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# Infinitybox inVIEW Windshield Wiper Control Module
# Part Number 852-799
# Setup and Configuration Guide

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# Overview

The Infinitybox inVIEW Wiper Control Module is a CAN-controlled relay module designed to drive a traditional two-speed automotive windshield wiper motor with a dynamic park terminal. The module provides four relay outputs that control the low-speed, high-speed, park, and washer-pump circuits, and four switch inputs that allow direct wiring of an OEM wiper switch.

The module accepts commands from either CAN bus messages or from the discrete switch inputs, applies the wiper-control logic internally, and operates the four relays accordingly. All operation modes — continuous low speed, continuous high speed, intermittent wipe, and washer — are managed by the module's firmware. The intermittent timing is configurable from CAN or from a value stored in non-volatile memory.

The park-relay circuit uses a normally-closed contact arrangement so that, when the module is unpowered or the wipers are commanded off, the wiper motor's internal cam switch automatically returns the wipers to the park position. The wipers always return home, even if the module loses power mid-sweep.

The module is completely configurable in the field using J1939 CAN commands. PGN and Source Address settings, as well as the switch-driven intermittent timing, can be modified via EEPROM and persist across power cycles.

# Warnings

**THE INFINITYBOX inVIEW WIPER CONTROL MODULE IS DESIGNED FOR USE IN VEHICLE ELECTRICAL SYSTEMS. PROPER CARE MUST BE TAKEN TO ENSURE CORRECT WIRING AND TERMINATION OF THE CAN BUS. IMPROPER INSTALLATION CAN CAUSE COMMUNICATION FAILURES OR DAMAGE TO CONNECTED DEVICES.**

**PROPER CARE MUST BE TAKEN TO ENSURE THAT POWER IS CORRECTLY APPLIED TO THE MODULE. REVERSING POLARITY TO THE POWER AND GROUND FEEDS WILL CAUSE IRREPARABLE DAMAGE TO THE MODULE AND WILL VOID THE WARRANTY.**

**THE CAN BUS MUST BE PROPERLY TERMINATED WITH 120Ω RESISTORS AT EACH END OF THE BUS. MISSING OR INCORRECT TERMINATION WILL CAUSE COMMUNICATION ERRORS AND MAY PREVENT THE MODULE FROM OPERATING.**

**THE RELAY OUTPUTS ARE DESIGNED TO SWITCH BATTERY POSITIVE TO THE WIPER MOTOR AND WASHER PUMP. DO NOT EXCEED THE MAXIMUM CURRENT PER RELAY OR THE MAXIMUM CURRENT FOR THE MODULE. EXCEEDING THE CURRENT RATING WILL DAMAGE THE MODULE.**

**THE WIPER MOTOR'S PARK TERMINAL MUST BE WIRED TO THE PARK OUTPUT OF THIS MODULE FOR THE WIPERS TO RETURN TO THE HOME POSITION CORRECTLY. WIRING THE PARK TERMINAL DIRECTLY TO BATTERY OR LEAVING IT UNCONNECTED WILL DEFEAT THE DYNAMIC PARK BEHAVIOR.**

**ADDING ANY ELECTRONICS MODULE TO A VEHICLE WILL INCREASE THE DEMAND ON THE BATTERY. CARE MUST BE TAKEN TO MAINTAIN A CHARGE ON THE BATTERY WHEN THE VEHICLE SITS IDLE FOR PERIODS OF TIME.**

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# Technical Details

inVIEW Wiper Control Module Technical Details

| Parameter | Value |
|---|---|
| Dimensions | 135 mm × 119 mm × 36 mm / 5.3" × 4.7" × 1.4" |
| Connector Family | Deutsch / TE- DTM-06 |
| Min. Operating Voltage | 7 VDC |
| Max. Operating Voltage | 20 VDC |
| Maximum Current Draw Per Relay | 8 Amps |
| Steady-State Current Draw | 0.03 A Nominal |
| Operating Temperature Range | -40°C to +85°C |
| Enclosure Rating | Sealed to IP67 |
| CAN Bus Compatibility | ISO 11898-2 (Classic CAN) at 250, 500 or 1,000kb/s |

