SIEMENS

Siemens Applied Automation

Optichrom Advance® Plus Upgrade Instructions

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Installation Manual
2000587-001

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Technical Support

Getting Help

At Siemens Applied Automation we take pride in the on going support we provide our customers. When you purchase a product, you receive a detailed manual that should answer your questions; however, our technical support service provides a special “hot” line as an added source of information.

If you require assistance call:

Inside Oklahoma: (918) 662-7430
Outside Oklahoma: (800) 448-8224
Internationally: 001-918-662-7430

Before You Call

Before calling Siemens Applied Automation Customer Service for technical assistance, you should have the unit serial number and a detailed description of the problem for presentation to the customer service representative.

Indicate the encountered problem and provide any other information that will aid the customer service representative in correcting the problem.

Safety Practices and Precautions

Safety First

This product has been designed and tested in accordance with IEC Publication 1010-1, Safety Requirements for Electronic Measuring Apparatus, and has been supplied in a safe condition. This manual contains information and warnings, which have to be followed by the user to ensure safe operation and to retain the product in a safe condition.

Terms in This Manual

WARNING statements identify conditions or practices that could result in personal injury or loss of life.

CAUTION statements identify conditions or practices that could result in damage to the equipment or other property.

Terms as Marked on Equipment

DANGER indicates a personal injury hazard immediately accessible as one reads the markings.

CAUTION indicates a personal injury hazard not immediately accessible as one reads the markings, or a hazard to property, including the equipment itself.

Symbols in This Manual

This symbol indicates where applicable cautionary or other information is to be found.

Symbols Marked on Equipment

DANGER - High voltage

Protective ground (earth) terminal

ATTENTION - Refer to Manual

Correct Operating Voltage

Before switching on the power, check that the operating voltage listed on the equipment agrees with the available line voltage. Ensure that the power supply switch is to the correct input voltage.

Danger Arising from Loss of Ground

Any interruption of the grounding conductor inside or outside the equipment or loose connection of the grounding conductor can result in a dangerous unit. Intentional interruption of the grounding conductor is not permitted.

Safe Equipment

If it is determined that the equipment cannot be operated safely, it should be taken out of operation and secured against unintentional usage.

Use the Proper Fuse

To avoid fire hazard, use only a fuse of the correct type, voltage rating and current rating as specified in the parts list for your product. Use of repaired fuses or short-circuiting of the fuse switch is not permitted.

Safety Guidelines

DO NOT open the equipment to perform any adjustment, measurements, maintenance, parts replacement or repairs until all power supplies have been disconnected.

Only a properly trained technician should work on any equipment with power still applied.

When opening covers or removing parts, exercise extreme care "live parts or connections can be exposed".

Chapter 1

Introduction

Overview

Description

This manual provides instructions on how to upgrade the Optichrom Advance® analyzer to an Optichrom Advance® Plus analyzer.

Only personnel proficient in the operation, maintenance and programming of both the Advance Optichrom and the Advance Maxum analyzers should perform the upgrade procedures.

Installation Overview

Read through the all the instructions before you start to familiarize yourself with the tasks to be performed. The preview below shows the sequence of events you will follow to ensure a safe and trouble free installation.

Topic	See Page
Verify Correct Hardware Installation Kit	3
Check Analyzer for Correct Power Supply	4
Remove & Replace Analyzer Door	4
Setup Analyzer IP Address	11
Configure System Detectors	12
Setup an Application	17
Develop EZChrom Method	30

CD ROM Library

To help in your installation we have included in the inside jacket of this manual, our CD ROM Library, which contains all available documentation for the Advance Maxum system.

Chapter 2

Hardware Installation

Overview

Description

This section shows you how to install your new Advance Plus door.

Before You Begin

Read through the all the instructions before you start to familiarize your self with the tasks to be performed.

Important

In order to retrofit an Advance Optichrom to an Advance Plus it must be equipped with the newer 24-volt power supply (P/N 2000240-001); see Power Supply Option Package kit below. This power supply has a 24-volt output that is used with the Advance Plus door. Most Advance Optichrom units containing the new ACB2 will have this power supply.

What You Will Need

To upgrade you will need the following kits. Check your bill of material to see that the correct kits were received.

Kit Name	Part Number/Description
Upgrade Door Install Package	P/N 2015860-001 Standard Memory (8/8/ +32 Mb) P/N 2015860-002 Extended Memory (16x16 + 32 Mb)
Power Supply Option Package	P/N 2020996-001 Includes cable only for units that have the newer power supply *P/N 2020996-002 Includes new power supply and cable
Network Installation Option	P/N 2017944-001 for non network use P/N 2017944-002 for Ethernet10BaseT Copper P/N 2017944-003 for ANCB & ADH P/N 2017944-004 for ANCB & DataNET Copper P/N 2017944-005 ANCB & DataNET Fiber Optics

EC Door Removal and Replacement

Description

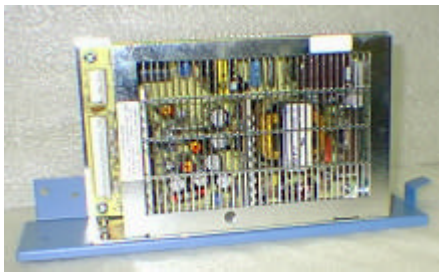
In this section you will remove the Advance Optichrom EC Door and replace with the new Advance Plus door.

Warning

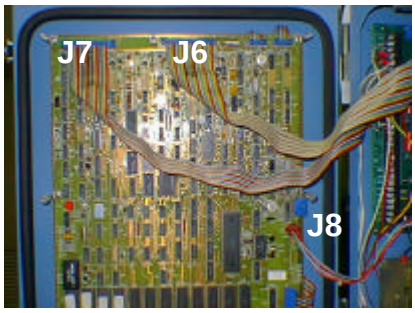
When the EC door is opened voltages are present that can cause serious injury to service personnel. Before removing or replacing any component turn off the primary AC power to the analyzer.

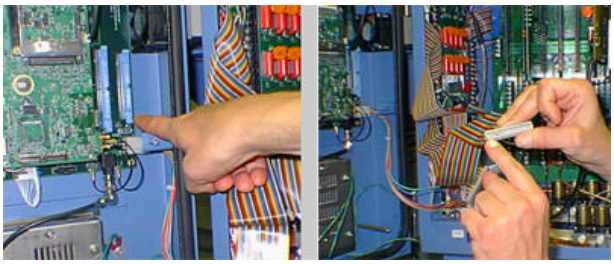
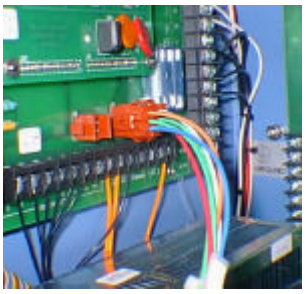
⚠

Instructions

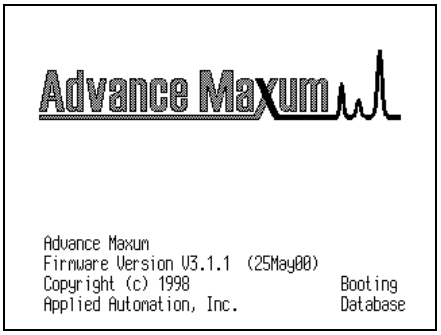
Step	Procedure
1.	Shut off all AC primary power to the analyzer,
2.	Open the EC door by unsnapping the door's latches
3.	If using a Flame Photometric Detector (FPD) turn off the bias supply switch on the FPD card.
4.	Verify that the EC power supply is the newer P/N 2000240-001 supply. If not, replace the power supply with the one contained in Installation Kit P/N 2020996-002.  24-Volt Power Supply P/N2000240-001

EC Door Removal and Replacement, Continued

Step	Procedure
5.	Remove the metal shield protecting the ACB by first removing the two side mounted thumbscrews and then lefting the shield outward.
6.	Remove the following cables that interconnect the door with the EC. See Figure 2-1. Ribbon Cable J6 (1682002-003) Ribbon Cable J7 (1682002-001) Power Supply Cable J8 
7.	Remove Optichrom Advance door and replace with Advance Plus door.

Step	Procedure
8.	Connect both the 50-pin (J6) and 40-pin (J7) ribbon cables from the ATB to their respective connectors on the Advance Plus door. Before plugging in a ribbon connectors ensure that pin 1 on the matting connector is aligned with pin 1 on the ribbon cable connector. Pin 1 is designated by the symbol ∧ stamped on the connector. 
9.	Using the power connection cable that came with the Power Supply Option Package Kit make power supply connections to ATB and SYSCON.  ATB Power Supply Connections in EC SYSCON Power Supply Connection on Door.

EC Door Removal and Replacement, Continued

Step	Procedure
10.	Fold ribbon cable out of way so as not to interfere with EC door closing.
11.	If using a Flame Photometric Detector (FPD) turn on the bias supply switch on the FPD card.
12.	Close EC door and latch.
13.	Turn analyzer AC primary power on. The operating system sequence will begin and MMI splash screen will appear. 

