

# FLAG TRONICS

[www.flagtronics.com](http://www.flagtronics.com)

## FT200 Manual



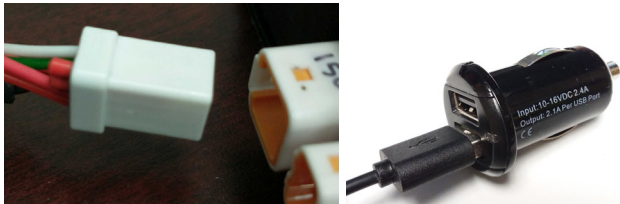
# FLAG TRONICS

## Quick Start Guide

1. Mount flagging box in a suitable location within view of the driver.



2. Plug in the main harness cable to the back of the unit, then power the unit with either the USB plug (cigarette lighter adapter) or 12V using the Orange(+) and Black (-) wires.



3. Mount antenna on roof of car or on dash with a clear view of the sky and route the cable to the unit. GPS should face the front of the car. Plug in the GPS antenna, located on the right of the unit.



### Powering ON

- Unit automatically powers on when power is applied, during pit stops there is a battery which can power the unit for up to one hour.
- Unit turns off after 30mins if there is no external power.
- Hold the top front button for 5 seconds to manually turn off the unit.



### Brightness

- Unit has a light sensor to dim the screen at night.
- Pushing either front button will cycle through 3 brightness levels.

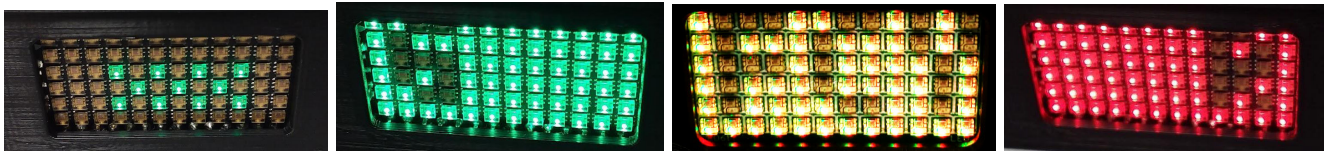
### Pit stops

- Upon entering the pits unit will display the current pit time in the color of the current flag.
- After 10 minutes unit will display minutes only



### Green Flag

- After 30 seconds of GREEN flag the display will dim and show a green checker pattern to save power. YELLOW and RED remain full screen.



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# Introduction

The FT200 is a wireless, in-car race flagging display. It can display the current track conditions, local flag stand conditions, and send or receive individual car messages to race control. It can alert race control to a stopped vehicle, a racing incident, and a litany of other features. The FT200 is intended to improve safety and allow racers to utilize the best possible information when driving.







The FT200 may also be paired with sign boards around the race track using the Flagtronics family of products.

## Mounting & Connection Recommendations

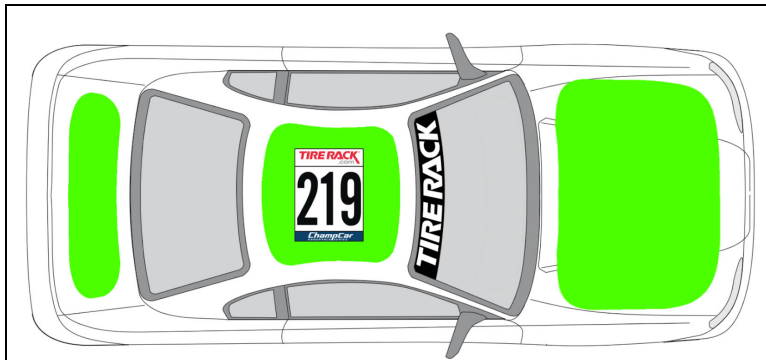
For maximum performance, we recommend the FT200 be connected to 12V power via flying leads or a USB adapter (Type A plug) capable of 10W (5V 2A) or more. Lower power chargers will result in lower screen brightness or improper function.

The FT200 unit should be mounted horizontally within the driver's direct view or immediate periphery.

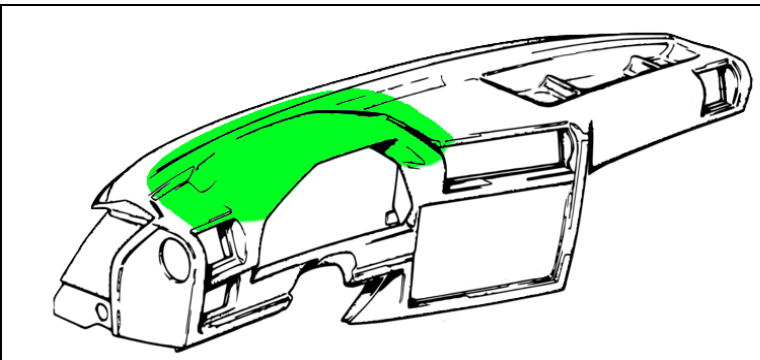
			
<p>Powered by either USB or 12V</p>	<p>Flagtronics FT200 Wireless Flagging Display (left) and GPS antenna (right).</p>		<p>FT200 Harness</p>

The FT200 is a safety device and should be highly visible to the driver. We recommend positioning the display above the gauge cluster or center panel in a way that remains in the driver's direct view or immediate periphery. The top of the FT200 has an antenna which should maintain a clear line of sight through the window openings of the vehicle.

