



LX

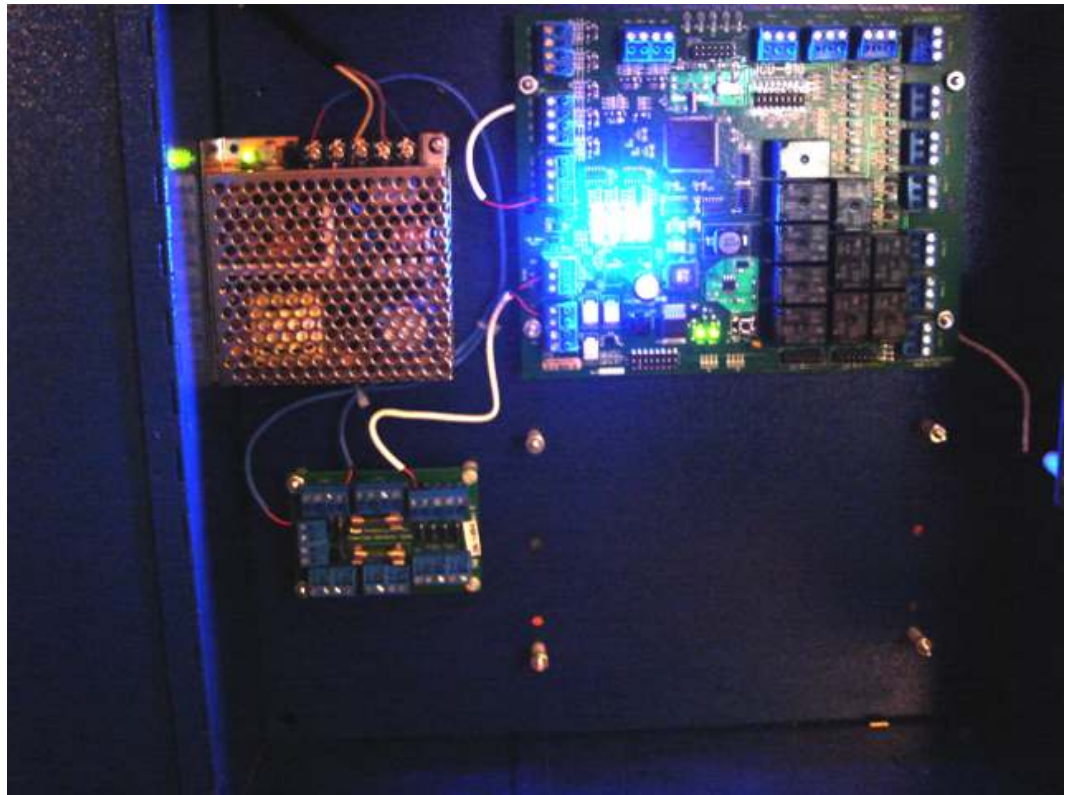
Technologies, Inc.

Enterprise Security & Access Control

"Where Data Encryption meets Security and Access Control"



Installation Guide for ICD-810 and ECD-43



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ICD-810 Overview

The ICD-810 Intelligence Control Device provides 8 inputs, user defined, supervised or non-supervised. The unit is expandable to 16 inputs with an optional 2 ECD-43 daughter boards. The panel provides output for 10 Form C heavy duty commercial contact relays capable of handling 5 amps at 30 VDC or 3 amps at 120/220 VAC and expandable to 16 outputs with optional 2 ECD-43 daughter boards. There are 5 LED's on the board which monitor the clocking pulse and the communications between the ICD-810 and the IAD-4514. Also the ICD-810 has LED's for all input and output points.

SAFETY**RS-485 Cable**

The ICD-810 has the ability for 2-wire half duplex communication between devices. The cable runs must be shielded, low capacitance single twisted pair with 120-ohm for 2-wire (C4841A General Cable, or equivalent) and two twisted pairs, with 120-ohm characteristics impedance for 4-wire (C4842A General Cable, or equivalent). Wire size is 24 AWG minimum. Total length of the communication cable must not exceed 4000 ft. (1219 m) for 24 AWG wire size.

Use of Signal Ground

The Signal Ground (SG) provides a common mode signal reference for the communicating devices. Each device must connect its SG to the cable shield drain wire. Failure to use the SG connection may cause communication error. If the environment is known to be noisy, additional wire may be used for the signal ground. The shield can then be grounded as a noise shield.

Device to Device Connection

Communication cable for RS-485 should be laid out in a daisy chain configuration. Long "T" stub connections greater than 10 ft. (3m) should be avoided because they create discontinuities and degrade signals. **DO NOT** connect devices in STAR configuration. STAR connection creates long stubs and causes difficulty in proper cable termination.

AC POWER SAFETY

The AC power wiring to power supplies consists of the AC LINE (L), AC NEUTRAL (N), and SAFETY GROUND (G). These lines from the AC source (outlet) to the power supply input terminals must be retained without accidental interchange. Interchange of the AC LINE and AC NEUTRAL expose components within the power supply to the hot side of the input power even if the AC line switch is turned off. This presents a safety hazard. Interchange of the AC LINE and SAFETY GROUND places the supply chassis to an AC potential equal to the input voltage. This could result in a potentially lethal shock hazard or equipment damage.

The interchange of the AC NEUTRAL and SAFETY GROUND may result in ground current flowing through the power supply chassis and other ground paths. This will cause unreliable/improper system operation. The AC LINE input to LX power supplies must be appropriately fused and switched. Local safety regulations may require an additional switch and fuse to be installed in the NEUTRAL input. The IAD-4514 and ICD-810 have the ability to accept AC input with a nominal voltage of 16 VAC RMS. Reference applicable section of this manual for input requirements.

DC POWER SAFETY

Most LX devices can be operated from DC power either as a main power source or as backup. The recommended use being for backup power.

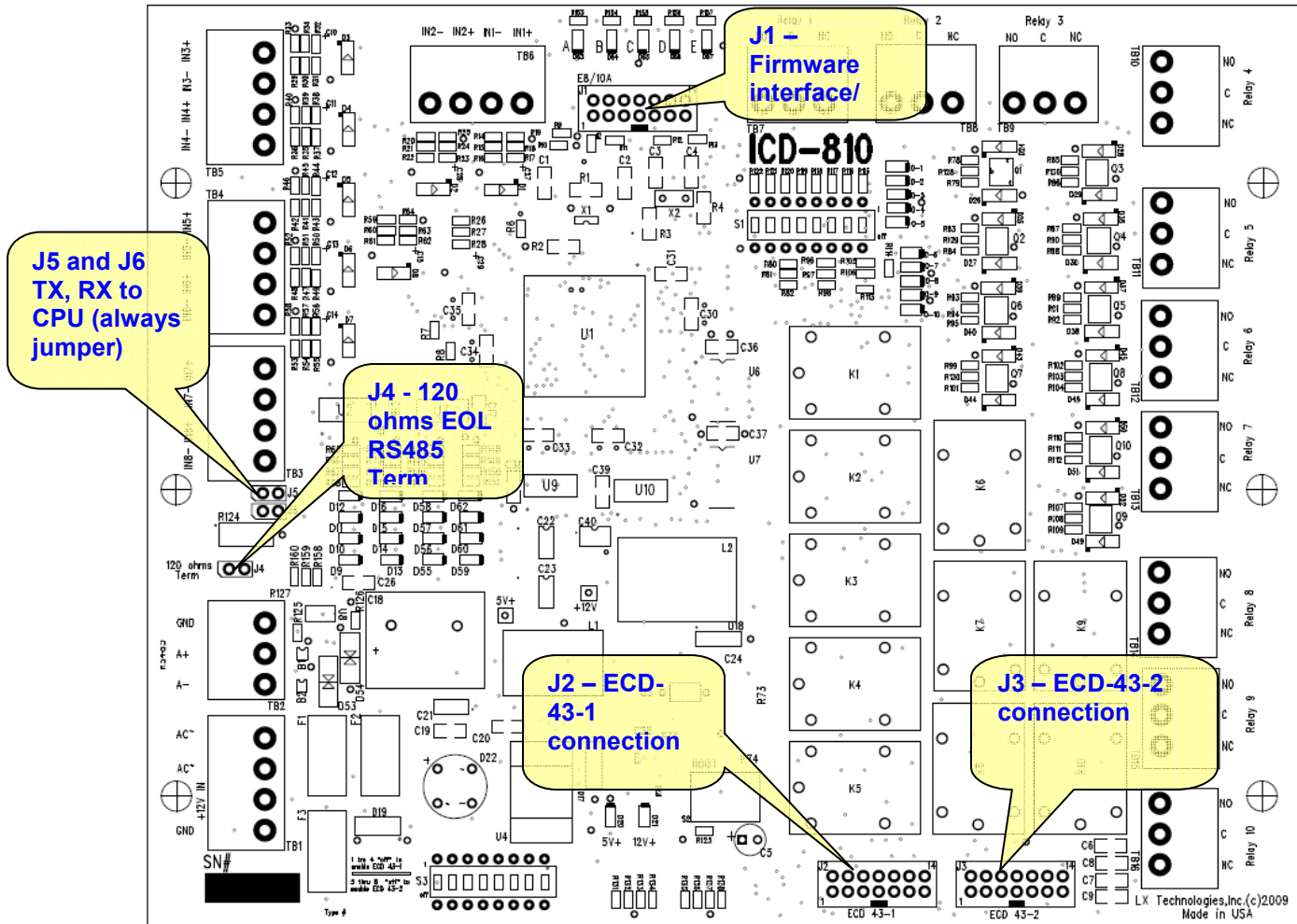
RS-485 Communication Wiring SAFETY

RS-485 communication lines connect devices over a long distance. This group of wires is most likely to cause problems in bringing up a system. The RS-485 communication wiring must be planned out with the following guidelines:

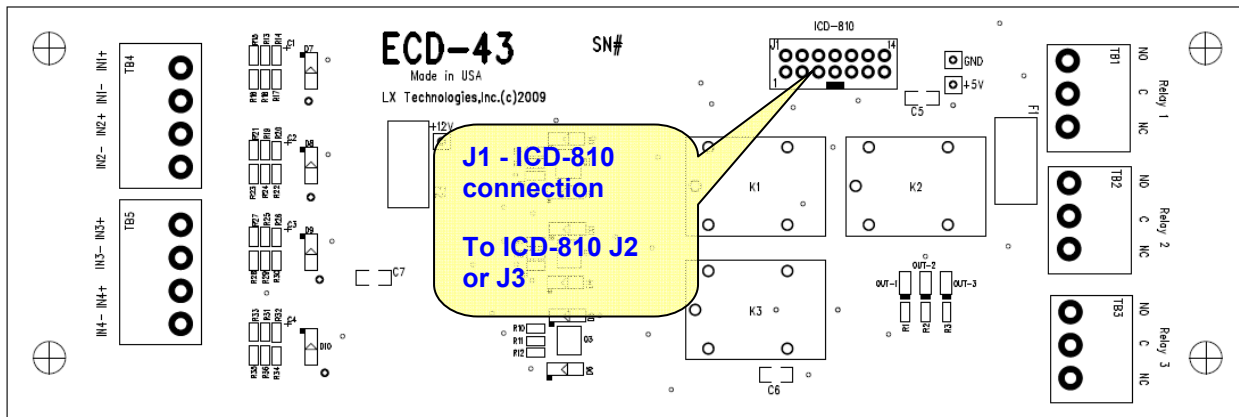
Use only low capacitance, shielded cable with 2-24 AWG twisted pairs, characteristic impedance 120 ohms (Belden 9842, or equivalent) or 1-24 AWG twisted pair, characteristic impedance 120 ohms (Belden 9841, or equivalent) for the main RS-485 run.