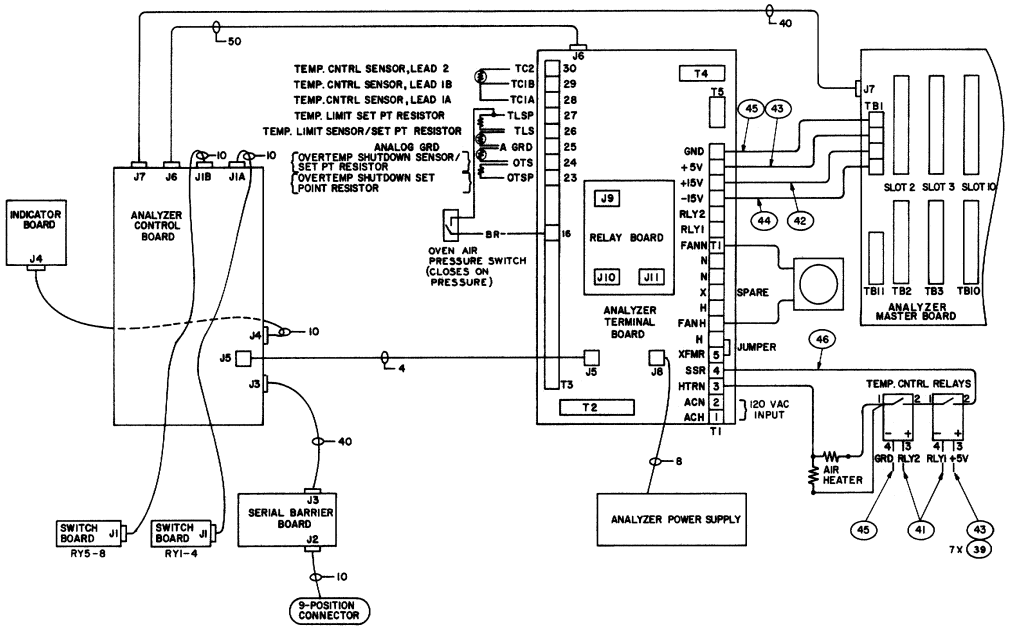


Figure 2-1. Advance Optichrom Electronics Enclosure, Wiring Interface Diagram

Chapter 3

Database Upgrade

Overview

Description

In this section you will define the Optichrom Advance Plus application data base tables. After completing this section you will be ready to use EZChrom for configuring hardware, and method development.

Prerequisite Skills

Only personnel proficient in the operation, maintenance and programming of both the Advance Optichrom and the Advance Maxum analyzers should perform the software upgrade procedures.

Chapter 3. Maintenance Manual

Help File

System Manager

In case you forget how to use the MMI or System Manager a symbol will tell you where to find the information either by looking on the Advance Maxum Library CD or by using the System Manager Help button.

If you require additional assistance call:

Inside Oklahoma: (918) 662-7430
Outside Oklahoma: (800) 448-8224
Internationally: 001-918-662-7430

What You Will Need

- Advance Plus Analyzer networked to PC running the Advance Maxum System Manager Software
- Analyzer's Custom Documentation Package
- Printout of the Analyzer's Application Database
- Advance Plus I/O Mapping Chart, Table 3-1 page 22

Preview

Read through the all the instructions before you start to familiarize your self with the tasks to be performed.

Topic	See Page
Set System IP Address	11
Enter Application and Stream Assignments	18
Define Configurable Detectors	19
Define Application Temperature Controllers	20
Define Application I/Os	21
Develop EZChrom Method	30

Setup Analyzer IP Address

Description

In this section you can change the factory default IP Address, and also enter a name for the Advance Plus Analyzer.

Setup IP Address

Chapter 3. Maintenance Manual

All units are shipped with a valid TCP/ICP address. Ask your Network Administrator if you should use this address or use a company assigned address.

Step	Procedure
1.	Using the MMI (**MENU | SETUP | SYSTEM)** access the Setup System screen.
2.	Go to Line 12 Accept or change the IP address of the unit in accordance with your network policy. If network routing is not being used be sure to disable the Router at Line 16. Set it to 0.0.0.0 to turn the option off.
3.	Go to Line 37 and enter a name for your unit.
4.	You are now ready to begin the application setup process.

IMPORTANT

If you change the IP address of the analyzer it will not take effect until the analyzer is reset.

Define Configurable Detectors

Description

In this section you will assign support I/O channels to the analyzer's spare detector inputs located on the Adapter board or backplane AI boards being used as detector inputs. This assignment is done prior to defining an application detector using that detector channel.

The Advance Plus Analyzer must be networked to a PC running the Advance Maxum System Manager Software

Chapter 3. Maintenance Manual

The MMI can also be used in place of the System Manager to define the Detector Hardware IDs.

TCD Users

If the analyzer uses a single TCD (Thermal Conductivity Detector) connected to the ATB the following procedure is not required, go to page 17, 'Define an Application'.

Learning Hint

The System Detector Configuration dialog box is used to assign support I/O Channels to the spare detector inputs located on the Adapter Board or AI boards located on the back plane. The dialog box allows you to assign various I/O channels reported by the system to a specific hardware ID that corresponds to a system detector channel. Once defined, this new hardware IDs will appear in the detector list when defining application detectors.

To learn the components of the hardware ID address, see page 23, Hardware ID Address.

Instructions

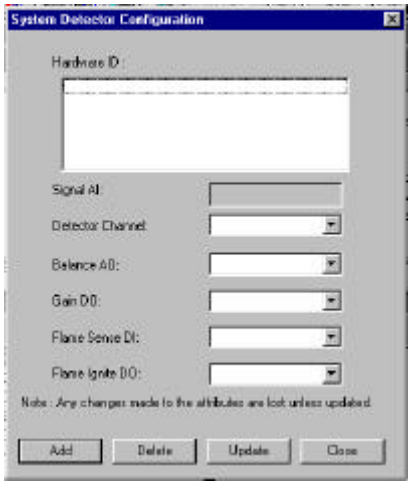
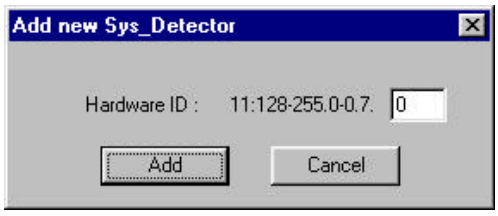
Help File

System Manager

The following procedure assigns support I/O channels to a Detectors' data acquisition inputs.

Step	Procedure
1.	Open System Manger. Select **START | PROGRAMS | ADVANCE SYSTEM TOOLS | ADVANCE SYSTEM MANAGER** to launch the program.
2.	Click on the Analyzer icon for the Advance unit.
3.	Maximize the System Manager work area.
4.	Click on the application name in the analyzer view tree to expand the tree.
5.	Click on **System Tables**.

Define Configurable Detectors, Continued

Step	Procedure
6.	In the Table Name window click on **Sys_Detector_Cfg**. The password dialog box will appear.
7.	Enter password information. For first time users the default is: **Login**: Super **Password** 555.
8.	After the system accepts your password the System Detector Configuration dialog box will appear. 
9.	Click **Add** and enter channel number for new Detector hardware ID; it must be unique for each configured detector. 

Define Configurable Detectors, Continued

Step	Procedure
10.	Click **Add**. The System Detector Configuration dialog box will appear. The Hardware ID window will show the new Detector ID.
11.	Click the down ¯ arrow in the Detector Channel window. From the drop down list select the hardware ID string with the correct channel identifier for the detector input. To determine the correct channel you must be able to interpret the hardware ID number string. Use the Optichrom to Advance Plus I/O Mapping Chart (Table 3-1) and reference page 23, Hardware ID Address. Refer also to your analyzer's Application Drawing Package and Database Tables to determine other identifiers i.e. detector and I/O type, slot and channel ID.
12.	Repeat steps 1 through 11 for all detectors that use the spare detector inputs or back plane AI boards for data acquisition.

Examples

The following examples should aid you in your setup.

Flame Ionization Detector

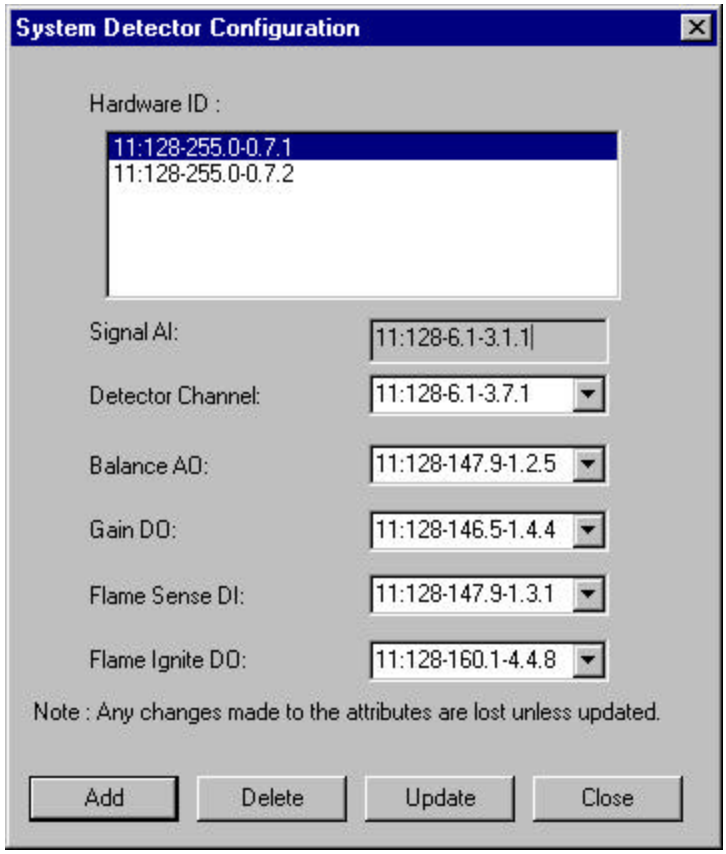
The detector channel selected is Spare Channel 1, the corresponding AI signal channel is Channel 10 on the Analyzer Termination Board (ATB).

The Flame Detector Board is located in Slot 9. Balance AO Channel 5 is selected for the board in slot 9.

Gain DO channel is selected. Note: The Gain DO is only used for a Range Change on the FID. It is not applicable to other detector types.

Flame Sense DI channel 1 is selected.

Flame Ignite DO channel 8 is selected to correspond to DO channel 47 on the ATB.



Inter Column Detector (ITC)

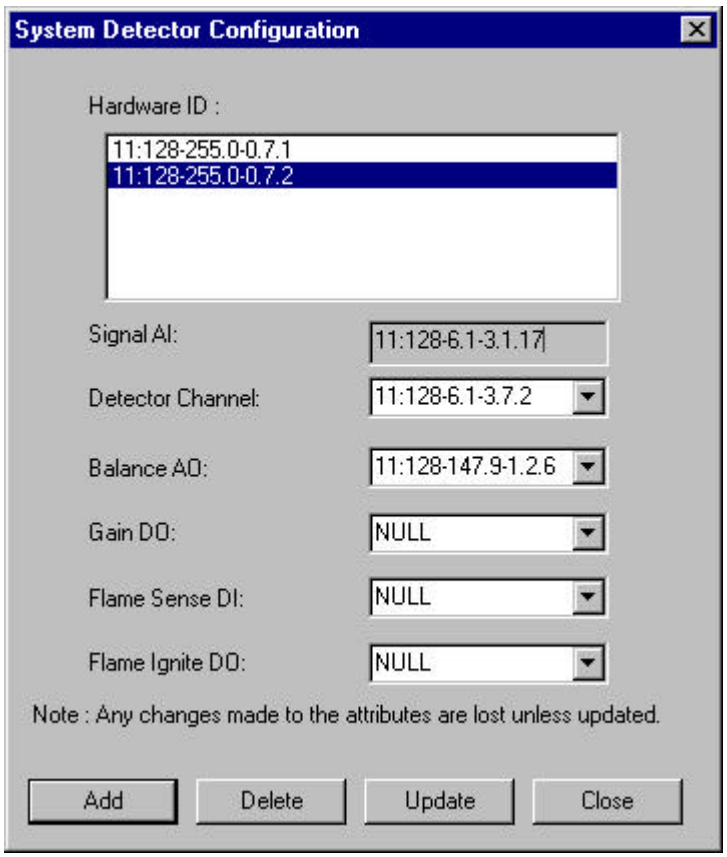
The detector channel selected is Spare Channel 2, the corresponding AI signal channel is Channel 11 on the Analyzer Termination Board (ATB).

The Flame Detector Board is located in Slot 9. Balance AO Channel 6 is selected for the board in slot 9.

Gain DO channel is not applicable.

Flame Sense DI is not applicable.

Flame Ignite DO is not applicable.



Define an Application

Description

The following procedure uses the System Manager to setup an application and assign streams, detectors, temperature controllers and application I/Os. In the next section you will tie an EZChrom method the application.

The Advance Plus Analyzer must be networked to a PC running the Advance Maxum System Manager Software.

Definitions

An ***application*** is equivalent to the supporting hardware and consists of hardware channels: detector channel (AI), Solenoid Valve Control Module channel (AO), Electronic Pressure Control channel (DI), Temperature Controller (DO). Streams are defined per application, and are paired up with methods in a sequence. Applications can run only one method at a time and define a single cycle clock. The number of cycle clocks in an Advance Maxum analyzer depends on the number of defined applications. Applications are created in the Advance System Manager.

Application Setup

Help File

System Manager

Step	Procedure
1.	Open System Manger. Select **START | PROGRAMS | ADVANCE SYSTEM TOOLS | ADVANCE SYSTEM MANAGER** to launch the program.
2.	Click the button on the System View toolbar. The **Add unit to 'group name'** dialog box prompts you for the **Unit Name**, **IP Address**, and **Unit Type**. Enter the IP address and Unit type you entered in Setup IP Address on the MMI.
3.	Maximize the System Manager work area.
4.	Click the System Tables icon in the Analyzer tree view.
5.	In the Table Name window click on **Application**. The password dialog box will appear.

Define an Application, Continued

Step	Procedure
6.	Enter password information. For first time users the default is: **Login**: Super **Password** 555. **Tip:** To Set Login default: 1. On the main menu bar click System. 2. From the drop down window select **Set Default Login** and enter the information 3. Click on '**Save login and password as default'**. 4. Click on **Set** to exit.
7.	When the table window appears, click the Add Record button on the Table Editor toolbar or select Add Record from the Edit menu.
8.	Enter the application id in the Add Record dialog box, and click **OK.** The entered ID is added to the Table with the default name Null. **Tip:** IDs usually follow in numerical sequence. If the table is long, scroll to the bottom to see the last number before choosing to add a record.
9.	To change the default name "Null". Click on the name and type in a name for your application.
10.	In the system view window click on your analyzer to view the analyzer application tree.

Define Streams

Help File

System Manager

This procedure defines the applicable application streams.

Step	Procedure
1.	Click on the application name in the analyzer view tree to expand tree.
2.	Click the Tables Icon Tables.

Define an Application, Continued

Step	Procedure
3.	In the Table Name window click on **Streams**. The password dialog box will appear.
4.	Enter password information. For first time users the default is: **Login**: Super **Password** 555.
5.	When the table window appears, click the Add Record button on the Table Editor toolbar or click Add Record from the Edit menu.
6.	Enter the stream id in the Add Record dialog box, and click OK. The entered ID is added to the Table with the default name Null for the stream's name **Tip:** IDs usually follow in numerical sequence. If the table is long, scroll to the bottom to see the last number before choosing to add a record.
7.	To change the default name "Null". Click on the name and type in a name for your application.
8.	Repeat for all streams.

Define Detectors

Help File

System Manager

This procedure assigns detector hardware to an application.

Step	Procedure
1.	Click on the application name in the analyzer view tree to expand tree.
2.	Click the Tables Icon Tables.
3.	In the Table Name window click on **app_detectors**. The password dialog box will appear.
4.	Enter password information. For first time users the default is: **Login**: Super **Password** 555.
5.	When the table window appears, click the Add Record button on the Table Editor toolbar or click Add Record from the Edit menu.

Step	Procedure
6.	In the table window click on the **hrdwr_id** cell and select the detector type ID address from the drowp down list. **Example:** **TCD = 11:128-6.12.7.1 or FID = 11;128-255.0-0.7.1** **Where:** **11:128=Advance, 6=ID, 1=Loc ID, 2=PIC, 7=Channel Typ, 1= Channel (TCD)**
7.	To change the default name “Null”. Click on the name and type in Detector name.
8.	Repeat steps for each detector.

Define Temperature Controllers

Help File

System Manager

This procedure assigns temperature controllers to an application.

Step	Procedure
1.	Click on the application name in the analyzer view tree to expand tree.
2.	Click the Tables Icon .
3.	In the Table Name window click on app_tempctl. The password dialog box will appear.
4.	Enter password information. For first time users the default is : **Login**: Super **Password** 555.
5.	When the table window appears, click the Add Record button on the Table Editor toolbar or click Add Record from the Edit menu.

Define an Application, Continued

Step	Procedure
6.	In the table window click on the hrdwr_id cell and select the controller's ID address (see page 23**)** from the drop down list. **Example :** **Temp Ctl = 11:128-4.3.1.1-.6.1** **Where:** **11:128=Advance, 4=ID, 1=Loc ID, 2=PIC, 6=Channel Typ, 1= Channel (TCD)**
7.	Click on the Name cell and type in 'Oven'.
8.	Click on the **ô** mark in the Enable cell.
9.	In the Temptype cell type **33**.

Define I/0

Help File

System Manager

Each application has a separate set of Application IO dialog boxes. All AI, AO, DI, and DO are already defined for TCD/ITC/Oven. You will need to add I/O for valves and remote I/Os.

Step	Procedure
1.	Click on the application name in the analyzer view tree to expand tree.
2.	Click the Application IO icon in the Analyzer tree view to see the four Input or Outputs: AI, AO, DI, and DO.
3.	Click on any Input or Output to view the corresponding I/O dialog box.
4.	All AI, AO, DI, and DO are already defined for TCD/ITC/Oven. Click on an ID to view the device properties.
5.	You will need to add I/O for valves. In the Application DO dialog box click Add New DO: **Example SSO – DO: 11:128-160.1-4.4.1** **ATB channel 40 = channel 1, etc…** **Example SV1 – DO: 11:128-160.1-4.4.2**
6.	All remote I/Os needed by an application must be added manually. Use SM**[system tables][sys_xx][edit][add record**] to identify the remote system's analyzer id and hardware id.

