SerialComm®
Data Conversion Experts

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CON-485/422-EE4

Industrial
Externally Powered, Optically Isolated
RS-232 To 4 Wire RS-485/RS-422 Converter
Datasheet Revision 2.8

GENERAL FEATURES:

- Plug-and-Play (hot-pluggable)
- Supports 4-wire RS-485 or 4-wire RS-422
- Optional selectable built-in 120-ohm terminal block for maximum flexibility
- Data direction auto-turnaround - no flow control necessary
- External 9V powered with included AC adapter
- Built-in surge and static protection
- 5-year manufacturer's warranty
- CE, FCC, RoHS and REACH certified

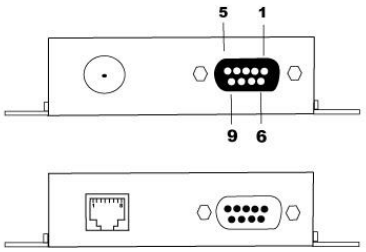
DESCRIPTION:

The SerialComm CON-485/422-EE4 is an industrial grade bi-directional externally powered 2.5K isolated RS-232 to RS-485/RS-422 converter which converts a full-duplex RS-232 port to a full-duplex four-wire RS-485 or full-duplex four-wire RS-422. A built-in data direction auto-turnaround feature automatically enables the RS-485/RS-422 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-485/422-EE4 is an effective solution for protecting RS-232, RS-485 and RS-422 devices from voltage surges, lightning strikes, ground loop conditions and signal noise problems. The unit is not reliant on port-power, so you do not have to worry about the RS-232's ability to power the converter. The CON-485/422-EE4 has a DB9 female connector on the RS-232 serial port, and either a DB9 male connector, RJ45 female connector or terminal block with built-in selectable 120-ohm termination option. The terminal block plugs into the RS-485/RS-422 port, providing screw-lug wire termination. The unit is enclosed in a heavy-duty steel housing for rugged applications.

CERTIFICATIONS:

CE FC RoHS REACH

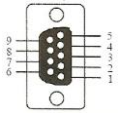
CONNECTORS:



PINOUT CONFIGURATION:

RS-232 SIDE – DB9 FEMALE

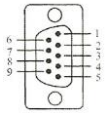
FEM. DB9



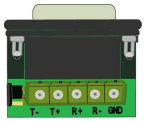
SIGNAL	DCD	DTR	DSR	RTS	CTS	TX	RX	GND
PIN #	1	4	6	7	8	2	3	5
FUNCT.	TIED			TIED		TX	RX	GND

RS-485/RS-422 SIDE – DB9 MALE OR TERMINAL BLOCK

MALE DB9

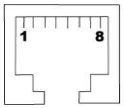


SIGNAL	T-	T+	R+	R-	GND
PIN #	1	2	3	4	5
FUNCTION	T-	T+	R+	R-	GND



RS-485/RS-422 RJ45

FEM. RJ45



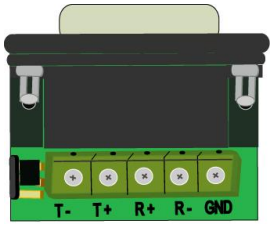
RS-485 4W	T+	T-	R+	R-	GND
RS-422	T+	T-	R+	R-	GND
PIN #	1	2	3	6	7,8

SPECIFICATIONS:

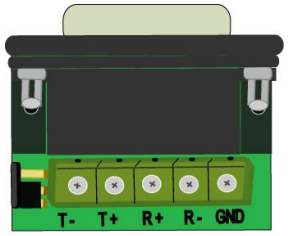
COMMUNICATION	
STANDARDS:	EIA/TIA RS-232C, 4-wire RS-485 & RS-422 Standards
BAUD RATES:	From 300 bps to 115,200 bps
CONNECTOR TYPES:	RS-232 Side: DB9 Female and RS-485/RS-422 Side: either DB9 Male, RJ45 or 5-way Terminal Block
DISTANCE:	RS-232 Side: 16 ft (5m) & RS-485/RS-422 Side: up to 4000 ft (1.2km)
MAX # OF CONNECTIONS:	128 Connection Drops
ELECTRICAL	
DC/AC POWER ADAPTER:	9 VDC/1A (Input: 100-240VAC 50/60hz US Type A Plug)
OPTICAL ISOLATION:	2500V (2500Vrms 1 min, AC)
CURRENT CONSUMPTION:	Less Than 100 mA
STATIC PROTECTION:	15KV Electric Static Discharge (ESD) Protection
SURGE PROTECTION:	600W Surge Protection
MECHANICAL	
HOUSING:	Heavy Duty Steal Case
DIN RAIL:	Optional DIN Rail Mounts
WEIGHT:	7.1oz (200 grams)
DIMENSIONS:	4.06" X 3.25" X 0.87" (103.0 mm X 82.6 mm X 22.0 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:	340,911 Hours
RELIABILITY:	Low Failure Rate – 99+% Reliability Since Inception
WARRANTY:	5 Year Replacement Warranty

TERMINATION GUIDE:

The CON-485/422-EE4 terminal block has an optional built-in selectable 120-ohm termination. 120-ohm termination is an advanced feature typically used to reduce noise and signal reflections. It is recommended to use 120-ohm termination if you are exceeding 600 feet in distance, 19.6K baud or in a electrically noisy or industrial environment. The terminal block is shipped with 120-ohm termination off but can be turned on using the convenient jumper setting located on the left bottom of the terminal block.



