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

	Description	Selection	Availability	
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

	Description	Selection	Availability	
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	
			DC 3200	3201
	Description	Selection		
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

	Description	Selection	Availability	
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

	Description	Selection	Availability	
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

	Description	Selection	Availability	
No Selection	None	0 _	•	•

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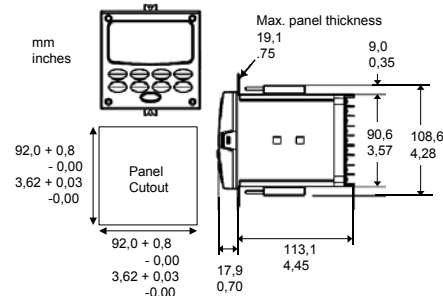
Step 3. Wiring
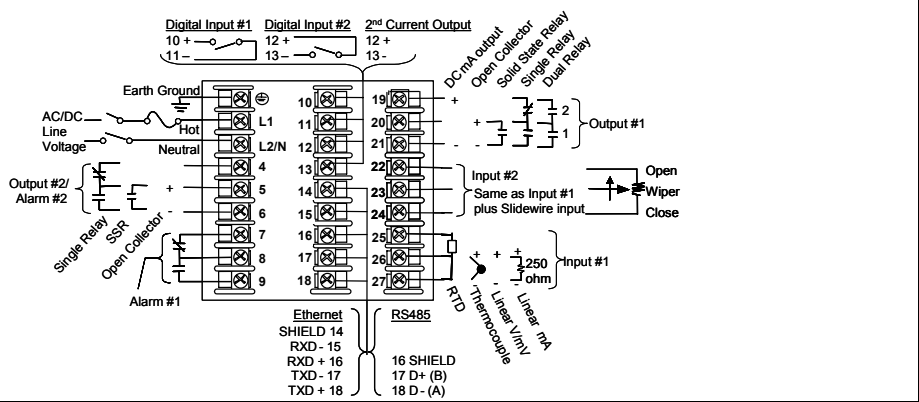
Step 4. Configuration Procedure

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.

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.