Systems Associates, Incorporated

ControlIQ Building Automation Solutions
SynergyMMS Maintenance Management Software

Interface: **SCS – SIU Driver for ControlIQ**
Version: **2.12** (revision history listed at the end of this document)
Date: **August 20, 2009**
Author: **David Codding** dcodding@sai.us.com

Interface Specifications

1. **Intellectual Property:**
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2. **Purpose:**
   It is desired to interface ControlIQ to Scientific Controls Systems – SIU 1232 interface. This interface supports one way (outbound communications) to RCUs for on/off control and two-way communications for RTUs to read analog and digital signals

3. **Sponsoring Property:**
   The interface is being developed as an overall product enhancement and is not for any specific property.

4. **SAI Associated Products:**

   _X_ ControlIQ version 2.12.0.0

   ___ SynergyMMS version _____

5. **General Description of the Interface:**
   The interface is developed using standard Serial Port communications or TCP socket messaging. The SIU is a serial communication using RS-232 topology. TCP communications is only supported through a Ethernet to serial server.

6. **Supporting Documents:**
   This interface was developed based on reverse engineering the protocol on an existing system. There is no known publicly available documentation regarding the protocol.

7. **Interface Specifics:**
   a. The interface uses standard serial communications (settable)
   b. The Interface uses TCP sockets (settable)
   c. The interface was developed via Visual Studio 2005 named Driver_Opto22”

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8. **Subsystem Table Fields**

SubsystemType = SciCtrl

Settings = [IPaddress of NIC card]:[Port used]
192.168.2.1:TCP4003
[CommPortName:baud,parity,databits,stopbits]
COM1:2400,N,8,2

Personality (tags shown with their default values)

RefreshInterval=120 How often to rescan devices (in Seconds)

LogAddress=0 If non-zero CIQProc will log all transactions to this address. (Used for diagnostics only)

If the address of the responder is 0, 2047, 4095 ... the refresh interval is automatically set to 15 seconds for diagnostics purposes. (The diagnostic addresses must be added to the database as a legitimate point)

9. Point Types Support in ControlIQ

All

The addressing scheme is SIU.RCU/RTUAddress.Function

Where

SIU - 1-64 = the address of the Synthesizer

RCU/RTU Address - 1-32767 - the address of the receiver / transponder

Function - 1 - AI #1 on RTU (Red Dot Board)
2 - AI #2 on RTU (Red Dot Board)
3 - AI #2 on RTU (Brown Dot Board)
4 - AI #1 on RTU (Brown Dot Board)
5 - AI #2 on RTU (Brown Dot Board)9
6 - Meter (accumulator) on RTU
10 - AI #1 on RTU read as raw value
11 - AI #2 on RTU read as raw value
15 - Same as 16 except it uses Address+1
16 - DO in RCU (See note below)
17 - DO #1 in RTU
18 - DO #2 in RTU
19 - DI #1 on RTU
20 - DI #2 on RTU

For AIs, put the word "Celsius" in the Points.Conversion field to convert the point reading

Function 15 Jumper J3 and J4

Function 16 Note

Function 16 will turn "off" a point immediately, but the "on" side of it has to fall through a 6 minute timer built into the RCU. (If there is an absence of an Off command, the RCU will turn on in 6 minutes). CIQProc will send an off command every 2 minutes to a device that is to be off.

IF an RCU is setup to duty-cycle then the program will calculate the next "On" time and will stop sending the "Off" command 355 seconds prior to that time.

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In this case the "Off" command is sent out 20 seconds prior to the 355 second "On" time, and every scan thereafter until it reaches the 355 seconds. (Where it will no longer send the "off" command.)

If Randomize is true (a 1 in the database) the point will hesitate its duty cycle process by a formula that is (points.numericid modulo 6) (0 to 5 minutes). In this way, all points can have the same duty cycle parameters, but process at different intervals.

All other times that the point is to go on will fall through the 6 minute timer. For example, if the point is scheduled to be on from 09:00 to 17:00 it will actually physically be on from 09:04-09:06 to 17:00. (depending on the 2 minute refresh)

Revision History:

None

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