Series 803
LED Product Price Display

Table of contents

1. Safety

The operator of the SCC Series 803 is responsible for the safe operation and repair of the Display. It is the responsibility of the owner of this sign to make all employees aware of this operation manual.

Do not power on until all components of the 803 display have been installed.

Static Controls Corporation suggests that 120VAC power be installed by a licensed electrician in accordance with all local building and electrical codes.

If any part of the 803 display malfunctions, please turn off the circuit breaker supplying 120VAC to the control box, and call SCC. Our Technical Support number is (248)926-4400 Ext 234.

WARNING! USE A LOCK OUT/TAG OUT ON CIRCUIT BREAKERS OR SWITCHES WHEN PERFORMING INSTALLATION OR SERVICE ON DISPLAYS.

THE CONTROL BOX IS DESIGNED TO KEEP THE WEATHER AND ELEMENTS OUT, IF YOUR CONTROL BOX IS OPEN SEVERE DAMAGE COULD OCCUR.

2.0 Series 803 Sign Features.

2.1 Sign Descriptions.
The series 803 system designed for Shell Oil is available in two colors and six sizes. The available colors are Red, and Green (Diesel only). The sizes are 8 inch, 12 inch, 16 inch, 18 inch, 24 inch and 30 inch, and supports one to four products, single or double faced. The 803 displays are controlled via the systems hand held programmer (HHP). There are two methods for updating the signs prices; manual keypad, & automatic PCATs. When referring to displays we will use the terms digit to refer to the led multi segment numeric display. When referring to digits we will use the place of the digit in the price, and product number to describe its location, dollar, 10 cent, 1 cent, 9/10th, product one, product two and so on.

PRODUCT 1

PRODUCT 2

PRODUCT 3

PRODUCT 4

The power on sequence will show the address of the boards, product one will show 0.12, product two will show 3.45, product three will show 6.78, and product four will show 9.Ab. The front and back will display the same addresses in the same position. The addresses are set via dip switches for the associated products at SCC. If at any time the values need to by changed please consult SCC technicians and use the dip switch chart on page 5.

Shell Sign Configurations with Address Values

Example:
For the 1 product 30" display (803D30R) the dipswitch values will be set as:
Dollar Board "0" (per chart below)
10 Cent "1" (per chart below)
Cent "2" (per chart below)
9/10th "3" (per chart below)
Note: Dip switch values are shown on LED boards for sign configurations on page 11-13.

PN   **Description and dip switch settings**
803D30R18G….. Two Product 1 Product -30" red (0.123) & 1 Product -18" green (4.567)
803D30R………. One Product 1 Product -30" red (0.123)
803D24R12G…...Two Product 1 Product -24" red (0.123) & 1 Product -12" green (4.567)
803D24R………..One Product 1 Product -24" red (0.123)
803D16R8G…….Two Product 1 Product -16" red (0.123) & 1 Product -8" green (4.567)
803D16R………..One Product 1 Product -16" red (0.123)
803D163………..Three Product 16" red (0.123)(4.567) with green (8.9ab) Diesel
803D164………..Four Product 16" red (0.123)(4.567)(8.9ab) with green (c.def) Diesel
803D123………..Three Product 12" red (0.123)(4.567) with green (8.9ab) Diesel
803D124………..Four Product 12" red (0.123)(4.567)(8.9ab) with green (c.def) Diesel
803D83…………Three Product 8" red (0.123)(4.567) with green (8.9ab) Diesel
803D84…………Four Product 8" red (0.123)(4.567)(8.9ab) with green (c.def) Diesel

Dip switch address settings on back of LED circuit boards (switch position 5-8 are ON). Example shown for product #1

2.2 Control Box Description

The Control Box is located inside the sign with close proximity to the LED product displays. The control box houses the 120VAC input terminals, the DC power supplies, and the 803 controller with RF transceiver. It is imperative that the control box be mounted securely, a solid ground is present, and the control box cover is fastened tight.

Control Box Components

1. 120VAC input, Display Output Terminals (Fig.1 #1)
2. 803 Control Board
3. DC Power Supplies
4. RF Antenna
5. Hook up wires

2.2.1 Power Inputs

Pictured below is the set of terminal blocks located in the control box for 120VAC inputs and display outputs. The terminal labeled L1 is the 120 vac hot termination point, and the terminal labeled NEU is the 120 vac Neutral termination point. Terminal blocks labeled +12 are the termination points for the display +VDC wires, terminal blocks labeled –12 are the DC Common termination points. Terminal blocks labeled LINF are the termination points for the Front Side Lin Bus Wires, and LINB the termination points for Back Side Lin Bus. All of these connections are made to the LED pans through the provided interconnect cables. The relay is an optional feature used to control the florescent lighting inside the sign. All of the customer hook up wires will exit the control box with supplied wire (see page 22 for hook up drawing).

