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MR5 Magnetic Card Reader

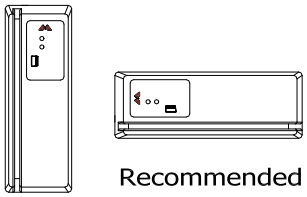
Installation and Specifications

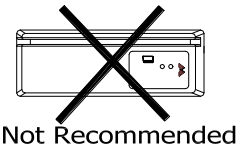
1. General:

The MR5 magnetic stripe card reader is designed for reading standard or high-coercivity magnetic stripe cards. The reader has a TTL interface with selectable clock/data and data 1/data 0 signaling. A bi-color LED and a buzzer are standard. The following paragraphs describe instructions for installing and maintaining the card reader.

2. Mounting the Reader:

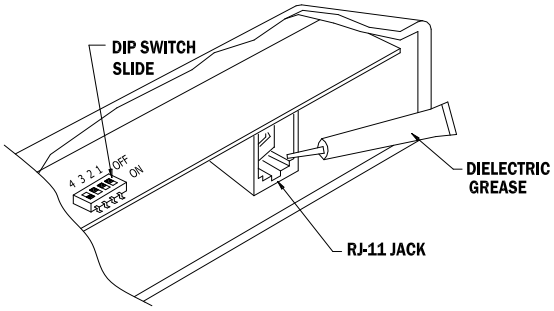
Find a suitable location to anchor the reader mounting bracket. The reader may be mounted vertically or horizontally. See recommended orientation. The mounting of the reader does not require a junction box. However, rigid conduit is required for outdoor application. A single gang junction box may be used to provide transition to rigid conduit. If a single gang junction box is used, a wall plate (optional) is available to cover the junction box. The reader is then secured to the mounting bracket using a UNC6-32 3/8 screw. Refer to figures for reader dimensions and typical junction box usage.





3. Weather Proofing the Reader:

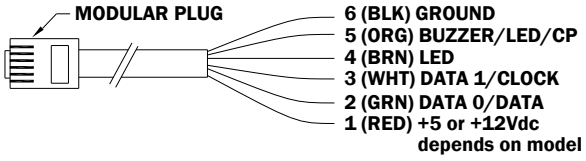
MR5 reader is rated for outdoor use over extended temperature. A tube of dielectric grease is supplied for the installer to coat field connections to seal out moisture. After field connection/configuration is made, the grease is to be applied on the DIP switch slides and the modular jack to seal out moisture. Squeeze some grease into the modular jack before connecting the cable.



⚠ Do not use sealant to seal reader case to wall. Doing so will trap water in the reader and may cause damage to the reader.

4. TTL Interface and Reader Wiring:

The TTL interface has the standard 6-wire interface widely used in the access control application. The reader has a RJ-11 modular jack for easy field connection. A short piece of pre-terminated cable is supplied with each reader for field wiring. Refer to pin number if the pre-terminated cable is not used. Cable with wires of 24 AWG or larger are recommended for field wiring. If a shielded cable is used, connect the cable shield to either earth ground or signal ground at one end only.



CONFIDENTIAL: For installation and maintenance use only. **DO NOT** distribute.

5. Grounding the Reader:

To avoid ESD (electro-static discharge) interfering with the operation of the reader, the reader casing shall be grounded. This can be accomplished by tying the mounting bracket to earth ground locally (e.g. grounded conduit).

6. Reader Configuration:

The DIP switches on the MR5 reader are used to configure the reader. See table below:

SW-4	SW-3	SW-2	SW-1	SELECTION
OFF	X	X	OFF	Clock/Data (MAG stripe) Output
OFF	X	X	ON	Data 1/Data 0 (Wiegand) Output
OFF	X	OFF	X	Single Wire LED Control, HI=Red, Low=Green
OFF	X	ON	X	Two Wire LED Control, No Buzzer Control
OFF	OFF	X	X	Normal LED Drive
OFF	ON	X	X	Inverted LED Drive
OFF	X	X	X	Reserved For Test - set to OFF

X = don't care

7 Reader Verification:

⚠ Verify proper connection and correct supply voltage to the reader before applying power!

The reader performs a self-test when power is first applied to the unit. If power-on test is successfully completed. The reader will turn on the LED for approximately 1 second and sound the buzzer for 1 short beep. The reader is ready for normal operation.

8. Maintenance:

The readers are designed to provide continuous service with minimal routine maintenance. However, contaminants (such as magnetic oxides from badges and dirt) tend to accumulate on the read head. Without regular cleaning, these contaminants will shorten the read head life and increase the probability of card read error. A maintenance schedule should be developed base on the card reader environment (dirty or clean) and the usage frequency (light traffic or heavy traffic). Extreme case may require daily cleaning.

