

2019 Houston SCCA Timing workshop

So you want to work in the truck?...

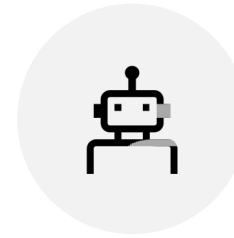
Course Agenda

- General Flow
- Timing Concept – PAX vs RAW
- The Timing Truck
 - Equipment Overview
 - Roles in the Timing Truck
 - Software Overview
- Before the Event
- During the Event
 - Running the Event
 - Common Issues during an Event
- After the Event
- Rulebooks?
- Open Forum and Questions – How do we make things better?

How do we define success? WIFM?



YOU ARE AWARE OF THE APPLICABLE RULES IN THE SCCA SOLO RULEBOOK AND THE HOUSCCA OPERATIONS MANUAL AS IT RELATES TO TIMING;



YOU HAVE A GENERAL UNDERSTAND OF HOW THE EQUIPMENT IS HOOKED UP AND HOW IT WORKS;



YOU ARE ABLE TO ARTICULATE THE STEPS IN SETTING UP, RUNNING, AND DOING POST EVENT ACTIVITIES;



YOU KNOW THE DUTIES AND RESPONSIBILITIES OF EACH ROLE IN THE TIMING TRUCK AND CAN EXECUTE ANY ONE OF THEM;



ANYONE OF YOU SHOULD BE ABLE TO STEP UP TO BE A SUBSTITUTE/DEPUTY TIMING CHIEF DURING AN EVENT.

Why is Timing Critical?



This is a “race” against the clock, people pay and dedicate a day should get their times accurately measured