# inVIEW Wiper Control Module Part Number

| Part Number | Description |
|---|---|
| 852-799AJ | Infinitybox inVIEW Wiper Control Module |

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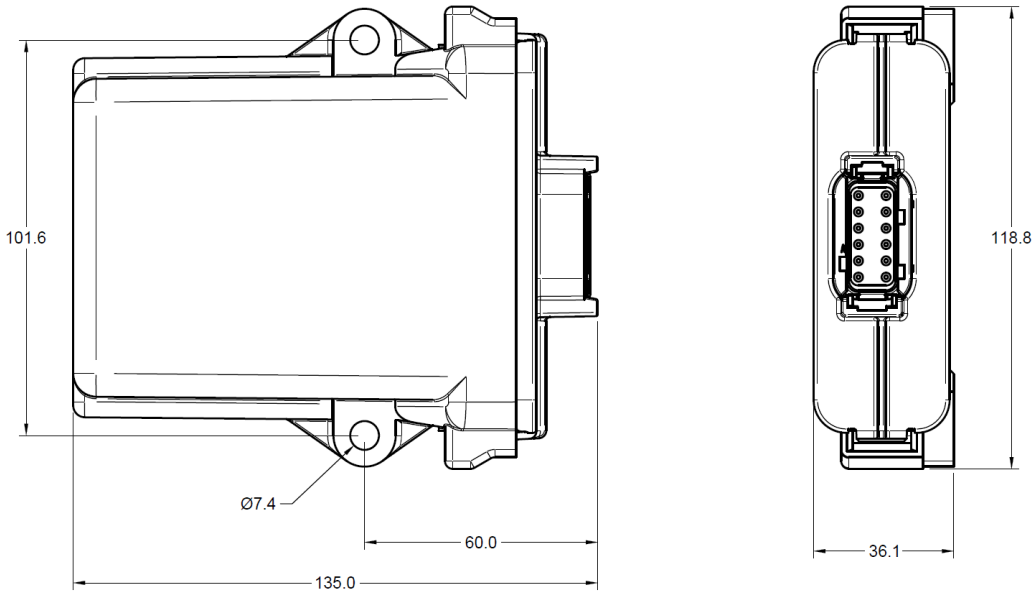
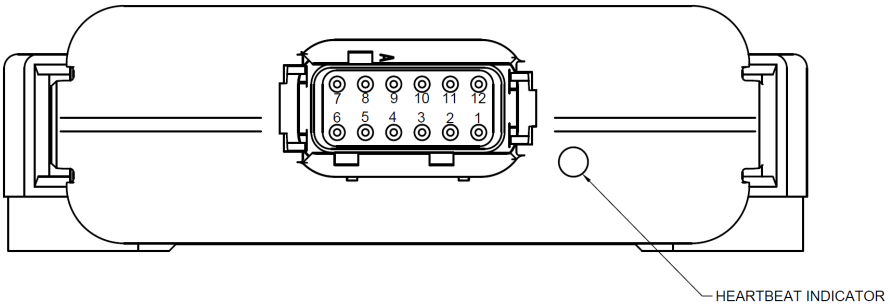
# inVIEW Wiper Control Module Dimensions



# Installation Steps

### Mounting the inVIEW Module

The inVIEW Module can be mounted in any orientation using the provided mounting holes. Select a location that is protected from direct exposure to water spray and excessive heat sources. The enclosure is sealed to IP67 but should not be submerged.




### inVIEW Module Connector Details

- Mating connector: DTM-06-12S
- Mating Terminals
  - 1062-20-0222- 16 to 22 AWG
  - 1062-20-0622- 14 to 16 AWG
- Wedge Lock: WM-12S
- Connector Pinout

1. CAN LO
2. CAN HI
3. Washer Pump Switch Input
4. Intermittent Switch Input
5. Low-Speed Switch Input
6. Ground
7. +Battery or Switched Ignition Power
8. High-Speed Switch Input
9. Low-Speed Output to Wiper Motor
10. High-Speed Output to Wiper Motor
11. Park Output to Wiper Motor
12. Washer Pump Output

### Supplying Power

The inVIEW Module needs battery voltage and ground. The power feed for the module should be properly fused to protect the gauge of wire supplying current.

