

# FL20S 125KHz/13.56MHz RFID Reader

1-wire Dual Frequency UID Reader

## ■ INTRODUCTION

FL20S is EM/Mifare UID Reader with 1-Wire and RS232 interface, designed to integrate with vehicle trackers and the other controllers. With 10~48VDC power input, it's convenient to install the reader in different vehicles. It aims to offer more flexibility to build solutions at affordable cost, can be used alternatively for iButton and get your solution working with low cost EM and Mifare cards.



## ■ FEATURES

- Frequency: 125KHz and 13.56MHz
- Read UID of H4001 / H4002 / EM4100/4102 EM card
- Read UID of ISO 14443A Mifare, DESFire card
- Support data Output 1-Wire, RS232
- Support the other 1-Wire input interface
- Available to install on metal surface
- Available to install on different vehicles
- Weather resistant

## ■ SPECIFICATIONS

### OPERATING

Transmit Frequency	125KHz /13.56MHz Standard
Transponder	H4001 / H4002 / EM4100/4102 EM card ISO14443A Mifare, DESFire, Ultralight card
Reading distance	2~5 cm Typ
Interface	1-Wire / RS-232

### ELECTRICAL

Power Input	10 to 48 VDC
Current Consumption	About 30 mA @12VDC

### MECHANICAL

Dimensions	Length : 82.6 mm / Width : 47 mm / Height : 17 mm
Weight	110 gm (With Cable)
Cable Length	90 cm +/- 2cm

### ENVIRONMENTAL

Temperature	Operating : -20 °C to 70 °C Storage : -30 °C to 80 °C
Humidity	Operating : 10 % to 90 % noncondensing Storage : Up to 90% noncondensing

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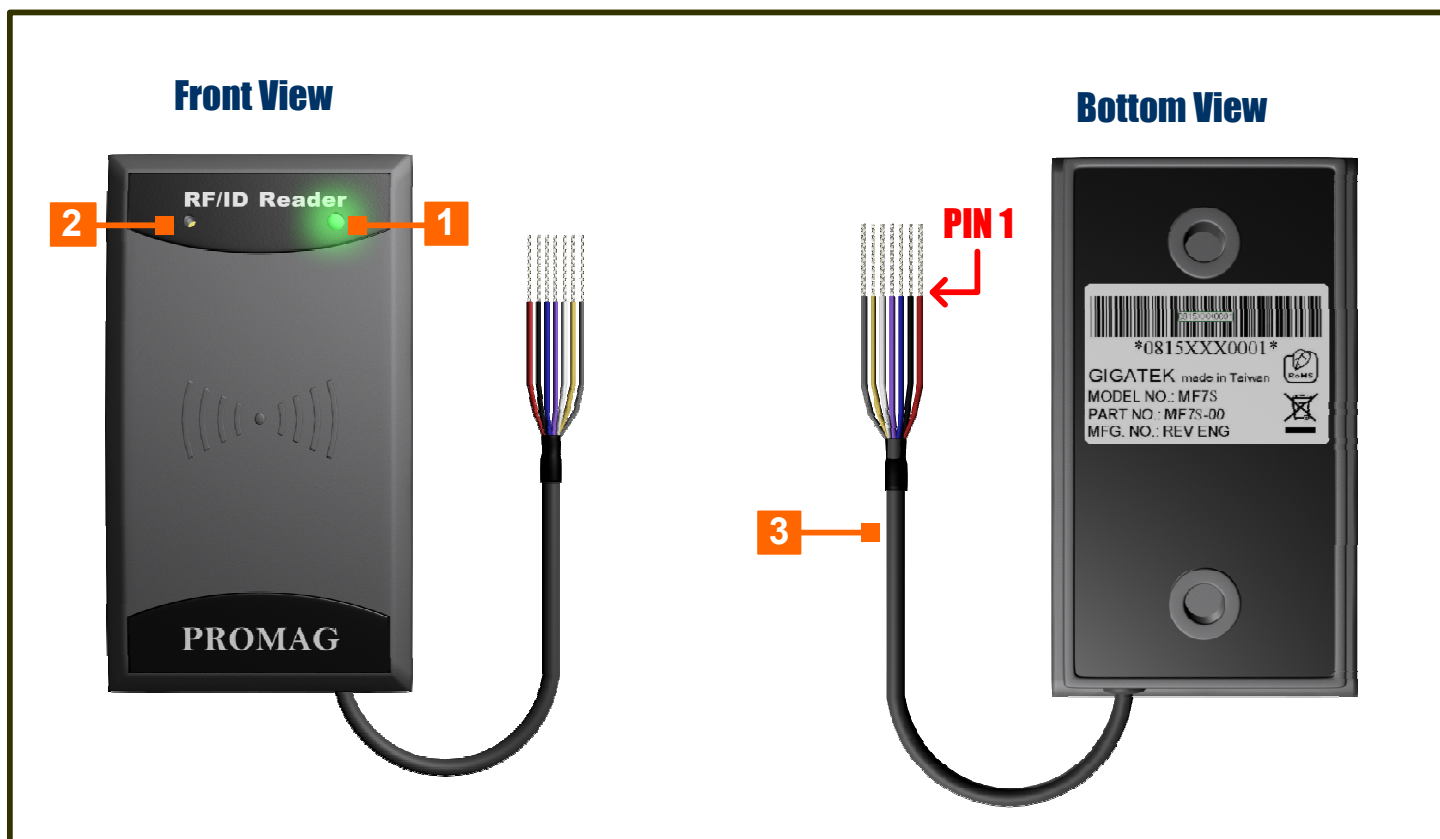
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## ■ TERMINAL / INDICATOR DESCRIPTIONS



### 1 LED Indicator

Green	Red	Description
On	Off	Standby
Blink	Off	Read OK
Off	Blink	Read Error
On	On	ISP Mode

### 2 Sound Indicator

Buzzer	Description
Bi-	Read OK
Bi-Bi-Bi	Read Error

### 3 7 Pin Terminal

Pin	Color	Signal	Description
1	Red	VCC	Power Input: 10~48 Volts
2	Black	GND	Power Ground
3	Blue	1-WIRE	DATA In/Out
4	Purple	1-WIRE	To Next Device
5	White	TX	RS232 TX (transmit)
6	Yellow	RX	RS232 RX (receive)
7	The wire covered with black heat-shrink tubing is a shield. You can connect it to Earth GND if needed.		

**Warning:** In RS232 mode, connect RX to Power Ground when RX is not in use.

## ■ OUTPUT FORMAT

### 1-Wire Structure (Serial ASCII)

Baud Rate : 19200,N,8,1

CRC(2 HEX)	UNIQUE SERIALDATA( 12 HEX )	Family Code(2 HEX)
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All 1-Wire devices, including iButton devices, contain an 8-byte unique registration number.

The computation begins with the MSB of the 64-bit,

This 1-Wire Data consists of an 8-bit CRC, a unique 48-bit serial number and an 8-bit family code.

### RS232 Data Structure (Serial ASCII)

Baud Rate : 19200,N,8,1

STX(2 HEX)	DATA( 8 HEX )	CR(2 HEX)	LF(2 HEX)	ETX(2 HEX)
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The start character is factory defined as an 'STX' (02 HEX). This is followed by 8 Hex characters of data .

The CR/LF characters serve to bring the received screen text back to the left hand side and on the line below after the data bytes have been sent.

The 'ETX' (03 HEX) character denotes the end of the current transmission.

## ■ COMMAND FUNCTION

### Host to FL20S

STX	COMMAND	CR
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Baud Rate : 19200,N,8,1

COMMAND	DESCRIPTION
"J1"	GLED ON & STOP FLICKER
"J2"	GLED OFF & STOP FLICKER
"J3"	RLED ON & STOP FLICKER
"J4"	RLED OFF & STOP FLICKER
"J5"/"J6"	TREBLE SHORT /LONG BEEP PLUSE
"J7"/"J8"	MEDIANT SHORT /LONG BEEP PLUSE
"J9"/"JA"	BASS SHORT /LONG BEEP PLUSE
"V"	VERSION
"D"	DEVICE NAME

## ■ INTERFACE OPTION

The default interface for FL20S is 1-Wire. For RS232 interface, please follow its pin assignment as below and use software to set up interface.