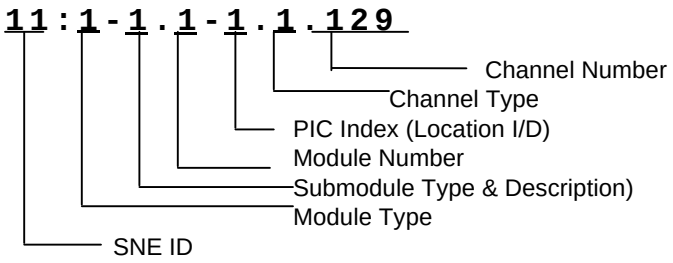
Table 3-1. Optichrom to Advance + I/O Mapping

Channel Name	Type	ACB Channel	Advance + Channel
Detector Signal	Detector	N/A	11:128-6.1-2.7.1
ITC Signal	Detector	N/A	11:128-6.1-2.7.2
Spare 1 Signal	Detector	N/A	11:128-6.1-3.7.1
Spare 2 Signal	Detector	N/A	11:128-6.1-3.7.2
Spare 1 Signal	AI	10	11:128-6.1-3.1.1
Spare 2 Signal	AI	11	11:128-6.1-3.1.17
Full Scale	AI	12	N/A
Zero Reference	AI	13	N/A
Detector Signal	AI	14	11:128-6.1-2.1.1
Detector Sense Voltage	AI	15	N/A
ITC Signal	AI	16	11:128-6.1-2.1.17
Oven Temperature	AI	17	11:128-33.1-1.1.1
Detector Balance	AO	20	N/A
ITC Balance	AO	21	N/A
Oven Temp Set Point	AO	22	11:128-33.1-1.2.3
Digital Input #1	DI	30	11:128-160.1-4.3.1
Digital Input #2	DI	31	11:128-160.1-4.3.2
Digital Input #3	DI	32	11:128-160.1-4.3.3
Digital Input #4	DI	33	11:128-160.1-4.3.4
Heater On	DI	34	11:128-160.1-4.3.6
Overtemp Shutdown	DI	35	11:128-160.1-4.3.7
Loss of Purge	DI	36	11:128-160.1-4.3.5
Alarm Output	DO	39	11:128-160.1-4.4.9
Relay #N	DO	39 + N	11:128-160.1-4.4.N
Sensitivity	DO	48	N/A
Any I/O	*	49	N/A
I/O Cards on the backplane retain their original channel numbers. Their hardware ID can be obtained by following the convention shown below where S = Slot Num, T = Channel Type and C = Channel Number			
Card Type		Advance + Hardware ID	
AO Card		11:128-129.S-1.T.C	
DO Card		11:128-146.S-1.T.C	
FID Card/FPD Card		11:128-147.S-1.T.C	
Isolated AO Card		11:128-148.S-1.T.C	
DI Card		11:128-149.S-1.T.C	
Detector Interface Card (DIC)		11:128-150.S-1.T.C	
AI Card		11:128-151.S-1.T.C	
TC3 Card		11:128-155.S-1.T.C	
IAO Card		11:128-148.S-1.T.C	

Hardware ID Address

Description

ALL modules within the Maxum electronic enclosure have a unique identification number as related to the Sensor Near Electronics module that controls them. The identification relationship between the SNE and the modules it controls is referred to as the SNE ID String.



Each field is described in the following blocks.

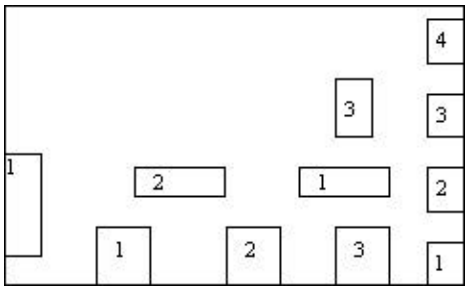
SNE ID

The SNE ID is the last eight bits of the IP address.

Module Type

Module Type	ID	Sub Module Type	ID
HOST I/O	0	Generic	0
SVCM	1	Solenoid Controller	1
EPC	2	Pressure Controller	2
PECM	3	Power Entry Controller	3
DPM	4	Temperature Controller	4
		FID Controller	5
		TCD Controller	6
SNE	5	On-Board I/O	7
		Monitor I/O	8
Advance I/O	128	AO Card	128 +1 =129
		DO Card	128+18=146
		FID Card / FPD Card	128+19=147
		Isolated AO Card	128+20=148
		DI Card	128+21=149
		Detector Interface Board	128+22=150
		AI Card	128+23=151
		TC3	128+27=155
		TC4	128+28=156
		Adapter	128+32=60
		IAO Card	128420=148

Location in Electronic Enclosure



Channel Type

Channel Type	Type Number	Virtual
Analog Input	1	33
Analog Output	2	34
Digital Input	3	35
Digital Output	4	36
EEPROM Channel	5	37
Temp Controller	6	38
Detector	7	39
Pressure Controller	8	40

Channel Numbers:

Common I/O

Type	Channel #	Signal Name
DO	129	DEVICE_RESET
DO	130	SELF_TEST
AI	129	BOARD_TEMPERATURE
AO	129	OVERTEMP_SETPOINT
DI	129-136	INTERNAL_FAULT_CODES

Solenoid Valve Control Module SVCM:

Signal Type	Syscon Channel #	Signal Name
DO	1	LEFT_GROUP_VALVE_1
DO	2	LEFT_GROUP_VALVE_2
DO	3	LEFT_GROUP_VALVE_3
DO	4	LEFT_GROUP_VALVE_4
DO	5	RIGHT_GROUP_VALVE_1
DO	6	RIGHT_GROUP_VALVE_2
DO	7	RIGHT_GROUP_VALVE_3
DO	8	RIGHT_GROUP_VALVE_4

EPC

Type	Chan #		I/O Name	
Press	*1*	*2*	*Channel 1*	*Channel 2*
DI	1	17	Low Supply Pressure	
DI	145	161	Pressure Out-Of-Control	
DO	145	161	Output Enable (PWM)	
AI	1	17	Measured Pressure	
AI	145	161	Target Pressure	
AI	146	162	Raw A/D Value	
AI	147	163	D/A Output Value	
AO	2	18	Max Pressure Deviation	
AO	3	19	Pressure Setpoint	
AO	145	161	Time Limit Deviation UP	
AO	146	162	Time Limit Deviation Down	
AO	147	163	Max Pressure Setpoint	

Power Entry Control Module PECM:

Type	Channel #	Signal Names
DI	1	Low Wattage Heater 1 Status (0:OFF, 1:ON)
DI	2	Low Wattage Heater 2 Status (0:OFF, 1:ON)
DI	3	Low Wattage Heater 3 Status (0:OFF, 1:ON)
DI	4	Low Wattage Heater 4 Status (0:OFF, 1:ON)
DI	5	Low Wattage Heater 5A Status (0:OFF, 1:ON)
DI	6	Low Wattage Heater 5B Status (0:OFF, 1:ON)
DI	7	Low Wattage Heater 6A Status (0:OFF, 1:ON)
DI	8	Low Wattage Heater 6B Status (0:OFF, 1:ON)
DI	9	Air Bath Heater 1 Status (0:OFF, 1:ON)
DI	10	Air Bath Heater 2 Status (0:OFF, 1:ON)
DI	11	Air Bath Heater 1 Air Status (0:Air Failure; 1:Air OK)
DI	12	Air Bath Heater 2 Air Status (0:Air Failure; 1:Air OK)
DI	13	Purge Status (0:Purge bad; 1:Purge OK)
DI	14	MMI 1 Connected (0:Disc.; 1:Connected)
DI	15	SysCon connected (0:Disc.; 1:Connected)
DO	1	Low Wattage Heater 1 Control (0:OFF, 1:ON)
DO	2	Low Wattage Heater 2 Control (0:OFF, 1:ON)
DO	3	Low Wattage Heater 3 Control (0:OFF, 1:ON)
DO	4	Low Wattage Heater 4 Control (0:OFF, 1:ON)
DO	5	Low Wattage Heater 5A Control (0:OFF, 1:ON)
DO	6	Low Wattage Heater 5B Control (0:OFF, 1:ON)
DO	7	Low Wattage Heater 6A Control (0:OFF, 1:ON)
DO	8	Low Wattage Heater 6B Control (0:OFF, 1:ON)
DO	9	Air Bath Heater 1 Control (0:OFF, 1:ON)
DO	10	Air Bath Heater 2 Control (0:OFF, 1:ON)
DO	11	MMI_LED_NORMAL (0:OFF; 1:ON)
DO	12	MMI_LED_WARNING (0:OFF; 1:ON)
DO	13	MMI_LED_FAULT (0:OFF; 1:ON)

SNECON:

Type	Channel #	I/O Name
AO	1	FAN_SETPOINT
DI	1	FAN_RUNNING
DO	1	FAN_OVERRIDE

FID Controller:

Type	Chan #		I/O Name	
DETR	*1*	*2*	*FID Detector*	*TCD Detector*
DI	145	x	Flame Sense	Unused
DI	146	x	Ignite	Unused
DO	145	161	Enable Detector	
DO	146	162	Disable Balance	
DO	147	163	Balance Request	
DO	148	164	Simulate Signal	
DO	159	x	Disable Bias	Unused
DO	160	x	Manual Ignition	Unused
AI	1	17	Detector Signal	
AI	145	161	Balance Signal	
AO	145	161	Sample Period	
AO	146	162	Balance Limit	
V_DO	257	273	Invert Detector Signal	
V_AI	1	17	Detector Signal Normalized	
V_AI	145	161	Detector Balance Normalized	

TCD Controller

Type	Chan #		I/O Name	
DETR	*1*	*2*	*TCD Lower*	*TCD Upper*
DO	145	161	Enable Detector	
DO	146	162	Disable Balance	
DO	147	163	Balance Request	
DO	148	164	Simulate Signal	
AI	1	17	Detector Signal	
AI	145	161	Balance Signal	
AO	145	161	Sample Period	
AO	146	162	Balance Limit	
V_DO	257	273	Invert Detector Signal	
V_AI	1	17	Detector Signal Normalized	
V_AI	145	161	Detector Balance Normalized	

TCD Controller (REV 2 Board) or Advance Adapter TCD:

Type	Chan #		I/O Name	
DETR	*1*	*2*	*TCD Lower*	*TCD Upper*
DI	1	17	Tone Offset bit status	
DI	152	168	Unipolar detector data scaling (0:bipolar, 1:unipolar)	
DO	145	161	Enable Detector	
DO	146	162	Disable Balance	
DO	147	163	Balance Request	
DO	148	164	Simulate Signal	
DO	152	168	SCALE_INFO_TEST	
AI	1	17	Detector Signal	
AI	2	18	Range low (for detector data scaling)	
AI	3	19	Range high (for detector data scaling)	
AI	4	20	Spare (for detector data scaling)	
AI	5	21	Spare (for detector data scaling)	
AI	145	161	Balance Signal	
AO	145	161	Sample Period	
AO	146	162	Balance Limit	
V_DO	257	273	Invert Detector Signal	
V_AI	1	17	Detector Signal Normalized	
V_AI	145	161	Detector Balance Normalized	

Temperature Controller

Type	Chan #		I/O Name	
Temp Controller	*1*	*2*	*Channel 1*	*Channel 2*
DI	1	17	Heater On	
DI	2	18	Temperature Limit Reached	
DI	3	19	Over Temperature Shutdown	
DI	145	161	Temperature Channel Active	
DI	146	162	Temperature Ramp in Progress	
DO	145	161	Enable Temperature Control Channel	
DO	146	162	PWM Direct Enable	
AI	1	17	Measured Temperature	
AI	145	161	Target Temperature	
AI	146	162	Temperature Deviation	
AI	147	163	PID Derivative	
AI	148	164	PID Integrator	
AI	149	165	PWM Output	
AI	150	166	PID Output	
AO	1	17	Ramp Rate	
AO	2	18	Maximum Deviation	
AO	3	19	Set Point	
AO	145	161	KP	
AO	146	162	KD1	
AO	147	163	KI	
AO	148	164	KD2	
AO	149	165	PID Interval	
AO	150	166	Old Derivative Index	
AO	151	167	PWM Interval	
AO	152	168	Minimum Temperature	
AO	153	169	Maximum Temperature	
AO	154	170	RTD Calibration Gain	
AO	155	171	PWM Direct Output	

Advance Adapter Temperature Controller

Type	Chan #	I/O Name
Temp Controller	*1*	*Temperature Control Channel*
DI	1 (01h)	HEATER
DI	2 (02h)	T-LIMIT
DI	3 (03h)	OTS
DI	145 (91h)	RUNNING
DO	145 (91h)	RUN_ENABLE
AI	1 (01h)	TEMP_MEASURED
AI	145 (91h)	TEMP_TARGET
AI	146 (92h)	TEMP_DEVIATION
AO	2 (02h)	MAX_DEVIATION
AO	3 (03h)	SETPOINT
AO	153 (99h)	TEMP_MAX

Advance Adapter

Type	Channel #	Signal Names
DI	1	DI Channel 1
DI	2	DI Channel 2
DI	3	DI Channel 3
DI	4	DI Channel 4
DI	5	Purge Loss
DI	6	Heater
DI	7	Overtemp Shutdown
DI	8	Spare DI 1
DO	1	Relay #1
DO	2	Relay #2
DO	3	Relay #3
DO	4	Relay #4
DO	5	Relay #5
DO	6	Relay #6
DO	7	Relay #7
DO	8	Relay #8
DO	9	Alarm Output
DO	10	Spare DO 1
DO	11	Spare DO 2
DO	12	Spare DO 3
DO	13	Spare DO 4
DO	14	Spare DO 5
DO	15	Spare DO 6
DO	16	Spare DO 7

FID/FPD Card/Detector Interface Card

Type	Channel #	Signal Names
DI	1	Flame Sense
DO	4	Gain
AO	5	Detector Balance
AO	6	ITC Balance
V_DO	257	Simulate Detector Signal
V_DO	258	Simulate ITC Signal

Analog Output/Isolated Analog Output

Type	Channel #	Signal Names
AO	1	Channel 1
AO	2	Channel 2
AO	3	Channel 3
AO	4	Channel 4

Analog Input

Type	Channel #	Signal Names
AI	1	Channel 1
AI	2	Channel 2
AI	3	Channel 3
AI	4	Channel 4

Hardware ID Address, Continued

Digital Output

Type	Channel #	Signal Names
DO	1	Channel 1
DO	2	Channel 2
DO	3	Channel 3
DO	4	Channel 4
DO	5	Channel 5
DO	6	Channel 6
DO	7	Channel 7
DO	8	Channel 8

Digital Input

Type	Channel #	Signal Names
DI	1	Channel 1
DI	2	Channel 2
DI	3	Channel 3
DI	4	Channel 4
DI	5	Channel 5
DI	6	Channel 6
DI	7	Channel 7
DI	8	Channel 8

TC3 (Dual Temperature Controller)

Type	Channel #	Signal Names
AI	1	Temperature of Channel A
AI	2	Temperature Deviation
AI	3	Temperature Set Point
AI	4	Full scale (+10V) Reference
AI	5	Temperature of Channel B
AI	6	Temperature Deviation
AI	7	Temperature Set Point
AI	8	Minimum Temperature
DI	9	Channel A Ramp Active
DI	10	Channel B Ramp Active
DI	11	Over Temperature Alarm
DI	12	Unused
AO	13	Channel A Initial Temperature
AO	14	Channel A Final Temperature
AO	15	Channel A Ramp Rate
AO	16	Channel B Initial Temperature
AO	17	Channel B Final Temperature
AO	18	Channel B Ramp Rate
AO	19	Unused
AO	20	Unused
DO	21	Channel A Start Ramp
DO	22	Channel B Start Ramp
DO	23	Unused
DO	24	Unused

Method Development

Description

A ***method*** is the part of the application that contains the parameters for controlling the hardware during a cycle and instructions on how to turn chromatograms into results. Through sequences, methods are associated with streams. There is one active method per application and one cycle clock per applications

Typical Method Development Cycle

Help File

EZChrom Online Help

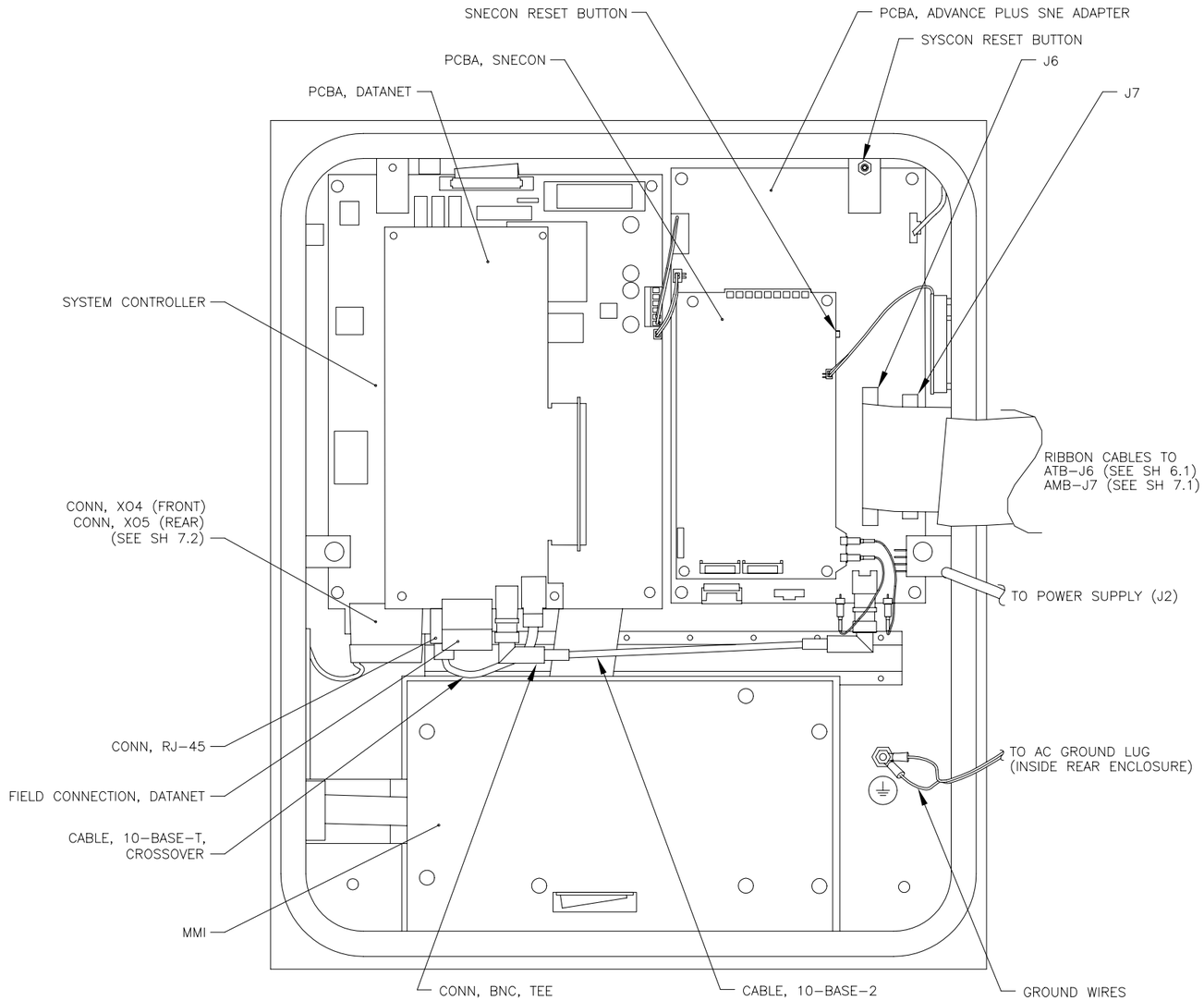
The following procedure is one of many ways that you can use Advance EZChrom to develop a method. Detailed information on Method Development can be found in the EZChrom Online Help Manual or in the EZChrom Elite documentation.

