



FAST 650

Radar Speed Display

Trailer User Manual



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Thank you for the purchase of an *FAST 650* Radar Speed Display Trailer. The *FAST 650* was designed for small community streets where speeding is a problem. This Manual will guide you through the all of the aspects of using your new trailer. Please read and understand this Manual and review the checklist in *Section 1* below to be sure that you've received everything you need prior to starting.

Take a moment to record the model and serial numbers below so that you have them in a safe place for future use. You'll find them at the front of the trailer as shown in *Figure 1*.



Figure 1
FAST 650 Trailer Information

MODEL NUMBER: _____

VIN: _____

SERIAL NUMBER: _____

DATE of PURCHASE: _____

OPTIONS PURCHASED: _____

Please remember to take you new *FAST 650* trailer to your local Motor Vehicle Department for inspection and registration prior to use. A lighted license plate bracket has been provided under the driver's side tail light for your convenience.

1. UNPACKING AND CHECKING CARTON CONTENTS

Item	Qty	Description
A	(1)	FAST 650 Radar Speed Display Trailer
B	(1)	"YOUR SPEED" sign (mounted on trailer beneath display)
C	(1)	"SPEED LIMIT" sign (mounted on swing arm)
D	(3)	"0", "2", "3" & "4" numbered overlay signs (on sign)
E	(1)	Locking hitch pin for swing arm
F	(1)	Hitch safety pin

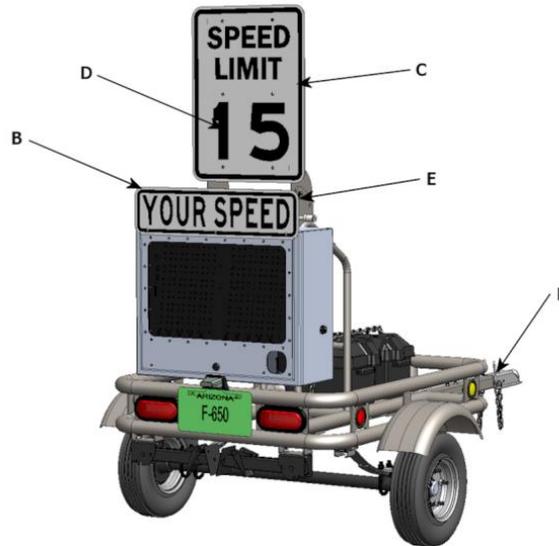


Figure 2

Tool Bag containing:

G	(2)	Key for sign "On/Off" switch
H	(1)	"L" Key for signage (allen wrench)
I	(2)	Key for swing arm hitch pin on the SPEED LIMIT sign
J	(1)	Jack Handle
K	(1)	Car-end light pigtail (for towing vehicle)
L	(2)	3-3/4"L x 3/8" bolts w/washers & nyloc nuts (for trailer tongue)
M	(1)	Enclosure (triangle) key
N	(1)	Power cord

In addition you may have ordered on or more of the following options:

- Alarm remote
- P (1) Data collection
- Q (1) system Trailer cover
- R (1) Locking lug set w/key



Figure 3
Tool Bag & Contents

2. LOCATION SELECTION

In order to optimize your traffic calming results, there are a few simple things to keep in mind and simple steps to follow. You'll want to position the trailer in location that's on a relatively flat stretch of road and is not too close to any stop signs, intersections, or sharp curves in the road. Also, a clear line-of-sight relatively free of obstructions such as large trees, fences or other landscape features is most desirable. Keep in mind that the radar unit you've purchased is approach only (single-directional), so only the speed of oncoming vehicles is displayed.

3. SETTING UP FOR USE

Park the trailer as close to the final resting place as possible. Remove the safety chains and unplug the lights. **Important: Next, lower the front jack.** Then unlock and unlatch the ball hitch coupler. Lift the trailer off the ball and roll it into position.

To set the leveling jacks:

Step 1. Extend leg of jack **towards the center of trailer** (*Figure 4a*) to release the jack. Swing leg down until the tabs engage in the locking slots, *Figure 4b*.

Step 2. Extend the leg by pressing on the base, *Figure 4c*. To raise the trailer higher, insert the jack rod end securely through the holes in the leg and through the rear hole, *Figure 4d*. Crank the jack rod for desired leveling.



Figure 4a



Figure 4b



Figure 4c



Figure 4d

To raise the jacks:

- Step 1. Press on release lever (*Figure 4e*) to release the extended section .
- Step 2. Push foot up while pressing release lever down.
- Step 3. Pull body of the jack down to release it and swing it up until it locks into place.
- Step 4. Assure jack is in the locked position.



Figure 4e

Setting the Leveling Jacks

Next, unlock the "SPEED LIMIT" sign swing arm, raise it into position, and relock it - see *figures 5a-5c* below. Be sure to set the numbers to the applicable speed limit for the new location.



