Introduction:

Outboard Racing Starting Clock –
Use for Countdown to Begin Boat Race
• 3-Digit Main Display (DSP3603A) with 36" High Digits
• Controller (DS204A-BSC) Capable of Count Down Timing between 5 Minutes and 0
• Unistrut Stand (SUPERSTRUTB-1400-HS)
• Race Clock Cover
• Go online for video tutorials - http://sports-timer.com/boat-race-clock/

Components:

Controller (DS204A-BSC)
• 4-Digit Display with 2.5" High Digits
• 6 Waterproof Buttons in Water Resistant Enclosure
• One Connector for Connecting to Right Digit of Main Display: 30' 4 -Conductor 18GA Cable


Power Specifications
• Display Input Voltage Range: 12-14.5 Volts DC
• Display Powered by 12 Volt Car Battery
• Display Alternate Power Source: 15 AMP or Larger Power Supply may be used
• Current consumption:
    • All Segments ON: 12 AMP
    • All Segments OFF: 1/2 AMP
Cables
• Left Digit to Center Digit: 40" 7-Conductor 14GA Cable
• Center Digit to Right Digit: 40" 7-Conductor 14GA Cable
• Right Digit to Power Source: 15" 4-Conductor 14GA Cable

Main Display (DSP3603A)
• Overall Display Size 48" High x 96" Wide
• 3-Digit Display showing M:SS (min & sec)
• Digits 36" High x 21" Wide
• Red LED Solid Segment Digits
• Digits Each in Separate Enclosures
    • Enclosure Each 48" High x 32" Wide
    • Enclosure Covered with 1/8" Thick Transparent Red Plexiglas (#2423)
  • Left Digit
    • LED Clusters to Represent Colon between Min and Sec in Mode 0 & 1
    • Chassis Mount Connector x 1 for Power and Data from Center Digit
  • Center Digit
    • LED Cluster to Represent Decimal between Sec and Tenths in Mode 1
    • Chassis Mount Connector x 2, 1 for Power and Data, 1 to Pass Power and Data to Left Digit
  • Right Digit
    • Chassis Mount Connector x 4, 3 Supply Power and Data for all 3 Digits (see

• If you have an optional second display, a 10' 4-conductor 14GA cable connects it to the main display

Camera LED
• Standard Red Diffused LED
• Connected with 30' 2-Conductor 18GA Cord to Connector in Right Digit

Wiring Diagram for Connection Details), 1 for Camera LED
See "Optional Additions" Section for Additional Optional Features
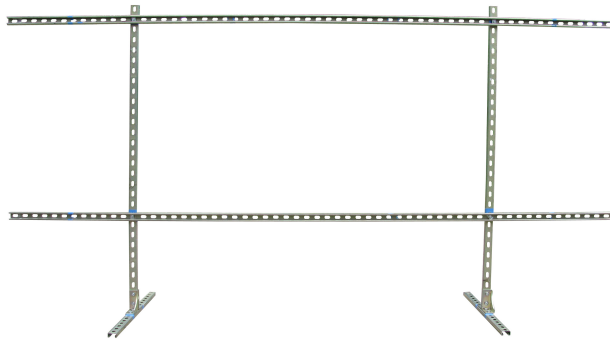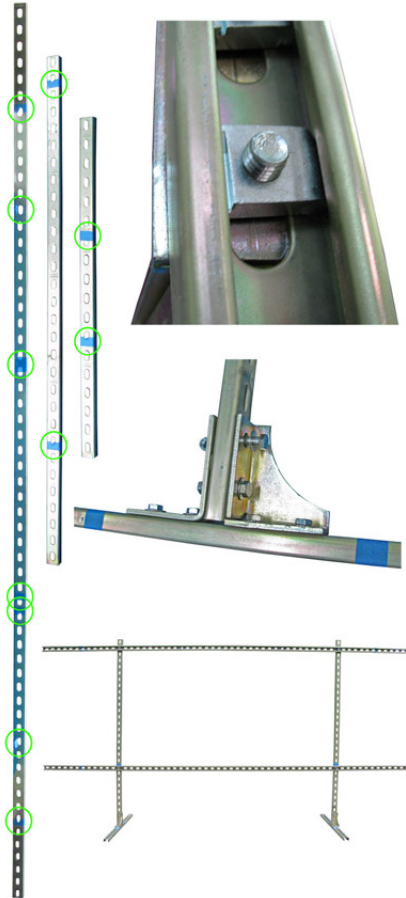
Unistrut Stand (SUPERSTRUTB-1400-HS)
• Stand for supporting each section of the display
• Assembly Required

