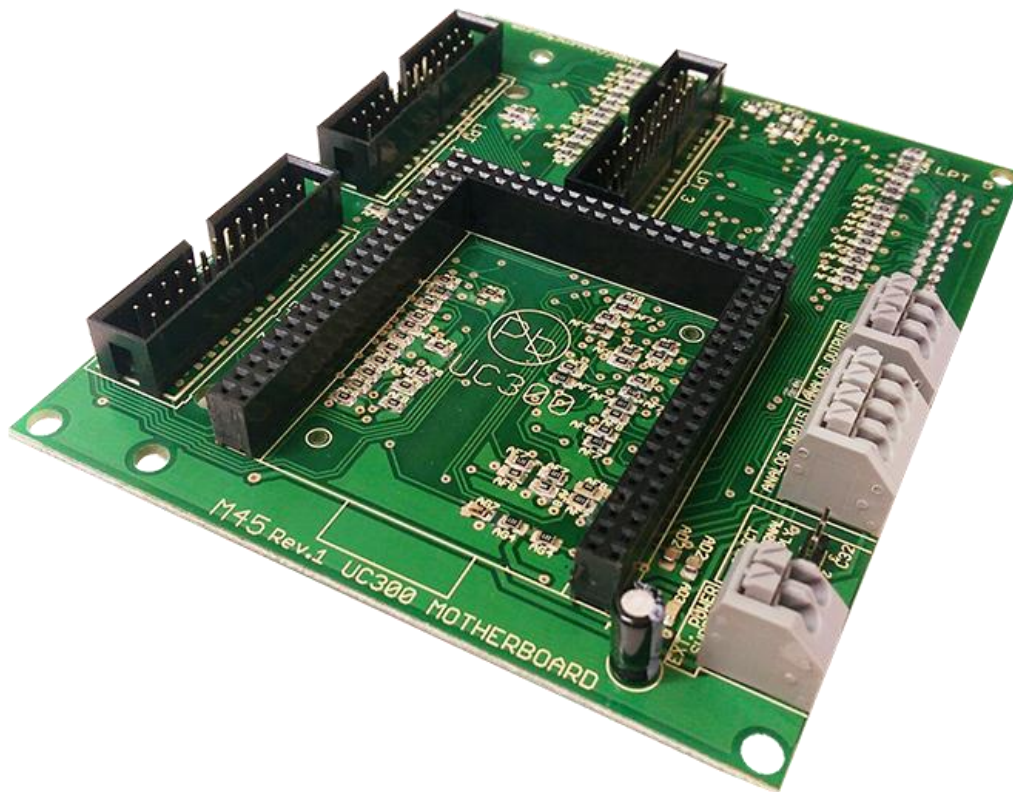


**M45 – UC300 MOTHERBOARD
Rev. 1**



MARCH, 2017.

USER'S MANUAL

TABLE OF CONTENTS

Contents	<u>Page #</u>
1.0 OVERVIEW.....	1
2.0 FEATURES.....	1
3.0 BOARD DESCRIPTION.....	2
4.0 JUMPER TO SELECT THE POWER SOURCE TO BE USED.....	2
5.0 SPECIFICATIONS	3
5.1 Power Requirements	3
5.2 Power Terminal.....	4
6.0 ANALOG I/O TERMINALS	4
7.0 PINOUT.....	5
7.1 Pin Numbering.....	5
7.2 LPT_1	5
7.3 LPT_2	6
7.4 LPT_3	7
7.5 LPT_4 Output Expansion Port	8
7.6 LPT_5 Input Expansion Port.....	8
8.0 DIMENSIONS.....	9

