

***OPERATING MANUAL
FOR CONTROL
SYSTEM OF BLOW
MOLDING MACHINE***

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.

For detailed inquiry and trouble shooting please contact :

***STREAMLINE CONTROLS PVT.LTD.
401/402,"meghansh"complex,opp.Oxford tower,
Gurukul road,Memnagar,Ahmedabad-380 052.
Gujrat,India.***

Ph.No. - (079) 30910812(0)

E-mail - customer care@streamlinecontrols.com

web - www.streamlinecontrols.com

PREFACE

BLOkon is multi functional controller incorporating micro controller, making it most versatile and cost effective solution optimally designed to best suit the automation needs of blow molding machines.

For better usage and maintenance of control system, detail study of this operating manual will be helpful.

We would be glad to assist your queries.

Specifications are subject to change without prior notice.

CONTENTS

- (A) SPECIFICATIONS**
- (B) INTRODUCTION**
- (C) FEATURES**
- (D) SCOPE OF SUPPLY**
- (E) PROGRAMMING OF THE SYSTEM**
- (F) OPERATING PANEL DESCRIPTION**
- (G) MANUAL MODE OF OPERATION**
- (H) PRECAUTIONS**
- (I) SETTING PROCEDURES**
- (J) LIST OF I/O AND O/P**
- (K) WIRING DIAGRAM AND BLOCK DIAGRAM**
- (L) DESCRIPTION OF TEST MODES :**
 - (1) INPUT**
 - (2) OUTPUT**
 - (3) ANALOG OUTPUT**
- (M) INTERLOCK**

(A) SPECIFICATIONS:

Input

Power:

Voltage	--	230Vac ± 10%
Frequency	--	47-53Hz
Consumption	--	30VA Max.

Control:

Thermocouple	--	J / K type - Isolated
Proximity/ Limit switches	--	PNP (NO type) 10-30 VDC - 50mA Max.

Output

For Solenoids	--	For 230VAC - 2Amp. Max. - SSR Output
	--	For 24VDC - 2 Amp. Max. – MOSFET Driver Output
For Heater	--	SSR Output - 2 Amp max 230Vac contactors

Environment

Temperature	--	0°C to 55°C
Humidity	--	5 to 95% RH non-condensing

(B) INTRODUCTION

- BLOkon is a complete proven & reliable control system for Blow Molding Machine.
- System consists of three units.
 - (1) Display unit
 - (2) Input/ Output drivers
 - (3) Transformer/ C.V.T. (Optional)

(1) Operating Panel:

This is small light weight Display unit with soft touch keypad & LCD display. This unit is connected to Input/Output drivers Via 25core factory assembled flexible cable.

(2) Input/Output Drivers:

Following type of cards will be provided depending on the Input/ Output requirement of the machine.

Junction card

- Junction card is junction between all Input/Output driver cards & Display unit.
- Require Power supply for driver cards and display unit is provided by this junction card.
- Thermocouples for measuring barrel temperature is also connected to this card.

Digital Input Card (Standard for 2, available extend to 6)

All the inputs to the system are connected to digital input cards. Each input card accepts 8nos. of digital inputs.

Digital Output Card (Standard for 2, available extend to 6)

All the outputs of the system are connected to digital output cards. Each output card is provided with 8nos. of digital output.

Heater Output Card (Standard for 1, available extend to 2)

All the Heater controlling contactors are connected to heater output card. Each card is provided with 8nos. of outputs.

Analog Output Card(Standard for 2, available extend to 3)

Analog output driver card is driver unit that gives proportional output to drive the Proportional valve. One card is able to drive only one Proportional valve.

Analog Input Card (Standard for 2, available extend to 2)(Optional)

Analog Input Card is 4 Channel A/D voltage input interface card.

This package has some obvious advantages over existing conventional Electrical Systems. This occupies lesser space than conventional system. The simplicity of wiring from solenoids to systems or limit switches to system and from Thermocouples to system make it easier and less time consuming for commissioning. This system has no moving parts, so periodical maintenance is drastically reduced and therefore reliability is definitely improved. Function like Heating ON-OFF and Cycle Time Interlock makes this system much more superior than the conventional system.

(C) FEATURES

- Inherently reliable Micro controller based technology 8051 / 20MHz CPU.
- Offers up to 64 digital inputs, Up to 64 digital outputs, 8zone time Proportional controlled Temperature Controllers, timers, Extensive feather touch membrane keypad for user interface for manual/Set/fully auto functions of the machine.
- Latest E2PROM Technology ensures security of programmed parameters.
- User friendly programming through an extensive membrane keypad for easy operator interface (Details of manual mode operations available is appended on separate sheet)
- Five digit counters to count Number of Pieces.
- Facility for counting cycle time helpful in production analysis.
- Thermocouple "Open" & "Reverse" conditions are self detected and are displayed as "Opn" and "rev" respectively.
- Programmable High & Low limits for all temperature zones.
- Automatic cold junction compensation for Thermocouple inputs.
- Inbuilt interlocks for Low & High temperature, Right and/or Left doors, Maximum Cycle Time, Emergency stop, Hydro motor overload and many others.
- Built in 25 nos. mold memory.
- Operating Input/Output diagnosis.

(D) SCOPE OF SUPPLY

SCPL to provide:

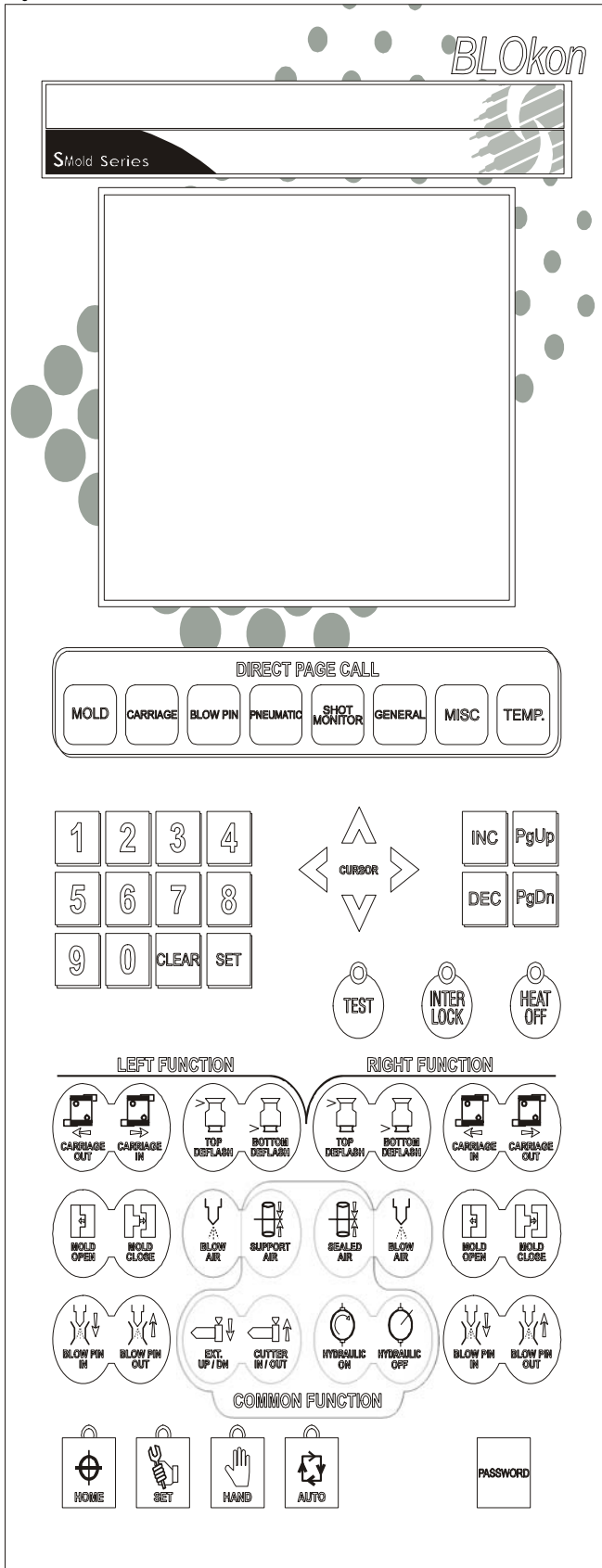
- 1 Hand Panel.
- 2 Input & Output cards.
- 3 Inter connecting cables.
- 4 Operating Manual.

