INCON® INTELLIGENT CONTROLS — TS-DIM Dispenser Interface Module Quick Installation Guide

1 Unpack the Box & Locate the:

1.) TS-DIM Dbox Adapter Cable for wiring to the POS (Point of Sales Terminal) and/or Dbox (dispenser Distribution box)

2.) TS-DIM unit with an attached AC Power Adapter and a 3 wire RS-485 communications cable for wiring to the Tank Sentinel® console.

3.) RS-232 Tester Cable

4.) TS-DIM Tester diskette

5.) TS-DIM Installation Guide

6.) TS-DIM Quick Installation Guide (this sheet)

NOTE *The Adapter Cable(s) and the TS-DIM Model number depends upon the type of dispenser(s) on-site (see Section 7).*

NOTE *The INCON TS-1001/2001 console must have Software Rev. 2.0 or greater and also must have an **R** code in its Part Number to be able to interface to the TS-DIM. (To verify, press the Check button and then the M4 button.) See Section 8 about additional Items and upgrades that you may need.*

2 Safety

Turn off all power to the Tank Sentinel console before doing any installation or maintenance work! Read and follow the Safety Instructions in the *Tank Sentinel Installation Guide (P/N 000-1049 or 000-1050)*, and in the TS-DIM Installation Guide (P/N 000-1070).

3 Recommended Tools & Materials

(4) #8 Mounting Screws – suitable type for mounting the TS-DIM to a wall / surface near the Tank Gauge and Dispenser Distribution Box (Dbox)

(AR) As Required: Assorted electricians tools, multimeter with test leads, screwdrivers, level, marking pens, lockout tags, extension cord & power strip for Laptop PC

(1) 10 amp Circuit Breaker – dedicated & used only for the TS-DIM, and for installation within the Electrical Power Panel

(1) 115 VAC Single Outlet Receptacle with Ground – wired to a 10 amp Circuit Breaker – dedicated & used only for the TS-DIM

(1) Laptop / Notebook PC with a 3 1/2 inch floppy drive with Windows™ 95 / 98 / NT operating system, and with a 9-pin serial communications port (to connect the supplied Tester communications Cable).

4 Theory of Operation

The TS-DIM Dispenser Interface Module receives dispense data from the dispenser through the Dbox (Dispenser Distribution Box). The module calculates the quantity of product that is dispensed from each fueling point. This happens even during deliveries. Up to 64 different points can be tracked with the TS-DIM unit.

The INCON TS-1001/2001 Tank Sentinel® ATG (Automatic Tank Gauge) – receives data from the TS-DIM over a three-wire, RS-485 interface cable. The interface to both consoles are identical.

The TS-DIM that is supplied from INCON is pre-configured to work with a specific type of Dbox and dispenser that was specified at time-of-order. Units include a Power Adapter, Dbox adapter cable(s), and 3 conductor cable. The 3 conductor cable is wired to the RS-485 terminals at the TS-1001/TS-2001 console. *Note, the TS-DIM communication jumpers are set for RS-485, 2400 Baud, 8 Data-Bits, 1 Stop-Bit, No Parity, and 0 Device Address (do not change settings).*

Current Models:

a.) **TS-DIM/G** for Gilbarco Universal sites, includes 2 Dbox adapter cables 9000-15- 0027 & 0028

b.) **TS-DIM/GS** for Gilbarco, MOC G Sites, includes 1 Dbox adapter cable -9000-15-0045 plus (2) RJ45 adapters 9000-16- 0002 & 0003

c.) **TS-DIM/M** for Mechanical dispensers

d.) **TS-DIM/S** for Schlumberger sites, includes 1 Dbox adapter cable 9000-15-0043

e.) **TS-DIM/T** for Tokheim sites, includes 1 Dbox adapter cable 9000-15-0011

f.) **TS-DIM/W** for Dresser/Wayne sites, includes 1 Dbox adapter cable 9000-15-0012

NOTE *The Unit Model number is on the shipping box and on the side of the unit. **Do Not** change the jumper settings unless INCON Technical Service has recommended that you do so.*

5 TS-DIM Power Receptacle & Dbox Wiring & Laptop Interface

The TS-DIM must be located so the Power Adapter can be plugged into the Single Outlet Receptacle and so the Adapter Cable can plug/wire into the Dbox.

NOTE *The 3 wire RS-485 interface cable, which wires into the Tank Sentinel console, can be extended **if** the Dbox is a long distance from the TS-1001/2001 console.* See Step 7 about Wiring to the Tank Sentinel Console.

See installation overview diagram below:

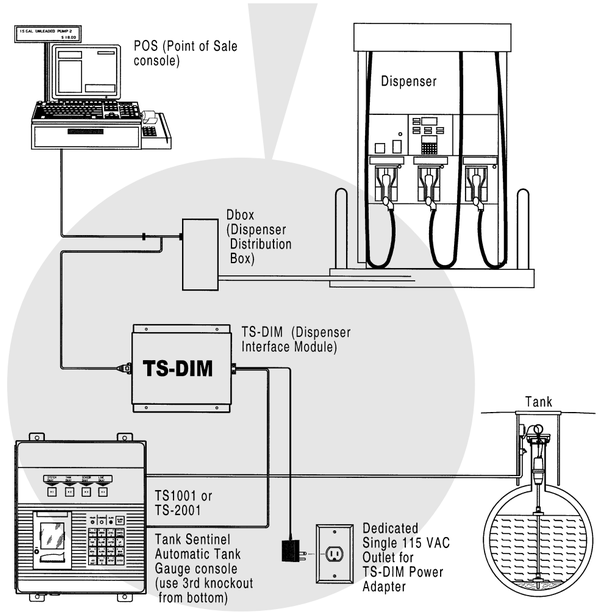


Figure 5.1. TS-DIM Installation – Overview

5 TS-DIM – Power Receptacle & Dbox Wiring & Laptop Interface (Continued...)

Mount the TS-DIM on a wall near the Dbox. See **Figure 5.2.**

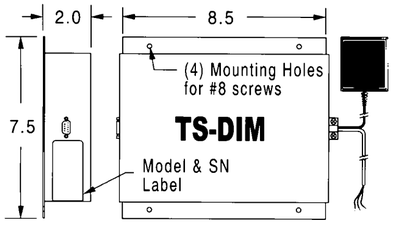


Figure 5.2. TS-DIM Installation Dimensions

1.) With all power off, install and wire the Single Outlet Receptacle to a dedicated 10 circuit breaker in the Power Panel. Label the circuit description on the Power Panel door *"TS-DIM power only."*

2.) Wire the TS-DIM to the Dbox. Information about wiring to the Dbox, or Dbox & Controller, or G-Site Controller, or SAM Controller is found in the TS-DIM Installation Guide (P/N 000-1070). *The TS-DIM will be wired to the console later in Chapter 7.*

3.) Also see the Installation Guide about mechanically-metered dispensers, pulser requirements, and suggested manufactures.

4.) Remove the four hold-down screws on the TS-DIM cover and then remove the cover.

5.) Connect the RS-232 Tester Cable between Conn 2 of the TS-DIM and the 9 pin Serial Port on the Laptop computer. *See **Figure 5.3** and note the orientation of the wires on Conn2 in the TS-DIM.*

6.) Apply power only to the TS-DIM only (**plug-in** the TS-DIM power adapter into the Single Outlet Receptacle and **turn-on** the TS-DIM circuit breaker).

