time	115
CEM address	00080
RTC IP	172.16.41.10
Exit reader	Enabled, Off
DIU	---

Figure 43 Network status

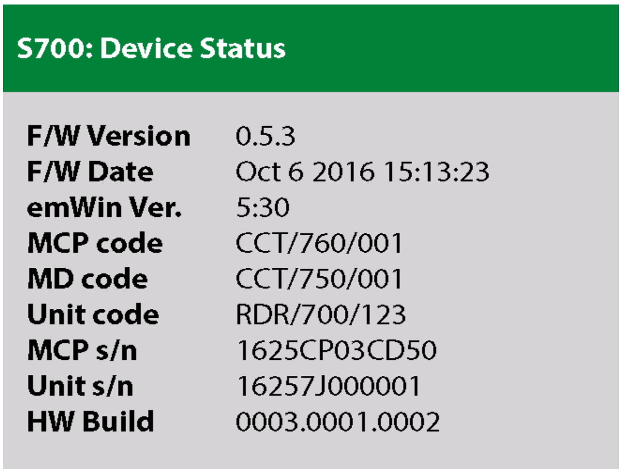
Table 27: Network status describes the fields in the **Network status** information window:

Information	Description
IP address	The IP address of the terminal
Subnet mask	The subnet mask of the network hosting the terminal
Gateway	The IP address of the gateway server
MAC address	The MAC address of the terminal
Run time	Total terminal run time since the system was last reset
CEM address	The CEM reader address of the terminal
RTC IP	The IP address of the RTC controlled the terminal
Exit reader	Indicates if an exit reader has been enabled in AC2000 and if it is operating
DIU	Indicates if a Door Interface Unit has been enabled in AC2000 and if it is operating
OSDP head	Indicates if an OSDP third-party head has been enabled in the AC2000 system, and, if it is operating

Table 27: Network status

Device Status: key 3

Use the **Device status** information section to view details about all the hardware and software versions of the terminal.



S700: Device Status

```
F/W Version   0.5.3
F/W Date      Oct 6 2016 15:13:23
emWin Ver.    5:30
MCP code      CCT/760/001
MD code       CCT/750/001
Unit code     RDR/700/123
MCP s/n       1625CP03CD50
Unit s/n      16257J000001
HW Build      0003.0001.0002
```

Figure 44 Device status

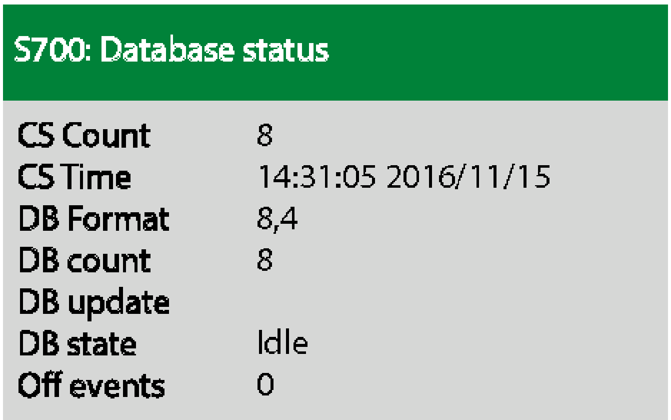
Table 28: Device settings describes the fields in the **Device status** information window:

Information	Description
F/W Version	Firmware version
F/W Date	Date of firmware build
emWin Ver.	Graphics library version
MCP Code	Micro card processor part number
MD Code	Main board part number
Unit Code	Terminal part number
MCP s/n	Micro card processor serial number
Unit s/n	Terminal serial number
HW Build	Terminal hardware build

Table 28: Device settings

Database Status: key 4

Use the **Database status** information section to view detailed information about the onboard card database.



S700: Database status

```
CS Count      8
CS Time       14:31:05 2016/11/15
DB Format     8,4
DB count      8
DB update
DB state      Idle
Off events    0
```

Figure 45 Database status

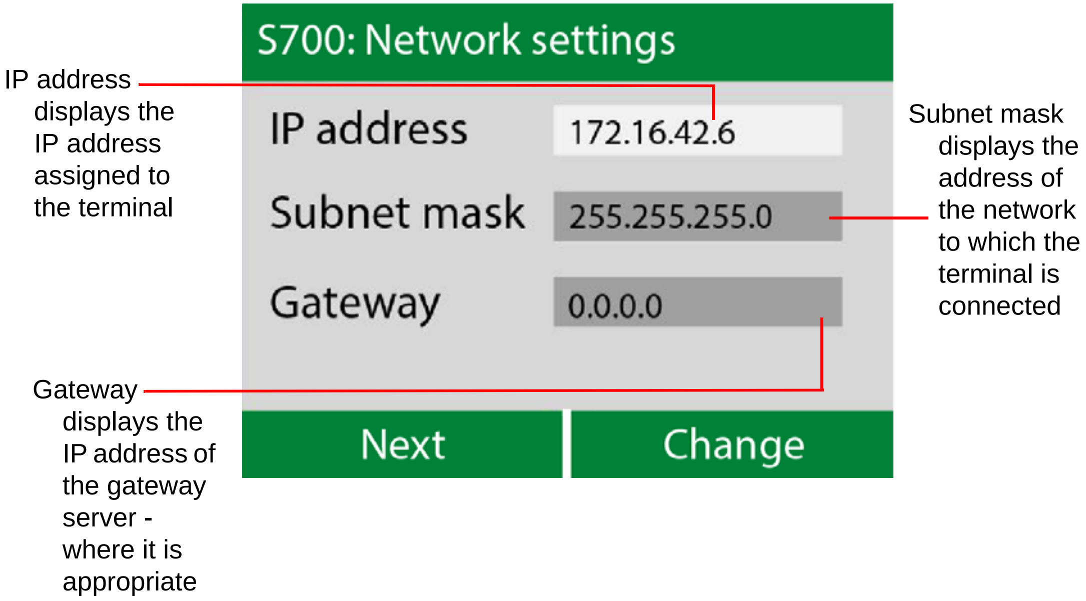
Table 29: Database status describes the fields in the **Database status** information window:

Information	Description
CS Count	The number of card records with which the local database was initialized
CS Time	This is the time the local card database was last initialised
DB Format	This shows the database format
DB Count	This is the current number of valid cards in the local database
DB update	This shows the time of the last database update
DB state	This shows the database state
Off events	This is the number of offline buffered event waiting to be uploaded to the server

Table 29: Database status

Network Settings: key 5

The **Network Settings** section contains information the installer uses to configure the terminal network settings.



S700: Network settings

IP address 172.16.42.6

Subnet mask 255.255.255.0

Gateway 0.0.0.0

IP address displays the IP address assigned to the terminal

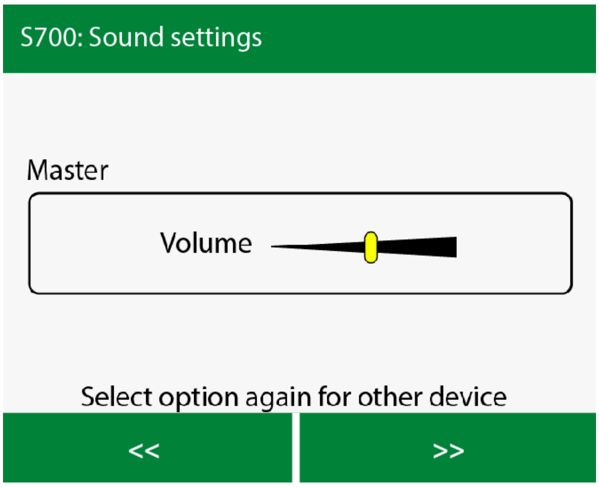
Subnet mask displays the address of the network to which the terminal is connected

Gateway displays the IP address of the gateway server - where it is appropriate

Figure 46 Network Settings

Sound Settings: key 6

Use the **Sound settings** menu to change the volume of the internal speaker on the terminal.



S700: Sound settings

Master

Volume

Select option again for other device

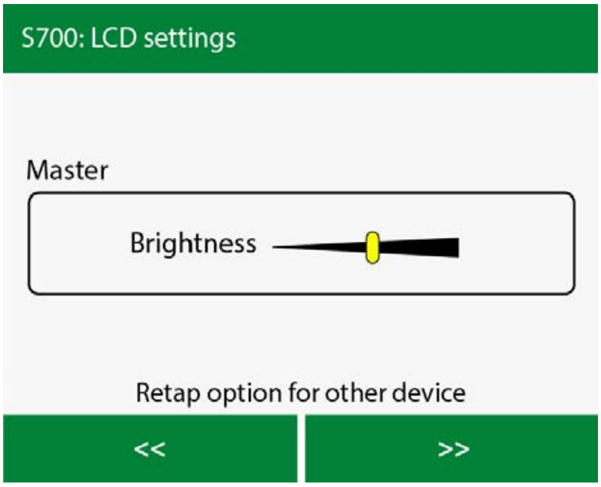
Figure 47 Sound Settings

Selecting this menu option twice can be used to change the setting on the exit reader.

