

ConveyLinx-Ai2

Technical specification



May 26, 2016

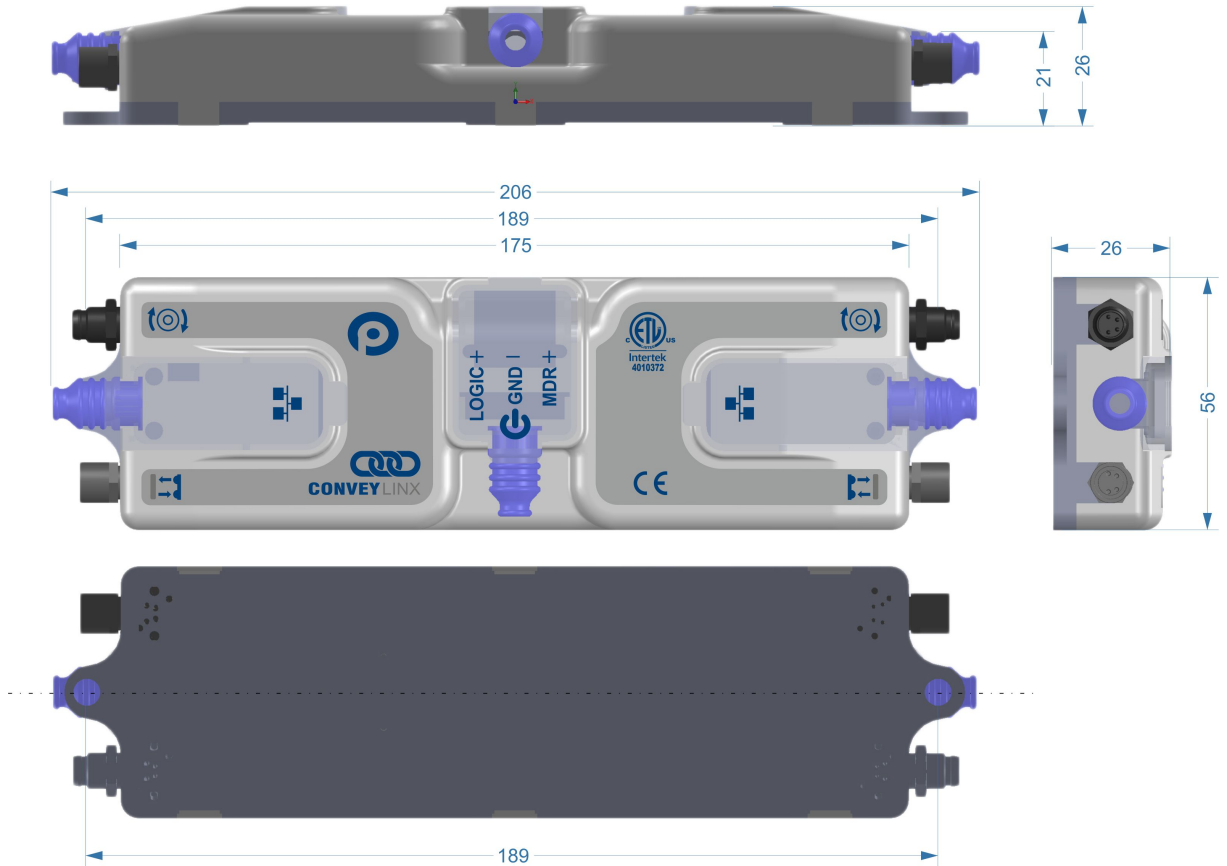
Rev 1.0

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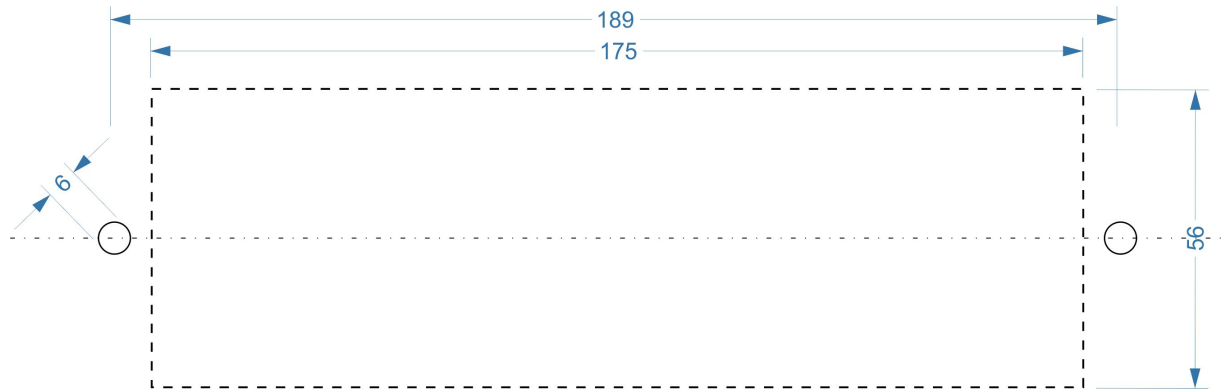
1 Mechanical dimensions

All dimensions are in mm.



2 Mounting hole dimensions

All dimensions are in mm.



3 Ratings

3.1 Power connector(included)

The power connector used for ConveyLinx-Ai2 is **Degson: DG245-5.0**

3.2 Electrical specification

Power supply Voltage	24.0V +/- 10 %
Standby current consumption	less than 120mA
Motor Starting Current	8A or lower
Motor Rated Current	Torque-On-Demand up to 8A

3.3 Absolute maximum ratings

Operating outside these parameters may result in permanent module failure or unexpected behavior.

Minimum Operating Voltage	21V
Maximum Operating Voltage	30V
Storage temperature	-40C to 120C(-40F to 248F)
Ambient Operating temperature	0C to 50C(32F to 122F)
Humidity	5% to 95% non-condensing
Vibration	0.152 mm (0.006 in.) displacement, 1G peak
Mechanical Shock	20G peak for 10ms duration (1.0 ms)
Enclosure IP Rating	IP54
Maximum peak current	21.5A*
Maximum motor start current	12A

*This is the maximum current that will be allowed by the hardware over current protection circuitry. On board firmware limits the amount of current based on the quantity and motor types connected.

4 Certifications and Standards

ConveyLinx-Ai2 is CE Certified and tested to comply with the following standards:

BDS EN 61131-2:2008	Programmable controllers–Part 2: Equipment requirements and tests
BDS EN 61000-6-2:2006	Electromagnetic compatibility(EMC)-Part 6-2: Generic standards-Immunity for industrial environments
BDS EN 61000-6-4:2007+A1:2011	Electromagnetic compatibility(EMC)-Part 6-4:Generic standards-Emission standard for industrial environments
BDS EN 55016-2-1:2009+A1:2011	Specification for radio disturbance and immunity measuring apparatus and methods Part 2-1: Methods of measurement of disturbances and immunity. Conducted disturbance measurements
BDS EN 55014-1:2007+A1:2009+A2:2011	Electromagnetic compatibility-Requirements for household appliances, electric tools and similar apparatus- Part1: Emission
BDS EN 61000-4-2:2009	Electromagnetic compatibility (EMC) Part 4-2: Testing and measurement techniques. Electromagnetic discharge Immunity test
BDS EN 61000-4-4:2012	Electromagnetic compatibility (EMC) Part 4-4: Testing and measurement techniques. Electrical fast transient/burst immunity test.
BDS EN 61000-4-5:2007	Electromagnetic compatibility (EMC) Part 4-5: Testing and measurement techniques. Surge immunity test.
BDS EN 61000-4-6:2009	Electromagnetic compatibility (EMC) Part 4-6: Testing and measurement techniques. Immunity to conducted disturbances, induced by radio-frequency field.
BDS EN 61000-4-11:2009	Electromagnetic compatibility (EMC) Part 4-11: Testing and measurement techniques. Voltage dips, short interruptions and voltage variations immunity tests

5 Sensor port I/O

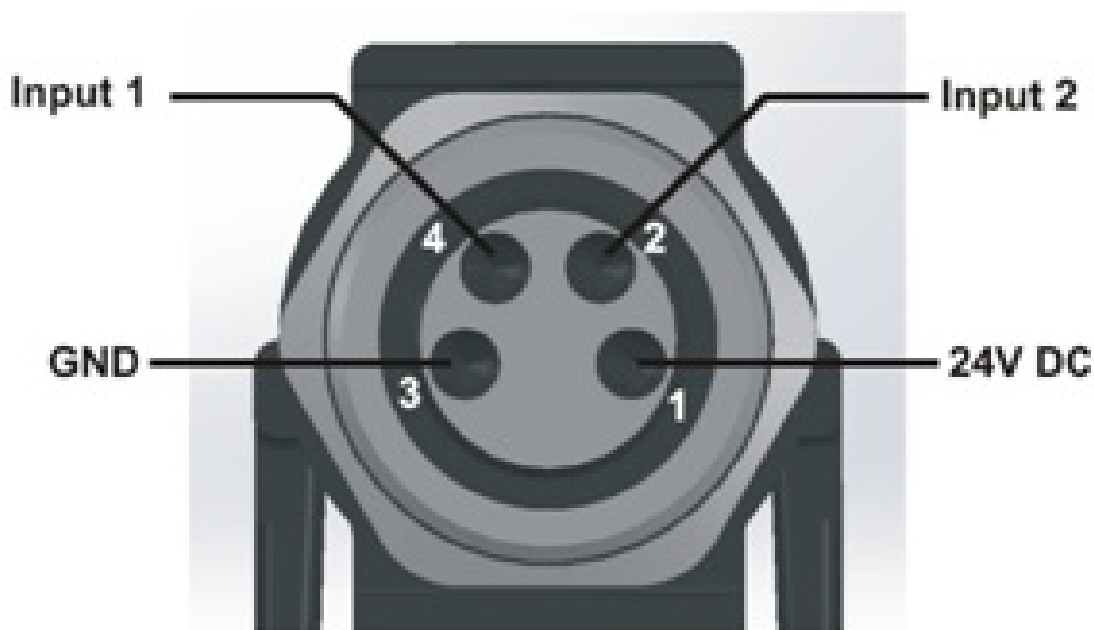
Signal Type	Availability(location)
Inputs PNP/NPN Auto-sensing	4 (2 per sensor port)
Outputs NPN	2 (1 per sensor port)
Outputs NPN (for motor coils)	4 (2 per motor port)

Each IO pin can be configured as an input or an output. The Sensor ports have 1 input and one configurable input or output each. Sensor port inputs are auto-sensing for the connected circuit type. Input function as either PNP or NPN. Please note that both sourcing and sinking current will activate the input.

- Minimum ON current : 1.5mA
- Maximum OFF current: 0.4mA

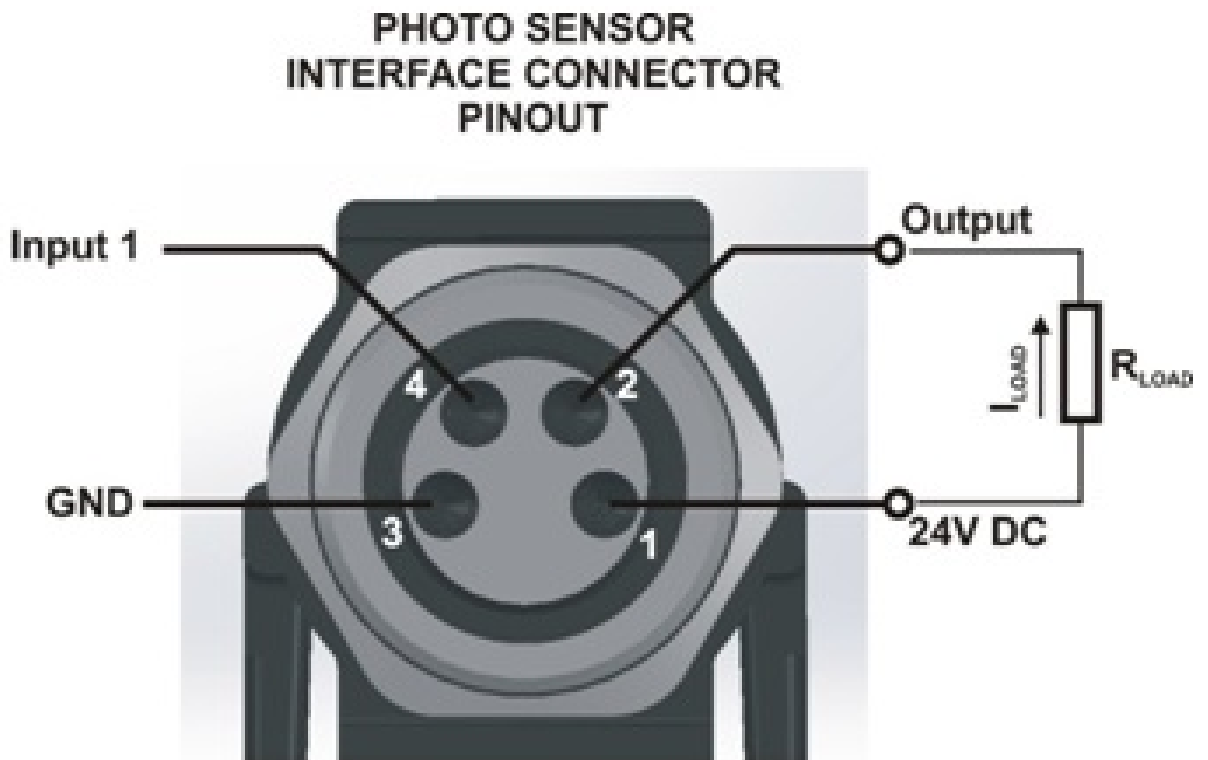
5.1 Inputs

PHOTO SENSOR INTERFACE CONNECTOR PINOUT



1. 24V DC
2. Input 2
3. GND
4. Input 1

5.2 Outputs



1. 24V DC
2. Output, $I_{LOAD} \leq 20\text{mA}$
3. GND
4. Input 1

5.3 Sensor power pins

Pin1 of all M8 sensor ports provides 24V for powering up a photo-eye. The current that those pins can supply is limited internally. Sensors port share a solid-state fuse. The maximum current consumption is 100mA. For example, if there is one photo-eye plugged into the left sensor port and one photo-eye plugged in the right sensor port, then the combined consumption of the two photo eyes must not exceed 100mA.

