

This quick guide describes radio receiver installation as well as setup and operation of an FLR5-400 key fob with an FL-5000 display. The key fob can either function as the primary display control method or as a backup for an existing Fuelight 5000 system. Refer to **Fuelink 5 Backup (p.9)** for more information.

Note: Wait at least **three minutes** after making any changes to the configuration, content, dimming, or fonts before powering down the displays to ensure changes are saved to internal memory.

Install Receiver

1. Remove the top-left module by inserting a 1/8" Allen wrench into the latch access hole toward the top-center of the module and gently turning counter-clockwise. Refer to **Figure 1**.
2. Carefully tilt the module away from the face sheet.
3. Install the radio receiver as described below and shown in **Figure 2**:

- a. Mount the receiver onto the studs on the power termination plate inside the cabinet using a 5/16" nut driver and two provided nuts.
- b. Connect the 2' mod-to-mod cable (part # W-4817959) to the receiver.

Note: When used as a backup, instead connect the 15' line-to-line cable (part # W-4821291).

- c. Connect the other end of the 2' mod-to-mod cable to the **PORT A SIGNAL** jack on the top-left module.

Note: When used as a backup, route the 15' line-to-line cable to the last module in the display chain. Refer to **Fuelink 5 Backup (p.9)**.

- d. Line up the metal bump on the rear of the antenna mounting bracket with the small rectangular cutout in the upper-left corner of the face sheet, and then use the provided self-tapping screw to attach the mounting bracket to the face sheet.
 - e. Remove the nut and lock washer from the antenna cable connector, and then push it out through the D-hole in the antenna mounting bracket. Place the lock washer back on the antenna cable connector first, and then thread on the nut and tighten it using a 5/16" nut driver or wrench.
 - f. Thread the antenna onto the antenna cable; turn clockwise until snug and pointing straight upward like a capital "L". Tighten the antenna using a 5/16" wrench.
 - g. Route the antenna cable into the cabinet through the lower rectangular cutout in the face sheet, and then use a provided zip tie in the vertical slots to secure it flat against the face sheet.
 - h. Connect the antenna cable to the receiver.
 - i. Use another zip tie to secure the antenna cable to the metal bump to the left of the receiver.
4. Reinstall the module, ensuring no cables are pinched against the face sheet. Refer to **Figure 3**. Once you feel resistance on the latch, continue to turn clockwise until you feel a hard stop to verify the module is firmly secured in place.

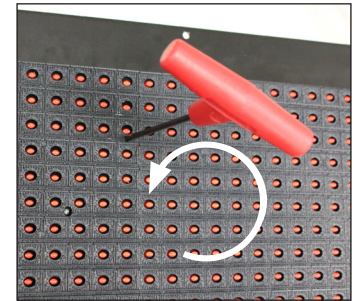


Figure 1: Module Access

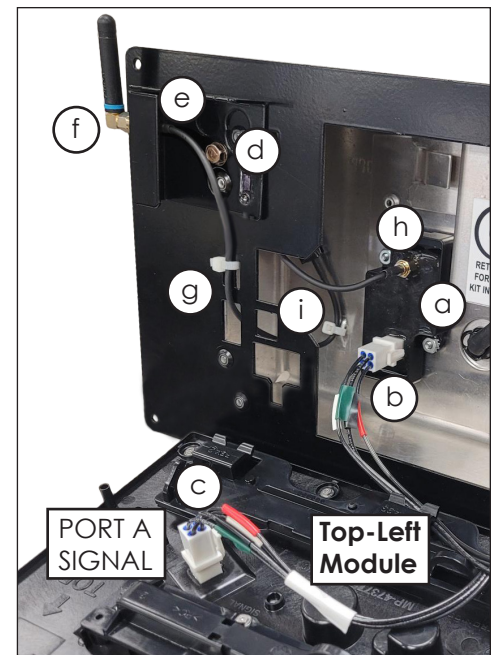


Figure 2: Radio Receiver & Bracket Install



Figure 3: Antenna Bracket Correctly Installed

Set Security DIP Switches

The FLR5-400 key fob has a series of DIP switches on the back to give it a unique address setting. Set these switches to a unique setting to prevent unauthorized control of the display.

