

# 7 • PROGRAMMING INSTRUCTIONS • XP 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**

Run Auto-Tune function

Modify or view Parameters

View Configuration code

Start Configuration Procedure

View Target Set point

only for models with serial comms

View instrument Device number 0...63

Serial Communication status enabled to write

Toggle Serial Communication ON/OFF to write

**Note:**

- If **F** or **D** is not pressed within 10 seconds the instrument will time-out back to the process variable.
- If the configuration N=0 and **S**, **L**, **M**, **N**, **S**, **P**, **E** will not appear.

### PARAMETERS

#### GROUP 1

Y2 Set point (see note 1)

Y3 Set point (see note 1)

Y2 Hysteresis 0.01...10.00% span

Y3 Hysteresis 0.01...10.00% span

#### GROUP 2

Proportional band 0.5...999.9%

Integral time 0.0...100.0 minutes

Derivative time 0.0...100.0 minutes (0.00 no effect)

#### GROUP 3

Minimum output resolution 0.1...10.0%

Approach high 0.1...2 x Proportional Band

Approach low 0.1...2 x Proportional Band

Time for valve to fully open from fully closed 15...600 seconds

Calibrate position potentiometer

Calibrate minimum position of valve

Calibrate maximum position of valve

Accept calibration point

#### GROUP 4

1<sup>st</sup> memory Set point

2<sup>nd</sup> memory Set point

3<sup>rd</sup> memory Set point

4<sup>th</sup> memory Set point

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

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

#### GROUP 5

Enter correct Password

Return to process variable display

Straightly from configuration

Set point limit low Beginning of the scale

Set point limit high End of the scale

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

Input shift -50...50 digit

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

Type of tune available 0 No Tune available 1 Only Auto-Tune

Only for models with Serial communication option

Device Number 0...63

Baud rate index 0...4

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

\* Only for B = 2 or 3

Parity 0...4

Parity	Protoc.
None	Ascon
Odd	Ascon
Even	Ascon
None*	Modbus
None*	Jbus

\* Only for B = 2 or 3

**Note:**

- Allowable Set point values depend upon the type of alarm configuration
  - Deviation alarm : -300...+300
  - Band alarm : 0...300
  - Independent: on full scale
- Parameters Y2 and Y3 will not appear if in the configuration code (I = 0 and L = 0)

### 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 CODE

Input type, scale range (1)	E	F
RTD Pt100g IEC 751	-200...600°C	0...600°C
RTD Pt100g IEC 751	-200...600°C	0...600°C
Thermocouple J Fe-Cu 45%/Ni IEC 584	-99.9...300.0°C	0...300.0°C
Thermocouple J Fe-Cu 45%/Ni IEC 584	-99.9...300.0°C	0...300.0°C
Thermocouple L DIN-43710 IEC 584	0...600°C	0...600°C
Thermocouple L Fe-Const DIN-43710 IEC 584	0...600°C	0...600°C
Thermocouple K Chromel-Alumel IEC 584	0...1200°C	0...1200°C
Thermocouple S Pt10%Rh IEC 584	0...1600°C	0...1600°C
Thermocouple R Pt13%Rh IEC 584	0...1600°C	0...1600°C
4...20 mA	Conf. eng. units	7 4
0...20 mA	Conf. eng. units	7 5
0...1 Vdc	Conf. eng. units	7 6
0...10 Vdc	Conf. eng. units	7 7

Type of Set point and control mode output Y2	Type of Set point and control mode output Y3
Disabled	Disabled
Deviation with startup inhibition	Deviation with startup inhibition
Band	Band
Independent	Independent
Deviation	Deviation
Time programmable	Time programmable (3)

Type of action and safety state Y1(2)	H
Reverse Safety 0%	0
Direct Safety 0%	1
Reverse Safety 100% (Yh)	2
Direct Safety 100% (Yh)	3

Type of Set point	N
Standard	1 Local + 4 stored
Time programmable (6)	1 Local and Remote 4...20 mA
Retransmission output Y4	1 Local and Remote 0...10 Vdc
None (4)	3
4...20 mA	Retransmission measurement X
0...10Vdc (5)	Retransmission Set point W
	Retransmission measurement X
	Retransmission Set point W

**Note:**

- 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).
- 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.
- 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. 11).
- The programmable Set point option (D-1) implies selecting (N-3) in configuration.

### CONFIGURATION

Enter correct password to start configuration process

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

Entering the configuration process

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

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

Number of decimal places required 0...3

Engineering range low value for user configurable range

Engineering range high value for user configurable range

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.