

Sheet 5 JAN 20 1997	2 ENGINEERING DATA TRANSMITTAL	Page 1 of 1 1. EDT № 610796
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2. To: (Receiving Organization) Distribution	3. From: (Originating Organization) PFP Process Engineering	4. Related EDT No.: N/A
5. Proj./Prog./Dept./Div.: 15530	6. Cog. Engr.: W.S. Lewis	7. Purchase Order No.: N/A
8. Originator Remarks: Release this Computer Software Configuration Document.		9. Equip./Component No.: N/A
11. Receiver Remarks: 11A. DESIGN BASELINE DOCUMENT? [] YES [X] NO		10. System/Bldg./Facility: 73T/234-5Z/PFP
		12. Major Assm. Dwg. No.: N/A
		13. Permit/Permit Application No.: N/A
		14. Required Response Date: 12/6/96

15. DATA TRANSMITTED					(F)	(G)	(H)	(I)
(A) Item No.	(B) Document/Drawing No.	(C) Sheet No.	(D) Rev. No.	(E) Title or Description of Data Transmitted	Approval Designator	Reason for Transmittal	Originator Disposition	Receiver Disposition
1	WHC-SD-CP-CSWD-018	-	0	Honeywell Modular Automation System Computer Software Documentation	Q	1		

16. KEY					
Approval Designator (F)		Reason for Transmittal (G)		Disposition (H) & (I)	
E, S, Q, D or N/A (see WHC-CM-3-5, Sec.12.7)		1. Approval 2. Release 3. Information		4. Review 5. Post-Review 6. Dist. (Receipt Acknow. Required)	
				1. Approved 2. Approved w/comment 3. Disapproved w/comment	
				4. Reviewed no/comment 5. Reviewed w/comment 6. Receipt acknowledged	

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18. Signature of EDT Originator <i>[Signature]</i> Date 12-3-96	19. Authorized Representative for Receiving Organization <i>[Signature]</i> Date 12-3-96	20. Cognizant Manager <i>[Signature]</i> Date 12/5/96	21. DOE APPROVAL (if required) Ctrl. No. ☐ Approved ☐ Approved w/comments ☐ Disapproved w/comments
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HONEYWELL MODULAR AUTOMATION SYSTEM COMPUTER SOFTWARE DOCUMENTATION

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U.S. Department of Energy Contract DE-AC06-87RL10930

EDT/ECN: 610796

UC: UC-506

Org Code: 15530

Charge Code: K6134

B&R Code: EW7003000

Total Pages: 111

Key Words: Honeywell, Modular Automation System, Computer Software Management Plan

Abstract: This document provides a Computer Software Documentation for a new Honeywell Modular Automation System (MAS) being installed in the Plutonium Finishing Plant (PFP). This system will be used to control new thermal stabilization furnaces in HA-21I.

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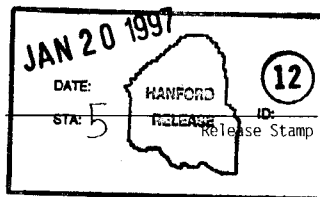
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Release Approval

1/20/97
Date



Approved for Public Release

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1.0 INTRODUCTION

1.1 PURPOSE

The purpose of this Computer Software Document (CSWD) is to provide configuration control of the Honeywell Modular Automation System (MAS) in use at the Plutonium Finishing Plant (PFP). The Honeywell MAS controls thermal stabilization furnaces in HA-21I.

1.2 SCOPE

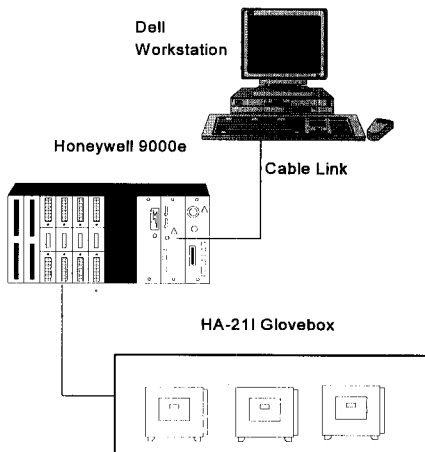
This CSWD describes hardware and PFP developed software for control of stabilization furnaces installed into HA-21I. Copies of reports generated by the Honeywell software for the PFP developed software have been attached as addendums.

This plan applies to PFP Process Engineering Cognizant Manager and Stabilization Cognizant Engineers responsible for the Honeywell MAS software/hardware and administration of the Honeywell System.

2.0 SYSTEM HARDWARE DESCRIPTION

The Honeywell MAS consists of one PC work station, a "cable link," and the process control rack. Connections from furnaces in HA-21I connected to modules in the process control rack.

The work station is a DELL personal computer with an INTEL® Pentium® processor and operates in a Microsoft® Windows™ environment. Available software includes the Honeywell PC supervisor, Intellution® FIX DMACS™, and Microsoft® Windows™ and Excel™.



The PC work station is connected to the PLC with a "cable link" (coaxial cable). Each end of cable is terminated with 50-ohm resistors.

The process control rack contains the following modules: a Model 9000e logic control processor (9010-012), a 15-amp power supply (620-0083), an Ethernet Loop Processor Module (620-0073), two universal analog input modules (621-0020R), two analog output modules (621-0010AR), discrete input module (621-1160R), and a discrete output module (621-2150R). Two open slots will remain in the control rack for future expansion.

The universal analog input modules (621-0020R) can each accept 16 inputs. Input addresses 32 to 43 are used as thermocouple inputs for furnace control temperature, furnace high temperature, furnace off-gas temperature, and HA-21I glovebox temperature. These inputs are configured as Type K thermocouples.

Each analog output module (621-0010AR) is capable of four output signals. Addresses 72 to 74 are configured to output 4-20mA control signals to Silicon Control Rectifiers (SCR).

The 621-1160R discrete input module accepts 16 inputs. Addresses 80 to 82 accept input from furnace door limit switches and addresses 83 and 84 provide power indication for HA-21I furnace off-gas fans.

The 621-2150R discrete output module has 16 outputs. Some outputs will allow relays to energize and permit power to furnaces heating elements. These relays are an integral part to the interlock schemes for powering the furnaces. Other outputs will be used to start and stop HA-21I furnace off-gas fans.

3.0 SYSTEM SOFTWARE CONFIGURATION FILES

The continuous control chart (CCC) is the configuration software file for the S9000 Controller that creates loop control graphically through the PC Supervisor. Addresses and point names are used to define source and destination of data within the CCC configuration. These addresses identify physical connection points for field wiring to I/O modules plus internal I/O and registers with the relay ladder logic. A copy of the CCC block diagram and report for thermal stabilization furnaces are attached as Appendix A. Reports include control block configurations and point configurations input by programmer.

The PCS Relay Ladder Logic allows the programmer to define discrete control functions in the control strategy with logic elements such as coils and relays. A printout of the Ladder Logic is attached as Appendix B.

4.0 GRAPHICAL FILES

These files provide graphical representation of the thermal stabilization process. The operator will start from the Furnace Overview screen. From the overview screen, operators can get to individual furnace screens by clicking on a furnace. Operators will have increased monitoring abilities and will be able to start or stop the selected individual furnace from this screen. The Off-Gas Fan Control screen is accessible from the overview screen by clicking on OFF-GAS FAN. Each of the off-gas fans can be started or stopped with this graphic. Screens to monitor glovebox temperature, furnace temperatures, and current alarms are also available from the overview screen. Copies of these graphics are attached in Appendix C with corresponding computer generated report.

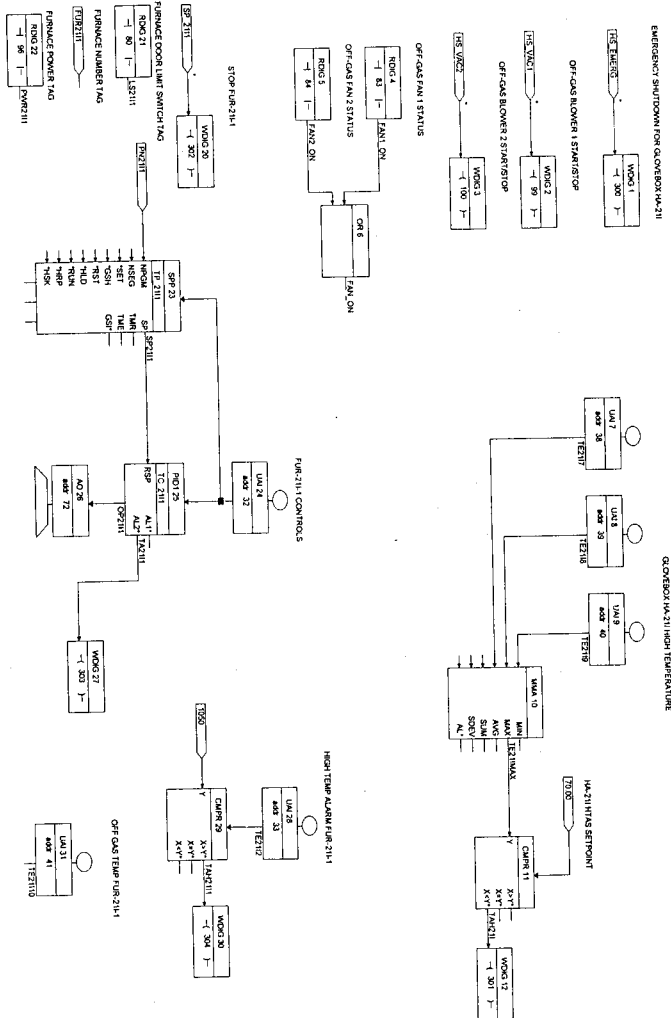
5.0 TAG GROUP FILES

The tag group files are sets of tagnames used in a common graphical displays to replace generic tagnames with specific data points. Tag group reports have been generated by the Tag Group Editor to an ASCII file. Copies of these reports are attached in Appendix D.

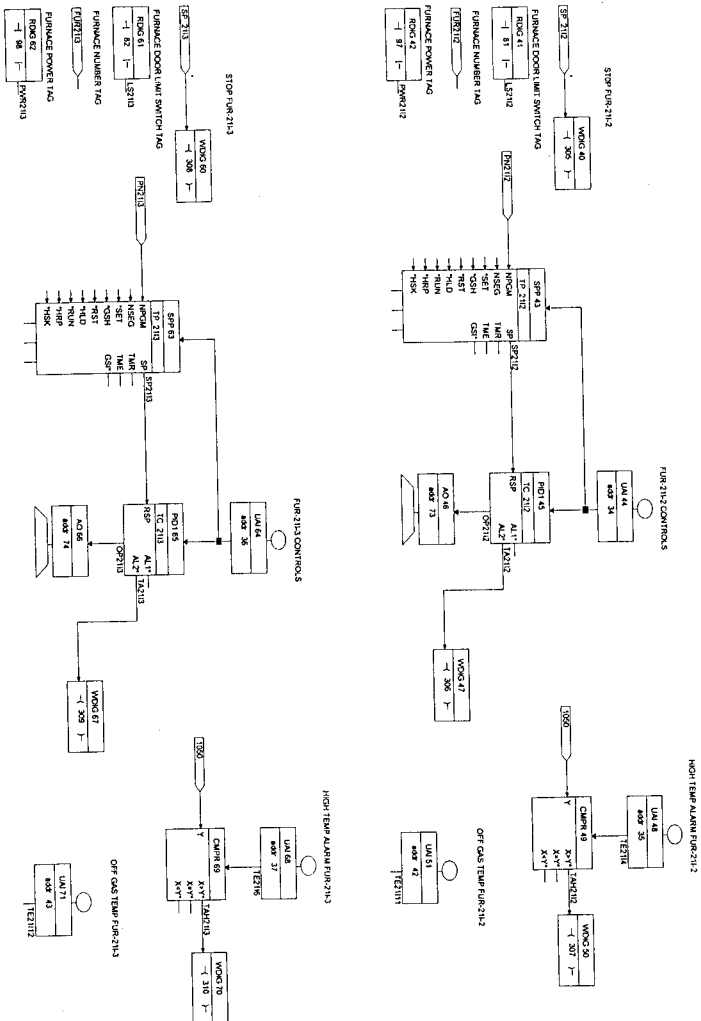
APPENDIX A

CCC BLOCK DIAGRAMS AND REPORTS

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Page 2



Control Block Configuration - FURN21I
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PAGE 1

Block Number: 1
Block Type: WDIG

<u>Input Label</u>	<u>Block</u>	<u>Type</u>	<u>Output</u>	<u>Tagname</u>
*X				HS_EMERG

<u>Configuration Parameter</u>	<u>Value</u>
ADDRESS	300

Block Number: 2
Block Type: WDIG

<u>Input Label</u>	<u>Block</u>	<u>Type</u>	<u>Output</u>	<u>Tagname</u>
*X				HS_VAC1

<u>Configuration Parameter</u>	<u>Value</u>
ADDRESS	99

Block Number: 3
Block Type: WDIG

<u>Input Label</u>	<u>Block</u>	<u>Type</u>	<u>Output</u>	<u>Tagname</u>
*X				HS_VAC2

<u>Configuration Parameter</u>	<u>Value</u>
ADDRESS	100

Block Number: 4
Block Type: RDIG

<u>Configuration Parameter</u>	<u>Value</u>
ADDRESS	83

Block Number: 5
Block Type: RDIG

<u>Configuration Parameter</u>	<u>Value</u>
ADDRESS	84

Control Block Configuration - FURN21I

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Block Number: 6
Block Type: OR

<u>Input Label</u>	<u>Block</u>	<u>(connected to)</u>		<u>Tagname</u>
		<u>Type</u>	<u>Output</u>	
X	4	RDIG	OUT	FAN1_ON
Y	5	RDIG	OUT	FAN2_ON

Block Number: 7
Block Type: UAI

<u>Configuration Parameter</u>	<u>Value</u>
START ADR	32
INPUT ADR	38
I/O TYP	LOCAL
INPUT TYP	DIR SENSOR
CHAR	K TC
CHAR UNIT	DEG C
AI HI	1315.56
AI LO	-17.78
SCAN RATE	0.8 SEC
SW FILTER	2 SEC
BURNOUT	ENABLED
CRD FSAFE	UPSCALE
PROCESSNG	NONE
BIAS/%CO	0.00
EMISSIV	0.00

Control Block Configuration - FURN21I
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PAGE 3

Block Number: 8
 Block Type: UAI

<u>Configuration Parameter</u>	<u>Value</u>
START ADR	32
INPUT ADR	39
I/O TYP	LOCAL
INPUT TYP	DIR SENSOR
CHAR	K TC
CHAR UNIT	DEG C
AI HI	1315.56
AI LO	-17.78
SCAN RATE	0.8 SEC
SW FILTER	2 SEC
BURNOUT	ENABLED
CRD FSAFE	UPSCALE
PROCESSNG	NONE
BIAS/%CO	0.00
EMISSION	0.00

