COMPACT RADAR-SPEED TRAILERS

MODEL WSDT3
PRODUCT SPECIFICATIONS | DECEMBER 2018
1. **SYSTEM**

1.1. **Description**

Wanco speed trailers provide vehicle speed detection and display, in a portable platform that does not require permanent installation or wiring.

Using built-in radar, the speed trailer detects the speed of oncoming vehicles, then displays that speed on its full-matrix LED display panel, informing drivers of their actual speed. Formal studies have proven that speeding drivers respond by slowing down to legal limits when their actual speed is displayed on an electronic sign.

Studies also indicate that some drivers “test” radar-based speed displays by driving very fast. To address this danger, Wanco speed signs do not display excessive speed, but instead employ their full-matrix display to flash a message or symbol at drivers, to indicate they are going much too fast.

1.2. **Models**

1.2.1. **WSDT3-S**

Wanco compact radar-speed trailer with full-matrix electronic display and regulatory speed-limit sign

1.2.2. **WSDT3-SPD**

Wanco compact radar-speed trailer with full-matrix electronic display and regulatory speed-limit sign, blue-and-white color scheme for law enforcement agencies

1.3. **Temperature limits**

Operating temperature, –4 to 176°F (–20 to 80°C)

1.4. **Standards**

Compliant in accordance with:

- MUTCD, December 2009 §2A.18, Mounting Height
- ITE Standard, June 2007 §5.82, Nighttime Dimming; §6.4.3, Environmental Tests; §6.4.6.3, Electronic Noise
- International Protection Rating IP14
- FCC Title 47, Part 15 (47 CFR 15)

2. **FEATURES**

2.1. **Setup**

- Portable system is easy to transport and deploy
- Regulatory speed-limit sign has changeable speed numbers
- Selectable speed limit setting
- Configurable, flashing excessive-speed message
- Heavy-duty hand-winch with safety brake raises regulatory sign for deployment
- Locking device holds signs frame in place while operating and during transport

2.2. **Operation**

- Extra-large electronic speed display with full matrix of LEDs
- Lenses and shades over LEDs produce superior visibility
- Display visible over standard Jersey barrier traffic divider
- Display flashes when a vehicle exceeds speed limit
- One or two digits displayed in mph, two or three digits in km/h
- Approach-only K-band radar
2.3. Power system
- Weather-resistant control box cover has lockable latches
- See-through design puts pedestrians in view
- Battery powered and solar charging
- Energy-efficient operation results in long run times
- Solar panel charges batteries automatically without intervention
- Charging system shuts down when batteries are fully charged, preventing damage
- Unique system allows battery charging with solar panel or commercial power
- Cooling fan protects battery charger from overheating
- Battery box can be locked to prevent unauthorized access

2.4. Maintenance
- Individual display modules can be replaced easily
- Standard trailer tires
- Heavy-duty bolt-on steel fenders can be replaced if damaged
- Durable powder-coat finish resists the elements

2.5. Application
Common applications include:
- School zones
- Residential streets
- Work zones
- Rural roads
- Public events

3. DISPLAY
3.1. Display behavior
0 to 50% of speed limit setting    Display is blank
> 50% to 100% of speed setting    Display shows vehicle speed
> 100% to ~130% of speed setting  Display flashes vehicle speed
> ~130% of speed setting          Display flashes configured excessive-speed message

Flash rate    > 60 cycles per minute

See Exhibit A for precise display activation speeds

3.1.1. Speed display
Signal input from integral radar head (see Radar)
One or two digits, 5 to 99 mph; two or three digits, 10 to 170 km/h
Units are selectable
One bold font, 26" (66cm) high, characters vary in width

3.1.2. Excessive-speed messages
Selectable with DIP switches on systems PC board, located inside display cabinet
Can be viewed in Preview operating mode using speed limit switch on control panel
Default: SLOW DOWN (text) message

Blank (no message)
SLOW DOWN    Slow down (text) message
3.2. Cabinet

3.2.1. Description
Cabinet contains all electronics and controls
Door on front of cabinet provides access to interior
Hinged control-console door on back provides access to controls

