WG232

Converter

Version 1.00

User Manual

KEYKING GROUP

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1. Hardware function:

The WG232 is a professional converter to transfer Wiegand and RS232 signal, which is a dual directions device.

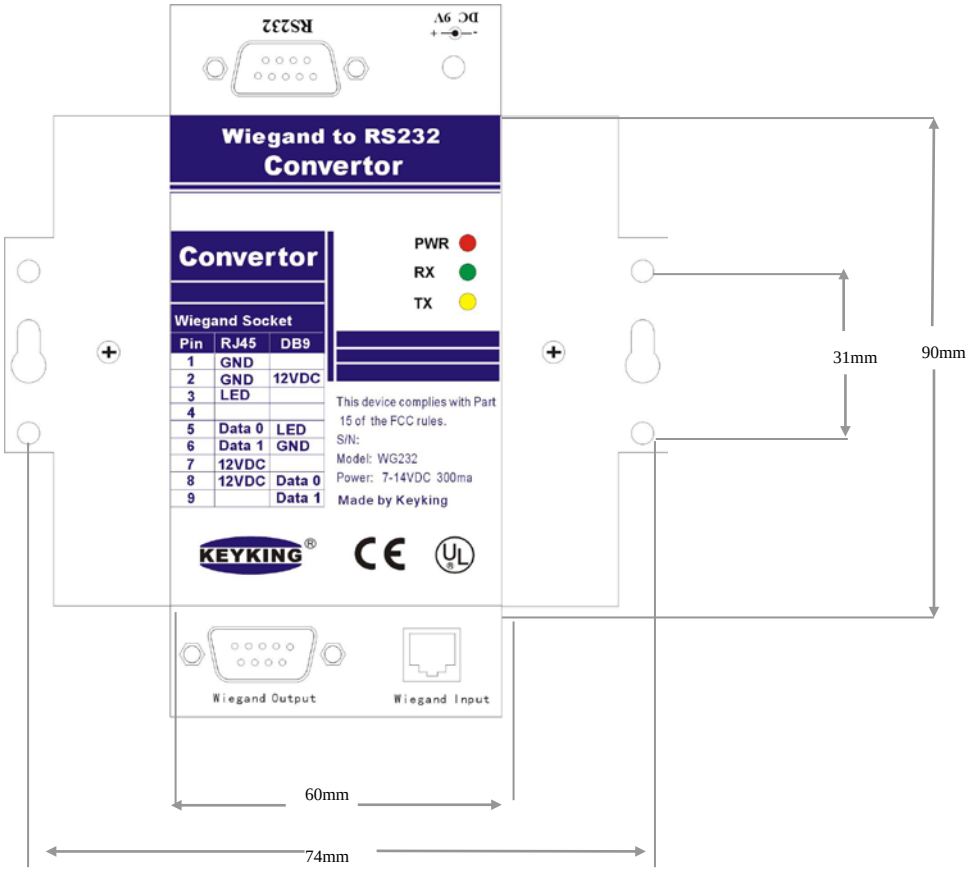


Image 2 WG232 Size

Application Field:

FaceGuard, Access Control, T&A terminal, Identify, and so on.

2. Features:

- Power: 7 – 15VDC, 500ma
- RS232 Baud Rate: 9600Bps
- Current: Static 35mA Operating: 40mA.
- Operating Temperature: -14℃ ~ +70℃.
- Humidity: 10% ~90%
- Max Distance for Wiegand Input: 60m
- Max Distance for Wiegand Output: 60m
- Max Distance for RS232 cable: 15m

2. Sockets:

2.1 WG_In (RJ45 Socket):

Pin	WG_Input	Description	Remark
Pin1	GND	Ground of Power supply	
Pin2	GND	Ground of Power supply	
Pin3	LED	LED Control	
Pin4	N/A	Reserve	
Pin5	D0	Data 0	
Pin6	D1	Data 1	
Pin7	+12V	12VDC, Power Supply for Reader	
Pin8	+12V	12VDC, Power Supply for Reader	

2.2 WG_Out Pins (DB9, Male):

Pin	WG_Output	Description	Remark
Pin1	N/A	Reserve	
Pin2	+12V	12VDC, Power Supply	
Pin3	N/A	Reserve	
Pin4	N/A	Reserve	
Pin5	LED	Green LED Control	
Pin6	GND	Ground of Power supply	
Pin7	N/A	Reserve	
Pin8	D0	Data 0	
Pin9	D1	Data 1	

2.3 RS232 Pins (DB9, Female):

Pin	RS232	RS485	RS422	Remark
Pin1		485-	T-	
Pin2	RX	485+	T+	
Pin3	TX		R+	
Pin4			R-	

Pin5	GND	GND		
Pin6				
Pin7				
Pin8				

RS-232
(DB9 Female)
#2 RX
#3 TX
#5 GND

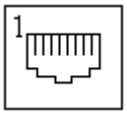
RS-422
(DB9 Female)
#1 T-
#2 T+
#3 R+
#4 R-