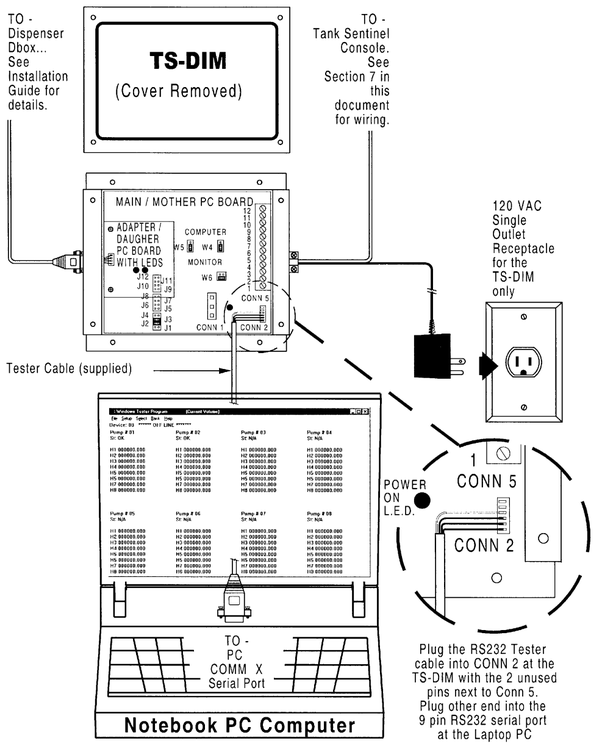


Figure 5.3. TS-DIM to Dbox and Receptacle Wiring Power

6 Running the Win Tester Program (to get site configuration data)

Starting Win Tester

1.) Insert the 3-1/2 Tester disk into the Laptops' floppy drive

2.) Click the Windows **Start** button and select **Run...**

3.) Type in: **A:\win tester.exe** and press the OK button

4.) In the Tester Program window, click on **Setup** and select the correct COM port for the Laptop PC, and change the Baud rate to 2400. Also verify that Parity = none, Data Bits = 8, Stop Bits = 1, RTS = Active, and that Upper Addr **is not** selected (click text to select/deselect).

5.) Then click on **Select** and enter a device address of 00 and deselect (remove check next to the) Current Volume

6.) In the Win Tester Program window, verify that top line of the screen reads **Device: 00 ******Comm OK*******. Also verify that the status (**St:**) of each pump shows either OK or B (busy), other status indicates a problem.

Definitions:

Fueling Point – anywhere a vehicle can stop and dispense fuel. Most dispensers have 2 fueling points [front & back]

Meter # (Product) – each type of product that can be dispensed from a fueling point (position) will be assigned to a meter number **Hn** (**n** = **1** through **8**)

Grade # – the Tester program will show 8 possible grades for each Fueling Point and assigns a Grade # to a Meter (product) when you dispense each product at each fueling point (position).

Tank # – this is the Tank # in the INCON Tank Sentinel that the product will come from when dispensed from this Meter (product). If this Meter is a blended product, then supply both Tank numbers and the blend-percentage from the primary tank.

Blend % – is the percentage of the blend coming from the primary tank (the tank which supplies the greatest amount of fuel to the blend... non-blends = 100 %).

Using Win Tester to Collect Site Data

Be prepared, some of these steps involves dispensing at least 1/10TH of a gallon of each product from all Fueling Points.

A.) The INCON TS-1001/2001 Tank Sentinel console must be programmed with the information from the TS-DIM for site configuration and layout.

B.) Make multiple copies of the Blank Fueling Point Tables (**Figure 6.2**) so all of the information can be recorded for each fueling point and meter.

C.) See **Figure 6.1** for an example of how to fill out a Fueling Point Table

D.) Enter the Fueling Point No.(s) at the top of each table.

E.) Start at Fuel Point # 1, each product that can be dispensed at this fueling point is represented by a Meter #. For example, if this fueling point can dispense Unleaded Regular, Midgrade, and Super, then it will have 3 meters. Enter a Meter number for each product that can be dispensed at this Fueling Point. Note that although the table shows 8 possible Meter positions per Fueling Point, usually only 3 or 4 will be used.

F.) At Fueling Point 2, each product should again be assigned to a Meter. The meter number will continue to increase and should never be duplicated.

