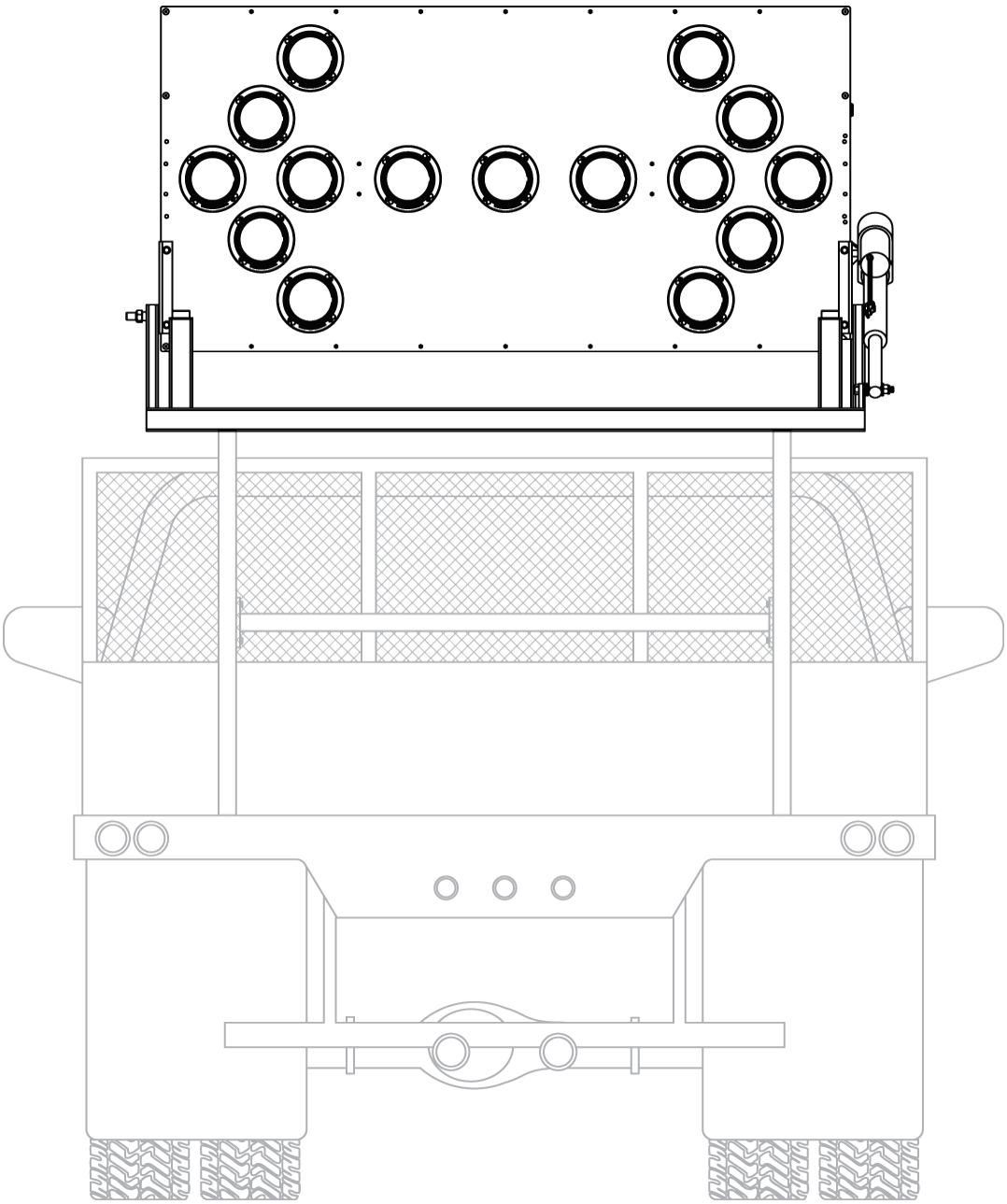
# TRUCK-MOUNT ARROW BOARDS

## MODELS WB, WFB, WLP & WVG
## PRODUCT SPECIFICATIONS | APRIL 2015



## 1. DESCRIPTION

1.1. Description

Arrow boards direct traffic by flashing a brightly lit arrow pattern on a large, highly visible display panel. Wanco® Truck-Mount Arrow Boards provide an obvious solution for convoys, crash-cushion (TMA) trucks and emergency repair crews. Installed over the cab or in a truck bed, power is provided by the truck's power system. Arrows and other patterns are selected by the user using the arrow board controls inside the truck cab.

1.2. Models

1.2.1. Sizes

24 x 48 inch (61 x 122cm)
30 x 60 inch (76 x 152cm)
36 x 72 inch (92 x 183cm)
48 x 96 inch (122 x 244cm)

1.2.2. Lights

| | |
|---|---|
| 24 x 48 size | 13-light |
| All other sizes | 15-light |
| | 25-light |

1.2.3. Mounting options

See "Options and Optional Equipment"

1.2.4. Model numbers

See Exhibit A

## 2. FEATURES

2.1. Operation

- High-output amber LEDs
- Selection of arrow and other display patterns
- Easy to operate and maintain
- Controller located inside truck cab
- Control box outputs have short-circuit protection, helping prevent blown transistors
- Selectable automatic or manual dimming
- Meets MUTCD

2.2. Power system

- Wired into truck's power system
- Power system includes reverse polarity protection and low-voltage disconnect circuit
- Controller has resettable fuses

2.3. Maintenance

- Durable powder-coat finish resists the elements
- Lamps and visors are easily replaced

2.4. Application

Common applications include:

- Roadwork zones
- Road striping convoys
- Road sweeping convoys
- Pothole repairs
- Crash cushion (TMA) trucks

## 3. DISPLAY

3.1. Panel

3.1.1. Description

Weather-resistant cabinet provides a rigid platform for LED lamps

3.1.2. Construction

Outer frame constructed of aluminum channel, 3" x 1" x 1/8" thick. Two interior channels add strength and prevent distortion of front and rear panels. All channel joints are welded.