1. Remove the small cover on the back of the FLR5-400 key fob. Refer to **Figure 4**.
2. Using a paper clip or a micro screwdriver, set switches 1-8 to a unique setting.

Note: Switch 9 and switch 0 are not used and have no effect.

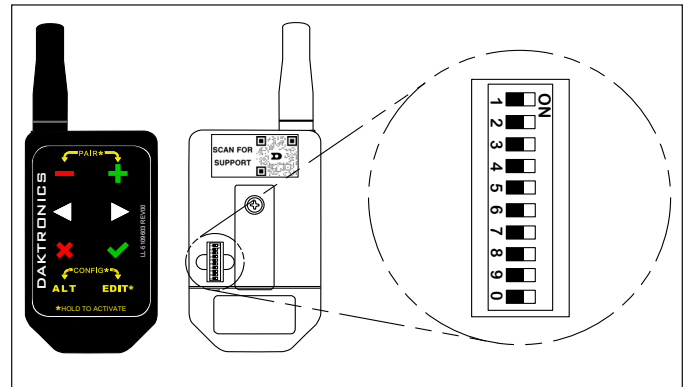


Figure 4: FLR5 Key Fob

3. Replace the back cover.

Pair Key Fob with Display

To pair the FLR5-400 key fob with the radio receiver in the display, follow these steps.

Note: If these steps are not completed, the display will not recognize or respond to the key fob.

1. Turn power on to the display.
2. Within 5 minutes of powering on the display, press and hold the **—** and **+** keys. Press and release both keys together a few times if desired just to ensure the radio receiver recognizes the pairing command. When you see two LEDs flashing on each module, the key fob is paired with the display.








Note: The display only needs to be paired once, and it will remember the key fob. Should the security DIP Switches change, the key fob can be paired again after any power cycle.







Initial Setup

This section provides a quick overview of initial configuration settings to get the displays operational. For detailed descriptions of all configuration menu items, refer to the appropriate sections that follow.

Press and hold both the **ALT** and **EDIT*** keys until the displays blank and the configuration menu appears. Use the **◀** and **▶** keys to cycle through the available menu items. Press the **✓** key to enter the selected menu item. While in a menu, press the **✗** key to return to the previous menu.

Action	Input	Display
1. Set Number of Frames The default number of frames is 1. <ul style="list-style-type: none"> • If more than one price is to be shown on a single display line, set the number of frames to match. • If a single display line will only ever show one price, skip ahead to Step 2. 	From the main menu, select Cycling , and then press ✓ .	
	Press ✓ again to enter the # Frames menu.	
	Use — and + to select the number of frames to display (up to 4), and then press ✓ . Refer to Cycling (p.7) to set the Hold Time .	

Action	Input	Display
<p>2. Set Display Content</p> <p>The Content > Mode menu</p> <p>a) designates whether the display will show numeric prices or message text and</p> <p>b) assigns unique price numbers or captions for up to four display frames.</p> <p>A "price number" may be for a single fuel grade or a combination of a fuel grade and a payment method.</p>	From the main menu, select Content , and then press ✓.	
	Use ◀ and ▶ to " Pick " a display highlighted with an LED border, and then press ✓.	
	Press ✓ again to enter the Mode menu.	
	<p>Use — and + to select either PRICE or MESSAGE, and then press ✓.</p> <p>Note: If the display is configured for more than one frame, the frame number (F#) shows for 2 seconds.</p>	
		
	<p>Use — and + to select the price number (1-12) for a PRICE display or the desired caption (CASH, CREDIT, etc.) for a MESSAGE display, and then press ✓.</p> <p>Note: If the display is configured for more than one frame, repeat this step until a price number or message text is assigned for every frame.</p>	
		
