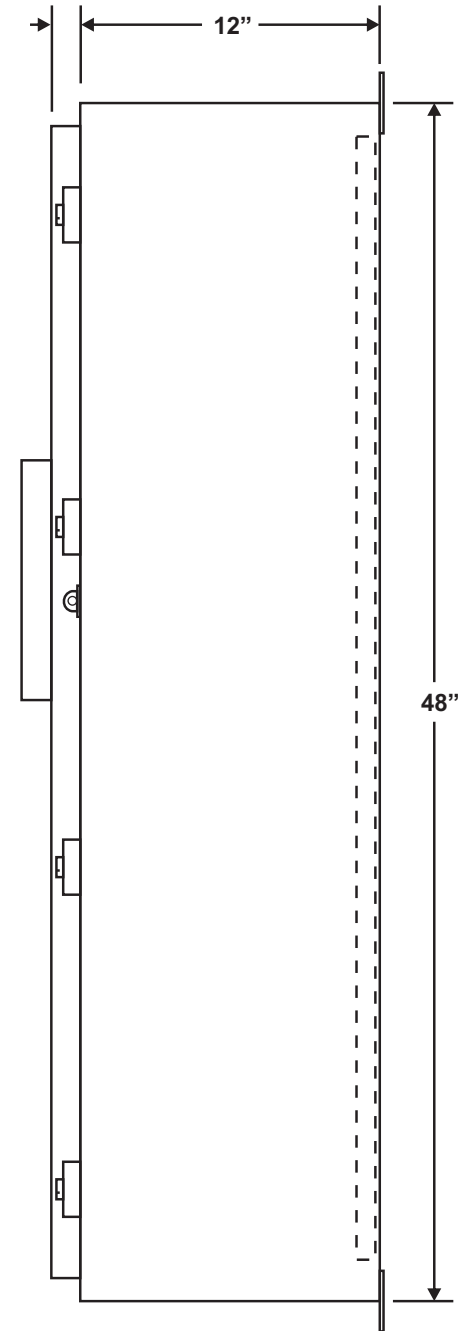


CABINET - FRONT VIEW
REFER TO SHEET 6 FOR SUBPANEL LAYOUT



LEGEND

1. Qty.1 Each, HMI TOUCH SCREEN
2. Qty.1 Each, BOILER CONTROL FAULT ALARM HORN, McMASTER CARR 3038T22
- 2A. Qty.1 Ea, ALARM LAMP, RED, AB 800T-PH16R, WITH SERVICE LEGEND: CONTROL FAULT
- 2B. Qty.1 Ea, PUSH BUTTON, BLACK, AB 800T-A2A, WITH SERVICE LEGEND: HORN SILENCE
3. Qty.0, n/a
4. Qty.0, n/a
5. Qty.0, n/a
6. Qty.0, n/a
7. Qty.1 Each, 420 VAC UPS (INSIDE CABINET)
8. Qty.1 Each, DIN-RAIL MOUNTED CONTROL MODULES, POWER SUPPLIES, RELAYS AND NETWORK SWITCH AS IDENTIFIED BY SYSTEM DRAWINGS B68346 SHEETS 25 THROUGH 31.

NAMEPLATES

LAMINATED NAMEPLATES. ENGRAVED. BLACK WITH WHITE LETTERING CORE.
3/8" HIGH LETTERS, ONE OR TWO LINES PER TAG.

1"X3" NAMEPLATES
A (Qty.0): n/a
B (Qty.0): --

BELOW NAMEPLATES: 1"H X 6"W
AA (Qty.0): BOILER 1 FIRING RATE DRAFT & WATER LEVEL CONTROL
BB (Qty.0): BOILER 2 FIRING RATE DRAFT & WATER LEVEL CONTROL
CC (Qty.1): BOILER 3 FIRING RATE DRAFT & WATER LEVEL CONTROL

CABINET CONSTRUCTION

Qty.1 Each, 48"H x 36"W x 12"D. 14 GA CARBON STEEL CONSTRUCTION.
SINGLE FRONT DOOR. HINGED, CLAMPED, TYPE 4 GASKETED.
HOFFMAN CABINET A48H36DLP & SUBPANEL A48P36, WITH 8 STANDARD CLAMPS.
EXTERNAL PAINT: GREY POLYURETHANE, TEXTURED - SHERWIN WILLIAMS ASA61 F-63A31;
OR HOFFMAN STANDARD
CABINET LISTING: UL508A COMPLIANT

RECOMMENDED WIRING, PANEL & FIELD

RS485/MODBUS - BELDEN 9501, INSIDE CABINET OR PANEL.
RS485/MODBUS - BELDEN 9841, FIELD. PANEL & BURNER SAFETY TO SCADA.
COMPUTER LAN CABLE - BELDEN 11872A, CATEGORY 6 DATA CABLE, OR AS REQUIRED
PANEL/FIELD INSTRUMENT CABLE - BELDEN 1030A, 2-COND SHIELDED, 16 AWG, 300 V
PANEL/FIELD INSTRUMENT CABLE - BELDEN 1031A, 3-COND SHIELDED, 16 AWG, 300 V
PANEL/FIELD INSTRUMENT CABLE - BELDEN 1033A, 2-COND SHIELDED, 20 AWG, 300 V

