Using the DIP switches to change settings (program mode)

It is possible to set globe rotation time, fine-tune globe vertical position setpoint, or set led strip cycle and timing without using the serial monitor or buttons / LCD.

Procedure to enter and exit program mode:

1. while power is OFF, indicate which setting you want to change with DIP switches 2 to 5 (signals 'SW3' to 'SW0'), as outlined below. Do not use any other switch setting. Note that DIP switch 1 (signal 'SW4') is not currently used.

- ON ON ON ON: change led strip settings
- ON ON ON OFF: set rotation time
- ON ON OFF ON: fine-tune globe vertical position reference

2. Power ON. Then, while power is ON, set the DIP switches as indicated below.

=> If initial switch setting isON ON ON ON: set a ledstrip cycle and timing, as follows:

- ON ON ON ON: switch off led strip
- ON ON ON OFF: constant brightness white
- ON ON OFF ON: constant brightness magenta
- ON ON OFF OFF: constant brightness blue
- ON OFF (T1) (T0): fade between white and blue
- OF ON (T1) (T0): cycle between all colors (blue, cyan, green, yellow, red, magenta, blue,...)
- other switch settings do not affect the last set led strip cycle and timing

(T1) (T0) sets led strip timing:

- ON ON: timing 1 (fastest)
- ON OFF: timing 2
- OFF ON: timing 3
- OFF OFF: timing 4 (slowest)

=> *If initial switch setting is* ON ON ON OFF: set a globe rotation time, as follows:

- ON ON ON ON: globe rotation OFF ('compass' behavior)
- ON ON ON OFF: 12 seconds
- ON ON OFF ON: 9 seconds
- ON ON OFF OFF: 7.5 seconds
- ON OFF ON ON: 6 seconds
- ON OFF ON OFF: 4.5 seconds
- ON OFF OFF ON: 3 seconds
- ON OFF OFF OFF: 2.4 seconds
- other switch settings: globe rotation OFF

=> *If initial switch setting is* ON ON OFF ON: fine-tune globe vertical position setpoint (in millivolt units), as follows:

- ON ON ON ON: 1000 millivolts
- ON ON ON OFF: 1200 millivolts
- ON ON OFF ON: 1400 millivolts
- ON ON OFF OFF: 1600 millivolts
- ON OFF ON ON: 1800 millivolts

- other switch settings: 1000 millivolts

Note that setpoint values refer to values as read by the ADC, scaled to 10 times the hall-sensor output for the set vertical position. In case you changed the analog gain to 15 (see section 'PCB'), the values set will be 1500, 1800, 2100, 2400 and 2700 millivolts, respectively.

3. Power OFF. Then, while power is OFF, set switches 2 to 5 to 'OFF' again. The desired setting has already been stored (in EEPROM memory).

4. Power ON again.