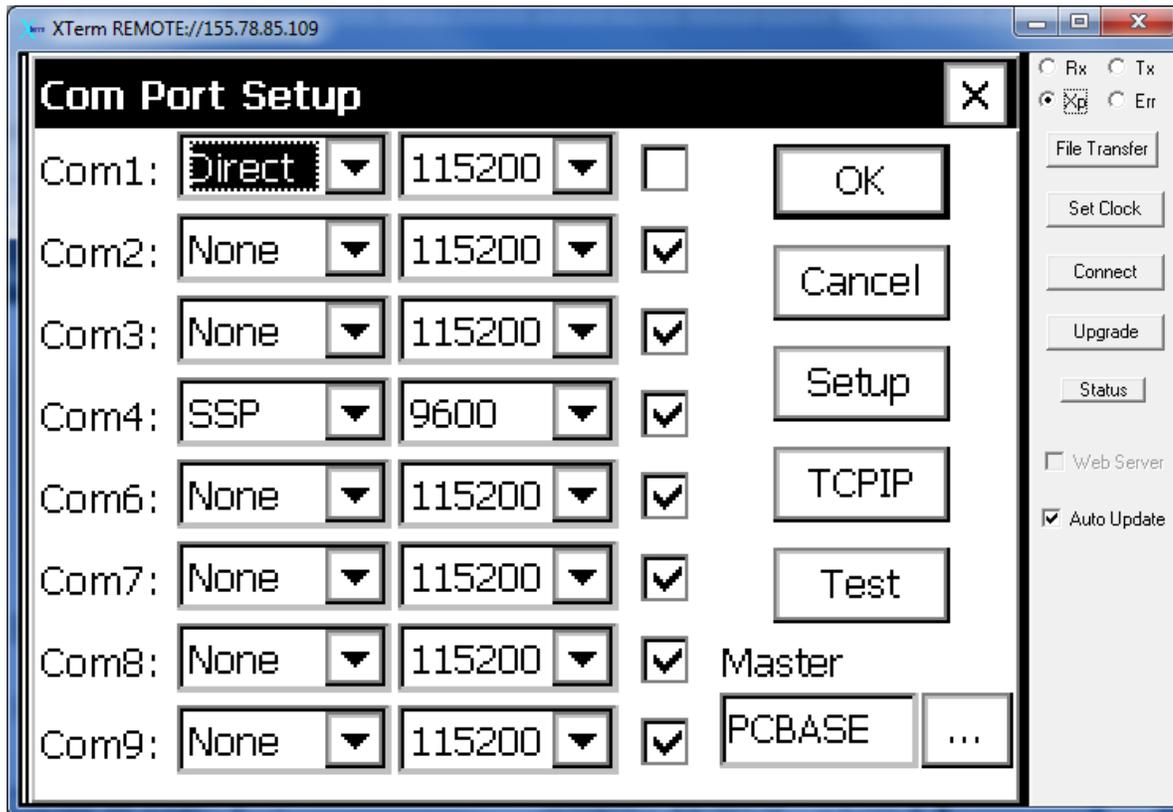
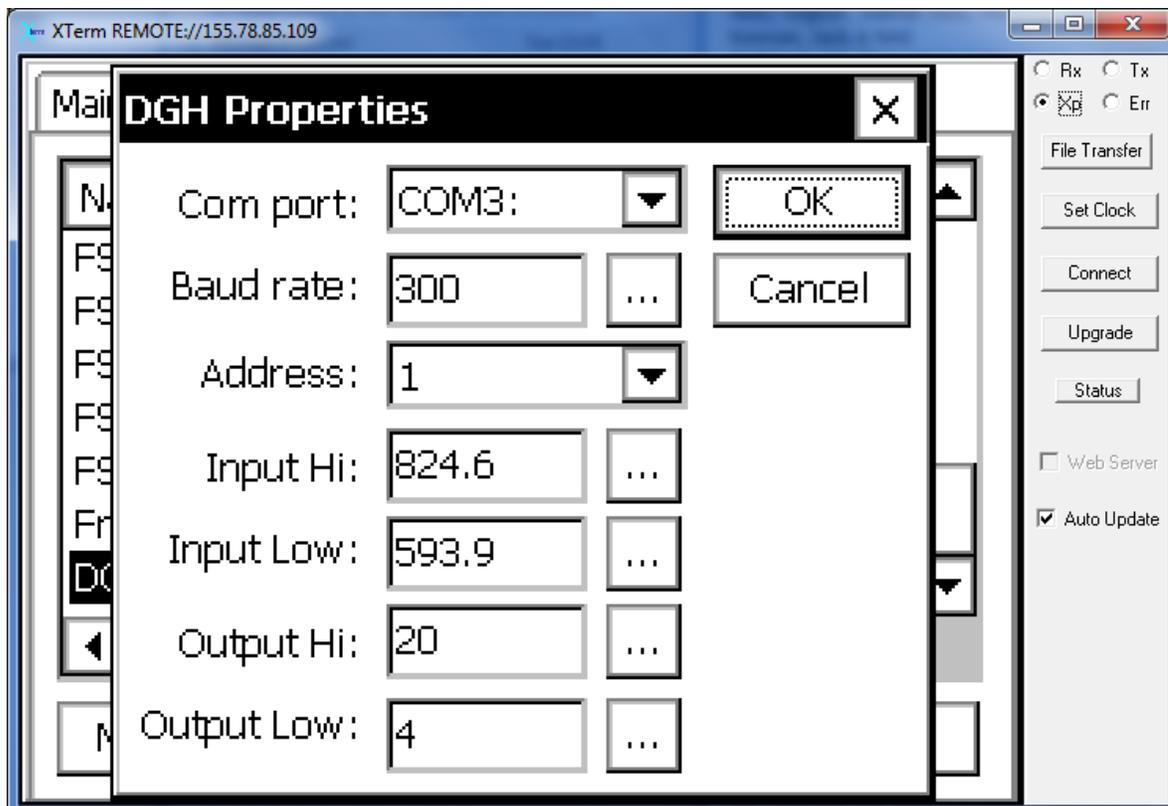


STEP 1. CONFIRM COLEBROOK COMS PORT HAS THESE GLOBAL SETTINGS (FROM OCT-2014); Key Part of this before you go to STEP 2. if you are REPLACING a failed Sutron is You MUST transfer the DGH.sll from the Sutron “extra sll’s folder” from the Sutron Firmware Folder of the version on your pc to the Sutron Flash disk using the “File Transfer” button the right.



STEP 2. CONFIRM COLEBROOK POOL OUTPUT TO MDC SCADA VIA THESE DGH BLOCK SETTINGS OCT-2014 (SEE SAMPLE DGH RATIO OUTPUT EXAMPLE AS APPENDIX 1.)



STEP 3. VERIFY GOODWIN POOL ELEVATION INPUT TO SUTRON FROM MDC SCADA - ADC BLOCK SETTINGS OCT-2014

The screenshot shows a window titled "XTerm REMOTE://155.78.85.109" containing a dialog box titled "Analog Input Properties". The dialog has a title bar with a close button (X). The main area contains the following fields and controls:

- AIO Mod: 1 (dropdown)
- Meas Type: 4-20ma (dropdown)
- Chan: 5 (dropdown with icon)
- Filter Notch: 60 (text input with dropdown arrow)
- Settling Time: 100 (text input with dropdown arrow)
- 8080-0003:
- Units: Ft Stag (text input with dropdown arrow)
- Resistance: 20 (text input with dropdown arrow)
- Offset: 604.5 (text input with dropdown arrow)
- Differential:
- Slope: 1.875 (text input with dropdown arrow)

At the bottom of the dialog are "OK" and "Cancel" buttons. To the right of the dialog is a sidebar with the following options:

- Rx
- Tx
- [Symbol]
- Err
- File Transfer
- Set Clock
- Connect
- Upgrade
- Status
- Web Server
- Auto Update

NOTE: Slope and Offset calculated using MDC given values of El. 612 for the lower limit, and El. 642. for the upper limit. The Block is a Sutron ADC block set to 4-20 ma, currently on Analog Ch 5.

