

EPCULX

MASTER INSTALLATION GUIDE

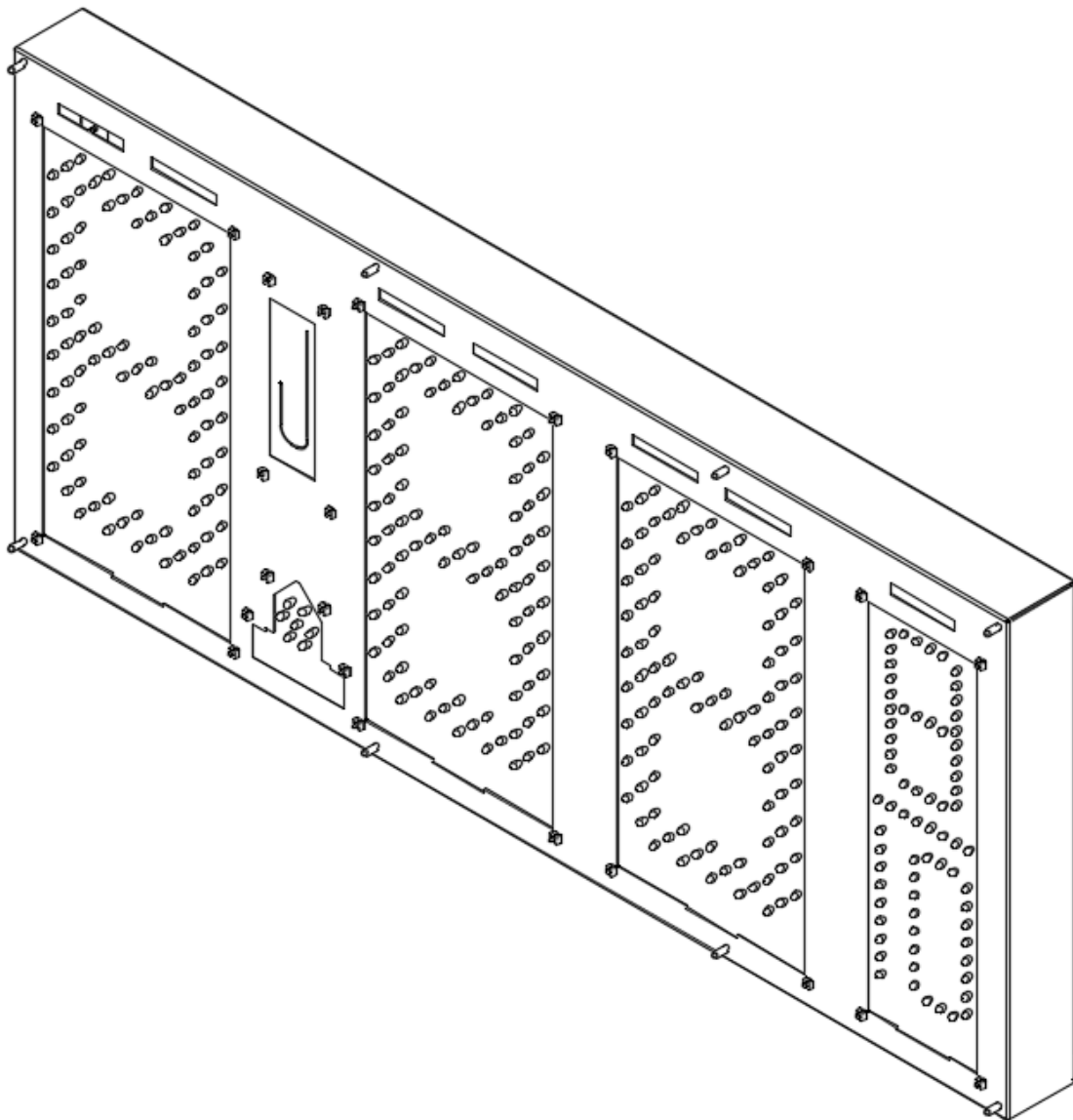


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CHANGE LOG

REVISION 1 – 06/28/2019

- Document Created

REVISION 2 – 09/09/2019

- Added change log, added cover page, added antenna to face installation diagram, updated surge protector mounting diagram.


SECTION 1: WARRANTY INFORMATION

Retrofit Note: This system converts a manual font gas price sign to an LED gas price sign. It is designed to be installed into a UL-48 listed sign only. The Listing Mark must be on the sign being retrofitted. Any other use is strictly prohibited.

Warranty Terms: The warranty covers normal use and service. Damage caused by vandalism, lightning strikes, electrical surges, and any other acts of God, and any consequential or contingent liability is excluded from this warranty. Warranty claims must be registered with www.epcuactivate.com.

It is the installer's responsibility to provide a grounding rod for the sign.

SECTION 2: PART NUMBERS



GENERAL PURPOSE RETROFIT SIGN CONVERSION

FOR USE ONLY IN ACCORDANCE WITH KIT INSTRUCTIONS

KIT IS COMPLETE ONLY WHEN ALL PARTS
REQUIRED BY THE INSTRUCTIONS ARE PRESENT

EPCU LX Complete Unit Part Numbers

EPCULX-xf-ssC

EPCULX	Series Name
x	Type MR (Master with radio), M (Master without radio), S (slave)
f	Number Format 1 (8.889), 2 (88.88)
ss	Digit size in inches: 6, 9, 12, 15, 18, 24
C	Color: G (green), R (red), A (amber), W (white), B (blue)

Example: EPCULX-MR1-18G Master with radio, format (8.889), 18" Green digits

Description	Qty per Frame
LX Digit	4
LX Decimal	1
Digit Cable	4
Data Cable	1
AC Supply Cable	1
Power Supply 12V	1 (18" and 24" 2pcs.)
Controller	1 (Master Only)
Handheld Remote	1 (Master Only)
Aluminum Frame	1
Instruction Packet	1
Paper Drilling Template	1
PricePad	1 (Master with Radio Only)
PricePad Antenna	1 (Master with Radio Only)

SECTION 3: PRE-INSTALL CHECKLIST



WARNING!

- **RISK OF FIRE OR ELECTRIC SHOCK.** LED Retrofit Kit installation requires knowledge of sign electrical systems. If not qualified, do not attempt installation. Contact a qualified electrician.
- **RISK OF FIRE OR ELECTRIC SHOCK.** Install this kit only in host signs that are UL Listed and where input rating of the retrofit kit does not exceed the input rating of the sign.
- **RISK OF FIRE OR ELECTRIC SHOCK.** Installation of this LED retrofit kit may involve drilling or punching holes into the structure of the sign. Check for enclosed wiring and components to avoid damage to wiring and electrical parts.
- Always disconnect power from the sign before service.



ATTENTION!

- EPCU LX frames can only be installed behind faces made of enclosure-rated material (i.e. polycarbonate).
- Make all cable connections prior to applying power.
- Threaded standoffs may become misaligned during shipping. If this occurs, align standoffs with ¼" socket or nut driver.
- On transparent faces, ensure that wiring is secured away from the face to prevent shadowing.
- LED signs are to be on a dedicated 120V – 240V, 20-amp circuit. This circuit should only operate the LED sign.
- It is the installer's responsibility to ensure the sign is weather proof upon completion of the installation. This includes installing any lids or covers.
- Never run the LED portion of the sign off of a generator from a service truck.

- All team members on site must have proper Personal Protective Equipment (PPE): Hard Hat, Safety Vest / Reflective Clothing, Long Pants, Work Boots (steel toed), Safety Glasses, and Gloves.
- Any non-crew member entering the work zone must be escorted at all times, and must wear a Hard Hat, Reflective Vest, and Safety Glasses.
- Appropriate barricades (48" minimum height, continuous) with caution signs must be used around the work zone at all times.
- There is to be no smoking, alcohol, drugs, or explosive materials on site.
- Check to make sure that all components are present.
- If any components are missing or damaged, please contact your distributor prior to installation.
- Ensure that power has been provided to the sign via a dedicated 120V – 240V 20A circuit.

