

# ASCII Protocol

## Connector Configuration Parameters

### SOM CHAR

Enter the decimal number of the Start Of Message character, if any. If there is no start of message character, enter 0.

### EOM CHAR

Enter the decimal number of the End Of Message character, if any. If there is no end of message character, enter 0.

### Delimiter

Enter the decimal number of the Delimiter character, if any. If there is no delimiter used enter 0.

### RTS ON DelayX10ms

Enter a number from 0 to 255 (0 to 2.55 seconds) to delay sending a message after turning on Request To Send (RTS). Commonly used with modem communication to allow additional time for the modems to synchronize.

### RTS OFF DelayX10ms

Enter a number from 0 to 255 (0 to 2.55 seconds) to keep RTS on after a message has been sent. Commonly used to keep a radio on for a short period of time at the end of a message.

### Handshake Option

If Full Handshake is selected the Omnii-Comm will assert RTS and wait for CTS before sending a message. RTS will be turned off after the message has been sent. If Constant Carrier is selected the Omnii-Comm will assert RTS when it sends its first message and leave it asserted. It will wait for CTS before sending. If Ignore CTS is selected, RTS will be asserted before sending a message and removed at the end of the message. The CTS input will be ignored. If No Handshake is selected, RTS will be asserted when the Omnii-Comm sends its first message. RTS will not be turned off at the end of the message. The CTS input will be ignored. If Activity Monitor is selected, the Omnii-Comm will check the DCD input before sending a message. If DCD is ON, the Omnii-Comm will delay sending the message.

### Max Message Size

Enter the maximum number of characters that will be received.

### Retry Count

The number of times a message will be retried before an error is reported

## Option Bit Parameters

### Use Radio Key

If checked, Bit 0 in a register specified by the "Radio Key Address" on the Header configuration screen will be turned ON before a message is sent and turned OFF after the message has been completed.

### Expect Reply if ? Sent

If there is a ? character (Hex 3F) anywhere in an ASCII Command message the Omnii-Comm will wait for a reply message from the device. Check this box if a reply is not expected.

### Blank Fill

Check this box to insert space characters into a received message that is too short. If the box is not checked, the message will be filled with null characters (0)

### Use Cmd Flag

Check this box if the ASCII port will be sending messages.

# ASCII Protocol

## Protocol Extension Table Parameters

Early versions of the ASCII protocol (prior to Rev 46) only supported receiving messages that were received either unscheduled or in response to a "command" sent by the Omnii-Comm. The first 11 parameters in the Protocol Extension table are used to define the parameters for this type of operation. The Omnii-Comm ASCII protocol handler was significantly expanded in Rev 46 to support "Polling Table" operation and the use of Parsing Lists to process the ASCII messages.

### Unsol Byte Count

Enter the number of characters to receive for "Unsolicited" messages. If there is more characters in the message than this value, the extra characters will be discarded. If there are fewer characters in the received message, the remaining characters will be filled with spaces or nulls depending on the "Blank Fill" option box. An unsolicited message is any message that DOES NOT start with a capital letter.

### Unsol Data Type and Unsol Offset

Enter values in these two fields to specify the Omnii-Comm Data Type and starting Offset where Unsolicited messages will be written.

### Flags Data Type and Offset

Enter values in these two fields to specify the Omnii-Comm Data Type and starting Offset that will be used to store the "Command Flags". The Omnii-Comm monitors the Command Flag word and when Bit 0 of this word changes from OFF to ON a message is transmitted.

### SD BC Data Type and Offset

Enter values in these two fields to specify the Omnii-Comm Data Type and starting offset that will be used to store the Send Data Byte Count. This is the number of characters that will be sent when the Send Data Command flag is set.

### SD Data Data Type and Offset

Enter values in these two fields to specify the Omnii-Comm Data Type and starting offset that will be used to store the Send Data Message. This is the actual message that will be sent when the Send Data Command flag is set.

### RD BC Data Type and Offset

Enter values in these two fields to specify the Omnii-Comm Data Type and starting offset that will be used to store the Received Data Byte Count for "Solicited" messages. The Omnii-Comm defines a solicited message as any received message that starts with a capital letter.