- Keep maximum end to end distance below 4000 feet.
- The connection from device to device must be in a daisy chain configuration (Communication will NOT be reliable with star type connections).
- Keep stub-down leads under 10 ft. (3m) and use the same type of cable as the main RS-485 run.
- Terminate cables at both ends by installing the appropriate jumper at the last device.
- Always use the signal ground (SG) connection. Carefully insulate the shield drain wire (SG) for a reliable installation.

ICD-810 Panel with Jumpers



X2 Boards





ICD-810 Jumper Setting



To set back to factory setting, follow the * setting next to the options.

	Function	Option
J1	Firmware Port	Used at the factory

	Function	Option
J2	Port for ECD-43 Added Input/Output board	Supports ECD-43 daughter board
J3	Port for ECD-43 Added Input/Output board	Supports ECD-43 daughter board

	RS485 EOL 120 ohms terminal	
J4	 1 2 No EOL *	 1 2 Added 120 Ohms

* = factory settings

	TX, RX Commutation Jumpers
J5	 1 2 *Add Jumper Set at Factory
J6	 1 2 * Add Jumper Set at Factory

* = factory settings

ECD-43 Jumper Setting

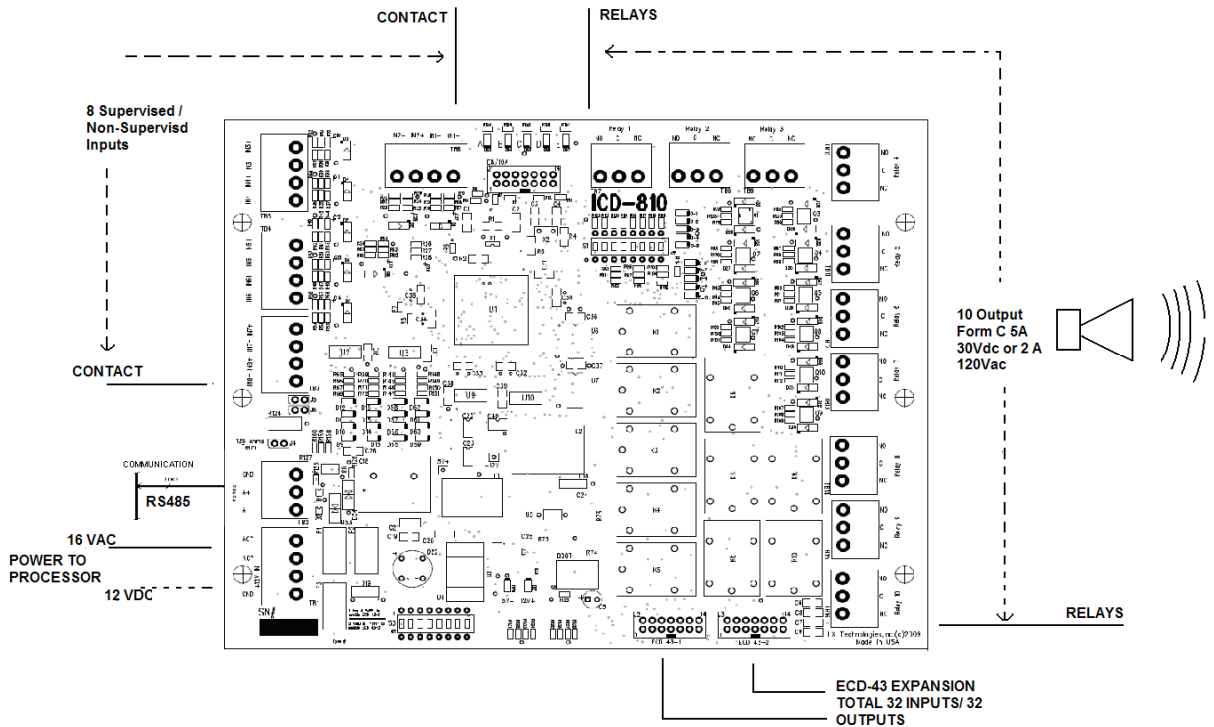
	Function
J1	Connection Port to ICD-810 Board

Fuses

- All fuses are auto-resetting

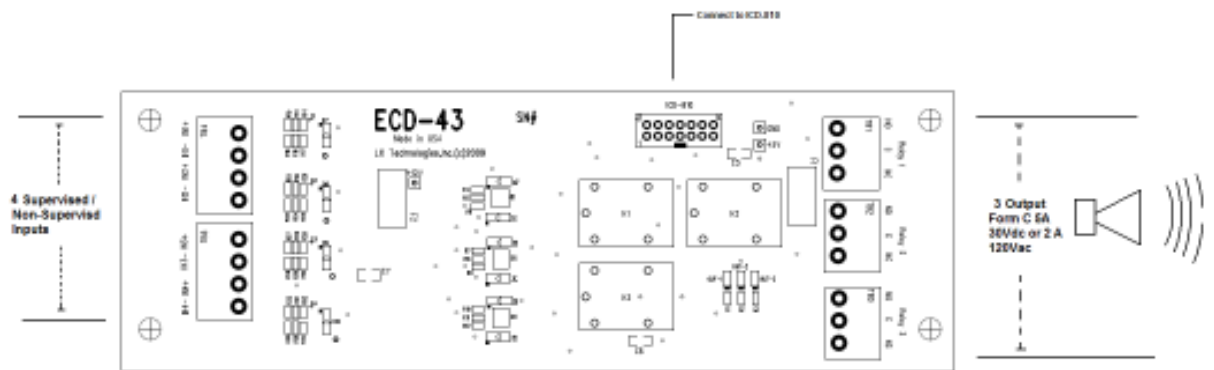
Fuses (F1, F2, and F3) are in line with the power input and will open if the input voltage exceeds 35V or the maximum current is exceeded.

ICD-810 Connections



ICD-810 processor schematic layout; with pin-outs for plug-in devices.

