

## RM Card Readers



### Features That Make a Difference:

- Full suite of RM readers that includes proximity, smart card, and magnetic stripe technologies
- Keypad and backlit LCD can be utilized on select RM readers to provide system status and duress capabilities
- Each RM reader provides two supervised inputs and two control point outputs
- Three high-intensity LEDs (red, amber, and green) and keypad audio feature indicate system conditions
- Operates in star or multi-drop configuration to support diverse security needs
- Built-in tamper switch and security screws protect reader electronics
- Rugged design suitable for interior or exterior environment
- RM Magnetic Stripe reader reads all three ISO standard tracks, 75/210/75 bpi
- RMx-4000 multi-technology readers are listed on the U.S. GSA FIPS 201 Approved Products List
- Keypad Arming Station available for applications that do not require a read head
- Seamlessly integrates with the entire range of Software House solutions

The wide-ranging suite of RM card readers offers the features and flexibility you need to handle the most demanding access control applications. Choose from four different supported card technologies: magnetic stripe, proximity, HID® iCLASS®, and multi-technology. The RM Multi-Technology reader reads both proximity and smart cards, providing an ideal solution for customers looking to transition from proximity to a more secure smart card solution.

The RM readers' attractive polycarbonate, all-weather housing can accommodate any of the four technologies. The universal design lets you mix and match different technologies on the same system while maintaining a consistent appearance.

The red, amber, and green LED colors indicate a range of conditions: valid or invalid card reads, door forced or held open, and system or configuration errors. Plus, an audible alert can signal these conditions. A keypad option is also available for entering Personal Identification Numbers (PINs) or implementing duress functionality.

An optional backlit LCD shows the date, time, and system conditions, and can be used to display instructions to cardholders such as "Enter PIN" on RM card readers with keypads. The LCD keypad reader is also commonly used to arm and disarm intrusion zones. In fact, a model without a read head, the RM2L-NH, is available for those applications that require only a keypad and display interface.

All RM card readers use the same cable and connectors, simplifying installation and service. The RM card readers provide two supervised inputs for door monitoring and support two ARM-1 modules for local door lock control.

All RM readers are certified and listed by UL to the stringent safety and security standards of UL 294. The RM2L-4000 and RM2L-NH are also UL 1076 listed.

# Features

## Embedded Multi-Technology Support

The RM Multi-Technology reader offers enhanced security through MIFARE® sector encryption, and is compatible with nearly all major card formats in the industry, including ISO 14443 A/B, ISO 15693, iCLASS, MIFARE, DESFire®, FIPS 201 PIV II, and most 125 KHz formats (HID and CASI® ProxLite). The RM Multi-Technology reader is approved by the U.S. GSA for use in FIPS 201 systems.

Equipped with the RoHS compliant RM-4 module in the familiar RM housing, the RM Multi-Technology reader provides the same features and functionality as our award-winning Software House Multi-Technology reader. The reader has the ability to “flash” new card protocols or formats locally to the reader.

The RM Multi-Technology reader can be used to transition from a proximity system to a more advanced smart card system gradually or to maintain an existing universe of proximity cards while moving select personnel to smart cards. Plus, it's the only multi-technology reader in the industry to provide LCD and keypad support with a UL 1076 listing.

## Embedded HID iCLASS

The RM iCLASS reader combines the convenience and high reliability of contactless smart card technology with the advanced electronics and stylish packaging of the RM card readers. A variety of access credentials are supported including photo identification badges and combination technology.

## Magnetic Stripe

The RM Magnetic Stripe reader utilizes flexible and versatile card reader technology. The readers support high and low coercivity cards encoded on Track 2. The RM Magnetic Stripe reader gives you the option of using cards that have been magnetically encoded for other applications (consult factory for Track 1 and 3 applications). The RM Magnetic Stripe reader is available in standard and mullion styles and is coated for weather resistance.

## Embedded Indala Proximity

The RM Indala Proximity reader combines the time tested reliability of HID Indala ASP® proximity technology with the advanced electronics and stylish packaging of the RM card readers. Read range: up to 12.7 cm (5 in)<sup>1</sup>

## Embedded HID Proximity

Software House combines the sound functionality of HID's proximity technology with the sharp packaging of the RM card readers to bring you the RM HID Proximity reader. The RM HID Proximity reader is available in standard and mullion styles. Read range: up to 11.4 cm (4.5 in)<sup>1</sup>

## Reader Module (RM-4)

Embedded in the RM readers, the RM-4 provides the hardware interface between a magnetic or Wiegand read head and apC or iSTAR hardware. The RM-4 also provides the inputs and outputs that communicate between door components and apC or iSTAR hardware. Also available separately in any suitable enclosure, the RM-4 can be used to create the connectivity between other third party readers and the apC or iSTAR when used on a C•CURE 800/8000 or C•CURE 9000 system.

## Keypad

The optional 12-button keypad can be used on most RM card reader models for entering Personal Identification Numbers (PINs) utilizing powerful keypad commands or implementing duress functionality. The keypad is made of weather-resistant material and can be configured to respond to key depressions with an audible signal. The keypad option can easily be retrofitted in the field.

## LCD

The LCD is an optional backlit text display which is available with any RM card reader. It provides cardholders with visual feedback and prompts such as “Access Granted” or “Enter PIN”. The display consists of two lines of 16 characters and can be configured to display custom messages. The LCD is designed to be used with readers that have a keypad and is not recommended for use in harsh temperatures.

## Keypad Arming Station

The RM2L-NH Keypad Arming Station includes the LCD and keypad, but no read head. It is ideal for arming/disarming intrusion zones when a reader is not required.

## Heater Kit

For some outdoor installations, a thermostatically controlled heater may be necessary. The RM card readers' embedded heater adheres directly to the mounting plate and automatically switches on at 4°C (40°F).

## Auxiliary Relay Module (ARM-1)

The ARM-1 provides 5A output for door strikes or other equipment located near the RM card reader which significantly reduces wiring back to the apC or iSTAR controllers.

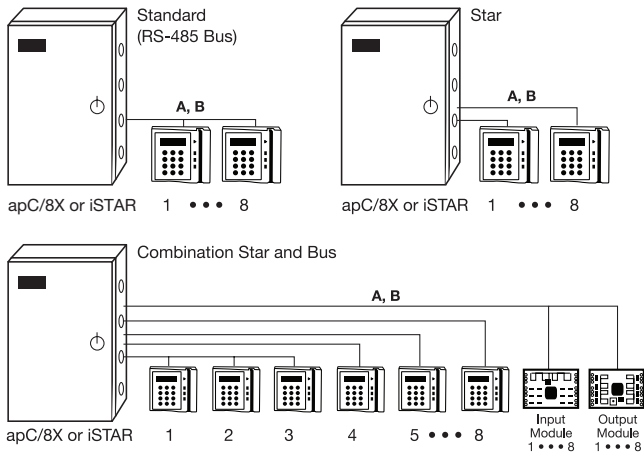
## Conformal Coating

Conformal coating is applied to the internal electronics of the RM card readers to protect them from dust, moisture, and extreme weather conditions.

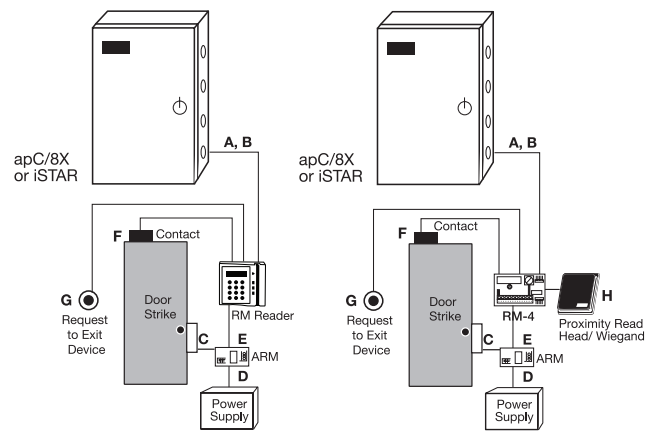
(1) Actual read range may vary depending on environmental conditions, installation surfaces, and type of card presented

