



## Introduction

### Purpose

This manual provides instructions to setup Gilbarco® CRIND® and MPD® units (including blenders) and Wayne® pumps and Customer Activated Terminal (CAT) to interface with the Gasboy® Islander™/PLUS system. The interface allows the PLUS system to connect directly to a pump or Generic CRIND/CAT, or through the Gilbarco Universal Distribution Box (D-Box) or competitive pump box unit (recommended setup).

The PLUS system can control up to eight CRINDs per RS-422 board, and a total of 16 CRINDs per Gasboy PLUS system using either single-line CRINDs/mono graphic displays, or a combination of the two.

The PLUS system can control up to eight fueling MPDs/blenders per RS-422 board.

### Intended Users

This manual is intended for Authorized Service Contractors (ASCs), trained certified technicians, and field engineering personnel who need proper information to setup Gilbarco CRIND devices with Gasboy PLUS systems. This manual is intended to be a ***GUIDELINE*** and the need for the additional references as to the Fleet PLUS manuals is essential.

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## Software Requirements

To control the CRINDs/blenders with the Gasboy PLUS system, version 6.4.49.018 or later is required in the SiteOmat. For information about installing Board Support Package (BSP) and SO versions, refer to *MDE-4817 SiteOmat In-House Station Controller Setup and Maintenance Manual*.

Following table lists the versions required for the CRIND readers:

Device	Required Version
BSP	1.08 Service Pack 11 or later
SiteOmat	V6.4.49.018 or later
Payment Application Interface Service (PAIS)	V4.31.1.67 or later
Pump Server	V7.85 or later
Minimum CRIND Basic Input/Output System (BIOS) Version for Monochrome	15.1.70
Minimum CRIND BIOS Version for Single-line	60.9.40

## Related Documents

Document Number	Title	GOLD <sup>SM</sup> Library
<b>SiteOmat Version 6.4.X.X</b>		
MDE-4811	Islander PLUS and ICR PLUS Installation Manual	Gasboy Fleet PLUS System
MDE-4813	CFN <sup>®</sup> Plus Installation Manual	Gasboy Fleet PLUS System
MDE-4817	SiteOmat In-House Station Controller Setup and Maintenance Manual	Gasboy Fleet PLUS System
MDE-4818	SiteOmat In-House Station Controller User's Manual	Gasboy Fleet PLUS System
MDE-4820	8-Port Commverter Operation and Installation Manual	Gasboy Fleet PLUS System
MDE-4821	Fleet Head Office System and Fuel Management Software Installation and User's Manual	Gasboy Fleet PLUS System
PT-1963	Gasboy Illustrated Spare Parts Manual	Gasboy Fleet PLUS systems
<b>Miscellaneous</b>		
MDE-2562	MPD-3 and The Advantage <sup>®</sup> Series Single-Line CRIND, CRIND with Monochrome LCD, Infoscreen <sup>®</sup> , External CRIND, C-PAM <sup>™</sup> CRIND Service Manual	<ul style="list-style-type: none"> <li>• Service Manual</li> <li>• CRIND and TRIND<sup>®</sup></li> </ul>
MDE-2597	Gilbarco Security Module (GSM) PA0258000XXXX - Installation and Service Instructions	POS Peripheral Devices
MDE-2713	Universal Distribution Box (D-Box) - Installation Manual	<ul style="list-style-type: none"> <li>• POS Peripheral Devices</li> <li>• Advantage and Legacy Models</li> </ul>
MDE-4185	CRIND Encore <sup>®</sup> 700 S Electronics CRIND BIOS Configuration Interface Manual	<ul style="list-style-type: none"> <li>• CRIND and TRIND</li> <li>• Encore and Eclipse<sup>®</sup></li> </ul>
MDE-4318	Passport <sup>®</sup> Competitive Pump and CRIND (CPC) Hardware/Software Start-up and Service Manual	Competitive Pump and CRIND

## Abbreviations and Acronyms

Term	Description
ASC	Authorized Service Contractor
BIOS	Basic Input/Output System
BSP	Board Support Package
C-PAM	Competitive Pump Access Module
CAT	Customer Activated Terminal
CAT-5	Category-5
CPC	<ul style="list-style-type: none"><li>• Competitive Pump and CRIND</li><li>• Competitive Pump Controller</li></ul>
CPU	Central Processing Unit
CRIND	Card Reader in Dispenser
D-Box	Distribution Box
FHO	Fleet Head Office
GOLD	Gilbarco Online Documentation
GSM	Gilbarco Security Module
MPD	Multi Product Dispenser
OPT	Outdoor Payment Terminal
OrPT	Orpak™ Payment Terminal
OS	Operating System
PAIS	Payment Application Interface Service
POS	Point of Sale
TRIND	Transmitter/Receiver in Dispenser

# Important Safety Information

**Notes:** 1) *Save this Important Safety Information section in a readily accessible location.*

2) *Although DEF is non-flammable, Diesel is flammable. Therefore, for DEF cabinets that are attached to Diesel dispensers, follow all the notes in this section that pertain to flammable fuels.*

This section introduces the hazards and safety precautions associated with installing, inspecting, maintaining or servicing this product. Before performing any task on this product, read this safety information and the applicable sections in this manual, where additional hazards and safety precautions for your task will be found. Fire, explosion, electrical shock or pressure release could occur and cause death or serious injury, if these safe service procedures are not followed.

## Preliminary Precautions

You are working in a potentially dangerous environment of flammable fuels, vapors, and high voltage or pressures. Only trained or authorized individuals knowledgeable in the related procedures should install, inspect, maintain or service this equipment.

## Emergency Total Electrical Shut-Off

The first and most important information you must know is how to stop all fuel flow to the pump/dispenser and island. Locate the switch or circuit breakers that shut off all power to all fueling equipment, dispensing devices, and Submerged Turbine Pumps (STPs).

### WARNING



The EMERGENCY STOP, ALL STOP, and PUMP STOP buttons at the cashier's station WILL NOT shut off electrical power to the pump/dispenser. This means that even if you activate these stops, fuel may continue to flow uncontrolled.



You must use the TOTAL ELECTRICAL SHUT-OFF in the case of an emergency and not the console's ALL STOP and PUMP STOP or similar keys.

## Total Electrical Shut-Off Before Access

Any procedure that requires access to electrical components or the electronics of the dispenser requires total electrical shut off of that unit. Understand the function and location of this switch or circuit breaker before inspecting, installing, maintaining, or servicing Gasboy equipment.

## Evacuating, Barricading and Shutting Off

Any procedure that requires access to the pump/dispenser or STPs requires the following actions:



- An evacuation of all unauthorized persons and vehicles from the work area
- Use of safety tape, cones or barricades at the affected unit(s)
- A total electrical shut-off of the affected unit(s)

## Read the Manual

Read, understand and follow this manual and any other labels or related materials supplied with this equipment. If you do not understand a procedure, call the Gasboy Service Center at 1-800-444-5529. It is imperative to your safety and the safety of others to understand the procedures before beginning work.

## Follow the Regulations

Applicable information is available in National Fire Protection Association (NFPA) 30A; *Code for Motor Fuel Dispensing Facilities and Repair Garages*, NFPA 70; *National Electrical Code (NEC)*, Occupational Safety and Health Administration (OSHA) regulations and federal, state, and local codes. All these regulations must be followed. Failure to install, inspect, maintain or service this equipment in accordance with these codes, regulations and standards may lead to legal citations with penalties or affect the safe use and operation of the equipment.

## Replacement Parts

Use only genuine Gasboy replacement parts and retrofit kits on your pump/dispenser. Using parts other than genuine Gasboy replacement parts could create a safety hazard and violate local regulations.

## Safety Symbols and Warning Words

This section provides important information about warning symbols and boxes.

### Alert Symbol



This safety alert symbol is used in this manual and on warning labels to alert you to a precaution which must be followed to prevent potential personal safety hazards. Obey safety directives that follow this symbol to avoid possible injury or death.

### Signal Words

These signal words used in this manual and on warning labels tell you the seriousness of particular safety hazards. The precautions below must be followed to prevent death, injury or damage to the equipment:



**DANGER:** Alerts you to a hazard or unsafe practice which will result in death or serious injury.



**WARNING:** Alerts you to a hazard or unsafe practice that could result in death or serious injury.



**CAUTION** with Alert symbol: Designates a hazard or unsafe practice which may result in minor injury.

**CAUTION** without Alert symbol: Designates a hazard or unsafe practice which may result in property or equipment damage.

## Working With Fuels and Electrical Energy

### Prevent Explosions and Fires

Fuels and their vapors will explode or burn, if ignited. Spilled or leaking fuels cause vapors. Even filling customer tanks will cause potentially dangerous vapors in the vicinity of the dispenser or island.

DEF is non-flammable. Therefore, explosion and fire safety warnings do not apply to DEF lines.

## No Open Fire



Open flames from matches, lighters, welding torches or other sources can ignite fuels and their vapors.

## No Sparks - No Smoking



Sparks from starting vehicles, starting or using power tools, burning cigarettes, cigars or pipes can also ignite fuels and their vapors. Static electricity, including an electrostatic charge on your body, can cause a spark sufficient to ignite fuel vapors. Every time you get out of a vehicle, touch the metal of your vehicle, to discharge any electrostatic charge before you approach the dispenser island.

## Working Alone

It is highly recommended that someone who is capable of rendering first aid be present during servicing. Familiarize yourself with Cardiopulmonary Resuscitation (CPR) methods, if you work with or around high voltages. This information is available from the American Red Cross. Always advise the station personnel about where you will be working, and caution them not to activate power while you are working on the equipment. Use the OSHA Lockout/Tagout procedures. If you are not familiar with this requirement, refer to this information in the service manual and OSHA documentation.

## Working With Electricity Safely

Ensure that you use safe and established practices in working with electrical devices. Poorly wired devices may cause a fire, explosion or electrical shock. Ensure that grounding connections are properly made. Take care that sealing devices and compounds are in place. Ensure that you do not pinch wires when replacing covers. Follow OSHA Lockout/Tagout requirements. Station employees and service contractors need to understand and comply with this program completely to ensure safety while the equipment is down.

## Hazardous Materials

Some materials present inside electronic enclosures may present a health hazard if not handled correctly. Ensure that you clean hands after handling equipment. Do not place any equipment in the mouth.

### WARNING

The pump/dispenser contains a chemical known to the State of California to cause cancer.

### WARNING

The pump/dispenser contains a chemical known to the State of California to cause birth defects or other reproductive harm.

## In an Emergency

### Inform Emergency Personnel

Compile the following information and inform emergency personnel:

- Location of accident (for example, address, front/back of building, and so on)
- Nature of accident (for example, possible heart attack, run over by car, burns, and so on)
- Age of victim (for example, baby, teenager, middle-age, elderly)
- Whether or not victim has received first aid (for example, stopped bleeding by pressure, and so on)
- Whether or not a victim has vomited (for example, if swallowed or inhaled something, and so on)

### WARNING



Gasoline/DEF ingested may cause unconsciousness and burns to internal organs. Do not induce vomiting. Keep airway open. Oxygen may be needed at scene. Seek medical advice immediately.

### WARNING

DEF generates ammonia gas at higher temperatures. When opening enclosed panels, allow the unit to air out to avoid breathing vapors. If respiratory difficulties develop, move victim away from source of exposure and into fresh air. If symptoms persist, seek medical attention.

### WARNING



Gasoline inhaled may cause unconsciousness and burns to lips, mouth and lungs. Keep airway open. Seek medical advice immediately.

### WARNING



Gasoline/DEF spilled in eyes may cause burns to eye tissue. Irrigate eyes with water for approximately 15 minutes. Seek medical advice immediately.

### WARNING



Gasoline spilled on skin may cause burns. Wash area thoroughly with clear water. Seek medical advice immediately.

### WARNING

DEF is mildly corrosive. Avoid contact with eyes, skin, and clothing. Ensure that eyewash stations and safety showers are close to the work location. Seek medical advice recommended treatment if DEF spills into eyes.