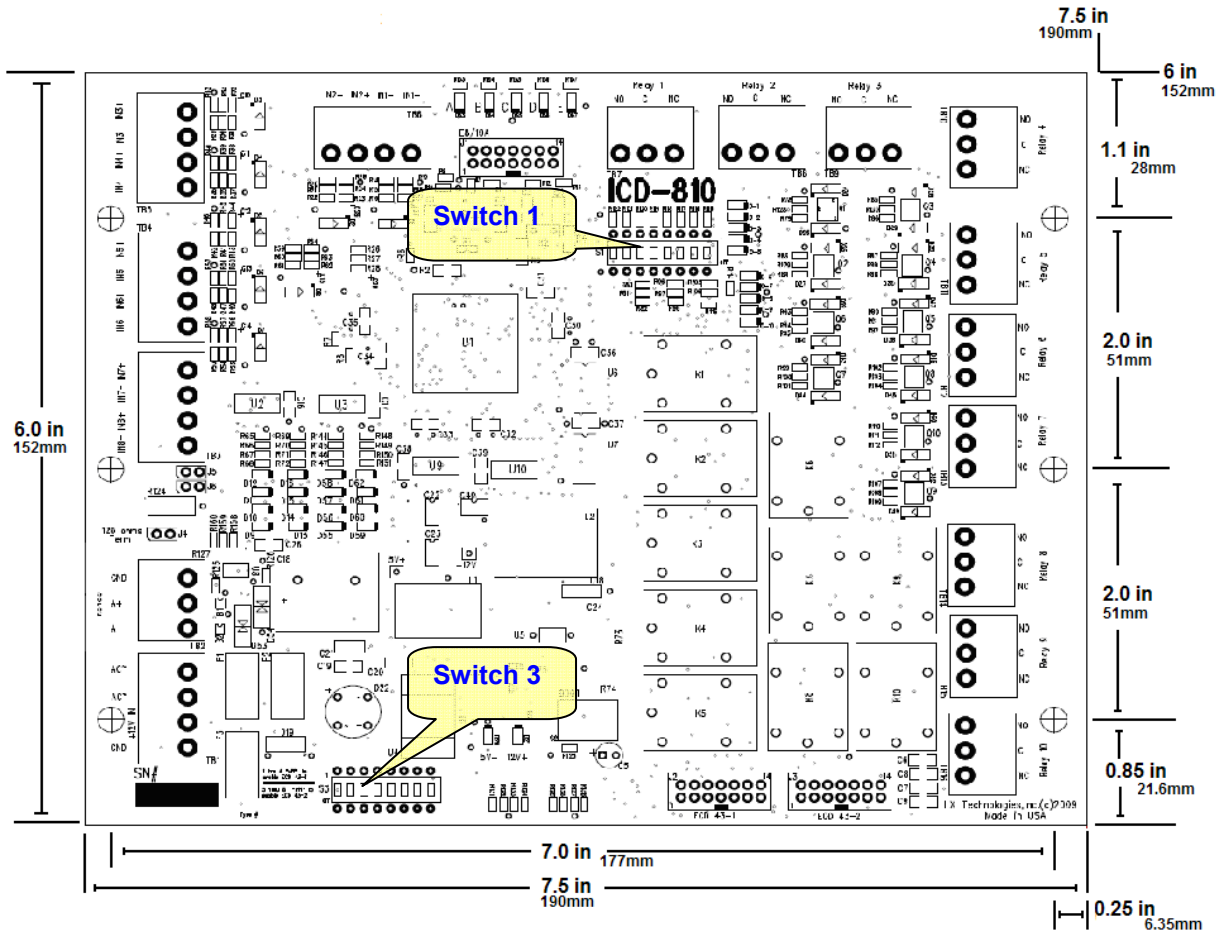
ECD-43 Connections



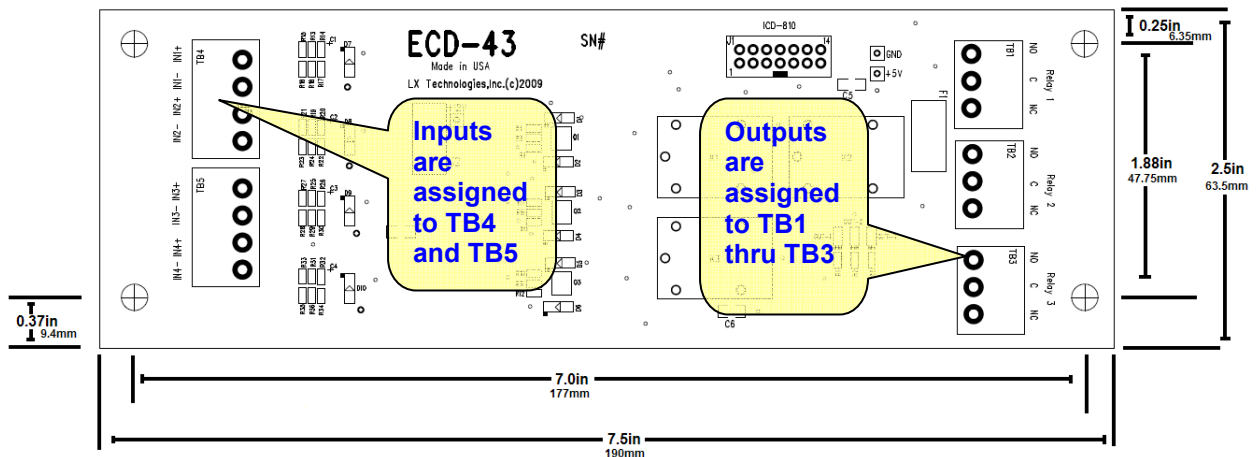
ECD-43 schematic layout; with pin-outs for plug-in devices.

ICD-810 Mounting Holes

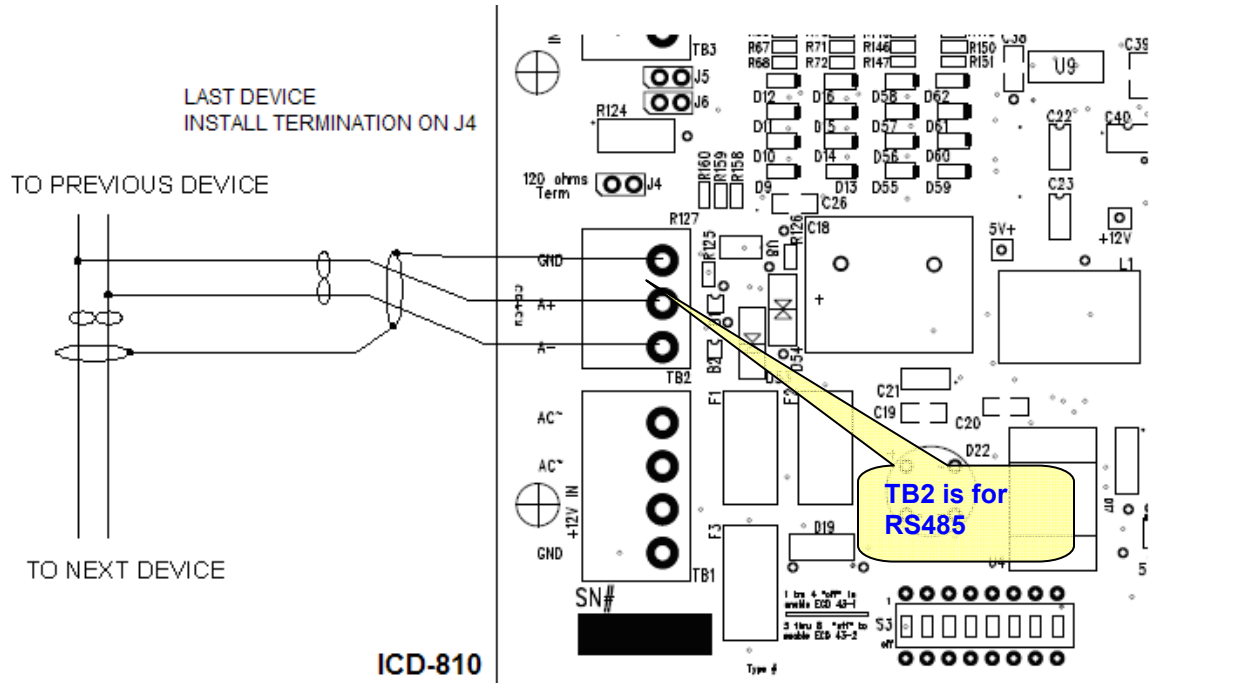
The ICD-810 Processor assembly can be installed in a utility cabinet/closet. Six mounting holes are provided for mounting.



ECD-43 Mounting Holes



RS-485 Communication Interface



Cable Requirements:

RS485: 24 AWG, 120-ohm impedance, twisted pair with shield 400 feet (1,200m) maximum

ICD-810 LED Operation

Verify the installation after the wiring is complete. Apply power to the ICD-810 and observe the diagnostic LED's function as shown below.

					LED RESULTS
A	B	C	D	E	
Heart Beat					Blink once per second
	Upper TX				Flickers when communicating
		Upper RX			Flickers when communicating
			Data Frame	OFF-LINE	
ON	OFF	OFF	OFF	OFF	Error CPU

Note: **Output Led's:** ON = Active, OFF= Inactive

Input Led's: ON=Alarm, Blink = Trouble, OFF=Secured

DIP Switch Settings

NOTE: Any change to switches need to be re-powering of panel for new settings to take affect.

