

Data Sheet 6A2SM2 Controller

ELECTRICAL CHARACTERISTICS

Absolute Maximum Ratings†

Battery (B+)	33V
All digital inputs with respect to ground	± 200V @ 15% D.C.
All analog inputs with respect to ground	± 90V
Sensor 5 Volt source current	75mA
Frequency input	-0.7V to 33V
Outputs (back feed condition)	Battery +0.7V
Storage temperature	-65°C to +150°C
Ambient temperature with power applied	-40°C to +85°C
ESD protection on all pins	≥ 4 kV

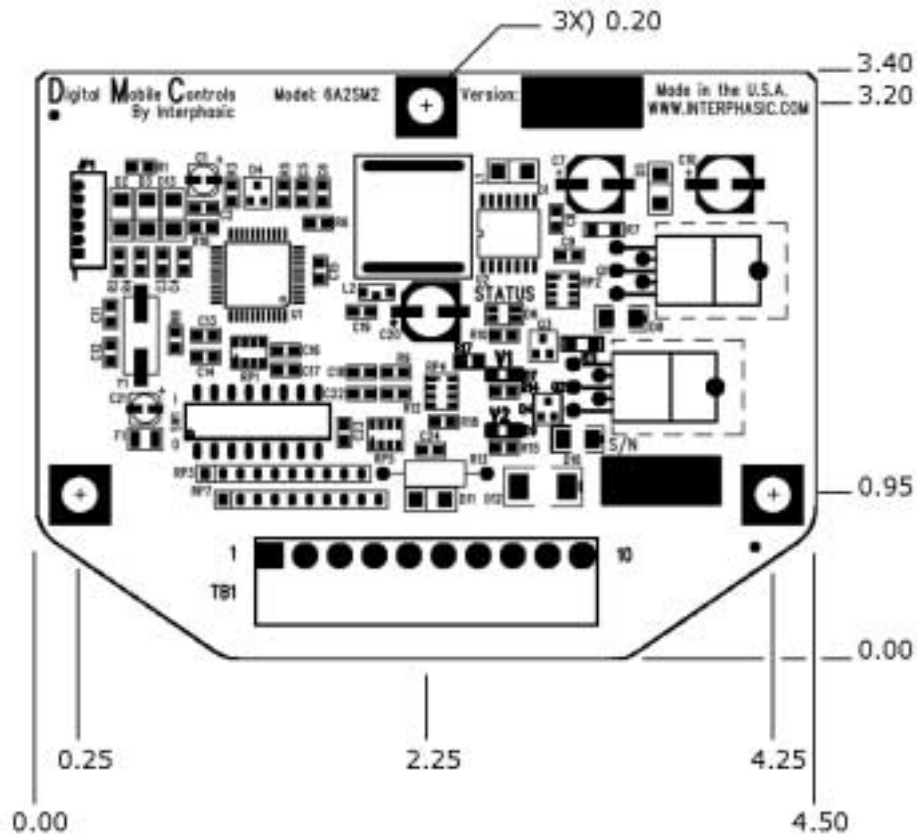
† **NOTICE:** Stress above those listed under “Absolute Maximum Ratings” may cause permanent damage to the controller. This is a stress rating only and functional operation of the controller at these or any other conditions above those indicated in the operational listings of this specification is not implied. Exposure to Absolute Maximum Rating conditions for extended periods may affect controller reliability.

Specifications: This is a LEAD-FREE (Pb) assembly.



Power supply input - nominal	9-30 VDC
Reverse polarity protection	Yes
Transient suppression	1500W@36 VDC
Digital inputs	All digital inputs active high
Input voltage span	± 30 VDC
Input impedance	3.3KΩ
High-level input voltage threshold (1)	≥ 2.75 VDC
Low-level input voltage threshold (0)	≤ 1.75 VDC
Analog inputs	DIP switch selected
Input voltage span	0-5 VDC
Input impedance	50KΩ
Cutoff Frequency filter pole location	-3dB/Dec @90Hz
Sensor supply voltage	DIP switch selected
Supply voltage (filtered)	5 volts
Nominal source current	25mA
Current limit protection	PTC self resetting fuse

Frequency input	
Input voltage span	-0.7 to 33 VDC Clamped
Maximum amperage at clamped voltage (33 VDC)	33mA
Input impedance	2.2K Ω
High-level input voltage threshold	≥ 2.75 VDC
Low-level input voltage threshold	≤ 1.75 VDC
Hysteresis of input voltage	≥ 1 VDC
Frequency bandwidth	0 to 100Khz
Outputs	
Number of outputs	2
Short proof protected	Yes
Driver resistance	.038 Ω
Nominal drive current	5 Amp RMS
Peak drive current	35 Amps for 3 seconds @ 25°C
Inductive clamping type	Diode
Programmable PWM signal outputs	2
PWM Continuous inductive clamping current	3 Amps
PWM bandwidth	0 to 33Khz
PWM resolution	10 bits; depending on frequency
Servo mode output grounding capacity	1.0 Amps maximum
Output LED's V1 & V2	YELLOW
General specifications	
Battery voltage monitor	9-30 VDC
Status LED	RED/GREEN
DIP switch	8 position
Controller weight	3.1 oz
Microprocessor: Microchip Enhanced FLASH (RISC)	PIC16F874A
Frequency of operation	20Mhz
Execution time	200nS
Controller quiescent current	24mA
Controller logic family	100% CMOS
Environmental	
Gelatinous fill silicone conformal coating	IP54 rated
Environmental design practices for electronic equipment	SAE J1455
EMC, transient, shock, vibration design practices	SAE J1113
Flame retardant classification	UL 94V-0



Connection Detail

TB1 Connector Pins:

- TB1-1 = INPUT 1 Digital or 5 volt supply
 - TB1-2 = INPUT 2 Digital or Analog 1
 - TB1-3 = INPUT 3 Digital or Analog 2
 - TB1-4 = INPUT 4 Digital
 - TB1-5 = INPUT 5 Digital
 - TB1-6 = INPUT 6 Digital or Frequency input
 - TB1-7 = OUTPUT Valve 1
 - TB1-8 = OUTPUT Valve 2
 - TB1-9 = GROUND
 - TB1-10 = POWER B+
- Output servo mode is a connection between outputs Valve 1 and Valve 2.

DIP Switch options: The switch position activated will provide the function listed.

- SW1-1 = INPUT 1, Digital input
- SW1-2 = INPUT 1, 5 volt supply out
- SW1-3 = INPUT 2, Digital input
- SW1-4 = INPUT 2, Analog input 1
- SW1-5 = INPUT 3, Digital input
- SW1-6 = INPUT 3, Analog input 2
- SW1-7 = User defined
- SW1-8 = User defined