



UDC 3200 Application Note

Options Group

OPTION Group Function Prompts

Function Prompt Lower Display	Selections or Range of Setting Upper Display	Parameter Definition
<p>AUX OUT</p> <p>ATTENTION Prompts for the Auxiliary Output Selection appear only if one of the Auxiliary Output boards is installed.</p>	<p>DISABLE</p> <p>INPUT 1</p> <p>INPUT 2</p> <p>PV</p>	<p>AUXILIARY OUTPUT SELECTION</p> <p>This selection provides an mA output representing one of several control parameters. The display for auxiliary output viewing will be in engineering units for all but output. Output will be displayed in percent.</p> <p>ATTENTION Other prompts affected by these selections: 4mA VAL and 20mA VAL.</p> <p>ATTENTION Output cannot be configured when Three Position Step Control is used.</p> <p>NO AUXILIARY OUTPUT</p> <p>INPUT 1—This represents the configured range of input 1.</p> <p>FOR EXAMPLE: Type J Thermocouple (0 °F to 1600 °F) 0 °F display = 0 % output 1600 °F display = 100 % output</p> <p>INPUT 2 represents the value of the configured range of input 2.</p> <p>PROCESS VARIABLE—Represents the value of the Process Variable. $PV = \text{Input } X \times \text{Ratio}_X + \text{Bias}_X$</p>



UDC 3200 Application Note

Function Prompt Lower Display	Selections or Range of Setting Upper Display	Parameter Definition
	DEV	<p>DEVIATION (PROCESS VARIABLE MINUS SETPOINT)—Represents -100% to $+100\%$ of the selected PV span in engineering units.</p> <p>Zero deviation will produce a center scale (12 mA or 50 %) output. A negative deviation equal in magnitude to the Auxiliary Output High Scaling Factor will produce a low end output (4 mA or 0 %) output. A positive deviation equal in magnitude to the Auxiliary Output Low Scaling Factor will produce a high end output (20 mA or 100 %).</p> <p>FOR EXAMPLE:</p> <p>Input 1 = Type T High Thermocouple PV range = $-300\text{ }^{\circ}\text{F}$ to $+700\text{ }^{\circ}\text{F}$ PV span = $1000\text{ }^{\circ}\text{F}$ Deviation Range = $-1000\text{ }^{\circ}\text{F}$ to $+1000\text{ }^{\circ}\text{F}$ Auxiliary Output Low Scale Value = 0.0 Auxiliary Output High Scale Value = 1000</p> <p>If PV = $500\text{ }^{\circ}\text{F}$ and SP = $650\text{ }^{\circ}\text{F}$ then Deviation Display = $-150\text{ }^{\circ}\text{F}$, which is -7.5% of the Deviation Range, so Auxiliary Output = $50\% - 7.5\% = 42.5\%$</p>
	OUTPUT	<p>OUTPUT—Represents the displayed controller output in percent (%). Cannot be used with Three Position Step Control.</p>
	SP	<p>SETPOINT—Represents the value of the setpoint currently in use (LSP1, LSP2, LSP3, RSP or CSP) and is shown in the same units as those used by the PV.</p>
	LSP 1	<p>LOCAL SETPOINT ONE—Auxiliary output represents Local Setpoint 1 regardless of active setpoint.</p>
	RSP	<p>REMOTE SETPOINT – Represents the configured RSP regardless of the active SetPoint.</p>
	IN ALG1	<p>INPUT ALGORITHM 1 OUTPUT—Represents the output from input algorithm 1.</p>




UDC 3200 Application Note

Function Prompt Lower Display	Selections or Range of Setting Upper Display	Parameter Definition
CO RANGE	4-20mA 0-20mA	<p>AUXILIARY CURRENT OUTPUT RANGE—Allows the user to easily select 4-20mA output or 0-20mA output operation without the need for recalibration of the instrument.</p> <p>ATTENTION Changing the Auxiliary Current Output Range will result in the loss of Field Calibration values and will restore Factory Calibration values.</p>
LOW VAL	Low Scale Value within the range of the selected variable to represent the minimum output (0 or 4 mA)	<p>AUXILIARY OUTPUT LOW SCALING FACTOR—This is a value in engineering units used to represent all AUX OUT parameters except Output. For Output, this is a value in percent and can be any value between -5 % and +105 %. However, keep in mind that relay output types can only be scaled 0 % to 100 %.</p>
HIGH VAL	High Scale Value within the range of the selected variable to represent the maximum output (20 mA)	<p>AUXILIARY OUTPUT HIGH SCALING FACTOR—This is a value in engineering units used to represent all AUX OUT parameters except Output. For Output, this is a value in percent and can be any value between -5 % and +105 %. However, keep in mind that relay output types can only be scaled 0 % to 100 %.</p>
DIG INP1	NONE TO MAN TO LSP TO 2SP	<p>DIGITAL INPUT 1 SELECTIONS—All selections are available for Input 1. The controller returns to its original state when contact opens, except when overruled by the keyboard.</p> <p>NO DIGITAL INPUT SELECTIONS</p> <p>TO MANUAL—Contact closure puts the affected loop into manual mode. Contact open returns controller to former mode.</p> <p>TO LOCAL SETPOINT—When a remote setpoint is configured, contact closure puts the controller into local setpoint 1. When contact opens, the controller returns to former operation—local or remote setpoint—unless SP Select key is pressed while digital input is active. If this happens, the controller will stay in the local setpoint mode when contact opens.</p> <p>TO LOCAL SETPOINT TWO—Contact closure puts the controller into local setpoint 2.</p>



UDC 3200 Application Note

Function Prompt Lower Display	Selections or Range of Setting Upper Display	Parameter Definition
	TO 3SP	TO LOCAL SETPOINT THREE —Contact closure puts the controller into local setpoint 3.
	TO DIR	TO DIRECT ACTION —Contact closure selects direct controller action.
	TO HOLD	<p>TO HOLD—Contact closure suspends Setpoint Program or Setpoint Ramp. When contact reopens, the controller starts from the Hold point of the Ramp/Program unless the Ramp/Program was not previously started via the  key.</p> <p>This selection applies to either loop.</p>
	TO PID2	TO PID2 —Contact closure selects PID Set 2.
	PV 2IN	PV=INPUT 2 —Contact closure selects PV = Input 2.
	RERUN	RERUN --Allows the Setpoint Programmer to be reset to the initial segment of its current cycle, unit stays in previous mode.
	TO RUN	<p>RUN—Contact closure starts a stopped SP Ramp or Program. Upper left character blinks "R". Reopening the contact puts controller in HOLD mode.</p> <p>This selection applies to either loop.</p>
	ToBEGIN	<p>EXTERNAL SP PROGRAM RESET—Contact closure resets SP Program back to the beginning of the first segment in the program and places the program in the HOLD mode. Program cycle number is not affected. Reopening switch has no effect.</p> <p>This selection applies to either loop.</p> <p>ATTENTION Once the last segment of the setpoint program has timed out, the controller enters the mode of action specified in the configuration data and the program cannot be reset to the beginning of the first segment by digital input closure.</p>
	STOP I	INHIBIT INTEGRAL (RESET) —Contact closure disables PID Integral (Reset) action.
	MAN FS	<p>MANUAL FAILSAFE OUTPUT—Controller goes to Manual mode, output goes to the Failsafe value.</p> <p>ATTENTION This will cause a bump in the output when switching from Automatic to Manual. The switch back from Manual to Automatic is bumpless. When the switch is closed, the output can be adjusted from the keyboard.</p>



UDC 3200 Application Note

Function Prompt Lower Display	Selections or Range of Setting Upper Display	Parameter Definition
	TO LOCK	KEYBOARD LOCKOUT —Contact closure disables all keys. Lower display shows LOCKED if a key is pressed.
	TO Aout	AUTOMATIC OUTPUT —Contact closure sends output to the value set at Control prompt AUTO OUT when the controller is in the Automatic mode. Reopening the contact returns the controller to the normal output. ATTENTION Does not apply to Three Position Step Control.
	TIMER	TIMER —Contact closure starts timer, if enabled. Reopening the switch has no effect.
	AM STA	TO AUTO/MANUAL STATION —Contact closure causes the control loop to perform as follows: PV = Input 2 Action = Direct Control algorithm = PD+MR PID SET = 2 SP = LSP 2
	TO TUNE	INITIATE LIMIT CYCLE TUNING —Contact closure starts the tuning process. The lower display shows TUNE ON. Opening the contact has no effect.
	SP Init	SETPOINT INITIALIZATION —Contact closure forces the setpoint to the current PV value. Opening the contact has no effect.
	TRACK	OUTPUT TRACKS INPUT 2 —Contact closure allows Output to track Input 2. While the switch is open, the output is in accordance with its pre-defined functionality. When the switch is closed, the output value (in percent) will track the Input 2 percent of range value. When the switch is reopened, the output will start at this last output value and normal PID action will then take over control. The transfer is bumpless.
	TO RSP	TO REMOTE SETPOINT —Contact closure selects the Remote setpoint.
	RST FB	EXTERNAL RESET FEEDBACK —Contact closure allows Input 2 to override the internal reset value.



UDC 3200 Application Note

Function Prompt Lower Display	Selections or Range of Setting Upper Display	Parameter Definition
	To PURGE	TO PURGE Contact closure forces the loop to Manual mode with the output set to the Output High Limit configuration. MAN lights and the Output value is shown on the lower display. Opening the switch has no effect. ATTENTION Does not apply to Three Position Step Control.
	Lo FIRE	LOW FIRE Contact closure forces the loop to Manual mode with the output set to the Output Low Limit configuration. MAN lights and the Output value is shown on the lower display. Opening the switch has no effect. ATTENTION Does not apply to Three Position Step Control.
	MAN LAT	MANUAL LATCHING Contact closure transition forces the loop to Manual mode. Opening the switch has no effect. If the MAN/AUTO key is pressed while the switch is closed, the loop will return to Automatic mode.
DIG 1COMB	DISABLE +PID2 +TO DIR +TO SP2 +DIS AT +TO SP1 +RUN	DIGITAL INPUT 1 COMBINATION SELECTIONS —This selection allows the specified function to occur in addition to the one chosen for DIG IN 1. DISABLE —Disables combination function. PLUS PID2 —Contact closure selects PID Set 2. PLUS DIRECT ACTION —Contact closure selects direct controller action. PLUS SETPOINT 2 —Contact closure puts the controller into setpoint 2. PLUS DISABLE ADAPTIVE TUNE —Contact closure disables Accutune process. PLUS SETPOINT 1 —Contact closure puts the controller into setpoint 1. PLUS RUN SETPOINT PROGRAM/RAMP —Contact closure starts SP Program/Ramp if enabled.
DIG INP2	Same selections as for Digital Input 1	DIGITAL INPUT 2 SELECTIONS
DIG2COMB	Same selections as Digital Input 1 Combinations	DIGITAL INPUT 2 COMBINATIONS