### Connecting the Wiper Motor

The module is designed to drive a traditional two-speed wiper motor with a cam-switched park terminal. The wiper motor has three power inputs that connect to three of the module's relay outputs:

- **LOW relay output:** connect to the wiper motor's low-speed power terminal.
- **HIGH relay output:** connect to the wiper motor's high-speed power terminal.
- **PARK relay output:** connect to the wiper motor's park terminal. This terminal must be connected for the wipers to return to the park position correctly.

Connect the washer pump positive lead to the WASHER relay output. The washer pump's negative lead connects to chassis ground.

### Wiring the Switch Inputs

The four switch inputs (LOW, HIGH, INT, and WASH) are active-low ground-switched inputs with internal pull-up resistors to +5 V. To request a function, the corresponding input must be connected to chassis ground; releasing the connection returns the input to its inactive state.

Any single-pole switch may be used. Common configurations include:

- An OEM column-stalk wiper switch with separate output wires for low, high, intermittent, and washer.
- Individual rocker or toggle switches on a custom dash panel, each connected between its module input and chassis ground.
- A multi-position rotary switch with a common ground terminal.

The LOW, HIGH, and INT inputs are designed to be maintained — the switch holds the input grounded for as long as the function is desired. The WASH input is momentary — the washer pump and wiper run only while the WASH input is held to ground.

The four switch inputs can be left disconnected if the module will be controlled exclusively by CAN.

### Connecting to CAN Network

Connect the CAN HI (Yellow) and CAN LO (Green) wires. Ensure the network is properly terminated with 120Ω resistors at each physical end of the bus.

If you are using only the discrete switch inputs and not the CAN network, the CAN HI and CAN LO leads can be left disconnected. The module will still operate correctly, although it will report a CAN error on its LED.

# Power-Up and LED Indicators

## Normal Power-Up Sequence

When you apply power to the Wiper Control Module:

1. LED flashes twice quickly if EEPROM was initialized with defaults (first boot only).
2. Heartbeat message appears on CAN bus within 1 second.
3. Diagnostic message sent.
4. LED pulses briefly (50ms) every 1 second during normal operation.
5. Switch inputs are read after a short debounce window. If a switch input is already held when power is applied, the module begins operating in that mode immediately.

## LED Indicators

- **Single Blink @ 1 Hz:** Normal operation. Device is running and CAN bus is healthy.
- **Triple Blink @ 1 Hz:** CAN error condition. Bus-off, TX stuck, or TX error detected. If the module is being used with switches only and CAN is not connected, this pattern is expected and can be ignored.
- **Double Blink on Startup:** EEPROM initialized with factory defaults (first boot or after factory reset).
- **50 ms Pulse on Each Control Message:** Visual confirmation that a CAN control message was received and accepted.

## Watchdog Timer

The module includes a watchdog timer with a 500 ms timeout that automatically resets the device if the firmware becomes unresponsive. If the CAN bus remains in bus-off state for more than 5 seconds, the watchdog is allowed to expire, resetting the module to attempt recovery.

## Power-Up Park Behavior

Because of the way the park relay is wired, the wiper motor's park terminal is automatically powered whenever the module is unpowered or in the OFF state. If the wipers happen to be off the park position when power is applied to the module, the wipers will return to park automatically as soon as battery voltage reaches the motor.

# CAN Communication Reference

The Wiper Control Module communicates using J1939-style extended CAN messages (29-bit identifiers). The module transmits heartbeat and diagnostic messages for status monitoring and responds to control and configuration commands.

### Default Message IDs

| Function | Default CAN ID | PGN | Source Address |
|---|---|---|---|
| **Control Input** | 0x0CFF0D80 | 0xFF0D | 0x80 |
| **Config Write** | 0x0CFF1D80 | 0xFF1D | 0x80 |
| **Config Read** | 0x0CFF2D80 | 0xFF2D | 0x80 |
| **Config Response** | 0x0CFF3D80 | 0xFF3D | 0x80 |
| **Heartbeat** | 0x0CFF4D80 | 0xFF4D | 0x80 |
| **Diagnostic** | 0x0CFF5D80 | 0xFF5D | 0x80 |

All message IDs are configurable via EEPROM. The CAN ID is constructed as: Priority (0x0C) + PGN High + PGN Low + Source Address.