"SPEED LIMIT" swing arm and sign raising

4. ANTI-THEFT PRECAUTIONS

We recommend a few ways to keep your trailer secure:

1. Lock the Hitch Ball Coupler with a high-grade padlock
2. Run a locking cable thru one or both of your wheels and around the frame.
3. Purchase padlocks and place them on the leveling jacks do that they are locked in the down position.
4. Chain or cable-lock the trailer to a nearby pole or other fixed landscape feature.

5. FINAL POSITIONING / FINE TUNING

See *Figures 6a* and *6b* for some basic trailer positioning tips. Keep in mind that the 12" tall characters are readable to 750 feet. If the radar unit is picking up vehicles too far away, simply rotate the trailer clockwise so that it's facing the opposite curb a bit more. Likewise, if the unit is picking vehicles up too close or not far away enough, rotate counter-clockwise. Practice with as many vehicles as necessary until desired results are achieved. Remember, you may adjust the radar gun angle (aim) in the *FAST 650* as well as the angle of the trailer for maximum fine-tuning.

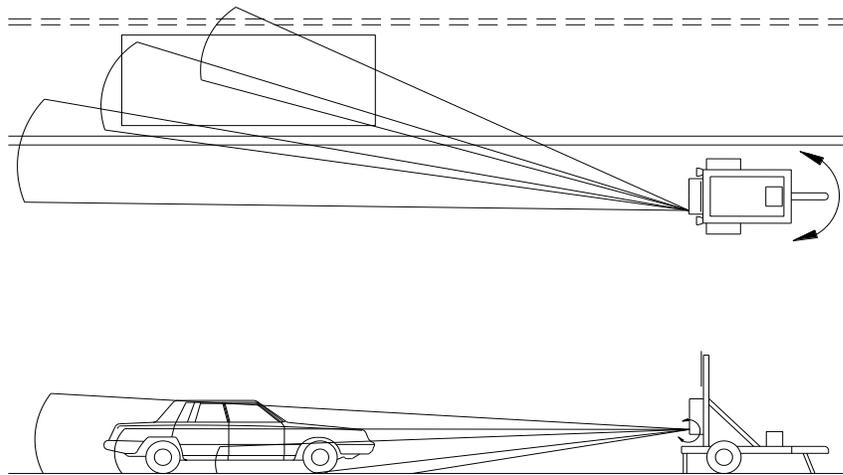


Figure 6a

Dialing in Approach Angle Sensitivity



Figure 6b

*Internal Radar Gun swivels both horizontally
& vertically for diverse aiming options*

6. PROGRAMMING STANDARD FUNCTIONS

Now that your trailer is in position, the "SPEED LIMIT" sign is raised, and your leveling jacks are set; You are ready to power up. Find the included key, insert into the switch at the underside of the display enclosure as in *Figure 7* below. Turn clockwise ¼ turn to the "ON" position. Your display should light up and flash a number between 0 and 8. This is the ambient light indicating level that adjusts the LED's brightness to meet the existing conditions automatically. **Note:** The brightness control is always on automatic but it can be checked for proper operation by the user, if needed. To check this, refer to the paragraph

"Auto Intensity Diagnostic Mode, code 9981" in the Advanced Features Section.

Next locate a small push button next to the "On/Off" key switch on the bottom of the enclosure. This is the programming button you'll use to set up everything on the *FAST 650*. It will display "NM" for Normal Mode and then begin to cycle through the set up.



Figure 7

Key Chain Remote Control

- The left button directs the numbers up with the other directing down. When the sign is in run mode, holding both buttons in for 1 second resets the sign without having to cycle the power key.
- To replace its battery, remove the small Phillips head screw located on the lower back and replace with a type 27A, 12volt alkaline cell.

Below is a list of the standard programming "menu codes" in the order they appear on your display.

The speed codes and their meanings

Read over the following programming codes listed in the Speed Code Table below to become familiar with the two-letter groups (modes) you want to set in the sign using the push button. Concentrate on the "Normal Mode" (NM) and "Violator Alerts"

(VA) modes only, for now. Notice that they are grouped so that for example, when "VA" is selected, you can set the "Minimum Speed", Flash (speed), Blank (speed), etc. As the last numbers are entered, the display is ready and goes blank.

SPEED CODE TABLE

<u>Two-letter Mode</u>	<u>Meaning</u>	<u>Description</u>
NM =>	"Normal Mode"	Sign shows all speeds normally with no speed filtering
<hr/>		
VA =>	"Violator Alert"	<u>"Violator Alert"</u> MENU
		
	MS => "Minimum. Speed"	Min. speed for sign to display
	SL => "Slow Down"	Speed at which red "SLOW DOWN" shows (Optional Feature)
	RB => "Red & Blue"	Flashing "Red & Blue" speed (Optional Feature)
	FL => "Flash"	Speed at which to flash readout
	BL => "Blank"	Speed at which to blank screen
<hr/>		
**ND =>	"No Display"	Unit collects radar data with no display ** OPTIONAL ONLY for units with the optional data collection software feature. Feature must be enabled - See Advanced Features Mode Section.

