# Jandy RS Control Modules
# Module Application Guide

## Description

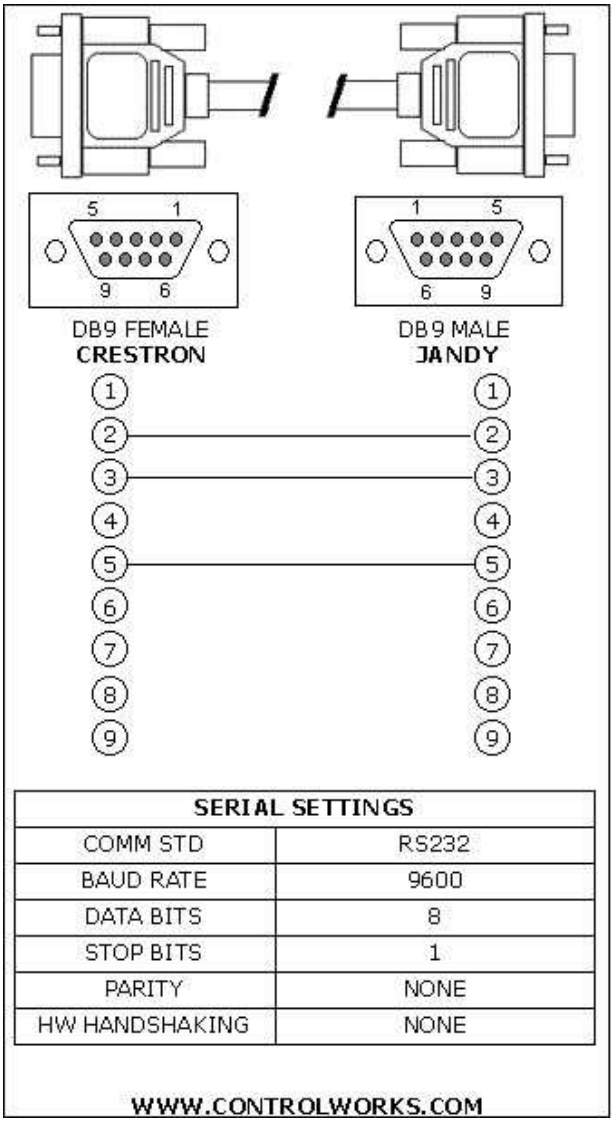
This suite of three modules supports the Jandy RS series of pool and spa controllers via the Jandy RS Serial adapter. Full control and real time feedback is available for all functions of the controller with the exception of the scheduler.

**Jandy RS Series Module v6.2**
This module allows for full control of any RS series power center. In addition to the basic controls for the pool and spa the module also provides control for all AUX relays for switching or dimming, backup battery status and intermediate heater status feedback.

**Jandy RS Series LED Parser Module v6.2**
All pool controllers have lockouts and delays to protect heaters valves and pumps. This module is the only way to get real time feedback from these delays so the user is not confused about the status of the system.

| Compatibility | | | Processor Requirements | |
|---|---|---|---|---|
|   |   |   |   |   |

# Serial Cable Pinout




| SERIAL SETTINGS | |
|---|---|
| COMM STD | RS232 |
| BAUD RATE | 9600 |
| DATA BITS | 8 |
| STOP BITS | 1 |
| PARITY | NONE |
| HW HANDSHAKING | NONE |

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## Module Application

Successful application of this module assumes working knowledge of pool and spa equipment in general. It also assumes that you are familiar with the Jandy RS series of wall controls and power centers. As the RS series can support multiple types of equipment setups it is important that you understand the configuration of these setups and the terminology of the equipment involved.

## Supported Jandy Controllers

This module will support any of the RS series family of controllers such as:
RS-2/6, RS-4, RS-6, RS-8, RS-12, RS-16, RS2/10, RS-2/14, RS2/22 and their "combo" equivalents. Some controls require Rev D01 in the Serial adapter or Rev R in the Power Center board. In order to communicate with these systems you will need a Jandy "RS Serial Adapter" part number 7620. This adapter can be wired to the keypad buss at any point. Power and data for the adapter is supplied from the Jandy Power Center. As the data on Jandy's buss is RS-485 it is suggested that you extend the keypad buss to the equipment area, connect the RS Serial Adapter and then plug in the Adapter directly into the Crestron Com port. Baud rates on the Adapter can be changed but the module tests well at the default of 9600, N, 8, 1. Lightning protection is recommended on the RS-485 run as we have seen several instances of damage to a Crestron processor's com port.

Additional information on the hardware connections and Adapter setup can be found in the RS Serial Adaptors manual.

## SystemBuilder Support

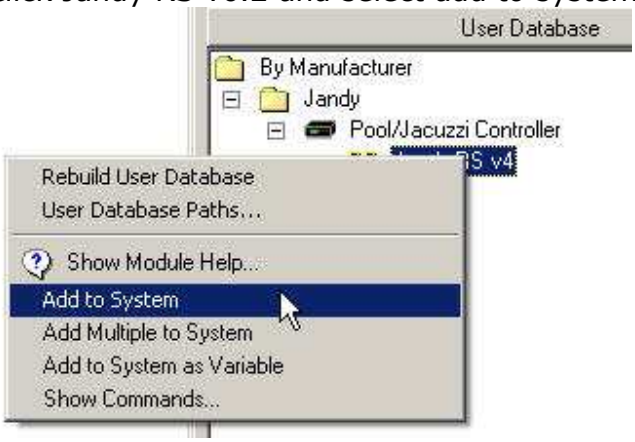
Once the module is added to SystemBuilder, you will need to make all the appropriate connections to the system logic and touch panel template that you are using.

In order for the Jandy module to function you first have to drop these modules into your default User Module path.

Jandy_RS_Series_v6.2.umc
Jandy_RS_Series_LED_Parser_v6.2.umc
Jandy_LED_String_Handler_v6.2.usp
Jandy_LED_String_Handler _v6.2.ush

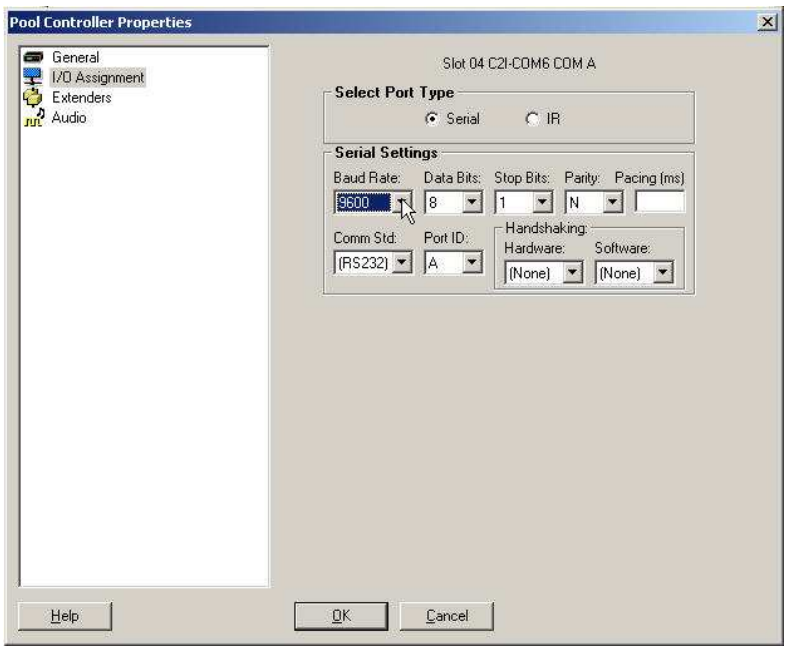
This path can be found under EDIT>PREFERENCES>USER DATABASE PATHS. Once you have placed the modules in the appropriate folder, be sure to click rebuild.

Next open up your project and select the *Equipment* view. In the lower right hand corner open the *User Database* and drill down the *By Device Type* until you see Jandy. Expand the category until you see the Jandy RS v6.2. Right click Jandy RS v6.2 and select add to system.



Once you have added the object to your program, you have to setup the parameters for the module. Right click on the object and select *Properties.* Then select I/O Assignment from the left hand pane. Here you should verify that the Serial Settings are correctly set to 9600,N81 with no handshaking.

Next select Audio from the left hand pane and verify that this is NOT defined as a distributed audio source.

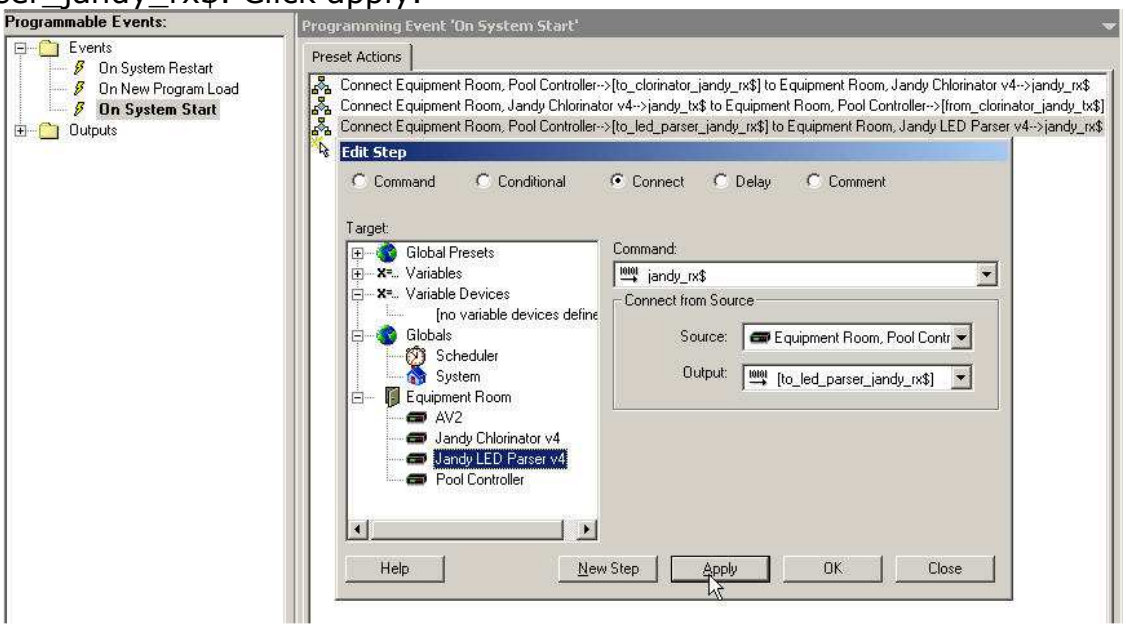



If you wish to use the LED Modules, the next step will describe how to connect the module to the Jandy module as they require a connection to the same com port.

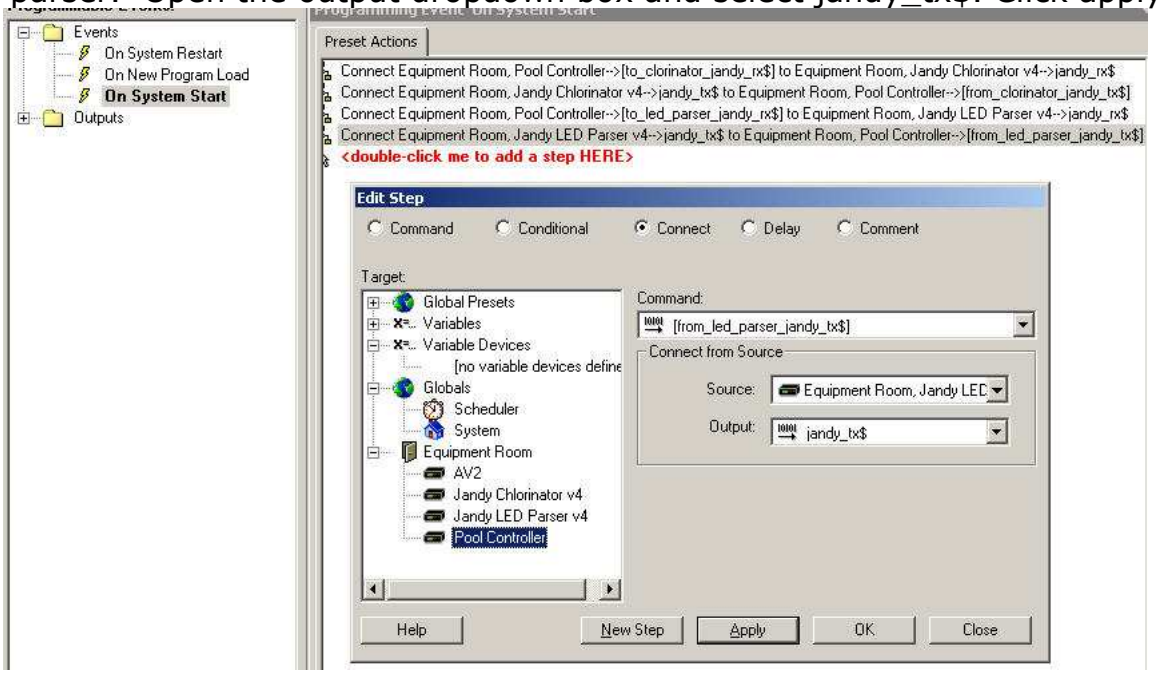
Choose programming view and right click on the Jandy LED Parser under user logic in the user logic modules library, and choose add to system.


Next we need to tie the serial port the module. Since SystemBuilder will not allow you to tie logic modules to in use serial ports, we have provided specific signals on the main Jandy module to drive the LED parser module.

Choose the Jandy LED Parser v6.2 Module in the target window. Next, click the connect radio button. Under the command drop down bock select jandy_rx$. Next, we will need to look underneath the command dropdown box in the *connect from source area*. Open source dropdown box. Choose the Jandy pool controller.  Open the output dropdown box and select to_led_parser_jandy_rx$. Click apply.




Lastly we need to connect the transmit side. Choose New step. Choose the pool controller in the target window. Next, click the connect radio button. Under the command drop down bock select from_led_parser_jandy_tx$. Next, we will need to look underneath the command dropdown box in the connect from source area. Open source dropdown box. Choose the Jandy LED parser.  Open the output dropdown box and select jandy_tx$. Click apply.



The modules are now ready to get tied to your user interface template. Please note that ControlWorks does not offer support on user interface template issues. Please call 888-CRESTRON for specific SystemBuilder technical support.

# Signal and Parameter Descriptions

Bracketed signals such as "[signal_name]" are optional signals

## Jandy RS Series Module V6.2 I/O:

### DIGITAL INPUTS

pool_sp+ and pool_sp- .....adjusts the pool setpoint up or down
[pool2_sp+] and [pool2_sp-].....adjusts the pool #2 setpoint up or down
[spa_sp+] and [spa_sp_-] .....adjusts the spa setpoint up or down
[filter_pump_toggle/on/off] .....turns the filter pump on and off (subject to delays)
[filter_pump_low_speed_toggle] .....toggles the filter pump speed between low and high
[cleaner_toggle/on/off] .....turns the cleaner pump on and off
[waterfall_toggle/on/off] .....turns the waterfall relay on and off
[spa-pool_toggle/on/off] .....turns the system between spa and pool mode
[pool_heater_toggle/on/off] .....turns the pool heater on and off
[pool_heater2_toggle/on/off] .....turns the second pool heater on and off
[spa_heater_toggle/on/off] .....turns the spa heater on and off
[aux(x)_relay_toggle/on/off] .....turns the specified aux relay on and off
[extra_aux_toggle/on/off].....controls the solar heater relay output as an aux function when no solar system is present
[aux(x)_dim+ and dim-] .....steps the aux dimming relay up and down in levels of 25%, 50%, 75% and 100%
[onetouchX_toggle/on/off] .....activates the OneTouch presets as defined in the power center.
[chlorinator_output_boost_on/off].....turns the AquaPure Chlorinator boost mode on/off. A specific level can be set via the analog input
[manual_orp/ph_feed].....pulse to start the manual feed process
[heat_pump_toggle/enable/disable] .....turns the heat pump on and off
startup .....when pulsed it queries for the current settings of the system and sets the adapter up to report feedback in an unsolicited manner
[reboot_serial_adapter] .....pulse to soft reboot the Jandy serial adapter

### ANALOG INPUTS

[set_pool_setpoint] .....directly set the pool heat setpoint
[set_pool2_setpoint] .....directly set the pool2 heat setpoint
[set_spa_setpoint] .....directly set the spa heat setpoint
[set_auxX_led] .....sets color of LED where X is the aux relay being set. The relay must be set as an LED Light type for the controller to respond to led light commands. As mentioned in the Jandy installation manual, "… there will often be a significant delay after sending the Set command as the light cycles to the selected color." Refer to the Jandy documentation for a description of the accepted values.
[set_chlorinator_output_percentage].....range is 0-100%. Sets the chlorine output percentage of the Chlorinator
[chemlink_unit_number].....sets the unit number to be controlled for Chemlink settings
[set_pool_orp_level].....sets the ORP level for the pool. Range is (200-900)/10, so 20d-90d
[set_pool_ph_level].....sets the pH level for the pool. Range is (7.0-8.0)/10, so 70d-80d
[variable_speed_pump_set_unitX_speed] .selects the speed presets for unitX variable speed pump. Each variable speed pump may have up to 8 presets. Preset speeds are set by programming on the controller. Range is 1d-8d

## SERIAL INPUTS

jandy_rx$ .....connect to rx of the com port

[from_led_parser_jandy_tx$] .....use in system builder only. Connect the jandy_tx$ on the led parser module to his input. This allows the led parser module to transmit data to the Jandy without adding additional com ports in system builder.

## DIGITAL OUTPUTS

[pump_on and pump_off] .....feeds back the filter pump status

[pump_lowspeed_on and off] .....feeds back the filter pump speed status

[cleaner_on and cleaner_off] .....feeds back the cleaner pump status

[waterfall_on and waterfall_off] .....feeds back the waterfall pump status

[spa_on and spa_off].....feeds back the current spa state

[pool_heater_on and off] .....feeds back the primary heater status

[pool_heater_firing] .....held high when the heater is actively firing

[pool_heat2_on and off] .....feeds back the secondary heater status

[pool_heat2_firing] .....held high when the heater is actively firing

[spa_heater_on and off] .....feeds back the spa heater status

[spa_heater_firing] .....held high when the heater is actively firing

[solar_heater_on and off].....feeds back the solar heat source status

[solar_heater_firing].....held high when the pump output is on

[aux(x)_realy_on and off] .....feeds back current state of the specified relay

[onetouchx_on and off.....feed back of current state of OneTouch in the power center.

[chlorinator_output_boost_on_fb] .....held high when the output boost for the chlorinator is active

[manual_feed_orp/ph_on_fb] .....held high when the Chemlink is in the manual feed process

[heat_pump_enabled/disabled_fb] .....feeds back the heat pump status

[heat_pump_heating_fb] .....held high when the heat pump is currently heating

[auto_mode] .....feeds back that the Power Center is in auto mode

[service_mode].....feeds back that the Power Center is in service mode

[timeout_mode].....feeds back that the Power Center is in timeout mode

[startup_busy].....is high when the system is being polled on startup for current settings, about 43 seconds for the whole cycle to complete

[low_battery_fb] .....is high when the backup 9 volt battery needs to be replaced

## ANALOG OUTPUTS

Note: All temperatures are reported as three digits. Battery voltage is also three digits but with tenths and hundreds IE 8.97. Also the pool temperature will display 0 if the filter pump is off. The spa temperature will also display 0 if the Spa mode is not high.

| | |
|---|---|
| pool_setpoint | current pool setpoint |
| pool_temperature | pool temperature reported as above only when pump is running |
| [pool_setpoint2] | second pool heater setpoint |
| [spa_setpoint] | current spa setpoint |
| [spa_temperature] | spa temperature when in spa mode |
| [air_temperature] | air or freeze temperature |
| [solar_temperature] | temperature of solar sensor |
| [auxX_value] | value indicating status of dimmer or LED. Values of 250d, 500d, 750d, or 1000d correspond to a dimmer value of 25%, 50%, 75%, and 100% brightness. Values of 1d-14d correspond to LED light color presets. See the demo program or Jandy manuals for details of names of color presets. |
| [ouput_percentage_decimal] | output level of boost pump, represented as a decimal 0d-100d |
| [output_percentage_percent] | output level of boost pump, represented as a percent 0%-100% (0d-65535d) |
| [current_pool/spa_salinity] | output of pool or spa salinity as PPM |
| [chemlink_unit_number_fb] | current chemlink unit selected for control |
| [current_pool_orp_level] | current pool ORP level/10 |
| [current_pool_ph_level] | current pool pH level. Range (7.0-8.0)/10 So, 70d-80d |
| [variable_speed_pump_unitX_speed_fb] | current speed setting of variable speed pump. Range is 0d-8d |
| [battery_voltage] | current voltage of the 9 volt memory battery |

## SERIAL OUTPUTS

| | |
|---|---|
| jandy_tx$ | connect to tx of the com port |
| [to_clorinator_jandy_rx$] | use in system builder only. Connect this signal in system builder to the jandy_rx$ on the chlorinator module. |
| [to_led_parser_jandy_rx$] | use in system builder only. Connect this signal in system builder to the jandy_rx$ on the led parser module. |

## PARAMETERS

| | |
|---|---|
| poll_after_controller_boot | Sets the module to watch for a pool controller reboot. If set to 1d, the module will poll the controller for status after the controller reboots. Has two options [1d]Poll after controller boots and [0d] Do not poll after controller boots. |
| Highest number Aux used | Set this value to the highest number aux that your system is using. The module will then only poll for the highest aux and below. |

**Jandy RS Series LED Parser Module V6.2 I/O:**

To reduce the amount of serial traffic it is recommended that you enable the polling on this module only when needed. For instance you can setup your logic so this module polls for a period of time only after the state of the spa, filter and heaters is changed.

## DIGITAL INPUTS

[continuous_poll_enable] .....polls the controller for LED status at the rate defined in the parameter named "Poll Time" (see below)
[poll] pulse to poll once for the current LED status

## ANALOG INPUTS

This module does not utilize any analog inputs.

## SERIAL INPUTS

jandy_rx$ .....connect to rx of the com port

## DIGITAL OUTPUTS

[led1/14_on] .....indicates the current state of each LED on the wall control. Please note that the LED assignment is different for each RS system. Please see the table in the Jandy Aqualink RS Serial Adapter Manual to decode each assignment. It can be found on page 35-37
[spa_status_led] .....feeds back the spa mode status
[filter_pump_status].....feeds back the filter pump status, flashes when in a delay
[heater1_green_led_on] .....high when the heater is enabled
[heater1_red_led_on].....high when the heater is enabled and firing
[heater1_led_off].....high when the heater is not enabled
[heater2_green_led_on] .....high when the heater is enabled
[heater2_red_led_on].....high when the heater is enabled and firing
[heater2_led_off].....high when the heater is not enabled
[solar_green_led_on] .....high when the heater is enabled
[solar_red_led_on].....high when the heater is enabled and firing
[solar_led_off].....high when the heater is not enabled

## ANALOG OUTPUTS

This module does not utilize any analog outputs.

## SERIAL OUTPUTS

jandy_tx$ .....connect to tx of the com port

## PARAMETERS

Poll Time.....the number in seconds for the polling interval. Should never be lower than 3 seconds.

**Support**

This module is supported by ControlWorks Consulting, LLC. Should you need support for this module please email support@controlworks.com or call us at 440-449-1100. ControlWorks normal office hours are 9 AM to 5 PM Eastern, Monday through Friday, excluding holidays.

Before calling for support, please ensure that you have loaded and tested operation using the included demonstration program and touchpanel(s) to ensure that you understand the correct operation of the module. It may be difficult for ControlWorks to provide support until the demonstration program is loaded.

Updates, when available, are automatically distributed via Email notification to the address entered when the module was purchased. In addition, updates may be obtained using your username and password at http://www.controlworks.com/customerlogin.aspx.

## Distribution Package Contents

The distribution package for this module should include:

| | |
|---|---|
| Jandy RS Series Module Help v6.2.pdf | this help file |
| Jandy_RS_Series_v6.2.umc | Crestron user module to insert in program |
| Jandy_RS_Series_LED_Parser_v6.2.umc | Crestron user module to insert in program |
| Jandy_LED_String Handler_v6.2.usp | Crestron SIMPL+ for use in the above module |
| Jandy_LED_String Handler_v6.2.ush | Crestron SIMPL+ for use in the above module |
| Jandy_ Xpanel_demo_panel_v6.2.vtp | example touchpanel (X-panel) |
| Jandy_RS_series_Demo_program_v6.2.smw | sample program for a MC3 |
| Analog_to_variable_length_serial_v1cw.umc | Supporting Crestron User Module |
| Analog_to_variable_length_serial_v1_help_file.pdf | Help file for supporting module |

# Revision History

V1 jim@controlworks.com 2006.06.27
- first release of version supporting all 22 relays of a RS-2/22 system.

V2 jim@controlworks.com 2006.09.08
- finalized Chlorinator module
- finalized LED parsing module
- fixed issue with parsing battery voltage
- fixed error in air temperature query on startup
- added low battery flag
- added Extra Aux control and feedback
- added on and off to each toggle command where applicable
- added heater firing output to the four heater status outputs

V4 caleb@controlworks.com 2010.08.05
- added SystemBuilder support

V5 gary@controlworks.com 2011.05.17
- compiled and tested for Series3 processor compatibility
- added analog inputs for direct setting of setpoints
- added signal grouping for easier reading of module inputs and outputs
- made many signals optional
- added parameter to enable/disable polling of pool controller when pool controller boots/reboots
- added parsing and output string for reporting pool controller firmware

V6.1 caleb@controlworks.com 2014.6.04
- integrated separate chlorinator module into main module
- deprecated chlorinator module
- fixed onetouch fb issues
- renamed output-boost signals to chlorinator-output-boost for clarity
- updated help file.

V6.2 caleb@controlworks.com 2014.8.25
- Added logic to poll for only aux's in the parameter
- Fixed feedback for aux states when a color was turned on.
- Fixed issue with multiple TXA's being triggered at startup.
- Added a delay for auto poll when the adaptor reboots because the adaptor was reporting offline.

# Development Environment

This module version was developed on the following hardware and software. Different versions of hardware or software may or may not operate properly. If you have questions, please contact us.

| **Jandy Hardware** | **Software Version** |
|---|---|
| Jandy RS8 (6520) Power Center | Version "R" |
| Jandy RS Serial Adapter | Version "D01.5" |
| **Hardware** | **Firmware Version** |
| Crestron MC3 Processor | 1.009.0029 |
| Crestron PRO2 Processor | 4.008.0008 |
| | |
| **Software** | **Software Version** |

| | |
|---|---|
| Crestron SIMPL Windows | 4.02.48 |
| Crestron Vision Tools Pro-e | 5.4.17 |
| Crestron Database | 56.05.003.00 |
| Device Database | 45.05.003.00 |

# ControlWorks Consulting, LLC Module License Agreement

**Definitions:**
*ControlWorks*, *We*, and *Us* refer to ControlWorks Consulting, LLC, with headquarters located at 701 Beta Drive, Suite 22 Mayfield Village, Ohio 44143-2330. *You* and *Dealer* refer to the entity purchasing the module. *Client* and *End User* refer to the person or entity for whom the Crestron hardware is being installed and/or will utilize the installed system. *System* refers to all components described herein as well as other components, services, or utilities required to achieve the functionality described herein. *Module* refers to files required to implement the functionality provided by the module and may include source files with extensions such as UMC, USP, SMW and VTP. *Demo Program* refers to a group of files used to demonstrate the capabilities of the Module, for example a SIMPL Windows program and VisionTools Touchpanel file(s) illustrating the use of the Module but not including the Module. *Software* refers to the Module and the Demo Program.

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**Provision of Support**
We provide limited levels of technical support only for the most recent version of the Module as determined by Us. We do not provide support for previous version of the module, modifications to the module not made by Us, to persons who have not purchased the module from Us. In addition, we may decline to provide support if the Demo Program has not been utilized. We may withdraw a module from sale and discontinue providing support at any time and for any reason, including, for example, if the equipment for which the Module is written is discontinued or substantially modified. The remainder of your rights and obligations pursuant to this license will not be affected should ControlWorks discontinue support for a module.

**Modification of Software**
You may not decrypt (if encrypted), reverse engineer, modify, translate, disassemble, or de-compile the Module in whole or part. You may modify the Demo Program. In no event will ControlWorks Consulting, LLC be liable for direct, indirect, incidental or consequential damages resulting from You modifying the Software in any manner.

**Indemnification/Hold Harmless**
ControlWorks, in its sole and absolute discretion may refuse to provide support for the application of the Module in such a manner that We feel has the potential for property damage, or physical injury to any person. Dealer shall indemnify and hold harmless ControlWorks Consulting LLC, its employees, agents, and owners from any and all liability, including direct, indirect, and consequential damages, including but not limited to personal injury, property damage, or lost profits which may result from the operation of a program containing a ControlWorks Consulting, LLC Module or any component thereof.

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