

TALON6 IP-Switch User Manual and description

Talon6 IP-Switch is a controller with 8 relays that can be managed via Internet (using PC, Mobile phone, tablet, etc) or manually in the observatory with three external push buttons on the controller box.

With this system we can turn on and off, from everywhere in the world, the equipment we use in our observatory, let us say cameras, PC, mount, fans, power supplies and other peripherals that are mains powered or else DC powered, with a maximum of 10 amps. It can work as a standalone controller or in conjunction with our safety observatories controllers TALON6 RoR, DOME and TRIAC.

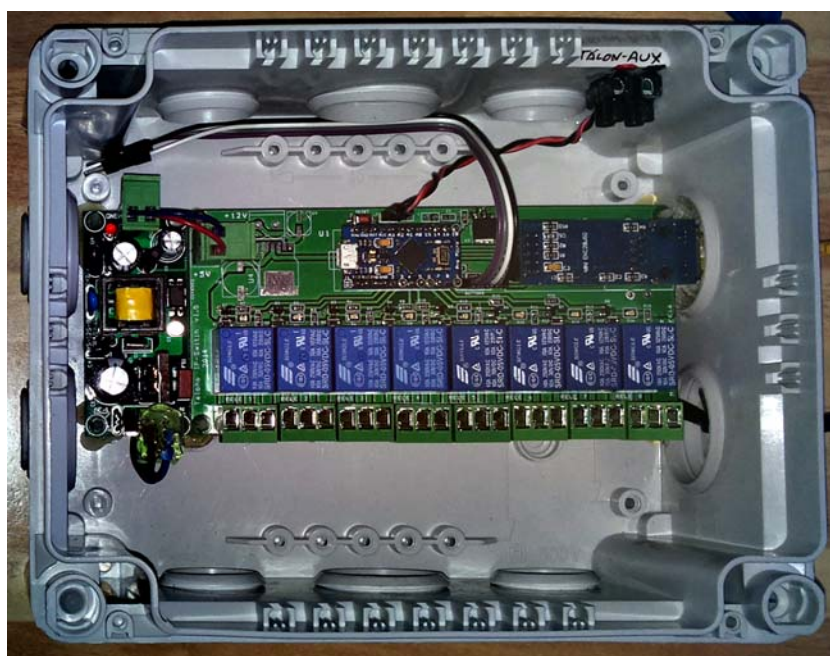


Fig. 1. The Talon6 IP-Switch

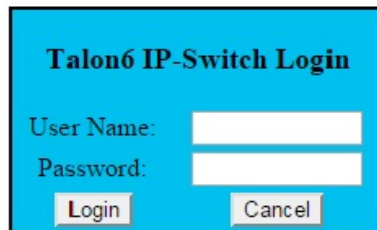
The IP-switch controller has 3 external push buttons (B1, B2 and B3) intended for manual use without needing the internet access. In the controller setup these buttons can be assigned to different relays or relays groups. For example, If we have the white light of the observatory governed by relay number 2 we can assign this relay to a button, let us say B1. Every time we make a long push on this button the light will be switched on.

To switch it off we make a short push on the button. If we forget to turn it off manually we can always turn it off through internet using a mobile phone, a PC, etc. accessing to the IP address of the controller.

Access to the IP-Switch

First thing is to connect the controller to the mains and the network cable to our router.

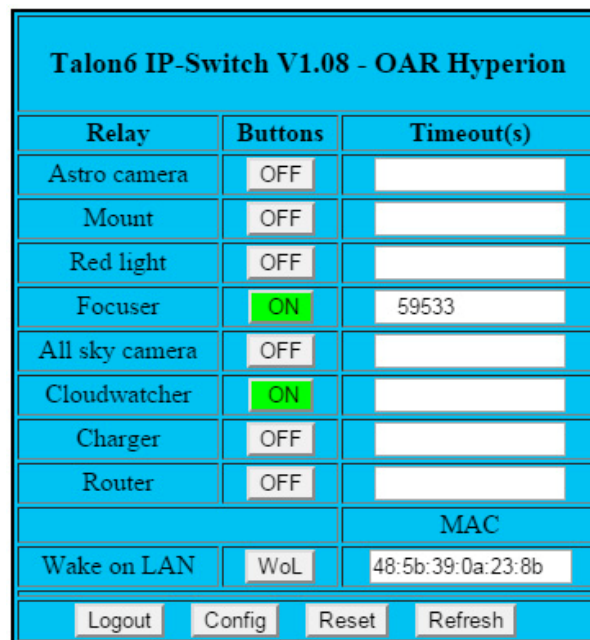
1. Get access to the IP-Switch typing its IP address in your favorite browser. The default IP address is: **192.168.1.100:250**. The login page should appear:



The login page is a blue-bordered form with the title "Talon6 IP-Switch Login". It contains two input fields: "User Name:" and "Password:". Below the fields are two buttons: "Login" and "Cancel".

