

Technical Note

# Target power control using iC5700 BlueBox

May 2023



A **TASKING** Company

This Technical Note is describing how to utilize a solid state relay in combination with BlueBox and its accessories to gain control of the connected target's power source.

Python script example is attached to this document.

This script can be used to control the power state of a connected embedded target. This is useful when the power-cycle of the target device is needed.

**Tool requirements:**

- ✓ winIDEA IDE
- ✓ iC5700 BlueBox
- ✓ SSR - Solid state relay
- ✓ iSYSTEM ADIO module with power control pin - Output which controls SSR input side of relay

## AC applications

If you would like to toggle the target's power supply adapter which is powered from mains voltage, AC solid state relay should be used. If the solid state relay is not galvanically isolated, risk of damaging the power control pin by target is possible. Also, if the power control pin does not satisfy input specification of solid state relay, risk of damaging power control pin is still possible.

## DC application

When the target is powered through a DC power supply (e.g. 3.3V, 5V, 12V, 24V), a DC solid state relay should be used. If the solid state relay is not galvanically isolated, risk of damaging the power control pin by target is possible. Also, if the power control pin does not satisfy input specification of solid state relay, risk of damaging power control pin is still possible.

## Power control pin

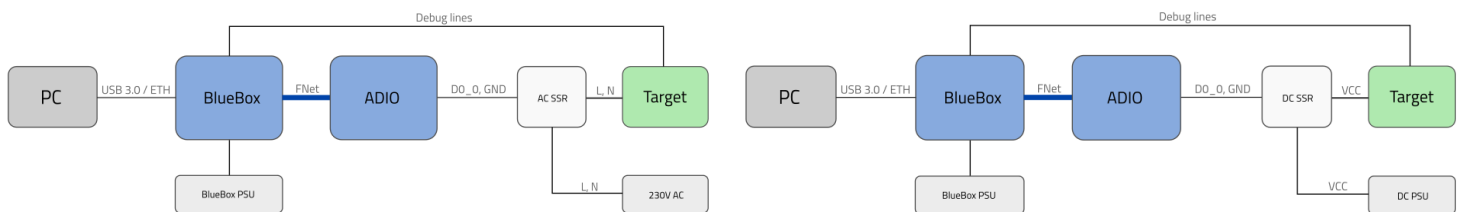
To control the relay a digital pin is required which will control the power of SSR. Usage of iSYSTEM ADIO is suggested.

## Configuration

Use the ADIO module to control the power of a currently connected target:

1. Connect:

- ADIO to the BlueBox via the FNet cable;
- Target to the SSR relay output according to following schemas:



2. Connect one channel from ADIO (e.g. DO\_0) to the solid state relay input side:

- If a solid state relay supports 3.3V input drive, connect it to any ADIO bank.
- In case, where a solid state relay needs a 5V input drive, make sure that it is connected to ADIO bank 2 or 3 (other banks support up to 3.3V levels).



*Make sure the Grounding wire is connected.*

3. In winIDEA go to *Hardware / Options / FNet* and find your ADIO in *Currently connected FNodes* list. Press *Refresh* and create a configuration for connected FNode - ADIO. More information in [Network description](#) in winIDEA Help.

4. Select your ADIO and press *Edit*.

5. Go to the *DIO* section and configure fields according to your connected setup. Make sure that *Direction* is set to *OUT*. More information in [ADIO configuration / DIO](#) chapter in winIDEA Help.

6. Open *View / HIL Monitor / View*.

7. Establish a debug session.

8. Toggle ADIO channel which is wired to the SSR by changing Value on HIGH / LOW. Solid state relay should be turned on / off, depending on the value set. If you have the target connected to solid state relay output terminals, target should also be powered on / off, depending on the Value of ADIO output pin.

Refer to winIDEA Help for more information about the [HIL Monitor](#) plugin.

## Python script example

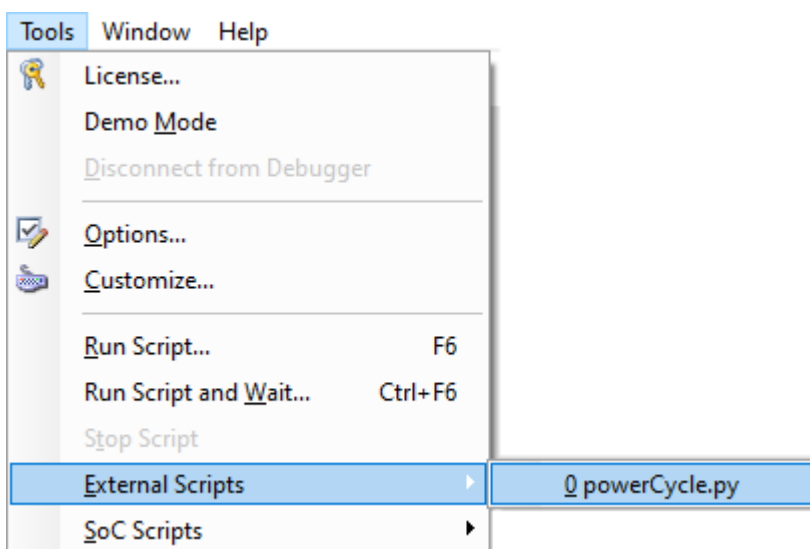
Download and unzip the script example via the link below:



## winIDEA Configuration

Follow these steps to run the script in winIDEA IDE:

1. Modify the attached script according to the required configuration.
2. Save it in the same folder as winIDEA workspace.
3. Connect solid state relay to iSYSTEM ADIO the same way as described in the Python script configuration.
4. Start a Debug session.
5. Select your Python script in *Tools menu / External Scripts*. This script will execute the operation.



To see if your selected solid state relay is SSR used in this example with iSYSTEM ADIO please refer to the [User Manual](#). SSR used in this example:

- AC Relay example [528-6210BXXTZB-DC3](#)
- DC Relay example [874-84137750](#)