LCD Brightness: key 7

Use the **LCD Brightness** menu to change the brightness of the terminal LCD screen to be adjusted.

Selecting this menu option twice can be used to change the setting on the exit reader.



S700: LCD settings

Master

Brightness

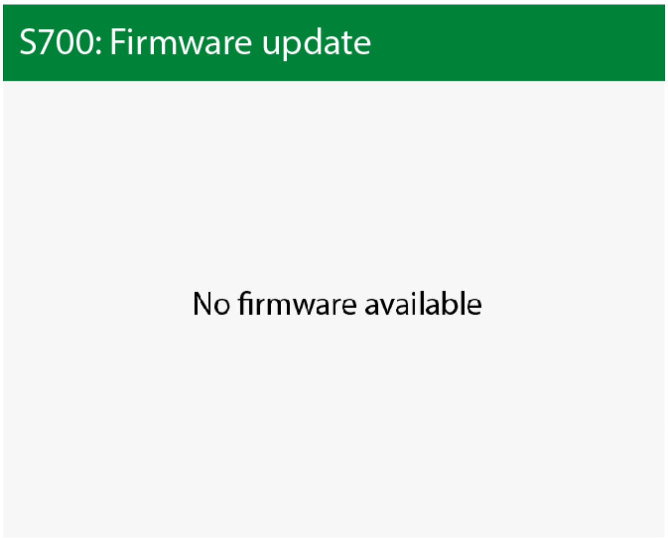
Retap option for other device

Figure 48 LCD Brightness

Firmware Update: key 8

The **Firmware Update** menu can be used to update the firmware if updates are available.

A complete description of the firmware update process can be found in Updating Firmware on page 91.



S700: Firmware update

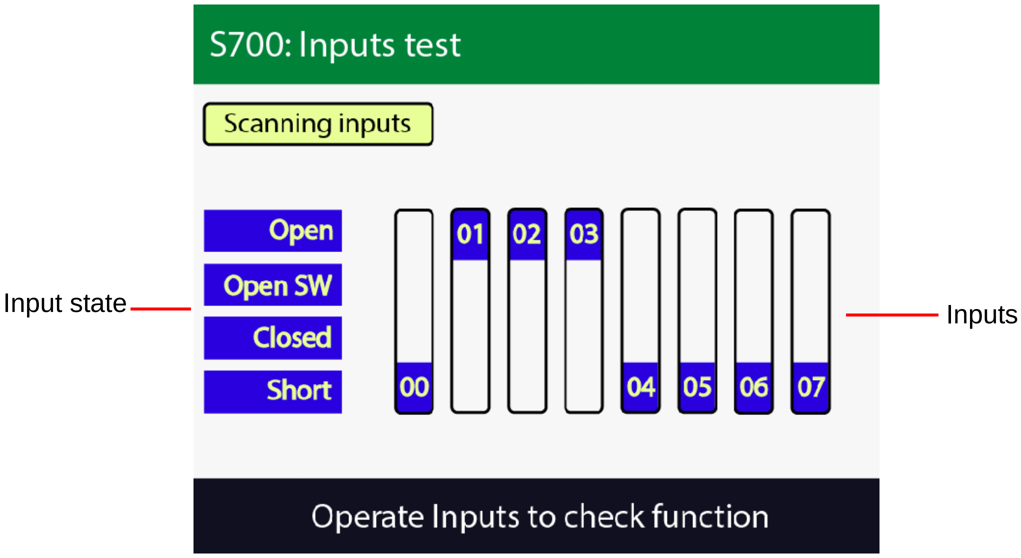
No firmware available

Figure 49 Firmware Update

Inputs Tests: key 9

The S700 terminal has built-in tests that can be performed to check specific functionality.

The **Input tests** screen displays the four terminal inputs states. When peripherals such as the exit reader or the Door Interface Unit are attached to the terminal, their inputs are also displayed on the screen.



S700: Inputs test

Scanning inputs

Operate Inputs to check function

Figure 50 Inputs test

The **Inputs test** screen displays the following input states and inputs:

- **Input state:** To test the inputs, change the state of the input, for example, open and close the door to test if the terminal is registered the state change.
- **Inputs:** Each number correlates with a terminal input number as detailed in Wiring the Terminal on page 29. For example, input 0 is door position. The position of each input corresponds to an input state, which is defined on the left of the screen.

Two-state input test

When an input is wired in a 2-state open and closed configuration, only the Open and Short tests can be administered.

These states are as follows:

Open: The input is open

Short: The input is closed

Four-state input test

When an input has been wired in a 4-state configuration, all four input state tests can be administered. For more information on configuration, see Configuration information on page 36.

The following states are outlined as follows:

Open: Indicates a tamper cut condition

Open SW: The input is open

Closed: The input is closed

Short: Indicates a tamper short condition

Chapter 7

S700 Operational Modes

The S700 intelligent access terminal can be configured to function in different modes other than the standard door mode described in the main section of the manual. The Door mode list in Devices is as follows:

- Door
- Turnstile
- Turnstile (Pulse)
- Passenger
- Equipment

7.1 Door mode timings

Door mode is the normal terminal configuration that is described in the main installation section of this manual. Use door mode to allow a terminal to control access to a door and monitor specific inputs associated with that door.

When a valid card is presented at a terminal in door mode, a chain of events takes place. This chain is dictated by specific settings in the Devices application. These timings are configurable in the Devices application and also on the terminal itself.

The chain of events is outlined in the following section, *S700: Door mode timing on page 75*.

S700: Door mode timing

The following chart shows the timing sequence for a typical door mode.

The door event starts on the left and move right as events and time occur.

A valid card, remote Oneshot or REX (Request to Exit) input, typically starts the **Lock Open Time** sequence.

Lock output	Lock Open Time	Lock Open Time			
Normal open		Door close after			
Sounder warning, legal open time running out			Pre-alarm		
Allowing time to close				Close time	
Door held alarm and alarm sounder					Alarm Time
Notes	If the door is not detected open before the **Lock Open Time** period expires, the lock is re-secured and the door mode returns to the idle state	The door has been detected open	If the door is detected closed before the **Door close after** period, the **Lock Open Time 2** is cancelled and the door mode returns to the idle state	The pre-alarm starts the defined second before **Door close after** expires	**Close Time** is to allow an automatic door time to close when the cycle is complete; the pre-alarm continues during the **Close Time**

Table 30: Illustration of door timings

The following steps outline the door open cycle:

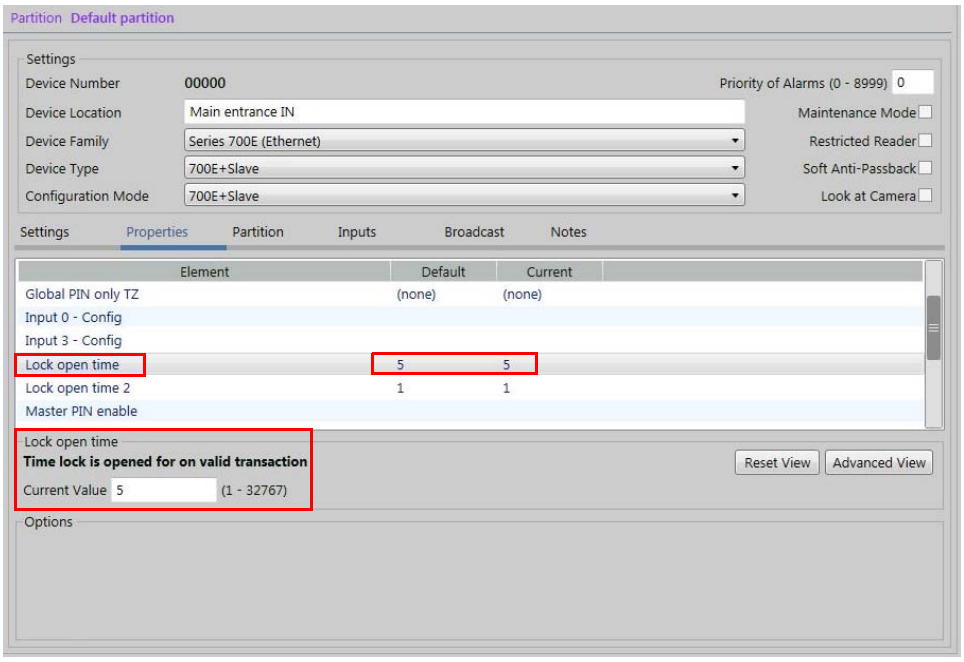
1. The valid card is swiped at the terminal and access is granted.
2. Lock power is dropped for a period of time known as **Lock open time**: five second default. If the door is not opened by the end of this time, the lock re-engages.
3. After the door is opened by the cardholder the lock power remains off for a period of time to prevent the lock re-engaging and closing the door before it is fully opened. This is the **Lock open time 2**. The default for this is one second.
4. The door is closed. If the door remains open longer than the **Door close after** time, a door held alarm is generated on the terminal and the AC2000 system. The default is 15 seconds.

