

ConveyLinx-Ai Technical Specification

Version 1.0

April 2016

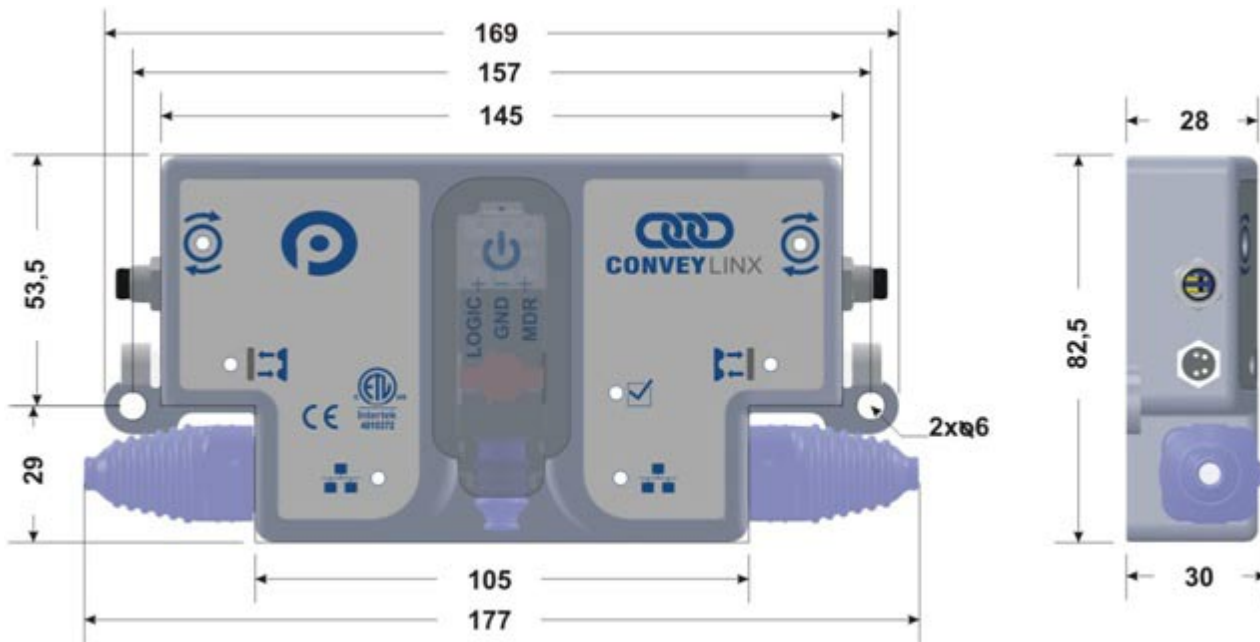


Publication ERSC-1060

ConveyLinx module firmware and functionality is protected by U.S. and international patents. For complete patent information visit www.pulseroller.com/patents

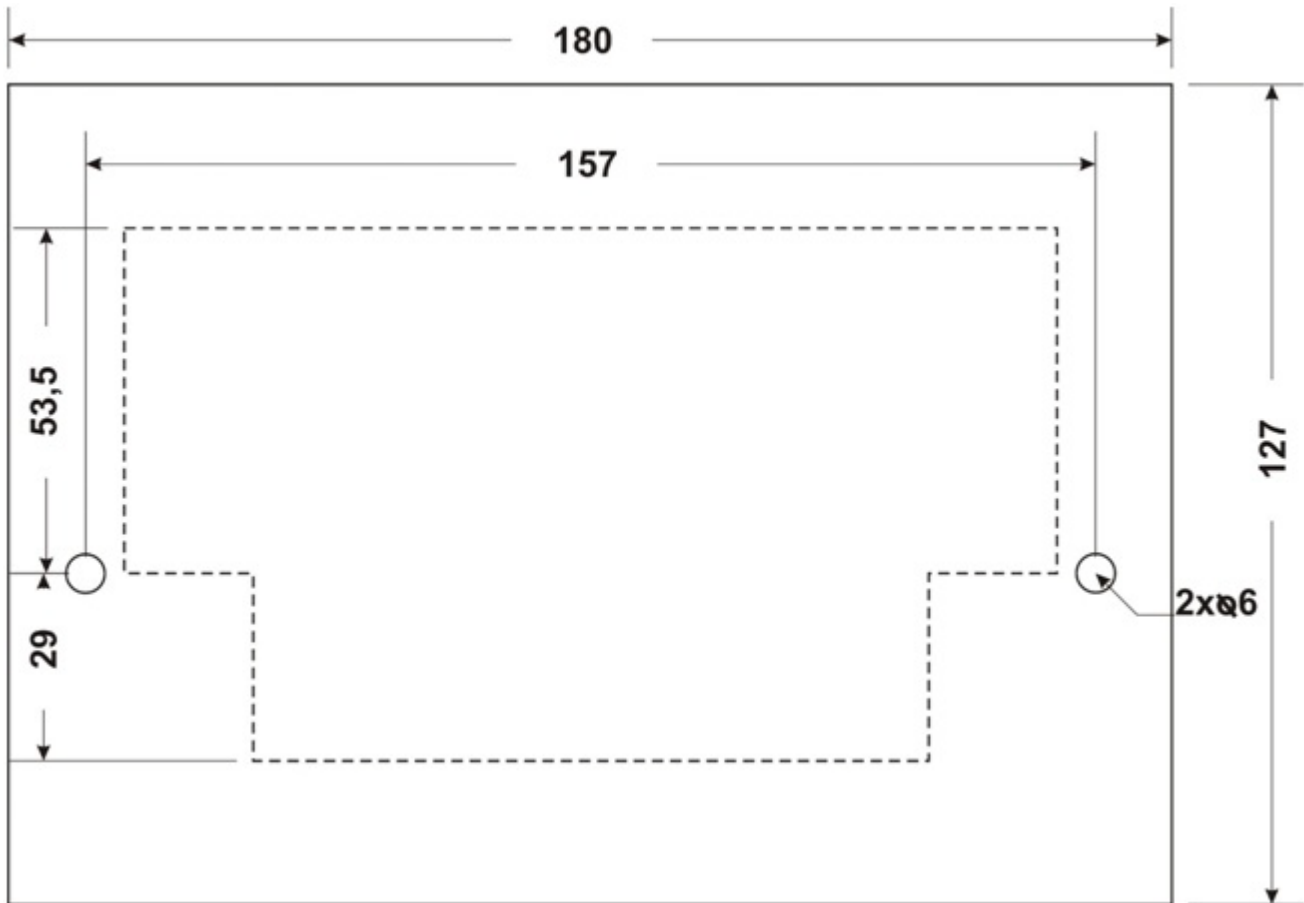
Mechanical Dimensions

All Dimensions in mm



Mounting Hole Dimensions

All Dimensions in mm





Power Connector (included):

The power connector used is Degson DG245-5.0

Electrical Specification:

Power supply voltage	24.0V +/- 10%
Standby current consumption	< 120mA
Motor Starting Current	≤ 8A
Motor Rated Current	≤ 4A

Absolute Maximum Ratings

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

Minimum Operating Voltage	21V
Maximum Operating Voltage	30V
Storage temperature	-40°C to 120° C (-40°F to 248°F)
Ambient Operating temperature (Standard card)	0°C to 50°C (32°F to 122°F)
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.*



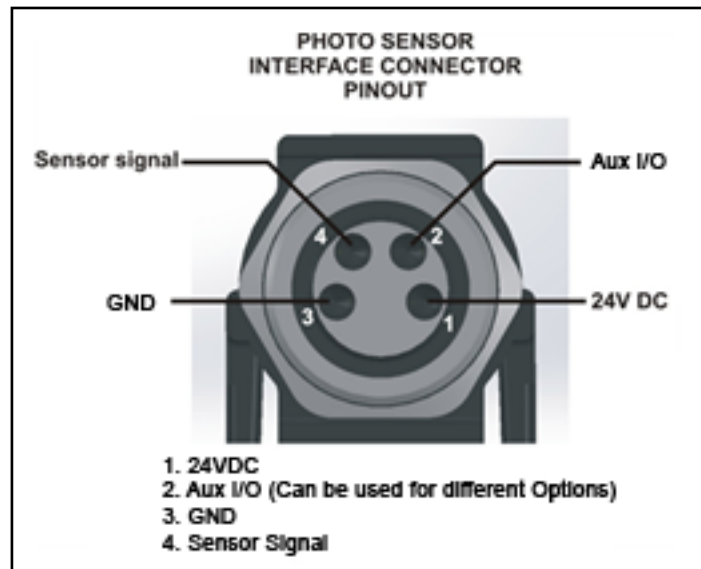
Certifications & Standards

ConveyLinx 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 -- Part 1: Emission
BDS EN 61000-4-2:2009	Electromagnetic compatibility (EMC) Part 4-2: Electromagnetic discharge Immunity test
BDS EN 61000-4-4:2012	Electromagnetic compatibility (EMC) Part 4-4 Electrical fast transient/burst immunity test.
BDS EN 61000-4-5:2007	Electromagnetic compatibility (EMC) Part 4-5 Surge immunity test.
BDS EN 61000-4-6:2009	Electromagnetic compatibility (EMC) Part 4-6 Immunity to conducted disturbances, induced by radio-frequency field.
BDS EN 61000-4-11:2009	Electromagnetic compatibility (EMC) Part 4-11 Voltage dips, short interruptions and voltage variations immunity tests.

Sensor Port I/O

Each Module is equipped with two 4-pin female M8 style Sensor I/O ports primarily used to connect a photo-electric sensor to the module. Each of these ports has one pin dedicated as an input for the sensor (pin 4) and one Aux I/O pin (pin 2) that is configurable to be either an input or an output.



Signal Type	Availability (location)
Inputs PNP/NPN Auto-sensing	2 (1 per sensor port)
Configurable Input/Output	2 (1 per sensor port)

Sensor Input Signal (M8 Pin 4)

The sensor input (pin 4) is auto-sensing for PNP or NPN circuit type such that both sourcing and sinking current will activate the input based upon the following conditions:

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

Aux I/O Signal (Pin 2) Configured as an INPUT

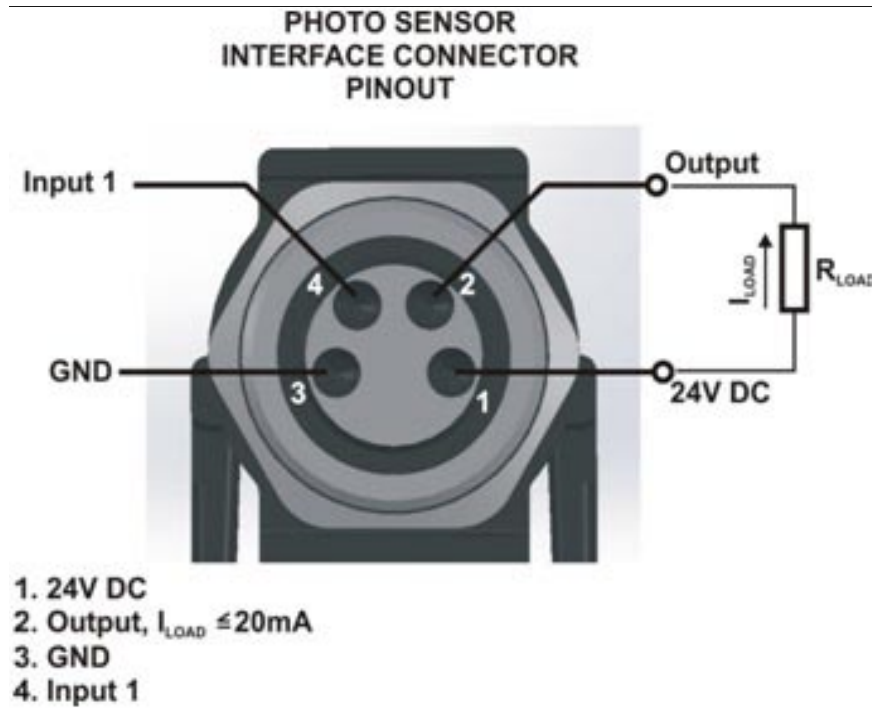
When configured as an INPUT, the Aux I/O (pin 2) is auto-sensing for PNP or NPN circuit type such that both sourcing and sinking current will activate the input based upon the following conditions:

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



Aux I/O Signal (Pin 2) Configured as OUTPUT

When configured as an OUTPUT, the Aux I/O (Pin 2) provides an NPN circuit as illustrated below:



Sensor Port 24V DC (Pin 1) and GND (Pin 3)

Pin 1 of each Sensor Port provides 24V for powering up a sensor device and/or for supplying the load for the Aux I/O (Pin 2) when configured as an output. The available current for the two control ports on the module is limited internally by a solid-state fuse. The maximum combined current consumption for the two sensor ports is 100 mA.

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.

Motor Port Specification

Supported motor types	Senergy-Ai
PWM frequency*	25 kHz +/- 0.1%
Maximum starting current	8A
Maximum rated current	5A
Motor Protection**	Coil-to-coil short, coil-to-Vcc short, overheating, over-voltage, under-voltage, stall sensing and protection

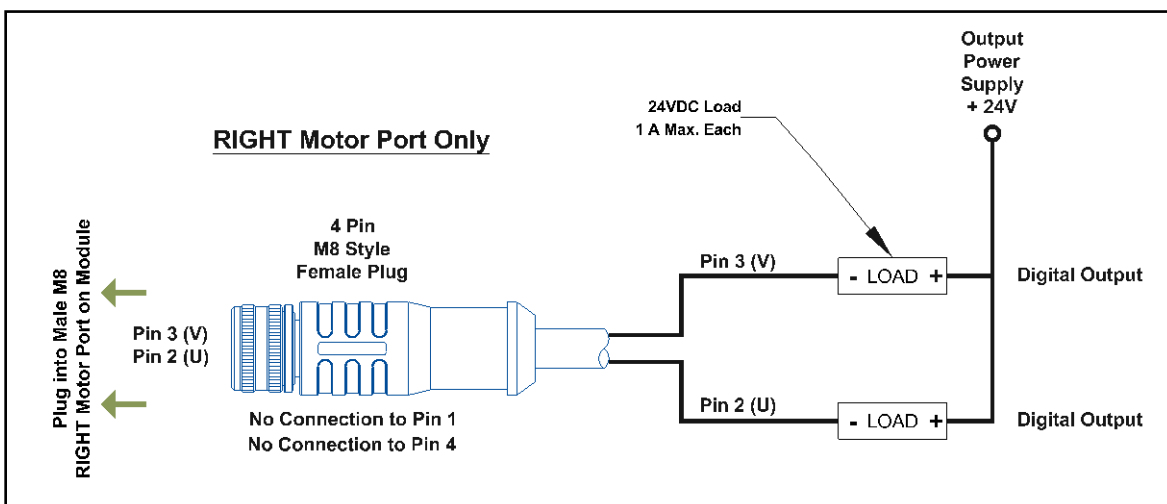
*The PWM frequency is firmware version dependent

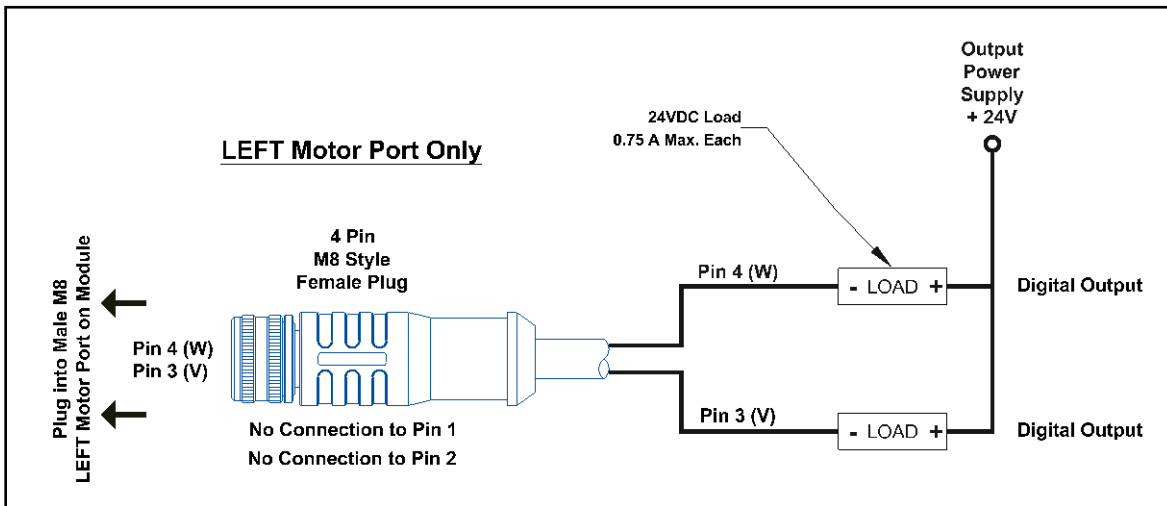
**During normal operation as an MDR port, the internal protection circuitry is not capable of detecting a short-circuit between a BLDC coil output and ground. Such a short-circuit will cause damage to the high-side bridge transistors. When operating these outputs as general purpose digital outputs, the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

Motor Ports in Digital Output Mode

Either the Left or Right (or both) Motor Ports can be configured to operate their respective motor coil output transistors as 24V DC digital output signals. These digital output signals are **sinking type only** and will accommodate up to 0.75A each.

For each of the Motor Ports, only 2 out of the 3 total motor coil output pins are available as digital outputs for a total of 4 Motor Port digital outputs available per module. Please note that these 2 available motor coil **pins are different between the Left and Right Motor Ports** as illustrated below:





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

Supported Network Protocols

- Modbus/TCP
- EtherNet/IP
- Profinet IO

Patent Information

ConveyLinx ERSC module hardware and firmware functionality protected by one or more US and global patents. For patent information see www.pulseroller.com/patents