Activation Switch and I/O Harness

ZW-FRD BCM T-Harness

Plug & Play, OE Light-Controller for Ford vehicles!

Thank you for purchasing a genuine Z-WAGZ unit, the simplest Plug & Play module for flashing OEM lights with a press of a button. This unit comes pre-programmed with 3 different light patterns and has options for disabling specific lights.

ZW-FRD Operation:

1. Install the Z-WAGZ unit to the factory Body Control Module (BCM). *Follow instructions on page 2 for more details and important information with this process.*
2. Turn Ignition ON or start vehicle (Ignition must be ON or vehicle running for proper operation)
3. ***To activate Z-WAGZ:***
   o Press and HOLD the ***high beam*** lever (5 sec) OR
   o Press and HOLD the provided push button (3 sec) OR
   o Send a 12v (+) signal to the ***blue wire*** (designed to be extended for OE up-fitter switches or any aftermarket toggle). *For this input method, as long as the wire has 12v (+), the Z-WAGZ unit will stay active.*

Pattern 1 will begin to flash. Once pattern 1 begins, the cluster turn signal (indicators) will blink 1 time, indicating Pattern 1 has been selected. The LED on the unit will blink BLUE. *See chart on page 4 for remaining pattern color indication.*

4. ***To switch to Pattern 2:*** (Pattern 1 must be currently active)
   o Engage either turn signal, then press and HOLD the ***high beam*** lever once more (5 sec). OR
   o Press & release the provided push button one time

The cluster turn signal (indicators) will blink twice indicating Pattern 2 has been selected. *Repeat this process to switch to the next pattern.*

5. ***To deactivate Z-WAGZ:***
   o Press and HOLD the ***high beam*** lever (5 sec) OR
   o Press and HOLD the provided push button (3 sec) OR
   o Release 12v (+) signal to the ***blue wire*** (if connected this way) OR
   o Turn vehicle OFF

GENERAL NOTES:

- Vehicles equipped with LED lights should use LED patterns. Vehicles equipped with standard bulbs should use bulb patterns but may get away with LED patterns (although some consistency may be lost).
- Not all lights on the vehicle are necessarily used, some lights are not controllable via CAN data commands.
- Z-WAGZ will retain the last used pattern, even after being disconnected from the harness (if ever).
- Turn signals, headlights & reverse lights will override pattern flashing when used, until turned off again.
- Lights on the external mirrors will only flash if wired with turn signals from factory.
- 'Plow Mode', when active (INPUT 2), disables High & Low beam flashing and slows the pattern down so that the relay box (plow module) can keep up with the flashing (prevents overheating).
- *PATTERN 4 is reserved for **Ford Lightning vehicles only.** Any other vehicle using this pattern will appear erratic.*

ZW-FRD Vehicle module installation

1. Locate the BCM unit. The chart below indicates the BCM location in various vehicles.
2. With the vehicle OFF: disconnect the (2) circled plugs shown. Connect the male side of each T-Harness to the BCM and the (removed) plugs into the female side of the Z-WAGZ BCM harnessing. These connectors can only fit in one place and connect in one way.
3. Connect the Z-WAGZ BCM unit to the 22-pin connector, tie-wrap the unit to another harness if desired.
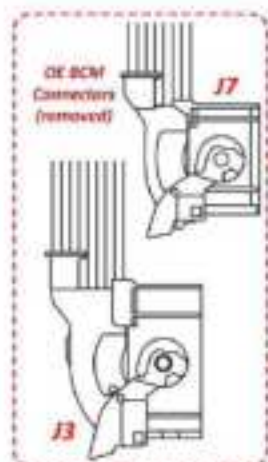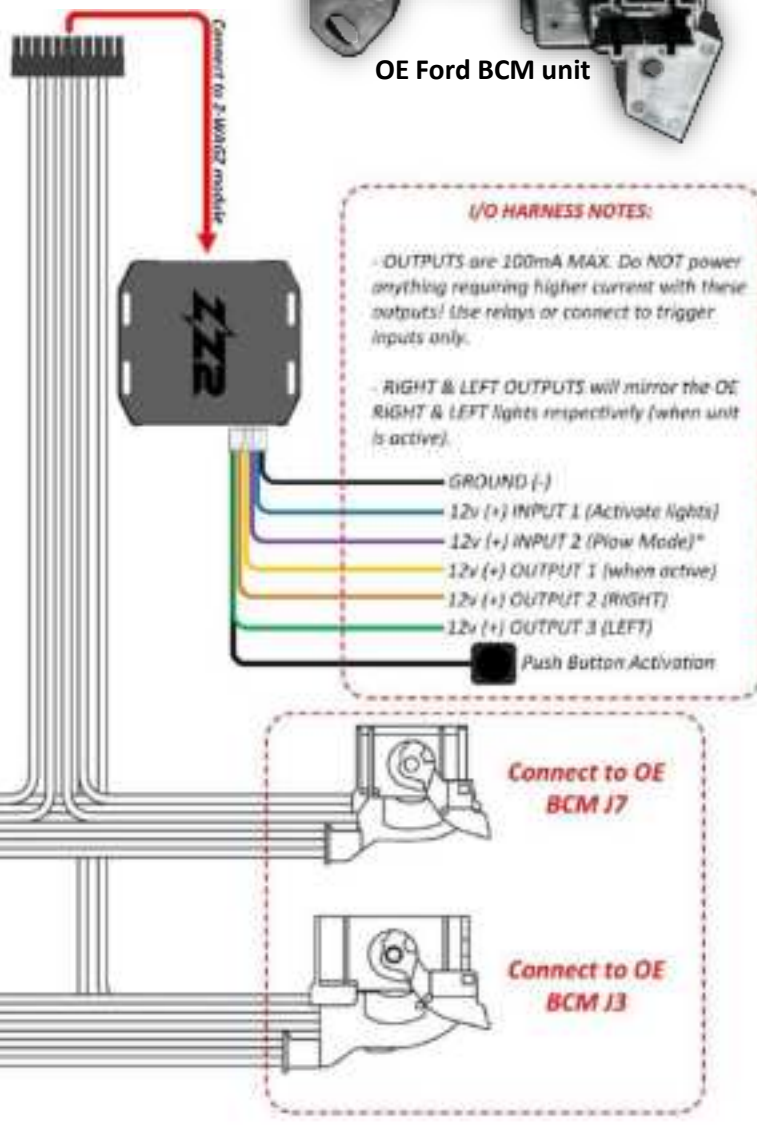4. Return to page (1) for operation instructions.

J7

J3

OE Ford BCM unit
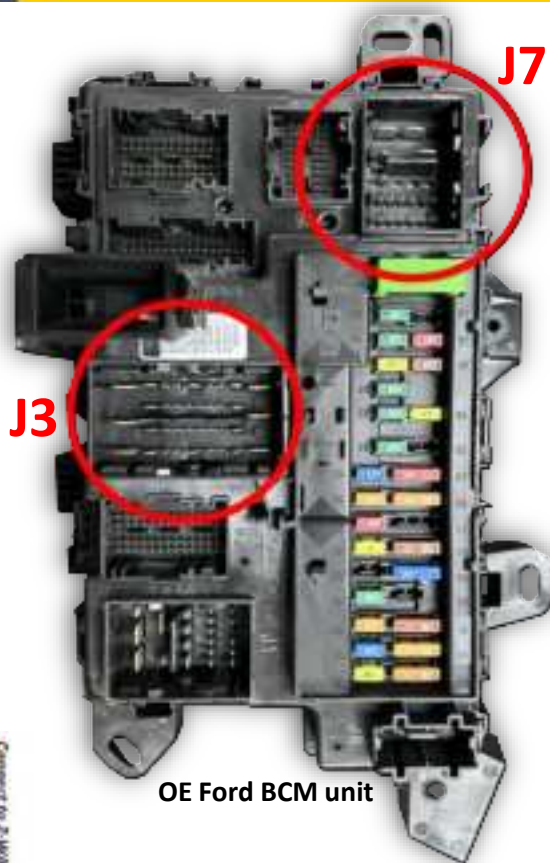
Ford BCM Locations:

MODEL	LOCATION
F-Series Trucks (all)	Passenger side kick panel
Explorer	Behind lower dash panel, left of steering wheel

Confirmed Vehicles:

MAKE	MODEL	YEAR
Ford	Expedition	2018
	F150, Raptor	2015-2023
	Explorer	2019-2024
	Super Duty F250-F350	2019-2022

I/O HARNESS NOTES:

- OUTPUTS are 100mA MAX. Do NOT power anything requiring higher current with these outputs! Use relays or connect to trigger inputs only.

- RIGHT & LEFT OUTPUTS will mirror the OE RIGHT & LEFT lights respectively (when unit is active).

- GROUND (-)
- 12v (+) INPUT 1 (Activate lights)
- 12v (+) INPUT 2 (Plow Mode)*
- 12v (+) OUTPUT 1 (when active)
- 12v (+) OUTPUT 2 (RIGHT)
- 12v (+) OUTPUT 3 (LEFT)
- Push Button Activation

Connect to Z-WAGZ module

OE BCM Connectors (removed)

J7

J3

Connect to OE BCM J7

Connect to OE BCM J3

DIP Switch Settings

Located on the back side of the unit is a bank of (6) dip switches – you will need a pick-tool to adjust.

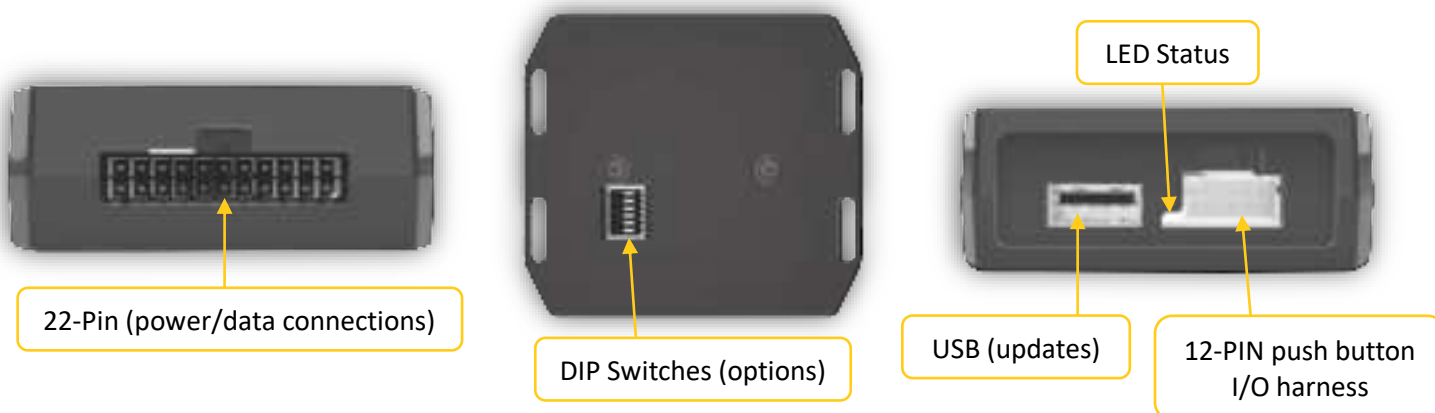*All dip switches are LIVE, do not unplug the module to adjust.*

