

Quick setup guide

PID 3216 control valve application



Observe instruction manual

The instruction manual is part of the product and an important element within the safety concept.

- Read and observe manufacturer's instruction manual.
- Always have manufacturer's instruction manual available at the product.
- Pass on instruction manual to all subsequent users of the product.

1 Abbreviations of parameters & accessibility

The list below shows all parameters which are necessary to setup a valve control loop. Some settings are fundamental whereas others are secondary. The table reflects meaning, settable range & standard value.

Fundamental/application sensitive settings can be found in the "Config" level of the user interface. Secondary settings can be accessed on "Level 1" of the user interface. Those settings are accessible as easy as possible to ensure a most efficient setup and operation.

Please note: Please refer to point "3.2. Level Interfaces" to learn how to access the "Config" or "Level 1" of the user interfaces.

Abbreviation	Description	Interface Level
WRK.OP	Working Output (reading only), 0-100%	Level 1
SP.HI	Set point high, max. set point limit, l/m, 500	Level 1
SP.LO	Set point low, min. set point limit. l/m, 0	Level 1
SP1	Set Point 1, set point flow rate. l/m, 0	Level 1
A.TUNE	Auto tune function to set P & D parameters to match the process, on/off, off	Level 1
PB	Proportional band, sets an output proportional to the error signal, l/m, 250	Level 1
TI	Integral Time, continuous to increase or decrease output as long as offset exists, s, 7	Level 1
F.OP	Output in case of emergency override, 0-100% (if button connected), 100%	Level 1
SAFE	Output in case of input loop break (wire break), 0-100%, 0	Level 1
FILT.T	Filter time of input signal, s, 0.5	Level 1
RNG.HI	Operating range high, maximum flow rate expected in the system, l/m, 500	Config -> Input
RNG.LO	Operating range low, minimum flow rate expected in your system, l/m, 0	Config -> Input
L-R	External set point active / inactive. Active in case of 4-20mA in, on/off, off	Config -> SP

GFD0_6443_4 (04.16)

Georg Fischer Piping Systems Ltd CH-8201 Schaffhausen

Phone +41 (0)52 631 30 26 / info.ps@georgfischer.com / www.gfps.com

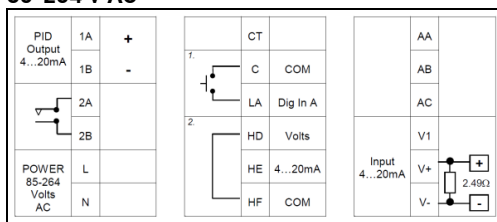
© Georg Fischer Piping Systems Ltd

CH-8201 Schaffhausen/Switzerland, 2016

2 Installation / Wiring

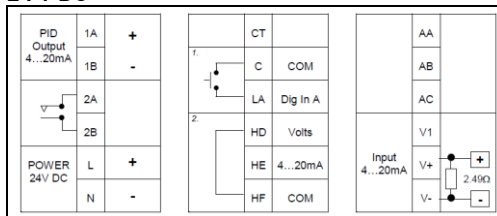
2.1 Wiring diagrams

85-264 V AC



4-20mA loop to EAx or pneumatic positioner:	1A: + 1B: -
Optional relay NO, 230V AC, 2A:	2A 2B
Power supply:	L: L/+ N: N/-

24 V DC



Manual override push button input:	C: COM LA: Dig In A
External set point 4-20mA input:	HE: + HF: - (if not in use, bridge to HD)
Flow sensor input 4-20mA*:	V+: + V-: -

*Bridge V+ / V- with 2.49Ω

3 Programming

3.1 Assignment of keys

► This section explains the functionality of the units keys:

Key	Function
	Switch between interface levels, scrolls through main settings. Access/exit "Config":
	Enter menu, scroll through Level 1 & submenus
	Change value of parameter +
	Change value of parameter -



3.2 Level interfaces

Fundamental/application sensitive settings can be found in the "Config" level of the user interface.

Secondary settings can be accessed on "Level 1" of the user interface. Those settings are accessibly as easy as possible to ensure a most efficient setup and operation.

Level 1:






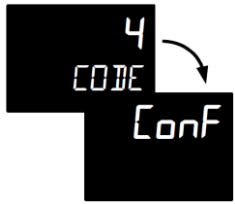

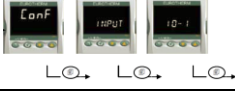

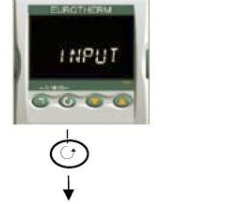






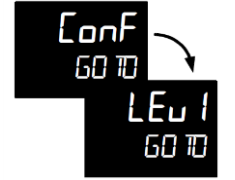
This is the level of the starting screen, accessible without password. Settings on this level can be adjusted by every operator with access to the unit.

"Config" Level:



This level contains fundamental settings which should not be changed from every operator.

Please note: Level 2 and level 3 (LEV 2 & LEV3) have no function and are not in use in a valve control application as described in this document.

Access "Config" level from starting screen:

Step	Action	Display
1	Press & hold  for 3s until screen flips <u>twice</u> until Level 3 shows up.	
2	Quickly press  until "Config" appears - wait	
3	If "0 Code" appears, press  until "4" shows which is the password to access "Config" – wait. If successful "Config" is shown in the screen	
4	Use  to change through main menu.	
5	Press  to access submenu.	
6	Press  to change through submenus	
7	Use  &  to adjust values	
8	Press  to exit to previous menu.	
...	...	
EXIT	Hold  3s, press  to select "LEV 1", wait. Unit restarts and Level 1 screen shows up.	

Please note: Make sure that the complete system operates under realistic working conditions. This procedure included an "Auto Tune" function which only works if activated in an environment as close to normal operation as possible. Use the "auto tune" function only if set point had been set within a range of daily operation.

Step No./Interface	Action
Config	Set operating range Hi: Input -> RNG.HI (l/m)
Config	Set operating range Lo: Input -> RNG.LO (l/m)
Config	Option: Activate external set point if current signal is available on terminals HE & HF: SP -> L-R (on/off)
Level 1	Set range of set point Hi: SP.HI (l/m)
Level 1	Set range of set point Lo: SP.LO (l/m)
Level 1	Set fixed output in case of manual override is activated, if push button is connected on terminals C & LA: F.OP (0-100%)
Level 1	Set fixed output in case of sensor break indication: SAFE (0-100%)
	Bring system in normal/stable working conditions. Install a PRV to reduce
Level 1	Turn on auto tune function which pre-set Pb & Ti: A.TUNE (on/off), confirm with  . Auto tune will start after complete system is stable for 1 minute and may take several minutes to be completed. In case the function cannot tune successfully after 15mins cancel the procedure and tune PB & TI manually.
Level 1	 Fine tune system manually by setting Pb & Ti: After the auto tune function has ended, check PB and TI in Level 1. The automated function may have altered the standard values for both parameters which are: Pb: 250 Ti: 7 Important: The value which had been strongly adjusted by the auto tune function is the one which will be used in the first place to tune the system. E.g. auto tune changes PB from 250 to 1100 – use PB to fine tune. In most cases PB is the parameter to be used most frequently to fine tune systems. PB: If system is too slow, try a smaller value e.g. 1100 -> 750 TI: If system strongly over or under swings tune TI. Rarely the case – usually between 5 and 15s
Level 1	Set set points to verify best control speed: SP1 (l/m) Repeat step 10 until control speed is reasonable and over/under swinging and system speed is acceptable.

4 Programming procedures

The table below described the fundamental steps to set up a valve control loop.