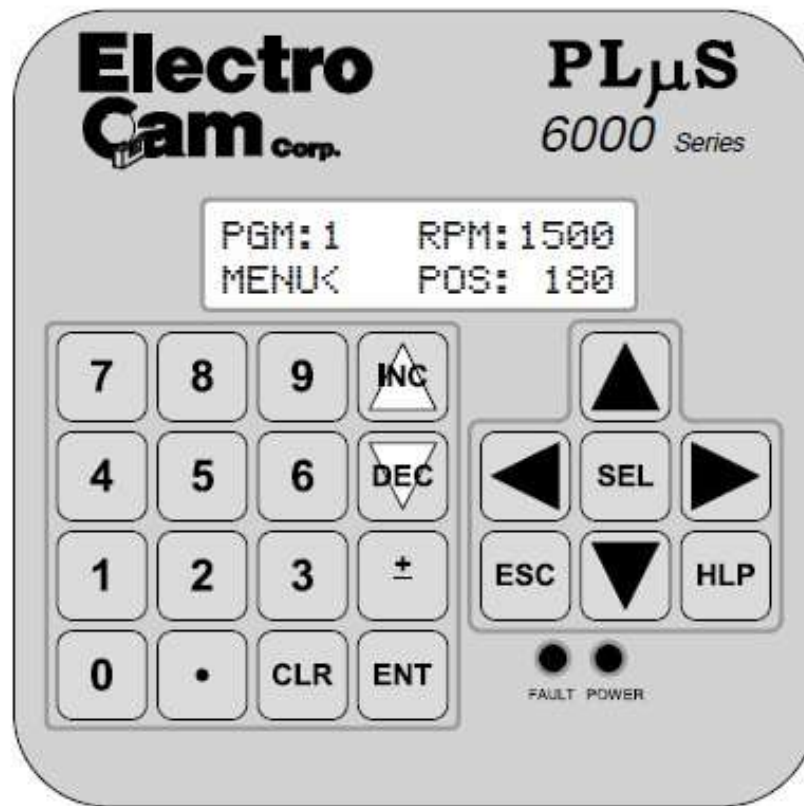# Modbus ASCII Protocol
For Electro Cam PLµS Controls with –MB Option

Serial Communications

Serial Communications Using Modbus ASCII Protocol (PS-5144-MB/PS-6144-MB Units)

Data Organization

This section describes the internal data structure of PLuS controllers, and how this data may be accessed via serial communications. The data has been organized as a series of "Coils" and "Registers" compatible with PLC programming techniques. You access and/or change the data within a PLuS controller by forcing coils ON or OFF, and by reading and writing register data.

A PLuS Controller can be completely programmed via the serial interface. All controller data, such as pulses, speed compensation, timed output values, etc., are available as registers. Configuration data, such as the direction of rotation, number of keyboards, number of analog outputs, etc., is also available as register data. The controller is programmed by writing to these registers. Data is monitored within the controller by reading from these registers.

Note: The ability of the EEPROM to retain data is reduced after 100,000 write cycles. Do not set up routines that constantly write data to the EEPROM's.

Mapping

In addition to accessing controller data via dedicated registers, specific indexed data items can be accessed through the 240 data display registers. This is done by "mapping" a specific indexed data element to a data display register; a data display register is assigned to represent a pulse, speed comp value, etc. Once an indexed data element is mapped it can be accessed either through the data display register or through the dedicated register.

Mapping is useful when displaying more than one instance of an indexed data element at once. For instance, speed compensation is accessed via three registers; 1) a channel index, 2) a leading edge value, and 3) a trailing edge value. This means that the values of speed compensation for all channels can be accessed, but only one at a time. To display more than one value of speed compensation at once, simply map the values to a series of data display registers.

You must define how many mappings are available through the Map Limit register.

Modbus

Modbus ASCII protocol is used for serial communications.

Set host controller communication parameters to 7 data bits, 2 stop bits, no parity.

Limit the number of consecutive registers or coils read to 32.

