



**CHRONOTRACK**  
S Y S T E M S

# Hardware Overview and Setup

- ChronoTrack Components
- ChronoTrack Setup
- ChronoTrack Read Zone & Handling Unwanted Reads
- Available ChronoTrack Resources

# Controller



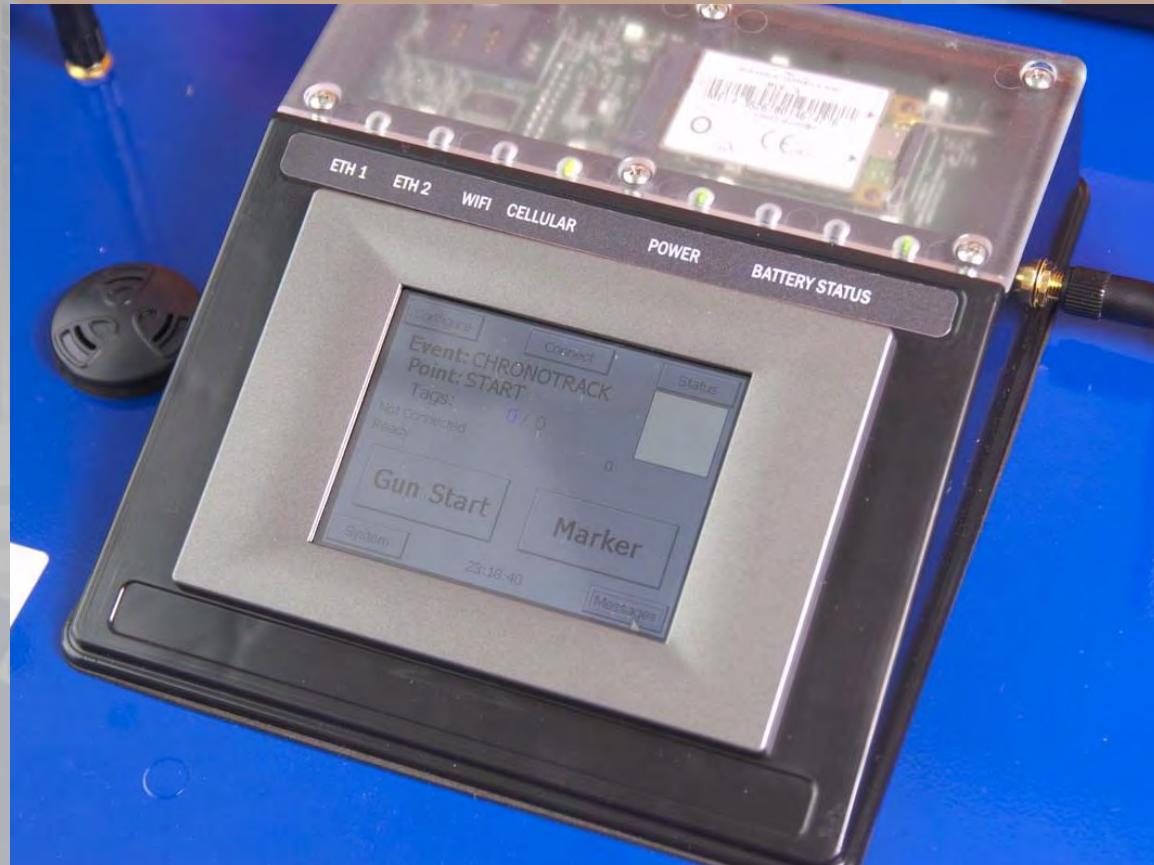
# Pro Series Controller

- Approximate weight: 30/26 lbs for 800/400
- Supports up to 28 ft. timing lines per controller
- Multiple communication options: LAN, WiFi and Cellular
- Redundant Data Collection/Storage
- Redundant Power: Operates on AC, Aux Power and Internal Batteries with seamless transfer
- Touch Panel Interface
- Does not require tuning, highly resistant to interference



## Controller

Three main components: Touch Panel Computer (TPC) Mesa, Connection Mesa and the power brick . Beeper is located to the left of the TPC with the WiFi Antennas.



## Touch Panel Computer (TPC) Mesa

Main interface, top clear panel to easily check for SIM card and status lights. Cellular antenna connects to the right side of the TPC mesa.



## Controller Power Button

Located on the back side of the TPC mesa



## Connection Mesa

Color coded for antenna connections. Contains 2 LAN connections, 2 USB ports, the aux power connection and makes the main power connection from the power brick.



## Antenna Connections

BNC and color coded, not required to match colors but best for troubleshooting



## Aux Power and Ethernet Connections

Each controller has a 2 port Ethernet switch, uses standard network cables. Auxiliary power connection for use with battery cable, supports 12-30V.



## USB Connections

USB Ports are powered, however they do not support USB 2.0 – test hardware before use for compatibility



## AC connection on power brick

Located towards the back of the controller



## Magnetic Lid Props

Prevents lid from being slammed on cables, provides ventilation

# MiniTrack Controller

- Approximate weight: 16 lbs (with Batteries)
- Supports up to 14 ft timing lines per controller
- Communication via LAN
  - Note: WiFi and Cellular available with add-on devices.
- Redundant Power: Operates on AC and Ryobi Drill with seamless transfer
- Keypad interface.
- Does not require tuning, highly resistant to interference

# MiniTrack Controller



# MiniTrack Controller



# MiniTrack Controller



# MiniTrack Controller



# Interrogator (Gator)



# Interrogator (Gator)

- Approximate weight: 27/12 lbs for Full/Mini
- Approximate length: 42/36" for Full/Mini
- Modular line configurations: Up to 56' lengths
- Low profile, yet extremely rugged and durable
- Easy to handle and pack
- Can setup along side of the road and turn into place for late road closures
- Strong enough to protect hardware and cables even for large vehicles



