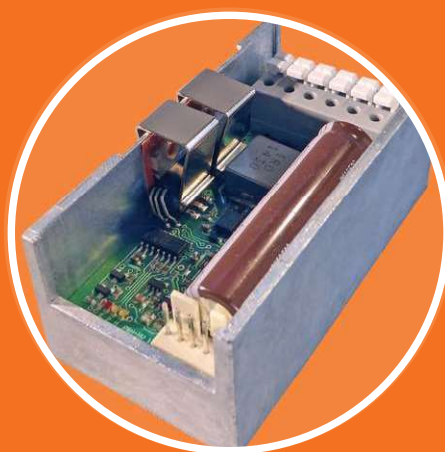


# Control Circuits

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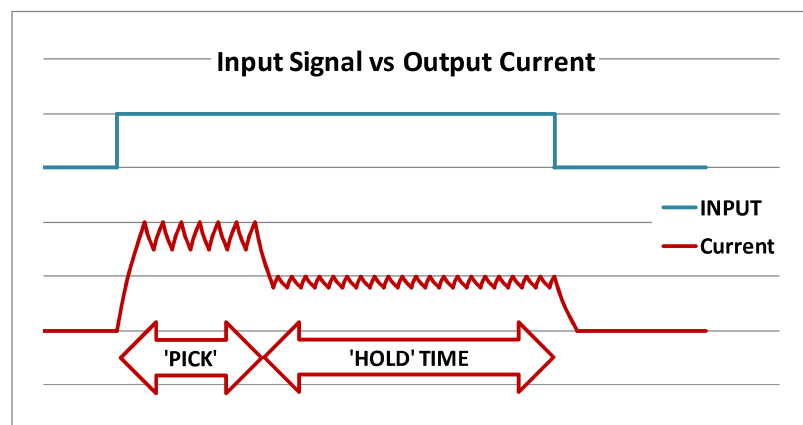
# PHu Pick & Hold Module

## DESCRIPTION

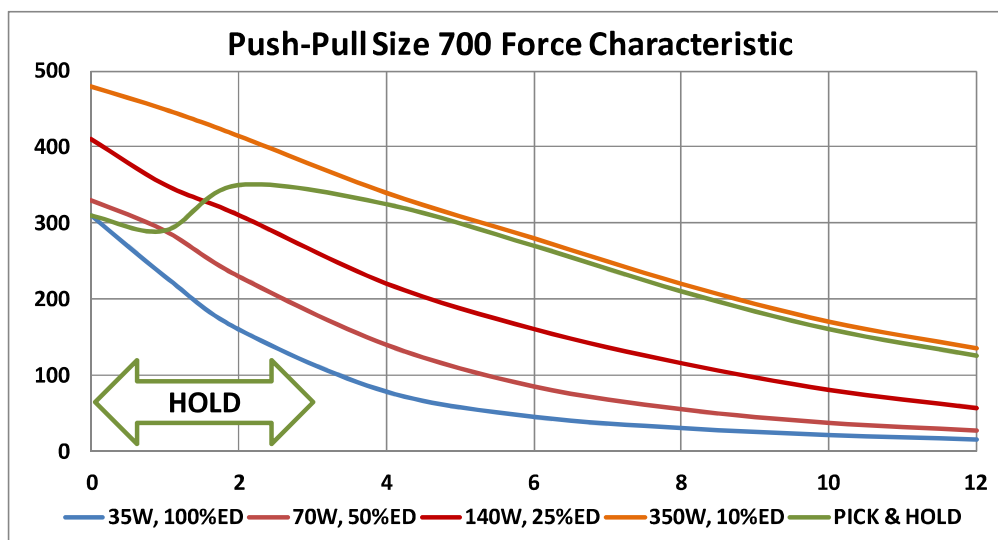
A Pick & Hold circuit regulates current applied to a solenoid or motor, applying high initial current (PICK) to develop high initial force/torque for fast response, then reducing this after a preset time (PICK TIME) to a lower level (HOLD) to maintain operation. It can be used to reduce power consumption in applications with restricted power supply (eg battery or line-powered systems), to reduce heat and power dissipation (systems handling temperature-sensitive materials, or susceptible to thermal distortion), or to stabilise performance of systems against fluctuations in supply voltage or ambient temperature.



Geeplus PHu modules are microprocessor controlled pick & hold modules which use intelligent algorithms to control a wide range of devices with simple user control of current and time parameters.



The graph below shows the characteristic force curves for a push-pull solenoid (the curves at different excitation power showing greater force with increasing excitation power, and the shape of the curve with force increasing as displacement reduces towards zero are similar for most linear solenoids), the use of a pick and hold circuit enables force to be



realised at the extended position similar to an intermittent duty curve, with continuing excitation power comparable to (or even lower than) that of the 100% duty curve.

The PHu modules can be used to implement control of large solenoids in an end-user application, the user-friendly interface also makes them a superb development tool to explore the maximum performance achievable from a wide range of solenoids during product development.

## Product Table

Available versions are detailed below.

Module P/N	Supply Range (V)	Load Constraints	Pick Current	Hold Current	Pick Time (ms)	Input	Mating Connector
PHu-24	6-27 VDC	1mH MIN	0.1-25 Amps	0.1-25 Amps	2-512 ms	5-24V isolated	Not Required
PHu-150	16-75 VDC	2mH MIN	0.1-24 Amps	0.1-24 Amps	2-510 ms	3-30v isolated	Not Required
PHU-24-PCB	PHU Circuit Board, Analytical Software, <u>REQUIRES HEATSINKING!!!</u>						
PHu-24	Module - Comprises PHU-24-PCB potted in Aluminium Extrusion						
PHu-24-Kit	Comprises Phu-24 module, USB Cable, and USB with Software						
PHu-24-ANA	Comprises Analytical version of Phu-24 module, USB Cable, USB with Software. In Plastic Clamshell Case.						
PHu-150-PCB	PHU Circuit Board, Analytical Software, <u>REQUIRES HEATSINKING!!!</u>						
PHu-150	Comprises PHU-150-PCB potted in diecast heatsink case						
PHu-150-KIT	Comprises PHU-150 module, USB Cable, USB with Software						
PHu-150-ANA	Cased unit for Development & Test with terminals, Polarity Switch, USB Cable, USB with Software						
Accessories							
PHu-CAB1	USB cable for changing parameters or monitoring						

Please note that the continuous excitation (Hold) current may be limited by heat dissipation.

***Warning – if maximum Supply Voltage is exceeded by more than 10% permanent damage may be caused to the module***

## Setup

Both modules should be setup before use, using the Pick and hold software and USB cable which is included in the kit versions. A user friendly interface allows current and time parameters to be set up and saved, and also allows monitoring of the switching device temperature to confirm operation is within safe limits in a wide range of ambient conditions.

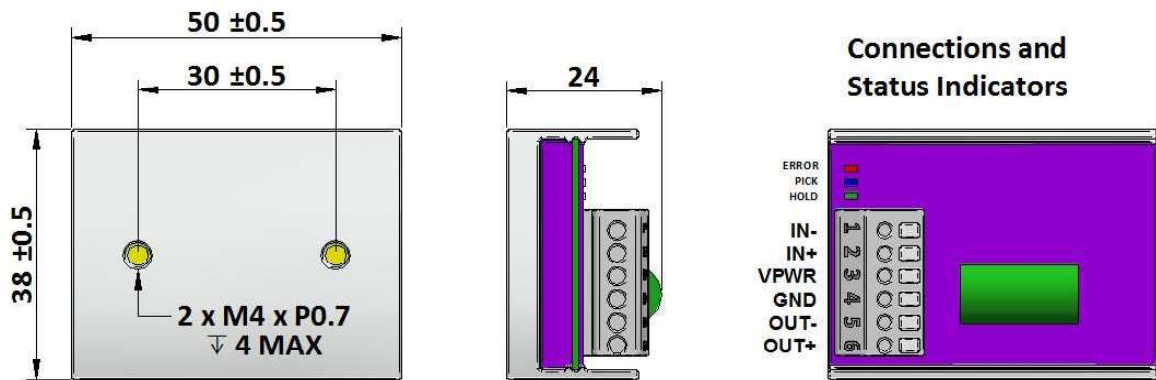
Further information on our website - [www.geeplus.com/control-circuits/](http://www.geeplus.com/control-circuits/)

## PHu Product Configurations

<p><b>Phu-24-PCB</b></p> 	<p><b>Phu-150-PCB</b></p> 
<p><b>Phu-24</b></p> 	<p><b>Phu-150</b></p> 
<p><b>Phu-24-KIT</b></p> 	<p><b>Phu-150-KIT</b></p> 
<p><b>Phu-24-ANA</b></p> 	<p><b>Phu-150-ANA</b></p> 
<p><b>Phu-CAB1</b></p> 	

## PHu24 – Mechanical Dimensions

Standard module configuration is mounted in extrusion and potted (encapsulated) with epoxy resin.



## PHu150 – Mechanical Dimensions

Standard module configuration is mounted in extrusion and potted (encapsulated) with Clear epoxy resin.