**IMPORTANT:** Oxygen may be needed at scene if gasoline has been ingested or inhaled. Seek medical advice immediately.

### Lockout/Tagout

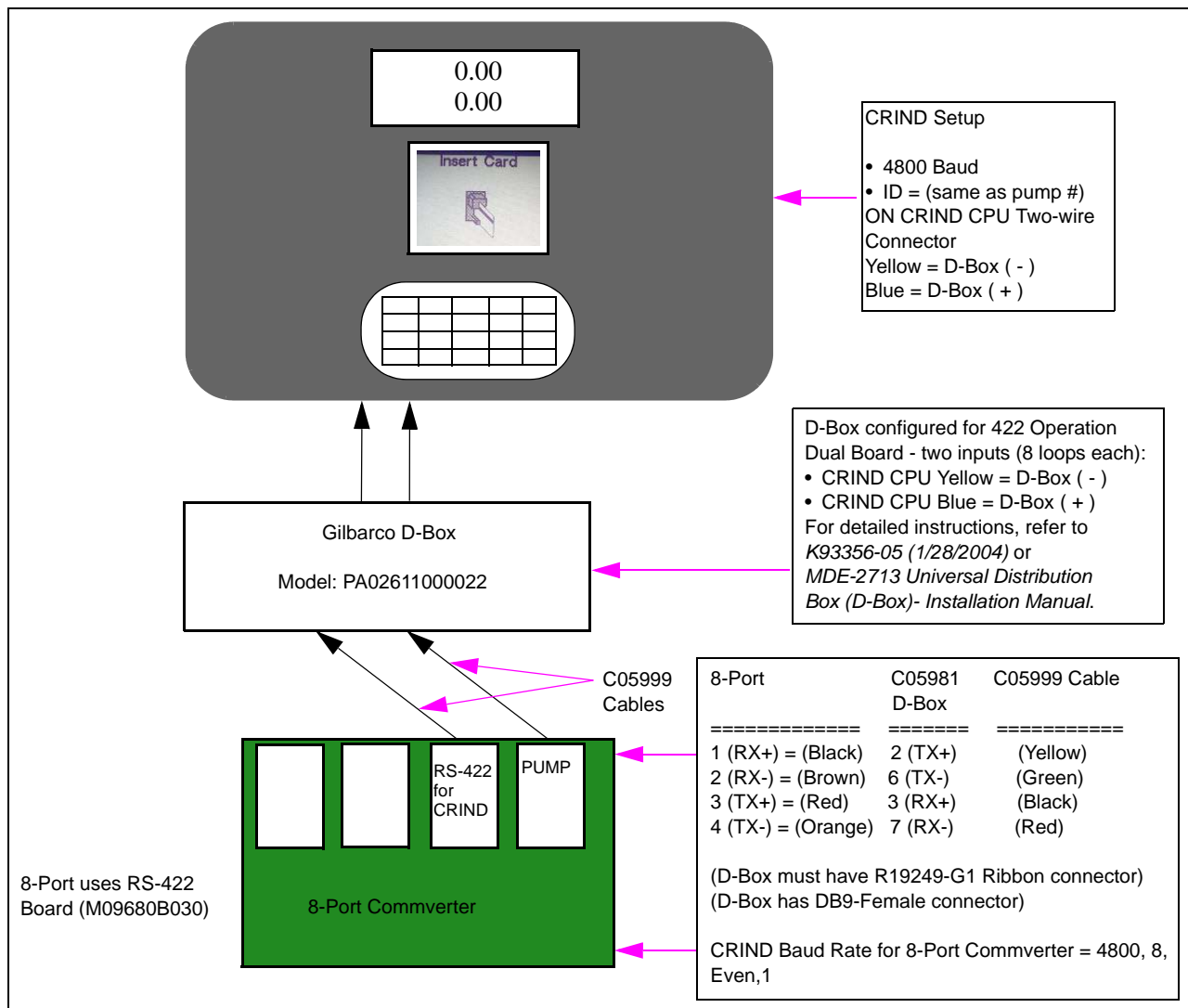
Lockout/Tagout covers servicing and maintenance of machines and equipment in which the unexpected energization or start-up of the machine(s) or equipment or release of stored energy could cause injury to employees or personnel. Lockout/Tagout applies to all mechanical, hydraulic, chemical or other energy, but does not cover electrical hazards. Subpart S of 29 CFR Part 1910 - Electrical Hazards, 29 CFR Part 1910.333 contains specific Lockout/Tagout provision for electrical hazards.

# Hardware Connections

## Wiring Diagrams

Figure 1 shows the layout and wiring for the CRIND interface.

**Figure 1: Wiring Diagram for CRIND Interface**



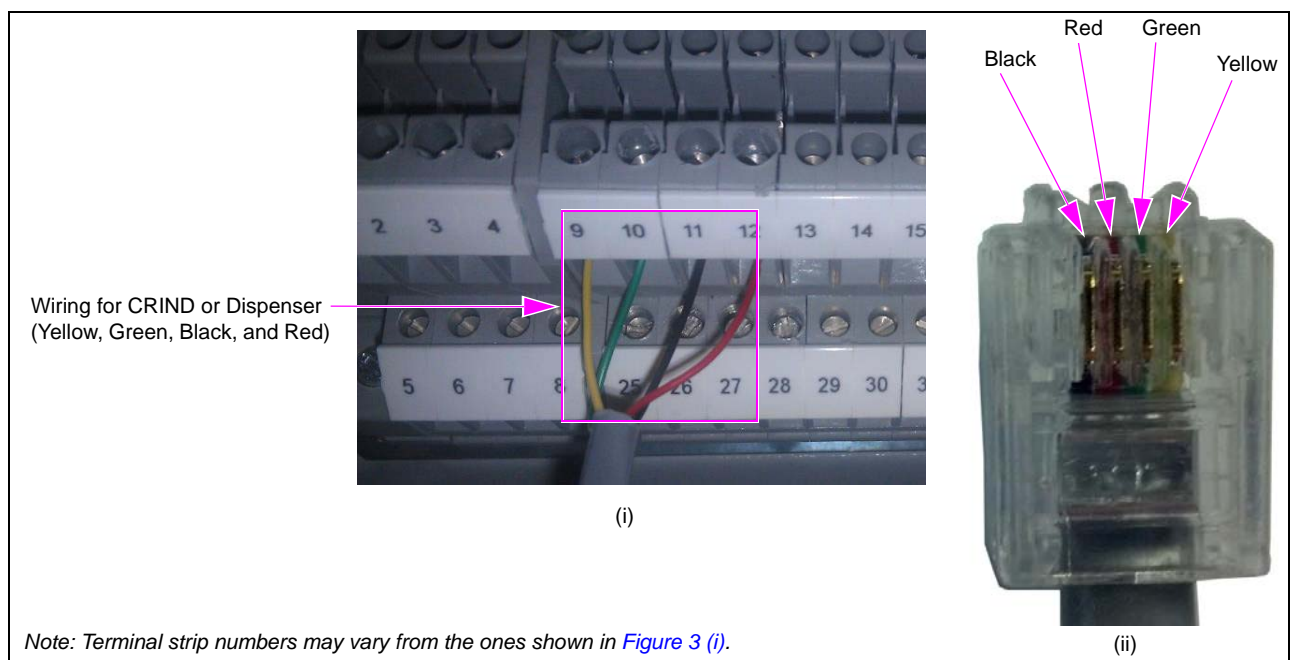
## PLUS Terminal Block - Electronic Unit

Figure 2: PLUS Terminal Block



*Note: When you disconnect the wiring from the SC3, you can **cut** the RJ11 end from the cable and strip back a short amount of each wire. Connect these wires into the appropriate terminal block of the Islander PLUS system as shown in [Figure 3](#).*

Figure 3: Wiring for CRIND and Dispenser



Position the RJ11 connector of the Serial Communication Cable (C05999) with the tab down and look at the wires. You need to use the end that has the wiring (from left to right) as BLK/RED/GRN/YEL.

- Notes: 1) For orientation of cable and connector, see [Figure 3 \(ii\) on page 7](#).  
2) If the connector does not match with [Figure 3 on page 7](#), you may have the wrong end of the cable. Check the connector on the other end.

## PLUS Electronic - CRIND and Dispenser

[Figure 4](#) displays the wiring chart for PLUS electronic - CRIND and dispenser.

**Figure 4: PLUS Electronic - CRIND and Dispenser - Wiring Chart**

OrCU 3000 TERMINAL BLOCK ELECTRONIC PUMP									
1	BARRIER 1+								
2	BARRIER 2+								
3	BARRIER 3+								
4	BARRIER 4+								
5	BARRIER 1-								
6	BARRIER 2-								
7	BARRIER 3-								
8	BARRIER 4-								
TB#	P#	RS-485	RS-232	TOKHEIM	CURRENT L	RS-422	NUOVO	PUMA	CETIL
9	P1-1	+	TX	TTD	+	R+	RX1+	RX	Y1
10	P1-2	-	RX	TTC	-	R-	RX1-	TX	Z1
11	P1-3	G	DI/O	COM	G	T+	TX1+	G	E
12	P1-4		G	G		T-	TX1-	E	
13	P1-5	+	TX	TTD	+	G	RX2+	RX	Y2
14	P1-6	-	RX	TTC	-		RX2-	TX	Z2
15	P1-7	G	DI/O	COM	G		TX2+	G	E
16	P1-8		G	G			TX2-	E	
17	P2-1	+	TX	TTD	+	R+	RX1+	RX	Y1
18	P2-2	-	RX	TTC	-	R-	RX1-	TX	Z1
19	P2-3	G	DI/O	COM	G	T+	TX1+	G	E
20	P2-4		G	G		T-	TX1-	E	
21	P2-5	+	TX	TTD	+	G	RX2+	RX	Y2
22	P2-6	-	RX	TTC	-		RX2-	TX	Z2
23	P2-7	G	DI/O	COM	G		TX2+	G	E
24	P2-8		G	G			TX2-	E	
25	P3-1	+	TX	TTD	+	R+	RX1+	RX	Y1
26	P3-2	-	RX	TTC	-	R-	RX1-	TX	Z1
27	P3-3	G	DI/O	COM	G	T+	TX1+	G	E
28	P3-4		G	G		T-	TX1-	E	
29	P3-5	+	TX	TTD	+	G	RX2+	RX	Y2
30	P3-6	-	RX	TTC	-		RX2-	TX	Z2
31	P3-7	G	DI/O	COM	G		TX2+	G	E

where:  
TB#: Terminal Block Number  
P#: Pump Number. P1 and P2 are pump 1 and pump 2 connections respectively  
RS-422: Connections required

Following table shows electronic wiring from DB9M to RS-422 terminal strip:

Plus Controller	Mechanical Unit	CRIND/Pump Interface
DB9M Pin 2	RJ11	R+ on Terminal Strip
DB9M Pin 6	RJ11	R- on Terminal Strip
DB9M Pin 3	RJ11	T+ on Terminal Strip
DB9M Pin 7	RJ11	T- on Terminal Strip

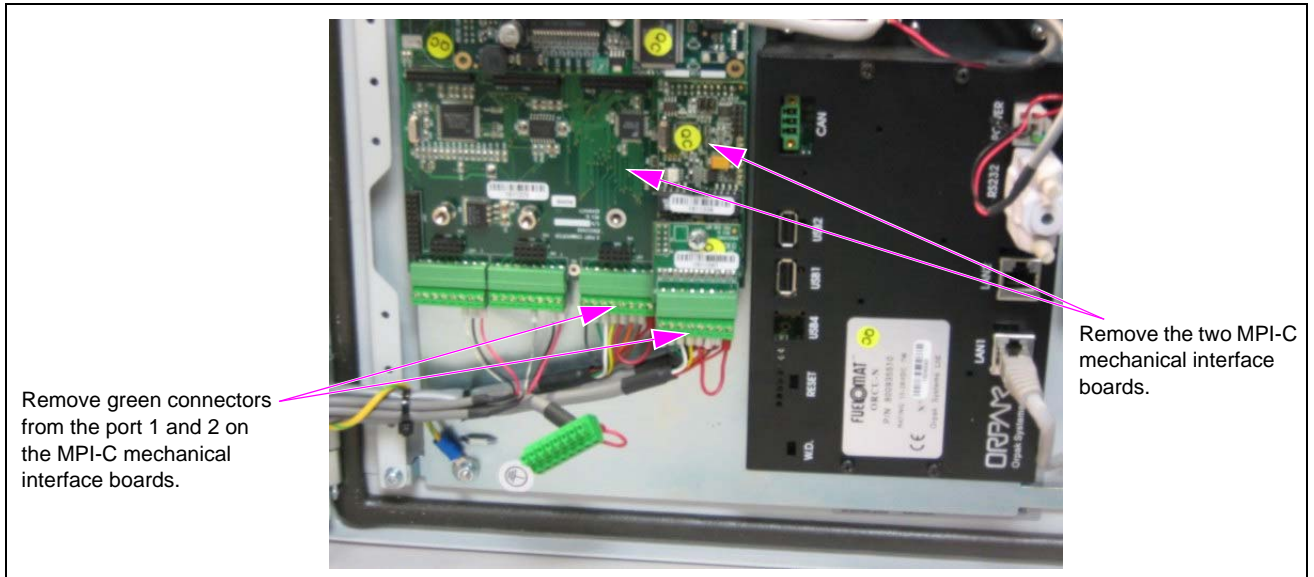


## PLUS Controller - Mechanical Unit

Following steps explain the installation process of updating a PLUS controller that is set up for mechanical pumps to allow Gilbarco CRINDs and MPDs to communicate.