# Control Message

The control message commands the wiper module's mode of operation. The module will immediately respond with a heartbeat message confirming the new state.

## Control Message Format

**Default CAN ID: 0x0CFF0D80**

- PGN: 0xFF0D
- Source Address: 0x80
- DLC: 8 bytes

## Data Bytes

| Byte | Name | Description |
|---|---|---|
| **0** | Speed Request | Bit 7 (0x80) = LOW. Bit 3 (0x08) = HIGH. Other bits reserved (ignored). |
| **1** | Washer Request | Bit 7 (0x80) = WASH. Other bits reserved (ignored). |
| **2** | Intermittent | Bit 7 (0x80) = INT enable. Lower nibble = OFF-time in whole seconds (range 2-15; values below 2 are clamped to 2). |
| **3-7** | Reserved | Ignored. |

## Speed Hierarchy

If multiple speed bits are asserted in a single command, the module selects the highest-priority speed and ignores the lower ones. The hierarchy is HIGH > LOW > INT. If a speed (LOW or HIGH) is set in byte 0, the intermittent setting in byte 2 is ignored.

## Control Examples

**Turn on LOW only:**

CAN ID: 0x0CFF0D80, Data: [80] [00] [00] [00] [00] [00] [00] [00]

**Turn on HIGH only:**

CAN ID: 0x0CFF0D80, Data: [08] [00] [00] [00] [00] [00] [00] [00]

**Activate WASHER (with module in OFF state, this also activates HIGH):**

CAN ID: 0x0CFF0D80, Data: [00] [80] [00] [00] [00] [00] [00] [00]

**Run intermittent wipe with 4-second OFF time between sweeps:**

CAN ID: 0x0CFF0D80, Data: [00] [00] [84] [00] [00] [00] [00] [00]

**Run intermittent wipe with 8-second OFF time:**

CAN ID: 0x0CFF0D80, Data: [00] [00] [88] [00] [00] [00] [00] [00]

**Turn off all wiper functions:**

CAN ID: 0x0CFF0D80, Data: [00] [00] [00] [00] [00] [00] [00] [00]

# Wiper Operation

This section describes how the module behaves in each of its operating modes. The behavior is identical whether the command is received over CAN or asserted on a switch input.

### Low Speed

When LOW is requested, the LOW relay and the PARK relay are energized. Battery voltage is supplied to the wiper motor's low-speed terminal and the motor runs continuously at low speed. When the request is removed, the LOW relay and PARK relay both de-energize, and the wiper motor returns to the park position via the dynamic-park circuit.

### High Speed

When HIGH is requested, the HIGH relay and the PARK relay are energized. The wiper motor runs continuously at high speed. When the request is removed, the wiper motor returns to the park position.

### Switching Between Speeds

When changing between LOW and HIGH (in either direction), the module enforces a brief 50 millisecond pause during which both speed relays are de-energized before engaging the new speed. This guarantees clean switching of the motor speed taps.

### Intermittent (Switch-Driven)

When the INT switch input is held to ground, the module cycles the LOW relay using a timing value stored in non-volatile memory. The cycle is:

- **ON phase:** LOW relay energized for 1.0 second.
- **OFF phase:** LOW relay de-energized for the configured time.

The cycle repeats continuously while the INT switch is held. The OFF time is stored at EEPROM address 0x1A in units of one-eighth of a second. The factory default is 32, which gives a 4-second OFF time. Values less than 16 (2 seconds) are clamped to 16 at runtime to prevent excessively rapid cycling.