Race Clock Cover
• Blue Cordura Cloth Casing
• Waterproof

Protective Cloth Casing

Assembly & Installation Instructions:

Unistrut Stand Assembly (see online video for additional instructions – http://sports-timer.com/boat-race-clock/):

Tools Required – 9/16 Socket Wrench, 9/16 Box Wrench
Hardware Included– 12 pieces 3/8"x0.75" hex bolts; 8 pieces 3/8"x1" hex bolts; 4 pieces 3/8"x1.5" hex bolts; 4 pieces 3/8"x2" hex bolts; 24 pieces 3/8" channel nuts; 32 pieces 3/8" flat washer; 2 L-brackets; 2 Reinforced L-brackets

- Mark the holes you're going to use on the struts
- 3' Foot Pieces – mark between the 7th and 8th hole from each end, the 8th hole serves as the outer hole for each bracket
- 5' Upright Pieces – bracket the 9th hole from one end with tape and the 3rd hole from the other end for one piece,
- 10' Horizontal Cross Pieces – bolt holes 7th and 15 away from that plus the one after it and another 15 away from that, then do the same from the other end of the bar

- Attach L-brackets to the 3' foot pieces using 3/8"x1" hex bolt, flat washer, 3/8" channel nut (drop nut into channel and rotate into place) – first by hand, then using the 9/16" Socket or Box Wrench – *Before tightening fully, insert an Upright piece between brackets to ensure proper spacing*

- Attach 5' Upright Piece by sliding channel between the two L-brackets then use 3/8"x2" hex bolts and flat washers to fix in place – Tighten with 9/16" Socket and Box Wrenches – *front of strut must be facing direction of the reinforced L-brackets*
- Attach 10' Horizontal Cross Pieces – Take 3/8" channel nut and put it into the Upright Piece channel then slide a flat washer over the 3/8"x1.5" and install through the Horizontal Cross Piece into the Upright Piece; repeat process for second Horizontal Cross Piece

Display Assembly:
- Lay display face down
- Take Unistrut Stand and lay it on top of display
- Bolt Unistrut Stand to display before standing display up – *Note: Display must be fully disassembled to use the Race Clock Cover*

Unistrut Stand Take Down:
- Lay display down
- Loosen and remove bolts

> • Remove struts – *Note: Display must be fully disassembled to use the Race Clock Cover*

Operation Instructions & Feature Identification:

Display (DSP3603A):

- Turn display on by turning on the timer, display will remain blank otherwise
- Display shows M:SS in Mode 0 and switches from M:SS to SS.T in Mode 1 – See *Setup Mode* Section for how to switch
- When timer reaches 0, display will show 0 for approximately 5 sec then go blank
- Send test pattern across display by pressing Button 6 or pressing Button 5 while timer is at 0 and stopped – See *Controller Button Functions* Section for how to switch

Controller Button Functions:

- Button 1 (labeled "5 MIN") – Set timer for 5 min countdown, display shows `5: 00`
- Button 1 (labeled "5 MIN") – Hold for approximately 2 sec to abort a timing cycle. The display shows `---` for several seconds, then goes dark.
- Button 2 (labeled "3 MIN") – Set timer for 3 min countdown, display shows `3: 00`
- Button 3 (labeled "1 MIN") – Set timer for 1 min countdown, display shows `1: 00`
- Button 4 (labeled "V1 MIN") – Remove 1 min from current countdown, if timer already counting down it will not interrupt (ex. Time is 3:27, Button 4 pushed, Time is 2:27)
- Button 5 (labeled "HOLD") – Hold to pause countdown, release to resume countdown
- Button 6 (labeled "TEST/SETUP") – Press to generates test patterns on display. The display shows `Hello..:4..:..`
- Button 6 (labeled "TEST/SETUP") – Hold for approximately 2 sec to enter Setup Mode, display shows `d09`
- Button 6 (labeled "TEST/SETUP") – In Setup Mode this changes controller display brightness, each successive press steps controller through 1 of 10 levels of brightness

Min Mode

Min to Sec Mode

Setup Display Brightness:

The brightness of the controller display can be varied depending on the ambient light level.

- Press and hold the Test/Setup button for approximately 2 sec to enter Setup Mode, display will show `d09`.
- *Wait for at least 2 seconds*.
- Press Test/Setup button successively to change the display brightness. The display will show `d00` through `d09`
- The display brightness of the DSP204B-BSC will change.

