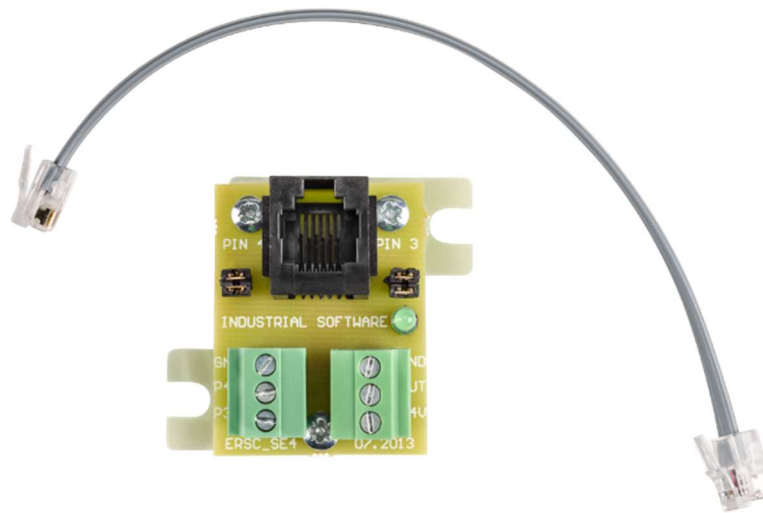


ERSC-SE Quick Guide

Version 1.3

April 2020



Publication ERSC-1400

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

SYMBOL CONVENTIONS



This symbol indicates that special attention should be paid in order to ensure correct use as well as to avoid danger, incorrect application of product, or potential for unexpected results



This symbol indicates important directions, notes, or other useful information for the proper use of the products and software described herein.

IMPORTANT USER INFORMATION

ConveyLinx ERSC modules contain ESD (Electrostatic Discharge) sensitive parts and components. Static control precautions are required when installing, testing, servicing or replacing these modules. Component damage may result if ESD control procedures are not followed. If you are not familiar with static control procedures, reference any applicable ESD protection handbook. Basic guidelines are:



- Touch a grounded object to discharge potential static
- Wear an approved grounding wrist strap
- Do not touch connectors or pins on component boards
- Do not touch circuit components inside the equipment
- Use a static-safe workstation, if available
- Store the equipment in appropriate static-safe packaging when not in use



Because of the variety of uses for the products described in this publication, those responsible for the application and use of this control equipment must satisfy themselves that all necessary steps have been taken to assure that each application and use meets all performance and safety requirements, including any applicable laws, regulations, codes, and standards



The illustrations, charts, sample programs and layout examples shown in this guide are intended solely for purposes of example. Since there are many variables and requirements associated with any particular installation, Insight Automation Inc. does not assume responsibility or liability (to include intellectual property liability) for actual use based on the examples shown in this publication



Reproduction of the contents of this manual, in whole or in part, without written permission of Insight Automation Inc. is prohibited.

SUMMARY OF CHANGES

The following table summarizes the changes and updates made to this document since the last revision

Revision	Date	Change / Update
1.0	April 2014	Initial Release
1.1	January 2016	Formatting change and added patent information
1.3	April 2020	Update title and part number

GLOBAL CONTACT INFORMATION



PULSE ROLLER

WWW.PULSEROLLER.COM
SALES@PULSEROLLER.COM
SUPPORT@PULSEROLLER.COM

ERSC-SE TERMINAL BREAKOUT BOARD

USING ERSC-SE TERMINAL BREAKOUT MODULE

Insight Automation part number ERSC-SE-Kit is a small module that provides a RJ-12 cable jack breakout to screw style wiring terminal blocks. In addition to providing simple wiring connectivity to the ERSC's RJ-12 pins, the ERSC-SE also provides blocking diodes for both the Local Zone Accumulate input signal (Pin 3) and the Interlock input signal (Pin 4). The SE4 modules diodes are equipped with user settable jumpers to allow configurations for both sourcing and sinking solid state PLC output modules. The ERSC-SE4 also includes an amplifier for the ERSC output circuit (Pin 1 and Pin 6) to allow up to 100mA of current load. This feature will allow the ERSC output to drive a small inductive load such as a relay coil as well as a PLC input. Because of current restrictions on each pair of Sensor and Control Ports, you can optionally connect an external +24V power source to the "+24V" terminal on the SE to provide power to devices connected to the SE. Without this external power source, the current limit is 100mA on devices powered from the 24V terminal. The SE contains blocking diode on this terminal to prevent external power source from connecting to the ERSC's power bus. Figure 1 shows a typical ERSC-SE4 cable connection.