Configuring the timings in the Devices application

To configure timings in the Devices application, complete the followings steps:

1. Log on to the **AC2000 Floatbar**, click **Device Configuration**, and click **Devices**.
2. Select the terminal you want to modify and select the **Properties** tab.

3. From the main panel, select the timing you want to amend. This panel is shown in the following figure. Update the value you require in seconds.



Partition Default partition

Settings

Device Number	00000	Priority of Alarms (0 - 8999)	0
Device Location	Main entrance IN	Maintenance Mode	□
Device Family	Series 700E (Ethernet)	Restricted Reader	□
Device Type	700E+Slave	Soft Anti-Passback	□
Configuration Mode	700E+Slave	Look at Camera	□

Element	Default	Current
Global PIN only TZ	(none)	(none)
Input 0 - Config		
Input 3 - Config		
Lock open time	5	5
Lock open time 2	1	1
Master PIN enable		

Lock open time

Time lock is opened for on valid transaction

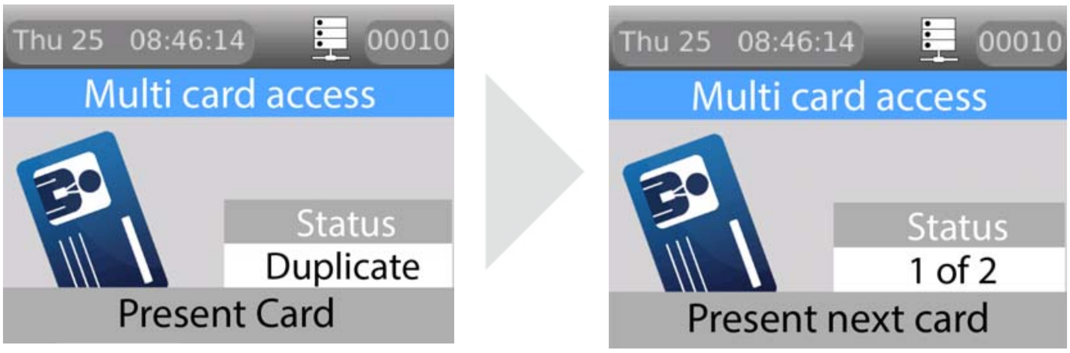
Current Value 5 (1 - 32767)

Figure 51 Updating the door cycle timings

Door mode is the default terminal configuration that is described in the main installation section of this manual. Use door mode to allow a terminal to control access to a door and monitor specific inputs associated with that door.

7.1.1 Multi-swipe access

The S700 terminal can be configured to require swipes from up to five valid cards before granting access. Configure this using the Devices application. When this setting is configured, an initial valid swipe prompts a request for further valid swipes on the screen before opening the door. When all valid cards are swiped the terminal grants the user access.



Thu 25 08:46:14 00010

Multi card access

Status

Duplicate

Present Card

Thu 25 08:46:14 00010

Multi card access

Status

1 of 2

Present next card

Figure 52 Multi-swipe request screen and access granted screen

The multi-card request swipe screen shows the number of valid cards required to grant access, up to a maximum of five cards. As each valid card is swiped, the S700 reader increments the card values shown in the card count display section and access is granted.

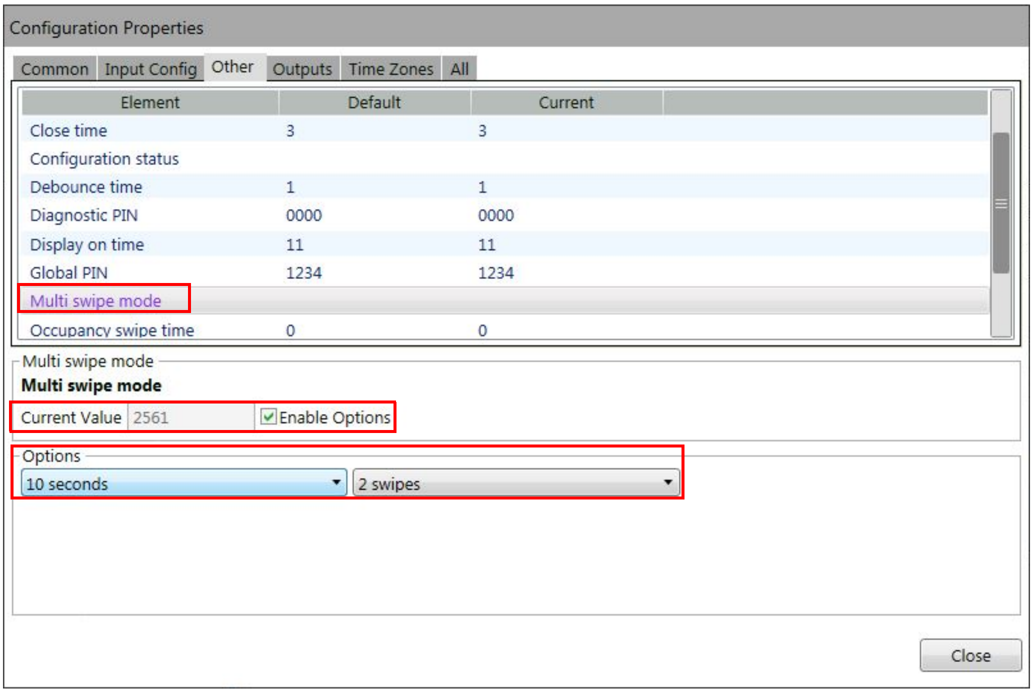
Software configuration for multi-swipe access

To activate multi-swipe access mode, complete the following steps:

1. Log on to the **AC2000 Floatbar**, click **Device Configuration**, and click **Devices**.
2. Select the terminal you want to configure.
3. Select the **Properties** tab and click **Advanced View**.

4. Select **Other**, and select **Multi swipe mode**.

5. Select the **Enable Options** check box.



Element	Default	Current
Close time	3	3
Configuration status		
Debounce time	1	1
Diagnostic PIN	0000	0000
Display on time	11	11
Global PIN	1234	1234
Multi swipe mode		
Occupancy swipe time	0	0

Multi swipe mode

Multi swipe mode

Current Value 2561 ☑ Enable Options

Options

10 seconds

2 swipes

Figure 53 Configuring multi-swipe access

6. Use the drop-down **Options** lists to configure **Multi swipe mode**. In *Figure 53* Configuring multi-swipe access the options are configured to 10 seconds and 2 swipes.

7.2 Passenger Mode

Passenger mode enables a door to stay open for a longer period of time when swiped with a special usage card. This configuration is frequently used in airports to allow the free access of passengers through the door.

When the reader is in this mode, it allows a normal card access through the door. However, a card that has been assigned **Special Usage** in the Personnel application is given the option to open the door as **Staff** or **Passenger**.

Passenger mode keeps the door open for an extended period of time. The default time is 30 minutes.

7.2.1 Configuring passenger mode in the software

For passenger mode to work correctly, the terminal must be configured in passenger mode and the cardholders using that terminal must be allocated special usage in the Personnel application. To activate special usage, select the **Special Usage** check box in the personnel record of the relevant cardholder.

Card Swipe to End Mode

Figure 54 Timing diagrams shows the timing sequences that take place when a card swipe is used to start and end the activation of third-party equipment. It also shows the options of either using or not using activations sensing.

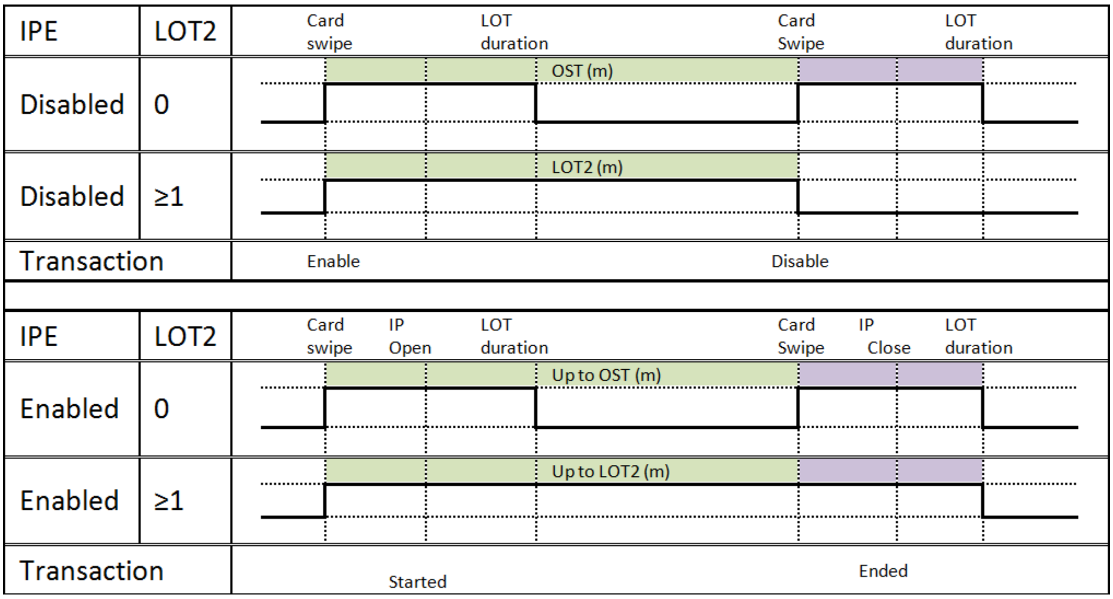


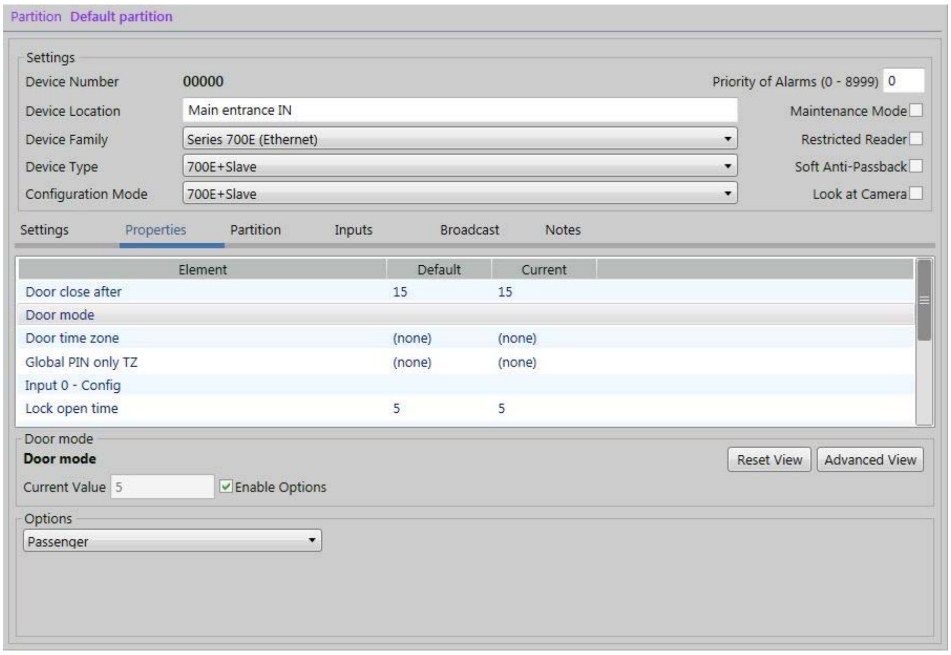
Figure 54 Timing diagrams

Configuring the terminal as a passenger mode terminal

To configure the terminal as a passenger mode terminal, complete the following steps:

1. Log on to the **Floatbar**, click **Device Configuration**, and click **Devices**.
2. Select the terminal from the list and select the **Properties** tab.

3. Select the terminal you want to configure.



Device Number 00000

Priority of Alarms (0 - 8999) 0

Device Location Main entrance IN

Maintenance Mode □

Device Family Series 700E (Ethernet)

Restricted Reader □

Device Type 700E+Slave

Soft Anti-Passback □

Configuration Mode 700E+Slave

Look at Camera □

Element	Default	Current
Door close after	15	15
Door mode		
Door time zone	(none)	(none)
Global PIN only TZ	(none)	(none)
Input 0 - Config		
Lock open time	5	5

Door mode

Door mode

Current Value 5 ☑ Enable Options

Options

Passenger

Figure 55 Configuring passenger mode

4. Select **Door Mode**. You may have to scroll down to see this option.
5. Use the **Options** drop-down list to select **Passenger**.
6. Ensure the **Enable Options** check box is selected.
7. Click **Save** on the toolbar of the Devices application.

Adding special access to a cardholder

To add special access to a cardholder, complete the following steps:

1. Log on to the **AC2000 Floatbar**, click **Enrolment**, and click **Personnel**.
2. Search for the cardholder to which the special access is to be applied.
3. Select the **Special Usage** check box.
4. Click **Save**.

7.2.2 The passenger mode cycle

Table 31: Illustration of passenger mode timing outlines the door open cycle. The passenger mode cycle is located within that cycle; it is only available to the system if Passenger mode is selected.

Lock output	Lock Open Time	Lock Open Time			
Normal open		Door close after			
Sounder warning, legal open time running out			Pre-alarm		
Allowing time to close				Close time	
Door held alarm and alarm sounder					Alarm Time
Notes	If the door is not detected open before the **Lock Open Time** period expires, the lock is re-secured and the door mode returns to the idle state	The door has been detected open	If the door is detected closed before the **Door close after** period, the **Lock Open Time 2** is cancelled and the door mode returns to the idle state	The pre-alarm starts the defined second before **Door close after** expires	**Close Time** is to allow an automatic door time to close when the cycle is complete; the pre-alarm continues during the **Close Time**

Table 31: Illustration of passenger mode timing

To activate passenger mode on a terminal, complete the following steps:

1. To give a cardholder the ability to use the door in Passenger mode, you must go to their Personnel record on the AC2000 system. When you locate their record using the Personnel application, select the **Special Usage** check box. When the check box is selected, Passenger mode is activated for those cardholders who swipe their access cards on this terminal.
2. The terminal asks the cardholder if they require **Passenger** or **Staff**. Click the left function key for **Passenger** and the right function key for **Staff**. Selecting staff access causes the terminal to act as in **Door Mode**.

3. The cardholder selects **Passenger**.

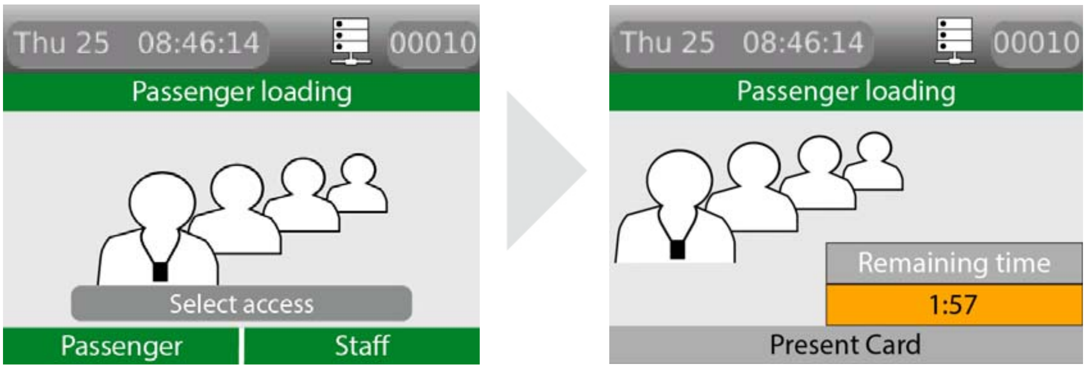


Figure 56 Pressing the passenger operations button

4. Lock power is dropped for a period of time known as **Lock open time** - this has a five second default time. If the door is not opened by the end of this time, the lock re-engages.
5. After the door is opened, the lock power remains off for a period of time to prevent the lock re-engaging and closing the door before it is fully opened. This is the **Lock open time 2**. The default time for this is one second.
6. After the previous two steps, the terminal enters **Passenger Mode** and the door can be held open for the period of time before an alarm sounds. The default time for this is three minutes. The period of time is defined using the **Passenger time** option in the Devices application.
7. You can deactivate **Passenger mode** by swiping a valid Special Usage card and selecting **Finish**.

7.2.3 Lobby mode

Lobby mode is a combination of passenger mode and interlocking terminals. Two terminals may be interlocked directly, or more than two terminals may be interlocked using a third-party logic controller or interposing relays.

In lobby mode, as long as one door is open in passenger mode, interlocked doors are locked out to passengers but can be accessed with a valid card swipe from a special-usage cardholder.

7.3 Interlock

Interlocking terminals are linked together so that only one terminal opens its door at any given time. This is achieved using a combination of wiring and software configuration. Interlocking between two terminals is achieved using a simple wiring configuration, however interlocking more than two terminals requires the use of a third-party logic controller or interposing relay system.

7.3.1 Wiring two terminals for interlock

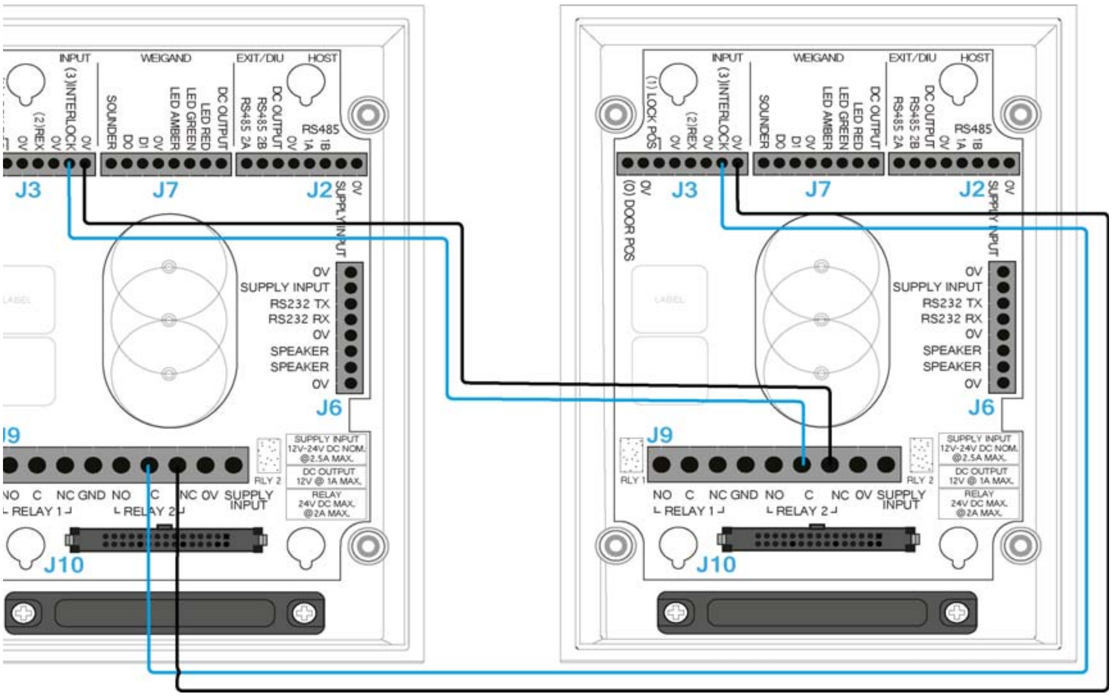


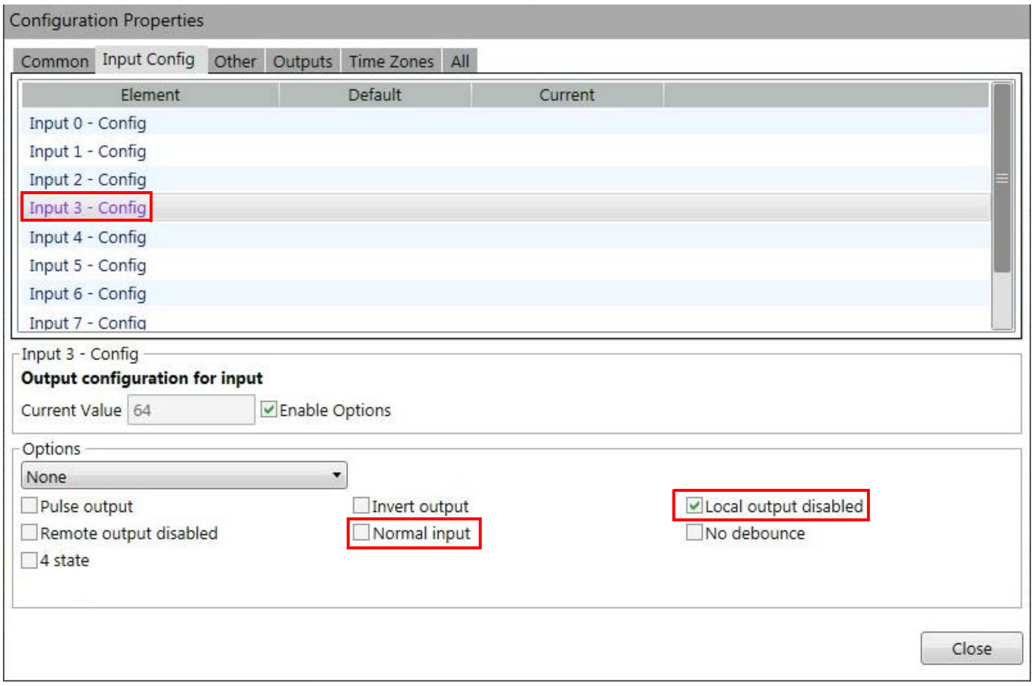
Figure 57 Wiring two terminals for interlock

Software configuration for interlock

To configure the software for interlock, complete the following steps:

1. Log on to the **AC2000 Floatbar**, click **Device Configuration**, and click **Devices**.
2. Select the terminal you want to configure and select the **Properties** tab.
3. Select the **Input Config** panel and select Input 3, or with DIU select Input B.

4. Clear the check box for **Normal Input**. Ensure the check box for **Local output disabled** is selected.



Configuration Properties

Common | Input Config | Other | Outputs | Time Zones | All

Element	Default	Current
Input 0 - Config		
Input 1 - Config		
Input 2 - Config		
Input 3 - Config		
Input 4 - Config		
Input 5 - Config		
Input 6 - Config		
Input 7 - Config		

