

## xP Expansion Point Assignments

xP Expansion Module points add to the existing points within the controller. The point assignment in the first xP module connected to a controller will be one more than the highest point number that exists in the controller.

The following is an example of a 920 with an AO2 and DI8 attached:

### i2/b3/b4920 Controller

Function	Point Assignment
Input 1 - 16	1 - 16
Smart Sensor Input 17	17
Output 1-8	1 - 8
Output 9-16	9-16

### xPAO2 Module

Function	Point Assignment
Output 1	17
Output 2	18

### xPDI8 Module

Function	Point Assignment
Input 1 - 8	18 - 25

Example:  
When adding 8 Digital inputs (xPDI8) to an 853 controller, the first point in the DI8 will be assigned point # 9 (one higher than the highest input (Airflow 1)).

Subsequent Expansion modules plugged into other expansion modules assume point assignments that are one higher than the previous module.

### FIRST EXPANSION POINT ASSIGNMENTS

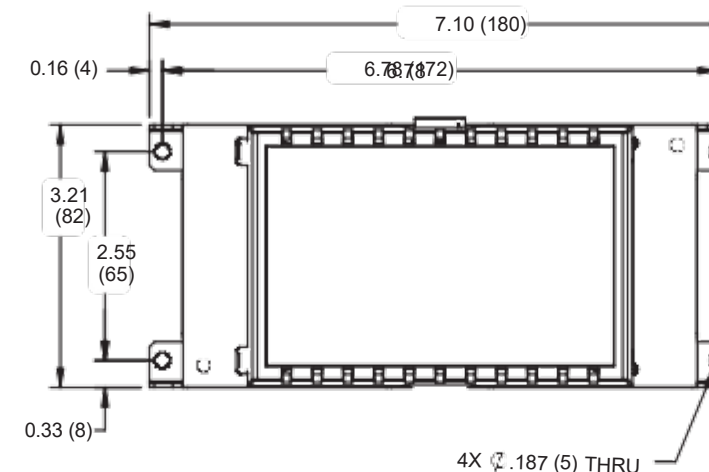
Controller	First Expansion Point	
	INPUT	OUTPUT
i2/b3810	10	9
i2/b3814	10	9
i2/b3850	9	6
i2/b3851	6	6
i2/b3853	9	6
i2/b3/b4920	18	17
bCX1 Series	1	1
ACX 5740 *	13	5
ACX 5720 *	7	3

\* The xP DO2, xP DO4, xP DI8, and xP UI4 can only be used with the ACX 57xx series for UL 294 and UL 1076 applications.



## xP Expansion Module Reference

30-3001-840 Rev F.1



Note: This equipment is intended for field installation within the UL Listed enclosure model UL-ENCL, used with the ACX 57xx series controller, for UL 294 and UL 1076.

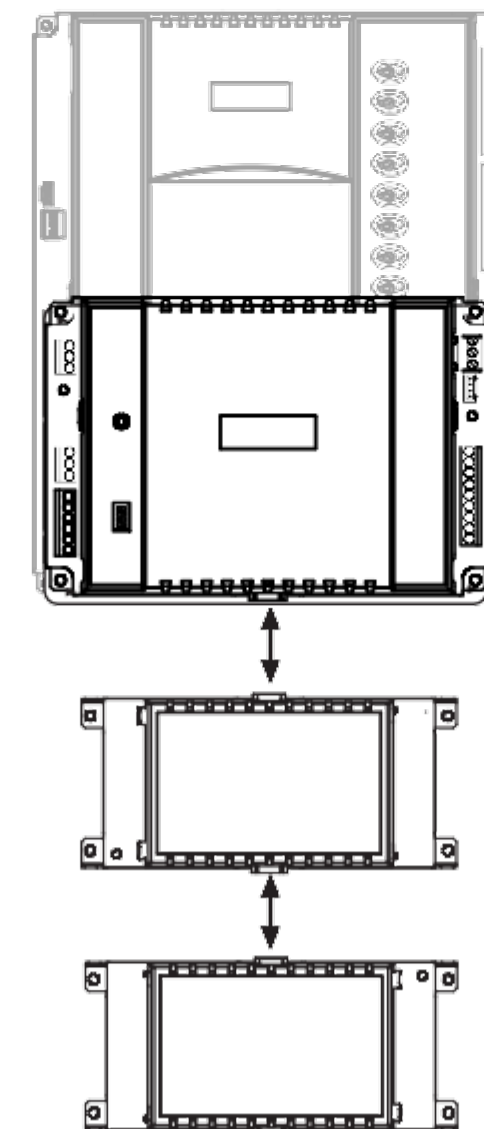
## xP Expansion Module Pin Assignments

xP AO2	xP AO4	xP DO2*	xP DO4*	xP DI8*	xP UI4*
1- I 1- V 1- GND	1- I 1- V 1- GND	1- NC 1- C 1- NO	1- NC 1- C 1- NO	RTN IN1 IN2	RTN IN1 IN2
2- I 2- V 2- GND	2- I 2- V 2- GND	2- NC 2- C 2- NO	2- NC 2- C 2- NO	RTN IN3 IN4	RTN IN3 IN4
	3- I 3- V 3- GND		3- NC 3- C 3- NO	RTN IN5 IN6	
	4- I 4- V 4- GND		4- NC 4- C 4- NO	RTN IN7 IN8	

\* The -S versions of these models are also acceptable.

**WARNING:** This product can expose you to chemicals including lead which is known to the State of California to cause cancer and which is known to the State of California to cause birth defects or other reproductive harm. For more information, go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)

**Caution:** Earth ground (⊕) must be connected to avoid module damage



### Expandable Controllers

i2810 Series  
i2850 Series  
i2920

b3810 Series  
b3850 Series  
b3920

b4920\*

bCX1 Series  
ACX 57xx Series

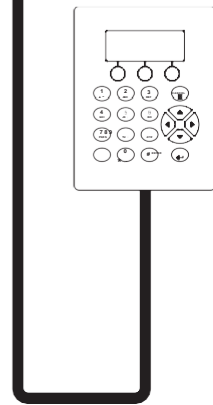
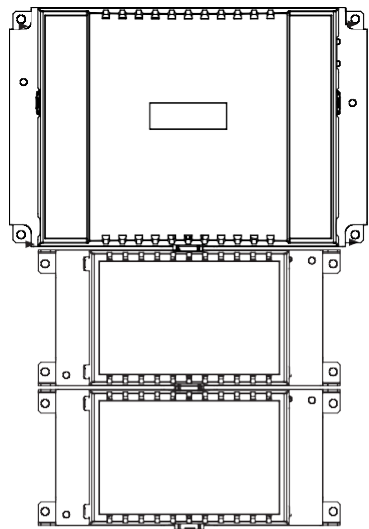
\* The b4920 does not support the xPUI4 module

### Modules Plug Together

Adding an expansion module to a controller may be done while the power is applied, **except for bCX 96xx and ACX 57xx models.**

Adding expansion modules to the bCX 96xx or the ACX 57xx controller requires the controller to be cold started before it will recognize the module.

# xP Expansion Module Combinations



## Expansion I/O Module Features

MODULE	POINTS	
	OUTPUTS Analog Digital	INPUTS Universal Digital
<b>Analog Output Only:</b> xPAO2 xPAO4	2 4	
<b>Digital Output Only:</b> xPDO2 (-S) xPDO4 (-S)		2 4
<b>Universal Input Only:</b> xPUI4		4*
<b>Digital Input Only:</b> xPDI8 (-S)		8

**Keypad/Display**  
xPDISPLAY 21 button, 4 x16 char display

\* xPUI4 input 4 may be configured as a high speed (140Hz) counter input.

### Basic Expansion Limitations

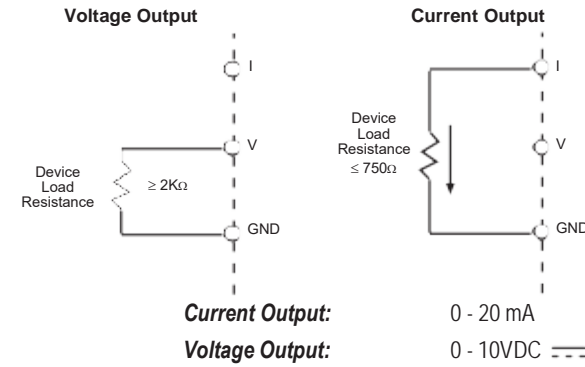
The number of expansion modules is limited by the controller firmware and the capacity of the power supply current available from the controller. The firmware supports a maximum of two modules plus the xPDisplay as long as the power consumption does not draw more current than the controller can supply.

i2/b3 or b4 Controllers: Maximum current available is 180 mA.  
bCX Series Controllers: Maximum current available is 400mA.  
ACX 57xx Series Controllers: Maximum current available is 400mA.

Module	# Channels	Current Draw @ 24VDC
xPAO2; Analog Output Module	2	80mA
xPAO4; Analog Output Module	4	120mA
xPDO2 (-S); Digital Output Module	2	60mA
xPDO4 (-S); Digital Output Module	4	100mA
xPUI4 (-S); Universal Input Module	4	50mA
xPDI8 (-S); Digital Input Module	8	25mA
xPDISPLAY; Keypad/Display Module	-	70mA

# xPAO2/xPAO4

## Analog Output Module



## Output Override Control

**OFF** The output is set to zero volts, zero mA. Programs and the setting on the potentiometer have no effect on the output Device when the switch is in this position.

