Installation Manual

Replacing the Wayne Ovation 1 PPU Display Boards using the Freedom Electronics FE-UPPU Display Board.

Rev 2.0 ● 03/2022

Kit #	FE-UPPU
Description	FE-UPPU Display Board Install
Model	Ovation 1 Dispenser

This kit will upgrade PPU display boards on Ovation 1 dispensers only. The Ovation 2 dispensers are not currently supported.

FE-UPPU Display Board

Parts list

Manufacturer Part#	Description	Quantity
FE-UPPU PCBA	Ovation 1 Universal PPU Board	1
892587-001	C/C 5 Product LED Backlight	1
DF-137-010	Snap Clip for Ovation Backlight	2
892121-001	24V Expansion Cable	1
UPBS	Universal PPU Bracket Set	1
90272A144	1/4" 6-32 Phillips Pan Head Screw	7
91020A118	Plastic push-in push rivet	6

Tools Required

- Flat Head screwdriver
- Phillips® Screwdriver
- Cutters/dykes
- Pliers

FE-UPPU Display Board

Important Safety Information

Know Your Environment
Working at a fueling station can present many dangers. It is a potentially dangerous environment of electricity, flammable fuels, vapors, and interaction with the general public. Only trained and knowledgeable individuals should perform service on the equipment. It is important to your safety and the safety of others to follow proper procedures.

Emergency Shut Off (ESO)
Know how to turn OFF power to all the fueling equipment by locating the ESO switch and circuit breakers. You must know how to shut off all fuel flow and electricity in an emergency.

Follow the Regulations
Information is available at Occupational Safety and Hazard Association (OSHA), National Fire Protection Association (NFPA) 30A; Code for Motor Fuel Dispensing Facilities and Repair Garages, NFPA 70; National Electrical Code (NEC), as well as other national, state and local entities. All applicable codes must be followed to maintain safe installation, service, use and operation of the equipment.

LOTO (Lockout/Tagout)
Always make sure ALL power to the dispenser is turned OFF before servicing the dispenser. Follow OSHA Standard 29 CFR 1910.147 The Control of Hazardous Energy (Lockout/Tagout).

No Sparks - No Smoking
Sparks from power tools, burning cigarettes, static electricity, vehicles and other sources can ignite fuels and their vapors. Ensure that you use safe and established practices while working with electrical devices and equipment.

Wear Proper PPE
Check with your company, customers and the job/site specifics to determine what types of personal protective equipment are appropriate. Always wear the proper PPE to prevent injuries and save lives.

Barricade Your Work Area
One of the dangers of working at an active retail fueling station is the potential impact of customers and the general public. It is important to properly establish your work area by barricading, to reduce the potential of vehicles or customers from entering the work area. The use of barricades is both for the protection of workers and protection of the general public/customers.

Read the Manual(s)
Knowledge of all related manufacturer procedures, manuals and documents is important. Follow the Recommended Practices of The American Petroleum Institute (API). Understand the specific procedures before starting work. If you do not understand a procedure, call Freedom Electronics at 770-792-8888.

Notify Site
On arrival identify yourself to the site manager and inform them of the work you will be performing.
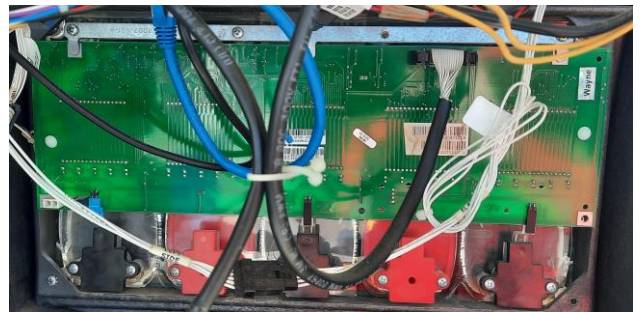
FE-UPPU Display Board

1. Before you begin work, read and understand the Important Safety Information above.

2. Open the dispenser door by unscrewing the two locks on the door.

3. Remove power to the dispenser.

4. Remove the PPU board(s) currently installed in the dispenser:

    • Ovation 1 (Gen 1) – Keep the bracket that was used to attach the PPU display board to the panel. You will be re-using it for the FE-UPPU board.

    • Ovation 1 LX (Gen 2) – You will be using the brackets provided in this kit for the FE-UPPU board.