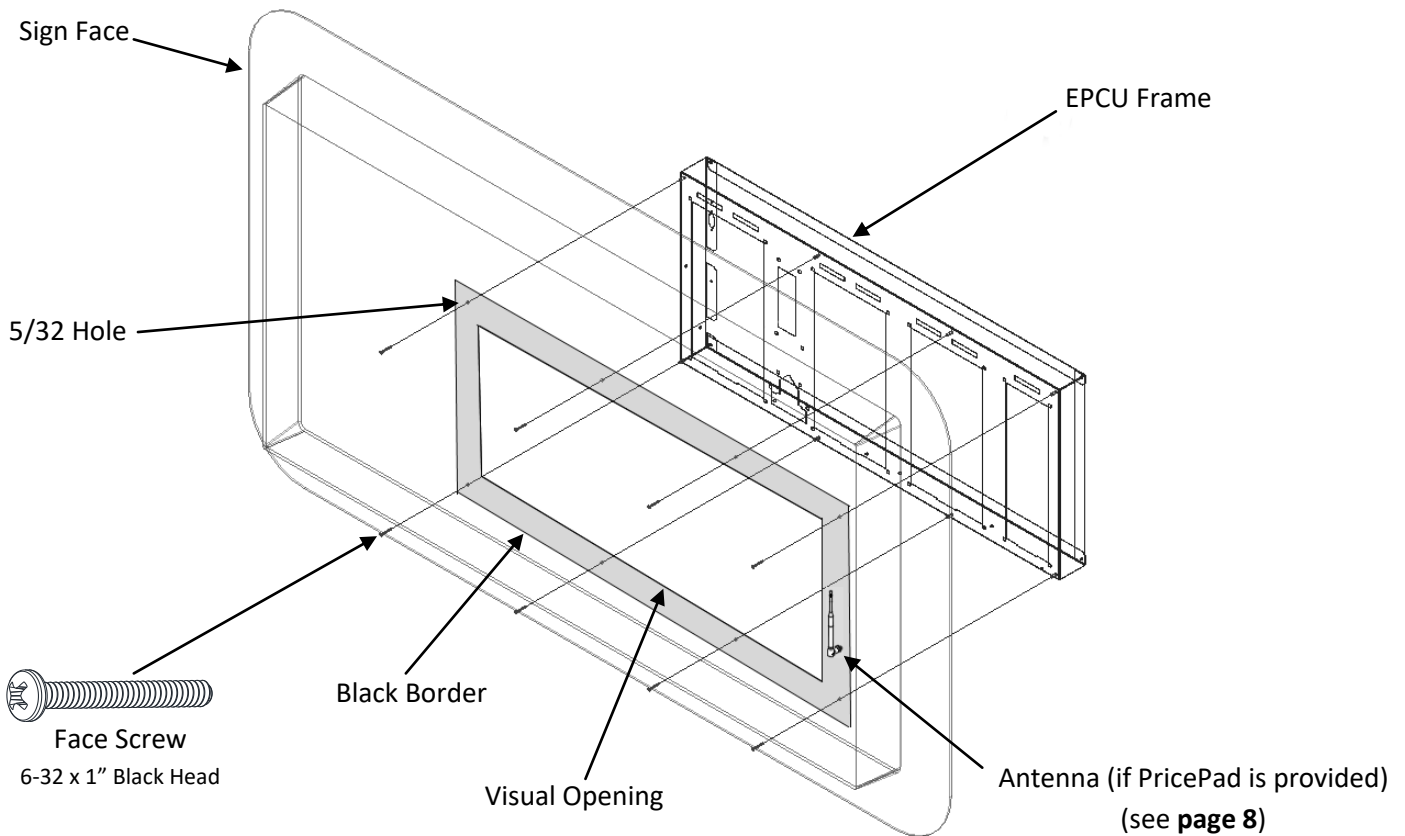
SECTION 4: INSTALLATION

Note: If installing a retrofit kit and replacement faces are provided, skip to **EPCU LX Installation** on **page 6**. If a new sign is to be installed, skip to **Antenna Installation** on **page 8**.

A) Face Preparation:

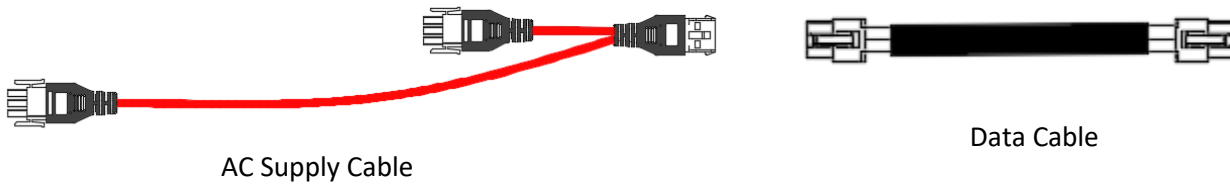
If there are no replacement faces for the sign, holes must be drilled into the existing face to mount the EPCU LX frames.

- EPCU LX must have a clear visual opening. Required visual opening dimensions are provided on the paper pattern. Modify the face of the sign to meet visual opening requirements if needed.
 - Using the provided hole pattern and a 5/32 drill bit, drill holes into the front of the faces.
-
- Mount the EPCU LX frame to the face using 6-32 x 1" Black Head screws.

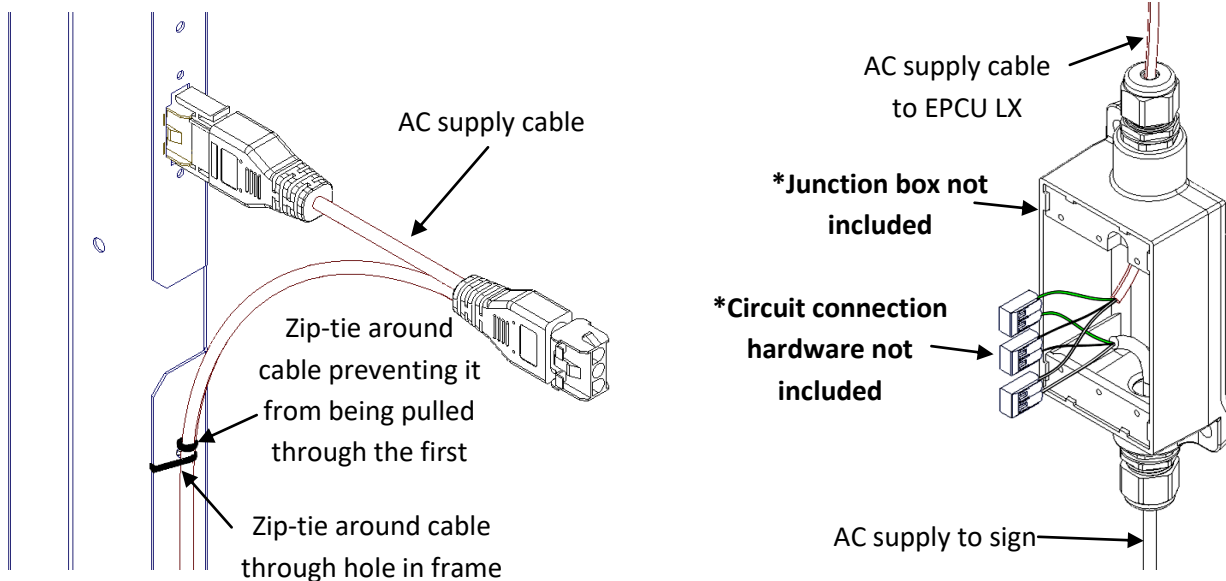


B) EPCU LX Installation:

- All AC supply cables and data cables must be connected properly before the faces are fixed to the sign.



- Use the wiring diagram on **page 7** to connect AC supply cables to the frames and data cables from the controller to the proper decimal points.
 - AC and Data cable connections for a face may already be made if EPCU LX frames were shipped attached to a face. In this case, only AC Supply connection and AC/Data cable connections between faces will need to be made.
 - **Note:** Any unused AC supply connectors must have an end cap to prevent electrical shorts.
 - **Note:** The Master (frame with controller board) must be Product 1.
 - **Note:** The Data cables can be connected to either data port on a decimal point.
- When installing the AC supply cables, give the cables strain relief by zip-tying the cable to the frame through the hole in the frame as shown in the diagram below.
 - Add another zip-tie around the cable to prevent the cable from being pulled through the first.

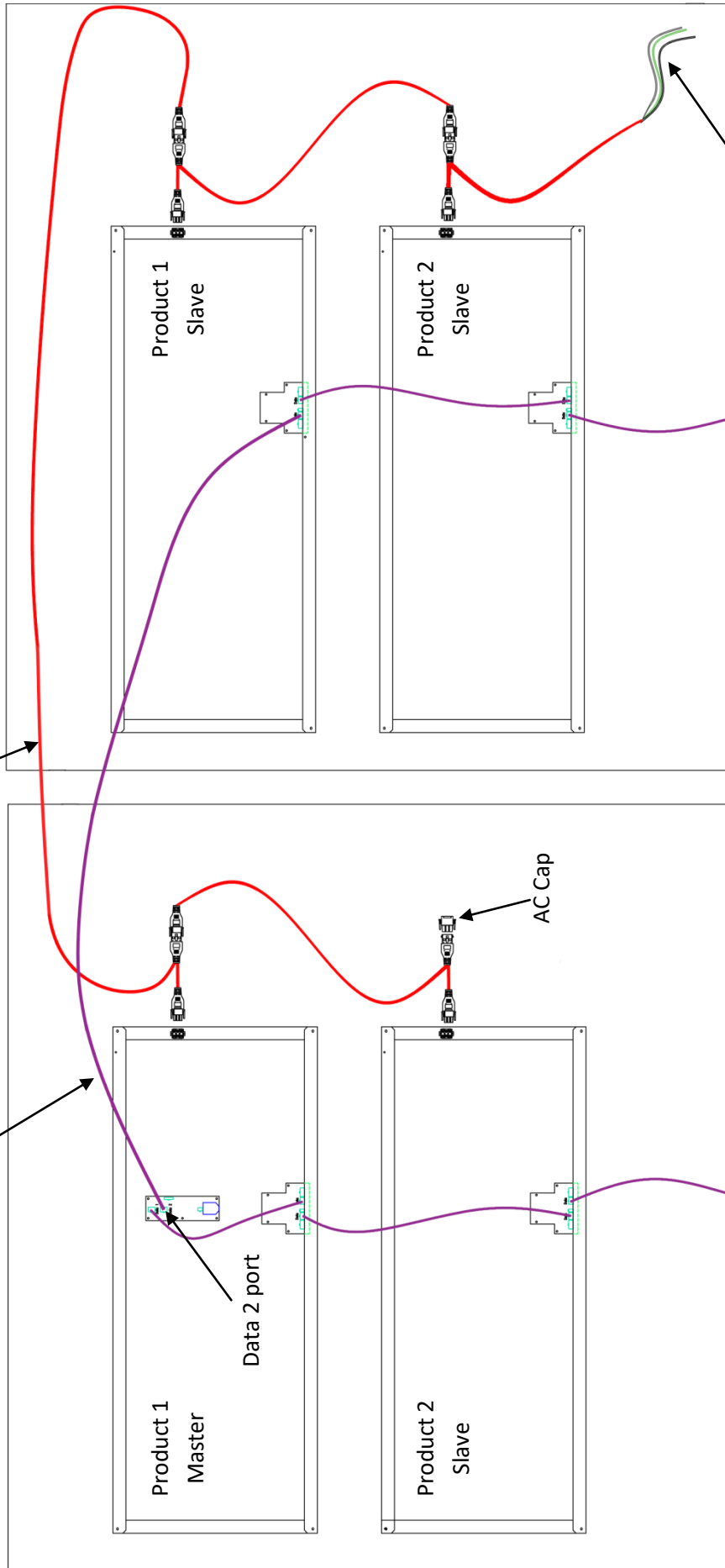


- **Be sure to secure all loose wiring away from the face to prevent shadowing on translucent faces.**
- Connect AC power to the EPCU LX system by trimming the end of the AC supply cable closest to the junction box, stripping the wire, and using circuit connection hardware (e.g. wire nuts) (**NOT INCLUDED**) to make the AC connection inside the junction box (**NOT INCLUDED**) located inside the sign.