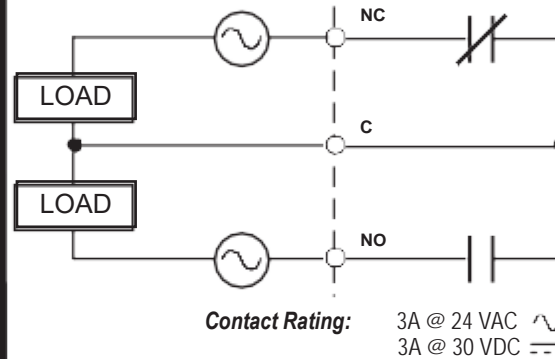
**AUTO** The analog signal is generated as a direct result of program control. The setting on the potentiometer has no effect on the output Device when the switch is in this position.

**MANUAL** The analog signal generated by the module is controlled manually by adjusting the potentiometer. Programs have no effect on the output when the switch is in this position.

This is a variable control that allows you to manually adjust the output of the analog signal when the override switch is in the MANUAL position. Insert the tip of a small screwdriver to use this control. Turning to the right (clockwise) increases the output. Turning left (counterclockwise) decreases the output.

# xPDO2 (-S) /xPDO4 (-S)

## Relay Output Module



## Output Override Control

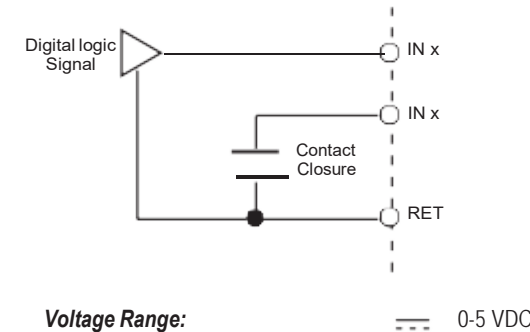
**OFF** The output relay is de-energized to an 'OFF' state manually by setting the switch to OFF. Programs have no effect on the output when the switch is in this position.

**AUTO** The action of the output relay is determined as a direct result of program control.

**ON** The output relay is energized to an 'ON' state manually by setting the switch to ON. Programs have no effect on the output when the switch is in this position.

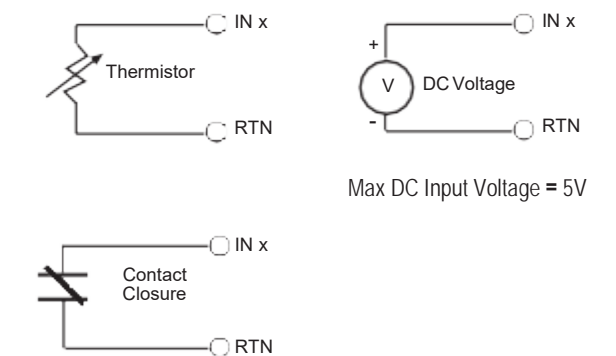
# xPDI8 (-S)

## Digital Input Module



# xPUI4 (-S)

## Universal Input Module



Universal inputs can also use contacts for counting. Inputs 1-3 support counting up to 4Hz (four contact closures per second). Input 4 can support counting up to 140Hz (140 closures per second).

### Minimum Pulse Width

Input 1-3 Min. ON/OFF time: 125 milliseconds.  
Input 4 Min. ON/OFF time: 3.57 milliseconds.



UL 916 Listed product for the United States and Canada, Open Energy Management Equipment.



UL 294 (Access Control System Unit Subassemblies for the United States) and UL 1076 (Proprietary Burglar Alarm System Unit Subassemblies for the United States) and C22.2 No. 205-M1983 (Signal Equipment for Canada)

**Note:** Refer to the UL Listed Access Control/Proprietary Burglar Alarm System's installation manual (the UL294 Access Control and UL 1076 Proprietary Burglar Alarm Systems Reference, 30-3001-504) for specific wiring, operation, and compatibility information.

**Note:** Only these products mentioned in this document are evaluated by UL for UL 294 and UL 1076 applications:

xP DO2  
xP DO4  
xP DI8  
xP UI4

The -S versions of these models (as well as the xP DB4) are also acceptable.

### UL 294 7th Edition Compliance

UL 294 Feature	Level
Destructive Attack	I
Line Security	I
Endurance (Access control)	IV
Standby Power	I