

Getting started

When start up the controller for the first time, it is required to enter the initial password and a new password. The initial password is 1234.

Overview

This document is a quick start guide for UDC2800 controller. For detailed instructions, see UDC2800 Product Manual.

To Download the Product Manual:

- In a web browser, enter <https://process.honeywell.com/us/en/support/product-documents-downloads>, and login. If you are a new user, register at this website first.
- In the Search box, enter **UDC2800 Product Manual (#51-52-25-157)**, and click the Search icon.
- Select **DOCUMENT TYPE & PRODUCT** filters, if required. The All search Results page appears with the search results.
- Click the package to download it.

Model Number Interpretation

Write your controller's model number in the spaces provided below and circle the corresponding items in each table. This information will also be useful when you wire your controller.

- Select the desired Key Number. The arrow to the right marks the selection available.
- Make the desired selections from Table I to Table VI. A dot '.' denotes availability.

Key Number	I	II	III	IV	V	VI
-----	--	---	---	---	--	-

Key Number – UDC2800 Single Loop Controller

Description	Selection	Availability
Digital Controller for use with 100 to 240 Vac Power	DC2800	↓
Digital Controller for use with 24 Vac/dc Power	DC2900	↓

Table I – Specify Control Output and/or Alarms

Output #1	Selection	Availability
Current Output (4 to 20 ma, 0 to 20 ma)	C_	• •
Electro Mechanical Relay (5 Amp Form C)	E_	• •
Open Collector transistor output	T_	• •
Dual 2 Amp Relays (Both are Form A) (Heat/Cool Applications)	R_	• •
Output #2 and Alarm #1 or Alarms	_0	• •
One Alarm Relay Only	_B	• •
1 and 2	E-M Relay (5 Amp Form C) Plus Alarm 1 (5 Amp Form C Relay)	• •
	Open Collector Plus Alarm 1 (5 Amp Form C Relay)	• •

Table II – Communications and Software

Communications	Selection	Availability
None	0_	• •
Auxiliary Output/Digital Inputs (1 Aux and 1 DI or 2 DI)	1_	• •
RS-485 Modbus Plus Auxiliary Output/Digital Inputs	2_	• •
10/100M Base-T Ethernet (Modbus RTU) Plus Auxiliary Output/Digital Inputs	3_	• •
Software	Limit Controller	e e
	Standard Software	• •
	Standard S/W and Setpoint Program	• •
Future options	None	• •

Table III – Input 1 can be changed in the field using external resistors

Input 1	Selection	Availability
TC, RTD, mV, 0-5V, 1-5V, 0-10V	1_	• •
TC, RTU, mV, 0-5V, 1-5V, 0-10V, 0-20mA, 4-20mA	2_	• •
Input 2	None	• •
TC, RTD, mV, 0-5V, 1-5V, 0-10V	_10	• •
TC, RTU, mV, 0-5V, 1-5V, 0-10V, 0-20mA, 4-20mA	_20	• •
Slidewire Input for Position Proportional (Requires 2 Relay Outputs)	_40	a a
Carbon, Oxygen or Dewpoint (Provides 2 Inputs)	_60	b b

Table IV – Options

Approvals	Selection	Availability
CE (Standard)	0_	• •
CE, UL and CSA	1_	• •
CE, UL, CSA, FM(Limit Controller)	2_	d d
Tags	None	• •
Stainless Steel Customer ID Tag – 3 lines w/22 characters/line	_0_	• •
	T	• •
Future options	None	• •
	_0	• •
	_C	• •
	_0	• •