3.2.2. Size
36" x 36" x 5" (91 x 91 x 12 cm), W x H x D

3.2.3. Material
Aluminum alloy sheet, 0.06" (1.58mm) thick

3.2.4. Construction
Forms wrap around top, sides, back and bottom
Dust- and weather-resistant; not rated, comparable with NEMA 4 (IP54)

3.2.5. Door
Rigid door frame, hinged at top and latched at bottom, stays open for easy maintenance; latches accept user-supplied padlocks

3.2.6. Finish
Oven-baked, white powder-coat finish to ensure durability and corrosion protection
Color of the cabinet is white; the door is flat black for contrast around the perimeter of the electronic display
Assemblies are run through a five-stage, high-pressure phosphate-wash prior to application of the finish coat

3.2.7. Window
Clear polycarbonate resin thermoplastic window installed in door frame, UV-resistant, anti-glare surface, 0.150" thick

3.2.8. Location
Mounted to welded steel frame on tower, below speed limit sign

3.2.9. Height
49" (125cm) from ground to bottom of cabinet

3.3. “YOUR SPEED” sign
Type 3 high-intensity reflective sheeting, attached to front door panel with five bolts

3.4. Display matrix

3.4.1. Display modules
Modular design
Four display modules; any module can be installed in any position in the matrix without repositioning DIP switches

Wiring
Modules have quick-connect electrical connectors for easy servicing
Replacement
Each module can be exchanged in less than two minutes with a 5/16-inch nut driver socket or slotted screwdriver. After a new module is installed, a one-step initialization process causes each module to sense its position in the full-matrix display.

Firmware
A program chip is socket replaceable for easy firmware upgrades.

Size
16.0" (40.6cm) wide by 13.13" (33.3cm) high, nominal.

Material
FR4 glass-reinforced epoxy laminate, double-sided, black solder mask with white silkscreen.
Board thickness, 0.094" (2.388mm)
Copper size, 1 oz. (28.4g)

Coating
5-mil, military-spec, low-VOC, silicone conformal coating (Dow Corning 1-2577) provides long-term protection against moisture and other atmospheric contaminants, resists corrosion and shorts due to high humidity.

Vibration mounts
All display modules are mounted on rubber vibration-isolation mounts, decreasing risk of physical shock during transport and isolating characters from chassis ground.

Temperature limits
–40 to 176°F (–40 to 80°C)

Humidity limits
Conformal coating rated to 95% relative humidity

3.4.2. LEDs
Technology
AlInGaP II (aluminum indium gallium phosphide) technology, T-1¾ size, through-hole auto-insertion.

Color range
Amber, 589.5 to 592.0 nm

Current
100 mA peak-pulsed forward current

Temperature limits
Operating temperature, –40 to 212°F (–40 to 100°C)

3.4.3. Pixels
Description
Two LEDs form a “pixel”

Display module
12 pixels wide by 10 high, 120 pixels total

Full matrix
24 pixels wide by 20 high, 480 pixels total

Pixel size
0.5" x 0.5" (12.7 x 12.7mm)

Pixel pitch
34.3mm, horizontal and vertical
3.4.4. Lenses and visors  Each pixel has a snap-in optical lens over the LEDs, enhancing the brightness and angularity of each pixel while reducing power consumption.

A polycarbonate visor shades each row of pixels to eliminate glare caused by direct sun exposure. The sunshades snap onto the display module without tools. The lenses snap into the sunshades.

These enhancements enable the speed display to conserve power and operate with high efficiency.

3.4.5. Viewing angle  Total viewing area with optical lenses, 50 degrees

3.4.6. Legibility  > 1/4 mile (402m)

3.4.7. Visibility  > 1/2 mile (805m)

3.4.8. Brightness  Factory preset for optimal visibility and power consumption

3.4.9. Auto dimming  Two photocells detect ambient light on the speed display; the system automatically adjusts the brightness of the LEDs accordingly, dimming display brightness in darkness, increasing to full brightness in daylight.

Photocells are mounted inside the display cabinet, one facing rear and one facing front.

Auto dimming is unaffected by temporary light sources such as vehicle headlights.