### Recv Msg Timeout

The Receive Message Timeout is the maximum amount of time the Omnii-Comm will allow between characters in a received message. For ASCII messages that do not have an EOM character, the message is received after this timer expires after receiving the last character.

### Parsing List Data Type and Offset

ASCII Messages received using either a Poll Table Read or Poll Table Write method can optionally be processed using a "Parsing List". See Parsing List help for a description on how to use a Parsing List. Entries in these fields define the location of the Parsing List. If the Parsing Data is read from some external device such as a PLC and placed into Database, these entries specify the Data Type and Starting offset where the Parsing List will be found. The Parsing List can also be located in Local Ram between the addresses \$6000 to \$7FFF. In this case enter the decimal equivalent of the high byte in the address in the Data Type field and the decimal equivalent of the low byte of the address in the Starting Offset field. For example if the Parsing List is to be located in Local Ram starting at address \$7A00, enter 122 in the Data Type field and 0 in the Starting Offset field. A Parsing List contains from 1 to 64 Parsing Tables. The Poll Table Read or Write will identify the Parsing Table to use.

When working with "unscheduled" messages (earlier versions) a Parsing List can still be used to process the received message in Rev 46 or later. In this case, Parsing Table 1 will be selected if there is a valid entry in these fields (they point to a valid Parsing List). If these entries are 0 then no message parsing will be performed.

## ASCII Protocol

### Poll Table Read Parameters

Poll Table Read and Write capabilities for ASCII protocol are available in Omnii-Comm Rev 46.00 and later.

A polling table can be configured to periodically send short (<7 character) messages to any device, receive and optionally process the returned ASCII message and then pass the data to the Poll Table Write section that will define what to do with the received data.

#### ASCII Message to Send

If the ASCII message to send is 6 characters or less, enter the characters to send in this field.

#### # Bytes to Send

Enter the number of bytes to send (1-6)

#### # Bytes Expected in Reply

If the device receiving the message will be sending an answer in response to the message it has received, enter the number of bytes expected. Entering zero tells the Omnii-Comm that a response is not expected.

#### Parsing Table to Use

If a Parsing List is going to be used to process the Read Response, enter the Parsing List Number here. Entering 0 will disable the use of a Parsing List. Poll Table Write and Error Parameters

### Poll Table Write and Error Parameters

Poll Table Read and Write capabilities for ASCII protocol are available in Omnii-Comm Rev 46.00 and later.

A polling table can be configured to periodically Read ASCII messages from any source such as a PLC. The Write section of the Poll Table will specify how to send the message and how to optionally process the returned data.

#### Poll # for Return Data

If this field is non-zero, it will specify a Poll Table that will be used to process the returned ASCII message. Only the Write Section of the specified Polling Table will be used. For example, a Polling Table could be defined that would periodically read an ASCII message from a block of PLC registers. The message would be passed to the Write section of the Polling Table and transmitted out the ASCII connector. If the receiving device sends back a message in response it will be received by the Omnii-Comm and optionally processed using a Parsing List. Defining the Write section of another polling table to write data to the PLC in another location and specifying the Poll Table Number in this field would result in the data being stored back in the PLC.

#### Data Type and Starting Offset for Return Data

If the Poll # for Return Data is 0, then the ASCII message received in response to the message sent will be stored into Database at the Data Type and Starting Offset defined in these fields.

#### Parsing Table to Use

If a Parsing List is going to be used to process the Write Response, enter the Parsing List Number here. Entering 0 will disable the use of a Parsing List.

#### # bytes To Send

Enter the number of bytes to send (1-255) in this field.

#### # Bytes Expected in Reply

Enter the number of bytes expected in the Write Response.

**Note:** System Error Protocol Definitions are the same as Poll Table Write and Error Parameters

## ASCII Protocol

### Database Extension Table Parameters

| Index | Name         | Size:Max Length |
|-------|--------------|-----------------|
| 2     | RO Register  | 2:256           |
| 4     | R/W Register | 2:256           |
| 10    | Internal DB  | 2:64            |