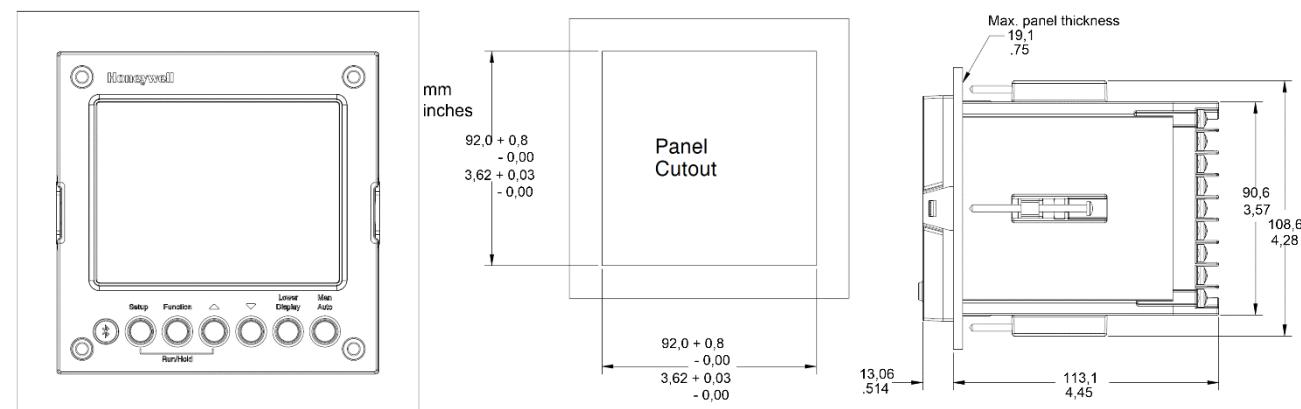
Table IV – Options

Documents	Selection	Availability
Quick Start Guide - English	0_	• •
Certificate	None	• •
Certificate of Conformance (F3391)	_0	• •
	_C	• •

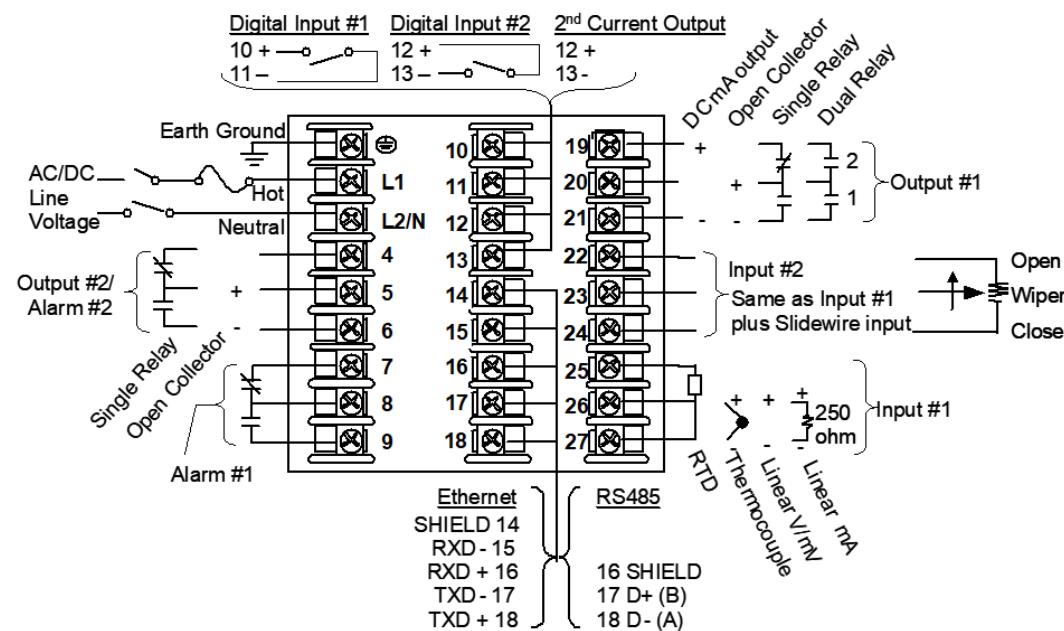
Table VI – Extended Warranty

Extended Warranty	Selection	Availability
None	0	• •
Extended Warranty Additional 1 year	1	• •
Extended Warranty Additional 2 year	2	• •

Dimensions and Mounting



Wiring



Attention: It is recommended to set up an uninterrupted power supply to avoid fluctuations on the device power line, as such fluctuations may cause device availability issues.

Configuration Procedure

Step	Operation	Press	Result
1	Enter Set Up Mode	Setup key	Enter in the first set up group, Security.
2	Select any Set Up group	Setup key or Increment or Decrement keys	Sequentially displays the other set up groups shown in the prompt hierarchy. See Configuration Record Sheet for prompts. You can also use the Increment or Decrement keys to scan the set up groups in both directions. Stop at the set up group tile that describes the group of parameters you want to configure. Then proceed to the next step.
3	Select a Function parameter	Function key Increment or Decrement keys	Enter in the first function prompt of the selected set up group. Press Increment or Decrement keys to display the other function prompts of the selected set up group. Stop at the function prompt that you want to change.
4	Change the Value or Selection	Function key Increment or Decrement keys	Enter in the value or selection of the selected function prompt. Increment or decrement the value or selection that appears for the selected function prompt. You can press the Increment and Decrement keys at the same time to move the current editable digit one step left.
5	Enter the Value or Selection	Function key	Enter value or selection made into memory.
6	Exit Configuration	Lower Display key	Exit the set up mode and returns to the main screen.