The GPS antenna should be placed on one of the valid mounting locations shown, 6" away from any edges and 6" away from other antennas. The GPS is directional and the rear, where the wire exits, should point to the rear of the car.



(Green shows valid GPS mounting locations)



(Green shows recommended FT200 mounting positions)

## Kit Contents

- FT200 wireless in-car display
- FT200 power wiring & battery harness
- FT200 GPS wiring harness
- FT200 Manual
- Mounting Velcro

## Installation

The FT200 has a variety of mounting options. Velcro or double sided tape will work in many installations. The FT200 has 4 holes on the mounting tabs to allow the use of screws, bolts, or zip ties. We also offer a several mounting kits:

FT-03646 (1/4-20)	FT-03648 Cage
FT-03647 (GoPro)	FT-03650 Suction Cup



## Wiring

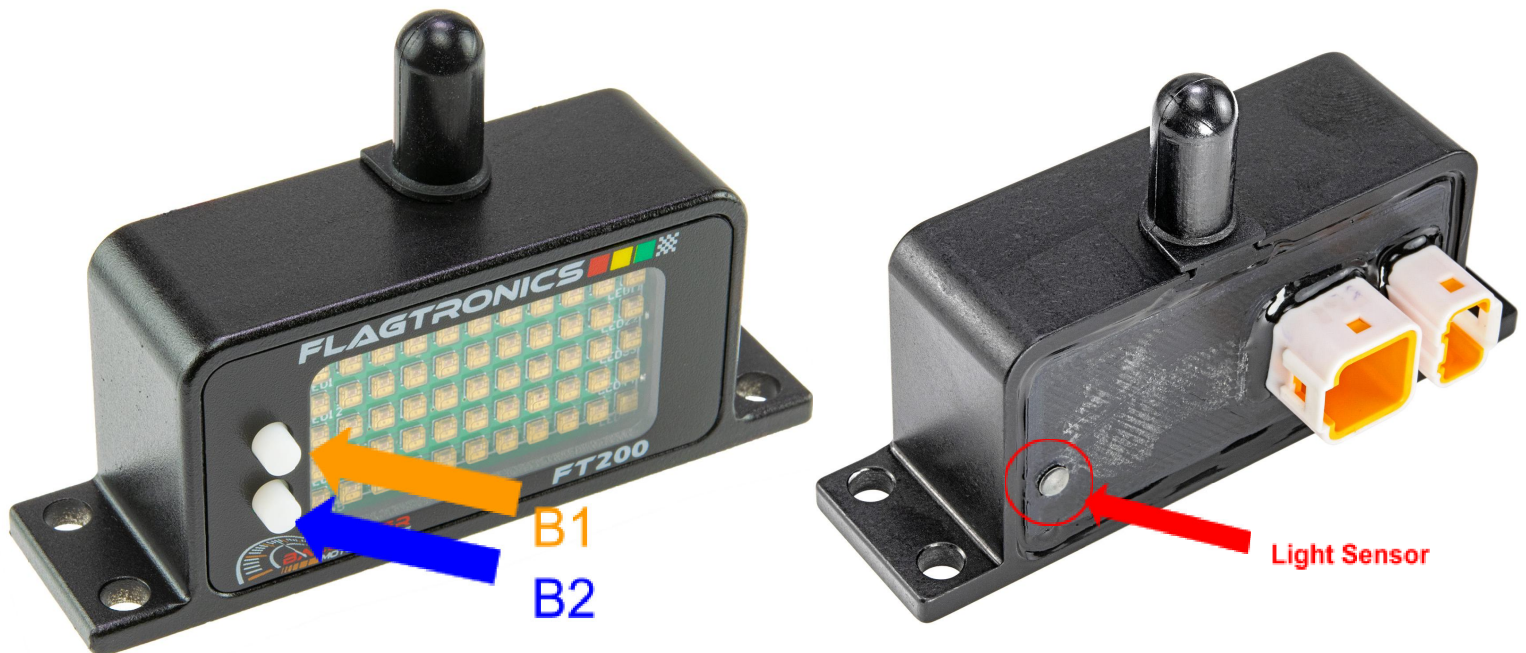
Connect the flying lead Orange & Black wires (12V Power and Ground) to a switched & fused vehicle power connection. Battery, if equipped, should be connected with the included small black 2 Way connector. USB (5V USB) may be connected as an alternative to 12V. USB is needed for firmware updates and programming. The CAN Bus equipped wiring harnesses have a yellow wire for CAN Low and blue wire for CAN High. The FT200 has a CAN termination resistor built into the unit and will not require one externally.

## Antenna

An antenna is on top of the FT200. This antenna should stay vertical and have a clear line of sight through window openings in the vehicle. Enclosing the FT200 by blocking the antenna with an in-dash or in center console installation may greatly reduce performance.

## Light Sensor

A light sensor at the rear of the unit adjusts brightness to ensure the display is dim at night and bright during the day. Please keep this light sensor, shown in the image to the right, unobstructed for best performance. The FT200 has 3 or more programmable light curves available for those who wish to tune this to their needs



## Powering the unit on & off

The FT200 will turn on automatically when power is cycled on at the 5V USB or 12V switched vehicle power connections. If power is already present with a battery, 5V, or 12V the FT200 may be powered on with a short press of the top button, B1.