***NOTE:** This diagram only shows one possible configuration for power cable wiring. This can change depending on the number of products, the placement of the internal AC junction box, etc. Use best judgment to reduce the amount of AC Supply cables and AC Caps needed.

Run this data cable from Data 2 port on controller to the data port on the decimal point for Product 1 on the opposite face

Plug end of this cable into AC supply cable for other face.



Use circuit connection hardware to connect wire internally to junction box

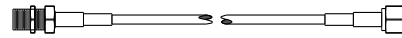
Data connections to subsequent products (if present)

C) Antenna Installation:

- If a PricePad was provided, the antenna will need to be installed vertically on the exterior of the sign.
 - **Note:** If no PricePad was provided, skip to **Power and Activation**.



Antenna

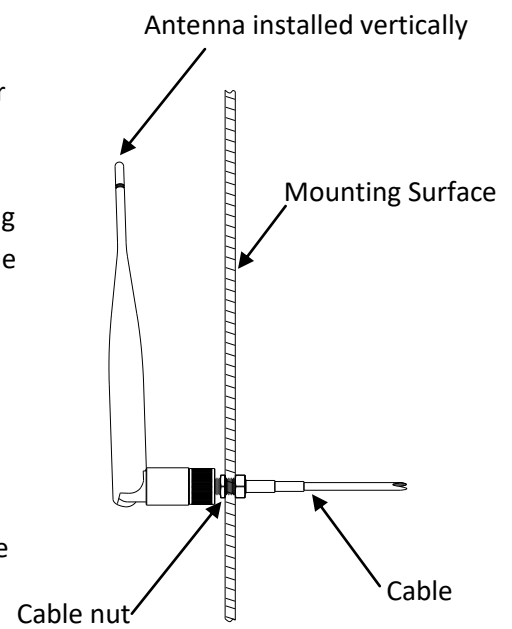


Antenna Cable

- Gain access to the interior of the sign cabinet. **Beware of cabling connecting opposite faces together.**
 - **Note:** If applicable, removing the face opposite to the side that the master EPCU LX unit is mounted to is recommended for ease of access to the controller board inside (if the sign is double-faced).
 - **Note:** The antenna and cable will be pre-attached to the controller board.

- Detach the antenna and antenna cable from the EPCU LX cabinet by cutting the zip-tie holding it in place, then run the provided antenna cable from the controller to the exterior of the sign, facing the store for best reception.
 - Recommended location for the antenna is within the black border surrounding the visual opening on the face, to the right of the digits.

- Drill a ¼" hole for the end of the cable to protrude from.
 - Use the provided nut on the end of the cable to fix the cable to the exterior of the sign.
 - **Note:** Maximum material thickness: 0.160"



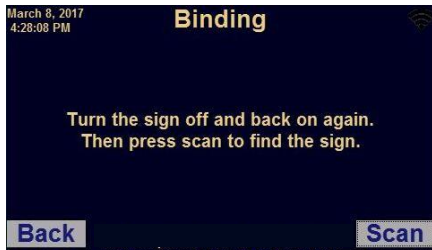
- Screw the antenna onto the end of the cable completely, making sure to install the antenna vertically as shown.

D) Power and Activation:

- Close the sign cabinet and power on the sign. If a PricePad was provided, ensure that it is bound at this time. If the PricePad is not bound, use the procedure on **page 9** to bind the sign to it.
- Once the PricePad is bound (if applicable), the sign must be activated before it will display prices.
 - Follow the procedure outlined in the **Activation** Guide on **page 10** to activate the sign.

E) PricePad Binding (if applicable):

The PricePad unit must be bound to the sign to function properly. Follow the procedure below to bind the sign to the PricePad.



- Navigate to the **Signs Menu** by pressing the **Settings Icon** in the upper right corner, **Advanced**, then **Signs**.
- Press the “New” button.
- Follow the on-screen prompt and power cycle the sign. Then press the “Scan” button.
- Wait for scanning to complete. This may take up to a minute.
- Tap the address of a sign that is ready to bind.
- If there are multiple signs ready to be bound like in the image to the left, pick one by tapping it. Then press “Identify”. This will cause the sign to blink slowly.
- If the correct sign is selected press “Bind”, if not press “Back” and try another sign.
- Wait for Binding to complete.
- Press “Back” on the Binding Complete screen.
- If trying to bind multiple signs, they can be bound at this time.

SECTION 5: ACTIVATION



Product must be activated to function normally.

Prior to activation, all digits on the sign will display **AAAA** instead of prices. Follow the steps below to activate.

- Go to the Activation Menu
 - Using the hand-held remote, enter the User Code. The sign will display **USER**
 - Press **↑** then **3** to enter the activation menu. Product 1 will display **ACT**
- Press **↑** then **1**.
 - Starting from the top of the sign, it should display “Prd1”, “Prd2”, “Prd3”.
 - **Take a photo of each side of the sign during this step for warranty activation.**
 - If the lines are not in the correct order, the “Data” wires may be improperly installed.
- Press **OK**.
 - All of the LEDs should turn on. Verify that all LEDs are on (check both sides of the sign).
 - **Take a photo of each side of the sign during this step for warranty activation.**
- Press **OK**.
 - The sign will show Display Code **A** on each line. Record these for **both sides of the sign** to use on the activation website.
 - There is a worksheet on the bottom of this document to help you.
- Press **OK**.
 - The sign will show Display Code **b** on each line. Record these for **both sides of the sign**.
- Go to www.epcuactivate.com to get the activation codes. You can record them on this worksheet.
- **Be sure to upload the pictures to activate the warranty as well.**
- Go back to the activation menu **ACT**,
- Press **↑** then **2**
 - The sign will display **__ __ __ __** on the line to be activated.
 - Enter activation code and press **OK**.
 - The sign will display **PASS** or **FAIL**
 - If the sign displays **FAIL** the line was not activated. Double check the line codes after completing the activation on remaining lines.
 - Press **OK** to continue to the next line.

	Sign Side 1			Sign Side 2					
	Display Codes		Activation Code	Display Codes		Activation Code			
Product 1	A	__	__	__	b	__	__	__	__
Product 2	A	__	__	__	b	__	__	__	__
Product 3	A	__	__	__	b	__	__	__	__
Product 4	A	__	__	__	b	__	__	__	__
Product 5	A	__	__	__	b	__	__	__	__
Product 6	A	__	__	__	b	__	__	__	__

SECTION 6: HANDHELD REMOTE USER GUIDE

User Menu Summary:

The following tasks can be accomplished from the User Menu:

- Update prices
- Set the clock on the sign
- Set a timer that can turn the sign off at night and back on in the morning
- Set a timer that controls the sign brightness level during the day and night
- Set the day-time brightness level
- Set the night-time brightness level
- Temporarily override the timers
- Blank out product if desired

Enter User Menu:

When the sign is displaying prices or blanked out:

- Type the 4 digit user code to enter *USER* menu.
- The User Code is unique for each site and is written on Econo Remote sticker.

Exit User Menu:

When sign is displaying *USER*:

- Press **OK** **OK** to exit to price display or wait for the *USER* mode timeout.

Set Price:

- Enter *USER* menu.
- Press **↑** then **1** to enter the Set Price sub menu.
 - All but one product will shut off.
- The selected digit will flash.
- Update the price by pressing buttons **0** - **9** on the remote.
 - When a number (0 - 9) is pressed, the next digit is selected.
 - After the last digit in the price is updated, the first is selected again.
- Press **OK** to save current price and move on to the next price.
 - After the last price has been updated and saved, the sign returns to the *USER* menu.

Enable/Disable Products:

Products (ex. Unleaded, Premium, Diesel) can be enabled (operate normally) and disabled (blank).

- Enter *USER* menu.
- Press **↑** then **2** to enter the Enable / Disable Products sub menu.
 - All products will display *YES* (product is enabled) or *NO* (product is disabled).
- The selected product will flash.
- Press **0** to change between *YES* and *NO* if desired.
- Press **OK** to save this setting and move to next product.
 - After the last product has been saved, the sign returns to *USER* menu.

Set Clock:

This will set the sign's internal clock which is used for the timers.

- Enter *USER* menu.
- Press **↑** then **4** to enter the Set Clock sub menu.
 - Sign displays *⌚*, then the current time in 24 hour format HHMM.

12 Hour	24 Hour	12 Hour	24 Hour
12:00 AM	00:00	12:00 PM	12:00
1:00 AM	01:00	1:00 PM	13:00
2:00 AM	02:00	2:00 PM	14:00
3:00 AM	03:00	3:00 PM	15:00
4:00 AM	04:00	4:00 PM	16:00
5:00 AM	05:00	5:00 PM	17:00
6:00 AM	06:00	6:00 PM	18:00
7:00 AM	07:00	7:00 PM	19:00
8:00 AM	08:00	8:00 PM	20:00
9:00 AM	09:00	9:00 PM	21:00
10:00 AM	10:00	10:00 PM	22:00
11:00 AM	11:00	11:00 PM	23:00

- The selected digit will flash.
- Update the time by pressing buttons **0** - **9** on the remote.
 - When a number (0 - 9) is pressed, the next digit is selected.
 - After the last digit in the price is updated, the first is selected again.
- Press **OK** to save time and move on to date.
 - Sign displays *⌚*, then the date can be entered with the format MMDD.
 - ex. Feb. 24 would be entered as 0224 (only valid dates are accepted).
- Press **OK** to save date and move on to year.
 - Sign displays *⌚*, then the year can be entered with the format YY starting at 2000.
 - The max year that can be entered is 2099.
- Press **OK** to save year and return to the *USER* menu.

Sign On / Off Timer:

Used to turn the sign off at night and on in the morning. To keep the sign on 24 hours a day set both the *ON* and *OFF* times to 0.

- Enter *USER* menu.
- Press **↑** then **5** to enter the Sign On / Off Timer sub menu.
 - Sign displays *ON* for a short period, then the time when the sign will turn on in 24 hour format HHMM.
- The selected digit will flash.
- Update the time by pressing buttons **0** - **9** on the remote.
 - When a number (0 - 9) is pressed, the next digit is selected.
 - After the last digit in the time is updated, the first is selected again.
- Press **OK** to save the time.
 - Sign displays *OFF* for a short period, then the time when the sign will turn off in 24 hour format HHMM.
- Press **OK** to save the time and return to the *USER* menu.

Sign Bright Timer:

This controls when the sign changes between day and night light levels. If the sign should not change light levels, set both brH_i and $brLo$ to 0, and use Night Light Level to control the sign's brightness.

- Enter $USER$ menu.
- Press \uparrow then 6 to enter the Sign Bright Timer sub menu.
 - Sign displays brH_i for a short period, then the time when the sign switches from Night Light Level to Day Light Level in 24 hour format HHMM.
- The selected digit will flash.
- Update the time by pressing buttons 0 - 9 on the remote.
 - When a number (0 - 9) is pressed, the next digit is selected.
 - After the last digit in the time is updated, the first is selected again.
- Press OK to save the time.
 - Sign displays $brLo$ for a short period, then the time when the sign switches from Day Light Level to Night Light Level in 24 hour format HHMM.
- Press OK to save the time and return to the $USER$ menu.

Manual Light Level:

Used to override the current light level set by the timers and turns the sign lights on and off. These changes do not take effect until sign exits the $USER$ menu and is displaying prices

- Enter $USER$ menu.
- Press \uparrow then 7 to enter the Manual Light Level sub menu.
- Press 0 to change between $AUTO$, DAY , $NITE$, and OFF .
 - $AUTO$ - Sets light level according to the timers.
 - DAY - Sets light level to day and turns the sign lights off.
 - $NITE$ - Sets light level to night and turns the sign lights on.
 - OFF - Blanks out sign and turns sign lights off (Sign is not powered off, typing user code will still take the sign to the $USER$ menu).
- Press OK to save the Manual Light Level and return to $USER$ menu.
 - Manual Light Levels do not take effect until the sign returns to displaying prices.

Day Light Level:

Day Light Level is the sign brightness when the sign is in day mode.

- Enter $USER$ menu.
- Press \uparrow then 8 to enter the Day Light Level sub menu.
- The selected digit will flash
- Update the light level by pressing buttons 0 - 9 on the remote.
 - Valid light levels are between 00 – 99.
 - When a number (0 - 9) is pressed the next digit is selected.
 - After the last digit in the light level is updated, the first is selected again.
- Press OK to save light level and return to $USER$ menu.

Night Light Level:

Night Light Level is the sign brightness when the sign is in night mode.

- Enter *USER* menu.
- Press **↑** then **9** to enter the Night Light Level sub menu.
- The selected digit will flash.
- Update the light level by pressing buttons **0** - **9** on the remote.
 - Valid light levels are between 00 – 99.
 - When a number (0 - 9) is pressed the next digit is selected.
 - After the last digit in the light level is updated, the first is selected again.
- Press **OK** to save light level and return to *USER* menu.

User Menu Navigation Summary:

Type User Code to Enter
User Menu

User Code _ _ _ _

- OK** Save & Advance
- OK** **OK** Exit User Menu
- ↑** **1** Set Price(s)
Type New Price
- ↑** **2** Enable/Disable
Products
- ↑** **4** Set Clock (24hour)
time: *EH* HHmm
date: *Ed* MMdd
year: *EY* YY
- ↑** **5** Sign On/Off Timer
on HHmm *OFF* HHmm
- ↑** **6** Sign Bright Timer
Day: *b-rH* HHmm
Night: *b-rLo* HHmm
- ↑** **7** Manual Light Level
- ↑** **8** Day Light Level
Range:00 - 99
- ↑** **9** Night Light Level
Range:00 - 99

SECTION 7:

HANDHELD REMOTE INSTALLER MENU

Enter Installer Menu (*inSt*)

When the sign is displaying prices or blanked out:

- Type the 10-digit installer code to enter *inSt* menu.
- Installer code: 74191 38635.

Exit Installer Menu

When sign is displaying *inSt*:

- Press **OK** **OK** to exit to price display or wait for the *inSt* mode timeout.

Sign Information (*inFo*)

This mode will display the version numbers for all the digits and controllers in the sign.

- Enter *inSt* Menu.
- Press **↑** then **4** to enter the sign information sub menu:
 - Sign will display *inFo*:
 - Press **OK** to return to *inFo* menu from any of the sub menus.
 - Press **↑** then **1** to display digit software versions.
 - Press **↑** then **2** to display controller software versions:
 - Sign displays **C 1** for a short period then the software version of controller 1. Press **OK** to advance through slave controllers **C2** to **C4** if installed then back to the *inFo* menu.
 - Press **↑** then **3** for digits to display their digit address number one at a time on a per channel basis.
 - Press **↑** then **4** for each line to display its respective internal temperature (in deg. C).
- If sign is displaying *inFo* press **OK** to return to *inSt* menu.

Change User Code

It is recommended that the user keeps their default code for the highest level of security.

- Enter *inSt* Menu.
- Press **↑** then **5** to enter the Change User Code sub menu.
- The new User Code must be entered once with the remote followed by **OK**:
 - The code must contain exactly 4 numbers.
 - Sign displays *Code* and flashes every time a button is pressed.
 - If the code is the incorrect length the sign will display *FA iL*.
- The new User Code must be entered a second time followed by **OK**:
 - The first and second entry must match or the sign will display *FA iL*.
 - If the User Code was successfully changed the sign will display *PASS*.
- When the sign says *PASS* or *FA iL* press **OK** to return to *inSt* menu.

Advanced Options (*PLUS*)

- Enter *inSt* Menu.
- Press **↑** then **8** to enter *PLUS* sub menu. The sign will display *PLUS*.

Configure 9/10 digit

The 9 in the 9/10 digit can be changed to any number (ex. 7/10). The digit has two modes: static or programmable. Static mode only allows the value to be changed in the installer menu. In programmable mode the value can only be changed in the user menu.

- Press **↑** then **1** to enter the Configure 9/10 Digit sub menu.
- The sign will display **StAtE** indicating the 9/10 is static (not changeable in user mode).
- Press **0** to change between **StAtE** (Static) and **PrO** (Programmable).
- Press **OK** to save the mode.
 - If the mode is saved as **StAtE** enter the desired 9/10 value (**0** to **9**) then press **OK** to save and exit to **PLUS** sub menu.
 - If the mode is saved as **PrO** sign will exit to **PLUS** sub menu.

Light Sensor (Photocell) Min Max Settings

These settings change the minimum and maximum thresholds for light sensor readings.

- Press **↑** then **3** to enter the light sensor Min Max Settings sub menu:
 - Sign displays **5r** for a short period, then the current light sensor reading
- Press **OK** to move to sensor low limit setting **SL**:
 - Sensor low limit is the sensor reading that will adjust the sign to min. light level
 - The default is **001**, update the threshold if desired.
- Press **OK** to move to sensor high limit setting **SH**:
 - Sensor high limit is the sensor reading that will adjust the sign to max light level
 - The default is **562**, update the threshold if desired.
- Press **OK** to save and exit to **PLUS** sub menu.

Advanced Options (PLUS)

- Enter **inSt** Menu.
- Press **↑** then **8** to enter **PLUS** sub menu. The sign will display **PLUS**.

Brightness Offset by Line

- Brightness Offset by Line is used to adjust the brightness of one line of digits relative the rest of the digits on the sign.
- Press **↑** then **4** to enter the Brightness Offset by Line sub menu.
- The selected line will display **BBBB** and all other lines will display **0000**.
- To brighten the selected line of digits press **2**.
- To dim the selected line of digits press **8**.
- To select the next line of digits press **6** or **OK**.
- To select the previous line of digits press **4**.
- When the last line of digits is selected press **OK** to save and exit to **PLUS** sub menu.

Brightness Offset by Digit

- Brightness Offset by digit is used to adjust the brightness of each of digit relative the rest of the digits on the sign.
- Press **↑** then **5** to enter the Brightness Offset by Digit sub menu.
- The selected digit will display **B** and all other digits will display **0**.
- To brighten the selected digit press **2**.
- To dim the selected digit press **8**.

- To select the next digit press **6** or **OK**.
- To select the previous digit press **4**.
- When the last digit is selected press **OK** to save and exit to **PLUS** sub menu.

Reset Brightness Offsets

- Resets all brightness offsets back to default.
- Press **↑** then **6** to enter the Reset Brightness Offset sub menu.
- **CLER** will appear, enter **123** then press **OK** to confirm.
 - If the code was entered incorrectly, the sign will display **FR IL**.
 - Press **OK** to return to **PLUS** menu.
 - If the code was entered correctly, the sign will exit **PLUS** menu.

