CA-CPASR-4 Protocol

Control Applications Communication Protocol Adapter Satellite Remote with 4 byte Accumulators Protocol

Connector Configuration Parameters

Ctrl Deselect X10ms

The Control Deselect Time is the amount of time the Omnii-Comm will wait for an Execute message after receiving a Select message. If the Execute is not received within the Control Deselect Time multiplied by 10msec the Select will be cancelled. Any subsequent Execute message will be ignored until a new Select is received.

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.

Mom. TimeX100ms

CA RTUs support Momentary Discrete Controls (FC30/31). If control data is being collected from a device that does not support momentary commands, for example a PLC, he Omnii-Comm simulates a momentary output by first sending a command to turn a bit on and then, later turning it off. Use this field to select the length of time a Momentary Control will be held active. The time is measured in 100msec increments (0 to 25.5 seconds).

Max FC51 Length

The length of a FC51 message can be limited by this field. The maximum number of characters will be set to 70 (default) if this field is 0, otherwise the number entered will be used.

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.

Use ON/OFF Field

CA Function Code 30/31 (Momentary Discrete Control) has an ON/OFF field that is used to either turn an output OFF then ON or ON then OFF depending on the selection made when the command is sent. Some CA Masters do not use this byte and always send a zero which is interpreted as OFF the ON if this box is checked. If the box is unchecked the operation is always interpreted as an ON then OFF operation.

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If this option is selected the Omnii-Comm will use a second Select message (identical to the first and within the Control Deselect time period) as an execute message. If this option is not selected then a

properly formatted Execute message will be required to complete a control operation. This option derives its name from the unique mode of operation of the CA host at Shell in Anaheim.

Execute Only

If this option is selected then controls are sent using only the Execute message. A select command is not required.

Protocol Extension Table Parameters

VRTU Size Table 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 Virtual RTU (VRTU) configuration table.

Download 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 Download Table. The Download Table is built by reading from one or more slave devices and placing the data read into the Download Table. The data values are stored but not used. When a Download is received (FC46) the Subfunction field is checked. If it is non-zero (Subfunct 0 is a CPASR Configuration Download) the Download Table is accessed. The Subfunction number is used to point to an entry in the table, 1 points to the first entry, 3 to the third, etc. The SOURCE of this entry, that is where it was read from in the first place, determines where the download data will be sent.

Use Download Flags

The selections are No, Yes, Prepend and Yes, Postpend. If no, the download data is sent out unchanged. If Prepend then a $FFFF is added to the front of the data (first character stored). If Postpend, then the $FFF is added to the end of the data and it will be the last character stored.

RAM Page for FC47

RAM memory in the Omnii-Comm is organized into 16 pages of $2000 bytes each. Page 0 and pages 7 thru 12 are available for use as required by the protocol selected. All other pages are used by the Omnii-Comm firmware and MUST NOT BE USED for any other purposes. Paged RAM addresses are between $6000 and $7FFF.

CPASR Function Code 47 is a General Purpose Upload function that will return a predefined number of data bytes. As used in CPASR protocol (both CPASR-3 and CPASR-4) the FC47 request specifies 1 of 20 possible data areas for upload in bytes 4 and 5. Byte 4 is the line number (0-9) and byte 5 is the U/L Type (2=Meter Ticket Data, 3=Proving Data). The 20 data areas are located in one page of RAM as specified by this entry in the Protocol Extension Table. Each data area can be a maximum of 256 bytes in length so the starting addresses are $6000, $6100, $6200 up to $7300. Addresses between $7400 and $7EFF are not used. Addresses between $7F00 and $7F3B are used to store the Status (one byte) and Data Length (two bytes) for each of the 20 data areas. The Status and Data Length fields are updated when the CPASR FC47 Data Prep Post Process operation is selected for the poll table that fills the data area in paged RAM.

Reply if Data Bad

If No is selected then the Omnii-Comm will not reply if any message includes data that has been marked as bad or is otherwise invalid (CPASR Status Byte is non-zero) for normal polling or if IF Status word is non-zero if FC51 message is being sent.

Poll Table Read Parameters

This Poll Table sets the initial FC51. Beacon interval to the Poll Table Repeat Value.

Poll Table Write and Error Parameters

No data required for CPASR Write Table This is a Slave only protocol.

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

Database Extension Table Parameters

Index	Name	Size:Max Length
0	Digital Input Wds	2:256
1	Analog Input	2:256
2	Meters 3-byte	4:128
3	Digital Output Words	2:256
4	Analog Output	2:256
5	Calculated Integer	2:256
6	4-byte SetPoint	4:128
7	Data Type 07	2:32
8	Tank Data	4:16
9	Internal Status	2:32
10	Latched Status	2:64
11	Data Type 11	2:32
12	Data Type 12	2:32
13	Data Type 13	2:32
14	Data Type 14	2:32
15	Data Type 15	2:32
16	Data Type 16	2:32
20	Frozen Meters	4:128
21	Frozen Analogs	2:256