

Notes to evaluation:

- Commands
 - User Commands
 - If a command is of type sys, the "GSIOC" will actually be a firmware specific instruction.
 - All "Wait for" commands will have no "GSIOC" entry.
 - Status Commands
 - Status is sent once per command or every cycle
 - Motion Commands
 - A motion command will cause all status commands to be sent
 - A motion command is defined as a return parameter in the Get Motor Status command
 - A command with motion commands will cause the motion commands to be run until the motion is complete
- Command Parameters
 - If there are no entries under the Parameters, there are no parameters.
 - Defaults are optional.
 - Units are optional.
 - Command parameter headers are light blue
 - Return parameter headers are salmon.
 - Motion command headers are moccasin.

Device Name		Verity 3011 Pump						
Version		1.0.17.0						
Unit ID		1						
Data Command				Data Channel				
Get Channel Data				0				
Command Name	Notes	Parameters						
Restore Factory Defaults	Resets all the pump settings and deletes all methods on the instrument.							
Get Application Versions	Gets the application versions of the Linux software.	Name		Type		Notes		
		Release Version		String				
		Main Application Version		String				
		GUI Application Version		String				
		Firmware Updater Version		String				
		Controller Firmware Version		String				
		Pump Firmware Version		String				
Set Debug Mode	Instructs the instrument to set the mode of debugging.	Name		Type	Default	Units	Range	Notes
		Mode		String	All		-	
Set Debug Pressure	Debugging command to be able to set pressure.	Name		Type	Default	Units	Range	Notes
		Pressure		Number	0	Bar	-	Range: 0-700
Lock	Set the instrument to							

	remote control mode.						
Lock With Options	Set the instrument to remote control mode.	<u>Name</u>	<u>Type</u>	<u>Default</u>	<u>Units</u>	<u>Range</u>	<u>Notes</u>
		Title	string			-	The title to show on the lock screen
		Pump Status Messages	OnOff	Off		-	
		Pump Status Message Rate	Number	1000	milliseconds	-	1000 to 60000 ms
Unlock	Set the instrument to user control mode.						
Set Alarm	Instructs the instrument to control the buzzer.	<u>Name</u>	<u>Type</u>	<u>Default</u>	<u>Units</u>	<u>Range</u>	<u>Notes</u>
		Alarm State	OnOff	Off		-	
Start Pressure Samples	Start pressure data stream.	<u>Name</u>	<u>Type</u>	<u>Default</u>	<u>Units</u>	<u>Range</u>	<u>Notes</u>
		Sample Interval	Number	1000	msecs	-	Range: 200-65000
		Number Of Samples Per Status Message	Number	1		-	Range: 1-10
Stop Pressure Samples	Stop pressure data stream.						
Set Inlet Pressure	Set the pump inlet pressure.	<u>Name</u>	<u>Type</u>	<u>Default</u>	<u>Units</u>	<u>Range</u>	<u>Notes</u>
		Inlet Pressure	Number	0		-	Pressure units in BAR. Range 0-100.
Get Inlet Pressure	Get pump inlet pressure.	<u>Name</u>		<u>Type</u>		<u>Notes</u>	
		Inlet Pressure		Number			
Home	Home the pump.						
Set Compressibility By Value	Sets the compressibility to the compressibility value.	<u>Name</u>	<u>Type</u>	<u>Default</u>	<u>Units</u>	<u>Range</u>	<u>Notes</u>
		Compressibility	Number	1		-	The compressibility value for the liquid.
Set Compressibility By Index	Sets the compressibility by the compressibility index.	<u>Name</u>	<u>Type</u>	<u>Default</u>	<u>Units</u>	<u>Range</u>	<u>Notes</u>
		Liquid Number 1 Index	-	1=Water,2=Methanol,3=Acetonitrile,4=Tetrahydrofuran,5=Benzene,6=n-Hexane,7=Carbon Tetrachloride,8=Water-Methanol, 50-50,9=Chloroform,10=Methylene Chloride,11=Ethanol,12=Acetone,13=n-Heptane,14=Diethyl Ether			
Set Compressibility Coefficients	Sets a custom compressibility using the coefficients.	<u>Name</u>	<u>Type</u>	<u>Default</u>	<u>Units</u>	<u>Range</u>	<u>Notes</u>
		Coefficient A	Number	0		-	First compressibility coefficient
		Coefficient B	Number	0		-	Second compressibility coefficient
Get Compressibility	Gets the current compressibility setting.	<u>Name</u>		<u>Type</u>		<u>Notes</u>	
		Solution		String			
		Compressibility		Number			
		Adjusted Compressibility		Number			
		Coefficient 1		Number			
		Coefficient 2		Number			
Dispense by Volume	Instructs the instrument to dispense a fixed volume a	<u>Name</u>	<u>Type</u>	<u>Default</u>	<u>Units</u>	<u>Range</u>	<u>Notes</u>
		Flow Rate	Number	0	mL/min	-	
		Volume	Number	1	mL	-	

