



Introduction

Purpose

This manual provides instructions for installing the Direct Pulse Out Interface Board (M13949A001), which allows the pumps/dispensers to use both RS-485 and pulse out interfaces for Atlas™ 9852K and 9853K pumps/dispensers. This direct pulse out interface board will only work with the Atlas 9852K or 9853K models and will not work with any other model. This pulse output provides a DC output to indicate the quantity dispensed. The pulse rate can be configured by a jumper setting for the rates of 1, 10, 100, 250, or 500 pulses per gallon.

The output is an open collector transistor output capable of sinking up to 100 milliamps DC at voltages up to 24 VDC. The DC ground for the circuit comes from the Fuel Management System (FMS). Since the transistor switches between ground and high-impedance, the installer must provide a voltage reference when the transistor is in the high-impedance state. This reference voltage is provided by a pull-up resistor installed at the FMS between the pulser input and the reference voltage. The value of this resistor is calculated based on the voltage and current requirements of the FMS pulser circuit.

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Required Tools

Following tools are required for installing the direct pulse out interface board for the Atlas 9852K and 9853K pumps/dispensers:

- Phillips® Screwdriver
- Pliers

Related Documents

Document Number	Title	GOLD SM Library
MDE-4331	Atlas Fuel Systems Installation Manual	Gasboy® Atlas Pumps/Dispensers
PT-1949	Gasboy Atlas Pump and Dispenser Illustrated Parts Manual	<ul style="list-style-type: none">• Gasboy Atlas Pumps/Dispensers• Parts Manual

Abbreviations and Acronyms

Term	Description
CPU	Central Processing Unit
ESD	Electrostatic Discharge
FMS	Fuel Management System
GOLD	Gilbarco® Online Documentation
J-box	Junction Box
OSHA	Occupational Safety and Health Administration

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 a Gasboy Authorized Service Contractor or 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.

Important Safety Information

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.

Before You Begin

Installing the direct pulse output interface board involves DC wiring to a FMS. Read the following manuals before you begin:

- *MDE-4331 Atlas Fuel Systems Installation Manual - section 4 (wiring and conduit requirements)*
- Your FMS Installation Manual

CAUTION



A properly grounded Electrostatic Discharge (ESD) wrist strap must be worn while servicing any electronic devices or components. Failure to use electrostatic precautions may damage electronic components and void warranty.

To prepare the site and dispenser for the installation, proceed as follows:

- 1 Inform the manager.
- 2 Barricade the unit to be worked on.
- 3 Remove power to the unit at the breaker panel. Follow OSHA lockout/tagout procedures.

⚠ WARNING

Failure to turn off the unit during the installation of the kit may cause injury or bodily harm from electrical shock. Ensure that all power to the unit is switched off before opening the door to the unit and during kit installation.

⚠ WARNING

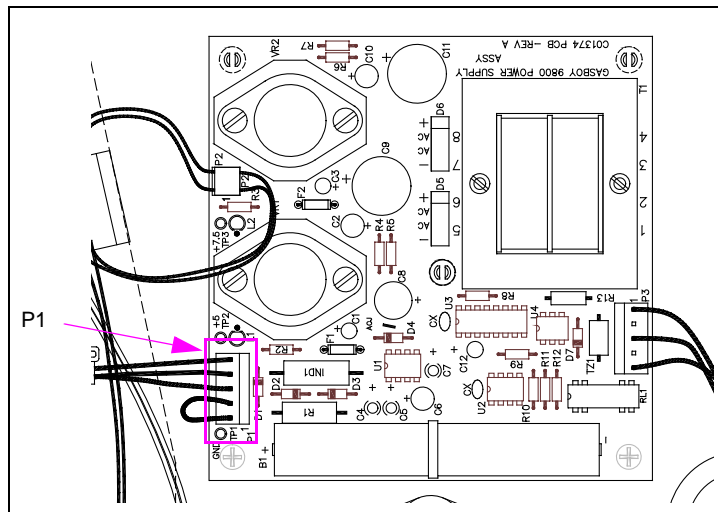
Some materials present inside electronic enclosures may present a health hazard if not handled correctly. Be sure to clean hands after handling equipment. Do not place any equipment in the mouth.

Installing Direct Pulse Out Interface Board

To install the direct pulse out interface board, proceed as follows:

- 1 Unlock and remove the front panel.
- 2 Remove the two bolts located over the tabs of the bezel assembly. Lift the bezel assembly upward and out to remove.
- 3 Loosen and remove the two screws located on the left and right display panel brackets and pivot the display panels down.
- 4 Pull the connector off P1 on the power supply. After a few seconds, reconnect P1.

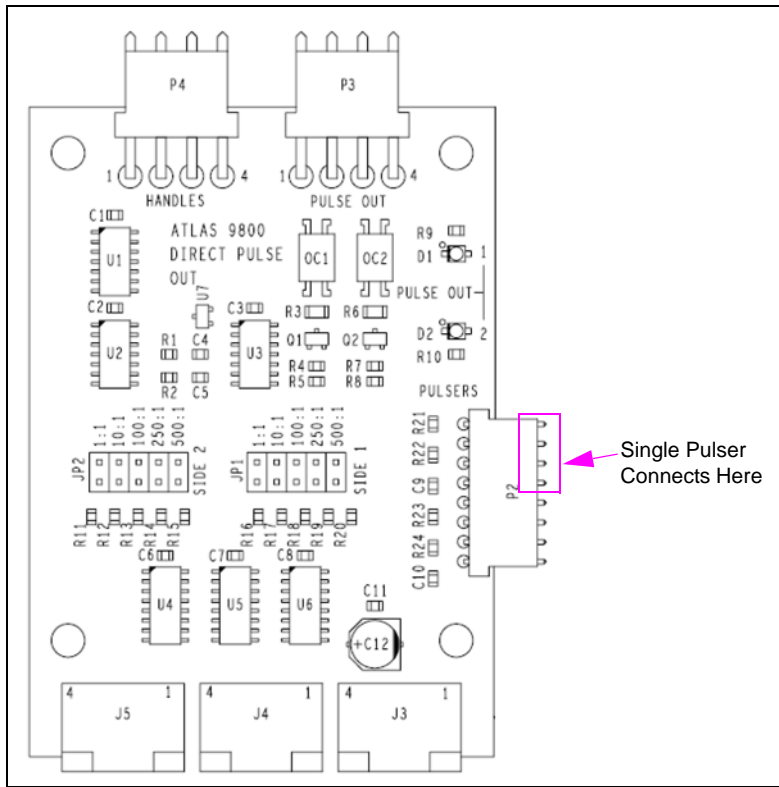
Figure 1: Pump Central Processing Unit (CPU) Board



- 5 Disconnect the cables from the P3, P4, and P5 connectors on the pump CPU board. Disconnect the pulser(s) from the Adaptor Cable (M05201A001).

- On the direct pulse out interface board, set the jumper to the desired pulse out rate (1, 10, 100, 250, or 500 pulses per gallon) for the side 1 on JP1. For dual pump, ensure to set the pulse out rate for the side 2 on JP2.

Figure 2: Direct Pulse Out Interface Board

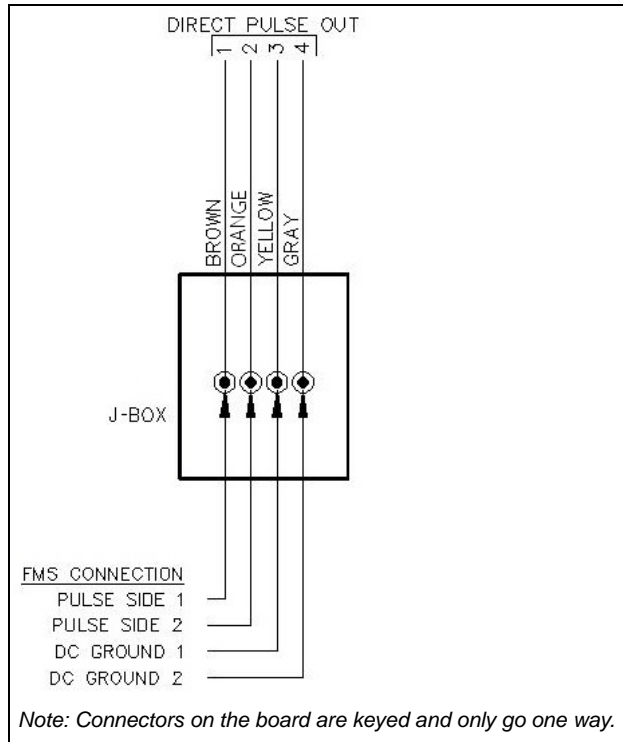


- Connect the pulser cable to P2 of the direct pulse out interface board. For single unit with only one pulser, it connects to the first four pins of P2. Connect the pump handles cable to P4. Locate the DC cable connector labeled J3 (4-conductor cable with brown, orange, yellow, and gray wires) that is part of the DC conduit assembly. Attach the J3 cable connector to P3 of the direct pulse out interface board.
- Align the J3, J4, and J5 connectors on the direct pulse out interface board with P3, P4, and P5 of the CPU board. Gently press the two together. Be careful when pushing the direct pulse out interface board directly toward the CPU board and avoid any side to side motion.
Note: The three connectors on each 9800 CPU board and direct pulse out interface board are keyed to allow the boards to be connected properly.

- 9 Complete the wiring between the FMS and DC Junction Box (J-box) as shown in your FMS Installation Manual.

For more information, refer to *MDE-4331 Atlas Fuel Systems Installation Manual* and the wiring diagram shown in [Figure 3](#).

Figure 3: FMS and Direct Pulse Out Connections



- 10 Secure the display panel in the upright position.
- 11 Attach the bezel. Seat the bezel properly to ensure watertight seal.
- 12 Attach and lock the front panel.
- 13 Turn on all the circuit breakers supplying power to the pump.

Installing the direct pulse out interface board on the Atlas 9852K and 9853K pumps/dispensers is now complete.

Atlas™ is a trademark of Gasboy International. Gasboy® is a registered trademark of Gasboy International. Gilbarco® is a registered trademark of Gilbarco Inc. GOLDSM is a service mark of Gilbarco Inc. Phillips® is a registered trademark of Phillips Screw Company.



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