Fig. 1 #1
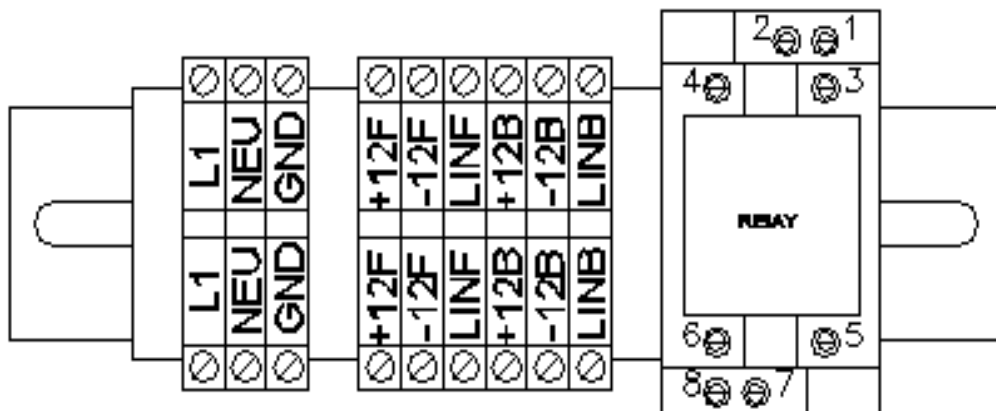
2.2.2 Power Supply Information

Power Supplies are pre-wired and mounted in the 803 control box at the factory. The power supply converts the supplied 120vac to a 12 VDC. The power supply included in the control box is 12vdc for both red and green LED displays. If calling SCC for replacement parts please verify the part number of your price display sign. If you need the part number for your display it can be found inside the control box along with the serial number (both will be needed when contacting technical support).

2.2.3 Control Wiring

Shown in the picture below is the 803 Display Controller (Fig.1 #2). The controller is pre-wired and configured at SCC.

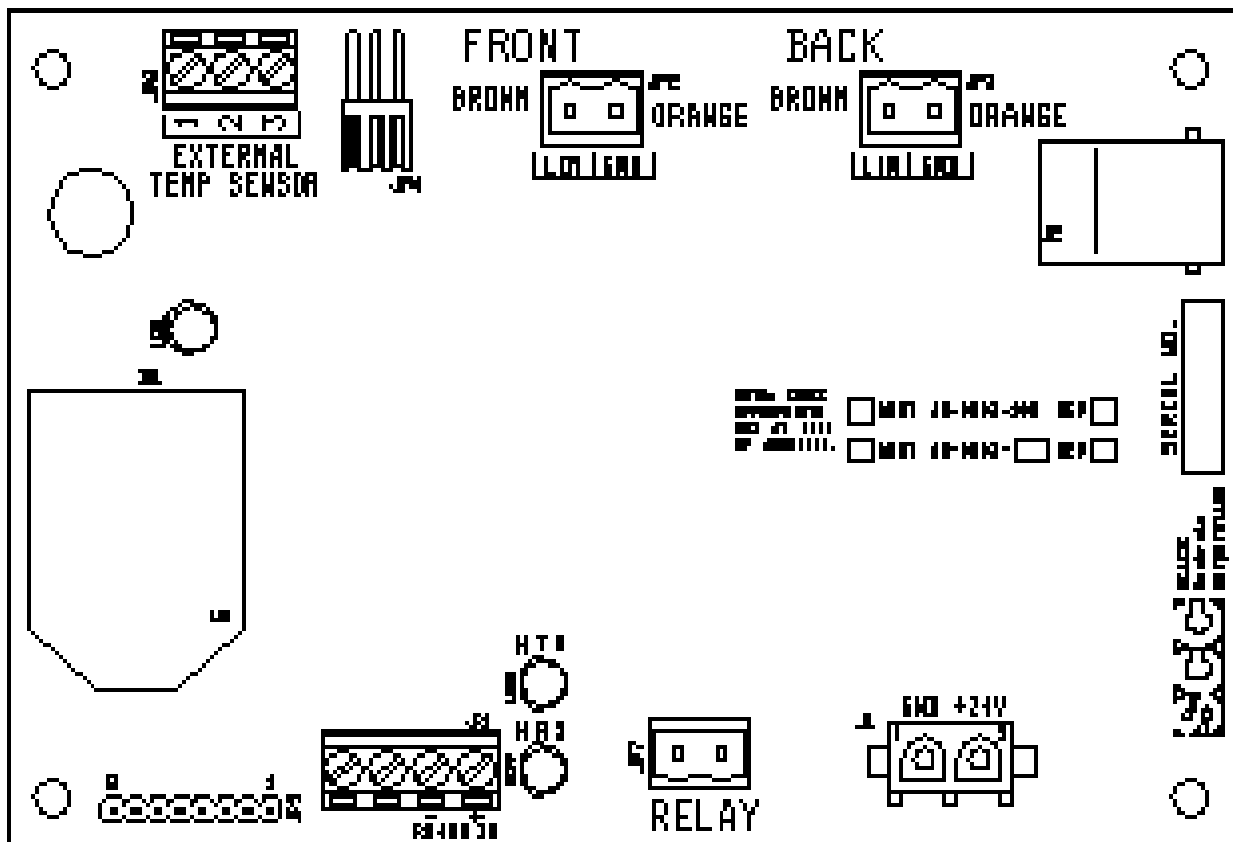Fig.1 #2

3.0 Sign Programming

Setting the prices on the LED price sign is done using the hand held programmer (HHP). The HHP contains a wireless transmitter to convey the signs data to the controller mounted in the control box in the sign. There are two ways of obtaining the data; one is manual input from an operator which is done though the keypad on the HHP. The second is automatic though the TCP/IP Ethernet port on the HHP where the data is picked up from the sites PCATS system (TBD).

3.1 Hand Held Programmer

The hand held controller has been pre-configured at SCC. Product 1 will control the product at the top of your sign (or to the far left depending on your sign lay-out). Product 2 will be the next one down (or to the right). The Sign Installer should install from top to bottom or from left to right.

