



SHADE INNOVATIONS IP MOTOR DRIVER

This driver enables you to control a Shade Innovations (**SI**) IP motor from Control4. OS 2.9.0 or higher is required, although the '*AUTO-ADD Motor Drivers*' function requires OS 4.0.0 or higher. This driver also offers an innovative *Limit Setup Mode* which can be used with a Control4 App (iOS/Android) or Touchscreen to initially configure the motor, including setting its direction and limits (see the **LIMIT SETUP MODE** section below).

DRIVER OVERVIEW

This driver has three personalities: it can control a single motor, it can control a Group of motors and it can, in addition, act as a Coordinator for the all the ***Shade Innovations IP Motor Shade*** drivers in the project.

Motors: essentially, you need one instance of the driver for each physical Shade Innovations IP motor you wish to control. This is simplified by using the '*AUTO-ADD Motor Drivers*' Action and/or using SDDP and installing each discovered SI motor. The first instance you install will automatically become the *Designated Coordinator*. More on this later, but this has no impact on the normal operation of its associated motor or Group.

Groups: **SI** Groups are loaded by name into each IP motor. They have been designed to ensure all members of a Group start moving simultaneously, without any so-called 'popcorn' effect usually noticed when using another type of "Group" driver. There is an automated way to easily *AUTO-ADD* all the drivers required to operate **SI** Groups, in conjunction with the *Designated Coordinator* driver. Refer to the Installation Instructions below. In addition, the *Designated Coordinator* driver provides a very useful Action to '*Refresh All Info and Report*', which summarizes the known status of the IP motors, Groups, and related drivers in the project.

UDP Keys: as the **SI** motors rely on encrypted UDP for some of their communications, there is an additional consideration for UDP Encryption Keys. Please refer to the specific section '**UDP ENCRYPTION KEYS**' below for more details.

INSTALLATION INSTRUCTIONS

- **Preamble:** in some cases, you would have the opportunity of pre-commissioning **SI** motors using **SI** Tools. If you can, you could set the Location of each motor to the same room name as what you have defined in the Control4 project. This will make the '*AUTO-ADD Motor Drivers*' operation even simpler as the drivers will automatically be installed in the correct Control4 room. Note that the case is not important: a location defined as 'kitchen' in the motor using the SI Tools will correspond to a room named 'Kitchen' in Control4.
- In a new project, you first need to install an initial ***Shade Innovations IP Motor Shade*** driver. It is best to use SDDP to perform this task, and any motor will do as the first installed. Please note that

this first driver will automatically become the *Designated Coordinator* driver. It will have special capabilities in addition to being able to control its motor.

- Once the first driver is installed, there are three options to install the others:
 - If you are running on Control4 OS 4.0 and above, you may use the '*AUTO-ADD Motor Drivers*' Action at the *Designated Coordinator* driver. First, Gather INFO, as this will locate all the **SI** motors currently connected to the network. Then, select to create the drivers in their predefined room (from the **SI** Tools) or in a default room you designate. Each new driver's name will be its pre-programmed Label (if any) followed by its **SI** deviceID (6 hexadecimal digits), all prefixed with 'SI_Motor_' or with the prefix you specify.
IMPORTANT: after adding, you will need to drag and drop the SDDP connection into each corresponding driver in Composer Connections. The **SI** deviceID will help you with this task.

The AUTO-ADD process takes time to ensure all properties are set properly. Watch the Driver Information field as the process runs. At the end, go back to the *Designated Coordinator* driver and run its Action '*Print Messages from AUTO-ADD Operation*' for a summary of what has happened.
 - You may always install each motor's driver individually using SDDP. If not using '*AUTO-ADD Motor Drivers*', this is the preferred way.
 - Alternatively, you may set each IP motor to a static IP address or ensure it always receives the same IP address from the DHCP server via a MAC-based reservation. Then, manually add a driver for each and manually enter the IP address of each motor in Composer Connections.
- The Full Course duration will be calculated automatically when the shade is moved fully down or fully up. Use the Actions to move the shade if necessary.
- You may specify the Blind Type and Blind Movement in the Properties area. They are solely used to customize the Navigator display.
- Optionally connect Control4 keypad buttons to the driver's Button Links. The Toggle Link is the most flexible.
- When not using *AUTO-ADD Motor Drivers*, repeat the above steps for each motor to be included in the project. When done, rename the Shade devices with names meaningful to the users.
- If your motors have not been pre-commissioned with **SI** Tools, you may now use '*MOTOR SETUP ACTIONS*' (also see the **LIMIT SETUP MODE** section below). This will allow you to toggle the motor Direction, set its Upper and Lower limits, and optionally set its internal Label, its internal Location and its Saved Positions, all using appropriate Actions. It may be useful to set the internal Label from the Control4 device name and the internal Location from the Control4 room name, as this may simplify future additions should your project need to be rebuilt in the future.
- Once the motors are programmed (or each time you make a modification using other **SI** Tools), you should run each corresponding Shade driver's Action '*Synchronize with Motor*'.

- Once the motor drivers are installed, the easiest way to install Group drivers is to go to the *Designated Coordinator* driver (easy to locate, as it is shown in a property for each motor driver) and run its Action '*AUTO-ADD Group Drivers*'. The first Operation gathers all information and reports on the current **SI** IP setup (but does not add anything). Once you are satisfied, run one of the Operations to ADD Group drivers. You may specify the room to which all the new drivers will be added (the default is the same room as the *Designated Coordinator* driver). Each new driver's name will be its group name, prefixed with 'SI_Group_' or with the prefix you specify. The driver properties are filled automatically, including the Group selection. You may, of course add Group drivers manually, making sure their Driver Type is set to 'Shade Group'.

The AUTO-ADD process takes time to ensure all properties are set properly. Watch the Driver Information field as the process runs. At the end, go back to the *Designated Coordinator* driver and run its Action '*Print Messages from AUTO-ADD Operation*' for a summary of what has happened.

- If you are adding a Group driver (with Driver Type set to '*Shade Group*') manually, select the Group to be controlled using its 'Available Groups' property. Use the Action '*Refresh Group List*' as appropriate. Rename the Group drivers with names meaningful to the users.
- Although there is a one-to-one relationship between motors and **Shade Innovations IP Motor Shade** drivers (with Driver Type set to '*Individual Shade*'), you may have several instances of the driver (with Driver Type set to '*Shade Group*') controlling the same Group. A use case: a Group is defined as 'second floor shades' and includes shades in several rooms. You may want to have one driver (with Driver Type set to '*Shade Group*') in each of the several second-floor rooms to simplify access to the Group for users with Control4 Navigators.
- When you are done, Refresh Navigators.

PROPERTIES

ALL DRIVERS

- **Driver Version** displays the version of this driver.
- **Driver Information** displays various status messages about the driver.
- **Debug Mode** turns Debug Mode Off or On (with output to the Lua Output window).
- **Debug Duration in Minutes** sets the duration of Debug On.
- **Driver Type** specifies if this driver controls a specific Individual Shade (or motor) or a Shade Group.
- **On STOP Command when Already Stopped** allows you to specify an action to move to a Saved Position (SP) when pressing STOP while the Shade is actually stopped (not moving). These positions must be defined during Motor Configuration. **IMPORTANT NOTE:** while the Control4 Navigators (including Apps) do not provide a Stop button when the motor is stopped, you may trigger this with a keypad button connected to the driver's Stop binding or via a programming Command, including with an Experience button.

- **Designated Coordinator Driver** indicates which driver in the project is the *Designated Coordinator*. This is done automatically at startup or when the Action '*Refresh Designated Coordinator*' is used. The *Designated Coordinator* driver is always the driver with the lowest Control4 device ID.

INDIVIDUAL SHADE

- **Motor Available via IP** indicates the state of the IP (TCP/TLS) connection with the motor.
- **Motor Model** lists the motor model, as well as its type, pre-defined label and pre-defined location, if available.
- **Motor Characteristics** lists several informational items retrieved from the IP motor. This may be useful for troubleshooting purposes.
- **Saved Positions** displays the Saved Positions currently programmed into the Motor. These may be changed with the Action '*Set Motor Saved Positions (SP)*'.
- **Calculated Full Course** indicates the course duration (in seconds) from fully open to fully closed. This value is calculated automatically each time the shade is moved fully and is used to manage the slider in the Control4 Navigator interface.
- **Current Motor Level** indicates the current level (in Control4 terms – 100% meaning fully Open and 0%, fully Closed) of the IP motor.

SHADE GROUP

- **Available Groups** (Group Type only) allows you to select which **SI** Group this driver will control. You may request a new list by using the Actions '*Refresh Group List*'. Several instances of the driver may be assigned to control the same Group.
- **Selected Group Name** indicates the **SI** Group currently controlled by the driver.
- **Group Maximum Course** displays the longest Course of all the motors controlled by this Group.
- **Current Group Level** indicates the current level (in Control4 terms) of the Group, based on the current level of its motors. When the motors are not all in the same relative position (within 10%), the Group's position will be undefined.

