

GE SNP (Series Ninety 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 declaring an error if SNP Master option is selected.

Option Bit Parameters

Master

If checked, the port is selected as an SNP Master. If the box is unchecked, then the port is an SNP Slave. SNP Slave operation is currently not supported.

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.

Enable Command Triggers

If checked, Command Triggers will be evaluated by the Omnii-Comm at the end of each scan cycle (when all poll tables have been run). Command Triggers initiate some type of message to the PLC as defined in the Protocol Extension Table Parameters section that follows. There must also be a poll table that periodically reads the Command Triggers and Command Data from the PLC. If the box is not checked, the Command Triggers and Command Data do not need to be present.

Prepend Status to Data

If checked, the PLC Status from the Completion ACK Mail Box message will be added as the first word in the data returned from any SNP Read Poll. Note that the byte count (# Bytes Expected) entry in the Read Section of the poll table must be increased by 2 bytes if this option is selected. That means that if you want to read 4 words of data from the PLC, the # Bytes Expected will be 10 (2 bytes of PLC Status + 4 words of two bytes each). If the box is not checked, the PLC status is not added.

Break Free Communication

Normal SNP protocol operation uses a "Break" to reset all SNP Slaves and signify that the next message will be an "Attach" message. The SNP Protocol has been revised to support Break-Free SNP. If this box is checked then the port operates in the Break-Free mode. If the box is unchecked, then a Break is sent by the SNP Master before the Attach message.

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Protocol Extension Table Parameters

Enable the Extension Table and click on the Edit Ext Table button to edit the Protocol Extension Table for SNP. You must use the Extension Table even if you do not plan to do any commands. The SNP Protocol Extension Table fields are:

T1 Time

The amount of time that must elapse between the reception of the last character or transmission of one message and the transmission of the first character of the next message. It is the minimum amount of time the sending device (master or slave) must wait before transmitting either a message or an acknowledgement. This is the same as the RTS On delay field. The larger of RTS On Delay and T1 Time is used for the RTS On delay. The time should be entered in milliseconds. A typical value for this timer would be 10 msec.

T2 Time

This is the maximum amount of time that the sending device will wait for an acknowledgement to the message that it just transmitted. Enter the value in milliseconds. A typical value for this timer would be 1000 msec. (1 second)

T3 Time

This is the maximum link idle time. It is used by the SNP Master to determine when to force a message over the link in order to prevent the slave from timing out due to a lack of activity on the serial link. It is used by the Slave to determine when to disconnect because of a lack of communication activity. Enter the value in milliseconds. A typical value for this timer would be 5000 to 1000 msec. (5 to 10 seconds)

T4 Time

This is the break processing time. It is the minimum time the master is required to wait between the end of transmission of the long break and the first character of the attach message. Enter the value in milliseconds. A typical value for this timer would be 50 msec.

Max Data in Message

This is the maximum number of data bytes allowed in one SNP Data message. For the Omnii-Comm the valid range is from 40 to 247 bytes.

CMD Trigger Bits Data Type and Starting Offset

The first two fields define the data type and starting offset that will be used to store the Command Flags. The Command Flags are monitored by the Omnii-Comm and when the state changes from OFF to ON, a command is built using information read from the Command Data words. For GE SNP protocol the Command Bits are:

Bit	Function
0	Queue a Poll
1	Pass a message to another port
2	Re-initialize datagram structure
3-7	Spare

Corresponding bits in the high byte of the Command Trigger Bit word are used for Command Completion Status. The completion status bit will be set and the trigger bit cleared when the command has been successfully completed.

CMD Data Data Type and Starting Offset

These two fields are used to specify what Data Type and Starting Offset will be used to store the information required to build a command. The Command Data should be set up before setting the Command Trigger bit ON. GE SNP requires from 2 to N words of Command Data.

Word	Function
00	reserved
01	Poll # to Queue if Queue Poll Command or Data Byte count if Pass message to port command
02	Message Timeout
03	Linked Poll Number (MS byte); Linked Poll Delay (LS byte)
04-11	RWE Block for Pass message. (see Omnii-Comm Commands Application Note for RWE format details)
12-N	Data to send in message

Password

Enter up to 8 alphanumeric characters if passwords are enabled. The default password is all blanks.

RTU Address (if Slave)

Enter up to 7 Alphanumeric characters if emulating a 90-70 device or up to 6 Hex characters if emulating a 90-30 device.

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Poll Table Read Parameters

PLC Type

Select the type of PLC that the Read function will be sent to. Valid selections are Series 90-30 or Series 90-70.

Mem Type - Address Mode

Select the Memory Type to read from and the Addressing Mode. Selections are %M (Discrete Internals) or %G (Genius Global Data) in bit mode or %R (Registers) in word mode. .

Service Request

Select the Service Request Type from the dropdown list. Valid selections are Read System Memory, Update Real Time Datagram, Return Fault Table, Read PLC Short Status and Update Datagram.

PLC CPU ID

The 7 character (6 character if Series 90-30) PLC CPU ID that will be accessed for the Read function.

Match # for RUNCHECK

This field is used to implement the RUNCHECK feature in the SNP Protocol. RUNCHECK is a postprocess operation. If a Poll Table has the RUNCHECK postprocess option selected, the least significant bit of the first word read by the poll table will be tested. If the bit is OFF, it will be set ON by the Omnii-Comm and then written back to the PLC by using the Write section of the polling table. If the PLC is running, ladder logic will be used to clear the bit so the next time we read it, it will be off and the process repeats. If the least significant bit is ON when we read in the data, then the Omnii-Comm will mark all data from the PLC as 'Bad' . The data to mark bad will be determined by all poll tables that have the same Match #.

Starting Element

The starting Register or Bit number.

Bytes Expected

The total number of bytes of data expected to be returned.

Poll Table Write and Error Parameters

PLC Type

Select the type of PLC that the Read function will be sent to. Valid selections are Series 90-30 or Series 90-70.

Mem Type - Address Mode

Select the Memory Type to Write to and the Addressing Mode. Selections are %M (Discrete Internals) or %G (Genius Global Data) in bit mode or %R (Registers) in word mode. .

Service Request

Select the Service Request Type from the dropdown list. Valid selections are Write System Memory, Establish Real Time Datagram, Write Real Time Datagram and Cancel Realtime Datagram.

PLC CPU ID

The 7 character (6 character if Series 90-30) PLC CPU ID that will be accessed for the Write function.

Starting Element

The starting Register or Bit number.

Bytes Expected

The total number of bytes of data expected to be returned.

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

Database Extension Table Parameters

Invalid selection. GE SNP Slave operation is not supported.