5. On the new FE-UPPU Board, set the backlight and jumpers accordingly.

FE-UPPU Display Board
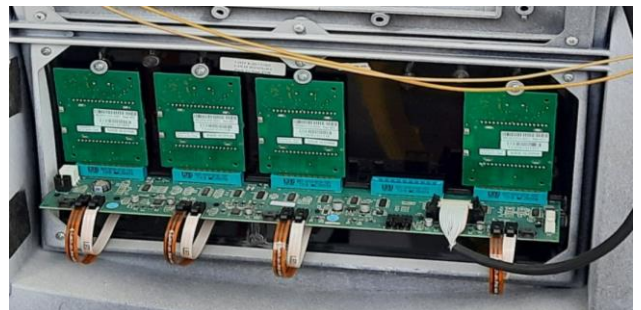
Backlight

Make sure the backlight is installed in the correct position for the desired configuration:

- Behind the lower half of the displays for single level.
- Centered behind the displays for dual level.
- The backlight can be installed with the power cable to the left or to the right of the FE-UPPU Board. This can assist with routing the power cable as needed.

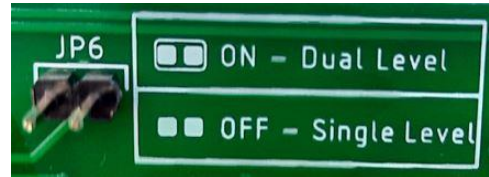Use the tabs to set as Single Level or Dual Level