(E) PROGRAMMING OF THE SYSTEM

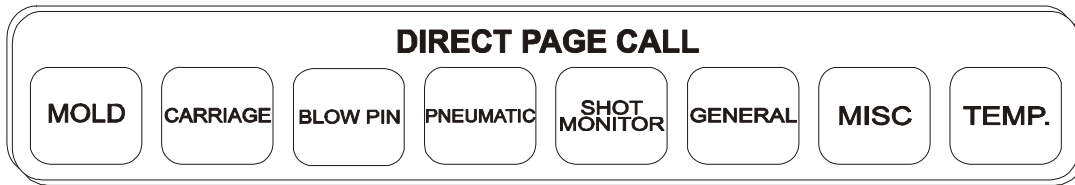
The system will be programmed to suit your application by us.

(F)Operating Panel Description :

Front key board Sticker



1. DIRECT PAGE CALL



- **MOLD** MOLD KEY
MOLD CLOSE & OPEN PAGE

- **CARRIAGE** CARRIAGE KEY
CARRIAGE IN & OUT PAGE

- **BLOW PIN** BLOW PIN KEY
BLOW PIN IN & OUT PAGE

- **PNEUMATIC** PNEUMATIC
PNEUMATIC PAGE

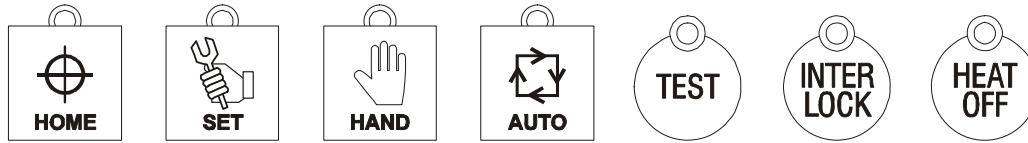
- **SHOT MONITOR** SHOT MONITOR
SHOT MONITOR PAGE

- **GENERAL** GENERAL
GENERAL PAGE

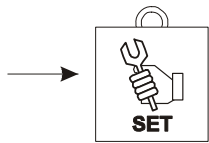
- **MISC** MISC.
MISC. PAGE

- **TEMP.** TEMP.
TEMPERATURE PAGE

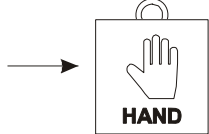
2. OPERATING MODE SELECTOR



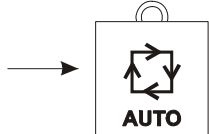
HOME KEY: Push for select home function.
In this mode all function are take their define home position on set mode pressure & flow.



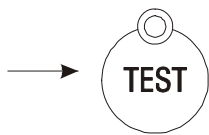
SET KEY: Push for select mold adjustment function On/Off.
In this mode all function are work on set mode pressure & flow



HAND KEY: Operating machine by hand key.



AUTO KEY: Machine operating at fully automatic production mode.
Restarted by cycle delay timer.



TEST KEY: Push this key to operate test mode.
In this mode no any other function work.
LED glow at the time of operate test mode

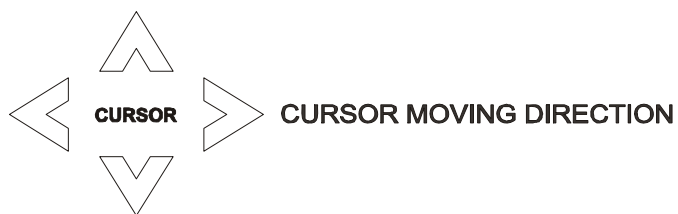


INTERLOCK KEY: Push this key to reset any interlock message in all mode.
LED glow at the time of interlock.

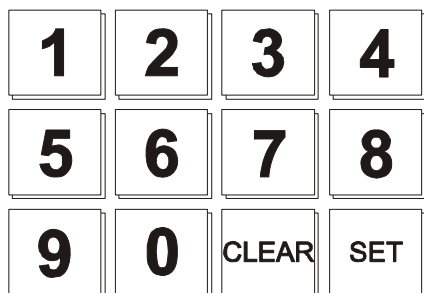


HEAT OFF KEY: Push this key to start or stop the heating. LED not glow when heating is on.

3. CURSOR KEYS



4. NUMERIC KEYS



→ **0** → **9** 0-9 Numerals key for change parameter value.

→ **CLEAR** Clearing input data to ZERO

→ **SET** Data input confirmation key

→ **INC** To increase parameter value in any page.
Function On/Off key.

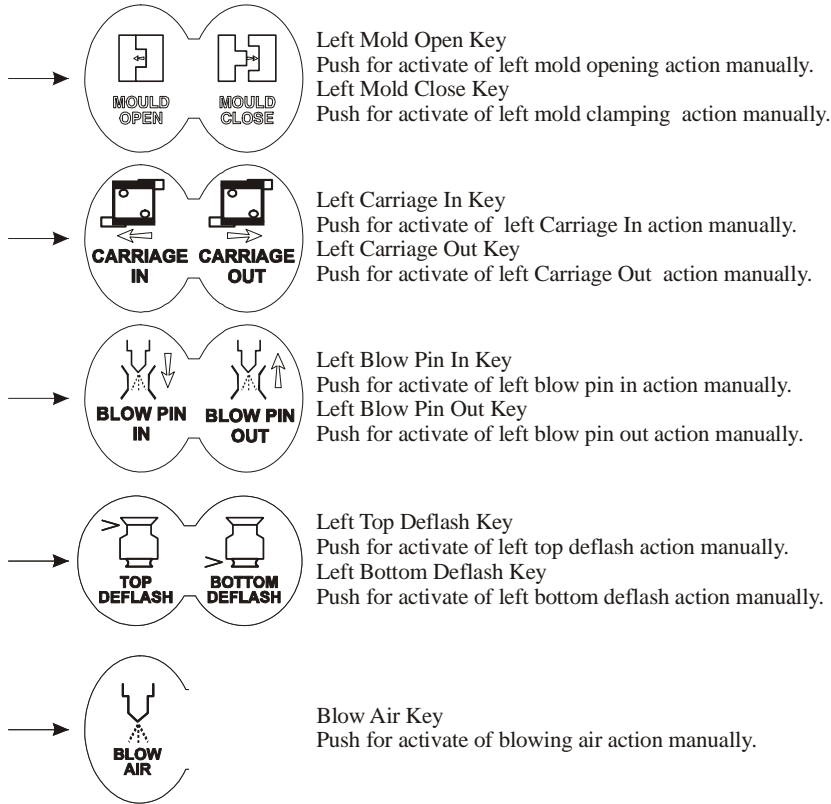
→ **DEC** To decrease parameter value in any page.
Function On/Off key.

→ **PgUp** Spare

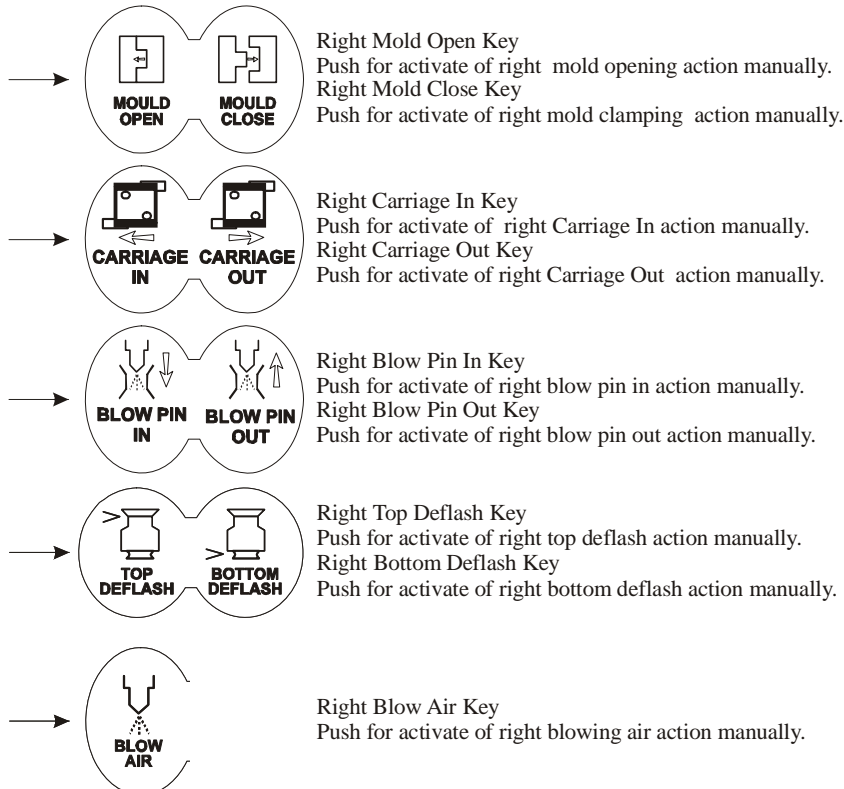
→ **PgDn** To select next page in test mode.

5. MANUAL OPERATION KEYS

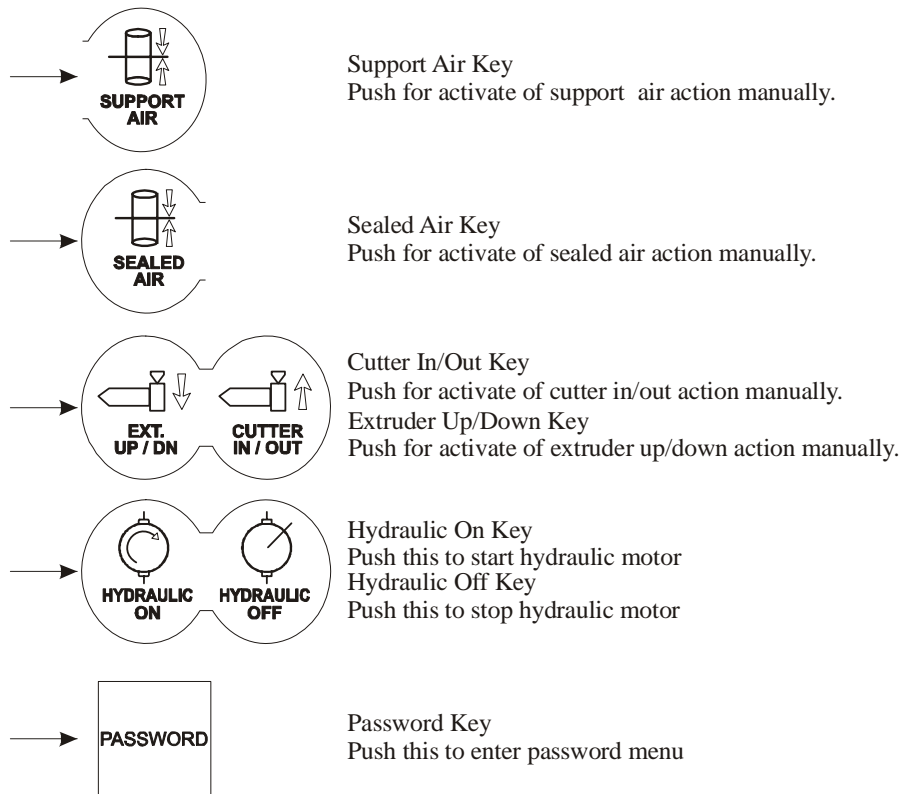
Left Station



Right Station



6. COMMON OPERATION KEYS



(G) MANUAL MODE OF OPERATIONS

1. Left Mould Open
2. Left Mould Close
3. Left Carriage In
4. Left Carriage Out
5. Left Blow Pin In
6. Left Blow Pin Out
7. Left Blow Air
8. Left De flash Top
9. Left De flash Bottom
10. Right Mould Open
11. Right Mould Close
12. Right Carriage In
13. Right Carriage Out
14. Right Blow Pin In
15. Right Blow Pin Out
16. Right Blow Air
17. Right De flash Top
18. Right De flash Bottom
19. Sealed Air
20. Support Air
21. Extruder Up/Down
22. Cutter In/Out
23. Hydraulic Motor On
24. Hydraulic Motor Off

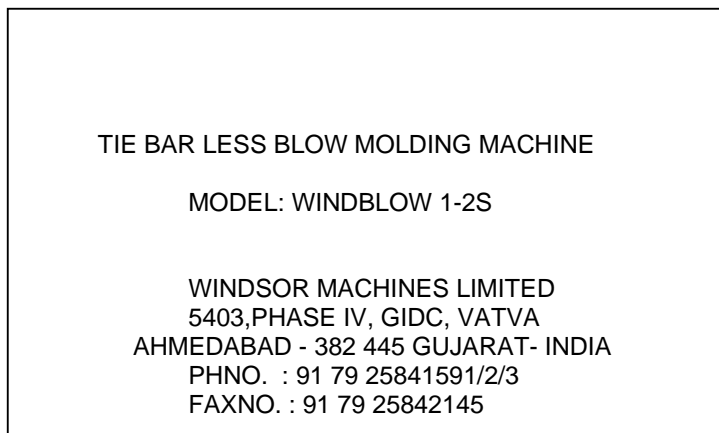
(H) PRECAUTIONS

To prevent damage from human and machine, please obey the following safety caution.





- Equipment must be operating under correct power.(Install a voltage stabilizer while need)
- Earth terminal must be connected to qualified terminal.
- All electrical elements with EARTH terminal, it is necessary for users to connect with the EARTH terminal.
- The high power cables should be separated from the low power cables to avoid interfere.
- To prevent fire or hazard shock, do not expose the unit to rain or moistly place.
- Please understanding the operating process before use.
- When system shut down, wait 10seconds for re-start.
- Thermocouples used for this system must be isolated(ungrounded) Fe/k type.
- The wiring of each zone starting from thermocouple of heater must be verified.
For ex: first zone thermocouple must be connected to first channel of the system and heater of first zone must be connected to heater 1of the system.
- The limit switch and solenoids wiring must be done as per given wiring diagram.
- If the proximity switches are used then use only PNP-NO type proximity switches.

(I) SETTING PROCEDURES

Welcome Screen



(1) MOLD PAGE:

SET MOLD	
(1)	Press set MOLD key once.
(2)	Now MOLD<1/1> page is displayed on screen.
(3)	Select required parameter position using CURSOR     keys.
(4)	Set required value using 0-9 numerical keys.
(5)	Use INC or DEC key to on or off any function.
(6)	On pressing SET key the set value will be saved.
(7)	Press MOLD key once again to exit or if there is no change will be done within few Second display is automatically exit from open menu. Mold page and list of parameter is given below.

MOLD PAGE

MOLD:<1/1>				
FUNCTION	LEFT		RIGHT	
	%PRES	%FLOW	%PRES	%FLOW
MOPEN FAST	XXX	XXX	XXX	XXX
MOPEN SLOW	XXX	XXX	XXX	XXX
MCLOS FAST	XXX	XXX	XXX	XXX
MCLOS SLOW	XXX	XXX	XXX	XXX
TONNAGE	XXX	XXX	XXX	XXX
TONNAGE>ON/OFF TIME:LT>XX.XX			RT>XX.XX	SEC

List Of Programmable Parameter:

NO.	Message	Description	Common		Left Station		Right Station		Level
			Parameter Type	Range	Parameter Type	Range	Parameter Type	Range	
1	MOPEN FAST	Mold Open Fast			Pressure	0-100%	Pressure	0-100%	User
					Flow	0-100%	Flow	0-100%	User
2	MOPEN SLOW	Mold Open Slow			Pressure	0-100%	Pressure	0-100%	User
					Flow	0-100%	Flow	0-100%	User
3	MCLOS FAST	Mold Close Fast			Pressure	0-100%	Pressure	0-100%	User
					Flow	0-100%	Flow	0-100%	User
4	MCLOS SLOW	Mold Close Slow			Pressure	0-100%	Pressure	0-100%	User
					Flow	0-100%	Flow	0-100%	User
5	TONNAGE	Tonnage			Pressure	0-100%	Pressure	0-100%	User
					Flow	0-100%	Flow	0-100%	User
6	TONNAGE>	Tonnage	Function	ON/ OFF					Supervisor
7	TIME:LT>	Tonnage Time Left			Timer	0-99.99 Sec			
8	RT>	Tonnage Time Right					Timer	0-99.99 Sec	

(2) CARRIAGE PAGE 1:

SET CARRIAGE

- (1) Press set **CARRIAGE** key once.
- (2) Now CARRIAGE<1/2> page is displayed on screen.
- (3) Select required parameter position using CURSOR keys.
- (4) Set required value using 0-9 numerical keys.
- (5) Use **INC** or **DEC** keys to on or off any function.
- (6) On pressing **SET** key the set value will be saved.
- (7) Press CARRIAGE key twice again to exit or if there is no change will be done within few
Second display is automatically exit from carriage menu.
Carriage page and list of parameter is given below.

CARRIAGE PAGE 1:

CARRIAGE:<1/2>





FUNCTION	LEFT		RIGHT	
	%PRES	%FLOW	%PRES	%FLOW
CAR. IN FAST	XXX	XXX	XXX	XXX
CAR. IN SLOW	XXX	XXX	XXX	XXX
CAR.OUT FAST	XXX	XXX	XXX	XXX
CAR.OUT SLOW	XXX	XXX	XXX	XXX
CAR.OUT DELY:LT TM> XX.XX			RT TM> XX.XX	SEC

List of Programmable Parameter:

NO.	Message	Description	Common		Left Station		Right Station		Level
			Parameter Type	Range	Parameter Type	Range	Parameter Type	Range	
1	CAR. IN FAST	Carriage in fast			Pressure	0-100%	Pressure	0-100%	User
					Flow	0-100%	Flow	0-100%	User
2	CAR. IN SLOW	Carriage in slow			Pressure	0-100%	Pressure	0-100%	User
					Flow	0-100%	Flow	0-100%	User
3	CAR. OUT FAST	Carriage out fast			Pressure	0-100%	Pressure	0-100%	User
					Flow	0-100%	Flow	0-100%	User
4	CAR. OUT SLOW	Carriage out slow			Pressure	0-100%	Pressure	0-100%	User
					Flow	0-100%	Flow	0-100%	User
5	CAR.OUT DELY	Carriage out delay			Timer	0-99.99 Sec	Timer	0-99.99 Sec	User

(2) CARRIAGE PAGE 2:

SET CARRIAGE

- (1) Press set **CARRIAGE** key twice.
- (2) Now CARRIAGE<2/2> page is displayed on screen.
- (3) Select required parameter position using CURSOR     keys.
- (4) Set required value using 0-9 numerical keys.
- (5) Use **INC** or **DEC** keys to on or off any function.
- (6) On pressing **SET** key the set value will be saved.
- (7) Press CARRIAGE key once again to exit or if there is no change will be done within few Second display is automatically exit from carriage menu.
Carriage page2 and list of parameter is given below.

CARRIAGE PAGE 2:

```

CARRIAGE:<2/2>

FUNCTION
                DELAY
WAIT AFTER CAR.IN   XX.XX   SEC
WAIT AFTER CAR.OUT  XX.XX   SEC

ANALOG DELAY   XX.XX SEC
    
```

List of Programmable Parameter:

NO.	Message	Description	Common		Left Station		Right Station		Level
			Parameter Type	Range	Parameter Type	Range	Parameter Type	Range	
1	WAIT AFTER CAR.IN	Delay after carriage in	Timer	0-9.99 Sec					Supervisor
2	WAIT AFTER CAR.OUT	Delay after carriage out	Timer	0-9.99 Sec					Supervisor
3	ANALOG DELAY	Delay between Digital & Analog Outputs	Timer	0-9.99 Sec					Supervisor

(3) PNEUMETIC PAGE 1:

SET PNEUMETIC

- (1) Press set **PNEUMETIC** key once.
- (2) Now PNEUMETIC<1/2> page is displayed on screen.
- (3) Select required parameter position using CURSOR keys.
- (4) Set required value using 0-9 numerical keys.
- (5) Use **INC** or **DEC** keys to on or off any function.
- (6) On pressing **SET** key the set value will be saved.
- (7) Press PNEUMETIC key twice again to exit or if there is no change will be done within few
Second display is automatically exit from pneumatic menu.
Pneumatic page1 and list of parameter is given below.

PNEUMETIC PAGE 1:





PNEUMETIC:<1/2>

FUNCTION	LEFT		RIGHT		
	SEC	DELY	TIME	DELY	TIME
BLOW AIR	XXX.XX	XXX.XX	XXX.XX	XXX.XX	XXX.XX
DFLS TOP	XXX.XX	XXX.XX	XXX.XX	XXX.XX	XXX.XX
DFLS BOT	XXX.XX	XXX.XX	XXX.XX	XXX.XX	XXX.XX
EJCT AIR	XXX.XX	XXX.XX	XXX.XX	XXX.XX	XXX.XX
EXHAUST	XXX.XX	XXX.XX	XXX.XX	XXX.XX	XXX.XX
PARISON	XXX.XX	XXX.XX	XXX.XX	XXX.XX	XXX.XX

List of Programmable Parameter:

NO.	Message	Description	Common		Left Station		Right Station		Level
			Parameter Type	Range	Parameter Type	Range	Parameter Type	Range	
1	BLOW AIR	Blow air time			Timer	0-100.00 Sec	Timer	0-100.00 Sec	User
2	DFLS TOP	Deflash top time			Timer	0-100.00 Sec	Timer	0-100.00 Sec	User
3	DFLS BOT	Deflash bottom time			Timer	0-100.00 Sec	Timer	0-100.00 Sec	User
4	EJCT AIR	Eject air time			Timer	0-100.00 Sec	Timer	0-100.00 Sec	User
5	EXHAUST	Exhaust time			Timer	0-100.00 Sec	Timer	0-100.00 Sec	User
6	PARISON	Parision time			Timer	0-100.00 Sec	Timer	0-100.00 Sec	User

(3) PNEUMATIC PAGE 2:

SET PNEUMATIC	
(1)	Press set PNEUMATIC key once.
(2)	Now PNEUMATIC<2/2> page is displayed on screen.
(3)	Select required parameter position using CURSOR     keys.
(4)	Set required value using 0-9 numerical keys.
(5)	Use INC or DEC keys to on or off any function.
(6)	On pressing SET key the set value will be saved.
(7)	Press PNEUMATIC key once again to exit or if there is no change will be done within few Second display is automatically exit from pneumatic menu. Pneumatic page2 and list of parameter is given below.