Setting Prices Via Keypad—Wireless
When the HHP is turned on it will display 4 products on the LCD. Get to the product using the arrow keys or by pressing "PROD" followed by the number you want to set. After price is entered press the enter key to send data to the sign through the wireless transmitter.

Setting Prices Via Keypad—RS-232
Using the RS-232 cable (standard telephone cable) connect the HHP to the RS-232 communication box. You will now be able to send prices to the sign bypassing the RF wireless communication. Note you will have to plug the controllers power pack into 120VAC or install batteries inside the HHP.

Setting Prices Via PCATS—TCP/IP into HHP—Wireless to Sign (TBD)

F1—LED Brightness Control
The brightness control is normally controlled automatically through the light sensors mounted on the LED circuit boards. If you would like to override the automatic setting you will need to press the "F" button followed by the 1 key. The brightness value will display 100 (for automatic) or you can manually set the signs brightness from 0-99 by moving the cursor using the arrow keys and typing in a value of 0-99. This value will override the light sensors on the LED circuit boards. If you would like to set the sign back to automatic set the value to 100.
F4—RF communication On/Off
RF = 0 (Off for RS-232 connection), RF = 1 (Default RF On)
F5—Lighting Relay On/Off (Optional Function if Installed)
Relay OFF = 0 (Default—sign lighting off), Relay ON = 1 (Sign lighting on)
F8—RF Address Configuration (address of controller is the last 4 digits of Serial Number)
Without RS-232 cable connected pressing F8 will set hand held to broadcast mode. With RS-232 cable connected pressing F8 will set hand held to single controller communication mode.
F9—Brightness Offset for Display Board Address (Do not Use without SCC Tech Support)
Set brightness offset value for each display board (three digit value must be set, 000 being brightest 100 being OFF) by DB address value (00-1F). This is a factory setting and should not be changed unless first contacting SCC technician .
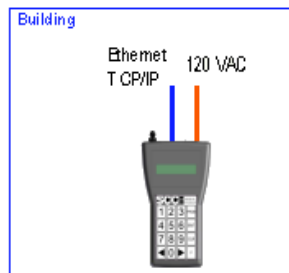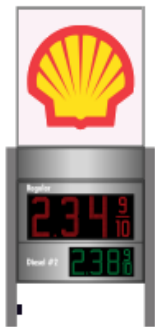
Normal Operation Using HHP Keypad or
TCP/IP Ethernet and
RF Communications to Sign

| Power Plug | ON/OFF Switch | Ethernet TCP/IP | RS-232 Comm. | Antenna |

4.0 Wiring

4.1 RS/232 Communication Box

The RS/232 communication box should be mounted on one of the signs poles and its cable run through conduit or the signs pole. The other end of the cable is terminated inside the Control Box inside the sign. This communication port is to be used in the event that the wireless communication it not operating. The HHP's RS-232 port should be connected directly to this port using the supplied cable with RJ-11 connector.
When using the HHP in this manner without the AC power pack you will be required to install a standard 9VDC battery inside the HHP (if included).

RS-232 Communication at Sign with HHP
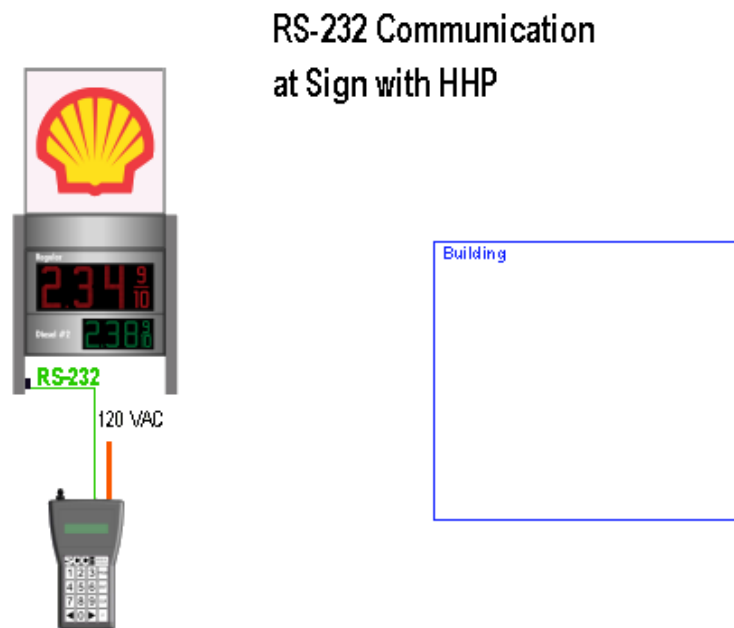
4.2 Product Wiring

All LED products will be labeled on the back of their pan, product 1, product 2, product 3, product 4, with a notation for front or back. Product 1 should always be installed at the top location (or left depending on sign lay-out), and then in order from top to bottom or left to right. All wiring inside of pan is completed at the factory before leaving SCC. The main cable run will terminate inside the control box and have a quick disconnect mini connector at the LED display pan Make sure to keep the front and back wires separated so they can be terminated to the correct location. On the following pages are wiring diagrams that show typical configurations for Shell signs..

Pictured below 4 product wiring
The control box will come pre wired with 8 power/data cables (4 per side). The cables are plugged into their associated LED pans with a quick disconnect connector. The RS/232 communication box is to be mounted at the base of the sign and will be used if wireless communication is lost.