The unit may be powered off by holding the top button, B1 for 5 seconds. The FT200 should say OFF in text in blue when powering off. The FT200 may also be turned off by removing external power from the battery, 5V USB, & 12V switched vehicle power.

## Adjusting brightness

When the FT200 is on, adjust brightness up by using the top button, B1 and down by using the bottom button, B2.

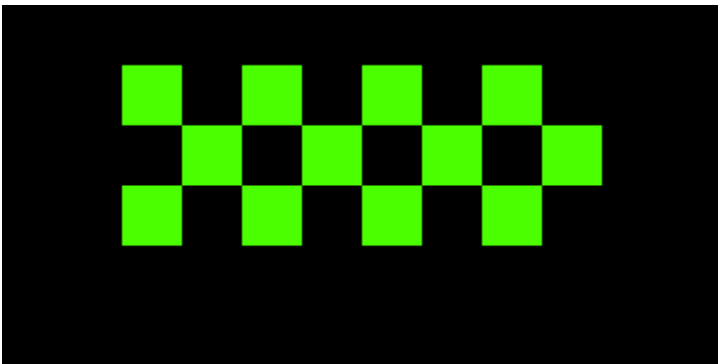
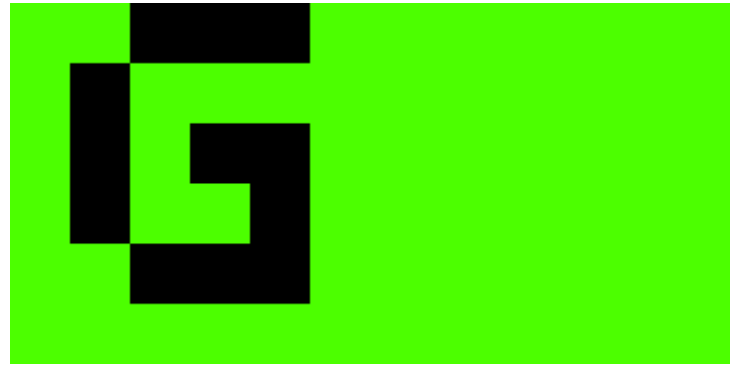
By default, the FT200 has 6 light curves. 1 is low, 2 is medium, 3 is high brightness with automatic light sensor compensation. In this setting the FT200 will evaluate the light conditions with the sensor at the back of the FT200 and set the brightness accordingly. Curve 4 is low, 5 is medium, 6 is high brightness with no evaluation of the light sensor. These curves may be programmed via Windows PC software.

## Display Function

The display is a 6x12 pixel matrix. The display can show letters for color blind drivers, shapes for special flags, custom messages, and scrolling messages. See our Full Track, Local, Individual, & Device flags to see what the flags mean.

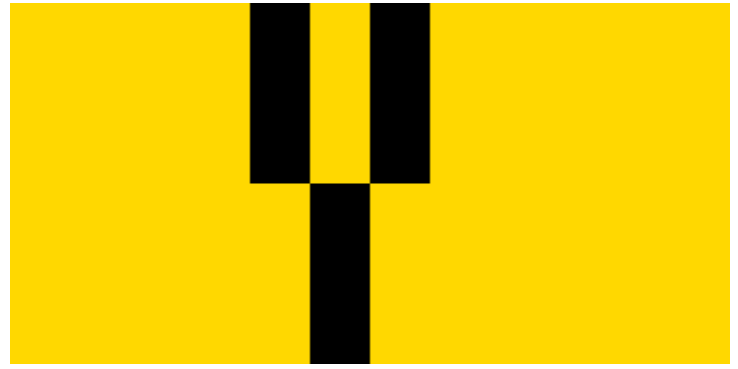
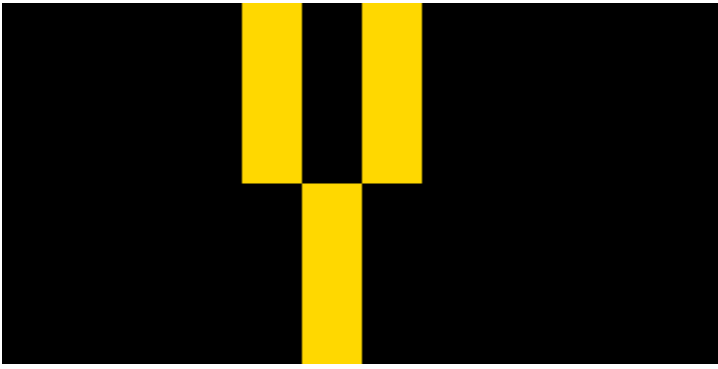
## Full Track Flags

### Green Flag



These images show the display states during a Green Flag condition. For the first 10 seconds of green, the FT200 will alternate between the top two display states. After 30 seconds, the display state will switch to a speckled pattern and remain so until another flag condition is present.