SETTING THE SIGN IN "NORMAL MODE"

The simplest mode to put the sign into is the "NM" (Normal Mode). Instructions:

1. Turn the power on with the key. After the brightness number changes, start pushing the button and stop on the two letter code "NM".
2. As the display goes dark, it is now running in "Normal Mode". In other words, the sign will display the speed of oncoming vehicles from 5 mph (down to 1 mph is also available, see Advance Features Section) to 99 MPH without showing any alerts. So for this code only, no further programming would be needed.

PROGRAMMING THE SIGN IN "VIOLATOR ALERT" MODE

This section covers setting the standard “Violator Alert” functions including the optional “Slow”, “Red & Blue” flashing signals. **Note:** The pushbutton instructions described in the following paragraphs also apply to the use of the key chain remote control buttons.

Turn power on. After the brightness number changes, push the button and stop on “VA”. The display is now in “Violator Alert” setup mode. The Violator Alerts 1 to 5 will then begin to appear in the order of the photos as shown below. **Note:** If the Timer is enabled, (see Section 11 “Setting the Clock and Timed Events”) the sign will run in Violator Mode (or any other mode) only during the selected event timed program. Otherwise, if the timer is disabled, the sign will run continuously (not recommended for overly long periods of time when on battery power only).



“Violator Alert”

Violator Alert 1: MS - Minimum Speed

After seeing the “VA” screen, the display will show “MS” (see photo below) along with a number. The number represents the lowest speed at which the display will start showing all oncoming vehicles. When this number appears, the operator has 5 seconds within to start pushing the button in order to program this “MS” speed setting. Press the button until the desired speed setting is reached. (**Note:** If the button is held down, the numbers will increment fast without having to press the button many times. The numbers will start over after 99 if you miss your desired speed without turning off the power. If using the key chain remote, simply press either button to move the numbers forward or backward). Once the desired setting is reached, **stop and wait** for the next screen to appear after approximately 5 seconds. The screen will then change to the next screen for speed setting.



“Minimum Speed”

Violator Alert 2: SL - SLOW DOWN (Optional Feature)**

Check your packing slip or order to verify that this optional feature has been included with your product. If this feature was ordered, the display will now show the red "SL" (Slow Down) message and show a speed setting number. The red "Slow Down" message is effective in helping to calm traffic. When the operator sees the setting number appear, push the button within 5 seconds in order to change this number until the desired speed setting is reached. **Note:** You can set the numbers even when the words "Slow Down" are flashing. Once the desired setting is reached, stop pressing the button and wait for the next screen, after approximately 5 seconds.



"Slow Down" Message

Violator Alert 3: RB - Red and Blue flashing lights (Optional Feature)**

Check your packing slip or order to verify that this optional feature has been included with your product. If this feature was ordered, the display will now show "RB" which effectively flashes the Red and Blue flashing light pattern at the driver while displaying their speed. The operator has 5 seconds to start pushing the button in order to change the number setting. **Note:** You can set the numbers even when the "Red & Blues" are flashing. Press the button until the desired speed setting is reached. Once the desired setting is reached, stop and wait for the next screen after approximately 5 seconds.



"SLOW" // "Red & Blues"

Violator Alert 4: FL - Flashing Speed

The display will now show "FL". When drivers go over this setting, they will see their over-the-limit speed flash. The operator has 5 seconds to start pushing the button in order to change the speed setting. Press the button until the desired speed setting is reached. Once reached, stop and wait for the next screen to appear after approximately 5 seconds.



"Flashing Speed"

Violator Alert 5: BL - Blanking Speed

The display will show "BL" which is the speed limit that the display will no longer show the oncoming vehicles speed. This setting will prevent drivers from increasing their speed over this speed limit to see how fast they can go. Press the button until the desired speed setting is reached. Wait approximately 5 seconds and the sign will go dark. The display is now in service and operating in "Violator Alerts" mode.



"Blanking Speed"

** Optional SLOW DOWN and Flashing Red & Blue Violator Alerts can be purchased and activated at any time. Call Customer Service 866-982-2107 for pricing and information.

Notes:

- After this last "BL" screen, all of the violator alert settings have been saved even after the sign is switched off. When the sign is turned on again, it will run thru all of the modes and their speed settings for the operator to review.
- If changes are needed, press the sign mounted button for 5 seconds which will start the mode settings to display again. If using the key chain remote, hold the left button in for 1 second for the same effect.
- If desired, the sign can be pre-set at your base facility for transportation and set-up at a different location.
- The violator alerts can be set in any order, but not at the same speed. If attempted, this setting will skip to the next available number. To get the best effect from the alerts, set the speeds at least 3-4 MPH difference. If you wish to not use one of the violator alert settings, set the speed high, i.e. 97 MPH.
- Holding the button will scroll through the numbers faster for quicker setup. If the desired setting is passed, the numbers will start over after 99.
- If using the optional key chain remote, the left button advances the numbers while the right button reverses them.
- To start over, either turn off/on the sign with the power key OR when using the key chain remote, hold the left button in for 3 seconds for a power reset.

