Installation Instructions

RS-232 to Two-Wire Converter Box Kit

Purpose

These instructions explain how to install the RS-232 to Two-Wire Converter Box Kit for the following applications.

PC-Based Pump Simulator

In PC-Based pump simulator mode, the RS-232 to Two-Wire Converter Box converts serial communication from a personal computer to the standard Gilbarco 45 milliamp current loop. The personal computer uses Pump Sim software to simulate pumps. Any device capable of driving a 45 milliamp pump loop (e.g., a PC-Based G-SITE® system, PA0306 Distribution Box, PA0261 Universal Distribution Box, or other pump controller) can connect to the PC-Based pump simulator using the RS-232 to Two-Wire Converter Box. The PC-Based Pump Simulator Kit (K96583-01) is required to use the RS-232 to Two-Wire Converter Box in this mode.

Two-Wire Monitor

In two-wire monitor mode, the RS-232 to Two-Wire Converter Box uses a breakout box to splice into a 45 milliamp current loop (pump loop or CRIND loop). The RS-232 to Two-Wire Converter Box provides an interface that converts current loop to serial (RS-232). The RS-232 port on the converter box connects to a serial protocol monitoring device, such as a personal computer running Serialtest® or FELINE™ communication monitoring programs. The personal computer with communication monitoring software is used to monitor pump or CRIND data communication.

Serialtest is a registered trademark of Frontline Test Equipment, Inc.
FELINE is a trademark of Frederick Engineering, Inc.

Note: Connect only UL listed computing devices to the RS-232 to Two-Wire Converter Box (Q13623-01). All equipment must be installed indoors.

For information on installing Pump Simulator Software refer to MDE-3712 PC-Based Pump Simulator User Manual.

Read NFPA 30A and NFPA 70

Before installing the equipment, the installer must read, understand and follow this instruction, NFPA 30A (The U.S. Automotive and Marine Service Station Code), NFPA 70 (The U.S. National Electric Code), and applicable federal, state and local codes and regulations. Failure to do so may adversely affect the safe use and operation of the equipment.

For safe and proper equipment installation, Gilbarco recommends that only trained Gilbarco Authorized Service Contractors (Sacs) install this equipment.

Safety

Alert Symbol

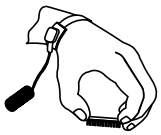
This is a standard alert symbol. When you see this symbol, along with the following signal words, be alert to the potential for personal injury.

Signal Words

These signal words alert you to important safety hazards.

DANGER	WARNING	CAUTION
The hazard or unsafe practice **will** result in severe injury or death.	The hazard or unsafe practice **may** result in severe injury or death.	The hazard or unsafe practice **could** result in minor injury.

Preventing Electrostatic Discharge



Wrist Strap

The printed circuit boards (PCB) and integrated circuits (IC) within the G-SITE system and RS-232 to Two-Wire Converter Box are sensitive to electrostatic discharge caused by static electricity. Electrostatic discharge damages electronic parts. Use the following guidelines when handling printed circuit boards or handling sensitive parts.

- Touch an unpainted metal surface to discharge any static electricity buildup.
- Use a wrist strap connected to a grounded metal frame or chassis.
- Place removed PCB or IC on a grounded antistatic mat or in an antistatic bag.

Related Materials

The following contain related information:

MDE-3110	PC-Based G-SITE Installation Manual
MDE-3111	PC-Based G-SITE Start-Up and Service Manual
MDE-3712	PC-Based Pump Simulator User Manual

Required Tools

No tools are required to install the RS-232 to Two-Wire Converter Box Kit.