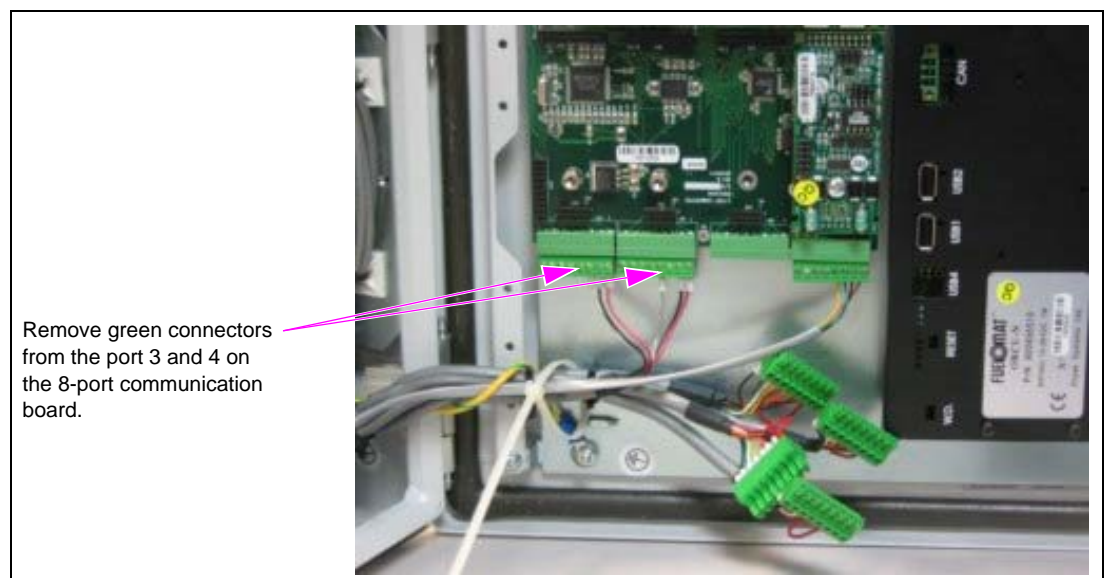
- 1 Locate and remove the two green connectors from the two MPI-C mechanical interface boards located in port 1 and 2 on the bottom right-hand side of the 8-port communication board. Remove the two MPI-C mechanical interface boards (see [Figure 5](#)).

**Figure 5: Removing Green Connectors and MPI-C Mechanical Interface Boards**



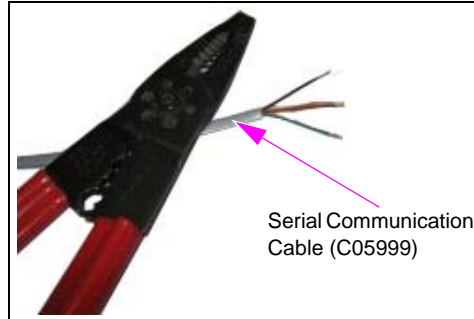
- 2 Locate the two green connectors on ports 3 and 4 on the bottom left-hand side of the 8-port communication board (see [Figure 6](#)) and remove the three wires from each green connector. These two connectors will be used for the new Serial Communication Cable (C05999) for the two RS-422 boards that will be installed in port 1 and 2.

**Figure 6: Removing Green Connectors from Ports 3 and 4**



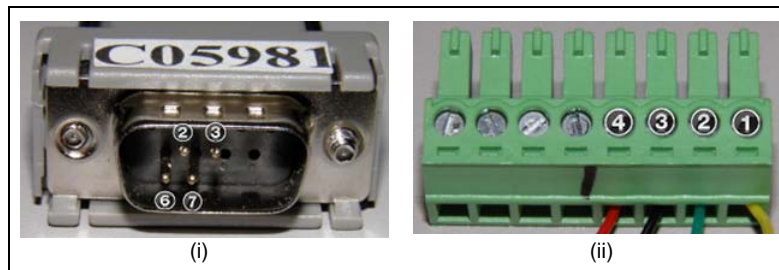
- 3 Strip 1/2 inch of insulation off the four colored wires on the correct end of the serial communication cable (see [Figure 7](#)). Twist and fold the stranded wire to make it stronger.

**Figure 7: Stripping Insulation off Serial Communication Cable**



- 4 Install the four wires into the bottom green connector and ensure that color coded wiring is done from right to left, i.e., yellow, green, black, and red as shown in [Figure 8](#).

**Figure 8: Color-coded Wiring**

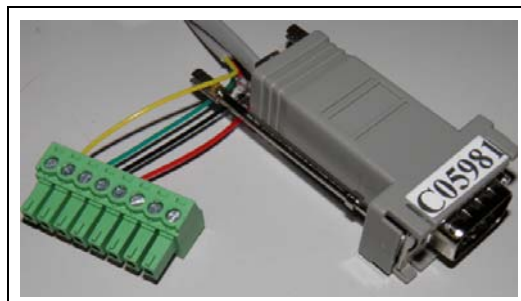


Following table shows DB9M to RJ11 to 8-pin green connector - Pinout:

Plus Controller	Mechanical Unit	CRIND/Pump Interface
DB9M Pin 2	RJ11	Pin 1 of 8-pin Green Connector
DB9M Pin 6	RJ11	Pin 2 of 8-pin Green Connector
DB9M Pin 3	RJ11	Pin 3 of 8-pin Green Connector
DB9M Pin 7	RJ11	Pin 4 of 8-pin Green Connector

- 5 Install the two RS-422 boards in port 1 and port 2, the two far right ports on the right hand side of the eight port board. Install the green wired connector into the bottom of each RS-422 board and identify the ports for the CRINDs and the pumps.

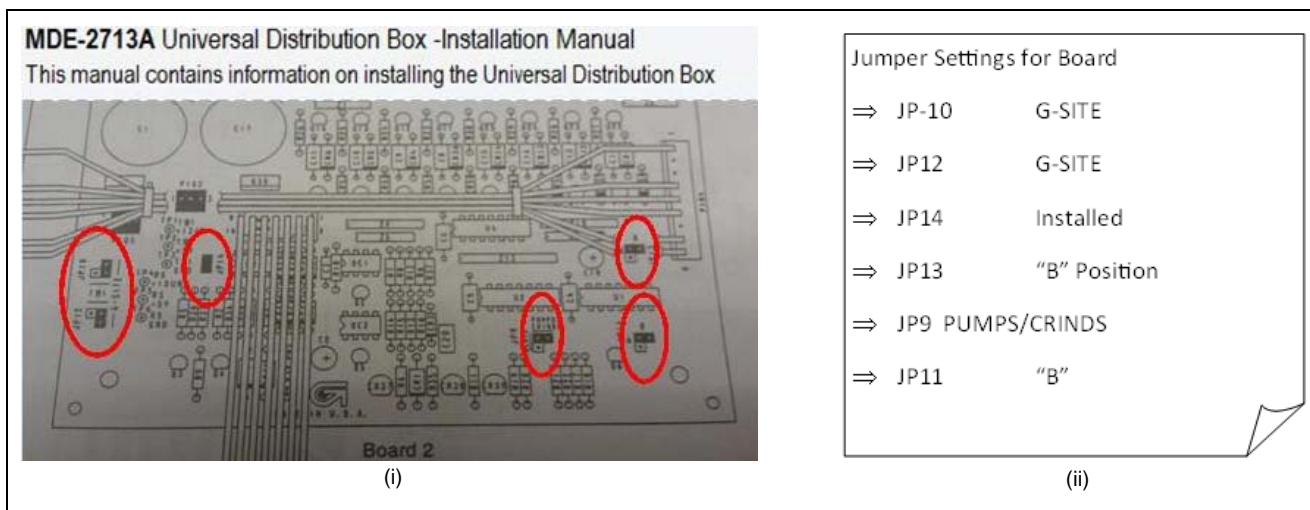
**Figure 9: Connector Wiring**



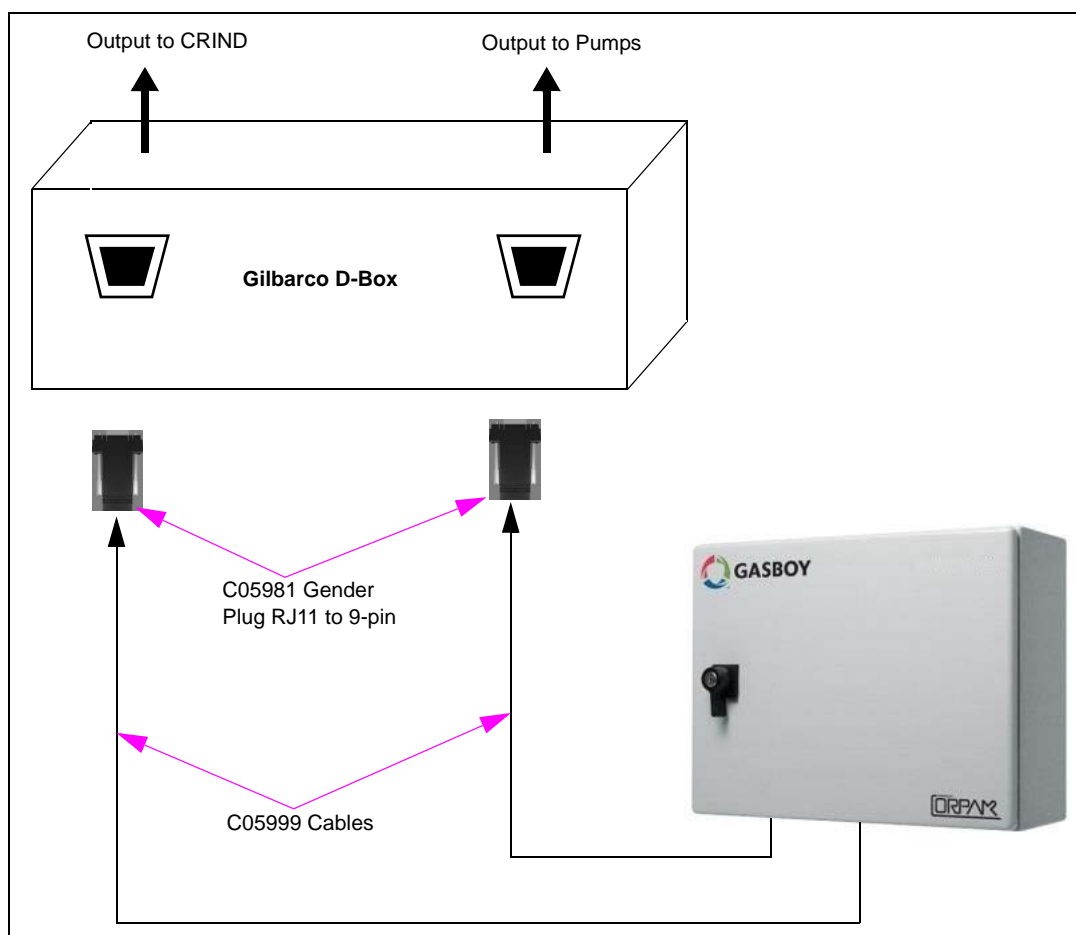
## Gilbarco D-Box Settings

For proper operation of the PLUS system to the pumps and CRINDs, verify that the Gilbarco D-Box jumper settings are as shown in [Figure 10](#).

**Figure 10: Gilbarco D-Box Jumper Settings**



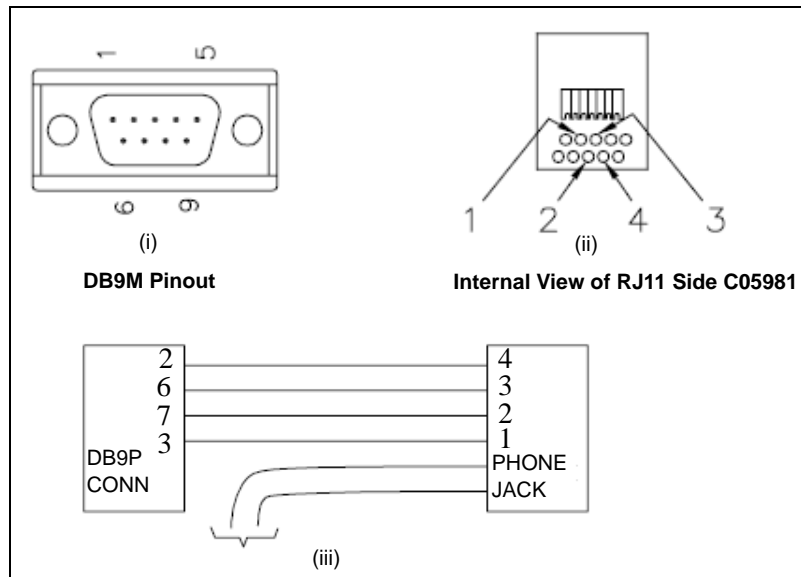
**Figure 11: Connecting Gilbarco D-Box to Pump and CRIND**



## Gender Bender Configuration - C05981

In case the gender bender is incorrectly configured or there is a problem, perform a continuity test between RJ11 and the 9-pin DB connector using the following table as reference:

**Figure 12: Gender Bender**



# Installing/Upgrading Software

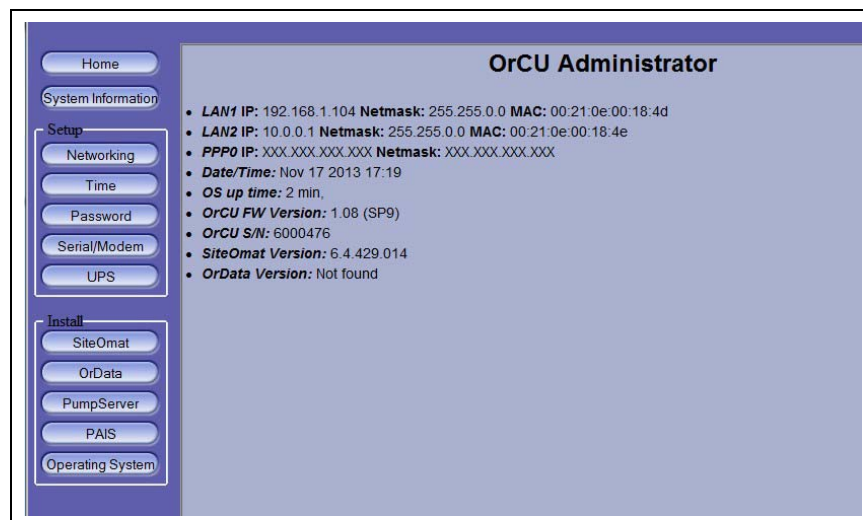
## Loading Proper Software for CRIND Operation

Software will be made available online via [ftp://www.gilbarco.com](http://www.gilbarco.com). For more information on installing/upgrading software, refer to *MDE-4817 SiteOmat In-House Station Controller Setup and Maintenance Manual*.

To load proper software for CRIND operation, proceed as follows:

- 1 Log in to the Administrator screen of the OrCU.
  - For BSP versions 1.08 Service Pack 5 and earlier, use **http://x.x.x.x:8090**
  - For BSP versions 1.08 Service Pack 8 and later, use **https://x.x.x.x:8090**

**Figure 13: OrCU Administrator Window**



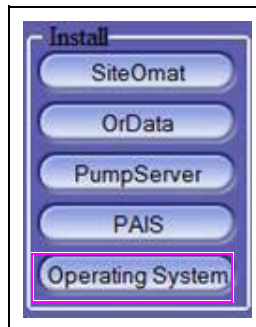
### IMPORTANT INFORMATION

If the OrCU has an OrCU firmware version 1.07, you will have to first upgrade to version 1.07 (Service Pack 2) as an intermediate version before continuing the upgrade to any 1.08 upgrades.

For more information, refer to "Technical Bulletin #20110901 HO, Controller BSP, SiteOmat and OrPT Upgrade" available on the FTP.

- 2 Upgrade the Operating System (OS) BSP as necessary to version 1.08 (Service Pack 9) or later.

**Figure 14: Upgrading OS BSP**



- 3 Upgrade the SiteOmat to version 6.4.46.0 or later to support the CRIND interface.

**Figure 15: Upgrading SiteOmat**



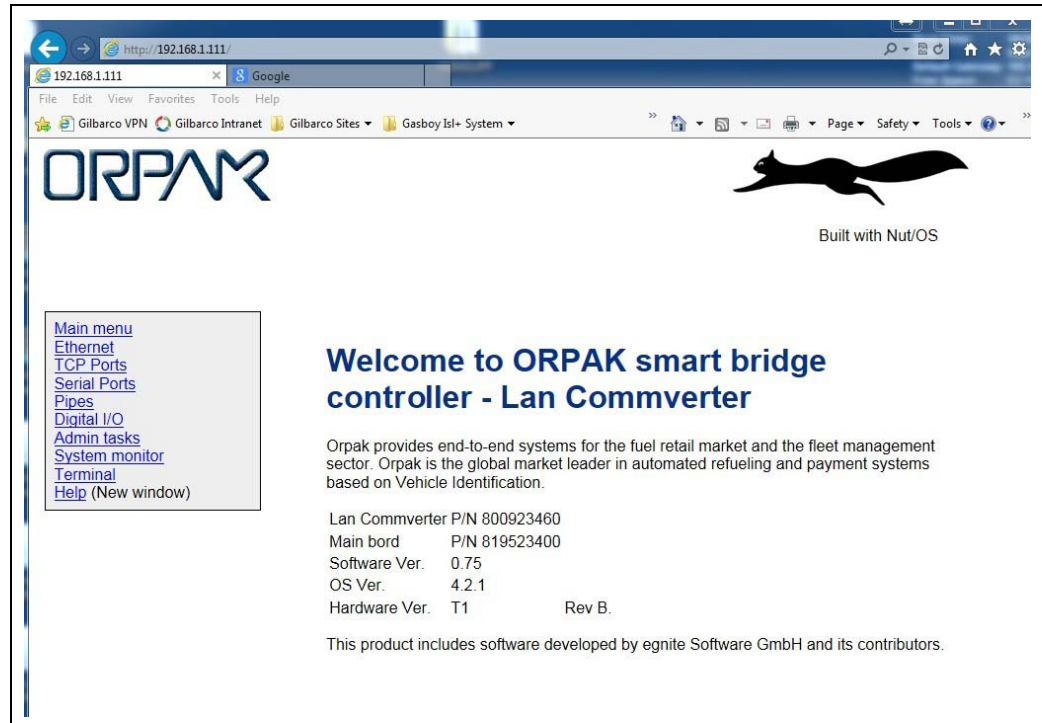
- 4 Configure the interface according to the guidelines listed in this manual.

# PLUS System Setup for CRIND Operations

## Configuring 8-Port Commverter for CRIND and Pump

To configure your system for CRIND and pump operations through the Gilbarco D-Box, you need to configure the 8-port commverter board with the proper settings. For more information, refer to *MDE-4820 8-Port Commverter Operation and Installation Manual*.

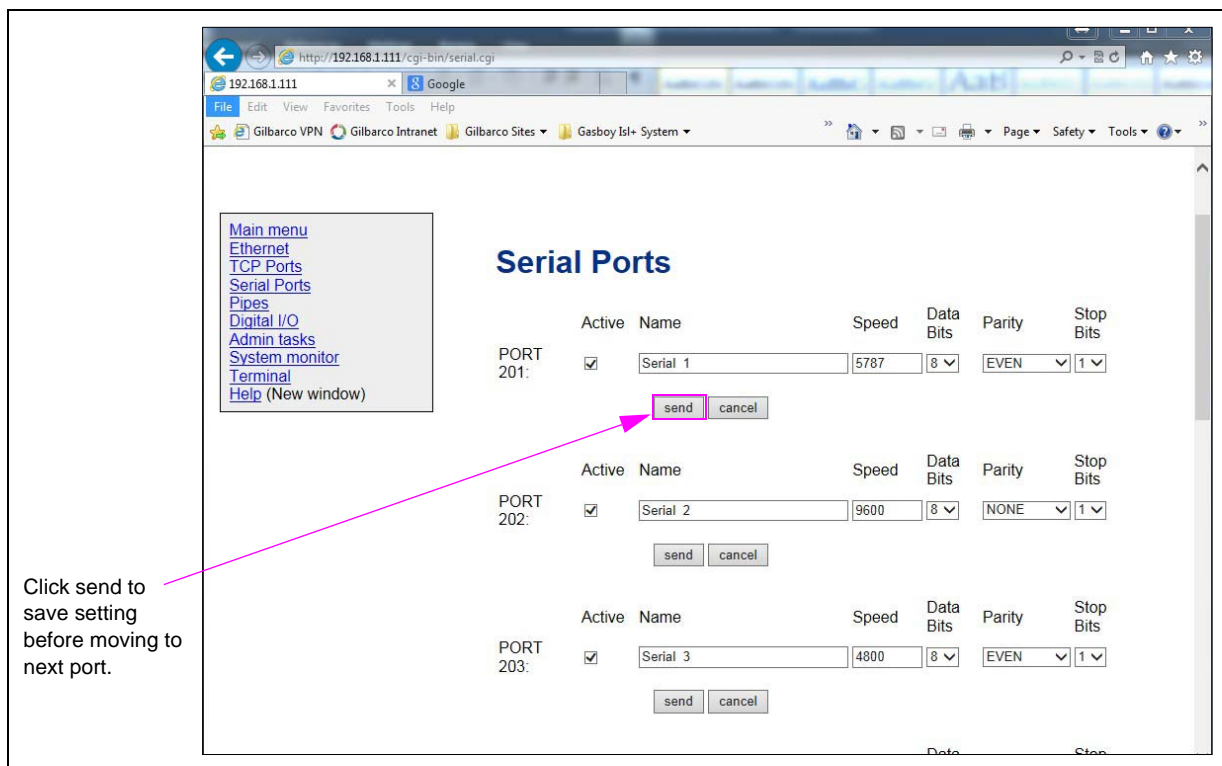
**Figure 16: ORPAK Smart Bridge Controller Window**





The serial settings for the ports that will be used for the CRINDs (and the pumps also, which may already be set up) are as follows:

**Figure 17: Serial Settings for Ports**



Following table lists the serial port settings:

Setting	Description
Name	Serial X (1-8). Select the one that corresponds with the PO RS-422 board that is installed. In the example as shown in <a href="#">Figure 17</a> , it is "Serial". <b>Note: Do not change these names.</b>
Speed	Select the speed of 4800 for Gilbarco CRIND readers. Select the speed of 5787 for Gilbarco pumps.
Data Bits	Set the Data Bits to 8 for both pumps and CRINDs.
Parity	Set the Parity to EVEN for both pumps and CRINDs.
Stop Bits	Set the Stop Bits to 1 for both pumps and CRINDs.

- 1 After changing each setting for Baud Rate and Parity, click **send** to save each setting. Select **BACK to Serial Port Settings** when done.



- When all changes to the serial configuration have been completed, select **Admin tasks** and select **Write to eeprom and reset**. Click **send** to make them effective (see Figure 18).

**Figure 18: Admin Window**

**Admin**

**Set/Get eeprom**

Settings will take effect after next restart.

- ☐ Read eeprom
- ☐ Read defaults
- ☐ Write to eeprom
- ☒ Write to eeprom and reset
- ☐ Read defaults and Write to eeprom
- ☐ Clear reset counter
- ☐ Reset

## Adding a BUS for Gilbarco CRIND in SiteOmat

To add a BUS to the setup to drive the CRIND protocol to each reader, go to **Setup > Advanced > BUS**.

**Figure 19: Adding BUS for Gilbarco CRIND**

Name	Type	Frame	IP	Port	Serial Device	Baud
BUS_CRIND	TCP/IP	CRIND	192.168.1.111	3003		
BUS_GILBARCO	TCP/IP	Pump Server	127.0.0.1	2501		

1 - 2 [2]

Name:  Frame:

☐ Serial Serial COM:  BAUD:   
 Parity:  Data bits:  Stop bits:

☒ TCP/IP IP:  Port:

☒ Clear host 'read buffer' on connect

As shown in [Figure 19](#) on [page 17](#), fill in the following information for the BUS settings in SiteOmat:

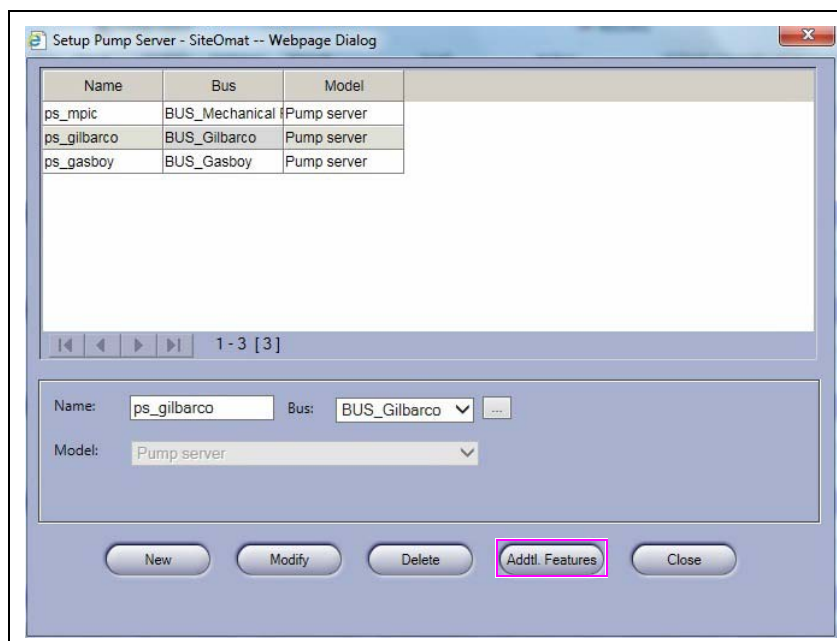
Setting	Description
Name	This is the name of the BUS and will be used later in the setup.
Frame	Select the CRIND frame for Gilbarco CRIND readers.
TCP/IP	Select this and then enter the proper IP/port for the 8-port converter. Default IP is 192.168.1.111. Port will be 3003 but could differ depending on your installation.
Clear Host	Select the box for <b>Clear host 'read buffer' on connect</b> , when connecting for the first time.

## Setting up Pump Server Table with Gilbarco Pumps

To set up pump server table with Gilbarco pumps, proceed as follows:

- 1 To add the Gilbarco pumps to interface and drive the pump communications to the RS-422 interface boards, go to **Setup >Advanced > Pump Server**.

**Figure 20: Setting up Pump Server Table**



- 2 Click **Addl. Features** (see Figure 20 on page 18) and add the parameters to the Gilbarco pump, then click **Save** (see Figure 21).

**Figure 21: Saving Pump Server Table**

SiteOmat Pump Server Settings -- Webpage Dialog

General - ps\_gilbarco

Type:

Authorization Timeout:  Sec

Logging

Pump communication: ☐ Enabled

FCC communication: ☐ Enabled Port:

Application: ☐ Enabled Port:

Clusters

Num	Type	IP	Port	Serial Device	Baud	Enable Echo	Log Port	Time
1	TCP/IP	192.168.1.111	3001	0	0	Yes	9021	250

Serial

☐ Serial: Serial COM:  BAUD:  Stop bits:

Parity:  Data bits:

TCP/IP

☒ TCP/IP IP:  Port:

☒ Enable Echo Timeout:  milli sec Log Port:

New Modify Delete

**Save** Cancel

## Enabling Fueling Messages on CRIND

To set up the system to display helpful message during a fuel sale, go to **Setup > Advanced > Global > Advanced**.

**Figure 22: Enabling Fueling Messages**

General

Prompt for plate ☐

Allow Fuelling when shift is closed: ☒

Update OPT on pump status changes:

Enable manual totalizers ☐

Card number automatically generated ☐

Allow auto authorize pump from OPT ☒

Record fuel start flow time ☐

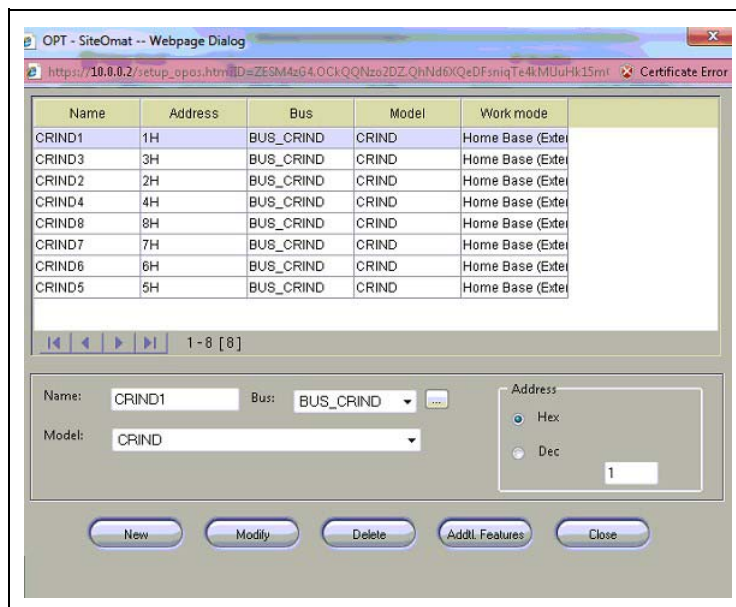
**Display Messages while Fueling** ☒

Close

## Adding a CRIND as an Outdoor Payment Terminal (OPT) in SiteOmat

To add an OrPT to the setup to drive the CRIND protocol to each reader, go to **Setup > Advanced > OrPT**.

**Figure 23: Setting CRIND in SiteOmat**



As shown in [Figure 23](#), fill in the following information and click **New** to add a new CRIND, **Delete** to remove an unwanted entry, and **Modify** to make changes to an existing one.

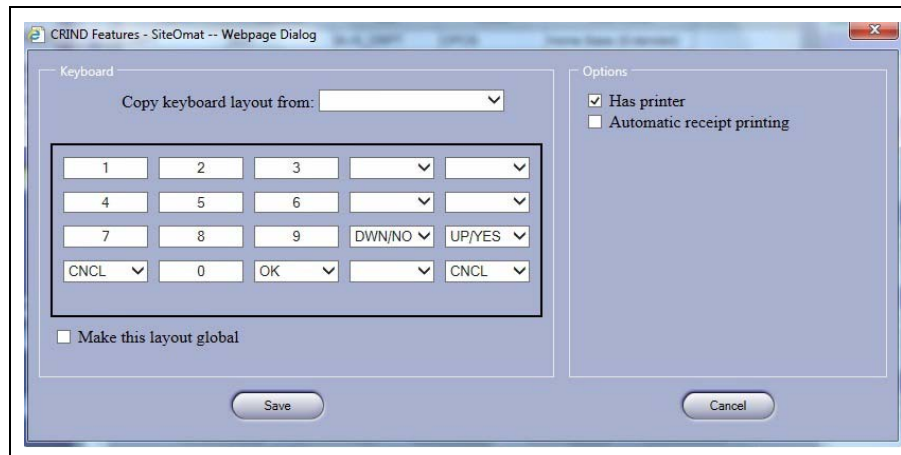
Following table lists the CRIND settings details in SiteOmat:

Setting	Description
Name	This is the name of the reader. Typically use "CRINDX", where "X" is the CRIND number.
Bus	Select the CRIND BUS created in the previous section for Gilbarco CRIND readers.
Model	Select CRIND from the drop-down selection.
HEX	Enter the HEX number to match the CRIND ID number.

## Additional Features for CRINDs as OPTs

To add an OrPT to the setup to drive the CRIND protocol to each reader, go to **Setup > Advanced > OrPT**.

**Figure 24: CRIND Printing Feature**



As shown in [Figure 24](#), you will be able to select the proper options for each CRIND reader.

Following table lists the CRIND settings for printing receipts:

Setting	Description
Has printer	Check this option if your CRIND has a printer. Uncheck if it does not or if you want to disable the printing feature of the CRIND completely.
Automatic receipt printing	Check this option if you would like to automatically print a receipt after each sale. Uncheck to prompt for a receipt after the sale.
CRIND keyboard layout	Following options are available to be assigned in the CRIND keypad setup to match the overlay at the fueling position. Each Fueling position can have a UNIQUE setup or they can all be setup the same using the COPY and GLOBAL options. Optional selections include: <ul style="list-style-type: none"> <li>• UP/YES = YES</li> <li>• DWN/NO = NO</li> <li>• CNCL = Cancel</li> <li>• DEL = Clear Character</li> <li>• OK = Enter</li> </ul>
Copy CRIND layout	This option allows you to copy the setup of any reader that is enabled as Global into the selected reader.
Make keypad global	This option makes the selected keypad layout available to be copied into other readers at the site with the same layout.

## Setting up Receipt Heading/Footing

To set up the receipt heading and footing, go to **Setup > Advanced > Receipt**. For more information on receipt setup, refer to *MDE-4817 SiteOmat In-House Station Controller Setup and Maintenance Manual*.

**Figure 25: Receipt Settings**

**Select Receipt Format - SiteOmat -- Webpage Dialog**

**General**

Print only receipt copy: ☒

Cut: ☐ Semi ☐ Full ☐ No Change logo

Only print tag reader receipts within this many seconds:  Header/Footer

Receipt copies limit:

**Receipt format**

Select receipt format: Full Service B receipt New Delete

Available fields:

- Attendant (String)
- Balance
- Credit card
- Customer ID (Int)
- Driver name (String)
- Dry PPU
- Dry price
- Dry product name
- Dry quantity
- Duplicate number
- Empty line
- Engine hours (Float)
- Fleet code
- Fleet name
- HASH
- Hose (Int)
- Night charge
- Nozzle (Int)
- Odometer (Float)
- PPV (Float)
- Paymode
- Personal message
- Product name (String)
- Pump (Int)

**Receipt format table:**

Name	Format	Width	Precision	Type	Style
Transaction date	%MM/DD/YYYY	10	0	Date	Normal
Transaction time	%HH:MM:SS	8	0	Time	Normal
Receipt id	%d	10	0	Int	Normal
Empty line	%s	0	0	String	Normal
Empty line	%s	0	0	String	Normal
Pump	%d	10	0	Int	Normal
Product name	%s	18	0	String	Normal
Volume/quantity	%f	12	3	Float	Normal
Empty line	%s	0	0	String	Normal
PPV	%f	12	3	Float	Normal
Total price	%f	8	2	Float	Normal
Sale after discount	%f	12	3	Float	Normal
Empty line	%s	0	0	String	Normal

**Preview:**

Franks Gas  
4300 W Friendly Ave  
Greensboro NC  
27420

Date: 04/15/12  
Time: 21:55:49  
Receipt No: -1191196816

Pump : -1191196816  
Product : 123456789012345678  
Quantity : 123456789012.123

PPV : \$4.567  
Total Sale: \$70.140  
Price: 123456789012.123

Thank You  
Come Again

Save Close

*Note: Loading a logo is currently not supported with the CRIND application.*

## Adding CRINDs to Pumps

To select the options to add CRINDs to pumps, proceed as follows:

- 1 Select **Options** box for each pump, and assign the CRINDs to its corresponding pump, i.e., Pump #1, CRIND #, etc.

**Figure 26: Assigning CRINDs to Pumps**

**Pump Head**

Number	Head	Factor	Options	Hose#
<b>Pump 1 - Electronic</b>				
1	1		...	1
				2
				3
<b>Pump 2 - Electronic</b>				
2	2		...	4

Tank 1-l  
Tank 2-l  
Tank 3-l

- 2 In the pump options, select the required option from the **OPT** drop-down list, and then select the proper CRIND for the pump you are modifying.

*Note: You can only assign a CRIND to a single pump.*

**Figure 27: Selecting CRIND for Pump**

- 3 Ensure that you configure the **Specific Gilbarco** box toward the bottom of the Setup Pump Setting screen as shown in [Figure 28](#).

**Figure 28: Specific Gilbarco Options**

- 4 Set the **Preset amount** in the message factors to two digits (100<sup>th</sup>) as shown in [Figure 29](#).

**Figure 29: Message Factors**

Once all pumps/CRINDs are setup, you must click **Save/Reload** to make them active.



## Message Factors

The Pump message factors such as **Amount**, **Totalizer amount**, **Preset amount** (right hand set) differ between a single Encore and MPD unit.

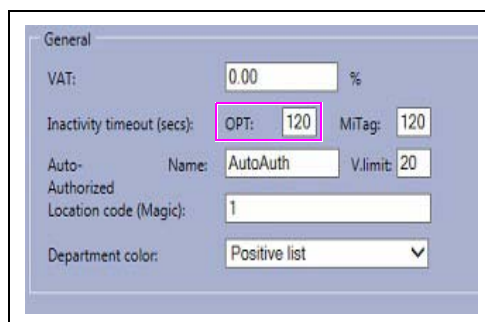
“Causes wrong charge” when:

- 1 All MPD units need to be set to 000.000.
- 2 All single units need to be set to 000000.00.

## Idle Refresh for CRIND Status

When status messages are displayed on the CRIND they will follow the settings below to refresh the status of new Alarms/Events or the clearing of such events when they are no longer active. Increasing the **Inactivity timeout** will increase system performance. However, it takes a little longer to refresh the alarm and decreasing this timeout will make the system discover the alarm quicker, at the cost of a little performance. You may have to find the perfect balance for your site. Recommended setting is 120 seconds for best performance. These settings are available in **Setup > Global > General** section.

**Figure 30: CRIND Status Settings**



## CRIND BIOS Settings

Refer to *MDE-4185 CRIND Encore 700 S Electronics CRIND BIOS Configuration Interface Manual* or *MDE-2562 MPD-3 and The Advantage Series Single-Line CRIND, CRIND with Monochrome LCD, Infoscreen, External CRIND, C-PAM CRIND Service Manual* to set or verify the following CRIND BIOS settings:

- CRIND ID Side 1 - Match the reader number in the system to the pump number.
- CRIND ID Side 2 - Match the reader number in the system to the pump number.
- CRIND Mode - Generic
- CRIND Baud Rate 4800

It is considered best practice to do a **Persistent Data Purge** of all CRINDs before bringing them online with the PLUS system. This will assure that all previous screen data has been cleared and the unit is ready to interact with the new Gasboy system.

For procedure details, refer to *MDE-4185 CRIND Encore 700 S Electronics CRIND BIOS Configuration Interface Manual*.



Following is a summary of the process:

- 1 Use the CRIND Diagnostic Card (Q12534-170) to enter the diagnostic mode.
- 2 Select option #1 **Main Menu**.
- 3 Select option #4 **Data Storage**.
- 4 Select option #2 **Persistent Data**.
- 5 Select option #1 **Purge**.

Unit will clear the data and reboot. Once cleared, the PLUS system will detect it when it comes up and attempts to connect. Download the proper screens to operate.

All other BIOS settings must retain the default values. The **Change Printer Font Size** setting (found in the printer menu) may be changed, depending on site-specific requirements.

## Gilbarco Pump/MPD and Blender Setup

The new CRIND software supports Gilbarco blenders as well. Pump setup is the same as for the standard MPDs. However, there are additional options on the PRODUCT and TANK setup screens that allow for defining the BLENDING options. The following procedure is performed in the SitOmat of the OrCU. The Fleet Head Office (FHO) should already contain all the products, including the new blend product(s).

### Adding New Blended Products

To add new blended products, proceed as follows:

- 1 Adding a new product is accessed from Tank Setup screen just as it always has been. However, now you will have to click on the small ellipse button next to the Product selection to open up the dialog for the Product setup.

**Figure 31: Adding New Blended Products - Tank Properties**

Description	Number	Capacity	Fuel Type	Assumed Volume	Probes
Tank 1	1	10000.00	Unleaded	0.00	
Tank 3	3	10000.00	Prem Unleaded	0.00	
Tank 2	2	10000.00	Unleaded	0.00	

1-3 [3]

**Tank Properties**

Description: Tank 1 Number: 1  
 Capacity: 10000.00 Gallon  
 Fuel Type: Unleaded Tank 1: Tank 2:

**Fuel Leak**  
 Leak rate: 0.00 Gallon/hr Dead band: 0.00 %  
 Quiet time: 0 min Warm after: 0 days

**Fuel Density**  
 Low: 0.00 Kg/m<sup>3</sup> Dead band: 0.00 %

**Fuel Temperature**  
 High: 0.00 °F Dead band: 0.00 %

**Water Level**  
 High: 0.00 mm Dead band: 0.00 %  
 Very High: 0.00 mm Dead band: 0.00 %

Very Low: 0.00 Gallon Dead band: 0.00 %  
 Low: 0.00 Gallon Dead band: 0.00 %  
 High: 0.00 Gallon Dead band: 0.00 %  
 Very High: 0.00 Gallon Dead band: 0.00 %  
 Unleak Rise: 0.00 Gallon Dead band: 0.00 %  
 Unleak Drop: 0.00 Gallon

New Modify Delete Probes Close

- 2 A couple of new options have been added to the Product Setup screens, to allow for configuring blended products. Products are either BASE products like Straight Unleaded or Premium, or Blended products that are comprised of 2 BASE products, then the amount of PROD#2 is set to define the blend ratio.

**Figure 32: Adding New Blended Products - Fuel Names**

Name	Code	Blended
Diesel	1	
Regular	2	
Super	3	
Plus	4	Yes

Name:  Code:  Product color (click to select) ■

Short name:

☐ Base product  
Reorder level:  Gallon Dead band:  % Density:  Kg/m<sup>3</sup>

☒ Blended product  
Product 1:  Product 2:  Percent of product 2:

New Modify Delete Close

- 3 Assign the new blend product to a tank although there is not a physical Tank 4 in this example shown in [Figure 33](#).

**Figure 33: Adding New Blended Products - Fuel Type**

Description	Number	Capacity	Fuel Type	Assumed Volume	Probes
Tank 1	1	10000.00	Diesel	0.00	
Tank 2	2	10000.00	Regular	0.00	
Tank 3	3	10000.00	Super	0.00	
Plus	4	5000.00	Plus	0.00	

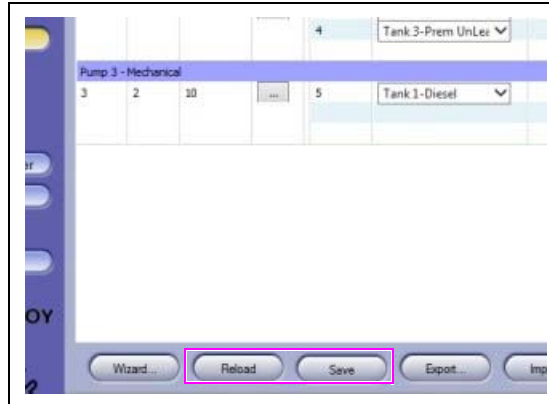
Tank Properties  
Description:  Number:   
Capacity:  Gallon

Fuel Leak  
Leak rate:  Gallon/hr Dead band:  %  
Quiet time:  min Warm after:  days

Fuel Type:  Tank 1:  Tank 2:

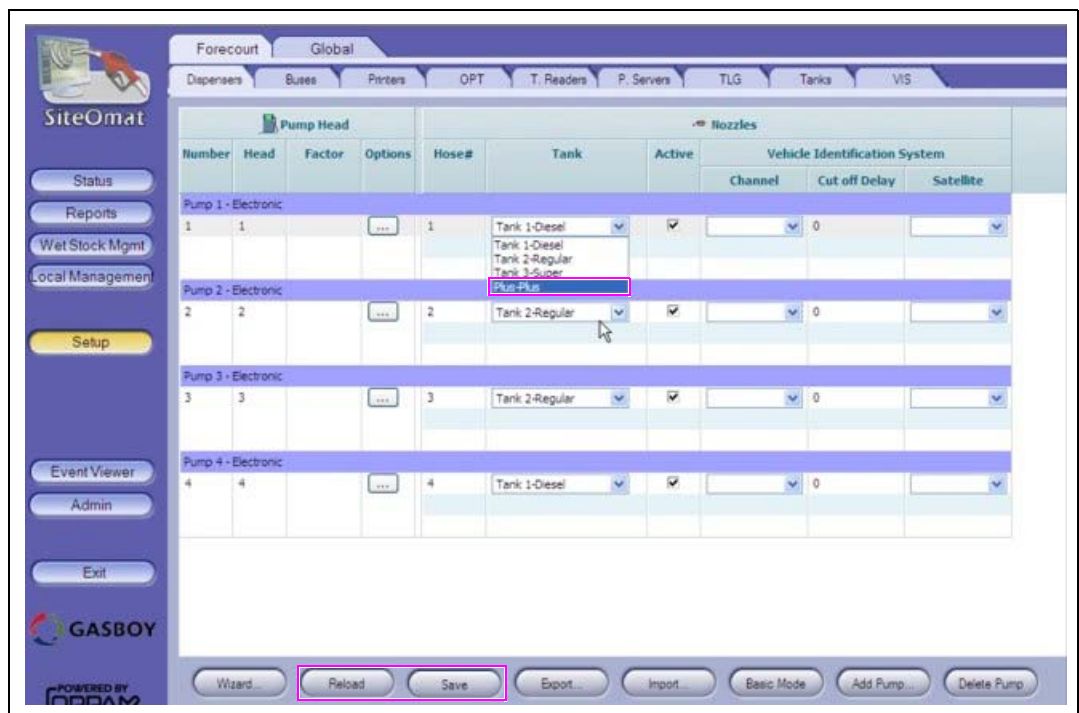
- 4 As with any changes made to the SYSTEM once complete, click **Save** and **Reload** from the Setup/Forecourt page to make those changes effective. Ensure that the island is IDLE before doing the RELOAD as to not interrupt fueling.

**Figure 34: Saving New Blended Products**



Now you have the new blend product in the Tank drop-down selection for the blend pumps.

**Figure 35: Selecting New Blended Products**



- 5 Click **Save** and **Reload** in the setup screen.

# Connecting and Configuring Wayne CAT and Pump for PLUS System

This section describes and shows how to connect and configure the Wayne CAT and pump to the Gasboy PLUS system. The installer and ASC should follow the same safety rules provided in “[Important Safety Information](#)” on [page 4](#) when installing the Wayne product.

## Software

The FHO and SiteOmat version of software is identical to those sites using the Gilbarco CRIND and MPD interface. The FHO uses V6.4.49.015 and the SiteOmat uses V6.4.49.018 or later.

Gasboy only supports the Wayne IxCAT interface card readers. For more information, refer to *TRP-2689 Gasboy Fleet Plus Dresser Wayne IxCAT Support*.

## PLUS Interface Hardware

Following hardware is required to successfully interface to the Wayne CAT/Pump:

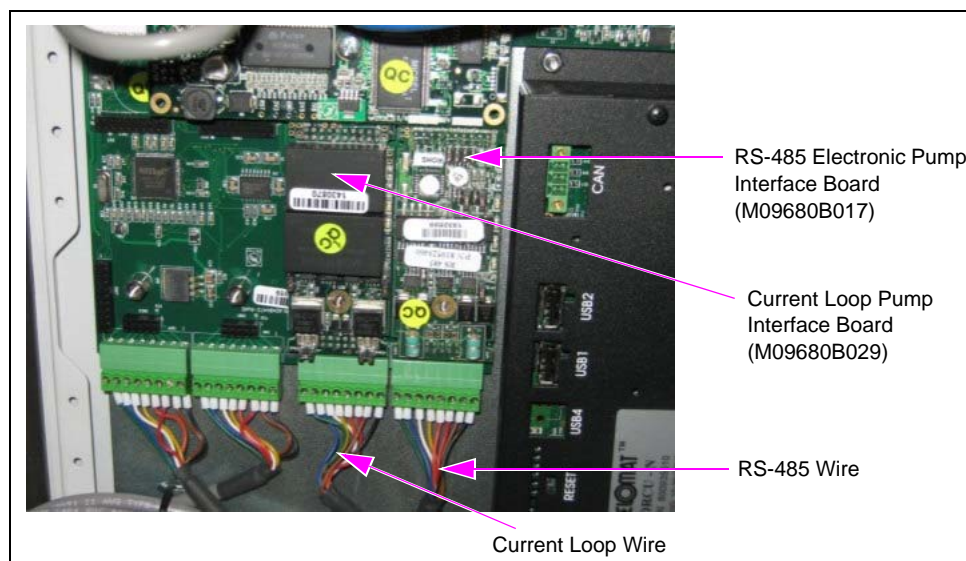
- Gilbarco Competitive Pump Controller (CPC) Box (PA03380000)
- RS-485 Electronic Pump Interface Board (M09680B017)
- Current Loop Pump Interface Board (M09680B029)
- Category-5 (CAT-5) Cable (Q13850-03) from CPC Box
- Two-wire Interface Connector (Q13180-12B)
- Cable Assembly: DB9F/DB9F, 6 feet (C05991)

## Communications

The PLUS communicates to the Wayne CAT and pump with the following:

- CAT - RS-485 two-wire: directly connects to CAT.
- Pump - Current loop two-wire: connects to Gilbarco CPC box.

**Figure 36: PLUS with RS-485 and Current Loop Boards**



## Connecting Electronic PLUS Unit

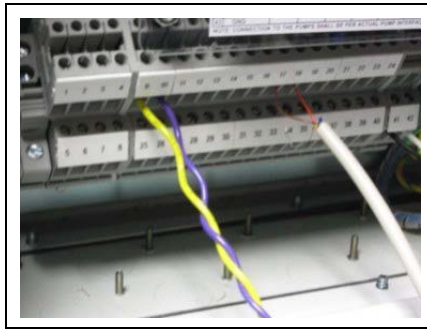
To connect the electronic PLUS unit, proceed as follows:

Identify and connect the Electronic PLUS Unit (PA0393000000) to the terminal block as shown in [Figure 37](#):

- TB 9 to TX and TB10 to RX: RS-485 two-wire communication to Wayne CATs.
- TB17+ and TB18-: Current loop two-wire communications to Wayne pumps.

*Note: For more information, refer to “PLUS to Wayne CATs/Pumps Block Wiring Diagram”.*

**Figure 37: Connecting Terminal Blocks**



## PLUS to Wayne CATs/Pumps Block Wiring Diagram

**Figure 38: Gilbarco CPC Box Settings**

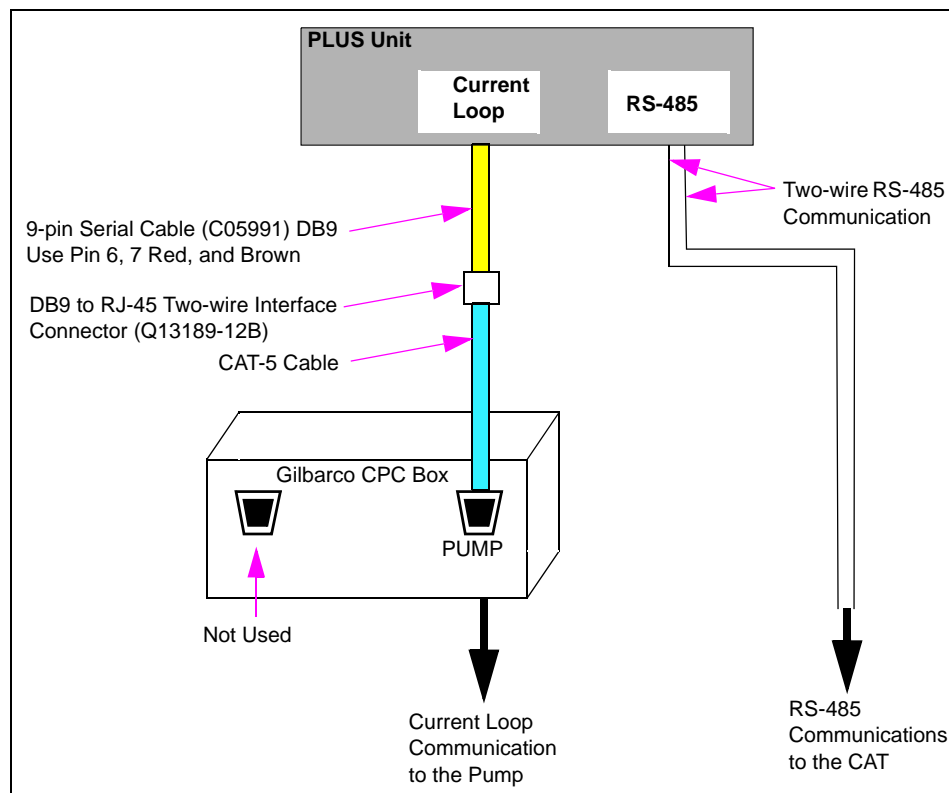


Figure 39: CPC Box Jumper and LED Configuration

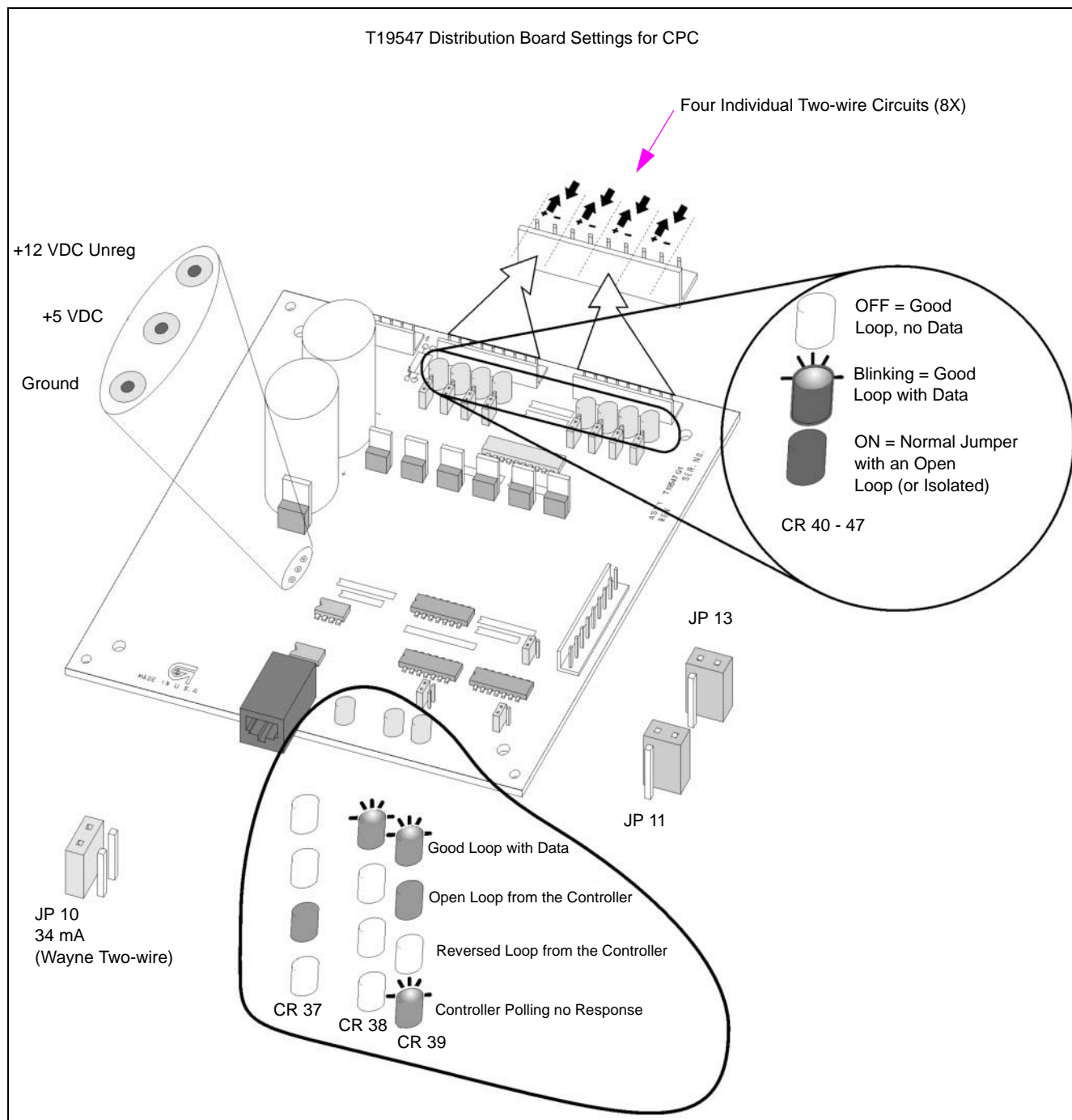
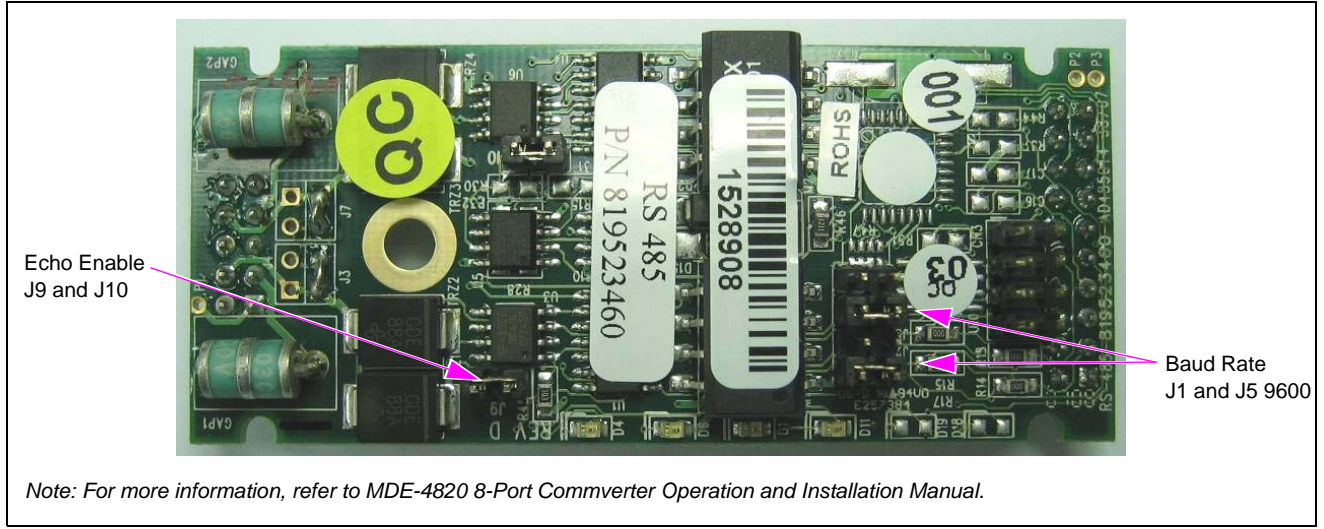




Figure 40: RS-485 Board (CAT Interface) Jumpers



## Connecting Mechanical PLUS Unit

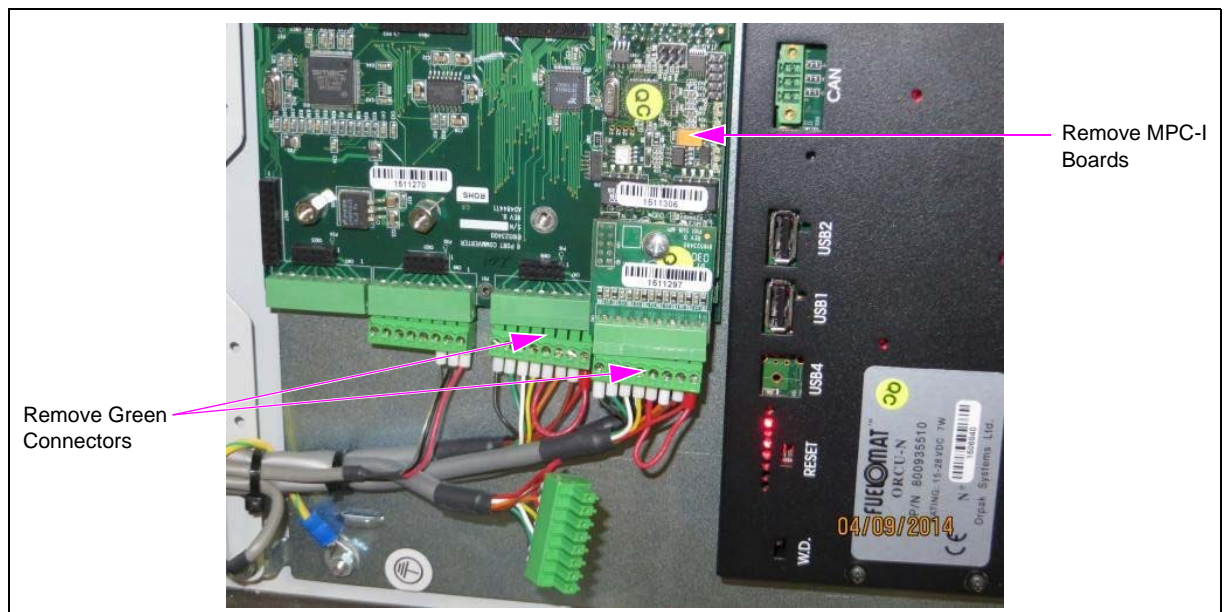
Connecting mechanical PLUS units is similar to the Gilbarco CRIND/MPD with the following exceptions:

- Only two wires will be placed on the green bottom connector of the pump and CAT interface boards.
- The terminal blocks **will not** be used for the pump and CAT communications.
- Two different pump interface boards will be used, one for the pump and one for the CAT.

To connect the mechanical PLUS units, proceed as follows:

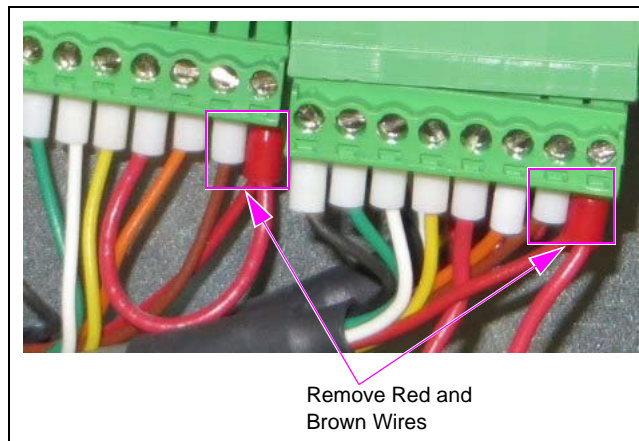
- 1 Remove the green connectors from the bottom of the mechanical pump interface board(s) and then remove the MPC-I boards from the PLUS unit.

Figure 41: Removing MPC-I Boards and Green Connectors



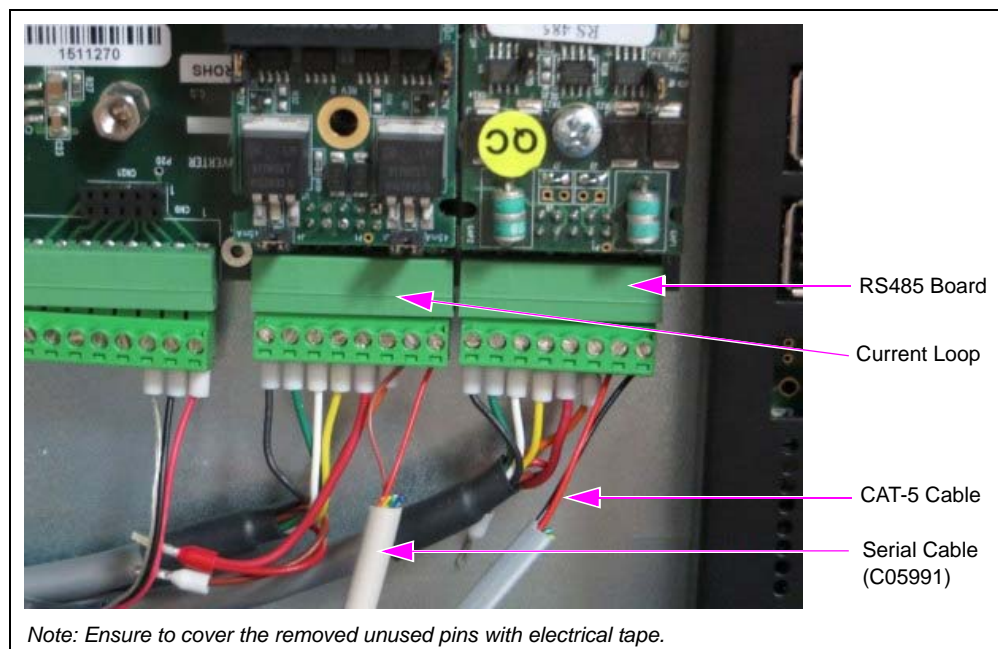
- 2 Remove the first three wires (red and brown wires) from the right-hand side of the green connectors for port 1 and 2 as shown in [Figure 42](#).

