

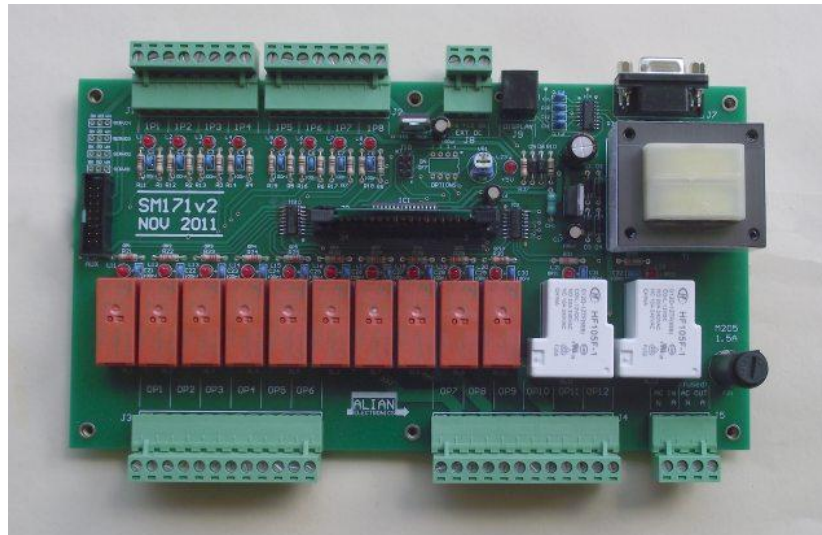


SM171 12 Input, 12 Relay Controller INFORMATION BRIEF

Release 2, September 2011

Manufactured in Australia by Alian Electronics Pty. Ltd.
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GENERAL DESCRIPTION

This is a generic control platform where Alian Elect can apply programming of your choice, or if you are familiar with Atmel microprocessors, experiment with your own software. Comes with a test program where 12 inputs activate 12 outputs & echo the result to the serial port. The microprocessor used is the Atmel AT90PWM3, which is a surface-mount device that plugs into the main board via a 34 way connector. The board (including terminal blocks) is 240mm x 145mm x 45mm high.

ON-BOARD POWER SUPPLY

The SM171 features its own 240V power supply, sufficient to power the module and any connected LCD display. The 240V supply may be extended to auxiliary screw terminals via a 1.5Amp mains fuse. This supply may then be extended through any of the 12 relays as required.

INPUT PORTS

There are eight digital input ports that connect via screw terminals. These are normally intended for connection to external switches or control contacts. Eight status LED indicators show when these inputs are active. An additional four inputs appear on a 4 Way Dip-Switch on the PCB and may be used for option settings. The fourth of these Dip Switch inputs is also an Analog input, which is applied to a trimpot mounted on the board. This trimpot can be used for an analog adjustment for time delays etc.

A separate 20-pin IDC socket also connects directly to all inputs in the event that a rapid connection to a separate daughter board should become necessary.

SERVO MOTOR CONTROL

Four of the Digital Inputs also appear on standard 3-pin headers to support small servomotors. (These are the low-cost generic servo motors available from Jaycar Electronics etc.) A separate 6Volt regulator is located on the SM171 board to power the servomotors. These motors may be moved to any position in a 180° radius with precision control when appropriate driver software is written to accommodate them.

OUTPUT PORTS

There are twelve relays connected to the microprocessor. Each relay has a red Status LED indicator to show the state of each relay. Ten of the relays are 10A, Normally Open contacts and two of them are 30A Normally Open contacts. Connections are via unpluggable 15A rated screw terminals.

LCD DISPLAY PORT

An RJ12 socket is on-board that may be coupled to an LCD display module. This is directly compatible with the Alian Electronics SM264 and SM265 display modules which have two rows of 16 characters.

RS232 PORT

A DB9 port is provided to connect to an RS232 port from a standard PC connection. Only a null 9-wire to 9 wire patch cable is needed to complete all connections to a PC. Standard RS232 line drivers are present on the SM171 board to provide good compatibility with other systems.

