**AVR Butterfly Appliance Control Module**

**User Manual**

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1. **GENERAL INFORMATION**

This User Manual provides information to effectively use the AVR Butterfly Appliance Control Module.

1. **AUTHORIZED USE PERMISSION ??**

AVR Butterfly Appliance Control Module is a device developed by FH Aachen Mechatronics Project Department and reserves all rights of the Software and any copies of it.

You agree not to make or permit the making of copies of the Software. You agree to comply with all applicable laws regarding use of the Software**.**

1. **CONTACTS**

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1. **TECHNICAL INFORMATION**

For assistance in using the system or if any unforeseen problems arise, contact a technical support specialist by sending an email to chrismajda@gmail.com or patrick.wiesen@gmail.com

1. **DEVICE AT A GLANCE:**

## What can you do with the AVR BUTTERFLY APPLIANCE CONTROL MODULE?

The AVR BUTTERFLY APPLIANCE CONTROL MODULE provides you with flexibility to control electrical appliances automatically using the following features:

* You can set and display the Real time
* You can operate two independent devices (230V; 10Amp)
* You can either switch the devices on or off
* You can choose to operate the device in two modes:

Timed mode: In this mode you can switch the device at a specific time

Count-down mode: In this mode you can switch the device after a specific amount of time

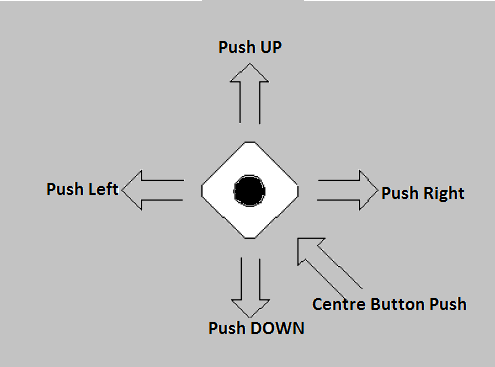
## SYSTEM SPECIFICATIONS:

* AT MEGA 169 MICROCONTROLLER powered device.
* Dimensions: 9 cm X 20 cm X 2cm
* Weight: 300gms
* LCD Display with 120 segments
* Joystick, 4 directions with centre push
* 32 kHz processing speed
* 4 Mbit Data Flash Memory
* 3V, 600 mA button cell battery
* Scroll through screens
* Keypad input 3 X 4
* Relay connections 230V 10A output
* Power Adapter 5V 2A

1. HOW TO INTERACT WITH THE DEVICE?

7.1 JOYSTICK USAGE:

The Joystick diagram (Fig3) shows the basic functionalities of the Joystick needed to operate the device. The joystick allows five positions in all: left, right, up, down and push of centre button.



7.2 USING THE KEYPADs

The keypad has 12 keys consisting of numbers and two special symbols. The respective key has to pressed as instructed in the manual. Refer section 8.0



1. GETTING STARTED
   1. SETTING UP THE DEVICE

The Device is supplied to Customer in an Operational state. One should strictly follow the precautionary measures mentioned in User Manual. The AVR APPLIANCE CONTROL MODULE is supplied to the customer in the off state, by plugging in the adapter to the power socket you will switch it ON and it is ready for use. Alternatively, the device can be powered using a battery.

Note: Powering the device with the adapter is preferable as compared to operating with a battery due to the limited capacity and lifetime of the battery.

* 1. **HOW TO USE?**

The following table gives the detail description of the device usage.

It shows the schematic of the LCD screen on the right and the corresponding set of instructions on the left.

|  |  |
| --- | --- |
| Possible segments for Home screen  Upper digits 1 and 2 to symbolize the devices connected.  Small arrows underneath light up if corresponding device is on.  Current time is displayed in a 24 hr format as  HH:MM:SS  Hold joystick Centre button for 5 sec to activate main menu.  Push Right for 3 sec to see the Time Remaining on the Device 1 countdown timer  Push Left for 3 sec to see the Time Remaining on the Device 2 countdown timer | 0.png |
| Possible segments for Time Remaining on the Device 1 countdown timer  Upper digit 1 to symbolize the device you are observing. The small arrow underneath lights up if device 1 is on.  Push Right for 3 sec to see the Time Remaining on the Device 2 countdown timer (20)  Push Left for 3 sec to see the Home Screen with current time (0)  Push Down for 3 sec to clear the countdown mode (shown with a visual confirmation CLEAR)  IMPORTANT: If the countdown timer was used then automatic timed functions are disabled. | 18.png |
| Possible segments for Time Remaining on the Device 2 countdown timer  Upper digit 2 to symbolize the device you are observing. The small arrow underneath lights up if device 2 is on.  Push Left for 3 sec to see the Time Remaining on the Device 1 countdown timer (18)  Push Right for 3 sec to see the Home Screen with current time (0)  Push Down for 3 sec to clear the countdown mode (shown with a visual confirmation CLEAR (19))  IMPORTANT: If the countdown timer was used then automatic timed functions are disabled. | 19.png |
| 19  Clear screen that shows visual confirmation that the countdown timer mode is deactivated for this device | 20.png |
| 1  Main menu : SET TIME  Push Down to enter current time  (4 to 8)  Push Right to the menu option Device 1 (2)  Push Left to the menu option Device 2 (3)  Hold joystick centre button to return to home screen (0) | 1.png |
| 2  Main menu : DEVICE 1  Push Down to see options for Device 1 (10)  Push Right to the menu option Device 2 (3)  Push Left to the menu option Set Time (1)  Hold joystick centre button to return to home screen (0) | 2.png |
| Main menu : DEVICE 2  Push Down to see options for Device 2 (10)  Push Left to the menu option Device 1 (2)  Push Right to the menu option Set Time (1)  Hold joystick centre button to return to home screen (0) | 3.png |

* 1. RESET:

In order to reset the device, just power off the device and then switch th power back “on”.

9 SAFETY PRECAUTIONS:

* The device is to be used by users above the age group of 12 years.
* The connection of the appliances to the relays of the AVR BUTTERFLY APPLIANCE CONTROL MODULE should be done under professional guidance.
* Install the device at a safe location
* Ensure that the device is kept away from water to avoid short circuit
* Ensure that the device is protected from dust to avoid malfunctioning

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