## Interrogator (Gator)

Handle located on back side of gator

# Interrogator Core (Antenna)



# Interrogator Core (Antenna)

- Durable/rugged with replaceable pigtail cables
- Pigtails can be used to route cables in either direction in the gator
- Separate component from gator so that if damaged you don't have to replace both at the same time

# Cable Sets



# Cable Sets

- High quality RF cable
- BNC for quick/easy setup
- Color coded and bundled in sets of 4

# FCC Licensing Caution (FCC Part 15)

- *CAUTION – Any changes or modifications to this system without the express permission of ChronoTrack Systems will void the user's authority to operate this equipment.*
- As a professional installer you must:
  - Use only ChronoTrack approved antennae
  - Use only ChronoTrack approved cables
  - Use only ChronoTrack approved accessories



# System Setup



# System Setup



# System Setup



# System Setup



# System Setup



# System Setup



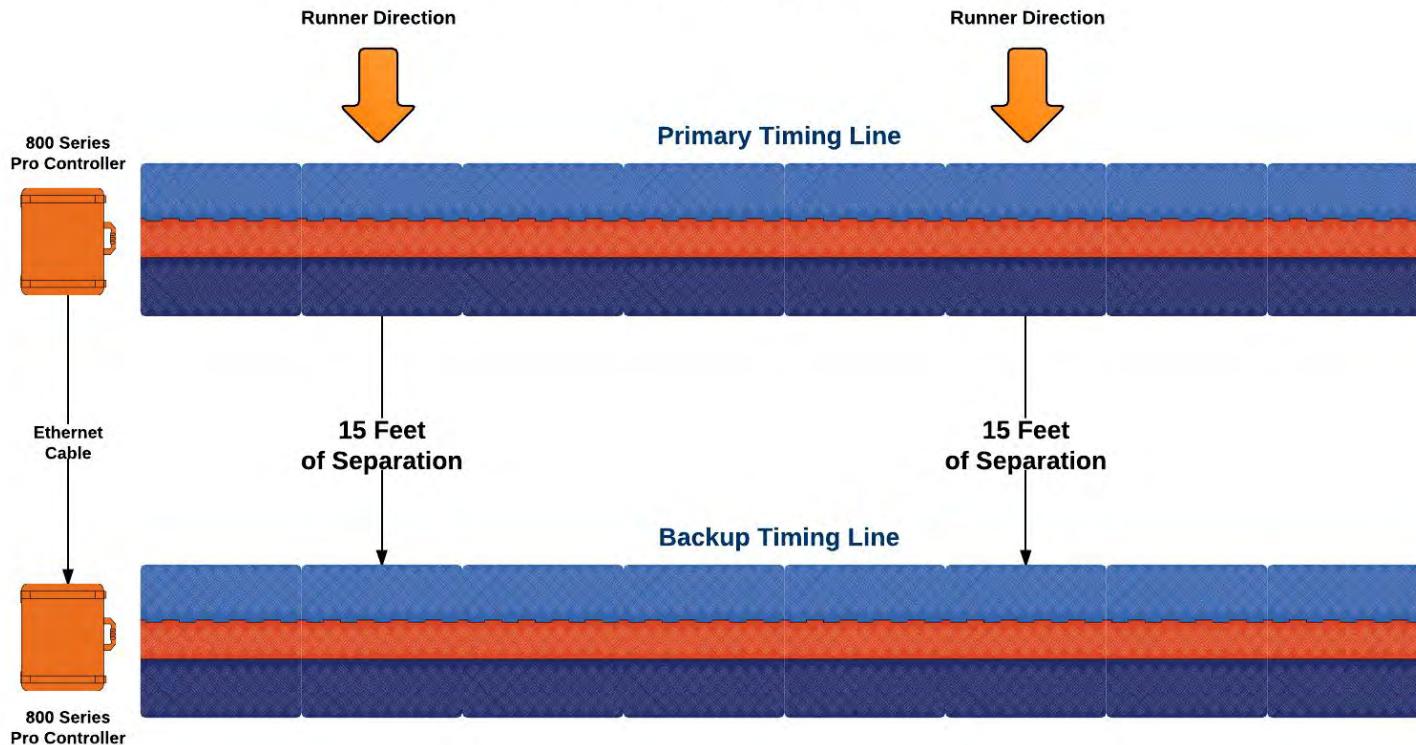
# System Setup



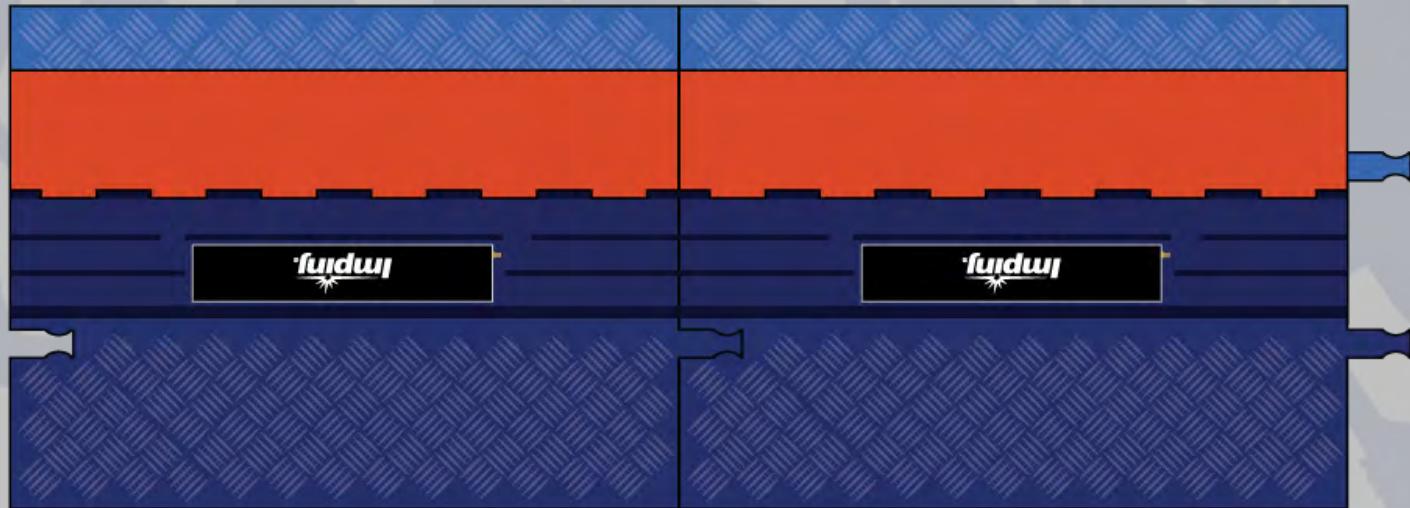
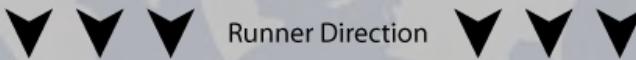
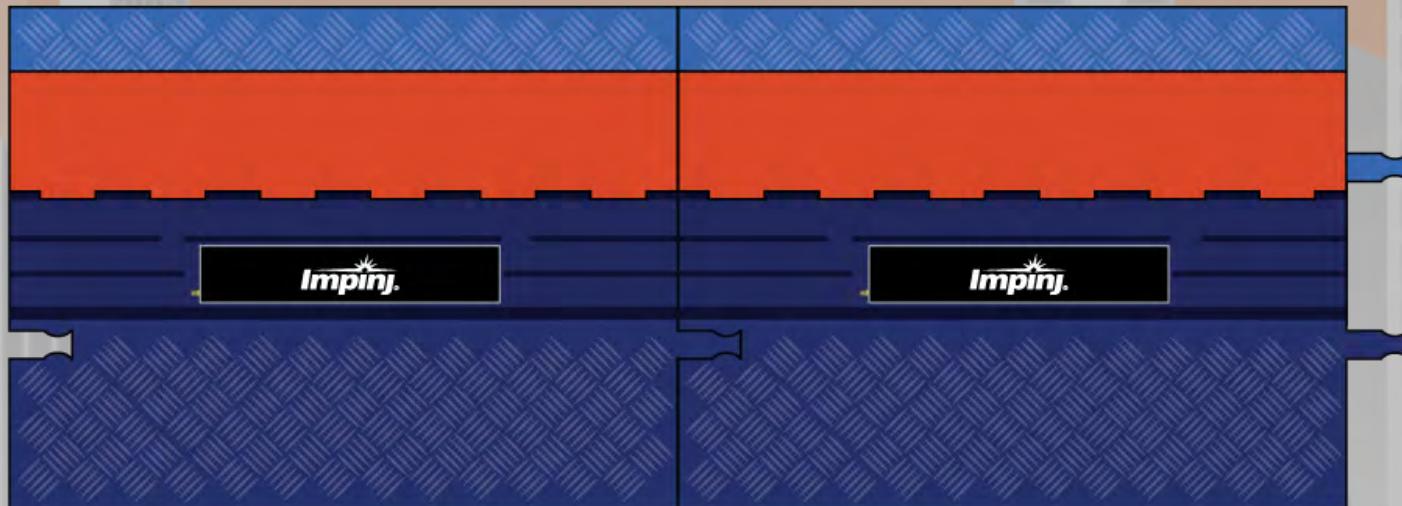
# System Setup



## Standard Line Configuration



## Antenna Placement Setup Instructions



# System Setup



# System Setup



# System Functionality

- Read-zone: begins around two meters in front of the line
- Reads tags repeatedly over a 5 second time period
- Only reports a single time in the 5 second window, when it “best” saw the tag

# Issues to be aware of

- Not collecting tags at the end of the race, creating additional reads as finishers collect at timing points to cheer on or wait for other participants
- Unique lines within a close proximity of each other require shielding from each other

