**Industrial RS-485/RS-422**

**Opto-isolated Repeater/Converter**

**(Part Number: RPT-485_422-4)**

CE FC



Communications made easy

*Http://www.CommFront.com*

■ **INTRODUCTION**

The RPT-485_422-4 is a rugged, industrial-grade, optically-isolated RS-485/RS-422 repeater / converter, which can be used to extend the RS-485 or RS-422 distance to up to 4000 ft (1.2km), it can also can be used to convert a two-wire RS-485 signal into a four-wire RS-422 signal, and vice versa. This product features opto-isolation circuitry, which effectively protects your RS-485/RS-422 devices from ground loops, noise problems, transient surges, remote lightning and spikes. The unit supports serial data rates up to 115,200bps and features data format auto-sensing and self-adjusting, and, therefore, no DIP switch or jumpers are required. When working with RS-485 signals, the CommFront's auto-turnaround feature eliminates the need for flow control.

■ **FEATURES**

• Industrial grade enclosed in a rugged, rustless ABS housing.
• Direct DIN-Rail or wall/panel mounting without using any unsecured bracket or adapters.
• Optical isolation effectively protects RS-485/RS-422 devices from ground loops, transient surges, remote lightning and spikes.
• Optical isolation eliminates ground loop and noise problems.
• Supports up to 128 nodes of RS-485/RS-422 devices.
• Supports serial data rates up to 115,200bps.
• RS-485/RS-422 auto-detection, no jumper setting is required.
• Data direction auto-turnaround, no software drivers or flow control is required.
• Plug and play (hot-pluggable, data format auto-sensing and self-adjusting).
• Operating temperature: -40ºF to 185ºF (-40ºC to 85ºC).
• Built-in 600W surge protection, 15kV static protection and circuit protection.
• Surface Mount Technology manufactured to RoHS and ISO-9001 standards.
• Safety: Strictly certified by TUV (Cert No. SG-CE-100004; SG-FCC-100001).
• 5-year manufacturer's warranty.

■ **SPECIFICATIONS**

| | |
|---|---|
| Compatibility: | EIA/TIA RS-485 and RS-422 standards |
| Power Source: | 9 to 30VDC (External AC to DC power adapter included) |
| External AC/DC Power Adapter: | 9VDC/500mA (Input: 100~240VAC 50/60Hz, US type A plug) |
| Current Consumption: | Less than 30mA |
| Optical Isolation: | 2500Vrms (AC, 1 min) |
| Data Rates: | 300 to 115,200bps (auto-sensing and self-adjusting) |
| Distances: | RS-485/RS-422: up to 4000ft (1.2km) at 19,200bps |
| Connectors: | 2x 10-way Terminal Block |
| Number of Maximum Nodes: | RS-485: 128 nodes; RS-422: 128 nodes |
| Surge Protection: | 600W |
| Static Protection (ESD): | Up to 15kV |
| Dimensions (H x W x D): | 4.9 x 3.6 x 0.9 in (125 x 73 x 33 mm) |
| Weight: | 4.5 oz (128 g) (with termination board) |
| Operating Temperature: | -40ºF to 185ºF (-40ºC to 85ºC) |
| Operating Humidity: | Up to 90% RH (no condensation) |

■ **PIN ASSIGNMENT**

RS-485/RS-422 (Terminal Block):

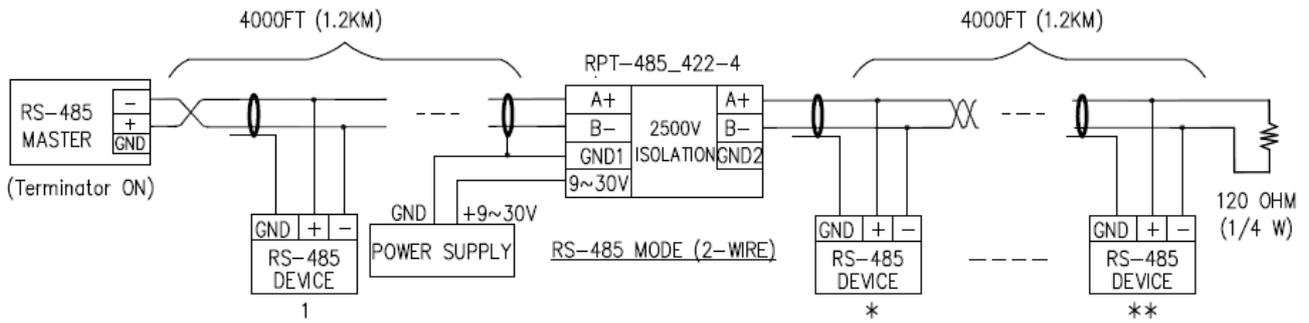| Pin: | TX+/A+ | TX-/B- | GND2 | RX+ | RX- | 9~30V | GND1 |
|---|---|---|---|---|---|---|---|
| RS-485: | 485+ | 485- | RS-485 GND #2 | - | - | DC + | DC/RS-485 GND #1 |
| RS-422: | TX+ | TX- | RS-422 GND #2 | RX+ | RX- | DC + | DC/RS-422 GND #1 |