	<p>Repeat the above steps until content is assigned to all displays and frames (as applicable).</p> <p>Refer to Content (p.5) for information about more complex pricing display setups as well as setting Format and Font.</p>	

Action	Input	Display
3. Set Dimming Mode The Dimming menu sets automatic or manual dimming (brightness) levels.	From the main menu, select Dimming , and then press ✓.	
	Use ◀ and ▶ to select between AUTO or MANUAL dimming modes, and then press ✓. <ul style="list-style-type: none"> AUTO dimming mode uses built-in light sensors to automatically adjust display brightness, generally brighter during the day and dimmer at night. MANUAL dimming mode sets a fixed display brightness. 	
		
	AUTO dimming mode: Press ✓ to select the Min (minimum) dimming level, use ◀ and ▶ to set the value from 3–100%, and then press ✓ again to save. Repeat for the Max (maximum) dimming level.	
		
	MANUAL dimming mode: Press ✓ to select the desired dimming Level , use ◀ and ▶ to set the value from 3–100%, and then press ✓ again to save.	

Edit Prices

- Press and hold the **EDIT*** key for ~3 seconds to enter the price edit mode. The decimal will blink on the price to be edited.
- Use the **—** and **+** keys to adjust the active price up and down. Holding the key will slowly increase the speed at which the price changes.
- Use the ◀ and ▶ keys to move between prices. The blinking decimal will move accordingly to the price being edited.

Note: If the display is configured for more than one frame, the ◀ and ▶ keys will move through all prices within a frame and then move to the next frame.

- Press the ✓ key or the ✗ key to update the price(s). The decimal will stop blinking. Price edit mode will also automatically exit after 30 seconds with no key presses.

Blank Price

While editing a price, hold the **—** key until the price goes to zero, and then press the **—** key once more to blank the display. Blank displays will still have a blinking decimal when in edit mode to indicate that the price can be restored.

Configuration Menu

Overall menu structure is shown below. Each menu item is described in detail in the following sections.

Content	Configure
<ul style="list-style-type: none">Mode<ul style="list-style-type: none">PRICEMESSAGEFormatFont	<ul style="list-style-type: none">FontDiagnostics<ul style="list-style-type: none">HW VerSW VerFnt VerErrorsTemperatureDsplysN_addrL_addrRoleContentSig DirCalibrate
Dimming <ul style="list-style-type: none">Mode<ul style="list-style-type: none">AUTOMANUALLevel (Manual Only)Min (Auto Only)Max (Auto Only)	
Cycling <ul style="list-style-type: none"># FramesHold Time	

Content

Enter this menu to change the content and style settings for individual price or message displays.

Each configured display will be highlighted with an LED border. Use the ◀ and ▶ keys to select a display, and then press the ✓ key.

Mode

This menu designates whether the display will show numeric prices or message text and assigns unique price numbers or captions for up to four display frames. A “price number” may be for a single fuel grade or a combination of a fuel grade and a payment method.

1. Use the — and + keys to select the content, either **PRICE** or **MESSAGE**, and then press the ✓ key.

Note: If the display is configured for more than one frame, the frame number shows for 2 seconds.

2. Use the — and + keys to select the price number (**1–12**) for a **PRICE** display or the desired caption (CASH, CREDIT, etc.) for a **MESSAGE** display, and then press the ✓ key.

Note: If the display is configured for more than one frame, repeat **Step 2** until a price number or message text is assigned for every frame.

3. Repeat **Steps 1–2** until content is assigned to all displays and frames (as applicable).

FLR5-400 Installation and Operation

Quick Guide

When viewing a printed copy of this guide, use the table below to fill in the details of your specific sign. Two common setups are also shown as examples.

Price #	Fuel Grade	Payment Method/Discount	Frame # (1-4)
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			

Example 1: Three fuel grades with prices that do not change based on payment method.

