SOFTWARE HOUSE®

DATA SHEET

RM Card Readers

Features that make a difference:

- Full suite of RM readers supports magnetic stripe, proximity, HID iCLASS, and multi-technology making it the only solution on the market that supports 125 KHz and 13.56 MHz technologies with keypad and LCD
- Seamlessly integrates with the entire range of Software House® solutions including C•CURE® 800/8000, apC® panels and iSTAR® controllers
- 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

The wide-ranging suite of RM card readers, renowned in the industry for their universal, rugged design has just been made significantly more powerful with the addition of a multi-technology version; technology derived from the industry-first Software House® Multi-Technology readers.

Choose from four different supported technologies: proximity, HID iCLASS®, magnetic stripe, and now multi-technology which reads both proximity and smart cards, providing an ideal solution for customers looking to transition from proximity to smart cards.

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 three LED colors, red, amber, and green, indicate a range of conditions: valid or invalid card reads, door forced or held open, and system or configuration errors, and an audible alert can also 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, system conditions, and can be used to display instructions to cardholders, such as "Enter PIN now" on RM card readers with keypads. The LCD keypad reader is also commonly used to arm and disarm intrusion zones.

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.

tyco / Fire & Security

features

Embedded Multi-Technology Support

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

Equipped with the new RoHS compliant RM-4 board 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, including 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 over time, or to maintain an existing universe of proximity cards while moving select personnel to smart cards. Plus, as the only multi-technology reader in the industry to provide LCD and keypad support, it is the ideal solution for customers looking for flexibility as they move to smart cards.

Embedded RM 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. The RM iCLASS reader is available in standard styles only (no mullion).

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 RM Indala Proximity

The RM Indala Proximity Reader combines the convenience and high reliability of Indala ASP® proximity technology with the advanced electronics and stylish packaging of the RM card readers. A variety of access credentials are supported depending on your needs, including support for photo identification badges and combination technology. Read range: up to 12.7 cm (5 in)[1]

Embedded RM HID Proximity

The RM HID Proximity reader combines the convenience and high reliability of HID ProxPro® proximity technology with the advanced electronics and stylish packaging of the RM card readers. A variety of access credentials are supported depending on your needs, including support for photo identification badges and combination technology. The RM HID Proximity Reader is available in standard and mullion styles. Read range: up to 11.4 cm (4.5 in)[1]

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 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 card holders 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.

Heater Kit

For some outdoor installations, a thermostatically controlled heater may be necessary. The RM card readers' embedded heater adheres directly to the reader 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.

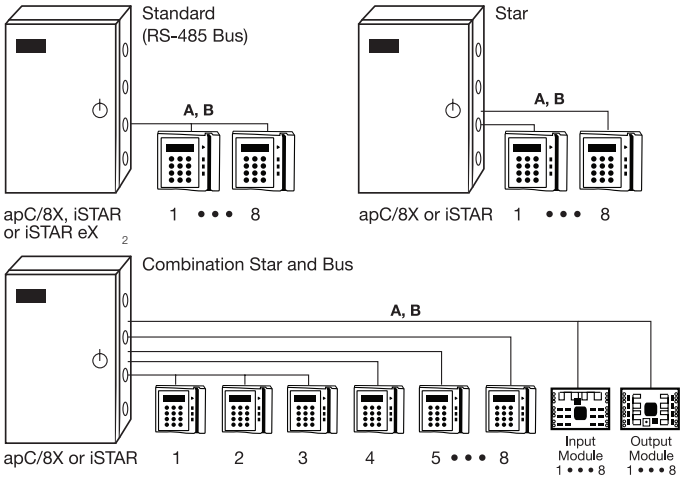
Conformal Coating

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

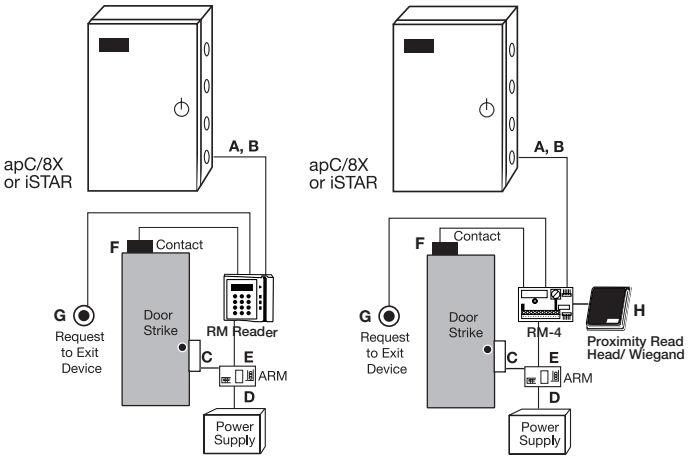
(1) Actual read range may vary depending on environmental conditions, installation surfaces, and type of card presented

take a closer look

Wiring Configurations



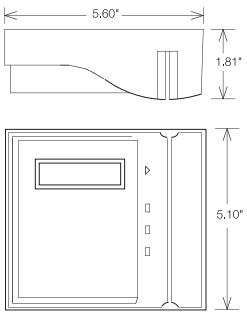
Door Wiring Configurations



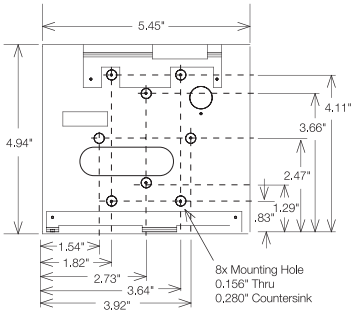
Wire Lable	From	To	Function	Belden Part No. or Equiv.	Gauge (AWG)	No. of Pairs	Shielded	Maz. Length (Ft.)
A	apC/8X or iSTAR	RM Reader, RM -4, I/O Modules	Communication	9841	24	1	Yes	4000
B	apC/8X or iSTAR	RM Reader, RM -4, I/O Modules	Power[4]	8442/8461	22/18[5]	1	No	Vaires[6]
C	ARM	Locking Device	Control	8461	18[5]	1	No	Vaires[6]
D	ARM	Power Supply	Power	8461	18[5]	1	No	25
E	RM Reader, RM-4	ARM	Relay Switching	9462	22	1	Yes	25
F	RM Reader, RM-4	Door Contact	Door Position	8442/8461[7]	22/18	1	No[7]	2000
G	RM Reader, RM-4	Request to Exit Device	Egress Control	8442/8461[7]	22/18	1	No[7]	2000
H	RM-4	Proximity/Wiegand	Reader Comm.	9942	22	3	Yes	200
H	RM-4	Proximity/Wiegand	Reader Comm.	9260	20	3	Yes	300
H	RM-4	Proximity/Wiegand	Reader Comm.	Alpha Wire 5386C	18	3	Yes	500

RM Mounting Specifications

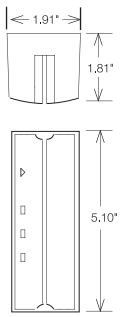
Standard Style



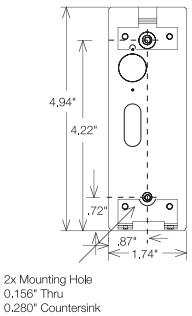
Standard Style Mounting



Mullion Style



Mullion Style Mounting



(2) Supports up to four readers
(3) Use Belden Part Number specified or equivalent product
(4) Not required if powered locally
(5) Gauge varies according to length of wire. Consult apC manual for details
(6) Length varies according to application
(7) 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.

Configuration Table

The chart below lists the RM card readers' configurations by model number. A diamond (•) indicates the presence of a feature.

MODEL	STANDARD	KEYPAD	LCD	CONFORMAL COATING	MULLION
Magnetic Stripe					
RM1-MP[7]	•			•	
RM2-MP[7]	•	•		•	
RM2L-PI[7]	•	•	•	•	
RM3-MP[7]	•			•	•
Proximity					
Indala					
RM1-PI				•	
RM2-PI		•		•	
RM2L-PI		•	•	•	
HID					
RM1-PH				•	
RM2-PH		•		•	
RM2L-PH		•	•	•	
RM3-PH				•	•
iCLASS					
RM1-1C	•			•	
RM2-1C	•	•		•	
RM2L-1C	•	•	•	•	
Multi-Technology					
RM1-4000	•			•	
RM2-4000	•	•		•	
RM2L-4000	•	•	•	•	

