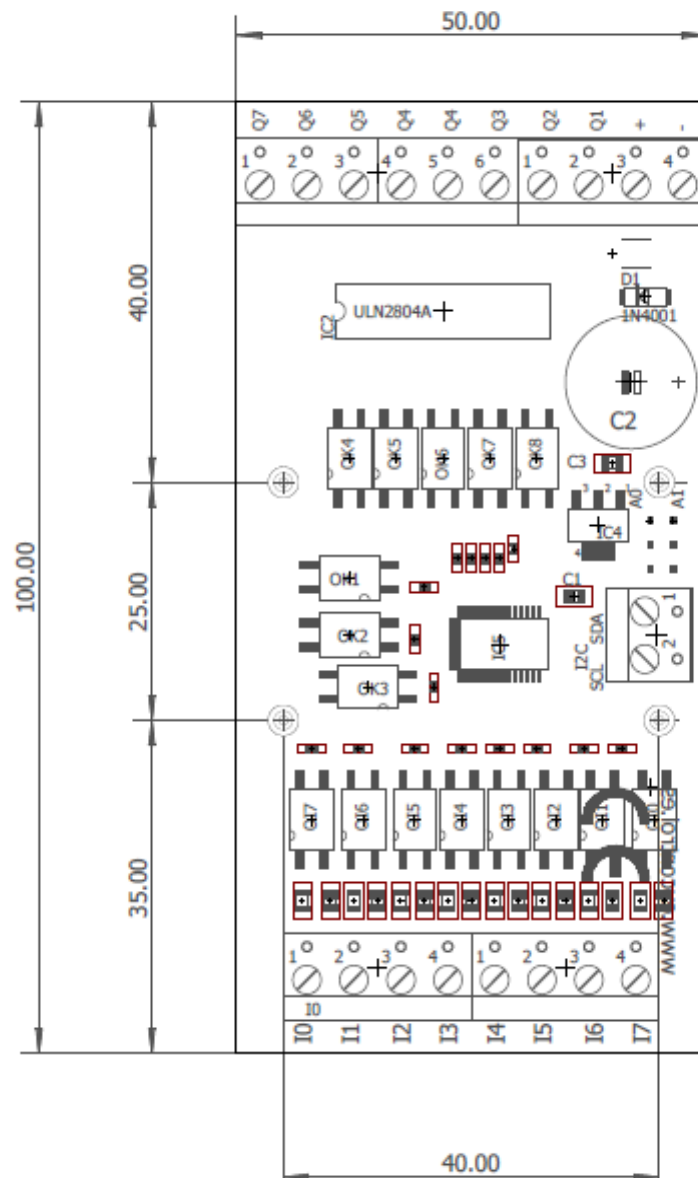


VERSIÓN 3.0

01-04-2018

I2C 3.3V EXTENSION USER GUIDE

EXCONTROL



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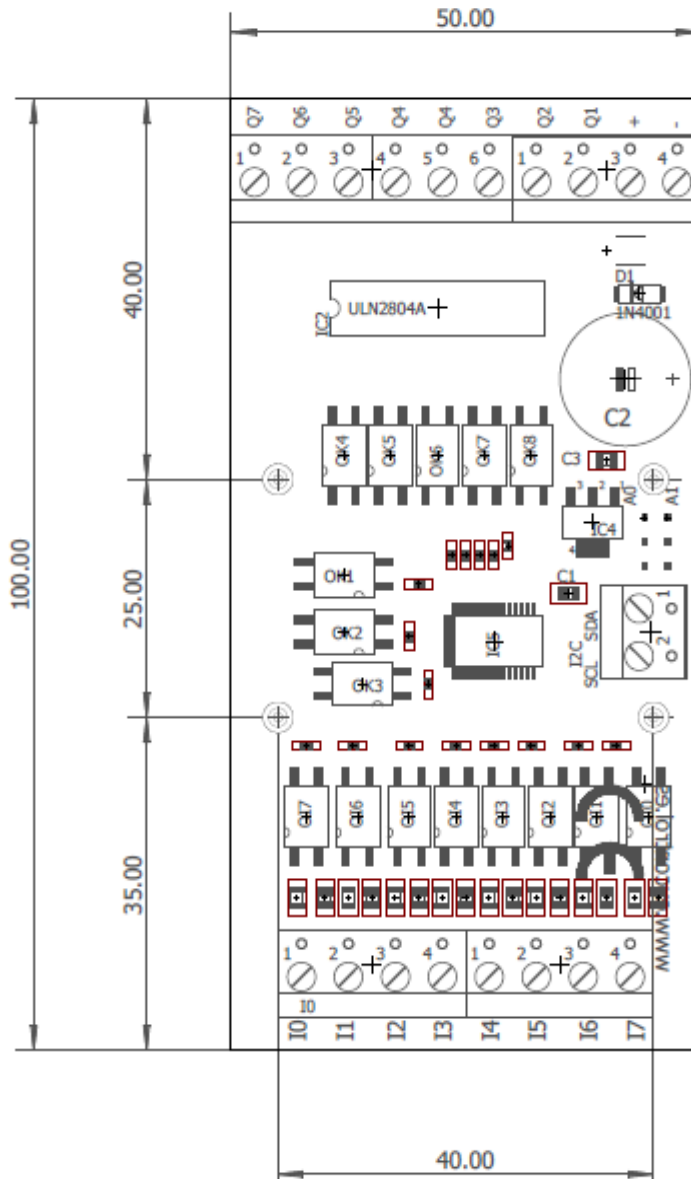
1 GENERAL DESCRIPTION