Step	Procedure
1.	Create a new method: **FILE | METHOD | NEW, or** **| NEW METHOD.**
2.	Go to METHOD | INSTRUMENT SETUP, locate the tabs for the detectors, e.g., TCD L1, and fill in acquisition start and stop times for the detectors you wish to use. Manual adjustment of the injection lag time and cycle time may also be necessary (see EZChrom Elite documentation for further details).
3.	Go to the VALVES and EVENTS tabs and add the appropriate valve switching and event execution scheduling.
4.	Save the method to a file: **FILE | METHOD | SAVE, or** **| SAVE METHOD.**
5.	Export the method to the analyzer: **FILE | METHOD | EXPORT, or** **| EXPORT METHOD.**
6.	Create a new online sequence: **File | Online Sequence | New, or** **| New Online Sequence.**
7.	Edit the online sequence**: SEQUENCE | ONLINE SEQUENCE | EDIT**, or , if the editing window is not already open.
8.	Pair up streams with the new method.
9.	Save the online sequence to a file: **File | Online Sequence | Save**, or **| Save Online Sequence**.

Method Development, Continued

Step	Procedure
10.	Export the online sequence to the analyzer**: FILE | ONLINE SEQUENCE | EXPORT,** or **| EXPORT ONLINE SEQUENCE**.
11.	Go to CONTROL | APPLICATION to display the application monitoring and control tool. If the button says HOLD, click on it to put the application in *Run* mode, then wait until the end of the cycle.
12.	Import the acquired chromatogram: **FILE | DATA | IMPORT**, or **| IMPORT DATA**.
13.	Refine your valve, events and data acquisitiion times in **METHOD | INSTRUMENT SETUP. REPEAT STEP 12 AND 13 UNTIL YOU HVE THE DESIRED CHROMATOGRAMS,**
14.	For every chromatogram channel, set the appropriate peak width and threshold (see EZChrom Elite documentation for further details).
15.	Integrate the chromatogram with **ANALYSIS | ANALYZE**, or .
16.	Adjust the integration methods for each channel, until the desired result is obtained (see EZChrom Elite documentation for further details).
17.	Identify the peaks you wish to quantify in each chromatogram channel by clicking or (see EZChrom Elite documentation for further details). Be sure to renumber the peak IDs for multi-detector methods.
18.	Save the acquired chromatogram to a file: **FILE | DATA| SAVE AS, or | SAVE DATA AS.**
19.	Save the method: **FILE | METHOD | SAVE, or | SAVE METHOD.**
20.	At this point, you may wish to calibrate your method with the imported data. Go to ANALYSIS | ANALYSIS/SINGLE LEVEL CALIBRATION, check the CALIBRATE checkbox and fill out the rest of the dialog box (see EZChrom Elite documentation for further details).
21.	Re-export the method and overwrite the previous one on the analyzer.

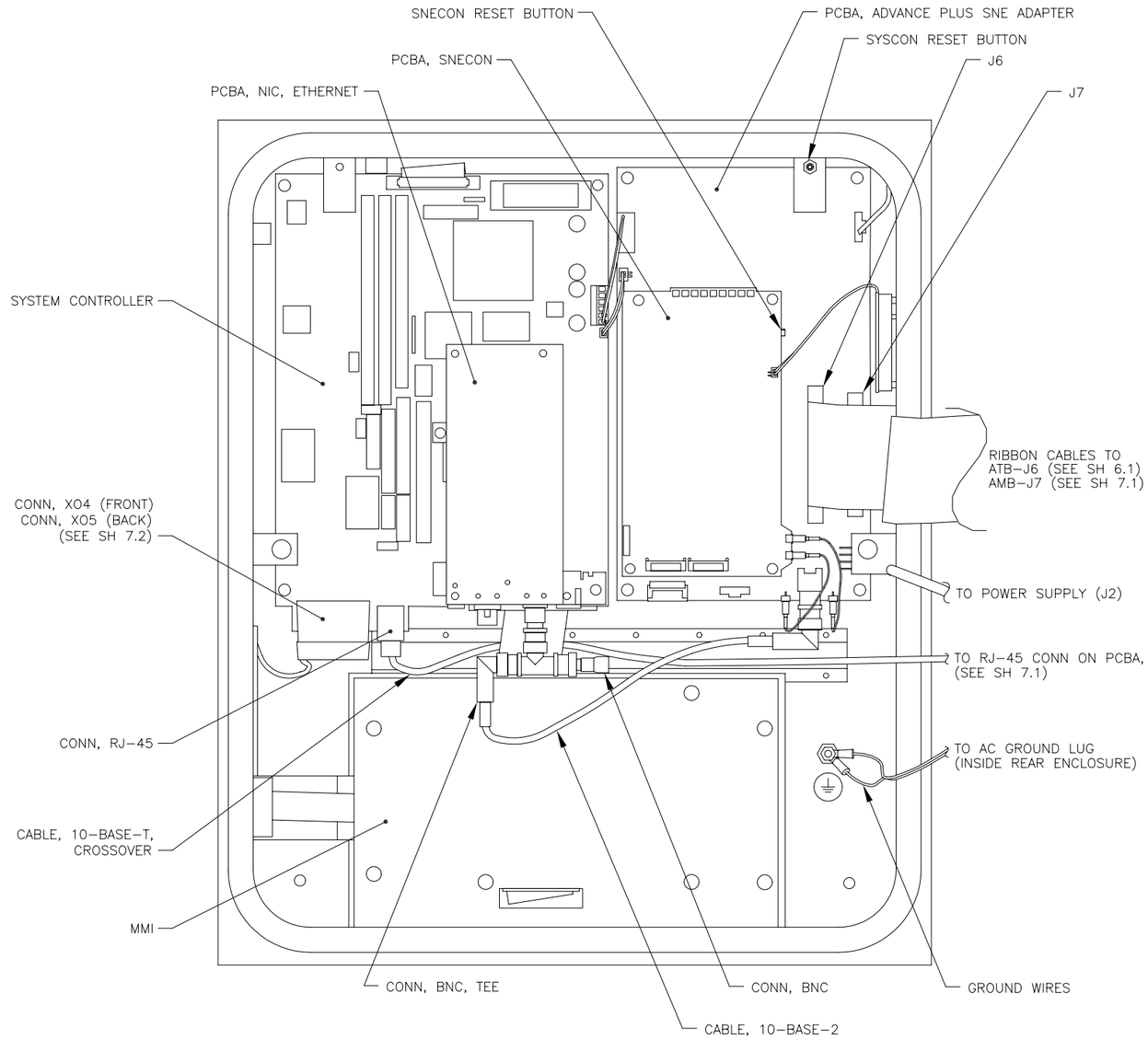
Siemens Applied Automation
500 Highway 60 West, Bartlesville, OK 74003
Phone 918-662-7000, Fax 918-662-7052



INSIDE FRONT COVER VIEW

ANCB & DATANET COPPER (2017944–004)

A412



INSIDE FRONT COVER VIEW

ETHERNET PLUS EI/ADH (2017944–006)

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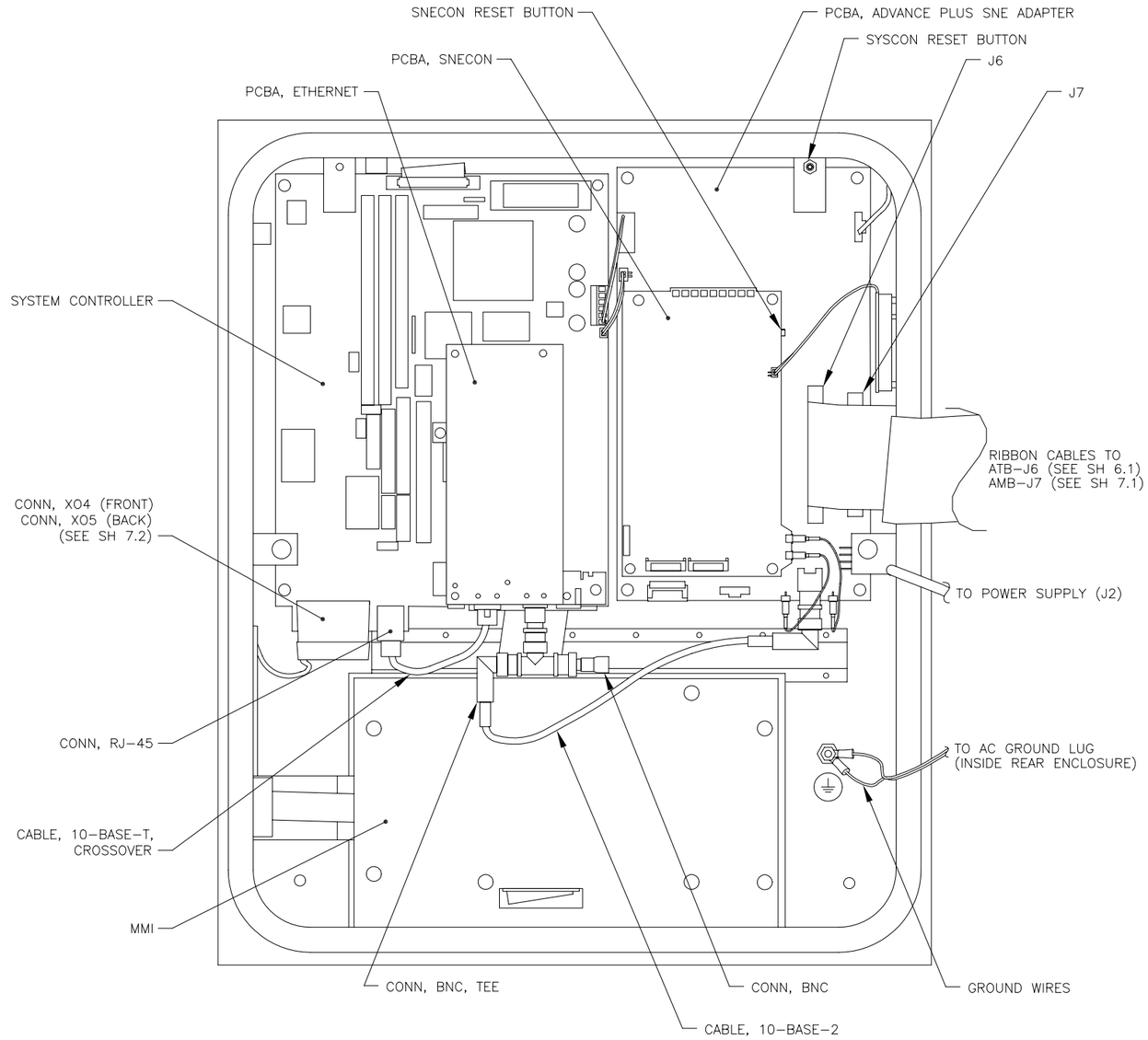

