Doran Universal Exterior Light Monitor
UBMTH-00
Instructions for Installation and Use

Monitor and Light Installation

The Doran UBMTH-00 is a fully electronic Exterior Light Monitor designed for use with incandescent, halogen, Light Emitting Diode (LED) constant burn and strobing lights. In order to work with the large differences in current draw between the incandescent versus the LED lights, it is necessary to "calibrate" the monitor for the lights installed.

Wiring – Wire the unit with the 7" left stop and tail, and 7" right stop and tail wired individually according to the alternate pinout shown on drawing 7977.

Note: Sometimes buses are wired with a 7" and 4" stop/tail in parallel for the right and left sides. **If wired in this manner, the monitor may be unable to detect a failure of only one of the paralleled lights**, but it will detect a failure of both.

Calibrate unit after installation and after each lamp replacement.

Calibration

To self calibrate the monitor; ALL monitored lights must be in working order.

For faster calibration, the operator may turn on as many exterior lights as possible at the start of the procedure. The operator will be required to activate these lights during the calibration procedure. Operator may begin with the tail/head lights on, hazard lights (for the turn signals), and the amber warning lights flashing (door closed).

1. Turn on ignition and start engine – Engine is running to assure proper voltage for operation and calibration. Before beginning calibration, allow time for the voltage to stabilize to its normal running voltage. After cranking the engine the battery voltage may be lower than normal. Allow time for the battery to recharge.
2. When the ignition is turned on, all LEDs on monitor will be enabled for a few seconds to verify that all LEDs are working.
3. To enter the calibration mode, press and hold the calibrate button through the face plate hole for longer than two (2) seconds. This button/hole may be found located at the bottom left corner of the bus image on the monitor face plate. As the calibrate mode is starting, the monitor input power battery voltage is checked for a minimum and maximum range. If the voltage is acceptable, this voltage is saved as the calibration voltage and the green voltage indicator on the panel is turned on. If the input battery voltage is out of range the monitor will not continue the calibration and remain blank (off) until voltage is normal or the power (ignition) is turned off and restarted. Next, the first light to calibrate will begin flashing when the unit enters calibration mode. You may use an object such as an Allen wrench or paper clip to activate the switch.
4. The unit will begin calibrating each light in a sequence. Each light tested must be active at the time of the calibration. As each light is calibrated, the matching monitor LED will flash. Operator shall activate (if not active) the bus light corresponding to the flashing LED. The sequence is as follows:
    a. Left turn signal – switch on
    b. Right turn signal – switch on
    c. Stop lights (left and right 7" , left stop LED then right stop LED will flash) – press and hold brake pedal for both
    d. Tail light (left and right 7" , left LED then right LED will flash) – switch on (brakes off)
    e. Backup lights – press brake/clutch and engage reverse
    f. Each Amber warning light – switch on with door closed
    g. Each Red warning light – open door

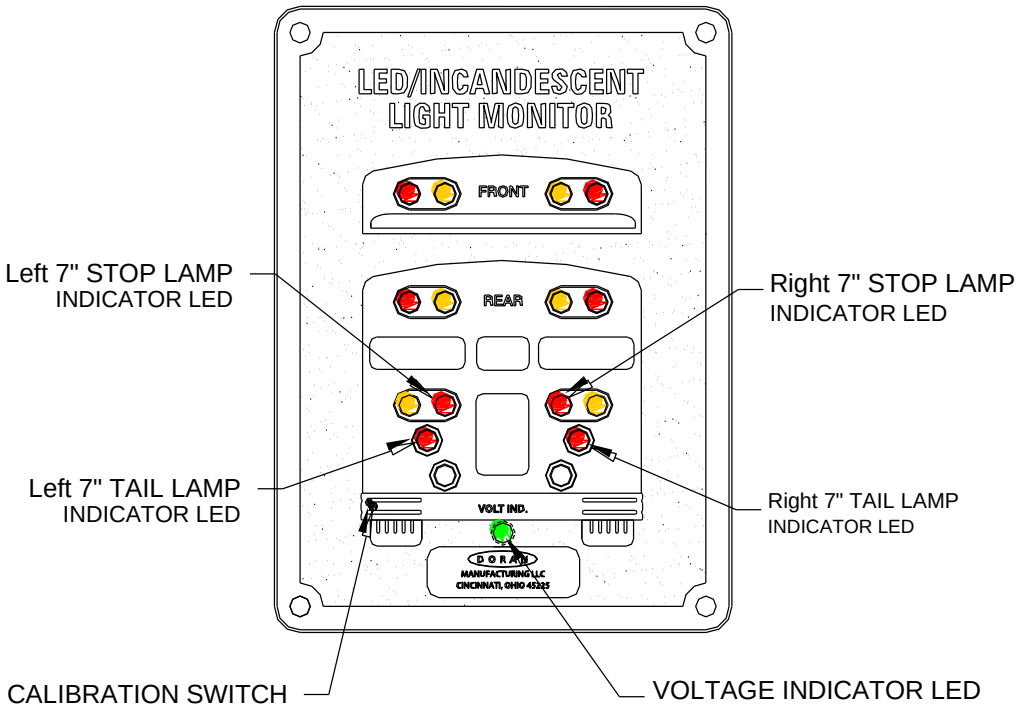
5. Calibrated lights are indicated by the corresponding LED staying illuminated on the monitor. The unit continues to loop through the sequence flashing the un-calibrated lights until all lights are calibrated.
6. When all LEDs are illuminated, turn off ignition to complete the calibration.

