Installation Instructions

Interface Part Number 14-2990-000
Interfacing a 2000/7000/3000/6000/Velocity XPT to a Hewlett-Packard 5880A or 5840A

Introduction

This interface allows signal transfer between the Tekmar unit and the gas chromatograph (GC). Also, it enables the Tekmar unit to start the GC and data system upon sample transfer or injection.

Adjustments

For the interface to work properly, the switches on the 2000/7000 input/output (I/O) board need to be set as shown in the diagram included with these instructions. You do not need to set switches for the 3000, 6000 or Velocity XPT; you set up the interface through software. These instructions will tell you how to set the switches or set up the interface.

The GC READY Signal and the Timer Box

The 5880A or 5840A GC does not provide an automatic GC READY signal for the Tekmar unit. The 5880A can be programmed to *simulate* a GC READY signal. On the other hand, the 5840A cannot be programmed to simulate a GC READY signal; the ready state must be observed by the user and action taken accordingly. For unattended, automatic operation, Tekmar offers a timer box. The timer box simulates a GC READY signal for the Tekmar unit at the time you specify.

Note: IF YOU ARE GOING TO USE THE TIMER BOX, please skip the instructions below and on pages 2 and 3. FOLLOW THE INSTRUCTIONS ON PAGES 4, 5 AND 6.

WARNING

Electrical shock hazard inside. Unplug power cord before removing panels.

CAUTION

**Circuit board components can be damaged by static discharge.
Avoid touching the components unless otherwise noted.**

Connection to the LSC 2000

1. To access and set the switches:
   a. Locate the I/O board. It has two connectors extending out of its bracket, which can be accessed at the rear of the LSC 2000. (See the photograph in Section 12 of your Purge and Trap Concentrator User Manual.)
   b. Loosen the two screws that hold the I/O board and slide it out until you see the switches labeled "U012" and "U013".
   c. Set the switches according to the diagram included with these instructions. (The switches are in the OPEN position when they are pressed **down** at the "OPEN" label.)
   d. Return the I/O board to its original place, being careful to properly seat it into its connector.
2. Plug the 25-pin connector into the I/O board.

Connection to the 7000

1. To access and set the switches:
   a. Loosen the two 1/4-turn fasteners on the lower left side panel.
   b. To remove the panel, pull it **away** from the unit to release the retaining clips from the posts in the chassis, then toward the **front** of the unit to release it from the locating pins (on the rear of the unit).
   c. There are three sets of four DIP switches on the edge of the board. They are labeled BIAS, OUTPUT and INPUT. Set the switches according to the diagram included with these instructions. (Flip the switches **up** to put them in the OPEN position.)
   d. Reinstall the left side panel by pressing it back onto the locating pins and inserting the retaining clips into the posts in the chassis.
   e. Secure the panel with the two 1/4-turn fasteners.
2. The I/O board has two connectors extending out of its bracket, which can be accessed at the rear of the 7000. Plug the 25-pin connector into the I/O board.

Connection to the 3000 ,6000, Velocity XPT

1. Turn off the Tekmar unit.
2. Locate the Tekmar unit's interface board. The board has two connectors extending out of its bracket. These connectors can be accessed at the rear of the Tekmar unit.
3. Plug the 25-pin connector from the Tekmar cable into the matching connector on the interface board.

Specifying the GC Port (3000 , 6000, Velocity XPT only)

1. Turn on the Tekmar unit.
2 At the System Error/System Reset Screen, press the ENTER key.
3. Allow the system to run through the automatic self-test.
4. At the Standby Screen, press the CONF key. The Configuration Screen appears on the display.
5. At the Configuration Screen, press **A** (GC I/O Port). The GC Port Screen appears on the display.
6. Choose the GC Port. You have two choices: *Standard* or *User*. Choose **Standard**. Press any numeric key to cause the display to toggle from one choice to another. Press ENTER to save your selection.
7. Turn off the Tekmar unit.

Connection to the GC

1. Plug the four-pin connector into the socket labeled "Remote Start/Stop" on the rear panel of the functional terminal.
2. Locate the valve junction board on the top of the GC. It is in the right, rear corner. Connect the two wires that are twisted together to an available contact connector (preferably number 12) on the valve junction board.

Programming the 5880A GC to Simulate a GC READY Signal

If you use the timer box, you do NOT need to program the 5880A to simulate a GC READY signal.

To program the 5880A to simulate a GC READY signal:

1. Program the terminal to close the valve with the appropriate number when the GC is ready.
2. Turn off the valve 0.01 minutes (6/10 of a second) after the run has started.

Optional Connection to a Peripheral Device (Data System)

This interface has a two-wire cable that is used to start a peripheral device (data system). See the illustration included with these instructions. Refer to your peripheral device manual for the location of the terminals to which these two wires attach.

1. Connect the black wire to the ground, common or negative terminal.
2. Connect the remaining wire to the other terminal.
3. If you are not using this cable, insulate the bare wires with electrical tape or cut them off to keep them from touching each other.

Note: IF YOU ARE USING THE TIMER BOX, follow the instructions below and on pages 5 and 6.

WARNING

Electrical shock hazard inside. Unplug power cord before removing panels.

CAUTION

Circuit board components can be damaged by static discharge. Avoid touching the components unless otherwise noted.