Input 3 - Config

Output configuration for input

Current Value 64 ☑ Enable Options

Options

None

☐ Pulse output ☐ Invert output ☑ Local output disabled

☐ Remote output disabled ☐ Normal input ☐ No debounce

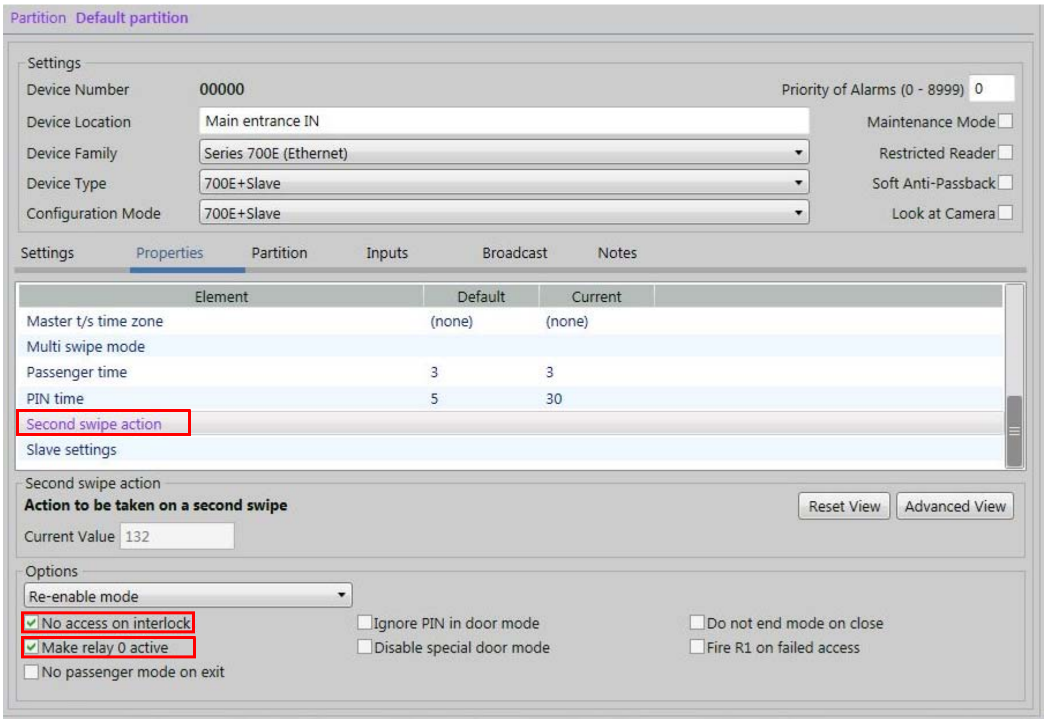
☐ 4 state

Close

Figure 58 Configuring input 3 for interlock

5. Select the **Common** tab.

6. Select **Second swipe action**.



Partition Default partition

Settings

Device Number 00000 Priority of Alarms (0 - 8999) 0

Device Location Main entrance IN Maintenance Mode ☐

Device Family Series 700E (Ethernet) Restricted Reader ☐

Device Type 700E+Slave Soft Anti-Passback ☐

Configuration Mode 700E+Slave Look at Camera ☐

Settings | Properties | Partition | Inputs | Broadcast | Notes

Element	Default	Current
Master t/s time zone	(none)	(none)
Multi swipe mode		
Passenger time	3	3
PIN time	5	30
Second swipe action		
Slave settings		

Second swipe action

Action to be taken on a second swipe Reset View Advanced View

Current Value 132

Options

Re-enable mode

☑ No access on interlock ☐ Ignore PIN in door mode ☐ Do not end mode on close

☑ Make relay 0 active ☐ Disable special door mode ☐ Fire R1 on failed access

☐ No passenger mode on exit

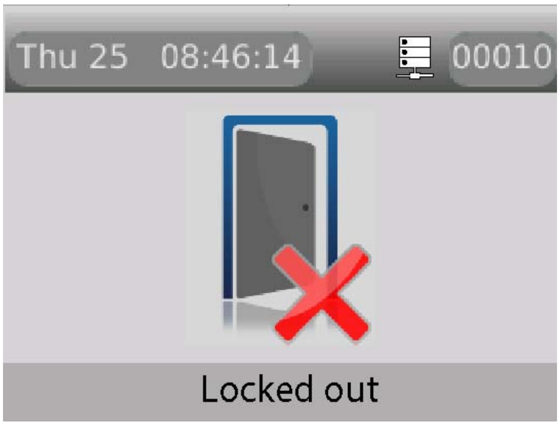
Figure 59 Configuring interlock functionality

7. Select the **No access on interlock** and **Make relay 0 active** check boxes.

8. Click **Close** and click **Save** on the toolbar of the Devices application.

7.3.2 The interlock process in door mode

Interlock is configured and works the same way in **Passenger Mode** and **Door Mode,** with only a slight change to end functionality.



Thu 25 08:46:14 00010

Locked out

Figure 60 Interlock locked out display message in door mode

Interlock configuration process

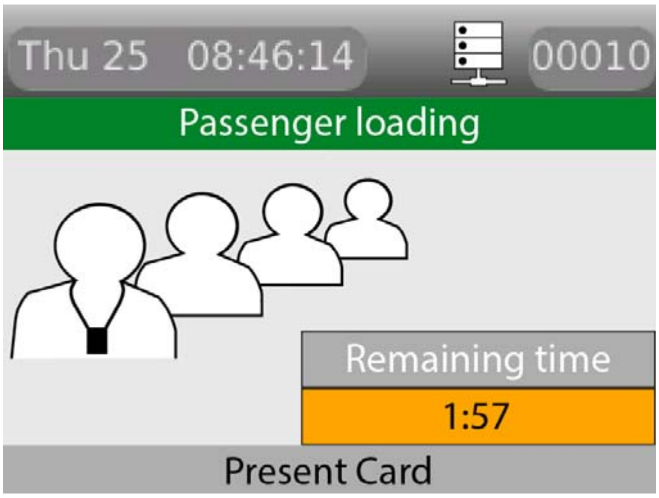
The following outlines the interlock configuration process:

1. The spare outputs of terminals are linked to input 3 of the other interlocked terminals.
2. When input 3 of the terminal is closed the terminal remains idle.
3. When a valid card is swiped at an interlocked terminal, both outputs on the terminal change to the open state. This drops lock power at the swiped terminal and simultaneously opens input 3 on any interlocked terminals.
4. Interlocked terminals lock down and display the lockdown message.
5. The interlock function ends when the original swiped door is closed.

7.3.3 The interlock process in passenger mode

The following outlines the interlock process in passenger mode:

1. The spare outputs of terminals are linked to input 3 of the other interlocked terminals.
2. When input 3 of the terminal is closed the terminal remains idle.
3. When a valid card is swiped at an interlocked terminal, both outputs on the terminal change to the open state. This drops lock power at the swiped terminal and simultaneously opens input 3 on any interlocked terminals.
4. The swiped terminal displays a countdown screen showing the time that the doors remain interlocked - that is, **Passenger time** in the Devices application.



Thu 25 08:46:14 00010

Passenger loading

Remaining time

1:57

Present Card

Figure 61 Passenger mode countdown on the swiped terminal

5. The interlocked terminals with input 3 now open locks down, preventing access until the swiped door is closed or the mode ended. Interlocked terminals displays a no-passenger access message. Normal card access is allowed.

Important: If using a third-party logic controller to control multiple doors, the interlock principles remain the same. The spare output opens on a valid special usage swipe and input 3 is opened on interlock terminals to trigger lock down.

7.4 Equipment mode

A reader configured for Equipment mode must not be used to control a door lock.

The S700 reader controller can be used to enable third-party external equipment by using a valid card swipe. The S700 enables the equipment; the actual control of the equipment is carried out by the equipment. An S700 reader and exit combination can be used to enable two independent pieces of equipment, for example, a generator or conveyor belt.

7.4.1 Setting up Equipment mode

The following outlines the hardware and software configuration for the Equipment mode on the S700 reader and the AC2000 system.

Connections

The relay outputs on the S700 are used to enable equipment. The relays are low-voltage rated contacts, so appropriately rated, interposing relays must be used if you want to enable mains-powered equipment. The relays can either be configured as follows:

- To pulse at the start and pulse at the end of the required enable period
- To activate for the full duration of the required enable period

If necessary, the inputs on the S700 can be used to monitor feedback of the activation state from the external equipment. *Table 32:* Equipment mode connections outlines the intended usage of the available inputs and outputs.

Equipment set	User interaction	Connection on the Master	Purpose	Comment
One	Master	Relay 1	Enable equipment, control	Low voltage switch capable only
One	Master	Input 0	Equipment activated, sense	Use volt-free contacts on third-party equipment
Two	Exit	Relay 2	Enable equipment, Two	Low-voltage switch capable only
Two	Exit	Input 1	Equipment activated, sense	Use volt-free contacts on third-party equipment

Table 32: Equipment mode connections

Configuration

The configuration fields that are used by the Equipment enable mode are outlined in *Table 33:* Equipment enable Timers.

Configuration item	Abbreviation	Comment
Lock open time	LOT	Mode start time, also stop relay time when LOT2 is zero
Lock open time 2	LOT2	Non-pulsed relay and mode activation time

Table 33: Equipment enable Timers

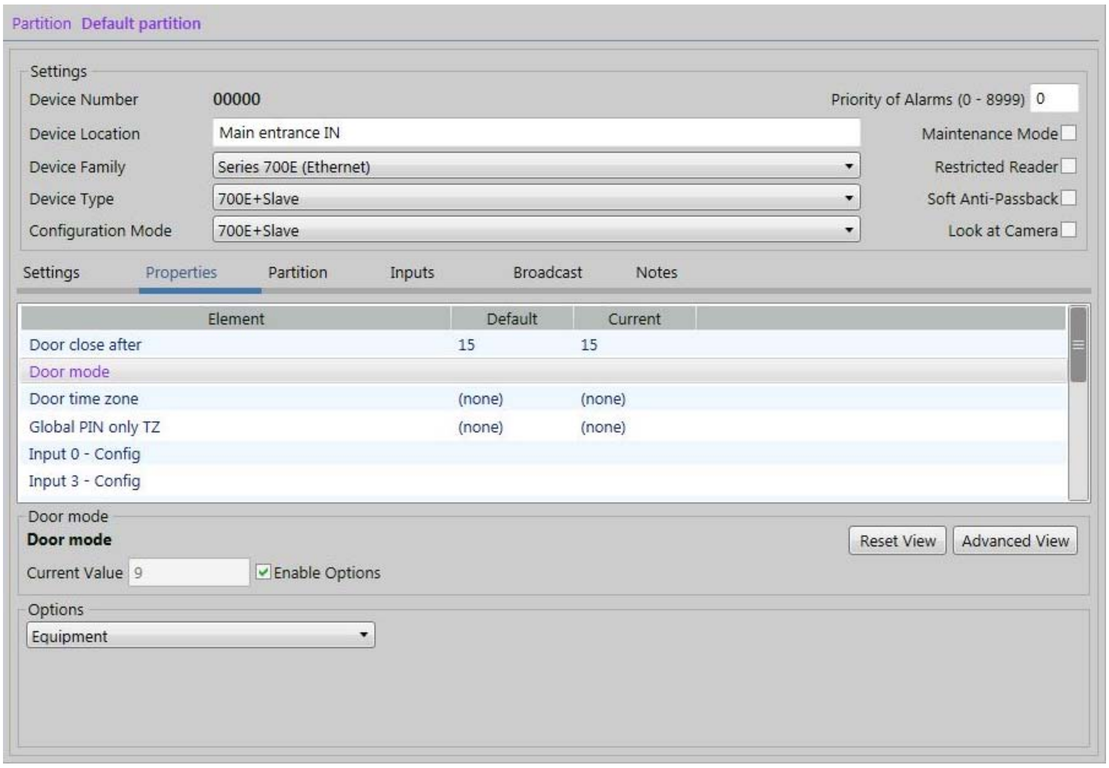
Configuration item	Abbreviation	Comment
Occupancy swipe time	OST	Pulsed mode activation time
Input 0 enable	IPE(0)	Used to enable activation feedback sense for Master controller
Input 1 enable	IPE(1)	Used to enable activation feedback sense for Exit controller

Table 33: Equipment enable Timers

Note: The feedback inputs, Input 0 and Input 1, in the table are optional. If they are not to be used, Input 0 and Input 1 must be disabled.

Selecting Equipment mode in the Devices application

To select and enable Equipment mode for a device, complete the following steps:



Partition Default partition

Settings

Device Number	00000	Priority of Alarms (0 - 8999)	0
Device Location	Main entrance IN	Maintenance Mode	□
Device Family	Series 700E (Ethernet)	Restricted Reader	□
Device Type	700E+Slave	Soft Anti-Passback	□
Configuration Mode	700E+Slave	Look at Camera	□

Element	Default	Current
Door close after	15	15
Door mode		
Door time zone	(none)	(none)
Global PIN only TZ	(none)	(none)
Input 0 - Config		
Input 3 - Config		

Door mode

Door mode

Current Value 9 ☑ Enable Options

Options

Equipment

Figure 62 Equipment Enable in the Properties tab

1. Launch the Devices application and select the device from the devices tree on the left.
2. Select the **Properties** tab and click **Advanced View**.
3. From the **Configuration Properties** pane, select **Door** mode.
4. To select Equipment enable mode, use the **Options** drop-down list to select **Equipment**.
5. In the **Current Value** field, set the value, and ensure the **Enable Options** check box is selected.
6. Click **Close** and click **Save**.

Operating Equipment mode

When Equipment mode has been selected for a device, it operates in the following sequence:

1. When you perform a valid card swipe, two operations take place:

    i. The relay activates, enabling the third-party equipment. The equipment can be externally controlled.

    ii. The LCD on the S700 reader shows you that the equipment has been activated. In addition, an alarm is sent: **Check-in enabled**. There is also a **Check-in Disabled** and a **Check-in Equipment Fail Alarm**.

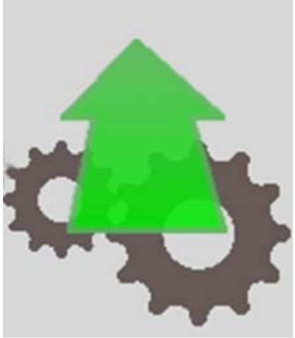


Figure 63 S700 display: Equipment enabled

2. When the equipment is externally activated, the following takes place:

    i. The equipment sends an output to signal that it is in use, causing the sense input to change state on the S700 reader.

    ii. The equipment must be activated within the configured value of **Lock open time** using the **Properties** tab in the Devices application.

    iii. The display on the S700 reader changes to the **Equipment activated** state.

    iv. Cost Charging is optional, and can be implemented.

Note: When you implement this, you see a Card Valid Used or Card Valid Unused transaction. If a card is swiped but the feedback input is not activated, the report shows a Card Valid Unused transaction. If a card is swiped and the feedback input is activated, the report shows a Card Valid Used transaction. These transactions can be used for a Cost charging scenario.

Note: As an example, Cost charging is implemented when the airport authority charges an airline company for the use of a baggage carousel. This action works when an event is sent to the AC2000 system and that can be used to start cost charging for the use of external, third-party equipment.

    v. While the S700 has the equipment enabled, the equipment can be deactivated and reactivated repeatedly.

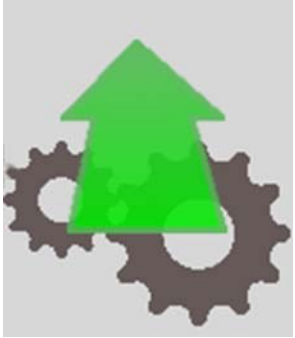


Figure 64 S700 display: Equipment activated

3. When the further usage of the equipment is no longer required, you can do the following:

   i. Swipe a valid card to end the operation or allow the timers to run out.

   ii. The operator swipes a valid card; this deactivates the S700 relay output.

   iii. The AC2000 system sends an event; this stops cost charging for the use of external equipment.

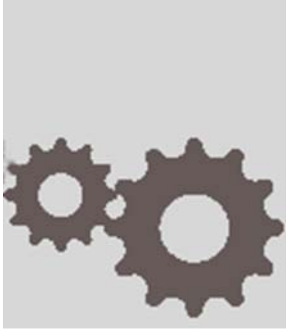


Figure 65 S700 display: Equipment stopped or Equipment fault

4. If the equipment remains active for longer than the permitted period, the following happens:

   i. The S700 deactivates automatically; this deactivates the S700 relay output.

   ii. A **Check-in Disabled** alarm is sent. The AC2000 system stops cost charging for the use of external equipment.

5. When the equipment has been stopped, the S700 returns to its idle state ready to start a new sequence.

Appendix 1 Updating Firmware

Updating the S700 terminal firmware, device defrosting, is accomplished by using the AC2000 web pages to load the firmware pack on to the terminal and manually updating the terminal.

Note: This process must only be carried out by an AC2000 administrator with the relevant permissions.

Accessing the System Configuration Menu

To access the configuration menu, complete the following steps:

1. On the terminal keypad, quickly tap the right function key at least three times.
2. When prompted to enter passcode type 67670000.