DESIGNATED COORDINATOR DRIVER

- **Allow Programming Command to Start Setup Mode** enables the programming command to Start *Limit Setup Mode*. Otherwise, *Limit Setup Mode* may only be started and controlled using Actions. This applies to all the **SI** motor drivers.
- **SI Group Configuration** lists the various commands available for configuring Groups in individual Motors. Select the operations in the recommended order: FIRST, SECOND and LAST. **IMPORTANT:** Nothing is sent to the motors unless the LAST (Broadcast) operation is selected.
- **Select an SI Group** appears when you wish to Define or Update members of an **SI** Group.

- **Enter a Name for this NEW SI Group** appears when you select ****NEW GROUP**** to create a new Group in the project. The name may be up to 20 alphanumeric characters and may include spaces, periods (.) and underscores (_). Group names are case-insensitive, which means that you cannot create a Group named 'Kitchen' if you already have a Group named 'kitchen'.
- **Select Motors for this SI Group** is populated with the current Motor members of the selected Group. You may add or remove members. Because this is a single driver with many personalities, Group drivers will also be shown, but they may not be selected a part of a Group. If selected, they will simply be ignored. If you remove all selected members from a Group, this will effectively delete the Group from the project. **IMPORTANT:** once you have added (or removed) members, select the option *'Broadcast this SI Group to Motors'* on the *'SI Group Configuration'* property.
- **UDP Server Status** indicates the status of the two UDP communications ports. If not ONLINE, there is likely a conflict in the project with another driver using ports 51002 and/or 51003.

PROGRAMMING COMMANDS AND ACTIONS

While this driver supports standard Control4 programming commands for Shades as well as Groups, it also offers its own specific commands (Individual and Group). Commands and Actions allow you to *'Identify'* ('Jog' the motor or flash the motor's LED) individual motors or whole Groups. Commands also allow you to set individual motors or whole Groups to specific Saved Positions and to Next Up or Next Down Saved Position (SP) for individual motors. Specific SPs will yield reliable results for Groups, if all the Group member motors are programmed similarly.

Note: as the status of Groups may be influenced by random positioning of individual shades within the Group, you may rely only on the following specific Events for ***Shade Innovations IP Motor Shade*** drivers (when *Driver Type* is set to *'Shade Group'*): *Has Fully Opened*, *Has Fully Closed*, *Level Changed* and *Target Level Changed*. Do not use the other driver Events for Groups. However, all Events for the ***Shade Innovations IP Motor Shade*** drivers are available when *Driver Type* is set to *'Individual Shade'*.

Some Actions are specific to driver types or to the *Designated Coordinator*.

UDP ENCRYPTION KEYS

Note: this is used for proper operation of the **SI** motors and Groups (Group commands and individual motor feedback). Each IP motor thus holds an encryption key for UDP communications and **all motors in a Project must have the same key**. This is easily accomplished using the *Designated Coordinator* driver, as described below.

When all the ***Shade Innovations IP Motor Shade*** drivers are installed and operational, simply go to the *Designated Coordinator* driver and run its Action *'Manage Project UDP Encryption Key'*. You may retrieve the current key from one of the motors or generate a new randomized key or even enter a 32-digit (16 hex bytes) key manually. This is then broadcast to all the ***Shade Innovations IP Motor Shade*** drivers which, in turn, update their connected motor. Watch the *Designated Coordinator* driver's Lua Output window for progress of this operation (no need to turn Debug On). You may verify the status with the *Designated Coordinator's* Action to *'Refresh All SI Info and Report'*.

LIMIT SETUP MODE

Limit Setup Mode is a time-limited operation where the driver and the Control4 User Interface (iOS/Android apps as well as Control4 Touchscreens) are put in a special mode. The objective of *Limit Setup Mode* is to (optionally) set the Direction of the motor as well as its Upper and Lower limits. If the motor has already been configured and you wish to only adjust the Upper and/or Lower limit(s), read on below. The discussion here is based on using the driver's Actions. Once *Limit Setup Mode* is started, the Navigator interface for this motor will switch to the three button view (Open, Stop, Close) with Toggle (the Window icon). The operation of these controls is summarized in the table later.