COMPLETED

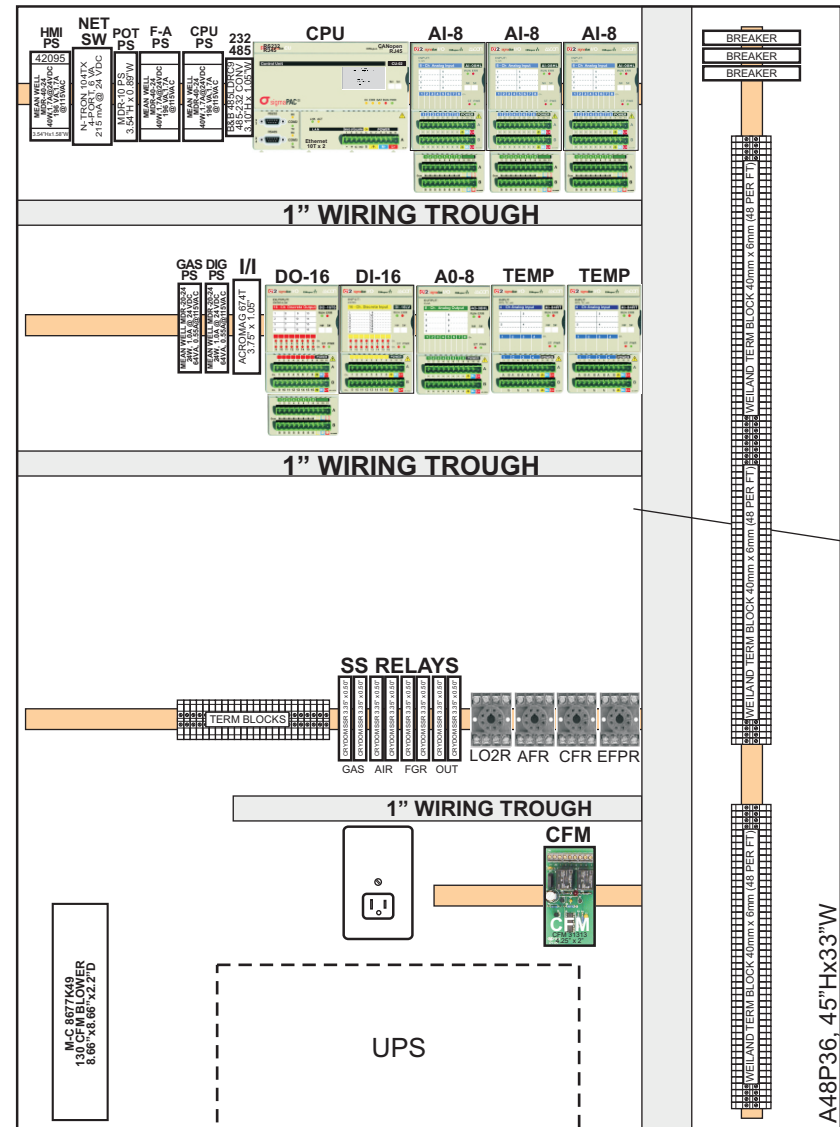
HAYS CLEVELAND JOB No 411-OS
Qty.1, ALL ITEMS THIS SHEET, UNLESS OTHERWISE NOTED

LTR	REVISIONS	BY	DATE
C	-		
B	-		
A	DESIGN APPROVED PER RESPONSE TO RFI; NEMA 4 SURFACE/STRUT MOUNTED ENCLOSURE.	FSS	11-01-13

All revisions to hardware, wiring, and software must be approved in writing by Hays Cleveland Division of UniControl Inc.	DR.	Hays Cleveland Division of UniControl Inc. Combustion Sales & Engineering - BOYNTON BEACH, FLORIDA 33426		
	FSS			
	DATE	10-10-12		
	CHK			
R&D	BOILER 3 CONTROL CABINET LAYOUT, BILL OF MATERIAL VA MEDICAL CENTER - SHERIDAN, WY 82801			
MFG	SCALE 0.130	DWG. NO.	B68345	REV A
	SHEET 5 OF 6			

CONSTRUCTION

Qty.1, BOILER CONTROL CABINET AS SHOWN ON SHEET 5.



DIN-RAIL MOUNTED CONTROL MODULES, POWER SUPPLIES, ISOLATORS, RELAYS AND I/O WIRING

PRELIMINARY LAYOUT

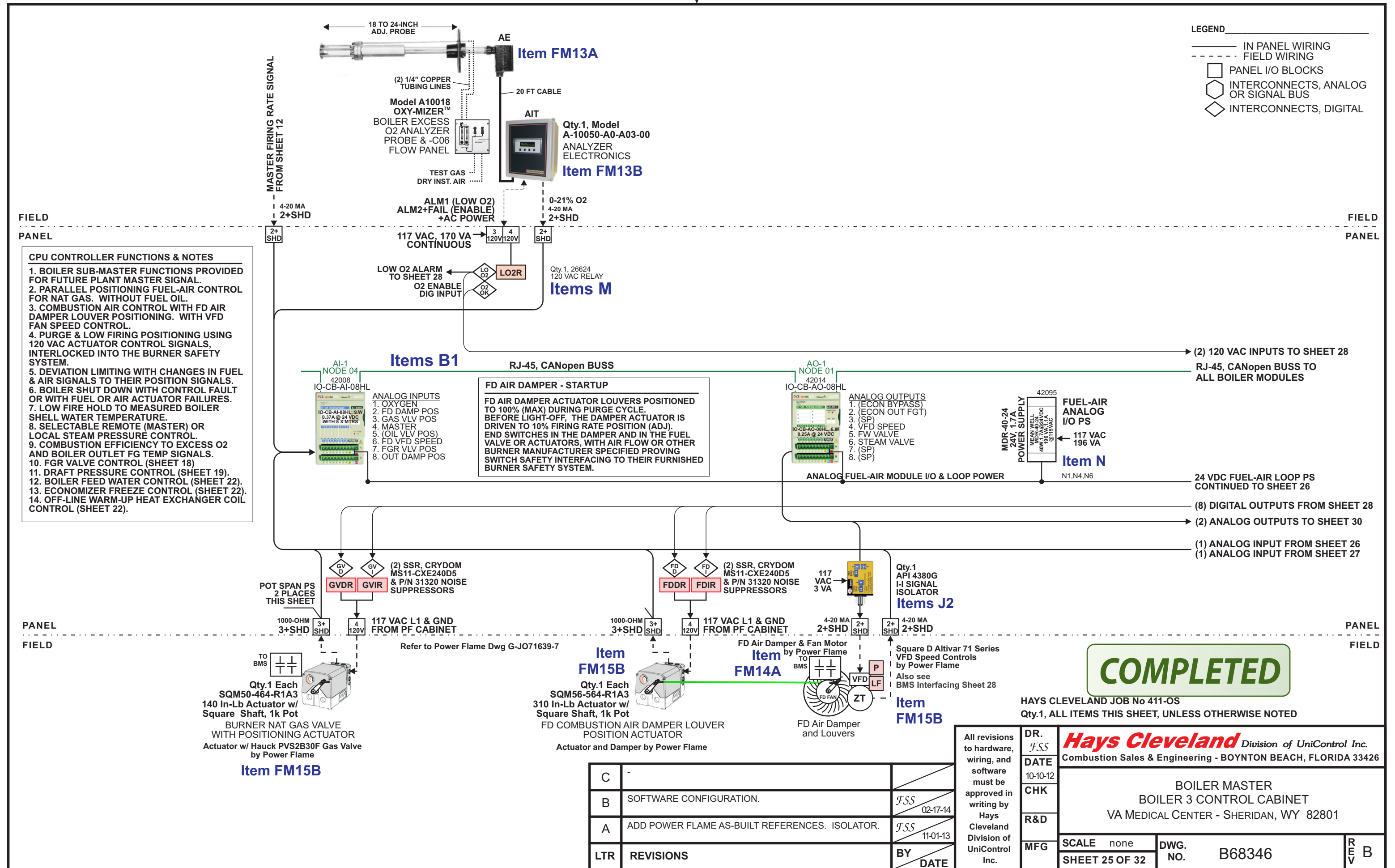
HOFFMAN SUBPANEL A48P36 INSIDE BOILER CONTROL CABINET. REFER TO SHEET 5 CABINET DRAWING