G.) In the case of blenders, each Meter (product) will be dispensed from a Primary tank (A) and maybe from a Secondary tank (B). Record the tank number(s) for each Meter as programmed in the INCON TS-1001/2001 tank gauge. If the Meter is a blended product, then the greatest percentage of the blended product will come from the primary tank and should be recorded also.

H. When there are two opposing Fueling Points (one dispenser), each will have a Meter with the same tank configuration. These meters should be listed opposite each other in the Fueling Point Table.

(over)

INCON® INTELLIGENT CONTROLS — TS-DIM Dispenser Interface Module Quick Installation Guide

6 Running the Win Tester Program (to get site configuration data) continued...

I.) Win Tester shows eight possible Grades for each Fueling Point, labeled H1 to H8. When the product is dispensed from Meter 1, the total volume that was dispensed will show up in one of the Grade positions under Fueling Point 1. This Grade number should be assigned to Meter 1. Dispense product form each Meter and/or monitor sales activity to determine the Grade assignments of each Meter. *Click on Reset Device under the Select menu to clear displayed totals if needed.*

CAUTION Grade assignments may be consistent from Fueling Point to Fueling Point, but it is not guaranteed.

NOTE *Pay particular attention to changes in dispenser type, like one island having a 3 + 1 gasoline and diesel dispenser. The grade assignments can drastically in this case. Mistakes in Grade assignments can create problems that will be very difficult to trace.*

J.) When the data collection is complete, disconnect the Tester cable from the TS-DIM at Conn 2 and from the RS-232 PC COM Port, replace the cover, and finish connecting to the TS-1001/2001 in Section 7.

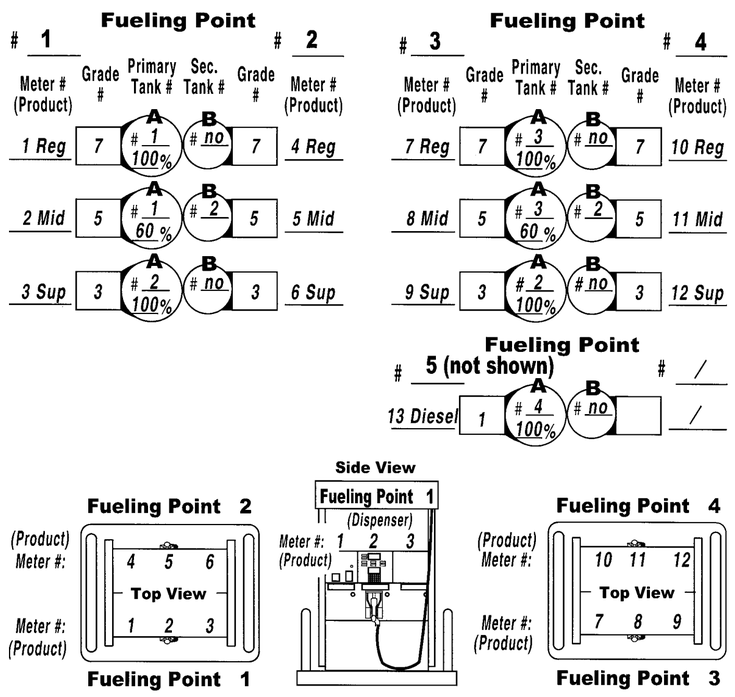


Figure 6.1. Example Site – Fueling Point Layout

6 Running the Win Tester Program (to get site configuration data) continued...

You may freely copy this page. Fill out the blank copies of the Fueling Point Tables and use these to program the TS-1001/2001 console.