After setting the clock, (see Section 11 "Setting the Clock & Timed Events") the sign will revert back to Normal Mode (NM). If Violator Alert mode is desired, it will have to be set to "VA" mode again.

Violator Alert Settings Summary

Push button until display shows "VA"

Wait five seconds for MS (Minimum Speed) to display
"MS" will display. Push the button to set the desired speed.

Wait five seconds for SL (SLOW DOWN) to display
"SL" is displayed. Push the button to set desired speed.

Wait five seconds for RB (Flashing Red & Blue) to display
"RB" is displayed. Push the button to set desired speed.

Wait five seconds for FL (Flashing Speed) to display
"FL" is displayed. Push the button to set desired speed.

Wait five seconds for BL (Blanking Speed) to display
"BL" is displayed. Push the button to set desired speed.

After five seconds the last speed sets and the display goes dark

Traffic Set-Up Examples

35 mph neighborhood speed limit

Set the "MS" (the radar detected Minimum Speed limit) at 5 mph, the "SLOW DOWN" message at 35, "Flashing Speed" at 40mph, the "Red and Blues" at 50 and the Blanking Speed at 60. This is what will happen: Oncoming vehicles speeds will be shown on the sign traveling from 5 to 34 MPH. If the vehicle is traveling 35 to 39, the SLOW DOWN message will flash. Between 41 and 49, their speed will be displayed while flashing. Over 50MPH, the display will show the Red + Blue flashing lights pattern. At 60 and above, the display is blank. As the vehicle slows, the appropriate "Violator Alert" will show for their speed until they reach 34 MPH where their speed is displayed normally.

School Zones

Set the "MS" (the radar detected Minimum Speed limit) at 15 mph (so drivers in a school zone obeying the speed limit are not distracted), the "Flashing Speed" at 16mph and the "Blanking Speed" for 40mph. This is what will happen: For speeds under 15 MPH, no speed will be displayed. The display will flash the speed for vehicles traveling between 16 and 39 MPH. No speed will be displayed above 40 MPH.

Open Road

Set the "MS" (the radar detected Minimum Speed limit) for 45mph, the "Slow Down for 70mph, "Red and Blues" flashing pattern for 75mph, "Flashing Speed" for 65, and the "Blanking Speed for 85 (to prevent vehicles speeding by the sign to see how fast they can go). This is what will happen: Normal vehicles will just see their speeds from 45 to 65 MPH. Vehicles moving at 66 to 69mph will see their over-speed flash. If they travel over 70 mph, the red "Slow Down" message will flash. Vehicles speeding over

75mph will see the "Red and Blues" flashing lights pattern. No speed will be displayed at 85mph or above.

7. READOUT RESULTS

The readings from the radar unit are filtered. The radar unit is very sensitive, so for continuity of the oncoming driver, not every reading may be displayed. If there is a difference between vehicle speeds of more than 3 miles per hour per second (extreme acceleration or deceleration), the display will simply hold the last recorded speed for a few seconds rather than jumping back and forth between speeds. A couple of examples:

Example 1: If a vehicle is traveling at 35mph and the car behind him is traveling at 40mph, the sign will display the first vehicle at 35 until it passes. The first vehicle's speed will show for 1-1/2 seconds after it passes, so the radar can establish and display vehicle two's speed at 40mph.

Example 2: If a vehicle accelerates towards the sign from a stop at greater than 3 miles per hour per second, no speed will be displayed. If a vehicle accelerates at 3 miles per hour per second or less, the sign will display the speed as it increases.

8. ADVANCED FEATURES

In addition to the standard features there are some advanced features available mainly for trouble shooting.

To enter the Advanced Feature mode, turn the unit ON and press the programming button five (5) times before the intensity number blinks. First an "A" will appear on the left digit and a number on the right. Press the programming button until the appropriate number is shown for that slot. Wait for a "B" to appear and repeat this for "C" and "D" as well. This will put you into that mode until the unit is turned off and back on again. See below a list of codes and slots for these advanced features.

A	B	C	D	
9	9	6	9	Minimum Speed Mode
9	9	7	1	Alternate Slow Down Mode
9	9	7	3	Demo mode (see further instructions)
9	9	7	5	Show Serial Number
9	9	7	9	Display Diagnostic Mode
9	9	8	1	Auto Intensity Diagnostic Mode
9	9	8	3	Turn On & Off Radar Acceleration Filter
9	9	8	7	Turn On & Off No Display Availability
9	9	8	9	Turn On & Off Set Time Availability

Minimum Speed Mode

Lower speeds of 5 mph are distracting in most applications but are desirable in some. As a default, the display will only show down to 5 mph but down to 1 mph is available. Putting in the minimum speed code will turn on and off the down to one mode. If after putting in

the minimum speed code, the display shows "S1" then the speed will show down to 1 mph. If "S5" shows then the speed will only show down to 5 mph.