Note: Current in excess of 100mA drawn from the sensor port's 24V pin may cause permanent damage to the sensor detection circuit. Care should be taken to avoid excess loads, short circuits and miss-wiring of the sensor port.

6 Motor port specification

Supported motor types	Senergy-Ai motors
PWM frequency*	25 kHz +/- 0.1%
Maximum starting current	8A
Maximum rated current	Torque-On-Demand up to 8A
Motor Protection**	Coil-to-coil short, coil-to-Vcc short, overheating, over-voltage, undervoltage, stall sensing and protection

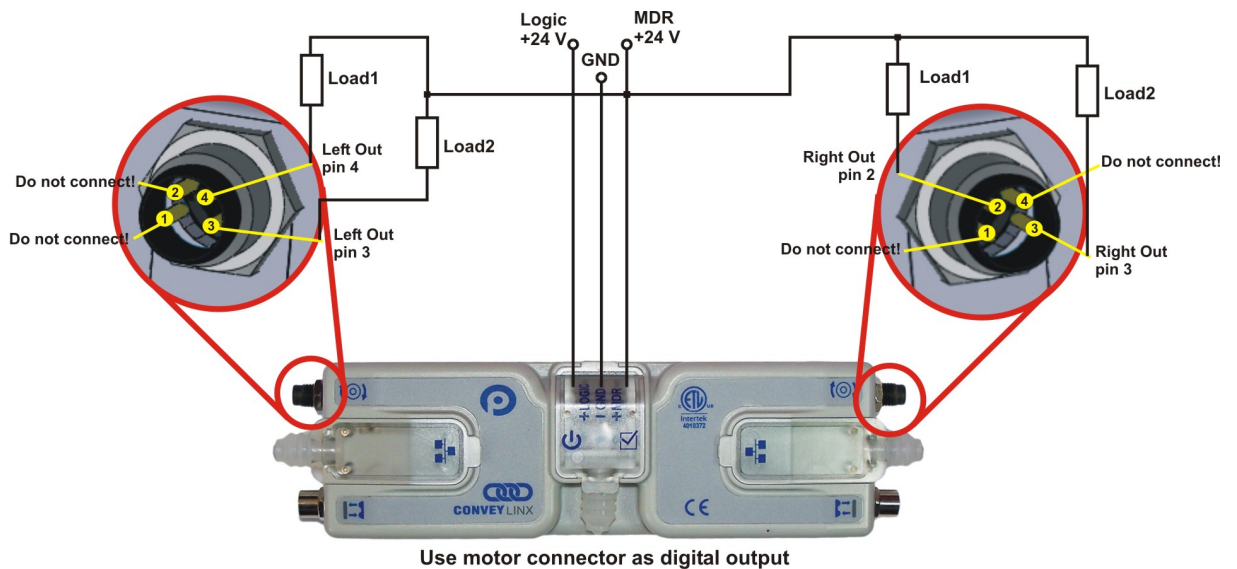
*The PWM frequency is firmware version dependent.

** During normal operation as an MDR port, the internal protection circuitry is not capable of detecting a short-circuit between a BLDC coil output and ground. Such a short-circuit will cause damage to the high-side bridge transistors. When operating these outputs as general purpose outputs, the high-side transistors are disabled, so a pin-to-ground short-circuit is not an issue.

6.1 Motor ports in Digital IO mode as Outputs

In certain modes of operation (PLC I/O and ConveyLogix PLC), these pins can be used as general purpose outputs.

Each pin can sink up to 0.75 A to ground in this mode.



7 Ethernet specification

- 3 port integrated switch (2 external ports and 1 port for the on-board processor).
- Automatic speed setup (10Base-T / 100Base-TX)
- Automatic duplex configuration (Full / Half)
- Automatic straight/crossover cable detection (Auto MDI/MDI-X)
- PAUSE frame support
- Back pressure flow control support
- Maximum segment length: 100m / 328ft

7.1 Supported Industrial Ethernet protocols

- ModbusTCP
- EthernetIP
- ProfinetIO