## Yellow Flag



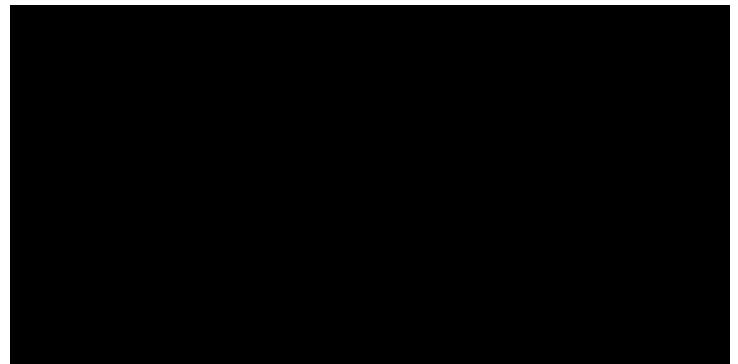
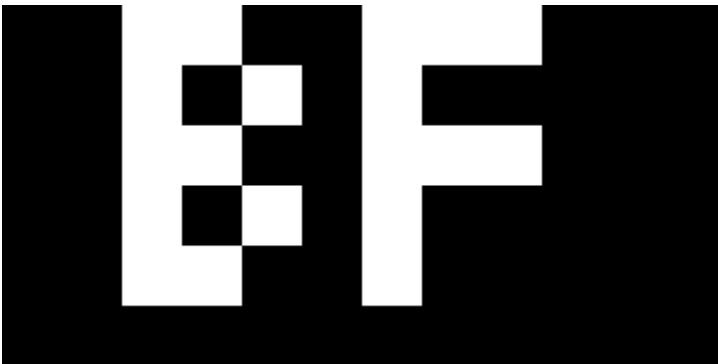
These images show the display states to expect during a full course Yellow Flag condition. For the first 10 seconds of full course yellow, the FT200 will alternate between the two display states. After 30 seconds, the display state will remain as the image shown to the right, a majority yellow screen.

## Red Flag



These images show the display states to expect during a full course Red Flag condition. For the first 10 seconds of full course red, the FT200 will alternate between the two display states. After 30 seconds, the display state will remain as the image shown to the right, a majority red screen.

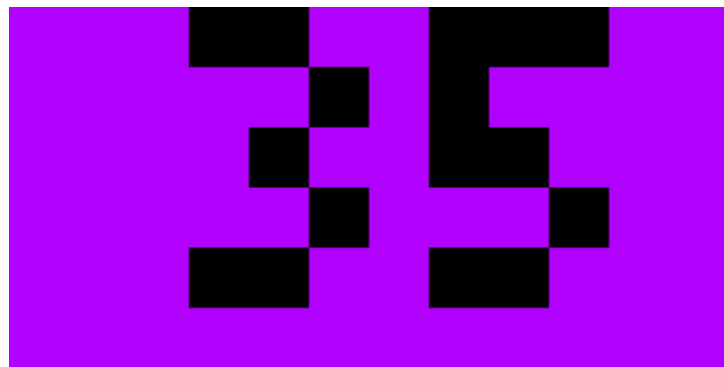
## Black Flag



These above images show the display states to expect during a Black Flag condition. This means that race control is trying to bring you in. While you are Black Flagged, the screen will alternate between the two display states as shown above.

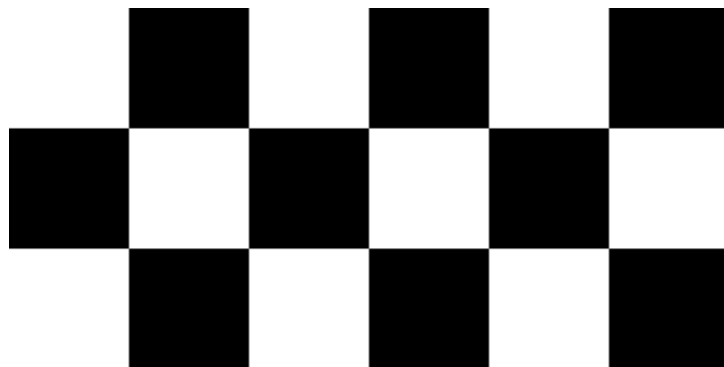
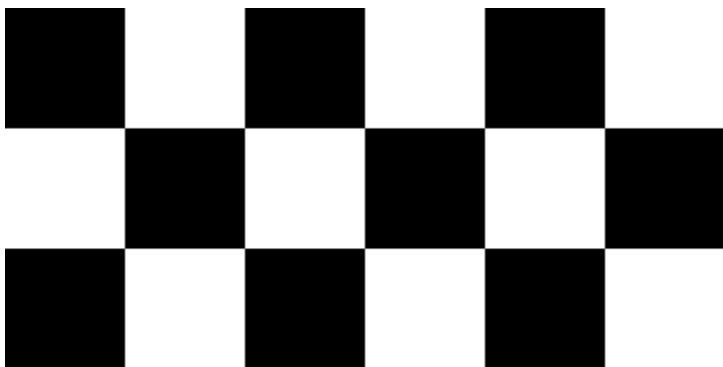


## Purple / VSC / Code35 / Code60 / Slow (when over VSC Limit)



These images show the display states to expect during a Code 35/60 Flag condition. Should you be traveling at the correct speed, the 35/60 image to the right will display. When equipped with a GPS, should you be travelling a bit faster than the posted 35mph / 60kph, the screen will alternate between the right and left 35/60 screens. Should you be travelling much faster than the posted 35mph / 60kph, the screen will alternate between the right and left SLO screens, telling you to SLOW DOWN.