Configuration Record Sheet

Enter the value or selection for each prompt on this sheet so you will have a record of how your controller was configured.

Group Prompt	Function Prompt	Value or Selection	Factory Setting	Group Prompt	Function Prompt	Value or Selection	Factory Setting
Security	Password	-----	0	Accutune	Fuzzy Suppression	-----	Disable
	Lockout	-----	Calibration		Accutune	-----	Disable
	Auto/Man Key	-----	Enable		Duplex Output	-----	Manual
	Run/Hold Key	-----	Enable		Error Status	Read only	None
	SP Select Key	-----	Enable				
	Restore Settings	-----	Disable				
	Restore*	-----	Disable				
	Change Password	-----	--				
Tuning	Proportional Band 1 or	-----	--	SP Ramp/Program	SP Ramp Function	-----	Disable
	Gain 1 or	-----	1.000		Ramp Time Min	-----	3
	Rate Min	-----	0.00		Ramp Final SP	-----	1000
	Reset Mins/Rpt 1 or	-----	--		SP Rate Function	-----	Disable
	Reset Rpts/Min 1	-----	0		Rate Up EU/HRr	-----	0
	Manual Reset	-----	--		Rate Down EU/Hr	-----	0
	Proportional Band 2 or	-----	1.000		SP Program Function	-----	Disable
	Gain 2	-----	0.00		Soak Deviation	-----	0
	Rate 2 Min	-----	1.00		Program Termination	-----	Last SP
	Reset Mins/Rpt 2 or	-----	--		Program End State	-----	Disable
	Reset Rpts/Min 2	-----	--		Key Reset/Rerun	-----	Disable
	Proportional Band 3 or	-----	1.000		Hot Start	-----	Disable
	Gain 3	-----	0.00				
	Rate 3 Min	-----	1.00				
	Reset Mins/Rpt 3 or	-----	--				
	Reset Rpts/Min 3	-----	--				
	Proportional Band 4 or	-----	1.000				
	Gain 4	-----	0.00				
	Rate 4 Min	-----	1.00				
	Reset Mins/Rpt 4 or	-----	--				
	Reset Rpts/Min 4	-----	20				
	Cycle Time 1 Sec	-----	20				
	Cycle Time 2 Sec	-----					