COMPLETED

HAYS CLEVELAND JOB No 411-OS
Qty.1, ALL ITEMS THIS SHEET, UNLESS OTHERWISE NOTED

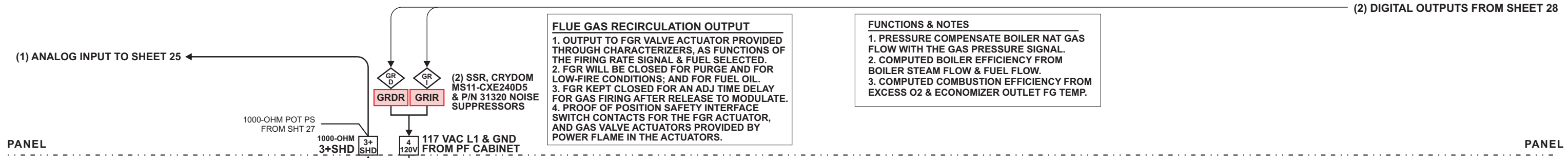
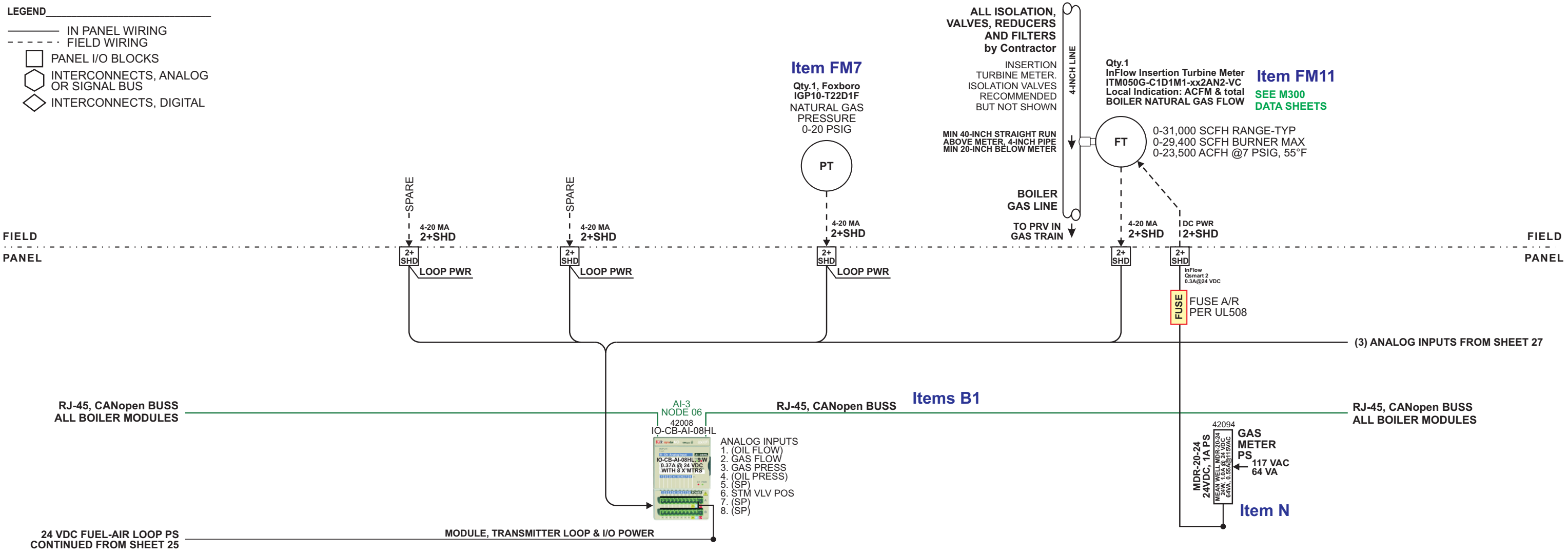
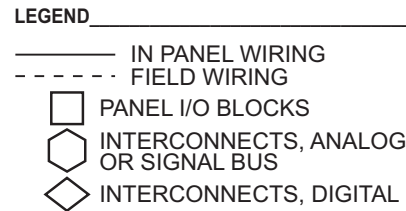
C	-		
B	-		
A	-		
LTR	REVISIONS	BY	DATE

All revisions to hardware, wiring, and software must be approved in writing by Hays Cleveland Division of UniControl Inc.	DR.	Hays Cleveland Division of UniControl Inc.		
	DATE	Combustion Sales & Engineering - BOYNTON BEACH, FLORIDA 33426		
	CHK	BOILER 3 CONTROL CABINET INTERNAL SUBPANEL LAYOUT VA MEDICAL CENTER - SHERIDAN, WY 82801		
	R&D			
MFG	SCALE 0.130	DWG. NO.	B68345	REV -
	SHEET 6 OF 6			



C		
B	SOFTWARE CONFIGURATION.	FSS 02-17-14
A	ADD POWER FLAME AS-BUILT REFERENCES. ISOLATOR.	FSS 11-01-13
LTR	REVISIONS	BY DATE