3.4.10. Software design  Driver LEDs controlled through 30mA pulse-width modulation design

Addressing  Each display module address is selected through a software command; no DIP switches are used. The address does not change until reprogrammed.

4. CONTROL SYSTEM

4.1. Control box

4.1.1. Location  Back of electronic speed display

4.1.2. Size  12.3” x 11.7” x 5.3” (31.2 x 29.7 x 14.4 cm) W x H x D

4.1.3. Material  0.08” aluminum

4.1.4. Door  Front-panel is a door, hinged on the left, which opens fully

4.1.5. Latches  Two quarter-turn latches on front of control box door keep hinged door closed. Both latches are keyed and can be locked.

4.1.6. Finish  Control box and door are coated with oven-baked, equipment-white powder-coat finish to ensure durability and corrosion protection. Assemblies are run through a five-stage, high-pressure phosphate-wash prior to application of the finish coat.

4.1.7. Rating  Weather-resistant, comparable to IP55
4.2. Control panel

4.2.1. Controls

Two rotary switches for selecting operating mode and speed limit

A three-digit LED status display indicates operating mode, speed shown on the full-matrix display, error codes and more, depending on the operating mode and other factors.

Green, orange, and red LED status indicators signify power is on, the solar charging system is active, activated alarms need checking, battery charge is low, and power failure.

To conserve power, the status display and indicators power off automatically after a few seconds, reactivated with a momentary push-button switch or by using either rotary switch.

See “Options and Optional Equipment” for touchscreen controller.

4.2.2. Operating modes

A rotary switch allows selection of operating mode:

- **Off**
  - Radar and matrix display are off
  - All auxiliary devices are off
  - Status display shows “OFF” or error codes (if any)
  - Solar charging system is active

- **Run**
  - Normal operating mode
  - Radar and matrix display are on
  - All auxiliary devices are on
  - Status display shows selected speed limit or error codes (if any)
  - Solar charging system is active

- **Run & beacons**
  - Used with optional flashing beacons, which are not offered with these speed-trailer models

- **Data Collector only**
  - Used with optional Traffic Data Collector, when traffic data collection is desired without displaying speed
  - Radar and matrix display are off
  - Data Collector is on
  - All other auxiliary devices are off
  - Status display shows “CLA”
  - Solar charging system is active

- **Data Collector & beacons**
  - Used with optional flashing beacons, which are not offered with these speed-trailer models

- **Schedule**
  - Used with optional timer for automated on/off control
  - Off and Run modes are controlled by timer
  - Matrix display, radar, and all optional auxiliary devices are controlled by timer
  - Status display shows “Sch”
  - Solar charging system is active
Demo

Used for ensuring matrix display is performing correctly.
Matrix display consecutively shows 1-, 2-, and 3-digit speeds, SLOW DOWN message, and frowning face symbol.
If installed, flashers are active during excessive-speed message.
Radar is off.
Data Collector is on (if installed).
All other auxiliary devices are off.
Status display shows “[d]”
Solar charging system is active.

Preview

Used for viewing available excessive-speed messages and other test patterns, one at a time, regardless of the configured message.
Matrix display shows one excessive-speed message, which can be changed by rotating the speed limit selector (when the speed limit selector is in the “0” position, the display is blank).
Radar is active.
Data Collector is on (if installed).
All other auxiliary devices are off.
Status display shows “[P]”
Solar charging system is active.

Radar setup

Continuous speed mode.
Used when replacing or testing radar, aligning trailer to traffic, or when traffic calming is not desired.
Matrix display shows actual speed regardless of speed limit.
Data Collector is on (if installed).
All other auxiliary devices are off.
Status display shows actual speed.
Solar charging system is active.

