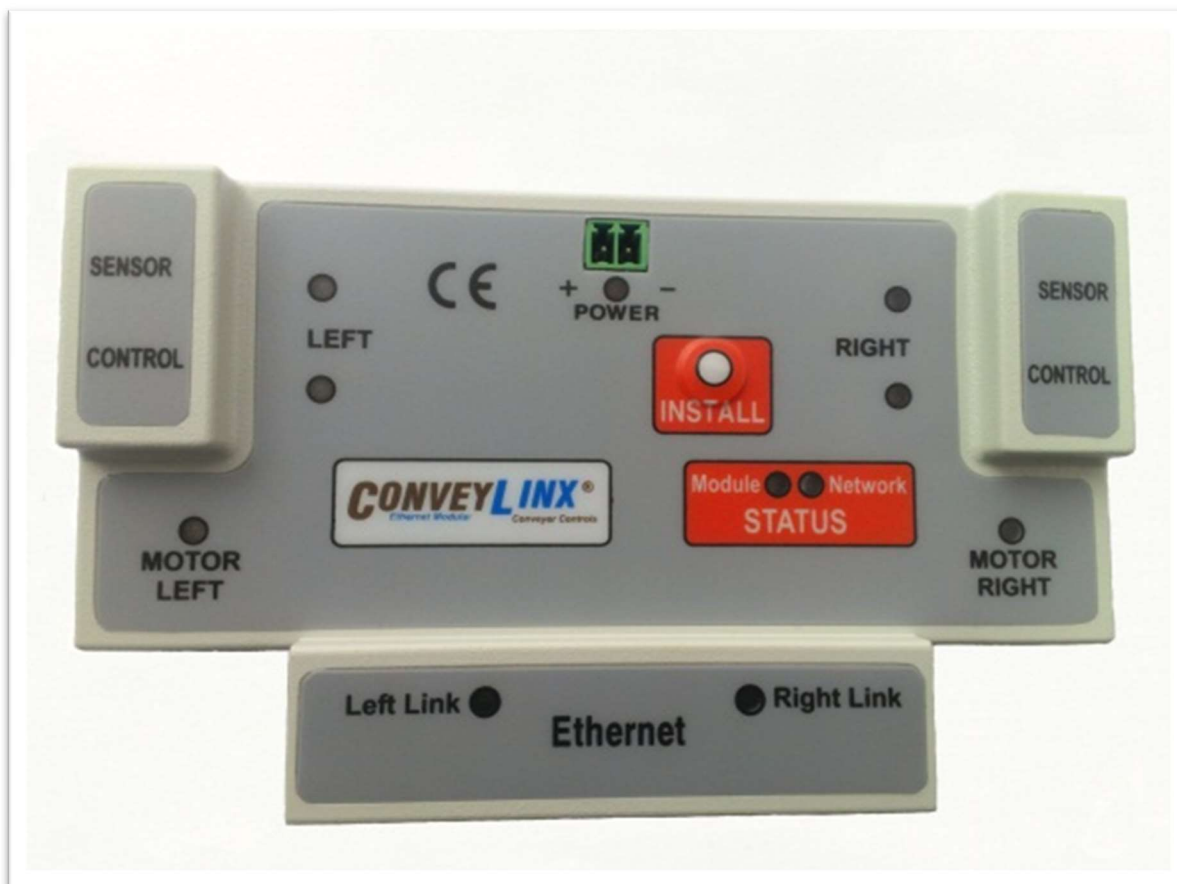


Technical Specification

Version 1.8

December 2019



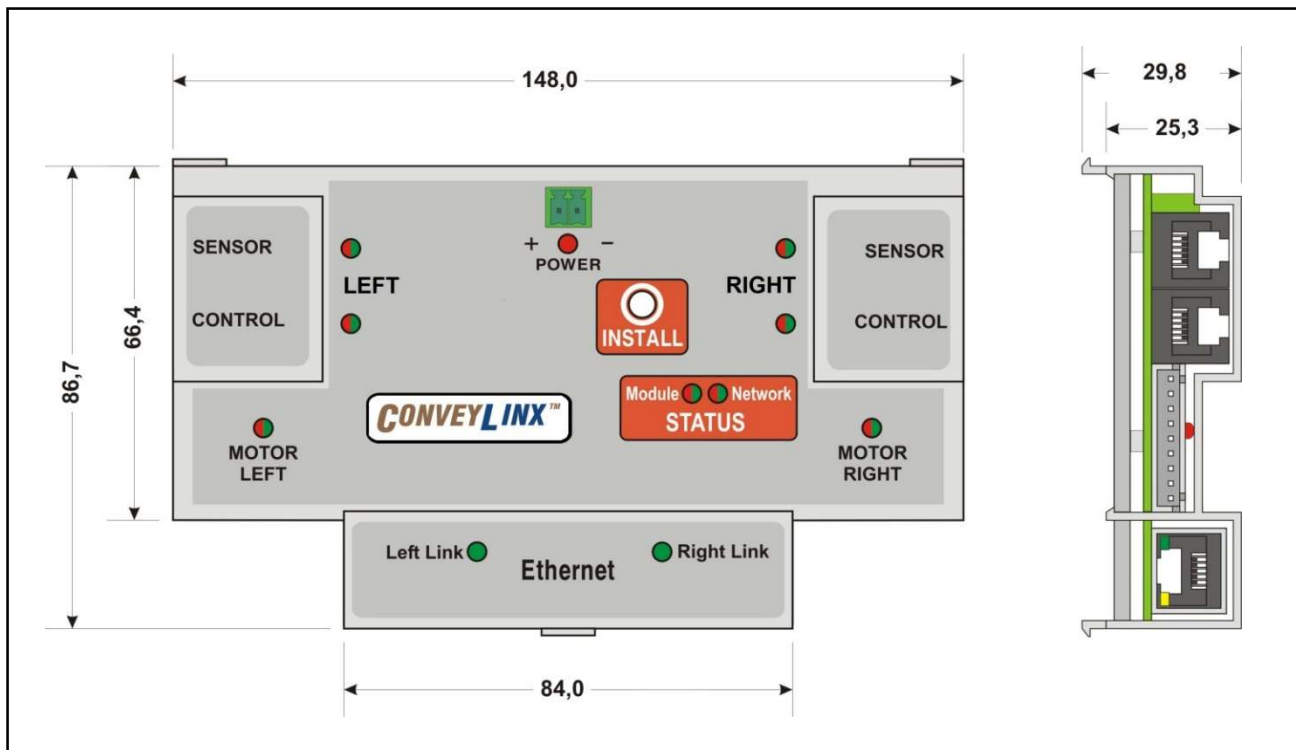
Publication ERSC-1050

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

This document covers ConveyLinX Hardware Revisions 3, 4 and 5: Serial numbers 137101 and higher

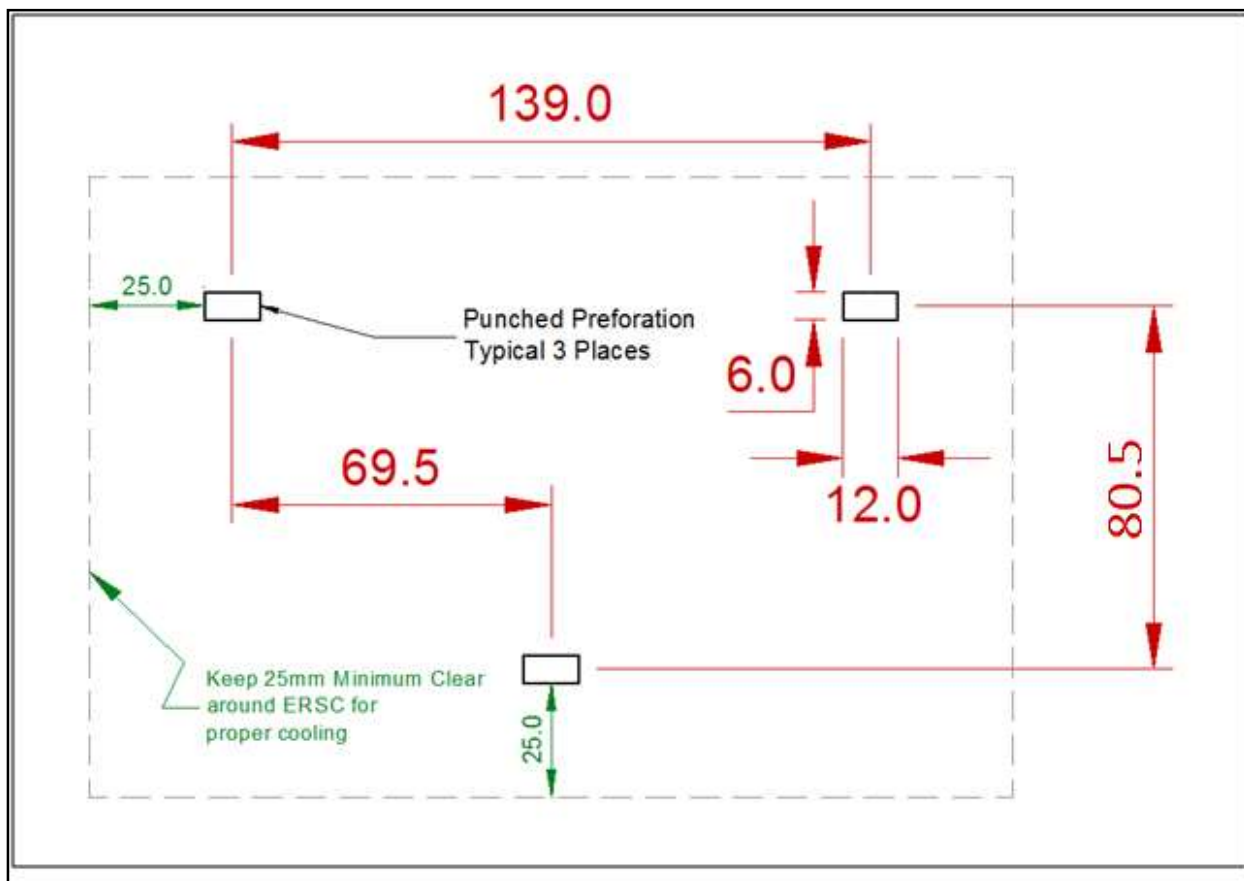
Mechanical Dimensions

All Dimensions in mm



Mounting Hole Dimensions

All Dimensions in mm



**Power Connector (included):**

ERSC	Phoenix Contact PN: 1827127 MCVR 1,5/2-ST-3,81
ERSC-HTF	Phoenix Contact PN: 1792757 MVSTBW 2,5/2-ST-5,08

Electrical Specification:

Power supply voltage	24.0V +/- 10%
Standby current consumption	< 120mA
Motor Starting Current	≤ 5.5A ERSC / ≤ 8A ERSC-HTF
Motor Rated Current	≤ 4A ERSC / ≤ 5A ERSC-HTF
Motor PWM Frequency	10 kHz +/- 0.1%

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 150° C (-40F to 300F)
Ambient Operating temperature (Standard card)	0°C to 40°C (32°F to 104°F)
Ambient Operating temperature (HTF card)	-30°C to 45°C (-22F to 113°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	IP20
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	Electromagnetic compatibility (EMC) -- Part 6-4: Generic standards - Emission standard for industrial environments
BDS EN 55016-2-1+A1:2006	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	Electromagnetic compatibility - Requirements for household appliances, electric tools and similar apparatus -- Part 1: Emission
BDS EN 61000-4-2+A1+A2:2004	Electromagnetic compatibility (EMC) Part 4-2: Electromagnetic discharge Immunity test
BDS EN 61000-4-3/A1:2008	Electromagnetic compatibility (EMC) Part 4-3 Radiated radio-frequency, electromagnetic field immunity test.
BDS EN 61000-4-4:2006	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 61000-4-6:2007	Electromagnetic compatibility (EMC) Part 4-6 Immunity to conducted disturbances, induced by radio-frequency field.
BDS EN 61000-4-11:2006	Electromagnetic compatibility (EMC) Part 4-11 Voltage dips, short interruptions and voltage variations immunity tests.