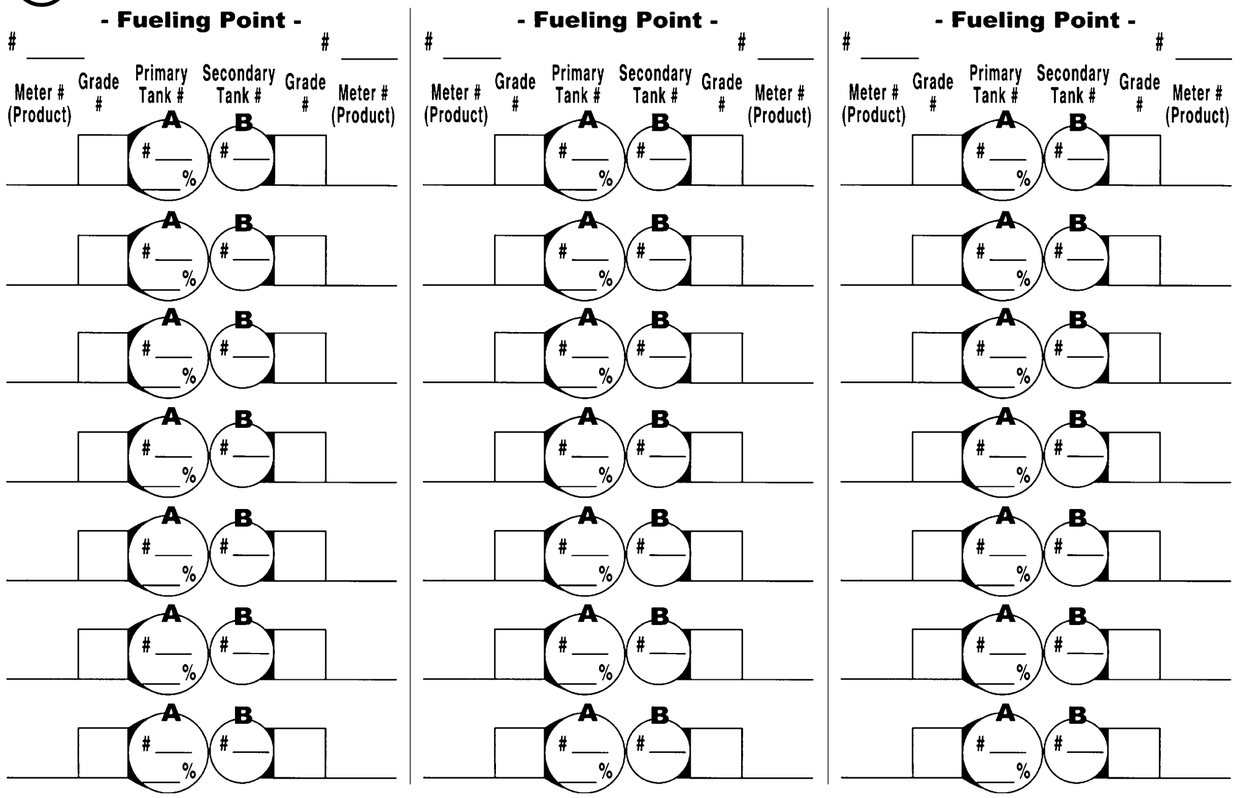


Figure 6.2. Blank Fueling Point Tables

7 TS-DIM Wiring to Tank Sentinel Console

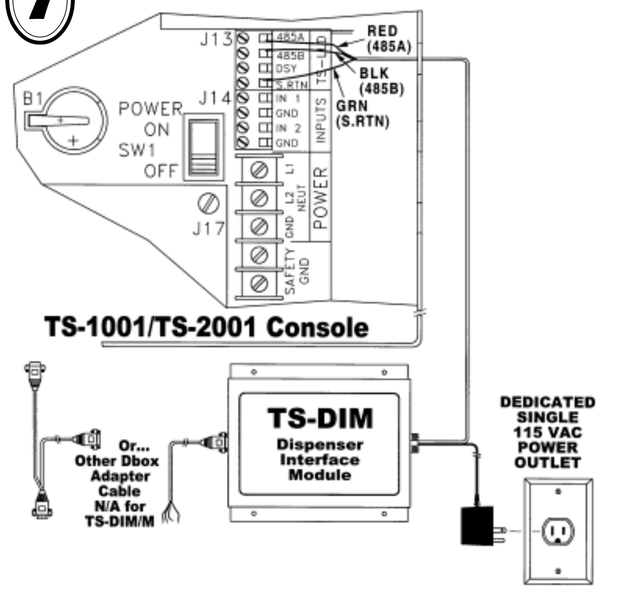


Figure 7.1. TS-DIM & Tank Sentinel Console Wiring

DANGER **up to 240 Volts AC present** – turnoff the main power source / all power sources that terminate in the console before working within on or servicing this equipment. Failure to do so will create a lethal electrical-shock hazard.