Price #	Fuel Grade	Payment Method/Discount	Frame # (1-4)
1	<i>Regular</i>	–	1
2	<i>Premium</i>	–	1
3	<i>Diesel</i>	–	1

Example 2: Three fuel grades that change based on three acceptable payment methods. Note that the payment method/discount captions would only need to be selected once, one for each frame of the MESSAGE display.

Price #	Fuel Grade	Payment Method/Discount	Frame # (1-4)
1	<i>Regular</i>	<i>Cash</i>	1
2	<i>Regular</i>	<i>Credit</i>	2
3	<i>Regular</i>	<i>Rewards Card</i>	3
4	<i>Premium</i>	<i>Cash</i>	1
5	<i>Premium</i>	<i>Credit</i>	2
6	<i>Premium</i>	<i>Rewards Card</i>	3
7	<i>Diesel</i>	<i>Cash</i>	1
8	<i>Diesel</i>	<i>Credit</i>	2
9	<i>Diesel</i>	<i>Rewards Card</i>	3

Format (Price Only)

Use the **-** and **+** keys to change the decimal location and 9/10 format, and then press the **✓** key to accept.

Note: The 9/10 format is only visible with the \$X.XX decimal location.

Font (Price Only)

Use the **-** and **+** keys to preview the available fonts (0–4), and then press the **✓** key to accept. The font number (**Font#**) displays momentarily when switching between fonts. To set the same font to all connected displays in a sign, use the main **Font** menu.

Note: Prices \$10.00 and higher are not affected by the selected font.

Font #	Font Description	Example
0	Script (default)	
1	Rounded	
2	Block	

Font #	Font Description	Example
3	Digital	
4	Bold	

Dimming

Enter this menu to configure display dimming (brightness) levels.

Mode

Use the **◀** and **▶** keys to select between **AUTO** or **MANUAL** dimming modes, and then press the **✓** key to accept.

Min/Max (Auto Only)

Use the **◀** and **▶** keys to set the **Min** (minimum) and **Max** (maximum) intensity from 3–100%, and then press the **✓** key to accept.

Level (Manual Only)

Use the **◀** and **▶** keys to change the brightness **Level** from 3–100%, and then press the **✓** key to accept.

Cycling


Enter this menu to configure the number of display frames to cycle through and the hold time, the amount of time each frame is shown.

Frames

Each frame corresponds to a message, or caption, which could be a payment method for a given fuel grade, a product or product grade, a loyalty/rewards program discount, etc. The total number of frames should match the number of separate messages to be displayed.

Use the **-** and **+** keys to select the number of frames (up to 4), and then press the **✓** key to accept.





Hold Time

Use the  and  keys to cycle through the hold time in seconds from 1–9 for each separate frame, and then press the  key to accept.

Configure

Every module is configured for a specific location within the display prior to leaving the factory.

Use this menu only when reconfiguring the module to be relocated within a display, or when replacing a module with a different one.

1. Press the  key to enter display configuration. An LED border on the first display will show the first available display size for that module type.
2. Use the  and  keys to cycle through the available display sizes.
3. When the border matches your display size, press the  key to accept. The border will then move to the next display (if it exists) or exit.

Font

Use this menu to assign a font to all connected displays in a sign. Refer to **Font (Price Only) (p.7)**. Fonts may be set for individual displays as desired using the **Content > Font** menu.

Note: This feature was added in module firmware version 260.

Diagnostics

This menu provides a variety of real-time diagnostic information to help troubleshoot display issues. After entering a sub-menu, use the  and  keys to quickly move back and forth between all sub-menus.

HW Ver

Enter to view the hardware version of each module.

SW Ver

Enter to view current software version installed on each module.

Fnt Ver

Enter to view current font version installed on each module.

Errors

(Reserved for future display diagnostic functions and test patterns)

Temperature

Enter to view operating temperature of each module in degrees Celsius.

