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Chapter 4: Home Page

Default Home Page Parameters

Watlow's patented user-defined menu system improves operational efficiency. The user-defined Home Page provides you with a shortcut to monitor or change the parameter values that you use most often. The default Home Page is shown on the following page. When a parameter normally located in the Setup Page or Operations Page is placed in the Home Page, it is accessible through both. If you change a parameter in the Home Page, it is automatically changed in its original page. If you change a parameter in its original page it is automatically changed in the Home Page.

The Attention $\boxed{Attn}$ parameter appears only if there is an active message. An example of an active message could be an Input Error $\boxed{Er.i1}$, or it could be for information only like Autotune $\boxed{tUn1}$ taking place.

Use the Advance Key ⊚ to step through the other parameters. When not in pairs the parameter prompt will appear in the lower display, and the parameter value will appear in the upper display. You can use the Up ⊙ and Down ⊙ keys to change the value of writable parameters, just as you would in any other menu.

Note:

If a writable value is placed on the upper display and is paired with another read only parameter on the lower display, the arrow keys affect the setting of the upper display. If two writable parameters are paired, the arrow keys affect the lower display.

If Control Mode is set to Auto, the Process Value is in the upper display and the Closed Loop Set Point (read-write) is in the lower display.

If a profile is running, the process value is in the upper display and the Target Set Point (read only) is in the lower display. If Control Mode is set to Manual, the Process Value is in the upper display and the output power level (read-write) is in the lower display.

If Control Mode is set to Off, the Process Value is in the upper display and $\boxed{oFF}$ (read only) is in the lower display.

If a sensor failure has occurred, $\boxed{----}$ is in the upper display and the output power level (read-write) is in the lower display.

Changing the Set Point

You can change the set point by using the Up ⊙ or Down ⊙ keys when a profile is not running.

Modifying the Home Page

Follow the steps below to modify the Home Page:
1. Push and hold the Advance ⊚ key and the Infinity ∞ key for approximately six seconds. Upon entering the Factory Page the first menu will be the Custom Menu $\boxed{CuSt}$.
2. Push the Advance ⊚ key where the lower display will show $\boxed{CuSt}$ and the upper display will show $\boxed{1}$.
3. Push the Advance ⊚ button where the prompt for the Process Value $\boxed{AC.Pv}$ will be displayed on top and Parameter $\boxed{PAr}$ in the bottom. There are twenty positions available that can be customized.
4. Pushing the Up ⊙ or Down ⊙ arrow keys will allow for a customized selection to be made (see list of available parameters below).

Custom Menu Parameter Options	
Description	**Prompt ***
All Models	
None	Blank
Analog Input Value	$\boxed{A in1}$
Cal In Offset	$\boxed{i.CA1}$
Display Units	$\boxed{C\_F1}$
Load Parameter Set	$\boxed{USr.1}$ $\boxed{USr.2}$
Alarm Set Point Low	$\boxed{A.Lo1}$ $\boxed{A.Lo2}$ $\boxed{A.Lo3}$ $\boxed{A.Lo4}$
Alarm Set Point High	$\boxed{A.hi1}$ $\boxed{A.hi2}$ $\boxed{A.hi3}$ $\boxed{A.hi4}$
Alarm Hysteresis	$\boxed{A.hy1}$ $\boxed{A.hy2}$ $\boxed{A.hy3}$ $\boxed{A.hy4}$
Closed Loop Set Point	$\boxed{C.SP1}$
Active Process Value	$\boxed{AC.P1}$
Active Set Point	$\boxed{AC.S1}$
Open Loop Set Point	$\boxed{o.SP1}$
Autotune	$\boxed{Aut1}$
Control Mode	$\boxed{C.m1}$
Heat Power	$\boxed{h.Pr1}$
Cool Power	$\boxed{C.Pr1}$
Time Integral	$\boxed{t.i1}$
Time Derivative	$\boxed{td1}$
Dead Band	$\boxed{db1}$
Heat Prop Band	$\boxed{h.Pb1}$
Heat Hysteresis	$\boxed{h.hy1}$
Cool Prop Band	$\boxed{C.Pb1}$

Custom Menu Parameter Options	
Description	**Prompt ***
Cool Hysteresis	`C.hY1`
Ramp Rate	`r.rt1`
TRU-TUNE+ Enable	`t.tu1`
Idle	`id.S1`
If 4th digit of part number is B, E, R or N	
Profile Start	`P.St1`
Profile Action Request	`P.AC1`
Guaranteed Soak Deviation 1	`gSd1`

* The numerical digit shown in the prompts above (last digit), represents the parameter instance and can be greater than one.

Modifying the Display Pairs

The Home Page, being a customized list of as many as 20 parameters can be configured in pairs of up to 10 via the Display Pairs `d.Pr S` prompt found in the Diagnostic Menu `d iAg` (Factory Page). The listing in the table that follows is what one may typically find in the Home Page as defaults based on controller part numbers. It is important to note that some of the prompts shown may not appear simply because the feature is not being used or is turned off. As an example, the prompt Cool Power `C.Pr1` will not appear unless the Cool algorithm `C.Ag` is turned on in the Setup Page under the Loop menu. The Display Pairs `d.Pr S` prompt will default to 1, therefore the upper display will reflect the Active Process Value `AC.Pu` and the lower display will reflect the Active Set Point `AC.SP` by default.

As stated above, the user can define pairs of prompts to appear on the display every time the Advance ⊙ key is pushed. When configuring the Custom Menu to your liking it should be noted that if 2 changeable (writable) prompts are displayed in a pair, i.e., Control Mode on top and Idle Set Point on the bottom, only the lower display (Idle Set Point) can be changed. If a writable value is placed on the upper display and is paired with another read only parameter on the lower display, the arrow keys affect the setting of the upper display.

The display can be configured to scroll by going to the Factory Page under the Diagnostic Menu and changing the Display Time `d.t i` prompt to something greater than 0. If set to 2, the display will scroll every 2 seconds from one Display Pair to another. If the Display Pair prompt `d.Pr S` is set to 1 the Display Time `d.t i` prompt will have no effect on the display.

	Home Page Defaults	Home Page Display	Parameter Page and Menu
	All Models		
1	Active Process Value (1)	Numerical value	Operations Page, Monitor Menu
2	Active Set Point (1)	Numerical value	Operations Page, Monitor Menu
3	Control Mode (1)	`C.m1`	Operations Page, Monitor Menu
4	Heat Power (1)	`h.Pr1`	Operations Page, Monitor Menu
5	Cool Power (1)	`C.Pr1`	Operations Page, Monitor Menu
6	Autotune (1)	`Aut1`	Operations Page, Loop Menu
7	Idle Set Point (1)	`id.S1`	Operations Page, Loop Menu
8	* Profile Start	`P.St1`	
9	* Action Request	`P.AC1`	
10	None		
11	None		
12	None		
13	None		
14	None		
15	None		
16	None		
17	None		
18	None		
19	None		
20	None		

* The fourth digit of the part number must be:
   PM _ **[R, B, N or E]** _ _ _ - _ _ _ _ _ _ _

Note:

The numerical digit shown in the prompts (last digit) and within the parentheses above, represents the parameter instance and can be greater than one.

Navigating the EZ-ZONE® PM PID Controller

Applies to All Models - 1/16 DIN Shown Below

Home Page from anywhere: Press the Infinity Key ∞ for two seconds to return to the Home Page.

Factory Page from Home Page: Press both the Advance ⟳ and Infinity ∞ keys for six seconds.

Operations Page from Home Page: Press both the Up ▲ and Down ▼ keys for three seconds.

Setup Page from Home Page: Press both the Up ▲ and Down ▼ keys for six seconds.

Profiling Page from Home Page: Press the Advance Key ⟳ for three seconds.

Conventions Used in the Menu Pages

To better understand the menu pages that follow review the naming conventions used. When encountered throughout this document, the word "default" implies as shipped from the factory. Each page (Operations, Setup, Profile and Factory) and their associated menus have identical headers defined below:

Header Name	Definition
Display	Visually displayed information from the control.
Parameter Name	Describes the function of the given parameter.
Range	Defines options available for this prompt, i.e., min/max values (numerical), yes/no, etc... (further explanation below).
Default	Values as delivered from the factory.
Modbus Relative Address	Identifies unique parameters using either the Modbus RTU or Modbus TCP protocols (further explanation below).
CIP (Common Industrial Protocol)	Identifies unique parameters using either the DeviceNet or EtherNet/IP protocol (further explanation below).
Profibus Index	Identifies unique parameters using Profibus DP protocol (further explanation below).
Parameter ID	Identifies unique parameters used with other software such as, LabVIEW.
Data Type R/W	uint = Unsigned 16 bit integer dint = long, 32-bit string = ASCII (8 bits per character) float = IEEE 754 32-bit RWES = **R**eadable **W**ritable **E**EPROM (saved) User **S**et (saved)

Display

Visual information from the control is displayed to the observer using a fairly standard 7 segment display. Due to the use of this technology, several characters displayed need some interpretation, see the list below:

1 = 1	0 = 0	i = i	r = r
2 = 2	A = A	J = J	S = S
3 = 3	b = b	H = K	t = t
4 = 4	c, C = c	L = L	U = u
5 = 5	d = d	M = M	v = v
6 = 6	E = E	n = n	W = W
7 = 7	F = F	o = o	y = y
8 = 8	g = g	P = P	Z = Z
9 = 9	h = h	q = q	

Range

Within this column notice that on occasion there will be numbers found within parenthesis. This number represents the enumerated value for that particular selection. Range selections can be made simply by writing the enumerated value of choice using any of the available communications protocols. As an example, turn to the Setup Page and look at the Analog Input `Ai` menu and then the Sensor Type `SEn` prompt. To turn the sensor off simply write the value of 62 (off) to Modbus register 400368 and send that value to the control.

Modbus RTU Protocols

All Modbus registers are 16-bits and as displayed in this manual are relative addresses (actual). Some legacy software packages limit available Modbus registers to 40001 to 49999 (5 digits). Many applications today require access to all available Modbus registers which range from 400001 to 465535 (6 digits). Watlow controls support 6 digit Modbus registers. For parameters listed as float notice that only one (low order) of the two registers is listed, this is true throughout this document. By default the low order word contains the two low bytes of the 32-bit parameter. As an example, look in the Operations Page for the Process Value. Find the column identified in the header as Modbus and notice that it lists register 360. Because this parameter is a float it is actually represented by registers 360 (low order bytes) and 361 (high order bytes). Because the Modbus specification does not dictate which register should be high or low order Watlow provides the user the ability to swap this order (Setup Page, `CoM` Menu) from the default low/high `Lohi` to high/low `hiLo`.

Note:

With the release of firmware revision 7.00 and above new functions where introduced into this product line. With the introduction of these new functions there was a reorganization of Modbus registers. Notice in the column identified as Mod-

bus the reference to Map 1 and Map 2 registers for each of the various parameters. If the new functions, namely; Linearization, Process Value and Real Time Clock are to be used than use Map 2 Modbus registers. The Data Map $\boxed{\text{ⲅ⅂ΒP}}$ for Modbus registers can be changed in the Setup Page under the $\boxed{\text{Ⲥₒⲅ⅂}}$ Menu. This setting will apply across the control.

It should also be noted that some of the cells in the Modbus column contain wording pertaining to an offset. Several parameters in the control contain more than one instance; such as, profiles (4), alarms (4), analog inputs (2), etc... The Modbus register shown always represents instance one. Take for an example the Alarm Silence parameter found in the Setup Page under the Alarm menu. Instance one of Map 1 is shown as address 1490 and +50 is identified as the offset to the next instance. If there was a desire to read or write to instance 3 simply add 100 to 1490 to find its address, in this case, the instance 3 address for Alarm Silence is 1590.

To learn more about the Modbus protocol point your browser to http://www.modbus.org.

Note:

There are two columns shown in the menus that follow for communications protocols identified as CIP (Common Industrial Protocol) and Profibus. These columns will be useful if this control is used in conjunction with the EZ-ZONE Remote User Interface/Gateway (RUI/GTW) where those protocols can be selected as optional hardware. For this control, as a secondary protocol beyond Standard Bus, Modbus RTU can be ordered as optional hardware.