Discrete Elements

Inputs

10001 - 10016	DC Inputs

Outputs

00001 - 00100	Channel Outputs

ORing and NOT ANDing

00101 - 00200	Channel ORing
00201 - 00300	Channel NOT ANDing

Special Purpose

00301 - 00400	Special Purpose
00301	Global Unforce
00302	Pulse Register Enable
00303	Create New Pulse
00304	Move Both Edges of Pulse
00305	Move All Pulses in Channel
00314	NAK Bad Address Reads
00315	Execute Special Function
00316	Auto Increment

Registers

Special Purpose & Data Display

40001	Message and Special Function (16 registers)
40017	Data Display (240 registers)

RPM

40257	RPM

Position

40258	Position Mapping
40259	Position Index
40260	Position

Pulse Programming

40261	Pulse Mapping
40262	Total Pulse Count
40263	Channel Pulse Count

Pulse Programming (Cont.)

40264	Program Index
40265	Channel Index
40266	Pulse Index
40267	Pulse On
40268	Pulse Off
40269	New On
40270	New Off

Default Program

40271	Default Program

Speed Compensation

40272	Speed Comp Mapping
40273	Channel Index
40274	Leading Edge Comp
40275	Trailing Edge Comp

Timed Outputs

40276	Timed Output Mapping
40277	Channel Index
40278	Time Delay

Offset

40279	Offset Mapping
40280	Group Index
40281	Group Offset

Motion Detection

40282	Motion Detection Mapping
40283	Channel Index
40284	Low Motion Detection RPM
40285	High Motion Detection RPM

Analog Output

40286	Analog Output Mapping
40287	Channel Index
40288	Analog Offset
40289	Analog High RPM

Gray Code Speed Compensation

40290	Gray Code Speed Comp

Mapping Registers

40296	Map Limit
40297	Map Quantity
40298	Map Store
40299	Map Recall

Model Information

40300	Model
40301	Revision
40302	Output Quantity
40303	Option Index
40304	Option

Hardware Configuration

40305	Keyboard Quantity
40306	Increasing Direction
40307	Scale Factor
40308	Shaft Position
40309	Shaft Offset
40310	Analog Quantity
40311	Resolver Type
40312	Program Select Mode
40313	Gray Level
40314	Time Base
40315	Termination Resistor One
40316	Termination Resistor Two

Display Configuration

40317	Default Display
40318	Rate Multiplier
40319	Rate Divisor
40320	Rate Decimal Point Position
40321	Rate Units
40322	Toggle RPM
40323	RPM Update Rate
40324	Speed Comp Display Mode
40325	Group Position Display Mode

Password ID Numbers

40326	Operator ID
40327	Setup ID
40328	Master ID

Per Channel Enable

40329	Per Channel Enable Index
40330	Per Channel Enable

Operator Function Enable

40331	Operator Function Enable Bitmask

Motion ANDing

40332	Channel Index
40333	Motion Enable Level

Output Enable ANDing

40334	Output Enable Index
40335	Output Enable

Group Programming

40336	Group Quantity
40337	Group Index
40338	Channel Quantity
40339	Group Mode

Run Time Control

40340	Stop Control
40341	EEPROM Checksum
40342	EEPROM Changed

The following registers are not supported by early versions of Modbus Controllers.

Active Program

40343	Active Program

I/O Control

40350 - 40359	Input Status
40360 - 40369	Output Status
40370 - 40379	ORing Bits
40380 - 40389	ANDing Bits

Communications

40390	Type (RS485/RS232)
40391	Baud Rate
40392	Address

Discrete I/O

Inputs

10001 - 10016　　**DC Inputs**
These points represent the status of the DC inputs.

Outputs

00001 - 00100　　**Channel Outputs**
These coils represent the status of the channel outputs. Forcing these coils directly will set/clear the appropriate ORing and ANDing coils as required.
The Channel Output Coil status before OR/ANDing is determined by setpoints, group modes, speed compensation, motion ANDing, enable input ANDing, timed outputs, and resolver fault status.

ORing and NOT ANDing

00101 - 00200　　**Channel ORing**
Setting these coils to '1' will force the corresponding Channel Output Coil ON.