INSIDE FRONT COVER VIEW

NO NETWORK (2017944–001)

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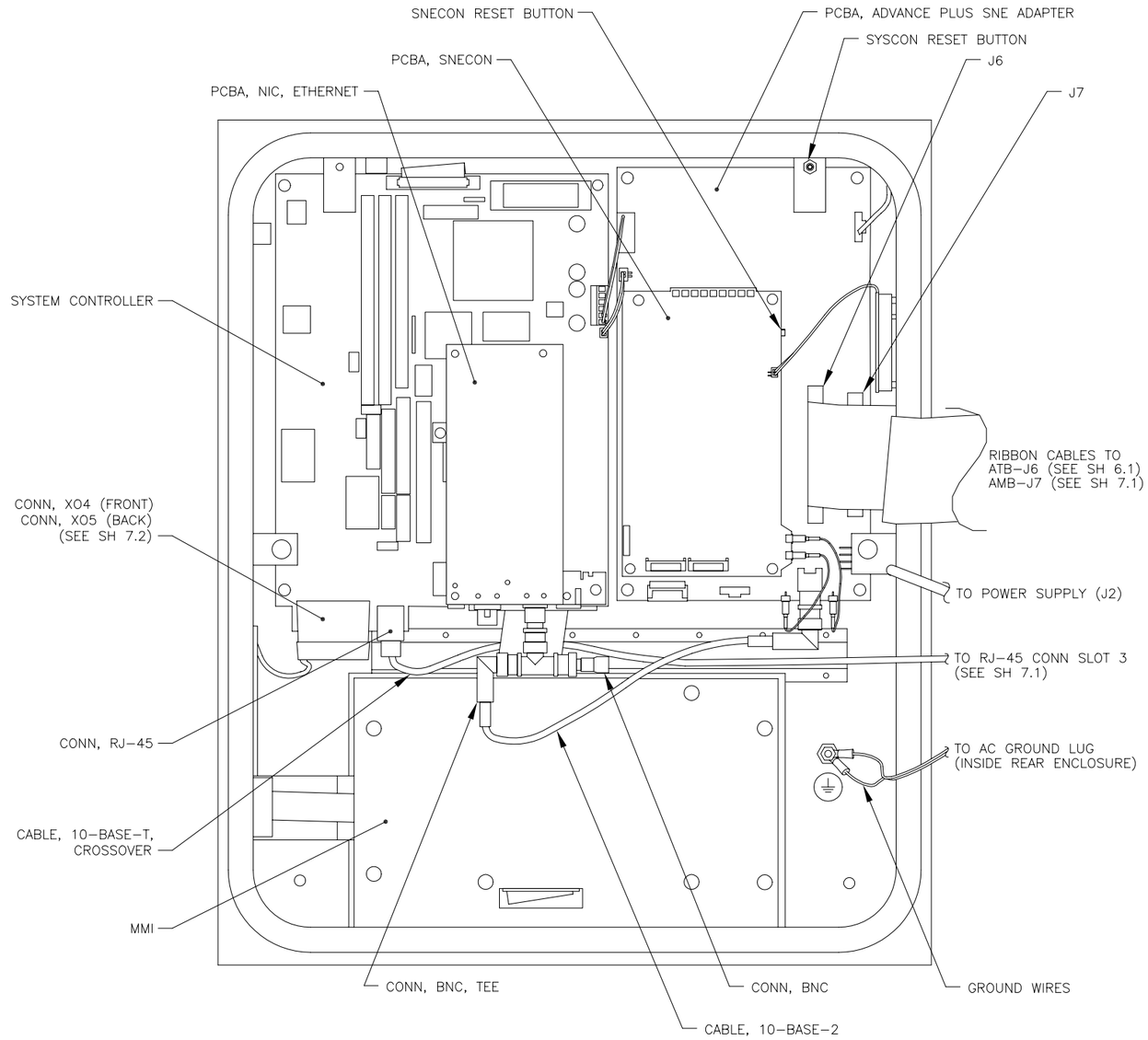
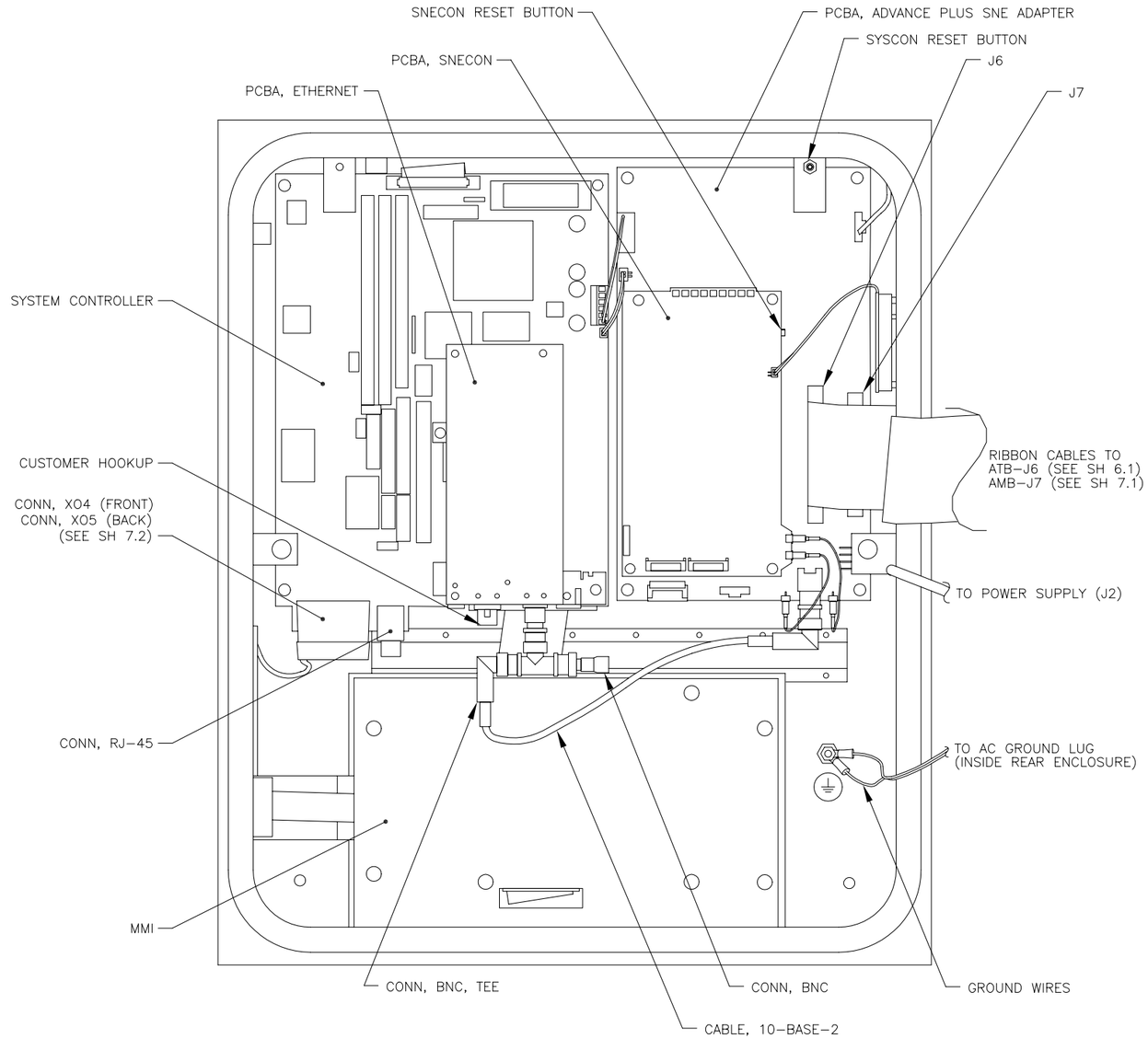


INSIDE FRONT COVER VIEW

ANCB & ADH (2017944–003)

