

## Introduction

The RS-232 to RS-485 Converter Kit (Q13241-120) is used to convert RS-232 communication to 4-wire RS-485, to increase the maximum transmission length between the Enhanced Dispenser Hub and PIN Pads. Unlike a Line Booster, this conversion requires two converters, one at the Enhanced Dispenser Hub and one at the PIN Pad.

## Purpose

This document provides instructions to configure and install the RS-232/RS-485 Converter. This converter has been tested for use between the Enhanced Dispenser Hub and PIN Pads to extend the connection up to 1000 feet (304 meters).

## Table of Contents

Topic	Page
<a href="#">Introduction</a>	1
<a href="#">Important Safety Information</a>	3
<a href="#">Installing the RS-232 to RS-485 Converter Kit</a>	5

## Parts List

The following table lists the parts included in this kit:

Item	Description	Part Number	Quantity
1	RS-232/485 Converter w/Power Adapter	C08087	2
2	Gender Mender - RS-232	M11247B022	1
3	25-pin Male to 9-pin Female Adapter	Q13240-31	1
4	CAT-5 Cable	Q13850-06	1
5	Jackpost Kit (2-pieces)	Q10437-02	1

## Required Tools

The following tools are required for the installation of the kit:

- Four conductor twisted-pair 18 AWG wire (maximum tested length is 1000 feet)
- Small Phillips®/Flat-head screwdriver
- Ohmmeter

## Related Documents

Document Number	Document Name	GOLD Library
MDE-4822	Passport® Enhanced Dispenser Hub Installation Instructions	Passport
MDE-4891	Passport Enhanced Dispenser Hub (Passport V8.02+) Installation Poster	Passport
MDE-4910	Passport Enhanced Dispenser Hub Connections Manual	Passport

## Abbreviations and Acronyms

Term	Description
DCE	Data Communication Equipment
DTE	Data Terminal Equipment

# Important Safety Information

**Note: Save this Important Safety Information section in a readily accessible location.**

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 Gilbarco 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 Gilbarco Authorized Service Contractor or call the Gilbarco Support Center at 1-800-800-7498. 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 Hazard Association (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 Gilbarco replacement parts and retrofit kits on your pump/dispenser. Using parts other than genuine Gilbarco 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 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**



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

#### **WARNING**



Gasoline 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.

# Installing the RS-232 to RS-485 Converter Kit

## Preparation

To connect to the Data Communication Equipment (DCE) (Enhanced Dispenser Hub Converter), proceed as follows:

- 1 Connect the CAT-5 Cable (Q13850-06) to the COM port on the Enhanced Dispenser Hub.
- 2 Connect the other end of the CAT-5 Cable (Q13850-06) to the Gender Mender (M11247B022).
- 3 Replace the jackscrews of the Gender Mender (M11247B022) with the supplied Jackpost Kit (Q10437-02) and connect the 25-pin side of the Gender Mender (M11247B022) to the RS-232/485 Converter (C08087).
- 4 Configure the switch settings on this converter as follows:
  - T - ON
  - R - ON
  - DCE

**Figure 1: Switch Settings on Enhanced Dispenser Hub Converter**

Position		SW2	SW1	
1	TxON, RxON			DCE
2	TxRTS, RxRTS			DTE
3	TxRTS, RxON			Monitor

To connect to the Data Terminal Equipment (DTE) (PIN Pad Converter), proceed as follows:

- 1 Connect the PIN Pad Serial Cable to the 9-pin side of the 25-pin to 9-pin Adapter.
- 2 Connect the 25-pin side of the connector to the RS-232/48 Converter (C08087).

- 3 Configure the switch settings on this converter as follows:
  - T - ON
  - R - ON
  - DTE

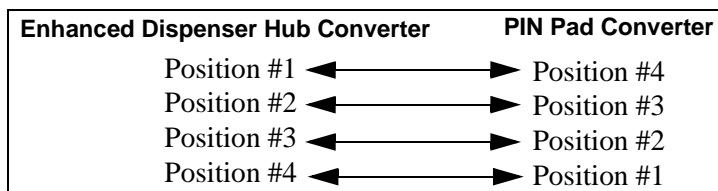
**Figure 2: Switch Settings on PIN Pad Converter**



## Wiring

- 1 Pull four conductor 18 AWG twisted-pair wire between the Enhanced Dispenser Hub and the PIN Pads.
- 2 Loosen the terminal screws on the converters using the Phillips/Flat-head screwdriver, and connect the wires to the terminals of each converter using the pin out positions in [Figure 3](#).

**Figure 3: Pin Out Position**



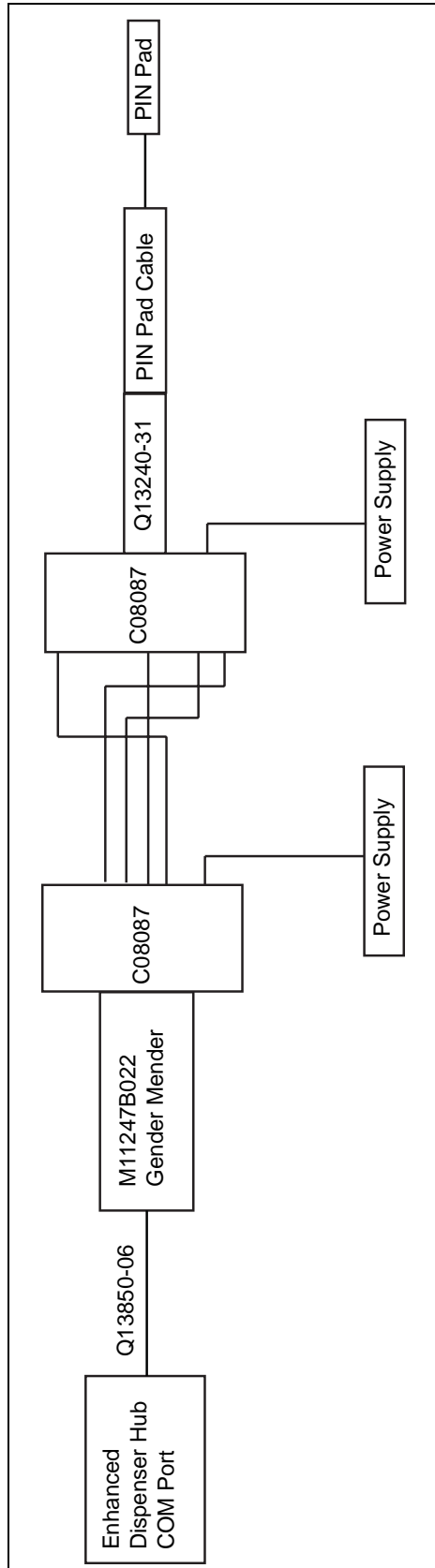
- 3 Secure the wires to the terminals.

## Installing the Converter Kit

To install the RS-232 to RS-485 Converter Kit, proceed as follows:

- 1 Verify the pin out of the connectors using an ohmmeter, to ensure proper connectivity.
- 2 Connect the two power adapters to the converters.
- 3 Connect the power adapter for the Enhanced Dispenser Hub Converter to the same power source as the Enhanced Dispenser Hub.
- 4 Connect the power adapter for the PIN Pad Converter to the same power source as the PIN Pad.
- 5 After confirming PIN Pad communication, place a tape over the switches on the converters to ensure that they do not change accidentally after the installation.

Figure 4: Installation and Wiring Block Diagram



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