Timing and Scoring is a key component to event flow and efficiency



Can make or break the Participant Experience

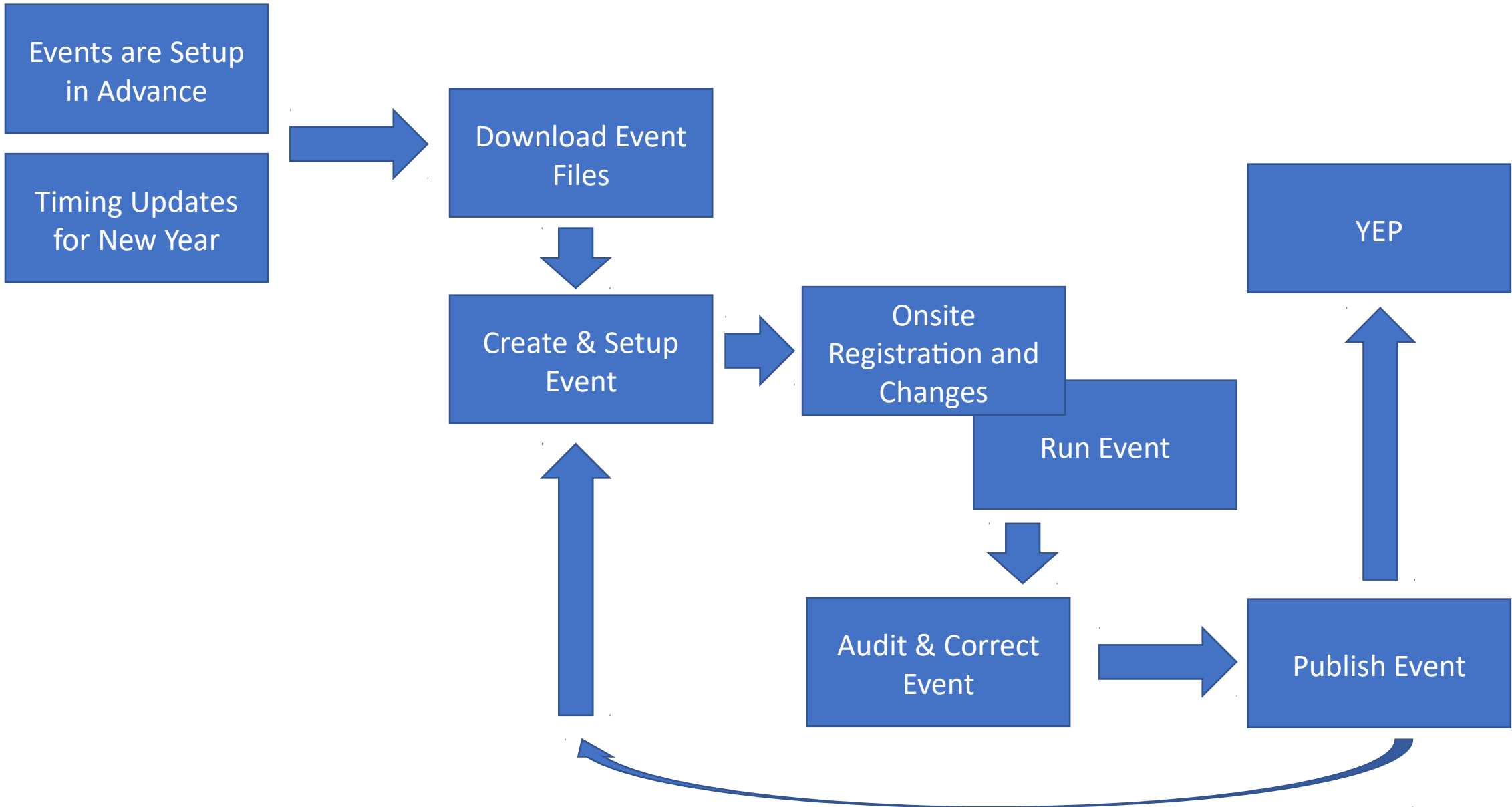


Is a big factor in the credibility of the club



The quality of an event is most impacted by how well timing and scoring is executed

General Flow of Timing Activities



Key Concept: PAX Time vs Raw time

PAX is a index system designed to equalize participants running cars from different **SCCA Solo** classes in the same local regional class. The **PAX** value is a multiplier used on the entrant's **time**, and then compared directly with other class competitors and their **PAX** multiplied **time**.

- Also known as the “Racer’s Theoretical Performance Index”

Raw Time is Time as measured without any applications of performance adjustments.

2019 PAX Index

2019 PAX/RTP Index Comparison

www.AutoXandTrack.com

Class	2019	Change	60 second course
SS	0.821	0.004	0.240
AS	0.817	0.003	0.180
BS	0.810	0.002	0.120
CS	0.809	0.004	0.240
DS	0.800	0.006	0.360
ES	0.789	0.002	0.120
FS	0.803	0.006	0.360
GS	0.788	0.002	0.120
HS	0.780	-0.001	-0.060
HCS	0.793	0.002	0.120
SSC	0.801	-0.005	-0.300

STS	0.811	0.001	0.060
STX	0.815	0.002	0.120
STR	0.827	0.004	0.240
STU	0.828	0.004	0.240
STH	0.813	0.002	0.120

Median		0.002	0.120
Average		0.002	0.120

Class	2019	Change	60 second course
SSP	0.853	0.001	0.060
ASP	0.850	0.002	0.120
BSP	0.851	0.005	0.300
CSP	0.857	0.000	0.000
DSP	0.840	0.005	0.300
ESP	0.836	0.008	0.480
FSP	0.824	0.005	0.300

SSR	0.843	0.005	0.300
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CAM-C	0.820	0.004	0.240
CAM-T	0.812	0.005	0.300
CAM-S	0.833	0.002	0.120

Class	2019	Change	60 second course
XP	0.885	0.001	0.060
BP	0.865	0.005	0.300
CP	0.848	0.001	0.060
DP	0.858	0.000	0.000
EP	0.849	-0.001	-0.060
FP	0.863	0.000	0.000
HCR	0.814	0.002	0.120

SMF	0.841	0.002	0.120
SM	0.855	0.002	0.120
SSM	0.875	0.004	0.240

Class	2019	Change	60 second course
AM	1	0.000	0.000
BM	0.960	0.004	0.240
CM	0.891	0.001	0.060
DM	0.895	0.000	0.000
EM	0.894	0.000	0.000
FM	0.907	0.003	0.180
FSAE	0.962	0.004	0.240

KM	0.930	0.002	0.120
JA	0.856	0.001	0.060
JB	0.822	-0.003	-0.180
JC	0.718	0.000	0.000



The Timing Truck

- Equipment Overview
- Roles and Responsibilities in the Truck
- Software Overview