1.) Make sure all power to the Tank Gauge console is turned off at the power source.

2.) On the right side of the console, use the third knockout from the bottom for the TS-DIM, 3 conductor cable wiring.

3.) Reference **Figure 7.1**. Install a clamp fitting at the console and insert the wires through the opening. Remove the plastic safety shield and terminate the wires as shown below:

a.) RED wire to 485A

b.) BLK wire to 485B

c.) GRN wire to S.RTN

NOTE *There may be TS-LLDI interface wires already connected to the RS-485 terminals. In this case, remove one wire and twist it together with the appropriate-colored TS-DIM wire. Reinsert these into the correct terminal and tighten the hold-down screw.*

4.) Reinstall the plastic safety shield and tighten the hold-down clamp.

8 Items That You May Need

1.) Check the EPROM (U10) in the Tank Sentinel console for its REV. Number (U10 is the chip with a white label showing the Revision #).

2.) **IF** the revision number on the EPROM is lower than 2.0, then order new a software EPROM and a TS-Upgrade (Revision 2.0 EPROMS and above support the TS-DIM program).

NOTES *Even if the EPROM is REV. 2.0 or above, a TS-Upgrade must be ordered if the console is not TS-DIM enabled (an R code within the console Part Number means the console is TS-DIM enabled – from the keypad check this by pressing the Check button and then the M4 button).*

*Follow the new EPROM and TS-DIM upgrade instructions **exactly**.*

3.) Order a new Programming Guide 000-1053 Rev. B (or higher) if the console had an EPROM lower than Rev. 2.0

4.) Order a new Operator's Guide 000-1052 Rev. B or higher if the console had an EPROM lower than Rev. 2.0

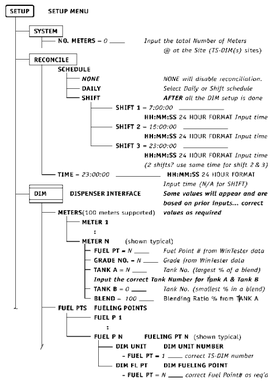
9 Program the Tank Gauge

See the Setup Programming Guide (INCON P/N 000-1053 Rev. B or above).

9 Programming the Tank Gauge (continued...)

What's New in SETUP (for the TS-DIM)

1.) **NO. METERS** — total number of all Fueling Point Meters at the site — new addition under the **SYSTEM** menu... a value above 0 will show the following menus:



2.) **RECONCILE** — enables reconciliation by programming schedule and time for gathering data — a new addition under the **SETUP** menu

3.) **DIM** Dispenser Interface — program Meters, Fuel Points, and DIM address — a new addition under the **SETUP** menu

4.) **REPORTS... RECONCILE** — program a schedule on a Shift basis, Daily schedule, Monthly basis, Shift History, or Daily History — the **RECONCILE** menu is DIM-related and replaces the Non-DIM Inventory Reconciliation menu (reconcile is the last of the report choices)

New TS-DIM Related Features

Sales and Delivery adjustment (in volume units) are available on a per-tank basis. These offsets allow adjustment to a known discrepancy in reconciliation (e.g. when calibrating a meter, or when a product delivery doesn't match the reported delivery at the tank gauge). Press **MENU** – **DOWN** – and **M1** for SALES ADJ or **M2** for **DELIV ADJ**.

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INCON P/N 000-1058 Rev. A **Side 2 of 2**