DUAL LEVEL

SINGLE LEVEL

SINGLE LEVEL

DUAL LEVEL

FE-UPPU Display Board
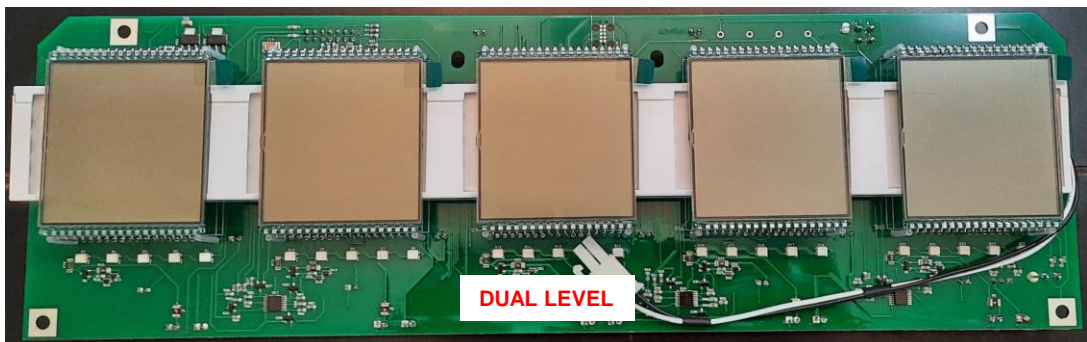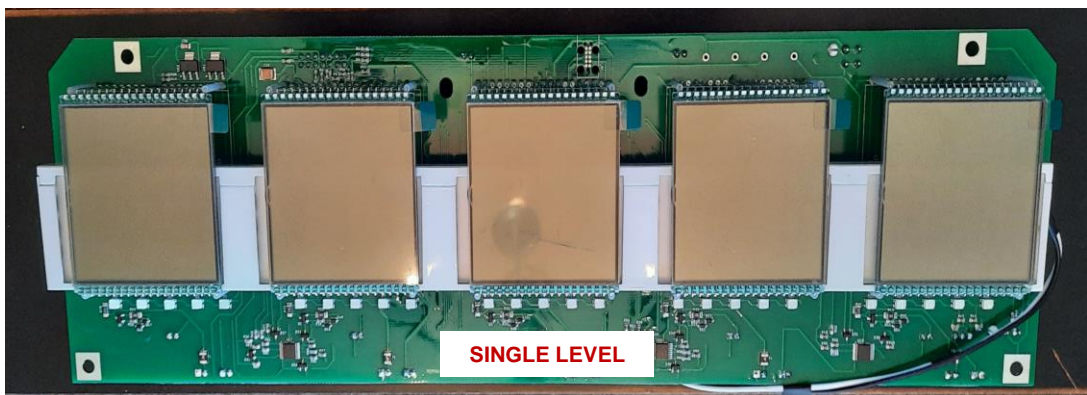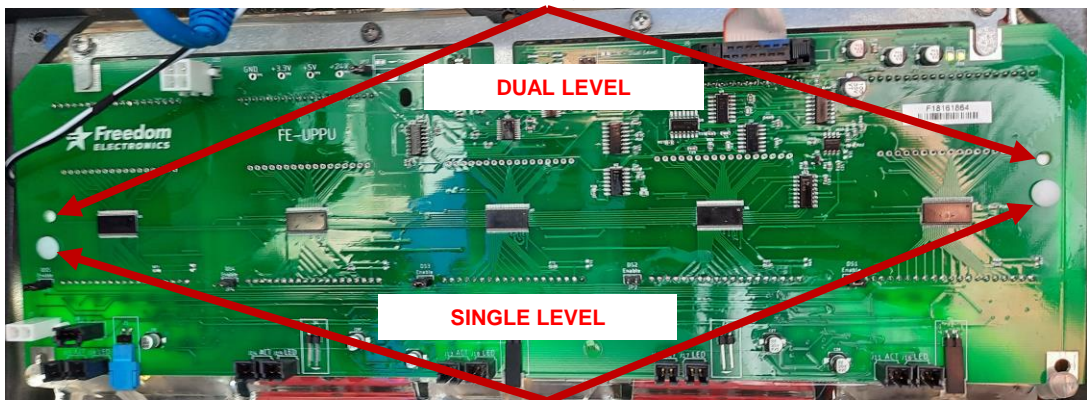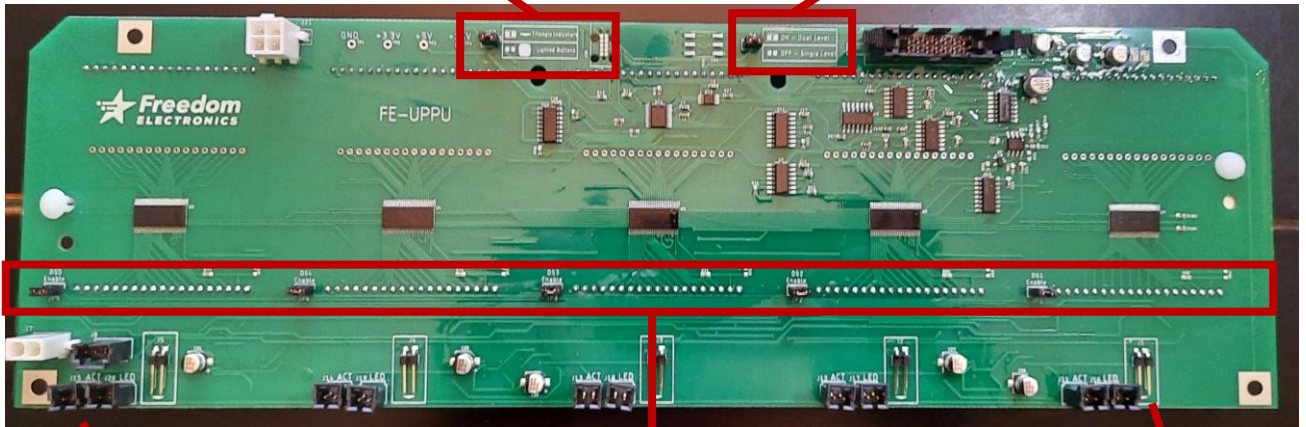
Jumper Settings

Set the correct jumper configurations for the FE-UPPU board.

JP7: Grade Select LEDs
   Off for Lighted Buttons (Gen 2)
   On for Triangle Indicators (Gen 1)

JP 6: Pricing Levels
   Off for Single Level Pricing
   On for Dual Level Pricing

GEN 2 GRADE SELECT

DS 1 – DS 5: Grade Enable
   Off for Grade not used
   On for Grade used

GEN 1 GRADE SELECT

FE-UPPU Display Board

Ovation 1 – Gen 1

Installation follows the same procedure as the OEM PPU display:

6. Position the bottom corners of the FE-UPPU board into the slots of the PTS Panel.

7. Mount the OEM bracket (from step 4) to secure the top of the FE-UPPU board.

8. Connect the grade select buttons to the appropriate positions.

9. Connect the PPU display data cable to the FE-UPPU Board.

10. Connect the FE-UPPU backlight cable to the SPM or use the 24v Expansion Cable to the iX Board.

11. Power up the dispenser and verify proper operations.

Upper Bracket

Grade Select Buttons

PTS Panel Slots

FE-UPPU Display Board
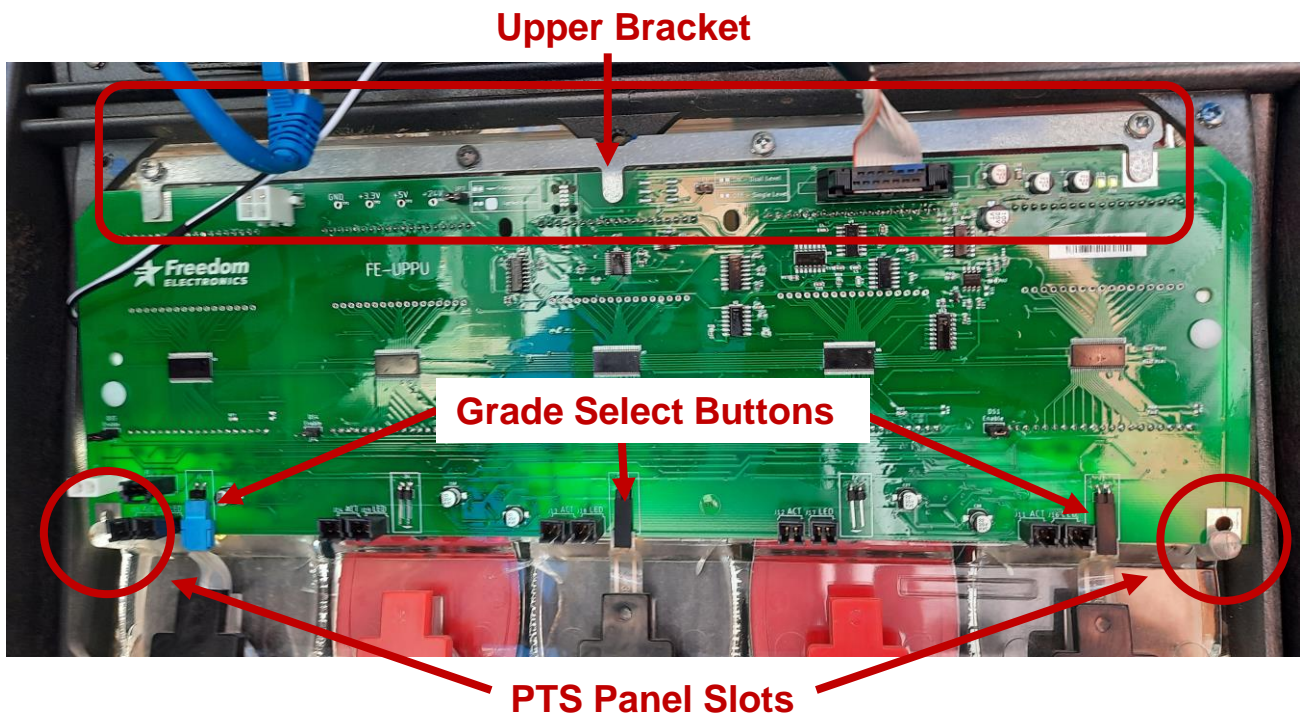
Ovation 1 – Gen 2 (LX)

Installation for Ovation 1 LX (Gen 2):