PNEUMATIC PAGE 2:

PNEUMATIC:<2/2>			
ENABLE			
DFLS TOP>	OFF	PARISON STEP1>	XXX
DFLS BOT>	OFF	PARISON STEP2>	XXX
PARISON >	OFF	PARISON STEP3>	XXX
		PARISON STEP4>	XXX
CYCLE DELAY> LT> XX.XX RT> XX.XX SEC			

List of Programmable Parameter:

NO.	Message	Description	Common		Left Station		Right Station		Level
			Parameter Type	Range	Parameter Type	Range	Parameter Type	Range	
1	DFLS TOP	Deflash top on/off	Function	On/Off					User
2	DFLS BOT	Deflash bottom on/off	Function	On/Off					User
3	PARISON	Parision on/off	Function	On/Off					User
4	CYCLE DELAY> LT>	Left cycle delay time			Timer	0-99.00 Sec			User
5	RT>	Right cycle delay time					Timer	0-99.00 Sec	User
6	PARISON STEP1	Parison % Sharing Step 1	Function	0-100 %					User
7	PARISON STEP2	Parison % Sharing Step 2	Function	0-100 %					User
8	PARISON STEP3	Parison % Sharing Step 3	Function	0-100 %					User
9	PARISON STEP4	Parison % Sharing Step 4	Function	0-100 %					User

(4) BLOW PIN PAGE 1:

SET BLOW PIN	
(1)	Press set BLOW PIN key once.
(2)	Now BLOW PIN <1/2> page is displayed on screen.
(3)	Select required parameter position using CURSOR     keys.
(4)	Set required value using 0-9 numerical keys.
(5)	Use INC or DEC keys to on or off any function.
(6)	On pressing SET key the set value will be saved.
(7)	Press BLOW PIN key twice again to exit or if there is no change will be done within few Second display is automatically exit from blow pin menu. Blow pin page1 and list of parameter is given below.

BLOW PIN PAGE 1:





BLOW PIN:<1/2>				
FUNCTION	LEFT		RIGHT	
	%PRES	%FLOW	%PRES	%FLOW
BLPIN IN FAS	XXX	XXX	XXX	XXX
BLPIN IN INT	XXX	XXX	XXX	XXX
BLPIN IN SLO	XXX	XXX	XXX	XXX
BLPIN OT FAS	XXX	XXX	XXX	XXX

List of Programmable Parameter:

NO.	Message	Description	Common		Left Station		Right Station		Level
			Parameter Type	Range	Parameter Type	Range	Parameter Type	Range	
1	BLPIN IN FAS	Blow pin in fast			Pressure	0-100%	Pressure	0-100%	User
					Flow	0-100%	Flow	0-100%	User
2	BLPIN IN INT	Blow Pin In Intermediate			Pressure	0-100%	Pressure	0-100%	User
					Flow	0-100%	Flow	0-100%	User
3	BLPIN IN SLO	Blow Pin In Slow			Pressure	0-100%	Pressure	0-100%	User
					Flow	0-100%	Flow	0-100%	User
4	BLPIN OT FAS	Blow Pin Out Fast			Pressure	0-100%	Pressure	0-100%	User
					Flow	0-100%	Flow	0-100%	User

(4) BLOW PIN PAGE 2:

SET BLOW PIN

- (1) Press set **BLOW PIN** key once.
- (2) Now BLOW PIN <2/2> page is displayed on screen.
- (3) Select required parameter position using CURSOR     keys.
- (4) Set required value using 0-9 numerical keys.
- (5) Use **INC** or **DEC** keys to on or off any function.
- (6) On pressing **SET** key the set value will be saved.
- (7) Press BLOW PIN key once again to exit or if there is no change will be done within few Second display is automatically exit from blow pin menu.
Blow pin page2 and list of parameter is given below.

BLOW PIN PAGE 2:

BLOW PIN:<2/2>





FUNCTION	LEFT TIME SEC	RIGHT TIME SEC
BLPIN IN FAS	XXX.XX	XXX.XX
BLPIN IN INT	XXX.XX	XXX.XX
BLPIN IN SLO	XXX.XX	XXX.XX
BLPIN OUT DLY	XXX.XX	XXX.XX
BLPIN IN DELY	XXX.XX	XXX.XX
BLPIN OUT REL	XXX.XX	XXX.XX

List of Programmable Parameter:

NO.	Message	Description	Common		Left Station		Right Station		Level
			Parameter Type	Range	Parameter Type	Range	Parameter Type	Range	
1	BLPIN IN FAS	Blow Pin In Fast Time			Timer	0-100.00 Sec	Timer	0-100.00 Sec	User
2	BLPIN IN INT	Blow Pin In Intermediate Time			Timer	0-100.00 Sec	Timer	0-100.00 Sec	User
3	BLPIN IN SLO	Blow Pin In Slow Time			Timer	0-100.00 Sec	Timer	0-100.00 Sec	User
4	BLPIN OUT DLY	Blow Pin Out Delay			Timer	0-100.00 Sec	Timer	0-100.00 Sec	User
5	BLPIN IN DELY	Blow Pin In Delay			Timer	0-100.00 Sec	Timer	0-100.00 Sec	User
6	BLPIN OUT REL	Blow Pin Out Release Time			Timer	0-100.00 Sec	Timer	0-100.00 Sec	User

(5) GENERAL PAGE 1:

SET GENERAL

- (1) Press set **GENERAL** key once.
- (2) Now GENERAL <1/1> page is displayed on screen.
- (3) Select required parameter position using CURSOR     keys.
- (4) Set required value using 0-9 numerical keys.
- (5) Use **INC** or **DEC** keys to on or off any function.
- (6) On pressing **SET** key the set value will be saved.
- (7) Press GENERAL key once again to exit or if there is no change will be done within few Second display is automatically exit from general menu.
General page1 and list of parameter is given below.

GENERAL PAGE 1:

```

GENERAL:<1/1>
CYOVR TM> OFF          EXT UP/DN> OFF
SELECT STATION> OFF

CUTTER      OPTN    DELY SEC    TIME SEC
CUTTER      OFF     XXX.XX     XXX.XX
SUPP AIR    OFF     XXX.XX     XXX.XX
SEAL AIR    OFF     XXX.XX     XXX.XX





EXTRU UP    DELY    TIME    %PRES  %FLOW
EXTRU UP    XX.XX  XX.XX   XXX    XXX
EXTRU DN    XX.XX  XX.XX   XXX    XXX
    
```

List of Programmable Parameter:

NO.	Message	Description	Common		Left Station		Right Station		Level
			Parameter Type	Range	Parameter Type	Range	Parameter Type	Range	
1	CYOVR TM	Cycle Over Time	Timer	0-999.9 Sec					User
2	EXT UP/DN	Extruder Up/Down Operation On/Off	Option	On/Off					User
3	SELECT STATION>	Selection of Station to operate	Option	Left/Right/Both					User
4	CUTTER	Cutter Operation On/Off	Option	On/Off					User
		Cutter Delay Time	Delay	0-100.0 Sec					User
		Cutter Impulse Time	Timer	0-100.0 Sec					User
5	SUPP AIR	Support Air Operation On/Off	Option	On/Off					User
		Support Air Delay Time	Delay	0-100.0 Sec					User
		Support Air On Time	Timer	0-100.0 Sec					User
6	SEAL AIR	Seal Air Operation On/Off	Option	On/Off					User
		Seal Air Delay Time	Delay	0-100.0 Sec					User
		Seal Air On Time	Timer	0-100.0 Sec					User
7	EXTRU UP	Extruder Up Delay	Delay	0-99.99 Sec					User
		Extruder Up Time	Timer	0-99.99 Sec					User
		Extruder Up Pressure	Pressure	0-100%					User
		Extruder Up Flow	Flow	0-100%					User
8	EXTRU DN	Extruder Dn Delay	Delay	0-99.99 Sec					User
		Extruder Dn Time	Timer	0-99.99 Sec					User
		Extruder Dn Pressure	Pressure	0-100%					User
		Extruder Dn Flow	Flow	0-100%					User

(6) TEMPERATURE PAGE 1:

SET TEMPERATURE

- (1) Press set **TEMPERATURE** key once.
- (2) Now TEMPERATURE <1/2> page is displayed on screen.
- (3) Select required parameter position using CURSOR     keys.
- (4) Set required value using 0-9 numerical keys.
- (5) Use **INC** or **DEC** keys to on or off any function.
- (6) On pressing **SET** key the set value will be saved.
- (7) Press TEMPERATURE key twice again to exit or if there is no change will be done within few Second display is automatically exit from temperature menu.

Temperature page1 and list of parameter is given below.

TEMPERATURE PAGE 1:

```

TEMPERATURE<1/2>
  BR1  BR2  BR3  ADP  DI1  DI2  DI3  DI4
SETC XXX  XXX  XXX  XXX  XXX  XXX  XXX  XXX
ACTC XXX  XXX  XXX  XXX  XXX  XXX  XXX  XXX
STAT HT   HT   HT   HT   HT   HT   HT   HT
ALRM AL   AL   AL   AL   AL   AL   AL   AL
      DIR  HOT
SET %  XXX  XXX
STAT  HT  HT
AUTO HEAT: OFF      TIME: XX:XX      DATE:XX/XX
    
```

List of Programmable Parameter:

No.	Message	Description	Range	Level
1	SetTmp BR1 C	Set Temperature of Barrel Zone 1	0-400 C	User
2	SetTmp BR2 C	Set Temperature of Barrel Zone 2	0-400 C	User
3	SetTmp BR3 C	Set Temperature of Barrel Zone 3	0-400 C	User
4	SetTmp ADP C	Set Temperature of Adapter Zone 1	0-400 C	User
5	SetTmp DI1 C	Set Temperature of Die Zone 1	0-400 C	User
6	SetTmp DI2 C	Set Temperature of Die Zone 2	0-400 C	User
7	SetTmp DI3 C	Set Temperature of Die Zone 3	0-400 C	User
8	SetTmp DI4 C	Set Temperature of Die Zone 4	0-400 C	User
9	SetTmp DR%	Set Temperature of Die Ring	0-100 %	User
10	SetTmp HW%	Set Temperature of Hot Wire	0-100 %	User

(6) TEMPERATURE PAGE 2:

SET TEMPERATURE

- (1) Press set **TEMPERATURE** key once.
- (2) Now TEMPERATURE <2/2> page is displayed on screen.
- (3) Select required parameter position using CURSOR keys.
- (4) Set required value using 0-9 numerical keys.
- (5) Use **INC** or **DEC** keys to on or off any function.
- (6) On pressing **SET** key the set value will be saved.
- (7) Press TEMPERATURE key once again to exit or if there is no change will be done within few Second display is automatically exit from temperature menu.

Temperature page2 and list of parameter is given below.

TEMPERATURE PAGE 2:

TEMPERATURE<2/2>

	BR1	BR2	BR3	ADP	DI1	DI2	DI3	DI4
ZONE	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
ALLC	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
ALHC	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
BLOC	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
PB C	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
TI SEC	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
CTSEC	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
DIR:	OFF/XX SEC		HOT:OFF/XX SEC					

List of Programmable Parameter:





1	Barl Zon 1	Barrel Zone 1 On/Off	On/Off	User
2	Barl Zon 2	Barrel Zone 2 On/Off	On/Off	User
3	Barl Zon 3	Barrel Zone 3 On/Off	On/Off	User
4	Adpt Zon 1	Adapter Zone 1 On/Off	On/Off	User
5	Die Zon 1	Die Zone 1 On/Off	On/Off	User
6	Die Zon 2	Die Zone 2 On/Off	On/Off	User
7	Die Zon 3	Die Zone 3 On/Off	On/Off	User
8	Die Zon 4	Die Zone 4 On/Off	On/Off	User
9	Die Ring	Die Ring On/Off	On/Off	User
10	Hot Wire	Hot Wire On/Off	On/Off	User
11	LoAlrm BZ1 C	Low Alarm of Barrel Zone 1	0-400 C	User
12	LoAlrm BZ2 C	Low Alarm of Barrel Zone 2	0-400 C	User
13	LoAlrm BZ3 C	Low Alarm of Barrel Zone 3	0-400 C	User
14	LoAlrm AZ1 C	Low Alarm of Adapter Zone 1	0-400 C	User
15	LoAlrm DZ1 C	Low Alarm of Die Zone 1	0-400 C	User
16	LoAlrm DZ2 C	Low Alarm of Die Zone 2	0-400 C	User
17	LoAlrm DZ3 C	Low Alarm of Die Zone 3	0-400 C	User
18	LoAlrm DZ4 C	Low Alarm of Die Zone 4	0-400 C	User
19	HiAlrm BZ1 C	High Alarm of Barrel Zone 1	0-400 C	User
20	HiAlrm BZ2 C	High Alarm of Barrel Zone 2	0-400 C	User
21	HiAlrm BZ3 C	High Alarm of Barrel Zone 3	0-400 C	User
22	HiAlrm AZ1 C	High Alarm of Adapter Zone 1	0-400 C	User

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BLOkon 01 Manual

23	HiAlrm DZ1 C	High Alarm of Die Zone 1	0-400 C	User
24	HiAlrm DZ2 C	High Alarm of Die Zone 2	0-400 C	User
25	HiAlrm DZ3 C	High Alarm of Die Zone 3	0-400 C	User
26	HiAlrm DZ4 C	High Alarm of Die Zone 4	0-400 C	User
27	BlPont BZ1 C	Blower Point of Barrel Zone 1	0-100 C	User
28	BlPont BZ2 C	Blower Point of Barrel Zone 2	0-100 C	User
29	BlPont BZ3 C	Blower Point of Barrel Zone 3	0-100 C	User
30	BlPont AZ1 C	Blower Point of Adapter Zone 1	0-100 C	User
31	BlPont DZ1 C	Blower Point of Die Zone 1	0-100 C	User
32	BlPont DZ2 C	Blower Point of Die Zone 2	0-100 C	User
33	BlPont DZ3 C	Blower Point of Die Zone 3	0-100 C	User
34	BlPont DZ4 C	Blower Point of Die Zone 4	0-100 C	User
35	PrBand BZ1 C	Proportional Band of Barrel Zone 1	0-100 C	Supervisor
36	PrBand BZ2 C	Proportional Band of Barrel Zone 2	0-100 C	Supervisor
37	PrBand BZ3 C	Proportional Band of Barrel Zone 3	0-100 C	Supervisor
38	PrBand AZ1 C	Proportional Band of Adapter Zone 1	0-100 C	Supervisor
39	PrBand DZ1 C	Proportional Band of Die Zone 1	0-100 C	Supervisor
40	PrBand DZ2 C	Proportional Band of Die Zone 2	0-100 C	Supervisor
41	PrBand DZ3 C	Proportional Band of Die Zone 3	0-100 C	Supervisor
42	PrBand DZ4 C	Proportional Band of Die Zone 4	0-100 C	Supervisor
43	InGain BZ1 S	Integral Gain of Barrel Zone 1	0-1000 Sec	Supervisor
44	InGain BZ2 S	Integral Gain of Barrel Zone 2	0-1000 Sec	Supervisor
45	InGain BZ3 S	Integral Gain of Barrel Zone 3	0-1000 Sec	Supervisor
46	InGain AZ1 S	Integral Gain of Adapter Zone 1	0-1000 Sec	Supervisor
47	InGain DZ1 S	Integral Gain of Die Zone 1	0-1000 Sec	Supervisor
48	InGain DZ2 S	Integral Gain of Die Zone 2	0-1000 Sec	Supervisor
49	InGain DZ3 S	Integral Gain of Die Zone 3	0-1000 Sec	Supervisor
50	InGain DZ4 S	Integral Gain of Die Zone 4	0-1000 Sec	Supervisor
51	CyTime BZ1 S	Cycle Time of Barrel Zone 1	0-100 Sec	Supervisor
52	CyTime BZ2 S	Cycle Time of Barrel Zone 2	0-100 Sec	Supervisor
53	CyTime BZ3 S	Cycle Time of Barrel Zone 3	0-100 Sec	Supervisor
54	CyTime AZ1 S	Cycle Time of Adapter Zone 1	0-100 Sec	Supervisor
55	CyTime DZ1 S	Cycle Time of Die Zone 1	0-100 Sec	Supervisor
56	CyTime DZ2 S	Cycle Time of Die Zone 2	0-100 Sec	Supervisor
57	CyTime DZ3 S	Cycle Time of Die Zone 3	0-100 Sec	Supervisor
58	CyTime DZ4 S	Cycle Time of Die Zone 4	0-100 Sec	Supervisor
59	CyTime DR S	Cycle Time of Die Ring	0-100 Sec	Supervisor
60	CyTime HW S	Cycle Time of Hot Wire	0-100 Sec	Supervisor

(7) MISCELLANEOUS PAGE 1:

SET MISCELLANEOUS

- (1) Press set **MISCELLANEOUS** key once.
- (2) Now MISCELLANEOUS <1/2> page is displayed on screen.
- (3) Select required parameter position using CURSOR     keys.
- (4) Set required value using 0-9 numerical keys.
- (5) Use **INC** or **DEC** keys to on or off any function.
- (6) On pressing **SET** key the set value will be saved.
- (7) Press MISCELLANEOUS key once again to exit or if there is no change will be done within few Second display is automatically exit from miscellaneous menu.

Miscellaneous page1 and list of parameter is given below.

MISCELLANEOUS PAGE 1:





SET MODE:

PRES XXX % FLOW XXX %

List of Programmable Parameter:

No.	Message	Description	Range	Level
1	SET Mod PRES %	Set Mode Pressure	0-100 %	User
2	SET Mod FLOW %	Set Mode Flow	0-100 %	User

(7) MISCELLANEOUS PAGE 2:

SET MISCELLANEOUS	
(1)	Press set MISCELLANEOUS key once.
(2)	Now MISCELLANEOUS <2/2> page is displayed on screen.
(3)	Select required parameter position using CURSOR     keys.
(4)	Set required value using 0-9 numerical keys.
(5)	Use INC or DEC keys to on or off any function.
(6)	On pressing SET key the set value will be saved.
(7)	Press MISCELLANEOUS key once again to exit or if there is no change will be done within few Second display is automatically exit from miscellaneous menu.
Miscellaneous page2 and list of parameter is given below.	

MISCELLANEOUS PAGE 2:

```

MEMORY/RTC:<2/2>





MEMORY NO> XX
SET TIME>XX:XX <HH:MM>
SET DATE> XX/XX/XX<DD:MM:YY>
SET PASS> XXXX
    
```

List of Programmable Parameter:

No.	Message	Description	Range	Level	
1	MEMORY NO>	Memory No.	0-24	Supervisor	
2	SET TIME>	HH	Set Hour (24 hour Clock)	0-23	Supervisor
		MM	Set Minute	0-59	Supervisor
3	SET DATE>	DD	Set Date	0-31	Supervisor
		MM	Set Month	0-12	Supervisor
		YY	Set Year	0-99	Supervisor
4	SET PASS>	Set Password	0-9999	Supervisor	

(8) SHOT MONITOR PAGE 1:

SET SHOT MONITOR

- (1) Press set **SHOT MONITOR** key once.
- (2) Now SHOT MONITOR <1/1> page is displayed on screen.
- (3) Select required parameter position using CURSOR     keys.
- (4) Set required value using 0-9 numerical keys.
- (5) Use **INC** or **DEC** keys to on or off any function.
- (6) On pressing **SET** key the set value will be saved.
- (7) Press SHOT MONITOR key once again to exit or if there is no change will be done within few Second display is automatically exit from shot monitor menu.

Shot Monitor page1 and list of parameter is given below.

SHOT MONITOR PAGE 1

```

SHOT MONITOR :<1/1>
BATCH COUNTER: XXXXXX
    ENABLE> OFF          RESET> OFF
    COUNTER> XXXXXX

TOTALIZER> XXXXXXXX
    
```

List of Programmable Parameter:

No.	Message	Description	Range	Level
1	BATCH COUNTER:	5 Digit Batch Counter	0-65535	User
2	ENABLE> OFF	Batch Counter On/Off	On / Off	User
3	RESET> OFF	Reset the Batch Counter	On / Off	Supervisor
4	COUNTER>	Show No. of batch counter	0-65535	User
5	TOTALIZER>	Show No. of totalizer counter	0-999999	User

(L)DESCRIPTION OF TEST MODES

DIGITAL INPUT TEST PAGE 1:

DIGITAL INPUT

This mode is useful for testing of each input. (Limit switch Or proximity switch or push button)

- (1) Press **TEST** key once.
- (2) Now **DIGITAL INPUT TEST** page is displayed on screen.
- (3) Normally unsense input is displayed OFF.
- (4) When Input is sensed display shows ON in front of input name.
For Ex: When we apply emergency input on input card 0 display will show ON in front of emergency input.
Changes in the input status as per sensing of input indicates that the wiring and electronic path of that input is functioning correctly.
- (5) For check digital output press **PGDN** key once or press **TEST KEY** to exit this menu.
During this mode no other cycle function can operate

DIGITAL INPUT TEST PAGE1

DIGITAL INPUT	PROGRAM TEST PAGE
	CARD-1
1 EMERGE PUSHBT>OFF	5 LT CAR.IN SLO>OFF
2 HYDR MOTOR ON>OFF	6 RT CAR.IN SLO>OFF
3 HYDR OVERLOAD>OFF	7 LT CAROUT END>OFF
4 LT CAR.IN END>OFF	8 LT CAROUT SLO>OFF
	CARD-2
1 RT CR.OUT END>OFF	5 EXTRUDER DOWN>OFF
2 RT CR.OUT SLO>OFF	6 LT MOPEN END >OFF
3 LT BLP OT END>OFF	7 LT MOPN SLODN>OFF
4 RT BLP OT END>OFF	8 LT MCLOSE END>OFF
	CARD-3
1 RT MOPEN END >OFF	5 OIL TEMP >OFF
2 RT MOPN SL DN>OFF	6 RT DOOR >OFF
3 RT MCLOSE END>OFF	7 EXTRD MOTR ON>OFF
4 LT DOOR >OFF	8 RT CAR.IN END>OFF
	CARD-4
1 SPARE >OFF	5 SPARE >OFF
2 SPARE >OFF	6 >
3 >	7 >
4 >	8 >

DIGITAL OUTPUT TEST PAGE 2:

DIGITAL OUTPUT

This mode is useful for testing each output of the system.