Switches use binary settings

								S1 – Dip Switch FUNCTION
1	2	3	4	5	6	7	8	Device Address
OFF	OFF	OFF						*0
ON	OFF	OFF						1
OFF	ON	OFF						2
								Baud Rate
			OFF	OFF				9600
			ON	OFF				19200
			OFF	ON				38400
			ON	ON				57600
					ON			Send Status on Com Restored
						ON		Turn ON ALL INPUTS(N/C)
							ON	Turn ON Relays follows inputs

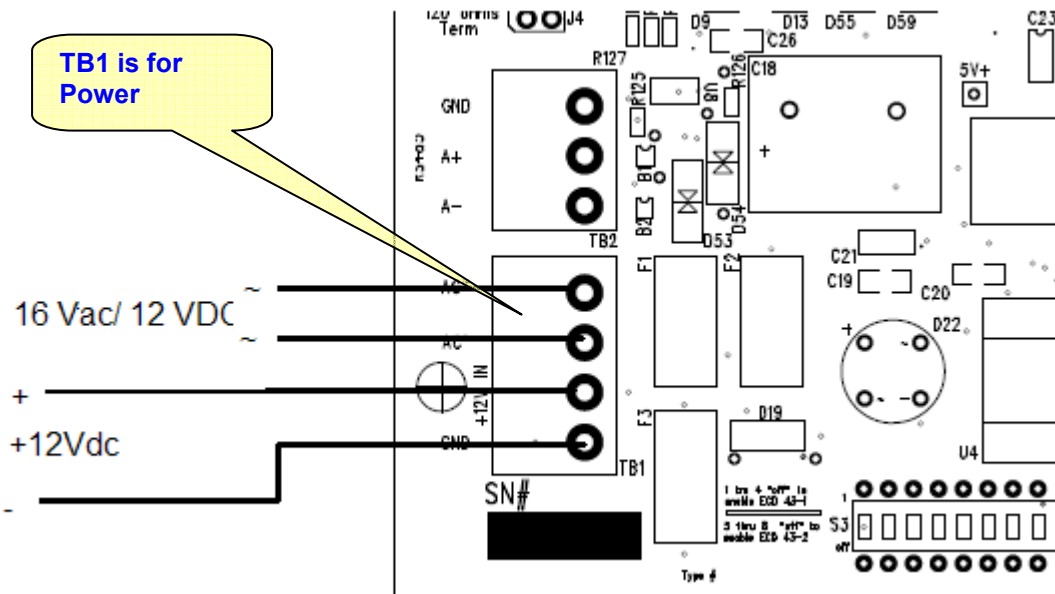
*= Factory set defaults

								S3 – Dip Switch Function
8	7	6	5	4	3	2	1	<i>ECD daughter board</i>
X	X	X	X	*ON	*ON	*ON	*ON	Disable ECD 43-1 Board
X	X	X	X	OFF	OFF	OFF	OFF	Enable ECD 43-1 Board
*ON	*ON	*ON	*ON	X	X	X	X	Disable ECD 43-2 Board
OFF	OFF	OFF	OFF	X	X	X	X	Enable ECD 43-2 Board

*= Factory set defaults

ICD-810 Power Wiring

Connect a DC or AC source to the ICD-810 as shown below. Locate the power supply as close to the ICD-810 as possible and use wires 18 AWG or larger to avoid voltage loss.

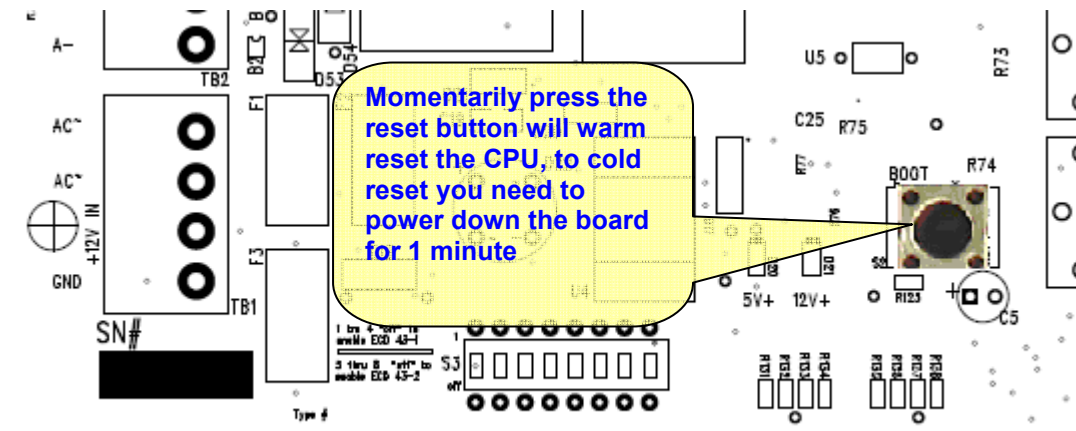


Cable Requirements:

Power: 18 AWG, one twisted pair

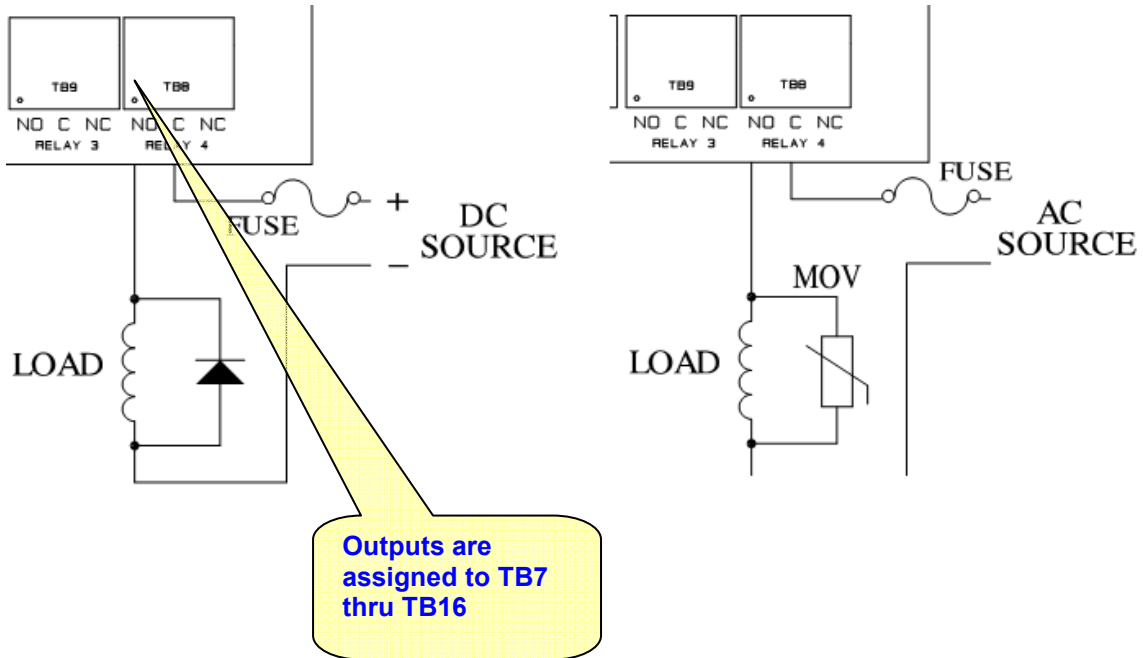
Resetting ICD-810

On the ICD-810 board, there is a “RESET” button. To reset the board momentarily press the “RESET” button and release it.



ICD-810 Relay Output Wiring

The ICD-810 has 10 output relays that can be used for control or signalling purposes. Note the protection diode and MOV which is placed within six inches of the load to suppress the back EMF from the inductive load.

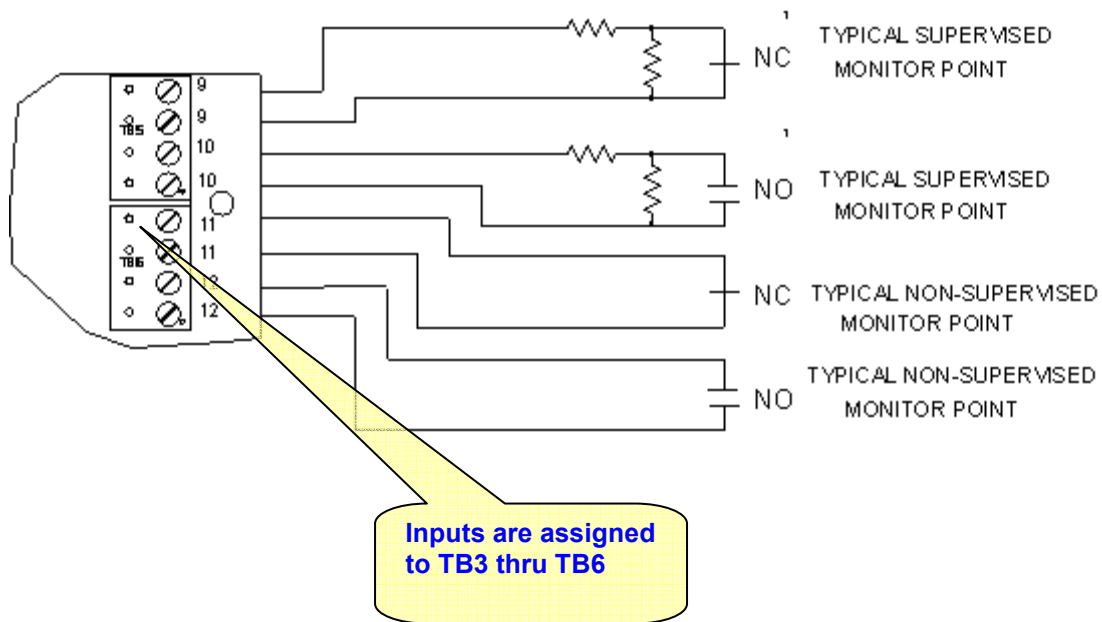


Cable Requirements:

Outputs: as required for load

ICD-810 Input Wiring

The inputs of the ICD-810 have the capability to monitor various resistance ranges depending on the input configuration parameters. The inputs may also be used for non-supervised contact monitoring if no line supervision is required. Notice that a resistance value is not given for the supervised inputs. The resistance parameters can be configured for each input. This allows for easy integration into existing sensor wiring.



Standard EOL (End of Line) Termination is 1K, 1K ohm resistance but custom tables are available.

Cable Requirements:

Alarm inputs: One twisted pair per input, 30 ohms maximum

MINIMUM POWER REQUIREMENTS

AC input: 16 VAC RMS, 1.41 A

DC input: 12 VDC, 1.75A

BOARD DIMENSIONS**IAD-810**

7.5 in (L)	6.0 in (W)	2 in (H)
(191 mm)	(152.3 mm)	(51 mm)

ECD-43

7.5 in (L)	2.5 in (W)	2 in (H)
(191 mm)	(63.5 mm)	(51 mm)

THREE YEAR WARRANTY

Unless otherwise specified, hardware products developed by LX Technologies, Inc. are warranted against defects in materials and workmanship for a period of (3) three years from the date of shipment, as evidenced by receipts or other documentation.

Products suspected to be deficient may be delivered to LX Technologies, Inc, which will, at its sole obligation hereunder and at its option, replace or repair any product that we find to be deficient. All warranties are immediately voided if modifications/repairs are performed by anyone except LX Technologies Inc. When returning products, we ask that you follow the steps outlined in this document.

The warranty provided herein does not cover damages, defects, malfunctions, or service failures caused by owner's failure to follow the LX Technologies, Inc. installation, operation, or maintenance instructions; owner's modification of the product; owner's abuse, misuse, or negligent acts; and power failure or surges, fire, flood, accident, actions of third parties, or other events outside reasonable control.

LX TECHNOLOGIES, INC. DOES NOT MAKE ANY EXPRESS OR IMPLIED WARRANTIES (EXCEPT AS STATED ABOVE) INCLUDING, BUT NOT LIMITED TO, THE WARRANTIES OF DESIGN, MERCHANTABILITY, NONINFRINGEMENT, OR FITNESS FOR A PARTICULAR PURPOSE, OR ARISING FROM A COURSE OF DEALING, USAGE OR TRADE PRACTICE.

Limitation of Liability

IN NO EVENT WILL LX TECHNOLOGIES, INC. BE LIABLE FOR ANY LOST REVENUES OR PROFITS, OR OTHER SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES, EVEN IF LX TECHNOLOGIES, INC. HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

NOT WITHSTANDING ANY OTHER PROVISION OF THIS AGREEMENT, LX TECHNOLOGIES, INC.'S MAXIMUM LIABILITY FOR DAMAGES SHALL BE LIMITED TO THE PAYMENTS MADE BY CUSTOMER UNDER THIS AGREEMENT FOR THE SPECIFIC PRODUCT THAT CAUSED THE ALLEGED DAMAGES.

This limitation of the liability of LX Technologies, Inc. will apply regardless of the form of action, whether in contract or tort, including negligence. Any action against LX Technologies, Inc. must be brought within one year after the cause of action accrues. LX Technologies, Inc. shall not be liable for any delay in performance due to causes beyond its reasonable control.

Standard Return Policy

All returns require a Return Material Authorization (RMA) number. A Customer Service Representative with LX Technologies, Inc. can issue RMA numbers following a review of each RMA request as they are submitted. Each request will be approved or denied on the basis of the following guidelines.

Permissible Timeframe for Return

LX Technologies, Inc provides a thirty (30) day return policy. All RMA requests for non-defective returns must be made within thirty (30) days from the invoice date. RMA numbers issued by LX Technologies, Inc. are only valid for fifteen (15) days and the product must be returned within this timeframe. RMA numbers will not be extended or reissued.

Defective or DOA Product

Product that is defective or Dead On Arrival (DOA) will be repaired, replaced, or credited according to the manufacturer's warranty at LX Technologies Inc, discretion.

Restrictions on Returns

Non-defective returns are accepted for credit or exchange at LX Technologies, Inc.'s discretion. All non-defective returns are subject to a fifteen percent (15%) restock fee including returns due to the customer's refusal to pay duties or taxes resulting from the shipment. With defective product(s), LX Technologies, Inc. reserves the right to refuse shipment and/or charge a restocking fee. With some software product(s), open source codes may void our return policy.

RMA Procedure

Most product issues (hardware and software) can be resolved with an email to the tech support department. Tech support department contact information is as follows:

support@lxtechnologies.com

If tech support does not resolve the problem, a product exchange may be the solution. In which case, you will need to obtain a valid Return Merchandise Authorization (RMA) number. To obtain a valid RMA number you will need to contact an LX Technologies Customer Service Representative at 602-870-4LXT (4598). To hasten the process please have the following information available before placing your call:

Name, and phone number of person calling (customer number if you have one)

Name of product (serial number)

Name of system (version number)

Tell us why you are returning the product. We may be able to suggest a different product that will better suit your needs.

Shipping

In the case of shipments related to warranty actions, the customer will bear shipping costs for shipments to LX Technologies and will bear all risk, and LX Technologies will bear shipping costs for shipments to the customer. For products that do not fall under warranty conditions the customer will be responsible for all repair and/or shipping costs.

No Returns will be accepted without a valid RMA number!

Non-defective products MUST be returned in resalable condition!

Your returned package MUST contain ALL original material. This includes boxes, disks, manuals, registration forms and advertising inserts.

Please do not write on the original manufacturers label or packaging.

Include a copy of your invoice and RMA number with the returned package.

Returns may be rejected if the product has been damaged during shipment.

To prevent shipping damage, pack products securely in an EXTERNAL carton. We recommend using a carrier that has a reliable tracking system (e.g. Federal Express, DHL, UPS).

SERVICE INFORMATION

There are no user serviceable parts inside the unit.

In the event that service is required to this unit, please direct all inquires to:

LX Technologies

Phone: (602) 870-4LXT (4598)

11001 N. 24th # 612

Ave.

Phoenix, AZ 85029

FAX (602) 870-3702

E-mail: support@lxtechnologies.com

Note: Email will automatically create a trouble ticket, please be sure to include a valid return telephone number.

<http://support.lxtechnologies.com>

<http://www.lxtechnologies.com>

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