## Checkered Flag



These above images show the display states to expect during a Checkered Flag condition. Congratulations on finishing your race!

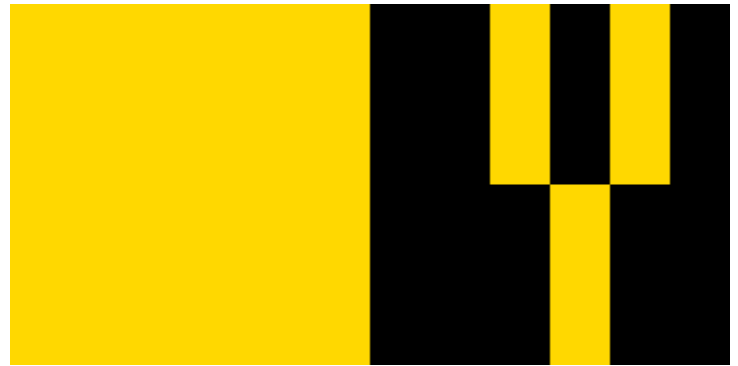
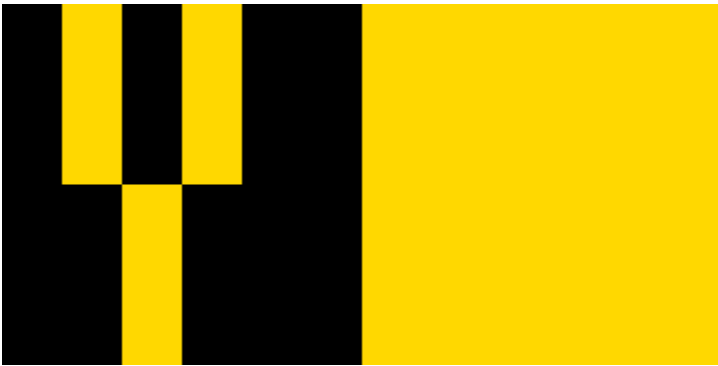
# Local Flags

## Yellow



These above images show the display states to expect during a Local Yellow Flag condition. This is a local condition that is controlled by the flag stand. This means that there is an issue involving another car in the sector you are in. When the Local Yellow Flag appears, the screen will alternate between the two display states as shown above.

## Waving Yellow



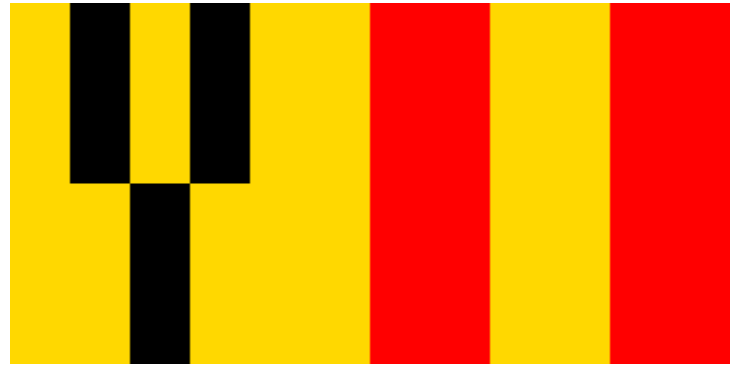
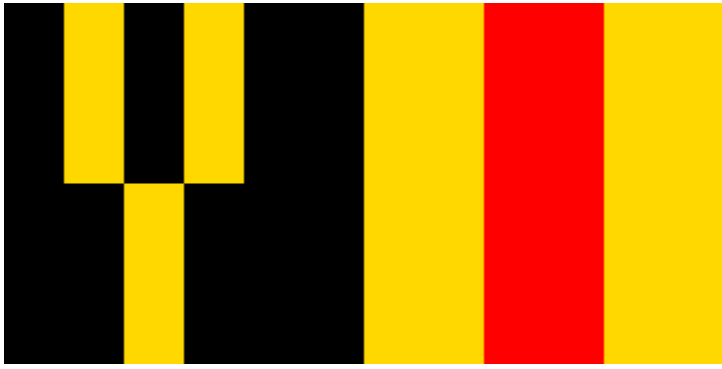
These above images show the display states to expect during a Waving Yellow Flag condition. This is a local condition that is controlled by the flag stand. This means that there is an issue involving another car in the sector you are in. When the Waving Yellow Flag appears, the screen will alternate between the two display states as shown above.

## Debris



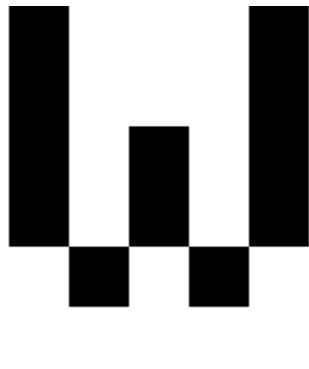
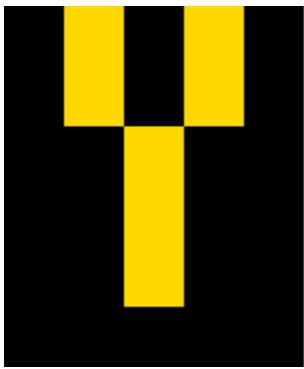
These above images show the display states to expect during a Debris Flag condition. This is a local condition that is controlled by the flag stand. This means that there is an issue to look out for in the track sector you are in. When the Waving Yellow Flag appears, the screen will alternate between the two display states as shown above.

