Johnson Controls

CEM SYSTEMS

CEM Systems ioSmart Secure DESFire reader
Contactless, encrypted smart card reader

Secure, RFID Contactless Reader
Designed as a unified secure solution to support CEM Systems' Door Control Module (DCM) range of intelligent door controllers.

Versatile, Secure Communication
Auto-detects and interfaces with DCM 200/400 controller via Open Supervised Device Protocol Version 2 (OSDPv2) or DCM 350 using CEM Systems sPass protocol.

High Level of Security
Solution delivers end-to-end encryption. No encryption keys are permanently stored in the reader. Features Secure Boot, Secure Firmware Update and Secure Storage.

Advanced Smart Card Technology
Utilises DESFire technology and supports ISO/IEC 14443A/B Smart Card credentials. Supports AC2000 Smart Card Utility, enabling user-defined encryption keysets.

Robust, Elegant Design
Optional capacitive touch keypad supports PIN authentication and features such as "PIN as Card". Integrated tamper detection provides physical security.

Future-Proof Platform
Built with high-performance CPU for fast and secure processing. Designed for cyber resilience and supports highest level of smart card technologies and protocols.

Product Overview
The CEM Systems ioSmart reader is a cost-effective yet highly secure RFID contactless smart card reader offering robust, end-to-end security and encryption. ioSmart is CEM Systems second generation DESFire reader and supports CEM Systems' range of DCM intelligent access controllers. It is compatible with the DCM 400 and DCM 200 controllers via the Open Supervised Device Protocol Version 2 (OSDPv2) standard and works with the legacy DCM 350 controller through an encrypted proprietary serial protocol.

End-to-End Encryption
The ioSmart reader and DCM controllers are designed to provide secure encryption from the card all the way to the AC2000 server. The system supports secure Personal ID reading, as well as secondary keyset rolling functionality. No keys are permanently stored in the reader ensuring a high level of security. Using the AC2000 Smartcard Utility, customers can also self-program and manage their own AES-128 keysets for enhanced protection.

Designed for Security

CEM Systems ioSmart reader supports Secure Boot and Secure Firmware Update by employing digital signatures generated using NIST approved encryption algorithms, to ensure that only authentic CEM Systems firmware shall be executed. Secure storage safeguards critical runtime information, whilst encrypted comms assures all data interfaces are protected. Integrated tamper detection protects against physical attacks.

Easy to Install

The ioSmart reader is designed to be easy to install. Providing a plug-and-play experience, ioSmart automatically detects the required secure protocol and operates accordingly. A supplied mounting kit covers a range of standard electrical back boxes and achieves high protection standards for both indoor and outdoor installations.

Elegant User Interface

Features include:

- Multi-coloured LED status bar
- Integrated buzzer for immediate feedback
- Optional backlit capacitive touch keypad for multi-factor authentication

Seamless Smart Card Migration

The ioSmart reader supports both legacy MIFARE CSN and encrypted DESFire credentials, enabling a smooth migration between formats. During the technology transition, card definitions can be updated remotely, eliminating the need for physical configuration cards.
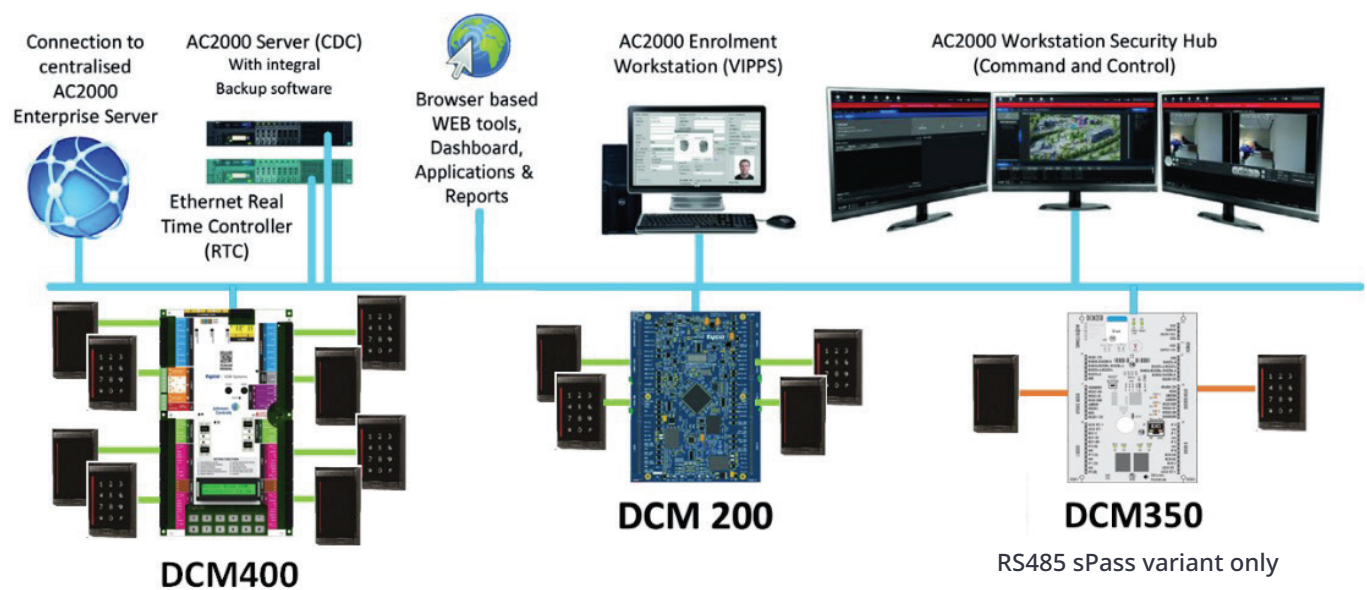
Protocol/Communication Type:

- Ethernet
- OSDPv2
- Encrypted RS-485

Specifications

Physical	
Dimensions with CEM mounting kit (HxWxD)	140.0mm x 104.0mm x 35.5mm (Depth is approx. due to compression of mounting gaskets)
Weight (unit only)	175g (w/ Keypad) 170g (w/o Keypad)
Housing	Polycarbonate, smoked black, with potted electronics
Mounting	Wall mount (Mounting kit supplied with readers)
Suitable for Outdoor Use	Yes - when CEM mounting kit is fitted as directed

Power	
Supply Voltage	12 VDC nominal; 8.5 to 16 VDC (Use UL294 or UL603 listed power limited supply if using local power source)
Current Draw (Peak/Average) @ 12 VDC	240mA / 65 mA
Wiring Terminal	6 push fit connections (2 unused)

Environmental	
Operational Temperature	-40°C to +55°C (-40°F to +131°F)
Operating Humidity	0 to 93%
IP Rating	IP67 (when mounted with complete CEM ioSmart Gen 2 mounting kit)
Flammability rating	UL94 V-2

Functionality	
Supported CEM Control Panels	DCM 400 DCM 200 DCM 350 (Mainstream - RS485 sPass variant only)
RF Technology	13.56 MHz
Supported credentials 13.56 MHz	MIFARE Classic CSN, MIFARE DESFire AES (EV1, EV2, EV3), ISO/IEC 14443A & 14443B
Read Range	Up to 5cm (subject to card technology – contact account manager for details)
Integrated Tamper	Optical Reflective Sensor
Keypad	Backlit, capacitive touch on keypad models (CEM-SG-SC-KP2)
LED Indicator	Multi-colour light bar
Sounder	Integrated
Security	Secure Boot, Secure Firmware Update, Locked down programming ports, end-to-end encrypted comms, secure storage
Firmware	Upgradable in the field over secure RS485 channel
Communication Interface	RS-485 to reader
Supported Protocols	Open Supervised Device Protocol v2 (OSDPv2) CEM Systems Encrypted Proprietary Legacy Serial Protocol

The power behind **your mission**

Cabling	Length
• Belden 8723 shielded twisted 2 pair, 22 AWG cable or equivalent • Belden 8777 shielded twisted 3 pair, 22 AWG cable or equivalent	Powered by DCM: max recommended cable length of 10m. Powered by local power supply: max cable length 1200m. *Installation considerations: Long cable length installations must verify the voltage drop and 0V reference at the reader. 100m powered from the DCM has been successfully tested under controlled conditions. 1200m powered from a local power supply has been successfully tested under controlled conditions. Real world performance may vary.

Regulatory	
Safety	IEC/EN 62368-1:2014 + A11:2017
Radio	ETSI EN 300 330 v2.1.1
Emissions	EN-55032:2015 Class A
Immunity	EN-50130-4:2011 + A1:2014
Environment	RoHS, REACH & WEEE

EMEA Ordering Information

Model Number	Description
CEM-SG-SC2	CEM ioSmart Gen2 Single Gang reader DESFire AES PID
CEM-SG-SC-KP2	CEM ioSmart Gen2 Single Gang reader with Keypad DESFire AES PID

Minimum System Requirements

- AC2000 V10.5
- DCM 200 Firmware V1.3.4
- DCM 400 Firmware V1.8.7
- eDCM 350 V3.33

Related Products

AC2000 SmartCard Utility

CE1523-DS-202507-R01-HS-EN

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