Decimal Point (/10) Enable / Disable

- Allows decimal points and the (/10 portions of digits if present) to be turned on and off. **Note:** The decimal must be physically present or enabling/disabling it will have no effect.
- Press **↑** then **7** to enter the Decimal Point Enable / Disable sub menu.
- The selected digit will flash.
- To enable the decimal connected to the selected digit press **1**.
- To disable the decimal connected to the selected digit press **0**.
- To select the next digit press **6** or **OK**.
- To select the previous digit press **4**.
- When the last digit is selected press **OK** to save and exit to **PLUS** sub menu.

Advanced Options (PLUS)

- Enter **inSE** Menu
- Press **↑** then **8** to enter **PLUS** sub menu. The sign will display **PLUS**

Disable Leading Zeros (bLr)

- Disable leading zeros is used to turn off and on leading zeros for all products on the sign.
 - Note:** With this option enabled, leading zeros will only be shown when updating prices in the user menu or with the PricePad.
- Press **↑** then **8** to enter the blanking zeros sub menu.
- Press **0** to change between **on** and **OFF**.
 - **YES** - Enable blank leading zeros.
 - **no** - Disables blank leading zeros.
- Press **OK** to save and return to **PLUS** menu.

Daylight Savings Enable / Disable

- Press **↑** then **9** to enter the Daylight Savings Time enable / disable sub menu.
- Press **0** to change between **USA** and **OFF**.
 - **USA** - Enable daylight savings time following USA rules starting in 2007.
 - **OFF** - Disables daylight savings time.
- Press **OK** to save and return to **PLUS** menu.

Factory Reset

Factory reset will erase all configurations, user settings, and readdress all digits. It will not affect the current user or installer code.

- Enter **INSt** Menu.
- Press **↑** then **0** to enter the Factory Reset sub menu:
 - The sign will display **rESt**.
- Enter safety code **90152953** using the remote:
 - Every key press will make **rESt** flash.
- Press **OK** to start the factory reset:
 - If the code was entered incorrectly, the sign will display **FA IL**:
 - Press **OK** to return to **INSt** menu.
 - If the code was entered correctly, the sign will exit **INSt** menu and reset the sign.

Installer Menu

Type Installer Code to Enter Installer Menu (**INSt**)

Installer Code: 74191 38635

↑ 4 Sign Information (**INFo)**

- ↑ 1** Digit Software Version
- ↑ 2** Controller Software Version
- ↑ 3** Digits Addressed
- ↑ 4** Internal Temperature

↑ 5 Change User Code

Enter new code **OK**
Re-enter to confirm **OK**

↑ 8 Advanced Options (**PLU5)**

- ↑ 1** 9/10 Digit Value
StAt (static) or
PrO (Programmable) toggle **0**
If **StAt** enter value (0 - 9)
- ↑ 3** Light Sensor Min Max Settings
Sr Light Sensor Reading
SL Sensor Low Limit
SH Sensor High Limit
- ↑ 4** Brightness Offsets by Line
- ↑ 5** Brightness Offsets by Digit
- ↑ 6** Reset Brightness Offsets
ELEr: 123 **OK**
- ↑ 7** Decimal Point Enable / Disable
- ↑ 8** Disable Leading Zeros (**bLn**) toggle **0**
- ↑ 9** Daylight Savings Time toggle **0**

↑ 0 Reset Sign

rESt: 90152953 **OK**

SECTION 8: PRICEPAD USER GUIDE

The PricePad is used to wirelessly update the prices and settings of LED gas price signs.





PricePad Setup:

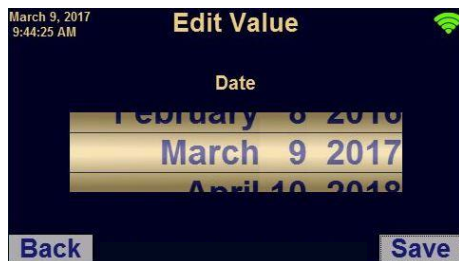
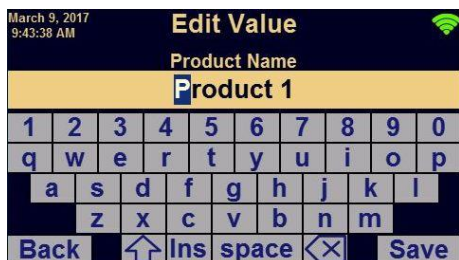
- Attach the antenna to the PricePad.
- If the POS option has been ordered, connect the supplied USB or RS-232 POS cable to the PricePad and the POS system.
- Plug the AC adaptor into an outlet and connect it to the PricePad.

PricePad Menu Navigation:

The PricePad is equipped with a color touch screen allowing prices and settings to be updated with just a few taps on the screen with a finger.

- **Note:** The screen will automatically shut off after 5 minutes without use. Tapping anywhere on the screen will turn it back on.

- Tap items on screen to enter the corresponding menu or to edit a value.
- To return to the previous menu, press the “Back” button in the bottom left of the screen.
- There are 3 main types of edit screens.
 - **Number entry** – Allows a number to be updated. Change the value by using the onscreen keypad. The arrow keys will move the cursor left and right.
 - **Text entry** – Allows text to be entered. The shift key  will switch the keyboard between lowercase and uppercase letters. The insert key  will switch between insert and overwrite text entry mode. The backspace key  will delete the previous character.
 - **Spinners** – Allow settings to be selected from a list of possible options. (Example a date) To change the value touch and drag up or down over the value.
 - After editing a setting, tap the “Save” button to save the changes. Tap the “Back” button to cancel any changes.
 - During the saving process, a busy indicator  will spin in the upper right hand corner of the screen.
- If there are more than 6 items in a menu, arrow keys will appear on the left, right, or both sides of the screen allowing navigation between menu pages.



Startup:



The Loading screen is displayed when the PricePad is first powered on. After communication has been successfully established, the “Price” menu will be displayed.

Changing Prices:



Price Menu:

- This is the main screen and will be shown after loading has completed.
- To change a price:
 - Tap the price or name of the product that needs to be changed.
 - Edit the value using the keypad.
 - Tap “Save” to update the price on all signs.
 - When the price screen returns, all signs will have been successfully updated to the new price.

Signal Strength:



Note: If the PricePad is used to control multiple signs, the green bars in the upper right corner will indicate the lowest signal

Signal Strength:

- Signal strength is indicated by the green bars in the upper right corner of the screen. Tapping these bars will display the “Signal” menu.
- The “Signal” menu displays the signal strength of each sign bound to the PricePad.
- Signal strength ranges from 0 to 4 bars.
 - 3 or 4 bars indicate good signal strength.
 - 2 bars indicate low signal strength.
 - 1 bar indicates very low signal strength. With one bar it may take longer to update the sign and communication errors may occur.
 - 0 bars indicate the sign is out of range.

Settings:

Touch to enter Settings menu



To enter the Settings Menu:

- Tap the gear in the upper right corner of the screen.

Settings Menu:

The “Settings” menu contains the following sub menus.

- **Products** – Rename, enable, or disable products.
- **Clock** - Set the time and date.
- **Brightness** - Change the sign brightness and light mode.
- **Timers** - Setup timers to turn the sign on or off and dim the sign at night.
- **Info** - Display PricePad and sign information.
- **Advanced** - Access advanced settings.



Products Menu: ⚙️ → Products

The “Products” menu is used to enable or disable products, to name products, and to name prices.

- Tap the product that needs to be changed.
In this menu, tap a setting to change its value.
 - **Enabled?** : Turns the product on or off on all signs.
 - **Product Name:** Sets the product name to be used on the PricePad. (ex. Regular, Premium, Diesel)
 - **Price Name:** Sets the price name to be used on the PricePad. Price names are only displayed if the product has multiple prices. (ex. Cash / Credit toggle)

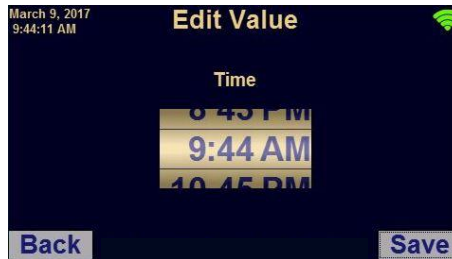
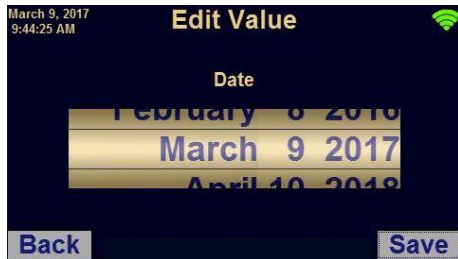


Settings (continued):



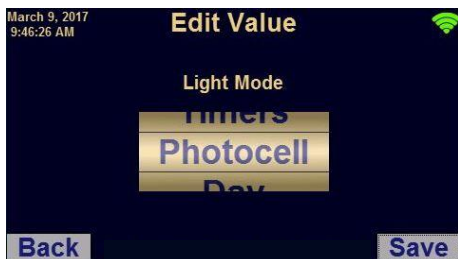
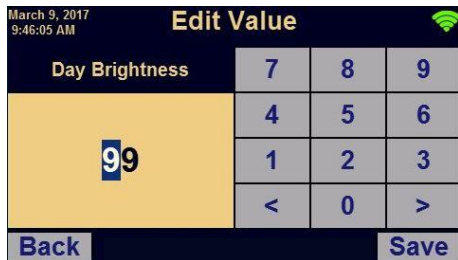
Clock Menu:

- Tap a setting to change its value.
 - **Time:** The current time used by the sign and the PricePad.
 - **Date:** The current date used by the sign and the PricePad.
 - **Daylight Savings Time:** Enables or disable automatic time changes for daylight savings time.