## Yellow + Debris



These above images show the display states to expect during a local Yellow Flag condition and a Debris Flag condition. This is a local condition that is controlled by the flag stand. This means that there is an issue to look out for in the track sector you are in. When this condition occurs, the screen will alternate between the two display states as shown above.

## Yellow + White



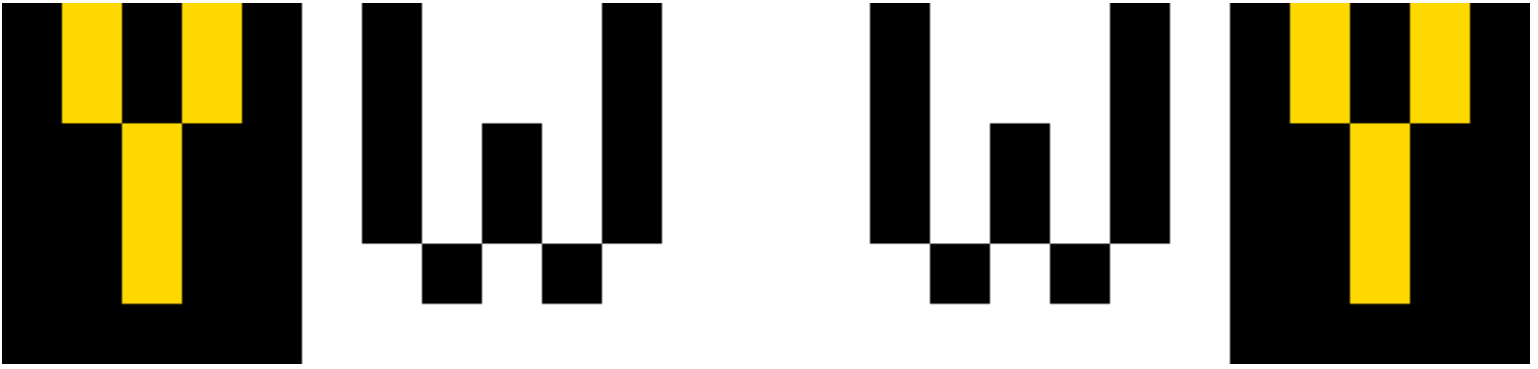
These above images show the display states to expect during a local Yellow Flag condition and a White Flag condition. This is a local condition that is controlled by the flag stand. This means that there is an issue to look out for in the track sector you are in. When this condition occurs, the screen will alternate between the two display states as shown above.

## Waving Yellow + Debris



These above images show the display states to expect during a Waving Yellow Flag condition and a Debris Flag condition. This is a local condition that is controlled by the flag stand. This means that there is an issue to look out for in the track sector you are in and to use caution. When this condition occurs, the screen will alternate between the two display states as shown above.

## Waving Yellow + White



These above images show the display states to expect during a Waving Yellow Flag condition and a Debris Flag condition. This is a local condition that is controlled by the flag stand. This means that there is an issue to look out for in the track sector you are in and to use caution. When this condition occurs, the screen will alternate between the two display states as shown above.

## Debris + White

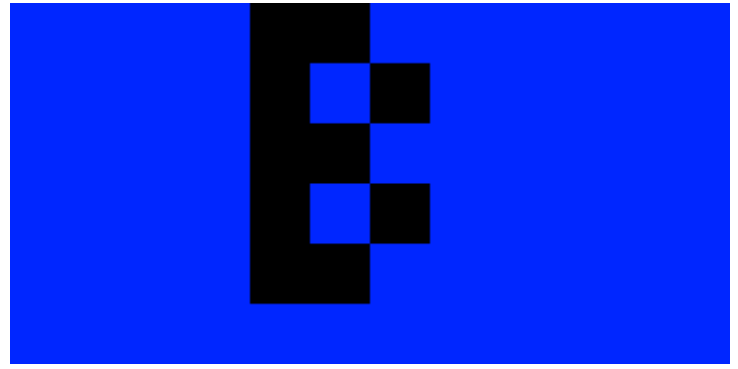
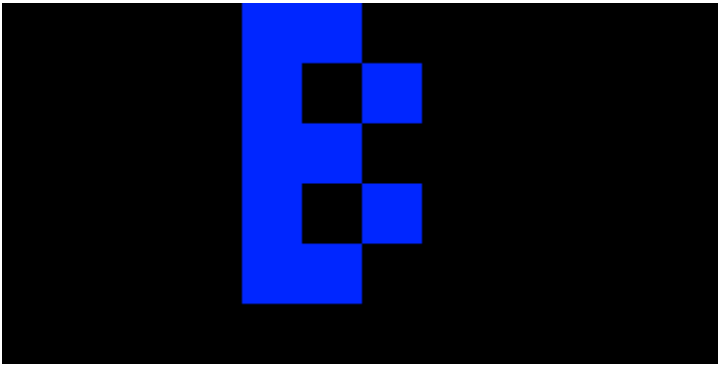


These above images show the display states to expect during a White Flag condition and a Debris Flag condition. This is a local condition that is controlled by the flag stand. This means that there is an issue to look out for in the track sector you are in and to use caution. When this condition occurs, the screen will alternate between the two display states as shown above.

