

RS-485/RS-422 ASCII Serial Interface for Intelligent Device Applications Using Allen-Bradley POINT I/O™

Background

The Allen-Bradley POINT I/O™ family includes a RS-485/RS-422 ASCII Serial Interface Module for intelligent peripheral applications. RS-485/RS-422 is a popular serial interface data protocol which allows the POINT I/O family to directly connect to bar code readers, printers, and other intelligent devices using RS-485 or RS-422 ASCII communication. ASCII interfaces include the following devices: bar code readers, data liners, distance gauging devices, printers, frequency inverters, weigh scales, pressure gauges, vacuum gauges, glue guns and more.

The 1734-485ASC is especially useful for retrofit applications where a field bus (i.e., EtherNet/IP, ControlNet™ or DeviceNet™) is being installed to integrate installed factory floor devices. Instead of replacing the field devices with network ready interfaces, the 1734-485ASC delivers a more cost-effective solution by interfacing the installed devices to the network via POINT I/O and the POINT network adapter.

The features of the 1734-485ASC serial interface module have been defined to be the best in the market place. From the fast 38,400 baud rate to the highly configurable change-of-state capability, this module consistently offers the most competitive functionality for an ASCII serial interface module.



Illustration of POINT I/O modules on DIN-rail (left) and the new POINT I/O RS-485/RS-422 ASCII Serial Interface Module, 1734-485ASC (right).

Applications

ASCII serial interface device applications include bar code readers, label printers, and data liners (HMI). The user selects either RS-485 or RS-422 operation by proper serial line connections to the device.

Here are a couple of real world applications:

Material Handling – Clustered field devices such as bar code readers, printers, and data liners.

Automotive Body and Assembly – ASCII RS-485 or RS-422 interface allows easy integration on automotive assembly lines of bar code readers, printers and data liners.

Automotive Power Train – ASCII RS-485 or RS-422 interface allows easy integration of measurement devices used to gauge distances in casting molds, as well as data liners and printers.

Application Guidelines

For information regarding other application opportunities, contact a local sales specialist to fully define the capabilities of the 1734-485ASC serial interface module.

COS Operation

Change of State (COS) I/O is the function by which a slave device sends its input data to the master without the host explicitly requesting it when the defined input data changes. In the case of the 1734-485ASC, this occurs when the delimiter character is asynchronously received from the serial device or when the maximum number of characters, as defined in the Max Receive Length parameter, is received. This data is the same format as the poll response.

Supplementary Products for a Complete Solution

Digital Inputs and Outputs

A variety of digital inputs and outputs are available for POINT I/O including 24 VDC, 120 VAC and 230 VAC. Relay options include NO Form A and NO/NC Form C isolated relays. Channel density ranges from 2 points to 4 points per module.

Analog Inputs and Outputs

A variety of analog modules are available in the POINT I/O family. Note that a separate user-provided 24 VDC supply is specified for use with POINT analog modules to increase their noise immunity.

Field Termination Selections

The 1734-TB IEC-style screw and 1734-TBS IEC-style spring terminal bases are recommended for use with the serial interface modules. Please refer to product literature for discrete, analog and specialty module recommendations, and additional installation and application information.

Control Network Selections

POINT I/O can connect to Allen-Bradley PLC-5[®], SLC 500[™], SoftLogix[™] and ControlLogix[™] processors using EtherNet/IP, ControlNet[™], DeviceNet[™] or PROFIBUS networks.

Local Serial Interface

The 1734-485ASC ASCII module connects to a wide range of ASCII RS-485 or RS-422 products, further reducing the amount of wiring.

Specialty Selections

POINT I/O also has thermocouple, resistance temperature detector, incremental encoder and pulse producing device interfaces.

Please contact your local Allen-Bradley authorized distributor or sales office for more information.

Important User Information

Because of the variety of uses for the products described in this publication, those responsible for the application and use of this control equipment must satisfy themselves that all necessary steps have been taken to assure that each application and use meets all performance and safety requirements, including any applicable laws, regulations, codes and standards.

The information in this guide is intended solely for purposes of example. Since there are many variables and requirements associated with any particular installation, Rockwell Automation does not assume any responsibility or liability (to include intellectual property liability) for actual use based upon the examples shown in this publication.

Allen-Bradley publication SGI-1.1, Safety Guidelines for the Application, Installation, and Maintenance of Solid State Control (available from your local Rockwell Automation sales office), describes some important differences between solid-state equipment and electromechanical devices that should be taken into consideration when applying products such as those described in this publication.

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