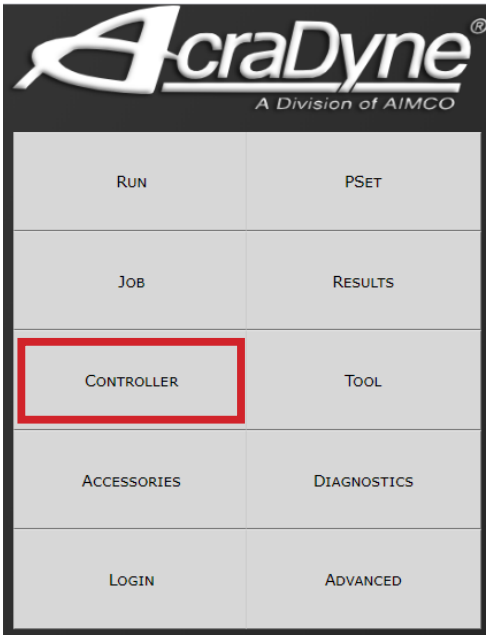
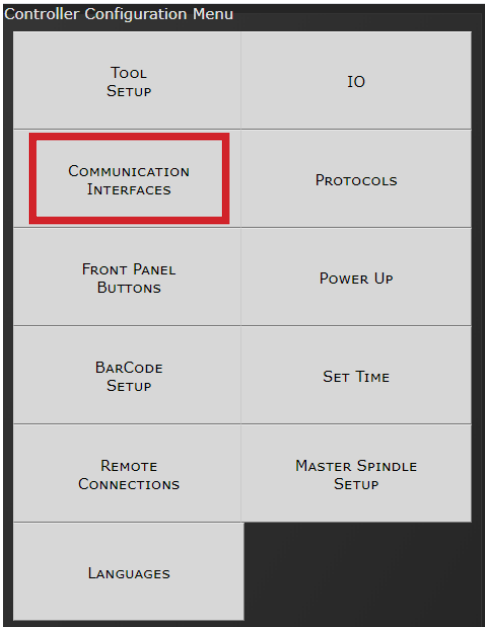
Gen IV Controller
Serial Port Instructions

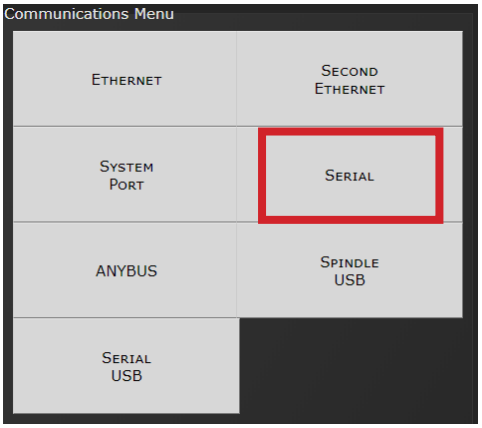
From the main menu, select Controller.



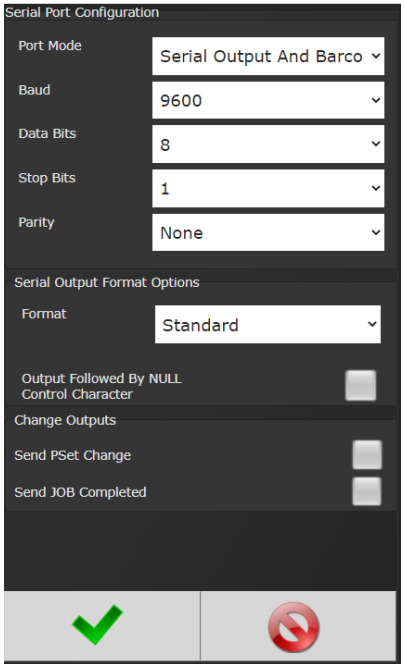
Select IO.



Select Serial.