Power test

Power, auxiliary devices, matrix LEDs, and battery load test mode.
Used for verifying all matrix-display pixels are functioning, for testing any auxiliary device after replacement, or to fully load the battery and verify it holds a charge.
Matrix display has all LEDs lit, at fixed brightness.
Radar is off.
Auxiliary devices are on.
Status display shows the system (AC or battery) voltage.
Solar charging system is active.
### Status
- System status mode
- Used for diagnostics and troubleshooting
- Speed Limit rotary switch selects sensor (voltage, current, temperature, etc.)
- Matrix display shows individual sensor readings with labels and extra decimals
- Radar is active
- Data Collector is on (if installed)
- All other auxiliary devices are off
- Status display shows sensor reading
- Solar charging system is active

### Service
- Initialization mode
- Used when installing display modules and uploading software
- Matrix display shows alphabet characters
- Data Collector is on
- All other auxiliary devices are off
- Status display shows “[S]”
- Solar charging system is active

### 4.2.3. Speed settings
Choose speed limit with rotary switch:
- 10 to 75 mph in increments of 5 mph (no 60 or 70 mph settings)
- 20 to 130 km/h in increments of 10 km/h
- Units factory configured based on user-specifications, miles per hour (mph) or kilometers per hour (km/h); selectable with DIP switches on the systems PC board

### 4.3. Technology
- State-of-the-art, solid-state electronics

### 4.4. PCB coating
- 5-mil, military-spec, silicone conformal coating provides long-term protection against moisture and other atmospheric contaminants

### 4.5. Temperature limits
- −4 to 176°F (−20 to 80°C)

### 5. RADAR

#### 5.1. Description
- Radar senses the largest, nearest mass moving toward it

#### 5.2. Sensor
- Microwave K-band, approach-only

#### 5.3. Location
- Radar head located inside display cabinet, centered at top of electronic display, allowing sign to be installed on either side of road

#### 5.4. Distance range
- 1000 ft. (305 m)

#### 5.5. Speed range
- 5 to 138 mph (8 to 222 km/h)
5.6. Accuracy

mph
±1 mph from 5 to 40 mph
±2 mph from >40 to 100 mph

km/h
±1.6 km/h from 8 to 64 km/h
±3.2 km/h from >64 to 161 km/h

5.7. Temperature limits

-40 to 185 °F (–40 to 85 °C)

5.8. Standards

CE compliant
FCC approved

5.9. Calibration

Calibration not required

6. REGULATORY SIGN

6.1. Description

Regulatory speed limit sign has threaded mounting studs for attaching interchangeable speed limit numbers, which are supplied by the factory and stored in the trailer’s battery box.

6.2. Material

Aluminum sheet, 0.080” (2mm) thick, with high-intensity reflective coating

6.3. Location

Mounted to welded steel frame on tower; extends above electronic speed display when raised.

In transport position, regulatory sign is in front of and partially covers electronic display.

6.4. Size

24” x 30” (61 x 76cm), W x H

See “Options and Optional Equipment” for sign options.

7. TRAILER

7.1. Frame

All welded structural steel

7.2. Tie-downs

One tie-down loop centered at the front of the trailer frame
One tie-down loop centered at rear of trailer frame

7.3. Fenders

Round, full wheel coverage, bolted to trailer frame, removable and replaceable

7.4. Finish

Frame is coated with oven-baked powder-coat finish to ensure durability and corrosion protection.

Color of the traffic model is safety orange; the law enforcement model is blue.

Assemblies are bead-blasted and then run through a five-stage, high-pressure phosphate-wash prior to application of the finish coat.

See “Options and Optional Equipment” for color options.

7.5. Axle assembly

2000 lb. (907kg) capacity, 5 on 4.5” B.C. idler hub
7.6. Springs
Double-eye leaf springs

7.7. Tires
ST205/75D13 steel-belted trailer tires, load rating B

7.8. Drawbar

7.8.1. Construction
Telescopes inside receiver sleeve welded under trailer frame. Removable for shipping and for added theft protection if needed. Secures with two 1/2-inch diameter bolts.

7.8.2. Material
3" (7.62cm) square steel tubing, 3/16" (0.476cm) wall

7.8.3. Jack
Top-wind swivel, 2000-lb. (907kg) capacity, steel footpad, 10" (25cm) total travel

7.8.4. Tow hitch
Standard 2-inch ball coupler tow-hitch, SAE Class 2, 3500-lb. (1588kg) capacity, bolted to drawbar, removable and replaceable
See “Options and Optional Equipment” for tow-hitch options

7.8.5. Tow chains
Two high-test proof coil chain assemblies with clevis slip hooks for towing. Chains attached to drawbar with quick connectors.
Material diameter 0.406" (10.3mm)
Working load limit 5400 lbs. (2450kg)
Breaking force 16,200 lbs. (72kN)

7.9. Stabilizer jacks
Four swivel jacks, each with 2000-lb. (907kg) capacity, one on each corner of trailer frame

7.10. Wiring

7.10.1. Description
Wiring to connect tow vehicle and trailer for trailer taillights is installed inside drawbar, with pigtails and connectors at both ends; no crimping required

7.10.2. Trailer plug
A sealed, molded, 4-square connector plugs into harness under trailer

7.10.3. Tow-vehicle plug
Two-piece assembly with 4-flat molded connector on harness plugs into tow vehicle
Meets SAE J1239
See “Options and Optional Equipment” for tow-vehicle plug options

7.10.4. Protection
All trailer wiring encased in UV protective loom, and attached with P-clamps riveted to trailer frame; no exposed wires

7.11. Taillights

7.11.1. Type
Two oval-shaped, sealed, combination stop, turn and taillights

7.11.2. Location
Mounted to top of trailer deck behind fenders

7.11.3. Mounting
No screws used for mounting; bracket is welded to trailer frame; each light is held in place and sealed with snap-in rubber grommet

7.12. License plate
License plate mounts on battery box rear panel
7.13. Reflectors
Two amber reflectors, one on each side of trailer
Two red reflectors on rear trailer frame
See “Options and Optional Equipment” for reflective tape

7.14. Tower assembly

7.14.1. Function
Regulatory sign is raised and lowered on a rotating, telescoping tower. Electronic speed display is installed at a fixed height on lower portion of tower.

7.14.2. Construction
Two sections of square steel tubing with the inner section telescoping inside the outer section.
Nylon guide blocks keep the sections tight, eliminating the need for greasing the tower and preventing dirt from building up on the inner tower section. Dirt would cause performance problems and maintenance issues.

7.14.3. Swivel base
A steel assembly (the “swivel base”) is welded to the trailer frame and holds the tower. The outer tower section rotates on a thrust bearing and washers inside the swivel base, reducing rotating friction.

7.14.4. Finish
Lower tower section and swivel base are coated with oven-baked powder-coat finish to ensure durability and corrosion protection
Color of the traffic model is safety orange; the law enforcement model is blue
Assemblies are run through a five-stage, high-pressure phosphate-wash prior to application of the finish coat
Upper tower section is zinc-plated for corrosion resistance
See “Options and Optional Equipment” for color options

7.14.5. Height lock
Spring-loaded locking pin prevents tower from falling if the winch or cable were to fail. Also locks tower when fully lowered into travel position.

7.14.6. Winch assembly
Function
Hand-operated winch raises and lowers tower
Capacity
1500 lbs. (680kg)
Brake
Safety friction-brake prevents tower from falling if operator loses grip on winch handle
Cable
1/4" (6.35mm) diameter galvanized aircraft cable

7.14.7. Rotation
Tower rotates by hand, pivoting 90 degrees to face traffic or for storage and transport

7.14.8. Rotation lock
Tower rotation is locked with the same spring-loaded locking pin that locks the tower height. A draw-latch further minimizes movement during transport.
8. **POWER SYSTEM**

8.1. **Description**

Batteries provide system power; batteries charged automatically with integrated solar-based charging system

8.2. **Battery box**

8.2.1. **Function**

Holds batteries, remote charger, and spare numbers for speed limit sign

See “Options and Optional Equipment” for heavy-duty secure battery box

8.2.2. **Construction**

Riveted all-steel construction, weather-resistant

All parts phosphate-washed and powder-coated before assembly

Battery box color of the traffic model is safety orange; battery box color of the law enforcement model is white

Divider panel inside box separates batteries from electronics

Louvers provide ventilation

Latches keep cover closed and can accept user-supplied padlocks

8.2.3. **Location**

Unobstructed location, centered over axle between fenders, bolted to trailer frame

8.3. **Batteries**

8.3.1. **Description**

Two Group 24 deep-cycle batteries, wired in parallel and series for a 12-volt system