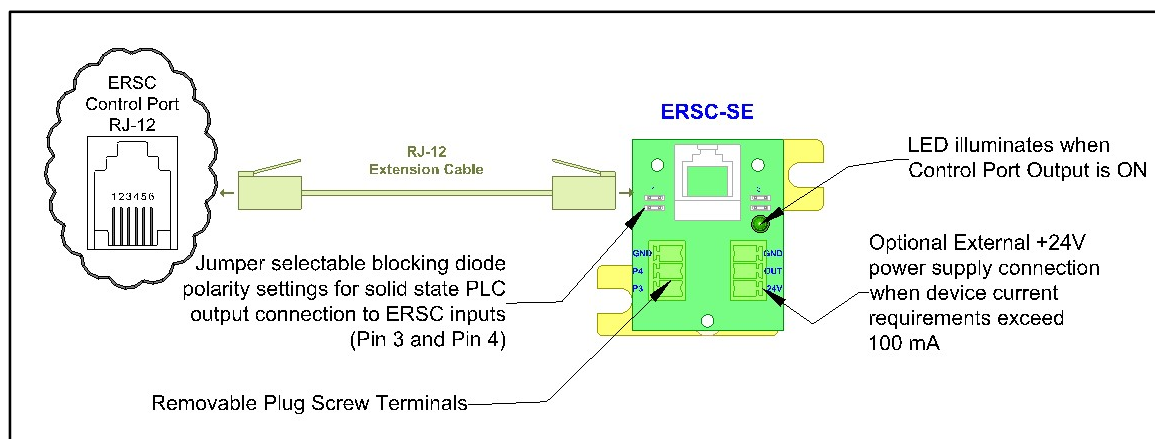
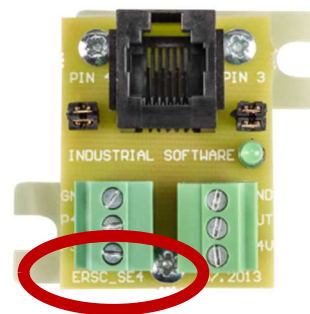


FIGURE 1 - ERSC-SE EXAMPLE



Please note this is the circuit board revision number. **THIS IS NOT THE PART NUMBER**



TYPICAL OUTPUT CONNECTION

Figure 2 shows the typical connection for a device to the *ERSC's Control Port* output circuit. Please note that with the SE the OUT terminal only supplies a +24V signal when energized.

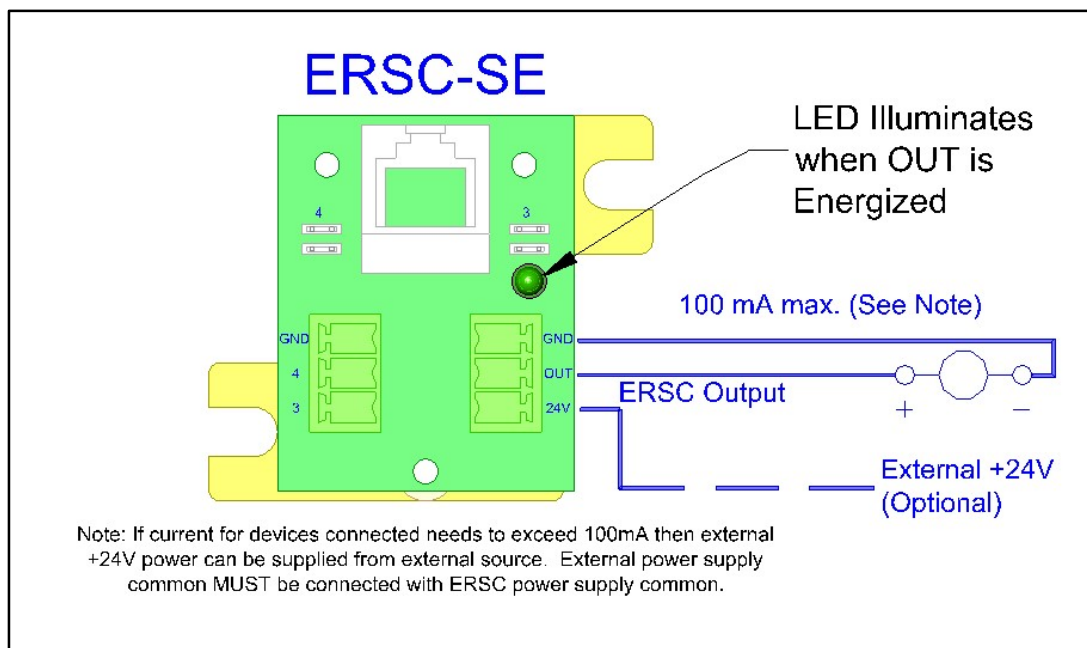


FIGURE 2 - TYPICAL ERSC OUTPUT CONNECTION EXAMPLE

INPUT CIRCUIT BLOCKING DIODE JUMPERS

Figure 3 shows the diodes jumper configuration for the ERSC-SE4 modules. When both Jumpers are installed then electrical current can move to and from the ERSC card. Removing jumper 2 (*bottom*) for pin 3 or 4 results in keeping an external device (“Sinking” PLC output or Sensor) from leaking current back into the ERSC’s input. This is beneficial when a solid state output or sensor is leaking current into the ERSC’s input keeping it in an on state regardless of the output or sensor actual state. See Figure 4 or Figure 5 for further details. Removing Jumpers 1 and 3 does the same thing as above except for a Solid State “Sourcing” output.

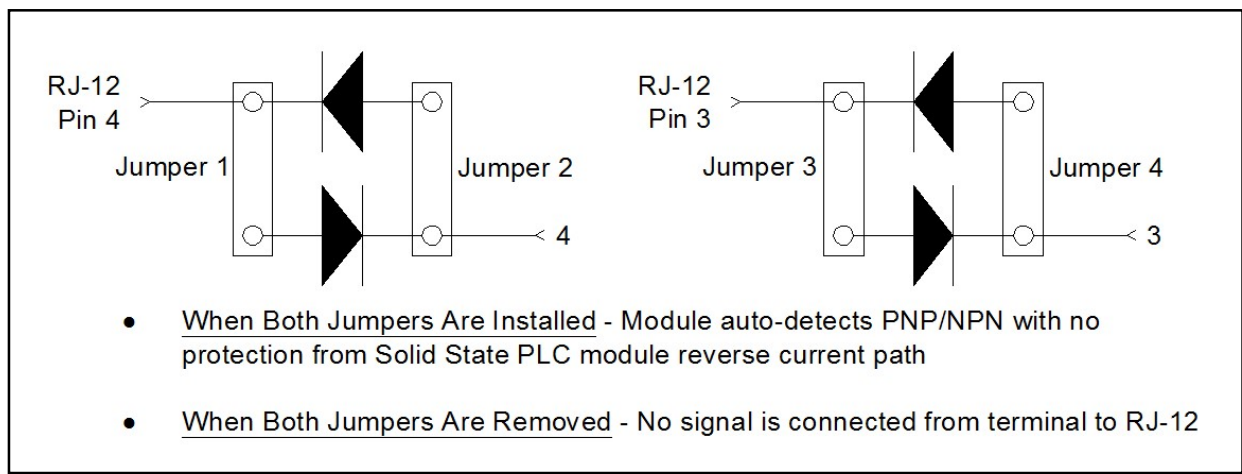


FIGURE 3 – JUMPER LAYOUT FOR SE MODULE

Figure 4 shows the jumper configuration and typical wiring diagram to connect a solid state sourcing type PLC output card to ERSC Control Port inputs.