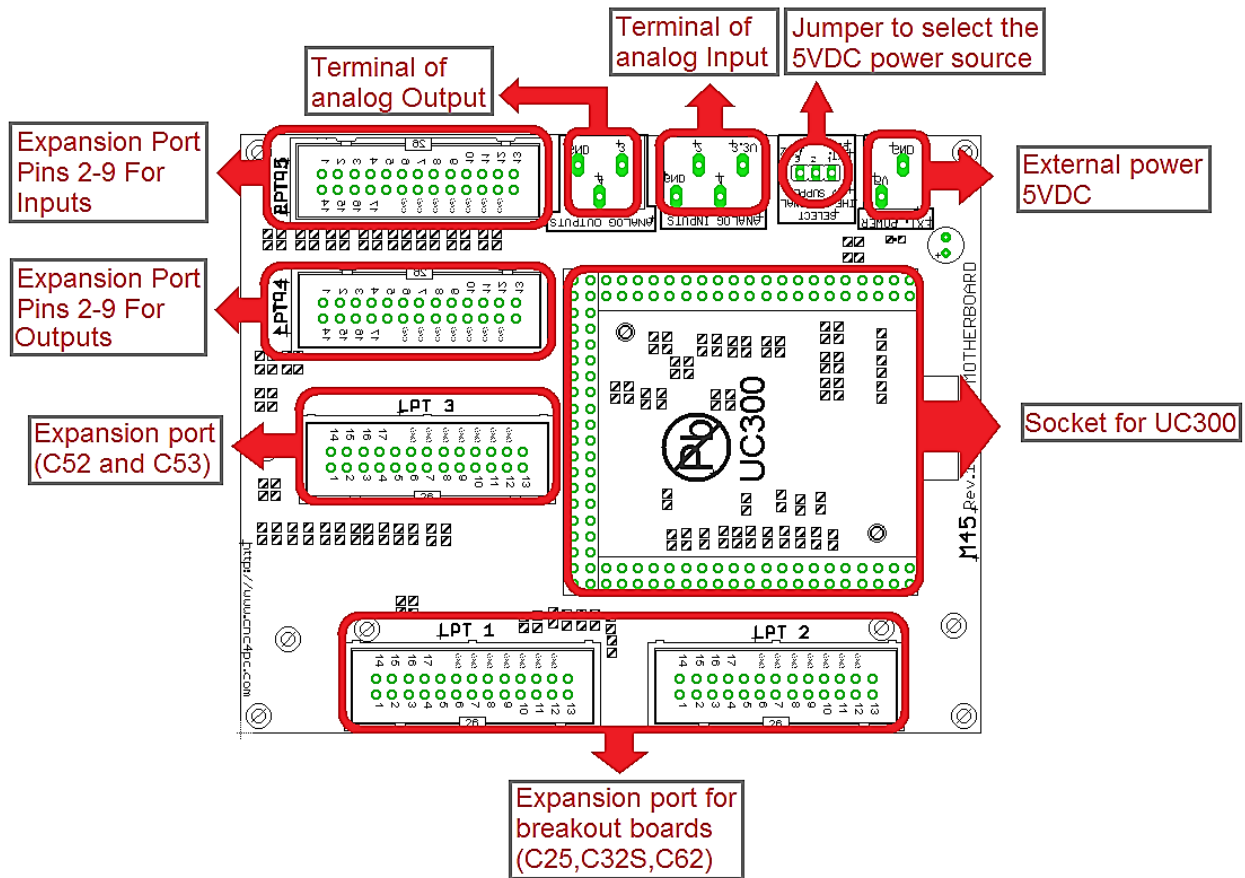
1.0 OVERVIEW

This is a motherboard for the UC300. Different expansion boards and breakout boards can be connected to this motherboard providing different types of I/Os and features.

2.0 FEATURES

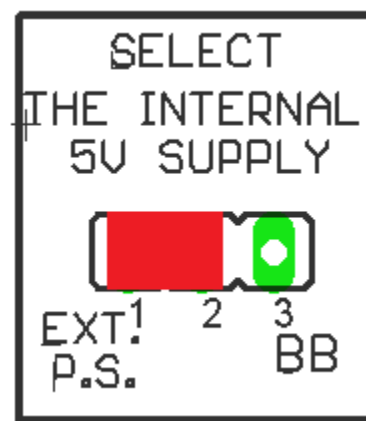
- **Designed for UC300 Motion Controller**
- **5 x DB25 Expansion Ports with Analog I/Os for a total of 49 discrete inputs and discrete 36 outputs**
- **2 Expansion ports to connect breakout boards (C25S, C32S and C62) for motion control functions.**
- **1 Expansion ports to connect breakout boards (C52 and C53)**
- **1 Output expansion port**
- **1 Input expansion port**
- **Terminals of analog Inputs / Outputs**

3.0 BOARD DESCRIPTION



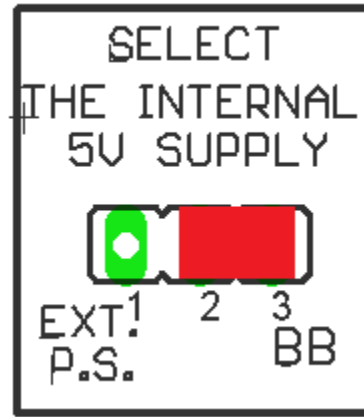
4.0 JUMPER TO SELECT THE POWER SOURCE TO BE USED

If using a breakout board different to the C62 or C32S, an external 5V power supply is required to power the M45. In this case set the power source jumper in the position shown in the below image and connect the external 5V power supply to those terminals.



It may be possible to power this board through a C62 or C32S breakout board and not require an external power supply.

Note: that additional breakout boards can be connected and powered from the same source, make sure not to exceed 500mA. If more boards are sourcing power, it is better to add an external power supply that can satisfy the demand of all the boards.



5.0 SPECIFICATIONS

5.1 Power Requirements

+5VDC power supply is required if powering other devices through the M45 that may demand more than the 500mA that the C32S or C62 can supply to the M45.

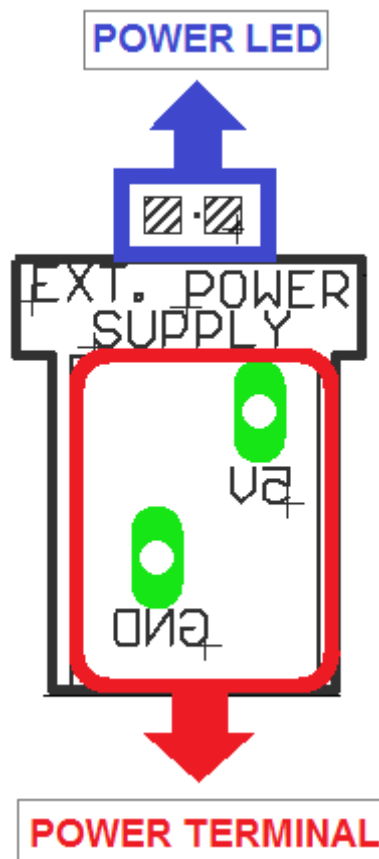


WARNING

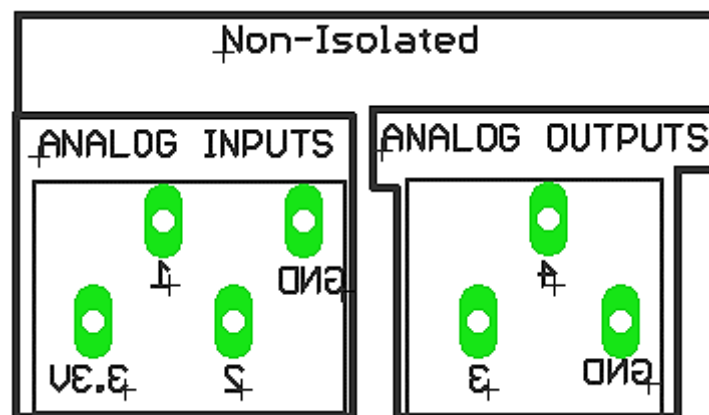
Check the polarity and voltage of the external power source and connect the 5VDC and GND. Overvoltage or reverse-polarity power applied to these terminals can cause damage to the board, and/or the power source.

5.2 Power Terminal

This input requires an external power 5VDC@500mA if not using the board to supply power to external devices.



6.0 ANALOG I/O TERMINALS

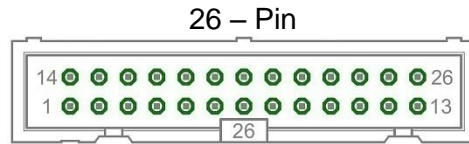


The analog terminals contain 2 analog inputs and 2 analog outputs.

note: all in and output pins in all ports are referenced to the computer's grounding, there is no isolation in the UC300-LPT port, this means that the device is not replacing a breakout board with isolation. An external isolation (for example optical isolators inside the motor drives) may be necessary to make safe connections.

7.0 PINOUT

7.1 Pin Numbering



7.2 LPT_1

LPT 1 (MOD)		
Equivalent P.P. Pin	UC300 Function	UC300 Pin
P1_1	Step 5	U5
P1_2	Step 1	U6
P1_3	Dir. 1	U7
P1_4	Step 2	U8
P1_5	Dir. 2	U9
P1_6	Step 3	U10
P1_7	Dir. 3	U11
P1_8	Step 4	U12
P1_9	Dir. 4	U13
P1_10	Stop	L6
P1_11	Limit X	L7
P1_12	Limit Y	L8
P1_13	Limit Z	L9
P1_14	Step 6/PWM	U14
P1_15	Probe/Index	L10
P1_16	Dir. 6	U15
P1_17	Dir. 5	U16
P1_18	GND	GND
COMPATIBILITY C25S, C32S, C62		

7.3 LPT_2

LPT 2 (MOD)		
Equivalent P.P. Pin	UC300 Function	UC300 Pin
P2_1	output 2_1	L34
P2_2	MPG1-A	L12
P2_3	MPG1-B	L13
P2_4	X Axis select	L14
P2_5	Y Axis select	L15
P2_6	Z Axis select	L16
P2_7	4 Axis select	L17
P2_8	X 1 Select	L18
P2_9	X10 Select	L19
P2_10	X100 Select	L20
P2_11	Input 2_11	L21
P2_12	5 Axis select/Input 2_12	L22
P2_13	6 Axis select/Input 2_13	L23
P2_14	PWM Output/Input 2_14	U17
P2_15	Pendant E-Stop/Input 2_15	L24
P2_16	output 2_16	L33
P2_17	SCHP	U18
P2_18	GND	GND
COMPATIBILITY C25S, C32S, C62		

7.4 LPT_3

LPT 3 (MOD)		
Equivalent P.P. Pin	UC300 Function	UC300 Pin
P3_1	output	L32
P3_2	input	L11
P3_3	input	L25
P3_4	input	L26
P3_5	input	L27
P3_6	input	L28
P3_7	input	L29
P3_8	input	L30
P3_9	input	L31
P3_10	input	R27
P3_11	input	R28
P3_12	input	R4
P3_13	input	R15
P3_14	output	L36
P3_15	input	R1
P3_16	output	U30
P3_17	output	L35
P3_18	GND	GND
COMPATIBILITY C52, C53		

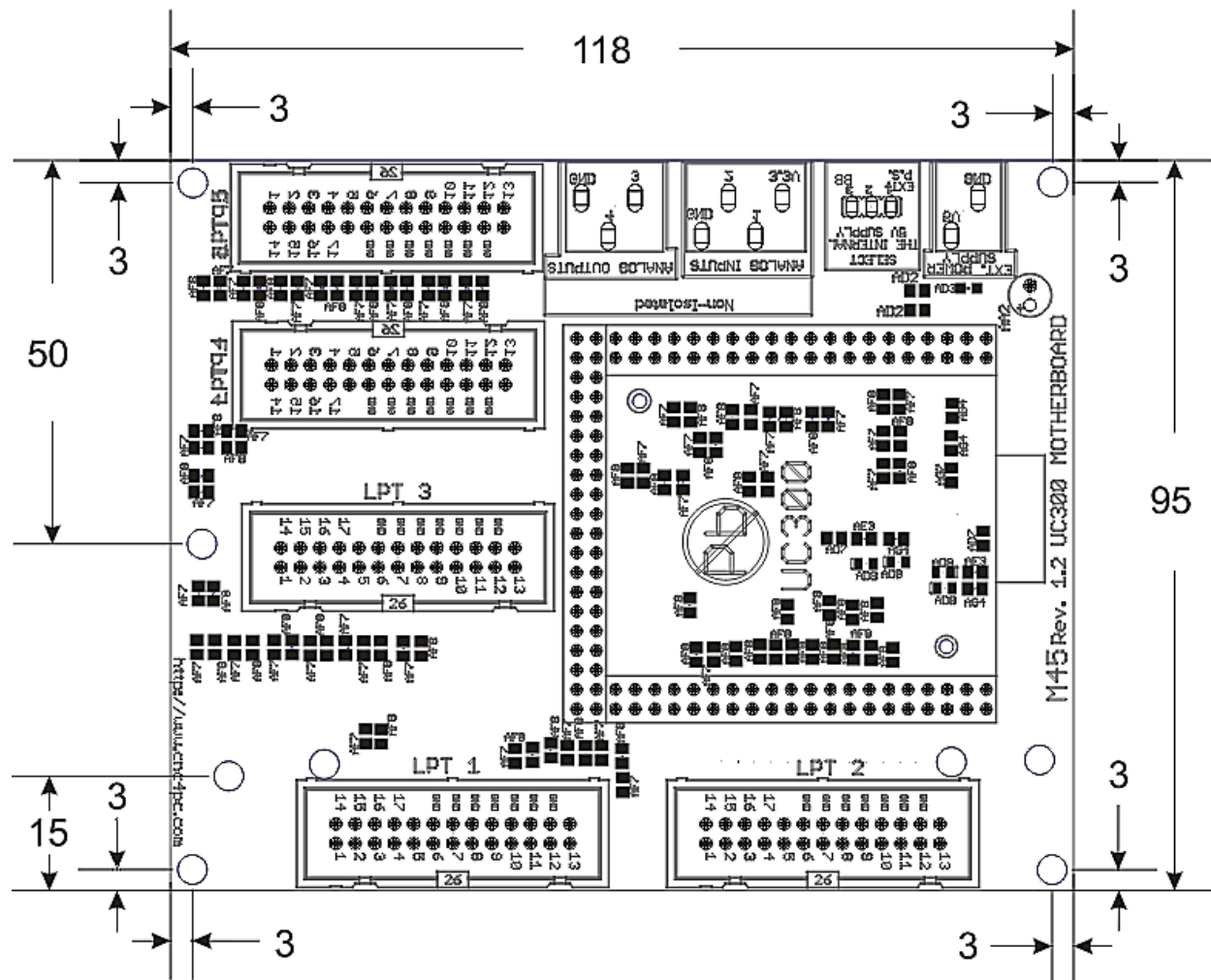
7.5 LPT_4 Output Expansion Port

LPT 4 (MOD)		
Equivalent P.P. Pin	UC300 Function	UC300 Pin
P4_1	output	U19
P4_2	output	U31
P4_3	output	U20
P4_4	output	U32
P4_5	output	U21
P4_6	output	U33
P4_7	output	U22
P4_8	output	U34
P4_9	output	U23
P4_10	input	R26
P4_11	input	R14
P4_12	input	R25
P4_13	input	R13
P4_14	output	U35
P4_15	input	R24
P4_16	output	U24
P4_17	output	U36
P4_18	GND	GND

7.6 LPT_5 Input Expansion Port

LPT 5 (MOD)		
Equivalent P.P. Pin	UC300 Function	UC300 Pin
P5_1	output	U25
P5_2	input	R12
P5_3	input	R23
P5_4	input	R11
P5_5	input	R22
P5_6	input	R10
P5_7	input	R21
P5_8	input	R9
P5_9	input	R20
P5_10	input	R8
P5_11	input	R19
P5_12	input	R7
P5_13	input	R18
P5_14	output	U26
P5_15	input	R6
P5_16	output	U27
P5_17	output	U28
P5_18	GND	GND

8.0 DIMENSIONS



All dimensions are in Millimeters.
Fixing holes (3.8mm)

DISCLAIMER

Use caution. CNC machines can be dangerous machines. Neither DUNCAN USA, LLC nor Arturo Duncan are liable for any accidents resulting from the improper use of these devices. This board is not a fail-safe device and it should not be used in life support systems or in other devices where its failure or possible erratic operation could cause property damage, bodily injury or loss of life.