Brightness Menu:

- Tap a setting to change its value.
 - **Day Brightness:** Changes how bright the LED's are on the sign during the day. Then sign needs to be brighter during the day to be readable in sunlight.
 - **Night Brightness:** Changes how bright the LED's are on the sign at night. The sign should be dimmer at night to be readable.
 - **Note:** The default Day Brightness is 99. The default Night Brightness is 49. Lower brightness values make the sign dimmer.
 - **Light Mode:**
 - **Timers** – Sign power will be controlled with the On/Off timer and brightness will be controlled with the Day/Night timer.
 - **Photocell** - Sign power will be controlled with the On/Off timers and brightness will be controlled with a photocell.
 - **Note:** The sign must be equipped with a photocell for this mode to work correctly. If a photocell is not present the sign will always stay at the night brightness level.
 - **Day** – Sign will stay at day brightness. Timers and photocell input will be ignored.
 - **Night** – Sign will stay at night brightness. Timers and photocell input will be ignored.
 - **Off**– Sign will stay off. Timers and photocell input will be ignored.

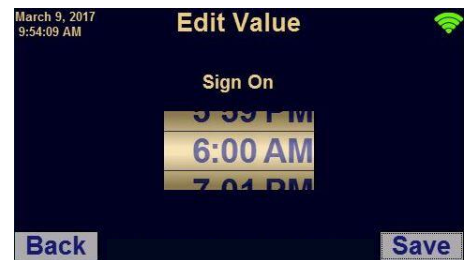


Settings (continued):



Timers Menu: ⚙️ → Timers

- Tap a setting to change its value.
 - **On/Off Timer:** Controls when the sign automatically turns on and off.
 - **Sign on 24 Hours?:** Setting this to “Yes” will keep the sign on 24 hours a day and hide the “Sign On” and “Sign Off” times from the menu.
 - **Sign On:** The time the sign will turn on. (store open time)
 - **Sign Off:** The time the sign will turn off. (store close time)
 - **Day/Night Timer:**
 - **Day Start:** Time when the digits change from night brightness to day brightness and the sign’s lights shut off.
 - **Night Start:** The time when the sign goes from day brightness to night brightness and the sign’s lights turn on.
- Note:** The Day/Night timer will not be available if the light mode is set to Photocell.



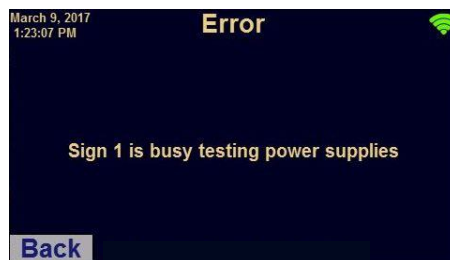
Info Menu: ⚙️ → Info

The Info menu displays PricePad and sign information, and allows sign names to be changed.

- The following PricePad information is displayed:
 - PricePad startup time and date.
 - PricePad serial number.
 - All signs currently bound and their signal strengths.
- To view sign specific info, tap the desired sign.
- The sign address, controller firmware version, and sign name is displayed.
- The sign name can be changed by tapping it, then using the onscreen keyboard to enter a new name. This is useful if there are multiple signs.



Error Screens:



Communication Errors:

All errors will self clear 60 seconds after the error condition is removed. Pressing the Back button will immediately clear the error.

Causes for Errors:

Cannot communicate with Sign:

- The sign is powered off.
- The PricePad radio is out of range of the sign.
- The antenna on the PricePad or sign is damaged or not present.
- The sign side radio is not working properly.

External radio selected and not responding:

- Radio Mode is set to "external" and the external radio is not securely plugged into the COM connector on the PricePad.
- Radio Mode is set to "external" and external radio is not working properly.

Internal radio selected and not responding:

- Radio Mode is set to "internal" and the PricePad is not equipped with an internal radio.
- Radio Mode is set to "internal" and the internal radio is not working properly.

SECTION 9: PRICEPAD ADVANCED MENU

The Advanced Settings menu contains additional settings that should not need to be changed on a regular basis.



To enter Advanced Menu: ⚙️ → Advanced

- Tap Advanced in the Settings menu.
- Enter password: 814
- Tap “Save”

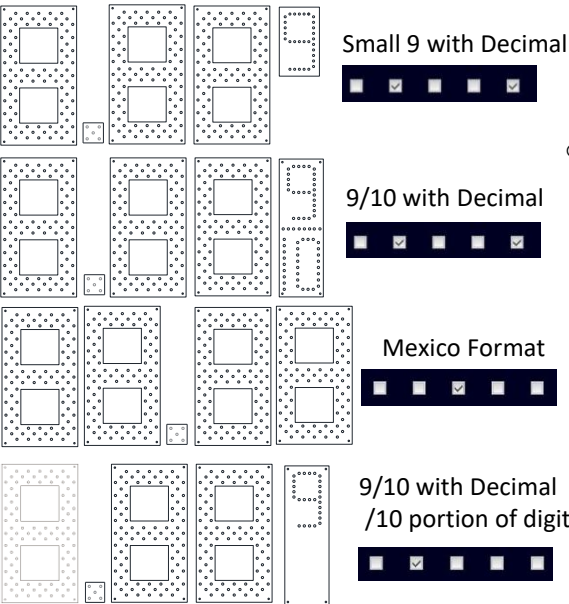
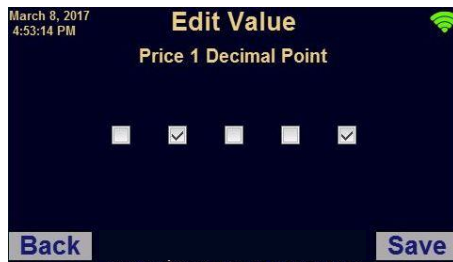
Advanced Menu:

- **Products:** Change the number of product or prices. Enable/disable decimal points and the “/10” portion of 9/10 digits.
- **Product Map:** The product map allows any product price combination on a sign to be mapped to any product price combination on the PricePad.
- **POS:** Setup POS integration allowing a POS system to automatically update prices.
- **Clock:** Change the clock display between 12-hour and 24-hour mode.
- **Signs:** Bind to new signs, delete old signs, identify signs, and change the “Number of Faces” setting on each sign.
- **Digits:** Change the behavior of the small 9 or 9/10 digit.
- **Radio:** Switch between internal and external radios.
- **Display:** Flip the display. (This is used when mounting the PricePad to the wall so the cables can face down)
- **Updates:** Upgrade the firmware.
- **Reset PricePad:** Resets all PricePad settings (will unbind all signs and return settings to defaults)



Advanced Products Menu: ⚙️ → **Advanced** → **Products**

- **Number of Products:** The number of products the PricePad will display. If the PricePad is setup to have more products than the sign, the extra products on the PricePad will have no effect on the sign.
- **Product Settings:** Tap the product's name to change its settings.
 - **Enabled?** : Turns the product on or off on all signs.
 - **Number of Prices:** The number of prices that will be displayed on a single product line. Normally this should be set to 1. If the product toggles (ex. Cash / Credit) the number of prices should be set to the number of prices the product toggles between.
 - **Product Name:** Sets the product name to be used on the PricePad. (ex. Regular, Premium, Diesel)
 - **Decimal Point:** The decimal point outputs on each digit can be enabled or disabled for each price. This also affects how prices are displayed on the PricePad.

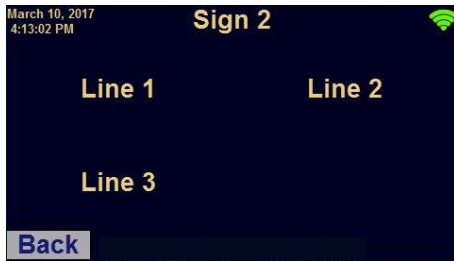


Note: See figure for correct settings.

Note: This only enables the output; the decimal point has to be installed on the sign for it to have any effect.

Note: The rightmost checkbox will enable/disable the /10 portion of a 9/10 if it is present on the sign.

- **Price Name:** Sets the price name to be used on the PricePad. Price names are only displayed if the product has multiple prices. (ex. Cash / Credit toggle)



Advanced Products Menu: ⚙️ → Advanced → Product Map

A Product is made up of one or more lines of digits that can display a single price or toggle through multiple prices. The product map allows any product price combination on a sign to be mapped to any product price combination on the PricePad.

Reasons for changing the product map: Product map changes may only be required if the PricePad is bound to multiple signs and one of the following is true:

- The products are not in the same order on all the signs.
- Not all products are shown on all signs.
- A cash / credit toggle combined with a second sign with cash and credit on separate lines.

To Update Product Map:

- Tap a sign, then a line on that sign, then the price on that line.
- Choose the PricePad product from the list that should display on the sign-> line-> price.

Advanced Clock Menu: ⚙️ → Advanced → Clock

- Tap a setting to change its value.
 - **24-Hour Mode:** Switches time display and entry from 12-hour mode to 24-hour mode.
 - **Time:** The current time used by the sign and the PricePad.
 - **Date:** The current date used by the sign and the PricePad.
 - **Daylight Savings Time:** Enables or disable automatic time changes for daylight savings time.