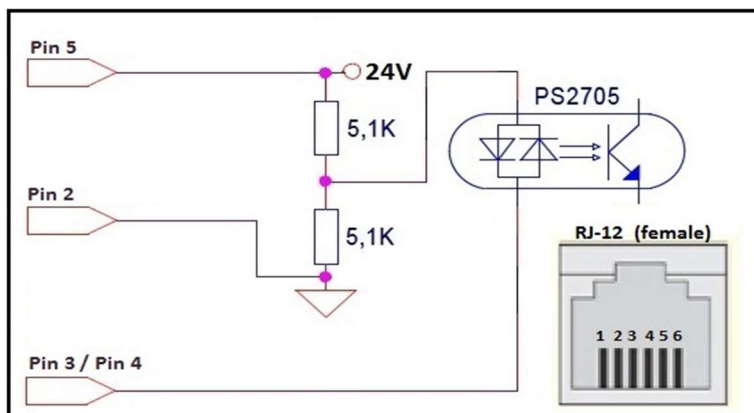
Sensor & Control Port I/O

Signal Type	Availability (location)
Inputs PNP/NPN Auto-sensing	8 (2 per sensor port, 2 per control port)
Inputs PNP (for motor hall-effect sensors)	6 (3 per motor port)
Outputs PNP/NPN configurable (low current)	2 (1 per control port)
Outputs NPN (for motor coils)	6 (3 per motor port)

Inputs

The Sensor and Control port both have 2 inputs each. Sensor and Control 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.

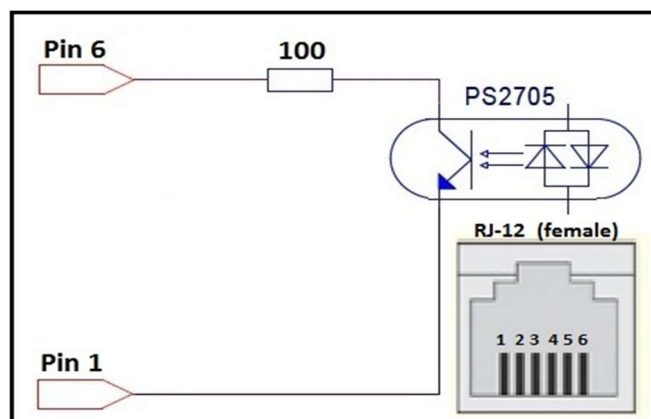
- Minimum ON current: 1.5mA
- Maximum OFF current: 0.4mA



Outputs

The Control Port output is an NPN transistor whose Emitter (Pin 1) and Collector (Pin 6) are made available to be connected either as sourcing or sinking device in the user's input circuit.

- Minimum ON current: 2mA.
- Maximum ON current: 8mA.
- OFF current: < 100nA



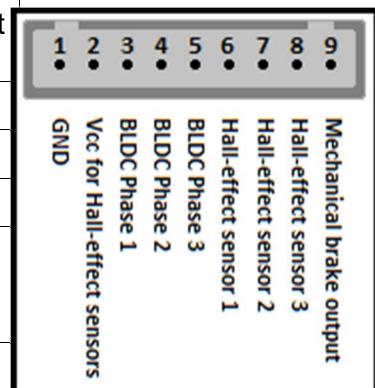
Sensor / Control Port Power Pins.

Pin5 of all RJ-12 ports provides 24V for powering up a photo-eye or for biasing the output transistor found on the control port. The current that those pins can supply is limited internally. Each side of the module is fused separately and each side's control port and sensor port share a solid-state fuse rated at 100 mA. For example, If there is one photo-eye plugged into the left sensor port and one photo-eye plugged in the left control 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.

Motor Port Specification

Supported motor types	3 phase BLDC motors with 3 Hall Effect sensors
PWM frequency	10 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
Brake output type	PNP (high side switch)
Brake output current	0.5A (1 A peak)



** 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.*

Motor Ports in Digital IO mode - 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 1A to ground in these modes. In general purpose I/O mode, these pins cannot source current.

As of firmware **4.19**, the brake output pin can be configured through EasyRoll to operate as a general purpose output even if an MDR is connected to the port. In this situation of course, a special cable or brake-out board should be used and the MDR in use cannot have and internal mechanical brake, as that mechanical brake requires a connection to pin 9 for proper operation. The brake-output pin (pin9) is a 24V High side switch (PNP) that can **source** up



to 0.5A continuously and 1A peak.

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