ExControl Shield is an industrial extension, with Galvanic isolation in inputs and outputs and ce marking.

It is compatible with arduino boards and i2c bus.

DESCRIPTION	QUANTITY	
I Max	700mA	Fuse protection and Polarity protection
Size	50x100mm	
Digital Isolated Input	8	12Vdc I min: 5mA Galvanic ISOLATION
Digital Isolated Output no PWM	8	NPN Transistor, max 600mA. Diode Protected for Relay and Galvanic ISOLATION
I2C Voltage Level	3.3v	Boar designed for 3.3v, for 5v use the correct reference.

2 MECHANICAL DIMENSIONS



3 PRECAUTIONS.

3.1 ARDUINO BOARD.

ExControl Shield Works with original Arduino board and other microcontroller using i2c bus.

3.2 INTENDED AUDIENCE.

This manual is intended for technicians, which must have knowledge on electrical systems.

3.3 GENERAL PRECAUTIONS.

The user must operate ExControl Shield according to the performance specifications described in this manual.

ExControl products **are not authorized for** use in safety-critical applications where a failure of the product would reasonably be expected to cause severe personal injury or death. Safety-critical applications include, without limitation, life support devices and systems, equipment or systems for the operation of nuclear facilities and weapons systems. ExControl products are neither designed nor intended for use in military or aerospace applications or environments, nor for automotive applications or the automotive environment. The Customer acknowledges and agrees that any such use of ExControl products is solely at the Customer's risk, and that the Customer is solely responsible for compliance with all legal and regulatory requirements in connection with such use.

Warnings:

Ignoring the directive may damage the controller.

Improper use of this product may severely damage the controller.

Refer to the controller's User Guide regarding wiring considerations.

Before using this product, it is the responsibility of the user to read the product's User Guide and all accompanying documentation.

4 TECHNICAL SPECIFICATIONS.

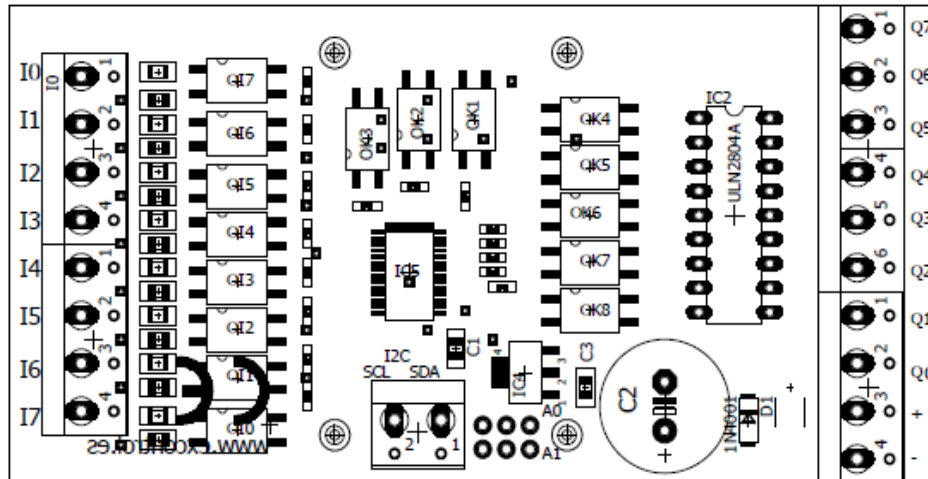
4.1 GENERAL SPECIFICATIONS:

DESCRIPTION	
Power supply	12V VCC
Operating voltage range	9 to 15 VCC
Power consumption	180mA max.
Shock resistance	75m/s ² in the X, Y and Z direction 2 times
Ambient temperature (operating)	0° to 48°C
Ambient humidity (operating)	10% to 85% (no condensation)
Ambient environment (operating)	With no corrosive gas.
Ambient temperature (storage)	- 20° to 60°C
Power supply holding time	2ms min.
Weight	90g max.

5 WIRING:

5.1 BOARD PINOUT.

This is the board pinout.



DESCRIPTION	FUNCTION
I0	Digital Input
I1	Digital Input
I2	Digital Input
I3	Digital Input
I4	Digital Input
I5	Digital Input
I6	Digital Input
I7	Digital Input
Q0	Digital Output
Q1	Digital Output
Q2	Digital Output
Q3	Digital Output

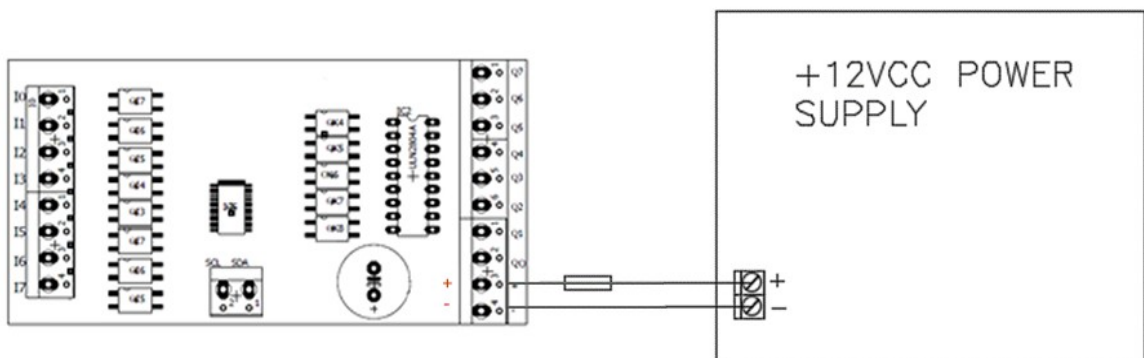
DESCRIPTION	FUNCTION
Q4	Digital Output
Q5	Digital Output
Q6	Digital Output
Q7	Digital Output
+	VCC Power supply
-	GND Power supply

6.2 HOW TO CONNECT TO POWER SUPPLY.

ExControl i2c extension board are 12Vdc supplied. IMPORTANT. -

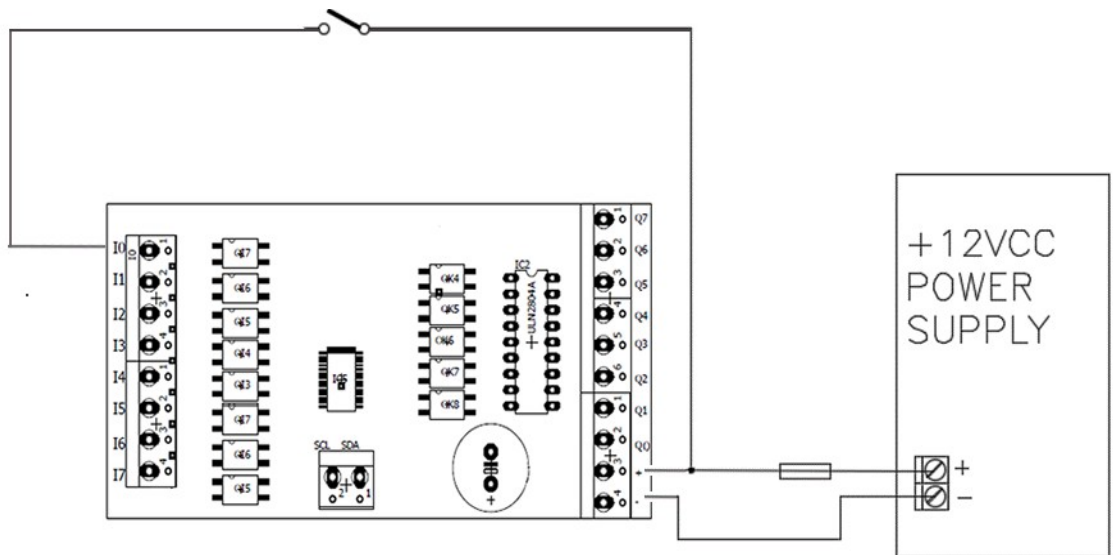
Make sure that the power supply mains output is not higher than 15Vdc.

Wire the power supply according to the following image.



6.3 HOW TO CONNECT DIGITAL INPUT.

All digital inputs are isolated.
The activation voltage is 12v.
Connect according to the attached image.



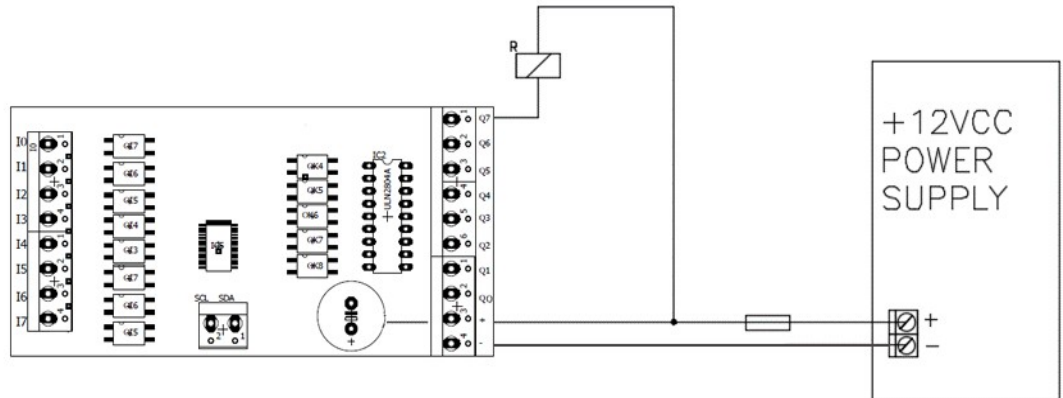
6.4 HOW TO CONNECT DIGITAL OUTPUT.

All digital inputs are isolated and NPN Transistor.

The max current is 600mA.

Diode Protected for Relay.

You can connect relays, valves and so on.,



Wiring relay.

7 I2C BUS:

7.1 I2C GENERAL SPECIFICATIONS:

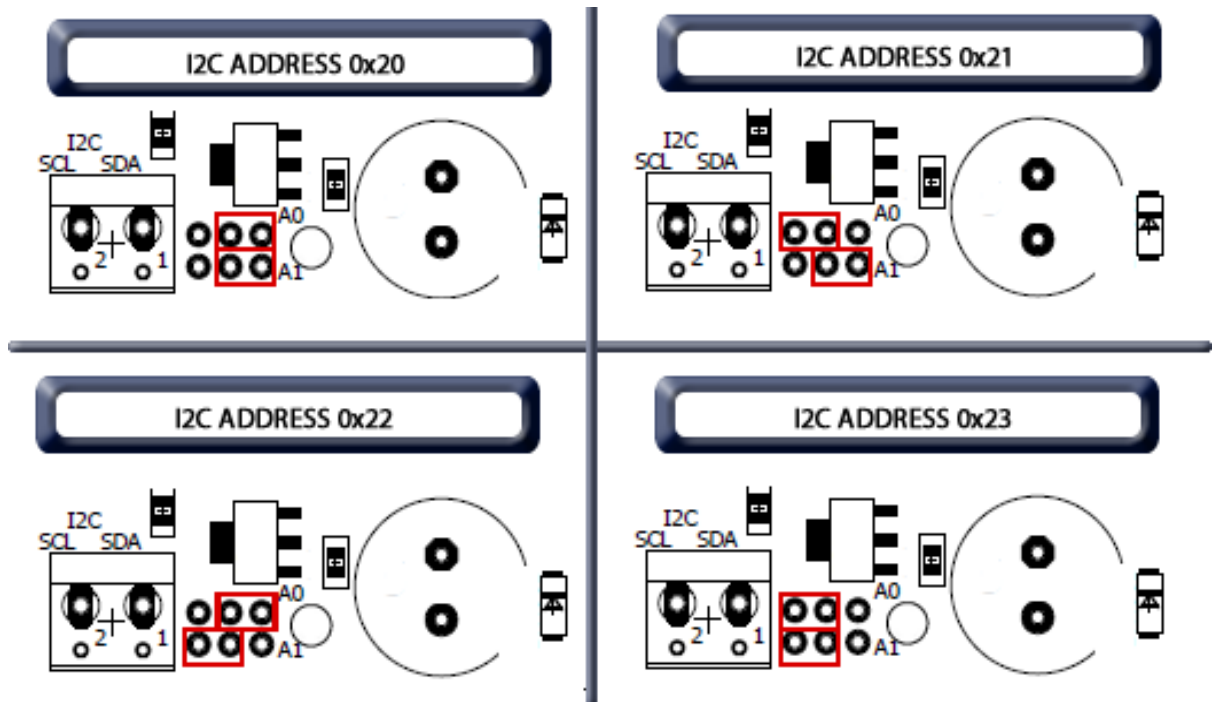
This allows you to communicate with I2C / TWI devices. On the MKR Shield the SDA (data line) and SCL (clock line) are screw terminal.

The i2c voltage level is 0-3.3v

The board have not pullup resistor.

7.2 I2C ADDRESSING:

To address the board, use the addressing jumpers.
Take the following image as a reference.



t This is the real address of the i2c device, to associate with the excontrol software address see the following table.

I2c REAL ADDRESS	ExControl (Arduino automation)
0x20	Device Address 0
0x21	Device Address 1
0x22	Device Address 2
0x23	Device Address 3
0x24	Device Address 4

7.3 I2C WIRING:

To easily wire the board has screw connection terminals.