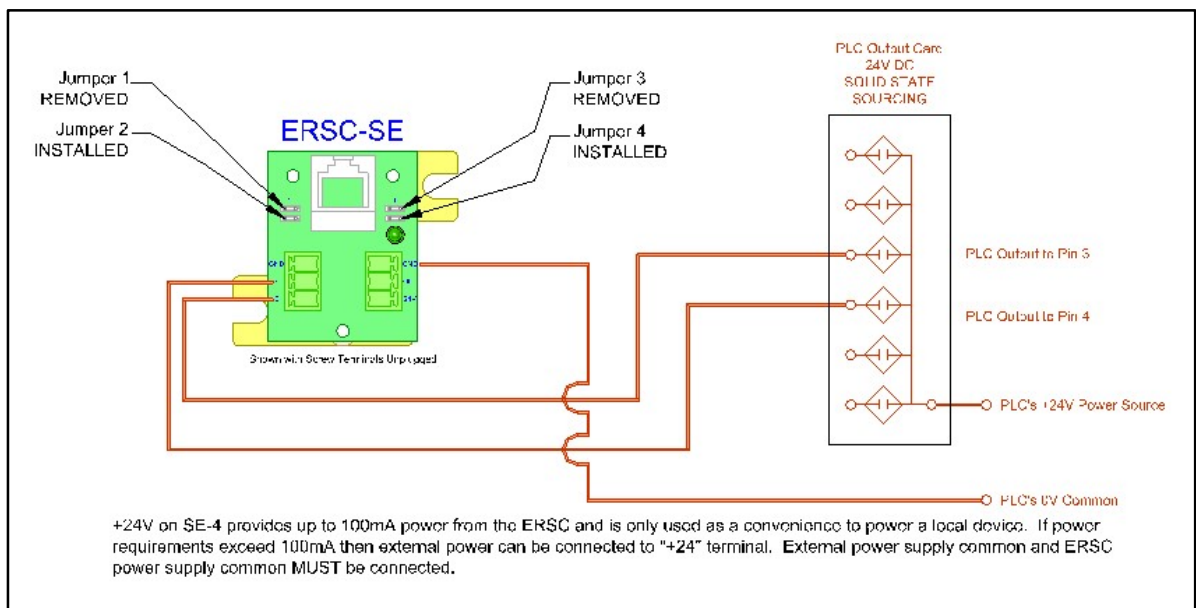


FIGURE 4 - TYPICAL PLC SOURCING OUTPUT CONNECTION TO ERSC INPUTS

Figure 5 shows the jumper configuration and typical wiring diagram to connect a solid state sinking type PLC output card to *ERSC Control Port* inputs.