Setup Timer Mode:

Display minutes: seconds or seconds.tenths of a second.

- Press and hold the Test/Setup button for approximately 2 sec to enter Setup Mode, display will show `d09`.
- *Within one second*, tap the Test/Setup button *one* time. The display will show `u..1`.
- Wait for at least 2 seconds.
- Press Test/Setup button successively to change the display brightness. The display will show `u..0` through `u..1`
- Mode `u..1` (Min Mode) – While timer is running the display shows M:SS, when timer reaches 0 the display will show 0 for approximately 5 sec then go blank
- Mode `u..0` (Min to Sec Mode) – While timer is running with more than 1 min left the display shows M:SS, when timer reaches 59.9 sec the display switches to show SS.T, when timer reaches 0 the display will show 0 for approximately 5 sec then go blank

Setup Serial Data Output:

Enable serial data output to auxiliary devices or to a computer.

- Press and hold the Test/Setup button for approximately 2 sec to enter Setup Mode, display will show `d09`.
- *Within one second*, tap the Test/Setup button *two* times. The display will show `E3`.
- Wait for at least 2 seconds.
- Press Test/Setup button successively to change the display brightness. The display will show `E0` through `E3`
- Mode `E0` (Off) – No serial data output is generated.
- Mode `E1` (Beep at timer zero) – When the timer reaches zero, a beep command is generated.
- Mode `E1` (Timer Status) – New data is output once per second or ten times per second if running in tenths mode representing the timer status.
- Mode `E3` (Timer Status,Beep at timer zero) – Combines both Beep output and timer status output.

Setup Baud Rate:

Setup the serial port baud rate for radar gun input or output to auxillary devices or to a computer.

- Press and hold the Test/Setup button for approximately 2 sec to enter Setup Mode, display will show **d09**.
- *Within one second*, tap the Test/Setup button *three* more times. The display will show **b1**.
- Wait for at least 2 seconds.
- Press Test/Setup button successively to change the display brightness. The display will show **b0** through **b7**
- Mode **b0** (Baud 1,200) – Use this baud rate when connecting a radar gun to the serial port. Most radar guns use 1,200 baud. Some use 9,600 baud. Check the manual.
- Mode **b1** (Baud 2,400) – This is the default baud rate for most Alzatex display devices.
- Mode **b2** (Baud 4,800) –
- Mode **b3** (Baud 9,600) – Used by some radar guns.
- Mode **b4** (Baud 19,200) –
- Mode **b5** (Baud 38,400) –
- Mode **b6** (Baud 56,800) –
- Mode **b7** (Baud 115,200) –
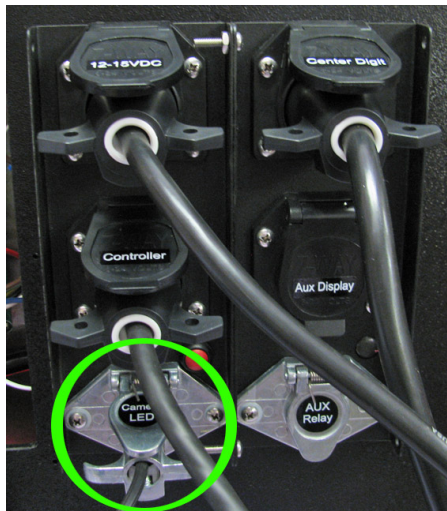
Camera LED:

- Camera connection cable plugs into back of right digit in port labeled "Camera LED"

- Turn camera LED on by turning on the timer
- Camera LED will be lit for as long as the timer is not at 0 (at 0 LED turns off)
- Camera LED remains lit if Button 5 (labeled "HOLD") is pressed to pause the timer

Protective Cloth Casing:

- Store disassembled display digits in blue cordura protective cloth covers

Power Sources – Choose at Least One:

Car Battery Adapter Cable:

- Voltage – Standard 12 Volt Car Battery
- Inline Fuse – Install a 15 or 20 AMP Fuse
- WARNING – Do not use larger than a 20 AMP fuse or you risk permanently damaging equipment

Power Supply:

- Voltage – Output voltage range is 13.85 VDC Fixed
- Output Amperage – 25 AMP continuous, 30 AMP surge
- Internal Fuse – 6.3 AMP at 115 VAC
- Input Range – 100-120 VAC or 200-240VAC, 50/60Hz (Switchable)
- Weight – 3lb
- Dimensions – 6.1" x 5" x 2.5"