

7 • PROGRAMMING INSTRUCTIONS • XS SERIES CONTROLLERS

FUNCTIONS MENU

DISPLAY

- Process variable during normal operation
- Function value during programming
- Set point during normal operation
- Function mnemonic during programming

KEYS

- Digit select
- Increment value
- Enter
- Function

To enter function mode, press **F**

PARAMETERS

GROUP 1

Y2 Set point (see note 1) **423.0**

Y3 Set point (see note 1) **435.0**

Y2 Hysteresis 0.01...10.00% span **0.50**

Y3 Hysteresis 0.01...10.00% span **0.50**

GROUP 2

Proportional band 0.5...999.9% **5.00**

Integral time 0.0...100.0 minutes **1.00** (0.0 = no effect)

Derivative time 0.0...10.00 minutes **0.00** (0.0 = no effect)

Dead band 0.0...5.0% output **0.0**

Hysteresis 0.01...10.0% span **0.50**

GROUP 3

Cycling time (for time proportional output) 0...200 sec. **30**

Cycling time for cool operation (only for heat/cool instr.) 0...200 sec. **30**

Approach high 0.1...2 x Proportional Band **0.50**

Approach low 0.1...2 x Proportional Band **0.50**

Feed Forward 0...500% **0**

GROUP 4

1st memory Set point **50.0**

2nd memory Set point **50.0**

3rd memory Set point **50.0**

4th memory Set point **50.0**

Slope up during transition of the Set point 0.0...120% span/min. **0.0** (see note 2)

Slope down during transition of the Set point 0.0...120% span/min. **0.0** (see note 2)

GROUP 5

Enter correct Password **9999**

Return to process variable display

Straightly from configuration process

Set point limit low **50.0**

Beginning of the scale

Set point limit high **50.0**

End of the scale

Maximum power output (heat) 10...100% **100**

Maximum power output (cool) 10...100% **100**

Time constant of the input filter 0...30 secs **0**

Input shift 50...50 digit **0**

Protection level code (see note) 0000...2222 **0000**

Type of tune available (see note) **0**

- 0 No Tune available
- 1 Only Auto-Tune
- 2 Only Expert-Tune
- 3 Auto + Expert-Tune

Only for models with Serial communication option

Device Number 0...63 **0**

Baud rate index 0...4 **0**

Baud Rate	Index
9600	0
4800	1
2400	2
1200	3
600	4

* Only for B = 2 or 3

Parity 0...4 **0**

Parity	Protoc.
None	0
Even	1
None*	2
None*	3
None*	4

* Only for B = 2 or 3

MODIFICATION OF A NUMERIC FIELD

It is possible to modify any numeric field by changing each digit in turn.

Example: to change 250 to 260

pressing **F** to select the required digit.

Each successive press of this button moves the flashing digit one place to the left.

Pressing **A** increments the selected digit (for the most significant digit there is a - between 9 and 0)

Pressing **D** to accept the field or the field will be accepted automatically after the 10 seconds time-out.

Note: **█** factory set parameters

CONFIGURATION

Enter correct password to start configuration process **9999**

if not configured at the power-up the main display will show:

9999

Enter the first block of 4 configuration index codes - E, F, G, H

Enter the second block of 4 configuration codes I, L, M, N

Number of decimal places required 0...3 **0**

Engineering range low value for user configurable range **50.0**

Engineering range high value for user configurable range **50.0**

To the 5th group of parameters

The configuration code shall be continuously shown. There is no time-out. Exiting the configuration process you will access straightly the 5th group of parameters to modify, if necessary, Set point limits, maximum power output etc.

CONFIGURATION CODE

Input type, scale range (1)	E	F	Type of output Y1 (2)	G	Type of action and safety state Y1(3)	H
RTD Pt100/IEC 751	-200...600°C	0	Relay (On-Off with hysteresis)	0	Reverse Safety 0%	0
IEC 584	-200...600°C	1	Relay with time-proportioning	1	Direct Safety 0%	1
Thermocouple J	-99.9...300.0°C	1	Logic 0/24 Vdc with time-proportioning	2	Reverse Safety 100% (Yh)	2
Fe-Cu 45%Ni	0...600°C	2	4...20 mAdc	3	Direct Safety 100% (Yh)	3
IEC 584	0...600°C	3	0...10 Vdc	4	Reverse Safety -100% (Yh2) *	4
Thermocouple L	0...1200°C	4	Time-proportioning relay	5	Direct Safety -100% (Yh2) *	5
Fe-Const DIN 43710	0...1200°C	4	Time-proportioning Logic voltage 0-24 Vdc *	7		
Thermocouple K	0...1600°C	5	4...20 mAdc	8		
Cromel-Ni/Alumel IEC 584	0...1600°C	5	0...10 Vdc	9		
Thermocouple S	0...1600°C	5				
Pt100/IEC 584	0...1600°C	5				
Thermocouple R	0...1600°C	5				
Pt100/IEC 584	0...1600°C	5				
4...20 mA	Conf. eng. units	7				
0...20 mA	Conf. eng. units	7				
0...1 Vdc	Conf. eng. units	7				
0...10 Vdc	Conf. eng. units	7				

Type of Set point and control mode output Y2	I	Type of Set point and control mode output Y3	J
Disabled	0	Disabled	0
Deviation with startup inhibition	1	Deviation with startup inhibition	1
Active high	2	Active high	1
Active low	2	Active low	2
Active outside	3	Active outside	3
Active inside	3	Active inside	4
Independent	5	Independent	5
Active high	5	Active high	5
Active low	5	Active low	6
Active high	6	Deviation	7
Active low	6	Active high	7
Active high	7	Active low	8
Active low	7	Loop - Break - Alarm	9
Time programmable	9	Time programmable (4)	9

Type of Set point	N
Standard	1 Local + 4 stored
	1 Local and Remote 4...20 mA
	1 Local and Remote 0...10 Vdc
Time programmable (7)	7

Retransmission output Y4	M
None (5)	0
4...20 mA	1 Retransmission measurement X
	2 Retransmission Set point W
	3 Retransmission Y1 Cool
0...10Vdc (6)	4 Retransmission measurement X
	5 Retransmission Set point W
	6 Retransmission Y1 Cool

Notes:

- For Pt100 and thermocouple inputs with configurable scale, it is advised to select significant and round figure scale ranges (-50...150°C, 0...400°C). The minimum span should not be less than 25% of the maximum range. Keep in mind that, within the selected range, it is possible to limit the setting interval of the Set point between the lower and upper value. For mA and Volts inputs, the beginning and end of scale values can be configured in engineering unit between -999 and 9999. The minimum scale span is 100 steps. The values can be expressed in units (xxxx), in tenths (xxx.x), hundredths (xx.xx), or thousandths (x.xxx).
- In order to select some types of output, it is also necessary to set a switch placed inside the instrument. (see chap. 4 pag. 11). For heat-cool control, select the outputs with * from (G-6) to (G-9)
- The safety state is the value assumed by Y1 in case of failure in the control loop. Actually, it is the value defining the upper limit of Y1. Safety states with * (H-4) or (H-5) impose the maximum limit to Cool action.
- Only available with the programmable Set point option (D-1). Replaces the Loop-Break-Alarm function.
- Excluding the retransmission output option (C-0) implies selecting (M-0) in configuration.
- Passing from 4...20 mA to 0...10V is obtained also by moving a jumper inside the instrument. (see chap. 4 pag. 12).
- The programmable Set point option (D-1) implies selecting (N-3) in configuration.