Product 1

Product 2

Product 3

Product 4

Control Box

RS/232 Communication Box

Power/Data Cable

Product 1

Product 2

Product 3

Control Box

RS/232 Communication Box
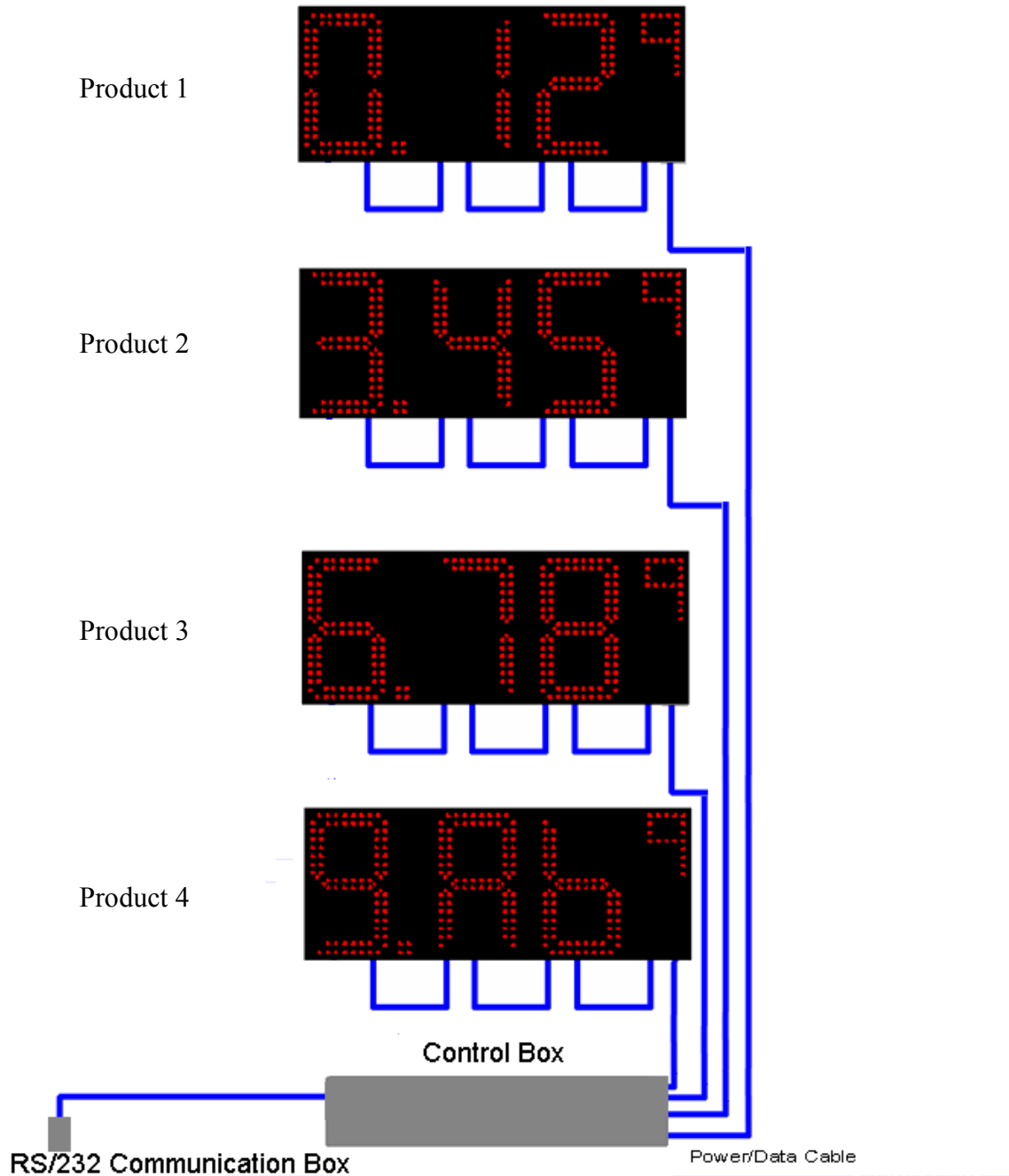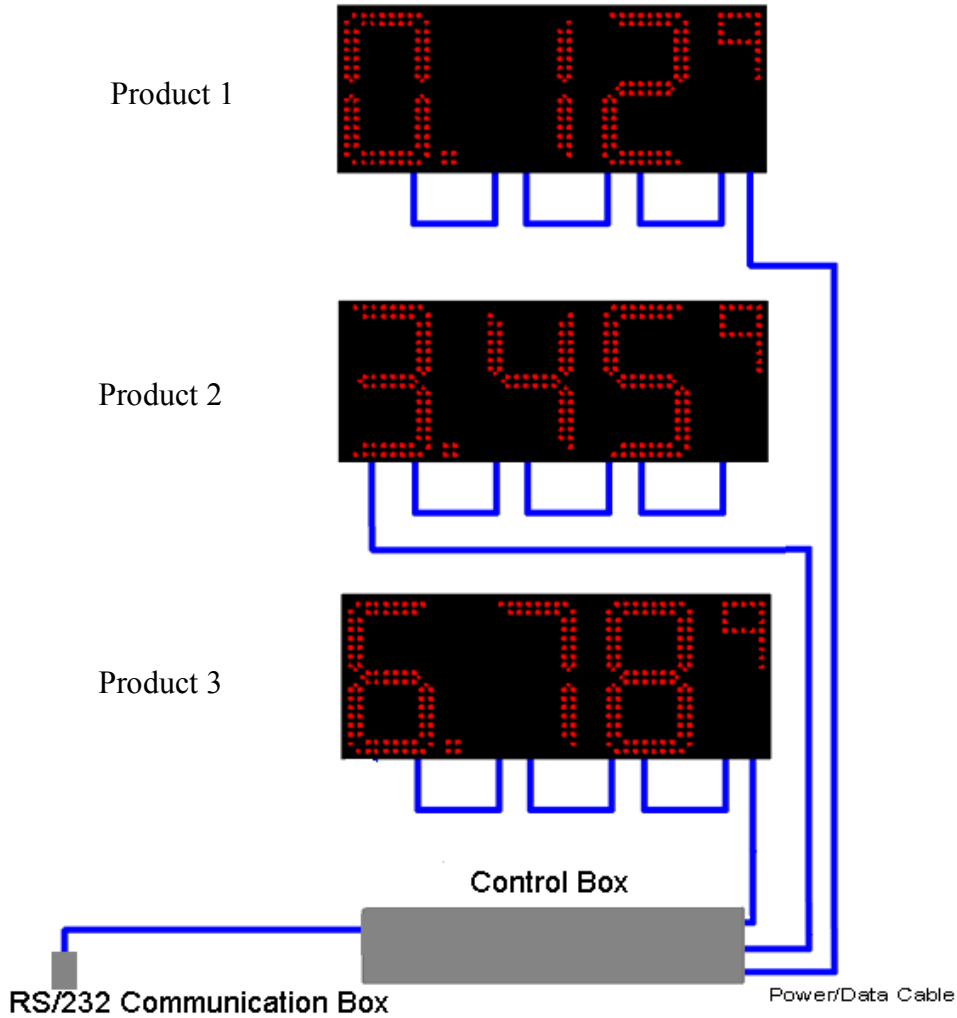
Power/Data Cable