All revisions to hardware, wiring, and software must be approved in writing by Hays Cleveland Division of UniControl Inc.	DR.	Hays Cleveland Division of UniControl Inc.		
	FSS	Combustion Sales & Engineering - BOYNTON BEACH, FLORIDA 33426		
	DATE	10-10-12		
	CHK			
R&D	BOILER MASTER BOILER 3 CONTROL CABINET VA MEDICAL CENTER - SHERIDAN, WY 82801			
MFG	SCALE	none	DWG. NO.	B68346
	SHEET	25 OF 32	REV	B



COMPLETED

HAYS CLEVELAND JOB No 411-OS
Qty.1, ALL ITEMS THIS SHEET, UNLESS OTHERWISE NOTED

C	-	
B	-	
A	SOFTWARE CONFIGURATION.	FSS 02-17-14
LTR	REVISIONS	BY DATE

All revisions to hardware, wiring, and software must be approved in writing by Hays Cleveland Division of UniControl Inc.	DR.	FSS
	DATE	10-10-12
	CHK	
	R&D	
MFG	SCALE none	DWG. NO. B68346
	SHEET 26 OF 32	REV A

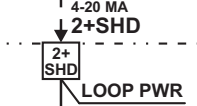
Hays Cleveland Division of UniControl Inc.
Combustion Sales & Engineering - BOYNTON BEACH, FLORIDA 33426

FGR CONTROL & FUEL MONITORING
BOILER 3 CONTROL CABINET
VA MEDICAL CENTER - SHERIDAN, WY 82801

Item FM12
 Qty.1
 Cleveland AFS-952-55
 HI DRAFT SWITCH
 0 to 12 IN WC (ADJ)



Item FM8
 Qty.1, Foxboro
 IDP10-T22A21F
 DRAFT-PRESSURE
 -1/0/+2"WC TYPICAL



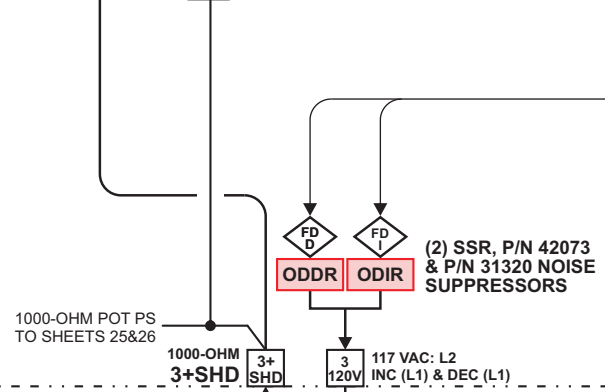
BOILER OUTLET DRAFT TAP
 PIPING - 2-INCH BOILER TAP, WITH
 1-INCH BLACK IRON PIPE, TYPICAL.
 AVOID STRAIGHT RUNS. INSTALL
 CLEAN-OUT TEES AND DRIP LEGS.

FIELD
 PANEL

FIELD
 PANEL

(2) ANALOG INPUTS TO SHEET 26

Item N
 42069
 SPAN
 POT PS
 117 VAC
 38 VA



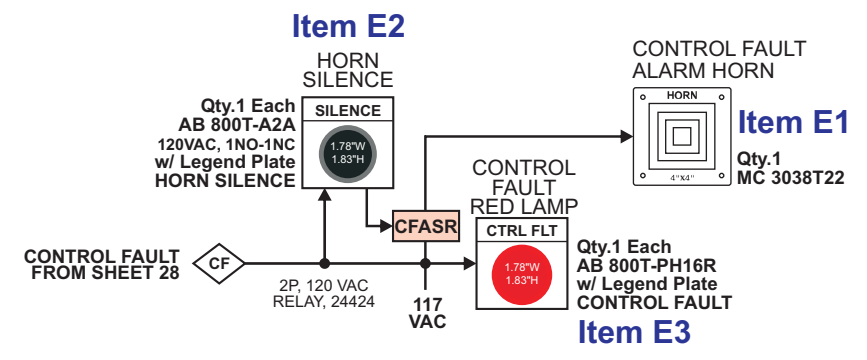
PANEL
 FIELD

PANEL
 FIELD

Item FM14A
 Boiler Outlet Damper,
 Louvers and
 Damper Switches
 by Superior Boiler

Item FM14
 Qty.1
 F-00875-K0-A02-C01-D03
 OUTLET DAMPER LOUVER
 POSITION ACTUATOR

1. BOILER FURNACE PRESSURE CONTROL WITH BOILER FIRING RATE INFLUENCE.
2. PURGE POSITIONING TO 100% OPEN.
3. LOW FIRE LIGHT OFF ADJUSTABLE START POSITIONING.



