



# ***OPERATING MANUAL FOR CONTROL SYSTEM***

STREAMLINE CONTROLS



## **Business Mission**

***Streamline Controls Pvt. Ltd. (SCPL) is in the business of providing electronic & computerized automation solution for different industries so as to enhance the quality and productivity. Our motto is to provide indigenous, reliable and proven products & hence to ensure consistent performance. Our concept of value to the customers is to supply indigenous control systems designed with latest technology, developed through extensive R & D, incorporating state of art technology (world technology trend), manufactured under strictest quality control system and duly tested, at competitive prices, delivered in time and supported by service teams.***

***We feel it to be our responsibility to ensure that our business operates at a reasonable profit, as profit provides opportunity for R&D, growth and job security. Therefore we are dedicated to profitable growth - growth as a company and growth as an individual.***

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**Application parameters programming**

To access Application parameters programming, press SET PROG.

First line of the LCD display will show the name of the parameter –  
“Parameter 1“.

Second line of the LCD display will show the value of the parameter -  
“xxx”



- Use INC / DEC / SHIFT to update the value.
- Use SAVE to save the value of the current parameter & to switch to the next parameter.
- To exit the Application parameters programming, press SET PROG again.

**List of Programmable Parameters:**

**1. Application Parameters**

No	Parameter	Unit	Access Level	Description	Minm.	Maxm.
1	Hold Time – Sec	Seconds	User	Hold Time after all 4 cylinders retracted	00.0	999.9
2	Buzzer Time – Sec	Seconds	User	Buzzer On Time after Cylinder 4 Advance	00.00	999.9
3	Locking On	On/Off	User	When On, Cylinder 2 operation is bypassed.	Off	On
4	Max CycleTim – Sec	Seconds	User	Maximum Cycle Time allowed	0	999.9
5	Counter Reset	On/Off	User	Resets the counter	Off	On

**Program Mode Keyboard Operation:**

1. PROG: Online: To enter Application parameters programming.  
Program: To exit Application programming.
2. INC: Online: Not used  
Program: To increment the digit selected.  
Test: To select the next output to test.
3. DEC: Online: Not used  
Program: To increment the digit selected.  
Test: To select the previous output to test.
4. SHIFT: Online: Not used  
Program: To select the digit.  
Test: To change the display page.
5. NEXT: Online: To change the display page  
Program: To save the current parameter & to switch to next.  
Test: To turn on/off the selected digital output.
6. PREV: Online: To reset the interlock.  
Program: To save the current parameter & to switch to next.  
Test: Not used

**Manual Mode Key Operation:**

Sr No	Keys	Operation	Interlocks
1	Cyl1 Forward	Moves cylinder 1 forward till the key is pressed	No Interlocks
2	Cyl1 Bakward	Moves cylinder 1 backward till the key is pressed	Cyl4, Cyl3, Cyl2, all are in backward position.
3	Cyl2 Forward	Moves cylinder 2 forward till the key is pressed	Cyl1 in forward position
4	Cyl2 Bakward	Moves cylinder 2 backward till the key is pressed	Cyl4, Cyl3, all are in backward position.
5	Cyl3 Forward	Moves cylinder 3 forward till the key is pressed	Cyl1, Cyl2 in forward position

6	Cyl3 Bakward	Moves cylinder 3 backward till the key is pressed	Cyl4 in backward position.
7	Cyl4 Forward	Moves cylinder 4 forward till the key is pressed	Cyl1, Cyl2 , Cyl3 in forward position
8	Cyl4 Bakward	Moves cylinder 3 backward till the key is pressed	No Interlocks
9	Ejector Forward	Moves Ejector Forward till the key is pressed	Cyl1, Cyl2, Cyl3, Cyl4 all are in backward position
10	Ejector Backward	Moves Ejector Backward till the key is pressed	Cyl1, Cyl2, Cyl3, Cyl4 all are in backward position

**Mode Selection Key Operation:**

1. AUTO : Switches the controller to AUTO MODE.
2. TEST : Switches TEST Mode on/off.
3. Hand: Switches the controller to Manual Mode.

**Operating Sequence:**

When the AUTO MODE is turned on, & cycle start inputs is given, the controller checks for following interlocks:

- Cylinder 1 /2/3/4 in backward position
- Ejector in backward position

**STATION LOOP:**

Provided all the interlocks conditions are satisfied, the display shows AUTO.

- Cylinder 1 moves forward till PS1.
- Cylinder 2 moves forward till PS2
- Cylinder 3 moves forward till PS3 or LS3 whichever is earlier.
- Cylinder 4 moves forward till PS4.
- Buzzer on for set time
- Cylinder 4 moves backward till PS4 Backward
- Cylinder 3 moves backward till PS3 Backward
- Cylinder 2 moves backward till PS2 Backward
- Cylinder 1 moves backward till PS1 Backward
- Ejector moves forward till IP1
- Hold time for set time
- Ejector moves backward till IP2.
- Cycle ends

The controller continuously checks for following interlocks:

- Emergency Input
- Motor delta
- Cyl1 Forward / Backward simultaneous
- Cyl2 Forward / Backward simultaneous
- Cyl3 Forward / Backward simultaneous
- Cyl4 Forward / Backward simultaneous
- Ejector Forward/Backward
- Maxm cycle time over (only while cycle is running)

On any of above interlock, the controller will turn off all the outputs & switch to MANUAL Mode.

**20 x 4 LCD Display status:**

Description of Application Window:

**Line 1 :** Mode: MANUAL : The controller is in manual mode.

AUTO: The controller is in auto mode.

Lock On/Off: When Lock On is set, station 2 operation is bye passed.

**Line 2 :** Oil: Displays oil temperature.

Motr: Displays motor current in ampere.

**Line 3:** Ct: Cycle Time in seconds

Pcs: Counter

**Line 4:** Current process status display.

**Description of Status Window:**

Input: 0123456789ABCDEF : 0 to F shows status of 16 inputs, Present digit shows presence of input.  
Output:0123456789ABCDEF: 0 to F shows status of 16 outputs, present digit shows presence of output.

Various Status Messages:



Sr	Message
1	Wait Key Release
2	Cylinder1 Forward
3	Cylinder1 Backward
4	Cylinder2 Forward
5	Cylinder2 Backward
6	Cylinder3 Forward
7	Cylinder3 Backward
8	Cylinder4 Forward
9	Cylinder4 Backward
10	Ejector Forward
11	Ejector Backward
12	Motor On
13	Motor Off
14	Wait Cycle Start
15	Buzzer On Time
16	Hold Time

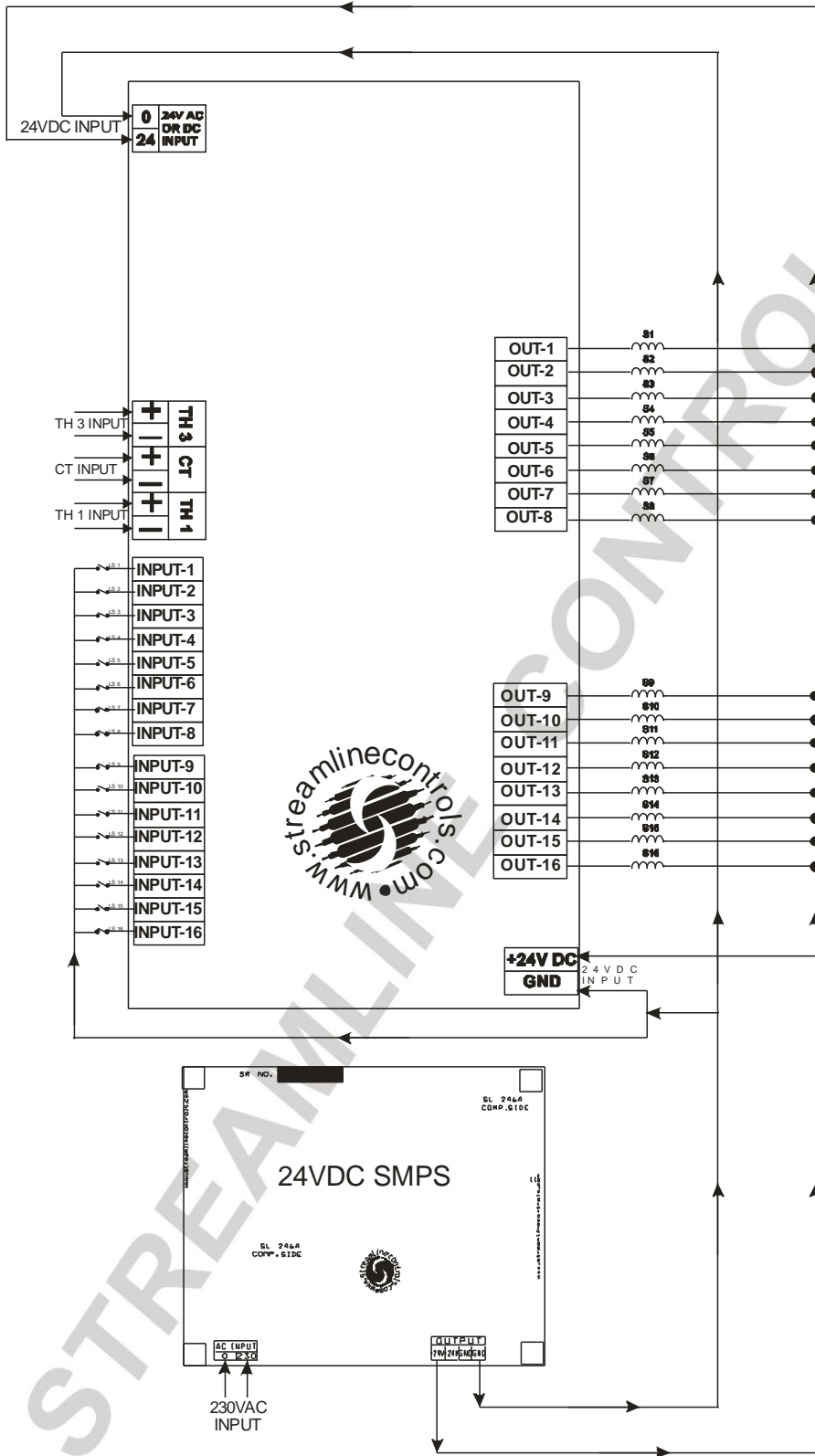
Various Interlock Messages:

Sr	Message
1	IL.Cyl1 Fwd End PS1
2	IL.Cyl1 Bak End LS1
3	IL.Cyl2 Fwd End PS2
4	IL.Cyl2 Bak End LS2
5	IL.Cyl3 Fwd End PS3
6	IL.Cyl3 Bak End LS3
7	IL.Cyl4 Fwd End PS4
8	IL.Cyl4 Bak End LS4
9	IL.Ejct Fwd End IP1
10	IL Ejct Bak End IP2
11	IL.Cyl4 Not Bak LS4
12	IL.Cyl3 Not Bak LS3
13	IL.Cyl2 Not Bak LS2
14	IL.Cyl1 Not Bak LS1
15	IL.Ejct Not Bak IP2
16	IL.Cyl1 Not Fwd PS1
17	IL.Cyl2 Not Fwd PS2
18	IL.Cyl3 Not Fwd PS3
19	IL.Cyl4 Not Fwd PS4
20	IL.Cyl1 Fwd/Bak On
21	IL.Cyl2 Fwd/Bak On
22	IL.Cyl3 Fwd/Bak On
23	IL.Cyl4 Fwd/Bak On
24	IL.Ejectr Fwd/Bak On
25	IL.Emergency
26	IL.Motor Not Delta
27	IL.Maxm CyTime Over

**Input & Output List :**

<b>INPUT &amp; OUTPUT LIST</b> <b>In Out List</b> <b>Product Code : ASPack 102/1.0/</b>					
Output List			Input List		
Sr No	Solenoid No	Name	Sr No	Input No	Name
S1	S1	Cylinder 1 Forward	I1	LS1	PS1 Forward
S2	S2	Cylinder 1 Backward	I2	LS2	LS1 Backward
S3	S3	Cylinder 2 Forward	I3	LS3	PS2 Forward
S4	S4	Cylinder 2 Backward	I4	LS4	PS2 Backward
S5	S5	Cylinder 3 Forward	I5	LS5	LS3
S6	S6	Cylinder 3 Backward	I6	LS6	PS3 Forward
S7	S7	Cylinder 4 Forward	I7	LS7	PS3 Backward
S8	S8	Cylinder 4 Backward	I8	LS8	PS4 Forward
S9	S9	Ejector Forward	I9	LS9	PS4 Backward
S10	S10	Ejector Backward	I10	LS10	IP1
S11	S11	Motor On	I11	LS11	IP2
S12	S12	C4 Complete Buzzer	I12	LS12	Emergency
S13	S13	Interlock	I13	LS13	Motor On Delta
S14	S14	Spare	I14	LS14	Cycle Start
S15	S15	Spare			
S16	S16	Spare			

Wiring Diagram :



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