SerialComm®
Data Conversion Experts

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CON-485-PIE
Industrial RS-232 To RS-485 Converter with Optional 5V External Power

Datasheet Revision 2.6

GENERAL FEATURES:

- Plug-and-Play (hot-pluggable)
- Port powered - no external power needed
- Fail-safe compliant
- 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 replacement manufacturer's warranty
- CE, FCC, RoHS and REACH 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. The converter is RS-485 fail-safe compliant meaning it will go in a known state when the RS-485 port is open, shorted, or terminated. 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 DB9 female connector on the RS-232 serial port, and DB9 male connector on the RS-485 port. A separate terminal block is included with the product. The terminal block plugs into the RS-485 port providing screw-lug wire termination 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:

CE FC RoHS REACH

## 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 in 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 adding a 5V DC external power to the terminal block or DB9 connector will resolve this. 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

FEM. DB9

SIGNAL	DCD	DTR	DSR	RTS	CTS	TX	RX	GND
PIN #	1	4	6	7	8	2	3	5
FUNCT.	TIED			TIED		TX	RX	GND
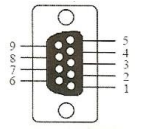
RS-485 SIDE – DB9 MALE OR TERMINAL BLOCK

MALE DB9

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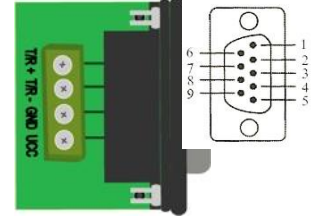
SPECIFICATIONS:

COMMUNICATION	
STANDARDS:	EIA/TIA RS-232C Standard and RS-485 Standard
BAUD RATES:	From 300 bps To 115,200 bps
CONNECTOR TYPES:	RS-232 Side: DB9 Female and RS-485 Side: either DB9 Male or 4-way Terminal Block
DISTANCE:	RS-232 Side: 16 ft (5m) and RS-485 Side: up to 4000 ft (1.2km)
MAX # OF CONNECTIONS:	128 Connection Drops
FAIL-SAFE	Fail-safe Compliant

ELECTRICAL	
POWER SOURCE:	Port Powered From RS-232 Data Lines
CURRENT CONSUMPTION:	Less Than 10 mA
STATIC PROTECTION:	15KV Electric Static Discharge (ESD) Protection
SURGE PROTECTION:	600W Surge Protection

MECHANICAL	
HOUSING:	Rugged ABS
WEIGHT:	**With Terminal Block**: 1.2oz (36 grams) **Without Terminal Block**: 0.8oz (24 grams)
DIMENSIONS:	**With Terminal Block:** 3.15" X 1.33" X 0.70" (80.0 mm X 33.8 mm X 17.8 mm) **Without Terminal Block**: 2.47" X 1.33" X 0.70" (62.8 mm X 33.8 mm X 17.8 mm)

ENVIRONMENTAL	
OPERATING TEMP:	-40° F to 185° F (-40°C to 85° C)
STORAGE TEMP:	-40° F to 185° F (-40°C to 85° C)
OPERATING HUMIDITY:	5% To 95% - No Condensation

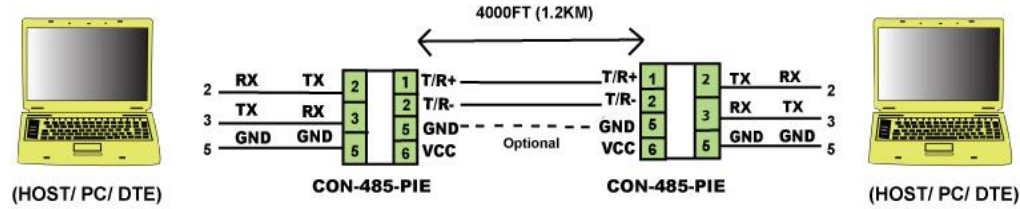| QUALITY	
PRODUCT SAFETY:	CE, FCC RoHS and REACH Third-party Certified
QUALITY MANAGEMENT	Manufactured and Distributed to ISO 9001:2015 QMS
MEAN TIME BEFORE FAILURE:	306,000 Hours
RELIABILITY:	Low Failure Rate – 99+% Reliability Since Inception
WARRANTY:	5 Year Replacement Warranty

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

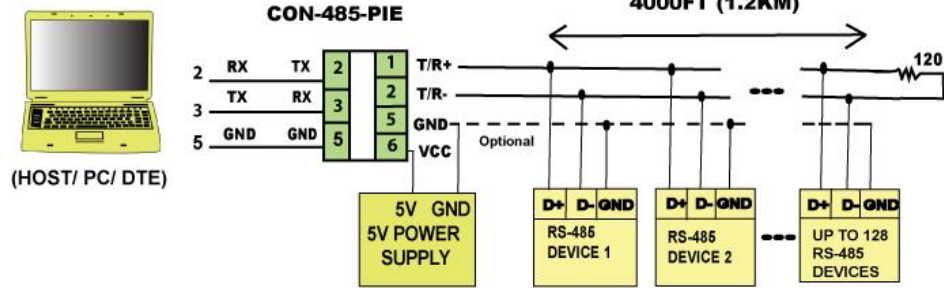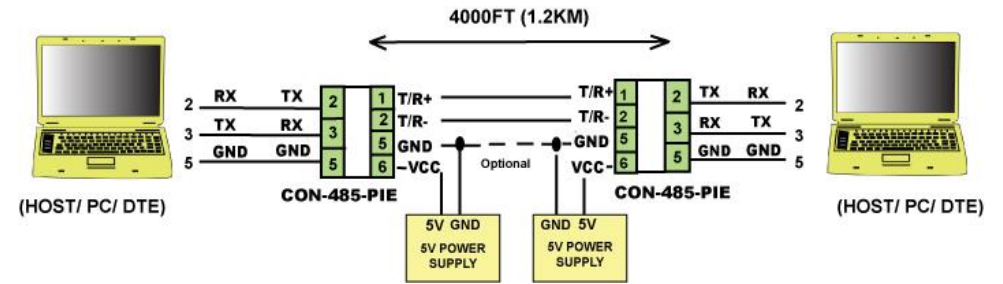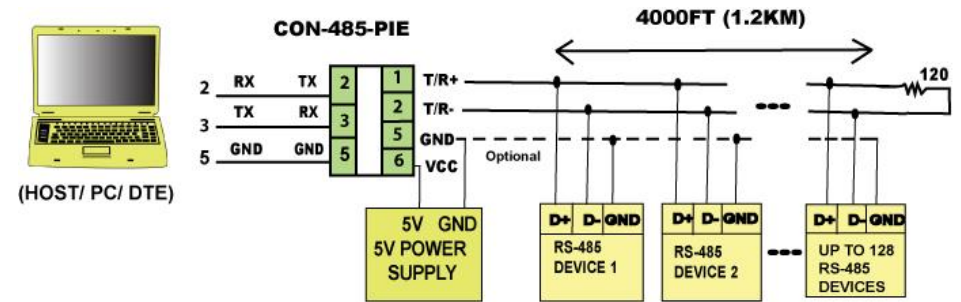FIGURE 2: MASTER/SLAVE MULTIPLE DROP CONFIGURATION - PORT POWER MODE

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 2nd 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.