See “Options and Optional Equipment” for battery options

8.3.2. **Voltage**

6Vdc each

8.3.3. **Weight**

Approx. 60 lbs. (26kg) each

8.3.4. **Capacity**

215 Ah total capacity @ 12Vdc

8.4. **Remote charger**

8.4.1. **Function**

Plugs into a standard commercial power source to recharge batteries if battery voltage drops due to lack of sun for automated solar charging system

8.4.2. **Type**

12-volt battery charger

8.4.3. **Location**

Inside battery box, mounted to divider panel on opposite side from batteries

8.4.4. **Output capacity**

15A

See “Options and Optional Equipment” for charger output options

8.4.5. **Output voltage**

13.2Vdc range “float” mode

13.6Vdc range “absorption” mode

14.2Vdc range “bulk” mode
8.4.6. Input voltage 105 to 135Vac, standard three-prong plug
8.4.7. Input frequency 50 to 60 Hz
8.4.8. Cooling Fan cooled when charger temperature reaches 95°F (35°C)
8.4.9. Protection Automotive-style replaceable fuses

8.5. Solar

8.5.1. Panel One high-efficiency multi-crystal photovoltaic solar module
8.5.2. Location Behind regulatory sign, over tower. No shadowing effect on any traffic-facing component. Solar panel lies flat for continuous charging regardless of folding frame position; rises and rotates with signs.
8.5.3. Power output 65W
See “Options and Optional Equipment” for solar power options
8.5.4. Current 3.76A max. system current
4.18A open short-circuit current
8.5.5. Voltage 17.3Vdc max.
21.6Vdc open short-circuit voltage
8.5.6. Voltage regulation Charge from solar panel regulated by systems PC board
8.5.7. Security Solar panel bolted to mounting frame with security screws and special security nut
8.6. System protection Electrical components fused and reverse-polarity protected
8.7. System recovery Recovers from power loss and returns to selected operation mode automatically when power is restored
9. DIMENSIONS & WEIGHT

9.1. Dimensions

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9.2. Weight

Approx. 870 lbs. (395 kg)
10. OPTIONS AND OPTIONAL EQUIPMENT

10.1. Controller
   Touchscreen controller replaces standard control system

10.1.1. Touchscreen Display
   Full color, backlit, 7-inch display
   Capacitive touch panel
   800 x 480 pixels, W x H
   Display automatically shuts off after 20 minutes of inactivity

   Interface
   Menu-based structure, accessed with virtual buttons on the touchscreen display, provides access to all sign functions including programming messages
   Virtual keyboard appears when required for text entry
   Multi-level password protection restricts access

10.1.2. LED indicators
   Indicates the following status conditions:
   Solar charging system is charging batteries
   System power shutdown occurred
   Programmed schedule is active
   Power to optional radar device is on

10.1.3. Data port
   1 USB port for local downloading of data from optional traffic data collector (if installed) and for system software updates
   See below for Traffic Data Classifier System

10.2. Flashers
   Two flashing LEDs lights, located in display cabinet below electronic speed display, flash alternately when vehicles exceed “extreme speed”

   Options
   Red and blue flashing strobes
   White flashing strobes

10.3. Regulatory sign
   30" x 36" speed limit sign replaces standard sign

10.4. Timer
   Provides on/off capability to control times of operation, including time of day, days of the week, and days of the year

10.5. Tow hitch

10.5.1. Combo hitch
   Combo-hitch for 2-inch ball coupler and standard lunette ring for pintle hook, 2½" ID x 1" cross-section

10.5.2. Lunette ring
   Options
   Standard ring for pintle hook, 2½" ID x 1" cross-section
   Heavy-duty ring for pintle hook, 3" ID x 1¾" cross-section

10.6. Tow-vehicle plug
   Many types of plugs available, prewired at the factory; contact factory for details
10.7. Power system

10.7.1. Additional batteries
For geographic locations with less solar charging potential or colder weather, and for applications that require year-round charging, add batteries for greater capacity

Option
Add two Group 24 deep-cycle batteries in large battery box, 215Ah additional capacity

