4 Channel Contact Output Interface
INSTALLATION GUIDE
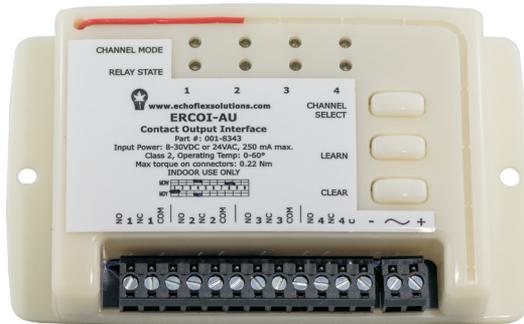
Overview

This guide covers model number ERCOI-AU equipped with a 902 MHz radio.

The ERCOI interface is intended for indoor use only.

The interface uses wireless technology to monitor remote wireless switches and sensors and triggers an output channel based on the wireless devices state.

The interface provides a convenient method of integrating your wireless controls with hard-wired systems like fire alarm systems, lighting panels, and building automation controllers.

Install Guide conventions:

Each channel has a NO (normally open), NC (normally closed) and COM (common) terminal. Upon powering the interface, the default state is COM and NO shorted together. This state is referred to throughout this guide as "relay closed". When the relay state is open, terminals COM and NC will be shorted together.

Interface Operation

The interface can activate an output channel with received input from a linked sensor or switch. A total of 19 unique switches or sensors can be linked to the interface channels.

The interface supports relay control with the following wireless devices:

- occupancy state monitored by a wireless occupancy sensor
- switch action from a wireless single or dual paddle rocker switch
- switch action from a wireless key card switch
- switch action from a wireless door/window switch
- gateway control implementing schedules or other events

Interface and Wall Switches

The interface works with wireless single and dual rocker switches. A switch ON action activates the relay closed. A press OFF action will open the relay.

A switch can be linked to an individual channel or all channels.

Interface and Timed Switches

The interface can be configured so the single and dual rocker switches become timed switches. An ON action closes the relay and a timer is set to count down. Once the timer expires, the relay opens. Each channel can be set up with it's own timer variable.

The time period is configurable using Echoflex configuration software Garibaldi or any software tool supporting the EnOcean remote management interface. Each channel has a unique timer that can be set to its own time value. The default setting is 0 seconds (0 sec = timer disabled). Once the timer value is set to a non-zero setting, the channel relay will open after the timer expires. If the user presses the rocker switch ON while the relay is closed and the timer is counting down, the time is reset to the full timer value configured to that channel.

For example: if the timer setting is 1 hour and the user presses the switch ON, the total timer period is 1 hour. If there is 30 minutes left on the timer and ON is pressed again, the timer is extended to 1 hour.

The interface will toggle the relay (flick-warn) 1 minute before the timer is due to expire to warn users of the pending OFF event.

Interface and Keycard Switches

The keycard switch is common in hospitality applications for indicating when the room or suite is occupied by a guest. The keycard used to unlock the door is inserted into the switch upon the guests arrival in the room. The interface will enable lighting or other electrical appliance circuits based on the keycard switch state. When the guest leaves and the card is removed from the switch, an egress timer will expire and the relay will open deactivating the circuit. The egress timer default is a 30 second timer.

> NOTE: The keycard time value can be set using the Garibaldi configuration software and only one keycard timer value is possible (no unique timer values per channel).

> NOTE: When linking a keycard switch to the interface, activate the switch three times in succession with the interface in LEARN mode.

Interface and Window Switch

The window switch is a proximity (reed) switch and when linked with the interface, can open or close the relay. The relay will close when the switch is closed, opening the relay when the switch is opened after a timer expires.

This is useful for temperature control applications where the heating/cooling equipment is disabled when a window is left open.

> NOTE: Link the switch to the interface channel with the magnet apart from the switch.

Each channel has a unique timer which is adjustable, refer to the section on "Configuring the Interface".

Occupancy Based Applications

The interface will turn the relay OFF when there is no motion detected in the room indicated by a linked wireless motion sensor. After the relay is off, a 30 second grace timer starts counting down. While the timer is active, any motion detected by the sensor will activate the relay closed, even with Auto-ON disabled.

Occupancy sensors only: When only occupancy sensors are linked to the interface, the sensor will automate the relay closed and open based on occupancy and vacancy, respectively.

Occupancy sensors with switches: When switches and sensors are linked, the interface will automatically turn the relay OFF on vacancy. The interface can also be configured to turn the relay ON immediately (Auto-ON) with motion, see the section titled "Configuring the Interface".

Room Occupancy State Latch: The proximity switch can be used on an entry door to trigger a door open-close event. Used together with a linked wireless motion sensor, the door event triggers a latch of the room occupancy. The interface will latch the room occupancy state with receipt of a motion sensor telegram.

After the room has been latched as occupied, only another door event can clear the latched state. If the room is latched vacant and an occupied telegram is received from the sensor, the room state will latch occupied.

This is an alternate solution to the key card application for dormitory or hospitality projects for defining room occupancy state.

