



# IFD8520 Delta addressable RS-485/RS-422 Isolated Converter

## User's Manual

### INTRODUCTION:

The Delta IFD8520 Isolated addressable RS-232 to RS-422/RS-485 converter performs communication interface from RS-422/RS-485 to RS-232 protocol, supported RS-422/RS-485 address decoding for none address RS-232 device. And also support vary transmission speed and different baudrate communication from 300 bps to 115.2K bps via software setting.

### SPECIFICATIONS:

- 1.Power Requirement : +9V — +35Vdc.
- 2.Power Consumption : 1.2W.
- 3.Isolated Voltage : 3000Vdc.
- 4.Baud Rate : 300,600,1200,2400,4800,9600,19200,38400,57600 or 115200bps.
- 5.Networking up to 1.2km
- 6.RS232 connector type:9PIN D-SUB (Female)
- 7.RS-485/RS-422 Terminal Type : 10PIN terminal · Accepts · AWG1-#12 to #24 wires .
- 8.Dimension ( L x W x H ) : 4.65in x 2.79in x 0.87in(118mm x 71mm x 22mm).
- 9.Weight : 0.286lb(130 g).

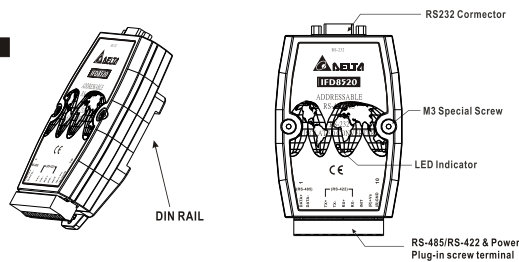
### FUNCTION:

- 1.Support RS-485/RS-422 address decode function
- 2.Transmission speed up to 115.2Kbps
- 3.Transmission distance up to 1.2Km
3. Transfer and receive buffers are up to 250 characters each.
- 4.Support address mode or direct mode communication.
- 5.EEPROM include, can store communication setting and product ID up to 30 characters
- 6.EEPROM self test function include, auto detect and correct data.
- 7.Support different baudrate and different data format communication.
- 8.Whether stop byte send to RS-232 or not is selectable, and RS-485/422 checksum mode was supported.
- 9.Watch dog function supported
- 9.Transient suppression on RS-485 data lines
- 10.Reserved space for termination resistor
- 11Automatic internal RS-485 bus supervision

### ACCESSORY:

- 1.Mounting Panel x 1
- 2.User manual x 1

### APPEARANCE:

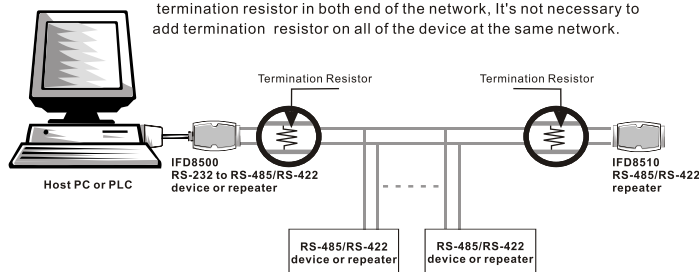


### TERMINATION RESISTOR:

The signals between two device will be affect by line resistor and line capacitor · this make transmission data signal distortion and delay, so let impedance of network to be match is necessary.

#### Hint for termination resistor:

- Length of transmission wire is too long to keep data signal's quality
- Only two of termination resistors are need for the single line network, User has to insert termination resistor in both end of the network, It's not necessary to add termination resistor on all of the device at the same network.



c. If the transmission wire of RS-485 is using twisted pair with 1.2km, We recommend you using resistor with 120 Ohm

### WIRING:

a.RS-232 (D-SUB 9PIN)  
Only TX · RX and GROUND are need to make this product functional

Pin Define :

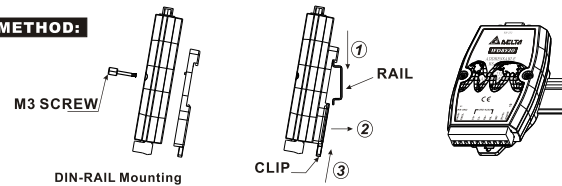
PIN	Signal Name	PIN	Signal Name
1	/DCD	6	/DSR
2	RXD	7	/RTS
3	TXD	8	/CTS
4	/DTR	9	NC(Ring indicator)
5	Signal ground	10	PIN 1-4-6 7-8 short on PCB

b.Power · RS-485/RS-422 ( 10PIN terminal)  
Power input with unregulated +9 to +35Vdc · IFD8520 provide 50Vdc protection with power reverse · For reduce interference, we recommend twisted pair cable be used with this product

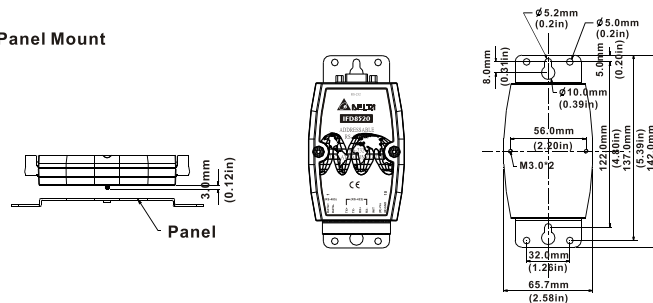
PIN	Signal Name	PIN	Signal Name
1	RS-485 DATA+	6	RS-422 RX+
2	RS-485 DATA-	7	RS-422 RX-
3	-NC	8	INIT
4	RS-422 TX+	9	+Vs (Power)
5	RS-422 TX-	10	-GND (ground)

### MOUNTING METHOD:

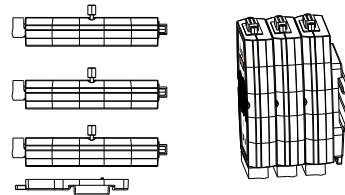
#### a. DIN Rail



#### b. Panel Mount



#### c. Piggy back



### OPERATION:

#### 1.LED Display

- Power on and no data transfer on RS-485/RS-422 bus · green LED "ON"
- Data transfer form RS-485/RS-422 to RS-232 · red LED "ON" and green LED "OFF"
- Data transfer from RS-232 to RS-485/RS-422 · green LED "FLASH"

#### 2.Data transfer with RS-485

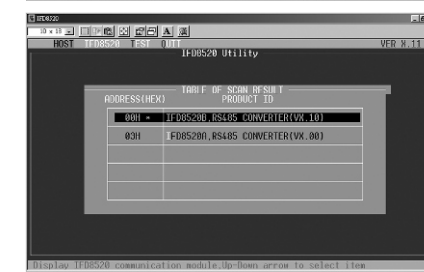
The RS-485 allows for multiple drivers and receivers on single line, facilitating half duplex communication · Before sending data to RS-485 bus line, Programmer has to make sure there is no data transmit on the bus, else you will lose your data

#### 3.IFD8520 UTILITY

1.For change the setting of IFD8520, short pin "INIT" and "GND" before power on.

Initial status  
Protocol:RS-485 mode  
Baudrate:9600 bps  
Data format:None parity, 8 bits data length, 1 stop bit  
Address: 00H  
Stop character:0DH  
Delimiter:3AH (·)

2.Green LED will flash 3 times in initial state after power on, or flash 1 time in normal operating state. Run IFD8520.exe after green LED was "ON".



MAIN MENU IFD8520 STATUS UTILITY VERSION



3.Utility will search IFD8520 device from address 0 to 255 with COM1 and 9600bps, You can press any key to stop scan or wait for scan complete

4.Use up-down arrow key to choice which device setting will display, press "ENTER" to excute

5.Display IFD8520 communication setting on screen

6.Use arrow key to select item you want to change, and use "ENTER" to confirm

7.If IFD8520 is not in initial state, Only the change of product ID and delimiter is allow.

8.To make any change of IFD8520 setting, "SAVE" item has to excute before quit this program.

9.HOST COM port setting is changable, User can change the setting and use "SCAN" to find IFD8520

10.Item "TEST" support "SINGLE" and "CONTINUE" communication test

Utility can be down load from <http://www.deltaww.com/products/ifd.htm>

### Communication setting and function descript:

- 1.Protocol : Switch between RS-485,RS-422, default is RS-485 mode
- 2.Transfer mode :
  - a.Direct mode (Address mode OFF) : IFD8520 will pass all received data to other device function is same as RS-232 to RS-485/422 converter
  - b.Address mode (Address mode ON) : Accept certain address data from RS-485/RS-422 port only then transfer those data except address and delimiter to RS-232 port and transfer all RS-232 data to RS-485/RS-422 port
  - c. Normal response mode : Start transfer data after received stop character
  - d. Fast response mode : Start transfer data after received any valid data

#### 3.Address mode transmission protocol

##### Data string format

Start character	Address bytes	data or command	checksum bytes	stop character
(1 Byte)	(2 Bytes)	(1 - 244 Bytes)	(2 Bytes)	(1 Bytes)

- a.start character : Start with \$ or % is the command string, Start with delimiter is data transfer Delimiter can be choice from following character [ : ] { } ~ ^ |
- b.Address bytes : 2 bytes ASCII code to present one hex code, range is between 00 to 255
- c.Command : 1 byte · See following table

6 (36H)	Assign product ID ( 30 characters maximum)
7 (37H)	Read product ID
C (43H)	Set delimiter
D (44H)	Read delimiter
V (56H)	Read firmware version

d.Data : Length of string up to 250 bytes (include start character, address byte, checksum and stop byte)

e.Checksum : 2 bytes · = start character + address byte + data ·  
for example : >> : 01TEST  
checksum = 3AH + 30H + 31H + 54H + 45H + 53H + 54H = 1DBH  
checksum bytes = 44H(D) · 42H(B)

When using checksum mode · transfer mode will set to address mode and normal response mode automatically,  
The checksum are not included in command mode and RS-232 port didn't accept checksum function

f.Stop byte : 1 byte · default is 0DH · RS-232 port can set to send nothing instead stop byte