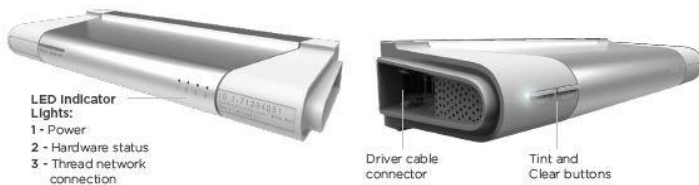


## Tint Driver User Guide



### INTRODUCTION

Each unit of Halio smart tinting glass is controlled by a Halio Tint Driver. The Tint Driver supplies the precise power required to achieve the desired tint level, quickly efficiently, and reliably. The Halio Drivers are housed in the Halio Component Cabinet.

The Tint Driver communicates with the Halio System Gateway wirelessly using Thread. Tinting is most often automatically controlled by the Halio cloud-based software. However, the Tint driver also provides a local user interface for setup, manual control, and troubleshooting.

### USING TINT DRIVER STATUS INDICATORS

#### TINT and CLEAR - Blue/White

- Blue Blinking - actively tinting. Blinks Fast when current is high, slower as current reduces.
- White Blinking - clearing/bleaching.
- Red – not connected to Halio glass

#### POWER (LED 1) – Green/Red

- Green – Power on
- Red – Software fault indication. Firmware has detected a fault issue. See Troubleshooting to resolve.

#### HARDWARE STATUS (LED 2) – Red

- Off – hardware is connected and functioning normally
- Red – Hardware fault. Driver has detected the glass Sense line voltage is out of range. The driver will not tint or clear until resolved. See Troubleshooting for more.

#### WIRELESS NETWORK STATUS (LED 3) – Green/Orange/Red

- Green – connected to Solid or Blinking Yellow if on Thread network.

### USING TINT DRIVER BUTTONS

#### TINT Button - Front of driver

- Press - starts and stops glass tinting. If the tint button is not pressed again after the driver starts tinting, the driver will tint the glass to maximum tint level.

#### CLEAR Button - Front of driver

- Press – starts and stops glass clearing. If the clear button is not pressed again, the driver will clear the glass to the maximum clear state. The LED may flash white for several while this completes.

#### ID Button - Side of driver near power input

- Pressing this button will be used to start a Thread network join process. Press it when instructed to do so by the Halio Installation app.

#### RESTART Button – Pinhole button on front of driver

- Click– restarts the EC Driver but does not clear any device settings or network connections.

### TROUBLESHOOTING

#### General Troubleshooting Tips

When you do not know where to start, think small.

- Read LEDs or error codes on one device at a time.
- Manually see if you can tint or bleach the windows using the buttons on the left side of the driver.
- Try another known working driver with suspect window or known working window with suspect driver.
- Do a continuity test with a multimeter to see if all wires in the cables between the window and driver are good.

#### ***Trouble Scenario – Halio Glass will not tint or clear***

*A Halio glass panel will not respond to commands to tint or clear from the app, keypad or other Halio interface.*

#### Troubleshooting Steps:

To determine the root cause, try the following troubleshooting steps:

1. Check wiring connections:
  - a. Check all exposed wire terminations for loose or frayed wires.
  - b. Tip: While the connector is supposed to keep cables in tight, many people will use the wires to pull the connector out. This can sometimes leave wires loose or expose wire.

2. Check driver with another window:
  - a. To determine if the driver is at fault, try trading cables from one window/driver combination to another
  - b. Manually tint or bleach the suspect driver to see if the driver works correctly with new window and cable.
  - c. Manually tint or bleach driver with suspect cable to see if it will work with the new driver.
  - d. If the problem follows the cable there may be an issue with the window or cable.
3. Check wiring voltages at Driver:
  - a. Using the service loop, remove enough cable and connector you can work clearly on the cable connector.
  - b. Using a multi-meter to measure dc voltage on the wires, pull from the connector pins 1,3,5,6 from the connector.
  - c. *This is the same for waterproof and non-waterproof cable.*
4. Check wiring voltages at Halio glass:
  - a. Take careful note of which cables go where as the colors of the wire may be different.
  - b. Take the Multi-Meter and turn it to VDC.
  - c. Measure the voltage between pins 1 and 6 first, note the voltage. (this voltage will depend on how tinted or bleached the window is)
  - d. Measure the voltage between pins 3 and 5 now, again to note the voltage.
  - e. If voltage is about the same between pins 1-6 and 3-5, this is a healthy panel.
  - f. If significant voltage is different between pins 1-6 and 3-5 is different. This would indicate the panel has issues and may need to be replaced.
  - g. Take multiple measurements to make sure that your findings are consistent.
5. Check control using a known good cable:
  - a. Once the Glazier starts to expose the suspect window using the known good cable you should have in your tool kit, bypass the cable running through the frame and go straight from pigtail to multi-meter and measure voltage again.
  - b. If voltage is similar put a new termination on the end and try to manually tint and bleach the window.
  - c. If the window responds correctly you have a bad cable and will need to replace the cable.

## REGULATORY COMPLIANCE



FCC ID No. 2AJXY-DR200

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Note that changes or modifications not expressly approved by Kinestral Technologies could void the user's authority to operate the equipment.



IC No. 22717-DR200

This Class B digital apparatus complies with Canada ICES-003.

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

Operation is subject to the following two conditions: (1) this device may not cause interference and (2) this device must accept any interference, including interference that may cause undesired operation of the device.



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[statement pending]