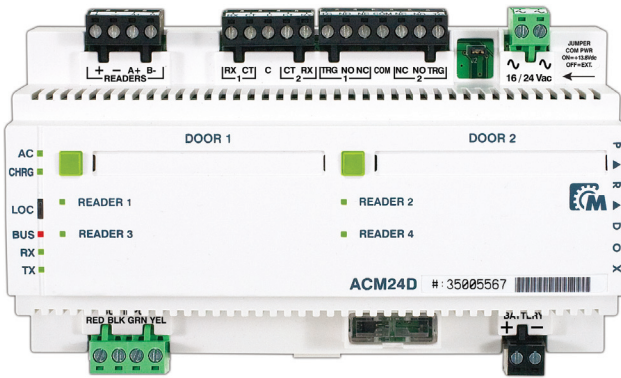


# ACM24D: 2 Door, 4 Reader Access Control Module



Installation/Wiring:	??
Programming 1:	??
Programming 2:	??
Testing:	??
Total Time:	??

**DRAFT**

## Description

The ACM24D is an access controller designed to work within the Imperial system. It is capable of monitoring two doors and up to 4 readers connected on a simple 4-wire reader bus. The ACM24D was designed to be a complete stand-alone module providing uninterrupted operation should the rest of the system fail. The module can store and buffer up to 1,000 access events. The Imperial system's 1000 cards, 256 schedules and 256 access levels are also stored internally. The ACM24D provides ultra fast response time for access operations and is fully firmware upgradeable via its communication bus. In fact, other than programming and reporting events to the Imperial system, the ACM24D is a completely stand-alone module.

With its DIN rail design, the module requires very little space, and is fast and easy to install. With its built-in power supply and battery backup, the ACM24D provides truly reliable and fail-proof access control management.

## Features

- 2 door, 4 reader controller
- The system's 1,000 cards, 256 schedules and 256 access levels are also stored internally
- 1,000 access events buffered in stand-alone mode
- Built-in power supply with battery charging
- Selectable door lock power (internal 12Vdc/external) with unique Energy Saving feature that reduces voltage after lock activation
- Ultra fast response time
- 4 wire reader bus for easy wiring and installation
- Remote firmware upgradeability via bus
- DIN rail design with manual control for doors, on-board status display, and removable terminals
- Programming via BabyWare software
- 4 wire connection to the Imperial V32 controller's RS-485 Access Bus with up to a 900m (3000ft) distance
- Bi-directional LOCATE feature from module to software and vice versa

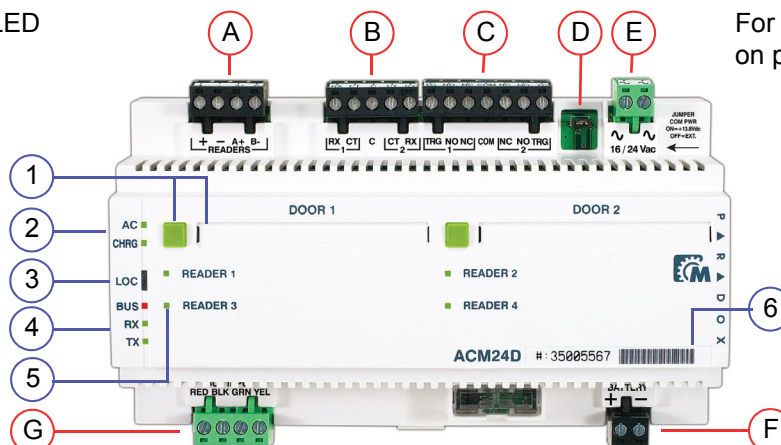
## Overview

- 1) Manual door control and status
- 2) AC and Charge LEDs
- 3) Module Locate feature activation (see "Bi-directional Locate Feature" on page 4)
- 4) RS485 Access Bus status LEDs
- 5) Reader status LEDs
- 6) Product serial number

- A) 4-wire RS485 reader bus for up to 4 readers (2 per door). See "Assigning a Reader to a Door" on page 3.
- B) Request for exit (REX) and door contact connections
- C) Door lock and external trigger connections
- D) Door lock power selection jumper
- E) AC/DC input: 16-24Vac / 16-36Vdc
- F) Battery connection: 12Vdc, 4Ah/7Ah gel cell
- G) V32 4-wire RS485 Access bus connection

For LED status, refer to "LED Feedback" on page 4 .

For items A to G, refer to "Wiring" on page 2.



## Related Topics

### Installation / Wiring (see Imperial System Guide)

- DIN Rail Enclosure
- System Diagrams and Wiring Tips
- Wire Gauge Selection

### Features

- Assigning a Reader to a Door (see page 3)
- Bi-directional Locate Feature (see page 4)
- Remote Firmware Upgrade (see page 4)

### Applications

- Access Control

### BabyWare (see Imperial System Guide)

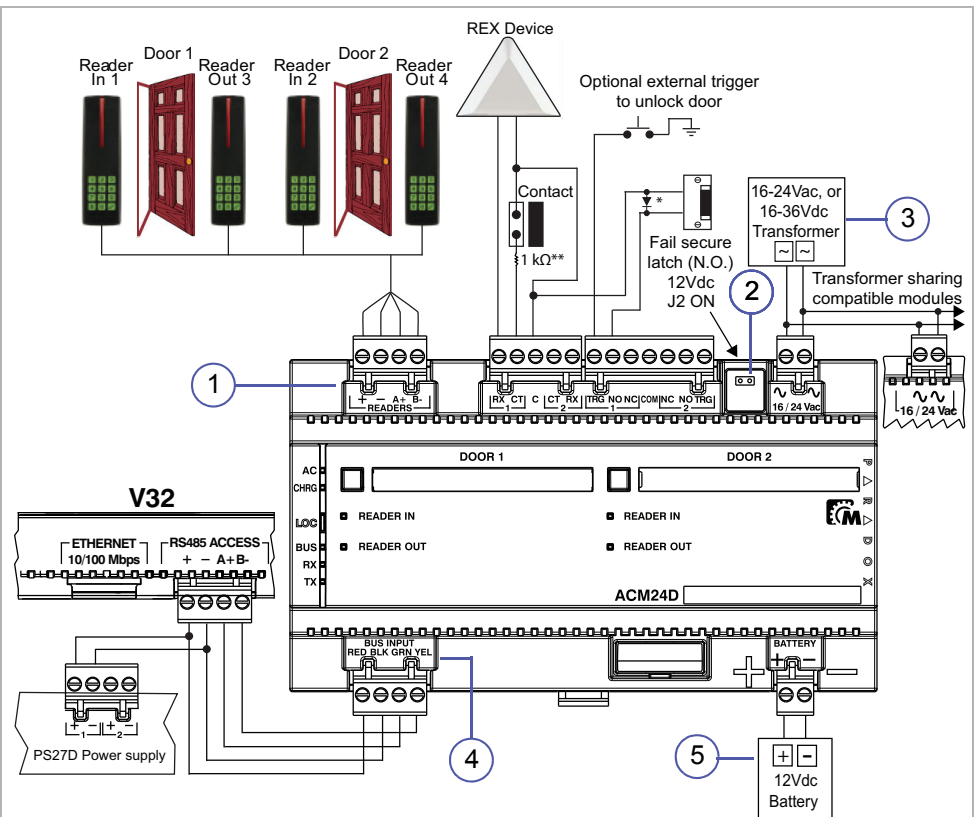
- BabyWare

## Specifications

Power Input Voltage	16-24Vac (50 or 60Hz), or 16-36Vdc 20VA, 40VA or 75VA (see table in wiring diagram below)
Aux. Readers:	12Vdc, 500mA max.
Aux. Locks:	6-12Vdc, 1.3A (see table in wiring diagram below)
Battery	12Vdc, 4Ah or 7Ah gel cell (see table in wiring diagram below)
RS485 Bus	900m (3,000ft) requires external 12Vdc power
No. of outputs	2 form C relays rated at 3.5A / 28Vdc (NO / NC)
No. of inputs	6 (1 door contact, 1 REX, and 1 trigger per door)
Dimensions	DIN9: 16cm X 10cm X 6cm (6.3" X 4" X 2.5")
Operating Temperature	-10°C to 50°C 14°F to 122°F