RaceAmerica Model 3850 Timer AC4

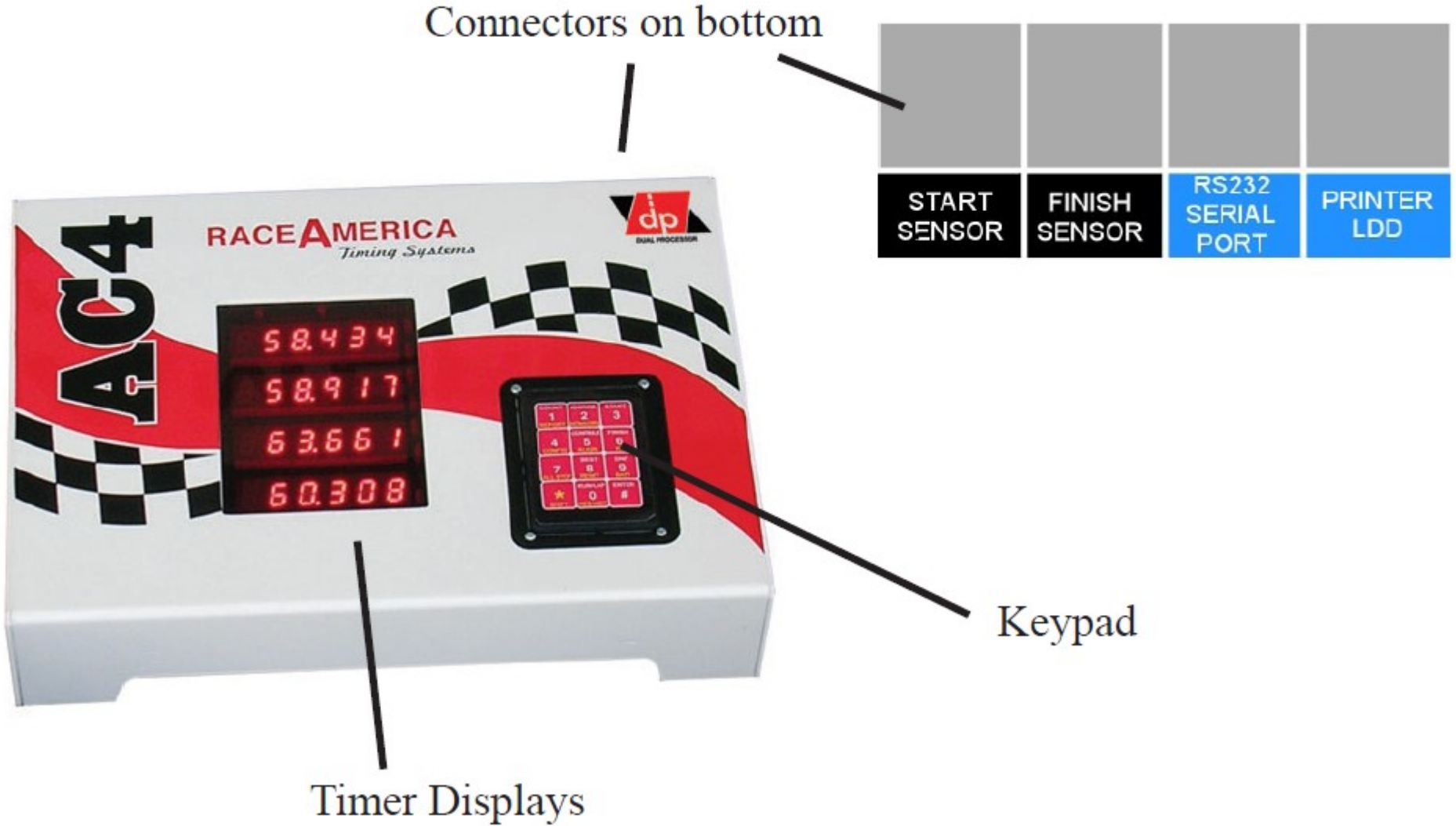


Model 5040/5050 - IR Beam Emitter



Timing Equipment Walkthrough