Alternate Slow Down Mode

The display can show the "Slow Down" violator alert two ways. One is that only "Slow Down" is shown if the vehicle speed is over that set speed. The other is that the "Slow Down" will show and then the vehicle speed will display, alternating between the two until the vehicle slows below the set speed. Both are very effective but one could be preferred above the other. The default is just "Slow Down". To switch from one or the other, put in the code and if the display shows "On" then only the "Slow Down" message will display. If after the code is put in and "Off" shows then the display will alternate between "Slow Down" and their speed.

Demo Mode

Demo Mode will allow you to select 1 of 6 Demo. The display will show DM for Demo Mode and then a number. Change the number to the desired demo

1 = Counts up and down from 51 to 59 and flashes

Demonstrates Dimming Feature

Shows "Slow Down" Violator Alert

Shows "Red and Blue" Violator Alert

2 = Shows just "Slow Down" Violator Alert 3

= Shows just "Red & Blue" Violator Alert 4 =

Counts up and down from 31 to 39 flashes

Demonstrates Dimming Feature

Shows "Slow Down" Violator Alert

Shows "Red and Blue" Violator Alert

5 = Scrolls RU2 Fast

6 = Snow Flakes

EX = Exit back to main menu

If the button is pressed during the Demo, the display will allow you to re-select another demo.

Show Serial Number Mode

Serial Number mode will display seven (7) two (2) digit numbers. This is your software serial number

Display Diagnostic Mode

Display diagnostic mode will make several patterns on the display used to test the display integrity. Pressing the program button five (5) times while the display is blank just after The red and blue test will exit and return to Main Menu.

Auto Intensity Diagnostic Mode

Auto Intensity Diagnostic Mode will test the ability to auto adjust the brightness of the display according to the ambient light. A small sensor in the center of the sign reads the outside light so the processor may determine how bright to make the display. Once in this mode, the outside light can be varied and will show a number from 0 to 9, with 0 being the lowest and 9 the highest. Putting your hand over the sensor can change this reading.

Turning the Radar Acceleration Filter On and Off

Once this code is put in the display will show either an "On" or "Off". "On" means the filter was off and will now be turned on. "Off" means the filter was on and will now be turned off. We recommend the Filter be "On" for most applications.

Turning the No Display Availability On and Off

This feature simply leaves the "ND" mode in or out of the main menu. "On" means the display availability was off and will now be turned on. "Off" means the Display Availability was on and will now be turned off. We recommend the Display Availability be "Off" for most applications.

Turning the Set Time Availability On and Off

This feature simply leaves the Set Time mode in or out of the main menu. "On" means the Set Time Availability was off and will now be turned on. "Off" means the Set time Availability was on and will now be turned off. We recommend the Set Time Availability be "Off" for most applications.

"Optional" Slow Down and Red Blue Violator Features

These features are built in to your radar display but may not be configured to operate because they are either not appropriate for the application or were not purchased.

These optional Violator Alerts may be viewed by running the demo mode in the "Advanced Features" section of this manual.

9. SETTING THE CLOCK AND TIMED EVENTS

Note: *Unless the sign is to be powered on and off automatically at certain times, it is not necessary to set the clock*

The internal timer is a 24 clock used to turn off the display's system to extend battery life or to prevent disturbing residents at late or early hours. **This feature will not take into account weekends, holiday or daylight savings time.** The Set Time function must first be "turned on" in order to set the On/Off times. See Section 10 – Advanced Features, code 9989 to activate this function. Once the feature is activated, you will see the following codes added to the startup display setting:

TIMER CODE CHART

ST	=>	"Set Time"		Time Set Menu
EN	=>	"Enable"		Turn on the timer feature
DS	=>	"Disable"		Turn off the timer feature
			ON	
OH	=>	"On Hour"		Hour at which sign is to turn
OM	=>	"On Minute"		on Minute at which sign is to
			OFF	turn
FH	=>	"Off Hour"		Hour at which sign is to turn
				off

FM	=>	"Off Minute"	Minute at which sign is to turn
		TIME	
HR	=>	"Hour"	
MN	=>	"Minutes"	Set current time hour (24 hour) Set current time minute

SETTING THE EVENT TIMER

Note: If you become lost while setting any of the numbers, the settings operate the same as the display set. In other words, if any numbers are missed the first time around, they will repeat again by holding in the pushbutton. Also, the power key can be cycled on and off to start over from the beginning or the key chain remote option allows you to advance or reverse all numbers using both of its buttons.

As an example, let's set the sign to operate only during normal to high traffic hours (for conserving the battery) to run daily from 5:30 AM to 11:45 PM. The current time is 8:17 AM. These would be the programming steps:

- Turn power on. After the brightness number changes, push the button and stop on "ST", the "Set Time" mode. Push the button until the display shows "EN" (Enable):

Wait five seconds for "OH" ("ON" Hour) to display.