# ChronoTrack Resources

- Instructional materials: flyers and videos
- ChronoTrack Timers Web Portal
- Manual and Guides



# Embedded Software: BoxScore

- BoxScore's Main Screen
- Configuring the controller for your event
- Set and sync times
- Removing data with a thumb drive
- Error alerts
- Sample race
- Advanced modes and features

Configure

Disconnect

Status

**Event: CHRONOTRACK**  
**Point: START**

Tags: 343 / 1585

222  
288  
268  
351

Working...

1585

Ready

**Gun Start**

**Marker**

System

12:04:13

Messages

**BoxScore - Main Screen**

# Point Config

Event: CHRONOTRACK

Point: START

# Controllers

1 of 1

# Readers

2 of 2

# Gators

8 of 8

Accept

Alert on Change

Done

## BoxScore – Point Configuration

On startup and accessible in the Configure menu

# Set & Sync Times

- Time sets go out to all controllers on the wired/wireless network
- Can either set a new time or set the current time
- Best to set the controllers to another source, time resolution on controller display will be less accurate
- Controllers should be left one once time is set

# Manage Time

Current: **12:10:19**

Manual: Not Set

**Enter Time**

Month: **9**   
 Day: **1**   
 Year: **2009**

**Set Time**

**Done**

## BoxScore – Time Management

Accessible via the System menu

# Enter Time (0:00:00-23:59:59)

12:00:00

Quit

1

2

3

CE

4

5

6

<-

7

8

9

OK

:

0

BoxScore – Time Entry Screen

# Removing Data

- Controller saves data to a single file from power on to off
- Use thumb drives under 2 gigabytes (larger USB drives take to long for the OS to index)
- Data is saved to a folder based on the current point name with a file name based on the power up time