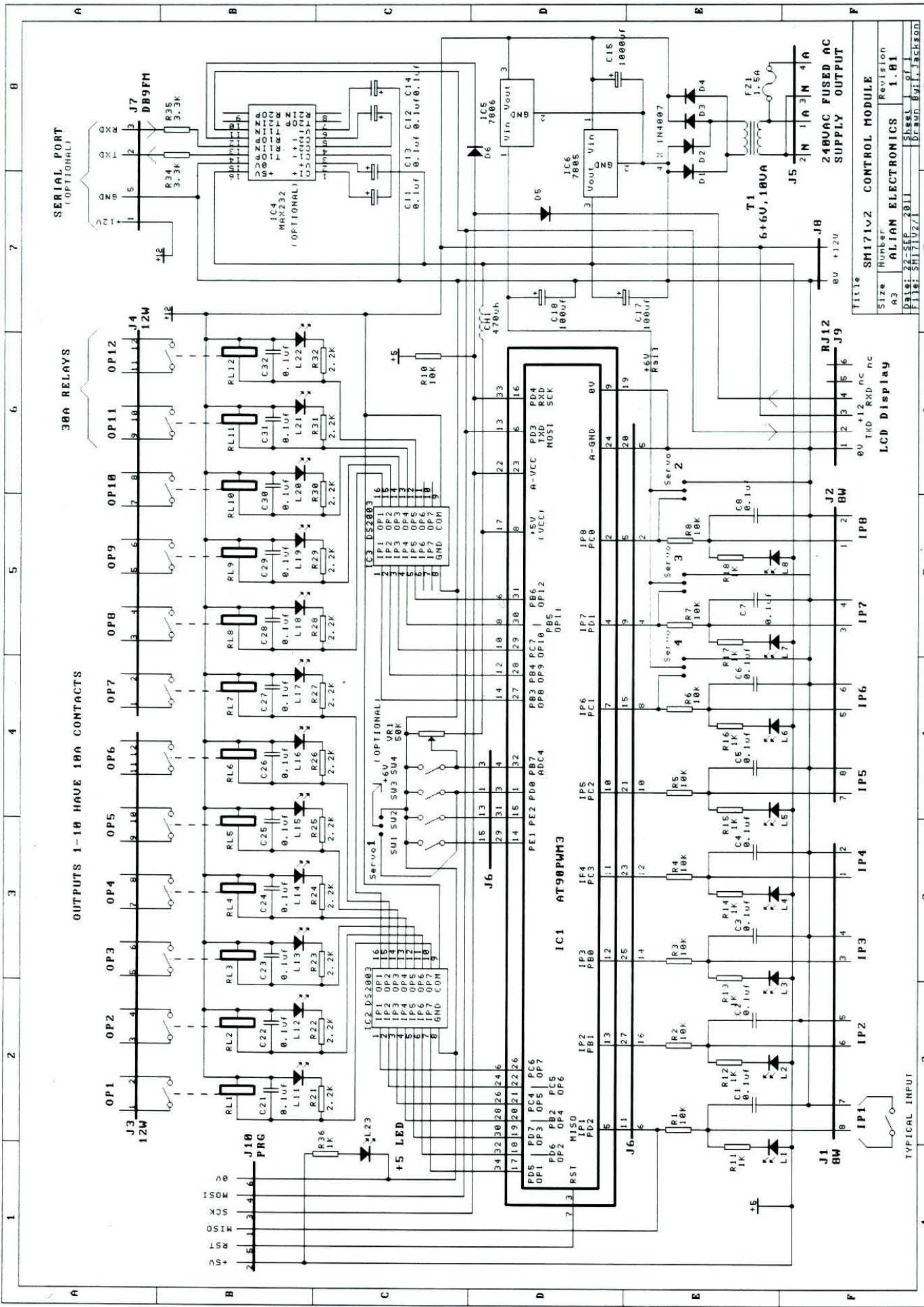
(Note that this serial port is shared with the LCD display port. There may be some sharing issues to be resolved if both ports are required simultaneously)

PROGRAMMING

This board can be used as a platform for many different applications. Dedicated programs may be produced on demand for specific applications. A standard demonstration program is available that will allow all 12 inputs to drive all 12 output relays. Input and relay status information is also transmitted to the serial port each second at 1200 baud.

SM171 PINOUTS USING THE AT90PWM3

IDC PIN	PWM3 PIN	PWM3 PORT	I/O NAME	I/O DESCRIPTION
1	-	-	-	Strapped to IDC pin 2
2	-	-	-	Strapped to IDC pin 1
3	1	PD0		Dip switch 3 SRV1
4	32	ADC4 / PB7		Dip switch 4
5	2	PC0		Input 8 SRV2
6	31	ADC7 / PB6		Relay 12
7	3	RST / PE0		not used
8	30	ADC6 / PB5		Relay 11
9	4	PD1		Input 7 SRV3
10	29	PC7		Relay 10
11	5	MISO / PD2		Input 1
12	28	PB4		Relay 9
13	6	TXD / MOSI / PD3		TX data
14	27	PB3		Relay 8
15	7	PC1		Input 6 SRV4
16	26	ADC10 / PC6		Relay 7
17	8	VCC (+5V)		
18	25	A - REF		
19	9	GND		
20	24	A - GND		
21	10	PC2		Input 5
22	23	A -VCC (+5V)		
23	11	PC3		Input 4
24	22	ADC9 / PC5		Relay 6
25	12	PB0		Input 3
26	21	ADC8 / PC4		Relay 5
27	13	PB1		Input 2
28	20	ADC5 / PB2		Relay 4
29	14	XTAL1 / PE1		Dip switch 1
30	19	PD7		Relay 3
31	15	ADC0 / XTAL2 / PE2		Dip switch 2
32	18	ADC3 / PD6		Relay 2
33	16	ADC1 / RXD/ SCK / PD4		RX data
34	17	ADC2 / PD5		Relay 1



SERIAL PORT
(OPTIONAL)

30A RELAYS

OUTPUTS 1-18 HAVE 10A CONTACTS

Title: SM171v2 CONTROL MODULE

Size	Number	Revision
A3	ALIAN ELECTRONICS	1.01
Date:	22-SEP-2011	Sheet 1 of 1
File:	SM171V2.1	Drawn By: L. Jackson

LCD Display

TYPICAL INPUT