



IFD8510 RS-485/RS-422 Isolated Repeater

User's Manual

INTRODUCTION:

The Delta IFD8510 repeater simply amplifies, or boots, existing RS-485/RS-422 signals to enable them to cover longer distances. It extends the communication distance by 4000ft(1200m) or extends the number of connected nodes by 32. Support RS-485 half-duplex and RS-422 full-duplex communication, and can automatically senses the direction of data flow and switches the transmission direction.

SPECIFICATIONS:

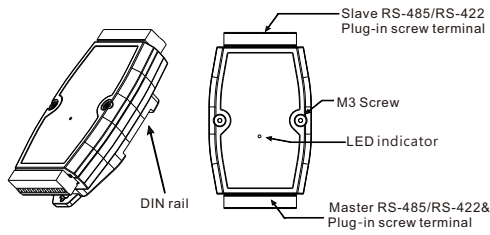
1. Power Requirement : +9V~+48Vdc.
2. Power Consumption: 0.5W.
3. Isolated Voltage: 3000Vdc.
4. Baud Rate : 1200,2400,4800,9600,19200,38400,57600 or 115200bps.
5. RS-485/RS-422 Terminal Type : 10PIN , AWG1-#12 to #24 wires accepted.
6. Dimension (L x W x H) : 4.80in x 2.79in x 0.87in (122mm x 71mm x 22mm).
7. Weight : 0.295 lb (134gr)

INSTALLATION:

1.ACCESSORY

- Mounting Panel x1.
- User Manual x 1.

2.APEARANCE



3.DATA FORMAT SETTING:

Set baud rate and data format to control the data flow

Baud rate	SW1				Baud rate	SW1			
	1	2	3	4		1	2	3	4
1200bps	ON	OFF	OFF	OFF	38400bps	ON	OFF	OFF	OFF
2400bps	ON	OFF	OFF	OFF	57600bps	ON	OFF	OFF	OFF
4800bps	ON	OFF	OFF	OFF	115200bps	ON	OFF	OFF	OFF
**9600bps	ON	OFF	OFF	OFF	RS-422 Mode	ON	OFF	OFF	OFF
19200bps	ON	OFF	OFF	OFF					

Length	SW2		Length	SW2	
	1	2		1	2
9bit	ON	OFF	11 bit	ON	OFF
**10 bit	ON	OFF	12 bit	ON	OFF

Notes: **default setting.

Calculation for length of data frame:

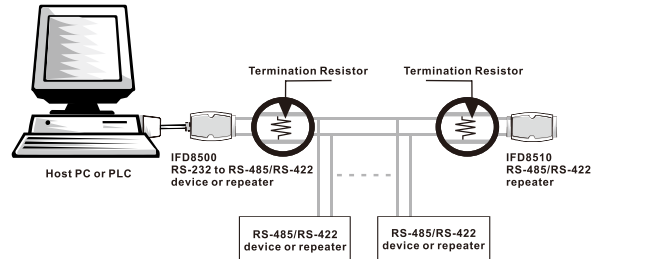
LENGTH = START BIT + DATA LENGTH + PARITY BIT + STOP BIT
 Ex : DATA LENGTH = 8 bits · None parity · STOP BIT = 1bit
 LENGTH = 1+8+0+1 = 10

4.TERMINATION RESISTOR

The action to terminate the cable is system dependent and is affected by the choice of the maximum cable length and signal rate. The length of RS-485 network cable can be extended up to 4000 ft or 1.2km. It is necessary to match the line impedance of network to avoid signal distortion by adding to termination resistors on both ends of RS-485/RS-422 network cable.

Hint for termination resistor:

- a.The longer the length of transmission cable , the worse the signal quality.
- b.Two transmission resistors are recommended to install on both ends of the main cable of RS-485/RS-422 network . It's not necessary to add termination resistors on each nodes in the same network.



c.If the transmission wire of RS-485 is using AWG#24 twisted pair cable with 1.2km, We recommend you to use 120 Ohm resistor.

5.CONNECTORS PINS ASSIGNMENT

- a. Master RS-485/RS-422 interface connector: plug-in screw terminal Plug-in screw terminal wiring: Accepts AWG 1-#12 to #24 wires.

Pin Description :

Pin	Signal Name	Pin	Signal Name
1	RS-485 DATA+	6	RS-422 RX+
2	RS-485 DATA-	7	RS-422 RX-
3	Signal Ground	8	SHLD
4	RS-422 TX+	9	+Vs (+ Power Input)
5	RS-422 TX-	10	GND(- Power Input)

- b. Slave RS-485/RS-422 interface connector: plug-in screw terminal Plug-in screw terminal wiring: Accepts AWG 1-#12 to #24 wires .

Pin Description :

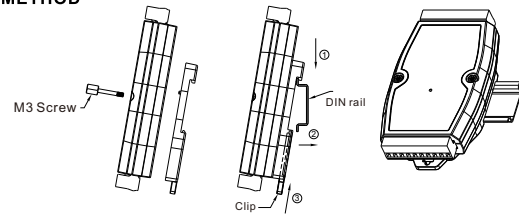
Pin	Signal Name	Pin	Signal Name
1	RS-485 DATA+	6	RS-422 TX+
2	RS-485 DATA-	7	RS-422 TX-
3	Signal Ground	8	SHLD
4	RS-422 RX+	9	NC
5	RS-422 RX-	10	NC

Notes:

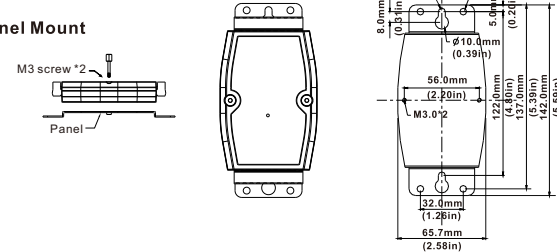
1. IFD8510 provides 60Vdc reverse power protection.
2. To reduce interference, it is recommended using twisted pair cable.

6.MOUNTING METHOD

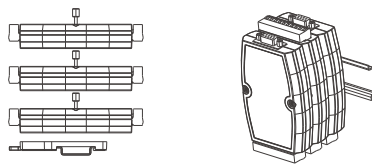
a. DIN Rail



b. Panel Mount



c. Piggy back



OPERATION:

1.LED Display

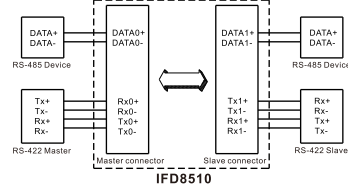
Green LED "ON" for power indicator
 Red LED "Flash" for received data from master RS-485/RS-422 terminal
 Green LED "Flash" for data received data from slave RS-485/RS-422 terminal.

2.Data transfer with RS-485

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

3.Wiring

Before using this module in a network, the module should be properly wiring connected. The following diagram shows the wiring layout.



IFD8510隔離式 – RS-485/RS-422再生器

使用手冊

介紹:

本產品主要功能是将原來存在的RS-485/RS-422差動信號作放大增強,使其通訊距離可更加延長1200公尺,或增加32個通訊節點數。支援RS-485半雙工及RS-422全雙工通訊方式,並且能自動偵測資料流方向,切换傳輸方向。

規格:

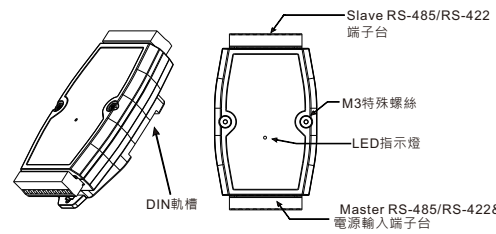
- 1.電源需求: +9V ~ +48VDC
- 2.消耗功率: 0.5瓦
- 3.隔離電壓: 3000Vdc
- 4.傳輸速度: 支援1200,2400,4800,9600,19200,38400,57600,115200bps
- 5.RS-485/RS-422端子型式: 10PIN 端子排, 可使用AWG1-#12到 #24線
- 7.尺寸大小: (長) 122mm x (寬) 71mm x (高) 22mm
- 8.重量: 約134公克

安裝說明:

1.附件

- 附件包含: Panel mount 固定板 x 1, 使用手冊 x 1

2.各部名稱



3.資料格式設定:

設定傳輸速度及資料格式

傳輸速度	SW1設定				傳輸速度	SW1設定			
	1	2	3	4		1	2	3	4
1200bps	ON	OFF	OFF	OFF	38400bps	ON	OFF	OFF	OFF
2400bps	ON	OFF	OFF	OFF	57600bps	ON	OFF	OFF	OFF
4800bps	ON	OFF	OFF	OFF	115200bps	ON	OFF	OFF	OFF
**9600bps	ON	OFF	OFF	OFF	RS-422 Mode	ON	OFF	OFF	OFF
19200bps	ON	OFF	OFF	OFF					

資料長度	SW2設定		資料長度	SW2設定	
	1	2		1	2
9 位元	ON	OFF	11 位元	ON	OFF
**10 位元	ON	OFF	12 位元	ON	OFF

Notes:**為出廠預設值

資料長度計算:

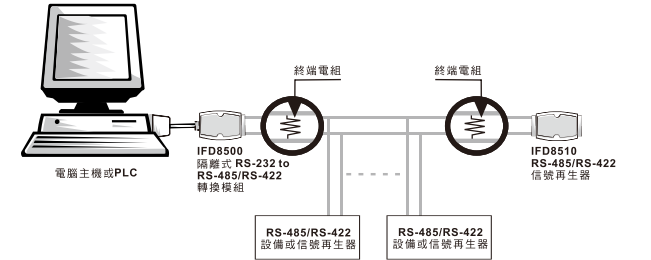
資料長度 = 開始位元 + 資料位元長度 + 同位位元長度 + 停止位元長度
 例如: 資料位元長度 = 8 位元, 無同位位元, 停止位元長度 = 1位元
 則資料長度 = 1+8+0+1 = 10

4.終端電阻

當長距離傳輸時, 傳輸線的阻抗及電容效應會造成信號的失真與延遲, 此時刻必須在兩條傳輸線間加入終端電阻, 使阻抗匹配。

使用終端電阻原則為:

- a.傳輸線過長造成信號傳輸接收不良時。
- b.終端電阻只需接在同一網路點的首端及末端, 其餘裝置則不用, 如圖例



c.1.2公里AWG#24雙絞線建議使用120 Ohm 終端電阻, 實際使用仍必須視傳輸線的規格及長度決定

5.端子排腳位定義

a.電源 Master

RS-485/RS-422 (10-PIN端子排)

腳位	信號名稱	腳位	信號名稱
1	RS-485 DATA+	6	RS-422 RX+
2	RS-485 DATA-	7	RS-422 RX-
3	SG(信號接地)	8	SHLD
4	RS-422 TX+	9	+Vs(電源正輸入)
5	RS-422 TX-	10	GND(電源負輸入)

b.Slave RS-485/RS-422

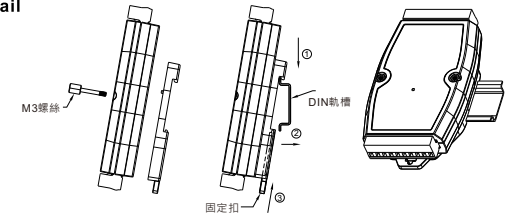
(10-PIN端子排)

腳位	信號名稱	腳位	信號名稱
1	RS-485 DATA+	6	RS-422 TX+
2	RS-485 DATA-	7	RS-422 TX-
3	SG(信號接地)	8	SHLD
4	RS-422 RX+	9	NC
5	RS-422 RX-	10	NC

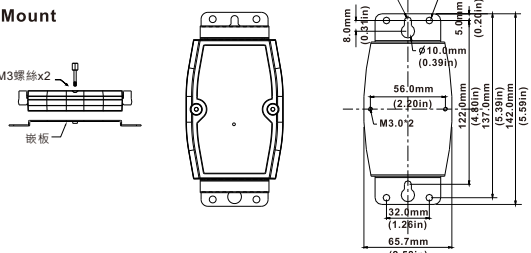
電源(腳位9,10)可以直流通電9V至48V提供, 正負極性請勿接反, 如果不小心接反, 本產品可提供60伏特逆電壓保護, 防止內部電子零件損壞, 傳輸線建議使用AWG1 #12 - #24 雙絞線, 可提高信號的穩定度。

6.固定方式

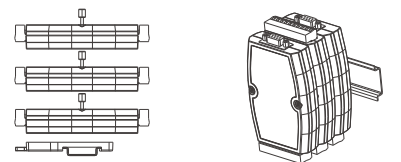
a. DIN Rail



b. Panel Mount



c. Piggy back



動作及配線說明:

1.LED燈號顯示

- a.有電源但是無資料傳輸時, 綠色LED亮。
- b.資料由Master RS-485/RS-422傳至Slave RS-485/RS-422時, 紅色LED閃。
- c.資料由Slave RS-485/RS-422傳至Master RS-485/RS-422時, 綠色LED閃。

2.RS-485資料收發

因為RS-485屬半雙工傳輸, 無法做同時傳送及接收, 本產品待機設定在雙方向接收狀態, 一旦有資料某一方向埠接收到時, 立即切換至單方向傳送狀態。若此時在RS-485匯流排上雙方向同時傳送資料, 便會造成資料的錯誤及流失。所以在傳資料前要先確認在RS485匯流排上沒有任何資料的傳遞動作發生。

3.RS-485/RS-422配線注意事項

請注意, 應用本產品時必須作適當的配線。其配線連接方式請參考下圖:

