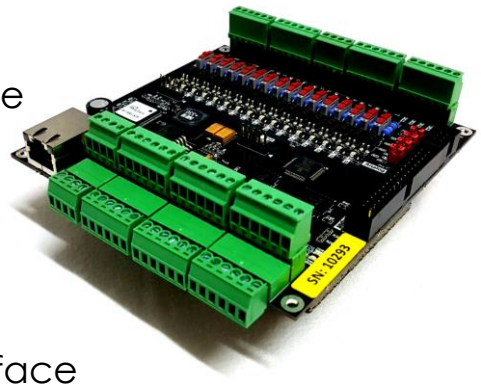
3el 2x16 IO Card Ethernet V4.1

2x16 IO Eth V4.1

Features:

- 16 digital inputs, 4 analog inputs
- selectable input logic and voltage
- 16 low side 24V outputs
- 2 POWER low side 24V outputs
- 8 RELAY outputs
- low current consumption
- Ethernet, RS485, I²C connection
- NI LabView integration, user interface



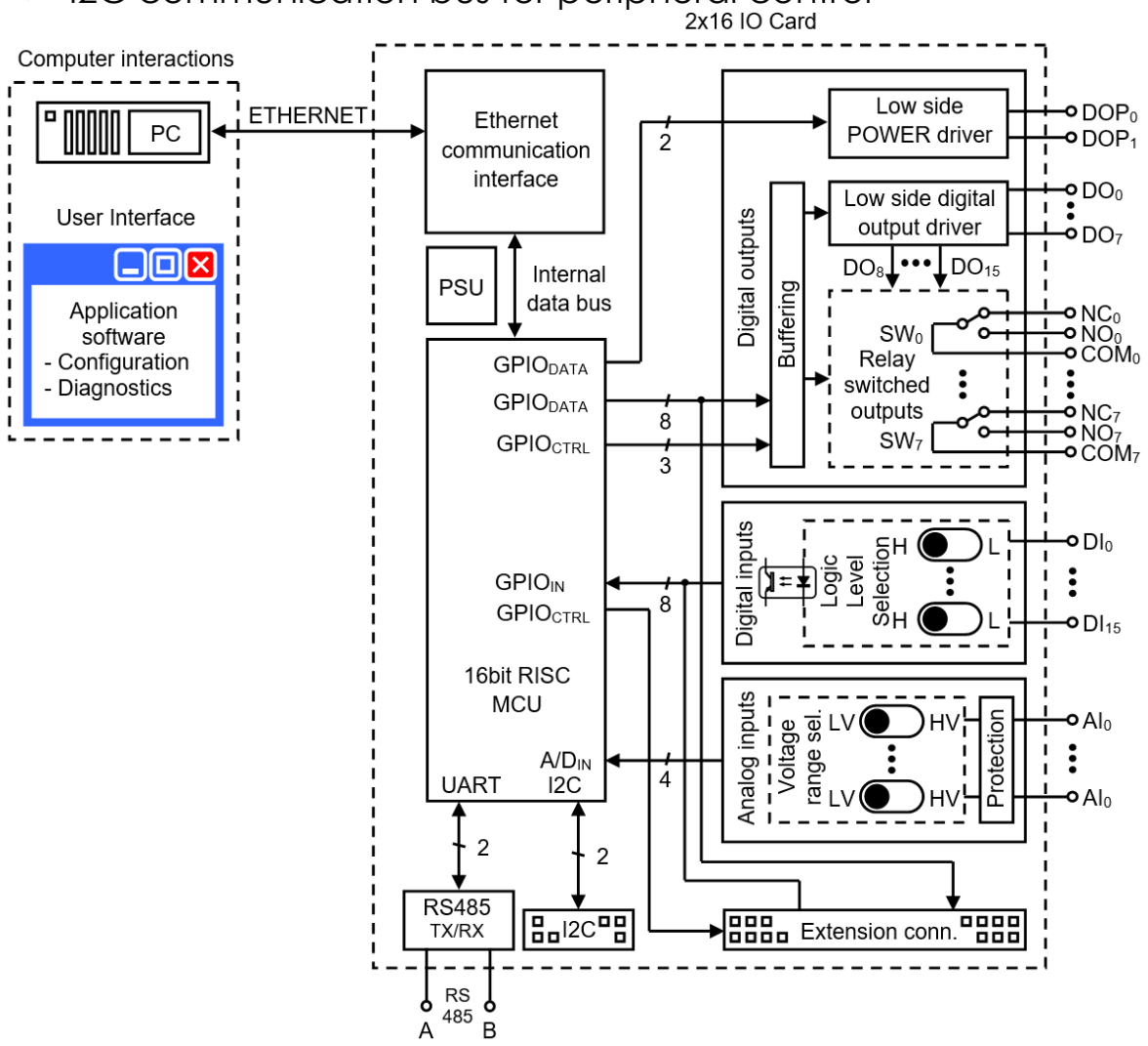
Description:

The 2x16 IO Eth V4.1 is a microcontroller-based interface circuit for industrial automation featuring 16 digital and 4 analog inputs and various types of output ports (16 low side driven outputs, 2 POWER outputs and 8 RELAY outputs). The IO card can be controlled and monitored through an integrated Ethernet interface. The main circuit can be extended by two additional IO extension cards handling together up to 32 more digital inputs and 32 more RELAY outputs over the standard ports. There are also integrated RS485 and I²C interfaces available featuring third party ICs and circuit connections. The MCU can handle external signals as interrupts, can store the input states until readout operations, and can execute macros regarding predefined switching sequences. 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. The basic outputs are integrated low side drivers sinking up to 500mA individually. All direct low side output lines are individually protected for overvoltage spikes by suppressor diodes. The two additional, low side, POWER outputs are driven by specialized MOSFET based circuits capable to switch 3A resistive, capacitive or inductive load, integrating temperature, overvoltage and overcurrent protection.

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

Block schematic:

- 16bit RISC CPU running at 48MHz clock signal
- Low latency output control signal propagation
- Buffered data path for output drivers
- Protection and voltage range selector block on analog input lines
- Protection, logic level selection and optical isolation on digital input lines
- Prioritized and latched input stages for digital input lines
- Configurable Ethernet communication interface featuring both UDP and TCP/IP protocols
- Application software with intuitive graphical user interface for control and diagnostics purposes
- Additional data and control lines for extension cards
- I2C communication bus for peripheral control



Applications:

- various input monitoring and read-back
- low current actuators control
- external relays control
- safety circuit automation
- equipment security
- general system automation circuit control

Electrical characteristics:

Nominal supply voltage:	24V
Overvoltage protection:	36V
Operating temperature range:	-40°C … 70°C
Power consumption:	$0.5W_{[Standby]}$ – $1.5W_{[All\ outputs\ ON]}$

Digital inputs:

Selectable input logic by switches:	Active HIGH or Active LOW
Overvoltage protection:	33V
Minimum input current @24V:	15mA

Analog inputs:

Selectable input voltage range by jumpers:	0…6V or 0…30V
Input impedance in the 0…6V range:	108Ω
Input impedance in the 0…30V range:	90Ω

Low side outputs:

Nominal switching voltage:	24V
Overvoltage protection:	33V
Rated current:	500mA

Low side POWER outputs:

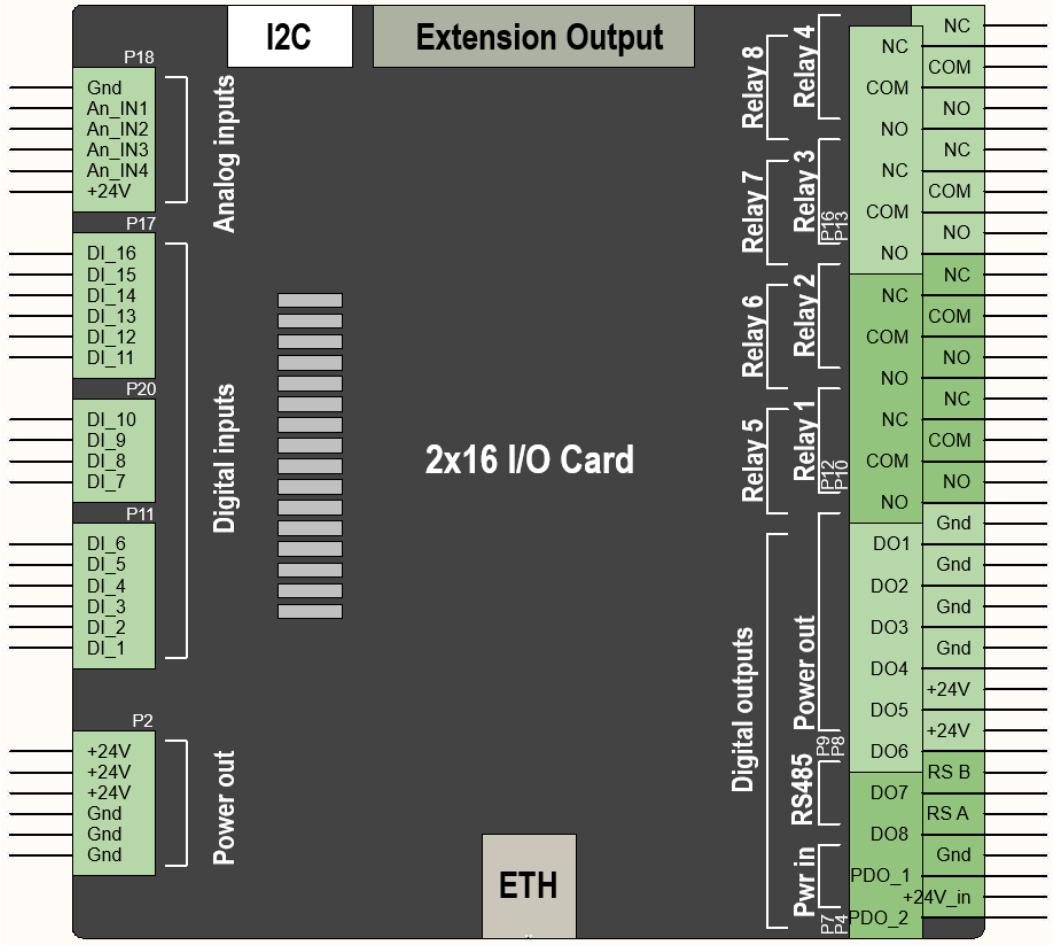
Nominal switching voltage:	24V
Overvoltage protection:	33V
Rated current:	3000mA