10.7.2. AGM batteries
Replace deep-cycle batteries with top-of-the-line absorbed glass mat (AGM) batteries

Features
- 100% maintenance-free
- Sealed and spill-proof
- Faster recharge and greater freeze resistance than conventional batteries
- Contains less lead than conventional batteries

Options
- One 4D AGM 12Vdc batteries in standard battery box, 200Ah total capacity
- Two 4D AGM 12Vdc batteries in secure battery box, 400Ah total capacity
- Three 4D AGM 12Vdc batteries in secure battery box, 600Ah total capacity

Weight
Approx. 160 lbs. (72kg) each

10.7.3. Charger
When required for faster battery charging, replace standard remote charger with higher amperage, 45-amp, 12-volt charger

10.7.4. Solar
For geographic locations with less solar charging potential or colder weather, and for applications that require year-round charging, additional solar power is available

Options include 85W, 130W, 170W, and 200W solar arrays; contact factory for details

10.7.5. Large battery box and license plate holder
Large battery box is required when the speed trailer has more than two standard batteries or more than one AGM battery; replaces standard battery box

Centered over trailer axle, bolted to trailer frame

Same construction as standard battery box

License plate holder is added when the speed trailer uses the large battery box; mounted under rear trailer frame

10.7.6. Secure battery box
High-security battery box features heavy-gauge steel lid, hidden hinges, and heavy-duty hidden-shackle padlocks; replaces standard battery box

License plate holder is added when the speed trailer uses the secure battery box, mounted under rear trailer frame

10.8. Axle-lock bar
Anti-theft axle-lock bar prevents wheels from turning. Requires user-supplied padlock.

10.9. Reflective tape
Reflective red-and-white conspicuity tape across rear trailer frame for increased visibility

10.10. Finish color
Specify power-coat color and, if applicable, color scheme
10.11. **Traffic Data Classifier System**

10.11.1. **Design**
Employs side-fire radar for logging and classifying traffic data. Nonintrusive, does not require loops or hoses, no disturbance of traffic flow during installation or use.

10.11.2. **Options**

- **Standard** includes data collector device installed on speed trailer, data analysis software application, and the following:
  - Touchscreen controller
  - Increased solar capacity to 130 watts
  - Increased battery capacity with two 4D AGM 12Vdc batteries
  - Large battery box
  - 45-amp battery charger
  - Local data download only

- **Premium** includes all features of the standard option and adds the following:
  - Increased solar capacity to 170 watts
  - Heavy-duty secure battery box
  - High-speed 4G LTE cellular modem with built-in GPS (requires cellular plan)
  - Local and remote data download

10.11.3. **Direction**
Registers both approaching and receding vehicles

10.11.4. **Traffic lanes**
Most effective for 2-lane roads

10.11.5. **Traffic count**
Can record data for more than 1 million vehicles in internal memory

10.11.6. **Data format**
Speed, date, time, direction, length for each vehicle

10.11.7. **Units**
Imperial or metric

10.11.8. **Time stamp**
Yr, Mo, Dy, Hr, Min, Sec.

10.11.9. **Speed range**
5 to 138 mph (8 to 222 km/h)

10.11.10. **Sensor**
Microwave K-band 24.125 GHz

10.11.11. **Power**
Uses radar-speed sign power supply

10.11.12. **Power output**
20 dbm (EIRP)

10.11.13. **Current**
110 mA

10.11.14. **Temperature**
Operating limits, –40 to 185 °F (–40 to 85 °C)

10.11.15. **Internal memory**
1MB (1,048,576 bytes)

10.11.16. **Baud rate**
9600, 8 bit, no parity

10.11.17. **Installation**
Mounted below electronic speed display in adjustable bracket

10.11.18. **Analytic software**
Wanco Traffic Analyzer
**EXHIBIT A: DISPLAY ACTIVATION SPEEDS**

**Miles per hour (mph)**

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<tr>
<th>User-Set Speed Limit</th>
<th>Vehicle Speed Triggered</th>
<th>Flashing Vehicle Speed Triggered</th>
<th>Excessive-Speed Message Triggered</th>
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**Kilometers per hour (km/h)**

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