POS (optional Point of Sale Integration):

POS integration is a feature that allows the POS system to directly change prices on the PricePad without operator intervention. The following POS systems are currently available:

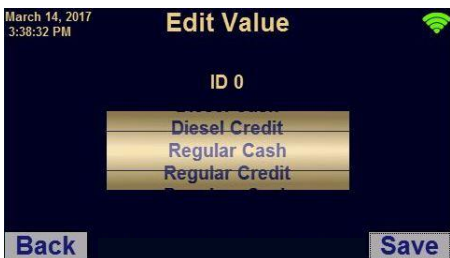
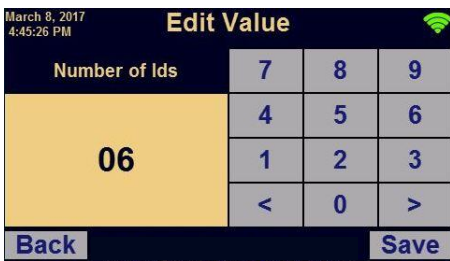
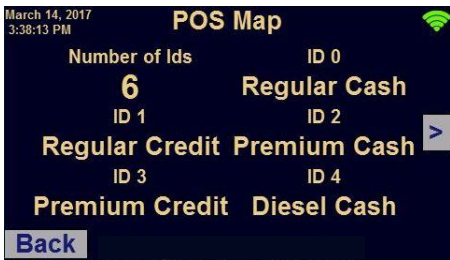
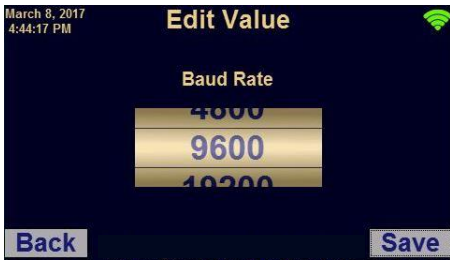
- Verifone (Commander, Sapphire, RubyCi)
- Gilbarco (G-site, Passport)
- Radiant / NCR
- Dresser Wayne

POS integration is a software option, at extra cost. The POS option can be factory ordered or field upgraded. When field upgrading, an unlock code and communication cable will be provided. The PricePad supports RS-232 or USB communication for all POS systems.

POS Menu: ⚙️ → **Advanced** → **POS**

- **Pos Mode:** Used to activate or switch POS systems. After a POS mode is activated, then additional settings will be available. To obtain a POS unlock code, contact Blair Companies.
Note: If the Pos Mode is currently set to one of the available POS's, entering an invalid code will set the Pos Mode back to No POS.
Note: If a POS has been activated on the PricePad, the activation code should be on a sticker applied to the bottom of the PricePad.





- **Communication Method:**
 - **USB** - POS is connected to the PricePad with a micro USB cable.
 - **RS-232** - POS is connected to the PricePad with a Blair Companies supplied cable. The connection is labeled "POS" in the PricePad.
- **Baud Rate:** Only available if the communication method is set to RS-232. Available baud rates(1200, 2400, 4800, 9600, 19200, 38400, 57600, or 115200)
 - Note:** The following settings are used for RS-232 communication and are not configurable:
 - Data: 8bits
 - Stop: 1 bit
 - Parity: None
 - Flow Control: None
 - Note:** The default communication method and baud rate will be set when the POS activation code is entered.
 - Note for Verifone POS systems:** The Verifone POS system must have its decimal point option set to 3 for each price.
- **POS Map:** The POS map is used to map a POS's product ID to a product or product price combination on the PricePad.
 - **Number of Ids:** The "Number of Ids" should be set to the number of products or price product combinations on the PricePad. The max number of IDs supported varies by POS: Verifone 36, Gilbarco 8, NCR 8, Dresser Wayne 36.
 - **ID:** The POS assigns an id to each price it controls on the sign. Each id can be mapped to any price. (For example, Regular Cash and Regular Credit would map to separate POS IDs.)

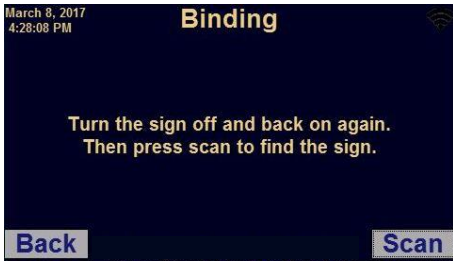


Signs Menu: → Advanced → Signs

The sign settings menu allows signs to be added (bound) and deleted (unbound) from the PricePad. It allows signs to be identified, and the “Number of Faces” setting on each sign to be changed.

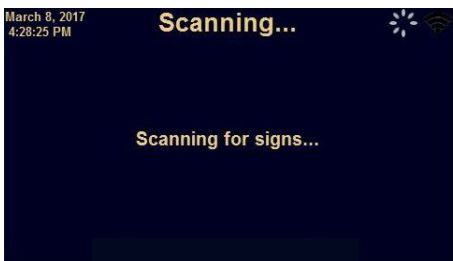
Adding a New Sign (Binding):

- Press the “New” button.
- Follow the on-screen prompt and power cycle the sign. Then press the “Scan” button.
- Wait for scanning to complete. This may take up to a minute.
- Tap the address of a sign that is ready to bind.
- If there are multiple signs ready to be bound like in the image to the left, pick one by tapping it. Then press “Identify”. This will cause the sign to blink slowly.
- If the correct sign is selected press “Bind” if not press “Back” and try another sign.
- Wait for Binding to complete.
- Press “Back” on the Binding Complete screen.
- If multiple signs were ready to bind, and another on the list needs to be bound, it can be bound at this time.



Sign Settings:

- **Address:** Unique address of the sign (read only).
- **Identify:** Button that causes the sign to blink slowly so it can be identified.
- **Sign Name:** The sign name can be changed for easy sign identification. This is useful if multiple signs are bound to the PricePad.
- **Number of Faces:** Setting on the sign that controls how many sides the sign has. For a normal 2-sided sign “Number of Faces” should be set to 2.
- **Controller Ver.:** Displays controller firmware version (read only).
- **Delete:** The “Delete” button will delete (unbind) the sign from the PricePad.





Digits Menu: ⚙️ → Advanced → Digits

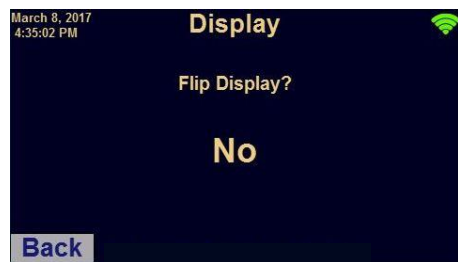
- **Force Last Digit?:**
 - **Yes** – Prevents the user from changing the value of the last digit (9/10 digit) when entering a price.
 - **No** – Allows the user to change the value of the last digit (9/10 digit) when entering a price.
- **Last Digit Value:** Value displayed on the last digit (9/10 digit) if “Force Last Digit?” is set to “Yes”.



Radio Menu: ⚙️ → Advanced → Radio

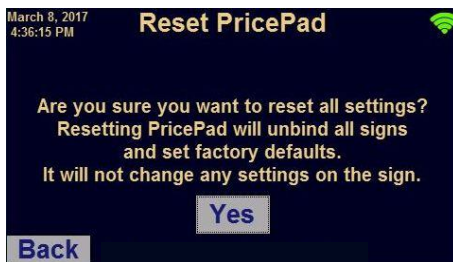
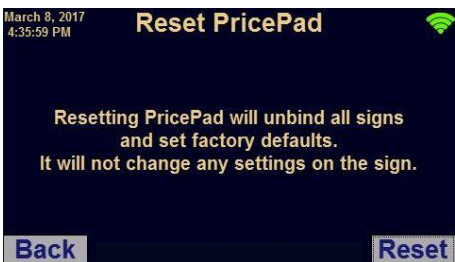
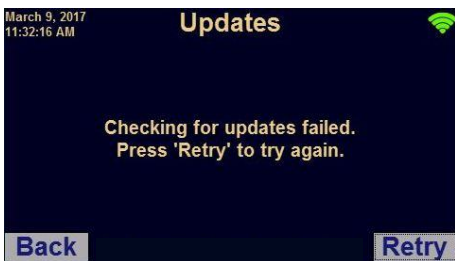
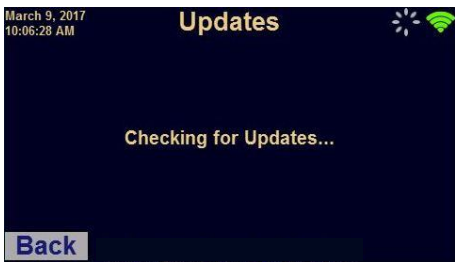
- **Radio Mode:** The radio mode can be switched to allow an external radio to be connected for improved signal strength
 - **Internal** – Use the internal radio.
 - **External** – Use an external radio connected to the COM port on the PricePad.

Note: If the radio mode is switched to External and an external radio is not connected, communication with the sign will no longer work.



Display Menu: ⚙️ → Advanced → Display

- **Flip Display:** The display menu allows the screen to be flipped 180° (useful when mounting the PricePad to a wall).
 - **No** – Normal mode for countertop operation where the PricePad cables will face away from the user.
 - **Yes** – Flipped mode will flip the screen 180° so the PricePad can be mounted on a wall and the cables face down.



Updates Menu: ⚙️ → Advanced → Updates

The updates menu allows the PricePads firmware to be field upgraded.

To update the PricePads firmware:

- Plug an internet connected Ethernet cable into the port on the PricePad.
- Navigate to the Updates menu.
- The screen will display “Checking for Updates...” if an active network cable is connected. If a network cable is not connected, the screen will display “The network cable is disconnected.”
- If “Checking for updates Failed. Press ‘Retry’ to try again” appears, the PricePad was unable to connect to the update server.

Causes:

- Ethernet cable not connected to PricePad.
- Internet connection not available.
- Update server offline.
- After successfully connecting to the update server one of two screens will show.
 - “No updates are available at this time”
 - “Version x is available. Would you like to install it?”
- If a new version is available, tap “Install”.
- Wait for the install process to complete (do not interrupt the install process). When it is complete, the PricePad will reboot.

⚙️ → Advanced → Reset PricePad

Reset PricePad Menu: Resets all PricePad settings to factory defaults and unbinds all signs.

- Follow onscreen prompts to reset PricePad.

SECTION 10: REPLACEMENT PARTS



ATTENTION!

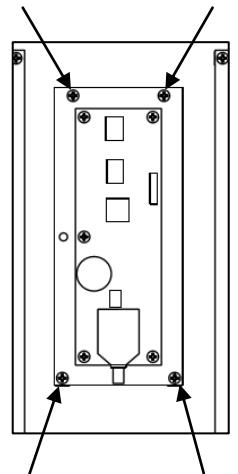
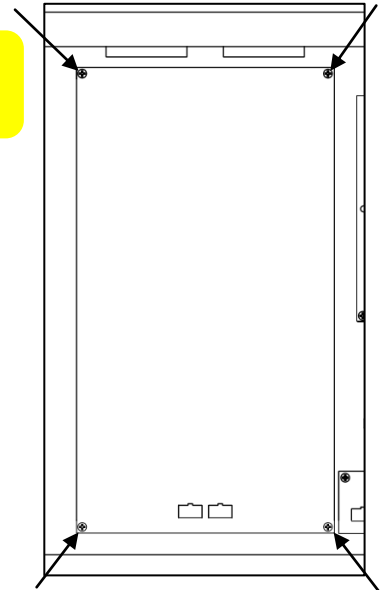
Sign must be powered off before attempting any of the following procedures.

Digit Replacement:

- Removal
 - Gain access to the rear of the EPCU LX frame by removing a sign face.
 - Disconnect all cables from the digit that is to be replaced.
 - Remove all mounting screws.
 - Remove the digit from the frame.
- Installation
 - Reverse removal procedure, reconnecting all cables to the digit.

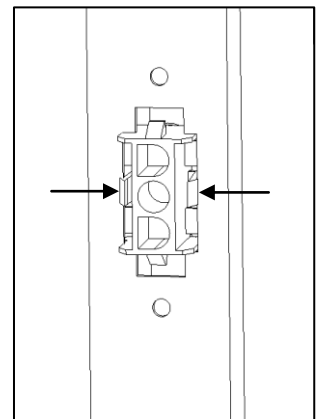
Controller Board Replacement:

- Removal
 - Gain access to the rear of the EPCU LX frame by removing a sign face.
 - Disconnect data cables and the antenna cable from the controller board.
 - Remove the four match plate mounting screws.
 - Remove complete match plate and controller board assembly
 - The replacement controller board will come installed on a new match plate.
- Installation
 - Reverse removal procedure, making sure to reconnect all cables to the controller board.
 - **Note:** The handheld remote and PricePad will need to be rebound to the sign after controller board replacement.
 - Refer to **Handheld Remote Binding** on **page 34** to rebound the handheld remote.
 - Refer to **PricePad Binding** on **page 9** to rebound the PricePad.



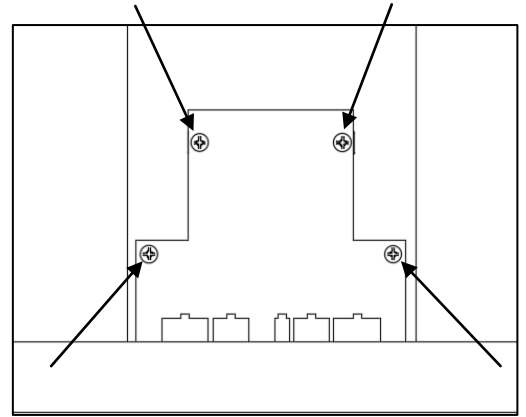
Power Supply Replacement:

- Removal
 - Gain access to the rear of the EPCU LX frame by removing a sign face.
 - Disconnect the AC supply cable from the frame.
 - Remove the ground wire ring from the frame by using a 5/16" wrench to remove the lower nut. Do not remove grounding post.
 - Remove the AC connector from the frame by pinching the lock tabs with pliers.
 - Disconnect the power cable from decimal point.
 - Remove the mounting screws holding the power supply to the frame.
- Installation
 - Reverse removal procedure.



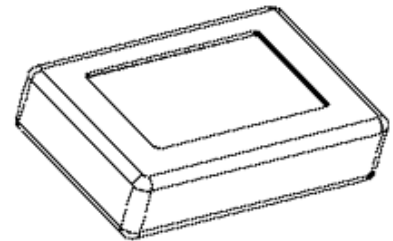
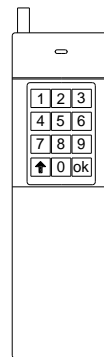
Decimal Point Replacement:

- Removal
 - Gain access to the rear of the EPCU LX frame by removing a sign face.
 - Disconnect all cables from the decimal point that is to be replaced.
 - Remove the four mounting screws.
 - Remove the decimal point from the frame.
- Installation
 - Reverse removal procedure, reconnecting all cables to the decimal point.
 - If the line does not display correctly, the line format will need to be updated. Follow **Set Line Format** procedure on **page 35** to change the line format.



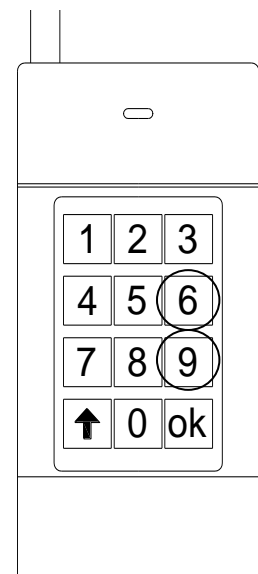
Handheld Remote or PricePad Replacement:

- If the handheld remote or PricePad is replaced, the new device will have to be bound to the sign.
- Refer to **Handheld Remote Binding** below to bind a new handheld remote.
- Refer to **PricePad Binding** on **page 9** to bind a new PricePad.



Handheld Remote Binding:

- Power cycle (turn the sign off and then back on) with either the breaker or switch at the sign.
- Press and hold buttons **6** and **9** at the same time on the remote that is being bound to the sign. The entire sign will flash.
 - If the sign does not flash, ensure the remote is turned on, the antenna is extended, and the battery is good.
- Once the sign has stopped flashing, power cycle the sign again.
- Press and hold buttons **6** and **9** at the same time on the remote that is being bound to the sign. The sign will flash bind. After a few seconds, bind will stop flashing and the sign will display **CODE**.
- Enter the 4-digit user code printed on the remote. The sign will continue to display **CODE**.



- Enter the user code again, and then the sign should display *PASS* or *FAI L*.
- If the sign displays *PASS*, press **OK** until the sign returns to displaying prices. The new remote is now bound to the sign.
- If the sign displays *FAI L*, press **OK**, then the sign should return to the installer menu, displaying *Inst*.
 - Press **↑** and **5**. The sign should then display *CODE* again.
 - Repeat the procedure until the sign displays *PASS*. Only at this time is the new remote bound.
- **Note:** When a new remote is bound to a sign, the old remote is automatically unbound. Only one remote may be bound to a sign at a time.

Set Line Format:

- **Note:** This process requires a bound remote.
- Power cycle the sign (turn it off and then back on).
- Using the handheld remote, hold the **5** button and the **8** button at the same time to enter the line format menu.
- The first line will now attempt to display *AbCd*. Then after a time, the line will scroll through numbers 1 through 9. After this, it will return to *AbCd*.
- At any time in this process, if the sign seems to display random LED configurations or incorrect characters, press **0** to change the line format.
- Repeat this process until the line displays *AbCd*.
- Press **OK**, then the sign will then proceed to the next line. If the line format is correct, it will also display *AbCd*. Press **OK** again to continue to the next line.
- When the last product is reached, the sign will return to displaying prices.

SECTION 11: SURGE PROTECTOR



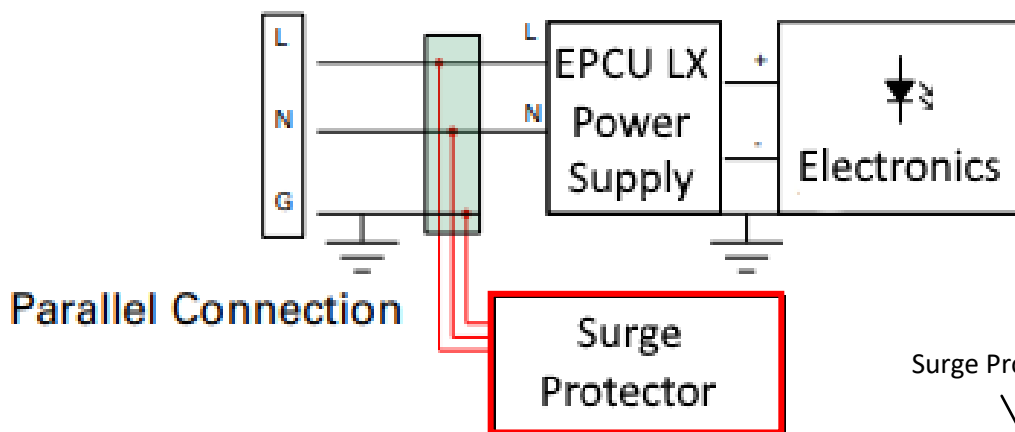
ATTENTION!

- Sign must be powered off before attempting the following procedures.
- There must be one surge protector installed for each dedicated circuit connected to the sign.

The following instructions are for installing a Littlefuse LSP05GI240P surge protector in an EPCU LX sign.



- When connecting power to the EPCU LX system, splice in the surge protector in parallel as shown in the diagram below:



- Once the connections are made inside the junction box located inside the sign, mount the surge protector to the interior of the sign using an appropriate mechanical fastener, and then close the junction box.
- After closing the junction box, test the connections by powering on the sign and ensuring the sign has power, and the green light on the surge protector is lit. This means it is functioning.