Head cleaning may be done by using a disposable, pre-saturated magnetic head cleaning card. These cards are readily obtainable from office supply distributors.

The reader exterior surface is covered with high strength polymer and polyester membrane. It may be cleaned with a soft cloth and mild detergent if required.

9. Specifications:

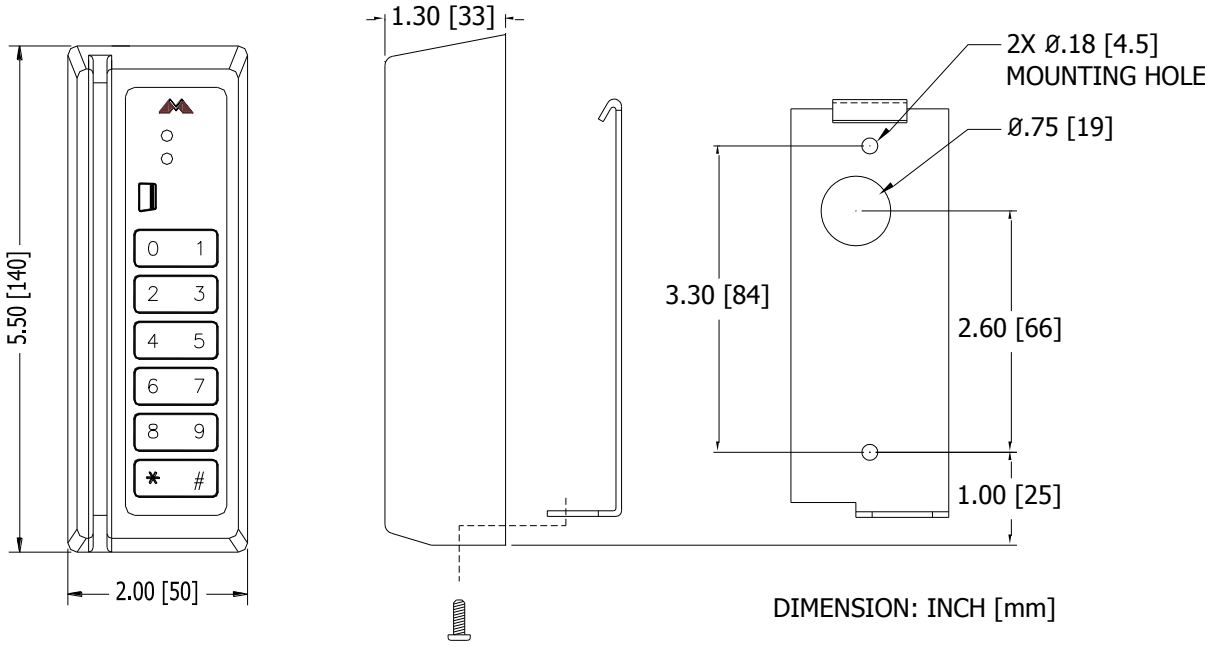
The reader is for use in low voltage, class 2 circuits only.

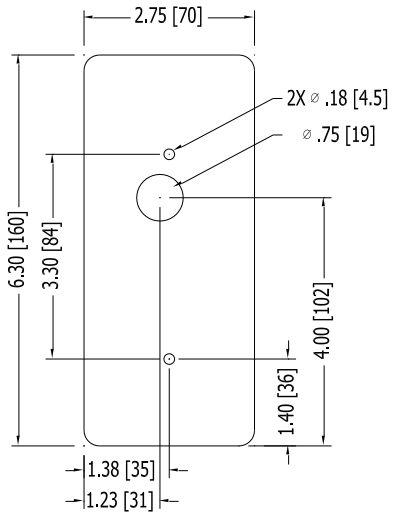
Power:	Voltage:	5 Volt Model: 5.8 Vdc (4.9 to 6.4 Vdc)		
		12 Volt Model: 12 Vdc (10.2 to 13.8 Vdc)		
	Current:	50 mA (20 mA typical)		
Data output:	data 1/data 0 or clock/data, switch selectable			
LED input:	1-wire mode:	input not driven:	LEDs off	
		input > 3.5 Vdc:	Red LED on	(Inverted, Green LED on)
		input < 0.8 Vdc:	Green LED on	(Inverted, Red LED on)
	2-wire mode:	input < 0.8 Vdc:	Red LED on	(Inverted, Red LED off)

Specifications (continued):

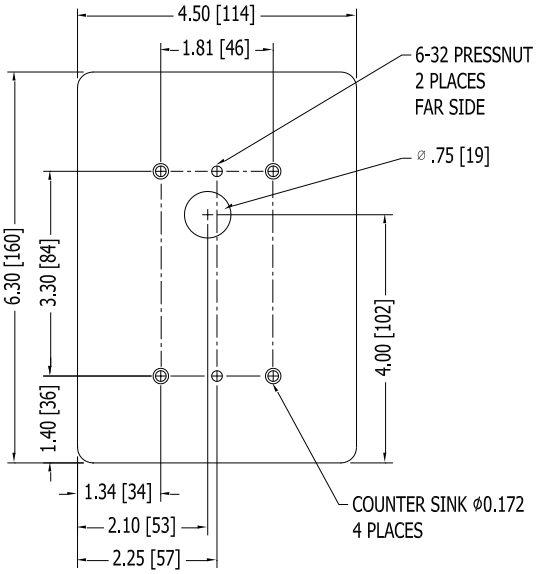
Buzzer/LED/CP:	1-wire mode:	input not driven or > 3.5 Vdc: buzzer off input < 0.8 Vdc: buzzer on
	2-wire mode:	input < 0.8 Vdc: Green LED on (Inverted, Green LED off)
	Card Present optional (CP)	output<0.8 Vdc while reader is outputting data
Mechanical:	Dimension:	1.95in. (50mm) W x 1.30in. (33mm) H x 5.50in. (140mm) L
	Weight:	10 oz. (284 g) nominal
	Material:	Case: die cast aluminum, gray powder coat standard or black (optional) Mounting bracket: 18 gauge stainless steel Wall plate: 18 gauge CRS, gray powder coat standard or black (optional) Weather shield: 18 gauge stainless steel
Card:	75 bpi, ANSI X4.16, Track 2 standard, Speed 3 to 50 ips	
Read Head:	1,000,000 passes typical	
Distance:	500 feet (152m) with 18 AWG wires.	
Environmental:	Temperature:	-55 to +85 degrees C, storage -40 to +75 degrees C, operating
	Humidity:	0-100 % RHNC, standard

14. Reader Mounting Dimensions:

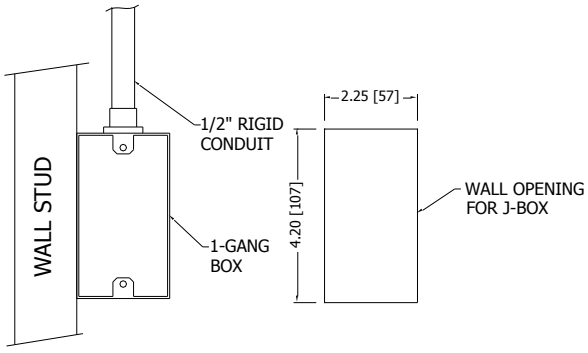




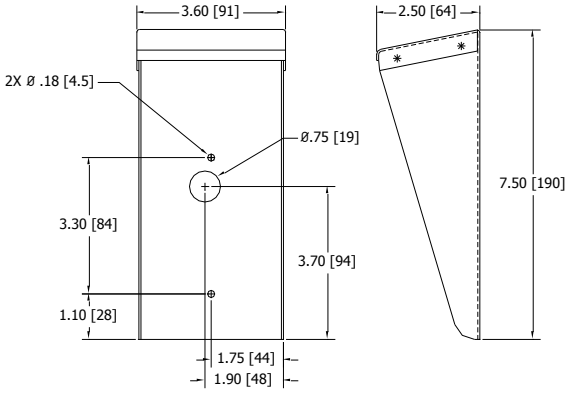
Optional Single Gang Wall Plate - part# WP-10



Optional Double Gang Wall Plate - part# WP-20



Fitting Rigid Conduit to Junction Box



Optional Weather Shield - part# WS-10

Warranty

Mercury Security warrants the product is free from defects in material and workmanship under normal use and service with proper maintenance for two years from the date of factory shipment. Mercury Security assumes no responsibility for products damaged by improper handling or installation. This warranty is limited to the repair or replacement of the defective unit.

There are no expressed warranties other than set forth herein. Mercury Security does not make, nor intends, nor does it authorize any agent or representative to make any other warranties, or implied warranties, and expressly excludes and disclaims all implied warranties of merchantability or fitness for a particular purpose.

Returns must be accompanied by a Return Material Authorization (RMA) number obtained from customer service, and prepaid postage and insurance.

Liability

The Interface should only be used to control exits from areas where an alternative method for exit is available. This product is not intended for, nor is rated for operation in life-critical control applications. Mercury Security is not liable under any circumstances for loss or damage caused by or partially caused by the misapplication or malfunction of the product. Mercury Security's liability does not extend beyond the purchase price of the product.