



UDC 2500 Application Note

Options Group

Introduction

The Options group lets you configure the remote mode switch (Digital Inputs) to a specific contact closure response, or configure the Auxiliary Output to be a specific selection with desired scaling.

Function Prompts

Table Error! No text of specified style in document.-1 OPTION Group (Numeric Code 900) Function Prompts

Function Prompt Lower Display		Selection or Range of Setting Upper Display		Parameter Definition
English	Numeric Code	English	Numeric Code	
AUXOUT	901			AUXILIARY OUTPUT SELECTION 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. ATTENTION Other prompts affected by these selections: 4mA VAL and 20mA VAL. ATTENTION Output cannot be configured when Three Position Step Control is used.
		DIS	0	NO AUXILIARY OUTPUT
		IN1	1	INPUT 1 —This represents the configured range of input 1. FOR EXAMPLE: Type J Thermocouple (0 °F to 1600 °F) 0 °F display = 0 % output 1600 °F display = 100 % output
		IN2	2	INPUT 2 represents the value of the configured range of input 2.
		PROC	3	PROCESS VARIABLE —Represents the value of the Process Variable. PV = Input XxRatioX + BiasX
		DEV	4	DEVIATION (PROCESS VARIABLE MINUS SETPOINT) —Represents -100 % to +100 % of the selected PV span in engineering units. FOR EXAMPLE:



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English	Numeric Code	English	Numeric Code	
		OUT	5	<p>Type T Thermocouple PV range = -300 °F to +700 °F PV span = 1000 °F Deviation Range = -1000 °F to +1000 °F</p> <p>If PV = 500 °F and SP = 650 °F then Deviation Display = -150 °F and Auxiliary Output = 42.5 %</p> <p>When Deviation is selected, only one operating parameter will be entered. This value represents the deviation level that will produce 20 mA (100 %) output. Zero deviation will produce a center scale (12 mA or 50 %) output. A negative deviation equal in magnitude to the auxiliary output high value will produce a low end (4 mA or 0 %) output.</p> <p>OUTPUT—Represents the displayed controller output in percent (%). Cannot be used with Three Position Step Control.</p> <p>SETPOINT—Represents the value of the setpoint in units of PV.</p> <p>LOCAL SETPOINT ONE—Auxiliary output represents Local Setpoint 1 regardless of active setpoint.</p> <p>LOCAL SETPOINT TWO—Auxiliary output represents Local Setpoint 2 regardless of active setpoint.</p>
		SP	6	
		LSP 1	7	
		LSP 2	8	
0PCT	902	Value in Engineering Units		<p>AUXILIARY OUTPUT LOW SCALING FACTOR—Use a value in engineering units to represent all AUX OUT parameters except output.</p> <p>Use value in percent (%) for output. (Output can be any value between -5 % and +105 %.)</p>
100 PCT	903	Value in Engineering Units		<p>AUXILIARY OUTPUT HIGH SCALING FACTOR—Use a value in engineering units to represent all AUX OUT parameters except output.</p>



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English	Numeric Code	English	Numeric Code	
				Use a value in percent (%) for Output. (Output can be any value between -5 % and +105 %.)
ARANGE	904	4-20 0-20	0 1	AUXILIARY OUTPUT RANGE allows the user to easily select 4-20mA output or 0-20mA output operation without the need for recalibration of the instrument. ATTENTION Changing the Auxiliary Output Range will result in the loss of Field Calibration values and will restore Factory Calibration values.
DIGIN1	905	NONE MAN LSP SP2 DIR HOLD	0 1 2 3 4 5	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. NO DIGITAL INPUT SELECTIONS TO MANUAL —Contact closure puts the affected loop into manual mode. Contact open returns controller to former mode. 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 SETPOINT SELECT key is pressed while digital input is active. If this happens, the controller will stay in the local setpoint mode when contact opens. TO LOCAL SETPOINT TWO —Contact closure puts the controller into local setpoint 2. TO DIRECT ACTION —Contact closure selects direct controller action. TO HOLD —Contact closure suspends Setpoint Program or Setpoint Ramp. When contact reopens, the controller starts from the Hold point of the



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				<p>Ramp/Program unless the Ramp/Program was not previously started via the RUN/HOLD key.</p> <p>This selection applies to either loop.</p>
		PID2	6	<p>TO PID2—Contact closure selects PID Set 2.</p>
		RUN	7	<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>
		Begn	8	<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>
		NO I	9	<p>INHIBIT INTEGRAL (RESET)—Contact closure disables PID Integral (Reset) action.</p>
		MNFS	10	<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>
		LOCK	11	<p>KEYBOARD LOCKOUT—Contact closure disables all keys. Lower display shows LOCKED if a key is pressed.</p>



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		TIMR	12	TIMER —Contact closure starts timer, if enabled. Reopening the switch has no effect.
		TUNE	13	INITIATE LIMIT CYCLE TUNING —Contact closure starts the slow tuning process. The lower display shows DoSLOW. Opening the contact has no effect.
		INIT	14	SETPOINT INITIALIZATION —Contact closure forces the setpoint to the current PV value. Opening the contact has no effect.
		RSP	15	TO REMOTE SETPOINT —Contact closure selects the Remote setpoint.
		MNLT	16	MANUAL LATCHING —Contact closure transition forces the loop to Manual mode. Opening the switch has no effect. If the MANUAL/AUTO key is pressed while the switch is closed, the loop will return to Automatic mode.
		TRAK	17	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.
		STRT	18	PV HOTSTART —Contact closure starts the SP Ramp or SP Program at the original selected starting Setpoint Value that existed at the time that the SP Ramp or Program was first started. Opening contact has no effect. This configuration must be selected prior to the first time the SP Ramp or Program is placed in the RUN mode, as otherwise the unit will not be able to capture the initial Setpoint value. This selection allows the unit to retain the initial Setpoint value even if



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				<p>power to the unit is lost.</p> <p>When the STATE selection in the SP Ramp or Program Set Up group is set to HOLD and the digital input contact is left closed, then when the end of the program or ramp is reached, the program or ramp will automatically restart at the initial Setpoint value.</p> <p>If power to the unit is lost while while a SP Ramp or Program was running, then if the contact is closed at power up, the unit will automatically restart the SP Ramp or Program at the captured Setpoint value.</p>
DI1COM	906	DIS +PD2 +DIR +SP2 +SP1 +RUN	0 1 2 3 4 5	<p>DIGITAL INPUT 1 COMBINATION SELECTIONS—This selection allows the specified function to occur in addition to the one chosen for DIG IN 1.</p> <p>DISABLE—Disables combination function.</p> <p>PLUS PID2—Contact closure selects PID Set 2.</p> <p>PLUS DIRECT ACTION—Contact closure selects direct controller action.</p> <p>PLUS SETPOINT 2—Contact closure puts the controller into setpoint 2.</p> <p>PLUS SETPOINT 1—Contact closure puts the controller into setpoint 1.</p> <p>PLUS RUN SETPOINT PROGRAM/RAMP—Contact closure starts SP Program/Ramp if enabled.</p>
DIGIN2	907	Same selections as for Digital Input 1		DIGITAL INPUT 2 SELECTIONS
DI2COM	908	Same selections as Digital Input 1 Combinations		DIGITAL INPUT 2 COMBINATIONS