> NOTE: To learn the door switch as an entry door occupancy trigger, link the switch to the interface channel with the magnet in place next to the switch.

Preparing to Install the Interface

The interface can be mounted to a wall, DIN rail, standard three-gang back box, or panel using two screws (not supplied). To insure the interface can receive the linked devices telegrams, it is recommended to complete a site audit before installing.

> NOTE: Installation inside a metal back box will reduce radio range and is not recommended.

The remote transmitters and the interface should be within 80' of each other laterally. Do not locate the interface where there are concrete or brick walls or any large metal obstructions between the remote transmitters and the interface.

The interface channel relay must be installed before the load in the circuit.

Installing the Interface

Review these instructions completely before installing the interface. For the best results, the interface should be mounted on a wall with no metal obstructions, brick or concrete between the remote devices and the interface. Consult your local electrical code requirements for the installation of low voltage devices.

1. Place the interface in the desired mounting location and mark the two mounting holes with a pencil.
2. Drill the mounting holes. The interface holes accept screw sizes #4 to #10.
3. Install wall anchors if needed and attach the interface to the wall.
4. Connect power to the interface at the two pole terminal strip. Power requirements are 8-30VDC or 24VAC, minimum 250mA max., Class 2.

N/O or N/C connection

Common

Class 2 circuits
1A, 30 VAC/DC max.

8-30VDC / 24VAC
Class 2 source
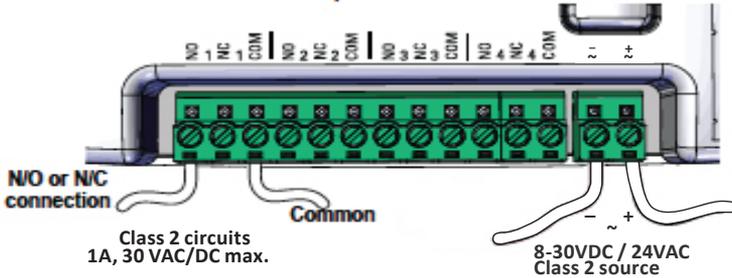
5. Based on the system or panel the interface is connecting to, wire the low voltage wires from the panel to the interface outputs using either the NO or NC terminal with the COM terminal of each channel.

   NOTE: The COM terminals of the channels are not internally connected. Each channel must have its own common connection.
6. Refer to the next section in this guide to link a switch or sensor to the interface.

Linking Devices to the Interface

Linking Switches and Sensors

The **Learn** button is used to link switches or sensors to the interface channel.

1. Press the **Channel Select** button to select the desired channel.
2. Press the **Learn** button to enter link mode. In link mode, the selected channel **Relay State** and **Channel Mode** LEDs will toggle together with the relay every second. The **Relay State** LED of the unselected channels will be lit solid red.

TIP: To quickly link a switch to a channel with no linked devices: Triple click a wireless wall switch 3 times ON, followed by triple click OFF, then again triple click ON, all within 5 seconds. The switch will be inked to the selected channel.

3. Using the switch that will be linked to the interface channel, press the rocker switch ON three times. If linking a sensor, press the sensors **Teach** button. The **Channel Mode** and **Relay State** LEDs will remain lit solid for 4 seconds while it links the new device. The LEDs will resume toggling allowing you to link another device to the channel
4. Press the **Channel Select** button to assign devices to another channel.

   NOTE: Linking a switch or sensor that is already linked to the interface will remove or unlink it from the interface.
5. To exit link mode, press the **Learn** button again or press the **Channel Select** button on the interface until you pass channel 4.

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Diagnostic LED's and buttons

LEARN button

The **Learn** button is used to link switches or sensors to the interface channel. See the previous section on **Linking Switches and Sensors.**

CLEAR button

The **Clear** button erases all devices linked to the interface and resets to factory default settings.

- Press the **Clear** button until the green **Channel Mode** LED's blink on (approximately 5 seconds).

LED Blink Codes and operation

The table below describes the LED activity & associated mode of the interface channel.

The Relay State LED will be green when the relay is closed (COM and NO shorted together), red when the relay is open (COM and NC shorted together).

Description	Channel Mode LED
Factory Default	ON Solid
linked switch(es)	1 long blink followed by short blinks counting switches repeatedly
linked occupancy sensor(s)	2 long blinks followed by short blinks counting sensors repeatedly
Linked Keycard Switch	4 long blinks followed by short blinks counting switches repeatedly
Linked Entry Door Trigger	5 long blinks followed by short blinks counting switches repeatedly
Linked Door Switch	6 long blinks followed by short blinks counting switches repeatedly
With Central Command	7 long blinks followed by short blinks counting sensors repeatedly

Status Message

The interface will transmit a status message (when enabled) that includes channel relay state, and occupancy state. Each channel has its own status message, which can be enabled/disabled per channel. Select the channel and follow the procedures below.

Enabling the status message:

6. Press and hold the **Learn** button.
7. Press the **Clear** button twice.
8. Release the **Learn** button. The **Channel Mode** LEDs will blink twice to confirm.

Disabling the status message:

1. Press and hold the **Learn** button.
2. Press the **Clear** button once.
3. Release the **Learn** button. The **Channel Mode** LEDs will blink once to confirm.

Note: You can find out what the unique ID for each channel is by monitoring

telegrams using Garibaldi or DolphinView and pressing the teach button with the channel selected.

Repeating Mode

The interface will repeat received messages when repeating is enabled. Messages that have not been repeated previously will be retransmitted if either single or dual hop repeating is enabled. Only telegrams received that have been repeated once will be repeated in dual hop mode.

Enabling repeater mode:

1. Press and hold the **Clear** button.
2. Press the **Learn** button; once to enable repeating, twice to enable single hop repeating, three times to enable dual hop repeating.
3. Release the Clear button. The Channel Mode LEDs will blink to confirm.

Configuring the Interface

There are two methods of configuring parameters in the interface. Simple Tap is a quick method of changing a parameters setting, one at a time. For accessing the complete set of configuration parameters, use the Echoflex commissioning software, Garibaldi.

Garibaldi is not covered in this guide.

Simple Tap Instructions

Simple Tap uses the switches and sensors that are linked to the interface to set the associated configuration parameters. You must be able to access the sensors teach button or the switches to perform the Simple Tap process.

Simple Tap allows you to:

- Enable or disable the motion sensor Auto-ON feature
- Adjust the occupancy sensor Auto-OFF timer
- Adjust the window switch timer

Disable/Enable the Auto-ON feature

1. Using the Channel Select button, select the channel you wish to adjust.
2. Tap the occupancy sensors teach button followed by three quick consecutive clicks of a linked rocker switch ON.
3. To enable Auto-ON, click once more ON, to disable click OFF. The relay will blink once to confirm the change.

Adjust the Occupancy Sensor Auto-OFF Timer

1. Using the Channel Select button, select the channel you wish to adjust.
2. Tap the occupancy sensors Teach button to reset the timer period. There are 6 possible settings and the number of taps on the button counts the number according to the time period, see the table below. Level 1 (time out 0 seconds - demo mode) is set by tapping 3 times. Consecutive taps up to a maximum of 8 taps is Level 6 (time out 25 minutes). The relay/light will blink once on the third tap and then begin counting the level set after 3 seconds.

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Taps	Occ. Sensor Timer	Light Blinks
3 taps*	0 Sec.	1 blink
4 taps	5 min.	2 blinks
5 taps	10 min.	3 blinks
6 taps	15 min. - Default	4 blinks
7 taps	20 min.	5 blinks
8 taps	25 min.	6 blinks

* for demonstration purposes only

3. Once the relay has completed responding by counting the level set, press the Teach button on the sensor once more to confirm and exit Simple Tap.

Adjust the Window Switch Timer

1. Using the Channel Select button, select the channel you wish to adjust.

2. Tap the window switches TEACH button to reset the timer period. There are 6 possible settings and the number of taps on the button counts the number according to the time period, see the table below. Level 1 (time out = 0 seconds) is set by tapping 3 times, consecutive taps up to a maximum of 8 taps is Level 6 (time out 2.5 minutes).The relay/light will blink once on the third tap and then begin counting the level set after 3 seconds.

Taps	Timer	Light Blinks
3 taps	0 sec.	1 blink
4 taps	30 sec.	2 blinks
5 taps	1 min.	3 blinks
6 taps	1.5 min.	4 blinks
7 taps	2 min.	5 blinks
8 taps	2.5 min.	6 blinks

This concludes the configuration directions for the interface.

Default Settings for Controller

Repeater   Disabled
Status   Disabled

Time-outs

Motion Sensor   15 minutes
Switch   No Time Out
Key Card Switch   30 seconds
Window Switch   30 seconds
Auto-ON   Enabled with no linked switch, disabled with linked wall switch
Grace timer   30 seconds

Status Feedback Telegram

EEP: A5-11-01

DB_3 Illumination
0 … 510lx, linear n=0…255

DB_2 Illumination Set Point
Min. … Max., linear n=0…255

DB_1: Dimming Output Level
Min. … Max., linear n=0…255

DB_0.BIT_7: Repeater
0b0 disabled, 0b1 enabled

DB_0.BIT_6: Power Relay Timer
0b0 disabled 0b1 enabled

DB_0.BIT_5: Daylight Harvesting
0b0 disabled 0b1 enabled

DB_0.BIT_4: Dimming
0b0 switching load 0b1 dimming load

DB_0.BIT_3: Learn button
0b0 Teach-in telegram 0b1 Data telegram

DB_0.BIT_2: Magnet Contact
0b0 open 0b1 closed

DB_0.BIT_1: Occupancy
0b0 unoccupied 0b1 occupied

DB_0.BIT_0: Power Relay
0b0 off 0b1 on

Regulatory Statements

Contains FCC ID: SZV-STM300U

The enclosed device complies with Part 15 of the FCC Rules.
Operation is subject to the following two conditions:

(I.) this device may not cause harmful interference and

(ii.) this device must accept any interference received, including interference that may cause undesired operation.

Contains IC: 5713A-STM300U