SYSTEMATIC CONTROLS CORP.

MICRO PROCESSOR CCNTROLLER
BASIC OPERATION MANUAL

SERIES MX7-10 CONTROLLER

WWW.SYSTEMATICCONTRCLS.COM

1. Introduction

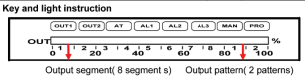
1.1 Display

P V : Process value · 4 LED display (Red color)
S V : Set value · 4 LED display (Green color)

1.2 Key and light instruction

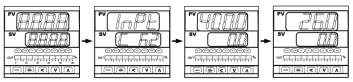
MODE	SET key	OUT1	Output1 · green color	AL3	Alarm 3 · red color
A/M	Auto/Manual	OUT2	Output2 · green color	MAN	Manual · yellow color
	Shift key	A T	Auto Tuning · yellow color	PRO	Program · yellow color
	Down key	Al 1	Alarm 1 · red color	OUT%	Output percentage
	Up key	AL2	Alarm 2 · red color		

1.3 Key and light instruction



Output segment(8 segment s) Output pattern(2 patterns)

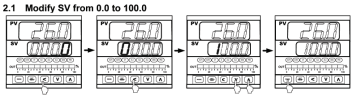
1.4 Power On (Input / Unit / Input Rage)



(01) Power On (02) Unit and Input type (03) PV setpoint high & low limit (0.)~400.0) (04) To USER Level

2. Basic Operation

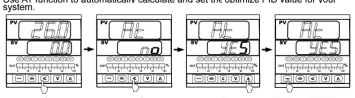
2.1 Modify SV from 0.0 to 100.0



(01) Press ◁ key SV start flash (02) Press ◁ key to select the digit (03) Press △and ▽ key to modify the value (04) Press MODE key To save the setting

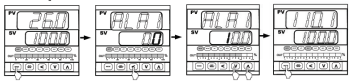
2.2 AT (Auto-Tuning)

Use AT function to automaticallv calculate and set the optimize PID value for vour system.



(01) Press ◁ key to parameter AT (02)) Press ◁ key SV start flash (03) Press△key change "NO" to "YES" (04) Press MODE key To save the setting (AT lamp on)

2.3 Modify AL1 from 0.0 to 100.0



(01) Press ◁ key to parameter ALA1 (02) Press ◁ key to select the digit (03) Press △and ▽ key to modify the value (04) Press MODE key To save the setting

3.6 LEVEL 3-INPUT Level

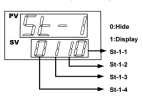
Press MODE key + ◁key 5 sec. to enter LEVEL 3 (LOCK=0000)

Parameter	Default value	Ddescription	Rarge	SETLEVEL
INPT	K2	Input type selection	Refrr to step 2.6 Input selection	LEVEL 1
INLO	0	Analog input zero calibration	Range:-199.9 ~ 999.9	St-2-2
INHI	5000	Analog input span calibration	Range:0~999.9	St-2-2
DP	000.0	Decimal point position	Four options: 000 · 000.0 · 00.00 · 0.000	St-2-2
PVLO	0.0	PV set-point low limit	Range:-199.9~999.9	St-2-3
PVHI	400.0	PV set-point high limit	Range:-199.9~999.9	St-2-3
2NLO	0	Remove input low limit calibration	Range:-199.9~999.9	St-2-4
2NHI	5000	Remove input low limit calibration	Range:-199.9~999.9	St-2-4
A1D1	11	Alarm mode of AL1	Refrr to the step 4.1 Alarm acton description	St-1-3
A1T1	99.59	Alarm time of AL1		St-1-3
A2D2	0	Alarm mode of AL2	Refrr to the step 4.1 Alarm acton description	St-1-4
A2T2	99.59	Alarm time of AL2		St-1-4
A3D3	0	Alarm mode of AL3	Refrr to the step 4.1 Alarm acton description	St-2-1
A3T3	99.59	Alarm time of AL3		St-2-1
HYSA	0.0	Hystersis of all alarm	Range:0~100	St-4-3
LO01	200	OUT1 zero calibration	Range:0~9999	St-4-4
HI01	3400	OUT1 span calibration	Range:0~9999	St-4-4
LO02	200	OUT2 zero calibration	Range:0~9999	St-5-1
HI02	3400	OUT2 span calibration	Range:0~9999	St-5-1
LO03	0	TRS zero calibration	Range:0~9999	St-5-2
HI03	5000	TRS span calibration	Range:0~9999	St-5-2
R-Y	5	Full run time of motor valve	Range:5~200 Seconds	St-5-3
W-T	0.0	Full run time of proportional motor Valve (Used for programmable controller)	0=No wait Otfers=Wait value	St-5-3
STAL	0000	Reverse output of AL1	Range:0~1111	St-5-3
ID.	2	ID number	Range:0~255	St-5-4
STOP	0-81	Communication Bits	0-8□ · E-81 · N-81 0-8□ · E-82 · N-82	St-5-4
BAUD	9600	Baud Rate	11C · 300 · 1200 · 2400 · 48©D · 9600 · 19200 · 38©0bps	St-5-4
SVOS	0.0	SV compensation	Range:-100~100	St-6-1
PVOS	0.0	PV low compensation	Range: -100~100	St-6-1
C-F	C.	Unit of PV & SV	C ·F · A (Analog)	St-6-3
S-F	1000	Soft Filter (Refer to step 3.3)	Range: 50~5000 Outbut response	St-6-4
PVHS	0.0	PV high compensation	Range:-50~50	St-6-1
H-C	HEAT	Control mode	Heat / Cool	St-7-2
+ −	0.0	Digital Filter offset value		St-7-4
FILT	2000	Digital Filter		St-7-4

