

## Product Features

- **Energy Efficient:** Significantly reduces power consumption.
- **Low Temperature Rise:** Lowers coil temperature by over 50% to extend lifespan.
- **Stable Performance:** Built-in temperature compensation for reliable operation.
- **Circuit Protection:** Integrated overcurrent fuse for enhanced safety.
- **Flexible Settings:** Supports adjustable holding current and transition time to power-saving mode.
- **Fast Response:** Suitable for high-frequency switching applications.
- **Certified Quality:** RoHS and CE compliant.



## Product Description

The PB Series is a compact PCBA-based module designed to enhance the performance, reliability, and service life of solenoid valves. By incorporating an advanced power-saving control circuit, the module optimizes coil power consumption and reduces coil temperature while maintaining reliable valve actuation and switching performance.

The PB Series utilizes a high-efficiency power conversion design that does not generate electromagnetic interference (EMI), ensuring stable operation in industrial environments. A built-in flashing LED indicator provides a clear visual indication when the module enters power-saving mode, allowing users to easily monitor operating status.

To meet various application requirements, both the power-saving level and the delay time before entering power-saving mode can be adjusted according to customer specifications. This flexibility enables the module to be optimized for different solenoid valve and coil characteristics.

Depending on the electrical and mechanical characteristics of the solenoid valve and coil, the PB Series can achieve varying levels of energy savings. Adjustable operating parameters allow the module to be tailored to specific applications, providing the optimal balance between energy efficiency, operating reliability, and valve performance.

**Note 1:** When the unit enters power-saving mode and the current is reduced, the LED brightness will dim briefly and then remain steadily illuminated at the same brightness level.

## Product Applications

- Solenoid valves
- Valve Terminals
- Electromagnets
- Relays



## Product Functions

- Operating voltage range: 12/24VDC (-10% / +10%)
- Pulse output current: Max. 500mA
- Continuous output current: Max. 300mA (adjustable)
- Energy-saving rate: Up to 80%
- Temperature reduction: At least 50°C
- Power-saving activation time adjustable from 0–999 ms (+/-10%)
- No electromagnetic interference (EMI) or magnetic loss
- No magnetic noise during operation
- Operating temperature: -20°C to 60°C

**Note 2:** Performance depends on the coil specifications and the ON/OFF timing sequence of the solenoid valve.

**Note 3:** A built-in fuse is included to provide protection against surge events and external power-related safety issues.

## Electrical Parameters

parameter		minimum	maximum	unit
Power Supply On	12V	10.8	13.2	V
	24V	21.6	26.4	
Maximum pulse current			0.5	A
Maximum cont. current			0.15(24V) , 0.3(12V)	A
Allowed coil resistance		full range		Ohm
pull in time		1	999	mS
holder power	0.1W	90	110	mW
	0.2W	180	220	
	0.3W	270	330	
	0.4W	450	550	
ESD protection		4000		V
Module Operating Temperature(note2)		-20	60	°C
AI Main Chip Operation Temperature		-20	85	°C

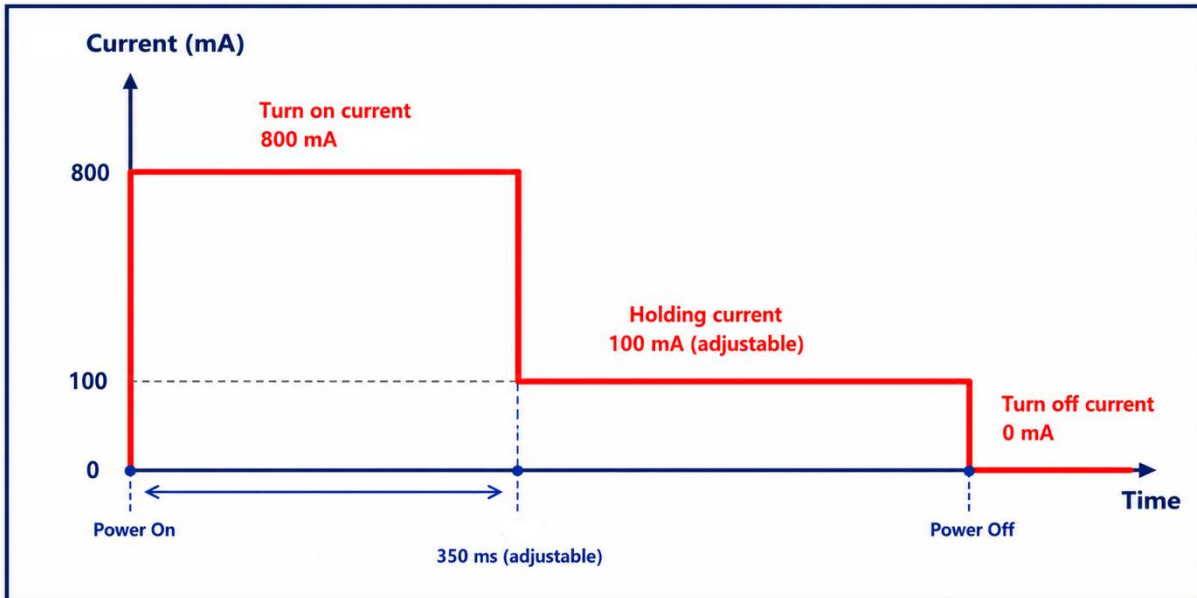
**Note 4:** The maximum duration for standard continuous holding force is 4 hours.