Parts List

Table 1. RS-232 to Two-Wire Converter Box Kit (Q13623-G1)

Qty	Part Number	Description
1	MDE-3707	RS-232 to Two-Wire Converter Box Installation Instructions
1	Q13623-01	RS-232 to Two-Wire Converter Box
1	Q13623-03	Cable Assembly Kit (refer to Table 2 for kit part numbers)
1	Q13698-01	12 VDC power supply

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Table 2. Cable Assembly Kit (Q13623-03)

Qty	Part Number	Description
1	Q13180-11	Two-wire receptacle gender mender (RJ45 to DB-9 receptacle)
1	Q13180-12	Two-wire plug gender mender (RJ45 to DB-9 plug)
1	Q13180-20	RJ45 to DB-9 COM port gender mender
1	Q13180-21	RJ45 to DB-25 DTE COM port gender mender
1	Q13180-22	RJ45 to DB-25 COM port gender mender
1	Q13482-03	3' CAT-5 cable (RJ45 to RJ45)
1	Q13482-10	10' CAT-5 cable (RJ45 to RJ45)
1	Q13623-02	Diagnostic Breakout Box

Installation

Read this section before installing the RS-232 to Two-Wire Converter Box. Make sure that you read and understand all safety information beginning.

Unpacking Equipment

Upon delivery, unpack each RS-232 to Two-Wire Converter Box Kit and inspect it for damage. Check each device's model and serial number with the packing list. You must report all evident shipping damage to the carrier. Gilbarco's warranty does not cover shipping damage.

Returning Equipment

All equipment or components returned under Gilbarco's warranty policy or for repair must be packaged properly to avoid shipping damage. Return equipment in its original shipping container. If the original materials are not available, use a durable reinforced corrugated box and suitable packing material (polyfoam chips, polyurethane foam chips, or polystyrene foam chips).

- Fill bottom of container with at least 2 inches of packing material.
- Make sure the device is firmly packed.
- Include description of the malfunction or damage and return with shipping information.
- Prepare a Returned Goods Authorization form (MDE-2149) to ship with the device.

Note: Gilbarco recommends that returned equipment be fully insured. Gilbarco inspects all returned equipment for any damage caused during return shipment. The customer is responsible for all repair costs of equipment damaged during the return shipment caused by improper packing.

Equipment Layout

PC-Based Pump Simulator

In most cases, the PC-based pump simulator is setup in a lab environment. The personal computer running Pump Sim should be placed within ten feet of the distribution box or pump controller driving the pump loop. Refer to Figures 1 and 2 for pump simulator connection diagrams.

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Two-Wire Monitor

The Breakout Box must be placed within three feet of the distribution box. The RS-232 to Two-Wire Converter Box must be placed within three feet of the Breakout Box. The Breakout Box is used to break into a current loop to monitor two-wire communications.

Place the personal computer or laptop in a convenient location. Typically, it should be placed within ten feet of the RS-232 to Two-Wire Converter Box. Refer to Figures 3 and 4 for two-wire connection diagrams.

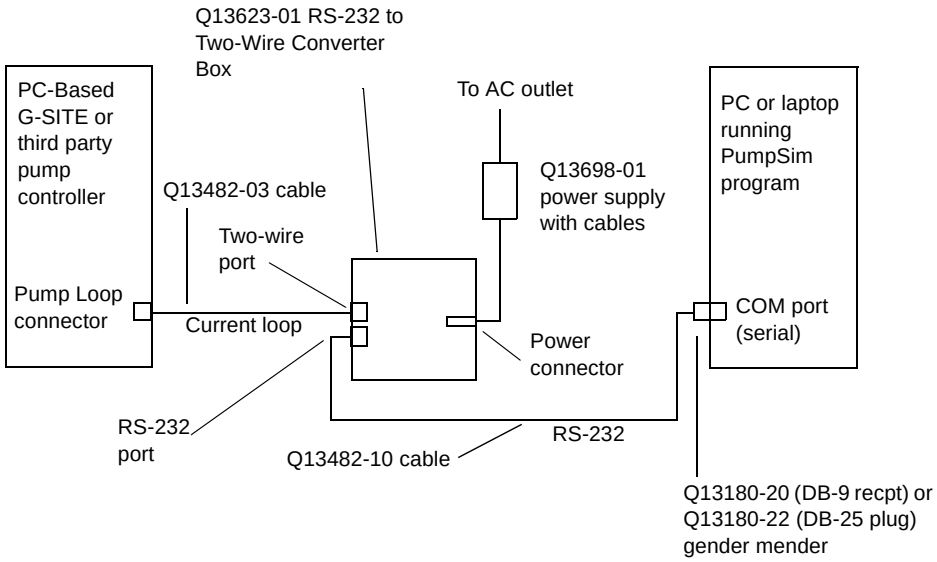
RS-232 to Two-Wire Converter Cable Connections

Refer to the figures in this section for information on RS-232 to Two-Wire Converter for PC-Based Pump Simulator and the Two-Wire Monitor cable connections.