Front and rear panels constructed of aluminum sheet, 5052-H32, 0.062" (1.575mm) thick. Panels are riveted and screwed to frame and interior channels.

3.1.3. Finish

Oven-baked, flat-black (10% gloss), powder-coat finish ensures durability and corrosion protection. Panel assembly is high-pressure phosphate-washed prior to finish coat.

3.2. Lights

3.2.1. Description

Display lights are laid out across the front face of the display panel. The layout allows for a variety of arrows and other patterns to appear depending on which lights are lit. The desired pattern is selected by the operator, using the arrow board controls.

3.2.2. Type

| | |
|---|---|
| 24 x 48 size<br>30 x 60 size | PAR 36 LED lamp, 4½" (11.5cm) dia. |
| 36 x 72 size<br>48 x 96 size | PAR 46 LED lamp, 5¾" (14.5cm) dia. |

See Options and Optional Equipment for other lamps

3.2.3. Light output

| | |
|---|---|
| 24 x 48 size<br>30 x 60 size | 121 cd max. brightness |
| 36 x 72 size<br>48 x 96 size | 320 cd max. brightness |

3.2.4. Reverse-polarity protection

Protects lamps if control box wiring is connected backwards (which sometimes happens after servicing)

| | | | |
|---|---|---|---|
| 3.2.5. | LEDs | Technology | AlInGaP II (aluminum indium gallium phosphide) technology, T-1¾ size |
| | | Color range | Amber, 590 to 593 nm |
| | | Forward voltage | 2.0 to 2.1Vdc @ 20mA |
| | | Temperature limits | Operating temperature, –22 to 185°F (–30 to 85°C) |
| 3.2.6. | Lens | Function | Each lamp has an integrated hex lens that enhances the brightness and angularity of each LED while reducing power consumption |
| | | Material | Acrylic |
| | | Beam angle | Horizontal: 16.8 degrees, ±8.4 degrees<br>Vertical: 9.5 degrees, ± 4.75 degrees<br>Angle determined by 10% of peak candle power (certified by independent testing laboratory) |
| 3.2.7. | Visor | Function | Each lamp is shrouded by a visor that enhances visibility by shading the lamp and preventing glare |
| | | Material | High-impact ABS plastic |
| | | Mounting | Four keyed slots enable visor to be removed from the display panel without removing screws |
| 3.2.8. | Visibility | At least 1 mile (1.6km) | |
| 3.2.9. | Replacement | Lamps can be replaced in less than two minutes. The only tool needed is a Philips screwdriver. | |
| 3.3. | Standards | Meets requirements for minimum size, legibility, and number of elements per MUTCD, December 2009 ed., §6F.61, ¶05, Temporary Traffic Control Zone Devices: Arrow Boards | |
| | | 24 x 48 size | Meets specs for MUTCD Type A |
| | | 30 x 60 size<br>36 x 72 size | Meets specs for MUTCD Type B |
| | | 48 x 96 size | Meets specs for MUTCD Type C |

## 4. CONTROLLER

| | | | |
|---|---|---|---|
| 4.1. | Function | Allows operator to choose an arrow or other display pattern. Maintains display flash-rate and controls automatic dimming. Two models: one for flashing-only display patterns, another for flashing and sequential patterns; choice depends on user requirements.<br>See “Options and Optional Equipment” for wireless controller option. | |
| 4.2. | Control box | | |
| 4.2.1. | Enclosure | Construction | Polycarbonate-ABS plastic |
| | | Size | Flashing-only model: 4.5" x 2.9" x 2" (11.4 x 7.3 x 5.1cm), W x H x D<br>Sequential models: 6.6" x 2.9" x 2.3" (16.8 x 7.3 x 5.8cm), W x H x D<br>Size does not account for mounting bracket or wiring connectors |
| 4.2.2. | Wiring | 15-foot (4.57m) cable with wiring connector at free end; hard-wired to arrow board, connected by installer to back of control box inside truck cab<br>18ga. standard wire in weatherproof cable<br>See “Options and Optional Equipment” for cable length options | |
| 4.2.3. | Location | User-installed, typically inside truck cab under dashboard | |
| 4.2.4. | Mounting | Adjustable steel mounting bracket attaches to truck with bolts, provided; allows for vertical angle of control box to be adjusted; requires space behind control box for wiring connections | |
| 4.2.5. | Serviceability | Entire control box is removable for easy exchange and factory servicing | |
| 4.3. | Control panel | | |
| 4.3.1. | Display switch | Control box for sequential models has a toggle switch for turning arrow board display on and off; for flashing models, display pattern rotary switch includes “off” position | |
| 4.3.2. | Display pattern selection | Rotary switch: operator simply points the switch at the desired display pattern, which is silkscreened onto the front of the control panel | |
| 4.3.3. | Tilt switch | Toggle switch for controlling optional power-operated tilt-frame<br>See “Options and Optional Equipment” for mounting-frame options | |
| 4.3.4. | Brightness switch | Toggle switch for controlling arrow board display brightness and optional automatic dimming<br>See “Options and Optional Equipment” for automatic dimming option | |

| | | | |
|---|---|---|---|
| 4.3.5. | LED indicators | All models | Indicator lights when power to arrow board display is on |
| | | Sequential model | Indicator lights while operating tilt switch |
| | | | LEDs laid out in a grid show selected display pattern |