"OH" displays. Push the button to see 05 (hours) on the display

Wait five seconds for "OM" ("ON" Minute) to display.

"OM" is displayed. Push the button to see 30(minutes)

Wait five seconds for "FH" ("OFF" Hour) to display.

"FH" is displayed. Push the button to see "23" (11PM)

Wait five seconds for "FM" ("OFF" Minute) to display.

"FM" is displayed. Push the button to see "45" desired speed

Wait five seconds for "HR" (Current Hour) to display

"HR" is displayed. Push the button to set "08"

Wait five seconds for "MN" (Current Minute) to display

"MN" is displayed. Push the button to set "17"

10. CHARGING THE BATTERY

Your *FAST 650* will run for 72 hours between charges. Your battery life may vary, depending on the volume of traffic and the violator alert usage. For optimum results, we recommend that you charge the unit when not in use. Repeated full draining of the battery will shorten the battery life. The *FAST 650* comes equipped with an internal waterproof battery charger. Move the trailer near a standard electrical outlet and plug it in with the supplied AC power cord from your tool bag. Remember that the plug is located under the enclosure, right next to the "On/Off" switch as viewed in *Figure 6* above. An extension cord should not be used unless absolutely necessary. Using improper extension cord could result in a risk of fire and electric shock. If extension cord must be used, make sure that;

- a. The pins on the extension cord plug have the same number, size, & shape as those of the AC power cord plug on the charger;
- b. The extension cord is properly wired and is in good electrical condition; and
- c. The wire size is a minimum of 18 AWG for a 6'-100' cord & 16 AWG for a 101'-150' long cord.

The charger is completely automatic and may be left connected to both AC power and to the battery that it is charging for long periods of time. However, it is prudent to periodically check both the battery and the charger for normal operation during these extended charging periods.

PRO-PAK FEATURES

The PRO-PAK charger has a RED and GREEN light for each charging bank. The RED light indicates the battery is charging. The GREEN light indicates the battery is full charged and charger can be unplugged from the AC. A built-in safety feature will alternately flash the RED and GREEN lights indicating that either the charging leads to a battery are loose, not connected or connected backwards.

The PRO-PAK charger is designed to provide the quickest and most efficient charge possible while guarding against overcharging. The amperage delivered while charging is constantly monitored and automatically adjusted until all batteries are completely charged. Once charging is complete each bank turns on or off as each battery demands. If a battery cell is bad, the battery might keep taking a heavy charge. If this happens, the PRO-PAK charger will sense the problem after 24 hours and completely turn that bank off and alternately flash the Red and Green lights.

SPECIAL NOTES ABOUT CHARGING

The charger will not begin delivering current to the batteries until it detects a "solid battery" on its charging leads. "Solid battery" means the charging leads are connected in correct polarity with tight, clean connections to the battery being charged. If the battery is not attached and stable for a continuous 30 seconds, the "smart charger" will not begin charging and the corresponding lights for the battery bank in question will FLASH. If the battery is connected in reverse, it is considered an unstable battery, the corresponding lights for the battery bank in question will FLASH and battery will not be charged. If the charging leads are disconnected in the middle of the charge cycle, it will turn the charge current off to help eliminate any possibility of spark. If the charging leads are loose and making intermittent contact, the "smart charger" will not turn current on. This also helps eliminate spark.

*** *Models and operations may vary*

11. MAINTENANCE, CLEANING, & CARE

Trailer & Enclosure:

Your entire FAST 650 trailer has been powder coated for a long-lasting great look. While powder coat finishes are tougher and much more flexible than conventional solvent based paints, they are about

the same hardness as automotive paint, so they will scratch. To clean a powder coated surface, use the same care and methods you would use to clean your car. Gently wash with a clean, soft cloth and a mild detergent followed by a clear water rinse. Even though most powder coatings are highly resistant, certain solvents can harm them. Avoid contact with nail polish remover, paint or lacquer thinner, motor oils, transmission and brake fluids or parts cleaning fluids. If any of these should contact the powder coated surface, immediately wipe the area with a soft, clean cloth, and wash as described above.

Lexan Screen:

Your display screen carries a 5-year limited warranty against breakage. However, to prevent scratching, please take care to use only the proper cleaning products and techniques outlined here;

1. Rinse with lukewarm water; Wash gently with mild soap or detergent and lukewarm water, using a soft cloth or sponge. DO NOT SCRUB or use brushes or squeegees.
2. Rinse again. Dry with soft cloth or moist cellulose sponge to prevent water spotting.
3. To remove wet paint, glazing compound or grease, rub lightly with a good grade of VM&P naphtha or isopropyl alcohol, then wash and rinse. DO NOT USE GASOLINE.
4. Compatible Cleaning Agents include Fantastik, Formula 409, Hexcel, F.O. 554, Joy, Lysol, Mr. Clean, Neleco-Placer, PineSol, Top Job, & Windex.

Wheel Hubs: Check the grease level periodically as it may deplete depending on the amount of use (mileage). A minimum of every 6 months is recommended.

Leveling Jacks:

1. Lubricate jack at least every six months in the following manner:
 - a. Extend jack as far as possible.
 - b. Clean dirt, mud, tar, etc. from jack.
2. Oil pivot holes and rivet of release lever every 6 months.
3. Should jack become difficult to operate, clean and oil as detailed in Step 1 & 2 above, and inspect for bent or worn parts. Use only factory parts for replacement. Note: If it is not possible to get jack to operate freely, replace jack.
4. The stabilizer jack has a two-year warranty from date of purchase.

Battery: Your FAST 650 Trailer is equipped with the highest quality, AGM, deep cycle, sealed, spill-proof, leak proof, DOT approved battery that requires no maintenance. Check the posts for corrosion periodically. Charge and drain on regular cycles, and you will enjoy a long battery life.

12. TECHNICAL SPECIFICATIONS

Overall: Dimensions: 7'-0" long x 4'-4" wide x 5'-0" tall
Curb Weight: 350 lbs.

Standard Features:

Approach only (single directional), K-band radar unit
12" amber AllnGaP LED display characters
3/16" smoked, non-glare Lexan display
Automatic intensity adjustment to ambient light conditions
Fold down speed sign rack
Keyed "On/Off" switch
Deep cycle, dry cell, marine battery
Single cycle on/off clock
Flashing digit violator alert
Directional Traffic Arrow Patterns
Minimum Display Speed / High Speed Cut off
Automatic default to previous user settings each power up

Construction

2" square steel tube frame
White polyester powder coat finish over high zinc epoxy primer
(3) Leveling jacks – 650 lbs. Lifting capacity each, 8" max. raised height
4.80 x 8 ST tires on 4-lug, automotive-grade hubs w/taper roller bearings 2" class 2 ball coupler
Full 7" wide, 14 gauge steel fenders
1000 lbs. Rated axle
Leaf spring suspension

13. OPTIONS and UPGRADES

- *TRAFFIC COUNT* Data Acquisition System with software
- "SLOW" and "RED/BLUES" violator alerts



- Additional Batteries
- Security Devices: Locking lugs, Cable lock, Tire lock, Coupler lock
- Trailer cover

14. WARRANTY

RU2 Systems warrants parts and workmanship on the LED display for (2) years. The radar unit is warranted for 2 years. On-site labor is not included. Parts are repaired within five business days of receipt, and include ground shipping. Warranty does not include physical damage from misuse, acts of nature, terrorism or vandalism. Wear and tear items such as tires are not covered. Please forward any warranty issues to the *Shipping Address* found in *Section 17*.

Please call for authorized RMA before returning any parts.

15. TROUBLE SHOOTING TIPS

- If no speed is displayed:
 - Check battery(s) with a voltage meter to be sure they are outputting at least 12 volts.
 - Check battery charger indicator lights. Be sure there is power to the charger from your outlet and power out from the charger measures higher than 12 volts.
 - Check your "Set Time" feature and be sure your clock is set properly to display at the correct times. If in doubt, disable the set time feature.
- If a "NR" is displayed:

Please note the radar can be accessed via a panel on the back side of the LED display. Use the "L" key to remove the tamper resistant screws and slide the cover over.

 - Check the radar gun connector to be sure of a good connection.
 - Check the indicator light on the back of the radar unit:
 - A solid red LED indicates a vehicle traveling away from the unit is being measured.
 - A solid Green LED indicates a vehicle traveling towards the unit is being measured.
 - A flashing red LED indicates power but no target is being acquired.
- If display is not showing the proper oncoming vehicles – See section 5.
- If you loose keys:
 - The On/Off key and enclosure "triangle" key can be purchased from Adaptive Micro Systems. Please call for pricing.

Note: In a pinch, the "triangle" lock may be opened by placing a flat head screw driver into the groove and gently turning counter clockwise.

16. CONTACT INFORMATION

Address

Adaptive Micro Systems, LLC
7840 N 86th Street
Milwaukee, WI 53224

Phone Number (800) 558-7022

Website adaptivedisplays.com

Email connect@adaptivedisplays.com

17. Data Recording Unit Instructions

Quick Start Guide – Data Recording Unit

Section 1: Record Data:

1. To power up the data recording unit, turn on your trailer /sign. The Main Menu will display on the data recording unit's LCD screen, *Figure 1*.
2. Check the time and date listed on the Main Menu.
 - a. If the time needs to be corrected, see **Section 3** below.
 - b. If the time is correct, insert an SD card to start recording data.