## ■ CONNECTIONS



FIGURE 1: TWO-WIRE RS-485 REPEATER

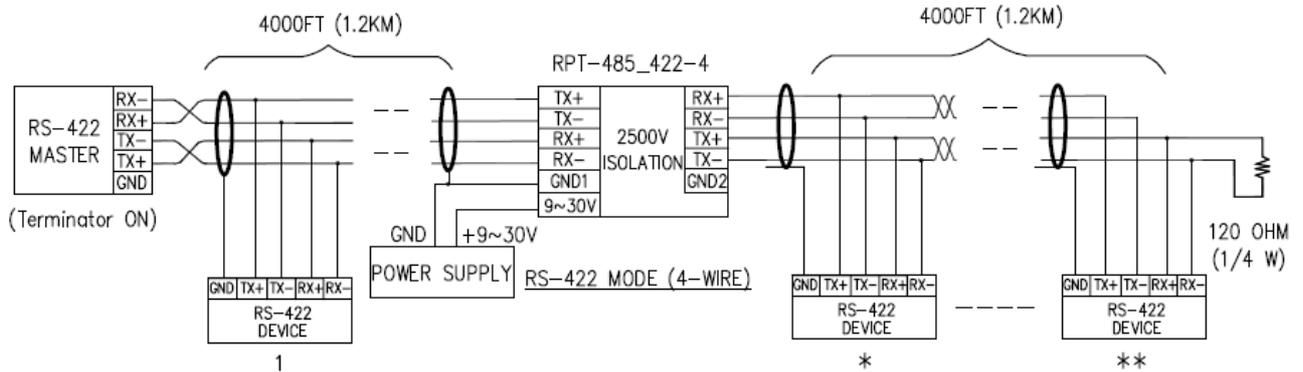(Note: The maximum number of supported nodes depends on the RS-485 master)



FIGURE 2: FOUR-WIRE RS-422 REPEATER

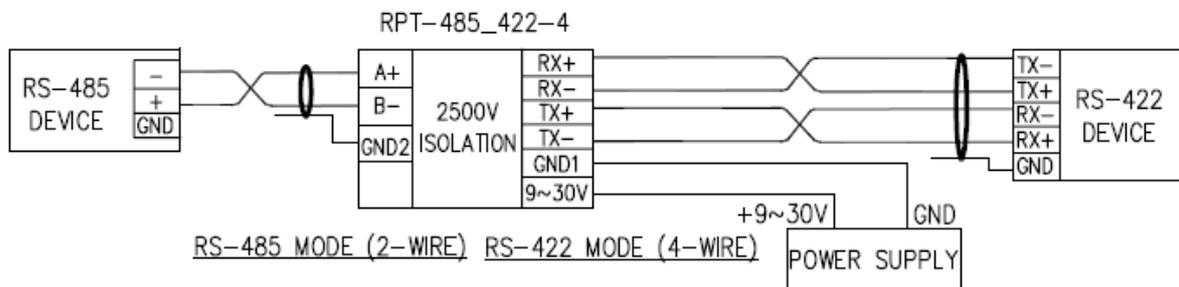(Note: The maximum number of supported nodes depends on the RS-422 master)



FIGURE 3: TWO-WIRE RS-485 ⇔ FOUR-WIRE RS-422 CONVERTER
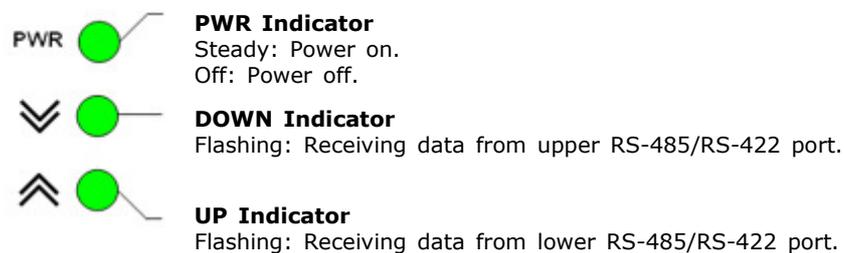
## ■ LED INDICATIONS



**PWR Indicator**
Steady: Power on.
Off: Power off.

**DOWN Indicator**
Flashing: Receiving data from upper RS-485/RS-422 port.

**UP Indicator**
Flashing: Receiving data from lower RS-485/RS-422 port.

FIGURE 4: LED INDICATIONS

## ■ INSTALLATIONS



①Pull  ②Push

FIGURE 5: DIN-RAIL MOUNTING



1.7in(43mm)

2.76in(70mm)