### Examples

| EEPROM Value | OFF Time | Cycle |
|---|---|---|
| **16** | 2.0 s | 1 s ON, 2 s OFF |
| **32** | 4.0 s | 1 s ON, 4 s OFF (factory default) |
| **80** | 10.0 s | 1 s ON, 10 s OFF |
| **200** | 25.0 s | 1 s ON, 25 s OFF |

### Intermittent (CAN-Driven)

When intermittent operation is commanded over CAN (byte 2 with bit 7 set, byte 0 with no speed bits), the module cycles the LOW relay using the OFF time carried in the lower nibble of byte 2, expressed in whole seconds (range 2-15).

If a new control message updates the OFF time while intermittent operation is already running, the new timing takes effect immediately. The intermittent cycle always begins with the 1.0-second ON sweep so the operator gets immediate feedback.

### Washer

The washer behaves differently depending on whether a wiper speed is already running when the wash is requested.

### Washer with Wipers Off

When the WASH input is asserted while the module is in the OFF state, the WASHER relay and the HIGH relay both energize. The washer pump runs and the wipers run on high speed for as long as the WASH input is held. When the WASH input is released, the washer pump stops, but the wipers continue running on HIGH for an additional 3 seconds to clear residual fluid before parking.

### Washer with Wipers Already Running

When the WASH input is asserted while the wipers are already running on LOW, HIGH, or in intermittent mode, the WASHER relay turns on while WASH is held. The wiper speed is not changed and there is no 3-second tail when the wash request ends.

Special case: when the WASH input is asserted during intermittent operation, the module forces the LOW relay on for the duration of the wash so that fluid is not sprayed while the wipers are stationary in the OFF portion of the intermittent cycle. When WASH is released, the intermittent cycle resumes from its ON phase.

### Washer Behavior Summary

| State When WASH Asserted | While WASH is Held | On WASH Release |
|---|---|---|
| **OFF** | WASHER + HIGH | WASHER off; HIGH continues 3 s, then off |
| **LOW** | WASHER + LOW (unchanged) | WASHER off; LOW continues per request |
| **HIGH** | WASHER + HIGH (unchanged) | WASHER off; HIGH continues per request |
| **INT** | WASHER + LOW (forced; INT cycle paused) | WASHER off; INT cycle resumes from ON phase |

### Switching Between CAN and Switch Control

The module accepts commands from CAN and from the switch inputs. The most recent command takes effect, regardless of source. In typical installations, only one source is wired and used.

## Heartbeat Message

The heartbeat message is transmitted every 1 second and immediately after receiving a control command. It reports the module status, the actual relay output state, and the current state of the switch inputs.

**Default CAN ID: 0x0CFF4D80**

- PGN: 0xFF4D
- Source Address: 0x80
- Period: 1000 ms (and on control command)

### Data Bytes (8 bytes total)

| Byte | Name | Description |
|---|---|---|
| 0 | Firmware Major | Major version number |
| 1 | Firmware Minor | Minor version number |
| 2 | Rolling Counter | Increments 0-255, wraps |
| 3 | Reserved | Always 0x00 |
| 4 | Status Flags | See status flags table |
| 5 | Uptime | (Uptime ÷ 10 sec) mod 256 |
| 6 | Relay Outputs | Bit 7 (0x80) = LOW, Bit 3 (0x08) = HIGH, Bit 6 (0x40) = PARK, Bit 2 (0x04) = WASHER |
| 7 | Switch Inputs | Bit 7 (0x80) = LOW, Bit 3 (0x08) = HIGH, Bit 6 (0x40) = INT, Bit 2 (0x04) = WASH (1 = switch asserted) |

### Status Flags (Byte 4)

| Bit | Flag Name | Meaning |
|---|---|---|
| 0 | BUS_OFF_WARN | Bus-off warning |
| 1 | RX_WARN | RX warning |
| 2 | TX_WARN | TX warning |
| 3 | ERR_PASSIVE | Error passive state |
| 4 | BUS_OFF | Bus-off active |
| 5 | RX_OVERFLOW | RX buffer overflow |
| 6 | WDT_RESET | Watchdog reset occurred |
| 7 | BOD_RESET | Brownout reset occurred |

## Diagnostic Message

The diagnostic message is transmitted every 5 seconds and provides operational statistics.