- (1) Press **PGDN** key once in digital input test page.
- (2) Now **DIGITAL OUTPUT TEST** page is displayed on screen.
When any output is activated, it's shown on in front of the output name.
The output can be made **ON** or **OFF** using **INC** or **DEC** key.
The O/P under test can be changed using **CURSOR** key.
During this mode all other functions are disabled.
- (3) For check analog output press **PGDN** key once or press **TEST KEY** to exit this menu.

DIGITAL OUTPUT		PROGRAM TEST PAGE	
CARD-1			
1	BR ZON 1 HEAT>ON	5	DI ZON 1 HEAT>ON
2	BR ZON 2 HEAT>ON	6	DI ZON 2 HEAT>ON
3	BR ZON 3 HEAT>ON	7	DI ZON 3 HEAT>ON
4	AD ZON 1 HEAT>ON	8	SPARE >ON
CARD-2			
1	RT CARR.IN >ON	5	RT MOLD CLOSE>ON
2	RT CARR.OUT >ON	6	RT MOLD OPEN >ON
3	RT BLO PIN IN>ON	7	EXTRUDER UP >ON
4	RT BL PIN OUT>ON	8	DIE RING >ON
CARD-3			
1	LT CARR.IN >ON	5	LT MOLD CLOSE>ON
2	LT CARR.OUT >ON	6	LT MOLD OPEN >ON
3	LT BLO PIN IN>ON	7	HOT WIRE >ON
4	LT BL PIN OUT>ON	8	EXTRUDER ON >ON
CARD-4			
1	CUTER ADVANCE>ON	5	SEALING AIR >ON
2	CUTER RETRACT>ON	6	SPARE >ON
3	LT BLOW AIR >ON	7	SUPPORT AIR >ON
4	RT BLOW AIR >ON	8	LT DEFLES TOP>ON
CARD-5			
1	RT DEFLES TOP>ON	5	RT DEFLES BTM>ON
2	PARIS CONTROL>ON	6	HYDR MOTOR ON>ON
3	ALARM/ HOOTER>ON	7	EXTRUDER DOWN>ON
4	LT DEFLES BTM>ON	8	SPARE 2 >ON
CARD-6			
1	BR ZON 1 BLOW>ON	5	>
2	BR ZON 2 BLOW>ON	6	>
3	BR ZON 3 BLOW>ON	7	>
4	>	8	>

ANALOG OUTPUT TEST PAGE 3:

ANALOG OUTPUT

This mode is useful for testing each analog output of the system.

- (1) Press **PGDN** key once in digital output test page.
- (2) Now **ANALOG OUTPUT TEST** page is displayed on screen.
When any output is activated, it's shown on in front of the output name.
The output can be made **ON** or **OFF** using **INC** or **DEC** key. It is also using for increase and Decrease to analog output value.
The O/P under test can be changed using **CURSOR** key.
During this mode all other functions are disabled.
- (3) For check digital input press **PGDN** key once or press **TEST KEY** to exit this menu.

ANALOG OUTPUT		PROGRAM TEST PAGE
1 HYDRALC MOTOR	>	3 PRESSURE %>000
2 RELIF VALVE	>	4 FLOW %>000

(M) INTERLOCKS

It is a one type of alarm system which activate when cycle or any other function does not operate properly because of those abnormal condition it indicate INTERLOCK

Following are the different interlock messages.

Sr.No.	Operation	Interlocks Messages On Screen	Description Of Messages	Type Of Mode	
				Hand	Fully Auto
1	Left Mold Open	IL.LEFT MOPEN END	Left Mold fully open end	y	y
		IL.LEFT MOLD NOT OPN	Left Mold is not fully open		y
		IL.LT MLD OPN/CLS ON	Left Mold open and close input on	y	y
2	Left Mold Close	IL.LEFT MCLOSE END	Left Mold fully Close end	y	y
		IL.LT BLOW PN NO OUT	Left Blow pin is not out	y	y
		IL.LT MLD OPN/CLS ON	Left Mold open and close input on	y	y
3	Left Carriage In	IL.LT CARIAGE IN END	Left Carriage in end	y	y
		IL.LT BLOW PN NO OUT	Left Blow pin is not out	y	y
		IL.RT STATION NO OUT	Right station is not out	y	y
4	Left Carriage Out	IL.LT CARR IN/OUT ON	Left carriage in and out input is on	y	y
		IL.LT CARIAGE OUT END	Left Carriage out end	y	y
		IL.LT CARIAGE NO OUT	Left Carriage is not out	y	y
		IL.LT BLOW PN NO OUT	Left Blow pin is not out	y	y
5	Left Blow Pin In	IL.LT CARR IN/OUT ON	Left carriage in and out input is on	y	y
6	Left Blow Pin Out	IL.LT CARIAGE NO OUT	Left Carriage is not out	y	y
7	Right Mold Open	IL.LT BLOW PN NO OUT	Left Blow pin is not out	y	y
		IL.LT CARR IN/OUT ON	Left carriage in and out input is on	y	y
		IL.RT MOPEN END	Right Mold fully open end	y	y
8	Right Mold Close	IL.RT MOLD NOT OPEN	Right Mold is not open		y
		IL.RT MLD OPN/CLS ON	Right Mold open and close input on	y	y
		IL.RT MCLOSE END	Right Mold fully Close end	y	y
9	Right Carriage In	IL.RT BLO PIN NO OUT	Right Blow pin is not out	y	y
		IL.RT MLD OPN/CLS ON	Right Mold open and close input on	y	y
		IL.RT CARIAGE IN END	Right Carriage in end	y	y
		IL.LT STATION NO OUT	Left station is not out	y	y
10	Right Carriage Out	IL.RT CARR IN/OUT ON	Right carriage in and out input is on	y	y
		IL.RT CARIAGE OUT END	Right carriage out end	y	y
		IL.RT CARIAGE NO OUT	Right carriage is not out	y	y
		IL.RT BLO PIN NO OUT	Right Blow pin is not out	y	y
11	Right Blow Pin In	IL.RT CARR IN/OUT ON	Right carriage in and out input is on	y	y
12	Right Blow Pin Out	IL.RT CARIAGE NO OUT	Right Carriage is not out	y	y
13	Emergency	IL.RT BLO PN OUT END	Right Blow pin out end	y	y
14	Hydro Motor	IL.EMERGENCY PRESS	Press Emergency Push Button	y	y
15	Hydro Motor Overload	IL.HYD MOTOR NOT ON	Hydro motor is not on	y	y
16	Hydro Motor Overload	IL.HYD MOTR OVR LOAD	Hydro motor is overload	y	y
17	Left Safety Door	IL.LT SAFTY DOOR OPN	Left safety door open	y	y
18	Right Safety Door	IL.RT SAFTY DOOR OPN	Right safety door open	y	y
19	Cycle Time Over	IL.CYCLE TIME EXCEED	Actual cycle time is exceed from set cycle time		y
20	Batch Count	IL.BATCH COUNT OVER	Set batch count is over		y

20	Extruder	IL.EXTRUDER UP END	Extruder up end	y	y
		IL.EXTRUDER DN END	Extruder down end	y	y
		IL.EXTRUDR MOTR TRIP	Extruder motor is trip	y	y
21	Heating	IL.LOW TEMPERATURE	Temperature is Low	y	y
		IL.HIGH TEMPERATURE	Temperature is High	y	y
		IL.OIL TEMP HIGH	Oil Temperature is high	y	y

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