00201 - 00300　　**Channel NOT ANDing**
Setting these coils to '1' will force the corresponding Channel Output Coil OFF.
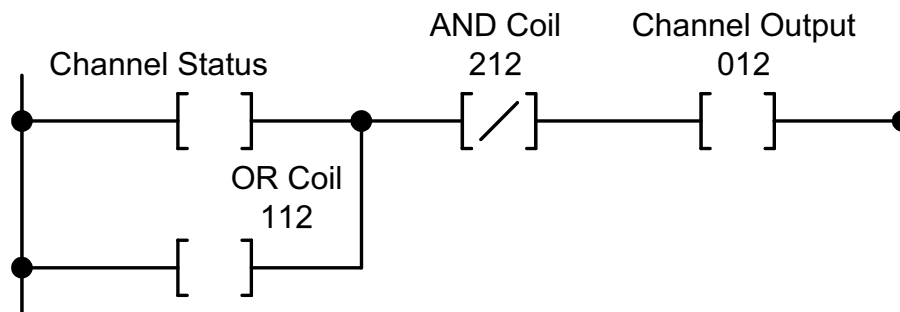
Ladder Diagram Example of ORing/ANDing Coils

Note: The "Pulse Register Enable" coil (#302) is intended for mass downloads.
When a pulse is created using this mode, the new pulse does not appear in the channel until the unit is power cycled. This enables pulses to be added faster in a batch type situation.
When pulses need to be created and take effect immediately, "Create New Pulse" coil (#303) should be used instead.
"Pulse Register Enable" coil (#302) should be set to 0.
A pulse created with "Create New Pulse" coil will take effect immediately and not require the unit to be power cycled.

Special Purpose

00301 - 00400 Special Purpose

301　　**Global Unforce**
Clears all OR and NOT AND coils when set from '0' to '1' (edge active).

302　　**Pulse Register Enable**
When '1', this coil enables the creation of new pulses through writes to the New Off Register. When this coil is '0', writes to New Off Register do not create a new pulse.

303　　**Create New Pulse**
Creates a new pulse defined by the New On and New Off registers when set from '0' to '1' (edge active). This coil is ignored if coil 302 is '1'.

304　　**Move Both Edges of Pulse**
When '1', this coil will cause both edges of a pulse to move when either the leading or trailing edge is changed by '1' (incremented or decremented).

305　　**Move All Pulses in Channel**
When '1', this coil will cause all edges of all pulses in a channel to move when either the leading or trailing edge is changed by '1' (incremented or decremented).

314　　**NAK Bad Address Reads**
When '1', this coil will cause the controller to NAK attempted reads to non-existent registers. When this coil is '0', reads to non-existent registers return a value of zero.

315　　**Execute Special Function**
Executes the special function defined by the contents of the Special Purpose Registers (40001-40017) when set from '0' to '1'.

316　　**Auto Increment**
When '1', this coil enables the auto increment feature on index registers. This feature allows sequential reading of indexed values without changing the index register.

Registers

Special Purpose & Data Display

40001 **Special Function (16 registers)**
The first 16 registers (001 - 016) are used for entering data used by the special functions.

40017 **Data Display (240 registers)**
These registers (017 - 256) are used by the Mapping functions to display individual instances of indexed data.

RPM

40257 **RPM**
Read only
Returns the current RPM.

Position

40258 **Position Mapping**
Read/write
Values: 17 - 256
Specifies the general purpose register used to display the position for the output group specified by the Group Index Register.

40259 **Position Index**
Read/write
Values: 1 - 6
Specifies the output group whose position is displayed in the Position Register.

40260 **Position**
Read only
Values: 0 - (Scale Factor - 1)
returns the current position for the output group specified by the Group Index Register.

Pulse Programming

40261 **Pulse Mapping**
Read/write
Values: 17 - 255
General Purpose register used for mapping the On and Off values for the pulse specified by the index registers. Two registers will be used; the first will contain the On value, the second will contain the Off value.

40262 **Total Pulse Count**
Read/write
Values: 0 - n
Returns the total number of pulses for all channels. Writing a value of '0' to this register will erase all pulses. You can only write to this register when the Stop register is '1'.

40263 **Channel Pulse Count**
Read only
Values: 0 - n
Returns the number of pulses in the channel defined by the index registers below.

