

**CON-485-PIE**  
Industrial RS-232 To RS-485 Converter  
with Optional 5V External Power  
Datasheet Revision 2.1



**GENERAL FEATURES:**

- Plug-and-Play (hot-pluggable)
- Port powered - no external power needed
- Optional 5V external power can be applied
- Rugged industrial grade design
- Data direction auto-turnaround - no flow control necessary
- Built-in surge and static protection
- 5 year manufacturer's warranty
- RoHS, CE, and FCC certified

**DESCRIPTION:**

The SerialComm CON-485-PIE is an industrial grade bi-directional port powered or external powered RS-232 to RS-485 converter which converts a full-duplex RS-232 port to a half-duplex two-wire RS-485 port. A built-in data direction auto-turnaround feature automatically enables the RS-485 driver when data is present from the RS-232 port, eliminating the need for software drivers, and making the device fully plug-and-play. The CON-485-PIE has a db-9 female connector on the RS-232 serial port, and db-9 male connector on the RS-485 port. A separate terminal block is included with the product. The terminal blocks plugs into the RS-485 port, providing screw-lug wire terminations for the port. The unit is enclosed in a rugged ABS housing, and is powered from the RS-232 data lines; no external power is required.

**CERTIFICATIONS:**



**PORT POWERED WITH OPTIONAL EXTERNAL POWER:**

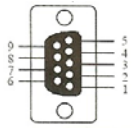
The SerialComm CON-485-PIE has an optional 5V DC external power input. The CON-485-PIE is normally port-powered from the RS-232 data lines while using a capacitor charge pump built into the converter to provide necessary power. There are rare instances where the RS-232 host device is not capable of port-powering the converter due to signal incompatibilities or low voltage levels. If this should occur, all that is necessary is adding a 5V DC external power to the terminal block or DB9 connector. Because the CON-485-PIE is industrial grade and port-powered with an optional 5V power input it makes this converter one of the most versatile RS-232 to RS-485 converters on the market.

**PINOUT CONFIGURATION:**

**RS-232 SIDE - DB9 FEMALE**

SIGNAL	DCD	DTR	DSR	RTS	CTS	T	R	GND
PIN #	1	4	6	7	8	2	3	5
FUNCT.	TIED			TIED		T	R	GND
						X	X	

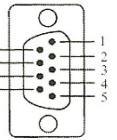
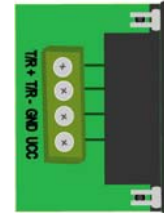
FEM. DB9



**RS-485 SIDE - DB9 MALE OR TERMINAL BLOCK**

SIGNAL	T/R+	T/R-	GND	VCC
PIN #	1	2	5	6
FUNCTION	485+	485-	GND	5V OPT.

MALE DB9



**SPECIFICATIONS:**

COMMUNICATION	
<b>STANDARDS:</b>	EIA/TIA RS-232C Standard and RS-485 Standard
<b>BAUD RATES:</b>	From 300 Baud To 115,200 Baud
<b>CONNECTOR TYPES:</b>	RS-232 Side: DB9 Female and RS-485 Side: either DB9 Male or 4-way Terminal Block
<b>DISTANCE:</b>	RS-232 Side: 16 ft (5m) and RS-485 Side: up to 4000 ft (1.2km)
<b>MAX # OF CONNECTIONS:</b>	128 Connection Drops
ELECTRICAL	
<b>POWER SOURCE:</b>	Port Powered From RS-232 Data Lines
<b>CURRENT CONSUMPTION:</b>	Less Than 10 mA
<b>STATIC PROTECTION:</b>	15KV Electric Static Discharge (ESD) Protection
<b>SURGE PROTECTION:</b>	600W/Sec Surge Protection
MECHANICAL	
<b>HOUSING:</b>	Rugged ABS
<b>WEIGHT:</b>	<b>With Terminal Block:</b> 1.2oz (36 grams) <b>Without Terminal Block:</b> 0.8oz (24 grams)
<b>DIMENSIONS:</b>	<b>With Terminal Block:</b> 3.15" X 1.33" X 0.70" (80.0 mm X 33.8 mm X 17.8 mm) <b>Without Terminal Block:</b> 2.47" X 1.33" X 0.70" (62.8 mm X 33.8 mm X 17.8 mm)
ENVIRONMENTAL	
<b>OPERATING TEMP:</b>	-40° F to 185° F (-40°C to 85° C)
<b>OPERATING HUMIDITY:</b>	5% To 95% - No Condensation
QUALITY	
<b>PRODUCT SAFETY:</b>	CE, FCC and RoHS Conformance Certified
<b>RELIABILITY:</b>	Low Failure Rate - 99.9% Reliability Since Inception
<b>WARRANTY:</b>	5 Year Replacement Warranty