Dsplys

Enter to view LED borders around each display as configured in the **Configure (p.8)** menu.

N_addr

Enter to view the addressing of each module within its display.

L_addr

Enter to view the addressing of each module within the entire system.

Role

Enter to view the hierarchy of display control. Each module will display G (Grandparent), P (Parent), or C (Child).

Content

Enter to view the content type (Price or Message) assigned to each display as configured in the **Content (p.5)** menu. Use the **←** and **→** keys to cycle through the frames (if applicable).

Sig Dir

Enter to view the signal routing. This can be used to detect incorrect input/output connections.

Calibrate

Calibration is typically needed when a new module is put into an older display.

1. Use the **◀** and **▶** keys to select an individual module that needs brightness calibration.
2. Press the **✓** key and a test pattern will appear. Use the **◀** and **▶** keys to increase or decrease the brightness of the selected module to more closely match the brightness of adjacent modules.
3. Press the **✓** key to save the calibration to the module.
4. Repeat **Steps 1–3** as many times as needed to ensure even brightness levels across all modules in a given display.

Fuelink 5 Backup

If desired, an FLR5-400 can be installed as a backup control option to the primary Fuelink 5 controller.

1. Follow **Step 1– Step 3c** under **Install Receiver (p.1)**.

Note: If possible, the receiver should be mounted to the highest display on the side facing the store (top left) for best radio range. Though it can technically be mounted to any display, this may necessitate bringing the key fob closer to the sign structure to control the displays.

2. Refer to **DWG-4839987** to determine the last module (L MODULE) in the display chain. This may be located on either the front or rear of the display structure.
3. Remove the module by inserting a 1/8" Allen wrench into the latch access hole toward the top-center of the module and gently turning counter-clockwise.
4. Carefully tilt the module away from the face sheet.
5. Connect the 15' line-to-line cable from the radio receiver behind the top-left module to the **PORT B SIGNAL** jack on the L MODULE.
6. Continue following **Step 3d – Step 3i** under **Install Receiver (p.1)** to finish installing the radio receiver if it was not already installed.
7. Reinstall all modules, ensuring no cables are pinched against the face sheet. Once you feel resistance on the latch, continue to turn clockwise until you feel a hard stop to verify the module is firmly secured in place.
8. Assign a unique address setting to the key fob as described in **Set Security DIP Switches (p.2)**.
9. Pair the key fob to the display as described in **Pair Key Fob with Display (p.2)**.

Note: Using a key fob for backup purposes only allows for price editing. Refer to **Edit Prices (p.4)**.

For More Information

Contact Daktronics Customer Service. Visit www.daktronics.com/mysupport/help to create a MySupport account, or call customer service if there are any issues with the MySupport portal:

United States & Canada:
1-800-DAK-TRON (325-8766)

Outside the U.S. & Canada:
+1-605-275-1040

Sign Shop Procedure

The general outline of steps below may be performed before going to the installation site.

1. Mount the Radio Receiver/Antenna

- Receiver should be mounted inside the FL-5000 display that will go on the top of the pylon closest to the store.
- Refer to **Install Receiver (p.1)** and **DWG-4839987**.

2. Set Key Fob Switches

- Refer to **Set Security DIP Switches (p.2)**.

3. Pair Key Fob

- Refer to **Pair Key Fob with Display (p.2)**.

4. Set Number of Frames and Hold Time

- Refer to **Initial Setup (p.2) – Step 1**.

5. Set Content and Mode

- Refer to **Initial Setup (p.2) – Step 2**.
- If using Cash/Credit (AKA “toggles” or “flashers”), be sure to set the content for each frame.

6. Set Font and Format

- Refer to **Font (Price Only) (p.7)** and **Format (Price Only) (p.7)**.
- These are set to customer’s specification.

7. Test Price Changes

- Verify only one fuel grade price changes at a time. If multiple prices change at once, repeat **Step 5** and make sure to set each fuel grade to a different price number.