Group Prompt	Function Prompt	Value or Selection	Factory Setting	Group Prompt	Function Prompt	Value or Selection	Factory Setting
Algorithms	Control Algorithm	-----	PID A	Output	Output Algorithms	-----	Model No. dependent
	Timer Function	-----	Disable		Output Range	-----	100 Percent
	Period Hrs:Mins	-----	0.01		Relay State	-----	1 Off 2 On
	Start Trigger	-----	Keyboard		Relay Type	-----	Electromechanical
	Low Display	-----	Timer Remaining		Motor Time	-----	30
	Reset Trigger	-----	Keyboard		Current Output	-----	Disable
	Increment	-----	Minutes		CO Low Value	-----	0.0
	Input Algorithm 1	-----	None		CO High Value	-----	100.0
	Math K	-----	1.0		CO Range	-----	4-20mA
	Calculated High	-----	1000				
	Calculated Low	-----	0				
	Algorithm 1 Input A	-----	Input 1				
	Algorithm 1 Input B	-----	Input 2				
	Algorithm 1 Input C	-----	None				
	Percent CO	-----	0.200				
	Algorithm 1 Bias	-----	0.000				
	Percent H2	-----	1.000				
Input1	Input 1 Type	-----	0-10 mV	Input2	Input 2 Type	-----	0-10 mV
	Input 1 Transmitter	-----	Linear		Input 2 Transmitter	-----	Linear
	Input 1 High Value	-----	1000		Input 2 High Value	-----	1000
	Input 1 Low Value	-----	0		Input 2 Low Value	-----	0
	Input 1 Ratio	-----	1.00		Input 2 Ratio	-----	1.00
	Input 1 Bias	-----	0		Input 2 Bias	-----	0
	Input 1 Filter	-----	1		Input 2 Filter	-----	1
Input 1 Burnout	-----	No Burnout	Input 2 Burnout	-----	No Burnout		
Control	PV Source	-----	Input 1	Alarms	A1S1 Type	-----	None
	PID Sets	-----	1 Set		A1S1 Value	-----	90
	Switchover Value 1/2	-----	0.00		A1S1 State	-----	High Alarm
	Switchover Value 2/3	-----	0.00		A1S1 Event	-----	End of Segment
	Switchover Value 3/4	-----	0.00		A1S1 Delay	-----	0
	Local SP Source	-----	1 Local SP		A1S1 Hysteresis	-----	0.1
	Remote SP Source	-----	None		A1S2 Type	-----	None
	Autobias	-----	Disable		A1S2 Value	-----	10
	SP Tracking	-----	None		A1S2 State	-----	Low Alarm
	Power Up Mode	-----	Manual/Local SP		A1S2 Event	-----	Begin of Segment
	TPSC Power Up Mode	-----	Failsafe		A1S2 Delay	-----	0
	SP High Limit	-----	1000		A1S2 Hysteresis	-----	0.1
	SP Low Limit	-----	0		A2S1 Type	-----	None
	Action Direction	-----	Reverse		A2S1 Value	-----	95
	Output Rate	-----	Disable		A2S1 State	-----	High Alarm
	Rate Up % Min	-----	0		A2S1 Event	-----	End of Segment
	Rate Down % Min	-----	0		A2S1 Delay	-----	0
	Output High Limit	-----	100		A2S1 Hysteresis	-----	0.1
	Output Low Limit	-----	0		A2S2 Type	-----	None
	Integral High Limit	-----	100		A2S2 Value	-----	5
	Integral Low Limit	-----	0		A2S2 State	-----	Low Alarm
	Dropoff	-----	0		A2S2 Event	-----	Begin of Segment
	Deadband	-----	1.0		A2S2 Delay	-----	0
	Output Hysteresis	-----	0.5		A2S2 Hysteresis	-----	0.1
Failsafe Mode	-----	Non Latching	Alarm Output 1	-----	Non Latching		
Failsafe Value	-----	0	Alarm Blocking	-----	Disable		
SW Failsafe Value	-----	0	AO/CO Diagnostic	-----	Disable		
Preset Manual Output	-----	0					
Preset Auto Output	-----	0					
Proportion Unit	-----	Gain					
Reset Unit	-----	Minutes/Repeat					
Options	Auxiliary Output	-----	Disable	Display	Decimal Digits	-----	None
	CO Range	-----	4-20 mA		Temperature Unit	-----	None
	CO Low Value	-----	0.0		Input 2 Ratio	-----	Disable
	CO High Value	-----	100.0		Language	-----	English
	DI 1 Function	-----	None		TC Diagnostics	-----	Enable
	DI 1 Combination	-----	Disable		Theme	-----	Bright
DI 2 Function	-----	None					
DI 2 Combination	-----	Disable					

Configuration Record Sheet

Group Prompt	Function Prompt	Value or Selection	Factory Setting	
Communication	Bluetooth Function	-----	Disable	
	Bluetooth ID	-----	UXXXXXXXX	
	Bluetooth MAC Address	-----	XX:XX:XX:XX:XX:XX	
	Communication Type	-----	Disable	
	Modbus Address	-----	3	
	Baud Rate	-----	19200	
	Response Delay	-----	1	
	Word Order for Float	-----	FP B 0123	
	Ethernet Address	-----	10.0.0.2	
	Subnet Mask Address	-----	255.255.255.0	
	Default Gateway	-----	0.0.0.0	
	Shed Function	-----	Disable	
	Shed Time	-----	30	
	Shed Mode	-----	Last Mode	
	Shed SP Recall	-----	To Local SP	
	Computer SP Unit	-----	Engineering Unit	
	Computer SP Ratio	-----	1.00	
	Computer SP Bias	-----	0	
Local Loopback	-----	Disable		
Communication with RS485 board (Accessible via Communication set up group or Honeywell EasySet)	Bluetooth Function	-----	Disable	
	Bluetooth ID	-----	UXXXXXXXX	
	Bluetooth MAC Address	-----	XX:XX:XX:XX:XX:XX	
	Communication Type	-----	Disable	
	Modbus Address	-----	3	
	Baud Rate	-----	19200	
	Response Delay	-----	1	
	Word Order for Float	-----	FP B 0123	
	Shed Function	-----	Disable	
	Shed Time	-----	30	
	Shed Mode	-----	Last Mode	
	Shed SP Recall	-----	To Local SP	
	Computer SP Unit	-----	Engineering Unit	
	Computer SP Ratio	-----	1.00	
	Computer SP Bias	-----	0	
	Local Loopback	-----	Disable	
	Communication with Ethernet board (Accessible via Communication set up group or Honeywell EasySet)	Bluetooth Function	-----	Disable
		Bluetooth ID	-----	UXXXXXXXX
Bluetooth MAC Address		-----	XX:XX:XX:XX:XX:XX	
Communication Type		-----	Disable	
Modbus Address		-----	3	
Baud Rate		-----	19200	
Response Delay		-----	1	
Word Order for Float		-----	FP B 0123	
Ethernet Address		-----	10.0.0.2	
Subnet Mask Address		-----	255.255.255.0	
Default Gateway		-----	0.0.0.0	
Shed Function		-----	Disable	
Shed Time		-----	30	
Shed Mode		-----	Last Mode	
Shed SP Recall		-----	To Local SP	
Computer SP Unit		-----	Engineering Unit	
Computer SP Ratio		-----	1.00	
Computer SP Bias		-----	0	
Status	Software Version	Read only	--	
	Failsafe Status	Read only	--	
	Self Tests	Read only	--	

Start Up Procedure for Operation

It is required to enter the initial password and a new password when start up the controller for the first time. The initial password is 1234. For more information of interface displays, see "Function of displays" in *UDC2800 Product Manual*.

Step	Operation	Press	Result
1	Select Manual Mode	Man Auto key	Until "Manual" is displayed under MODE. The controller is in manual mode.
2	Adjust the Output	Increment or Decrement keys	Lower Display = OUT and the output value in %. To adjust the output value and ensure that the final control element is functioning correctly.
3	Enter the Local Setpoint	Lower Display key	Until the required "SP" and the Local Setpoint Value are displayed.
		Increment or Decrement keys	To adjust the local setpoint to the value at which you want the process variable maintained. Attention: The local setpoint 1 cannot be changed if the Setpoint Ramp function is running.
4	Select Automatic Mode	Man Auto key	Until "Auto" is displayed under MODE. The controller is in Automatic mode. The controller will automatically adjust the output to maintain the process variable at setpoint.
5	Tune the Controller	Setup key	Make sure the controller has been configured properly and all the values and selections have been recorded on the Configuration Record Sheet. Refer to Tuning Set Up group to ensure that the selections for Proportional Band or Gain, Rate Min, and Reset Mins/Rpt, or Reset Rpts/Min have been entered. Use Accutune to tune the controller. See "Accutune III" in <i>UDC2800 Product Manual</i> .

Setpoints

You can configure the following setpoints for the UDC2800 controller.

- A Single Local Setpoint
- 2 Local Setpoints
- 3 Local Setpoints
- 4 Local Setpoints
- Up to 4 Local Setpoints and 1 Remote Setpoint

Changing the Setpoint value

Step	Operation	Press	Result
1	Select the Setpoint	Low Display key	Until you see: Lower Display = SP or 2SP or 3SP, or 4SP (Value)
2	Adjust the Output	Increment or Decrement keys	To change the Local Setpoint to the value at which you want the process maintained. The display "blinks" if you attempt to enter setpoint values beyond the high and low limits. The configured setpoint will be stored immediately.

Switching between Setpoints

You can switch Local and Remote setpoints or between two Local setpoints when configured.

Attention: The Remote Setpoint value cannot be changed at the keyboard.

To switch between Setpoints

Press the Function key to switch the four Local Setpoints and/or the Remote Setpoint.

Attention: "KEY ERROR" appears if:

- the remote setpoint or additional local setpoints are not configured as a setpoint source.
- you attempt to change the setpoint while a setpoint ramp/program is running.
- you attempt to change the setpoint with the setpoint select function key disabled.
- while a setpoint ramp/program is not terminated.

Viewing the operating parameters

Under the main screen, press the Lower Display key to scroll through the operating parameters listed in table below. The lower display will show only those parameters and their values that apply to your specific model.