40264 **Program Index**
Read/write
Values: 0 - Max Program Number
Contains the current program number for pulse access. Writing to this register resets the Channel Index Register and the Pulse Index Register to '1'. When this register is '0', the current active program is used for setpoint access and for mapping (setpoints mapped with a program index of '0' will automatically change when the active program changes).

Registers (Cont'd)

Pulse Programming (Con'td)

40265   **Channel Index**
Read/write
Values: 1 - Max Channel Number
Contains the current channel number for pulse access. Writing to this register resets the Pulse Index Register to '1'. This register is reset to '1' when the Program Index Register is changed.

40266   **Pulse Index**
Read/write
Values: 1 - n
Contains the current pulse number for pulse access.
This register is reset to '1' when the Program Index Register or Channel Index Registers are changed.

40267   **Pulse On**
Read/write
Values: 0 - (Scale Factor - 1)
Pulse On Value.

40268   **Pulse Off**
Read/write
Values: 0 - (Scale Factor - 1)
Pulse Off Value.

40269   **New On**
Read/write
Values: 0 - (Scale Factor - 1)
New Pulse On Value.
Writing to this register loads the On setpoint of a new pulse for the program and channel specified by the index registers above.

40270   **New Off**
Read/write
Values: 0 - (Scale Factor - 1)
New Pulse Off Value.
Writing to this register loads the Off setpoint of a new pulse for the program and channel specified by the index registers above. The pulse is stored when the Off value is written if the Pulse Register Enable Coil is set to '1'; otherwise the pulse is stored when the Create New Pulse Coil is changed form '0' to '1' (edge active).

Default Program

40271   **Default Program**
Read/Write.
Values: 1 - Max program number
Defines the program that will be active if no hardware program select inputs are active.

Speed Compensation

40272   **Speed Comp Mapping**
Read/Write
Values: 17 - 255
General purpose register used for mapping speed compensation values. Two registers will be used; the first will contain the leading edge value, the second will contain the trailing edge value.

40273   **Channel Index**
Read/Write
Values: 1 - Max Channel Number
Channel index for speed comp values.

Registers (Cont'd)

Speed Compensatin (Cont'd)

40274   **Leading Edge Comp**
Read/Write
Values: 0 - n (.1mS)
Specifies the leading edge speed comp value.

40275   **Trailing Edge Comp**
Read/Write
Values: 0 - n (.1mS)
Specifies the trailing edge speed comp value.

Timed Outputs

40276   **Timed Output Mapping**
Read/write
Values: 17 - 255
General purpose register used for mapping timed output values.

40277   **Channel Index**
Read/Write
Values: 1 - Max Channel Number
Channel index for time delay values.

40278   **Time Delay**
Read/write
Values: 0 - n (1mS)
Specifies the maximum time in milliseconds that a channel may stay on after it has bee turned on.

Offset

40279   **Offset Mapping**
Read/write
Values: 17 - 256
General purpose register used for mapping Group Offset values.

40280   **Group Index**
Read/write
Values: 1 - 6
Group index for offset values.

40281   **Group Offset**
Read/write
Values: 0 - (Scale Factor - 1)
Offset value for the specified group.
Note that this value is a PRESET value for groups in modes 1 or 2.

Motion Detection

40282   **Motion Detection Mapping**
Read/write
Values: 17 - 255
General purpose register used for mapping low and high motion detection values. Two registers will be used; the first will contain the low motion detection rpm value, the second will contain the high motion detection rpm value.

40283   **Channel Index**
Read/write
Values: 1, 2
Motion detection level index for high and low motion detection values.

Registers (Cont'd)

Motion Detection (Cont.)

40284   **Low Motion Detection RPM**
Read/write
Values: 0 - n
Motion detection low limit for the level specified by the index register.

40285   **High Motion Detection RPM**
Read/write
Values: 0 - n
Motion detection high limit for the level specified by the index register.

Analog Output

40286   **Analog Output Mapping**
Read/write
Values: 17 - 255
General purpose register used for mapping analog offset and high RPM values. Two registers will be used; the first will contain the analog offset value, the second will contain the high RPM value.