4.4. Display patterns

4.4.1. All models — All arrow boards can display any of the following 5 patterns (for samples, see Exhibit B):

| | |
|---|---|
| Flashing arrow, left or right | 10 lights total<br>5 lights form arrowhead<br>5 lights form stem |
| Flashing double arrow | 13 lights total<br>5 lights form each arrowhead<br>3 lights form stem |
| Flashing four-corner warning | 4 lights total<br>1 light at each corner |
| Flashing caution-bar warning | 7 lights form horizontal bar across center of display panel |

4.4.2. Sequential models — In addition to the patterns described above, 15- and 25-light arrow boards with sequential capability can display the following 2 patterns (for samples, see Exhibit B):

| | |
|---|---|
| Sequencing stem arrow, left or right | 10 lights total<br>5 lights form arrowhead<br>5 lights form full stem<br><br>1st pulse: 2 far stem lights<br>2nd pulse: 5 far stem lights<br>3rd pulse: full arrow shape<br>4th pulse: blank display |

4.4.3. 25-light models — In addition to the patterns described above, 25-light arrow boards can display any of the following 5 patterns (for samples, see Exhibit B):

| | |
|---|---|
| Sequencing walking arrow, left or right | 10 lights total<br>5 lights form arrowhead<br>5 lights form full stem<br><br>1st pulse: 2 far stem lights with arrowhead<br>2nd pulse: 3 far stem lights with arrowhead<br>3rd pulse: full arrow shape<br>4th pulse: blank display |

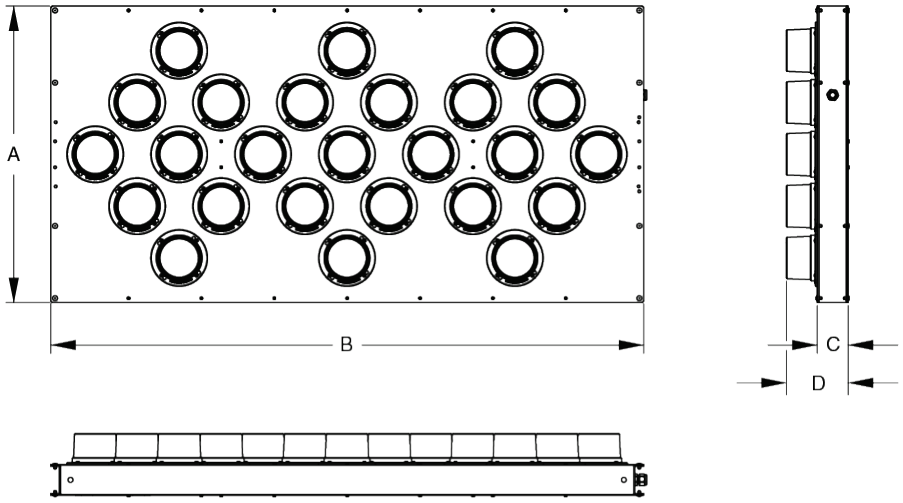
| | | | |
|---|---|---|---|
| | | Sequencing chevron arrows, left or right | 15 lights total<br>5 lights form each arrowhead<br><br>1st pulse: 1 far arrowhead<br>2nd pulse: 2 far arrowheads<br>3rd pulse: 3 arrowheads<br>4th pulse: blank display |
| | | Alternating diamonds | 16 lights total<br>8 lights form each diamond<br><br>1st pulse: 1 diamond shape on left<br>2nd pulse: 1 diamond shape on right |
| 4.5. | Electronics | | |
| 4.5.1. | Location | Inside control box | |
| 4.5.2. | Temperature limits | Operating temperature: –40 to 176°F (–40 to 80°C) | |
| 4.5.3. | Flash rate | 30 to 40 per minute, all display patterns | |
| 4.5.4. | Positive drive circuit | Positive power applied to lamps only when lit<br>Negative is chassis grounded | |
| 4.5.5. | Fuse protection | Each driver is current-protected | |
| 4.5.6. | Reverse-polarity protection | Protects the controller if battery cables are connected backwards (which sometimes happens after servicing) | |
| 4.5.7. | Low-voltage disconnect | Low-voltage-disconnect circuit engages when battery voltage drops to 11.2Vdc, shutting down power to protect batteries from full discharge | |

## 5. POWER SUPPLY

| | | | |
|---|---|---|---|
| 5.1. | Source | Arrow board display, controller, and optional actuator are all powered by vehicle alternator system | |
| 5.2. | Load | Typical | 8.4A @ 13.6Vdc |
| | | Maximum | Arrow board only: 5.0A @ 13.6Vdc<br>Arrow board and optional power-operated tilt-frame: 20.0A @ 13.6Vdc |
| 5.3. | Voltage | Minimum | 11.0Vdc |
| | | Maximum | 18.0Vdc |

