SerialComm®
Data Conversion Experts

SERIALCOMM.COM

ISO-485-PI9

Industrial
Opto-Isolated RS-232 To RS-485 Converter

Datasheet Revision 2.8

GENERAL FEATURES:

- Plug-and-Play (hot-pluggable)
- 2500V Isolation between RS232 and RS485
- Both rugged or terminal block with option built-in 120-ohm termination
- Data direction auto-turnaround - no flow control necessary
- Port powered - no external power needed
- 5-year replacement manufacturer's warranty
- CE, FCC, RoHS, REACH certified

DESCRIPTION:

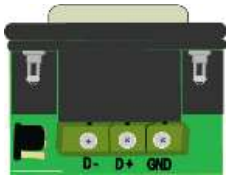
The SerialComm ISO-485-PI9 is an industrial grade bi-directional port powered 2.5KV optically isolated RS-232 to RS-485 converter which converts a full-duplex RS-232 port to a half-duplex two-wire RS-485 port. A built-in data direction auto-turnaround feature automatically enables the RS-485 driver when data is present from the RS-232 port eliminating the need for software drivers, and making the device fully plug-and-play. The ISO-485-PI9 effectively protects connected devices from voltage surges such as lightning strikes, ground loop conditions and noise problems. The ISO-485-PI9 has a DB9 female connector on the RS-232 serial port, and DB9 male connector on the RS-485 port. Two separate terminal blocks, a rugged terminal block and a terminal block with built-in selectable 120 Ohm termination are included with the product for maximum flexibility. The terminal blocks plug 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:

CE FC RoHS REACH

TERMINAL BLOCK SELECTION GUIDE:

The ISO-485-PI9 comes with two terminal blocks for maximum performance and flexibility. One terminal block is a rugged terminal block which is sealed to provide protection from the elements and vibration. The other terminal block has a built-in selection 120-ohm termination selectable by a jumper on the terminal block. Both terminal blocks include fastening hardware.



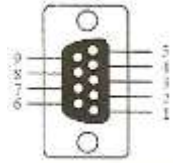
TERMINAL BLOCK WITH 120-OHM TERMINATION

RUGGED SEALED TERMINAL BLOCK

PINOUT CONFIGURATION:

RS-232 SIDE – DB9 FEMALE

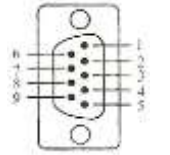
FEM. DB9



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	D-	D+	GND
PIN #	1	2	5
FUNCTION	D-	D+	GND

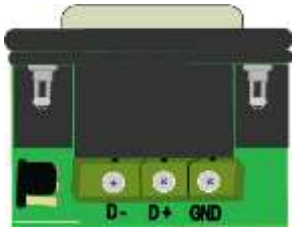
TERMINAL BLOCKS
Includes two terminal blocks - one for rugged applications and the other with selectable 120-ohm termination.

SPECIFICATIONS:

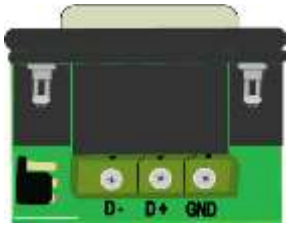
COMMUNICATION	
STANDARDS:	EIA/TIA RS-232C Standard and RS-485 Standard
BAUD RATES:	From 300 bps to 57,600 bps
CONNECTOR TYPES:	RS-232 Side: DB9 Female and RS-485 Side: either DB9 Male or 3-way Terminal Block
DISTANCE:	RS-232 Side: 16 ft (5m) and RS-485 Side: up to 4000 ft (1.2km)
MAX # OF CONNECTIONS:	128 Connection Drops
ELECTRICAL	
POWER SOURCE:	Port Powered From RS-232 Data Lines
OPTICAL ISOLATION	2500V (5000Vrms 1min, AC)
CURRENT CONSUMPTION:	Less Than 10 mA
STATIC PROTECTION:	15KV Static 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:	311,802 Hours
RELIABILITY:	Low Failure Rate – 99+% Reliability Since Inception
WARRANTY:	5 Year Replacement Warranty

TERMINATION GUIDE:

The ISO-485-PI9 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 noisy environment. The terminal blocks are 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.



3-POSITION WITH 120-OHM OFF



3-POSITION WITH 120-OHM ON

TROUBLESHOOTING INSTRUCTIONS:

Using two ISO-485-PI9 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.
   c) Running hyper terminal programs on both PCs, send ASCII characters to the ISO-485-PI9 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 ISO-485-PI9 units are working properly.

APPLICATIONS:

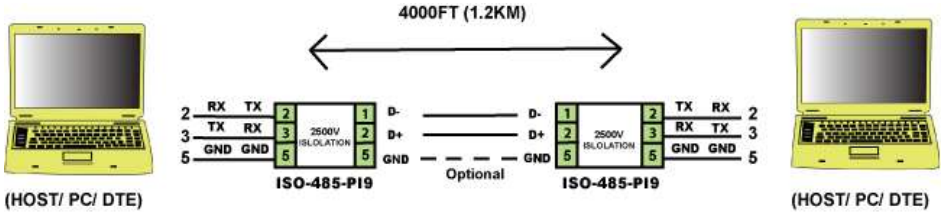


FIGURE 1: EXTENDING RS-232 DATA DISTANCE WITH 2500V ISOLATION

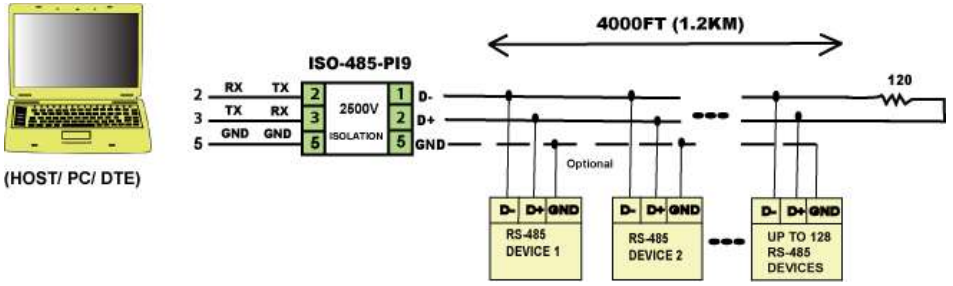


FIGURE 2: MASTER/SLAVE MULTIPLE DROP CONFIG. WITH 2500V ISOLATION