UDC2300 Universal Digital Controller
Supplementary Data

Instruction #51-52-00-23

1.1 PV Hot Start Introduction

Nature of modification

This UDC2300 Controller has been modified to include “PV Hot Start” for Setpoint Ramp and Setpoint Program applications.

When power is lost and resumed, the Setpoint Ramp or Setpoint Program will be placed in “HOLD”. You can then remotely (via Remote Switching-Digital Input) restart the ramp or program at the current PV (PV Hot Start Enabled) or at the original starting setpoint of the SP Ramp or SP Program.

New configurable features for PV Hot Start

There are two configurable features for PV Hot Start:

• **PV Start** - (enable or disable) under the “Setpoint Ramp/Program” set up groups.

• **Restarting Setpoint Selection** - (RUN or STRT) under the **“**Remote Switch (Digital Input)” set up group.

RUN - the active local setpoint at the current PV (PV STRT is enabled).
STRT - the original starting setpoint value that was selected when the Ramp/Program started.

1.2 PV Hot Start Configuration

Definition

PV Hot Start is a configurable feature that allows a Setpoint Ramp or Setpoint Program to recover from a power outage at the current PV during power up (for example, the Setpoint is initialized at the current PV value at power up).

SP Ramp/Program PV Start Configuration

PV STRT can be configured under the “SP RAMP” or “SP PROGRAM” Set Up groups.

In **Table 4-5** in the Product Manual, add **PV Start** selection to the *SP Ramp* group prompts.

Also see the changes to the numeric codes for each segment.

See the next page for these changes.

1.2 PV Hot Start Configuration, continued

Table 4-5 SP RAMP Group (Numeric Code 300) Function Prompts

Prompt		Description	Selection or Range of Setting		Factory Setting
English	Numeric Code		Numeric Code	English	
SP RAMP	**301**	Single Setpoint Ramp	0 1	DIS ENAB *Rate and Program must be disabled*	DIS
TI MIN	**302**	Single Setpoint Ramp Time		0 to 255 Minutes	3
.					
.					
.					
ToBEGN	**315**	Reset Program to the Beginning	0 1	DIS KEY (Keyboard)	DIS
PVSTRT	**316**	Program starts at PV value	0 1	DIS ENAB	DIS
SGx RP **SG1** **SG3** **SG5** **SG7** **SG9** **SG11**	 **317** **320** **323** **326** **329** **332**	Segment Ramp or Rate Time x = 1 through 11		0-99hours:0-59minutes Engineering Units/minute or Engineering Units /hour	- - -
SGx SP **SG2** **SG4** **SG6** **SG8** **SG10** **SG12**	 **318** **321** **324** **327** **330** **333**	Segment Soak Setpoint Value x = 2 through 12		Enter a Value within the Setpoint Limits	- - -
SGx TI **SG2** **SG4** **SG6** **SG8** **SG10** **SG12**	 **319** **322** **325** **328** **331** **334**	Segment Soak Duration x = 2 through 12		0-99 Hours: 0-59 Minutes	- - -

1.3 Restarting Setpoint Configuration

Restarting Setpoint via Digital Input (Remote Switching)

The assigned starting setpoint selection for restarting the Setpoint Ramp/Program following a power cycling, can be configured to be one of two possible restarting points for the Ramp Program after power up.

These selections will be made via the Digital Input option (Remote Switching).

In **Table 4-11** in the Product Manual, add "**RUN**" and "**STRT**" to the selections for DIG IN. See below.

Table 4-11 Options Group (Numeric Code 900) Function Prompts

Prompt		Description	Selection or Range of Setting			Factory Setting
English	Numeric Code		Numeric Code	English		
AUXOUT	**901**	Auxiliary Output	0	DIS	Disabled	DIS
			1	IN1	Input 1	
			2	IN2	Input 2	
			3	PROC	Process Variable	
			4	DEV	Deviation	
			5	OUT	Output	
			6	SP	Setpoint	
			7	LSP1	Local Setpoint 1	
.						
.						
.						
DIG IN	**904**	Digital Input	0	None		NONE
			1	MAN	To Manual	
			2	LSP	To Local SP 1	
			3	SP2	To Local SP 2	
			4	DIR	Direct Control	
			5	HOLD	Hold SPP/SP Ramp	
			6	PID2	PID Set 2	
			7	RUN	Starts Program/ Ramp at present SP1, that is, current PV after power-up.	
			8	Begn	SPP Reset	
			9	NO I	Inhibit Integral	
			10	MNFS	Manual, Failsafe Output	
			11	LOCK	Keyboard Disable	
			12	TIMR	Start Timer	
			13	TUNE	Start Tune	
			14	INIT	Init SP to PV	
			15	RSP	Remote SP	
			16	MNLT	Latching Manual	
			17	TRAK	Output tracks Input 2	
			18	STRT	Starts Program/Ramp at original SP value	

Function Parameter Reference Guide Changes to Digital Input (Remote Switching)

In section 12.2.30 DIG IN, add new definitions RUN and STRT. See below.

12.2.30 DIG IN (DIGITAL INPUT)

This prompt is part of the *Options* Set Up Group

This selection allows remote selection of various parameters.

Selections	*Definitions*
NONE	NO DIGITAL INPUT SELECTIONS
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.	
.	
RUN	TO RUN – Contact closure starts the Setpoint Program or Single SP Ramp at the current value of Setpoint1 (that is, at the current PV following a power-up if PV STRT is enabled). Reopening the contact returns to the HOLD state.
.	
.	
.	
STRT	PV HOT START – Contact closure starts the Setpoint Program or Single SP Ramp at the original selected starting setpoint value existing at the time that the SP Ramp/Program was first placed in the RUN state. This is a momentary contact closure and re-opening the contact has no effect.

1.4 PV Hot Start Operation

SP Ramp and SP Program operation

When “PV START” is ENABLED for the **SP RAMP** or **SP PROGRAM** feature and power is lost, the setpoint ramp or setpoint program will recover at the current PV value at power up.

ATTENTION SP Ramp and SP Programming re-powers up in the “HOLD” state and must be directed to restart by the “RUN/HOLD” key or “Digital Input”.

PV Hot Start Rules

The rules for PV Hot Start (i.e. setpoint initializes at the current PV at power up) are as follows:

• Occurs only if PV Start is ENABLED in either Setpoint Ramp or Setpoint Program Set up groups.

• Occurs only following a Power up.

• Occurs only for Local Setpoint #1, and does not apply for Local Setpoint #2 or Remote Setpoint.

• Applies in either Auto or Manual mode.

• Following PV Hot Start, Local Setpoint #1 and Local Setpoint #2 can be changed via increment/decrement keys.

1.5 Remote Switching Operation

Digital Input Logic

The following action occurs for either the ENABLED or DISABLED states of PV_START:

RUN

Contact closure starts the SP Ramp or SP Program at the current value of Setpoint #1. Re-opening the contact returns to the HOLD state.

STRT

Contact closure starts the SP Ramp or SP Program at the original selected starting Setpoint value existing at the time that the SP Ramp or SP Program was first placed in the RUN state. *This is a momentary contact closure and re-opening the contact has no effect.*

This action occurs either after a power cycling has occurred, or after the ***SP Program*** has been completed, and has been placed in the configured STATE (at program end) of HOLD.

The Digital Input must be selected for STRT before the SP Ramp or SP Program is placed in the state RUN via the RUN/HOLD key, in order to capture the original starting Setpoint value which is saved.

After the Setpoint Ramp or Setpoint Program is placed in the RUN state, and is then placed in the HOLD state, contact closure will re-start the program at the setpoint value existing at the time when it was placed in the HOLD mode.

After the Setpoint Ramp or Setpoint Program is place in the RUN state, this contact closure will have no effect while it is in the RUN state.

If a Setpoint Ramp or Setpoint Program is in the RUN state, or the Setpoint Program has been completed and has been placed in the configured STATE (at program end) of HOLD, and this contact has been held closed, this action will occur should a power cycling occur.

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Sensing and Control
Honeywell
11 West Spring Street
Freeport, IL 61032

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