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Product Overview

uPAC

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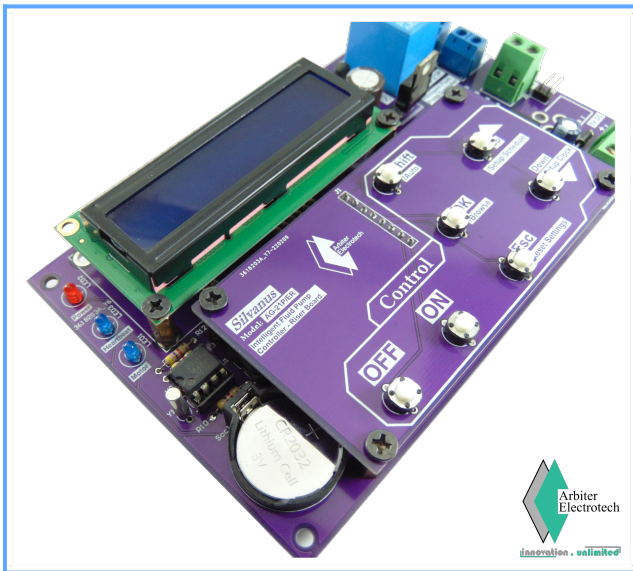
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1. Applications

- Automatic schedule based Water/fluid pump controller on any residential or commercial buildings/applications
- Smart farming, Automated Nursery, scheduled cooling system and scheduled feeding system in poultry farms
- Small, private gardens in apartment buildings of large metropolitan cities
- Any application where a schedule based electronic switching controller is needed

Aforementioned applications only represent the most common examples. Real scope of applications are much wider and depends largely on the situation, application and the users.



2. Product Features

- Completely new type of product for untapped Bangladeshi Market
- Fully automatic operation with intelligent **“Set & forget”** algorithm
- Intelligent Automation algorithm, requiring minimum human touch
- Completely **“Sensorless”** Operation (user can add optional sensors as per their requirement)
- **“Liquid Crystal Display (LCD)”** with easy to use & intuitive user interface
- Dedicated **“Real Time Clock”** chip to keep accurate timetable
- Auto motor turn off function to prevent motor burnout in manual operation
- Optional full manual operation
- Battery backup to keep programmed data in case of power outage
- 10 different timetables with different duration each
- Low power consumption in both idle & active mode
- Compatible with any external electromagnetic contactor (suitable for both 110 V & 220 V)
- **Optional attachment** – Overflow sensor to detect water overflow from the overhead tank
- **Optional attachment** – Water level sensor to detect water level on the underground reserve tank (for water pump burnout protection)

3. Product Description

“uPAC” or “User Programmable Automation Controller” is a single user, single channel, user programmable control system, designed for **residential** and **commercial** non-critical applications. uPAC is a programmable automated control system that can execute a schedule or routine based tasks like periodically turning ON the water pump in residential/commercial buildings. The user have to set up the schedule just once and the **“Set & forget”** algorithm of uPAC will strictly follow the given schedule. The intuitive user interface and the LCD screen makes the device extremely easy & straightforward to use.

The output of uPAC has a UL Listed electromagnetic relay switch that is turned ON/OFF based on the schedule and the user requirement. The UL listed relay switch can handle enough power for any medium power residential/commercial requirement. In case of high power requirement, electromagnetic contactor from brands like **Siemens**, **LS** or **ABB** can be used to with the uPAC. Although the applications of the uPAC is limitless, this version has been tailored for controlling fluid pumps. Just by controlling fluid pumps, applications of uPAC can be extended from residential/commercial buildings to agriculture sector as an intelligent watering system for crops in **“Smart farming”** and in **“Smart Nursery”** for watering trees in commercial nurseries and orchards. In general, uPAC can be used in any applications that require a strict daily schedule based task execution.

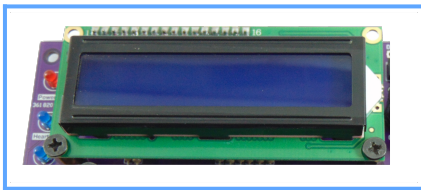
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4. Applications Overview

When used to control residential water pumps, uPAC is leaps and bounds ahead of its competitors. The competitors of uPAC can function only when they are attached with expensive array of sensors. Unlike the competitors, uPAC features a completely sensorless operation. uPAC requires no water level sensor to work flawlessly, however, users have options to attach two different types of sensors for extended functionality.

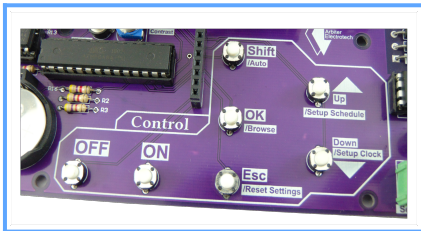
uPAC is perfect for introducing smart automated systems in farming, agriculture, commercial nursery or other applications where very simple automation can yield a high gain. In farming, agriculture and in commercial nursery, timely watering of the plants and crops are very important. On the other hand, the watering process should not exceed any limitation that may be counterproductive. In this case, uPAC is the perfect solution as uPAC will ensure that the timely watering schedule is maintained while being cheap enough for the people in the industry to afford.