Port Mode: The following modes are available:



- **Serial Output:** A serial data string will be Output in the following format after each rundown:
  - # P 1 BB TTT.T AAAA 0000 0000 J (Notice the decimal point next to the least significant T)
  - P: Parameter set ("1" – "9") for PSets 1-9, ("A" – "W") for PSets 10-32.
  - B: Job count
  - T: Torque result
  - A: Angle result
    - @=overall pass, H=low torque, I (eye)=high torque, J=low angle, K=high angle, G=fault during fastening
- **Barcode Reader:** See the Gen IV Controller User Manual for information on barcode setup.
- **Serial Output and Barcode Reader:** Select from dropdown and configure per hardware requirements
- **Open Protocol:** Select from dropdown and configure per hardware requirements
- **PFCS:** Select from dropdown and configure per hardware requirements

- **PI Line Control:** This is customer specific. Please reference PI Line Control Document on AIMCO Website/Product Manuals.

Baud: Serial ports can be configured for different baud rates available.
- 75, 110, 300, 1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200

Data Bits / Stop Bits / Parity: Configure per hardware requirements

Serial Output Formats:
- Standard
- Standard with PSet
- UEC Serial Modified
- Profibus
- UEC Serial
- CVS String

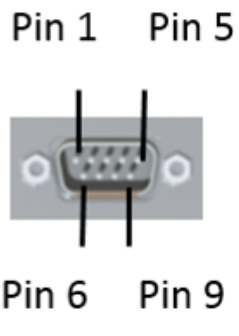
Output Followed by Null Control Character: Adds a one-byte NULL character to the end of the serial string. Needed by systems that use the NULL character to signify the end of the string. See following section for more information.

Send PSet Change:
- Sends a serial string any time the PSet is changed. String is in the form '%%CAN8X%%%%CAN4YNAC%%' where X is the previous pset and Y is the new pset. See following section for more information.

Send Job Completed:
- Sends a serial string containing "Job Completed" whenever a job has been completed.

Gen IV Serial Port Pin-out

Pin	Signal
1	
2	RX
3	TX
4	DTR
5	GND
6	
7	
8	
9	



Serial Output Format Options

Standard Output Format:
- O P HHHHH LLLLL TTTTT P HHHHH LLLLL AAAAA CR CR NULL*
  - O: Overall Pass/Fail
    - 'P' = Pass, 'F' = Fail
  - P: Torque Pass/Fail
    - * 'P' = Pass, 'F' = Fail
  - HHHHH: Torque High Limit
    - Units selected in the PSet X10
  - LLLLL: Torque Low Limit
    - * Units selected in the PSet X10
  - TTTTT: Torque Result
    - Units selected in the PSet X10
  - P: Angle Pass/Fail
    - 'P' = Pass, 'F' = Fail
  - HHHHH: Angle High Limit
    - Degrees
  - LLLLL: Angle Low Limit
    - Degrees
  - AAAAA: Angle Result
    - Degrees
  - CR: Carriage return control character
  - CR: Carriage return control character
  - NULL*: Null control character (*if option is selected)

Standard Output with Carriage Return, Line Feed and PSet Format:
- O P HHHHH LLLLL TTTTT P HHHHH LLLLL AAAAA 1 CR LF NULL*
  - O: Overall Pass/Fail
    - 'P' = Pass, 'F' = Fail
  - P: Torque Pass/Fail
    - 'P' = Pass, 'F' = Fail
  - HHHHH: Torque High Limit
    - Units selected in the PSet X10
  - LLLLL: Torque Low Limit
    - Units selected in the PSet X10
  - TTTTT: Torque Result
    - Units selected in the PSet X10
  - P: Angle Pass/Fail
    - 'P' = Pass, 'F' = Fail
  - HHHHH: Angle High Limit
    - Degrees
  - LLLLL: Angle Low Limit
    - Degrees
  - AAAAA: Angle Result
    - Degrees
  - 1: PSet
    - PSet('1' – '9') for PSets 1-9, ('A' – 'Z') for PSets 10-35
  - CR: Carriage return control character
  - LF: Line feed control character
  - NULL*: Null control character (*if option is selected)

UEC Serial Modified Format (matches some Gen4 earlier versions):
- # P 1 BB TTT.T AAAA PPPP 0000 J CR NULL*
  - #: Message Start
  - P: PSet
    - PSet('1' – '9') for PSets 1-9, ('A' – 'Z') for PSets 10-35
  - 1: Spindle Number (Always 1)
  - BB: Job Bolt Count
    - Total number of accepts during the Job
  - TTT.T: Torque Result
    - Units selected in the PSet
  - AAAA: Angle Result
    - Degrees
  - PPPP: Pulse Count
  - 0000
  - J: Judgment
    - '@' = Overall Pass, 'H' = Low Torque, 'I' = High Torque, 'J' = Low Angle, 'K = High Angle, 'G' = Fault During Fastening
  - CR: Carriage return control character
  - NULL*: Null control character (*if option is selected)

Profibus Output Format:

- %CAN 1 O P HHHHH LLLLL TTTTT P HHHHH LLLLL AAAAA NAC% CR LF NULL*
  - %CAN: Message Start
  - 1: PSet
    - * PSet('1' – '9') for PSets 1-9, ('A' – 'Z') for PSets 10-35
  - O: Overall Pass/Fail
    - * 'P' = Pass, 'F' = Fail
  - P: Torque Pass/Fail
    - * 'P' = Pass, 'F' = Fail
  - HHHHH: Torque High Limit
    - * Units selected in the PSet X10
  - LLLLL: Torque Low Limit
    - * Units selected in the PSet X10
  - TTTTT: Torque Result
    - * Units selected in the PSet X10
  - P: Angle Pass/Fail
    - 'P' = Pass, 'F' = Fail
  - HHHHH: Angle High Limit
    - Degrees
  - LLLLL: Angle Low Limit
    - Degrees
  - AAAAA: Angle Result
    - Degrees
    - NAC%: Message End
  - CR: Carriage return control character
  - LF: Line feed control character
  - NULL*: Null control character (*if option is selected)

UEC Serial Format (matches UEC 4800 and Gen3):

- # 1 P BB TTT.T AAAA PPPP 0000 J CR NULL*
  - #: Message Start
  - 1: Spindle Number (Always 1)
  - P: PSet
    - * PSet('1' – '9') for PSets 1-9, ('A' – 'Z') for PSets 10-35
  - BB: Job Bolt Count
    - * Total number of accepts during the Job
  - TTT.T: Torque Result
    - * Units selected in the PSet
  - AAAA: Angle Result
    - * Degrees
  - PPPP: Pulse Count
    - L = Low Pulse Count, M = High Pulse Count
  - 0000
  - J: Judgment
    - * '@' = Overall Pass, 'H' = Low Torque, 'I' = High Torque, 'J' = Low Angle, 'K = High Angle, 'G' = Fault During Fastening, '*' = None of these conditions apply
  - CR: Carriage return control character
  - NULL*: Null control character (*if option is selected)

'CSV String'

- S01,JB01, TTT.T, S, AAA.A, S, O, MM/DD/YYYY HH:MM:SS, VVV<CR><LF>
  - S01: Spindle number
  - JB01: Job number
  - TTT.T: Torque
  - S: Torque Status (A = OK, H = High, L = Low)
  - AAA.A: Angle
  - S: Angle Status (A = OK, H = High, L = Low)
  - O: Overall Status (A = OK, R = NOK)
  - MM: Month
  - DD: Day
  - YYYY: Year
  - HH: Hour
  - MM: Minute
  - SS: Second
  - VVV: 32 character barcode ID
  - <CR>: Carriage Return
  - <LF>: Line Feed

'Output Followed by NULL Character'.

- The NULL characters can be seen by using PUTTY and connecting to the controller in 'Raw' mode. Then set logging to log all output and check the log to see the NULL characters.

'Send PSet Change'.

- PSets up to 9 match the number, 10-35 are A-Z, greater than 35 is '*':
  - %%CAN8X%%%%CAN4YNAC%%
  - X: Last PSet
  - Y: New PSet

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