Environmental Specifications

	Operating Temperature (with Heater)	Operating Temperature (Environmental)	Power Requirements	Dimensions (HxWxD) Weight
Magnetic Stripe: RM1-MP, RM2-MP	0°C to 60°C (32°F to 140°F)	-30°C to 60°C (-22°F to 140°F)	+12VDC 80 mA	12.95 x 14.22 x 4.95 cm (5.10 x 5.60 x 1.95 in 588 g (21 oz)
Magnetic Stripe with LCD Display: RM2L-MP	0°C to 50°C (32°F to 122°F) 95% humidity, Non-condensing	NA	+12VDC 180 mA	12.95 x 14.22 x 4.95 cm (5.10 x 5.60 x 1.95 in) 644 g (23 oz)
Magnetic Stripe Mullion: RM3-MP	0°C to 60°C (32°F to 140°F)	-30°C to 60°C (-22°F to 140°F)	+12VDC 80 mA	12.95 x 4.85 x 4.60 cm (5.10 x 1.91 x 1.81 in) 280 g (10 oz)
Indala Proximity: RM1-PI, RM1-PI/C, RM2-PI, RM2-PI/C	0°C to 50°C (32°F to 140°F) 95% humidity, Non-condensing	-30°C to 60°C (-22°F to 140°F)	+12VDC 80 mA	12.95 x 14.22 x 4.95 cm (5.10 x 5.60 x 1.95 in) 700 g (25 oz)
Indala Proximity with LCD Display: RM2L-PI	0°C to 50°C (32°F to 122°F) 95% humidity, Non-condensing	NA	+12VDC 180 mA	12.95 x 14.22 x 4.95 cm (5.10 x 5.60 x 1.95 in) 756 g (27 oz)
HID Proximity: RM1-PH, RM2-PH	0°C to 60°C (32°F to 140°F)	-30°C to 60°C (-22°F to 140°F)	+12VDC 135 mA avg. 250 mA peak	12.95 x 14.22 x 4.95 cm (5.10 x 5.60 x 1.95 in) 588 g (21 oz)
HID Proximity with LCD Display: RM2L-PH	0°C to 50°C (32°F to 122°F) 95% humidity, Non-condensing	NA	+12VDC 235 mA avg. 350 mA peak	12.95 x 14.22 x 4.95 cm (5.10 x 5.60 x 1.95 in) 644 g (23 oz)
HID Proximity Mullion: RM3-PH	-30°C to 65°C (-22°F to 149°F)	NA	+12VDC 135 mA avg. 250 mA peak	12.95 x 4.85 x 4.60 cm (5.10 x 1.91 x 1.81 in) 280 g (10 oz)
Reader Module: RM-4	0°C to 60°C (32°F to 140°F)	-30°C to 60°C (-22°F to 140°F)	+12VDC 75 mA	11.81 x 9.02 x 1.52 cm (4.65 x 3.55 x .60 in) 252 g (9 oz)
HID iClass RM1-1C, RM2-1C	0°C to 60°C (32°F to 140°F)	–22°F to 140°F (–30°C to 65°C)	+12VDC 135 mA avg. 250 mA peak	5.10 x 5.60 x 1.95 in. (12.95 x 14.22 x 4.95 cm) 21 oz. (588 g)
HID iClass with LCD Display RM2L-1C	0°C to 50°C (32°F to 122°F) 95% humidity, Non-condensing	NA	+12VDC 235 mA avg. 350 mA peak	5.10 x 5.60 x 1.95 in. (12.95 x 14.22 x 4.95 cm) 23 oz. (644 g)
Multi-Technology RM1-4000, RM2-4000	0°C to 60°C (32°F to 140°F)	-30°C to 60°C (-22°F to 140°F)	+12VDC 170 mA avg. 220 mA peak	12.95 x 14.22 x 4.95 cm (5.10 x 5.60 x 1.95 in) 588 g (21 oz)
Multi-Technology	0°C to 50°C (32°F to 140°F)	NA	+12VDC 270 mA avg. 320 mA peak	12.95 x 14.22 x 4.95 cm (5.10 x 5.60 x 1.95 in) 544 g (23 oz)

(7) Maximum card thickness is .084 cm (.033 in)