

Using Accutune II

F.1 Overview

Introduction

Accutune II provides foolproof, trouble-free on-demand tuning in the recorder. No knowledge of the process is required at start-up. The operator simply enters the desired setpoint and initiates the tuning. The recorder immediately starts controlling to the setpoint while it identifies the process, calculates the tuning constants and enters them into the tuning set up group, and begins PID control with the correct tuning parameters. This works with any process, including integrating type processes, and allows retuning at a fixed setpoint. The tuning sequence will cycle the recorder's output two full cycles between 0% and 100% (or low and high output limits) while allowing only a very small process variable change above and below the setpoint during each cycle.

- Accutune works for all control algorithms except ON/OFF.
- The recorder must be in Auto mode.
- Accutune works for integrating processes.

Enable/disable Accutune using the tuning set up group TUNE parameter described in Section 4.

Detailed instructions for using Accutune are provided in this appendix.

What's in this section?

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F.2 Starting and Stopping Tuning with Accutune II

Procedure

After "TUNE" has been enabled in the tuning set up group as described in Section 4, use the procedure in Table F-1 to start tuning.

To abort tuning in progress, press the MAN/AUTO/RESET key to take the recorder out of Auto mode. The message "AbRT" (abort) will be displayed as the value of tuning set up group parameter "AT ERR". The tuning parameters will retain the values they had at the start of the Accutune operation.

Table F-1 Procedure for Starting Accutune II

Step	Press	Action/Result
1	<div style="border: 1px solid black; padding: 5px; display: inline-block; text-align: center;">DISP</div> until you see	Lower Display <div style="border: 1px solid black; padding: 2px; display: inline-block;">TuneOF</div> If "TuneOF" (tune off) does not appear, then Accutune is not enabled.
2	▲ or ▼	to toggle to Lower Display <div style="border: 1px solid black; padding: 2px; display: inline-block;">TuneON</div> Tuning will begin and the lower display will flash "TUNING". When tuning has been completed the lower display will again show "TuneOF".

F.3 Using Accutune with Duplex (Heat/Cool) Control

Introduction

“TUNE” can be done for applications using Duplex (Heat/Cool) control.








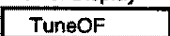
During tuning, Accutune II assumes SP 1 will cause a Heating demand, and then the calculated tuning parameters will be automatically entered as the first set of PID constants. Likewise, it assumes tuning at Local SP 2 will cause a Cooling demand, and the cooling parameters will be entered as the second set of PID constants.

Procedure

After “TUNE” has been enabled in the tuning set up group as described in section 4, use the procedure in Table F-2 to start tuning. Note that control group parameter “NumSPs” must be set to “TWO” to enable the second setpoint.

To abort tuning in progress, press the MAN/AUTO/RESET key to take the recorder out of Auto mode. The message “AbRT” (abort) will be displayed as the value of tuning set up group parameter “AT ERR”. The tuning parameters will retain the values they had at the start of the Accutune operation.

Table F-2 Procedure for Using Accutune for Duplex Control

Step	Press	Action/Result
Heating Tuning		
1	 until you see	Lower Display  Display Setpoint 1.
2	 or 	Until the value of Setpoint 1 is at the desired value within the Heat zone. Make sure the recorder is in Auto mode. (“A” indicator lit.) If not, use the MAN/AUTO/RESET key to put the unit in Auto.
3	 until you see	Lower Display  This is the prompt used to select the setpoint. If it is not “USESP1”, use ▲ or ▼ to switch to “USESP1”.
4	 until you see	Lower Display  If “TuneOF” (tune off) does not appear, then Accutune is not enabled.

Step	Press	Action/Result
5	<p style="text-align: center;">▲ or ▼</p>	<p>to toggle to Lower Display TuneON</p> <p>Tuning will begin and the lower display will flash "TUNING". The output will cycle between 50% and 100% (or high output limit). When tuning has been completed the lower display will again show "TuneOF". The Heat tuning parameters are entered for the first set of PID constants in the tuning set up group.</p>
Cooling Tuning		
6	<p style="text-align: center;">DISP until you see</p>	<p>Lower Display S2 nnn Display Setpoint 2.</p>
7	<p style="text-align: center;">▲ or ▼</p>	<p>Until the value of Setpoint 2 is at the desired value within the Cooling zone.</p>
8	<p style="text-align: center;">DISP until you see</p>	<p>Lower Display UseSP1</p>
9	<p style="text-align: center;">▲ - or ▼</p>	<p>to toggle to. Lower Display UseSP2</p>
10	<p style="text-align: center;">DISP until you see</p>	<p>Lower Display TuneOF</p>
11	<p style="text-align: center;">▲ or ▼</p>	<p>to toggle to Lower Display TuneON</p> <p>Tuning will begin and the lower display will flash "TUNING". The output will cycle between 0% and 50% (or low output limit). When tuning has been completed the lower display will again show "TuneOF". The Cool tuning parameters are entered for the second set of PID constants in the tuning set up group.</p>