# Take a Closer Look

## Wiring Configurations

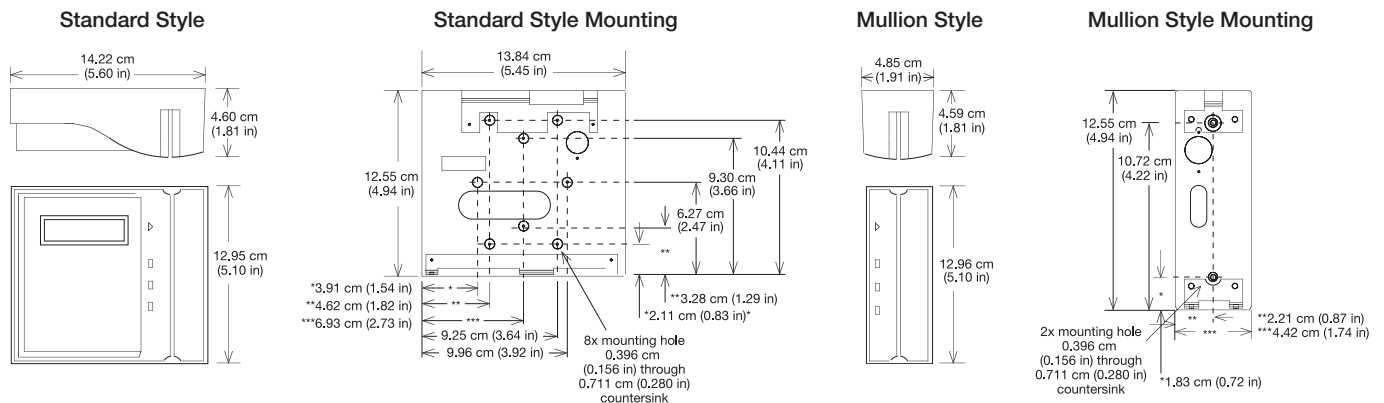


## Door Wiring Configurations



Wire Label #	From	To	Function	Belden Part No. or Equiv.2	Gauge (AWG)	No. of Pairs	Shielded	Max. Length
A	apC/8X or iSTAR	RM Reader, RM -4, I/O Modules	Communication	9841	24	1	Yes	1,219.2 m (4,000 ft)
B	apC/8X or iSTAR	RM Reader, RM -4, I/O Modules	Power <sup>3</sup>	8442/8461	22/18 <sup>4</sup>	1	No	Varies <sup>5</sup>
C	ARM	Locking Device	Control	8461	18 <sup>4</sup>	1	No	Varies <sup>5</sup>
D	ARM	Power Supply	Power	8461	18 <sup>4</sup>	1	No	7.62 m (25 ft)
E	RM Reader, RM-4	ARM	Relay Switching	9462	22	1	Yes	7.62 m (25 ft)
F	RM Reader, RM-4	Door Contact	Door Position	8442/8461 <sup>6</sup>	22/18	1	No <sup>6</sup>	609.6 m (2,000 ft)
G	RM Reader, RM-4	Request to Exit Device	Egress Control	8442/8461 <sup>6</sup>	22/18	1	No <sup>6</sup>	609.6 m (2,000 ft)
H	RM-4	Proximity/Wiegand	Reader Comm.	9942	22	3	Yes	60.96 m (200 ft)
H	RM-4	Proximity/Wiegand	Reader Comm.	9260	20	3	Yes	91.44 m (300 ft)
H	RM-4	Proximity/Wiegand	Reader Comm.	Alpha Wire 5386C	18	3	Yes	152.4 m (500 ft)

## RM Mounting Specifications



(2) Use Belden Part Number specified or equivalent product  
 (3) Not required if powered locally  
 (4) Gauge varies according to length of wire. Consult apC manual for details  
 (5) Length varies according to application  
 (6) To comply with UL requirements, use shielded, minimum 22 AWG stranded, twisted pair cable for monitor points, DSMs, and REXs. Use Belden #9462 or equivalent

## Specifications

Model	Form Factor	Keypad	Display	Power Requirements	Weight
RM1-4000 Multi-Technology	Standard			170 mA avg.; 220 mA peak	588 g (21 oz)
RM2-4000 Multi-Technology	Standard	Yes		170 mA avg.; 220 mA peak	588 g (21 oz)
RM2L-4000 Multi-Technology	Standard	Yes	Yes	270 mA avg.; 320 mA peak	644 g (23 oz)
RM1-IC HID iClass	Standard			135 mA avg.; 250 mA peak	588 g (21 oz)
RM2-IC HID iClass	Standard	Yes		135 mA avg.; 250 mA peak	588 g (21 oz)
RM2L-IC HID iClass	Standard	Yes	Yes	235 mA avg.; 250 mA peak	644 g (23 oz)
RM1-PH HID Prox	Standard			135 mA avg.; 250 mA peak	588 g (21 oz)
RM2-PH HID Prox	Standard	Yes		135 mA avg.; 250 mA peak	588 g (21 oz)
RM2L-PH HID Prox	Standard	Yes	Yes	235 mA avg.; 250 mA peak	644 g (23 oz)
RM3-PH HID Prox	Mullion			135 mA avg.; 250 mA peak	280 g (10 oz)
RM1-PI Indala Prox	Standard			80 mA	700 g (25 oz)
RM2-PI Indala Prox	Standard	Yes		80 mA	700 g (25 oz)
RM2L-PI Indala Prox	Standard	Yes	Yes	180 mA	756 g (27 oz)
RM1-MP Mag Stripe	Standard			80 mA	588 g (21 oz)
RM2-MP Mag Stripe	Standard	Yes		80 mA	588 g (21 oz)
RM2L-MP Mag Stripe	Standard	Yes	Yes	180 mA	644 g (23 oz)
RM3-MP Mag Stripe	Mullion			80 mA	280 g (10 oz)
RM2L-NH	Standard	Yes	Yes	175 mA avg.; 225 mA peak	644 g (23 oz)
RM-4 (board only)	Board			85 mA	252 g (9 oz)

Input Power Level . . . . . 12 VDC +/- 15%  
 Operating Environment  
 Indoor . . . . . 32° F to 120° F (0° C to 49° C)  
 Outdoor . . . . . -31° F to 151° F (-35° C to 66° C)  
 Reader Display . . . . . 14° F to 151° F (-10° C to 66° C)  
 Display with Heater . . . . . -4° F to 151° F (-20° C to 66° C)

Dimensions, Standard . . . . . 12.95 x 14.22 x 4.95 cm (5.10 x 5.60 x 1.95 in)  
 Dimensions, Mullion . . . . . 12.95 x 4.85 x 4.60 cm (5.10 x 1.91 x 1.81 in)  
 Dimensions, RM-4 Board . . . . . 11.81 x 9.02 x 1.52 cm (4.65 x 3.55 x .60 in)  
 Indala Card  
 Formats Supported . . . . . 26-bit SIA or 37-bit C•CURE. Specify -PI26  
 (26-bit SIA) or -PI37 (C•CURE 37-bit) in  
 part number

## Related Products



## Approvals



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