DIP	1	2	3	4	5	6*
ON	*Disable High Beam*	*Disable Low Beam*	*Enable Reverse Light (May cause reverse camera to show on screen while active)*	*For HALOGEN equipped (slower)*	*Disable STROBE Mode (Removes strobe every 3 seconds)*	*BRAKE + SIGNAL SEPARATE*
OFF	*Enable High Beam*	*Enable Low Beam*	*Disable Reverse Light*	*For LED equipped (faster)*	*Enable STROBE Mode*	*BRAKE + SIGNAL TOGETHER*

DIP 6 ON: For vehicles with separated Brake light and turn signal bulbs (separate housings, rear of vehicle)
DIP 6 OFF: For vehicles with Brake light and turn signal bulbs combined into the same housing (same housing, rear of vehicle)

ZW-FRD Notes:

- *'Plow Mode'*, when active (INPUT 2), disables High & Low beam flashing and slows the pattern down so that the relay box (plow module) can keep up with the flashing (prevents overheating). This should be enabled whenever a plow is connected. *NOTE: this input must see 12v (+) before activating the Z-WAGZ for proper functionality.*
- When high beam is ON (high beam priority), low beam will be OFF.
- When low beam is ON (low beam priority), high beam will stop flashing.
- If low beam priority fails, disable high beam flashing (DIP switch 1 ON).
- When the vehicle is turned OFF, all flashing and unit will also deactivate.
- If Reverse camera shows up on screen when unit is active, DIP 3 (reverse) is enabled. Turn (3) OFF to disable reverse.
- High Beam Lever / External Button / INPUT 1 +12V requires ACC ON to function properly.

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ZW-FRD

22-Pin (power/data connections)

DIP Switches (options)

LED Status

USB (updates)

12-PIN push button I/O harness

ZW-FRD LED Status / Patterns

START-UP INDICATION		
Description	*LED Status*	*More Information*
Initial Wake Up	Blinks BLUE (1 time)	Upon initial power connection
Unit recognizes CAN bus (car side ONLY)	Blinks BLUE (3 times)	Upon CAN data wake
Unit recognizes CAN bus (module side ONLY)	Blinks GREEN (3 times)	Upon CAN data wake
Unit recognizes CAN bus (properly)	Binks BLUE,GREEN (x3)	Upon CAN data wake
Unit detects ACC info	Blinks GREEN (1 time)	Upon Turning Ignition ON
Unit detects GEAR info	Blinks VIOLET (1 time)	Upon switching gears
Unit detects HIGH BEAM pull OR External button press (for activation)	Solid GREEN	Upon pressing High Beam lever or provided push button
Unit receives negative response for light commands	Blinks VILOET (x3)	*--Contact ZZ2--*
Unit not receiving confirmation for light commands	Blinks RED (x1)	*--Contact ZZ2--*
When unit goes to sleep	Blinks WHITE (x1)	When CAN shuts down
CAN bus communication problem	Blinks RED + GREEN	While Z-WAGZ is activated
PATTERN INDICATION		
Description	*LED Status*	*More Information*
Pattern 1	Blinks BLUE	*BASE PATTERN*
Pattern 2	Blinks GREEN	*WATERFALL PATTERN*
Pattern 3	Blinks RED	*DOUBLE BLINK PATTERN*
Pattern 4	Blinks AQUA	*FORD LIGHTNING PATTERN (only)*
POWER CONSUMPTION / ADDITIONAL SPECS		
Description	*Specification*	*More Information*
Current Draw Active:	100mA max	
Current Draw idle:	7mA max	
INPUT 1 Trigger wire act:	12v (+)	Hardwire activation trigger
INPUT 2 Trigger wire act:	12v (+)	Hardwire activate PLOW mode
OUTPUT 1: 12v (+)	100mA max	Outputs 12v (+) whenever unit is active
OUTPUT 2 (RIGHT): 12v (+)	100mA max	Mimics RIGHT turn signal pattern
OUTPUT 3 (LEFT): 12v (+)	100mA max	Mimics LEFT turn signal pattern
Trigger wire idle:	3.3V	
Current limit:	10mA	

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