# APPENDIX 1.

## SAMPLE DGH RATIO OUTPUT EXAMPLE;

On Oct-8-2014 at 11:30 AM EDT , CRD's Pool is 660.91, and the DGH output is 8.6475 ma, per the screen shots below. If we take the Pool value of El. 660.91 minus the bubbler sensor invert of 593.9 = 67.0 ft stage / 230.7 (100 psi sensor range) = 0.290464 % of 16 ma total scale = 4.6474 ma added to base value of 4 ma gives a final result of 8.6474, only one ten thousandth off in the ma range!!

The screenshot shows the 'Data' tab of the XTerm REMOTE interface. The main display area contains a table with two columns: 'Name' and 'Data'. The 'Pool' entry is highlighted in black. Below the table are five buttons: 'Meas', 'Meas All', 'Cal...', 'Prop...', and 'SDI...'. On the right side, there are several control buttons and checkboxes: 'File Transfer', 'Set Clock', 'Connect', 'Upgrade', 'Status', 'Web Server' (unchecked), and 'Auto Update' (checked).

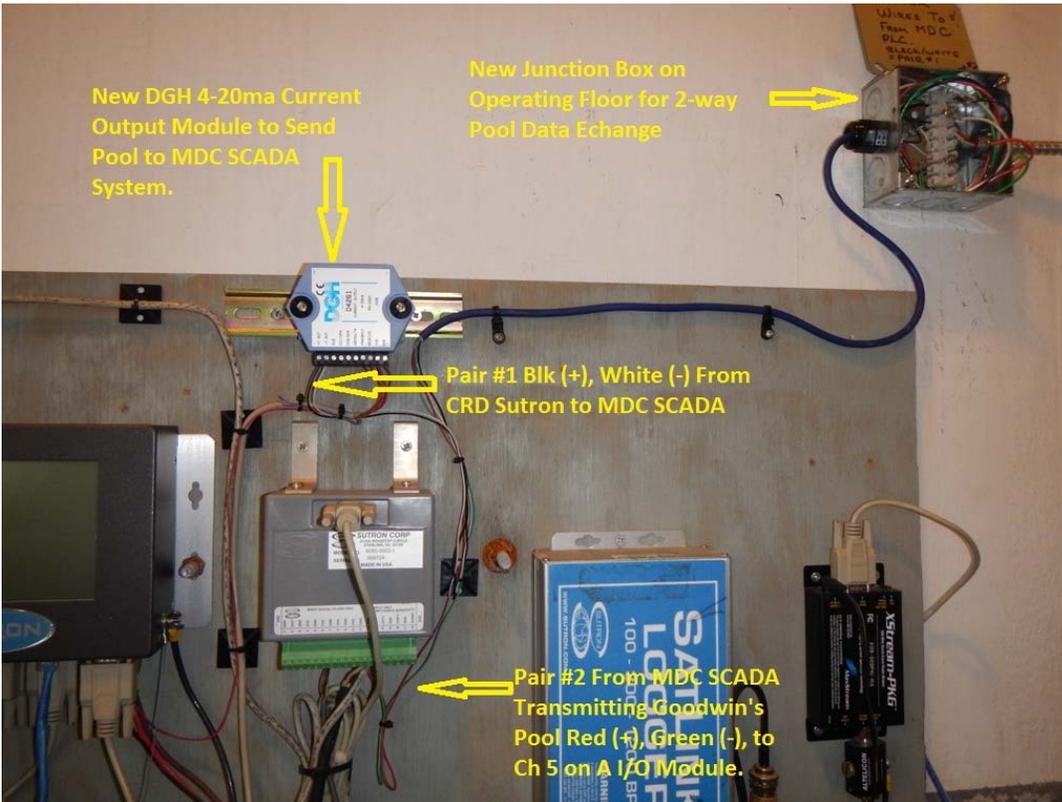
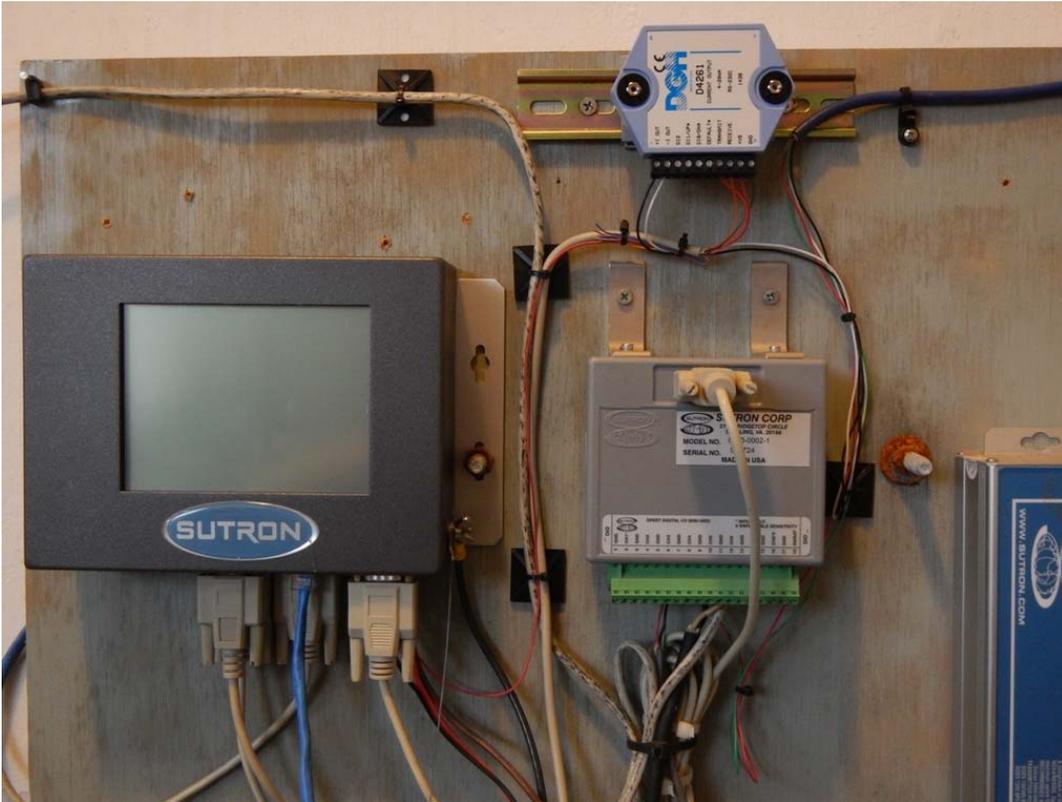
Name	Data
RndGroup	Random group 2 is not in alarm
TipBckt	DIO1 Ch: 6 = 1.800000 In; Q =
Temp	AIO1 Ch: 4 = 62.733291 Degree
<b>Pool</b>	<b>SDI 0, param 1 = 660.912049</b> SDI 0, param 2 = 17.800000 ;
RMYoung	Dir: AIO1 Ch: 2 = 360.000000 Speed: DIO1 Ch: 3 = 0.000000

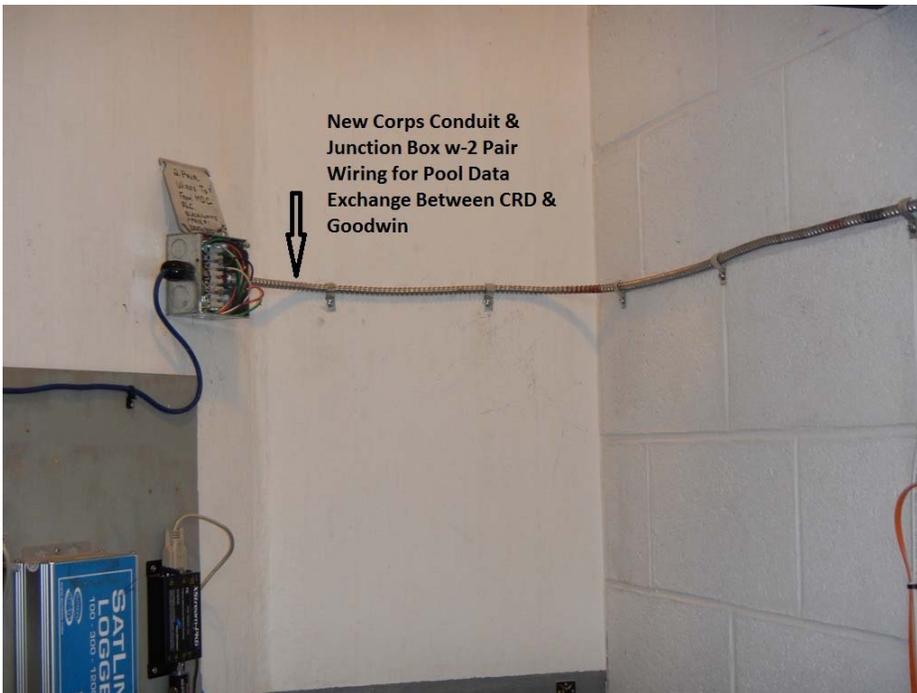
The screenshot shows the 'Data' tab of the XTerm REMOTE interface. The main display area contains a table with two columns: 'Name' and 'Data'. The 'DGH' entry is highlighted in black. Below the table are five buttons: 'Meas', 'Meas All', 'Cal...', 'Prop...', and 'SDI...'. On the right side, there are several control buttons and checkboxes: 'File Transfer', 'Set Clock', 'Connect', 'Upgrade', 'Status', 'Web Server' (unchecked), and 'Auto Update' (checked).

Name	Data
FSPZ1BATT	None = 12.632362 NA; Q = G
FSPZ2BATT	None = 12.931801 NA; Q = G
FSPZ3BATT	None = 12.705017 NA; Q = G
FSPZ4BATT	None = 12.352539 NA; Q = G
FSPZ5BATT	None = 0.000000 NA; Q = B
From Goodwin	AIO1 Ch: 5 = 634.067215 Ft S
<b>DGH</b>	<b>None = 8.647563 ; Q = G</b>

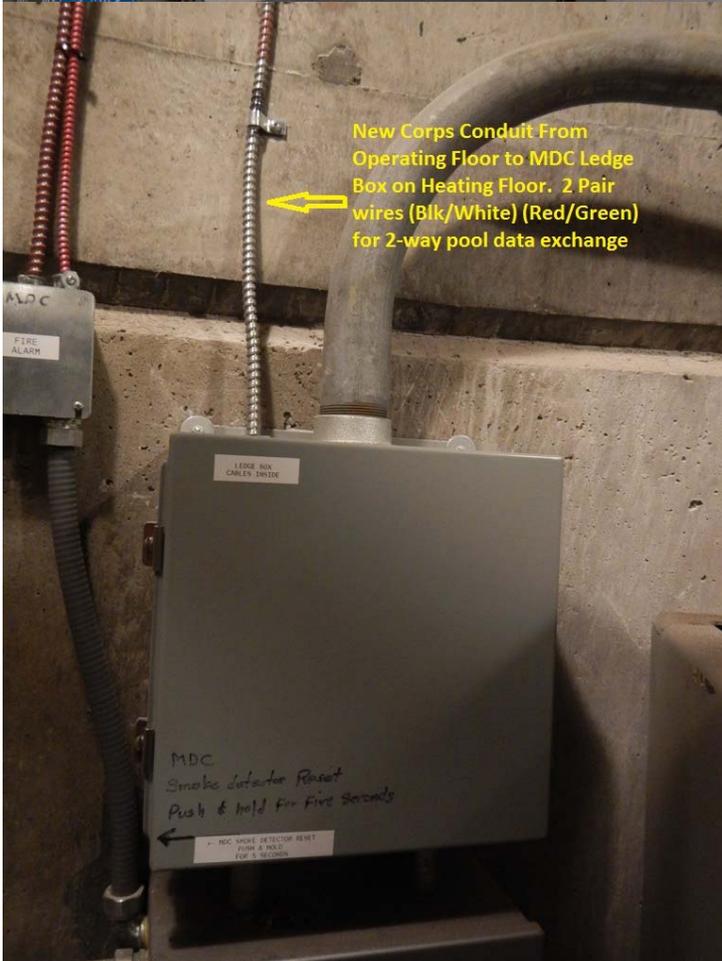
## APPENDIX 2.

### SYSTEM PHOTOS;

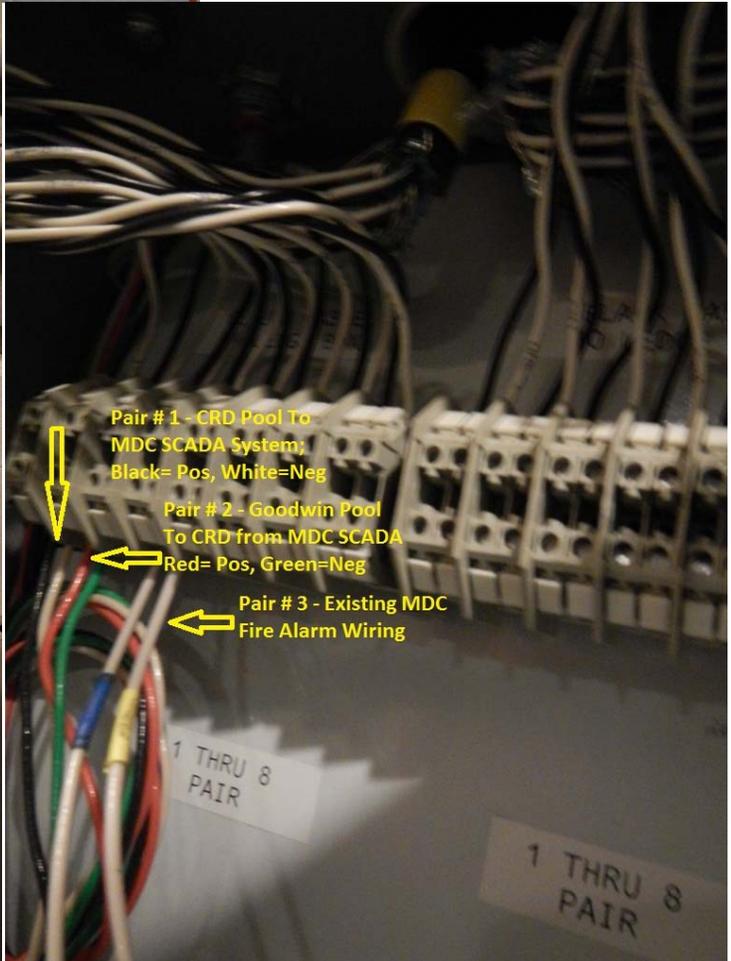




New Corps Conduit & Junction Box w-2 Pair Wiring for Pool Data Exchange Between CRD & Goodwin



New Corps Conduit From Operating Floor to MDC Ledge Box on Heating Floor. 2 Pair wires (Blk/White) (Red/Green) for 2-way pool data exchange



Pair # 1 - CRD Pool To MDC SCADA System, Black= Pos, White=Neg  
Pair # 2 - Goodwin Pool To CRD from MDC SCADA, Red= Pos, Green=Neg  
Pair # 3 - Existing MDC Fire Alarm Wiring

MDC  
Smoke detector Reset  
Push & hold for five seconds  
← MDC SMOKE DETECTOR RESET  
FLOOR 2 MDC  
FIVE 5 SECONDS

1 THRU 8  
PAIR

1 THRU 8  
PAIR

# APPENDIX 3;

# DGH MANUAL

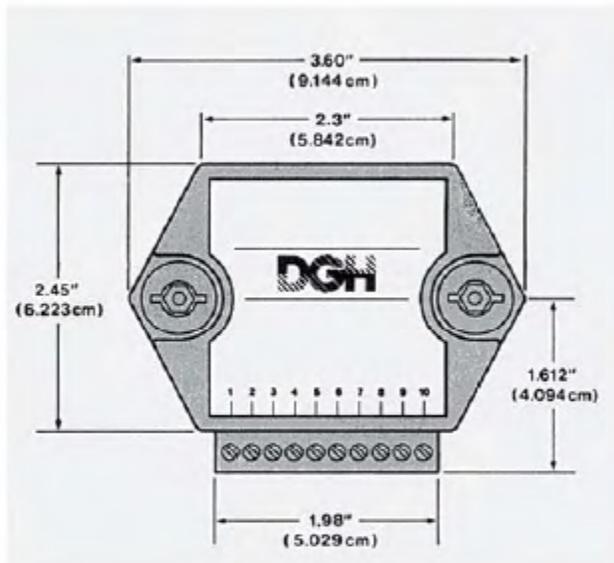


## APPLICATION NOTE

Use of DGH Output Module with Xlite/Xpert and DGH.sll

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## Use of DGH Output Module with Xlite/Xpert and DGH.sll



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## DGH DGH Analog Output (DGH)

### Inputs

Data

### Outputs

Data

### Wiring

\*Set com port to provide +12V out. Check current output limits from logger manual first, if pin 9 cannot supply required current, connect GND and +VS directly to +12V power source of data logger.

DGH	Com Port Pins (Com ports 2 and above)	Optionally through 6461-1239 RS-232 term board (Connector J2)
Transmit	2	2
Receive	3	3
GND	5*	5*
+VS	9*	8*

### Description

This block performs a calculation on its input and sends the computed value in a string through a com port. The calculation is as follows:

$$Y = ((\text{deltaOutput}/\text{deltaInput}) * (\text{Data} - \text{InputLow})) + \text{OutputLow}$$

Where deltaOutput is OutputHi - OutputLow and deltaInput is InputHi - InputLow.

The calculation allows you to scale input data to a range specific to the DGH module.

For example, if the input data were wired to an Air Temp block with a range of -40 to +100 C, the setup would be as follows:

For a 4-20ma module: INPUT HIGH: 100 INPUT LOW: -40 OUTPUT HIGH: 20 OUTPUT LOW: 4
-----------------------------------------------------------------------------------------------

For a 0-5000mV module (0-5V): INPUT HIGH: 100 INPUT LOW: -40 OUTPUT HIGH: 5000 OUTPUT LOW: 0
----------------------------------------------------------------------------------------------------------

You can even limit the output such that you direct a 4-20mA module to only generate 10-20mA if needed.

This block will work on any DGH output module that responds to the following output string:

\$1AO+0yyyy.yy followed by a CR



## APPLICATION NOTE

3

Use of DGH Output Module with Xlite/Xpert and DGH.sll

Where yyyy.yy is the Y value computed above, prefaced with a zero if less than 10. If the DGH module does not reply with a \* within 1 second, a warning is issued.

NOTE: Baud rate, and any other DGH setup, must be done before connecting to the data logger. Defaults of DGH at the time of print of this App note were for 300 baud and to not echo characters, this will allow one module to be connected to each com port with no further configurations needed.

Setting up a "Daisy-chain network" is possible, simply configure the network according to the DGH user manual and connect them to one com port. When setting up the blocks, set all of them to the same com port, with the appropriate addresses selected.