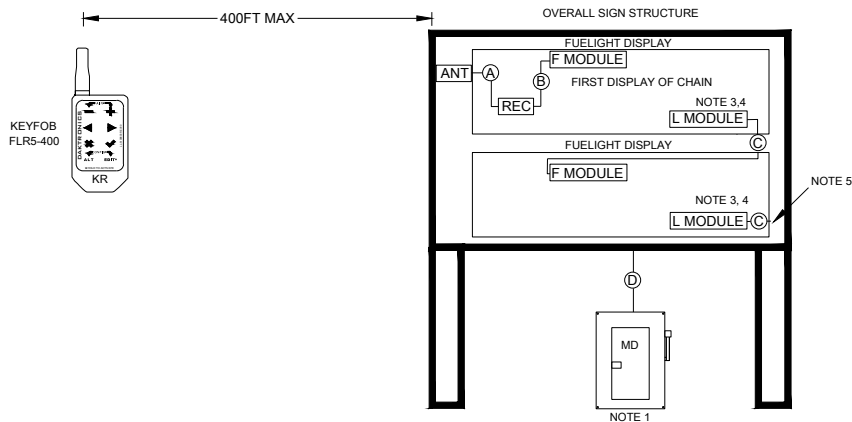
8. Save Configuration

- Wait five minutes for the configuration to be saved before powering down the displays.

9. Repackage Equipment

- Place equipment back in its original packaging for shipping to the installation site.

OUTDOOR CONTROL
KEYFOB FLR5-400 CONTROL ONLY



BACKUP COMMUNICATION
- BACKUP CONTROL OPTION WHEN PRIMARY CONTROL IS FUELINK 5 (WIRED OR RADIO) CONNECTED TO PORT A OF "F MODULE".

- KEYFOB RECEIVER CONNECTS TO PORT B OF "L MODULE" WHICH IS OFTEN ON THE BACK SIDE OF THE DISPLAY

- CABLE C IS PROVIDED WITH THE BACKUP COMMUNICATION OPTION TO ALLOW MOUNTING THE KEYFOB RECEIVER TO IDEALLY THE TOP DISPLAY ON THE FRONT SIDE OF THE SIGN STRUCTURE FOR BEST RANGE.

OUTDOOR CONTROL
KEYFOB FLR5-400 CONTROL AS
BACKUP ON FL5 CONTROL SYSTEM

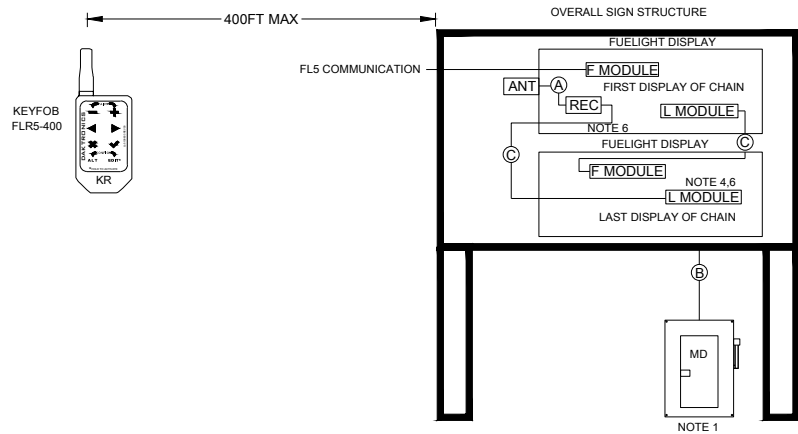


TABLE A: ENDING MODULE (EMOD) LOCATION	
DISPLAY SIZE	LOCATION (FRONT VIEW)
6", 8"	THIS DISPLAY ONLY HAS ONE MODULE.
12", 16", 20"	TOP MODULE IN COLUMN FURTHEST TO THE RIGHT
18", 24", 30", 36", 48"	BOTTOM MODULE IN COLUMN FURTHEST TO THE RIGHT