6. Mount the bottom bracket provided in the kit to the panel using the six plastic rivets (provided in the kit).

7. Mount the top bracket provided in the kit to the panel using three of the 6-32 screws (provided in the kit).

8. Mount the FE-UPPU board to both brackets using four of the 6-32 screws (two per bracket, also provided in the kit).

9. Connect the grade select buttons and LEDs to the appropriate positions.

10. Connect the PPU display data cable to the FE-UPPU Board.

11. Connect the FE-UPPU backlight cable to the SPM or use the 24v Expansion Cable to the iX Board.

FE-UPPU Display Board
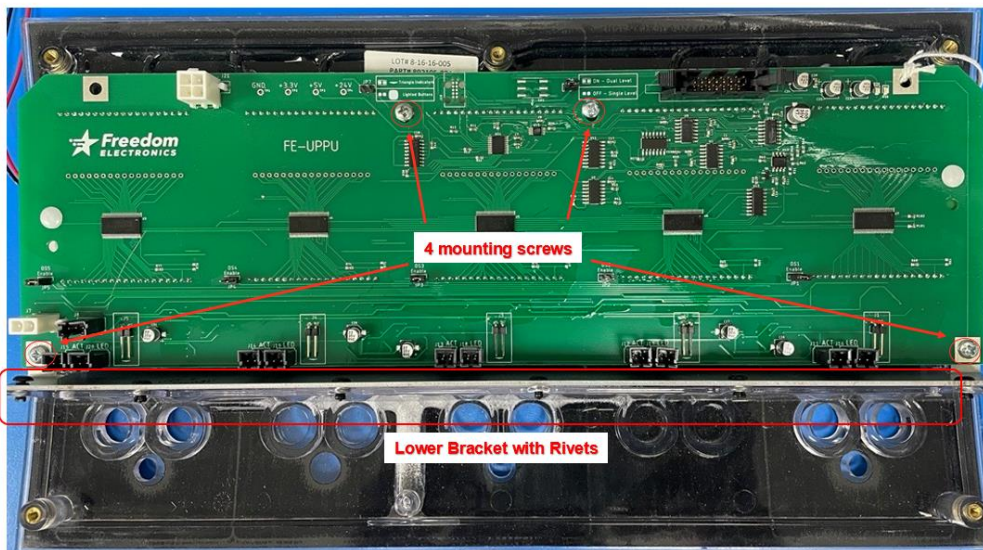
12. Power the dispenser back on.

13. Verify proper operation:
    - All PPUs have correct price.
    - All Grade Selects are operational.
    - All LEDs flash when nozzle is removed.
    - Correct LED stays on when grade is selected.

14. Close and secure the dispenser door.

FE-UPPU Display Board

FE-UPPU Product Specifications

System
- Dispenser: Wayne Ovation 1
- Panel: Ovation 1 (Gen 1) and Ovation 1 LX (Gen 2)
- Minimum IGEM software version required to use the FE-UPPU: Version 56
- Money Volume Display required to use the FE-UPPU: 887981-R01 or 891965-R01

Boards replaced by the FE-UPPU
- Ovation 1 (Gen 1) -> 887981-R03, 887981-R05, 892136-R01, 892136-R02, 892136-R03, 892136-R05, 890530-R01, 890530-R03, 890530-R05, 890530-R11, 890530-R12, 887983-R03, 887983-R05
- Ovation 1 LX (Gen 2) -> 891569-001 (used with 892715-R01/WU003355-R01/WU017880-0001), 891569-001 (used with 892713-R01)

Electrical
- Input Voltages: 24V and 8V
- Product Configurations: Jumper controlled to configure as 1, 2, 3, 4, or 5 displays similar to the 891965-R01 board.

Table 1: Jumper Settings for Common Product Configurations

Product Configuration	JP1 (DS1 Enable)	JP2 (DS2 Enable)	JP3 (DS3 Enable)	JP4 (DS4 Enable	JP5 (DS5 Enable)	JP6 (Single/Dual)
1 Single Level			x			
2 Single Level		x		x		
3 Single Level	x		x		x	
1+3 Single Level	x		x	x	x	
3+1 Single Level	x	x	x		x	
5 Single Level	x	x	x	x	x	
1 Dual Level			x			
2 Dual Level		x		x		x
3 Dual Level	x		x		x	x
1+3 Dual Level	x		x	x	x	x
3+1 Dual Level	x	x	x		x	x
5 Dual Level	x	x	x	x	x	x

Note 1: An x represents having the jumper set. No x represents having the jumper removed.
Note 2: More configurations than the ones listed above can be used, up to 5 products, assuming the IGEM template allows it. For example, a 1 product single level configuration where DS5 is the display used can be achieved by setting JP5 and removing JP1, JP2, JP3, JP4, and JP6.

- Grade Select LED Configurations: Jumper controlled to set the grade select LEDs used as on-board (Gen 1) or to the grade select buttons (Gen 2).

Table 2: Jumper Settings for Grade Select LEDs

LED Option	JP7 (LED Enable)
On-Board (Gen 1)	x
Grade Select Buttons (Gen 2)	

Note 1: An x represents having the jumper set. No x represents having the jumper removed.