Connection to the LSC 2000

1. To access and set the switches:
   a. Locate the I/O board. It has two connectors extending out of its bracket, which can be accessed at the rear of the LSC 2000. (See the photograph in Section 12 of your Purge and Trap Concentrator User Manual.)
   b. Loosen the two screws that hold the I/O board and slide it out until you see the switches labeled "U012" and "U013".
   c. Set the switches according to the diagram included with these instructions. (The switches are in the OPEN position when they are pressed **down** at the "OPEN" label.)
   d. Return the I/O board to its original place, being careful to properly seat it into its connector.
2. Plug the timer box's two-way connector into the I/O board.

Connection to the 7000

1. To access and set the switches:
   a. Loosen the two 1/4-turn fasteners on the lower left side panel.
   b. To remove the panel, pull it **away** from the unit to release the retaining clips from the posts in the chassis, then toward the **front** of the unit to release it from the locating pins (on the rear of the unit).
   c. There are three sets of four DIP switches on the edge of the board. They are labeled BIAS, OUTPUT and INPUT. Set the switches according to the diagram included with these instructions. (Flip the switches **up** to put them in the OPEN position.)
   d. Reinstall the left side panel by pressing it back onto the locating pins and inserting the retaining clips into the posts in the chassis.
   e. Secure the panel with the two 1/4-turn fasteners.
2. The I/O board has two connectors extending out of its bracket, which can be accessed at the rear of the 7000. Plug the timer box's two-way connector into the I/O board.

Connection to the 3000, 6000, Velocity XPT

1. Turn off the Tekmar unit.
2. Locate the Tekmar unit’s interface board. The board has two connectors extending out of its bracket. These connectors can be accessed at the rear of the Tekmar unit.
3. Plug the timer box's two way connector from the Tekmar cable into the matching connector on the interface board.

Specifying the GC Port (3000,6000, Velocity XPT only)

1. Turn on the Tekmar unit.
2 At the System Error/System Reset Screen, press the ENTER key.
3. Allow the system to run through the automatic self-test.
4. At the Standby Screen, press the CONF key. The Configuration Screen appears on the display.
5. At the Configuration Screen, press **A** (GC I/O Port). The GC Port Screen appears on the display.
6. Choose the GC Port. You have two choices: *Standard* or *User*. Choose **Standard**. Press any numeric key to cause the display to toggle from one choice to another. Press ENTER to save your selection.
7. Turn off the Tekmar unit.

Connecting the Tekmar Unit and Timer Box to the GC

1. Plug the Tekmar interface cable into the two-way connector. (You should have already plugged the opposite end of this two-way connector into the Tekmar unit's I/O or interface board.)
2. Locate the socket labeled "Remote Start/Stop" on the rear panel of the functional terminal. Plug the four-pin connector from the Tekmar cable into the socket.
3. Locate the valve junction board on the top of the GC. It is in the right, rear corner. Connect the two wires that are twisted together to an available contact connector (preferably number 12) on the valve junction board.

Optional Connection to a Peripheral Device (Data System)

This interface has a two-wire cable that is used to start a peripheral device (data system). See the illustration included with these instructions. Refer to your peripheral device manual for the location of the terminals to which these two wires attach.

1. Connect the black wire to the ground, common or negative terminal.
2. Connect the remaining wire to the other terminal.
3. If you are not using this cable, insulate the bare wires with electrical tape or cut them off to keep them from touching each other.

Setting the Timer

The timer box simulates the GC READY signal at the time you specify. For example, if you set the timer for 30 minutes, then the GC READY signal will transfer to the Tekmar unit 30 minutes after the Tekmar unit signals the timer to start. See the illustration below.

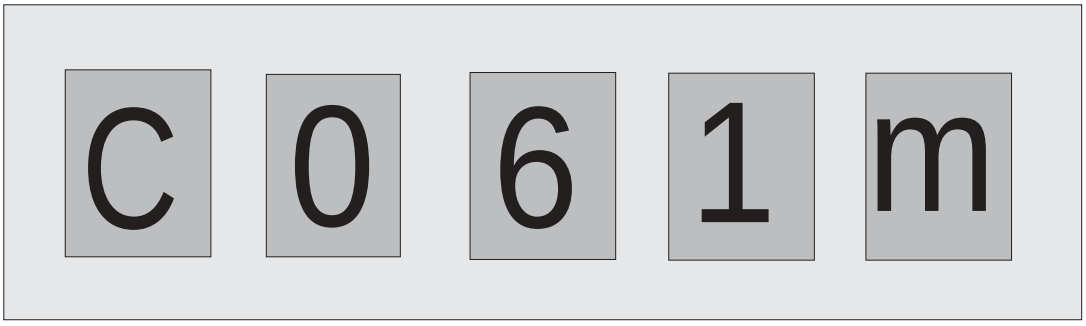

Figure 1 Timer display set for 61 minutes

Setting the Timer, continued

To set the timer:

1. Set the extreme left position on the front panel to "C".
2. Set the extreme right position on the front panel to the desired time unit (hours, minutes or seconds)
3. Set the time, using the three middle digits. The timer should "time-out" one or two minutes after the GC is supposed to complete its cycle. For example, if you know the GC cycle time is 60 minutes, then set the timer for 61 or 62 minutes. This allows for any possible variation in the GC cycle time, ensuring smooth, coordinated operation.
4. To reset the timer, flip the switch on the timer box to the "off" position, wait about three seconds, then flip the switch to the "on" position.
5. Make sure that the GC is ready to accept samples when you turn on the Tekmar unit, because the timer initially powers up on GC READY.

If the display on the timer box says "off", then the GC is ready and waiting to accept a sample. If it says "on", the GC is processing the sample.

Tekmar™

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