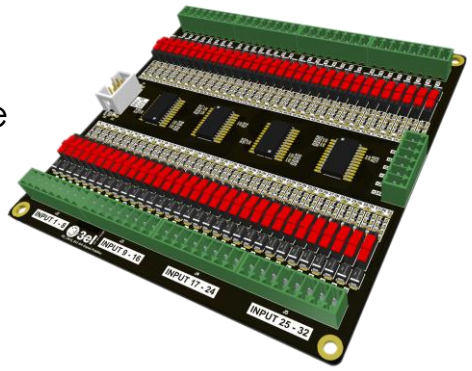
3el 64 Input Extension Card V1.0

64 In Ext V1.0

Features:



- 64 digital inputs
- selectable input logic and voltage
- optically isolated input circuits
- I²C addressable
- Compatible with 2x16 IO Card
- Low current consumption
- NI LabView integration

Description:

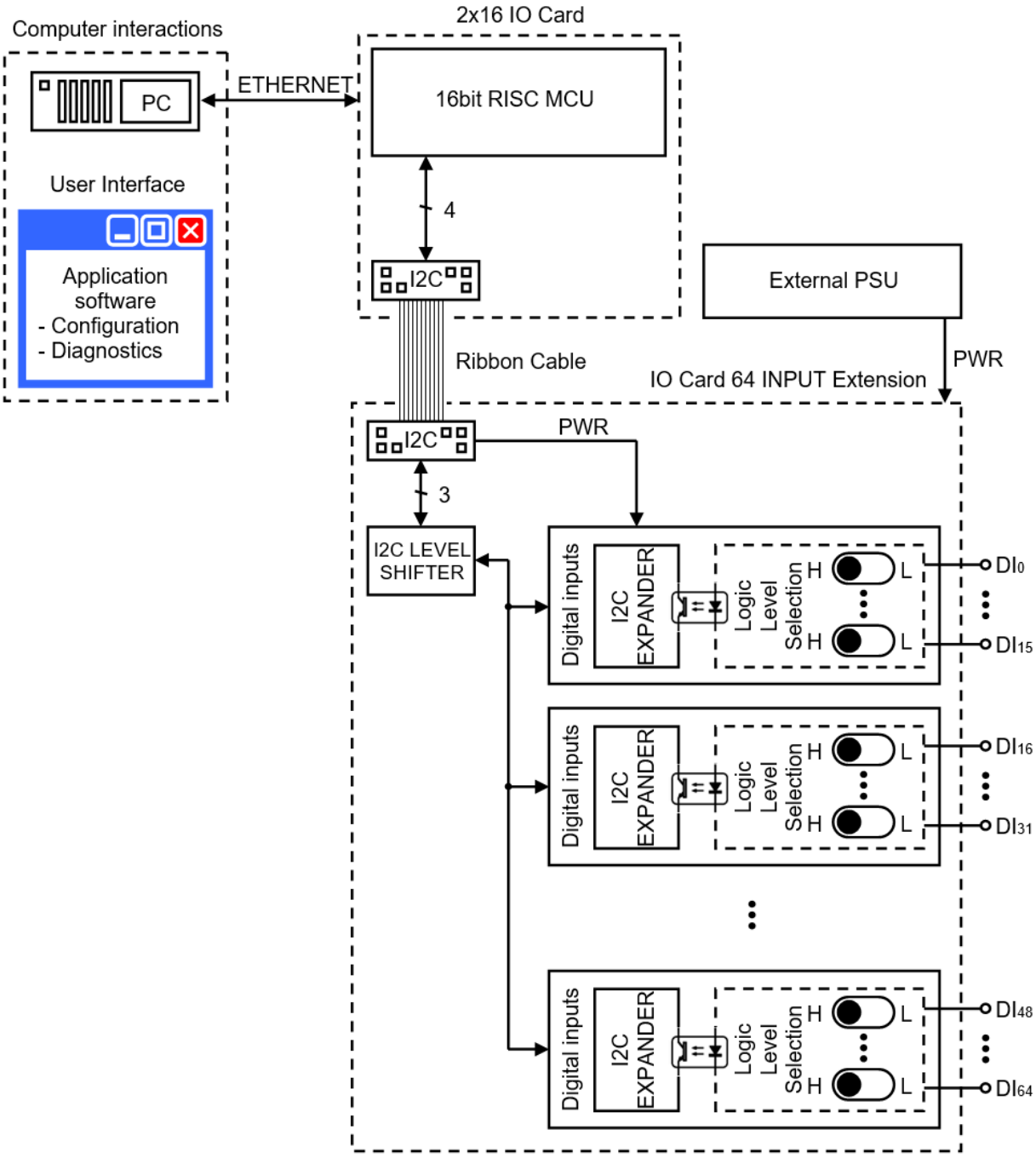
The 64 Input Extension Card is a compatible peripheral extension for 2x16 IO Card adding 64 filtered and optically coupled digital inputs to the system. The 2x16 IO Card controls this peripheral through I²C interface with a maximum frequency up to 400kHz.

