For detailed instructions see UDC3200 Controller Product Manual 51-52-25-119.

Step 1. Model Number Interpretation

Write your controller model number in the boxes. Then refer to Tables I, II, III,IV,V,VI and circle the corresponding options to identify your controller's features. A dot indicates the feature is available.

Key Number	Table I	II	III	IV	V	VI

KEY NUMBER - UDC3200 Single Loop Controller

	Description	Selection	Availability
	Digital Controller for use with 90 to 264Vac Power	DC3200	↓
	Digital Controller for use with 24Vac/dc Power	DC3201	↓

TABLE I - Specify Control Output and/or Alarms

		Selection		
Output #1	Current Output (4 to 20ma, 0 to 20 ma)	C _	•	•
	Electro Mechanical Relay (5 Amp Form C)	E _	•	•
	Solid State Relay (1 Amp)	A _	•	•
	Open Collector transistor output	T _	•	•
	Dual 2 Amp Relays (Both are Form A) (Heat/Cool Applications)	R _	•	•
Output #2 and Alarm #1 or Alarms 1 and 2	No Additional Outputs or Alarms	_ 0	•	•
	One Alarm Relay Only	_ B	•	•
	E-M Relay (5 Amp Form C) Plus Alarm 1 (5 Amp Form C Relay)	_ E	•	•
	Solid State Relay (1 Amp) Plus Alarm 1 (5 Amp Form C Relay)	_ A	•	•
	Open Collector Plus Alarm 1 (5 Amp Form C Relay)	_ T	•	•

TABLE II - Communications and Software Selections

		Selection		
Communications	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 Base-T Ethernet (Modbus RTU) Plus Auxiliary Output/Digital Inputs	3 _ _ _	•	•
Software Selections	Standard Functions, Includes Accutune	_ 0 _ _	•	•
	Math Option	_ A _ _	•	•
	Set Point Programming (1 Program, 12 Segments)	_ B _ _	•	•
	Set Point Programming Plus Math	_ C _ _	•	•
Reserved	No Selection	_ _ 0 _	•	•
Infrared interface	Infrared Interface Included (Can be used with a Pocket PC)	_ _ R	•	•

TABLE III - Input 1 can be changed in the field using external resistors

Availability

		Selection	DC 3200	3201
Input 1	TC, RTD, mV, 0-5V, 1-5V	1 _ _	•	•
	TC, RTD, mV, 0-5V, 1-5V, 0-20mA, 4-20mA	2 _ _	•	•
	TC, RTD, mV, 0-5V, 1-5V, 0-20mA, 4-20mA, 0-10V	3 _ _	•	•
	Carbon, Oxygen or Dewpoint (Requires Input 2)	1 6 0	•	•
Input 2	None	_ 00	•	•
	TC, RTD, mV, 0-5V, 1-5V, 0-20mA, 4-20mA	_ 10	•	•
	TC, RTD, mV, 0-5V, 1-5V, 0-20mA, 4-20mA, 0-10V	_ 20	•	•
	Slidewire Input (Requires two Relay Outputs)	_ 40	•	•

TABLE IV - Options

		Selection		
Approvals	CE (Standard)	0 _ _ _ _	•	•
	CE, UL and CSA	1 _ _ _ _	•	•
Tags	None	_ 0 _ _ _	•	•
	Linen Customer ID Tag - 3 lines w/22 characters/line	_ T _ _ _	•	•
	Stainless Steel Customer ID Tag - 3 lines w/22 characters/line	_ S _ _ _	•	•
Future Options	None	_ _ 0 _ _	•	•
	None	_ _ _ 0 _	•	•
	None	_ _ _ _ 0	•	•

TABLE V - Product Manuals

		Selection		
Manuals	Product Information on CD - All Languages	0 _	•	•
	English Manual	E _	•	•
	French Manual	F _	•	•
	German Manual	G _	•	•
	Italian Manual	I _	•	•
	Spanish Manual	S _	•	•
Certificate	None	_ 0	•	•
	Certificate of Conformance (F3391)	_ C	•	•