40287   **Channel Index**
Read/write
Values: 1, 2
Analog channel index for analog offset and high RPM values.

40288   **Analog Offset**
Read/write
Values: 0 - 4095
Analog output at 0 RPM.

40289   **Analog High RPM**
Read/write
Values: 0 - 3000
RPM at which analog output is 4095.

Gray Code Speed Compensation

40290   **Gray Code Speed Comp**
Read/write
Values: 0 - n (.1mS)
In controllers equipped with the "-G" option, the Gray code bit pattern is speed compensated by this amount.

Mapping Registers

40296   **Map Limit**
Read/write
Values: 0 - 256
Sets the maximum number of data mappings.

40297   **Map Quantity**
Read/write
Values: 0 - 256
Returns the number of data mappings active in the controller.
NOTE: Writing a '0' to this register will delete all data mappings!

40298   **Map Store**
This register is only for use by utility programs.

40299   **Map Recall**
This register is only for use by utility programs.

Registers (Cont'd)

Model Information

40300   **Model**
Read only
Returns the PLuS model number (5144, 6144, etc.).

40301   **Revision**
Read only
Returns the major software revision.

40302   **Output Quantity**
Read only
Returns the number of output channels (8, 9, 16, 17, 25, etc).

40303   **Option Index**
Read/write
Values: 1 - n
Used as index for reading installed controller options through the Option Register.

40304   **Option**
Read only
Values: 0 - n
Returns installed controller options as specified through the Option Index Register. A value of '0' at index '1' means no options are installed.

Hardware Configuration

40305   **Keyboard Quantity**
Read/write
Values: 1, 2
Number of keyboards attached to PS-6000 controller.

40306   **Increasing Direction**
Read/write
Values: 0 = CCW, 1 = CW
Specifies the direction of rotation of the resolver (viewed from the shaft end) that will result in an increasing numerical display of position.

40307   **Scale Factor**
Read/write
Values: 2 - 1024 (4096 with "-H" Option)
Scale factor used for pulse, position, and offset programming.

40308   **Shaft Position**
Read only
Values: 0 - (Scale Factor - 1)
Returns the current resolver shaft position, including the shaft offset.

40309   **Shaft Offset**
Read/write
Values: 0 - (Scale Factor - 1)
Offset that is added to raw resolver position to make Shaft Position.

40310   **Analog Quantity**
Read/write
Values: 0, 1, 2
Specifies the number of analog modules active.

40311   **Resolver Type**
Read/write
Values: 0 = Electro Cam, 1 = Other
Specifies type of resolver attached to controller.

40312   **Program Select Mode**
Read/write
Values: 0 = Binary, 2 = BCD, 1 = Gray code
Specifies how the program select inputs determine the active program.

Registers (Cont'd)

Hardware Configuration (Cont'd)

40313 **Gray Level**
Read/write
Values: 0 = Positive True, 1 = Negative True
On controllers equipped with the "-G" Option, this register specifies the logic level of the Gray code bit pattern.

40314 **Time Base**
Read only
Values: 0 = 1mS, 1 = .5mS, 2 = .2mS
Returns the timer interrupt rate.

40315 **Termination Resistor One**
Read/write
Values: 0 = Off, 1 = On
Termination resistor On/Off RS485 port; keyboard port for 6000's, RS485 Communication port for 5144's.

40316 **Termination Resistor Two**
Read/write
Values: 0 = Off, 1 = On
Termination resistor On/Off for RS232/RS485 port; communication port for 6000's with 5144A Input Board.

Display Configuration

40317 **Default Display**
Read/write
Values: 0 = RPM, 1 = Position, 2 = Auto Select
Specifies Pos/Rpm display mode; only applicable on 5XXX controllers.

40318 **Rate Multiplier**
Read/write
Values: 1 - 1091
RPM rate multiplier; 6000 controllers only.

40319 **Rate Divisor**
Read/write
Values: 1 - 63
RPM rate divisor, 6000 controllers only.

40320 **Rate Decimal Point Position**
Read/write
Values: 0 - 3
RPM decimal point position; 6000 controllers only.

40321 **Rate Units**
Read/write
Values: 0 = RPM, 1 = BPM, 2 = CPM, 3 = IPM
RPM display units; 6000 controllers only.

40322 **Toggle RPM**
Read/write
Values: 0 - n
Specifies RPM which will cause position display to blank (6000 series) or to change from Position to RPM (5000 series).

40323 **RPM Update Rate**
Read/write
Values: 0 = 1/Sec, 1 = 2/Sec, 2 = 10/Sec
Rate at which the RPM display is updated.

Registers (Cont'd)

Display Configuration

40324	**Speed Comp Display Mode**
	Read/write
	Values: 0 = One, 1 = L/T
	Specifies whether speed comp values are displayed as one value for both leading and trailing edges, or as a value for each.
40325	**Group Position Display Mode**
	Read/write
	Values: 0 = Each, 1 = One
	Specifies whether the positions for output groups are individually displayed, or if they are displayed as one value for all groups. Output group positions can only be displayed as one if none are in mode 1 or mode 2 (rezero modes).

Password ID Numbers

40326	**Operator ID**
	Read/write
	Values: 0 - n
	Specifies the Operator ID number used to enable the Operator access level for programming.
40327	**Setup ID**
	Read/write
	Values: 0 - n
	Specifies the Setup ID number used to enable the Setup access level for programming.
40328	**Master ID**
	Read/write
	Values: 0 - n
	Specifies the Master ID number used to enable the Master access level for programming.

Per Channel Enable

40329	**Per Channel Enable Index**
	Read/write
	Values: 1 - Max Channel Number
	Channel index for the Per Channel Enable register.
40330	**Per Channel Enable**
	Read/write
	Values: 0=No Operator access, 1=Operator access enabled
	Specifies whether channel data can be modified under the Operator access level (0=no, 1=yes).
	Channel data such as speed comp and timed output values can be individually enabled per channel for operator access through this register.

Operator Function Enable

40331	**Operator Function Enable Bitmask**
	Read/write
	Values: 0 - 0FFFFH
	Bit mask which specifies which programming functions the operator may perform.
	Bit 0: Pulse on/off values.
	Bit 1: Default program.
	Bit 2: Speed compensation.
	Bit 3: Timed outputs.
	Bit 4: Offsets.
	Bit 5: Motion detection.
	Bit 6: Analog offset & high rpm.

Registers (Cont'd)

Motion ANDing

40332   **Channel Index**
Read/write
Values: 1 - Max Channel Number
Channel index for the Motion Enable Level Register.

40333   **Motion Enable Level**
Read/write
Values: 0 = Off, n = Motion Detection Level
Specifies the motion detection level used for a channel.

Output Enable ANDing

40334   **Output Enable Index**
Read/write
Values: 1 - Max Channel Number
Channel index for the Output Enable register.

40335   **Output Enable**
Read/write
Values: 0=Channel not ANDed, 1=Channel ANDed
Specifies whether a channel is ANDed with the Enable Input.

Group Programming

40336   **Group Quantity**
Read/write
Values: 1 - 6
Specifies the number of output groups.

40337   **Group Index**
Read/write
Values: 1 - 6
Group index for Channel Quantity and Group Mode Registers.

40338   **Channel Quantity**
Read/write
Values: 0 - n
Defines the number of channels in the output group specified by the Group Index Register.

40339   **Group Mode**
Read/write
Values: 0 - 5
Defines the operating mode for the output group specified by the Group Index Register. Note that groups in mode '0' do not need (or have) an enable input.

Run Time Control

40340   **Stop Control**
Read/write
Values: 0 = Running, 1 = Stopped
When PLuS is STOPPED, changes written to registers do not update the checksum in EEPROM memory. Changes are faster when unit is stopped, but you must read from the Checksum Register when changes are complete to establish a valid checksum. Writing a '1' value to this register will place the PLuS in STOPPED mode. Writing a '0' to this register will restart the PLuS via a watchdog timer reset.

40341   **EEPROM Checksum**
Read only
Returns the current checksum of EEPROM memory. If computed checksum of EEPROM memory does not match the current value (i.e. if changes were made while unit STOPPED), a new value will be written to EEPROM memory.