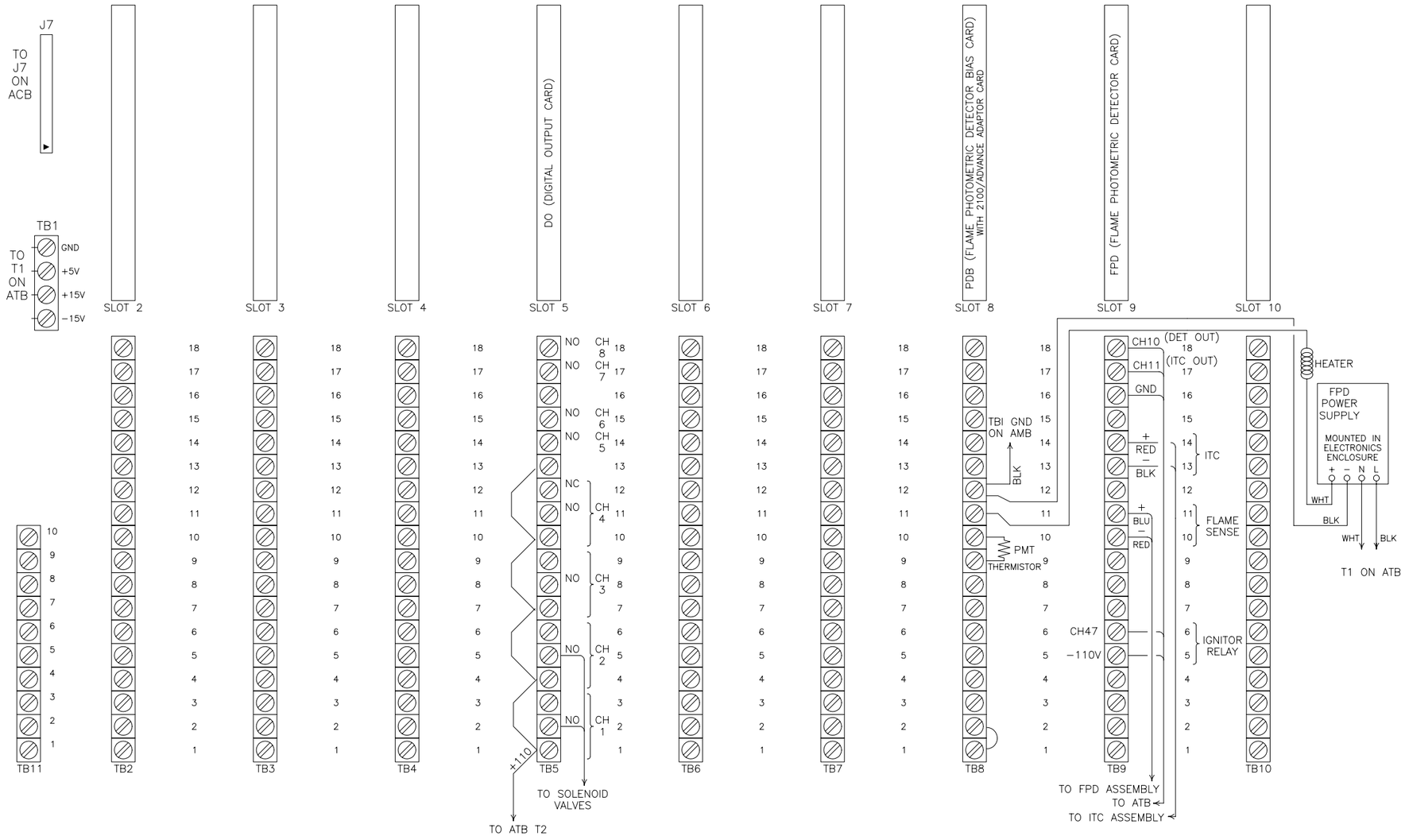
A412



INSIDE FRONT COVER VIEW

ETHERNET 10–BASE–T (2017944–002)

A412



INPUT/OUTPUT REFERENCE LIST

CARD TYPE	SLOT No.	CH No.	DESCRIPTION
*DO1	5	1	ARV−A A &B
		2	STREAM 1 CASE 1 AV1
		3	STREAM 1 CASE 2 AV2
		4	LOW CAL CASE 1 AV30
		5	HIGH CAL CASE 1 AV31
		6	LOW CAL CASE 2 AV32
		7	HIGH CAL CASE 2 AV33
		8	CASE SELECT AV3

CARD STRAPPING

FPD Wiring

NOTES: UNLESS STATED OTHERWISE

1. WIRING SHOWN AS A DASHED LINE IS CONNECTED IN THE FIELD. SEE THE UTILITY/BLOCK DIAGRAM (SHEET 2) FOR WIRE SPECIFICATIONS.
2. FOR CARDS WITH STRAPPING INFORMATION BELOW PLEASE SEE SHEET 7.2

UNIT & LOOP No. ASSIGNMENT

UNIT No. 1
DIP SWITCH U26
LOCATION E3

LOOP No. 1
DIP SWITCH U52
LOCATION F5

"ON" = BIT VALUE OF 0

ON|OFF

G802A71B

Siemens Applied Automation, Inc.

MASTERBOARD WIRING DIAGRAM

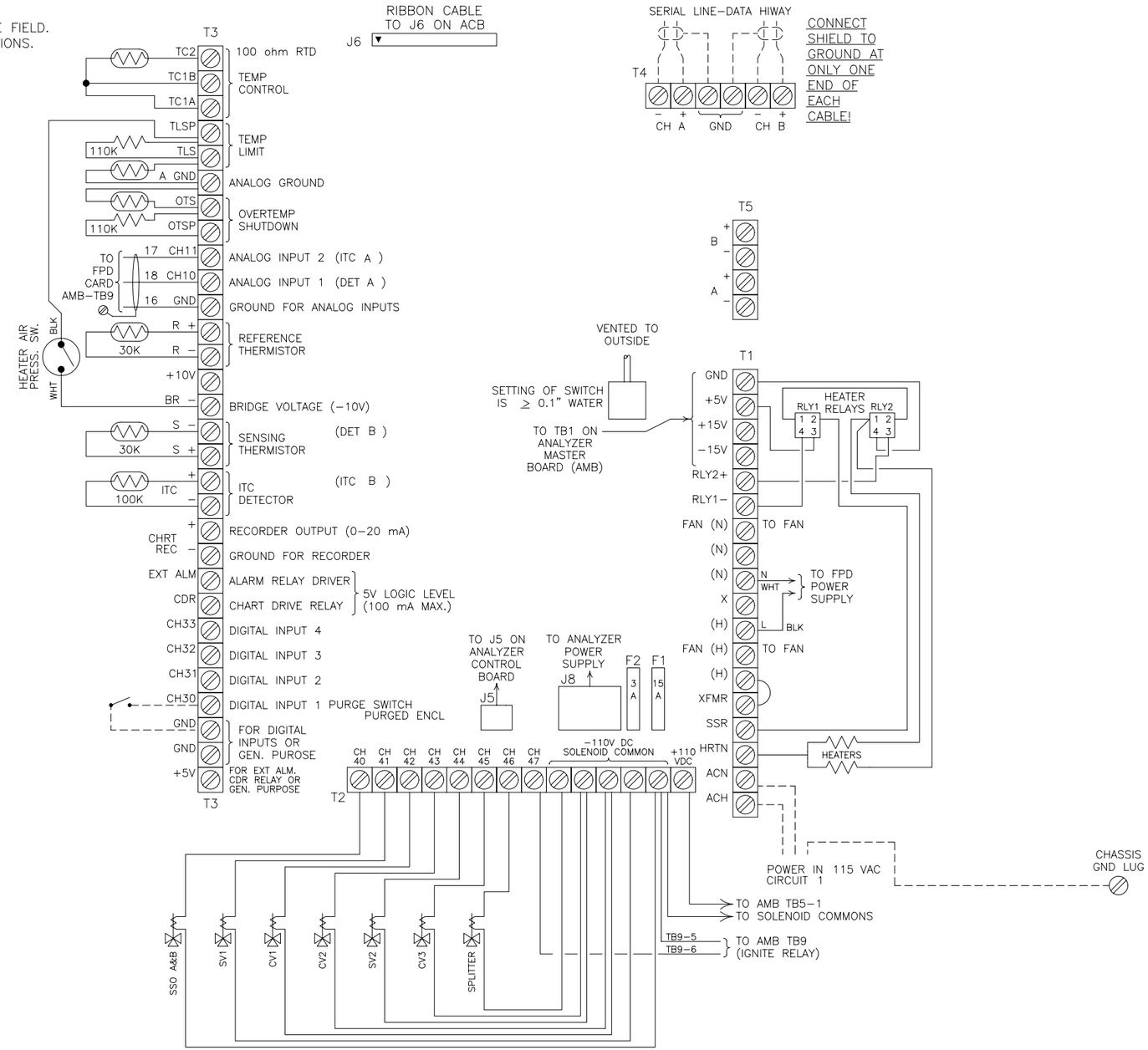
REV. CODE	
0	

USER			PURCHASER	SHEET NO.	PAGE
EXXON MOBIL	HPBL ANALYZER PROJECT	-		7.1	1 of 1
LOCATION	TAG		P. O.	PROJECT	JOB
BATON ROUGE, LA.			01441775−00	308549	3085490101

NOTES: UNLESS STATED OTHERWISE

1. IF WIRING IS SHOWN AS A DASHED LINE, IT IS CONNECTED IN THE FIELD. SEE THE UTILITY/BLOCK DIAGRAM (SHEET 2) FOR WIRE SPECIFICATIONS.

TCD Wiring Diagram



G802A61B	Siemens Applied Automation, Inc.				
		REV. CODE 0	ANALYZER TERMINATION BOARD WIRING DIAGRAM		
USER EXXON MOBIL	HPBL ANALYZER PROJECT	-	PURCHASER	SHEET NO. 6.1	PAGE 1 of 1
LOCATION BATON ROUGE, LA.	TAG		P. O. 01441775–00	PROJECT 308549	JOB 3085490101