**USB**

## **File Copy**

**Memory**

09011137.csv  
09011127.csv  
09011117.csv  
08201115.csv  
08191447.csv  
08191441.csv

<--To USB

Clear Memory

<--ALL

<--Current

Done

**Ready to Copy.**

**BoxScore – File Copy**

# Messages & Error Alerts

- Examples: Power loss, Time discrepancy, Disconnected Hardware, Out of Date Software
- Tracks gun start times and marker times
- Must acknowledge errors

# Messages

Primary Pwr Lost

Alert  
Gun

OK

Done

BoxScore – Messages

# Sample Race

- Power on
- Configure or confirm point config
- Set time
- Press gun start on start
- Change point name from start to finish before finishers return
- Collect data and remove after race
- Process data in SimpleClient and Scoring software

# Setup Wizard

1. Initializing
2. Discovering Devices
3. Assigning Addresses
4. Verifying Event and Point
5. Purging Old Data
6. Finding Time and Location
7. Establishing Server Connection
8. Controller Ready!

**Pause**

**Done**

## BoxScore – Setup (Start-up) Wizard

Point Config screen comes up after step 5

# Point Config

Event: CHRONOTRACK

Point: START

# Controllers

1 of 1

# Readers

2 of 2

# Gators

8 of 8

Accept

Alert on Change

Done

BoxScore – Point Configuration

# Manage Time

Current: **12:10:19**

Manual: Not Set

**Enter Time**

Month: **9**   
 Day: **1**   
 Year: **2009**

**Set Time**

**Done**

## BoxScore – Time Management

Accessible via the System menu

Configure

Disconnect

Status

**Event: CHRONOTRACK**  
**Point: START**

Tags: 343 / 1585

222  
288  
268  
351

Working...

1585

Ready

**Gun Start**

**Marker**

System

12:04:13

Messages

**BoxScore - Main Screen**

# Point Config

Event:

CHRONOTRACK

Point:

START

# Controllers

1 of 1

# Readers

2 of 2

# Gators

8 of 8

Accept

Alert on Change

Done

BoxScore – Point Configuration

Configure

Disconnect

Status

**Event: CHRONOTRACK**  
**Point: START**

Tags: 343 / 1585

222  
288  
268  
351

Working...

1585

Ready

**Gun Start**

**Marker**

System

12:04:13

Messages

**BoxScore - Main Screen**

**USB**

## **File Copy**

**Memory**

09011137.csv  
09011127.csv  
09011117.csv  
08201115.csv  
08191447.csv  
08191441.csv

<--To USB

Clear Memory

<--ALL

<--Current

Done

**Ready to Copy.**

**BoxScore – File Copy**

# Troubleshooting and Monitoring

- Battery status
- Versions
- Connection Status

# System Status

Battery: 28 volts, Primary Pwr  
2 Batt: 28V-100% 28V-100%

Storage Available: 999.00MB

Communication: Cellular Off                    WIFI On

BoxScore Ver: 1.26.0.20509                    on 0.1.2.22

IP: 172.20.23.175                    Build: 390

Reader 1-Ver:v2.35 IP: 172.20.23.176            Temp: 0

Reader 2-Ver:v2.35 IP: 172.20.23.177            Temp: 0

Beep Volume:

## BoxScore – System Status

Status > System

## Reader Status

OK 8

OK 7

OK 6

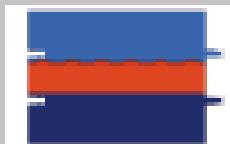
OK 5

OK 4

OK 3

OK 2

OK 1



Reader 2 MAC

101EC0

Reader 1 MAC

101EE3

Done

## BoxScore – Reader Status

Status > Point



# Basic Race Sample

- Power Controller ON
- Configure/Confirm Point Configuration (Point should be set to start)
- Set (or sync) Times
- Read Tags (Athletes crossing the line before the race)
- Gun Start
- Read Tags (Athletes beginning the race)

# Basic Race Sample

- Change Point from ‘Start’ to ‘Finish’
- Read Tags (Runners Finishing)
- Remove Data using USB Drive
- Open File in SimpleClient
- Select the start session apply your gun start time, play session and save data
- Select the finish session apply your gun start time from start session, play session and save data



Configure

Disconnect

Status

**Event: CHRONOTRACK**  
**Point: START**

Tags: 343 / 1585

222  
288  
268  
351

Working...

1585

Ready

**Gun Start**

**Marker**

System

12:04:13

Messages

**BoxScore - Main Screen**

# **Config Menu**

**Network**

**File**

**Power**

**Setup Wizard**

**Point**

**Done**

**BoxScore – Configure Menu**

# Network Config Options

Configure Adapters

Server: 72.13.13.238

Apply

Done

BoxScore – Network Configuration Options

# Server Address

172.20.23.2

Quit

1

2

3

CE

4

5

6

<-

7

8

9

OK

0

.

BoxScore – Server Address Entry

# Network Config Options

IP Address

Netmask

**LAN:**

172.20.23.175

255.255.252.0

**Cellular:**

Powered Off

**WiFi:**

192.168.0.51

255.255.255.0

**Gateway:**

192.168.0.50

Multiple Gateways Defined!!