COMPONENT IDENTIFICATION TABLE			
COMPONENT	DESCRIPTION	PROVIDED BY	INSTALLED BY
MD	MAIN DISCONNECT	CUSTOMER	CUSTOMER
KR	KEYFOB REMOTE ASSEMBLY	DAKTRONICS	CUSTOMER
REC	KEYFOB REMOTE RECEIVER	DAKTRONICS	CUSTOMER
F MODULE	FIRST MODULE IN SIGNAL CHAIN LOCATED IN THE TOP LEFT FROM THE FRONT	DAKTRONICS	DAKTRONICS
L MODULE	LAST MODULE IN SIGNAL CHAIN LOCATED IN RIGHT MOST COLUMN FROM THE FRONT	DAKTRONICS	DAKTRONICS
ANT	KEYFOB REMOTE RECEIVER ANTENNA	DAKTRONICS	CUSTOMER

CABLE IDENTIFICATION TABLE				
ID TAG	DESCRIPTION	DAKTRONICS PART NUMBER	PROVIDED BY	INSTALLED BY
A	CABLE: ANTENNA BULKHEAD TO RECEIVER, 18"	W-2955	DAKTRONICS	CUSTOMER
B	CABLE: MOD TO MOD; 4 POS MINI MNL, 24"	W-4817959	DAKTRONICS	CUSTOMER
C	CABLE: LINE TO LINE; 4 POS MINI MNL, 15FT	W-4821291	DAKTRONICS	CUSTOMER
D	POWER FEEDER SEE NOTE "1"	-	CUSTOMER	CUSTOMER

NOTES

1. POWER FEEDER SIZED AS NEEDED, BY CUSTOMER. ALL WIRING TO MEET OR EXCEED LOCAL AND NATIONAL ELECTRICAL CODES. SEE SHOP DRAWING FOR POWER DRAW PER DISPLAY.

2. QTY 4 OF $\frac{3}{8}$ " HOLES PROVIDED FOR CONDUIT FITTING ON REAR OF DISPLAY FOR POWER AND SIGNAL ENTRANCE AND EXIT. (NOT SHOWN ABOVE)

3. REFER TO MANUAL FOR LINE-TO-LINE WIRING BETWEEN DISPLAYS.

4. REFER TO TABLE A FOR L MODULE LOCATION IN THE DISPLAY.

5. LAST MOD IN BOTTOM DISPLAY WILL CONNECT TO THE FIRST MODULE IN THE BOTTOM DISPLAY IN THE OPPOSITE SIDE OF A DOUBLE FACE PYLON.

6. WHEN USING KEYFOB FOR BACKUP COMMUNICATION, THE RECEIVER PLUGS INTO THE LAST MODULE OF THE LAST DISPLAY IN THE CHAIN.

REV 01	DATE: 11 DEC 24	PER CN: 189712, ADDED BACKUP KEYFOB COMMUNICATION TO DRAWING.	BY: TBS
THE CONCEPTS EXPRESSED AND DETAILS SHOWN ON THIS DRAWING ARE CONFIDENTIAL AND PROPRIETARY. DO NOT REPRODUCE BY ANY MEANS WITHOUT THE EXPRESS WRITTEN CONSENT OF DAKTRONICS, INC. OR ITS WHOLLY OWNED SUBSIDIARIES. COPYRIGHT 2021 DAKTRONICS, INC. (USA)			
PROJECT: FUELIGHT/DATAMASTER			
TITLE: RISER DIAGRAM; KEYFOB, FLR5-400 COMMUNICATION			
DATE: 01 APR 21	DIM UNITS: INCHES [MILLIMETERS]	SHEET 1 OF 1	REV 01
SCALE: NONE	DO NOT SCALE DRAWING		
DESIGN: TSPRACK	JOB NO. P2311	FUNC - TYPE - SIZE F - 01 - A	4839987
DRAWN: TSPRACK			