## White

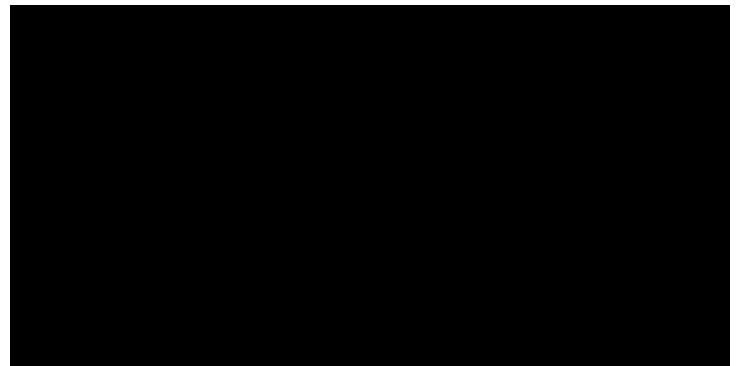
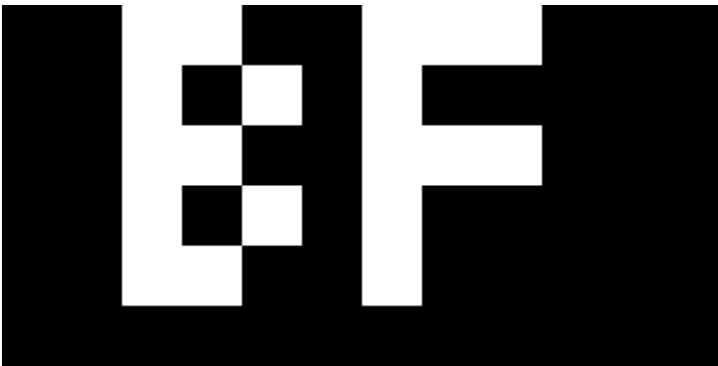


## Blue



## Individual Flags

### Black Flag



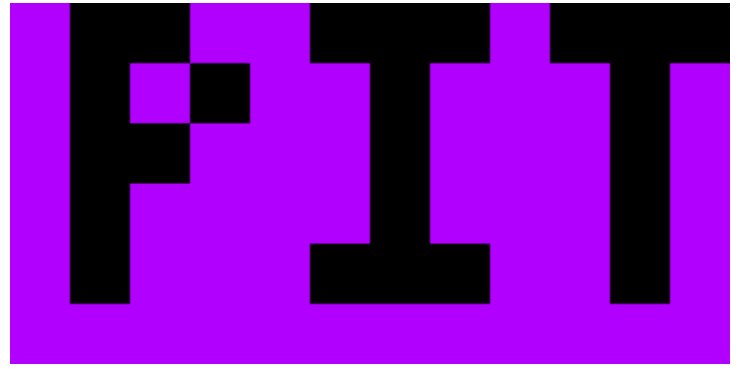
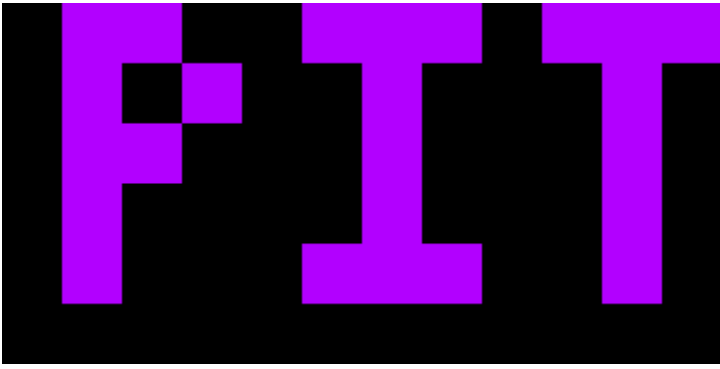
These above images show the display states to expect during a Black Flag condition. This means that race control is trying to bring you in. While you are Black Flagged, the screen will alternate between the two display states as shown above.

### Meatball



These above images show the display states to expect during a Meatball Flag condition. This means that race control is trying to bring you in. While you are given the Meatball Flag, the screen will alternate between the two display states as shown above.

## Pit



These above images show the display states to expect during a PIT Flag condition. This means that race control is trying to bring you into the Pits. While you are given the PIT Flag, the screen will alternate between the two display states as shown above. This is often a courtesy service if race radios have failed.

## Accident



In an accident, the FT200 will show a red cross and ask if the driver is ok. Press either of the two front buttons to acknowledge that you are ok.