Done

**BoxScore – Advanced Network Options**

## Power Menu

GPRS: OFF

Reader 1: ON

WIFI: ON

Reader 2: ON

Done

BoxScore – Power Menu

# Point Config

Event: CHRONOTRACK

Point: START

# Controllers

1 of 1

# Readers

2 of 2

# Gators

8 of 8

Accept

Alert on Change

Done

BoxScore – Point Configuration

**NUM**

# Numeric Entry

**CHRONO**

**Quit**

**A B C**

**D E F**

**CE**

**G H I**

**J K L**

**M N O**

**<--**

**P Q R S**

**T U V**

**W X Y Z**

**OK**

**\***

**#**

**BoxScore – Input Screen (Alpha)**

**ALPHA**

# Numeric Entry

CHRONO2009

**Quit**

**1**

**2**

**3**

**CE**

**4**

**5**

**6**

**<--**

**7**

**8**

**9**

**OK**

**\***

**0**

**#**

**BoxScore – Input Screen (Numeric)**

**USB**

## **File Copy**

**Memory**

09011137.csv  
09011127.csv  
09011117.csv  
08201115.csv  
08191447.csv  
08191441.csv

<--To USB

Clear Memory

<--ALL

<--Current

Done

**Ready to Copy.**

**BoxScore – File Copy**

**USB**

09011158.csv

## **File Copy**

<--To USB

Clear Memory

<--ALL

**Memory**

09011137.csv

09011127.csv

09011117.csv

08201115.csv

08191447.csv

08191441.csv

<--Current

**Copy Current Complete. Ready.**

**Done**

**BoxScore – File Copy**

# Setup Wizard

1. Initializing
2. Discovering Devices
3. Assigning Addresses
4. Verifying Event and Point
5. Purging Old Data
6. Finding Time and Location
7. Establishing Server Connection
8. Controller Ready!

[Pause](#)

[Done](#)

**BoxScore – Setup (Start-up) Wizard**

# System Menu

Shut Down

Maintenance

Time

Command

About

Done

BoxScore – System Menu

# Confirm?

Press Yes to Shut Down

**YES**

**NO**

**BoxScore – Shut-down Confirmation**

# Manage Time

Current: **12:10:19**

Manual: Not Set

**Enter Time**

Month: **9**   
 Day: **1**   
 Year: **2009**

**Set Time**

**Done**

**BoxScore – Time Management**

# Enter Time (0:00:00-23:59:59)

12:00:00

Quit

1

2

3

CE

4

5

6

<-

7

8

9

OK

:

0

BoxScore – Time Entry Screen

# BoxScore

Ver: 1.26.0.20509



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Inquiries: [Sales@ChronoTrack.com](mailto:Sales@ChronoTrack.com)  
Support: [eSupport@ChronoTrack.com](mailto:eSupport@ChronoTrack.com)

Done

**BoxScore – About**

# Maintenance Menu

Fast Charge

29V-99%

Dry

29V-100%

NOT IN  
RACE  
MODE

Done

BoxScore – Maintenance Menu

**Enter Key:49084**

**Quit**

**1**

**2**

**3**

**CE**

**4**

**5**

**6**

**<-**

**7**

**8**

**9**

**OK**

**0**

**BoxScore – Command Key Entry**

# Status Menu

System

Operations

Point

Upload

Done

BoxScore – Status Menu

# System Status

Battery: 28 volts, Primary Pwr  
2 Batt: 28V-100% 28V-100%

Storage Available: 999.00MB

Communication: Cellular Off                    WIFI On

BoxScore Ver: 1.26.0.20509                    on 0.1.2.22

IP: 172.20.23.175                    Build: 390

Reader 1-Ver:v2.35 IP: 172.20.23.176            Temp: 0

Reader 2-Ver:v2.35 IP: 172.20.23.177            Temp: 0

Beep Volume:

**BoxScore – System Status**

## Reader Status

OK 8

Reader 2 MAC

OK 7

101EC0

OK 6



OK 5

OK 4

OK 3

Reader 1 MAC

OK 2

101EE3

OK 1

Done

BoxScore – Reader Status

Power :Off

# Upload Status

Unstarted

MAC: AD7AA0

Start

Modem

Clear

Done

BoxScore – Upload Status



Select Profile      Select Network

Profile 1      Any

Initialize Modem      Bytes Sent      Connect To Internet

Cell ID: [ ]      IPAddress: [ ]

Service: [ ]      Ping Time (mSec): [ ]

Version: [ ]      Lease Expires: [ ]

Good/Bad Ping Counts

Exit      Done

v.3.0.1

## BoxScore – GPRS (Cellular) Connect

  Profile Activated - Connect To Internet

Select Profile Select Network

AT&T  Profile 1  Any 

Bytes Sent

Cell ID:  IPAddress:

Service:  Ping Time (mSec):

Version:  Lease Expires:

Good/Bad Ping Counts

v.3.0.1

**BoxScore – GPRS (Cellular) Connect**

 Data connection active. Waiting for Data

Select Profile Select Network

AT&T  Profile 1 Any

Bytes Sent

528

Cell ID: 30351 IPAddress: 166.214.241.224

Service: Normal Ping Time (mSec): 185/0

Version: H1\_1\_9\_3MCAP Lease Expires: 71hr 59m 46s

Good/Bad Ping Counts

v.3.0.1

## BoxScore – GPRS (Cellular) Connect

# **Operational Status**

Immediate:OFF

Goto Low Power

Zero Counts

Done

**BoxScore – Operational Status**

# Reader Power



32.5

Low Power Not Recommended  
for Road Races

Done

**BoxScore – Reader Power**

# Messages

Primary Pwr Lost

Alert  
Gun

OK

Done

BoxScore – Messages



# Basic Networking Overview

- Networking Controllers at Timing Points
- LAN Setup for PC and Controller
- WiFi Setup for PC and Controller
- Controller Setup for GPRS (Cellular) and establishing a connection
- Basic Troubleshooting & Common Problems
- Open Q & A and setup help (if time allows)

# Point Networking

- Primary and backup controllers are recommended to be connected with a network cable
- All reads collected with each line are shared creating data redundancy and allows you to only collect the data from one controller as needed
- If needed, you can also sort the data back out later using virtual points or scoring software

# LAN Setup For Your PC

- IP address is properly set as alternate configuration for the ChronoTrack network: 172.20.23.(2-99) for Local Area Connection
- Firewalls disabled or set to allow connections through CCSLite or port 61610
- Confirmed that no other anti-virus software has an active firewall
- CCSLite is active
- Cable is connected

# LAN Cable Specifications

- Standard Network cable, no need for a crossover cable
- Distance limitation vary based on cable quality, average limitation approximately 300 ft.

# LAN Setup For Your Controller

## Network Config Options

Configure Adapters

Server:

72.13.13.238

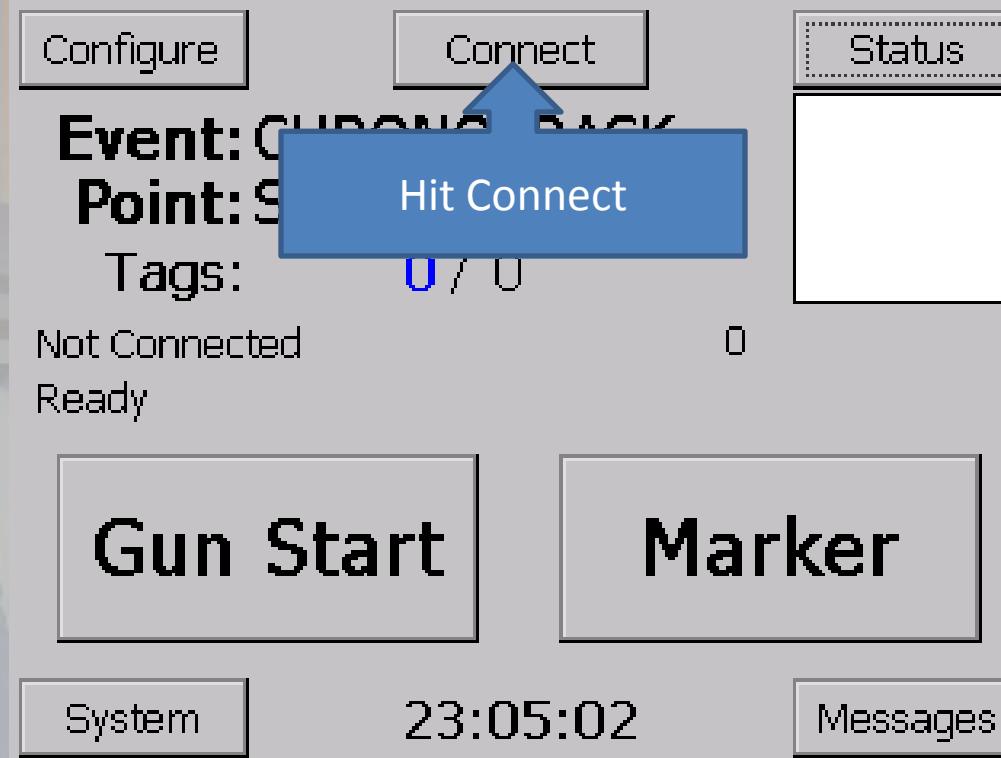
Set to CT Network:  
172.20.23.(2-99)

Apply

Done

Configure > Network

# Establish Server Connection



Main Screen of BoxScore

# Confirm & Monitor Server Connection

Configure

Disconnect

Status

**Event: CHRONOTRACK**

**Point: START**

Tags: 343 / 1585

222

288

268

351

Reports  
Working...

Working...

Gun at 12:09:07.72

**Gun Start**

1585

Transferred Tag Count is  
greater than or equal to  
total tag reads

System

12:09:17

Messages

Main Screen of BoxScore

# WiFi Setup For Your PC

- IP address is properly set as alternate configuration for the ChronoTrack network: 192.168.0.(2-99) for Wireless Area Connection
- Firewalls disabled or set to allow connections through CCSLite or port 61610
- Confirmed that no other anti-virus software has an active firewall
- CCSLite is active
- Ad Hoc Network is properly created and connected to

# WiFi Setup For Your Controller

## Network Config Options

Configure Adapters

Server:

72.13.13.238

Set to CT Network:  
192.168.0.(2-99)