The digital inputs are overvoltage protected and features selectable input logic. In accordance of the application requirements, they can be individually selected as active HIGH or LOW inputs. Each input channel is optically coupled for more flexibility in applications.

The circuit comes with a predefined NI LabView VI interface for easy system integration and has a standalone graphical user interface for testing and configuration purposes.

Block schematic:

- 2x16 IO Card for control connected to the extension board by a 6-pole ribbon cable
- 24V external, primary power source
- I2C 5V to 3.3V level shifter circuit
- Four groups of latched IO expander
- Optically isolated input signals
- Protection and logic level selection on digital input lines
- Prioritized and latched input stages for digital input lines
- Low latency input control signal propagation



Applications:

- various input monitoring and read-back
- safety circuit automation
- equipment security
- general system automation circuit control

Electrical characteristics:

Nominal supply voltage:	24V, 5V, 3.3V
High voltage outputs:	50V
Operating temperature range:	-40°C … 70°C
Current consumption 24V:	1mA
Current consumption 5V:	18mA
Current consumption 3.3V:	1mA

Digital inputs:

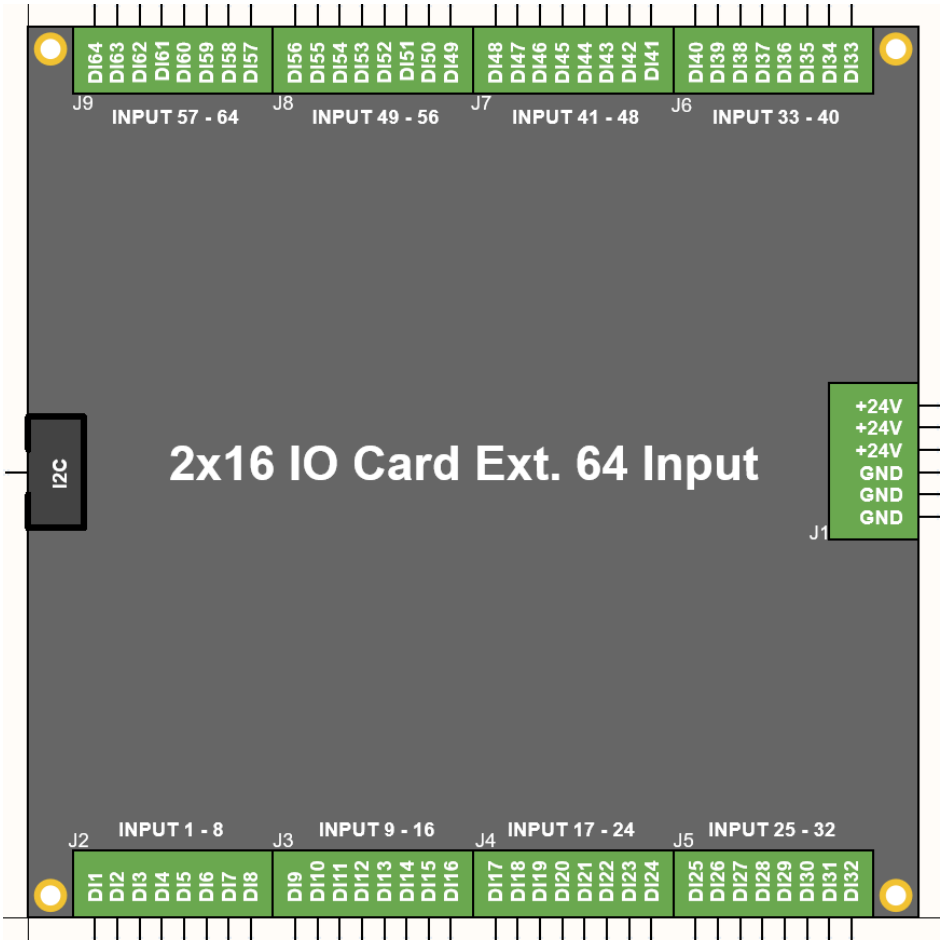
Selectable input logic by switches:	Active HIGH or Active LOW
Overvoltage protection:	33V
Minimum input current @24V:	8.8mA