Last but not least, uPAC is perfect for our fast and modern life style in the large metropolitan cities. Residents of the apartment building may maintain small private gardens in their balcony but may not find the time for regular maintenance like watering the plants. uPAC is a solution that they cannot say no to as uPAC will become their assistant who will never take a break.



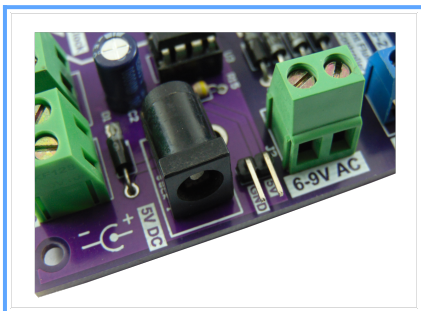
LCD Monitor with Intuitive User Interface

Alphanumeric Liquid Crystal Display makes the uPAC very easy to use. Data such as motor status, sensor status and time is displayed in the display. When the motor is running as per schedule, the scheduled stop time is also displayed. The alphanumeric LCD also enables usage of an intuitive User Interface (UI). The UI allows the user to easily set the schedule and access all other different settings very easily.



Easy & Minimalist Control

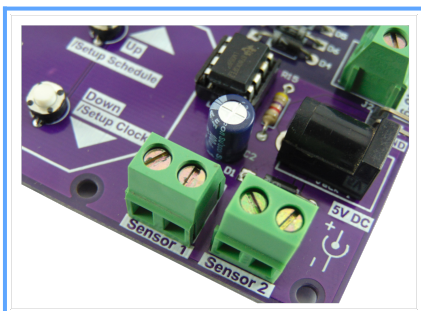
uPAC features a very minimalist, simple & straightforward control panel. The users can directly access settings with the push of just one button. This makes uPAC as easy as using a button based mobile phone. Anyone who can use a microwave oven, air conditioner or a television, will most definitely be able to use an uPAC.



Multiple Power Up Option

uPAC has the facility to use both DC and AC power. The 5VDC has to be supplied from a regulated source such as low power off the shelf 5V DC power supply. The AC is fed directly as 6V AC and the device will convert 6V AC to 5V DC. By using a small & cheap 220VAC to 6VAC transformer, the entire device can be made into a compact and standalone system that can operate directly from 220V mains power.

uPAC is a part of Arbiter Electrotech Eco First Initiative.
Thus it uses minimum number of components and consumes extremely low amount of power.



Optional Sensor Input

Two individual sensor inputs for two different reasons. Any user can install an “**Overflow**” sensor for the overhead tank to stop the water tank from spilling over. The user can choose to install a “**Float Switch**” in the underground reserve tank to make sure that the motor won’t turn ON when there is not enough water in the reserve tank. This way, the motor won’t burn up due to dry run.

All sensors are widely available in the market and are inexpensive

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5. uPAC Specifications

■ Device Properties	Number of Individual Channels	1
	Application type	Schedule with multiple intervals
	Schedule type	User Defined
	Total number of schedules	9
	Automation type	Full Auto & full manual
	Control type	Button & Display based User Interface
■ Power Consumption	Operating voltage	5 Volts
	Current Consumption ^{*1}	<20mA when idle, 50mA max when active
■ Relay Switch	Relay type	Electromechanical (SPDT)
	Coil Voltage	5 Volts
	Relay load Current (maximum)	10A @ 250VAC, 15A @ 120VAC
	Relay Load Current (Recommended ^{*2})	3A @ 110/250VAC
	Relay Certification ^{*3}	UL
■ Power/Sensor Connector	Power/Sensor Connector type	Screw Terminal (caged)
	Screw Terminal Rated load Current	10A
	Screw Terminal Recommended load Current	1A @ 220VAC
	Screw Terminal Certification ^{*3}	UL
■ PCB	PCB type	FR-4, double sided
	Component mounting	Through Hole only (single sided)
■ Power Supply options	AC-DC with a 220 VAC to 6VAC step down transformer (rectifier, regulation and smoothing circuits are built in)	
	Direct 5VDC input from any external source	
	Dedicated 5VDC input via barrel connector	
■ Display	Display type	Alphanumeric Liquid Crystal Display (ALCD)
	Display Chipset	Hitachi HD44780 Chipset
■ Others	Sensors	Overflow – Floating Magnetic Reed switch Low Level – Float switch
	Memory backup battery	3V Lithium Coin Cell

Notes:

1. Current consumption is measured only for uPAC & doesn't include the current consumption of the external contactor
2. The value is recommended by Arbiter Electrotech
3. All certification procedures were completed by the respective component manufacturer

Complete specifications, functionality & datasheet are available on request only

- Specifications are subject to change without any prior notice.
 - For updated specifications and information, visit www.arbiterelectro.com/product/upac or contact us at support@arbiterelectro.com
 - For business purposes, contact us at business@arbiterelectro.com
 - For any purposes, contact us at arbiter.electro@gmail.com

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