

# CEM Systems DCM 400

## Four-Door Intelligent Encrypted IP Controller



[Johnson Controls](#) is pleased to announce the release of **CEM Systems DCM 400** four-door intelligent encrypted IP controller.

The CEM Systems DCM 400 (Door Control Module) is an intelligent four-door controller designed to directly interface CEM Systems AC2000 access control system (version 10.2 and higher) with Wiegand or CEM Systems approved and supplied Open Supervised Device Protocol (OSDP v2) smart card readers.

The DCM 400 supports eight Wiegand or OSDP compliant readers (Entry/Exit configuration) for bi-directional control on four doors.

Using powerful 32-bit processors, the DCM 400 gives full off-line verification and decision making at the point of entry, even when host communication is not available.

### CEM Systems DCM 400 Overview:

- Intelligent true four-door controller.
- Directly interface CEM Systems AC2000 and smart card readers (Wiegand or CEM Systems approved and supplied OSDP v2 smart card readers).
- Supports eight readers (Entry/Exit configuration) for bi-directional control on four doors.
- Full off-line verification and decision making at the point of entry.
- While operating in off-line mode, the controller can hold 500,000 cards and store 80,000 offline events (transactions and alarms).
- Encrypted host communications with the central AC2000 access control system with TLS and AES encryption.

- Overlay wiring guide help improve the user-experience when installing and maintaining the DCM 400 panel.
- On-board LEDs and LCD display provides visual status information.
- Twelve character capacitive light-touch keypad simplifies configuration.
- Three on-board network ports provide local network expansion.
- Smart power management automatically detects supply from 10.5 VDC to 28 VDC.
- On-board battery charging and switchover.
- Active optical tamper with option for external tamper.
- Fire relay interface.

## Key Features / Benefits at a Glance

### Designed for Ease of Installation and Maintenance

The DCM 400 has been developed and designed with installers in mind. It contains a number of features to simplify installation and maintenance.

#### Self-configuring controller

Designed for ease of configuration the installer simply:

- Enter the unit's unique ID and device configuration on the AC2000 server.
- Set the networking configuration on the DCM 400 panel.
- Connect to the network and the DCM 400 self-configures and can receive a database of up to 500,000 cardholders.

**Add DCM400 Controller**

**DCM400 Properties**

Description: DCM 400 Hallway

Controller: Controller 00 - RTC00 ON CDC

**MAC Address**

MAC Address: 00 : 30 : 46 : FF : FF : F0

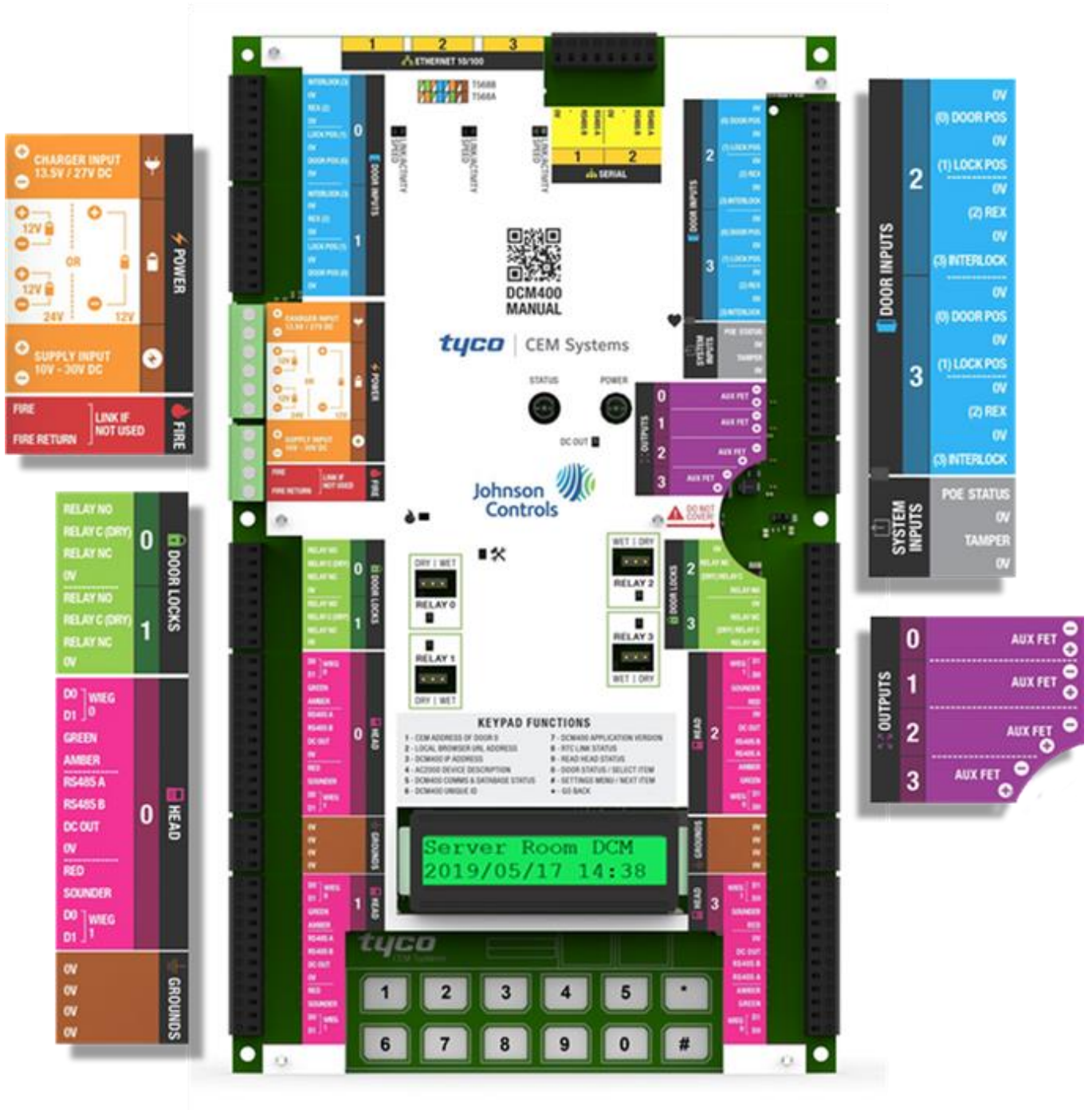
Create Doors: 4

Device Address	Physical Address	Device Location	Configuration Mode
00000	0	DCM 400 Hallway Door A	EDCM400 M/S
00010	1	DCM 400 Hallway Door B	EDCM400 M/S
00020	2	Side Exit	EDCM400 M/S
00020	3	Side Exit B	EDCM400 M/S

*AC2000 DCM 400 configuration page*

## Intuitive wiring overlay

Overlay wiring guide helps improve the user-experience when installing and maintaining the DCM 400 panel.



### DCM 400 graphical overlay

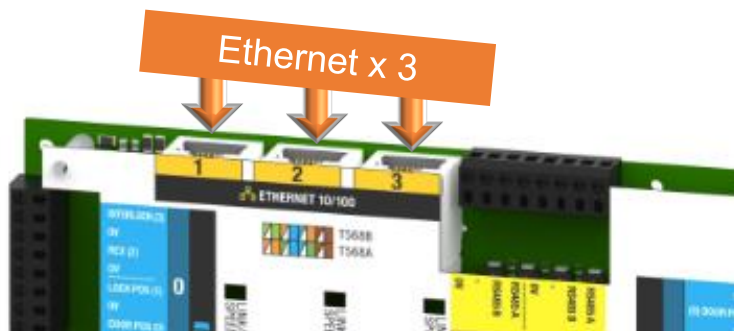
### Dedicated fire relay on board

Drops power to the locks via a single connection for ease of installation.



### Spare network points on board

Allows for local access to diagnostic web pages and connection to downstream controllers. Spare ports can be enabled and disabled.



*DCM 400 Ethernet ports*

### LCD display

2x16 character display on the DCM board to quickly view status of board, connected doors, and for configuration information display.

### Twelve character keypad

Allows configuration and troubleshooting to be handled directly on the board for ease of installation and maintenance.



### DCM 400 dashboard web pages

Assists with local and remote troubleshooting, monitoring, and configuration of the DCM 400 and equipment connected to it.



*DCM 400 Network Settings web page*

**External LED indicators**

Light pipes on enclosure door align with status LEDs on the DCM400 board, providing visual confirmation of power and connectivity status without the need of opening the enclosure.

**Removable enclosure door**

The removable enclosure door provides ease of access for installers.

**Increased number of punch-outs (20mm and 25mm) and cable tie points in the enclosure**

An increased number of punch-outs on the sides of the enclosure along with more cable tie points in the enclosure, provides installers with improved cable management options.



*DCM 400 enclosure with external LED indicators and punch-outs (20mm and 25mm)*



## Smart Power Management

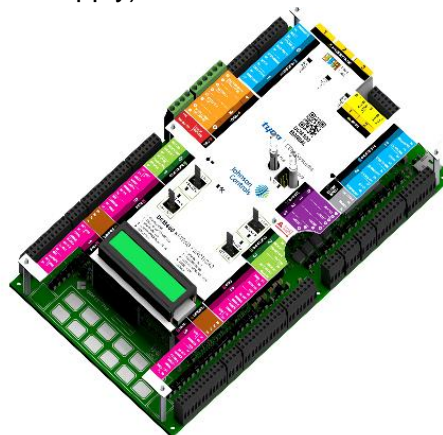
The DCM 400 automatically detects supply from 10.5 VDC to 28 VDC, simplifying installation without the need for jumper-links or configuration.

Flexible power options for DCM 400 include:

- Mains PSU option.  
(150 W, 10 A @ 13.5V DC, 230 VAC / 115 VAC switchable)



- Board only.  
(From 10.5 VDC – 28 VDC DC Supply)



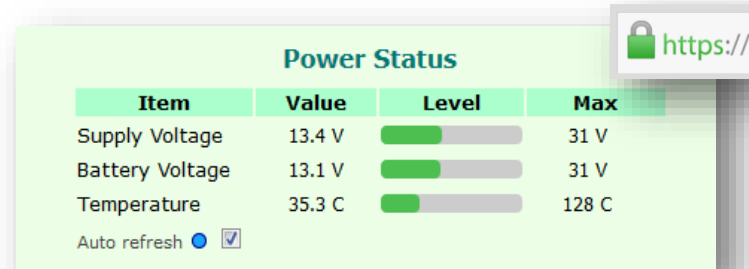
- Power Over Ethernet PSU option currently in development (*launching late 2019*).  
(POE 90 W, 71 W min )



### Power Status web page

The DCM 400 supply and batteries can be monitored via the Power Status web page of the Dashboard.

The dashboard provides clear visual indicators for troubleshooting and monitoring of supply voltage, battery voltage, battery charge level, and battery status.

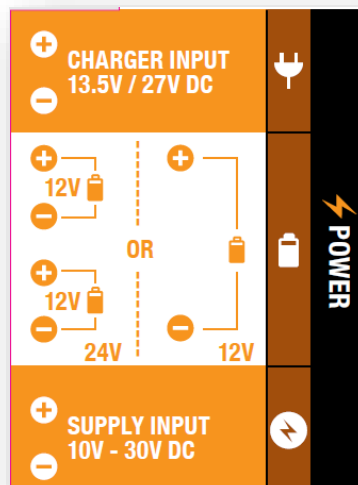


*DCM 400 Power Status web view*

### Battery Charging on-board

The DCM 400 can charge a standby battery to provide backup power on mains failure.

- Auto-detects 12 V or 24 V operation.
- Separate charger input for stability and efficiency.
- Battery lockout on start-up.
- Charging, monitoring, and fast switchover.
- User selectable charge current.
- Enclosure includes space for 12 V with 1 x 17 Ah SVLA.
- Future proofed for 24 V with 2 x 7 Ah SVLA.
- Flexible battery clips with ring and spade connection options.



## Interactive configuration, installation and troubleshooting

### Interactive LCD and keypad

The on-board backlit LCD and twelve character keypad enable the installer to:

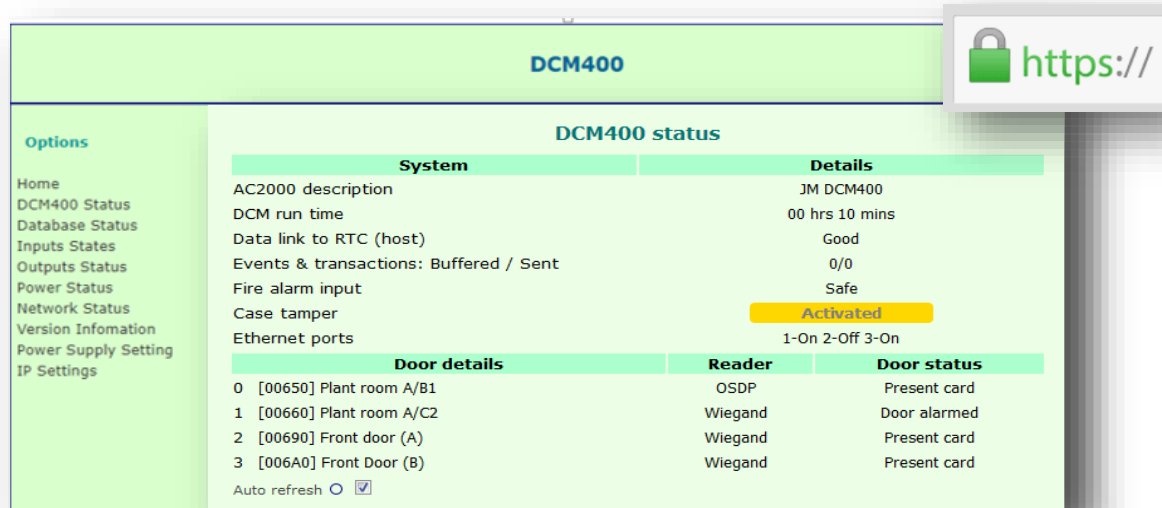
- Setup, diagnostics and troubleshooting directly on the board
- View controller and door descriptions
- IP address allocation
  - DHCP
  - Temporary Link Local
  - Static IP
- View door diagnostics
  - Wiegand and OSDP read head status
  - Card swipes and Door status



### DCM 400 web dashboard

The DCM 400 web dashboard can assist with local and remote troubleshooting, monitoring, and configuration of the DCM 400, plus any equipment connected to it. The dashboard provides users with visual indicators and details on power supply status, door status, input states, output status, network status, and database status.

The dashboard also allows users connected to the DCM network the ability to remotely configure network settings and current limits for outputs (read heads, locks and auxiliary outputs).



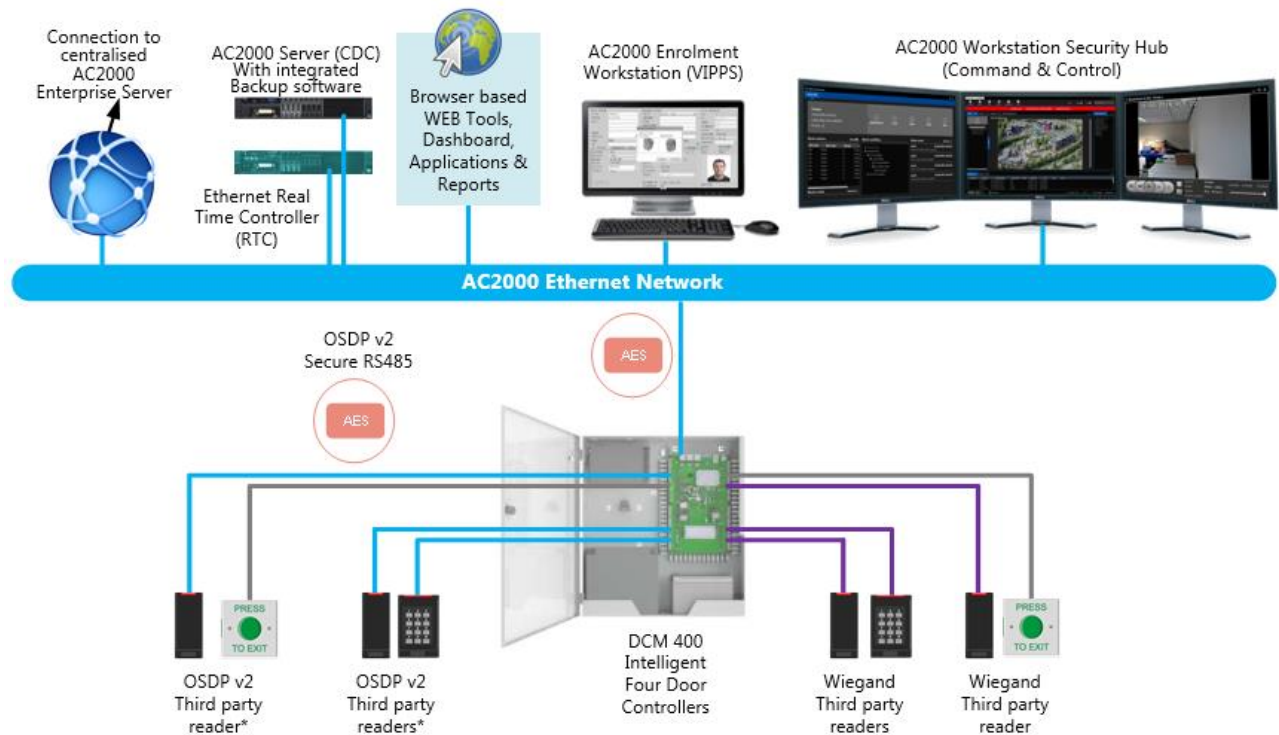
CEM Systems DCM 400 Status webpage



## Compatibility

### Future proof solution

Both OSDP v2 and Wiegand readers can be supported on the same DCM 400 controller (OSDP v2 or Wiegand readers per door). This provides a future proof solution for those that wish to migrate from Wiegand readers to more secure OSDP v2 readers.



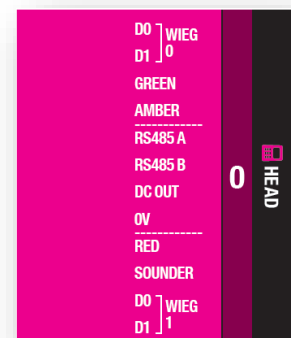
*\*CEM Systems approved and supplied OSDP v2 compliant third party readers only.*

### DCM 400 OSDP and Wiegand reader configuration

### Legacy Wiegand read-heads IN and OUT

The DCM 400 comes with enough power to satisfy low power and outdoor readers with user selectable current limits. It's compatible with virtually any read-head using the Wiegand interface protocol.

Datalinks are provided for two or three LEDs and sounder.



### OSDP secure read-heads



Easier to cable with power & multi-drop RS485. Standards based AES Encrypted protocol. Auto-detected with pre-loaded key for CEM Systems supplied OSDP read-heads.

## Flexible

### Mounting options

Installers have the flexibility of wall mounting the DCM 400 enclosure or it can be supplied as board-only for custom case deployments.

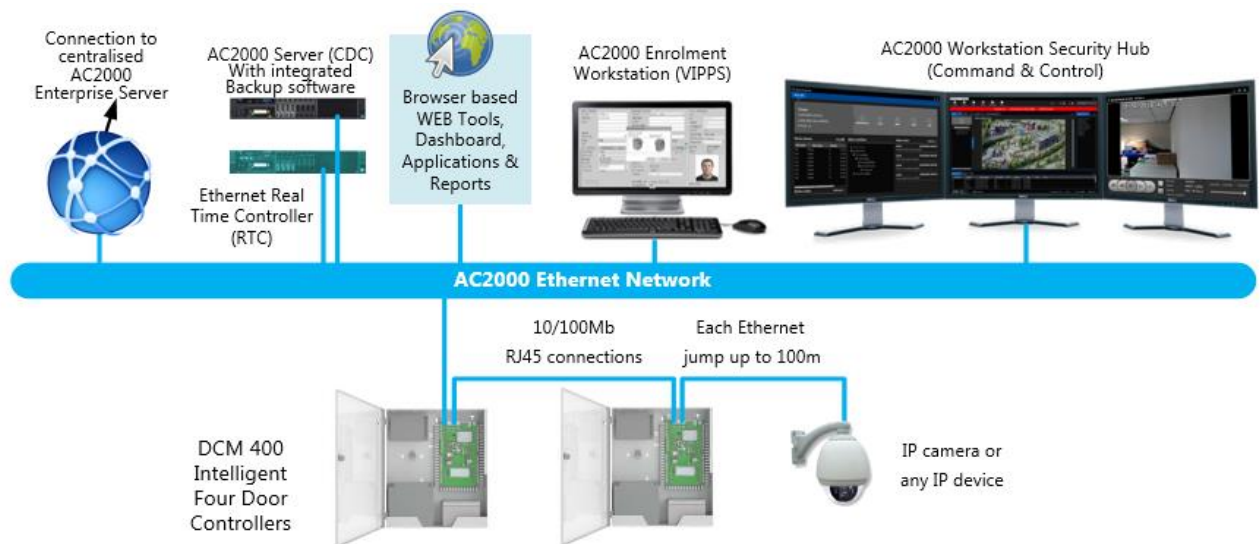
### Extensive Supervised Inputs/Outputs

The DCM 400 provides the flexibility for wet or dry lock power from 12-28 VDC, with read-head power stabilised at 12 VDC.

Auxiliary powered outputs allow for interlocking or external devices to be connected to the DCM 400. The fire alarm input can also be hardwired and monitored.

### Integral Ethernet switch

The DCM 400 includes three 10/100 Mb RJ45 connections for Ethernet networking. The built-in layer-2 switch allows for ease of access for web diagnostics and for connection to downstream controllers and IP cameras. This enables daisy chain network configuration of up to one-hundred metres per Ethernet jump for door expansion.



*DCM 400 daisy chain network configuration*

## Secure

### Dedicated on-board tamper

An active proximity sensor measures relative distance from the board to the door. There is also an option to add an additional wired tamper sensor.

### Network communication

Host communications are secured with TLS and AES encryption. Digital certificates secure hardware based key storage with FIPS SP800-56A Elliptic Curve Diffie-Hellman and NIST standard P256 elliptic curve.



### OSDP v2 support

With added secure AES 128 encryption, OSDP provides bi-directional communications and advanced security features for connecting compliant OSDP v2 card readers to DCM 400 control panels. This eliminates the threat of Wiegand signal cloning.

### Enclosure

The DCM 400 enclosure is secured with security screws and a lock.



*DCM 400 enclosure front view*

Feature	Function	Benefit
<b>True four-door controller</b>	Secure IN/OUT of up to four doors with Wiegand or OSDP v2 per door.	<ul style="list-style-type: none"> <li>Reduced cost of installation.</li> <li>OSDP v2 a more secure solution that isn't vulnerable to being 'sniffed' like Wiegand.</li> </ul>
<b>Eight monitored outputs that link to web pages</b>	<ul style="list-style-type: none"> <li>Four lock outputs (Wet/Dry).</li> <li>Four auxiliary out.</li> <li>Connect the lock out to the lock output and the jumper link ships as 'Wet'/powered.</li> </ul>	Simplified installation.
<b>Extended database</b>	<ul style="list-style-type: none"> <li>Full off-line verification and decision making at the point of entry, even when host communication is not available.</li> <li>While operating in off-line mode, the controller can hold 500,000 cards and store 80,000 offline events (transactions and alarms).</li> </ul>	Improved communication and response at the door.
<b>Installer led design</b>	<ul style="list-style-type: none"> <li>Enclosure design features: <ul style="list-style-type: none"> <li>Strategic cable punch-outs</li> <li>Removable door</li> <li>On-board Tamper</li> <li>Improved Cable tie points</li> <li>LED light pipe on door (green power/yellow heartbeat)</li> </ul> </li> <li>Board design features: <ul style="list-style-type: none"> <li>Twelve character Keypad</li> <li>LCD display</li> <li>Two part screw terminal connectors</li> <li>Edge overlap four-way connectors for ease of fit and replace</li> <li>Lock – wet or dry contact relay</li> <li>Dedicated fire relay on board that drops power to the locks</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Ease of installation/maintenance.</li> <li>Easier more convenient access for cables to the door controller.</li> <li>Ease of access when installing confined space.</li> <li>Improved cable management.</li> <li>Visual confirmation of DCM status.</li> <li>Shipped as wet which saves the installer time as they configure the device as they don't have to do the wiring.</li> </ul>
<b>Smart power</b>	<ul style="list-style-type: none"> <li>Auto-detection of 12 V / 24 V.</li> <li>Current limits configuration and monitoring via web page.</li> <li>Plug in a 13.5 PSU and it will charge a battery which is in line with the ISO standard 60839-11-1.</li> </ul>	<ul style="list-style-type: none"> <li>Auto-detection simplifies install (no configuration required).</li> <li>Ease of installation, configuration and troubleshooting via web page.</li> <li>Can charge a standby battery to provide backup power on mains failure.</li> </ul>
<b>Interactive configuration, installation, and troubleshooting</b>	<ul style="list-style-type: none"> <li>The DCM 400 web dashboard facilitates local and remote troubleshooting, monitoring, and configuration of the DCM 400 along with any equipment connected to it.</li> <li>The web dashboard provides visual indicators and details on: <ul style="list-style-type: none"> <li>DCM 400 Status</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Ease of installation, configuration, and troubleshooting.</li> <li>Improved user experience with visual information accessible locally and remotely.</li> </ul>

	<ul style="list-style-type: none"> <li>▪ Database Status</li> <li>▪ Inputs Status</li> <li>▪ Outputs Status</li> <li>▪ Power Status</li> <li>▪ Network Status</li> <li>▪ Version Information</li> <li>▪ Power Supply Setting</li> <li>▪ IP Settings</li> </ul>	
<b>Flexible networking with integral Ethernet switch</b>	<ul style="list-style-type: none"> <li>▪ Regenerative 10/100 Mb.</li> <li>▪ Layer 2 managed.</li> <li>▪ Switch/repeater over 100m range.</li> <li>▪ Camera can be linked off Ethernet port.</li> <li>▪ Daisy chain (100m range) with no loss of signal integrity.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Signal integrity maintained across network.</li> <li>▪ Ability to input laptop directly on the DCM 400 for ease of diagnostics.</li> <li>▪ Can hang CCTV off DCM 400 board for flexible network configuration.</li> <li>▪ Reduce overhead with reduced number of ports on network switches required.</li> <li>▪ Flexible networking configuration with door expansion (more than 4 doors).</li> </ul>
<b>Future proof migration</b>	<ul style="list-style-type: none"> <li>▪ Supports the ability to migrate from Wiegand to OSDP v2.</li> <li>▪ Both can be supported (by door) on the same controller.</li> </ul>	Future-proof solution that supports a phased migration approach from Wiegand to OSDP v2.
<b>Secure communications</b>	Secure element with TLS, AES, and 802.1X.	<ul style="list-style-type: none"> <li>▪ Cyber secure, reducing the risk of potential cyber threats.</li> <li>▪ 802.1X is more practical to use than digital certificates that can expire.</li> </ul>
<b>On-board tamper</b>	<ul style="list-style-type: none"> <li>▪ Dedicated on-board tamper.</li> <li>▪ Active infrared tamper sensor that pulses to measure distance between tamper and door.</li> </ul>	Simplified installation.



# Frequently Asked Questions

## CEM Systems DCM 400 four-door controller

**Q: What version of AC2000 do I need in order to use the DCM 400 four door controller?**

A: The DCM 400 four-door controller is supported from AC2000/AC2000 Lite/AC2000 Airport version 10.2. Earlier versions of AC2000 will require an update to version 10.2.

**Q: Which third party OSDP readers are supported with CEM Systems DCM 400?**

A: CEM Systems approved and supplied OSDP readers are supported. Please contact CEM Systems sales team or refer to your CEM Systems price list for the full list of OSDP readers that are currently available from CEM Systems.

**Q: What are the cable distances between CEM Systems DCM 400 and compliant readers?**

A: The recommended cable types and distances are detailed in the DCM 400 Quick Guide document. Please visit the technical document library of the CEM Systems website to access the quick guide and manuals.

**Q: Is there a serial variant of the CEM Systems DCM 400?**

A: No. The DCM 400 is Ethernet only.

**Q: What equipment do I need to set up the DCM 400?**

A: The DCM 400 includes an on-board keypad and LCD display for local set up and diagnostics.

**Q: What is the size of the offline database on the DCM 400?**

A: The DCM 400 database supports up to 500,000 cardholder records and up to 80,000 offline events (transactions and alarms) to ensure up-to-date card information when operating in off-line mode.

**Q: Is the DCM 400 compatible with 12 V and 24 V locks?**

A: The DCM 400 board will detect the PSU Supply voltage (12 V or 24 V), simplifying the installation process. Power output for read-heads is stabilised at 12V.

**Q: Are the DCM 400 network communications encrypted?**

A: The DCM 400 network communications are secured using a combination of TLS and AES.

**Q: Does the DCM 400 include battery backup?**

A: Yes. All DCM 400 options, including board only, include battery backup, monitoring, and switchover.

**Q: Can you mix Wiegand and OSDP readers on the same door?**

A: No. When a door using OSDP secure read heads is detected on the DCM 400 board, then Wiegand functionality on that door is disabled. Wiegand and OSDP can be supported on the same DCM 400 board but on a per door configuration.

**Q: Is four-way interlock supported on the DCM 400?**

A: The DCM 400 supports four-way logical interlock configuration on the board without the use of cabling. External wired interlocking is also available.

**Q: How can I purchase the DCM 400?**

A: Please contact your CEM Systems account manager for pricing and order enquiries. Please note the following are available on a lead time of eight weeks from date of launch:

- 'DCM 400 Board only' (DCM/400/004)
- 'DCM 400 Board and Enclosure' (DCM/400/104)
- 'DCM 400 Board, Enclosure, and 12 V Power supply unit' (DCM/400/114)
- 'DCM 400 Board, Enclosure, and 24 V Power supply unit' (DCM/400/124)

## Ordering Information

Product Codes	Description
<b>DCM/400/004</b>	DCM 400 Board only
<b>DCM/400/104</b>	DCM 400 Board and Enclosure
<b>DCM/400/114</b>	DCM 400 Board, Enclosure, and 12 V Power supply unit
<b>DCM/400/124</b>	DCM 400 Board, Enclosure, and 24 V Power supply unit

For more information email [cem.info@tycoint.com](mailto:cem.info@tycoint.com) or contact your account manager.

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