Return to INPT

3.8 LEVEL 4- SET Level

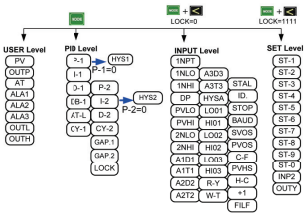
Press MODE key + ◁ Key to enter the SET Level (LOCK =1111)



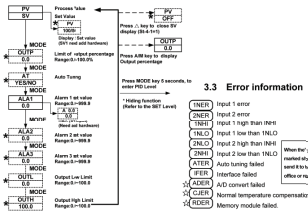
Description	Default value	MODE	4	3	2	1
Parameters	0110	ST-1	AL2 · A2D2 · A2T2	AL1 · A1D1 A1T1	AT	OUTP · OUTL · OUTH
	0100	ST-2	2NLO · 2NHI	PVLO · PVHI	1NLO · 1NHI · DP	ALA3 · A3D3 · A3T3
	0000	ST-3	None	None	None	None
	1100	ST-4	LO01 · HI01	HYSA (Hysteresis of all alarm)	SV1/ SV2 (Event)	SV Work ON-OFF (Controller switch)
	0000	ST-5	ID · BAUD · STOP	R-Y · W-T · STAL	LO03 · HI03	LO02 · HI02
	1001	ST-6	S-F(1= Automatic 0= Manual)	C-F (UNIT= C · F · A)	0=RS485 1= RS485_MODBUS	PVOS · PVHS · SVOS
	1000	ST-7	FILT(Error value +1 or -1)	Power ON Run AT	H-C(Heat / Cool)	OUT2 4-20mA Re-Transmission

3. Level and Parameter

3.1 Parameter menu (**St-1~St-0 setting=1111**)



3.2 **LEVEL 1- USER Level**



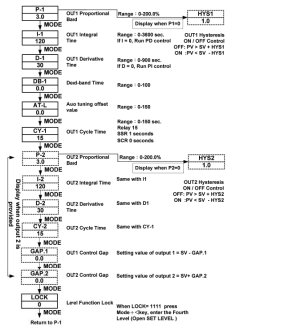
3.3 Error information

1NER	Input 1 error
2NER	Input 2 error
1NHI	Input 1 high than INHI
1NLO	Input 1 low than 1NLO
2NLO	Input 2 high than INHI
2NHI	Input 2 low than 1NLO
ATER	Auto tuning failed
ITER	Interface failed
ADER	A/D convert failed
CJER	Normal temperature compensatin failed
RDER	Memory module failed.

When the' △' error marked show up , please send it to he nearest sales office or mail dealer .

3.4 **LEVEL 2 - PD Level**

Press MODE key for 5 seconds to enter Level PID



3.5 LOCK function

LOCK	Level				Available change parameters
	USER	PID	INPUT	SET	
0000	○	○	○	×	All parameters (Default value)
1111	○	○	×	○	LEVEL 1 · 2 · 4
0100	○	○	×	×	LEVEL 1 · 2
0110	○	○	×	×	Only LEVEL1
0001	○	○	×	×	SV and LOCK
0101	×	○	×	×	Only LOCK

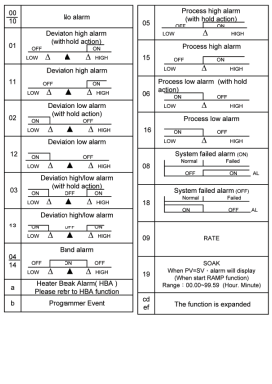
Description	Default value	MODE	4	3	2	1
Programmer	0000	ST-8	Program Function (Only available for programmable controller, refer to the step 2.11)			
	0000	ST-9				
	1000	ST-10				
Input mode	0	INP2	0 = None 2 = 0~50mV/0~20mA/0~5V/0~10V 1 = 10~50mV/4~20 mV/1~5v/2~10v 4 = CT current Input			
Output mode	0	OUTY	0 = Single output (OUT1) · 1 ◎SCR zero cross control· 3 ◎SCR zero cross control 2 = None 4 = 2 ◎SCR phase angle control 5 = Dual output (OUT1/OUT2) 3 = Motor valve control 5 = 3 ◎SCR phase angle control			

4. Alarm Setting

4.1 Alarm time

(ALA1/ALA2/ALA3)

ALA1=0	Flicker alarm
ALA1=99.59	Continued alarm
ALA1=0.01~99.58	Delay Alarm time setting

4.2 Alarm mode (A1D1 / A2D2 / A3D3)

▲ : SV Δ : Alarm value