RACE AMERICA

INNOVATION. TECHNOLOGY. RELIABILITY.

Digital Safety Flags

Owner Manual's

Models 6715A/R 6716AW/AZ/RW/RZ
Revision A.1

RaceAmerica Corporation
105 Bonaventura Drive
San Jose, CA 95134
(408) 988-6188
www.raceamerica.com
info@raceamerica.com

Table of Contents

Figures

RACE AMERICA

INNOVATION. TECHNOLOGY. RELIABILITY.

PRODUCT INFORMATION LINKS

RaceAmerica Website	www.raceamerica.com
RaceAmerica Online Store	store.raceamerica.com
Raceamerica Online Forum	www.raceamerica.com/forum
Product Warranty	www.raceamerica.com/legal.html
Service & Repairs	www.raceamerica.com/service.html
Technical Assistance	www.raceamerica.com/techcall.html
Owner's Manuals	www.raceamerica.com/prodpdf.html
Mounting Diagrams	www.raceamerica.com/mountpdf.html
Product Catalog	www.raceamerica.com/catalog.html

PRODUCT SUMMARY

Model	Description
6715A	IP Network
6715R	IP Network + Rear Repeater
6716AW/AZ	Wireless
6715RW/RZ	Wireless + Rear Repeater
45485A	IPTrackNet IP Network I/F
05-6718-xxx	IPTrackNet to DSF cable, (xxx is length)
6760A	Post Mount (2 required)
3125DX	TrackSafetyDigitalEX software
4520BU	USB Wireless Unit, 900MHz-
4620BU	USB Wireless Unit, 2.4GHz
6718A/AS	Hardwired hand controller, 10-button
6718B/BS	Hardwired hand controller, 15-button
6728AW	Wireless hand controller, 900MHz, 10-button
6728AZ	Wireless hand controller, 2.4GHz, 10-button

SPECIFICATIONS

Image stored	64 full color flag images
Color flags	Red/Green/Blue/Yellow/White
Brightness	7 levels, 12.5% to 100%
Pixels	Physical: 32 x 32 RGB Operational: 63 x 63 RGB
Dimensions	33.6in x 33.6in x 3.6in 85.3cm x 85.3 cm x 9.1cm
Power	110VAC/230VAC 175W max

COMPOSITE COLORS

Color	*LEDs*
Yellow	Red+Green, balanced
White	Red+Green+Blue, balanced
Red	Red
Blue	Blue
Green	Green
Colors	1,331

PRODUCT OVERVIEW

RaceAmerica Digital Safety Flags are designed around microprocessor controlled system combining industrial grade full color video panels with five microprocessor based control and interface circuitry. The Digital Safety Flag utilizes a two way data communication method with the tower to insure the selected flag is displayed at the correct location on the track. DSFs receive commands from the tower and send operational feedback. An optional Hand controller allos local flag marshals to intiate a flag which is then sent to alert the tower.

Digital flag images are preloaded at the factory to match the customer's needs. Digital images of traditional fabric flags and custom designed flags can be displayed in full color as solid, flashing, blinking, accompanied by a car number or linked to alternate with a second flag.

Data communication between the tower and the DSF is provided by a proprietary wireless link (model 6716) or hardwired (model 6715) to the customer's IP network. A hardwired hand controller is connected to the DSF for local flag selection by a corner worker.

Both models are powered by 110VAC/230VAC power source and can be powered by a 300W 12VDC upverter.

NOTE: THESE PRODUCTS USE ULTRA-BRIGHT LED TECHNOLOGY. DUE TO THE BRIGHTNESS LEVEL OF THIS DISPLAY, CARE SHOULD BE TAKEN, AS WITH ANY BRIGHT LIGHTING SOURCE,TO AVOID PROLONGED VIEWING AT CLOSE RANGE AND SHORT DISTANCES. AS WITH ANY BRIGHT LIGHTING SOURCE, VISION MAY BE AFFECTED SHORT TERM SIMILAR TO CAMERA FLASHES.

Figure 1a - Vertical post mounting

Figure 1b - Horizontal post mounting

DIGITAL SAFETY FLAG SET-UP

The DSF is shipped ready to use. Mount the DSF with a horizontal or vertical post using model 6760A Post Mounts. Mounting PEMs located on the rear of the enclosure are matched pairs for two post mounts as shown in Figures 1a and 1b. See Figure 6 for the mounting diagram of the enclosure.

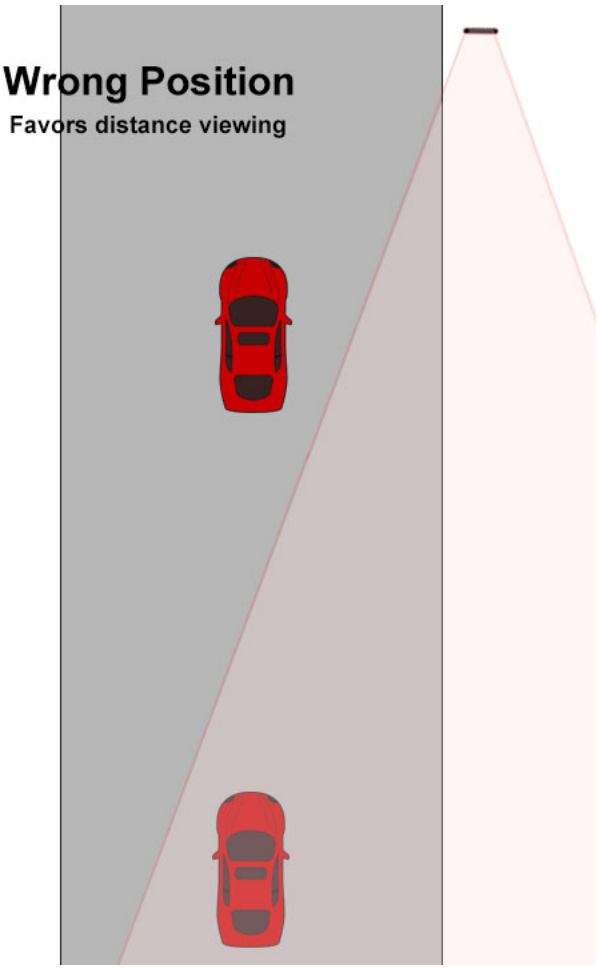

Figure 1c - Wrong Mounting to Track

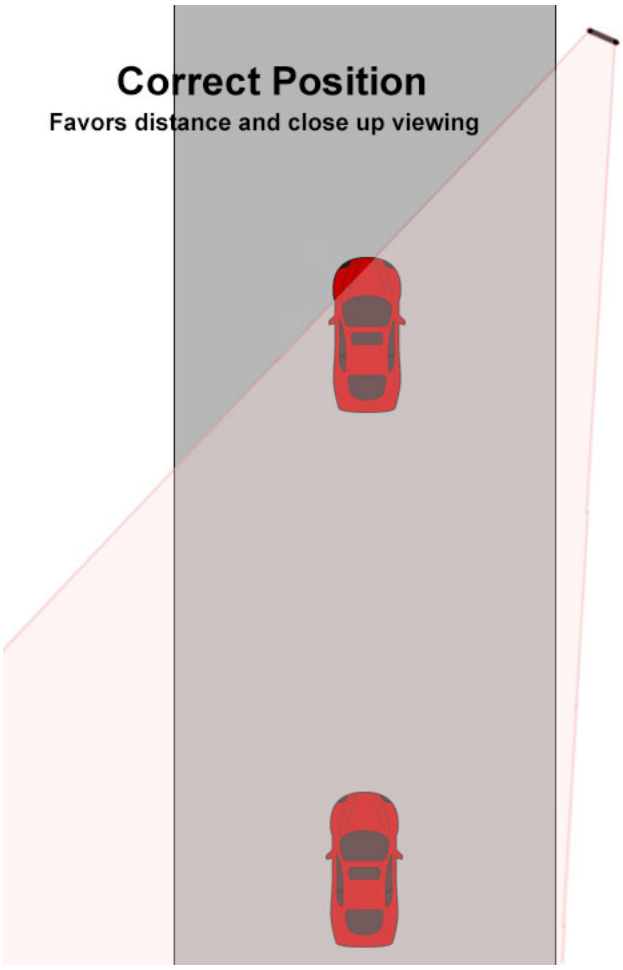

Figure 1d - Correct Mounting to Track

MOUNTING ON TRACK

To optimize the dispersion angle of the LEDs, proper mounting position relative to the track is very important. Figure 1c illustrates a typical mounting position resulting in the DSF appearing to change colors as the vehicle passes the DSF due to the vehicle passing out of the optimum viewing of the DSF. If the driver looks over at the DSF at this hard angle, brightness is reduced and flags effected by the surroundings.

Figure 1d illustrates mounting the DSF at an optimum angle to the track to maximize the viewing angle and make viewing close up the same as at farther distances. This can be achieved by viewing at distance from both inside and outside extremes of the track at a distance determined by where the drivers will first view the DSF. Then view the DSF close up at the inside and outside extremes of the track.

Figure 1d illustrates how the maximum viewing angle will eliminate the appearance of the DSF changing color as the driver passes. This same alignment for the angle up/down position to the track should also be considered. Aiming the DSF downward towards the track can also maximize the viewing angles of the DSF,

POWER CONNECTIONS

Power is supplied through the POWER INPUT box located on the backside bottom left rear corner. Models are available powered by 110VAC/230VAC.

Remove the Power Box access panel located at the lower right corner, rear of the enclosure to expose the Power Box (Figure 2).

Figure 2
Power Box Cover on rear lower right corner of enclosure

Figure 3
Exposed Power Box with rear panel removed.

Loosen the four corner screws to expose the terminal strip connections (Figure 3).

AC power can be connected with an AC power cord using the watertight compression gland shown in Figure 4 using a standard 3-conductor power cord.

L = live or hot side of AC power
N = neutral side of AC power
G = ground lead of AC power

Power can also be conduit connected by installing a 1/2in (Figure 5a) or 3/4 (Figure 5b) by removing the compression gland. The 3/4" conduit fixture is connected to the matching hole in the cabinet metal. The compression gland can remain in place to provide a watertight connection.

Figure 4
AC power gland

Figure 5a
AC power 1/2in

Figure 5b
AC power 3/4in

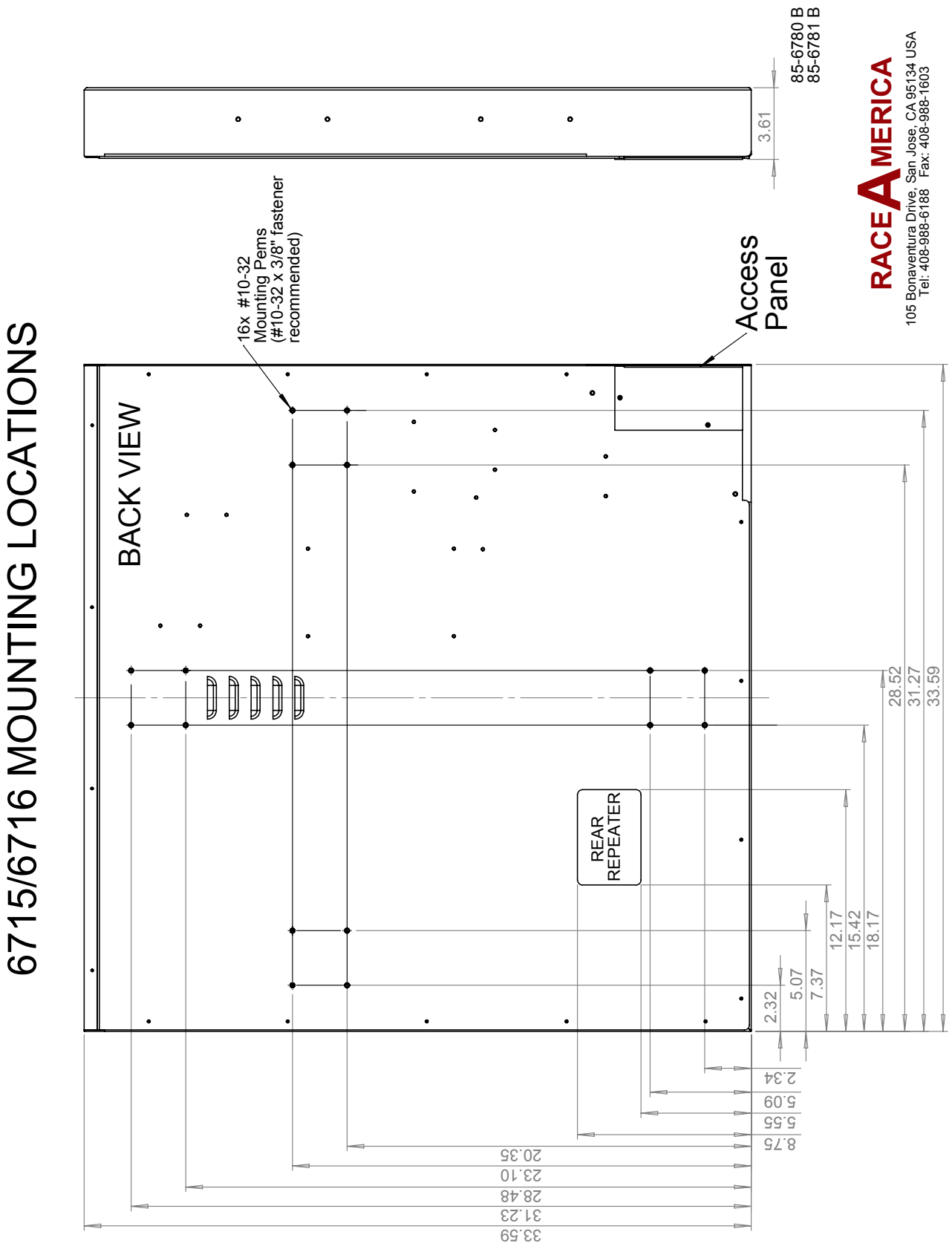

Figure 6 - Mounting Diagram

REAR REPEATER OPTION

An optional Rear Repeater shown in Figure 7 is available to display a change in the front flag image and add confirmation when a flag is selected from the hand controller for corner marshals behind the front of the DSF. The Rear Repeater illuminates with a similar color sequence equal to the colors displayed on the front of the DSF. The Rear Repeater is used as confirmation of a flag change either by the hand controller or the tower.

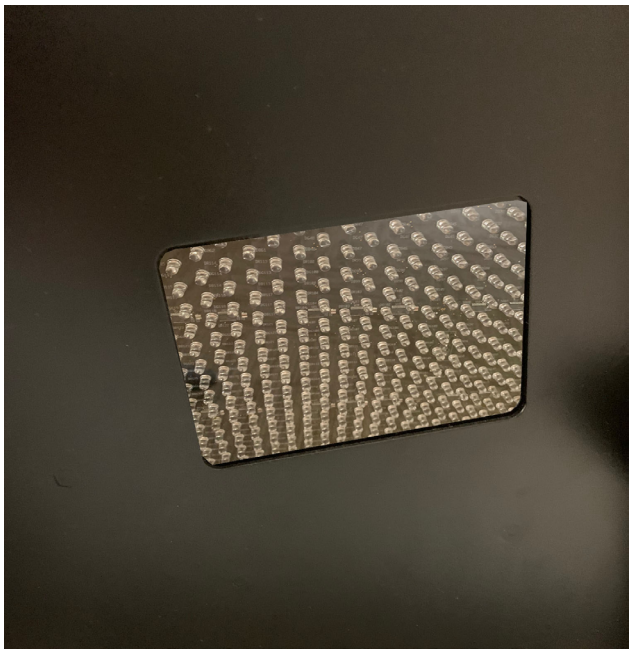

Figure 7 - Optional Rear Repeater

HARDWIRED HAND CONTROLLER

An optional hardwired Hand Controller shown in Figure 8 can be connected to the DSF to provide local selection of flags displayed on the DSF. The cable connects to a 16-conductor round connector on the underside of the DSF. For Model 6715, a second 4-conductor connector is for the cable connection to the IPTrackNet connected to the track's IP network. All contacts are goldplated to resist corrosion from the element and dirt.

Figure 8 - Hardwired Hand Controller

SPARE PARTS

Further to minimize race program interruptions, RaceAmerica recommends some spare parts. Related cables and communications hardware for the DSF should be considered. Contact RaceAmerica for availability and pricing of spares items.

SUPPORT AGREEMENTS

Support agreements are available from RaceAmerica providing Telephone Assistance on technical issues and operational questions, repair and/or replacement of hardware failures, Software and Firmware updates and bug reporting. Contact RaceAmerica for more information and pricing of Support Agreements.