TABLE VI

		Selection		
No Selection	None	0 _	•	•

Step 2. Dimensions and mounting
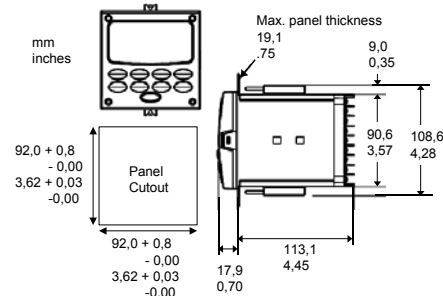
Step 3. Wiring
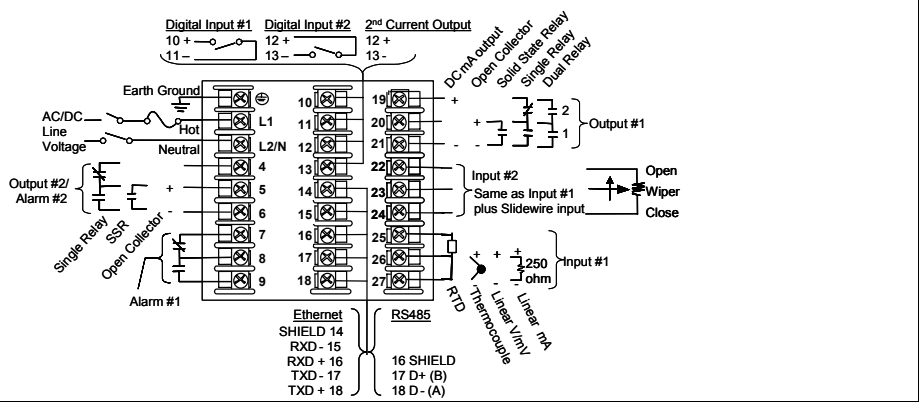
Step 4. Configuration Procedure

Step	Operation	Press	Result
1	Enter Set Up Mode	Setup	*Upper Display* = **SET** *Lower Display* = **TUNING** (This is the first Set Up Group title)
2	Select any Set Up Group	Setup	Sequentially displays the other Set Up group titles shown in the prompt hierarchy. (See 5. Configuration Record Sheet for prompts.) You can also use the ▲or ▼ keys to scan the Set Up groups in both directions. Stop at the Set Up group title that describes the group of parameters you want to configure. Then proceed to the next step.
3	Select a Function Parameter	Function	*Upper Display* = the current value or selection for the first function prompt of the selected Set Up group. *Lower Display* = the first Function prompt within that Set Up group. Sequentially displays the other function prompts of the Set Up group you have selected. Stop at the function prompt that you want to change, then proceed to the next step.
4	Change the Value or Selection	▲or ▼	Increments or decrements the value or selection that appears for the selected function prompt. If you change the value or selection of a parameter while in Set Up mode but then decide not to enter it, press the **MAN/AUTO** key once. This will recall the original configuration. This "recall" procedure does not work for a Field Calibration process. Field Calibration is a one-way operation.
5	Enter the Value or Selection	Function	Enters value or selection made into memory after another key is pressed.
6	Exit Configuration	Lower Display	Exits configuration mode and returns controller to the same state it was in immediately preceding entry into the Set Up mode. It stores any changes you have made. If you do not press any keys for 30 seconds, the controller times out and reverts to the mode and display used prior to entry into Set Up mode.

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Step 5. 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
TUNING	PROP BD or GAIN		1.000	INPUT2	IN2 TYPe		1-10mV
	GAINVALn	READ ONLY	----		XMITTER2		LINEAR
	RATE MIN		0.00		IN2 HIgh		1000
	RSET MIN or RSET RPM		1.0		IN2 LOw		0
	MAN RSET		0.0		RATIO2		1.00
	PROPBD2 or GAIN 2		1.00		BIAS IN2		0
	RATE2MIN		0.00		FILTER2		1
	RSET2MIN or RSET2RPM		1.00		BURNOUT2		NONE
	CYC SEC or CYC SX3		20		EMMISIV2		0.00
	CYC2 SEC or CYC2 SX3		20				
	SECURITY		0				
	LOCKOUT		CALIB				
	AUTO MAN		ENABLE				
	SP SEL		ENABLE				
	RUN HOLD		ENABLE				
SPRAMP	SP RAMP		DISABLE	CONTRL	PV SOURC		INPUT 1
	TIME MIN		3		PID SETS		1 ONLY
	FINAL SP		1000		SW VALUE		0.00
	HOTSTART		DISABLE		LSP'S		1 ONLY
	SP RATE		DISABLE		RSP SRC		NONE
	EU/HR UP		0		AUTO BIAS		DISABLE
	EU/HR DN		0		SP TRACK		NONE
	HOTSTART		DISABLE		PWR MODE		MANUAL
	SP PROG		DISABLE		PWR OUT		LAST
					SP HiLIM		1000
					SP LoLIM		0
					ACTION		REVERSE
					OUT RATE		DISABLE
					PCT/M UP		0
					PCT/M DN		0
					OUT HiLIM		100
					OUT LoLIM		0.0
					I Hi LIM		100.0
					I Lo LIM		0.0
					DROPOFF		0
					DEADBAND		1.0
					OUT HYST		0.5
					FAILMODE		NO LATCH
					FAILSAFE		0.0
					MAN AUTO		---
					AUTO OUT		---
					PBorGN		GAIN
					MINRPM		MIN
ACCUTUNE	FUZZY		DISABLE	OPTION	AUXOUT		DISABLE
	ACCUTUNE		DISABLE		CO RANGE		4-20mA
	DUPLEX		MANUAL		LOW VAL		0.O
	AT ERROR	Read Only	NONE		HIGH VAL		100.0
					DIG INP 1		NONE
					DIG1 COMB		DIS ABLE
					DIG INP 2		NONE
					DIG2 COMB		DISABLE
ALGOR	CONT ALG		PIDA	COM	ComSTATE		DISABLE
	TIMER		DIS		Com ADDR		3
	PERIOD		0:01		IR ENABLE		ENABLE
	START		KEY		BAUD		19200
	L DISP		TREM		TX_DELAY		1
	INP ALG1		KEY		WSFLOAT		FP_B
	MATH K		MIN		SHEDENAB		DISABLE
	CALC HI				SHEDTIME		30.0
	CALC LO				SHEDMODE		LAST
	ALG1 INA				SHDSP		TP LSP
	ALG1 INB				UNITS		PERCNT
	ALG1 INC				CSP RATO		1.0
	ALG1BIAS				CSP_BIAS		0
	PCT CO				LOOPBACK		DISABLE
OUTALG	OUT ALG		CURRENT	ALARMS	A1S1 VA		90
	RLYSTATE		1 OF 2 ON		A1S2 VA		10
	RLY TYPE		MECHAN		A2S1 VA		95
	MOTOR TI		30		A2S2 VA		5
	CUR OUT		DISABLE		A1S1TYPE		NONE
	CO RANGE		4-20Ma		A1S2TYPE		NONE
	LOW VAL		0.0		A2S1TYPE		NONE
	HIGH VAL		100.0		A2S2TYPE		NONE
					A1S1 HL		HIGH
					A1S1 EV		--
					A1S2 HL		LOW
					A1S2 EV		--
					A2S1HL		HIGH
					A2S1EV		--
					A2S2HL		LOW
					A2S2EV		--
					ALHYST		0.1
					ALM OUT1		NO LAT
					BLOCK		DISABLE
					DIAGNOST		DISABLE
INPUT1	IN1 TYPE		0-10mV	DISPLY	DECIMAL		XXXX
	XMITTER1		LINEAR		TEMPUNIT		NONE
	IN1 HIgh		1000		PWR FREQ		60 HZ
	IN1 LOw		0		RATIO 2		DISABLE
	RATIO1		1.00		LANGUAGE		ENGLISH
	BIAS IN1		0.0				
	FILTER1		1				
	BURNOUT1		NONE				
	EMMISIV1		0.00				

(Ethernet addresses are accessible via PIE Tool)

Step 6. Start Up Procedure for Operation

Step	Operation	Press	Result
1	Select Manual Mode	**Man Auto**	Until "**M**" indicator is ON. The controller is in manual mode.
2	Adjust the Output	▲or▼	To adjust the output value and ensure that the final control element is functioning correctly. *Upper Display* = **PV Value** *Lower Display* = **OUT and the output value in %**
3	Enter the Local Setpoint	**Lower Display**	Upper Display = **PV Value** Lower Display = **SP and the Local Setpoint Value**
		▲or▼	To adjust the local setpoint to the value at which you want the process variable maintained. The local setpoint cannot be changed if the Setpoint Ramp function is running.
4	Select Automatic Mode	**Man Auto**	Until "**A**" indicator is ON. 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**	Make sure the controller has been configured properly and all the values and selections have been recorder on the Configuration Record Sheet. Refer to Tuning Set Up group to ensure that the selections for PBor GAIN, RATE T, and I MIN, or I RPM have been entered. Use ACCUTUNE to tune the controller.

# Additional Operating Procedures

Procedure for Changing the Local Setpoints

Step	Operation	Press	Result
1	Select the Setpoint	**Lower Display**	Until you see: *Upper Display* = PV *Lower Display* = SP or 2SP or 3SP (Value)
2	Change the Value	▲or▼	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..
3	Return to PV Display	**Lower Display**	To store immediately or will store after 30 seconds.

Procedure for 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.

Step	Operation	Press	Result
1	Select the Setpoint	**SP Select**	To switch between the Three Local Setpoints and/or the Remote Setpoint. | ATTENTION | "KEY ERROR" will appear in the lower display, 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 is enabled, or • if you attempt to change the setpoint with the setpoint select function key disabled.

Viewing the Operating Parameters

Press the **LOWER DISPLAY** key to scroll through the operating parameters listed.
The lower display will show only those parameters and their values that apply to your specific model.

Lower Display Key Parameter Prompts

Lower Display	Description
OUT XX.X	OUTPUT—Output value is shown in percent with one decimal point for all output types except Three Position Step Control (TPSC). For TPSC, when no slidewire is connected, this display is an estimated motor position and is shown with no decimal point. For Position Proportional Control, if the slidewire fails, then the instrument automatically switches over to TPSC and the OUT display changes with it.
SP XXXX	LOCAL SETPOINT #1—Also current setpoint when using SP Ramp.
2SP XXXX	LOCAL SETPOINT #2
3SP XXXX	LOCAL SETPOINT #3
RSP XXXX	REMOTE SETPOINT
1IN XXXX	INPUT 1—Used only with combinational input algorithms.
2IN XXXX	INPUT 2
POS XX	SLIDEWIRE POSITION—Used only with TPSC applications that use a slidewire input.
CSP XXXX	COMPUTER SETPOINT—When SP is in override.
DEV XXXX	DEVIATION—Maximum negative display is –999.9.
PIDSET X	TUNING PARAMETER —where X is either 1 or 2.
ET HR.MN	ELAPSED TIME—Time that has elapsed on the Timer in Hours.Minutes.
OTR HR.MN	TIME REMAINING—Time remaining on the Timer in Hours.Minutes. The "O" is a rotating clock face.
RAMPXXXM	SETPOINT RAMP TIME—Time remaining in the Setpoint Ramp in minutes.
SPN XXXX	SETPOINT NOW—Current Setpoint when SP Rate is enabled. The SP XXXX display shows the "target" or final setpoint value.
XXRAHR.MN	RAMP SEGMENT NUMBER AND TIME REMAINING—Set Point Programming display. XX is the current segment number and HR.MN is the time remaining for this segment in Hours.Minutes.
XXSKHR.MN	SOAK SEGMENT NUMBER AND TIME REMAINING— Set Point Programming display. XX is the current segment number and HR.MN is the time remaining for this segment in Hours.Minutes.
RECYC 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
AUX XXXX	AUXILIARY OUTPUT—Displayed only when output algorithm is not Current Duplex.
BIA XXXX	BIAS—Displays the manual reset value for algorithm PD+MR.
TUNE OFF	LIMIT CYCLE TUNING NOT RUNNING—Appears when Accutune is enabled but not operating.
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.
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.