Operation

The GREEN LED at the bottom center of the monitor MUST BE ILLUMINATED indicating the voltage is within limits for proper operation. With the GREEN LED on, a lighted LED on the monitor display indicates the corresponding bus lamp/light circuit is drawing current. If the monitor LED does not illuminate when the corresponding bus light should be active, this/these bus lights should be checked for proper operation.

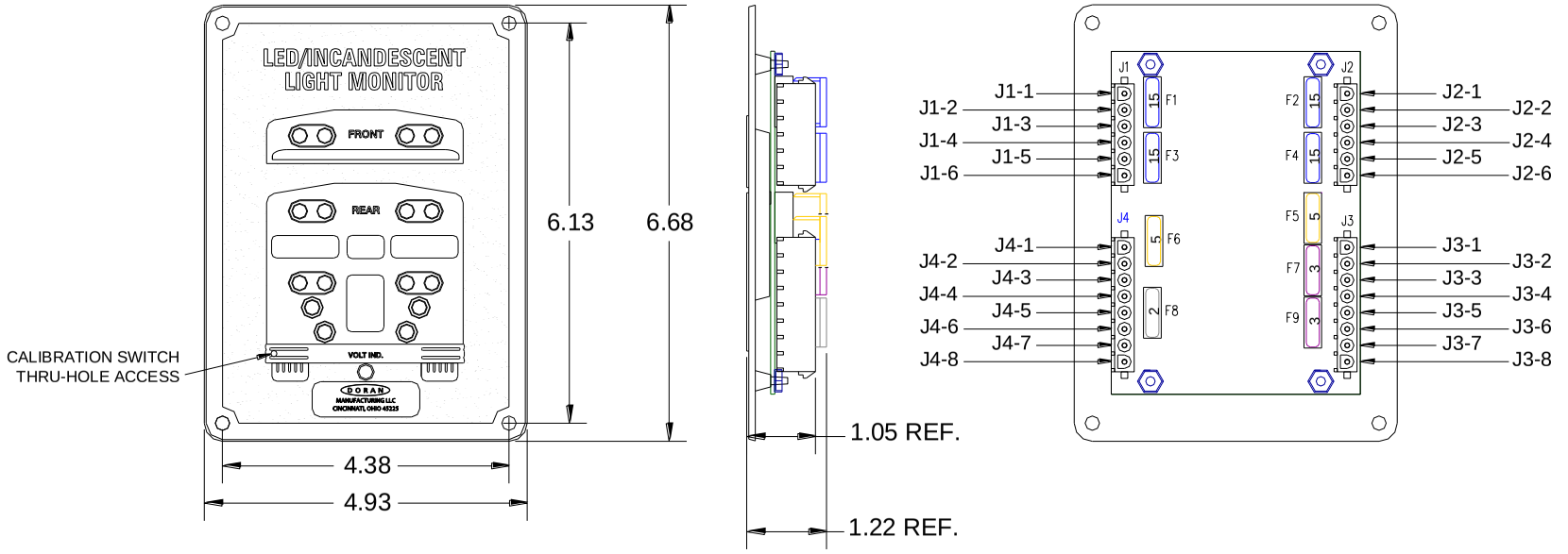
See the illustrations below for the definition of the brake/stop and tail light indicators.