Note: All data cable connections must be made by a certified ASC technician. Some localities require a licensed electrician to terminate data cables. In this case, all data cable connections should be made under the supervision of a certified ASC technician.

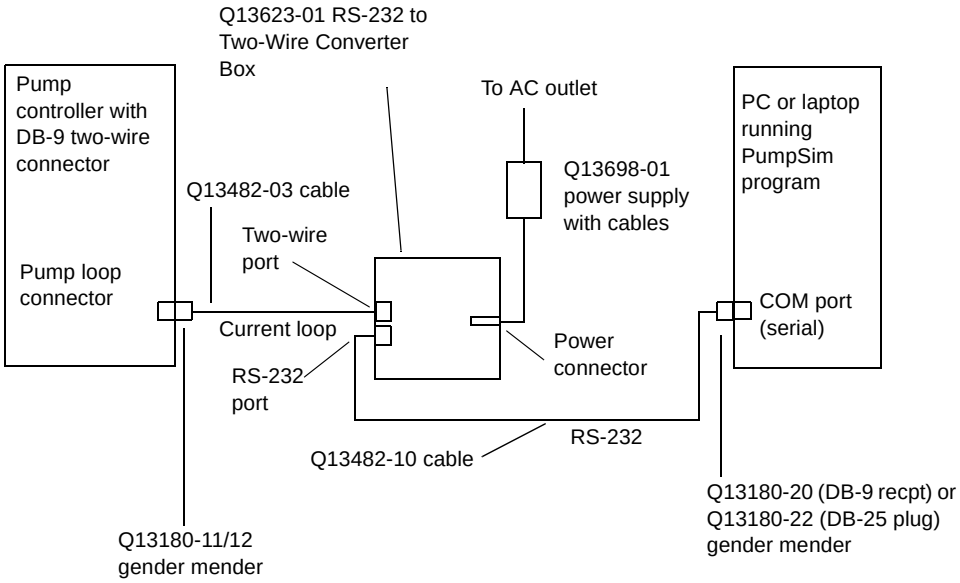
PC-Based Pump Simulator

Refer to Figure 1 for a block diagram of PC-Based pump simulator cable connections using the RS-232 to Two-Wire Converter Box with PC-Based G-SITE systems or third party pump controllers that use RJ45 two-wire connectors. Refer to Figure 2 for pump controllers that use DB-9 two-wire connectors.



For PC-Based G-SITE systems or third party pump controllers using RJ45 two-wire connectors

Figure 1. Pump Simulator Cable Connections



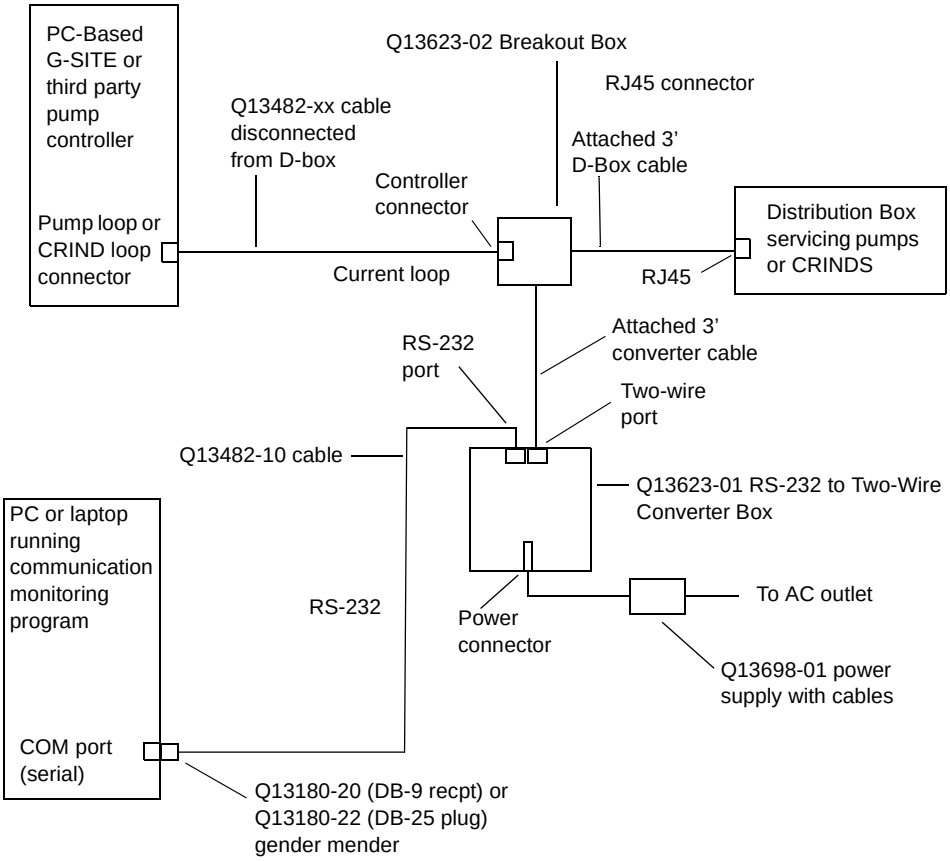
For pump controllers with DB-9 two-wire connectors

Figure 2. Pump Simulator Cable Connections

Two-Wire Monitor

Refer to Figure 3 for a block diagram of two-wire monitor cable connections using the RS-232 to Two-Wire Converter Box and breakout box with PC-Based G-SITE systems or third party pump controllers that use RJ45 two-wire connectors. Refer to Figure 4 for a block diagram of cable connections for pump controllers that use DB-9 two-wire connectors.

Note: The Q13623-02 Breakout Box is used to splice the RS-232 to Two-Wire Converter Box to the pump or CRIND two-wire loop being monitored.



For PC-Based G-Site systems and third party pump controllers using RJ45 two-wire connectors

Figure 3. Two-Wire Monitor Cable Connections

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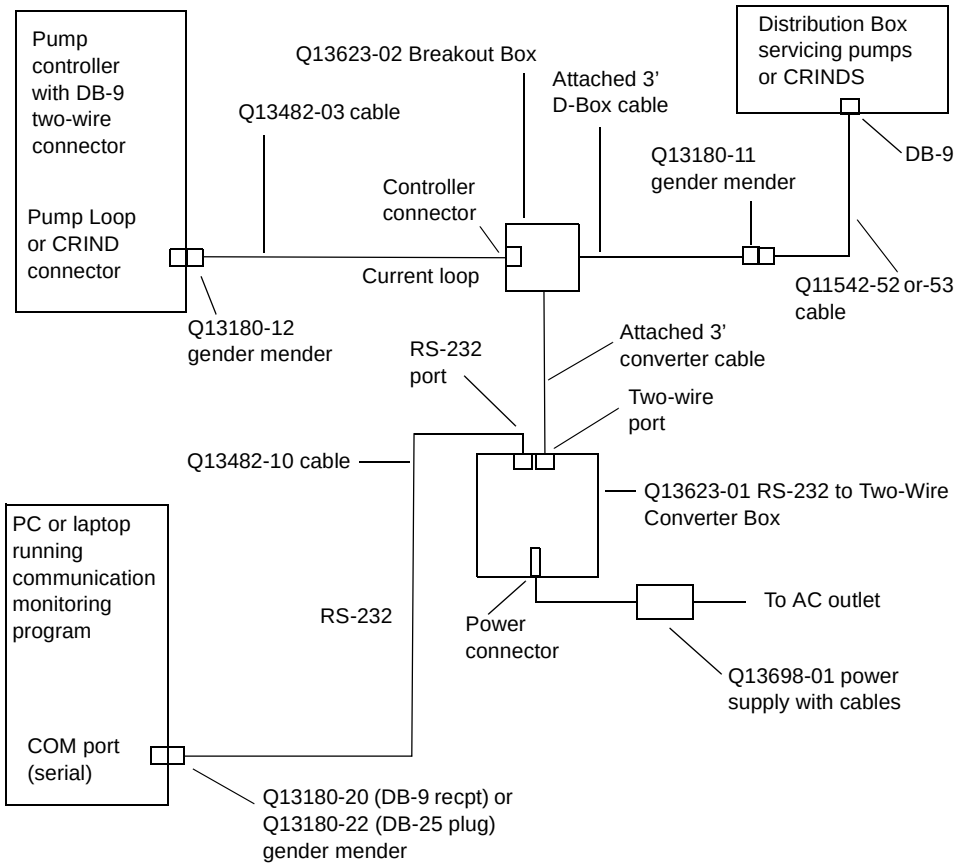

For pump controllers with DB-9 two-wire connectors

Figure 4. Two-Wire Monitor Cable Connections

LEDs

The RS-232 to Two-Wire Converter Box two-wire port LEDs indicate the communication status of the two-wire loop. When the RS-232 to Two-Wire Converter Box is connected in pump simulator mode, the RX LED flashes when data is sent from the pumps to the controller. The TX LED flashes when data is sent to the pumps from the controller.

When the RS-232 to Two-Wire Converter Box is connected in monitor mode, the RX LED is always off, and the TX LED flashes when any data passes between the controller and the pump or CRIND.

Note: The LEDs on the RS-232 port are not used and should not turn on.

Figure 5 shows the RS-232 to Two-Wire Converter Box communication status LEDs.

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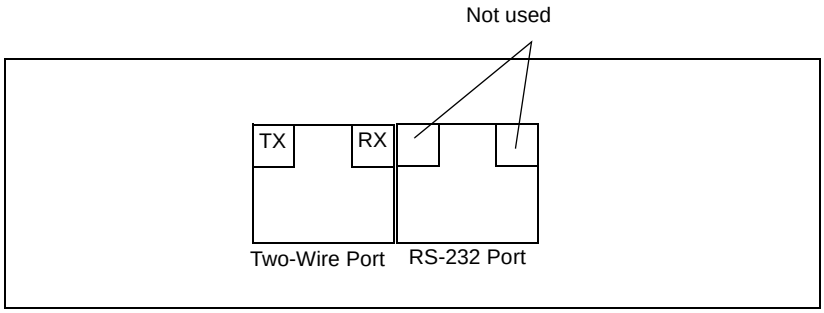

Figure 5. RS-232 to Two-Wire Converter Box Communication Status LED s

Hardware Specifications

This section lists physical and electrical specifications for RS-232 to Two-Wire Converter Box Kit components.

Converter Box

Part number: Q13628-01

Power Requirements

Power Cable	Integrated with external power supply
Input Voltage	12 VDC
Input Current	1 A

Dimensions

Width	3-1/4"
Height	1-1/2"
Depth	4-3/8"
Weight	100 grams (0.22 lbs)

Power Supply

Part number: Q13698-01

Power Requirements

Input Voltage	100 VAC to 240 VAC
Input Voltage Frequency	50/60 Hz
Maximum Input Current	0.4 A
Output	1 A, 12 VDC

Dimensions

Width	3-1/4"
Height	1-1/2"
Depth	4-3/8"
Weight	300 grams (0.66 lbs)

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Breakout Box

Part Number: Q13623-02

Dimensions

Cable length	3’
Width	2"
Height	1"
Depth	2"
Weight	120 grams (0.26 lbs)

All Kit Components

Environment

Operating Temperature	0° to 50° C (32° to 122° F)
Non-operating Temperature	-40° to 60° C (-40° to 140° F)
Operating Relative Humidity	10% to 80%
Non-operating Humidity	5% to 95% (non-condensing)
Operating Altitude	Sea level to 10,000’
Non-operating Altitude	Sea level to 30,000’

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