Registers (Cont'd)

Run Time Control (Cont'd)

40342   **EEPROM Changed**
Read only
Values: 0 = no change, 1 = changed.
A value of '1' in this register means that the EEPROM has been changed (through the keyboard) since the last time this register was read. Reading this register sets it to '0'.

Active Program

40343   **Active Program**
Read/Write.
Values: 1 - Max program number
Returns to program currently active; determined either by hardware inputs or by the value of the default program. If hardware inputs are active, writes to this register will change the default program, but the active program will not change.

I/O Control

40350 - 40359 Input Status
Read Only.
Values: 0 - 65535
Each register represents the status of 16 inputs.

40360 - 40369 Output Status
Read/Write.
Values: 0 - 65535
Each register represents the status of 16 outputs. The least significant bit of the register corresponds to the lowest numbered output. Writing to one of these registers will force 16 outputs. The ORing and ANDing registers (and coils) will reflect the forced conditions.

40370 - 40379 ORing Bits
Read/Write.
Values: 0 - 65535
Each register represents the status of 16 ORing bits. The least significant bit of the register corresponds to the lowest numbered output. When a '1' is present in an outputs' bit position, the output will be forced ON. The OUTPUT STATUS register will reflect the forced condition.

40380 - 40389 ANDing Bits
Read/Write.
Values: 0 - 65535
Each register represents the status of 16 ANDing bits. The least significant bit of the register corresponds to the lowest numbered output. When a '1' is present in an outputs' bit position, the output will be forced OFF. The OUTPUT STATUS register will reflect the forced condition.

Host Communications Setup

40390   **Communication Type (RS485/RS232)**
Read/Write.
Values: 0/1 (0=RS485, 1=RS232)
Determines the communication type used by the controller. This register may only be written to when the controller is stopped (via the STOP CONTROL register).

40391   **Communication Baud Rate**
Read/Write.
Values: 2/3/4/5 (2=4800, 3=9600, 4=19200, 5=38400)
Determines the baud rate used by the controller. This register may only be written to when the controller is stopped (via the STOP CONTROL register).

Registers (Cont'd)

Host Communications Setup (Cont'd)

40392   **Communication Address**
Read/Write.
Values: 1-255
Determines the address used by the controller. This register may only be written to when the controller is stopped (via the STOP CONTROL register).

NOTE: If the three address switches on the input board are all UP (address 7), the controller will be automatically configured to be RS232, 9600 baud, address 1. Use this feature to enable communications with a controller if no keyboard is available or if you are unsure of the communication parameters currently in use.

Special Functions

Overview

Special functions are used to implement features not directly defined by the standard registers. Special functions are executed by loading the special purpose registers (40001-40016) with data, and then bringing the Execute Special Function Coil (00315) from '0' to '1'.

The data loaded into the special purpose registers is dictated by the special function being performed; each different special function will define the number and use of the special purpose registers.

Register 40001 will define the special function to be performed; registers 40002-40016 will hold the data needed for the special function.

Pulse Copy

This function will add a series of pulses to a specific program and channel.
Register Use:

         40001: 1 (Pulse Copy)
         40002: Program number.
         40003: Channel number.
         40004: Beginning on value of pulse envelope.
         40005: Ending off value of pulse envelope
         40006: Number of pulses within envelope.
         40007: Duration (width) of each pulse within envelope.

Registers 40004 and 40005 define the on and off values of the envelope pulse that will be divided into a series of smaller pulses.

Register 40006 contains the number of pulses that the envelope pulse will be divided into.

Register 40007 contains the duration of each of the smaller pulses.

This function will not be completed if the envelope pulse would overlap any other pulse in the specified program and channel, or if the count and duration values would result in overlapping pulses within the envelope pulse.

Once the registers have been loaded, bring the special purpose coil number 315 from '0' to '1'. The command will be acknowledged when pulse programming is complete. Special purpose coil number 315 must be made '0' before this function can be used again.

EEPROM Clearing

This function will clear various areas of EEPROM memory.
Register Use:

         40001: -3 (EEPROM Clearing)
         40002: EEPROM Clearing Function Number:
             7000:   Clear all EERPOM memory.
             7001:   Clear configuration memory.
             7002:   Clear setpoint memory.