Fig. 2. Login page

2. Type the username and password and press the login button (**admin/admin** by default. It can be configured as you like).
3. The control panel of the ip-switch is shown in the browser.



The control panel is a blue-bordered interface titled "Talon6 IP-Switch V1.08 - OAR Hyperion". It features a table with three columns: "Relay", "Buttons", and "Timeout(s)".

Relay	Buttons	Timeout(s)
Astro camera	OFF	<input type="text"/>
Mount	OFF	<input type="text"/>
Red light	OFF	<input type="text"/>
Focuser	ON	59533
All sky camera	OFF	<input type="text"/>
Cloudwatcher	ON	<input type="text"/>
Charger	OFF	<input type="text"/>
Router	OFF	<input type="text"/>
MAC		
Wake on LAN	WoL	48:5b:39:0a:23:8b

At the bottom of the panel are four buttons: "Logout", "Config", "Reset", and "Refresh".

Fig.3. Control panel.

Description and use the of the control panel

We will describe it from top to bottom.

At the top of the control panel (Fig. 3) the proper name and version of the system is shown and then the name assigned to it by the user, in our case "OAR Hyperion". This name can be customized by pushing the "Config" button and writing the new name in the text window of "Device", then save the changes pushing the "Save" button.

In the control panel three columns named **Relay**, **Buttons** and **Time out** are shown.

- **The Relay column** represents the relays available to turn on or off. Their names can be customized in the same way we did with the device name, but in their proper text windows. Don't forget pushing the "Save" button to save the changes.
- **The Buttons column** shows the control buttons corresponding to each relay that will be pushed to change its status. OFF and gray color indicates that the relay is deactivated. Pressing it will change the text to ON and the color to bright green, indicating that the relay is activated.
- **The Time out column** allows turning on a relay for a given number of seconds. Just typing the time (as the number of seconds or as Hh, Mm, Ss) and pressing the corresponding OFF button the relay turns ON and remains activated during the specified time. The refresh is automatically activated to show the countdown in seconds. When the countdown reaches the zero value the relay is switched off. Once all the timeouts expire the refresh is automatically deactivated. The desired time can be written before the activation of the relay or with the relay already activated. This allows programming a delayed switch off without affecting elements already powered.

Next in the control panel there is a row for the **Wake on LAN** feature. Just put the MAC or physical address of the equipment you want to turn on in the corresponding window and press the WoL button. The equipment will be turned on.

At the bottom of the control panel four buttons can be seen: Logout, Config, Reset and Refresh.

- **Logout button.** When this button is pushed the session ends and the login page is shown.
- **Reset button.** Pushing this button deactivate all the activated relays, cancelling all the timeouts pending and deactivating the

refresh. This button does not reset the personal settings. This is not the "Reset to factory settings" that we will explain later and that can only be done manually by pushing the reset button (physical button placed on the PCB) during more than 5s.

Refresh button. It allows to manually activate and deactivate the refresh of the webpage. If refresh is activated the webpage is reloaded at fixed time intervals. The refresh interval can be customized pushing "config" and writing the number of seconds in the text window corresponding to "Refresh time".

- **Config button.** When this button is pushed the IP-Switch configuration page is shown. Here we can customize and define several parameters. Two sections can be distinguished:

Talon6 IP-Switch Configuration											
		B1	B2	B3	RoR		B1	B2	B3	RoR	
Relay 1	PC-power	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Relay 5	Astrocamera	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Relay 2	Focuser	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Relay 6	Mount	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Relay 3	Dome	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Relay 7	All-sky camera	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Relay 4	Red light	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Relay 8	Router	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Device		OAR Hyperion				Router		<input checked="" type="checkbox"/>	Cancel		Save
New user		admin		New pass			Repeat pass		
IP address		192.168.1.100		GW IP address		192.168.1.1		Port		250	
Refresh time(s)		2						Cancel		Save	

Fig.5. Configuration page

- The first section allows to customize the relays and device names, as well as assigning relays to buttons. The tick labeled as "Router" allows to assign the last relay (Relay 8) to the router to automatically restart it when the internet connection is lost. Once the changes have been made push the save button of the section to save them and show again the control panel.
- The second section allows us to change the username and password for accessing the IP-Switch (that are admin/admin by default) as well as the network parameters and the refresh time. Once the changes have been made

push the save button of the section to save them and show again the control panel.