Wall / Panel surface

4x Ø0.16in(4mm)
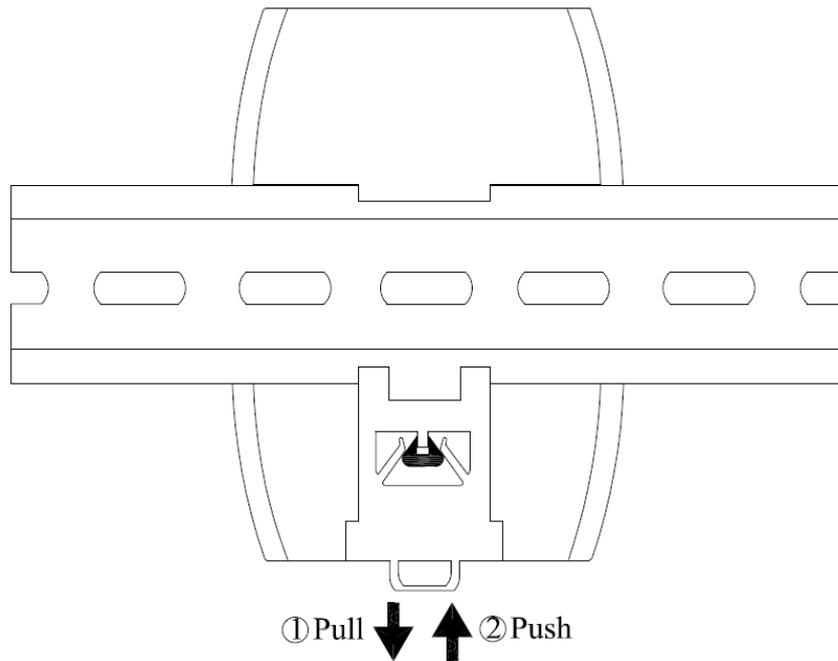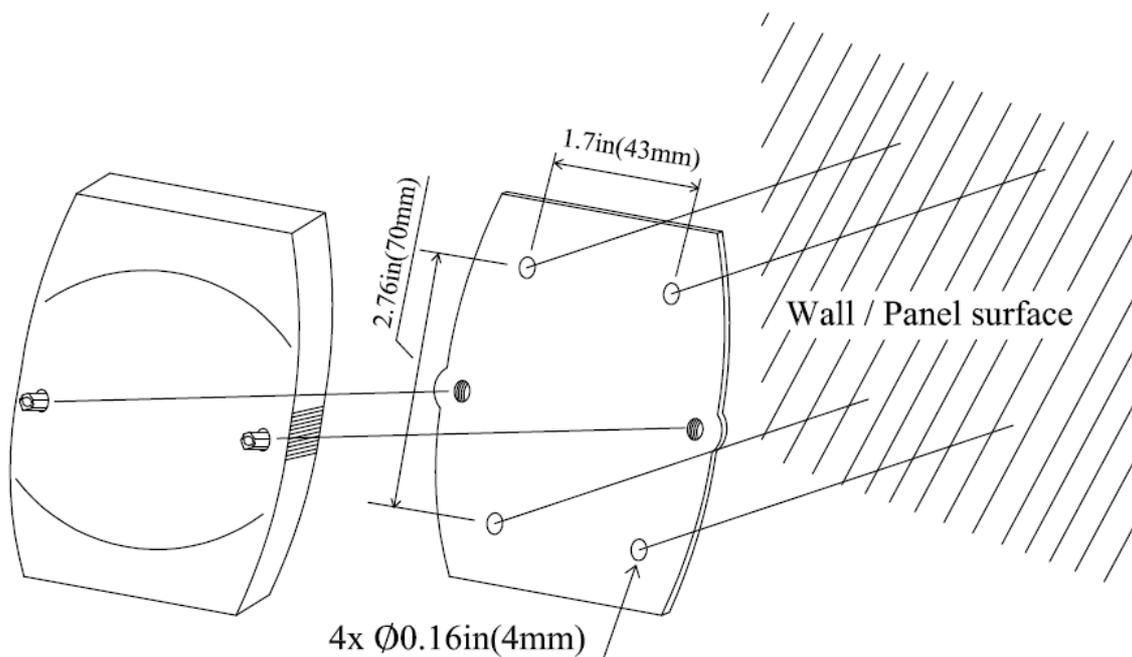
FIGURE 6: WALL/PANEL MOUNTING

## ■ TROUBLESHOOTING

- Make sure the power is connected and turned on.
- Check the connections according to the above "CONNECTIONS" diagrams.
- Perform a loopback test by using CommFront's 232Analyzer software: Connect an RPT-485_422-4 to your PC's RS-485 or RS-422 port, and then connect TX+ to RX+ and TX- to RX- on the other side of the RPT-485_422-4. Send commands from the 232Analyzer software, and you should receive an echo of the commands sent. By performing a simple loopback test like this, you can test both the transmitter and receiver of the converter. This is very helpful when you are in doubt about the performance of your converter.