3 product wiring
The control box will come pre wired with 6 power/data cables (3 per side). The cables are plugged into their associated LED pans with a quick disconnect connector. The RS/232 communication box will need to be mounted at the base of the sign and will be used if wireless communication is lost.

2 product wiring

The control box will come pre wired with 4 power/data cables (2 per side). The cables are plugged into their associated LED pans with a quick disconnect connector. The RS/232 communication box will need to be mounted at the base of the sign and will be used if wireless communication is lost.

Product 1

Product 2

Control Box

RS/232 Communication Box

Power/Data Cable

Product 1
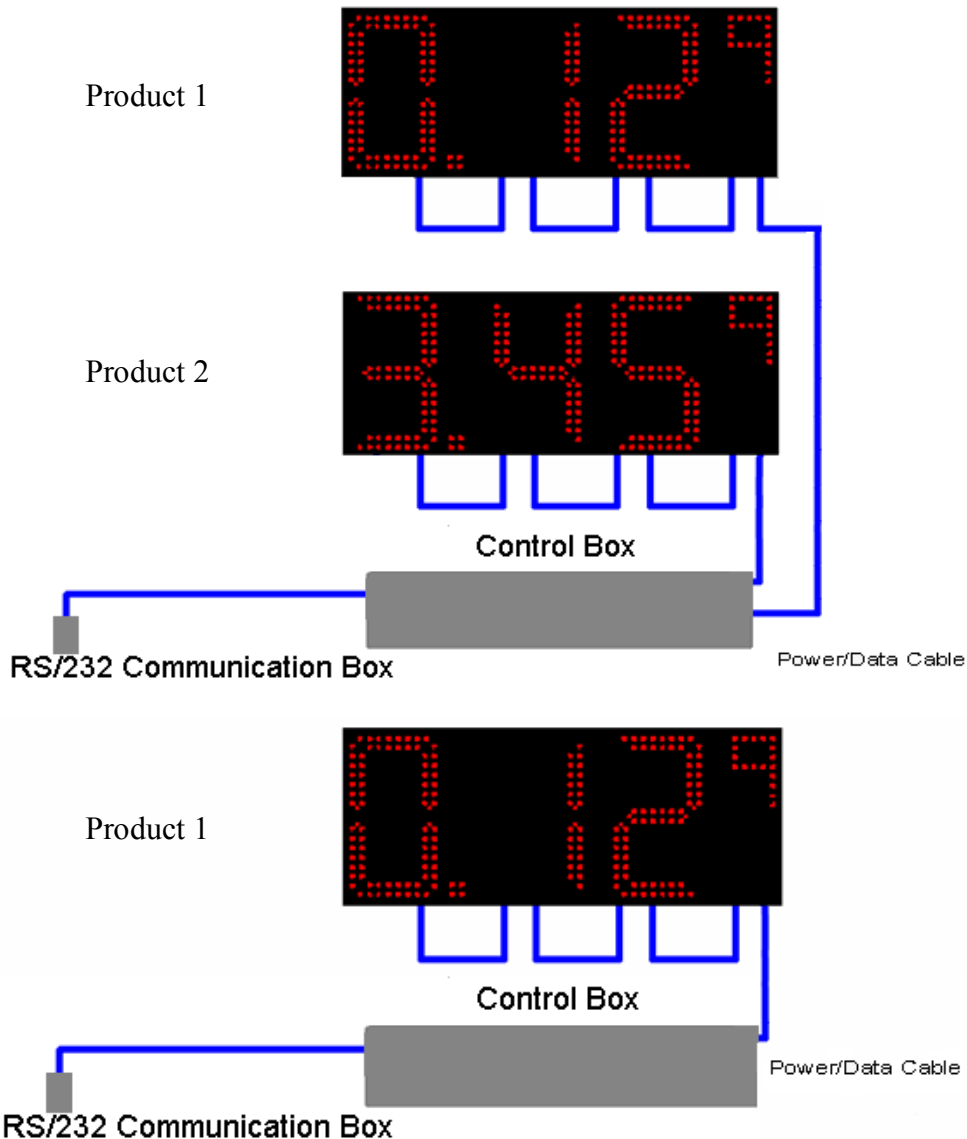
Control Box

RS/232 Communication Box

Power/Data Cable

1 product wiring

The control box will come pre wired with 2 power/data cables (1 per side). The cables are plugged into their associated LED pans with a quick disconnect connector. The RS/232 communication box will need to be mounted at the base of the sign and will be used if wireless communication is lost.

![SCC - Static Controls Corporation logo]

5.0 Installation Mechanical Drawings

SCC will provide detailed mechanical drawings with each of the sign configurations required. The dimensions listed in this manual may not be completely accurate and should be used for approximations. If you require detailed mechanical drawings please contact SCC.