Block Number: 9
 Block Type: UAI

<u>Configuration Parameter</u>	<u>Value</u>
START ADR	32
INPUT ADR	40
I/O TYP	LOCAL
INPUT TYP	DIR SENSOR
CHAR	K TC
CHAR UNIT	DEG C
AI HI	1315.56
AI LO	-17.78
SCAN RATE	0.8 SEC
SW FILTER	2 SEC
BURNOUT	ENABLED
CRD FSAFE	UPSCALE
PROCESSNG	NONE
BIAS/%CO	0.00
EMISSION	0.00

Control Block Configuration - FURN21I
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Block Number: 10
 Block Type: MMA

<u>Input Label</u>	<u>Block</u>	(connected to)		<u>Tagname</u>
		<u>Type</u>	<u>Output</u>	
X1	9	UAI	OUT	TE2119
X2	8	UAI	OUT	TE2118
X3	7	UAI	OUT	TE2117
X4				
X5				
X6				

<u>Configuration Parameter</u>	<u>Value</u>
NO.INPUTS	3
DEV	-1.00

Block Number: 11
 Block Type: CMPR

<u>Input Label</u>	<u>Block</u>	(connected to)		<u>Tagname</u>
		<u>Type</u>	<u>Output</u>	
X				NC70.00
Y	10	MMA	MAX	TE211MAX

Block Number: 12
 Block Type: WDIG

<u>Input Label</u>	<u>Block</u>	(connected to)		<u>Tagname</u>
		<u>Type</u>	<u>Output</u>	
X	11	CMPR	X<Y	TAH21I

<u>Configuration Parameter</u>	<u>Value</u>
ADDRESS	301

Block Number: 20
 Block Type: WDIG

<u>Input Label</u>	<u>Block</u>	(connected to)		<u>Tagname</u>
		<u>Type</u>	<u>Output</u>	
*X				SP_2111

<u>Configuration Parameter</u>	<u>Value</u>
ADDRESS	302

Control Block Configuration - FURN21I
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Block Number: 21
 Block Type: RDIG

<u>Configuration Parameter</u>	<u>Value</u>
ADDRESS	80

Block Number: 22
 Block Type: RDIG

<u>Configuration Parameter</u>	<u>Value</u>
ADDRESS	96

Block Number: 23
 Block Type: SPP

<u>Input Label</u>	<u>Block</u>	(connected to) <u>Type</u>	<u>Output</u>	<u>Tagname</u>
NPGM				PN21I1
NSEG				
PV	24	UAI	OUT	
*GSH				
*RST				
*HLD				
*RUN				
*SET				
*HRP				
*HSK				

<u>Configuration Parameter</u>	<u>Value</u>
SPAR	0.00

Control Block Configuration - FURN21I
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Block Number: 24
Block Type: UAI

<u>Configuration Parameter</u>	<u>Value</u>
START ADR	32
INPUT ADR	32
I/O TYP	LOCAL
INPUT TYP	DIR SENSOR
CHAR	K TC
CHAR UNIT	DEG C
AI HI	1315.56
AI LO	-17.78
SCAN RATE	0.8 SEC
SW FILTER	2 SEC
BURNOUT	ENABLED
CRD FSAFE	UPSCALE
PROCESSNG	NONE
BIAS/%CO	0.00
EMISSIV	0.00

Control Block Configuration - FURN21I
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Block Number: 25
 Block Type: PDI1

<u>Input Label</u>	<u>Block</u>	(connected to)		<u>Tagname</u>
		<u>Type</u>	<u>Output</u>	
PV	24	UAI	OUT	
RSP	23	SPP	SP	SP211I

<u>Configuration Parameter</u>	<u>Value</u>
GAIN	5.00
RATE MIN	0.00
RSET MIN	1.00
CONT ALG	PID A
PV HI	1200.00
PV LO	0.00
SP TRACK	TRACK RSP
RSP UNITS	ENGR
INIT MODE	AUTO RSP
PWR MODE	LAST MODE
PWR OUT	FAILSAFE
SP HiLIM	1000.00
SP LoLIM	0.00
ACTION	REVERSE
OUTHILIM	100.00
OUTLoLIM	0.00
FAILSAFE	0.00
A1S1 VAL	0.00
A1S2 VAL	0.00
A2S1 VAL	20.00
A2S2 VAL	20.00
A1S1TYPE	NONE
A1S2TYPE	NONE
A2S1TYPE	DEV LO
A2S2TYPE	DEV HI
AL HYST	0.10
TXFR ALG	DISABLED
REG ADDR	4096
AT TYPE	SP ONLY
SP STEP	100.00
AT STATE	ENABLE

Control Block Configuration - FURN21I
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Block Number: 26
Block Type: AO

<u>Input Label</u>	<u>Block</u>	<u>(connected to)</u>		<u>Tagname</u>
		<u>Type</u>	<u>Output</u>	
X	25	PID1	OUT	OP2111
<u>Configuration Parameter</u>		<u>Value</u>		
ADDRESS		72		
X HI		100.00		
X LO		0.00		

Block Number: 27
Block Type: WDIG

<u>Input Label</u>	<u>Block</u>	<u>(connected to)</u>		<u>Tagname</u>
		<u>Type</u>	<u>Output</u>	
X	25	PID1	AL2	TA2111
<u>Configuration Parameter</u>		<u>Value</u>		
ADDRESS		303		

Block Number: 28
Block Type: UAI

<u>Configuration Parameter</u>	<u>Value</u>
START ADR	32
INPUT ADR	33
I/O TYP	LOCAL
INPUT TYP	DIR SENSOR
CHAR	K TC
CHAR UNIT	DEG C
AI HI	1315.56
AI LO	-17.78
SCAN RATE	0.8 SEC
SW FILTER	2 SEC
BURNOUT	ENABLED
CRD FSAFE	UPSCALE
PROCESSNG	NONE
BIAS/%CO	0.00
EMISSIV	0.00

Control Block Configuration - FURN21I
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Block Number: 29
 Block Type: CMPR

<u>Input Label</u>	<u>Block</u>	<u>(connected to)</u>		<u>Tagname</u>
		<u>Type</u>	<u>Output</u>	
X	28	UAI	OUT	TE21I2
Y				NC1050

Block Number: 30
 Block Type: WDIG

<u>Input Label</u>	<u>Block</u>	<u>(connected to)</u>		<u>Tagname</u>
		<u>Type</u>	<u>Output</u>	
X	29	CMPR	X>Y	TAH21I1

<u>Configuration Parameter</u>	<u>Value</u>
ADDRESS	304

Block Number: 31
 Block Type: UAI

<u>Configuration Parameter</u>	<u>Value</u>
START ADR	32
INPUT ADR	41
I/O TYP	LOCAL
INPUT TYP	DIR SENSOR
CHAR	K TC
CHAR UNIT	DEG C
AI HI	1315.56
AI LO	-17.78
SCAN RATE	0.8 SEC
SW FILTER	2 SEC
BURNOUT	ENABLED
CRD FSAFE	UPSCALE
PROCESSNG	NONE
BIAS/%CO	0.00
EMISSIV	0.00

Block Number: 40
 Block Type: WDIG

<u>Input Label</u>	<u>Block</u>	<u>(connected to)</u>		<u>Tagname</u>
		<u>Type</u>	<u>Output</u>	
*X				SP_21I2

<u>Configuration Parameter</u>	<u>Value</u>
ADDRESS	305

Control Block Configuration - FURN21I
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Block Number: 41
 Block Type: RDIG

<u>Configuration Parameter</u>	<u>Value</u>
ADDRESS	81

Block Number: 42
 Block Type: RDIG

<u>Configuration Parameter</u>	<u>Value</u>
ADDRESS	97

Block Number: 43
 Block Type: SPP

<u>Input Label</u>	<u>Block</u>	(connected to) <u>Type</u>	<u>Output</u>	<u>Tagname</u>
NPGM				PN21I2
NSEG				
PV	44	UAI	OUT	
*GSH				
*RST				
*HLD				
*RUN				
*SET				
*HRP				
*HSK				

<u>Configuration Parameter</u>	<u>Value</u>
SPAR	0.00

Control Block Configuration - FURN21I
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Block Number: 44
Block Type: UAI

<u>Configuration Parameter</u>	<u>Value</u>
START ADR	32
INPUT ADR	34
I/O TYP	LOCAL
INPUT TYP	DIR SENSOR
CHAR	K TC
CHAR UNIT	DEG C
AI HI	1315.56
AI LO	-17.78
SCAN RATE	0.8 SEC
SW FILTER	2 SEC
BURNOUT	ENABLED
CRD FSAFE	UPSCALE
PROCESSNG	NONE
BIAS/%CO	0.00
EMISSION	0.00

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Block Number: 45

Block Type: PID1

(connected to)

<u>Input Label</u>	<u>Block</u>	<u>Type</u>	<u>Output</u>	<u>Tagname</u>
PV	44	UAI	OUT	
RSP	43	SPP	SP	SP21I2

<u>Configuration Parameter</u>	<u>Value</u>
GAIN	5.00
RATE MIN	0.00
RSET MIN	1.00
CONT ALG	PID A
PV HI	1200.00
PV LO	0.00
SP TRACK	TRACK RSP
RSP UNITS	ENGR
INIT MODE	AUTO RSP
PWR MODE	LAST MODE
PWR OUT	FAILSAFE
SP HiLIM	1000.00
SP LoLIM	0.00
ACTION	REVERSE
OUTHiLIM	100.00
OUTLoLIM	0.00
FAILSAFE	0.00
A1S1 VAL	0.00
A1S2 VAL	0.00
A2S1 VAL	20.00
A2S2 VAL	20.00
A1S1TYPE	NONE
A1S2TYPE	NONE
A2S1TYPE	DEV LO
A2S2TYPE	DEV HI
AL HYST	0.10
TXFR ALG	DISABLED
REG ADDR	4096
AT TYPE	SP ONLY
SP STEP	100.00
AT STATE	ENABLE

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Block Number: 46

Block Type: AO

<u>Input Label</u>	<u>Block</u>	<u>(connected to)</u>		<u>Tagname</u>
		<u>Type</u>	<u>Output</u>	
X	45	PID1	OUT	OP21I2
<u>Configuration Parameter</u>		<u>Value</u>		
ADDRESS		73		
X HI		100.00		
X LO		0.00		

Block Number: 47

Block Type: WDIG

<u>Input Label</u>	<u>Block</u>	<u>(connected to)</u>		<u>Tagname</u>
		<u>Type</u>	<u>Output</u>	
X	45	PID1	AL2	TA21I2
<u>Configuration Parameter</u>		<u>Value</u>		
ADDRESS		306		

Block Number: 48

Block Type: UAI

<u>Configuration Parameter</u>	<u>Value</u>
START ADR	32
INPUT ADR	35
I/O TYP	LOCAL
INPUT TYP	DIR SENSOR
CHAR	K TC
CHAR UNIT	DEG C
AI HI	1315.56
AI LO	-17.78
SCAN RATE	0.8 SEC
SW FILTER	2 SEC
BURNOUT	ENABLED
CRD FSAFE	UPSCALE
PROCESSNG	NONE
BIAS/%CO	0.00
EMISSION	0.00

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Block Number: 49
 Block Type: CMPR

<u>Input Label</u>	<u>Block</u>	<u>(connected to)</u>		<u>Tagname</u>
		<u>Type</u>	<u>Output</u>	
X	48	UAI	OUT	TE21I4
Y				NC1050

Block Number: 50
 Block Type: WDIG

<u>Input Label</u>	<u>Block</u>	<u>(connected to)</u>		<u>Tagname</u>
		<u>Type</u>	<u>Output</u>	
X	49	CMPR	X>Y	TAH21I2

<u>Configuration Parameter</u>	<u>Value</u>
ADDRESS	307

Block Number: 51
 Block Type: UAI

<u>Configuration Parameter</u>	<u>Value</u>
START ADR	32
INPUT ADR	42
I/O TYP	LOCAL
INPUT TYP	DIR SENSOR
CHAR	K TC
CHAR UNIT	DEG C
AI HI	1315.56
AI LO	-17.78
SCAN RATE	0.8 SEC
SW FILTER	2 SEC
BURNOUT	ENABLED
CRD FSAFE	UPSCALE
PROCESSNG	NONE
BIAS/%CO	0.00
EMISSION	0.00

Block Number: 60
 Block Type: WDIG

<u>Input Label</u>	<u>Block</u>	<u>(connected to)</u>		<u>Tagname</u>
		<u>Type</u>	<u>Output</u>	
*X				SP_21I3

<u>Configuration Parameter</u>	<u>Value</u>
ADDRESS	308

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Block Number: 61
 Block Type: RDIG

<u>Configuration Parameter</u>	<u>Value</u>
ADDRESS	82

Block Number: 62
 Block Type: RDIG

<u>Configuration Parameter</u>	<u>Value</u>
ADDRESS	98

Block Number: 63
 Block Type: SPP

<u>Input Label</u>	<u>Block</u>	(connected to) <u>Type</u>	<u>Output</u>	<u>Tagname</u>
NPGM				PN2113
NSEG				
PV	64	UAI	OUT	
*GSH				
*RST				
*HLD				
*RUN				
*SET				
*HRP				
*HSK				

<u>Configuration Parameter</u>	<u>Value</u>
SPAR	0.00

Control Block Configuration - FURN21I
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Block Number: 64
Block Type: UAI

<u>Configuration Parameter</u>	<u>Value</u>
START ADR	32
INPUT ADR	36
I/O TYP	LOCAL
INPUT TYP	DIR SENSOR
CHAR	K TC
CHAR UNIT	DEG C
AI HI	1315.56
AI LO	-17.78
SCAN RATE	0.8 SEC
SW FILTER	2 SEC
BURNOUT	ENABLED
CRD FSAFE	UPSCALE
PROCESSNG	NONE
BIAS/%CO	0.00
EMISSION	0.00

Control Block Configuration - FURN21I
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Block Number: 65

Block Type: PID1

(connected to)

<u>Input Label</u>	<u>Block</u>	<u>Type</u>	<u>Output</u>	<u>Tagname</u>
PV	64	UAI	OUT	
RSP	63	SPP	SP	SP21I3

<u>Configuration Parameter</u>	<u>Value</u>
GAIN	5.00
RATE MIN	0.00
RSET MIN	1.00
CONT ALG	PID A
PV HI	1200.00
PV LO	0.00
SP TRACK	TRACK RSP
RSP UNITS	ENGR
INIT MODE	AUTO RSP
PWR MODE	LAST MODE
PWR OUT	FAILSAFE
SP HiLIM	1000.00
SP LoLIM	0.00
ACTION	REVERSE
OUTHILIM	100.00
OUTLoLIM	0.00
FAILSAFE	0.00
A1S1 VAL	0.00
A1S2 VAL	0.00
A2S1 VAL	20.00
A2S2 VAL	20.00
A1S1TYPE	NONE
A1S2TYPE	NONE
A2S1TYPE	DEV LO
A2S2TYPE	DEV HI
AL HYST	0.10
TXFR ALG	DISABLED
REG ADDR	4096
AT TYPE	SP ONLY
SP STEP	100.00
AT STATE	ENABLE

Control Block Configuration - FURN21IPAGE 18

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Block Number: 66

Block Type: AO

<u>Input Label</u>	<u>Block</u>	(connected to) <u>Type</u>	<u>Output</u>	<u>Tagname</u>
X	65	PID1	OUT	OP21I3

<u>Configuration Parameter</u>	<u>Value</u>
ADDRESS	74
X HI	100.00
X LO	0.00

Block Number: 67

Block Type: WDIG

<u>Input Label</u>	<u>Block</u>	(connected to) <u>Type</u>	<u>Output</u>	<u>Tagname</u>
X	65	PID1	AL2	TA21I3

<u>Configuration Parameter</u>	<u>Value</u>
ADDRESS	309

Block Number: 68

Block Type: UAI

<u>Configuration Parameter</u>	<u>Value</u>
START ADR	32
INPUT ADR	37
I/O TYP	LOCAL
INPUT TYP	DIR SENSOR
CHAR	K TC
CHAR UNIT	DEG C
AI HI	1315.56
AI LO	-17.78
SCAN RATE	0.8 SEC
SW FILTER	2 SEC
BURNOUT	ENABLED
CRD FSAFE	UPSCALE
PROCESSNG	NONE
BIAS/%CO	0.00
EMISSIV	0.00

Control Block Configuration - FURN21I

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Block Number: 69

Block Type: CMPR

<u>Input Label</u>	<u>Block</u>	(connected to)		<u>Tagname</u>
		<u>Type</u>	<u>Output</u>	
X	68	UAI	OUT	TE21I6
Y				NC1050

Block Number: 70

Block Type: WDIG

<u>Input Label</u>	<u>Block</u>	(connected to)		<u>Tagname</u>
		<u>Type</u>	<u>Output</u>	
X	69	CMPR	X>Y	TAH21I3

<u>Configuration Parameter</u>	<u>Value</u>
ADDRESS	310

Block Number: 71

Block Type: UAI

<u>Configuration Parameter</u>	<u>Value</u>
START ADR	32
INPUT ADR	43
I/O TYP	LOCAL
INPUT TYP	DIR SENSOR
CHAR	K TC
CHAR UNIT	DEG C
AI HI	1315.56
AI LO	-17.78
SCAN RATE	0.8 SEC
SW FILTER	2 SEC
BURNOUT	ENABLED
CRD FSAFE	UPSCALE
PROCESSNG	NONE
BIAS/%CO	0.00
EMISSIV	0.00

Point Configuration - FURN21I

PAGE 1

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Loop Points

TC_21I1 Description: TEMPERATURE CONTROLLER FUR-21I-1
 Security Areas: none, none, none
 Scan Time (seconds): 5:0
 Block /Num: PID1 25
 Decimal Place: 1
 Engineering Units: DEG C
 Engineering Limit High: 1200
 Engineering Limit Low: 0.000
 PC Spvsr Alarm Enabled: No

TC_21I2 Description: TEMPERATURE CONTROLLER FUR-21I-2
 Security Areas: none, none, none
 Scan Time (seconds): 1:0
 Block /Num: PID1 45
 Decimal Place: 1
 Engineering Units: DEG C
 Engineering Limit High: 1200
 Engineering Limit Low: 0.000
 PC Spvsr Alarm Enabled: No

TC_21I3 Description: TEMPERATURE CONTROLLER FUR-21I-3
 Security Areas: none, none, none
 Scan Time (seconds): 1:0
 Block /Num: PID1 65
 Decimal Place: 1
 Engineering Units: DEG C
 Engineering Limit High: 1200
 Engineering Limit Low: 0.000
 PC Spvsr Alarm Enabled: No

Set Point Program Points

TP_21I1 Description: TEMPERATURE PROGRAMS FOR FUR-21I-1
 Security Areas: none, none, none
 Scan Time (seconds): 2:0
 Block /Num: SPP 23

Point Configuration - FURN21I

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Set Point Program Points

TP_21I2	Description:	TEMPERATURE PROGRAMS FUR-21I-2
	Security Areas:	none, none, none
	Scan Time (seconds):	2:0
	Block /Num:	SPP 43
TP_21I3	Description:	TEMPERATURE PROGRAMS FUR-21I-3
	Security Areas:	none, none, none
	Scan Time (seconds):	2:0
	Block /Num:	SPP 63

Analog Signal Points

OP21I1	Description:	CONTROLLER OUPPUT FUR-21I-1
	Security Areas:	none, none, none
	Scan Time (seconds):	5:0
	Block /Num:	PID1 25
	Output:	OUT
	Decimal Place:	0
	Engineering Units:	%
	Engineering Limit High:	100.0
	Engineering Limit Low:	0.000
	Communication Address:	25:10
	PC Spvsr Alarm Enabled:	No

Point Configuration - FURN21I

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Analog Signal Points

OP21I2	Description:	CONTROLLER OUTPUT FUR-21I-2
	Security Areas:	none, none, none
	Scan Time (seconds):	5:0
	Block /Num:	PID1 45
	Output:	OUT
	Decimal Place:	0
	Engineering Units:	%
	Engineering Limit High:	100.0
	Engineering Limit Low:	0.000
	Communication Address:	45:10
	PC Spvsr Alarm Enabled:	No
OP21I3	Description:	CONTROLLER OUTPUT FUR-21I-3
	Security Areas:	none, none, none
	Scan Time (seconds):	5:0
	Block /Num:	PID1 65
	Output:	OUT
	Decimal Place:	0
	Engineering Units:	%
	Engineering Limit High:	100.0
	Engineering Limit Low:	0.000
	Communication Address:	65:10
	PC Spvsr Alarm Enabled:	No

Point Configuration - FURN21I

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Analog Signal Points

SP21I1 Description: SET POINT FUR-21I-1
 Security Areas: none, none, none
 Scan Time (seconds): 5:0
 Block /Num: SPP 23
 Output: SP
 Decimal Place: 0
 Engineering Units: DEG C
 Engineering Limit High: 1200
 Engineering Limit Low: 0.000
 Communication Address: 23:8
 PC Spvsr Alarm Enabled: No

SP21I2 Description: SET POINT FUR-21I-2
 Security Areas: none, none, none
 Scan Time (seconds): 5:0
 Block /Num: SPP 43
 Output: SP
 Decimal Place: 0
 Engineering Units: DEG C
 Engineering Limit High: 1200
 Engineering Limit Low: 0.000
 Communication Address: 43:8
 PC Spvsr Alarm Enabled: No

Point Configuration - FURN21I

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Analog Signal Points

SP21I3	Description:	SET POINT FUR-21I-3
	Security Areas:	none, none, none
	Scan Time (seconds):	5:0
	Block /Num:	SPP 63
	Output:	SP
	Decimal Place:	0
	Engineering Units:	DEG C
	Engineering Limit High:	1200
	Engineering Limit Low:	0.000
	Communication Address:	63:8
	PC Spvsvr Alarm Enabled:	No
TE21I10	Description:	OFF GAS TEMPERATURE FUR-21I-1
	Security Areas:	none, none, none
	Scan Time (seconds):	2:0
	Block /Num:	UAI 31
	Output:	OUT
	Decimal Place:	1
	Engineering Units:	DEG C
	Engineering Limit High:	1200
	Engineering Limit Low:	0.000
	Communication Address:	31:1
	PC Spvsvr Alarm Enabled:	No

Point Configuration - FURN21I

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Analog Signal Points

TE21I11	Description:	OFF GAS TEMPERATURE FUR-21I-2
	Security Areas:	none, none, none
	Scan Time (seconds):	2:0
	Block /Num:	UAI 51
	Output:	OUT
	Decimal Place:	1
	Engineering Units:	DEG C
	Engineering Limit High:	1200
	Engineering Limit Low:	0.000
	Communication Address:	51:1
	PC Spvsr Alarm Enabled:	No
TE21I12	Description:	OFF GAS TEMPERATURE FUR-21I-3
	Security Areas:	none, none, none
	Scan Time (seconds):	3:0
	Block /Num:	UAI 71
	Output:	OUT
	Decimal Place:	1
	Engineering Units:	DEG C
	Engineering Limit High:	1200
	Engineering Limit Low:	0.000
	Communication Address:	71:1
	PC Spvsr Alarm Enabled:	No

Point Configuration - FURN21I

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Analog Signal Points

TE21I2	Description:	High Temperature FUR-21I-1
	Security Areas:	none, none, none
	Scan Time (seconds):	2:0
	Block /Num:	UAI 28
	Output:	OUT
	Decimal Place:	1
	Engineering Units:	DEG C
	Engineering Limit High:	1200
	Engineering Limit Low:	0.000
	Communication Address:	28:1
	PC Spvsr Alarm Enabled:	No
TE21I4	Description:	High Temperature FUR-21I-2
	Security Areas:	none, none, none
	Scan Time (seconds):	2:0
	Block /Num:	UAI 48
	Output:	OUT
	Decimal Place:	1
	Engineering Units:	DEG C
	Engineering Limit High:	1200
	Engineering Limit Low:	0.000
	Communication Address:	48:1
	PC Spvsr Alarm Enabled:	No

Point Configuration - FURN21I

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Analog Signal Points

TE21I6 Description: High Temperature FUR-21I-3
 Security Areas: none, none, none
 Scan Time (seconds): 2:0
 Block /Num: UAI 68
 Output: OUT
 Decimal Place: 1
 Engineering Units: DEG C
 Engineering Limit High: 1200
 Engineering Limit Low: 0.000
 Communication Address: 68:1
 PC Spvsr Alarm Enabled: No

TE21I7 Description: GLOVEBOX HA-21I TE
 Security Areas: none, none, none
 Scan Time (seconds): 2:0
 Block /Num: UAI 7
 Output: OUT
 Decimal Place: 1
 Engineering Units: DEG C
 Engineering Limit High: 100.0
 Engineering Limit Low: 0.000
 Communication Address: 7:1
 PC Spvsr Alarm Enabled: No

Point Configuration - FURN21I

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Analog Signal Points

TE21I8 Description: GLOVEBOX HA-21I TE
 Security Areas: none, none, none
 Scan Time (seconds): 2:0
 Block /Num: UAI 8
 Output: OUT
 Decimal Place: 1
 Engineering Units: DEG C
 Engineering Limit High: 100.0
 Engineering Limit Low: 0.000
 Communication Address: 8:1
 PC Spvsr Alarm Enabled: No

TE21I9 Description: GLOVEBOX HA-21I TE
 Security Areas: none, none, none
 Scan Time (seconds): 2:0
 Block /Num: UAI 9
 Output: OUT
 Decimal Place: 1
 Engineering Units: DEG C
 Engineering Limit High: 100.0
 Engineering Limit Low: 0.000
 Communication Address: 9:1
 PC Spvsr Alarm Enabled: No

Point Configuration - FURN21I

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Analog Signal Points

TE21IMAX Description: GLOVEBOX HA-21I HIGH TEMPERATURE
 Security Areas: none, none, none
 Scan Time (seconds): 5:0
 Block /Num: MMA 10
 Output: MAX
 Decimal Place: 0
 Engineering Units: DEG C
 Engineering Limit High: 1200
 Engineering Limit Low: 0.000
 Communication Address: 10:2
 PC Spvsr Alarm Enabled: No

Digital Signal Points

FAN1_ON Description: OFF-GAS FAN #1 POWER INDICATION
 Security Areas: none, none, none
 Scan Time (seconds): 2:0
 Block /Num: RDIG 4
 Output: OUT*
 Off Label: OFF
 On Label: ON
 Communication Address: 4:1
 Op Panel Alarm Enabled: No
 PC Spvsr Alarm Enabled: No

FAN2_ON Description: OFF-GAS FAN #2 POWER INDICATION
 Security Areas: none, none, none
 Scan Time (seconds): 2:0
 Block /Num: RDIG 5
 Output: OUT*
 Off Label: OFF
 On Label: ON
 Communication Address: 5:1
 Op Panel Alarm Enabled: No
 PC Spvsr Alarm Enabled: No

Point Configuration - FURN21I

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Digital Signal Points

FAN_ON	Description:	OFF-GAS BLOWER ON
	Security Areas:	none, none, none
	Scan Time (seconds):	2:0
	Block /Num:	OR 6
	Output:	OUT*
	Off Label:	OFF
	On Label:	ON
	Communication Address:	6:1
	Op Panel Alarm Enabled:	No
	PC Spvsr Alarm Enabled:	No
LS21I1	Description:	LIMIT SWITCH FUR-21I-1
	Security Areas:	none, none, none
	Scan Time (seconds):	2:0
	Block /Num:	RDIG 21
	Output:	OUT*
	Off Label:	OFF
	On Label:	ON
	Communication Address:	21:1
	Op Panel Alarm Enabled:	No
	PC Spvsr Alarm Enabled:	No
LS21I2	Description:	LIMIT SWITCH FUR-21I-2
	Security Areas:	none, none, none
	Scan Time (seconds):	2:0
	Block /Num:	RDIG 41
	Output:	OUT*
	Off Label:	OFF
	On Label:	ON
	Communication Address:	41:1
	Op Panel Alarm Enabled:	No
	PC Spvsr Alarm Enabled:	No

Point Configuration - FURN21I

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Digital Signal Points

LS21I3	Description:	LIMIT SWITCH FUR-21I-3
	Security Areas:	none, none, none
	Scan Time (seconds):	2:0
	Block /Num:	RDIG 61
	Output:	OUT*
	Off Label:	OFF
	On Label:	ON
	Communication Address:	61:1
	Op Panel Alarm Enabled:	No
	PC Spvsvr Alarm Enabled:	No
PWR21I1	Description:	POWER TO FURNACE 21I-1
	Security Areas:	none, none, none
	Scan Time (seconds):	2:0
	Block /Num:	RDIG 22
	Output:	OUT*
	Off Label:	OFF
	On Label:	ON
	Communication Address:	22:1
	Op Panel Alarm Enabled:	No
	PC Spvsvr Alarm Enabled:	No
PWR21I2	Description:	POWER TO FURNACE 21I-2
	Security Areas:	none, none, none
	Scan Time (seconds):	2:0
	Block /Num:	RDIG 42
	Output:	OUT*
	Off Label:	OFF
	On Label:	ON
	Communication Address:	42:1
	Op Panel Alarm Enabled:	No
	PC Spvsvr Alarm Enabled:	No

Point Configuration - FURN21I

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Digital Signal Points

PWR21I3	Description:	POWER TO FURNACE 21I-3
	Security Areas:	none, none, none
	Scan Time (seconds):	2:0
	Block /Num:	RDIG 62
	Output:	OUT*
	Off Label:	OFF
	On Label:	ON
	Communication Address:	62:1
	Op Panel Alarm Enabled:	No
	PC Spvsr Alarm Enabled:	No
TA21I1	Description:	DEVIATION ALARM FUR-21I-1
	Security Areas:	none, none, none
	Scan Time (seconds):	2:0
	Block /Num:	PID1 25
	Output:	AL2*
	Off Label:	OFF
	On Label:	ON
	Communication Address:	25:9
	Op Panel Alarm Enabled:	Yes
	PC Spvsr Alarm Enabled:	Yes
	Alarm Area:	all
	Alarm Priority:	Low
TA21I2	Description:	DEVIATION ALARM FUR-21I-2
	Security Areas:	none, none, none
	Scan Time (seconds):	2:0
	Block /Num:	PID1 45
	Output:	AL2*
	Off Label:	OFF
	On Label:	ON
	Communication Address:	45:9
	Op Panel Alarm Enabled:	Yes
	PC Spvsr Alarm Enabled:	Yes
	Alarm Area:	all
	Alarm Priority:	Low

Point Configuration - FURN21I

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Digital Signal Points

TA21I3	Description:	DEVIATION ALARM FUR-21I-3
	Security Areas:	none, none, none
	Scan Time (seconds):	2:0
	Block /Num:	PID1 65
	Output:	AL2*
	Off Label:	OFF
	On Label:	ON
	Communication Address:	65:9
	Op Panel Alarm Enabled:	Yes
	PC Spvsr Alarm Enabled:	Yes
	Alarm Area:	all
	Alarm Priority:	Low
TAH21I	Description:	GLOVEBOX 21I HIGH TEMP
	Security Areas:	none, none, none
	Scan Time (seconds):	2:0
	Block /Num:	CMPR 11
	Output:	X<Y*
	Off Label:	OFF
	On Label:	ON
	Communication Address:	11:3
	Op Panel Alarm Enabled:	Yes
	PC Spvsr Alarm Enabled:	Yes
	Alarm Area:	all
	Alarm Priority:	High
TAH21I1	Description:	FUR-21I-1 HIGH TEMPERATURE
	Security Areas:	none, none, none
	Scan Time (seconds):	2:0
	Block /Num:	CMPR 29
	Output:	X>Y*
	Off Label:	OFF
	On Label:	ON
	Communication Address:	29:1
	Op Panel Alarm Enabled:	Yes
	PC Spvsr Alarm Enabled:	Yes
	Alarm Area:	all
	Alarm Priority:	High

Point Configuration - FURN21I

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Digital Signal Points

TAH21I2	Description:	FUR-21I-2 HIGH TEMPERATURE
	Security Areas:	none, none, none
	Scan Time (seconds):	2:0
	Block /Num:	CMPR 49
	Output:	X>Y*
	Off Label:	OFF
	On Label:	ON
	Communication Address:	49:1
	Op Panel Alarm Enabled:	Yes
	PC Spvsr Alarm Enabled:	Yes
	Alarm Area:	all
	Alarm Priority:	High
TAH21I3	Description:	FUR-21I-3 HIGH TEMPERATURE
	Security Areas:	none, none, none
	Scan Time (seconds):	2:0
	Block /Num:	CMPR 69
	Output:	X>Y*
	Off Label:	OFF
	On Label:	ON
	Communication Address:	69:1
	Op Panel Alarm Enabled:	Yes
	PC Spvsr Alarm Enabled:	Yes
	Alarm Area:	all
	Alarm Priority:	High

Point Configuration - FURN21I

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Analog Operator Points

FUR21I1 Description: FURNACE NUMBER
 Security Areas: none, none, none
 Scan Time (seconds): 5:0
 Decimal Place: 0
 Engineering Units:
 Engineering Limit High: 1200
 Engineering Limit Low: 0.000
 Communication Address: 251:18
 PC Spvsr Alarm Enabled: No

FUR21I2 Description: FURNACE NUMBER
 Security Areas: none, none, none
 Scan Time (seconds): 5:0
 Decimal Place: 0
 Engineering Units:
 Engineering Limit High: 1200
 Engineering Limit Low: 0.000
 Communication Address: 251:20
 PC Spvsr Alarm Enabled: No

FUR21I3 Description: FURNACE NUMBER
 Security Areas: none, none, none
 Scan Time (seconds): 5:0
 Decimal Place: 0
 Engineering Units:
 Engineering Limit High: 1200
 Engineering Limit Low: 0.000
 Communication Address: 251:19
 PC Spvsr Alarm Enabled: No

Point Configuration - FURN21I

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Analog Operator Points

PN21I1	Description:	PROGRAM NUMBER FUR-21I-1
	Security Areas:	none, none, none
	Scan Time (seconds):	2:0
	Decimal Place:	0
	Engineering Units:	
	Engineering Limit High:	10.00
	Engineering Limit Low:	0.000
	Communication Address:	251:3
	PC Spvsvr Alarm Enabled:	No
PN21I2	Description:	PROGRAM NUMBER FUR-21I-2
	Security Areas:	none, none, none
	Scan Time (seconds):	2:0
	Decimal Place:	0
	Engineering Units:	
	Engineering Limit High:	10.00
	Engineering Limit Low:	0.000
	Communication Address:	251:0
	PC Spvsvr Alarm Enabled:	No
PN21I3	Description:	PROGRAM NUMBER FUR-21I-3
	Security Areas:	none, none, none
	Scan Time (seconds):	2:0
	Decimal Place:	0
	Engineering Units:	
	Engineering Limit High:	10.00
	Engineering Limit Low:	0.000
	Communication Address:	251:1
	PC Spvsvr Alarm Enabled:	No

Point Configuration - FURN21I

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Digital Operator Points

HS_EMERG	Description:	EMERGENCY STOP BUTTON
	Security Areas:	none, none, none
	Scan Time (seconds):	2:0
	Off Label:	OFF
	On Label:	ON
	Communication Address:	251:2
	Op Panel Alarm Enabled:	No
	PC Spvsr Alarm Enabled:	No
HS_VAC1	Description:	START BUTTON FOR VACUUM PUMP 1
	Security Areas:	none, none, none
	Scan Time (seconds):	2:0
	Off Label:	OFF
	On Label:	ON
	Communication Address:	251:4
	Op Panel Alarm Enabled:	No
	PC Spvsr Alarm Enabled:	No
HS_VAC2	Description:	START BUTTON FOR VACUUM PUMP 2
	Security Areas:	none, none, none
	Scan Time (seconds):	2:0
	Off Label:	OFF
	On Label:	ON
	Communication Address:	251:5
	Op Panel Alarm Enabled:	No
	PC Spvsr Alarm Enabled:	No
SP_21I1	Description:	STOP BUTTON FOR FUR-21I-1
	Security Areas:	none, none, none
	Scan Time (seconds):	2:0
	Off Label:	OFF
	On Label:	ON
	Communication Address:	251:8
	Op Panel Alarm Enabled:	No
	PC Spvsr Alarm Enabled:	No

Point Configuration - FURN21I
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Digital Operator Points

SP_21I2 Description: STOP BUTTON FUR-21I-2
Security Areas: none, none, none
Scan Time (seconds): 2:0
Off Label: OFF
On Label: ON
Communication Address: 251:9
Op Panel Alarm Enabled: No
PC Spvsr Alarm Enabled: No

SP_21I3 Description: STOP BUTTON FUR-21I-3
Security Areas: none, none, none
Scan Time (seconds): 2:0
Off Label: OFF
On Label: ON
Communication Address: 251:11
Op Panel Alarm Enabled: No
PC Spvsr Alarm Enabled: No

APPENDIX B

PCS LADDER LOGIC

--Wed Nov 20 22:04 1996

Ladder Logic Listing

PAGE 1 Thermal Stabilization

05/06/96

Line # 1

Line # Cross-Ref of addr 96

*1

HA211	HA211	STRT/STP	FUR-211-1	FUR-211-1	FUR2111	START
EMERGENCY	HTAS	BUTTON	DEVIATION	HI TEMP	DOOR LS	FUR2111
STOP		FUR-211-1	ALARM	ALARM		CONTACTOR
HSEMERG	TAH211	SP 2111	TA2111	TAH2111	LS2112	PWR2111
300	301	302	303	304	80	96
] [-----]/[-----] [-----]/[-----] [-----] [-----] ()						
(0)	)	(0)	)	(0)	)	(0)

Line # 2

Line # Cross-Ref of addr 97

*2

HA211	HA211	STRT/STP	FUR-211-2	FUR-211-2	FUR2112	START
EMERGENCY	HTAS	BUTTON	DEVIATION	HI TEMP	DOOR LS	FUR2112
STOP		FUR-211-2	ALARM	ALARM		CONTACTOR
HSEMERG	TAH211	SP 2112	TA2112	TAH2112	LS2114	PWR2112
300	301	305	306	307	81	97
] [-----]/[-----] [-----]/[-----] [-----] [-----] ()						
(0)	)	(0)	)	(0)	)	(0)

Line # 3

Line # Cross-Ref of addr 98

*3

HA211	HA211	STRT/STP	FUR-211-3	FUR-211-3	FUR2113	START
EMERGENCY	HTAS	BUTTON	DEVIATION	HI TEMP	DOOR LS	FUR2113
STOP		FUR-211-3	ALARM	ALARM		CONTACTOR
HSEMERG	TAH211	SP 2113	TA2113	TAH2113	LS2116	PWR2113
300	301	308	309	310	82	98
] [-----]/[-----] [-----]/[-----] [-----] [-----] ()						
(0)	)	(0)	)	(0)	)	(0)

----- Cross Reference Legend -----

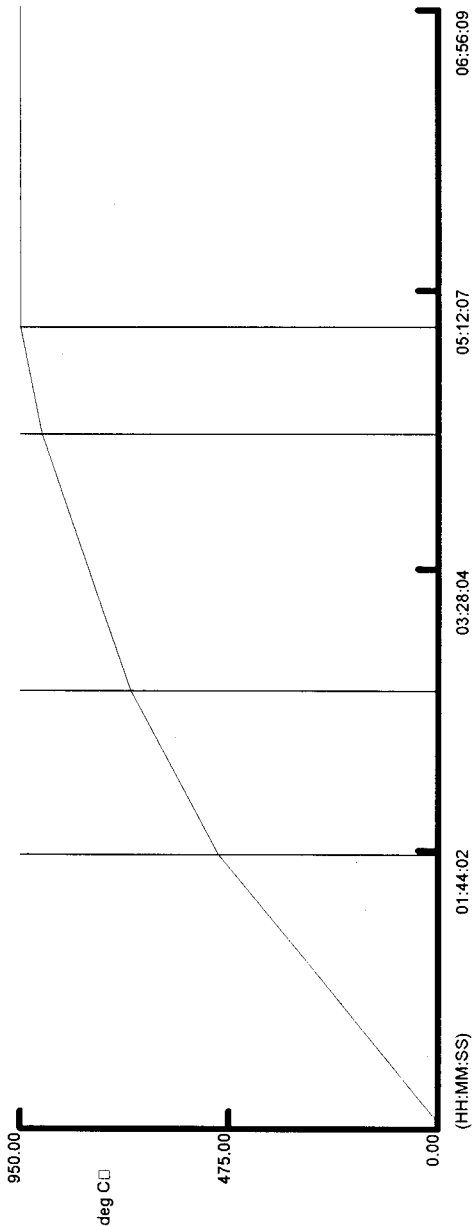
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! "/Line#"=	[/[-	"fLine#"=FP	"MLine#"=MATRIX OUTPUT ADDR
! "Line#"=	[/[-	"FLine#"=FP	"bLine#"=B2 -<B2>
! "vLine#"=	[/[-	"eLine#"=error addr for:	"SLine#"=S2 -<I2> SEQNCR

```
"zLine#"=-[Z]-      -[+]- -[-]- -[*]- -[/]- "sLine#"=SEQNCR STEP #      !
"*Line#"=-( )- -(R)-  -[BCD]- -[BIN]- -[INT]- "pLine#"=-[PUL]-      !
-(L)- -(U)- -(BW)-  -[SQRT]--[ABS]- "PLine#"=-(PSH)-      !
-----+
```

```
;20-12 :Mem Sz=2048 :Pgm Sz=21 :Lines=3 :Reg Sz=256 :Forces=0
Listing begun> Wed Nov 20 22:04 1996.
Listing ended> Wed Nov 20 22:04 1996.
```

APPENDIX C

SET POINT PROGRAMS

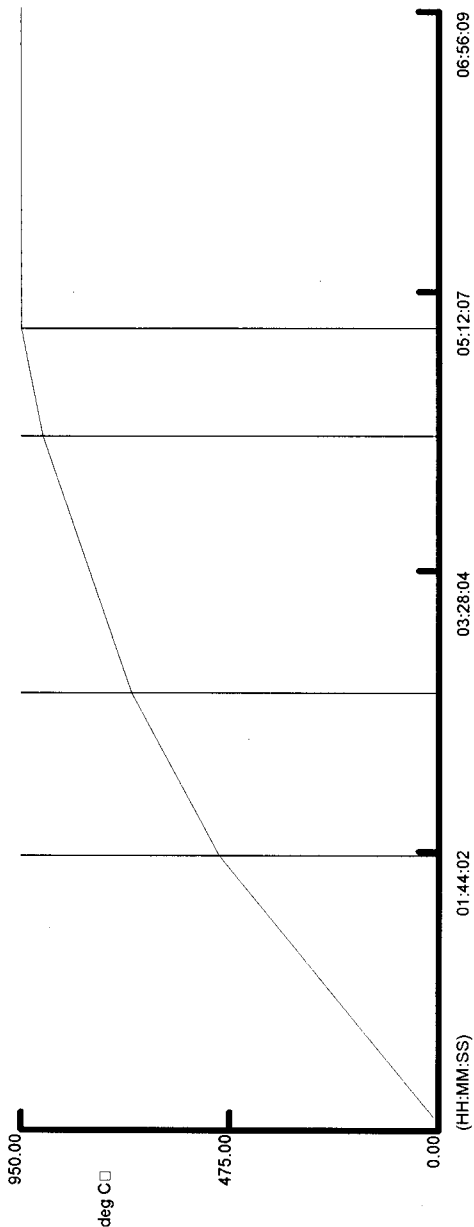


51

Segment	1	3	5	7	8
Event 1	WHC-SD-CP-CSWD-018, Rev. 0				
Event 2					
Event 3					
Event 4					
Event 5					
Event 6					
Event 7					
Event 8					
Event 9					
Event 10					
Event 11					
Event 12					

Program Number: 1
 Program Name: OXIDE
 Engineering Units: deg C
 Number of Segments: 10
 Date of last edit session: Nov 18 1996 21:42 PM

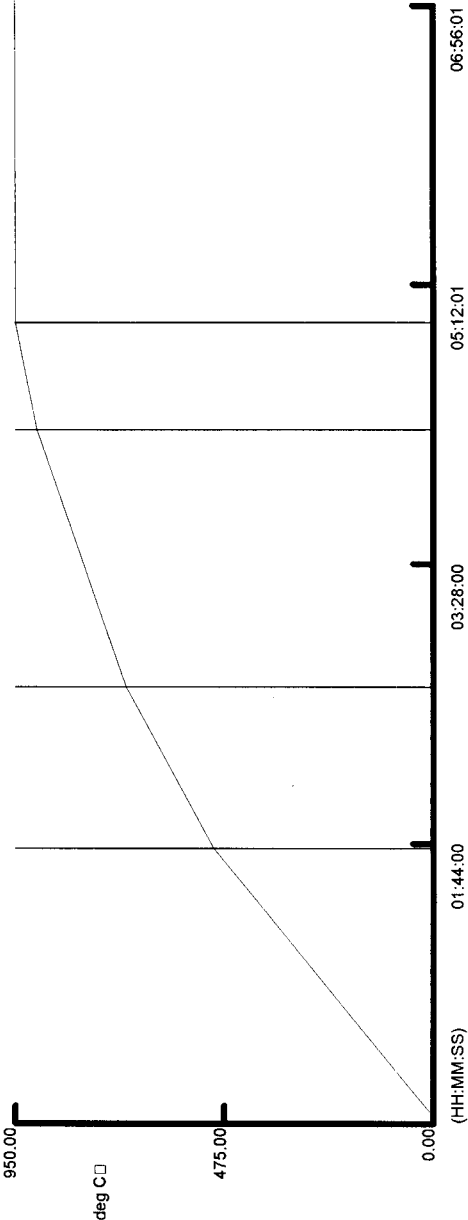
Segment	Setpoint	Ramp/Time	Gsband	Events											
				1	2	3	4	5	6	7	8	9	10	11	12
1 RAMP		5.000													
2 SOAK	500.0	00:00:00	0.000												
3 RAMP		3.333													
4 SOAK	700.0	00:00:00	0.000												
5 RAMP		2.080													
6 SOAK	900.0	00:00:00	0.000												
7 RAMP		1.250													
8 SOAK	950.0	02:00:00	10.00												
9 NA		0.000													
10 NA	0.000	00:00:00	0.000												



Segment	1	3	5	7	8
Event 1	WHC-SD-CP-CSWD-018, Rev. 0				
Event 2					
Event 3					
Event 4					
Event 5					
Event 6					
Event 7					
Event 8					
Event 9					
Event 10					
Event 11					
Event 12					

Program Number: 2
 Program Name: METAL
 Engineering Units: deg C
 Number of Segments: 10
 Date of last edit session: Oct 14 1996 08:41 AM

Segment	Setpoint	Ramp/Time	Gsband	Events											
				1	2	3	4	5	6	7	8	9	10	11	12
1 RAMP		5.000													
2 SOAK	500.0	00:00:00	0.000												
3 RAMP		3.333													
4 SOAK	700.0	00:00:00	0.000												
5 RAMP		2.080													
6 SOAK	900.0	00:00:00	0.000												
7 RAMP		1.250													
8 SOAK	950.0	02:00:00	10.00												
9 NA		0.000													
10 NA	0.000	00:00:00	0.000												



Segment	1	3	5	7	8
Event 1	WHC-SD-CP-CSWD-018, Rev. 0				
Event 2					
Event 3					
Event 4					
Event 5					
Event 6					
Event 7					
Event 8					
Event 9					
Event 10					
Event 11					
Event 12					

Program Number: 3
 Program Name: RECYCLE
 Engineering Units: deg C
 Number of Segments: 10
 Date of last edit session: Oct 14 1996 08:42 AM

Segment	Setpoint	Ramp/Time	Gsband	Events											
				1	2	3	4	5	6	7	8	9	10	11	12
1	RAMP	5.000													
2	SOAK	00:00:00	10.00												
3	RAMP	3.333													
4	SOAK	00:00:00	0.000												
5	RAMP	2.083													
6	SOAK	00:00:00	0.000												
7	RAMP	1.250													
8	SOAK	02:00:00	10.00												
9	NA	0.000													
10	NA	00:00:00	0.000												

APPENDIX D

GRAPHIC DISPLAYS AND REPORTS

FURNACE OVERVIEW

FUR-211-1

FUR-211-2

FUR-211-3

Temperature (C)

1200.000

800.000

400.000

0.000

11/20/96 21:0

###

###

###

Emergency Shutdown

Glovebox Temperature

OFF-GAS FAN

#

08:47:48

08:07:48

08:27:48

09:07:48

ACK TIME IN STATUS

VALUE DESCRIPTION

PRI

Filter: OFF

Sort: TIME

Columns

Delete All

Acknowledge Alarms

FIX DMACS for Windows
Dynamic Properties Report

Report Date: 11/06/96
Report Time: 08:14:02

Report File Name: FURNOVER.ODR
ODF Version: 800f

***** Picture-Specific Properties *****

Picture name: FURNOVER.ODF
Picture width: 7.940
Picture height: 5.360
Background Color: 0 128 128
Refresh rate: 0.50
Key macro: None
Security area: None
Title bar: No
Bitmap format: No
System menu: Yes

Previous Picture

Picture name: FURN21I
Tag group: FUR21I3

Next Picture

Picture name: FURN21I
Tag group: FUR21I1

Commands on Open
Commands on Close

Dynamic Properties Report, FURNOVER.ODR

page 2

Object: RECT 9, 360, 4050, 2490

Controllable: 0
Modifiable: 0

Object: TEXT 350, 360, 1110, 560

Text: FUR-211-1

Object: TEXT 1650, 360, 2410, 560

Text: FUR-211-2

Object: TEXT 2940, 360, 3700, 560

Text: FUR-211-3

Object: TEXT 540, 10, 3270, 330

Text: FURNACE OVERVIEW

Object: DATALINK 520, 1610, 890, 1810

Controllable: 0
Modifiable: 0

Tagname: PCS:TC_2111.F_CV

Visible Background Colors: 255, 255, 255

Object: DATALINK 1840, 1610, 2210, 1810

Controllable: 0
Modifiable: 0

Tagname: PCS:TC_2112.F_CV

Visible Background Colors: 255, 255, 255

Object: DATALINK 3140, 1610, 3510, 1810

Controllable: 0
Modifiable: 0

Tagname: PCS:TC_2113.F_CV

Dynamic Properties Report, FURNOVER.ODR

page 3

Visible Background Colors: 255, 255, 255

Object: TIME 7250, 30, 7880, 220

Object: DATE 6350, 30, 6980, 220

Object: GROUP 49, 2508, 7889, 5130

Controllable: 0
Modifiable: 1

Command List
REPLACEPIC FURNOVER ALARM

Object: RECT 49, 2508, 7889, 5130

Controllable: 0
Modifiable: 0

Object: PUSHBUTTON 3235, 4650, 4713, 5078

Command List
ALARMACKALL

Text: Acknowledge Alarms
Command List
ALARMACKALL

Object: ALMSUM 99, 2559, 7849, 4642

Object: GROUP 88, 565, 1228, 1604

Controllable: 0
Modifiable: 1

Command List
REPLACEPIC FURNOVER FURN21I FUR21I1.TGE

Object: GROUP 88, 565, 1228, 1604

Controllable: 0
Modifiable: 0

Object: RECT 1111, 760, 1228, 1406

Dynamic Properties Report, FURNOVER.ODR

page 4

Controllable: 0
Modifiable: 0

Object: PGON 338, 1418, 533, 1604

Controllable: 0
Modifiable: 0

Object: PGON 900, 1418, 1095, 1604

Controllable: 0
Modifiable: 0

Object: RECT 284, 658, 1170, 1459

Controllable: 0
Modifiable: 0

Object: RECT 190, 775, 1099, 845

Controllable: 0
Modifiable: 0

Object: GROUP 88, 565, 243, 937

Controllable: 0
Modifiable: 0

Object: RECT 88, 585, 243, 915

Controllable: 0
Modifiable: 0

Object: OVAL 90, 565, 243, 654

Controllable: 0
Modifiable: 0

Object: OVAL 90, 850, 243, 937

Controllable: 0
Modifiable: 0

Object: RECT 103, 854, 228, 904

Dynamic Properties Report, FURNOVER.ODR

page 5

Controllable: 0
Modifiable: 0

Object: RECT 524, 940, 904, 1242

Controllable: 0
Modifiable: 0

Object: GROUP 439, 852, 1003, 1279

Controllable: 0
Modifiable: 0

Vertical Position

Tagname: PCS:LS2111.F_CV

Low Limit: 0.00 Minimum Offset: -0.25
Hi Limit: 1.00 Maximum Offset: 0.00
Allow Input Properties: 0

Object: RECT 439, 852, 1003, 1279

Controllable: 0
Modifiable: 0

Object: RECT 573, 936, 861, 1092

Controllable: 0
Modifiable: 0

Object: GROUP 1388, 565, 2528, 1604

Controllable: 0
Modifiable: 1

Command List
REPLACEPIC FURNOVER FURN211 FUR2112.TGE

Object: GROUP 1388, 565, 2528, 1604

Controllable: 0
Modifiable: 0

Object: RECT 2411, 760, 2528, 1406

Controllable: 0
Modifiable: 0

Dynamic Properties Report, FURNOVER.ODR

page 6

Object: PGON 1638, 1418, 1833, 1604

Controllable: 0
Modifiable: 0

Object: PGON 2200, 1418, 2395, 1604

Controllable: 0
Modifiable: 0

Object: RECT 1584, 658, 2470, 1459

Controllable: 0
Modifiable: 0

Object: RECT 1490, 775, 2399, 845

Controllable: 0
Modifiable: 0

Object: GROUP 1388, 565, 1543, 937

Controllable: 0
Modifiable: 0

Object: RECT 1388, 585, 1543, 915

Controllable: 0
Modifiable: 0

Object: OVAL 1390, 565, 1543, 654

Controllable: 0
Modifiable: 0

Object: OVAL 1390, 850, 1543, 937

Controllable: 0
Modifiable: 0

Object: RECT 1403, 854, 1528, 904

Controllable: 0
Modifiable: 0

Object: RECT 1824, 940, 2204, 1242

Dynamic Properties Report, FURNOVER.ODR

page 7

Controllable: 0
Modifiable: 0

Object: GROUP 1739, 852, 2303, 1279

Controllable: 0
Modifiable: 0

Vertical Position

Tagname: PCS:LS2112.F_CV

Low Limit: 0.00 Minimum Offset: -0.25
Hi Limit: 1.00 Maximum Offset: 0.00
Allow Input Properties: 0

Object: RECT 1739, 852, 2303, 1279

Controllable: 0
Modifiable: 0

Object: RECT 1873, 936, 2161, 1092

Controllable: 0
Modifiable: 0

Object: GROUP 2688, 564, 3828, 1603

Controllable: 0
Modifiable: 1

Command List
REPLACEPIC FURNOVER FURN211 FUR2113.TGE

Object: GROUP 2688, 564, 3828, 1603

Controllable: 0
Modifiable: 0

Object: RECT 3711, 759, 3828, 1405

Controllable: 0
Modifiable: 0

Object: PGON 2938, 1417, 3133, 1603

Controllable: 0
Modifiable: 0

Dynamic Properties Report, FURNOVER.ODR

page 8

Object: PGON 3500, 1417, 3695, 1603

Controllable: 0
Modifiable: 0

Object: RECT 2884, 657, 3770, 1458

Controllable: 0
Modifiable: 0

Object: RECT 2790, 774, 3699, 844

Controllable: 0
Modifiable: 0

Object: GROUP 2688, 564, 2843, 936

Controllable: 0
Modifiable: 0

Object: RECT 2688, 584, 2843, 914

Controllable: 0
Modifiable: 0

Object: OVAL 2690, 564, 2843, 653

Controllable: 0
Modifiable: 0

Object: OVAL 2690, 849, 2843, 936

Controllable: 0
Modifiable: 0

Object: RECT 2703, 853, 2828, 903

Controllable: 0
Modifiable: 0

Object: RECT 3124, 939, 3504, 1241

Controllable: 0
Modifiable: 0

Object: GROUP 3039, 851, 3603, 1278

Dynamic Properties Report, FURNOVER.ODR

page 9

Controllable: 0
Modifiable: 0

Vertical Position

Tagname: PCS:LS2113.F_CV

Low Limit: 0.00 Minimum Offset: -0.25
Hi Limit: 1.00 Maximum Offset: 0.00
Allow Input Properties: 0

Object: RECT 3039, 851, 3603, 1278

Controllable: 0
Modifiable: 0

Object: RECT 3173, 935, 3461, 1091

Controllable: 0
Modifiable: 0

Object: GROUP 4040, 239, 7899, 2490

Controllable: 0
Modifiable: 1

Command List
REPLACEPIC FURNOVER TEMPGRAF

Object: RECT 4040, 242, 7590, 2271

Controllable: 0
Modifiable: 1

Command List
REPLACEPIC FURNOVER TEMPGRAF

Object: PENTREND 4042, 239, 7899, 2490

Background color 0, 128, 128
Foreground color 192, 192, 192

X axis

Title: Time
Axis color 192, 192, 192
Label color 0, 0, 0
Number Tic Marks: 4
Number Labels: 4

Dynamic Properties Report, FURNOVER.ODR

page 10

Y axis

Title: Temperature (C)

Axis color 192, 192, 192

Label color 0, 0, 255

Number Tic Marks: 4

Number Labels: 4

Pen

Tagname (NODE:TAG.FIELD)

Low Limit	High Limit	Color	Marker
PCS:TC_2111.F_CV 0.00	1200.00	0, 0, 255	
PCS:TC_2112.F_CV 0.00	1200.00	255, 0, 255	
PCS:TC_2113.F_CV 0.00	1200.00	255, 255, 255	

Time Duration = 01:00:00

Object: GROUP 28, 1838, 1930, 2478

Controllable: 0

Modifiable: 0

Object: RECT 28, 1838, 1930, 2478

Controllable: 0

Modifiable: 1

Foreground Color by value

Tagname: PCS:HS EMERG.F_CV

Blink on new alarm: 0

Value	Color	Property
0.00	128, 128, 128	VISIBLE
1	255, 0, 0	VISIBLE

Command List

TOGGLEDIG PCS:HS EMERG.F_CV

SETVAL PCS:PN2111.F_CV 0

SETVAL PCS:TP 2111_C.F 2 1

SETVAL PCS:PN2112.F_CV 0

SETVAL PCS:TP 2112_C.F 2 1

SETVAL PCS:PN2113.F_CV 0

SETVAL PCS:TP 2113_C.F 2 1

Object: TEXT 440, 1920, 1510, 2420

Dynamic Properties Report, FURNOVER.ODR

page 11

Shutdown Text: Emergency

Object: GROUP 3350, 1890, 3990, 2430

Controllable: 0

Modifiable: 1

Command List
REPLACEPIC FURNOVER OFFGAS

Object: TEXT 3350, 1890, 3990, 2210

FAN Text: OFF-GAS

Object: OVAL 3540, 2210, 3760, 2430

Controllable: 0

Modifiable: 0

Foreground Color by value

Tagname: PCS:FAN_ON.F_CV

Blink on new alarm: 0

Value	Color	Property
0	255, 255, 255	VISIBLE
1	255, 0, 0	VISIBLE

Object: GROUP 2080, 1890, 3090, 2480

Controllable: 0

Modifiable: 1

Command List
REPLACEPIC FURNOVER GBT21I

Object: TEXT 2080, 1890, 3090, 2290

Temperature Text: Glovebox

Object: DATALINK 2360, 2280, 2780, 2480

Controllable: 0

Modifiable: 0

Tagname: PCS:TE21IMAX.F_CV

Visible Background Colors: 255, 255, 255

Furnace 211-#

Furnace Heating Output ###.##%

Stop Cycle

Program #

Self Point

Furnace Temperature ###.##

Furnace High Temperature #####

Off-Gas Temperature #####

Glowbox Temperature #####

1-Oxide

2-Metal

3-Recycle

Furnace Temperature

1200

Off-Gas

1912:02

1415:22

1418:42

142

ACK TIME IN STATUS	VALUE DESCRIPTION	PRI

Filter: OFF

Sort: TIME

Columns

Delete All

Acknowledge Alarms

10/20/96 21:0

70

FIX DMACS for Windows
Dynamic Properties Report

Report Date: 11/06/96
Report Time: 08:01:34

Report File Name: FURN211.ODR
ODF Version: 800f

***** Picture-Specific Properties *****

Picture name: FURN211.ODF
Picture width: 7.940
Picture height: 5.360
Background Color: 0 128 128
Refresh rate: 0.50
Key macro: None
Security area: None
Title bar: No
Bitmap format: No
System menu: No

Previous Picture

Picture name: FURNOVER
Tag group: None

Next Picture

Picture name: FURNOVER
Tag group: None

Commands on Open
Commands on Close

Dynamic Properties Report, FURN211.ODR

page 2

Object: TEXT 130, 1740, 820, 1930

Text: Set Point:

Object: TEXT 130, 1940, 1680, 2130

Text: Furnace Temperature:

Object: TEXT 130, 1550, 830, 1740

Text: Program :

Object: DATALINK 860, 1740, 1240, 1950

Controllable: 1
Modifiable: 0

Tagname: ?TEMPSETPOINT

Visible Background Colors: 255, 255, 255

Object: DATALINK 1720, 1930, 2240, 2140

Controllable: 1
Modifiable: 0

Tagname: ?OVENTEMP

Visible Background Colors: 255, 255, 255

Object: TEXT 120, 2570, 1750, 2760

Text: Glovebox Temperature:

Object: DATALINK 1760, 2370, 2280, 2580

Controllable: 1
Modifiable: 0

Tagname: ?OFFGASTEMP

Visible Background Colors: 255, 255, 255

Object: DATALINK 1780, 2580, 2300, 2790

Dynamic Properties Report, FURN211.ODR

page 3

Controllable: 1
Modifiable: 0

Tagname: ?GBTEMP

Visible Background Colors: 255, 255, 255

Object: TEXT 120, 2370, 1720, 2570

Text: Off-Gas Temperature:

Object: PENTREND 3318, 142, 7898, 2808

Background color 0, 128, 128
Foreground color 192, 192, 192

X axis

Title: Time

Axis color 192, 192, 192

Label color 0, 0, 0

Number Tic Marks: 4

Number Labels: 4

Y axis

Title: Furnace Temperature

Axis color 192, 192, 192

Label color 0, 0, 0

Number Tic Marks: 4

Number Labels: 4

Pen

Tagname (NODE:TAG.FIELD)

Low Limit

High Limit

Color

Marker

?OVENTEMP

0.00

1200.00

0, 0, 0

?TEMPSETPOINT

0.00

1200.00

255, 0, 0

?OVENHITEMP

0.00

1200.00

255, 255, 0

Time Duration = 00:10:00

Object: TIME 7300, 0, 7930, 190

Object: DATE 6510, 0, 7140, 190

Dynamic Properties Report, FURN21I.ODR

page 4

Object: TEXT 130, 2150, 2040, 2340

Text: Furnace High Temperature:

Object: DATALINK 2060, 2150, 2580, 2360

Controllable: 0
Modifiable: 0

Tagname: ?OVENHITEMP

Visible Background Colors: 255, 255, 255

Object: DATALINK 870, 1550, 980, 1760

Controllable: 1
Modifiable: 0

Tagname: ?PROGRAM

Visible Background Colors: 255, 255, 255

Object: RECT -1, 2789, 7769, 5180

Controllable: 0
Modifiable: 0

Object: GROUP 29, 2843, 7699, 5171

Controllable: 0
Modifiable: 1

Command List
REPLACEPIC FURN21I ALARM

Object: PUSHBUTTON 3183, 4749, 4655, 5171

Command List
ALARMACKALL

Text: Acknowledge Alarms

Command List
ALARMACKALL

Object: ALMSUM 29, 2843, 7699, 4720

Dynamic Properties Report, FURN211.ODR

page 5

Object: OVAL 1710, 430, 2010, 710

Controllable: 0

Modifiable: 0

Foreground Color by value

Tagname: ?POWER

Blink on new alarm: 0

Value	Color	Property
0	255, 255, 255	VISIBLE
1	255, 0, 0	VISIBLE

Object: TEXT 1600, 680, 2180, 1060

Heating Text: Furnace

Object: GROUP 1590, 1100, 2160, 1490

Controllable: 0

Modifiable: 0

Object: TEXT 2010, 1300, 2160, 1490

Text: %

Object: DATALINK 1590, 1300, 2000, 1490

Controllable: 0

Modifiable: 0

Tagname: ?FURNPOWER

Visible Background Colors: 255, 255, 255

Object: TEXT 1610, 1100, 2070, 1290

Text: Output

Object: TEXT 10, 20, 1730, 370

Text: Furnace 211-

Object: DATALINK 1780, 20, 1960, 390

Controllable: 0

Modifiable: 0

Dynamic Properties Report, FURN211.ODR

page 6

Tagname: ?FURNNAME

Visible Background Colors: 255, 255, 255

Object: GROUP 2680, 2050, 3320, 2660

Controllable: 0
Modifiable: 0

Object: OVAL 2825, 2050, 3100, 2310

Controllable: 0
Modifiable: 0

Foreground Color by value

Tagname: PCS:FAN ON.F_CV
Blink on new alarm: 0

Value	Color	Property
0	255, 255, 255	VISIBLE
1	255, 0, 0	VISIBLE

Object: TEXT 2680, 2340, 3320, 2660

FAN ON Text: OFF-GAS

Object: GROUP 129, 377, 1430, 1550

Controllable: 0
Modifiable: 1

Command List
REPLACEPIC FURN211 FURNOVER

Object: RECT 1305, 599, 1430, 1325

Controllable: 0
Modifiable: 0

Object: PGON 416, 1342, 636, 1550

Controllable: 0
Modifiable: 0

Object: PGON 1060, 1342, 1279, 1550

Controllable: 0
Modifiable: 0

Dynamic Properties Report, FURN21I.ODR

page 7

Object: RECT 357, 493, 1364, 1393

Controllable: 0
Modifiable: 0

Object: RECT 248, 615, 1285, 690

Controllable: 0
Modifiable: 0

Object: GROUP 129, 377, 303, 793

Controllable: 0
Modifiable: 0

Object: RECT 129, 400, 303, 770

Controllable: 0
Modifiable: 0

Object: OVAL 133, 377, 303, 472

Controllable: 0
Modifiable: 0

Object: OVAL 133, 699, 303, 793

Controllable: 0
Modifiable: 0

Object: RECT 146, 705, 285, 757

Controllable: 0
Modifiable: 0

Object: RECT 638, 769, 1084, 1100

Controllable: 0
Modifiable: 0

Object: GROUP 534, 696, 1175, 1173

Controllable: 0
Modifiable: 0

Dynamic Properties Report, FURN211.ODR

page 8

Vertical Position

Tagname: ?LS

Low Limit: 0 Minimum Offset: -0
 Hi Limit: 1 Maximum Offset: 0
 Allow Input Properties: 0

Object: RECT 534, 696, 1175, 1173

Controllable: 0
 Modifiable: 0

Object: RECT 686, 789, 1011, 962

Controllable: 0
 Modifiable: 0

Object: GROUP 2290, 244, 3175, 1747

Controllable: 0
 Modifiable: 0

Object: PUSHBUTTON 2290, 244, 3170, 602

Command List
 IF ?PROGRAM > 0
 GOTO 12
 ENDIF
 IF ?LS < 1
 GOTO 12
 ENDIF
 IF PCS:HS EMERG.F_CV > 0
 SETVAL ?PROGRAM 1
 CLOSEDIG ?STOP
 SETVAL ?START 2
 ENDIF
 NULL

Text: 1-Oxide
 Command List

Dynamic Properties Report, FURN211.ODR

page 9

```

IF ?PROGRAM > 0
GOTO 12
ENDIF
IF ?LS < 1
GOTO 12
ENDIF
IF PCS:HS EMERG.F.CV > 0
SETVAL ?PROGRAM 1
CLOSEDIG ?STOP
SETVAL ?START 2
ENDIF
NULL

```

Object: PUSHBUTTON 2291, 611, 3171, 961

```

Command List
IF ?PROGRAM > 0
GOTO 12
ENDIF
IF ?LS < 1
GOTO 12
ENDIF
IF PCS:HS EMERG.F.CV > 0
SETVAL ?PROGRAM 2
CLOSEDIG ?STOP
SETVAL ?START 2
ENDIF
NULL

```

Text: 2-Metal

```

Command List
IF ?PROGRAM > 0
GOTO 12
ENDIF
IF ?LS < 1
GOTO 12
ENDIF
IF PCS:HS EMERG.F.CV > 0
SETVAL ?PROGRAM 2
CLOSEDIG ?STOP
SETVAL ?START 2
ENDIF
NULL

```

Object: PUSHBUTTON 2294, 968, 3174, 1331

Command List

Dynamic Properties Report, FURN211.ODR

page 10

```

IF ?PROGRAM > 0
GOTO 12
ENDIF
IF ?LS < 1
GOTO 12
ENDIF
IF PCS:HS EMERG.F.CV > 0
SETVAL ?PROGRAM 3
CLOSEDIG ?STOP
SETVAL ?START 2
ENDIF
NULL

```

Text: 3-Recycle

Command List

```

IF ?PROGRAM > 0
GOTO 12
ENDIF
IF ?LS < 1
GOTO 12
ENDIF
IF PCS:HS EMERG.F.CV > 0
SETVAL ?PROGRAM 3
CLOSEDIG ?STOP
SETVAL ?START 2
ENDIF
NULL

```

Object: PUSHBUTTON 2293, 1348, 3175, 1747

Command List

```

SETVAL ?PROGRAM 0
OPENDIG ?STOP
SETVAL ?START 1

```

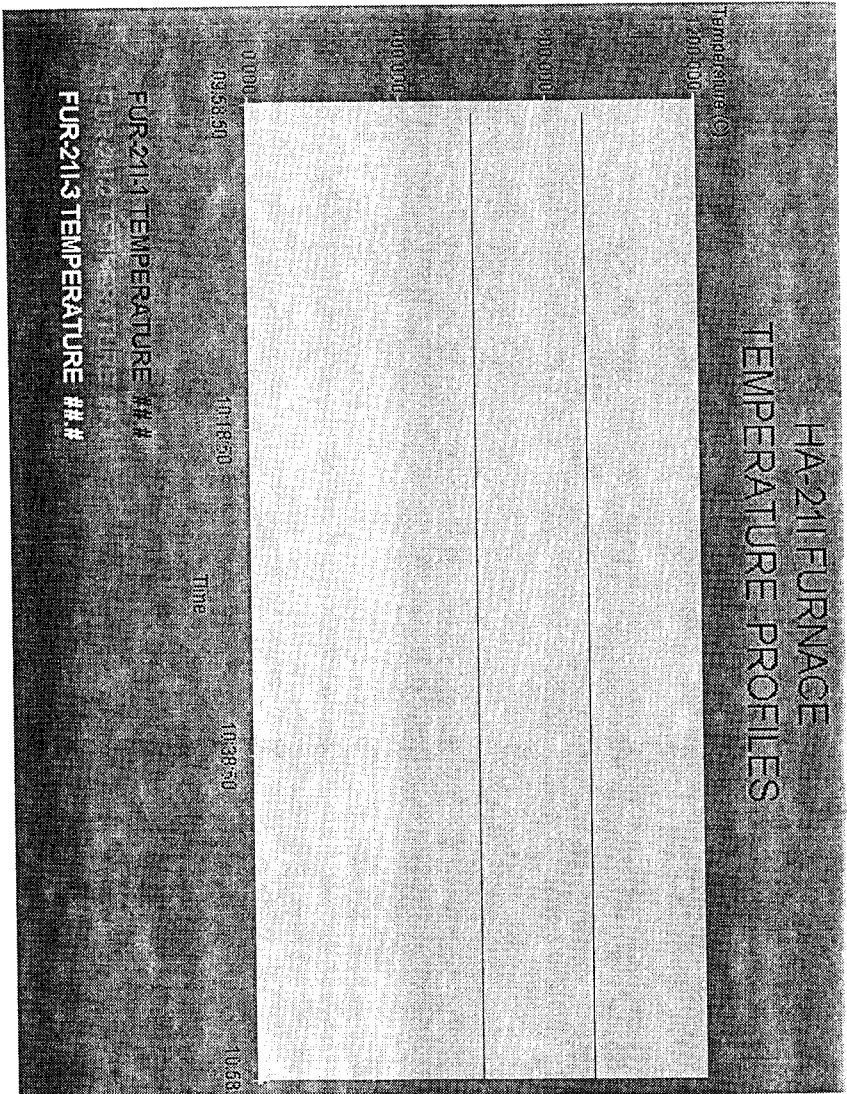
Text: Stop Cycle

Command List

```

SETVAL ?PROGRAM 0
OPENDIG ?STOP
SETVAL ?START 1

```



FIX DMACS for Windows
Dynamic Properties Report

Report Date: 11/06/96
Report Time: 08:15:24

Report File Name: TEMPGRAF.ODR
ODF Version: 800f

***** Picture-Specific Properties *****

Picture name:	TEMPGRAF.ODF
Picture width:	7.940
Picture height:	5.360
Background Color	0 128 128
Refresh rate:	0.50
Key macro:	None
Security area:	None
Title bar:	No
Bitmap format:	No
System menu:	No

Previous Picture

Picture name:	None
Tag group:	None

Next Picture

Picture name:	None
Tag group:	None

Commands on Open
Commands on Close

Dynamic Properties Report, TEMPGRAF.ODR

page 2

Object: TEXT 2220, 60, 5580, 700

TEMPERATURE PROFILES HA-21I FURNACE

Object: GROUP 40, 670, 7800, 4350

Controllable: 0
Modifiable: 1Command List
REPLACEPIC TEMPGRAF FURNOVER

Object: RECT 141, 703, 7436, 4306

Controllable: 0
Modifiable: 1Command List
REPLACEPIC TEMPGRAF FURNOVER

Object: PENTREND 40, 670, 7800, 4350

Background color 0, 128, 128
Foreground color 192, 192, 192

X axis

Title: Time
Axis color 192, 192, 192
Label color 0, 0, 0
Number Tic Marks: 4
Number Labels: 4

Y axis

Title: Temperature (C)
Axis color 192, 192, 192
Label color 0, 0, 255
Number Tic Marks: 4
Number Labels: 4

Pen

Tagname (NODE:TAG.FIELD)	Low Limit	High Limit	Color	Marker
PCS:TC_2111.F_CV	0.00	1200.00	0, 0, 255	
PCS:TC_2112.F_CV	0.00	1200.00	255, 0, 255	
PCS:TC_2113.F_CV	0.00	1200.00	255, 255, 255	

Dynamic Properties Report, TEMPGRAF.ODR

page 3

Time Duration = 01:00:00

Object: GROUP 580, 4410, 3030, 5070

Controllable: 0
Modifiable: 0

Object: TEXT 580, 4410, 2620, 4610

Text: FUR-21I-1 TEMPERATURE

Object: TEXT 580, 4630, 2620, 4830

Text: FUR-21I-2 TEMPERATURE

Object: TEXT 580, 4850, 2620, 5050

Text: FUR-21I-3 TEMPERATURE

Object: DATALINK 2700, 4410, 3030, 4630

Controllable: 0
Modifiable: 0

Tagname: PCS:TC_21I1.F_CV

Visible Background Colors: 255, 255, 255

Object: DATALINK 2700, 4630, 3030, 4850

Controllable: 0
Modifiable: 0

Tagname: PCS:TC_21I1.F_CV

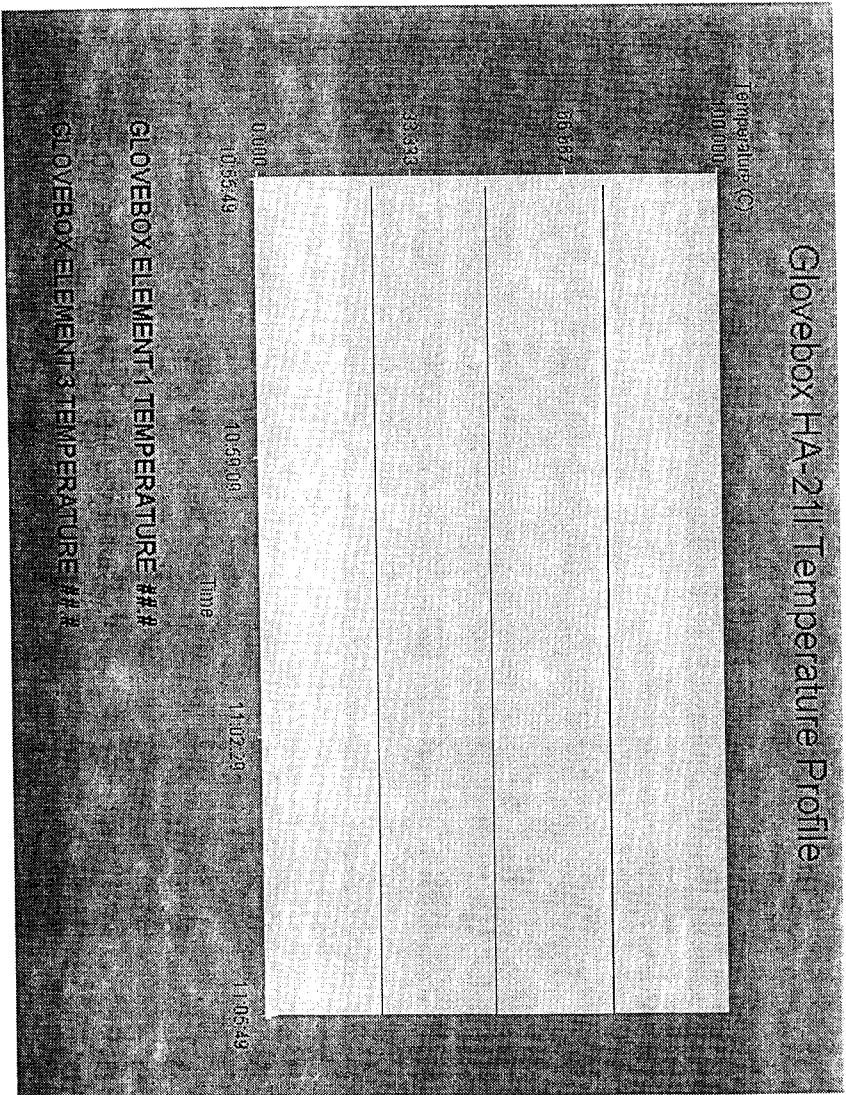
Visible Background Colors: 255, 255, 255

Object: DATALINK 2700, 4850, 3030, 5070

Controllable: 0
Modifiable: 0

Tagname: PCS:TC_21I1.F_CV

Visible Background Colors: 255, 255, 255



FIX DMACS for Windows
Dynamic Properties Report

Report Date: 11/06/96
Report Time: 08:14:35

Report File Name: GBT211.ODR
ODF Version: 800f

***** Picture-Specific Properties *****

Picture name: GBT211.ODF
Picture width: 7.940
Picture height: 5.360
Background Color: 0 128 128
Refresh rate: 0.50
Key macro: None
Security area: None
Title bar: No
Bitmap format: No
System menu: No

Previous Picture

Picture name: None
Tag group: None

Next Picture

Picture name: None
Tag group: None

Commands on Open
Commands on Close

Dynamic Properties Report, GBT21I.ODR page 2
Object: TEXT 1680, 50, 5980, 370

Text: Glovebox HA-21I Temperature Profile
Object: GROUP 780, 4230, 4320, 4930
Controllable: 0
Modifiable: 0

Object: TEXT 780, 4230, 3930, 4430

Text: GLOVEBOX ELEMENT 1 TEMPERATURE
Object: TEXT 780, 4470, 3930, 4670

Text: GLOVEBOX ELEMENT 2 TEMPERATURE
Object: TEXT 780, 4720, 3930, 4920

Text: GLOVEBOX ELEMENT 3 TEMPERATURE
Object: DATALINK 3990, 4230, 4320, 4450
Controllable: 0
Modifiable: 0
Tagname: PCS:TE21I7.F_CV
Visible Background Colors: 255, 255, 255

Object: DATALINK 3990, 4470, 4320, 4690
Controllable: 0
Modifiable: 0
Tagname: PCS:TE21I8.F_CV
Visible Background Colors: 255, 255, 255

Object: DATALINK 3990, 4710, 4320, 4930
Controllable: 0
Modifiable: 0
Tagname: PCS:TE21I9.F_CV

Dynamic Properties Report, GBT211.ODR

page 3

Visible Background Colors: 255, 255, 255

Object: GROUP 549, 489, 7319, 4140

Controllable: 0

Modifiable: 1

Command List

REPLACEPIC GBT211 FURNOVER

Object: RECT 636, 579, 7131, 4068

Controllable: 0

Modifiable: 0

Object: PENTREND 549, 489, 7319, 4140

Background color 0, 128, 128

Foreground color 192, 192, 192

X axis

Title: Time

Axis color 192, 192, 192

Label color 0, 0, 0

Number Tic Marks: 4

Number Labels: 4

Y axis

Title: Temperature (C)

Axis color 192, 192, 192

Label color 0, 0, 0

Number Tic Marks: 4

Number Labels: 4

Pen

Tagname (NODE:TAG.FIELD)	Low Limit	High Limit	Color	Marker
PCS:TE2117.F_CV	0.00	100.00	0, 0, 0	
PCS:TE2118.F_CV	0.00	100.00	255, 0, 0	
PCS:TE2119.F_CV	0.00	100.00	0, 0, 255	

Time Duration = 00:10:00

ACK TIME IN	TAGNAME	STATUS	VALUE DESCRIPTION	PRI
Filter: OFF Sort: TIME Columns Delete All Acknowledge Alarms				

FIX DMACS for Windows
Dynamic Properties Report

Report Date: 11/06/96
Report Time: 08:14:20

Report File Name: ALARM.ODR
ODF Version: 800f

***** Picture-Specific Properties *****

Picture name:	ALARM.ODF
Picture width:	7.940
Picture height:	5.360
Background Color	0 128 128
Refresh rate:	0.50
Key macro:	None
Security area:	None
Title bar:	No
Bitmap format:	No
System menu:	No

Previous Picture

Picture name:	None
Tag group:	None

Next Picture

Picture name:	None
Tag group:	None

Commands on Open
Commands on Close

Dynamic Properties Report, ALARM.ODR

page 2

Object: GROUP 60, 79, 7770, 5070

Controllable: 0
Modifiable: 1

Command List
REPLACEPIC ALARM FURNOVER

Object: PUSHBUTTON 2997, 4613, 4750, 5070

Command List
ALARMACKALL

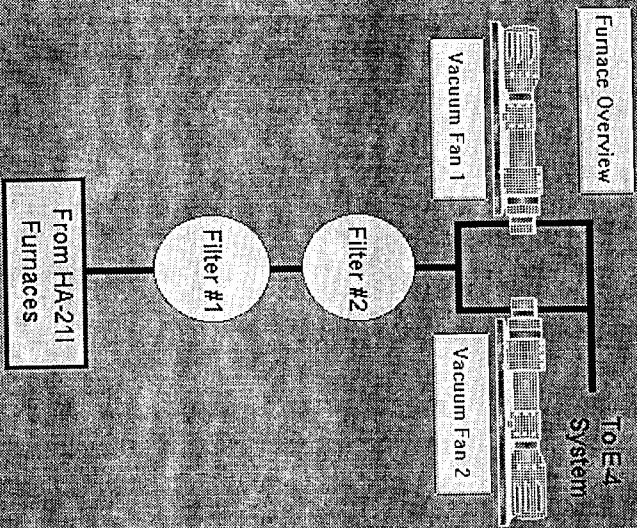
Text: Acknowledge Alarms
Command List
ALARMACKALL

Object: RECT 60, 79, 7770, 5058

Controllable: 0
Modifiable: 0

Object: ALMSUM 183, 169, 7633, 4579

Off-Gas Fan Control



FUR21114 OFF-GAS TEMPERATURE ###
FUR21120 OFF-GAS TEMPERATURE ###
FUR2113 OFF-GAS TEMPERATURE ###

10:43:23 10:46:43 10:50:03 10:53:23
AcStHtB

FIX DMACS for Windows
Dynamic Properties Report

Report Date: 11/06/96
Report Time: 08:13:45

Report File Name: OFFGAS.ODR
ODF Version: 800f

***** Picture-Specific Properties *****

Picture name:	OFFGAS.ODF
Picture width:	7.940
Picture height:	5.360
Background Color	0 128 128
Refresh rate:	0.50
Key macro:	None
Security area:	None
Title bar:	Yes
Bitmap format:	No
System menu:	No

Previous Picture

Picture name:	None
Tag group:	None

Next Picture

Picture name:	None
Tag group:	None

Commands on Open
Commands on Close

Dynamic Properties Report, OFFGAS.ODR

page 2

Object: PENTREND 3800, 100, 7840, 3960

Background color 0, 128, 128
 Foreground color 192, 192, 192

X axis
 Title: AxisTitle
 Axis color 192, 192, 192
 Label color 0, 0, 0
 Number Tic Marks: 4
 Number Labels: 4

Y axis
 Title: AxisTitle
 Axis color 192, 192, 192
 Label color 0, 0, 0
 Number Tic Marks: 4
 Number Labels: 4

Pen	Tagname (NODE:TAG.FIELD)	Low Limit	High Limit	Color	Marker
	PCS:TE21I10.F_CV	0.00	100.00	0, 0, 0	
	PCS:TE21I11.F_CV	0.00	100.00	255, 0, 255	
	PCS:TE21I12.F_CV	0.00	100.00	0, 255, 255	

Time Duration = 00:10:00

Object: PUSHBUTTON 186, 607, 1529, 1007

Command List
 REPLACEPIC OFFGAS FURNOVER

Text: Furnace Overview
 Command List
 REPLACEPIC OFFGAS FURNOVER

Object: RECT 1340, 4170, 2680, 4710

Controllable: 0
 Modifiable: 0

Object: LINE 2020, 1740, 2330, 1800

Dynamic Properties Report, OFFGAS.ODR

page 3

Controllable: 0

Modifiable: 0

Edge Color by value

Tagname: PCS:HS_VAC2.F_CV
Blink on new alarm: 0

Value	Color	Property
0.00	0, 0, 0	VISIBLE
1	255, 0, 0	VISIBLE

Object: LINE 1665, 1740, 2025, 1800

Controllable: 0

Modifiable: 0

Edge Color by value

Tagname: PCS:HS_VAC1.F_CV
Blink on new alarm: 0

Value	Color	Property
0.00	0, 0, 0	VISIBLE
1	255, 0, 0	VISIBLE

Object: LINE 1970, 1740, 2030, 4200

Controllable: 0

Modifiable: 0

Edge Color by value

Tagname: PCS:FAN_ON.F_CV
Blink on new alarm: 0

Value	Color	Property
0.00	0, 0, 0	VISIBLE
1	255, 0, 0	VISIBLE

Object: PUSHBUTTON 390, 1560, 1560, 1970

Command List

TOGGLEDIG PCS:HS_VAC1.F_CV

Text: Vacuum Fan 1

Command List

TOGGLEDIG PCS:HS_VAC1.F_CV

Object: PUSHBUTTON 2440, 1560, 3610, 1980

Dynamic Properties Report, OFFGAS.ODR

page 4

Command List
TOGGLEDIG PCS:HS_VAC2.F_CV

Text: Vacuum Fan 2
Command List
TOGGLEDIG PCS:HS_VAC2.F_CV

Object: LINE 2270, 892, 2330, 1790

Controllable: 0
Modifiable: 0

Edge Color by value

Tagname: PCS:HS_VAC2.F_CV
Blink on new alarm: 0

Value	Color	Property
0.00	0, 0, 0	VISIBLE
1	255, 0, 0	VISIBLE

Object: LINE 1670, 889, 1730, 1800

Controllable: 0
Modifiable: 0

Edge Color by value

Tagname: PCS:HS_VAC1.F_CV
Blink on new alarm: 0

Value	Color	Property
0.00	0, 0, 0	VISIBLE
1	255, 0, 0	VISIBLE

Object: LINE 1674, 890, 2330, 950

Controllable: 0
Modifiable: 0

Edge Color by value

Tagname: PCS:HS_VAC1.F_CV
Blink on new alarm: 0

Value	Color	Property
0.00	0, 0, 0	VISIBLE
1	255, 0, 0	VISIBLE

Object: LINE 2270, 890, 2880, 950

Dynamic Properties Report, OFFGAS.ODR

page 5

Controllable: 0
Modifiable: 0

Edge Color by value

Tagname: PCS:FAN_ON.F_CV
Blink on new alarm: 0

Value	Color	Property
0.00	0, 0, 0	VISIBLE
1	255, 0, 0	VISIBLE

Object: GROUP 285, 1211, 1784, 1541

Controllable: 0
Modifiable: 0

Foreground Color by value

Tagname: PCS:HS_VAC1.F_CV
Blink on new alarm: 0

Value	Color	Property
0.00	0, 0, 0	VISIBLE
1	255, 0, 0	VISIBLE

Object: GROUP 285, 1381, 1654, 1541

Controllable: 0
Modifiable: 0

Object: PGON 285, 1401, 1654, 1491

Controllable: 0
Modifiable: 0

Object: RECT 285, 1471, 1654, 1541

Controllable: 0
Modifiable: 0

Object: OVAL 651, 1381, 708, 1431

Controllable: 0
Modifiable: 0

Object: RECT 510, 1381, 586, 1441

Dynamic Properties Report, OFFGAS.ODR

page 6

Controllable: 0
Modifiable: 0

Object: RECT 388, 1261, 1775, 1441

Controllable: 0
Modifiable: 0

Object: GROUP 1297, 1211, 1784, 1481

Controllable: 0
Modifiable: 0

Object: GROUP 1503, 1231, 1784, 1461

Controllable: 0
Modifiable: 0

Object: RECT 1503, 1231, 1654, 1461

Controllable: 0
Modifiable: 0

Object: RECT 1503, 1231, 1578, 1461

Controllable: 0
Modifiable: 0

Object: RECT 1644, 1271, 1784, 1441

Controllable: 0
Modifiable: 0

Object: RECT 1644, 1271, 1710, 1441

Controllable: 0
Modifiable: 0

Object: RECT 1297, 1211, 1513, 1481

Controllable: 0
Modifiable: 0

Object: OVAL 1455, 1221, 1513, 1271

Dynamic Properties Report, OFFGAS.ODR

page 7

Controllable: 0
Modifiable: 0

Object: OVAL 1362, 1221, 1420, 1271

Controllable: 0
Modifiable: 0

Object: OVAL 1306, 1221, 1364, 1271

Controllable: 0
Modifiable: 0

Object: OVAL 1409, 1221, 1467, 1271

Controllable: 0
Modifiable: 0

Object: RECT 781, 1261, 858, 1441

Controllable: 0
Modifiable: 0

Object: PGON 323, 1221, 811, 1471

Controllable: 0
Modifiable: 0

Object: OVAL 661, 1231, 708, 1281

Controllable: 0
Modifiable: 0

Object: GROUP 848, 1251, 1055, 1461

Controllable: 0
Modifiable: 0

Object: RECT 848, 1251, 1055, 1461

Controllable: 0
Modifiable: 0

Object: OVAL 997, 1391, 1045, 1441

Dynamic Properties Report, OFFGAS.ODR

page 8

Controllable: 0
Modifiable: 0

Object: OVAL 997, 1331, 1045, 1381

Controllable: 0
Modifiable: 0

Object: OVAL 866, 1281, 914, 1331

Controllable: 0
Modifiable: 0

Object: OVAL 866, 1341, 914, 1391

Controllable: 0
Modifiable: 0

Object: OVAL 866, 1391, 914, 1441

Controllable: 0
Modifiable: 0

Object: OVAL 997, 1281, 1045, 1331

Controllable: 0
Modifiable: 0

Object: OVAL 651, 1331, 698, 1381

Controllable: 0
Modifiable: 0

Object: OVAL 642, 1281, 698, 1331

Controllable: 0
Modifiable: 0

Object: OVAL 642, 1381, 698, 1431

Controllable: 0
Modifiable: 0

Object: PGON 369, 1251, 595, 1301

Dynamic Properties Report, OFFGAS.ODR

page 9

Controllable: 0
Modifiable: 0

Object: PGON 361, 1391, 578, 1441

Controllable: 0
Modifiable: 0

Object: PGON 369, 1321, 586, 1371

Controllable: 0
Modifiable: 0

Object: RECT 922, 1421, 998, 1481

Controllable: 0
Modifiable: 0

Object: RECT 1316, 1451, 1354, 1501

Controllable: 0
Modifiable: 0

Object: RECT 1447, 1451, 1494, 1491

Controllable: 0
Modifiable: 0

Object: TEXT 3050, 720, 3630, 1120

System Text: To E-4

Object: OVAL 1610, 2050, 2380, 2815

Controllable: 0
Modifiable: 0

Object: OVAL 1610, 3000, 2380, 3770

Controllable: 0
Modifiable: 0

Object: TEXT 1720, 3290, 2330, 3490

Dynamic Properties Report, OFFGAS.ODR

page 10

Text: Filter #1

Object: TEXT 1710, 2350, 2320, 2550

Text: Filter #2

Object: TEXT 1560, 4240, 2510, 4640

FurnacesText: From HA-21I

Object: GROUP 2210, 1211, 5363, 1541

Controllable: 0
Modifiable: 0

Foreground Color by value

Tagname: PCS:HS_VAC2.F_CV
Blink on new alarm: 0

Value	Color	Property
0.00	0, 0, 0	VISIBLE
1	255, 0, 0	VISIBLE

Object: GROUP 2350, 1381, 5363, 1541

Controllable: 0
Modifiable: 0

Object: PGON 2350, 1401, 3810, 1491

Controllable: 0
Modifiable: 0

Object: RECT 2350, 1471, 3810, 1541

Controllable: 0
Modifiable: 0

Object: OVAL 3360, 1381, 3810, 1431

Controllable: 0
Modifiable: 0

Object: RECT 3490, 1381, 3810, 1441

Controllable: 0
Modifiable: 0

Dynamic Properties Report, OFFGAS.ODR

page 11

Object: RECT 2220, 1261, 3810, 1441

Controllable: 0
Modifiable: 0

Object: GROUP 2210, 1211, 5363, 1481

Controllable: 0
Modifiable: 0

Object: GROUP 2210, 1231, 5363, 1461

Controllable: 0
Modifiable: 0

Object: RECT 2350, 1231, 3810, 1461

Controllable: 0
Modifiable: 0

Object: RECT 2430, 1231, 3810, 1461

Controllable: 0
Modifiable: 0

Object: RECT 2210, 1271, 3810, 1441

Controllable: 0
Modifiable: 0

Object: RECT 2290, 1271, 3810, 1441

Controllable: 0
Modifiable: 0

Object: RECT 2500, 1211, 3810, 1481

Controllable: 0
Modifiable: 0

Object: OVAL 2500, 1221, 3810, 1271

Controllable: 0
Modifiable: 0

Object: OVAL 2600, 1221, 3810, 1271

Dynamic Properties Report, OFFGAS.ODR

page 12

Controllable: 0
Modifiable: 0

Object: OVAL 2660, 1221, 3810, 1271

Controllable: 0
Modifiable: 0

Object: OVAL 2550, 1221, 3810, 1271

Controllable: 0
Modifiable: 0

Object: RECT 3200, 1261, 3810, 1441

Controllable: 0
Modifiable: 0

Object: PGON 3250, 1221, 3810, 1471

Controllable: 0
Modifiable: 0

Object: OVAL 3360, 1231, 3810, 1281

Controllable: 0
Modifiable: 0

Object: GROUP 2990, 1251, 5363, 1461

Controllable: 0
Modifiable: 0

Object: RECT 2990, 1251, 3810, 1461

Controllable: 0
Modifiable: 0

Object: OVAL 3000, 1391, 3810, 1441

Controllable: 0
Modifiable: 0

Object: OVAL 3000, 1331, 3810, 1381

Dynamic Properties Report, OFFGAS.ODR

page 13

Controllable: 0
Modifiable: 0

Object: OVAL 3140, 1281, 3810, 1331

Controllable: 0
Modifiable: 0

Object: OVAL 3140, 1341, 3810, 1391

Controllable: 0
Modifiable: 0

Object: OVAL 3140, 1391, 3810, 1441

Controllable: 0
Modifiable: 0

Object: OVAL 3000, 1281, 3810, 1331

Controllable: 0
Modifiable: 0

Object: OVAL 3370, 1331, 3810, 1381

Controllable: 0
Modifiable: 0

Object: OVAL 3370, 1281, 3810, 1331

Controllable: 0
Modifiable: 0

Object: OVAL 3370, 1381, 3810, 1431

Controllable: 0
Modifiable: 0

Object: PGON 3480, 1251, 3810, 1301

Controllable: 0
Modifiable: 0

Object: PGON 3500, 1391, 3810, 1441

Dynamic Properties Report, OFFGAS.ODR

page 14

Controllable: 0
Modifiable: 0

Object: PGON 3490, 1321, 3810, 1371

Controllable: 0
Modifiable: 0

Object: RECT 3050, 1421, 3810, 1481

Controllable: 0
Modifiable: 0

Object: RECT 2670, 1451, 3810, 1501

Controllable: 0
Modifiable: 0

Object: RECT 2520, 1451, 3810, 1491

Controllable: 0
Modifiable: 0

Object: TEXT 820, 40, 3320, 350

Text: Off-Gas Fan Control

Object: GROUP 4230, 4100, 7430, 4760

Controllable: 0
Modifiable: 0

Object: TEXT 4230, 4110, 7020, 4310

Text: FUR-21I-1 OFF-GAS TEMPERATURE

Object: TEXT 4240, 4330, 7030, 4530

Text: FUR-21I-2 OFF-GAS TEMPERATURE

Object: TEXT 4240, 4540, 7030, 4740

Text: FUR-21I-3 OFF-GAS TEMPERATURE

Object: DATALINK 7100, 4100, 7430, 4320

Dynamic Properties Report, OFFGAS.ODR

page 15

Controllable: 0
Modifiable: 0

Tagname: PCS:TE21I10.F_CV

Visible Background Colors: 255, 255, 255

Object: DATALINK 7090, 4320, 7420, 4540

Controllable: 0
Modifiable: 0

Tagname: PCS:TE21I11.F_CV

Visible Background Colors: 255, 255, 255

Object: DATALINK 7100, 4540, 7430, 4760

Controllable: 0
Modifiable: 0

Tagname: PCS:TE21I12.F_CV

Visible Background Colors: 255, 255, 255

APPENDIX E

TAG GROUP REPORTS

The FIX DMACS Tag Group Report
 File: C:\WDMACS\PIC\FUR2111.TGR
 November 6, 1996

SYMBOL	SUBSTITUTION	DESCRIPTION
FURNNAME	PCS:FUR2111.F CV	FURNACE NUMBER
FURNPOWER	PCS:OP2111.F CV	POWER TO FURNACE
GBTEMP	PCS:TE211MAX.F CV	HA-ZOMB HIGH TEMPERATURE
LS	PCS:LS2111.F CV	DOOR LIMIT SWITCH
OFFGASTEMP	PCS:TE21110.F CV	OFF-GAS TEMPERATURE
OVENHITEMP	PCS:TE211I2.F CV	HIGH TEMPERATURE ALARM READING
OVENTEMP	PCS:TC 2111.F CV	FURNACE TEMPERATURE
POWER	PCS:PWR2111.F CV	FURNACE POWER
PROGRAM	PCS:PN2111.F CV	PROGRAM NUMBER
START	PCS:TP 2111 C.F 2	PGRM STATE 1=RESET 2=RUN
STOP	PCS:SP 2111.F CV	STOP FURNACE
TEMPSETPOINT	PCS:SP2111.F CV	FURNACE POINT
TIMEREMAIN	PCS:TP 2111 C.F 11	PROGRAM SEGMENT TIME REMAINING

The FIX DMAPS Tag Group Report
 File: C:\WDMACS\PIC\FUR21I2.TGR
 November 6, 1996

SYMBOL	SUBSTITUTION	DESCRIPTION
FURNNAME	PCS:FUR21I2.F CV	FURNACE NUMBER
FURNPOWER	PCS:OP21I2.F CV	POWER TO FURNACE
GBTEMP	PCS:TE21IMAX.F CV	HA-20MB HIGH TEMPERATURE
LS	PCS:LS21I2.F CV	DOOR LIMIT SWITCH
OFFGASTEMP	PCS:TE21I11.F CV	
OVENHITEMP	PCS:TE21I4.F CV	HIGH TEMPERATURE ALARM READING
OVENTEMP	PCS:TC 21I2.F CV	FURNACE TEMPERATURE
POWER	PCS:PW21I2.F CV	FURNACE POWER
PROGRAM	PCS:PN21I2.F CV	PROGRAM NUMBER
START	PCS:TP 21I2 C.F 2	START PRGM RESET=1 RUN=2
STOP	PCS:SP 21I2.F CV	STOP FURNACE
TEMPSETPOINT	PCS:SP21I2.F CV	FURNACE POINT
TIMEREMAIN	PCS:TP 21I2 C.F 11	PROGRAM SEGMENT TIME REMAINING

The FIX DMACS Tag Group Report
 File: C:\WDMACS\PIC\FUR21I3.TGR
 November 6, 1996

SYMBOL	SUBSTITUTION	DESCRIPTION
FURNNAME	PCS:FUR21I3.F CV	
FURNPOWER	PCS:OP21I3.F CV	POWER TO FURNACE
GBTEMP	PCS:TE21IMAX.F CV	HA-20MB HIGH TEMPERATURE
LS	PCS:LS21I3.F CV	DOOR LIMIT SWITCH
OFFGASTEMP	PCS:TE21I12.F CV	OFF-GAS TEMPERATURE
OVENHITEMP	PCS:TE21I6.F CV	HIGH TEMPERATURE ALARM READING
OVENTEMP	PCS:TC 21I3.F CV	FURNACE TEMPERATURE
POWER	PCS:PWR21I3.F CV	FURNACE POWER
PROGRAM	PCS:PN21I3.F CV	PROGRAM NUMBER
START	PCS:TP 21I3 C.F 2	START PRGM RESET=1 RUN=2
STOP	PCS:SP 21I3.F CV	STOP FURNACE
TEMPSETPOINT	PCS:SP21I3.F CV	FURNACE POINT
TIMEREMAIN	PCS:TP 21I3 C.F 11	PROGRAM SEGMENT TIME REMAINING