**Default CAN ID: 0x0CFF5D80**

| Byte | Name | Description |
|---|---|---|
| **0** | Uptime LSB | Uptime in seconds (low byte) |
| **1** | Uptime MSB | Uptime in seconds (high byte) |
| **2** | TX Error Count | Transmit error counter (mod 256) |
| **3** | RX Overflow Count | Receive buffer overflows (mod 256) |
| **4** | Bus-off Count | Bus-off events (mod 256) |
| **5** | Control Msg Count | Control messages received (mod 256) |
| **6-7** | Reserved | Always 0x00 |

# Writing to EEPROM

The module configuration is stored in non-volatile EEPROM. You can modify configuration using CAN write commands.

### Write Request Message Format

**Default CAN ID: 0x0CFF1D80**

| Byte | Name | Value | Description |
|---|---|---|---|
| **0** | Guard Byte | 0x77 | Required |
| **1** | Address LSB | 0x00-0xFF | Address low byte |
| **2** | Address MSB | 0x00 | Address high byte |
| **3** | Value | 0x00-0xFF | Byte value to write |
| **4-7** | Don't Care | 0xFF | Unused bytes |

**Example: Change Bitrate to 500 kbps**

CAN ID: 0x0CFF1D80 Data: [77] [00] [00] [02] [FF] [FF] [FF] [FF]

*Note: Bitrate changes require a power cycle to take effect.*

**Example: Change switch-driven intermittent OFF time to 6 seconds (48 × 0.125 s)**

CAN ID: 0x0CFF1D80 Data: [77] [1A] [00] [30] [FF] [FF] [FF] [FF]

# Reading from EEPROM

**Default CAN ID: 0x0CFF2D80**

| Byte | Name | Value | Description |
|---|---|---|---|
| **0** | Guard Byte | 0x77 | Required |
| **1** | Address LSB | 0x00-0xFF | Address low byte |
| **2** | Address MSB | 0x00 | Address high byte |
| **3-7** | Don't Care | 0xFF | Unused bytes |

### Understanding the Response Message

After every configuration read or write command, the module sends a response message.

**Default CAN ID: 0x0CFF3D80**

| Byte | Name | Description |
|---|---|---|
| **0** | Firmware Major | Major version number |
| **1** | Firmware Minor | Minor version number |
| **2** | Value or Error | Value read/written, or error code |
| **3** | Address LSB | Echo of request address |
| **4** | Address MSB | Echo of request address |
| **5** | Status | 0x01 = OK, 0xE1 = Bad Guard, 0xE5 = Verify Fail |
| **6** | Relay Outputs | Current relay output state |
| **7** | Switch Inputs | Current switch input state |

## EEPROM Configuration Settings

| Address | Parameter | Default | Notes |
|---|---|---|---|
| **0x00** | Bitrate | 0x01 | 01 = 250k, 02 = 500k, 03 = 1M |
| **0x01** | Control PGN High | 0xFF | |
| **0x02** | Control PGN Low | 0x0D | |
| **0x03** | Control SA | 0x80 | |
| **0x04** | Firmware Major | 0x01 | Read-only |
| **0x05** | Firmware Minor | 0x00 | Read-only |
| **0x07** | Init Stamp | 0xA5 | Set to 0x00 for factory reset |
| **0x0A-0x0C** | Write PGN/SA | FF/1D/80 | |
| **0x0D-0x0F** | Read PGN/SA | FF/2D/80 | |
| **0x10-0x12** | Response PGN/SA | FF/3D/80 | |
| **0x13-0x15** | Heartbeat PGN/SA | FF/4D/80 | |
| **0x16-0x18** | Diagnostic PGN/SA | FF/5D/80 | |
| **0x1A** | Switch INT OFF time | 0x20 | Units of 1/8 second. Default 32 (4 s). Min 16 (2 s). |

# Troubleshooting

### No Heartbeat Message Visible

Check:

1. Verify power is applied.
2. Check CAN bus termination (should measure ~60Ω between CAN HI and CAN LO).
3. Verify your CAN tool is set to the correct bitrate (default 250 kbps).
4. Confirm CAN HI and CAN LO wires are not swapped.
5. Look for the LED blink pattern.