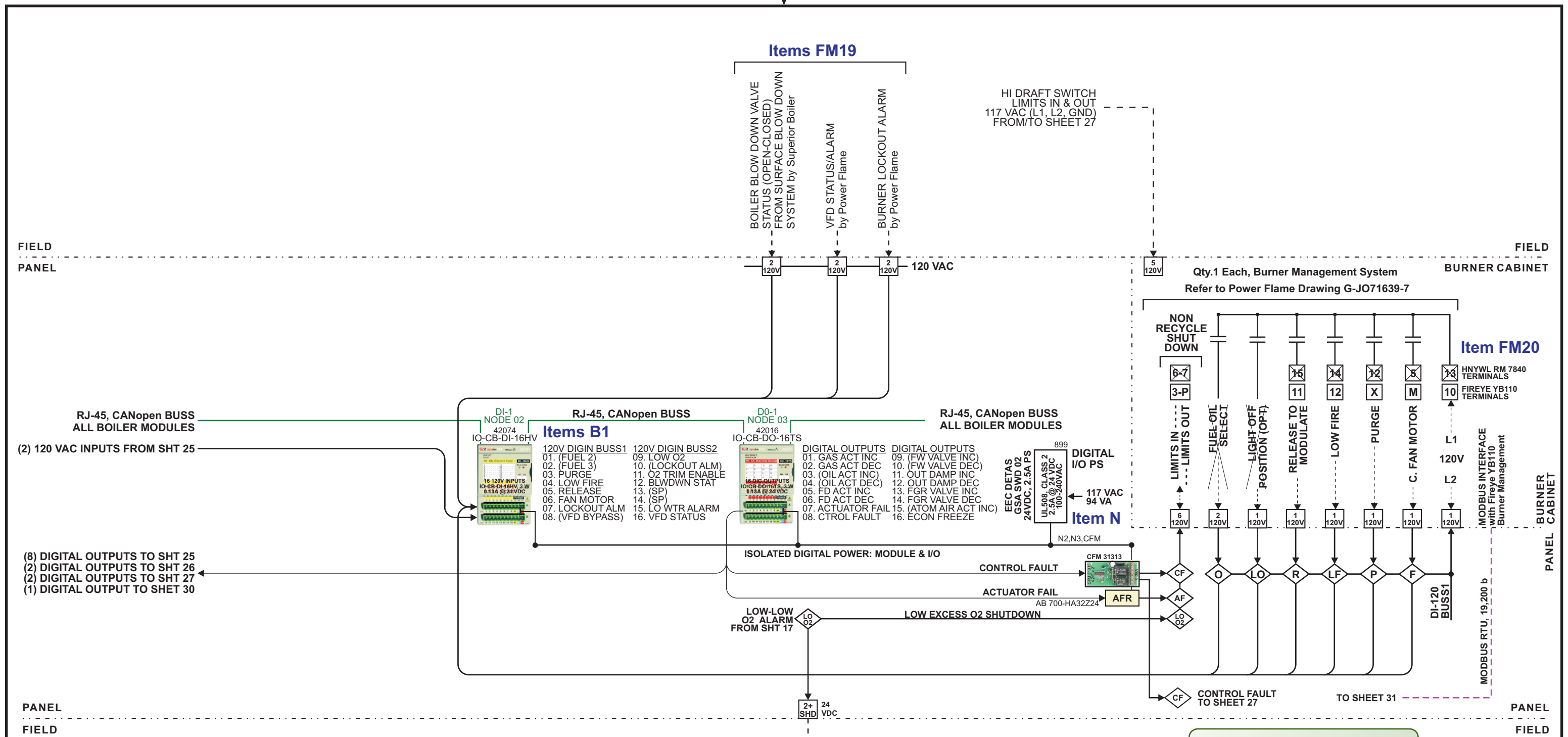
(2) DIGITAL OUTPUTS FROM SHEET 28

COMPLETED

HAYS CLEVELAND JOB No 411-OS
 Qty.1, ALL ITEMS THIS SHEET, UNLESS OTHERWISE NOTED

All revisions to hardware, wiring, and software must be approved in writing by Hays Cleveland Division of UniControl Inc.	DR. FSS	Hays Cleveland Division of UniControl Inc. Combustion Sales & Engineering - BOYNTON BEACH, FLORIDA 33426	
	DATE 10-10-12		
	CHK	FURNACE DRAFT CONTROL BOILER 3 CONTROL CABINET VA MEDICAL CENTER - SHERIDAN, WY 82801	
	R&D	SCALE none	DWG. NO. B68346
MFG	SHEET 27 OF 32		

C	-		
B	-		
A	-		
LTR	REVISIONS	BY	DATE



COMPLETED

HAYS CLEVELAND JOB No 411-OS
Qty.1, ALL ITEMS THIS SHEET, UNLESS OTHERWISE NOTED

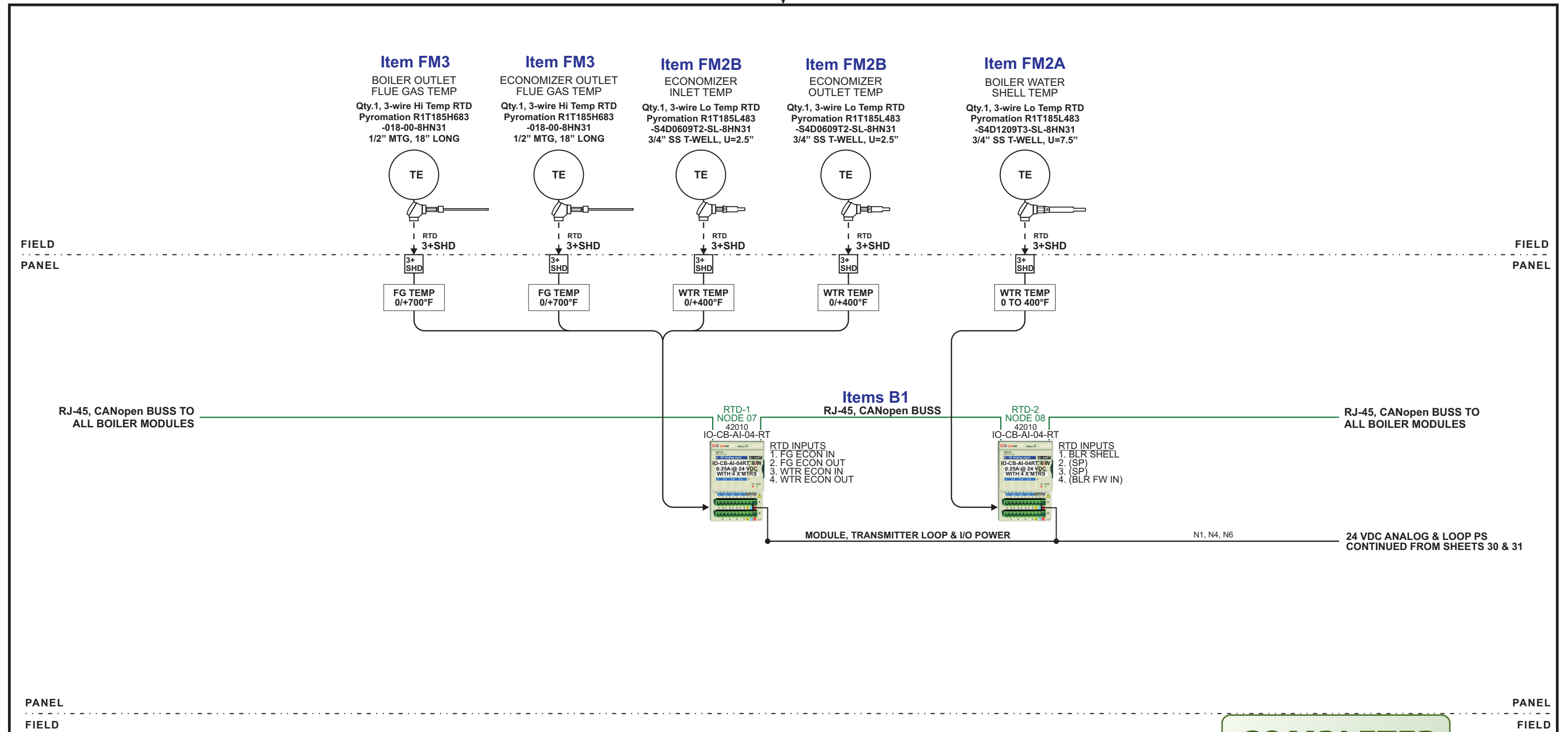
- LEGEND**
- IN PANEL WIRING
 - - - - - FIELD WIRING
 - PANEL I/O BLOCKS
 - INTERCONNECTS, ANALOG OR SIGNAL BUS
 - ◇ INTERCONNECTS, DIGITAL

C	-		
B	SOFTWARE CONFIGURATION.	FSS	02-17-14
A	LOW WATER CUTOUT NOT NEEDED MI301	FSS	11-14-13
LTR	REVISIONS	BY	DATE

All revisions to hardware, wiring, and software must be approved in writing by Hays Cleveland Division of UniControl Inc.

DR.	FSS	<p style="font-size: 18px; color: red; margin: 0;">Hays Cleveland Division of UniControl Inc.</p> <p style="font-size: 10px; margin: 0;">Combustion Sales & Engineering - BOYNTON BEACH, FLORIDA 33426</p> <p style="font-size: 12px; margin: 0;">BURNER SAFETY INTERFACE BOILER 3 CONTROL CABINET VA MEDICAL CENTER - SHERIDAN, WY 82801</p>					
DATE	10-22-12						
CHK							
R&D		SCALE	none	DWG. NO.	B68346	REV	B
MFG		SHEET	28 OF 32				





COMPLETED

HAYS CLEVELAND JOB No 411-OS
Qty.1, ALL ITEMS THIS SHEET, UNLESS OTHERWISE NOTED

- LEGEND**
- IN PANEL WIRING
 - - - - FIELD WIRING
 - PANEL I/O BLOCKS
 - INTERCONNECTS, ANALOG OR SIGNAL BUS
 - ◇ INTERCONNECTS, DIGITAL

C	-	
B	-	
A	SOFTWARE CONFIGURATION.	FSS 02-17-14
LTR	REVISIONS	BY DATE

All revisions to hardware, wiring, and software must be approved in writing by Hays Cleveland Division of UniControl Inc.	DR.	FSS		
	DATE	10-10-12		
	CHK	FSS		
	R&D	FSS		
MFG	SCALE	none	DWG. NO.	B68346
	SHEET	29 OF 32	REV	A

Hays Cleveland Division of UniControl Inc.
Combustion Sales & Engineering - BOYNTON BEACH, FLORIDA 33426

ECONOMIZER TEMPERATURES
BOILER 3 CONTROL CABINET
VA MEDICAL CENTER - SHERIDAN, WY 82801

- LEGEND**
- IN PANEL WIRING
 - - - - FIELD WIRING
 - PANEL I/O BLOCKS
 - INTERCONNECTS, ANALOG OR SIGNAL BUS
 - ◇ INTERCONNECTS, DIGITAL

ECONOMIZER COIL FREEZE PROTECTION
 MONITOR ECONOMIZER FLUE GAS OUTLET TEMPERATURE TO OPEN THE FEED WATER RETURN SOLENOID VALVE IF THE FG OUTLET TEMP IS BELOW 35°F WHEN THE BOILER IS OFF LINE.
 BOILER FEED WATER THEN FLOWS THRU THE ECONOMIZER AND RETURNS TO THE SUCTION SIDE OF THE BOILER FEED PUMPS.

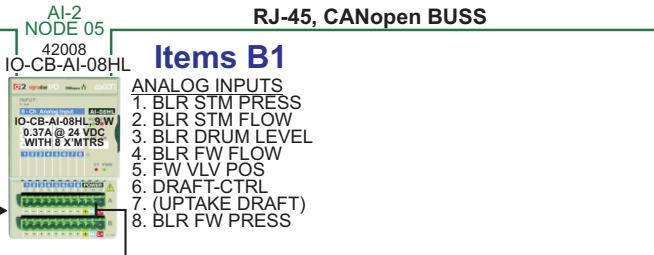
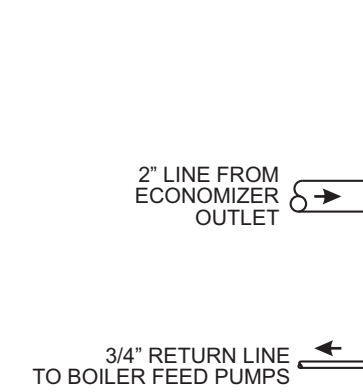
RJ-45, CANopen BUSS TO ALL BOILER MODULES

24 VDC ANALOG & LOOP PS CONTINUED TO SHEET 29

(2) ANALOG OUTS FROM SHT 25
 (1) DIGITAL OUT FROM SHT 28

PANEL

FIELD



FEED WATER CONTROL FUNCTIONS & NOTES

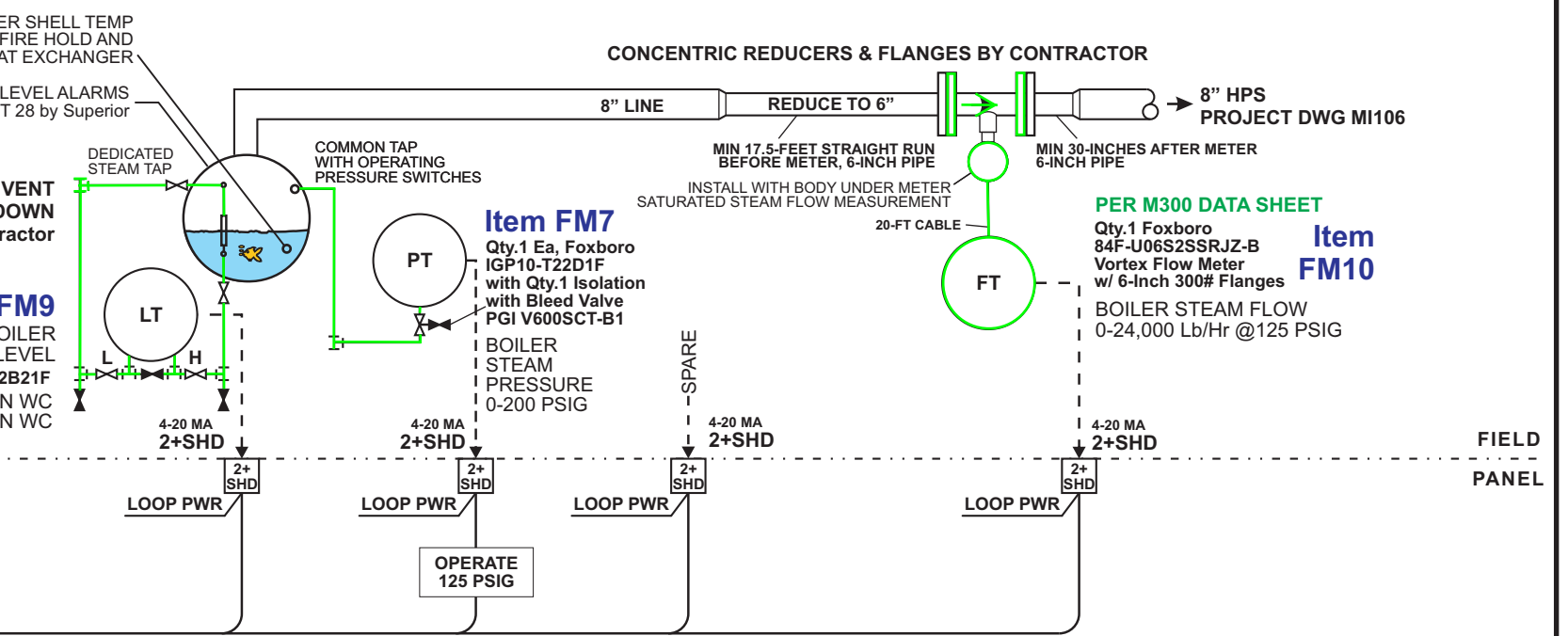
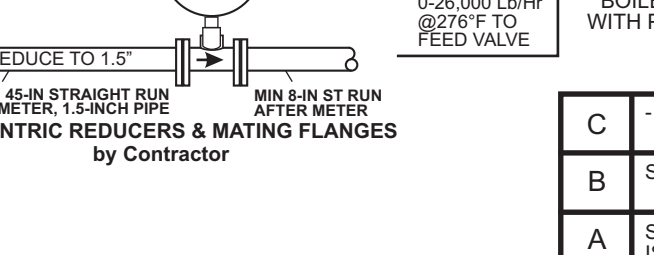
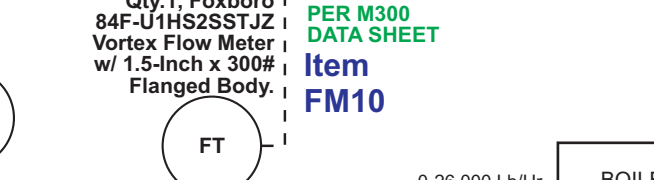
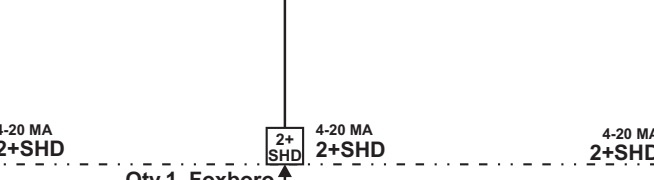
- TWO-ELEMENT FEED WATER CONTROL WITH BOILER WATER LEVEL & STEAM FLOW.
- PRESSURE COMPENSATE BOILER STEAM FLOW WITH THE STEAM PRESSURE SIGNAL.
- FEED WATER PRESSURE MONITORING, AND FLOW MONITORING-TOTALIZING ONLY.
- DISPLAY FLOW & TOTALIZER VALUES.
- COMPUTE BOILER EFFICIENCY FROM THE BOILER STEAM FLOW & GAS FLOW SIGNALS.

BOILER STEAM COIL & LOW FIRE HOLD

- WHEN THE BOILER IS OFF LINE THE SHELL WATER TEMP SIGNAL IS USED TO CONTROL STEAM FLOW FROM THE ON LINE BOILERS THROUGH THE OFF LINE BOILER HEATING COILS TO KEEP IT WARM AT 190°F. PER PROJECT DRAWING MI302 PP G.
- WHEN THE BOILER IS STARTED BY THE OPERATOR, THE SHELL WATER TEMP SIGNAL IS USED TO KEEP BOILER FROM MODULATING FROM LOW FIRE UNLESS >200°F.

MODULE, TRANSMITTER LOOP & I/O POWER

4-20 MA 2+SHD



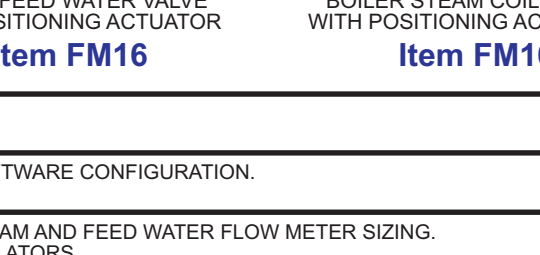
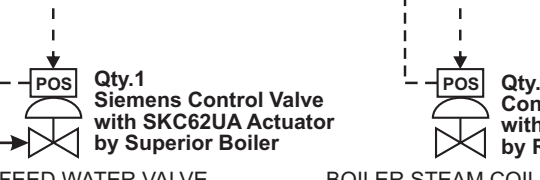
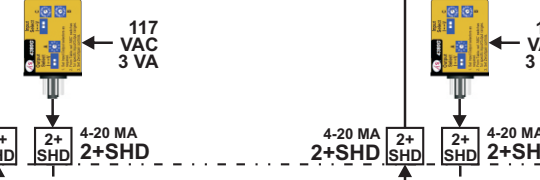
RJ-45, CANopen BUSS

RJ-45, CANopen BUSS TO ALL BOILER MODULES

24 VDC ANALOG & LOOP PS CONTINUED TO SHEET 29

24 VDC ANALOG & LOOP PS CONTINUED FROM SHEET 31

(2) ANALOG OUTS FROM SHT 25
 (1) DIGITAL OUT FROM SHT 28



COMPLETED

HAYS CLEVELAND JOB No 411-OS
 Qty.1, ALL ITEMS THIS SHEET, UNLESS OTHERWISE NOTED

C		
B	SOFTWARE CONFIGURATION.	FSS 02-17-14
A	STEAM AND FEED WATER FLOW METER SIZING. ISOLATORS.	FSS 11-05-13
LTR	REVISIONS	BY DATE

All revisions to hardware, wiring, and software must be approved in writing by Hays Cleveland Division of UniControl Inc.

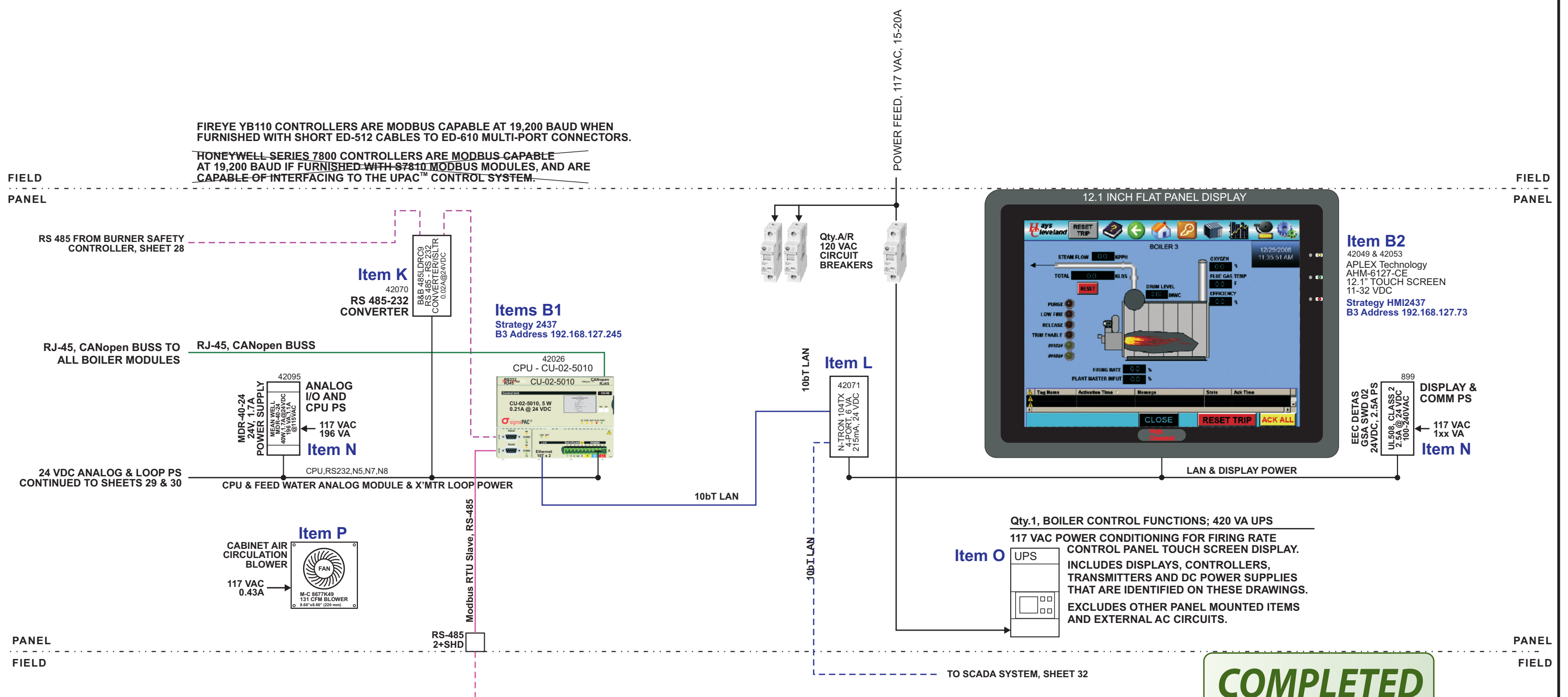
DR.	FSS	Hays Cleveland Division of UniControl Inc. Combustion Sales & Engineering - BOYNTON BEACH, FLORIDA 33426
DATE	10-10-12	
CHK		
R&D		BOILER FEED WATER CONTROL BOILER 3 CONTROL CABINET VA MEDICAL CENTER - SHERIDAN, WY 82801
MFG	SCALE none	DWG. NO. B68346
	SHEET 30 OF 32	REV A

FIREYE YB110 CONTROLLERS ARE MODBUS CAPABLE AT 19,200 BAUD WHEN FURNISHED WITH SHORT ED-512 CABLES TO ED-610 MULTI-PORT CONNECTORS.

HONEYWELL SERIES 7800 CONTROLLERS ARE MODBUS CAPABLE AT 19,200 BAUD IF FURNISHED WITH 57811 MODBUS MODULES, AND ARE CAPABLE OF INTERFACING TO THE UPAC™ CONTROL SYSTEM.

FIELD
PANEL

FIELD
PANEL



COMPLETED

HAYS CLEVELAND JOB No 411-OS
Qty.1, ALL ITEMS THIS SHEET, UNLESS OTHERWISE NOTED

- LEGEND
- IN PANEL WIRING
 - - - - FIELD WIRING
 - PANEL I/O BLOCKS
 - INTERCONNECTS, ANALOG OR SIGNAL BUS
 - ◇ INTERCONNECTS, DIGITAL

C	-	
B	SOFTWARE CONFIGURATION.	FSS 02-17-14
A	UPDATE HMI AND DC SUPPLY.	FSS 11-01-13
LTR	REVISIONS	BY DATE

All revisions to hardware, wiring, and software must be approved in writing by Hays Cleveland Division of UniControl Inc.	DR.	Hays Cleveland Division of UniControl Inc.		
	FSS	Combustion Sales & Engineering - BOYNTON BEACH, FLORIDA 33426		
	DATE	10-10-12		
	CHK	CONTROL CPU, DISPLAY, LAN BOILER 3 CONTROL CABINET VA MEDICAL CENTER - SHERIDAN, WY 82801		
R&D	SCALE	none	DWG. NO.	B68346
MFG	SHEET	31 OF 32	REV	B