## APPLICATIONS:

### PORT POWER MODE:

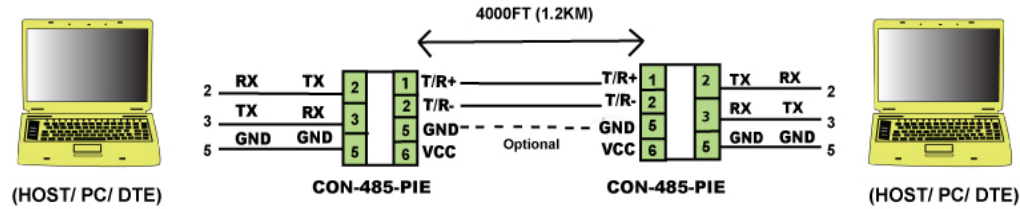


FIGURE 1: EXTENDING RS-232 DATA DISTANCE - PORT POWER MODE

### 5V EXTERNAL POWER MODE:

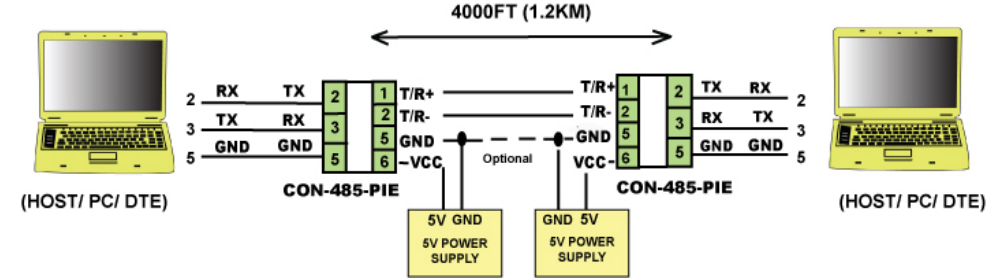


FIGURE 3: EXTENDING RS-232 DATA DISTANCE - 5V POWER MODE

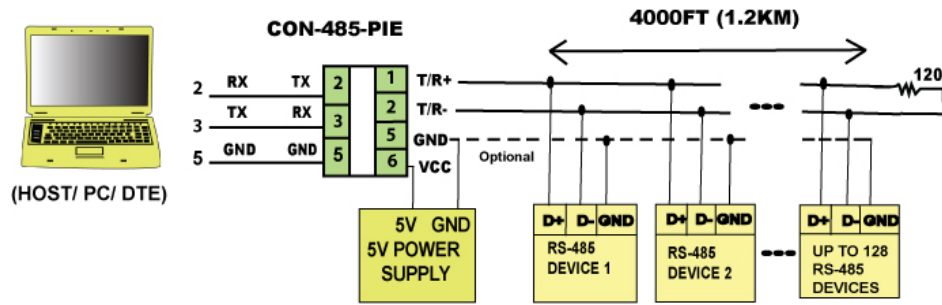


FIGURE 2: MASTER/SLAVE MULTIPLE DROP CONFIGURATION - PORT POWER MODE

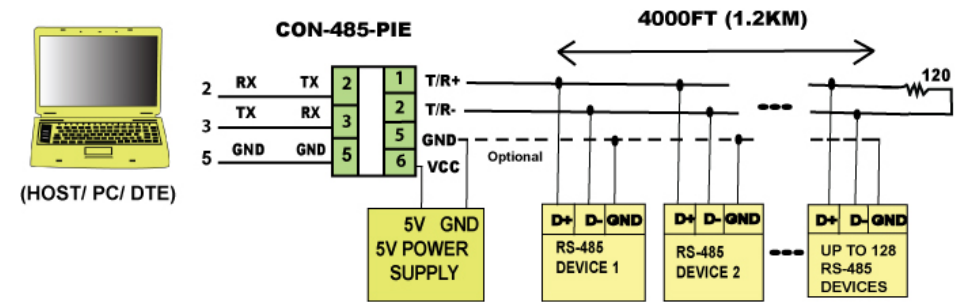


FIGURE 4: MASTER/SLAVE MULTIPLE DROP CONFIGURATION - 5V POWER MODE

## TROUBLESHOOTING INSTRUCTIONS:

Using two CON-485-PIE units:

1. Check that all connections comply with the connection diagrams.
2. Perform a loop back test:
  - a) Connect the two RS-485 ports.
  - b) Connect the two RS-232 ports to two PC RS-232 ports. Running hyper terminal programs on both PCs, send ASCII characters to the CON-485-PIE converter from one PC port, and check that the characters are received at the 2<sup>nd</sup> PC port. Repeat the test in the opposite direction. This tests that the transmit and receive functions of both CON-485-PIE units are working properly.