## 6. DIMENSIONS & WEIGHT

6.1. Dimensions




*Dimensions in inches (cm)*

| Arrow board size | A | B | C | D |
|---|---|---|---|---|
| 24 x 48 | 24 (60.9) | 48 (121.9) | 3 1/8 (7.9) | 6 3/8 (15.8) |
| 30 x 60 | 30 (76.2) | 60 (152.4) | 3 1/8 (7.9) | 6 3/8 (15.8) |
| 36 x 72 | 36 (91.4) | 72 (182.8) | 3 1/8 (7.9) | 8 1/4 (21.0) |
| 48 x 96 | 48 (121.9) | 96 (243.8) | 3 1/8 (7.9) | 8 1/4 (21.0) |

6.2. Weight

| | |
|---|---|
| 24 x 48 size | Approx. 42 lbs. (19kg) |
| 30 x 60 size | Approx. 72 lbs. (33kg) |
| 36 x 72 size | Approx. 100 lbs. (45kg) |
| 48 x 96 size | Approx. 112 lbs. (51kg) |

## 7. OPTIONS AND OPTIONAL EQUIPMENT

| | | |
|---|---|---|
| **7.1.** | **Cable length** | Custom cable lengths are available for mounting control box; contact factory for details |
| **7.2.** | **PAR 46 lamps** | Substitute PAR 46 LED lamps for standard lamps on 15-light 30 x 60 arrow board |
| **7.3.** | **Auto-dimming** | A photocell detects ambient light; the controller adjusts the brightness of the LEDs accordingly, dimming display brightness in darkness, increasing to full brightness in daylight<br><br>Photocell is located on arrow board display-panel frame |
| **7.4.** | **Wireless communication** | Controller and arrow board communicate wirelessly via radio transmitters. Must be specified at time of arrow board order. Cannot be retrofit on wired arrow boards.<br><br>Touchscreen controller replaces standard, hard-wired controller. Full-color interface allows arrow board configuration and control and, if installed, power-tilt-frame control.<br><br>Controller power cord is fused, plugs into vehicle power outlet/cigar lighter. Arrow board power cable is fused, attaches to vehicle power in accordance with vehicle manufacturer's instructions.<br><br>System electronics located inside arrow board display cabinet. |
| **7.5.** | **Mounting options** | A variety of standard mounting frames and brackets are available for installing the arrow boards. See below for details.<br><br>Custom options are also available; contact factory for details. |

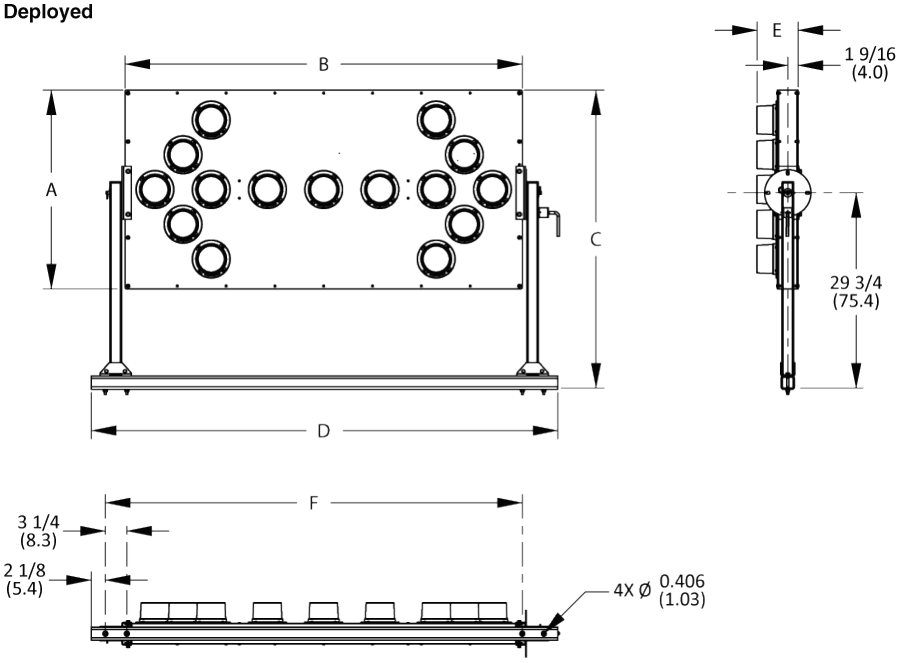
7.5.1. Manual-tilt (auto-lock) frame

Description: Allows the arrow board to be tilted manually. A spring-loaded locking pin snaps into place automatically, locking the board in the vertical position (when deployed) or horizontal position (when not in use).