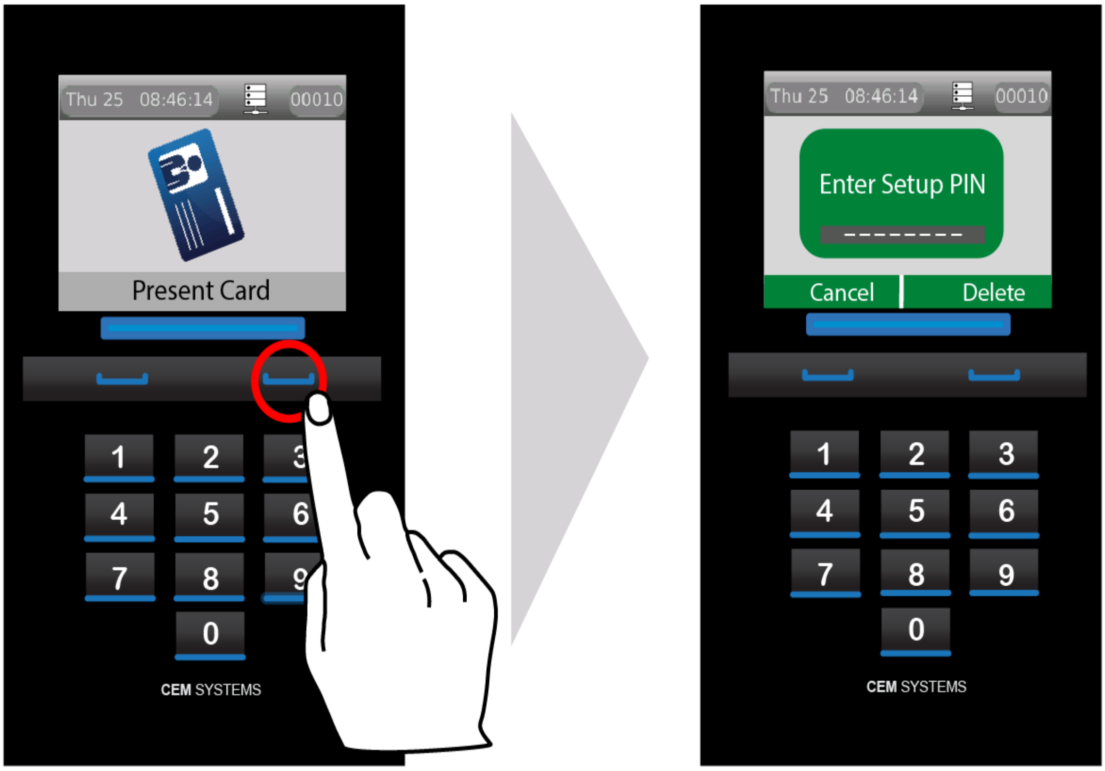


Figure 66 Accessing the configuration menu

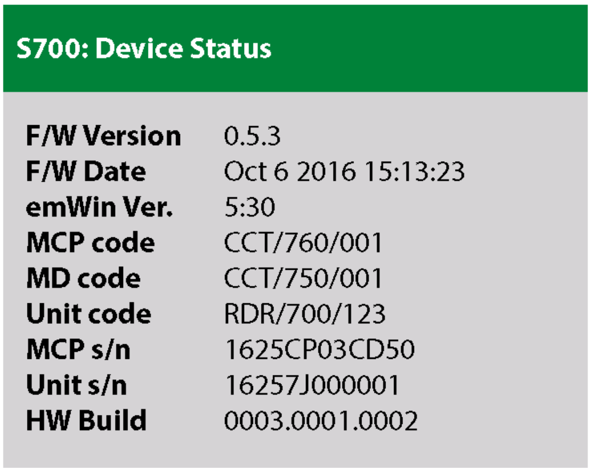
Note: After the AC2000 system setup is complete, the pass code is 67670000, where 0000 is the code set by the system. The final four digits of this PIN are configurable for the terminal in the **Devices** application. For more information on configuring the passcode, see section 6.3 Accessing the system configuration menu, on page 67.

3. Select **Device Status** from the configuration menu by pressing the **3** key on the terminal keypad.
   The firmware version is displayed at the top of the screen. Check for the number beside the **F/W Version** heading.

Checking the firmware version of the terminal

To check the status of your device quickly, complete the following step:

- Tap the left function key quickly at least three times. The appears with information on the firmware on the S700 terminal, as shown in *Figure 66* Accessing the configuration menu.



S700: Device Status

F/W Version	0.5.3
F/W Date	Oct 6 2016 15:13:23
emWin Ver.	5:30
MCP code	CCT/760/001
MD code	CCT/750/001
Unit code	RDR/700/123
MCP s/n	1625CP03CD50
Unit s/n	16257J000001
HW Build	0003.0001.0002

Figure 67 Device status

Loading the firmware onto the terminal

To load the firmware onto the terminal, complete the following steps:

1. Obtain the firmware pack from CEM Systems and save to an accessible location on the network.
2. Log into the web pages by opening a web browser.
3. Into the browser, enter the Server IP Address, for example:

   https://192.168.1.10

   If the IP address has been changed from the default, enter the new IP address.
4. Enter the username and password.
5. Click **Login**.
6. Select **AC2000 WEB**, select **Reader Setup**, and select **Device Defrost**.
7. Click **Choose file** and select the S700 device image file (.z70) that is to be loaded.

Note: This image is provided by CEM Support and must be saved in a secure location.

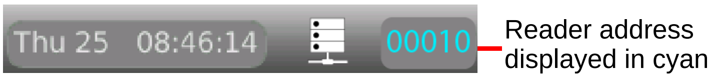
8. Click **Upload**
9. Click **OK**.

A message appears similar to the following:

```
Initiating defrost to device:XXXX with firmware file:<filename>
```

Updating the terminal

When the terminal has received the firmware file, the reader address is displayed in the colour cyan instead of white.


Thu 25 08:46:14

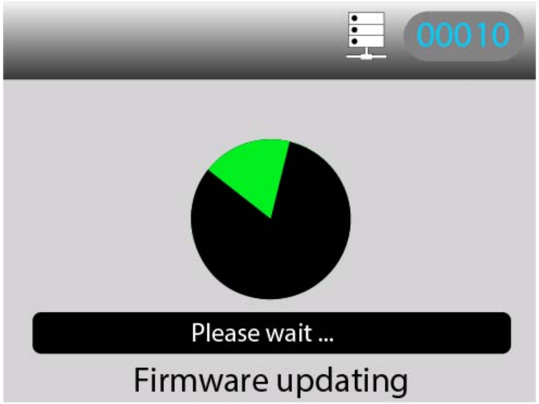
00010

Reader address displayed in cyan

Figure 68 Cyan reader address

To update the terminal, complete the following steps:

1. Access the System Configuration Menu of the terminal.
2. Press the number **8** on the keypad. This opens the **Firmware Upgrade** menu.
3. Select **Apply**.


00010

Please wait ...

Firmware updating

Figure 69 Upgrading the terminal firmware

The reader updates and reboots.

Note: The reader goes offline for up to 30 seconds while the upgrade takes place.

Appendix 2 Broadcast and Timezone Priorities

A state machine is used to determine the priority that different events such as broadcast and timezone changes have on the terminal. The order is listed in descending priority, which is outlined in the following way:

1. Broadcast open
2. Interlock input
3. Locked out TZ (timezone)
4. Door override TZ (timezone)
5. Card only TZ (timezone)
6. PIN only TZ (timezone)

Example

If there is an overlap between the **Locked out TZ** and the **Card only TZ**, the **Locked out TZ** will take priority due to it being higher up the list. When the **Locked out TZ** ends the **Card only TZ** takes over.

Regardless of which state the terminal is in, a **Broadcast open** opens the door, overriding all other options.

Note: For more information on timezones, see the **AC2000 Setup Guide**, and for information about broadcasts, see the **AC2000 Operator Guide**.

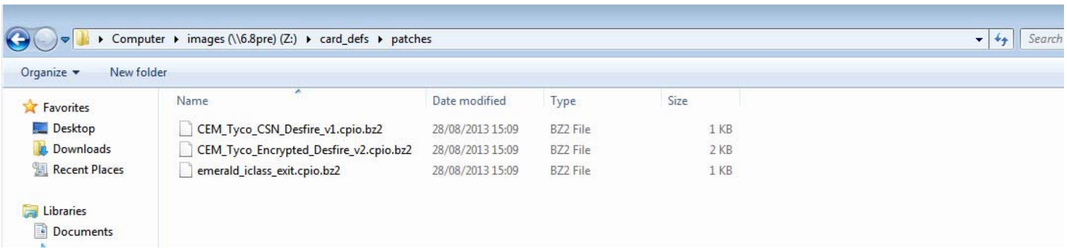
Appendix 3 Loading card definitions

In order for AC2000 to correctly process the information encoded on the smart cards, the correct card definitions must be loaded onto the CDC. These are loaded using the AC2000 Web pages.

1. Log into the AC2000 client software. This is done to allow access to the definition files on the CDC.
2. Log into the web pages by opening a web browser.
3. Enter the Server IP Address, for example:

   https://192.168.1.10

   If the IP address has been changed from the default, enter the new IP address.
4. Enter the username and password.
5. Click **Login**.
6. Select **AC2000 WEB**, select **System**, and click **Software Update**.
7. Click **Browse** and navigate to **Z:\\card_defs\patches**.
8. Select the device image file (.cpio.bz) that is to be loaded.



Name	Date modified	Type	Size
CEM_Tyco_CSN_Desfire_v1.cpio.bz2	28/08/2013 15:09	BZ2 File	1 KB
CEM_Tyco_Encrypted_Desfire_v2.cpio.bz2	28/08/2013 15:09	BZ2 File	2 KB
emerald_iclass_exit.cpio.bz2	28/08/2013 15:09	BZ2 File	1 KB

Figure 70 Card definition file list

9. Click **Upload**
10. Click **OK**.

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