**Note 5:** If your application does not meet the specifications listed above, we can accommodate your needs through customisation.

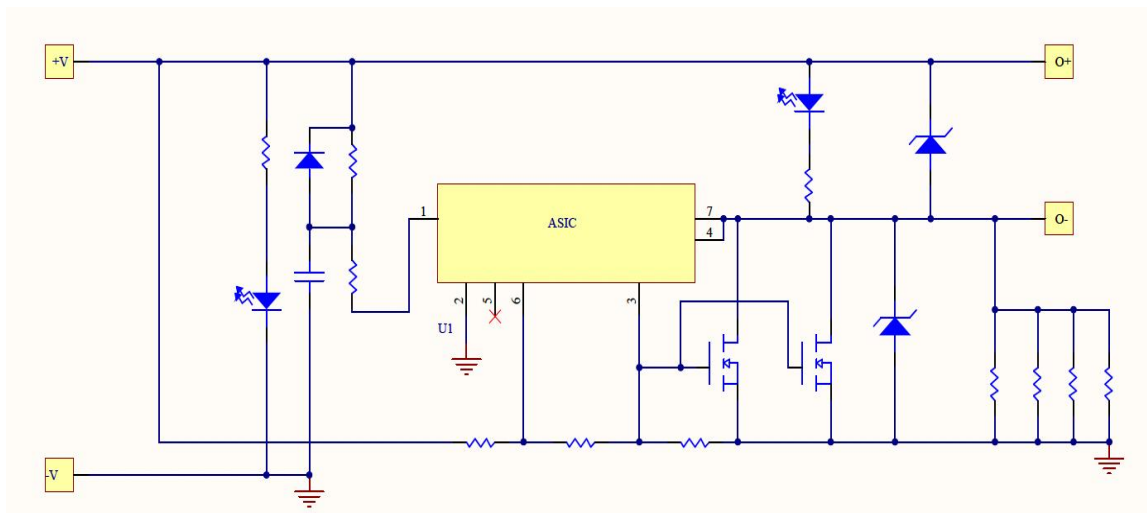
**Note 6:** This product automatically shuts off when the input voltage falls below the minimum operating voltage and eliminates the coil discharge voltage.

**Note 7:** The correct operating method is to use a 12V input voltage with a 12V coil, and a 24V input voltage with a 24V coil. Using a 24V input voltage with a 12V coil will result in improper operation

## Energy-Saving Mode Main Function

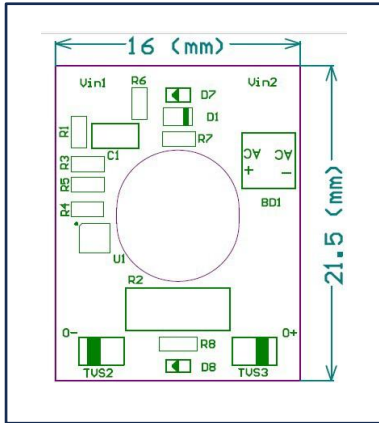


## Circuit Diagram Description



Built-in Surge Protection, LED ×2 (Power Indicator & Energy-Saving Indicator)

**PCBA Module Dimension**



unit : mm

**Ordering Information**

**PB-VV-WW-SS**

**VV:** Input Voltage range [unit:V]

<b>VV value</b>	<b>12</b>	<b>24</b>
Vcc min [ V ]	10.8	21.6
Vcc max [ V ]	13.2	26.4

**WW:** Holding power[nunit:mW]

<b>WW value</b>	<b>01</b>	<b>03</b>	<b>05</b>
P hold [ mW ]	100	300	500

**SS:** Translate Time (second stage time)[unit:ms]

<b>SS value</b>	<b>20</b>	<b>35</b>	<b>50</b>
Delay time	200ms	350ms	500ms



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