Lower Display	Description
OUT XXX.X	Output value is shown in percent with one decimal point when Control Algorithm is NOT configured as Three Position Step Control (TPSC) , and Slidewire is connected.
OUT XXX	Output value is shown in percent with no decimal point when Control Algorithm is NOT configured as Three Position Step Control (TPSC) , Output Algorithm is configured as Position Proportion , and Slidewire fails.
COU XXX.X	Appears when Shed function is Enabled, and Output Override register is successful override by Modbus (In Slave Mode).
EOU XXX.X	Appears when Shed function is Enabled, and the controller is in Slave Mode, push A/M key to enter Emergency Mode.
POS XXX	Slidewire Position – Used only with TPSC applications that use a slidewire input.
SP XXXX.XXX	Local Setpoint #1, appears when Control Algorithm is configured as ANY algorithm except Disable in the Algorithms set up group. It also appears for current setpoint when using SP Ramp.
2SP XXXX.XXX	Local Setpoint #2, appears when the following two conditions are satisfied: <ul style="list-style-type: none"> In the Algorithms set up group, configure Control Algorithm as ANY algorithm except Disable. In the Control set up group, configure Local SP Source as 2/3/4 Local SPs.
3SP XXXX.XXX	Local Setpoint #3, appears when the following two conditions are satisfied: <ul style="list-style-type: none"> In the Algorithms set up group, configure Control Algorithm as ANY algorithm except Disable. In the Control set up group, configure Local SP Source as 3/4 Local SPs.
4SP XXXX.XXX	Local Setpoint #4, appears when the following two conditions are satisfied: <ul style="list-style-type: none"> In the Algorithms set up group, configure Control Algorithm as ANY algorithm except Disable. In the Control set up group, configure Local SP Source as 4 Local SPs.
RSP XXXX.XXX	Remote Setpoint, appears when the following two conditions are satisfied: <ul style="list-style-type: none"> In the Algorithms set up group, configure Control Algorithm as ANY algorithm except Disable. In the Control set up group, configure Remote SP Source as ANY selection except Disable.
CSP XXXX.XXX	Computer Setpoint, when SP is in override. <ul style="list-style-type: none"> In the Algorithms set up group, configure Control Algorithm as ANY algorithm except Disable. In the Communication set up group, enable Shed Function. And CSP is successfully override by SP override through Modbus.
SPN XXXX.XXX	Setpoint Now—Current Setpoint when SP Rate is enabled. The SP XXXX.XXX display shows the “target” or final setpoint value. SPN is not equal with the target SP.
DEV XXX.X	Deviation
1 IN XXXX.XXX	Input 1—Used only with combinational input algorithms.
2 IN XXXX.XXX	Input 2
PID Set X	Tuning Parameter, where X is either 1, 2, 3 or 4.
BIAS XXXX	BIAS, displays the manual reset value for algorithm PD+MR.
AUX XXX.X	Auxiliary Output, displayed only when output algorithm is not Current Duplex.
TEL O XXH:XXM Or TEL O XXM:XXS	Elapsed Time, time that has elapsed on the Timer in Hours: Minutes, or Minutes: Seconds. The "O" is a clockwise running clock.
TRE O XXH:XXM Or TRE O XXM:XXS	Time Remaining, time remaining on the Timer in Hours: Minutes, or Minutes: Seconds. The "O" is a counter-clockwise running clock.
RAMP XXXM:XXS	Setpoint Ramp Time—Time remaining in the Setpoint Ramp in minutes.
PXSX RA XXH:XXM:XXS PXSX RA XXX/M (0-999) PXSX RA XXX/H (0-999)	Program X(1-8) Segment X(1-8) Ramp XXH:XXM:XXS remaining X and XX is current program or segment or time remaining Initial hold states Ramp time should be remaining time
PXSX SK XXH:XXM:XXS	Program X(1-8) Segment(1-8) Soak XXH:XXM:XXS remaining X and XX is current program or segment or time remaining Initial hold states Soak time should be remaining time
Recycle XX	Number of SP Program Recycles Remaining
To Begin	Reset SP Program to Start of First Segment
Rerun	Reset SP Program to Start of Current Segment
ACTU TUNE OFF	Limit Cycle Tuning not Running, appears when Accutune is enabled but not operating.
ACTU DO SLOW	Limit Cycle Tuning with the objective of producing damped or Dahlin tuning parameters, depending upon the detected process deadtime. The tuning parameters calculated by this selection are aimed at reducing PV overshoot of the SP setting.
ACTU DO FAST	Limit Cycle Tuning with the objective of producing quarter-damped tuning parameters. This tuning may result in PV overshoot of the SP setting.

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Factory Information

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