Wiring Method



Wiring Fuse Table

Fuse	Rating	Circuit		Fuse	Rating	Circuit
F1	15 A	Red Warn – Right Input		F6	5 A	Stop – Input
F2	15 A	Amber Warn – Right Input		F7	3 A	Directional - Right Input
F3	15 A	Red Warn – Left Input		F8	2 A	Tail - Input
F4	15 A	Amber Warn – Left Input		F9	3 A	Directional - Left Input
F5	5 A	Backup – Input				



PINOUT

CONNECTOR	CONNECTOR ID #	PIN #	FUSE ID #	AMPERE RATING	FUNCTION
AMP #641831-1	J1	1	F1	15 AMP	RED WARNING -- RIGHT, IN
6 PIN, In-Line	J1	2	--	--	RED WARNING -- RIGHT, FRONT, OUT
Mate-N-Lok	J1	3	--	--	RED WARNING -- RIGHT, REAR, OUT
pin header (white)	J1	4	F3	15 AMP	RED WARNING -- LEFT, IN
	J1	5	--	--	RED WARNING -- LEFT, FRONT, OUT
	J1	6	--	--	RED WARNING -- LEFT, REAR, OUT
AMP #641831-1	J2	1	F2	15 AMP	AMBER WARNING -- RIGHT, IN
6 PIN, In-Line	J2	2	--	--	AMBER WARNING -- RIGHT, FRONT, OUT
Mate-N-Lok	J2	3	--	--	AMBER WARNING -- RIGHT, REAR, OUT
pin header (white)	J2	4	F4	15 AMP	AMBER WARNING -- LEFT, IN
	J2	5	--	--	AMBER WARNING -- LEFT, FRONT, OUT
	J2	6	--	--	AMBER WARNING -- LEFT, REAR, OUT
AMP #641828-1	J3	1	F5	5 AMP	BACK-UP, IN
8 PIN, In-Line	J3	2	--	--	BACK-UP -- RIGHT, OUT
Mate-N-Lok	J3	3	--	--	BACK-UP -- LEFT, OUT
pin header (white)	J3	4	F7	3 AMP	DIRECTIONAL -- RIGHT, IN
	J3	5	--	--	DIRECTIONAL -- RIGHT, OUT
	J3	6	F9	3 AMP	DIRECTIONAL -- LEFT, IN
	J3	7	--	--	DIRECTIONAL -- LEFT, OUT
	J3	8	--	--	+12 Vdc BATTERY
AMP #641828-1	J4	1	F6	5 AMP	STOP, IN
8 PIN, In-Line	J4	2	--	--	STOP 7", RIGHT SIDE, OUT -- (1 LAMP ONLY)
Mate-N-Lok	J4	3	--	--	STOP 7", LEFT SIDE, OUT -- (1 LAMP ONLY)
pin header (white)	J4	4	F8	2 AMP	TAIL, IN
	J4	5	--	--	TAIL 7", RIGHT SIDE, OUT -- (1 LAMP ONLY)
	J4	6	--	--	TAIL 7", LEFT SIDE, OUT -- (1 LAMP ONLY)
	J4	7	--	--	OPEN POSITION
	J4	8	--	--	GROUND

ELECTRICAL CHARACTERISTICS:

Power Requirements: 12Vdc nominal at 0.5 amp max

Voltage Specifications: 9-16 Vdc

Monitor Lamp Specifications - Maximum current loads:
- Warning flasher lamps: 7 amps (each)
- Turn signal lamps: 2.5 amps (each)
- Stop lamps: 2.5 amps (each)
- Tail lamps: 0.7 amps (each)
- Back up lamps: 2.5 amps (each)

This monitor is designed as a reliable instant check on bus lamps wired with no more than 2 lamps, of the same type, wired in parallel.

1	Add Elec Characteristics 9/1/2011	DORAN MANUFACTURING CO CINCINNATI, OHIO 45225
2	Add fusing, eliminate pcb/faceplate spacers, show palnut, show LED - Incandescent faceplate – 9/7/2011	PART NAME: UBMTH MONITOR PINOUT
3	Revise fuse amp ratings, remove alternate pinout option - 4/6/12	TOLERANCES: DECIMALS .XXX +OR- .005, .XX +OR- .015; FRACTIONS +OR- 1/32, ANGLES +OR- 1/2 DEGREE
		CUSTOMER / SCALE: no scale
		DRAWN JPR / DATE 8/16/11 / DRAWING NO. 7977 / REV 3
		APPR / DATE