Apply

Done

Configure > Network

# WiFi Setup For Your Controller

## Power Menu

GPRS: ON

Reader 1: ON

WIFI: OFF

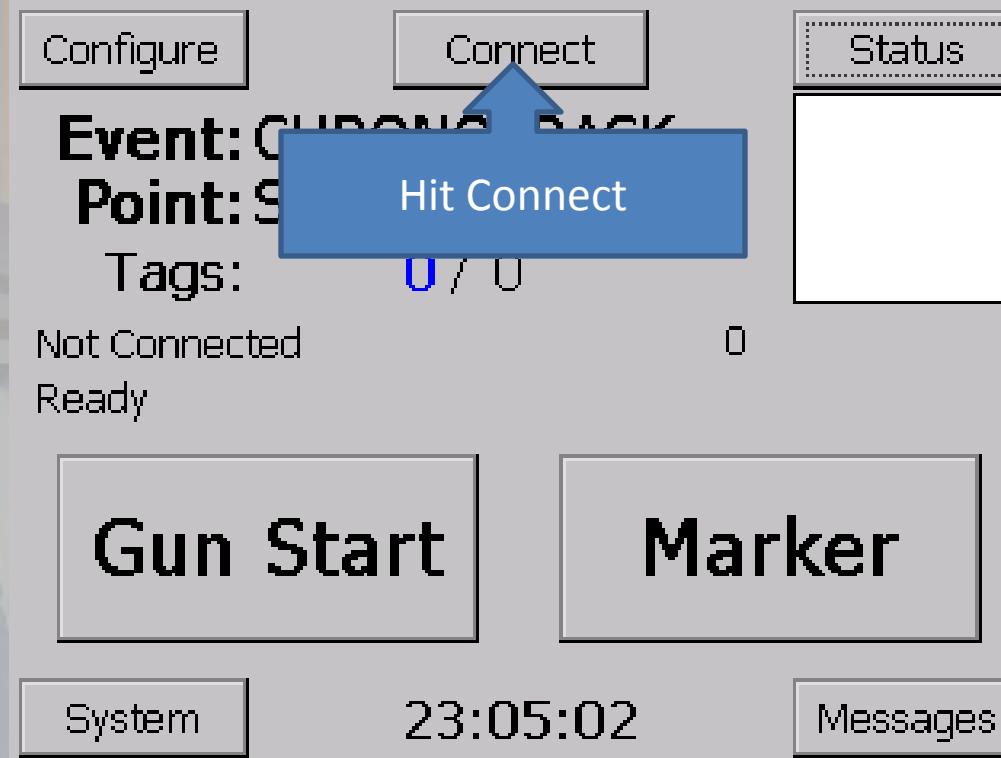
Reader 2: ON

WiFi must be powered  
ON

Done

Configure > Power

# Establish Server Connection



Main Screen of BoxScore

# Confirm & Monitor Server Connection

Configure

Disconnect

Status

**Event: CHRONOTRACK  
Point: START**

Tags: 343 / 1585

222  
288  
268  
351

Reports  
Working...

Working...

Gun at 12:09:07.72

**Gun Start**

1585

Transferred Tag Count is  
greater than or equal to  
total tag reads

System

12:09:17

Messages

Main Screen of BoxScore

# Cellular/GPRS Connection

- SIM Card with active data plan
- Scoring machine will also need an internet connection
- May need high gain antennas if used in areas with poor coverage
- Only need one connected controller per point
- Can connect multiple controllers at a point for backup

# Cellular/GPRS Connection

- Confirm Server IP Setting
- Power GPRS Modem On
- Establish Cellular Data Connection
- Connect to the ChronoTrack Server

# GPRS Setup For Your Controller

## Network Config Options

Configure Adapters

Server:

72.13.13.238

Set to CT Server:  
72.13.13.238

Apply

Done

Configure > Network

# GPRS Setup For Your Controller

Power on if  
modem is not  
powered on

Power:Off

**Upload Status**

Unstarted

MAC: AD7AA0

Start

Then start the modem  
software by hitting start

Modem

Clear

Done

Status > Upload

# GPRS Setup For Your Controller

Bar chart icon and red lightning bolt icon.

Select Profile: Profile 1

Select Network: Any

Initialize Modem

Bytes Sent

Connect To Internet

IPAddress:

Ping Time (mSec):

Version:

Lease Expires:

Good/Bad Ping Counts

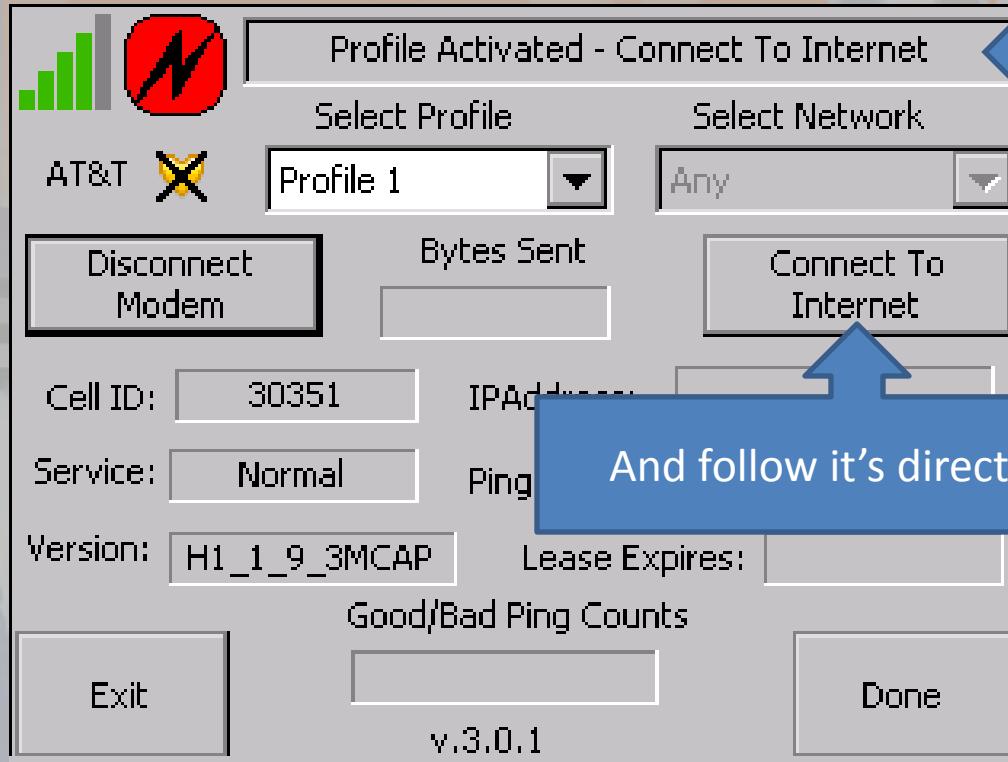
Exit

Done

v.3.0.1

Status > Upload > Start(Modem)

# GPRS Setup For Your Controller

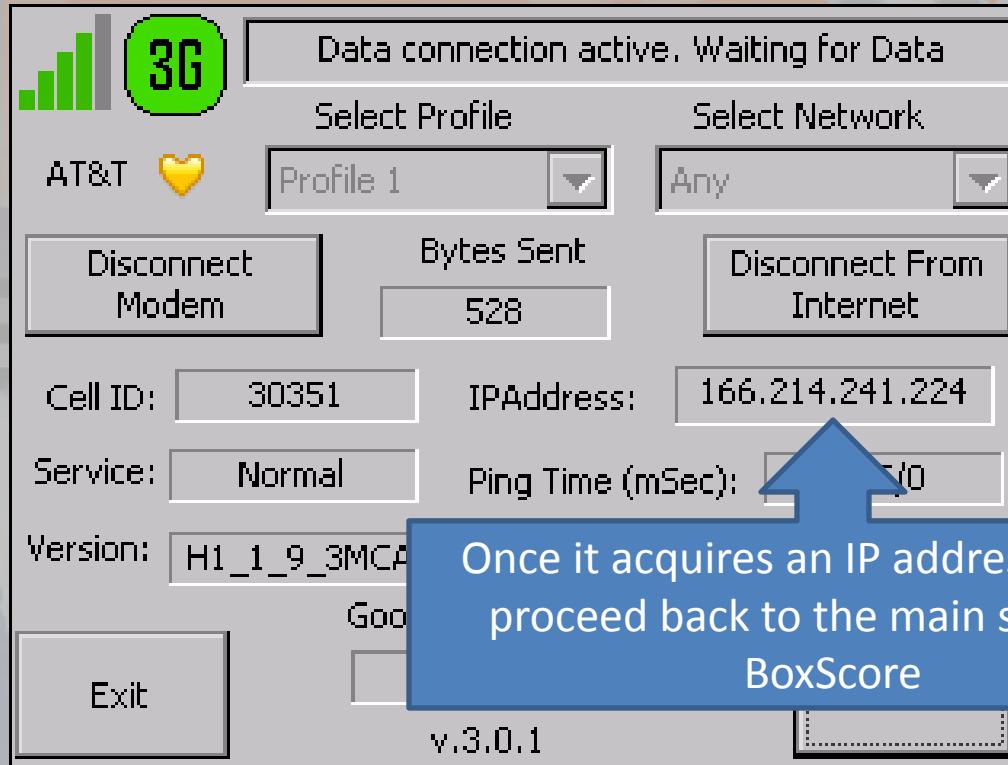


Wait for this message

And follow it's directions!

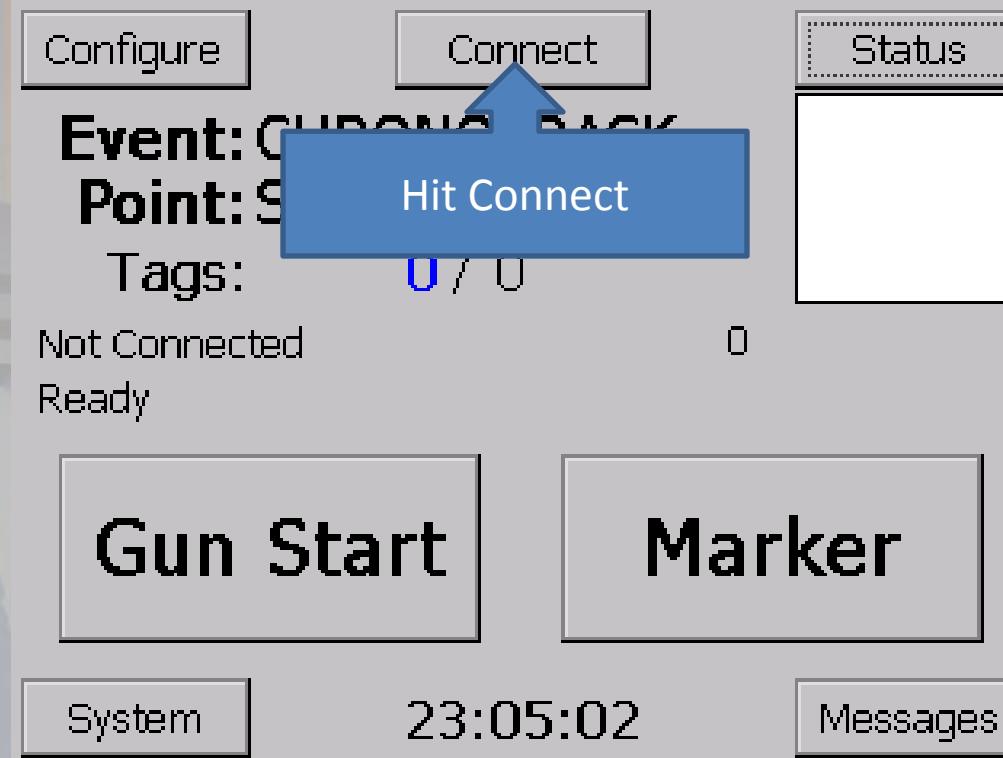
Status > Upload > Start (Modem)

# GPRS Setup For Your Controller



Status > Upload > Start (Modem)

# Establish Server Connection



Main Screen of BoxScore

# Confirm & Monitor Server Connection

Configure

Disconnect

Status

**Event: CHRONOTRACK**

**Point: START**

Tags: 343 / 1585

222

288

268

351

Reports  
Working...

Working...

Gun at 12:09:07.72

**Gun Start**

1585

Transferred Tag Count is  
greater than or equal to  
total tag reads

System

12:09:17

Messages

Main Screen of BoxScore

# Common Issues

- Wrong Server Address set (possibly typos)
  - 72.13.13.238 = ChronoTrack Cell Server
  - 172.20.23.XX = LAN Connection
  - 192.168.0.XX = WiFi Connection
- Component is not powered ON
- Faulty Hardware
  - Broken Cable (clips commonly break)
  - Inactive SIM card

# Troubleshooting

- Confirm that the link lights are active on both ends for LAN and WiFi
- Ping the appropriate IP address
  - On your PC, pull up a command line and type in “ping 172.20.23.100” (TPC LAN IP address) and confirm a response