1. Connect the FL20S unit with your computer.

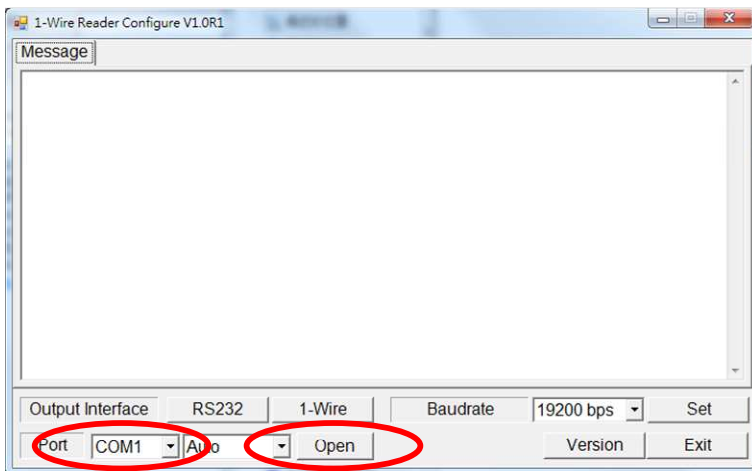


←→  
**RS232**



RED	BLACK	WHITE	YELLOW
VDD	GND	TX	RX

2. Download **1-Wire Reader Configure** software from below link for installation:  
<http://ftp.gigatms.com.tw/disks/disk5478>

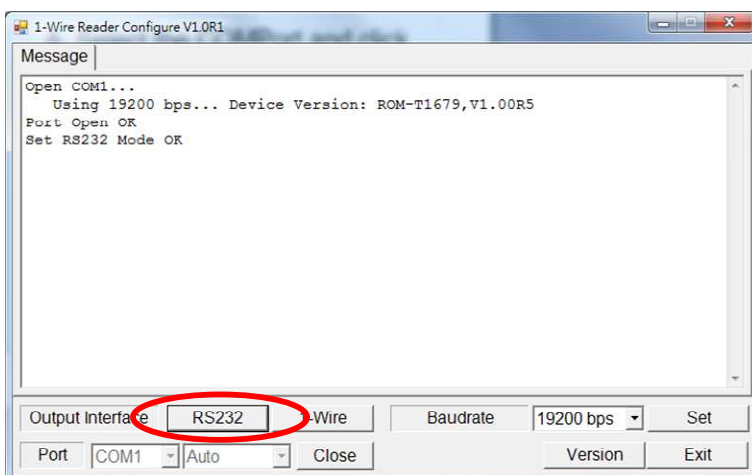


A. Select the COMPort and click the “open” to execute software.

B. Click the “RS232 Output” and “Exit”.

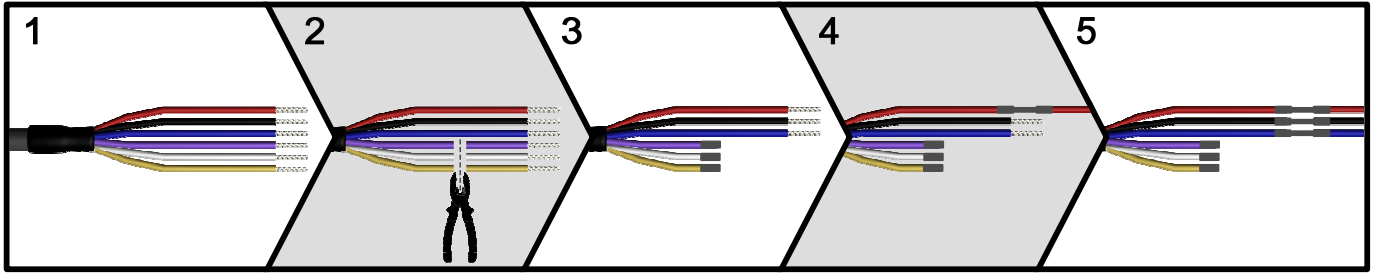
Support:

Microsoft Windows XP/ 7/ 8/ 10



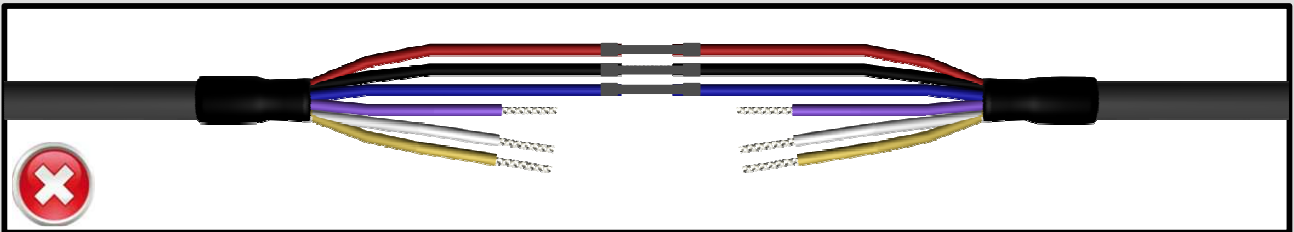
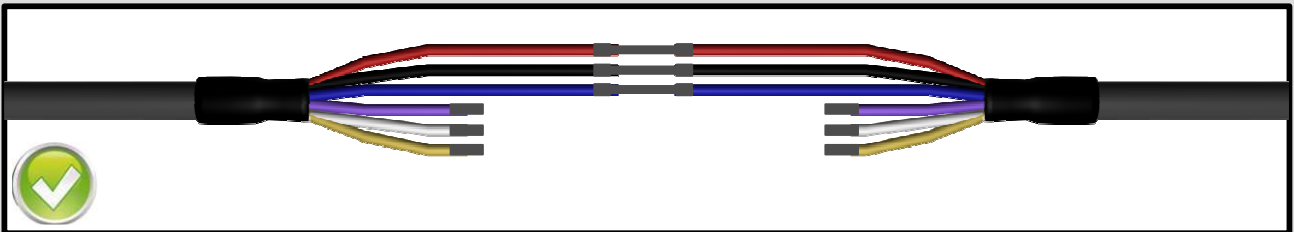
# CAUTION!

Before getting the reader unit powered-on ,please ensure that all wires are well covered/insulated and no bare wires exposed.

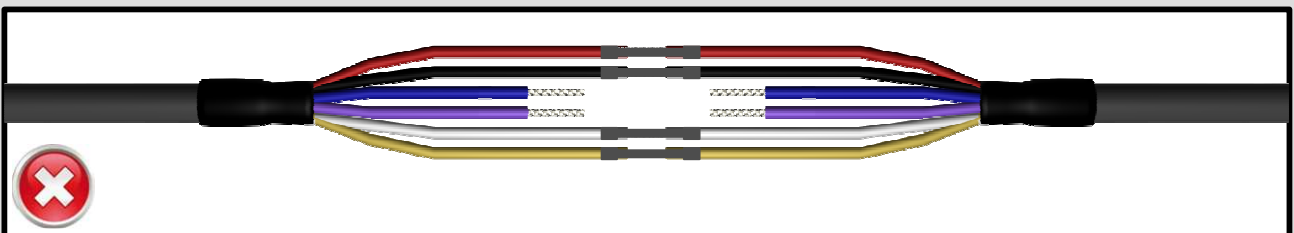
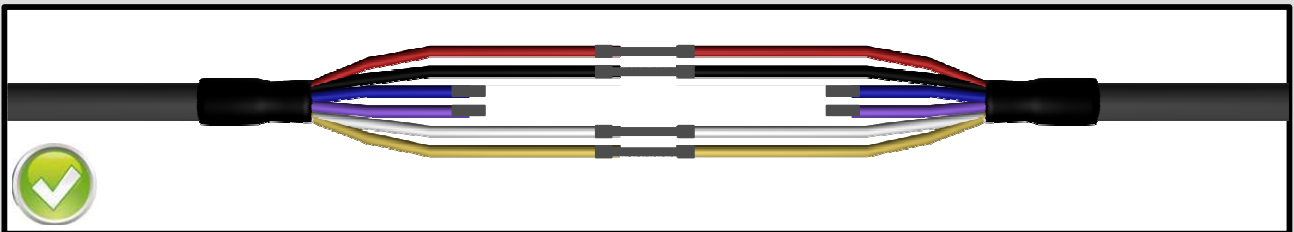


1. Keep wires separately.
2. Cut off the unused wires.
3. Keep unused wires with insulated
4. **Connect the VDD** wire firstly, then cover/wrap with insulated.
5. Connect other used wires, then cover/wrap with insulated.

## 1-wire wire-covered method



## RS232 wire-covered method



**CAUTION:**

The crossed out wheeled bin label that can be found on your product indicates that this product should not be disposed of via the normal household waste stream.

To prevent possible harm to the environment or human health please separate this product from other waste streams to ensure that it can be recycled in an environmentally sound manner.

For more details on available collection facilities please contact your local government office or the retailer where you purchased this product.

This information only applies to customers in the European Union.

For other countries, please contact your local government to investigate the possibility of recycling your product.

**Federal Communication Commission Interference Statement**

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- . Reorient or relocate the receiving antenna.
- . Increase the separation between the equipment and receiver.
- . Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- . Consult the dealer or an experienced radio/TV technician for help.

**FCC Caution:** To assure continued compliance, any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment. (Example - use only shielded interface cables when connecting to computer or peripheral devices).

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and
- (2) This device must accept any interference received, including interference that may cause undesired operation.