

Toshiba Protocol

This protocol is used to communicate with Toshiba PLCs using either Computer Link or Transmission Control protocol.

Connector Configuration Parameters

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.

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.

PLC Type

Check this box if the PLC uses Transmission Control Protocol. Clear the box to use Computer Link protocol.

Toshiba Protocol

Protocol Extension Table Parameters

The Protocol extension table is used to define additional parameters required for Tennessee Gas Slave operation. Click on the box to enable the Protocol Extension Table. Click on the button to bring up the specific options as detailed below.

Command Bits Type and Offset

These two entries are used to specify the Data Type and Starting Offset that will be used for Command Trigger bits. This protocol requires two words of Command Trigger bits. The low byte of each word is used for Command Initiation. The high byte of each word is used for Command Complete Status. The Omnii-Comm supports 9 commands.

Word	Bit	Function
0	0	TS Test
0	1	ST Status
0	2	ER Error Read
0	3	SR System Information
0	4	S2 System Information 2
0	5 T	R Diagnostic Message Read
0	6	RT Clock Calendar Read
0	7	IR Power Fail Read (Transmission Control Protocol only)
1	0	WT Clock Calendar Write
1	1	Not Used
1	2	Not Used
1	3	Not Used
1	4	Not Used
1	5	Not Used
1	6	Not Used
1	7	Not Used

Command Data Type and Offset

These two fields are used to specify the Data Type and Starting Offset that will be used for Command Data. Information from these fields will be used to build command. They must be properly set up prior to setting the Command Trigger bit. This protocol requires 7 words of Command Data.

Word	Function
0	PLC Address for Command
1	Year
2	Month
3	Day
4	Hour
5	Minute
6	Second

Note: Command TS uses words 1-6 for a 12 byte (2 characters per word) test string.

Toshiba Protocol

Return Data Type and Offset

These two entries are used to specify the Data Type and Starting Offset for data returned from a command. This protocol requires a maximum of 40 words of return data. The format of the return data depends on the command and the protocol as defined below.

[Computer Link Protocol](#)

CMD	Word	Description
ST	0	Status
ER	0	Status
	1	Error Code
SR	0	Status
	1,2	<input type="checkbox"/> used steps (double word)
	3-7	Program ID string (10 bytes, packed 2 per word)
	8-22	Program comment string (30 bytes, packed 2 per word)
	23	Memory type-program memory
	24	Memory type-data register
	25-28	PLC type string (8 bytes, packed 2 per word)
	29-33	PLC OS version (10 bytes, packed 2 per word)
S2	1	Program Size
	2	S. Buffer
	3	Retentive (RW)
	4	Retentive (T)
	5	Retentive (C)
	6	Retentive (D)
	7	Constant Scan
	8	Subroutine time limit
	9	Timer interrupt
	10	Station Number
	11-13	Baud rate string (6 characters, packed)
	14	parity
	15	Data Bits
	16	Stop Bits
TR	0	Status
	1	Error code
	2-7	Error string (12 characters, packed IFF error NE 0)
RT	0	Status
	1	Year
	2	Month
	3	Day
	4	Hour
	5	Minute
	6	Second

Toshiba Protocol

Transmission Control Protocol

CMD	Word	Description
IR	0	Status
	1	RW top register number
	2	D top register number
	3	T top register number
	4	C top register number
SR	0	Status
	1	User page number
	2	Number of used steps
	3	Scanning time
	4	Hardware type
	5	Circuit program capacity
	6	Data area type
	7	Option type
	8-12	System type string (10 bytes, packed)
	13-17	Program ID string (10 bytes, packed)
	18-21	Device Type string (7 bytes packed with trailing NUL)
	22-24	Memory Capacity (5 bytes packed with trailing NUL)
	TR	0
1		Number of errors
2		Error Code 1
3		Error Code 2
4		Error Code 3
5		Error Code 4
6-11		Error message string 1 (12 bytes, packed)
12-17		Error message string 2 (12 bytes, packed)
18-23		Error message string 3 (12 bytes, packed)
24-29		Error message string 4 (12 bytes, packed)

Toshiba Protocol

Poll Table Read Parameters

Toshiba PLC Address

The Address of the PLC that will respond to this Read request. Valid addresses are from 0 to 31.

1st Data Type

The type of data to read. Toshiba reads allow multiple blocks to be read from different data types. The Omnii-Comm supports two read blocks. This field defines the data type for the first block.

Count, 1st Type

Enter the number of items to read for the first block.

Address, 1st Type

Enter the starting address for the first block.

1st Bit Position (hex)

Enter the starting bit position for the first block if reading binary data.

2nd Data Type

The type of data to read. Toshiba reads allow multiple blocks to be read from different data types. The Omnii-Comm supports two read blocks. This field defines the data type for the second block. Select Not Used if only one block is to be read.

Count, 2nd Type

Enter the number of items to read for the second block.

Address, 2nd Type

Enter the starting address for the second block.

2nd Bit Position (hex)

Enter the starting bit position for the second block if reading binary data

Total Byte Count

Enter the total number of bytes expected for this Read. This is the sum of the bytes expected for both blocks.

Toshiba Protocol

Poll Table Write and Error Parameters

Toshiba PLC Address

The Address of the PLC that will respond to this Write request. Valid addresses are from 0 to 31.

1st Data Type

The type of data to Write. Toshiba allows multiple blocks to be written to different data types. The Omnii-Comm supports two Write blocks. This field defines the data type for the first block.

Count, 1st Type

Enter the number of items to Write for the first block.

Address, 1st Type

Enter the starting address for the first block

1st Bit Position (hex)

Enter the starting bit position for the first block if Writing binary data

2nd Data Type

The type of data to Write. Toshiba allows multiple blocks to be written to different data types. The Omnii-Comm supports two Write blocks. This field defines the data type for the second block.

Count, 2nd Type

Enter the number of items to Write for the second block

Address, 2nd Type

Enter the starting address for the second block

2nd Bit Position (hex)

Enter the starting bit position for the second block if Writing binary data

Total Byte Count

Enter the total number of bytes to be written. This is the sum of the bytes for both blocks

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

Database Extension Table Parameters

Index	Name	Size
0	INVALID SELECTION	