**Figure 42: Removing Wires from Green Connectors**



- 3 **For Wayne pump communications** - Cut one end off the Serial Cable (C05991) and cut back insulation about 1-1/2 inches. Select the brown and red wires and strip off 1/2 inch of insulation. Cut and remove the remaining wires. Now insert and connect the red wire (pin 6) to screw terminal 1, and the brown wire (pin 7) to screw terminal 2 of the green connector for the port that has the current loop board as shown in [Figure 43](#).

**Figure 43: Connecting CAT-5 and Serial Cables**



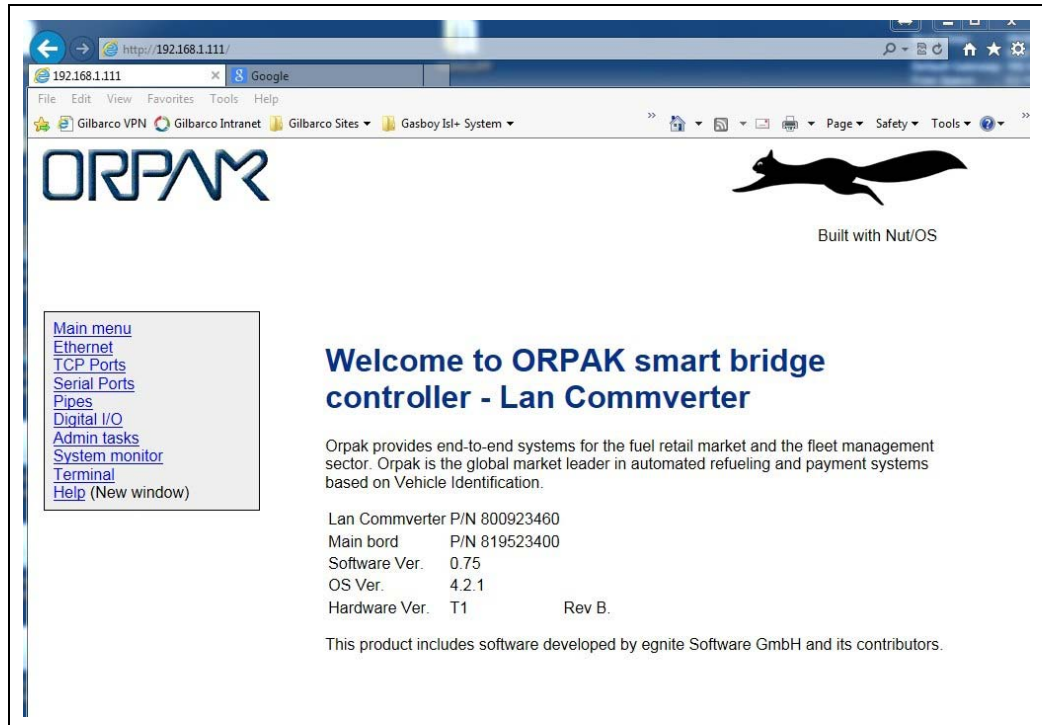
- 4 **For Wayne CAT communications** - Take a standard CAT-5 cable and cut back the insulation about 1-1/2 inches, cut the green and yellow wires. Select the black and red wires and remove 1/2 inch of insulation. Now insert the black wire into screw terminal 1, and the red wire into screw terminal 2 of the green connector for the port that has the RS-485 board installed (see [Figure 43](#)).



## Configuring 8-Port Commverter for CAT and Pump

To configure your system for CAT and pump operations through the Gilbarco CPC box, you need to configure the 8-port commverter board with the proper settings.

**Figure 44: ORPAK Smart Bridge Controller Window**



The serial settings for the ports that will be used for the CATs (and the pumps also, which may already be set) are as follows:

**Figure 45: Serial Settings for Ports**

The screenshot shows the ORPAM Serial Ports configuration window. On the left is a menu with links: Main menu, Ethernet, TCP Ports, Serial Ports, Pipes, Digital I/O, Admin tasks, System monitor, Terminal, and Help (New window). The main area is titled 'Serial Ports' and contains three sections for PORT 201, PORT 202, and PORT 203. Each section has a table with columns: Active, Name, Speed, Data Bits, Parity, and Stop Bits. For PORT 201, the settings are: Active (checked), Name (Serial 1), Speed (9600), Data Bits (8), Parity (NONE), and Stop Bits (1). For PORT 202, the settings are: Active (checked), Name (Serial 2), Speed (9600), Data Bits (8), Parity (NONE), and Stop Bits (1). For PORT 203, the settings are: Active (checked), Name (Serial 3), Speed (4800), Data Bits (8), Parity (ODD), and Stop Bits (1). Each section has 'send' and 'cancel' buttons. A pink arrow points to the 'send' button for PORT 201. A text box on the left says 'Click send to save setting before moving to next port.'

Following table lists the serial port settings:

Setting	Description
Name	Serial X (1-8). Select the one that corresponds with the PO 485 board and current loop boards are installed. In the example as shown in <a href="#">Figure 45</a> , it is "Serial #3". <b>Note: Do not change these names.</b>
Speed	Select the speed of 9600 for Wayne CAT readers. Select the speed of 9600 for Wayne pumps.
Data Bits	Set the Data Bits to 8 for both pumps and CATs.
Parity	Set the Parity to ODD for both pumps and NONE for CATs.
Stop Bits	Set the Stop Bits to 1 for both pumps and CATs.

- 1 After changing each setting for Baud Rate and Parity, click **send** to save each setting. Select **BACK to Serial Port Settings** when done.

- When all changes to the serial configuration have been completed, select **Admin tasks** and select **Write to eeprom and reset**. Click **send** to make them effective.

**Figure 46: Admin Window**

**Admin**

**Set/Get eeprom**

Settings will take effect after next restart.

☐ Read eeprom  
☐ Read defaults  
☐ Write to eeprom  
☒ **Write to eeprom and reset**  
☐ Read defaults and Write to eeprom  
☐ Clear reset counter  
☐ Reset

**send** **cancel**

## Configuring SiteOmat

To configure the SiteOmat forecourt, proceed as follows:

- In the SiteOmat Setup menu, select **wizard** to initially setup the preliminary foundation of the forecourt. Remember if you are blending, the tanks need to be edited in Setup/Advanced.
- Verify in the SiteOmat Setup menu if the buses, servers, tanks, and OrPTs are configured properly according to the equipment on the forecourt connected to the Islander/PLUS unit.

**Figure 47: SiteOmat Setup Window - 1**

Name	Address	Bus	Model	Work mode
Cat1	1H	Bus_CAT	CAT	Home Base (Extended)
Cat2	2H	Bus_CAT	CAT	Home Base (Extended)
Crind_1	1H	Bus_CRND	CRIND	Home Base (Extended)
ORPT	46H	BUS_ORPT	OPOS	Home Base (Extended)

1 - 4 [ 4 ]

Name: Cat1 Bus: Bus\_CAT Model: CAT

Address: ☒ Hex ☐ Dec 1

New Modify Delete Addtl. Features Close

Figure 48: SiteOmat Setup Window - 2

Name	Type	Frame	IP	Port	Serial Device	Baud
Wayne_BUS	TCP/IP	Pump Server	127.0.0.1	5505		
Bus_CRND	TCP/IP	CRIND	192.168.1.111	3007		
Bus_CAT	TCP/IP	CAT	192.168.1.111	3006		
BUS_ORPT	TCP/IP	Orpak	192.168.1.211	3000		
BUS_Mechanical	TCP/IP	Pump Server	127.0.0.1	2502		
BUS_Gilbarco	TCP/IP	Pump Server	127.0.0.1	3505		
BUS_Gasboy	TCP/IP	Pump Server	127.0.0.1	4504		

1 - 7 [7]

Name:  Frame: Orpak

☐ Serial Serial COM: COM1 BAUD: 110 Parity: NONE Data bits: 8 Stop bits: 1

☒ TCP/IP IP:  Port:

☐ Clear host 'read buffer' on connect

New Modify Delete Close

Figure 49: SiteOmat Setup Window - 3

Name	Bus	Model
Wayne_Vista	Wayne_BUS	Pump server
ps_gasboy	BUS_Gasboy	Pump server
ps_gilbarco	BUS_Gilbarco	Pump server
ps_mpic	BUS_Mechanical	Pump server

1 - 4 [4]

Name: Wayne\_Vista Bus: Wayne\_BUS Model: Pump server

New Modify Delete Addtl. Features Close

Note: Click **Save** and **Reload** the changes for each step.

3 In Setup Pump Settings window, setup the pump settings.

*Note: Figure 50 and Figure 51 show the configuration of a Wayne 3+1 Blender. Note the number of hoses is set to seven for the three preceding ghost pumps. The fuel product for the ghost hose positions are irrelevant. The number of ghost pumps will vary and depend on the number of products assigned to the pump.*

Figure 50: Wayne 3+1 Blender Configuration Window - 1

Figure 51: Wayne 3+1 Blender Configuration Window - 2

Pump Head				Nozzles					
Number	Head	Factor	Options	Hose#	Tank	Active	Vehicle Identification System		
							Channel	Cut off Delay	Satellite
Pump 8 - Electronic				10	Unleaded Plus-UnL	<input checked="" type="checkbox"/>		0	
8	4		...	8	Tank 2-UnLeaded R	<input checked="" type="checkbox"/>		0	
				11	Unleaded Plus-UnL	<input checked="" type="checkbox"/>		0	
				12	Tank 3-UnLeaded P	<input checked="" type="checkbox"/>		0	
Pump 9 - Electronic				13	Tank 1-Diesel	<input type="checkbox"/>		0	
9	9		...	14	Tank 1-Diesel	<input type="checkbox"/>		0	
				15	Tank 1-Diesel	<input type="checkbox"/>		0	
				16	Tank 1-Diesel	<input type="checkbox"/>		0	
				17	Tank 2-UnLeaded R	<input checked="" type="checkbox"/>		0	
				18	Unleaded Plus-UnL	<input checked="" type="checkbox"/>		0	
				19	Tank 3-UnLeaded P	<input checked="" type="checkbox"/>		0	
Pump 10 - Electronic				20	Tank 1-Diesel	<input type="checkbox"/>		0	
10	10		...	21	Tank 1-Diesel	<input type="checkbox"/>		0	
				22	Tank 1-Diesel	<input type="checkbox"/>		0	
				23	Tank 1-Diesel	<input type="checkbox"/>		0	
				24	Tank 2-UnLeaded R	<input checked="" type="checkbox"/>		0	
				25	Unleaded Plus-UnL	<input checked="" type="checkbox"/>		0	
				26	Tank 3-UnLeaded P	<input checked="" type="checkbox"/>		0	

Wizard...

Reload

Save

Export...

Import...

Basic Mode

Add Pump...

Delete Pump

# Troubleshooting

Following table includes some troubleshooting tips:

Problem	Solution
CRIND displays "PLEASE PAY INSIDE"	CRIND is not communicating with the SiteOmat. Check wiring and configuration options.
CRIND displays "PUMP OUT OF SERVICE"	CRIND operation is suspended for this fueling location because the pump is offline. Resolve the pump issue, and the CRIND message will return to Normal.
Wrong key function when pressing CRIND keypad entry.	Keypad mapping not complete, or not mapped correctly. Go to OrCU setup options/OPT and correct as needed.
Wrong images displayed on CRIND display.	Perform persistent data purge on CRIND and wait for SiteOmat to download again the proper configuration for the screens.

*The Advantage® Series, CRIND®, Encore®, Eclipse®, Gilbarco®, Infoscreen®, MPD®, Passport®, and TRIND® are the registered trademark of Gilbarco Inc. CFN® is a registered trademark of FleetCor Technologies Operating Company LLC. C-PAM™ is a trademark of Gilbarco Inc. Gasboy® is a registered trademark of Gasboy International. GOLD<sup>SM</sup> is a service mark of Gilbarco Inc. Islander™ PLUS is a trademark of Gasboy International. Orpak™ is a trademark of Orpak Systems Ltd. Wayne® is a registered trademark of Dresser Industries Inc.*



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