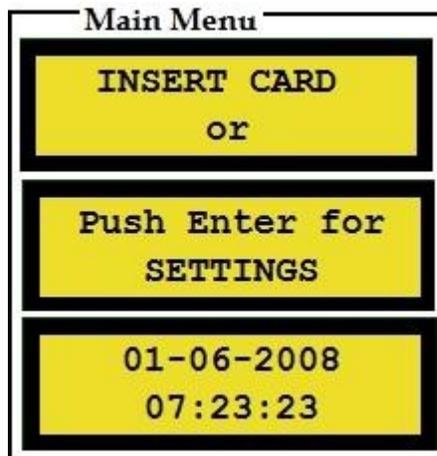


Figure 1 - Main Menu

Section 2: Retrieving Data:

1. When you are finished collecting data, press the "Enter" key and the display will read "Remove SD Card".
2. To remove the card, press the SD card in and it will pop out.

Section 3: Setting the Date and Time:



Figure 2 – Set Time

1. **Before inserting the SD card**, press "Enter" to get the Settings Menu, *Figure 2*.
2. Press Enter when display reads "Set Time".
3. Using the "+" and "-" keys, set the correct Month, Day, Year, Hour, and Minutes. When you have the correct number entered, press the Enter key to get to the next field.
4. When all the fields have been completed, the display will show "Time Set Successful" and then "Return to the Main Menu". Press the "Enter" key to return to the main menu. Follow **Section 1** above to record traffic data.

Notes:

- Inserting the card will not automatically erase the previous data. See the **In Depth Guide** for more information on deleting the files on the SD card.
- The data recording unit will save the previous settings, including date and time.
- The backlight on the display will turn off after 1 minute of inactivity from the user. If a card is in the unit, it will continue recording data and display speeds, *Figure 3*. Press any key to turn on the backlight again.



Figure 3 – Speed of oncoming vehicles being recorded.

- The data recording unit will power down into a sleep mode after 20 minutes of inactivity and there is no card in the slot. To wake up the unit, press any key and follow **Section 1** above to record data.
- The data is saved in an ASCII text format and can be viewed using the *Data Viewing Software* provided by Adaptive Micro Systems, or you can create your own reports and graphs with the raw data and your own programs like Microsoft Excel®.
- A 128MG SD card can save over 6,000,000 vehicle entries. Note the more vehicles on your card, the longer the reports will take to generate.

Section B - In Depth Guide and Setting Commands – Data Recording Unit

Use the + and – buttons to navigate thru the Settings Menu. To select the displayed option, press the Enter button.

The Settings Menu allows you to:

- **Your File Name** - This is helpful if you decide to move the trailer to a different location on the same day. Each file can list, for example, the street name so when you are ready to run the reports, you can easily identify each location. If you have multiple trailers/signs, each unit can have a unique name or number.

a) Make Your File Name

The file name is (8) characters long and can be any combination of letters, numbers, and spaces. The default file name is in “MMDDYY.RU2” format. If the first file is not deleted and the card is used again **on the same date**, the next file will read “MMDDYY-1.RU2”. It will automatically rename the files up to “MMDDYY-9.RU2”. When 10 such automatically renamed files are already present, you will get an error message.

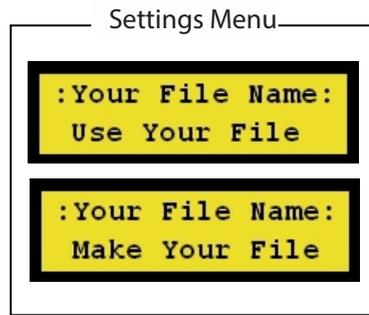


Figure 5 – Settings Menu with custom file name set.

To input a new file name, press the “Enter” key at the **Your File Name** screen. Use the + and – keys to select the characters and press “Enter”. The cursor will move to the next space. Once all (8) characters are entered, the screen will read “Custom File Name Successfully Set”, then the screen goes back to the **Return to Main Menu - + Enter** screen. Press “Enter” to return to the main screen.

- **Format SD Card** - Erasing data on the SD card can be done while the data recorder is mounted inside the trailer enclosure. This feature is used to delete any existing files on the SD card. Press the Enter button to use this feature. The display will read “Insert card (– to cancel)”. To erase the card, insert the card into the memory slot located on the right side of the data recorder. When it’s finished, the display will read “Format Done, Remove Card”. The SD card must now be removed to return to the menu features.

2) Error Messages

ERR! Card Lost (Press any Key)

If the SD card is removed without stepping thru the saving data section, this error will appear. Go back to **Section 1** to record new data. Note: Data is written to the card as vehicles are recorded. The data can be recovered if the card is not cleared.

Write Error/Card Error! Try another SD or Format Card.

If the SD card is bad or full, this message will appear. If the card is bad, try re-formatting it in the data recorder side slot or your personal computer (if equipped to do so, see NOTE under “formatting card, as listed above). If this does not remove the error, the card is likely bad and needs to be replaced.

File Name Max Reached, Clear SD Card or Set Custom Name

If you have tried to use the same file name 10 times, this error will display. To resolve the error, you can do any or all of the following:

- Create a new file name.
- Clear the file name (so the date will be used).
- Format the SD card, erasing the older files.