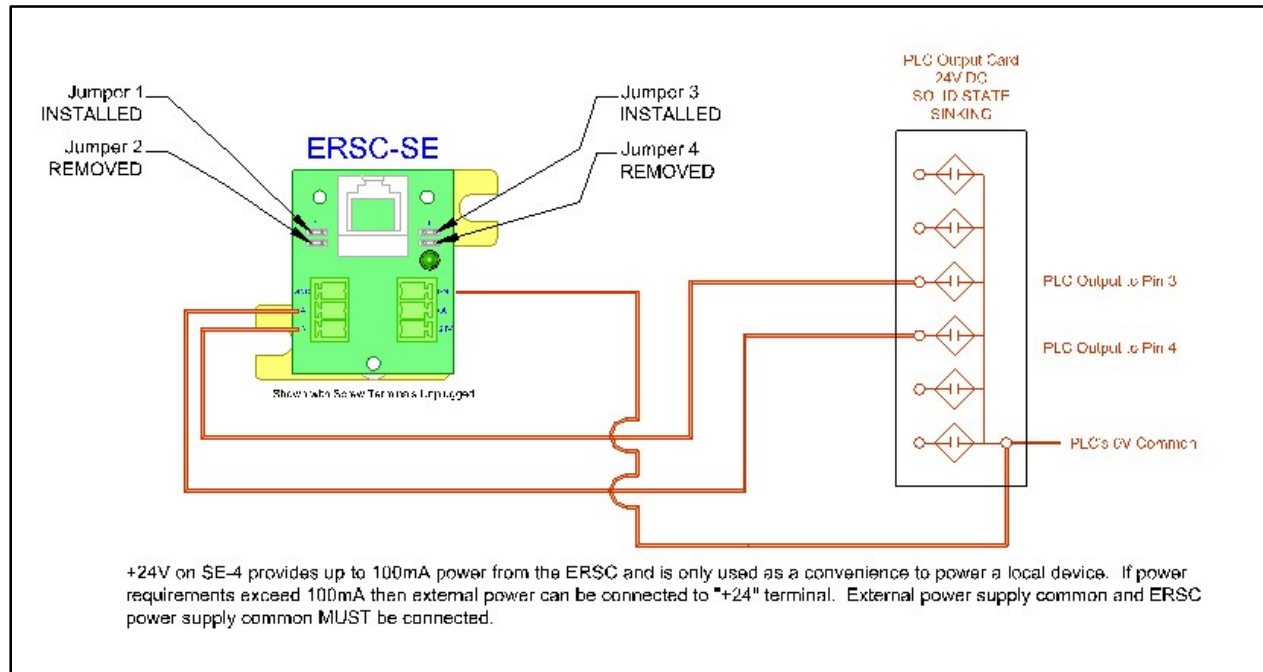


FIGURE 5 - TYPICAL PLC SINKING OUTPUT CONNECTION TO ERSC INPUTS



ERSC output circuit from ERSC-SE4 provides a +24V PNP (source) connection only. When the ERSC logically energizes the output; the "OUT" terminal provides +24VDC.

NOTES ON SE-MODULE REVISIONS

As of August 2013, Insight Automation began shipping only ERSC-SE4 modules and no longer manufactures ERSC-SE3, ERSC-SE2 modules. Due to the smallness and simplicity of these modules, they are not individually serialized at manufacturing. Because there is an installed base of modules prior to ERSC-SE4; the following describes the updates and warnings of usage for each of these part numbers.

ERSC-SE2

Original design providing bias diodes for the Pin 3 and Pin 4 inputs to allow solid state PLC output modules to operate without inadvertently triggering the PNP/NPN auto detect feature of the ERSC. This design also provided the Control Port Output amplifier to allow higher current devices to be connected to this output. The OUT signal is PNP only.



Because the Control Port Output is in an indeterminate state upon ERSC boot up; the OUT signal could possibly momentarily energize upon initial power up or re-boot of the ERSC. Users must take proper care when using the OUT signal in their control system logic.



The 24V terminal on the ERSC-SE2 is directly connected to the ERSC's Control port power. If users connect an external power source to the 24V terminal on the SE2; this will back-feed power into the ERSC. If this is done, when the main power to the ERSC is disconnected; the ERSC could still power up. User must take care to not connect external power source to the 24V terminal.

ERSC-SE3

This version contains a modification to block the OUT signal from energizing during the ERSC's initial power-up or re-boot sequence. Thus, users no longer have to worry about an inadvertent OUT signal being energized during initialization or reboot of the ERSC. For convenience; an LED has been added that illuminates when the OUT signal is being energized.



The 24V terminal on the ERSC-SE3 is directly connected to the ERSC's Control port power. If users connect an external power source to the 24V terminal on the SE3; this will back-feed power into the ERSC. If this is done, when the main power to the ERSC is disconnected; the ERSC could still power up. User must take care to not connect external power source to the 24V terminal.

ERSC-SE4

This version contains a diode circuit that blocks an external power source from back-feeding into the ERSC's Control Port power. Users can now provide external power for devices connected to the Control Port in cases where these device's power requirements exceed the maximum limits of the port.

ERSC-SE6

This version contains no functional changes to version SE-4. There was a slight modification to the circuit board traces to improve manufacturability.