INITIAL LIMIT SETUP MODE

The initial *Limit Setup Mode* operation is defined as follows (**read carefully!**):

- (Action or Programming) '*Start Motor Limit Setup Mode*' with the appropriate timeout. *Limit Setup Mode* will end when both limits are set or when the timeout expires (even if both limits are not set). Initially, you would select '*Reset both upper and lower limits*'.
- (Action, Programming or Navigator) Do an '*Increment Down (Small)*'. If the Shade moves up, do a '*Toggle Motor Direction*'. Verify that the Shade now moves in the right direction by doing another '*Increment Down (Small)*'.
- (Action, Programming or Navigator) Now, move the Shade to the desired Upper limit position. You may use '*Increment Up (Small)*' and/or '*Increment Down (Small)*' repeatedly for small moves or **CAREFULLY** for larger moves, '*Increment Up (Medium or Large)*', **being ready to Stop** before the Shade completely rolls around the motor with possible damage. The best way to do this is to move in larger increments close to the desired Upper position and then repeatedly '*Increment Up (Small)*' and/or '*Increment Down (Small)*'.
- (Action, Programming or Navigator) Once the desired Upper position has been reached, set the Upper Limit with '*Set Motor Limits*'.
- (Action, Programming or Navigator) Now, move the Shade to the desired Lower limit position. You may use '*Increment Down (Small)*' and/or '*Increment Up (Small)*' repeatedly for small moves or **CAREFULLY** for larger moves '*Increment Down (Medium or Large)*' (**being ready to Stop** before the Shade completely rolls down and starts rolling around the motor the other way, with possible damage). move in larger increments close to the desired Lower position and then repeatedly '*Increment Down (Small)*' and/or '*Increment Up (Small)*'.
- (Action, Programming or Navigator) Once the desired Lower position has been reached, set the Lower Limit with '*Set Motor Limits*'.
- Once both limits are set, the driver will end *Limit Setup Mode* automatically. However, you may end it at any time, leaving the motor in its current state. **DO NOT leave the motor without its limits set.**

ADJUSTING ONLY ONE LIMIT (UPPER OR LOWER)

- (Action or Programming) *Start Limit Setup Mode* with the appropriate timeout. *Limit Setup Mode* will end when the selected limit is set or when the timeout expires. Select '*DO NOT Reset Limits*'.
- (Action, Programming or Navigator) Now, move the Shade to the desired new Upper or Lower limit position. You may use '*Increment Up (Small)*' and/or '*Increment Down (Small)*' repeatedly for small moves or **CAREFULLY** for larger moves '*Increment Up (Medium or Large)*' or '*Increment Down (Medium or Large)*' (**being ready to Stop** before the Shade completely rolls around the motor with possible damage).
- (Action, Programming or Navigator) Once the desired Upper or Lower position has been reached, set the appropriate Limit with '*Set Motor Limits*'.
- Manually '*End Motor Limit Setup Mode*' or wait for the timer to end it automatically.

USING THE NAVIGATOR BUTTONS DURING LIMIT SETUP MODE

- **Basic rule:** once *Limit Setup Mode* is activated, the Navigator buttons go into a special mode (the Slider disappears). Once *Limit Setup Mode* ends, the slider will be restored, but you may need to switch to it manually using the setup icon in the upper right.
- **Basic rule:** if the motor is moving, hitting any button (Open, Stop, Close, Toggle) will Stop the motor. The Navigator button presses highlighted below will only work then the motor is stopped.
- **Basic rule** (motor stopped): the Toggle button may be single-tapped, double-tapped or triple-tapped with different effects (set Upper Limit, set Lower Limit, erase both limits). Tap quickly.
- **Basic rule** (motor stopped): hitting the Open or Close buttons will do the small incremental moves. To start larger moves (Up or Down), hit the Stop button followed quickly with the Open (Large Increment Up) or the Close (Large Increment Down) button.
- **Basic rule** (motor stopped): double tapping the Stop button reverses direction.
- The following table summarizes the functions available with Navigator buttons during *Limit Setup Mode*:

		MOTOR IS MOVING	MOTOR IS STOPPED
OPEN BUTTON (LEFT)	SINGLE TAP	Stop	Small Increment Up (100ms)
	IMMEDIATE TAP AFTER STOP	Small Increment Up (100ms)	Large Increment Up (2000ms)
STOP BUTTON (MIDDLE)	SINGLE TAP	Stop	No Effect
	DOUBLE TAP		Reverse Direction (motor will jog by itself)
CLOSE BUTTON (RIGHT)	SINGLE TAP	Stop	Small Increment Down (100ms)
	IMMEDIATE TAP AFTER STOP	Small Increment Down (100ms)	Large Increment Down (2000ms)
TOGGLE BUTTON (WINDOW ICON)	SINGLE TAP	Stop	Register Upper Limit (if not already set) and Jog Down once
	DOUBLE TAP	Stop	Register Lower Limit (if not already set) and Jog Up once
	TRIPLE TAP	Stop	Erase both limits and Jog twice

SUPPORT

For support on this driver please go to www.shadeinnovations.com. Give a detailed description of the problem; also include the version number of the driver and the version of Control4 OS that you are using.

CHANGELOG

1.0.1 December 4, 2025 Initial version (Build 104)