	particular rate.						
Dispense by Time	Instructs the pump to dispense for a period of time.	<u>Name</u>	<u>Type</u>	<u>Default</u>	<u>Units</u>	<u>Range</u>	<u>Notes</u>
		Flow Rate	Number	0	mL/min	-	
		Duration	Number	1	min	-	
Get Dispense Volume	Gets the total volume dispensed during a dispense.	<u>Name</u>	<u>Type</u>	<u>Notes</u>			
		Dispensed Volume	Number				
		Total Volume to Dispense	Number				
Get Pressure	Get the current pressure (bar).	<u>Name</u>	<u>Type</u>	<u>Notes</u>			
		Current Pressure (bar)	String				
Get Input Contacts	Get the state of the input contacts.	<u>Name</u>	<u>Type</u>	<u>Notes</u>			
		Start/Stop Input	OpenClosed				
		Pause/Resume Input	OpenClosed				
		Program Wait Input	OpenClosed				
		Error Input	OpenClosed				
		Soft Power Input	OpenClosed				
Get Output Contacts	Gets the state of the output contacts.	<u>Name</u>	<u>Type</u>	<u>Notes</u>			
		24V Output	String				
		Relay 1	String				
Set Output Contacts	Instructs the instrument to control the output contacts.	<u>Name</u>	<u>Type</u>	<u>Default</u>	<u>Units</u>	<u>Range</u>	<u>Notes</u>
		24V Output	String	Open		-	
		Relay 1	String	Open		-	
Get Motor Status	Get the Motor Status.	<u>Name</u>	<u>Type</u>	<u>Notes</u>			
		Motor Status	String				
Set Pump Head	Set the pump size.	<u>Name</u>	<u>Type</u>	<u>Default</u>	<u>Units</u>	<u>Range</u>	<u>Notes</u>
		Pump Head	String	5 SS		-	5 SS, 10 SS
Get Pump Head	Get the current pump head size setting.	<u>Name</u>	<u>Type</u>	<u>Notes</u>			
		Head	String				
		Minimum Flow Rate	Number	Flow rate units in mL/min			
		Maximum Flow Rate	Number	Flow rate units in mL/min			
		Minimum Pressure	Number	Pressure units in BAR			
		Maximum Pressure	Number	Pressure units in BAR			
Get Pump Time	Gets the duration the pump has been running.	<u>Name</u>	<u>Type</u>	<u>Notes</u>			
		Time	Number				
Set Pump Refill Time	Set the duration of the refill stroke.	<u>Name</u>	<u>Type</u>	<u>Default</u>	<u>Units</u>	<u>Range</u>	<u>Notes</u>
		Refill Time	Number	0.125	seconds	-	Range is 0.125 to 1.0
Get Pump Refill Time	Get the duration of the refill stroke.	<u>Name</u>	<u>Type</u>	<u>Notes</u>			
		Refill Time	String				
Stop Pump	Stops the pump.	<u>Name</u>	<u>Type</u>	<u>Default</u>	<u>Units</u>	<u>Range</u>	<u>Notes</u>
		Emergency Stop	Boolean	false		-	Should the pump stop and then ignore further pumping until Clear Error is sent

Set Pump Flow Rate With Options	Sets the pump flow rate with all the parameter options.	<u>Name</u>	<u>Type</u>	<u>Default</u>	<u>Units</u>	<u>Range</u>	<u>Notes</u>
		Flow Rate	Number	1.0	ml/min	-	Flow Rate (ml/min)
		Acceleration	Number	100	ml/s/s	-	Acceleration (ml/s/s)
		Power	Number	95	%	-	Motor Power (%)
		Percent Fast Decay	Number	240		-	Range 0-255.
Set Pump Flow Rate	Sets the pump flow rate.	<u>Name</u>	<u>Type</u>	<u>Default</u>	<u>Units</u>	<u>Range</u>	<u>Notes</u>
		Flow Rate	Number	1.0	ml/min	-	Flow Rate (ml/min)
Get Pump Flow Rate	Get the Flow Rate of the pump.	<u>Name</u>	<u>Type</u>	<u>Notes</u>			
		Flow Rate	Number				
Clear Error	Instructs the instrument to clear existing errors.	<u>Name</u>	<u>Type</u>	<u>Default</u>	<u>Units</u>	<u>Range</u>	<u>Notes</u>
		Mode	String	All		-	'All' to clear all errors or blank to clear most recent error, 'Log' to clear the command log
Identify	Instrument name and version.	<u>Name</u>	<u>Type</u>	<u>Notes</u>			
		Identity	String				
		Version Number	String				
Get Device ID	Instrument controller board Device ID and version.	<u>Name</u>	<u>Type</u>	<u>Notes</u>			
		Device ID	String				
		Version Number	String				
Get Serial Number	Instrument serial number.	<u>Name</u>	<u>Type</u>	<u>Notes</u>			
		Serial Number	String				
Set Serial Number	Set the instrument serial number.	<u>Name</u>	<u>Type</u>	<u>Default</u>	<u>Units</u>	<u>Range</u>	<u>Notes</u>
		Serial Number	String			-	
Get Error	Instructs the instrument to report existing errors.	<u>Name</u>	<u>Type</u>	<u>Notes</u>			
		State	String				
		Error Index	String				
		Command Causing Error	String				
		Return Code	String				
		Error Description	String				
Set NVM	Instructs the instrument to set the specified NV memory parameters.	<u>Name</u>	<u>Type</u>	<u>Default</u>	<u>Units</u>	<u>Range</u>	<u>Notes</u>
		Index	number			-	Parameter Index
		Value	Number			-	Parameter Value
Get NVM	Instructs the instrument to report the specified NV memory parameter.	<u>Name</u>	<u>Type</u>	<u>Default</u>	<u>Units</u>	<u>Range</u>	<u>Notes</u>
		Index	Number			-	Parameter Index Values: Vary depending on product-specific memory map definitions.
		<u>Name</u>	<u>Type</u>	<u>Notes</u>			
		Index	Number				
		Value	Number				
Set NVM String	Instructs the instrument to set the specified NV memory string	<u>Name</u>	<u>Type</u>	<u>Default</u>	<u>Units</u>	<u>Range</u>	<u>Notes</u>
		Index	String			-	Parameter index string
		Value	String			-	Parameter Value

	parameters.						
Get NVM String	Instructs the instrument to report the specified NV memory string parameter.	<u>Name</u>	<u>Type</u>	<u>Default</u>	<u>Units</u>	<u>Range</u>	<u>Notes</u>
		Index	String			-	Parameter Index Values: Vary depending on product-specific memory map definitions.
		<u>Name</u>	<u>Type</u>	<u>Notes</u>			
		Value	String				
Relax Motors	Instructs the instrument to relax the pump motor.						
Get Piston Strokes	Get the number of piston strokes.	<u>Name</u>	<u>Type</u>		<u>Notes</u>		
		Piston Strokes	Number				
Set Piston Strokes	Sets the piston strokes.	<u>Name</u>	<u>Type</u>	<u>Default</u>	<u>Units</u>	<u>Range</u>	<u>Notes</u>
		Piston Strokes	Number	0		-	
Reset	Instructs the instrument to perform a soft reset.						
Reset NVM	Instructs the instrument to reset its NVM back to default	<u>Name</u>	<u>Type</u>	<u>Default</u>	<u>Units</u>	<u>Range</u>	<u>Notes</u>
		Reset Mode	String	1		-	Reset Mode Values: "0" - Resets all to defaults but: Instrument Name, Pump Board Name, Serial Number, Hardware Configuration (Controller Board), Hardware Configuration (Pump Board); "1" - Resets all to defaults but: Instrument Name, Pump Board Name, Serial Number
Get Install Date of Pump Head	Get the date the pump head was installed.	<u>Name</u>	<u>Type</u>		<u>Notes</u>		
		Date	String				
Set Install Date of Pump Head	Set the date the pump head was installed.	<u>Name</u>	<u>Type</u>	<u>Default</u>	<u>Units</u>	<u>Range</u>	<u>Notes</u>
		Date	String			-	Preferred format is mm-dd-yyyy
Get Install Date of Check Valve	Get the date the check valve was installed.	<u>Name</u>	<u>Type</u>		<u>Notes</u>		
		Date	String				
Set Install Date of Check Valve	Set the date the check valve was installed.	<u>Name</u>	<u>Type</u>	<u>Default</u>	<u>Units</u>	<u>Range</u>	<u>Notes</u>
		Date	String			-	Preferred format is mm-dd-yyyy
Get Install Date of Piston Seal	Get the date the piston seal was installed.	<u>Name</u>	<u>Type</u>		<u>Notes</u>		
		Date	String				
Set Install Date of Piston Seal	Set the date the piston seal was installed.	<u>Name</u>	<u>Type</u>	<u>Default</u>	<u>Units</u>	<u>Range</u>	<u>Notes</u>
		Date	String			-	Preferred format is mm-dd-yyyy

Send Pump Run Status	Request that the pump send a Pump Run Status event.						
Set Remote Pressure Error	Turns on/off pressure error monitoring when under external control. Defaults to off anytime the lock command is executed.						
		Name	Type	Default	Units	Range	Notes
		Error Checking	OnOff	Off		-	