5 POSITION WITH 120-OHM OFF



5 POSITION WITH 120-OHM ON

TROUBLESHOOTING INSTRUCTIONS:

Using one CON-485/422-EE4 unit:

1. Check that all connections comply with the connection diagrams.
2. Perform a loop back test on one unit:
   a) Connect the TX+ to RX+ and TX- to RX- on the RS-485/RS-422 port.
   b) Connect the RS-232 port to the PC RS-232 port.
   c) Running a hyper terminal program on the PC, send ASCII characters to the CON-485/422-EE4 converter from one PC port, and check that the characters are received at the same PC port. This tests that the transmit and receive functions of the CON-485/422-EE4 unit is working properly.

Using two CON-485/422-EE4 units:

1. Check that all connections comply with the connection diagrams.
2. Perform a loop back test on two units:
   a) Connect the two RS-485 or RS-422 ports.
   b) Connect the two RS-232 ports to two PC RS-232 ports.
   c) Running hyper terminal programs on both PCs, send ASCII characters to the CON-485/422-EE4 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-485/422-EE4 units are working properly.

APPLICATIONS:

RS-232 TO 4-WIRE RS-485 MODE OPTION:

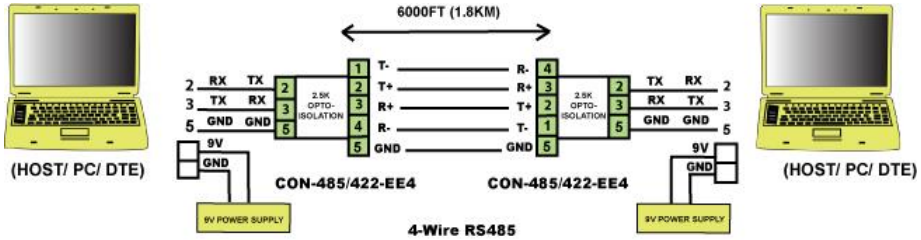


FIGURE 1: EXTENDING RS-232 DATA DISTANCE IN 4 Wire RS-485 MODE

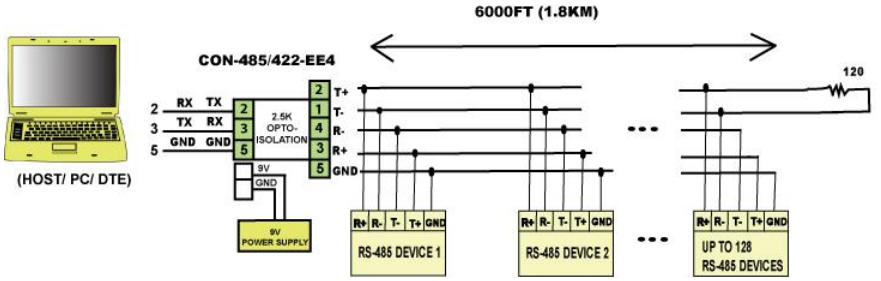


FIGURE 2: MASTER/SLAVE MULTIPLE DROP CONFIG. IN RS-485 MODE

RS-232 TO RS-422 MODE OPTION:

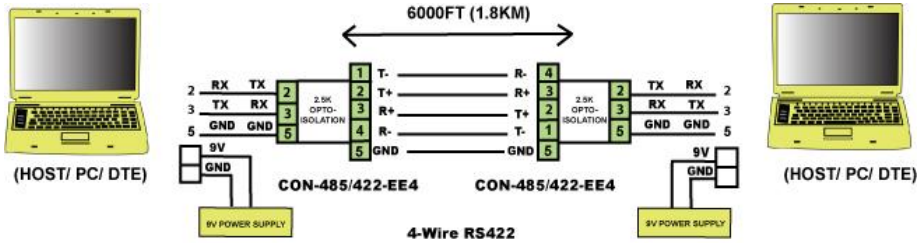


FIGURE 3: EXTENDING RS-232 DATA DISTANCE IN RS-422 MODE

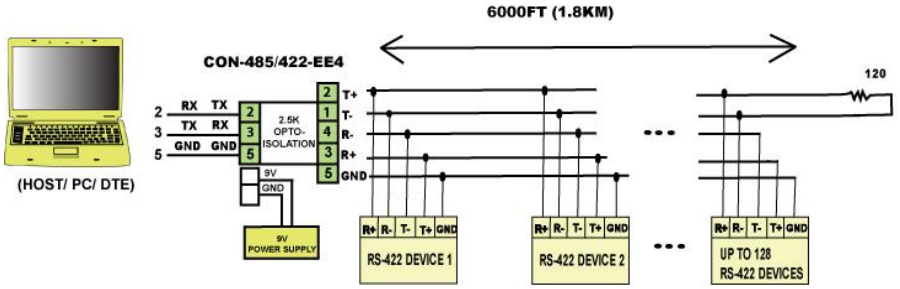


FIGURE 4: MASTER/SLAVE MULTIPLE DROP CONFIG. IN RS-422 MODE