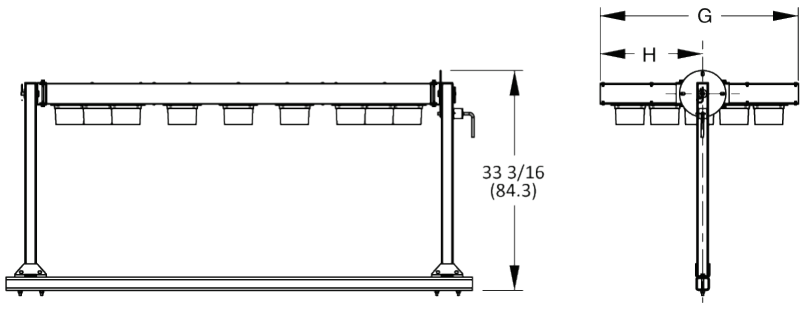
Base model: WFB

Dimensions: *inches (cm)*

**Deployed**




**Travel position**




| Arrow board size | A | B | C | D | E | F | G | H |
|---|---|---|---|---|---|---|---|---|
| **24 x 48** | 24 (60.9) | 48 (121.9) | 41 3/4 (106.1) | 58 1/2 (148.6) | 6 3/16 (15.8) | 51 (129.5) | 24 (60.9) | 12 (30.5) |
| **30 x 60** | 30 (76.2) | 60 (152.4) | 44 3/4 (113.7) | 70 1/2 (179.1) | 6 3/16 (15.8) | 63 (160.0) | 30 (76.2) | 15 (38.1) |
| **36 x 72** | 36 (91.4) | 72 (182.8) | 47 3/4 (121.3) | 82 1/2 (209.6) | 8 1/4 (21.0) | 75 (190.5) | 36 (91.4) | 18 (45.7) |
| **48 x 96** | 48 (121.9) | 96 (243.8) | 53 3/4 (136.5) | 106 1/2 (270.5) | 8 1/4 (21.0) | 99 (251.5) | 48 (121.9) | 24 (60.9) |

Weight: Frame only, approx. 50 lbs. (22kg)

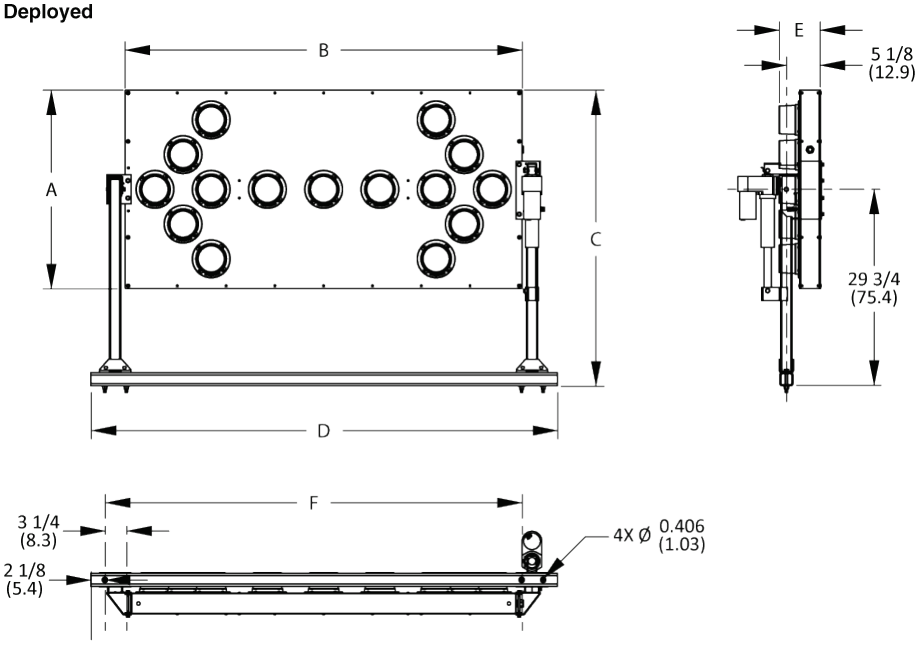
7.5.2. 90 degree power-tilt frame

Description Allows the arrow board to be tilted electrically. An electric actuator tilts the frame 90 degrees. The arrow board can be vertical (the deployed position) or horizontal (when not in use). The actuator is controlled with a toggle switch located inside the truck cab.

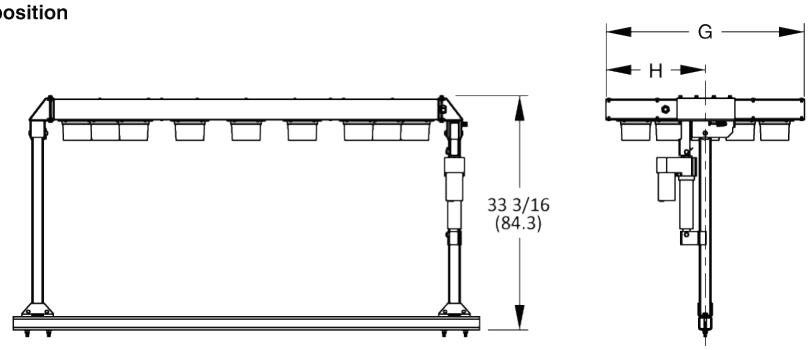
Base model WFBP

Dimensions *inches (cm)*

**Deployed**




**Travel position**




| Arrow board size | A | B | C | D | E | F | G | H |
|---|---|---|---|---|---|---|---|---|
| **24 x 48** | 24 (60.9) | 48 (121.9) | 41 3/4 (106.1) | 58 1/2 (148.6) | 6 3/16 (15.8) | 51 (129.5) | 24 (60.9) | 12 (30.5) |
| **30 x 60** | 30 (76.2) | 60 (152.4) | 44 3/4 (113.7) | 70 1/2 (179.1) | 6 3/16 (15.8) | 63 (160.0) | 30 (76.2) | 15 (38.1) |
| **36 x 72** | 36 (91.4) | 72 (182.8) | 47 3/4 (121.3) | 82 1/2 (209.6) | 8 1/4 (21.0) | 75 (190.5) | 36 (91.4) | 18 (45.7) |
| **48 x 96** | 48 (121.9) | 96 (243.8) | 53 3/4 (136.5) | 106 1/2 (270.5) | 8 1/4 (21.0) | 99 (251.5) | 48 (121.9) | 24 (60.9) |

Weight Frame only, approx. 70 lbs. (32kg)

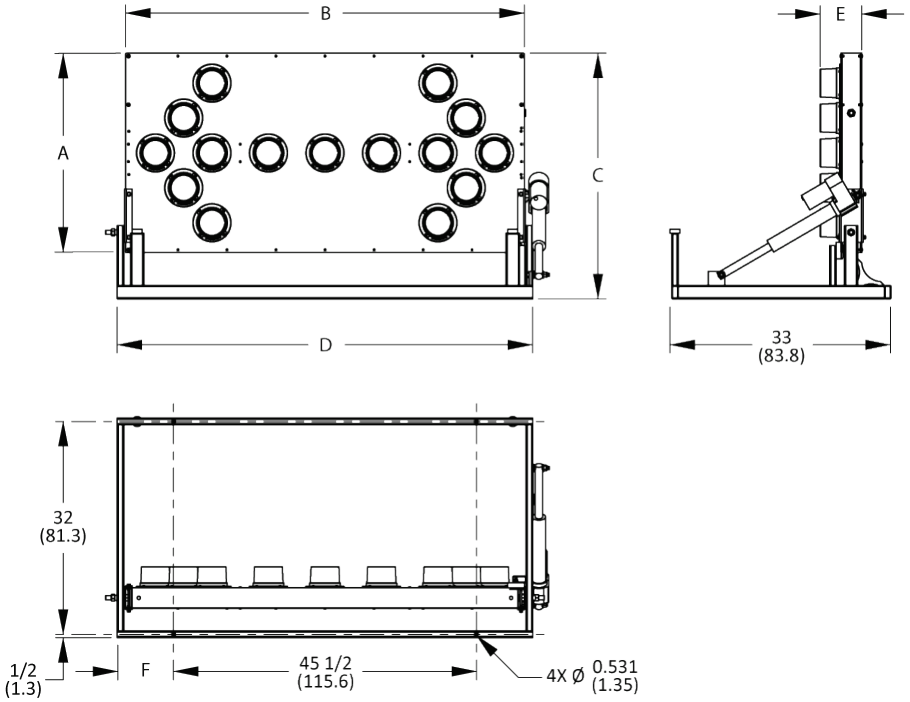
7.5.3. 90 degree power-tilt low-profile frame

Description: Allows the arrow board to be tilted electrically. An electric actuator tilts the frame 90 degrees. The arrow board can be vertical (the deployed position) or horizontal (when not in use). In the horizontal position, the arrow board and frame has a low-profile height. The actuator is controlled with a toggle switch located inside the truck cab.

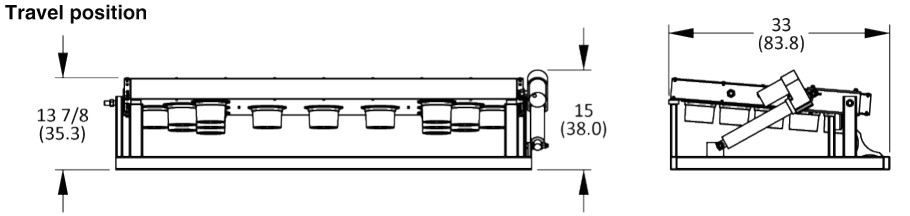
Base model: WLP

Dimensions: *inches (cm)*

**Deployed**




**Travel position**




| Arrow board size | A | B | C | D | E | F |
|---|---|---|---|---|---|---|
| **30 x 60** | 30 (76.2) | 60 (152.4) | 37 (94.0) | 62 1/2 (158.8) | 6 3/16 (15.8) | 8 1/2 (21.6) |
| **36 x 72** | 36 (91.4) | 72 (182.8) | 39 (99.1) | 74 1/2 (189.2) | 8 1/4 (21.0) | 14 1/2 (36.8) |

Weight: Frame only, approx. 60 lbs. (27kg)

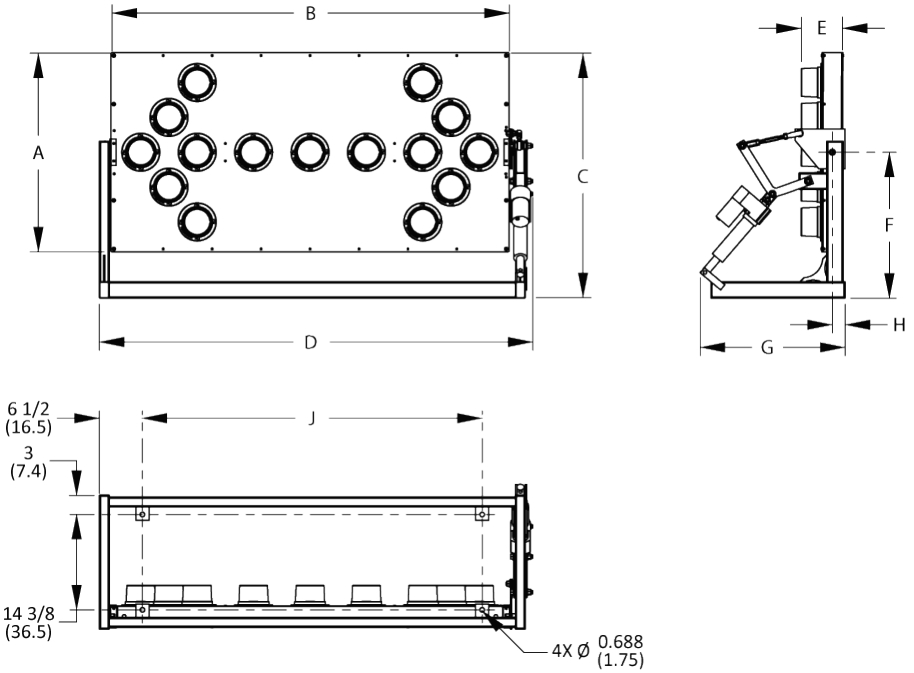
7.5.4. 180 degree power-tilt frame

Description: Allows the arrow board to be tilted electrically. An electric actuator tilts the frame 180 degrees. The arrow board can face forward or backward when deployed) or downward (when not in use). The actuator is controlled with a toggle switch located inside the truck cab.

Base model: WFP

Dimensions: *inches (cm)*

**Rear facing**




| Arrow board size | A | B | C | D | E | F | G | H | J |
|---|---|---|---|---|---|---|---|---|---|
| **30 x 60** | 30 (76.2) | 60 (152.4) | 37 (94.0) | 65 3/8 (166.0) | 6 3/16 (15.8) | 22 (55.9) | 21 7/8 (55.4) | 1 15/16 (4.9) | 51 3/16 (130.0) |
| **36 x 72** | 36 (91.4) | 72 (182.8) | 40 (101.6) | 77 3/8 (196.4) | 8 1/4 (21.0) | 21 7/8 (55.6) | 21 3/4 (55.2) | 1 13/16 (4.6) | 63 3/16 (160.5) |

Weight: Frame only, approx. 110 lbs. (50kg)

7.5.5. Tailgate mounting brackets

Allows the arrow board to be installed in a fixed position on a truck tailgate. The brackets clamp to the tailgate for permanent or temporary installation.

7.5.6. Truck-bed mounting brackets

Allows the arrow board to be installed in a truck bed. Two brackets bolt to the bed and support either the 90-degree manual-tilt or 90-degree power-tilt frame.

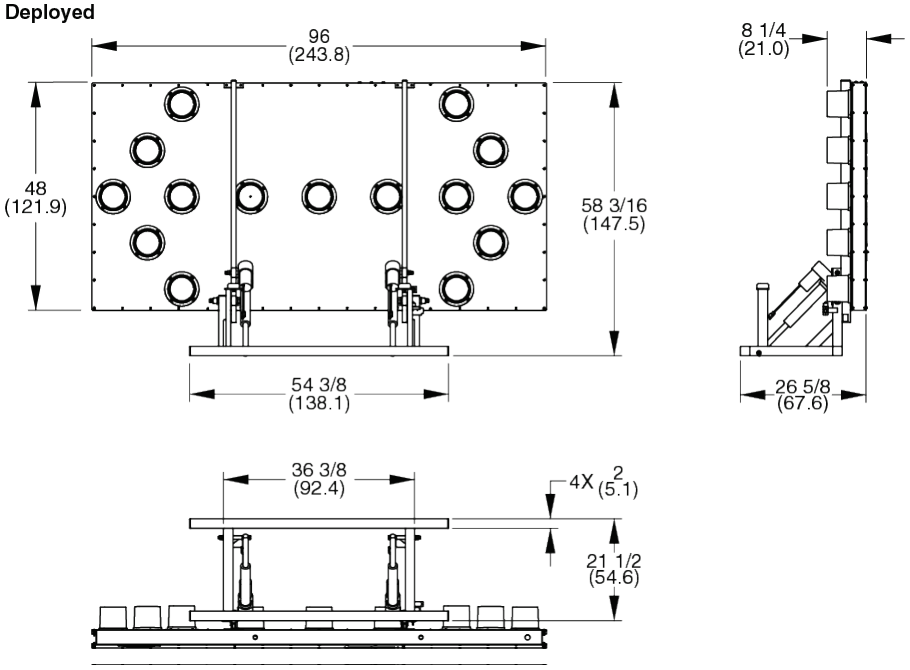
7.5.7. Low-profile trailer-mount frame

Description: Allows the arrow board to be installed on a trailer, but is specifically designed for easy installation on a Traffix® Devices Scorpion® attenuator trailer. On the Scorpion trailer, two uprights slide into brackets on the front end of the trailer frame and are bolted in place. On other trailers, custom brackets must be user-supplied.

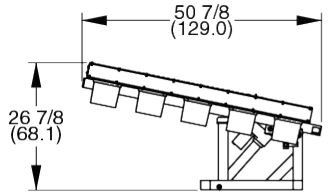
Model: WFBD8

Dimensions: *inches (cm)*

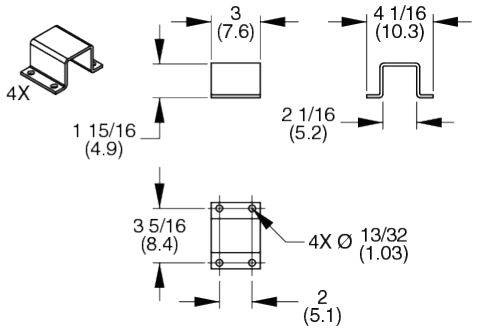
**Deployed**




**Travel position**




**Mounting brackets**




Weight: Frame only, approx. 88 lbs. (40kg)

## EXHIBIT A: MODEL NUMBERS

5 FLASHING ARROW PATTERNS

| Display size | # of lights | No mounting | Manual tilt (auto-lock) | 90° power-tilt | Low-profile 90° power-tilt | 180° power-tilt | Tailgate mount | Trailer mount |
|---|---|---|---|---|---|---|---|---|
| 24 x 48 | 13 | WB4-LA | WFB4-LA | WFBP4-LA | — | — | WVGB4-LA | — |
| 30 x 60 | 15 | WB5-LA | WFB5-LA | WFBP5-LA | WLP90B5-LA | WFP180B5-LA | WVGB5-LA | — |
| 36 x 72 | 15 | WB6-LA | WFB6-LA | WFBP6-LA | WLP90B6-LA | WFP180B6-LA | WVGB6-LA | — |
| 48 x 96 | 15 | WB8-LA | WFB8-LA | WFBP8-LA | — | — | WVGB8-LA | WFBD8-LA |

5 FLASHING & 2 SEQUENTIAL ARROW PATTERNS

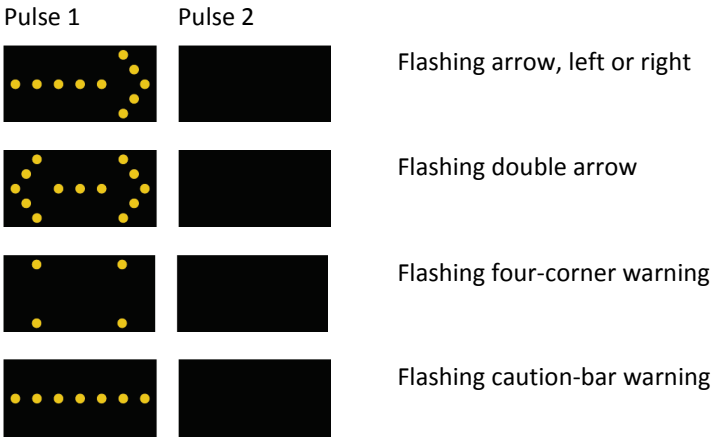
| Display size | # of lights | No mounting | Manual tilt (auto-lock) | 90° power-tilt | Low-profile 90° power-tilt | 180° power-tilt | Tailgate mount | Trailer mount |
|---|---|---|---|---|---|---|---|---|
| 30 x 60 | 15 | WB5-LSA | WFB5-LSA | WFBP5-LSA | WLP90B5-LSA | WFP180B5-LSA | WVGB5-LSA | — |
| 36 x 72 | 15 | WB6-LSA | WFB6-LSA | WFBP6-LSA | WLP90B6-LSA | WFP180B6-LSA | WVGB6-LSA | — |
| 48 x 96 | 15 | WB8-LSA | WFB8-LSA | WFBP8-LSA | — | — | WVGB8-LSA | WFBD8-LSA |

5 FLASHING & 7 SEQUENTIAL ARROW PATTERNS

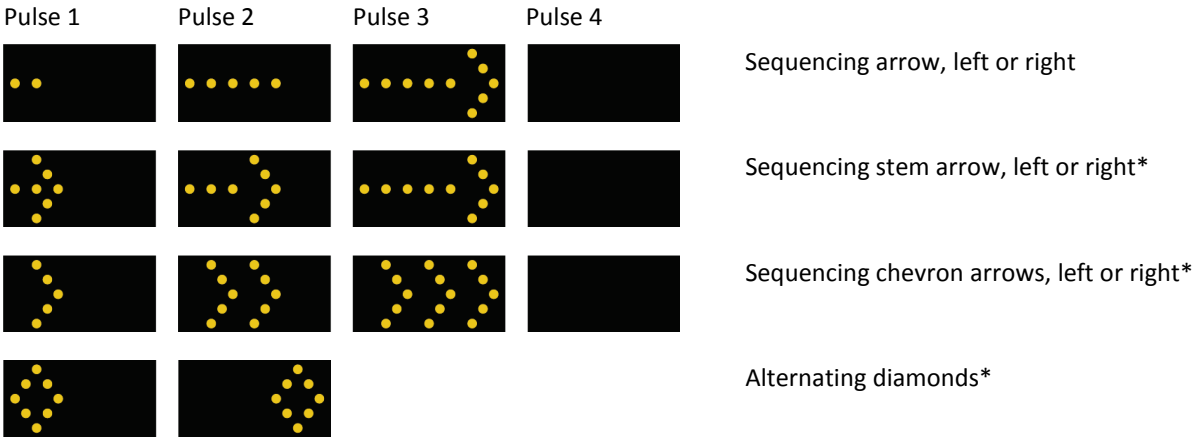
| Display size | # of lights | No mounting | Manual tilt (auto-lock) | 90° power-tilt | Low-profile 90° power-tilt | 180° power-tilt | Tailgate mount | Trailer mount |
|---|---|---|---|---|---|---|---|---|
| 30 x 60 | 25 | WB5-LSAC | WFB5-LSAC | WFBP5-LSAC | WLP90B5-LSAC | WFP180B5-LSAC | WVGB5-LSAC | — |
| 36 x 72 | 25 | WB6-LSAC | WFB6-LSAC | WFBP6-LSAC | WLP90B6-LSAC | WFP180B6-LSAC | WVGB6-LSAC | — |
| 48 x 96 | 25 | WB8-LSAC | WFB8-LSAC | WFBP8-LSAC | — | — | WVGB8-LSAC | WFBD8-LSAC |

## EXHIBIT B: DISPLAY PATTERNS

### Flashing patterns




### Sequential patterns




**Available only on 25-light arrow board models*