## Device Messages

OFF (Long press top button 1)

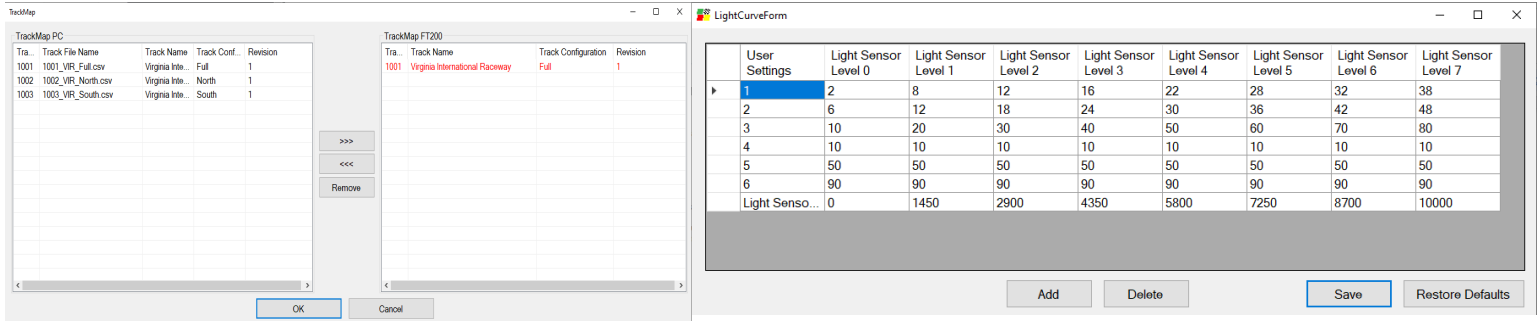


## Other messages

These messages are not yet in the product manual but will be added soon. Overtemp message, Unplugged message, Low voltage message, Other scrolling messages.

# Programming

The Flagtronics website has a Flagtronics Device Manager download available for installation on a Windows 10 or newer PC. Install for all users. Install & start the Flagtronics Device Manager software which will make available unit status, Light Curve programming, & Track Map management when an FT200 is on and properly connected. When properly connected the FT200 should appear as a USB drive on your computer.

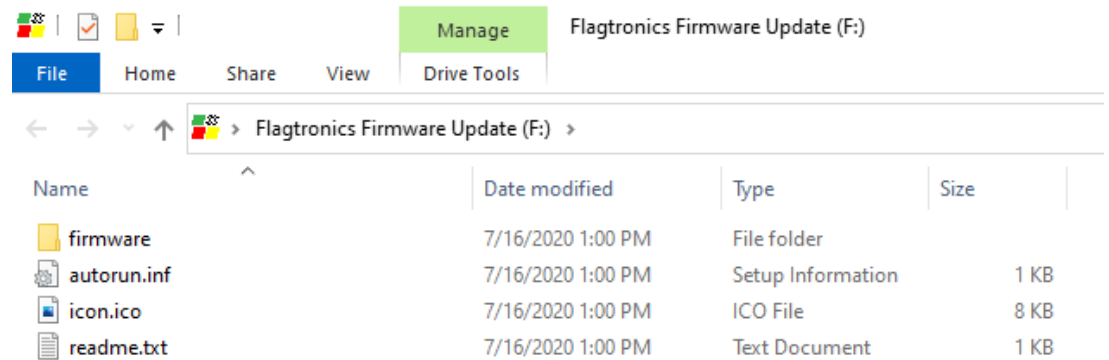


## CAN Bus integration

The FT200 has a CAN Bus option on the 8 Way connector at the back of the display. The FT200 will offer the ability to send flag status over CAN to any CAN enabled dash or logging system. We have tested integration with AiM and Race Capture Pro currently and plan to make templates available as well as integration write-ups on our website.

## Firmware update procedure

Remove power from the FT200. Hold both B1 & B2 fully depressed. Plug the USB connector into your PC with both B1 & B2 held down. Wait until purple text starts scrolling while B1 & B2 are held. This may take up to 10 seconds. Release B1 & B2. A USB drive will appear. Copy the new firmware called flagging.bin from your PC onto the firmware folder of the FT200. When properly loaded, the drive will say Flagtronics Firmware Update.



## Warranty

The FT200 offers a 1yr replacement warranty. Intentional abuse, improper use, improper installation or damage otherwise not found to be a manufacturing defect may lead to additional charges and fees.

## Liability Statement

### Assumption of Risk

Vehicle racing is an inherently dangerous sport with significant risk of personal injury or even death. When a user participates in vehicle racing and/or track events, he/she accepts the risk inherent therein. Flagtronics, its employees, and affiliates make no assurance that the use of its products or parts guarantees personal safety or freedom from physical injury or operates as a life saving device. The purchaser and/or user of the products assumes the risk that proper precautions are always in place for the use of the products and for the safety of the user and other persons (such as, without limitation, spectators, other drivers, and event venue staff).

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The Purchaser and/or end user of the Products WAIVE AND FULLY RELEASE any owner, officer, employee or agent of Flagtronics from any and all liability for any loss, damage, injury or expense that the Purchaser and/or end user may suffer as a result of the use of the Product due to any cause whatsoever, including negligence, gross negligence, breach of contract, or breach of any duty of care. Flagtronics disclaims all liability for any special, direct, incidental, or consequential damages, or any damages whatsoever, including, without limitation, the loss of life or limb, or damages due to bodily or personal injury, which may arise or result from the sale, installation, or use of any of its products and parts. The liability of Flagtronics is limited to the replacement of defective products or parts found under examination by manufacturer to be defective in material or workmanship within 1 year after purchase, and which has not been caused by an accident, improper use, alteration, tampering, excessive use, misuse, modification or abuse. The damage of the user shall be deemed liquidated in the costs of replacement of the product or part.

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