

Carrier HVAC Converter

– RS-232 to RS-485
– Automatic Send Data Control
Model 485CARLP9A

B+B SMARTWORX

Powered by

ADVANTECH

www.advantech-bb.com



PRODUCT FEATURES

- Connect your laptop PC to Carrier branded HVAC equipment
- Extend RS-232 data signals up to 1.2 km (4,000 ft.)
- Change RS-232 TD and RD to RS-485 signals
- Automatic Send Data Control - no software drivers necessary
- Baud rates up to 115.2 kbps
- Powered from RS-232 handshake lines - no power supply required

Model 485CARLP9A is an RS-232 to RS-485 converter that allows you to connect your laptop PC to Carrier branded HVAC equipment.

Model 485CARLP9A is a port-powered, half-duplex RS-232 to RS-485 converter with send data control. The unit converts TD and RD RS-232 lines to balanced RS-485 signals and supports three-wire (Data A, B, and Signal Ground reference) RS-485 communications only.

The converter is powered from the RS-232 handshake lines, RTS, CTS and DTR, DSR, CD. The handshake lines are looped back on each other and can be in either state. No handshake change is necessary – no software is required to control the lines.

The RS-485 driver is enabled with each bit of data. The RS-485 receiver is disabled when the driver is enabled and enabled when the driver is disabled. This prevents data from being echoed back into the RS-232 device. The RS-232 side has a DB-9 female connector. The RS-485 side has a six-position RJ11 connector.

CONNECTIONS

Regardless of the system, Model 485CARLP9A must be connected with the proper polarity (Pin-Out Assignment table). Regardless of the system, the 485CARLP9A must be connected with the proper polarity. With no data being sent and the driver enabled, the RS-232 line should be negative and the Data(A) should be negative with respect to Data(B).

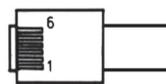
Proper operation of any RS-485 system requires the presence of a signal return path between the signal grounds of the equipment at each end of an interconnection. This circuit reference may be established by a third conductor connecting the common leads of devices, or it may be provided by connections in each equipment to an earth reference. When the circuit reference is provided by a third conductor, the connection between the signal grounds and the third conductor should contain some resistance (e.g. 100 Ohms) to limit circulating currents when other ground connections are provided for safety. NOTE: This converter is not optically isolated.

PIN-OUT ASSIGNMENTS

PIN-OUTS	
SIGNAL	RJ-11
Data A (-)	2
Data B (+)	5
Signal Ground	4



Jack End RJ-1



Plug End RJ-11 6 Conductor

ORDERING INFORMATION

MODEL NUMBER	RS-232 CONNECTOR	RS-485 CONNECTOR	OUTPUT
485CARLP9A	DB9 Female	RJ11	RS-485 2-wire

Automatic Send Data Control Explained

As operating systems become more complex, it is increasingly difficult to control an RS-485 driver with standard software and the RTS line. This is especially true in Windows and multi-tasking operating systems. With Advantech B+B SmartWorx' Automatic Send Data Control circuit, driver control is in the converter hardware, so you do not have to work with software at all.

The circuit monitors data flow and enables the driver during transmission and automatically disables it when no data is being sent. There is no need to rework software or install new drivers. Most Advantech B+B SmartWorx RS-232 to RS-485 converters and RS-485 serial cards include Automatic Send Data Control.

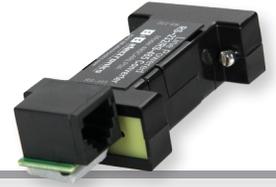
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All product specifications are subject to change without notice.

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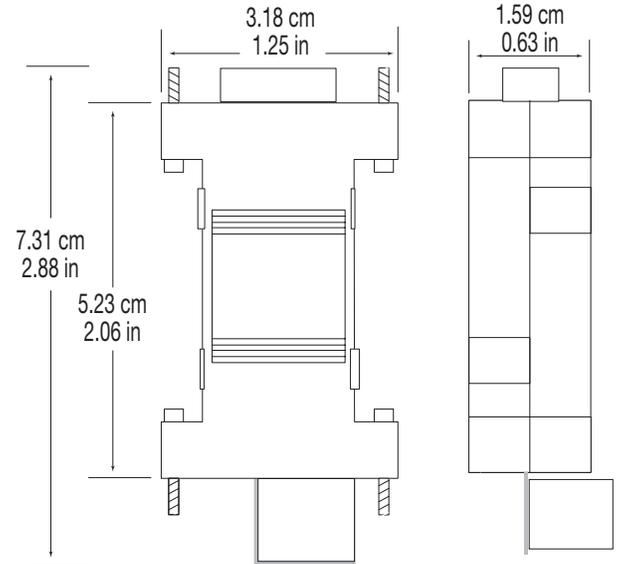
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SPECIFICATIONS

SERIAL TECHNOLOGY	
Communication	Two-wire with Signal Ground reference
Data Rate	115.2 kbps, maximum
RS-232 Connector	DB9 female
RS-485 Connector	RJ11
Biassing Resistors	4.7k Ohms
POWER	
Source	Port-powered from RS-232 handshake lines
Power Consumption	40mA maximum
MECHANICAL	
Dimensions	7.6 x 3.3 x 2.9 cm (3.0 x 1.3 x 0.9 in)
Enclosure	Plastic
Weight	0.18 lbs (81.6 g)
ENVIRONMENTAL	
Operating Temperature	0 to +70 °C (+32 to +158 °F)
Storage Temperature	-40 to +85 °C (-40 to +185 °F)
Operating Humidity	0 to 95% non-condensing
APPROVALS / CERTIFICATIONS	
FCC Part 15, CISPR, EN 55022 + AC:2011 Class B Emissions	
CE	
2004/108/EC	Electromagnetic Compatibility Directive
2011/65/EU	Reduction of Hazardous Substances Directive

MECHANICAL DIAGRAM



SCHEMATIC