CONSOLE FEATURES



Connectors on bottom



Keypad

Timer Displays

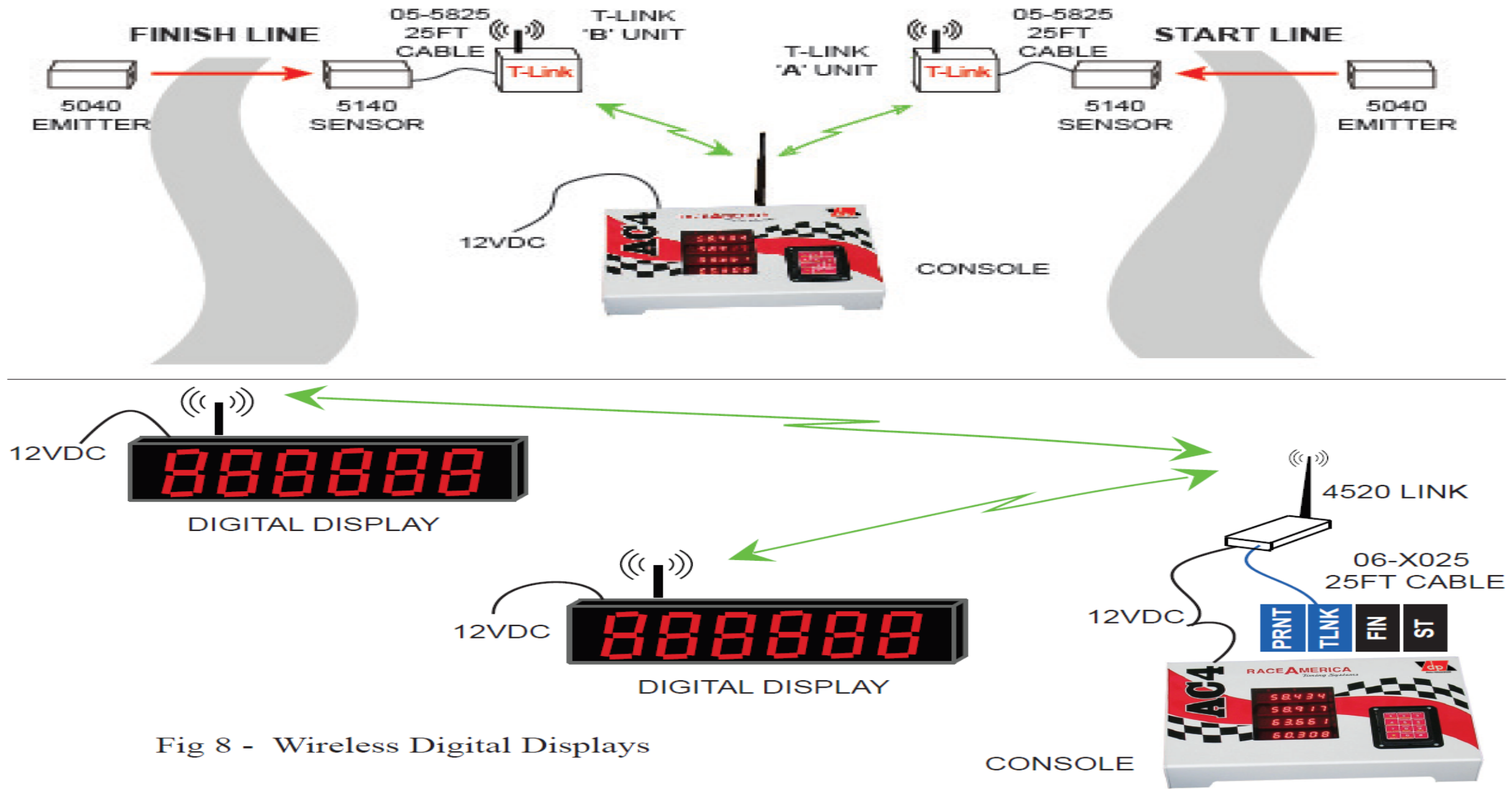


Fig 8 - Wireless Digital Displays

CONSOLE

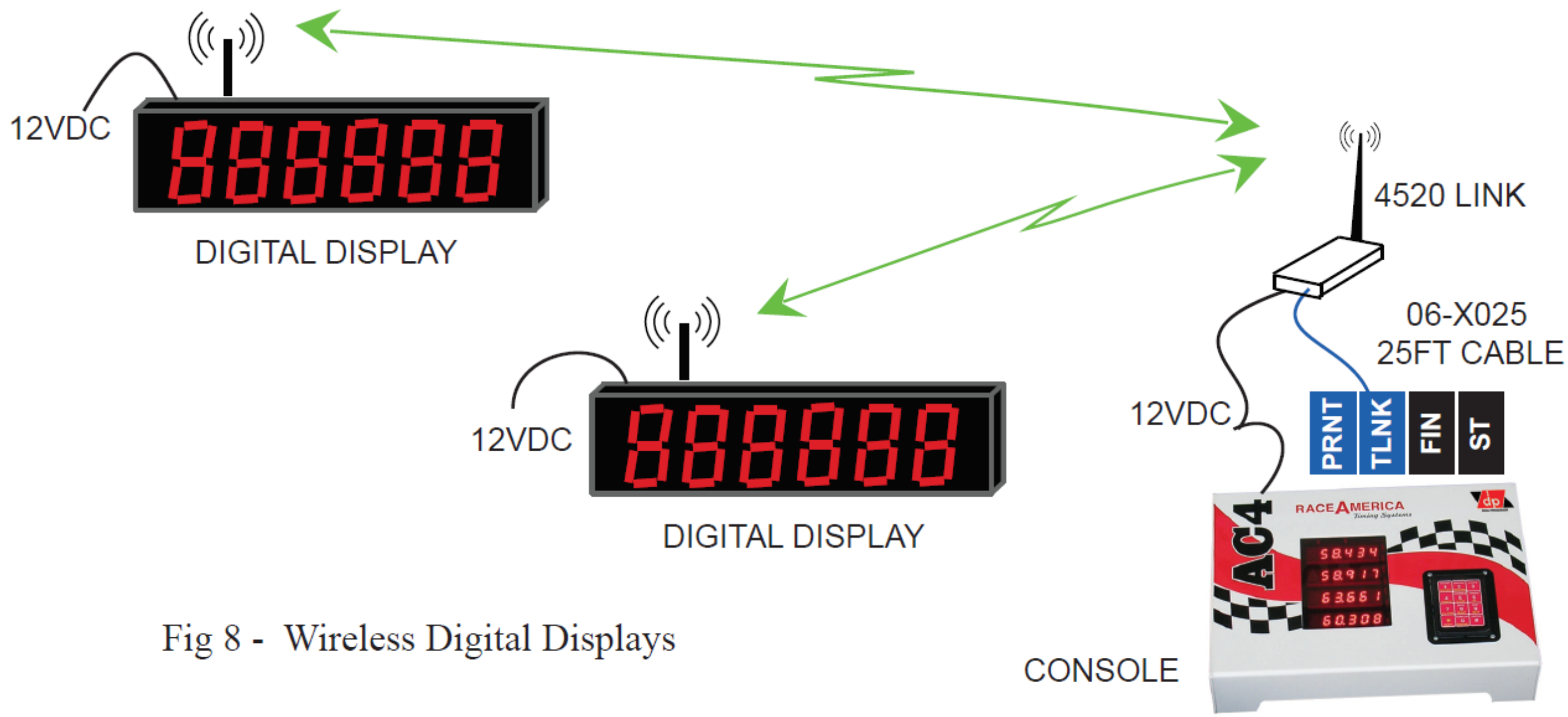


Fig 8 - Wireless Digital Displays

CONSOLE

ID Code
e.g. 'C'

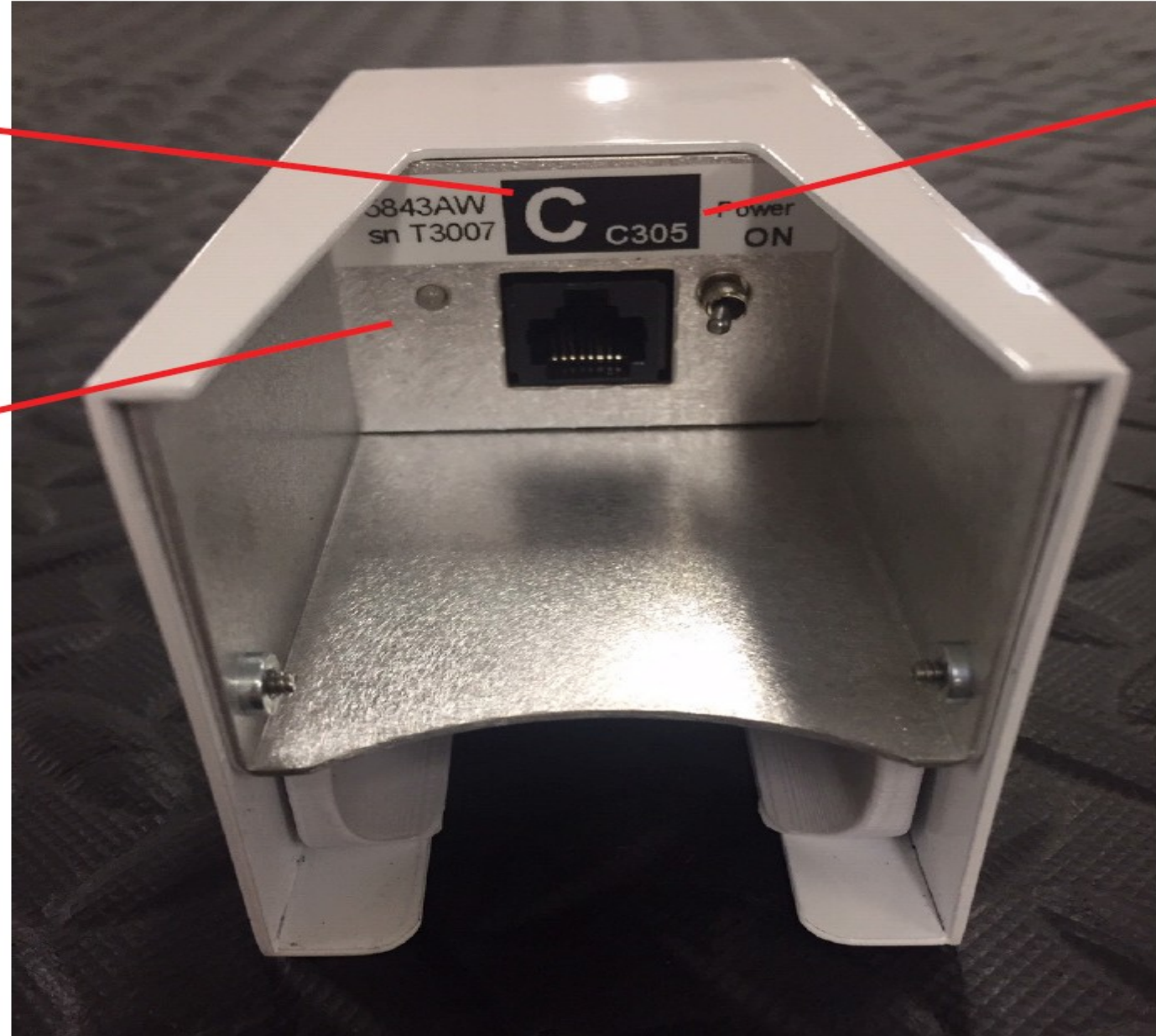
Optimizer Code
e.g. C305

LED Information

RF Receive Status
Blink GREEN - Receive
Blink RED - Transmit

Align Status
Solid RED - Not aligned

Power
Blink RED/GREEN - Power ON





AC4 Key Guide – Main Functions

- Key 1 – trigger countdown
- Key 2 – ignore current time
- Key 3 - start timer manual mode
- Key 4
- Key 5 – Continue after false trip
- Key 6 – Manual Finish
- Key 7
- Key 8 – Display best time for session
- Key 9 – DNF, don't send time for trip to PC
- Key 0 – Review last 4 times
- Key * - Toggle “Yellow” functions
- Key # - Accept command/Input Data/Config



AC4 Key Guide – Alternative Functions

- Key *1 – Print Current Configuration
- Key *2 – wired sensors on/off
- Key *3 -
- Key *4 – Enter Configuration Menu
- Key *5 – Alignment Check for Sensors
- Key *6 – Check T link Signal integrity
- Key *7 – Halt All Timers
- Key *8 – Restart Timers, Rest Best
- Key *9 – Battery Check for T Link
- Key *0 – Review last 4 times

Utility Mode vs Timing Mode



General Timer Troubleshooting

General

- Batteries for the emitters - check voltage for battery packs prior to each event
- There is a 9-second delay between finish trips to prevent multiple trips from a single car - if two cars finish within this window no finish trip will occur
- Ensure no one walked through the lights!
- In theory, the sun should not trip the lights. However in practice, we have seen it occur (and the helpline has agreed). Ensure the receiver for the lights is facing away from the sun.
- The beam can also bounce off of the cones if too close to the cones designating the finish line. Use either plasti-dipped cones at finish, or ensure sufficient spacing between lights and cones

Wireless

- Frayed/torn connections for all wires
- Check alignment (*5)
 - This will show two numbers on the timer in the format of "#S - #F"
 - If the # is changing, the sensors are not aligned properly. The faster the number changes, the further out of alignment
- Check wireless signal strength (*6)
- Check T-link batter strength (*9)
- One backup T-link is kept in the timing truck. A = Start, B = Finish, Z = Truck. To reprogram one to another designation, insert the proper key with the power off. Power on the T-Link, and when the light stops flashing, it is temporarily reprogrammed for the new designation. T-link will return to it's default state when powered off again.

Hard Wired

- Verify start/stop are plugged in to proper plugs on timer
- Check wires one section at a time if problem is not easily isolated - often one bad connection is hidden in the long runs
- Ensure lights are started manually (*2)
 - Will always have to be done when starting the first time
 - Lights may require restarting between heats

AC4 tips and tricks

- We generally use the wireless setup
- Use hard wired only upon equipment chief advise

Roles and Responsibility for Timing

In the Truck:

Audit a.k.a.
Chronomix
Recorder

Computer
Operator

Radio
Operator

Announcer

“Heat
Captain”

Outside of the
Truck:

Starter

Crossing
Guard

Grid Chief

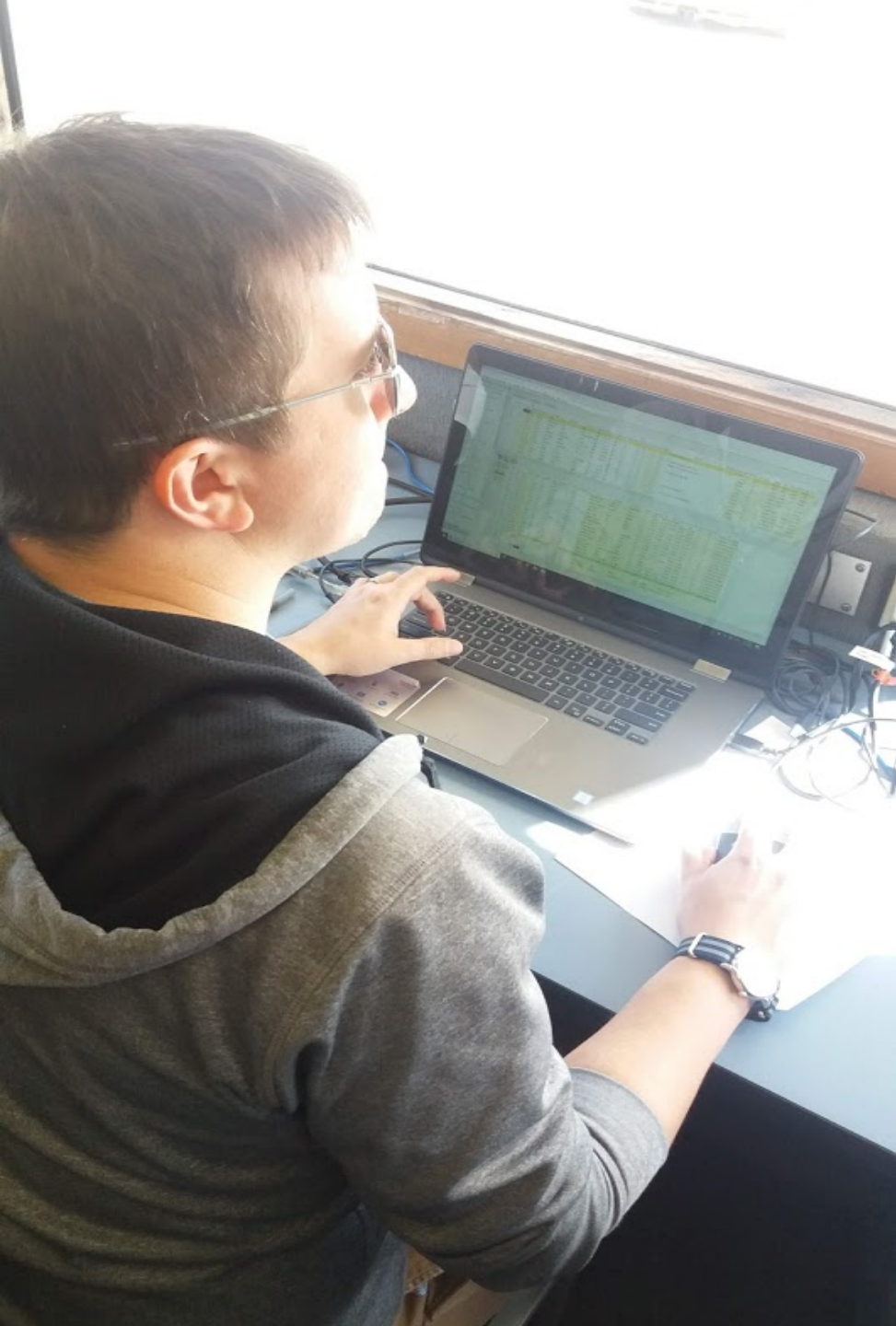
Corner Station
Captains

Chief of Safety



Audit Operator

- Needs to list down all times manually as the AC4 displays a finish trip
- Ensures that enough cars are staged on the Audit Sheet
 - 3-5 Cars Deep
 - Helps other Truck Crew members stage cars
- Watches for “False” Trips or Bad Times; alerts rest of team
- Can stop times from Feeding into the Computer
- Can restart the AC4 timers
- Should not pay attention to Cone Penalties
- Should always stay in line sync with computer



Computer Operator

- Ensures timing session is on and active
- Ensures that Live timing is on and active
- Stages 3-5 cars deep
- Initiates line Checks
- Ensures that car #, class, penalties, or reruns are on the right row in the computer and are recorded accurately
- Ensures that his lines are in sync with Audit and Cone penalty sheets
- Force live timing updates as necessary
- Initiates Post heat penalty Audit
- Should be the only one to initiate a “hold start” command
- Should correct registration only before or after the heat, never during the heat
- Reports drivers not on file or any registration issues during heat
- MUST ALWAYS FREAKING SAVE!!!! Save every 5-10 cars



Radio Operator

- Ensures all workers understand radio protocols
- Records all penalties, DNF's or Reruns on Cone Sheet – including which corner called it.
- Ensures that the computer captures all his calls
- Records must be robust - Audit source for penalties
- Triggers course Hot/Cold instructions
- Coordinates with Starter on “Pace of Release” and overlap
- Controls penalty calls from corner captains
- Coordinates with Grid for staging
- Acts as 3rd point of control for line sync – must always stay in sync with computer

Synergy with Other Roles

- Starter
 - Holding Start
 - Overlaps
 - Spacing for Special Circumstances
- Crossing Guard
 - Speed up staging
- Corner Captains
 - Multiple penalty calls
 - Unsafe worker conditions
 - Flags
- Grid Captain
 - Car Release for Staging
- Chief of Safety
 - Holding/Restarting Event in case of unsafe conditions