### Triple-Blink LED Pattern

This indicates a CAN bus error. Common causes include missing 120Ω termination resistors, CAN cable disconnected or damaged, CAN HI/LO shorted together, or wrong bitrate configured.

If you are using only the discrete switch inputs and the CAN bus is not connected, this pattern is expected and the module will continue to operate normally from the switch inputs.

### Wipers Do Not Park Correctly

If the wipers stop mid-sweep when commanded off instead of returning to the park position:

1. Verify that the PARK output of the module is connected to the wiper motor's park terminal.
2. Verify that the wiper motor's internal cam switch is functional. With the module unpowered (PARK terminal hot via the NC contact) and battery applied to the module, the wiper motor should drive itself to the park position and stop on its own.
3. Verify wiper motor ground connection.

### Wipers Run on Wrong Speed

If commanding LOW results in HIGH operation (or vice versa):

1. Verify the LOW relay output is connected to the wiper motor's low-speed terminal, and the HIGH output to the high-speed terminal. They are easy to swap.
2. Confirm the speed request is being interpreted correctly by examining heartbeat byte 6: bit 7 (0x80) reports LOW relay state and bit 3 (0x08) reports HIGH relay state.

### Switch Inputs Not Responding

Check:

1. Verify the switch is wired between the module input and chassis ground.
2. Confirm that the switch makes solid contact (resistance < 1Ω when closed).
3. Verify operation by examining heartbeat byte 7. The corresponding bit should set when the switch is closed and clear when the switch is open.

### Configuration Commands Not Responding

Check:

1. Verify guard byte is 0x77 (first byte of data).
2. Confirm you are using the correct CAN ID.
3. Check that your CAN tool is sending extended (29-bit) frames.
4. Verify the module heartbeat is visible.

## Factory Reset Procedure

To restore all settings to factory defaults:

**Step 1: Write 0x00 to address 0x07 (Init Stamp)**

```
TX to 0x0CFF1D80: [77] [07] [00] [00] [FF] [FF] [FF] [FF]
```

**Step 2: Wait for success response**

**Step 3: Power cycle the device**

Remove power for at least 2 seconds, then reconnect. The module will initialize with default configuration and will indicate the initialization with two short LED blinks.

# Warranty Information

Infinitybox, LLC ("Infinitybox") warrants against any defects in materials and workmanship to the Product's modules, wiring harnesses and accessory modules for a period of one (1) year from the first date of purchase. Subject to the terms of this warranty described below, Infinitybox will replace any such defective Product that is returned to Infinitybox within the one (1) year period from initial purchase. Replacement of any defective part or Product will not extend the applicable warranty period.

The warranty does not apply to: (i) any Product that is not installed in compliance with the applicable Product documentation; (ii) any defect in, or failure of, the Product resulting from an accident, shock, negligence, water immersion or misuse; (iii) any Product that has been modified, adjusted, repaired, or disassembled by any party other than Infinitybox; or (iv) any defect other than in materials and workmanship.

This warranty covers only the original purchaser of Product purchased from an Infinitybox authorized dealer in the United States. In order to receive warranty service, purchaser must provide Infinitybox with a copy of the receipt stating the dealer name, product purchased and date of purchase. Products found to be defective during the warranty period will be replaced (with a product deemed to be equivalent or better) at the discretion of Infinitybox.

Infinitybox's sole liability for any defective Product is limited solely to the replacement of Product pursuant to this warranty. Infinitybox reserves the right to replace any repairable parts with new or refurbished parts.

INFINITYBOX DISCLAIMS ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, SUCH AS WARRANTIES OF MERCHANTABILITY AND FITNESS FOR PURPOSE. IN NO EVENT SHALL INFINITYBOX BE LIABLE FOR ANY PUNITIVE, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES, INCLUDING WITHOUT LIMITATION, LIABILITY FOR LOSS OF USE, LOSS OF PROFITS, LOSS OF PRODUCT OR BUSINESS INTERRUPTION HOWEVER THE SAME MAY BE CAUSED, INCLUDING NEGLIGENCE.