5.1 Control Box Mechanical Drawings (5.75"H x 4.4"D x 42"W)

5.2 Visual Opening Description

The Visual Opening is needed to display the digits. The picture below is given to describe the terms Width (W) and Height (H). The measurements needed for each size and type display are given below the picture.
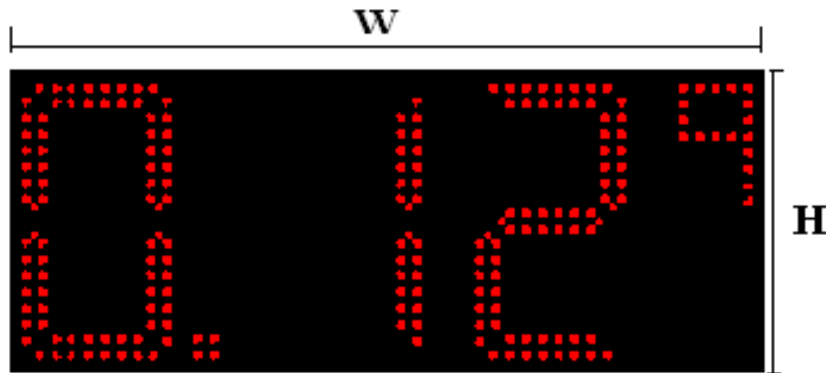

Typical Gas Price Display

Visual Opening Dim.

	width	height
8"	24"	10"
12"	34"	14"
16"	42"	18"
18"	48"	20"
24"	62"	26"
30"	84"	33"

5.4 Pan Dimensions

SCC Series 803 uses a pan to keep water away from the electronic components in the display. The pan has fans attached to help cool the LED circuit boards. The pan will be mounted to the signs structure and should be pressed against the lens when the sign is closed. A gasket mounted on the pan will seal the pan to the lens when the sign closed. Given below in the table are the Width (W), Height (H), and Depth (D). The attachment bracket contains slotted mounting holes for adjustability in sign.

Installation Note: It is extremely important to seal the top of the pans to the face of the sign with gasket provided to help protect the circuit boards from water. Also check the integrity of the signs enclosure to ensure that no water will dip onto the electronics.
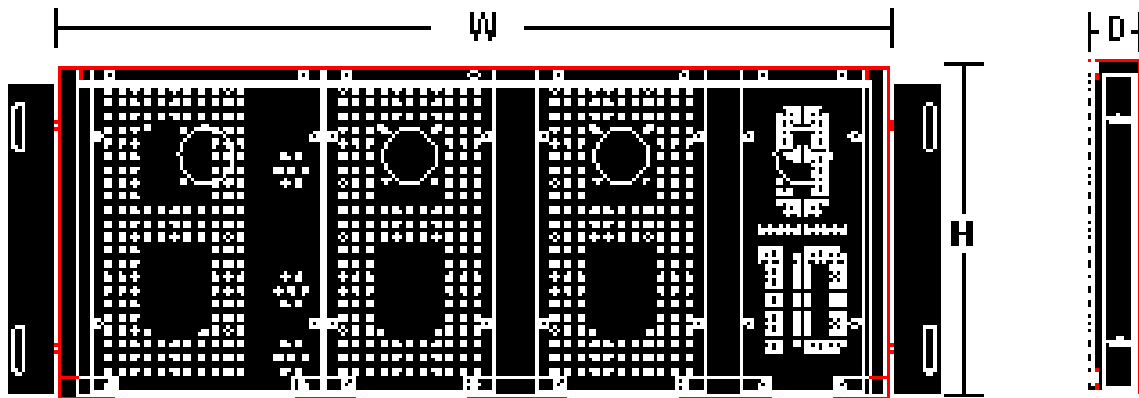
Pan Outside Dimensions

Shell Digit Sizes	Width	Height	Depth
8"	25.5"	10"	2.5"
12"	35.1"	14.1"	2.5"
16"	43.4"	18.2"	2.5"
18"	47.2"	21.2	2.5"
24"	62.1"	27.2"	2.5"
30"	77.6"	31.9"	2.5"

8.03

6.0 Trouble-Shooting

Problem	Possible Cause	Solution
All LED's on display boards do not light	Main circuit breaker inside store is OFF	Turn breaker ON and check to see if 120 VAC is present.
	Control box circuit breaker is OFF	Turn breaker ON and check to see if 120 VAC is present.
	Main power supply failed	Check DC output voltage on power supply. Should be 12VDC for red & green LEDs. Also possible short in DC circuit will shut down power supply automatically. Replace power supply if 120 is present and 0 DC output.
LED displays do not change value	Communication problem at transmitter, or receiver.	Verify that communication is established with hand held, and data set message displays on LCD screen.
	Hand held programmer, problem.	Verify power cable is plugged into a 120 VAC outlet or batteries are installed.
LEDs on display board do not light, or segment does not turn on or off. LED board is displaying the wrong value.	LED display board problem, or pan interconnect cable issue.	Reboot sign power and reset prices. Check product cables are connected to pans are secure. If this does not fix problem contact SCC Service.

6.0 Trouble-Shooting Continued

Products do not display in the same order on both front and back of sign.	Product pans were installed out of order, or dip switches are set incorrectly.	Cycle power on sign and verify circuit board address are the same on front and back of sign. If not reset dip switches on LED display boards or swap product pans.
LEDs display boards are to bright, or to dim.	Programmer brightness control needs to be adjusted.	Check handheld programmer brightness control setting. Verify that brightness is set on desired setting (auto 100 or manual 99-00 control).
One or some of the LED products do not display.	Product cable inside sign is unplugged.	Check product cable harnesses and reattach if necessary.

7.0 Warranty and Service

7.1 Warranty Description

Static Controls Corporation (SCC) warrants for a period of one year from the date of purchase that products of our manufacturing are free from defects in material and workmanship. SCC will replace or repair defective components at the Wixom, Michigan factory.

Warranty covers parts and factory labor when defective parts are returned prepaid to SCC. No charges for time and materials used by others in making repairs or connections will be paid for by SCC. Warranty shall be void if any alteration or service is performed without the manufacture's authorization; or if the equipment has been connected to incorrect power, is damaged by electrical fluctuations, lightning strikes, or is improperly grounded or installed.

Equipment which is subject to accident, neglect, abuse, misuse, shipping damage, installation damage or other natural disasters, included but not limited to: fire, wind, lightning, and flood is not covered by this warranty.

SCC will not be responsible for loss of time, late delivery, inconvenience, and loss of use of your LED products, property damage caused by the LED product or its failure to work or any other incidental or consequential damages.
Warranty Claims - Please Contact SCC for RMA #, and have warranty information available for SCC phone support.

7.2 Service Contacts

Technician Phone Number: 248-926-4400 ext 234 or cell phone 248– 961-4600
Fax Number: (248)926-4412
Email: Service@SCCControls.com

SCC
Static Controls Corporation

Static Controls Corporation Warranty Registration Card

Thank you for choosing SCC Series 803. To ensure Warranty Coverage we ask that
you fill out this Warranty Registration Card, we will not offer coverage without this information.

Store Information

Store Name_____

Store Address _____

Store Contact _____ Phone Number (   )   -   ext

Installer Information

Company Name_____

Company Contact_____ Phone Number (   )   -   ext

Installation Date _____

Installer Feedback_____

_____

_____

Sign Information (found on SCC tag on control box)

Serial Number_____

Sign Model Number_____

Approximate Sign Dimensions

Overall Sign Height _____

Overall Sign Width_____

Dimension from ground to bottom of sign_____

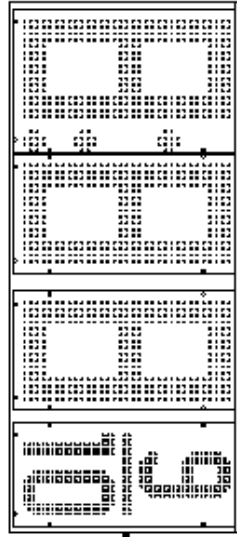Dimension from ground to top of sign_____

Note to Store Owner!!!!

It is the responsibility of the Store Owner to document the Installer information. If the Installer
Information is incomplete **WARRANTY IS VOID.**
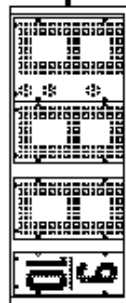
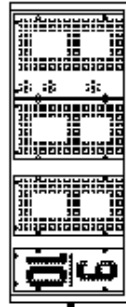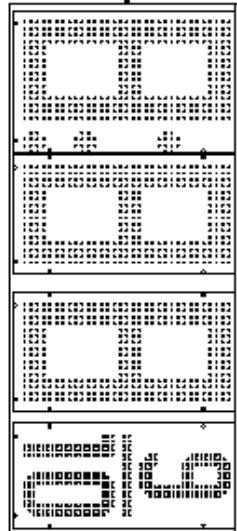## Fax or mail card to SCC
Fax # (248)926-4412

Mail to:
Attn: Warranties Dept.
30460 Wixom Rd
Wixom, MI 48366

8. Notes

FRONT

BACK

L1 (12GA RED)

NEU (12GA WHITE)