RS-485
(DB9 Female)
#1 485-
#2 485+
#5 GND

Wiegand Input
(RJ45)
#1 GND
#2 GND
#3 Green Led
#4 N/A
#5 Data 0
#6 Data 1
#7 12VDC
#8 12VDC

Wiegand Output
(Db9 Male)
#2 12VDC
#5 Green Led
#6 GND
#8 Data 0
#9 Data 1

Pins of RJ45 socket:

RJ45	
Male	**Female**
	

2. Work Mode (JUMPER):

The WG232 support 3 kinds of work modes:

- RS232
- RS485
- RS422

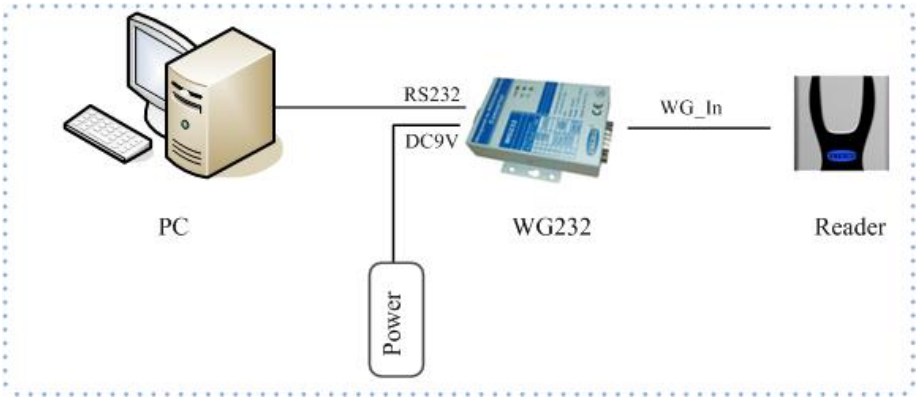
These jumpers are inside the metal case, if you want to setup work mode, please open the metal case and setup the jumpers according below table.

The default work mode is RS232 mode.

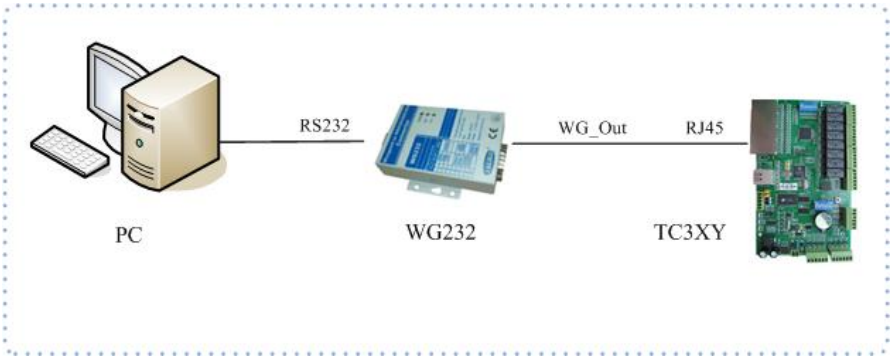
Model / Jump	RS232	RS485	RS422
J1	485 422	485 422	485 422
J2	232 422	232 422	232 422
J3	232 485	232 485	232 485
J4	485---- 422	485---- 422	485---- 422

3. Diagram:

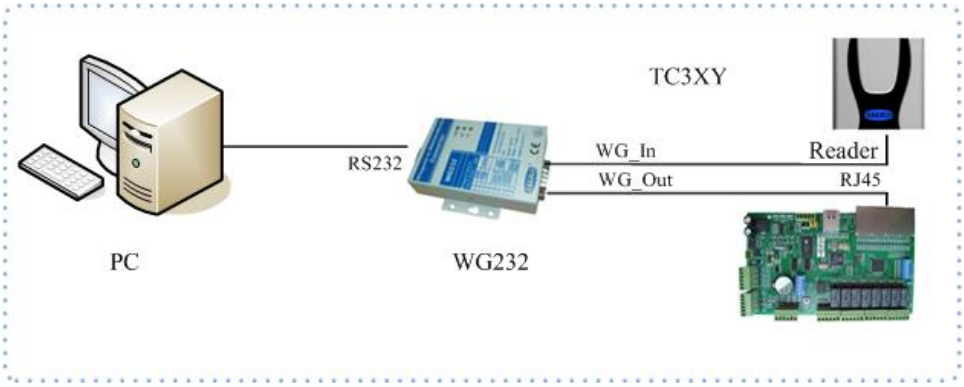
3.1 Single Direction(Reader to PC)



3.2 Single Direction(PC to Controller)

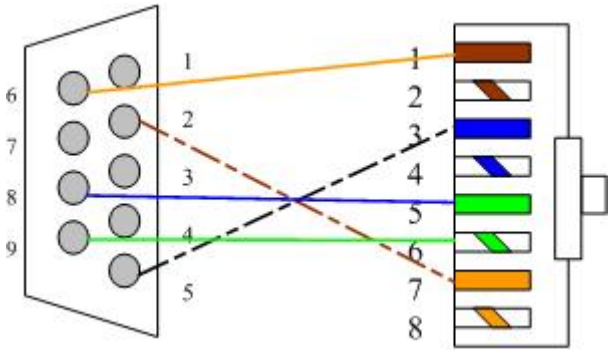


3.3 Dual Direction (Reader—PC--Controller)



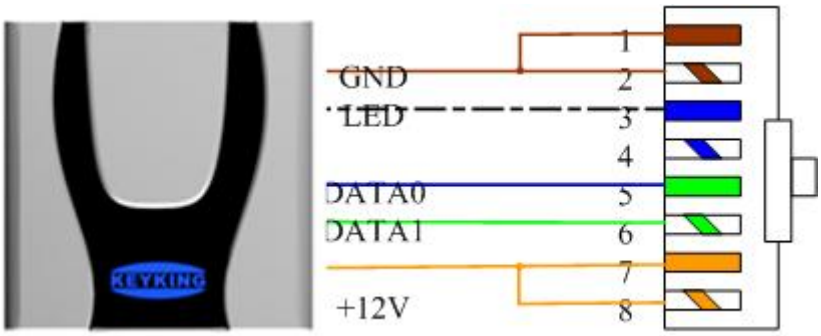
3.4 Cable between WG_Output and TC3XY controller

Image #2-3 WG232 Straight through cable for TC3XY Access Controller:



DB9 (Female)----------RJ45 (TC32XY side)

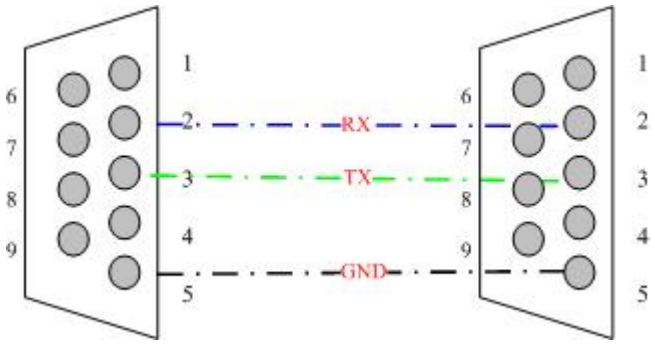
3.5 Cable between WG_In and Reader



READER WG_IN

3.6 RS232 Cable between WG232 and PC

3.6.1 RS232

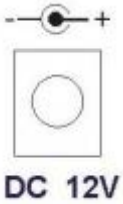


DB9(Male, WG232 side) DB9(Female, PC side)

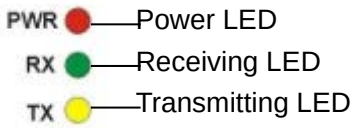
3.7 Power Supply

Input Voltage: DC7-12V

Caution: When WG232 get power supply from Access Controller, need no extend power supply.



4. LED Indication:



- When there is a power supply to WG232, the PWR LED will be lighted.
- When there is Data came from Reader, the RX LED will be lighted.
- When WG232 is transmitting Data to Access Controller, the TX LED will be lighted.

5. Communication protocol:

RS Baud Rate: 9600bps , Data Format: 1+8+1

5.1 Data Format:

0xa5 + 0xa5 + WG Length (1B) + WG_Data (8B) + CRC16 Checksum(2B)

Head	Head	WG Length(1Byte)	WG_Data(9 Bytes)	CRC16 (2 Bytes)
A5	A5	1A	00 00 00 00 00 00 E3 43 A7	85 9D

Note:

- The High Bit should be in the front of Low Bit.
- Wiegand Data is always 72 bits (9 bytes), if you want to transfer 26 Bits only, please add 46 pcs “0” in front of Data.

- WG232 support the wiegand reader which has output up to 72 Bits.
- PC and WG232 will use the same data format to communicate.

5.2 Event Code :

Code(Hex)	Description	Remark
A1	Ok, Receive correct data	
A2	Fail to check CRC16, or WG_Length is wrong	

Note:

- WG232 return PC these event codes, after it got some data from RS232 interface.
- PC will not return event code to WG232 after WG232 send some data to PC, unless another application will send data by this serial port.

5.3 CRC16

CRC16 adopt CCITT standard, and the first value is 0xFFFF.

CRC16 will calculate the value from "WG_Length" to "WG_Data", total is 10 bytes.

5.4 WG232 buffer

- WG232 buffer will store the last card record.
- If PC send "A5 A5 00 00 00 00 00 00 00 00 00 00 E1 39" to WG232, then means PC want to get the last card record from WG_Input.
- After PC take buffer data, WG232 will clear buffer automatically.
- New Version Firmware:If WG232 return "A5 A5 00 00 00 00 00 00 00 00 00 00 E1 39" to PC, then means the buffer is empty.
- Old Version Firmware:If WG232 return "A5 A5 00 00 00 00 00 00 00 00 00 00 18 72" to PC, then means the buffer is empty.