For the network parameters three text windows are shown where you can configure the IP address and port assigned to the IP-Switch and the Gateway address (Router). By default the IP address is 192.168.1.100, the port is 250 and the gateway address is 192.168.1.1.

If you do not remember the user and password or the network parameters, you can always reset the IP-Switch to the factory settings by pushing the reset button for more than 5s. It is located on the top of the PCB board for this purpose.



Fig.4. Reset to factory settings.

Assigning a Relay to a button for manual use.

Assigning a relay to a button is performed in a very simple way pushing the **Config** button on the control panel. Let us see an example of this.

When the **Config** button in the control panel is pushed the configuration page is shown. As seen previously, the names of the relays and the name of the device can be customized in the bottom section "Names" (by default they are defined as Relay1, Relay2 ... Relay8).

Several gray checkboxes can be seen beside each relay with a header: B1, B2, B3 and RoR:

- B1: Button 1
- B2: Button 2
- B3: Button 3
- RoR: TALON6 controller

The first three columns (B1, B2, B3) allow us to select (by clicking in the check box) the relays that we want to switch on or off when pushing the corresponding button.

The relays checked in the RoR column will be turned off when the Talon6 ROR controller closes the roof or the shutter of the observatory.

To identify the physical push buttons in the controller we can say that looking at the front of the controller box, the buttons are numbered clockwise.

A practical example: Configuring a button.

Let us assume that we want to use Button 1 to turn on the astrocamera and the mount, Button 2 to turn on the red light, and we want to turn off the focuser, the dome the astrocamera, the mount and the all-sky camera when TALON6 controller closes the roof of the observatory. We also want to use Relay8 to restart the router when the internet connection is lost.

We just have to check the boxes as shown in figure 6 and then push the "Save" button.

The screenshot shows the 'Talon6 IP-Switch Configuration' interface. It features a table with columns for 'B1', 'B2', 'B3', and 'RoR' for each relay. The relays are configured as follows:

Relay	Device	B1	B2	B3	RoR
Relay 1	PC-power	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Relay 2	Focuser	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Relay 3	Dome	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Relay 4	Red light	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Relay 5	Astrocamera	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Relay 6	Mount	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Relay 7	All-sky camera	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Relay 8	Router	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Below the table, there are fields for 'Device' (OAR Hyperion), 'Router' (checked), and buttons for 'Cancel' and 'Save'. At the bottom, there are fields for 'New user' (admin), 'New pass' (.....), 'Repeat pass' (.....), 'IP address' (192.168.1.100), 'GW IP address' (192.168.1.1), 'Port' (250), and 'Refresh time(s)' (2), with 'Cancel' and 'Save' buttons.

Fig6. Configuring buttons

We can also associate other relays already selected or not to other buttons.

One of the advantages of using this IP-Switch is the possibility of using timers. That is, a relay can behave like a pushbutton for turning on or reset a PC connecting it to the physical pushbutton of the PC. Also turning on a light for a given time, or open or close the roof of the

observatory connecting one of the relays to the corresponding input or the TALON6 observatory controller.

Using a relay timeout

For this action the only thing to do is to place the time you want in the "Time out" text window beside the relay you want to activate and push the button when it is in its gray OFF state, switching to ON and green. When the countdown is complete it will switch to OFF and gray. You can also update the timeout any time just by writing the new time in the window and pushing the button (this time in ON state). Remember to deactivate the refresh to be able to write in the window.

The time can be specified in several ways. If you type a just number in the window, it will be interpreted as the number of second. You can also specify hours, minutes and seconds. For example 2h 30m 20s, 5h, 4h 20m, 10m 5s... In any case the expression will be evaluated computing the number of seconds, that is the number that will end up in the window to start the countdown.

Programming the equipment shutdown at the end of the observatory session

Another advantage, and perhaps the most interesting one is that we can define which relays we want to switch off when the TALON6 RoR, DOME or TRIAC controller orders closing the roof because the automation program has finished its session or because an emergency condition has aroused. In this way when an automated session ends up or when there is a safety closure we can be sure that our equipment does not wear out early because it has been turned on a long time without use.

In Fig6. we see how easy it is to select the relays that have to be switched off when a closure is performed by the controller TALON6. You need only to click its corresponding checkboxes in the "RoR". In the example of the figure Relays 2, 3, 5, 6, 7, will be turned off, corresponding in our case to Focuser, Dome, Astrocamera, mount and all-sky camera.

For this option to work, and if you already have a TALON6 roof or dome controller of any model you just have to connect the AUX output and input of the two equipments that are marked in red and black maintaining polarity.



Fig. 7. Aux output Talon6 ROR



Fig. 8. Aux input. Talon6 IP_Switch

We hope this manual is helpful to make it easier to understand how the IP-switch works and can be used.

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