

**SO172007A**Variable Frequency Control for Single-Phase  
AC Induction Motors**Delivering 1100W/6.5A at 230V to control 3/4hp 60Hz single-phase motors**

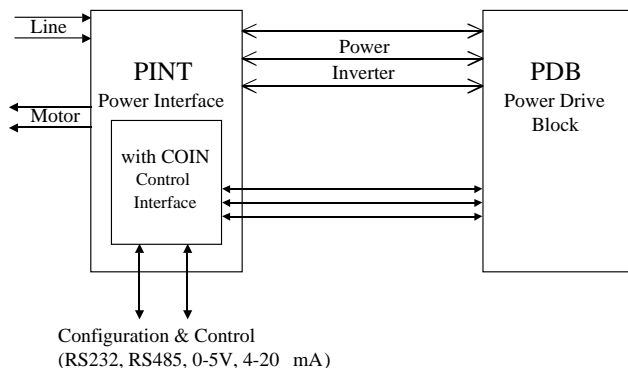
## General Description

Anacon's adaptable AC motor controller system, DigiDrive™II, offers a wide range of standard modules, which are easily configured to match OEM and end user specifications. The DigiDrive™II satisfies most single-phase motor control applications with a cost-effective solution, which carries the necessary agency approvals, resulting in a much shorter "time to market." Other available motor power ratings are 1/4 hp, 1/3 hp and 1/2 hp.

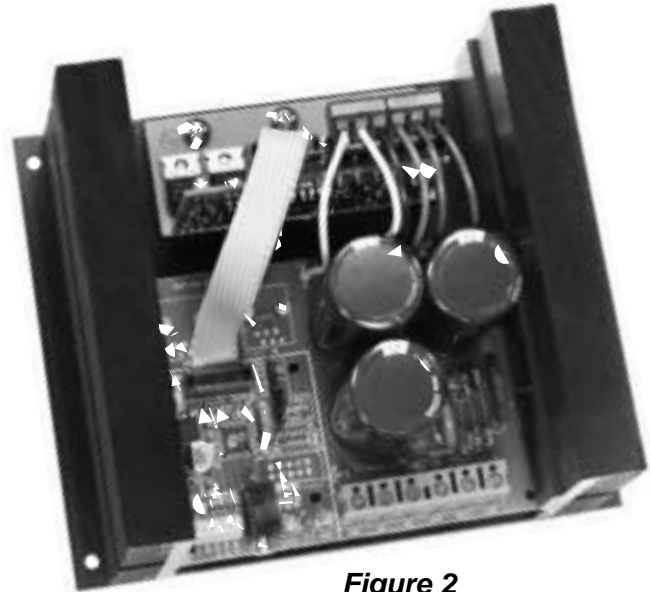
The overall system is divided into three modules: the power interface, the power drive block and the control interface; each is responsible for providing the overall functionality within the system.

This approach results in the following benefits:

- Optimized product for each application
- Cost-effective, even in low volumes
- Rapid time to market
- Control parameters configured by PC
- Agency pre-approved designs
- Field-tested software designs
- Energy-saving solution
- Isolated control input options of 0 - 5V<sub>DC</sub> and 4 - 20 mA



**Figure 1**  
Functional Block Diagram



**Figure 2**  
SO172007A Motor Controller

## Architectural Overview

Two modules comprise the motor control system: the combined Power Interface Board (PINT) and the Control Interface (COIN) and the Power Drive Block (PDB). The SO172007A has the Control Interface (COIN) integrated onto the PINT module. The complete controller is shown in Figure 2.

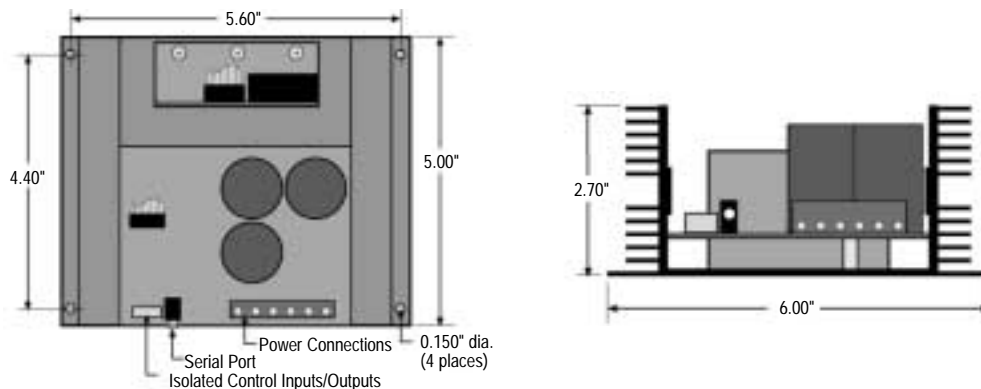
The PINT processes the incoming 230VAC power to make it suitable for powering the PDB. The COIN provides the vital two-way link between the control signals, monitoring equipment and the PDB.

The PDB produces all switching waveforms required to energize the motor.

Drive options include: speed pot, enclosure and configuration kit (Windows™ based) for drive customization.

## Electrical Characteristics

Definition	Symbol	Min	Typ	Max	Units	Notes
Input Voltage (RMS)	$V_{IN}$	195	230	264	$V_{AC}$	Single Phase
Input Current (RMS)	$I_{IN}$		$1.25I_O$	9.0	A	100% load
Input Frequency	$f_{IN}$	45		65	Hz	
Power Factor	PF		0.58			At max rated $P_O$
Output Power (RMS)	$P_O$			1100	W	$V_{IN} = 230VAC$
Motor Ratings	$P_M$			0.75	hp	Motor Efficiency = 70%
Efficiency	%		96		%	At max rated $P_O$
Overload Capacity	%			150	%	For up to 10 seconds
Output Voltage (RMS)	$V_O$			$V_{IN}$	$V_{AC}$	Function of frequency
Output Current (RMS)	$I_O$		6.5A		A	
Output Current Limit	$I_L$			110	%	Firmware configurable
Startup Current Boost	$I_B$			150	%	
Output Frequency	$f_O$	5		128	Hz	Configurable Range
Output Frequency	$f_O$	20		65	Hz	Default Range
Frequency Resolution	$f_{RES}$		1.0		Hz	
PWM Switching Freq.	$f_{PWM}$		18		kHz	
PWM dV/dt	$V_R$		450		V/ $\mu$ s	With Filter
Ramp Up Times	$t_{RU}$	1		50	Hz/s	Configurable
Ramp Down Times	$t_{RD}$	1		50	Hz/s	Configurable
Input Speed Control	$V_{CNTRL}$	0		5	$V_{DC}$	
Motor Lead Length	L			2	m	
Operating Lifetime	$t_{life}$		20,000		hrs	Av. $P_O = 0.5P_{O(max)}$ ; C@70°C
Ambient Operating Temp.	$T_a$	0	25	40	°C	>40°C half lifetime per +10°C
Ambient Storage Temp.	$T_{STG}$	0	25	65	°C	
Humidity Range	H	0	60	95	%	Non-condensing



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