DR4200 EV Configuration

You must configure the recorder to accept the desired input actuation for the given pen by setting DIP switch S1 positions for signal gain and positioning the applicable input and signal jumpers on the Main printed circuit boards for Pen #1 and Pen #2, if applicable.

- Refer to Table 2-3 to identify DIP switch settings and range jumper positions for the desired actuation type.
- Refer to the Figure 2-4 the DIP Switch settings and jumper positions that are noted in Table 2-3 for the selected actuation.
- Note the configured actuation type for each pen on the wiring label on the back of the chart plate.

ATTENTION Be sure that a matching sensor input is wired to the input terminals and you select the same input type through IN TYP prompt in setup group "INPUT".

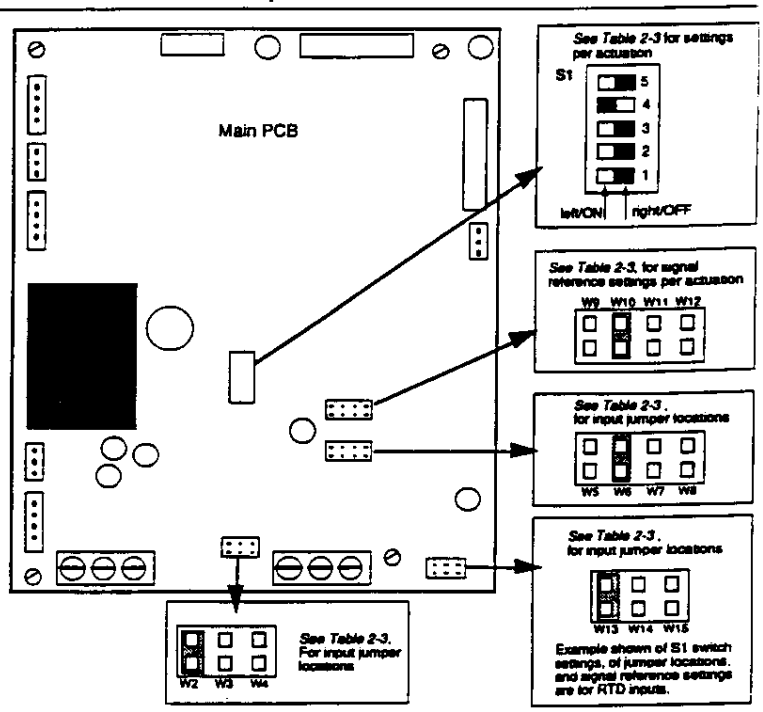
Input Actuation Hardware settings

Table 2-3 Actuation Switch Settings and Jumper Locations

Actuation	Type	Input Jumper Locations	Signal Reference Jumper Locations	S1 Switch Positions & Settings (Leave position 2 set to OFF)			
				1	3	4	5
Thermocouple	B	W6, W15	W11	OFF	ON	OFF	OFF
Thermocouple	E	W6, W15	W9	ON	OFF	OFF	ON
Thermocouple	E (Low)	W6, W15	W10	OFF	OFF	ON	OFF
Thermocouple	J	W6, W15	W10	OFF	OFF	ON	OFF
Thermocouple	J (Low)	W6, W15	W11	OFF	ON	OFF	OFF
Thermocouple	K	W6, W15	W9	ON	OFF	OFF	ON
Thermocouple	K (Low)	W6, W15	W11	OFF	ON	OFF	OFF
Thermocouple	Ni-Ni Moly	W6, W15	W9	ON	OFF	OFF	ON
Thermocouple	Nicrosil-Nisil	W6, W15	W10	OFF	OFF	ON	OFF
Thermocouple	R	W6, W15	W11	OFF	ON	OFF	OFF
Thermocouple	S	W6, W15	W11	OFF	ON	OFF	OFF
Thermocouple	T	W6, W15	W11	OFF	ON	OFF	OFF
Thermocouple	T (Low)	W6, W15	W11	OFF	ON	OFF	OFF
Thermocouple	W5W26	W6, W15	W10	OFF	OFF	ON	OFF
RTD*	100 ohm*	W2*, W6*, W13*	W10*	OFF*	OFF*	ON*	OFF*
RTD	100 ohm (Low or T)	W2, W6, W13	W10	OFF	OFF	ON	OFF
Linear	4-20 mA	W5, W8	W10	OFF	OFF	ON	OFF
Linear	0-10 mV	W6	W12	OFF	OFF	OFF	OFF
Linear	0-100 mV	W6	W9	ON	OFF	OFF	ON
Linear	0-200 mV	W7	W9	ON	OFF	OFF	ON
Linear	0-1 Vdc	W8	W12	OFF	OFF	OFF	OFF
Linear	0-5 Vdc	W8	W10	OFF	OFF	ON	OFF
Linear	1-5 Vdc	W8	W10	OFF	OFF	ON	OFF
Linear	0-10 Vdc	W8	W9	ON	OFF	OFF	ON

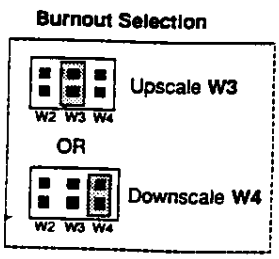
* Factory Setting

Figure 2-4 DIP Switch and Jumper Locations for Actuation Selections



You can select Upscale or Downscale burnout for *Thermocouple* or *Millivolt* actuations. This means that the pen will be driven to its full upscale or downscale position if the Process Variable (PV) goes out-of-range (open input sensor), or the recorder detects a self-check failure.

ATTENTION You can select downscale burnout for RTD, Voltage, and mA actuations, but there is no guarantee that an out-of-range PV condition will be detected.



4.4 Configuration Tips

Introduction

Listed below in Table 4-1 are a few tips that will help you enter the configuration data more quickly.

Table 4-1 Configuration Tips

Function	Tip
Displaying Groups	Use the SET UP key to display the Set Up groups. The group titles are listed in this section in the order that they appear in the recorder.
Displaying Functions	Use the FUNC key to display the individual parameters under each group. The prompts are listed in the order of their appearance in each group.
Scrolling	To get to a Set Up group prompt more quickly, hold the SET UP key in. To get to a function prompt more quickly, hold the FUNC key in. The display will scroll through the parameters.
Changing values quickly	When Changing the value of a parameter, you can adjust a more significant digit in the upper display by holding in one key [▲] or [▼], and pressing the other [▲] or [▼] at the same time. • The adjustment will move one digit to the left. • Press the key again and you will move one more digit to the left.
Exiting SET UP mode	To exit Set Up mode, press the DISP key. This returns the display to the same state it was in immediately preceding entry into the Set Up mode.
Timing out from Set Up mode	If you are in Set Up mode and do not press any keys for one minute, the recorder will time out and revert to the mode and display that was being used prior to entry into Set Up mode.

4.5 Configuration Procedure

Introduction

The configuration prompts are sequenced in a group/function hierarchical set as shown in Figure 4-1. Make sure that you configure all the parameters that are applicable for your given recorder model and application requirement as well as match the hardware configuration selections.

To enter your selections or values, follow the procedure in Table 4-2 and fill in the values or selections on the worksheet in subsection 4.16 for the applicable function parameters. Keep this worksheet as a record of how your recorder was configured.

This procedure tells you the keys to press to get to any Set Up group (and any associated function parameters prompt).

Procedure

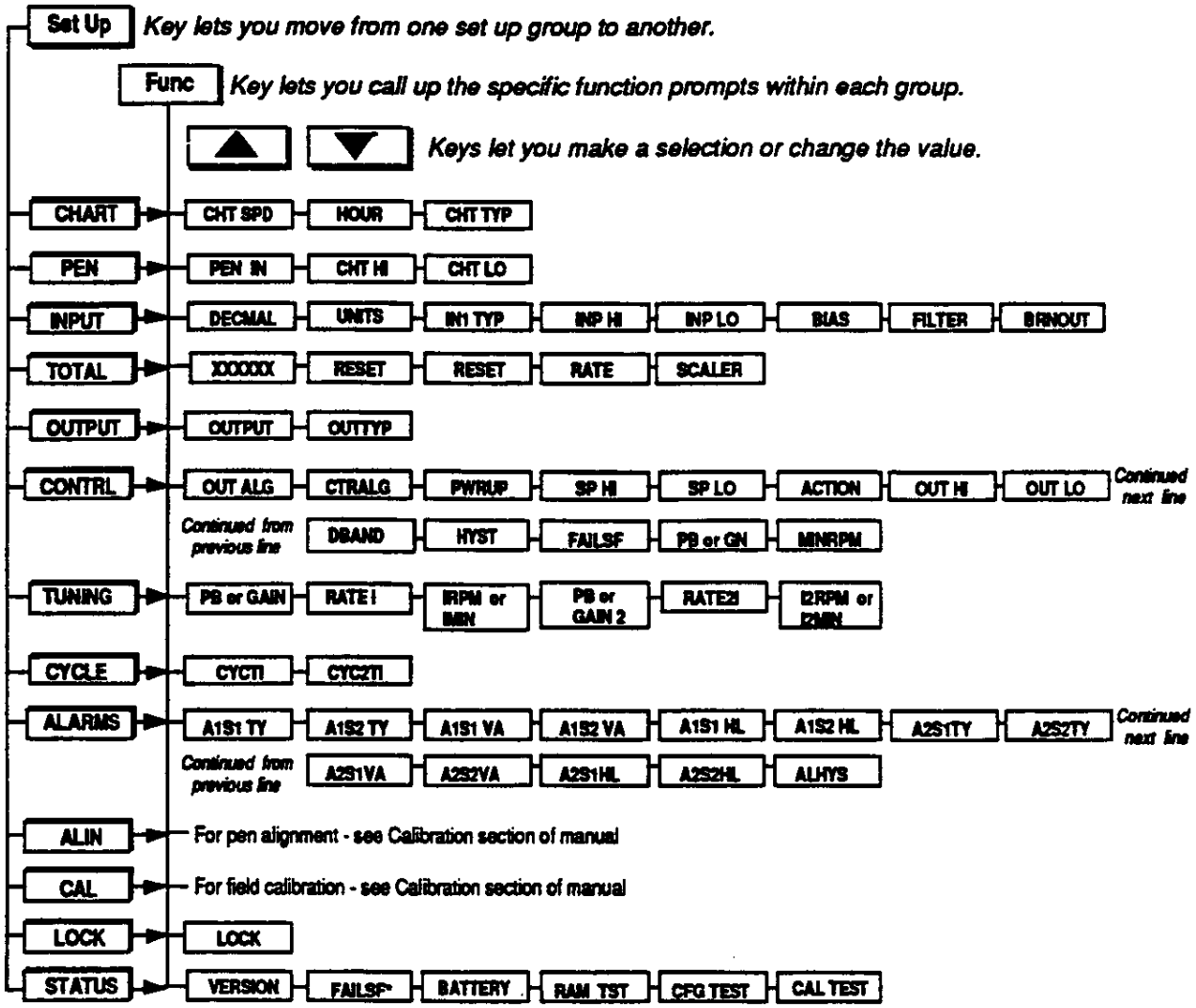
Follow the procedure listed in Table 4-2 to access the Set Up groups and Function prompts. If you have a two-pen recorder, be sure to identify individual parameters for each pen and control loop as applicable. Make sure Set Up group "Lock" is set to "NONE" or "CAL." See subsection 4.15.

4.2 Configuration Prompts

Diagram: prompt hierarchy

Figure 4-1 shows an overview of the DR4200 EV Set Up prompts and their associated Function prompt - read from left to right.

Figure 4-1 DR4200 EV Prompt Hierarchy



For Control, Alarm and/or Totalizer set-up options please request Fax document 4754

Table 4-2 Configuration Procedure

Step	Operation	Press	Result
1	Select Set Up mode	SET UP	Upper Display: SET UP — Lets you know you are in the configuration mode and a Set Up group title is being displayed in the lower display. Lower Display: CHART — This is the first Set Up group title.
2	Select any Set Up group	SET UP	•Successive presses of the SET UP key will sequentially display the other Set Up group titles shown in the prompt hierarchy in Figure 4-1. •You can also use the [▲] [▼] keys to scan the Set Up groups in both directions. •Stop at the Set Up group title which describes the group of parameters you want to configure. Then proceed to the next step.
3	Select a Function Parameter	FUNC	Upper Display: 24 HR — Shows the current value or selection for the first function prompt of the particular Set Up group that you have selected. Lower Display: CHT SPD — Depending on what is selected in Set Up group control. Shows the first function prompt within that Set Up group. Example displays show Set Up group "Chart", function prompt "CHT SPD" and the value selected.
4	Select other Function Parameters	FUNC	• Successive presses of the FUNC key will sequentially display 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.
5	Change the value or selection	▲ or ▼	• These keys increment or decrement the value or selection that appears for the function prompt you have selected. • See subsection 4.4 *"Configuration Tips"* for instructions to increase or decrease value quickly. • Change the value or selection to meet your needs. • If the display flashes, you are trying to make an unacceptable entry.
6	Enter the value or selection	FUNC or SET UP	• This key selects another function prompt. • This key selects another Set Up group. The value or selection you have made will be entered into memory after another key is pressed.
7	Exit Configuration	DISP	This exits configuration mode and returns the recorder to the same state it was in immediately preceding entry into the Set Up mode. It stores any changes you have made.
8	2-Pen Recorders	FUNC	For 2-pen recorders, press FUNC key to select INP2 for display and go to step 1 to configure the parameters for pen 2.

4.6 Chart Parameters Set Up Group

Introduction

The functions listed in this group deal with the parameters that have to be set for the proper chart function. For a 2-pen recorder the desired input channel is displayed on the left side of the operator interface. Press [FUNC] key to select channel.

Chart group prompts

Table 4-3 lists all the function prompts in the "Chart" parameters set up group. Press [SET UP] key until "CHART" appears in the lower display. Press [FUNC] key to display parameters.

Table 4-3 Chart Parameters Group

Lower Display Prompt	Upper Display Range of Setting or Selection	Parameter Definition
CHTSPD		CHART SPEED — This is the time it will take to drive the chart one complete revolution. [ATTENTION] This prompt only appears for pen 1 configuration of a 2-pen recorder.
	8HR 24HR 7DAYS __HR	8 Hour revolution 24 Hour revolution 7 Day revolution __ hour revolution - make Hours per Revolution selection at prompt "HOUR/REV".
HOUR/REV	1 to 744 Hours	HOURS PER REVOLUTION — Set the desired chart speed. Appears only if __ HR was selected at prompt "CHT SPD".
CHTTYP	LIN NLIN	CHART TYPE - Selection is based on the type of chart Linear (even) or Non-Linear (i.e. J T/C or RTD) [ATTENTION] LIN chart type is automatically selected when configured input type is linear.

4.7 Pen Parameters Set Up Group

Introduction

The functions listed in this group deal with how to configure the pen(s). The procedure for configuring each pen is the same. For a 2-pen recorder, the desired input channel is displayed on the left side of the operator interface.
Press [FUNC] key to select channel. The prompts are shown in Table 4-4.

Pen group prompts

Table 4-4 lists all the function prompts in the Pen set up group.
Press the [SET UP] key until PEN appears in the lower display.
Press [FUNC] key to display parameters.

Table 4-4 Pen Parameters Group

Lower Display Prompt	Upper Display Range of Setting or Selection	Parameter Definition
PENIN	INP OUT* SP*	PEN INPUT — What do you want the pen to record? **INPUT** - records the Input for given channel **OUTPUT** - records Output for given channel **SETPOINT** - records Setpoint for given channel *Only selectable if Model Table I = 1X, 2X, or X2 and function prompt "OUTTYP" in Set Up group "OUTPUT" = "CTRL."
CHTHI	-999 to 9999	CHART HIGH RANGE VALUE — Enter a value that corresponds with the chart high range value for the pen.
CHTLO	-999 to 9999	CHART RANGE LOW VALUE — Enter a value that corresponds with the chart low range value for the pen.

4.8 Input Parameters Set Up Group

Introduction

These are the parameters required to configure the temperature units, decimal location, actuation, high and low range values in engineering units, bias, filter, and burnout. For a 2-pen recorder, the desired input channel is displayed on the left side of the operator interface.

Press [FUNC] key to select channel.

Input group prompts

Table 4-5 lists all the function prompts in the Input set up group.
Press [SETUP] key until "INPUT" appears in the lower display.
Press [FUNC] key to display the parameters.

Table 4-5 Input Parameters

Lower Display Prompt	Upper Display Range of Setting or Selection	Parameter Definition
DECMAL		**DECIMAL POINT LOCATION** -- This selection determines where the decimal point appears in the display.
	XXXX XXX.X XX.XX	None One Place Two Places
		NOTE: Be sure the selection agrees with the value to be displayed. If PV requires 4 whole digits, the decimal will not show. Function prompt "INTYP" must be linear to get 2 decimal place selection.
UNITS		**TEMPERATURE UNITS** -- This selection will be indicated on the PV display.
	NONE F C	No units Degrees Fahrenheit Degrees Celsius
IN TYPE		**INPUT ACTUATION TYPE** – This selection determines what actuation you are going to use for the input. Be sure that the values configured for the high and low chart range, alarm setpoint, etc. are within the measuring range for the selected actuation type.
	B	B thermocouple 105 to 3300°F 41 to 1815°C
	EH	E thermocouple high -454 to 1832°F -270 to 1000°C
	EL	E thermocouple low -200 to 1100°F -129 to 593°C
	JH	J thermocouple high 0 to 1600°F -18 to 871°C
	JL	J thermocouple low 20 to 770°F -7 to 410°C
	KH	K thermocouple high -320 to 2500°F -196 to 1371°C
	KL	K thermocouple low -20 to 1000°F -29 to 538°C
	NNM	NNM NiNiMo thermocouple 32 to 2500°F 0 to 1371°C
	NIC	NIC Nicrosil-Nisil thermocouple 0 to 2372°F -18.8 to 1300°C
	R	R thermocouple 0 to 3100°F -18 to 1704°C
	S	S thermocouple 0 to 3100°F -18 to 1704°C
	TH	T thermocouple high -300 to 700°F -184 to 371°C
	TL	T thermocouple low -200 to 600°F -129 to 316C
	W	W5W26 thermocouple high 0 to 4200°F -18 to 2316°C
	100 H**	100 Ohm-RTD (high) -300 to 900°F -184 to 482°C
	100 L**	100 Ohm-RTD (low) -130 to 392°F -90 to 200°C
	100 T***	100 Ohm-RTD (special) -238 to 482°F -150 to 250°C
	4-20	4 to 20 Milliamps
	10m	0 to 10 Millivolts
	100m*	0 to 100 Millivolts or 0 to 200 Millivots
	0-1	0 to 1 Volt
	1-5	1 to 5 Volt
	0-5	0 to 5 Volt
	0-10	0 to 10 Volts

* For 200mV actuation, select 100m and be sure hardware configuration is correct.
** IEC = 0.0385
*** ITS-48 = 0.0391

Table 4-5 Input Parameters Group , continued

Lower Display Prompt	Upper Display Range of Setting or Selection	Parameter Definition
INPHI	-999 to 9999	**INPUT HIGH RANGE VALUE** in engineering units is displayed but can only be configured for linear input type. Otherwise, this is a read-only display of the higher range value for the selected T/C or RTD input type. • Scale the input signal to the display value you want for 100%. • **EXAMPLE:** Actuation (Input) = 4 to 20 mA Process Variable = Flow Range of Flow = 0 to 250 Gal/Min High Range display value = 250 Then 20 mA = 250 Gal/Min
INPLO	-999 to 9999 in Engineering units	**INPUT LOW RANGE VALUE** in engineering units is displayed but can only be configured for linear input type. • Otherwise, this is a read-only display of the low range value for the selected T/C or RTD input type. • Scale the input signal to the display value you want for 0%. See example in "INPHI".
BIAS	-99.9 to 999.9	**INPUT BIAS** — used to compensate the input for drift of an input value due to deterioration of a sensor, or some other cause; select the value you want on the input.
FILTER	0 to 120 seconds No filter = 0	**FILTER FOR INPUT** — a software digital filter is provided for the input to smooth the input signal. You can configure the first order lag time constant from 1 to 120 seconds. If you do not want filtering, enter 0.
BRNOUT		**BURNOUT PROTECTION (SENSOR BREAK)** provides most input types with upscale or downscale protection if the input fails. **ATTENTION** Be sure jumper installation on the Main printed circuit board matches selection made here. See *Section 2 - SET UP TASKS.*
	NONE	**NO BURNOUT** — Failsafe output applied for failed input.
	UP	**UPSCALE BURNOUT** will make the indicated PV signal increase when a sensor fails, and flash the lower display.
	DOWN	**DOWNSCALE BURNOUT** will make the indicated PV signal decrease when a sensor fails, and flash the lower display. NOTE: For no Burnout, (that is, "None,") to function properly on a linear input, there must be a dropping resistor directly across the *input* terminals, then the unit can detect the "zero" voltage that occurs when the 4-20 mA line is opened. When the input goes out of range, the lower display will flash.

4.15 Lock Parameters Set Up Group

Introduction

These are the parameters that you will set to lockout any unauthorized changes to the recorder's configuration and calibration prompts.

Set this group last

Because this group contains functions that have to do with security and lockout, we recommend that you configure this group last, after all the other configuration data has been loaded.

Lockout group prompts

Table 4-12 lists all the function prompts in the Lock set up group.

- Press [SETUP] key until "LOCK" appears in the lower display.
- Press [FUNC] key to select the parameters.

Table 4-12 Lockout Group Definitions

Lower Display Prompt	Upper Display Range of Setting or Selection	Parameter Definition
LOCK		**LOCK** applies to one of the functional groups: Configuration or Calibration. DO NOT CONFIGURE UNTIL ALL CONFIGURATION IS COMPLETE.
	NONE	No Lockout – all groups read/write.
	CAL	**CAL** – All are available for read/write except for the Calibration group.
	CONF	**CONF** – Tuning is read/write. All other groups are read only. Calibration group is not available.
	FULL	**FULL** – Calibration group not available. All other groups are Read-only.

4.16 Configuration Record Sheet

Keep a record

Enter the value or selection for each prompt on this sheet so you will have a record of how your recorder was configured.

Group Prompt	Function Prompt	Value or Selection
CHART	CHRTSPD	
	HOUR/REV	
	CHTTYP	
PEN	PENIN	
	CHARTHI	
	CHARTLO	
INPUT 1	DECMAL	
	UNITS	
	IN1 TYPE	
	INP HI	
	INP LO	
	BIAS	
	FILTER	
	BRNOUT	
TOTAL	(Value)	
	RESET	
	TOTAL	
	RATE	
	SCALER	
	RSTABL	
OUTPUT	OUTPUT	
	OUTTYP	
CONTROL	OUTALG	
	CTRALG	
	PWRUP	
	SP HI	
	SP LO	
	ACTION	
	OUT HI	
	OUT LO	
	DBAND	
	HYST	
	FAILSF	
	PBorGN	
	MINRPM	

Group Prompt	Function Prompt	Value or Selection
TUNING	Pb	
	or	
	GAIN	
	RATE T	
	I MIN	
	or	
	I RPM	
	or	
	MAN RST	
	Pb2	
	or	
	GAIN 2	
	RATE2T	
	I2MIN	
	or	
	I2RPM	
CYCLE	CYCTI	
	CYC2TI	
ALARMS	A1S1TY	
	A1S2TY	
	A1S1 VA	
	A1S2 VA	
	A1S1 HL	
	A1S2 HL	
	A2S1TY	
	A2S2TY	
	A2S1 VA	
	A2S2 VA	
	A2S1 HL	
	A2S2 HL	
	AL HYS	
LOCK	LOCK	