Select Active Class: Auto-Class #/Deck: 7 #/History: 10 Hide De-Active

Run #	Class	Number	Driver	Car Model	Position	Best Time	Best Pax	Penalty	Needs	Needs
5	XAS	49	Thompson, Landon	Corvette	Currently 1	49.865	40.739		Ahead by	
6	NBS	17	Fletcher, Christopher	Gt350	Currently 4	58.207	47.147		[+0.323]	
5	XSTX	58	Madawela, Raghavan		Currently 13	53.279	43.422		+0.305	
5	STO	7	Frias, Javier	Civic	Currently 5	59.578	49.747		+3.488	
5	XDS	13	Converse, Andrew	Fr-S	Currently 9	53.226	42.580		+0.134	
5	XBS	187	Brewer, Ken	M2	Currently 7	52.275	42.342		+0.279	+1.6

Class	Number	Driver	Car Model	Position	Time	Diff.	From 1st	Pax Time	Best Time
XSTX	97	Levitz, Chris	Fr-S	2/17	50.462	+0.373	+0.373	41.126	50.445
XAS	1	Barnes, Zack	Z06	12/17	53.948	+0.006	+2.449	44.075	52.862
STO	333	Schnetzer, Michael	Cayman	3/5	55.004	+0.485	+2.905	45.928	54.679
CS	13	Myers, Matt	Mx-5 Club	2/6	54.700	+0.418	+0.418	44.252	54.632
XCS	95	McKelvey, daniel	miata	3/17 +1	51.296	+0.366	+0.759	41.496	51.296
XSTR	321	Cheung, Ho	Miata	15/17	62.410	+0.213	+6.176	51.617	56.730
STO	69	Mendez, Carlos	Cayman S	4/5	56.080	+1.401	+3.606	46.826	56.080
XGS	99	Brewer, Kevin	Focus St	6/17 -2	53.380	+0.050	+1.924	42.063	53.380
XP	177	Sutton, Eric	911 Turbo	2/3	58.043+RRN	+2.120	+2.120	49.606	53.442
XAS	149	Dalglish, Alex	427 Convertible	8/17 -1	52.245	+0.104	+1.707	42.688	51.954

Announcer

- Should clearly read out name, car and class, times, and place in class
 - May announce gap to next or gap to first if time allows
 - Should announce raw times and pax
- Can give non offensive color commentary
- Can Page Committee members or specialty workers
- Announce Worker Check-ins and similar calls to action to keep event running
- Important announcements such as the arrival of the food truck and when the track becomes hot/end of heat



Heat Captain

- Ensures problems do not snowball
- Intervenes if team is unsure on how to fix timing problem
- Gives guidance in case rule clarity is needed
- Acts as a screen between the timing crew and folks walking up to the truck
- Prepares truck for next timing crew during change over

Software Overview

DLB Racing

<https://www.dlbracing.com/Drivers/MyAccount.aspx>

AXWARE

Dropbox

Pre-Event Activities

- Create Event on the Web;
- Make Event Visible
- Update Pax Indexes
- Update Class Definitions
- Create and Configure Event
- Communicate Preliminary Work/Run Order
- Assign Specialty Worker Positions
- Test Live Timing Settings and Uploader
- Print Forms

Day of the Event

- Update Entry List with Registration Changes;
- Delete No-Shows
- Adjust Work/Run Order, # of Runs, and Heat Balancing
- Set Timing Overlaps
- Connect Computer to
 - AC4
 - Printer
 - Announcer Screen
 - Karma WIFI
 - Power Source
- Test Timing Light Trips
- Test Live Timing on site
- Print Registration Audit List
- Radio Tests
- Set Announcer Audio/Mics
- Turn on Active Timers and Live Timing Ports

Common Timing Issues

- Off a line/Missing a Car
 - Audit out of sync
 - Computer out of sync
 - When to hold start
- Missing a time
 - False or missing trips
 - To close an overlap
 - Too slow a run
- Driver Not on file/Cant Find driver
- Handling Rookies and DBs
- Reruns
- Red Flags
- Multiple Cone Calls
- Announcer Screen Lag

After the Event

- Print Event Result Summary for Trophies
- Ensure Audit Documents are Complete
- Audit Results
- Correct and Finalize Results
- Generate Final Reports
- Upload to Website or send to Chief of Web
- Check Year End Points for any issues
- Measure and Report event efficiency

Timing and Scoring Rules

- Houston Solo Operations Manual:
 - Defines Timing and Deputy Timing Chief duties
 - X and STO Class Definitions and PAX

<http://www.houscca.com/autocross/rules-classes/Houston-Region-SCCA-Solo-Operations-Manual-2018.pdf>

- SCCA Solo Manual:
 - Section 7 & 8 – Timing, Scoring, Penalties, Protests

<https://www.scca.com/downloads/47941-2019-10-23-solo-rules-book-1-complete-reduced/download>



At the end of it all...