## Wiring

- Reader Bus (500mA)**  
Connect up to 4 readers (2 per door). Supports R910 (V2.0 or higher), and R915 (any version). See "Assigning a Reader to a Door" on page 3.
- Door Power Selection Jumper**  
**J2 ON** = Internal power (12Vdc) with Energy Saving feature  
**J2 OFF** = External Power  
See "Door Output Power Selection Jumper" on page 4 for more information.
- AC/DC Input with Transformer Sharing**  
Modules with this feature can share a central transformer (16-24Vac, or 16-36Vdc) throughout the system. Ensure that the total power output of the transformer is respected. There is no specific polarity.
- RS485 Access Bus**  
Connect to V32 RS485 Access bus. Ensure that it is powered by an external power supply (PS27D). This will not be necessary with an upcoming V32 hardware version, which will supply the power (see www.paradox.com for availability).
- Battery Input**  
Connect a 12Vdc (4Ah or 7Ah) rechargeable gel cell battery. Apply AC power before connecting the battery. If battery wires are extended, use an external fuse to protect against a short.



Transformer requirements table

Power Rating	Max. Lock Output	Max. Battery Charging	Reader Bus
75VA	1.3A	500mA	500mA
40VA	1.3A	350mA	500mA
		800mA	500mA
20VA	External power (J2 off)	350mA	500mA

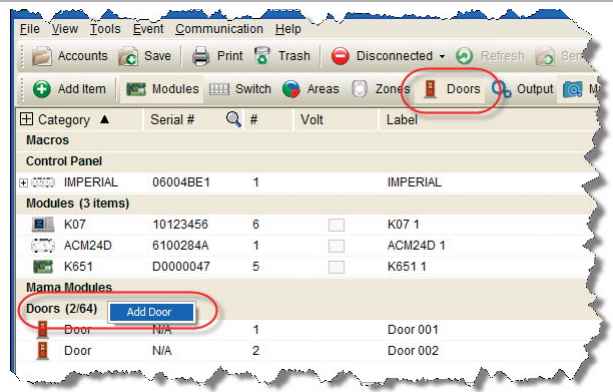
Time to fully charge battery

Battery Type	Batt Charge 350mA	Batt Charge 500mA
4Ah	11.5 hours	8 hours
7Ah	20 hours	14 hours

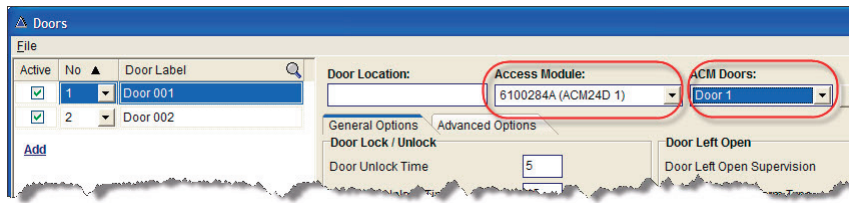
# Assigning a Reader to a Door

After connecting the readers to the ACM24D, you must assign each reader to a door. You can assign them manually at each ACM24D without the need of the readers' serial number, or you can assign them through BabyWare (requires knowledge of reader's serial). To do so, follow the steps below.

- 1 **Create Required Doors in BabyWare**
  - A) Open BabyWare and connect to the account.
  - B) Ensure the **Doors** toggle button is on.
  - C) Right-click the Doors header and select Add Door. You can also use the **Add Item** button.
  - D) Double-click the desired door. This opens the Doors window



- 2 **Assign ACM24D to Selected Door**
  - A) From the **Access Module** drop-down menu, select the desired ACM24D module.
  - B) From the **ACM Doors** drop-down menu, select either Door 1 or Door 2.
  - C) Go to step 3 and use Manual Assignment Mode or BabyWare Assignment Mode

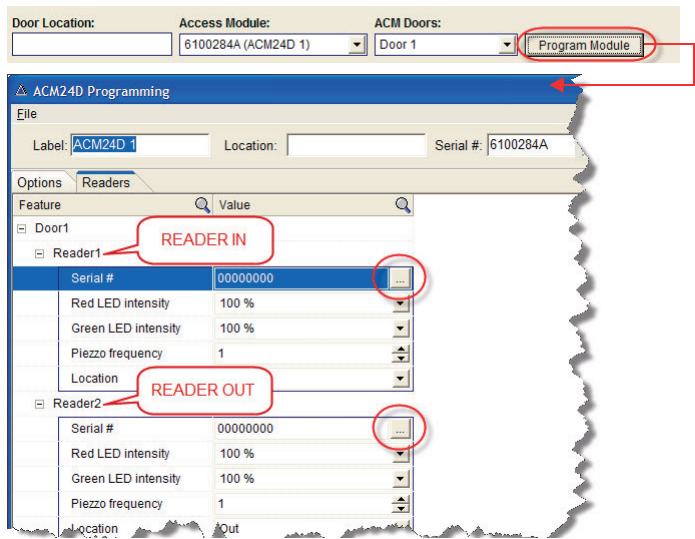


- 3 **Manual Reader Assignment Mode**
  - A) Press and hold the **DOOR 1** button for 3 sec.
  - B) The **READER IN** LED and the LED of all readers on the reader bus will flash.
  - C) Present any access card to the reader you want to assign, or press the reader's ✓ button.
  - D) Press the **DOOR 1** button to switch to Reader Out.
  - E) The **READER OUT** LED and the LED of all readers on the reader bus will flash.
  - F) Present any access card to the reader you want to assign, or press the reader's ✓ button.
  - G) Press the **DOOR 1** button to exit this mode.
  - H) Repeat steps A to F for **DOOR 2**.

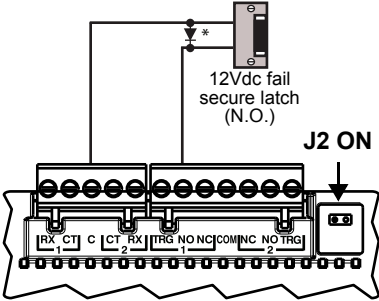
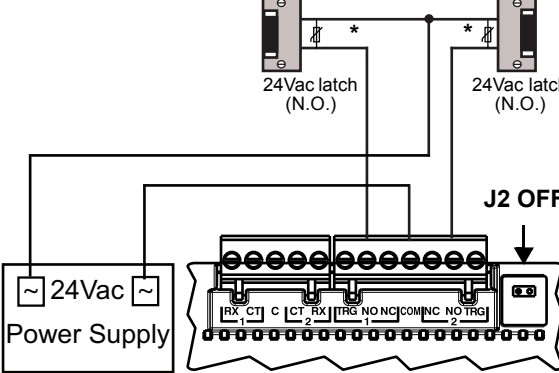
**READER LEDs**

Orange fast flash = Unassigned  
 Orange slow flash = Not communicating with ACM24D  
 Green flash = Assigned to flashing READER IN/OUT  
 Red flash = Assigned to different READER IN/OUT

- BabyWare Reader Assignment Mode**
  - A) From the Doors window (see step 2), click the **Program Module** button. This opens the ACM24D Programming window.
  - B) Under Reader1 (IN), click the **...** button and select the reader's serial number from the list that appears. You can also type the serial number manually.
  - C) Repeat for Reader2 (OUT).
  - D) Click **OK**.
  - E) Click **Send**.



# Door Output Power Selection Jumper

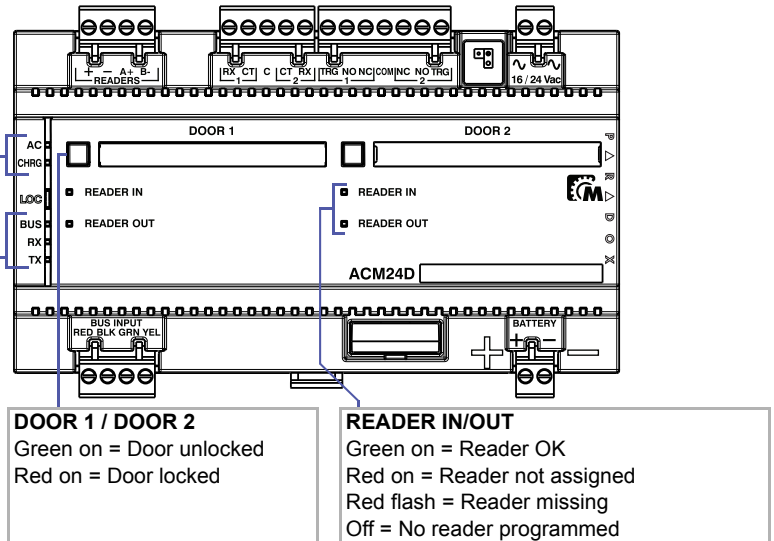
<p><b>J2 ON</b></p>	<p><b>Internal Power (12Vdc)</b> After lock activation, the ACM24D goes into energy save mode and reduces the voltage.</p>	 <p>* 1N4007 Diode Cathode to + voltage Anode to - voltage</p>
<p><b>J2 OFF</b></p>	<p><b>External Power (AC/DC)</b></p>	 <p>* Do not use a diode with AC power</p> <p>Remove J2 jumper before supplying external power.</p> <p>COM Jumper Internal Power Supply To COM of relays</p>

## LED Feedback

**AC**  
Green on = AC or DC power supplied

**CHRG**  
Green on = Battery low or charging  
Green on < 4sec. = Battery test

BUS	RX	TX	STATUS
Blue on	Green flash	Green flash	OK (communication in progress)
Blue flash	-	-	Firmware upgrade in progress
Red on	-	-	No communication with V32
Red flash	Green flash	Green flash	Module locate mode



## Bi-directional Locate Feature

Pressing the locate button will initiate the Module Locate feature. When a Module Locate is initiated, the module's representation in the BabyWare software will flash and the module's BUS, RX and TX LEDs will flash at 1Hz to indicate that it is in locate mode. A module locate can also be initiated from the BabyWare software. From BabyWare right-click the module's representation and select Locate Physical. The module's BUS, RX and TX LEDs will flash. We highly recommend that after pressing locate and identifying the module, open the programming page and assign the proper physical location label and the doors' labels and locations. After complete connection, use the space provided on the module to indicate the doors' description.

## Remote Firmware Upgrade

The ACM24D is firmware upgradeable remotely via the V32 controller's RS485 Access bus at 57.6Kbps. Using BabyWare connect to the V32 account, then right-click the desired module and select Upgrade. A firmware upgrade for a single module or group of modules will take usually less than 10 minutes.

**Patents:** One or more of the following US patents may apply: 7046142, 6215399, 6111256, 6104319, 5920259, 5886632, 5721542, 5287111, 5119069, 5077549 and RE39406 and other pending patents may apply. Canadian and international patents may also apply.

**Trademarks:** Paradox Imperial, MAMA, BabyWare, the M logo, and the triangle logo are trademarks or registered trademarks of Paradox Security Systems Ltd. or its affiliates in Canada, the United States and/or other countries.

**Certification:** For the latest information on products approvals, such as UL and CE, please visit [www.paradox.com](http://www.paradox.com).

**Warranty:** For complete warranty information on this product please refer to the Limited Warranty Statement found on the website [www.paradox.com/terms](http://www.paradox.com/terms). Your use of the Paradox product signifies your acceptance of all warranty terms and conditions.

© 2009 Paradox Security Systems Ltd. All rights reserved. Specifications may change without prior notice.



Printed in Canada - 03/2009 IACM24-EI00