GND (12GA GREEN)
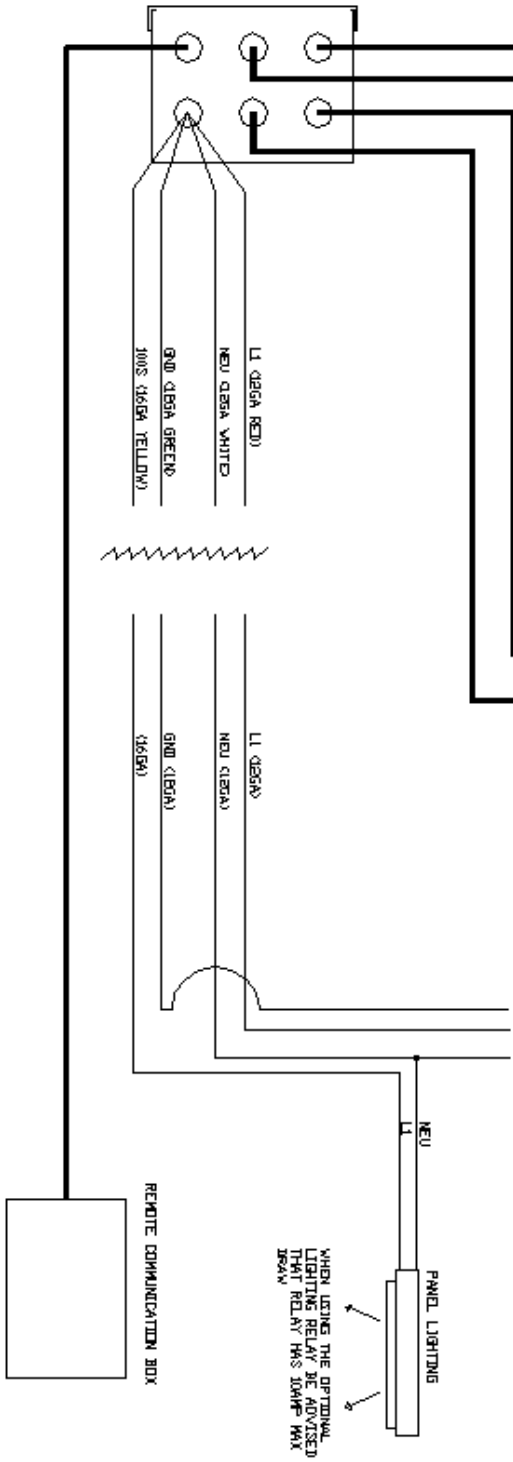
DATA (16GA YELLOW)

L1 (12GA)

NEU (12GA)

GND (16GA)

(16GA)

CUSTOMER HOOK-UP. INSTALLER IS RESPONSIBLE FOR PROVIDING APPROPRIATE WIRING FOR 15 AMP 120VAC SUPPLY AS GOVERNED BY LOCAL ELECTRICAL CODES AND STANDARDS. INSTALLER IS ALSO RESPONSIBLE FOR MOUNTING THE REMOTE COMMUNICATION BOX WHERE IT IS ACCESSIBLE TO END USER WITH THE RESTRICTION OF WIRE PROVIDED. STATIC CONTROLS CORP WILL PROVIDE 35' PIG TAILS FOR L1 LINE, GND AND A SWITCH LEG FOR FLUORESCENT LIGHTING CALL PARTS MUST BE WIRED TO 120VAC

NEU

L1

WHEN USING THE OPTIONAL LIGHTING RELAY BE ADVISED THAT RELAY HAS 10AMP MAX DRAW

PANEL LIGHTING

REMOTE COMMUNICATION BOX

SCC Sign Installation Check List:

1. Ensure control box is mounted in horizontal position with
fans on the bottom and facing down.
2. Use holes on top of control box for mounting, and seal to pre-
vent water from penetrating top of control box.

3. Make sure bottom control box cover is seated
properly & fasteners applied.

4. Mount pans in sign so gasket is compressed when
sign faces are closed.

5. Please use side of pans for mounting if possible. If holes are created on top of pans for
mounting please make sure they are sealed so water cannot penetrate top of pan.

6. Coil RS-232 programming cable inside junc-
tion box.

7. Connect and tighten pan cables labeled front to one side of
the sign and back to the other side.

8. The hook up wires are provided and their identification is shown on the hook up drawing. If
circuit breaker is provided inside the control box make sure it is left in the ON position.

   The circuit breaker can be accessed without opening the control box by sliding out
the control box filter (located on the bottom of the control box).

9. If lighting relay is provided inside the control box use the 120 VAC yellow
wire (see hook up drawing). If not cap the yellow wire.

10. Testing sign with the following com-
mands:
   a. When 120 VAC power is applied to sign the LED display boards will display their individual
   address value, count from 0-9, display the controller firmware level, and return to their ad-
   dress value.
   b. Using hand held programmer with power applied and turned on set price value for each
   product. Display full complement of digits to check that LED display boards and functioning
   properly.

   c. Function 1: pressing "F" followed by "1" will allow you to set brightness of
   LEDs 0-99. The value of 100 activates the auto dimming feature.

   d. Function 5: pressing "F" followed by "5" will allow you to
   turn on lighting relay 0=OFF, 1=ON (if present).

11. Check fans on control box, and display pans to make sure they are operating when
power is applied to sign. The fans should be free of obstructions and allow air to flow.

12. Check serial numbers on control box, display pans, and hand held con-
troller to verify they are all common (same prefix).