RELAY outputs:

Maximum switching voltage:	125VAC or 60VDC
Rated current:	2000mA

Board schematic symbol and pinout:

For CAD software integration the 2x16 IO Card has a predefined schematic symbol containing the pinout following the physical connector arrangement of the real board. The inputs and outputs are grouped by functions. Next to the power input connector there are also a couple of additional power output connections on both sides of the board. The schematic symbol also defines the communication and extension connectors.



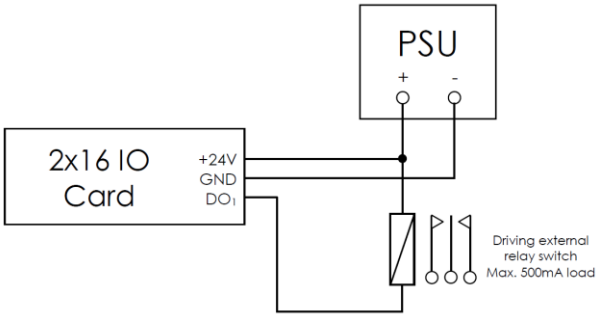
Basic requirements before use:

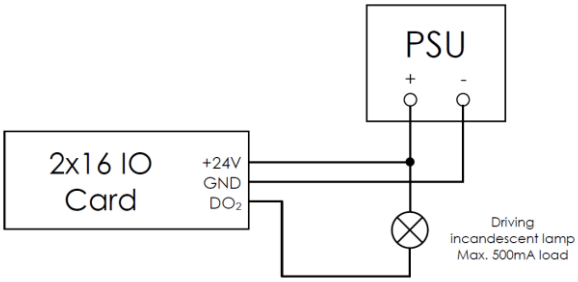
- the 2x16 IO Card should be mounted on four, 6mm (minimum) tall standoffs ensuring optimal distance from any conductive or electrically sensitive surface and the circuit PCB.
- the 2x16 IO Card should be powered from an external, primary 24VDC power supply

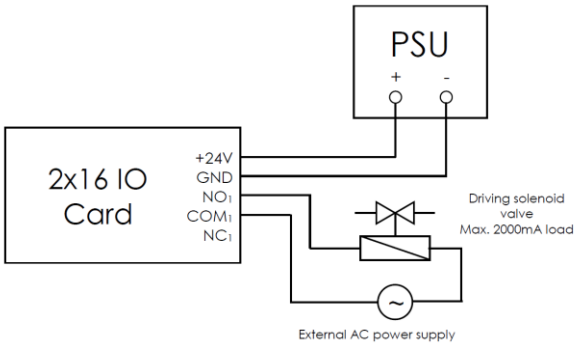
Schematic examples:

The electrical wiring diagram shows application examples for each type of output and input of the 2x16 IO Card including power delivery for external circuits.

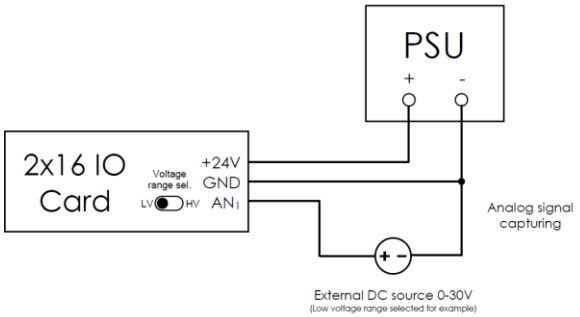
- Output configuration

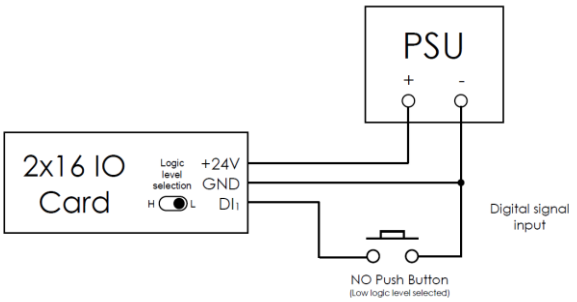


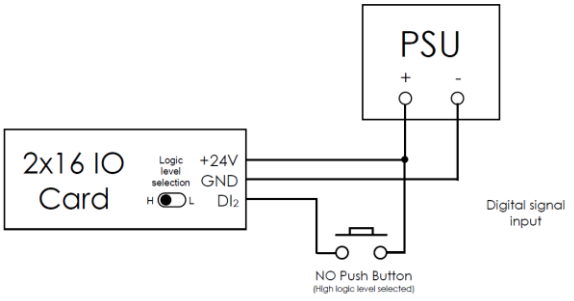




- Input configuration







Mechanical drawings: