

## 4.4 Lock Set Up Group

### Introduction

The Lock Set Up group contains the Function parameters that will allow your controller to protect Configuration and Calibration data.

Because this group contains functions that have to do with Security and Lockout, it is best to configure this group last, after all the other configuration data has been loaded.

### Function Prompts

**Table 4-3 LOCK Group Function Prompts**

Prompt	Description	Selection or Range of Setting	Factory Setting
<b>SECUR</b>	Security Code	<b>0 to 4095</b> When "Lock" is none, this number is displayed and can be changed using the raise/lower keys	DIS
<b>LOCK</b>	Configuration Lockout	<b>NONE</b> – all parameters are read/write <b>CAL</b> - all parameters are read/write except Calibration <b>CONF</b> – configuration parameters are Read Only; no writes permitted <b>+SP</b> – Only the Lockout group is available for read/write. Setpoint value is Read Only.	CAL

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## 4.5 Limit Set Up Group

### Introduction

This data deals with the type of Limit Control you want, power up Logic, setpoint high and low limits, and the default display function Prompts

**Table 4-4 LIMIT Group Function Prompts**

Prompt	Description	Selection or Range of Setting	Factory Setting
<b>LOorHI</b>	Type of Limit Controller	<p><b>LOW</b> - Limit Control - latching relay de-energizes when PV goes below configured setpoint; cannot be reset until PV rises above configured setpoint and MAN-AUTO RESET key is pressed.</p> <p><b>HIGH</b> - Limit Control - latching relay de-energizes when PV goes above configured setpoint; cannot be reset until PV drops below configured setpoint and MAN-AUTO RESET key is pressed.</p>	Configured according to the model number
<b>POWRUP</b>	Power Up Logic	<p><b>RST</b> - after power down, the controller latching relay will have to be reset.</p> <p><b>NORM</b> - after power down, the controller will operate normally in the same mode as before power was removed unless a limit has been exceeded. If the limit was latched at power down, the unit will be in "Limit" at power up and have to be reset.</p>	NORM
<b>SP_MAX</b>	SP High Limit	<p><b>HIGH SETPOINT LIMIT</b> - this selection prevents the setpoint from going above the value selected here. The setting must be equal to or less than the upper range of the input. <i>0 to 100% of input in engineering units</i></p>	1000
<b>SP_MIN</b>	SP Low Limit	<p><b>LOW SETPOINT LIMIT</b> - this selection prevents the setpoint from going below the value selected here. The setting must be equal to or greater than the lower range of the input. <i>0 to 100% of input in engineering units</i></p>	0
<b>DISPLY</b>	Normal Display	<p><b>SP - Setpoint</b> - if configured the setpoint will be displayed in the upper display. "SP" will appear in the lower display.</p> <p><b>PROC - Process Variable</b> - PV will be displayed in the upper display.</p>	PROC

## 4.6 Input 1 Set Up Group

### Introduction

This data deals with various parameters required to configure Input 1.

### Function Prompts

**Table 4-5 INPUT1 Group Function Prompts**

Prompt	Description	Selection or Range of Setting		Factory Setting
<b>DECIMAL</b>	Decimal Point Selection	This selection determines where the decimal point appears in the display. <b>8888 (none)</b> <b>888.8</b> <b>88.88</b>		8888
<b>UNITS</b>	Temperature Units	This selection will be indicated on the annunciator. ("What display of temperature do you want?") <b>F</b> <b>C</b> <b>NONE</b>		F
<b>IN1TYP</b>	Input 1 Actuation Type	<b>B</b> <b>E H</b> <b>E L</b> <b>J H</b> <b>J L</b> <b>K H</b> <b>K L</b> <b>NNMH</b> <b>NNML</b> <b>N90H</b> <b>N90L</b> <b>NIC</b> <b>R</b> <b>S</b> <b>T H</b> <b>T L</b>	<b>W H</b> <b>W L</b> <b>100H</b> <b>100L</b> <b>200</b> <b>500</b> <b>RADH</b> <b>RADI</b> <b>0-20</b> <b>4-20</b> <b>10m</b> <b>50m</b> <b>0-5</b> <b>1-5</b> <b>0-10</b> <b>100m</b>	K H
<b>XMITR1</b>	Transmitter Characterization  <i>Available on Linear actuations only.</i>  <i>Not available on FM Models</i>	<b>B</b> <b>E H</b> <b>E L</b> <b>J H</b> <b>J L</b> <b>K H</b> <b>K L</b> <b>NNMH</b> <b>NNML</b> <b>N90H</b> <b>N90L</b> <b>NIC</b> <b>R</b>	<b>S</b> <b>T H</b> <b>T L</b> <b>W H</b> <b>W L</b> <b>100H</b> <b>100L</b> <b>200</b> <b>500</b> <b>RADH</b> <b>RADI</b> <b>LIN</b> <b>SrT</b>	LIN

Not available on FM Models

Table 4-5 INPUT1 Group Function Prompts, continued

Prompt	Description	Selection or Range of Setting	Factory Setting
IN1 HI	Input 1 High Range Value	<b>Range of Setting:</b> –999 to 9999. floating in engineering units Linear Ranges Only	2400
IN1 LO	Input 1 Low Range Value	<b>Range of Setting:</b> –999 to 9999. floating in engineering units Linear Ranges Only	0
BIAS 1	Bias on Input 1	<b>Range of Setting:</b> –999 to 9999 (Non-FM)(Engineering Units) –10 to 10 (FM Models)	0.0
FILTR1	Filter for Input 1	A software digital filter is provided for input 1 to smooth the input signal. You can configure the first order lag time constant from 1 to 120 seconds <b>Range of Setting:</b> 0 to 120 seconds 0 = No Filter	1.0
BRNOUT	Burnout Protection (Sensor Break)	<b>UP</b> - UPSCALE BURNOUT is provided for <b>high</b> limit control.  <b>DOWN</b> - DOWNSCALE BURNOUT is provided for <b>low</b> limit control.	UP
EMISS	Emissivity	Emissivity is a correction factor applied to the Radiamatic input signal that is the ratio of the actual energy emitted from the target to the energy which would be emitted if the target were a perfect radiator. <b>Range of Setting:</b> 0.01 to 1.00 (RADH & RADJ only)	1.0
FREQ	Power Line Frequency	Select whether your controller is operating at 60 Hz or 50 Hz. <b>60</b> <b>50</b> <b>ATTENTION:</b> For units powered by +24Vdc, this configuration should be set to the AC Line frequency used to produce the +24 Vdc Supply. Failure to set this parameter properly can cause normal mode noise problems in the input readings.	60

## 4.7 Options Set Up 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. Auxiliary Output and External Reset are mutually exclusive.

### Function Prompts

**Table 4-6 Options Group Function Prompts**

Prompt	Description	Selection or Range of Setting	Factory Setting
<b>AUXOUT</b>	Auxiliary Output	This selection provides a current output representing the process variable. The display for auxiliary output viewing will be in engineering units.  Other prompts affected by these selections: "0 PCT" and "100 PCT."  <b>NONE</b> Disabled <b>PROC</b> Represents the value of the Process Variable.	DIS
<b>0 PCT</b>	Auxiliary Output Low Scaling Factor	Value in Engineering Units	0
<b>100PCT</b>	Auxiliary Output High Scaling Factor	Value in Engineering Units	100
<b>EXTRST</b>	Digital Input	EXTERNAL RESET (DIGITAL INPUT) — resets the latching relay on contact closure.  <b>DIS</b> – Disable <b>ENAB</b> – Enable	DIS

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## 4.8 Communications Set Up Group

### Introduction

The Communications group lets you configure the controller to be connected to a host computer via RS422/485 or Modbus® protocol.

### Function Prompts

**Table 4-7 Communications Group**

Prompt	Description	Selection or Range of Setting	Factory Setting
<b>COMSTA</b>	Communications State	This prompt lets you select the type of communications protocol.  <b>DIS</b> Disabled <b>R422</b> RS-422/485 <b>MODB</b> Modbus	DIS
<b>ComADD</b>	Station Address	This is a number that is assigned to a controller that is to be used with the communications option. This number will be its address.  <b>Range of Setting:</b> 1 to 99	0
<b>SHDTIM</b>	Shed Time	This is the number that represents how many sample periods there will be before the controller sheds from communications. Each period equals 1/3 seconds; 0 equals No shed.  <b>Range of Setting:</b> 0 to 255 Sample Periods	0
<b>PARITY</b>	Parity	<b>PARITY</b> pertains to the use of a self-checking code employing binary digits in which the total number of ONE's (or ZERO's) in each permissible code expression is either <b>ODD</b> or <b>EVEN</b>	ODD
<b>BAUD</b>	Baud Rate	<b>BAUD RATE</b> is the transmission speed in bits per second  <b>2400 Baud</b> <b>4800 Baud</b> <b>9600 Baud</b> <b>19200 Baud</b>	2400
<b>TX_DLY</b>	Response Delay	Configurable response-delay timer allows you to force the UDC to delay its response for a time period of from 1 to 500 milliseconds compatible with the host system hardware/software.  <b>Range of Setting:</b> 1 to 500 milliseconds	1
<b>UNITS</b>	Communications Override Units	This selection determines how the controller values are expressed during communications.  <b>PCT</b> Percent <b>Eng</b> Engineering Units	PCT

Prompt	Description	Selection or Range of Setting	Factory Setting
<b>LOOPBK</b>	Local Loopback Test	<p>Allows loopback test. The UDC goes into Loopback mode in which it sends and receives its own message. The UDC displays PASS or FAIL status in the upper display and LOOPBACK in the lower display while the test is running. The UDC will go into manual mode. The test will run until the operator disables it here, or until power is turned off and on.</p> <p><b>ATTENTION</b> The UDC does not have to be connected to the RS-485 link to perform this test. If it is connected, only one UDC 2300 should run the loopback test at a time. The computer should not be transmitting on the link while the loopback test is active.</p> <p><b>DIS</b>     Disable  <b>EnAB</b>    Enable</p>	DIS

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## 4.9 Alarms Set Up Group

### Introduction

An alarm is an indication that an event that you have configured (for example—Process Variable) has exceeded one or more alarm limits. There are two alarms available. Each alarm has two setpoints. You can configure each of these two setpoints to alarm on various controller parameters.

There are two alarm output selections, High and Low. You can configure each setpoint to alarm either High or Low. These are called single alarms.

You can also configure the two setpoints to alarm on the same event and to alarm both high and low. A single adjustable Hysteresis of 0 to 100% is configurable for the alarm setpoint.

See Table 2-4 in the Installation section for Alarm relay contact information.

The prompts for the Alarm Outputs appear whether or not the alarm relays are physically present. This allows the Alarm status to be shown on the display and/or sent via communications to a host computer.

### Function Prompts

**Table 4-8 ALARMS Group Function Prompts**

Prompt	Description	Selection or Range of Setting	Factory Setting
<b>AxSxVA</b> A1S1 A1S2 A2S1 A2S2	Alarm Setpointx Value X = 1 or 2	This is the value at which you want the alarm type chosen in Prompt "AxSxTY" to actuate. The value depends on what the alarm setpoint has been configured to represent.  <b>Range of Setting:</b> within the range of the selected parameter or of the PV Span for Deviation configurations	90
<b>AxSxTY</b> A1S1 A1S2 A2S1 A2S2	Alarmx Setpointx Type X = 1 or 2	Select what you want Setpoint x of Alarm x to represent; it can represent the Process Variable or Deviation.  <b>NONE</b> No Alarm <b>PROC</b> Process Variable <b>DE</b> Deviation <b>SHED</b> Shed Communications (Shed alarms do not have setpoint values) <b>PVRT</b> PV Rate of Change <b>DI</b> Alarm on Digital Input	NONE

*continued*

**Table 4-8 ALARMS Group Function Prompts, continued**

Prompt	Description	Selection or Range of Setting	Factory Setting
<b>AxSxHL</b> A1S1 A1S2 A2S1 A2S2	Alarmx Setpoint State X = 1 or 2	Select whether you want the alarm type chosen in prompt "AxSxTY" to alarm High or Low.  <b>LOW</b> Low Alarm <b>HIGH</b> High Alarm	HIGH
<b>ALHYST</b>	Alarm Hysteresis	A single adjustable hysteresis is provided on alarms such that when the alarm is OFF it activates at exactly the alarm setpoint; when the alarm is ON, it will not deactivate until the variable is 0.0% to 100% away from the alarm setpoint.  Configure the hysteresis of the alarms based on INPUT signals as a % of input range span.  <i>Range of Setting:</i> 0.0 to 100.0% of span	0.0
<b>ALARM1</b>	Latching Alarm Output	When configured for latching, the alarm will stay on, after the alarm condition ends, until the <b>RUN/HOLD</b> key is pressed.  <b>NO L</b> -- Non Latching <b>LACH</b> - Latching	NO L
<b>BLOCK</b>	Alarm Blocking	Alarm Blocking prevents nuisance alarms when the controller is first powered up. The alarm is suppressed until the parameter gets to the non-alarm limit or band. Alarm blocking affects both alarm setpoints.  <b>DIS</b> Disable Blocking <b>BK1</b> Block Alarm 1 only <b>BK2</b> Block Alarm 2 only <b>BK12</b> Blocks both Alarms	DIS

# UDC 2300 APPLICATION NOTE

MODEL - DC230B-CX-XA OR DC230B-CX-XB

## UDC 2300 AS AN AUTO/MANUAL STATION

Several customers have learned that the UDC 2300 is an excellent AUTO-MANUAL station for use as a hard manual back-up between a controller and the final control element on critical loops.

When in Automatic, the UDC 2300 passes the loop controller's output directly through to the control element.

When placed in Manual the UDC 2300 output can be adjusted to place the control element in any desired position and hold it there.

When the unit is purchased with the a "optional" alarm relay contact, this can be used to give a remote device a indication when the unit is in the "Manual" mode.

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THE UDC 2300 SHOULD BE CONFIGURED AS FOLLOWS:

### HARDWARE

Set the Input 1 jumper for 4-20 mA Input (Position 4).

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### SET-UP CONFIGURATION

#### CONTROL ALGORITHM

PD+MR

#### INPUT

INPUT 1 TYPE = 4-20 MA  
INPUT 1 HI = 100.0  
INPUT 1 LO = 0.0

#### CONTROL:

OUTPUT DIRECTION = DIRECT  
SP HI = 0  
SP LO = 0

#### TUNING

GAIN = 1.0  
RATE = 0  
MANUAL RESET = 0

### WIRING DATA

1. The 4-20 mA output from controller is to be wired to UDC 2300 input terminals **8 (+)** and **7 (-)**.
2. The UDC 2300 4-20 mA control output, terminals **5 (+)** and **4 (-)** are to be wired to final control element.