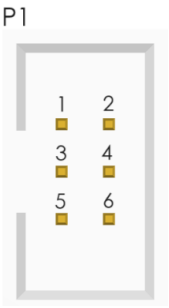
Basic requirements before use:

- the extension board should be mounted on four, 6mm (minimum) tall standoffs ensuring optimal distance from any conductive or electrically sensitive surface and the circuit PCB;
- the extension board should be powered from an external, primary 24VDC power supply;
- the 5Vdc, 3.3Vdc power supply and the I2C connection should be provided through a custom made 2.54mm pitch, 6 pin, flat ribbon cable;
- usually, the extension board is powered and controlled from the 2x16 IO Card board.

Board schematic symbol and pinout:

For CAD software integration the extension board has a predefined schematic symbol containing the pinout following the physical connector arrangement of the real board. The schematic symbol shows the layout of the main components and the connectors available.





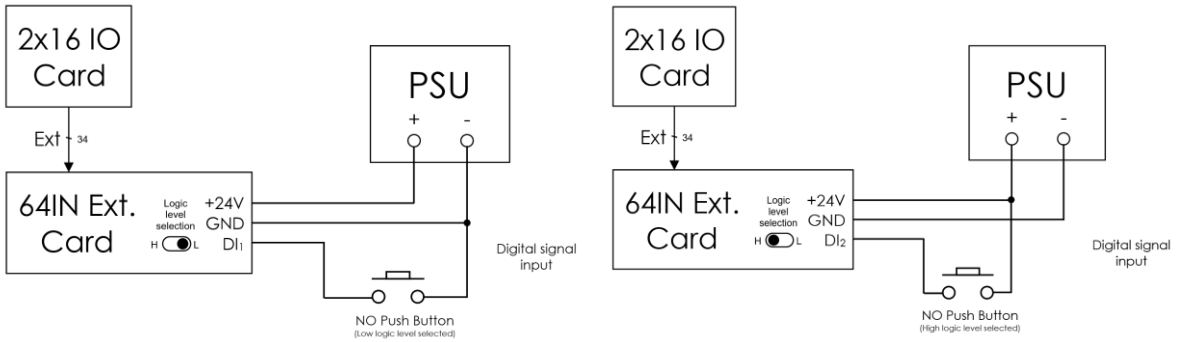
I²C connector pinout

1 – 5V input
2 – 3.3V input
3 – SDA (3.3V signal level)
4 – SCL (3.3V signal level)
5 – GND
6 – GND

Note: I2C Pullups are not present on the extension board! Recommended value on the master board is 2.2k.

Schematic examples:

The electrical wiring diagram shows application examples for input configuration.



Mechanical drawings: