RC-e L-O-X®-OI EN

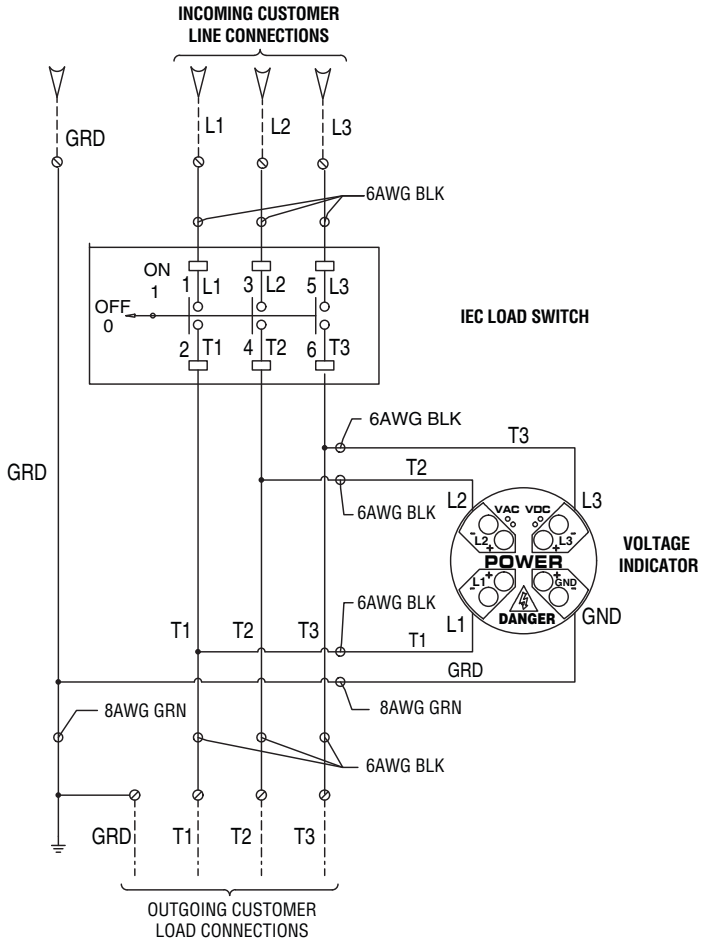
e L-O-X® Series
Electrical Isolation Devices

Operating Instructions

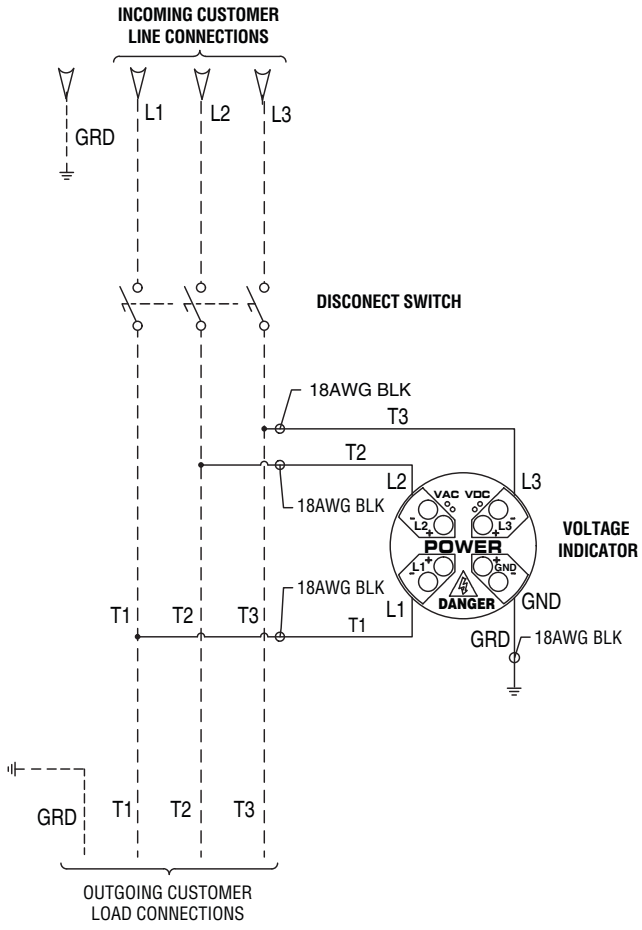
Model Number	Load Rating (Amps)
E-LOX-030R3A	30
E-LOX-060R3A	60
E-LOX-100R3A	100
E-LOX-200F3A	200

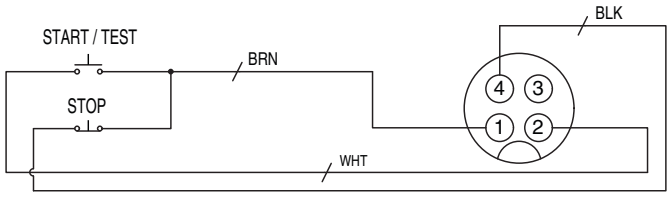
Wiring Diagram

E-LOX-030R3A, -060R3A, -100R3A



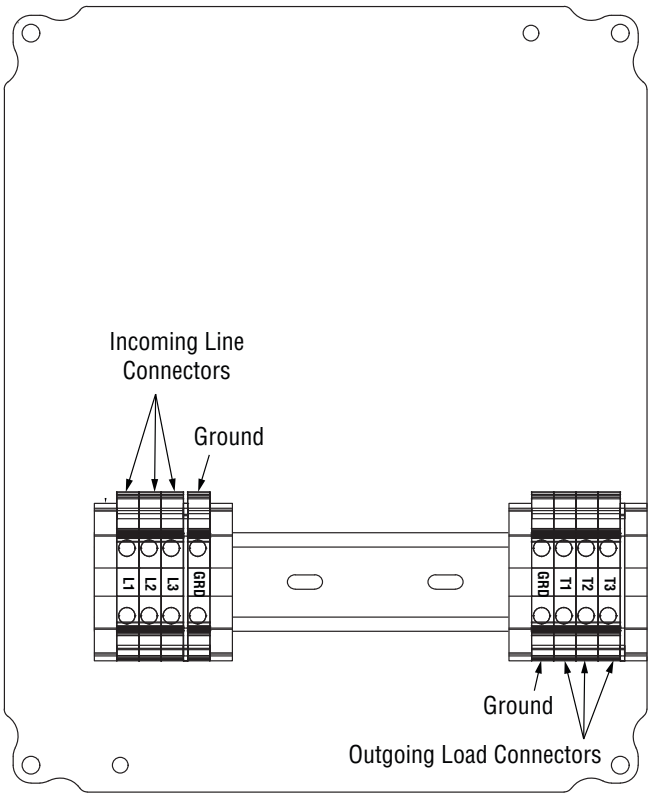
E-LOX-200F3A

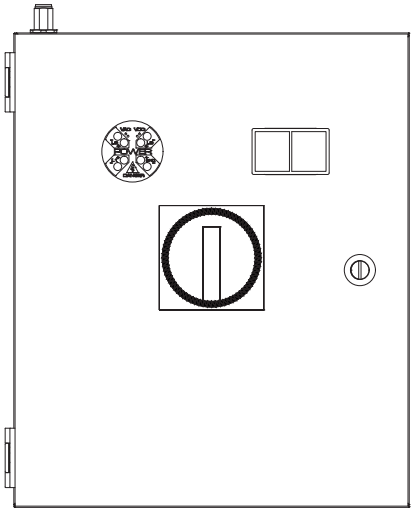


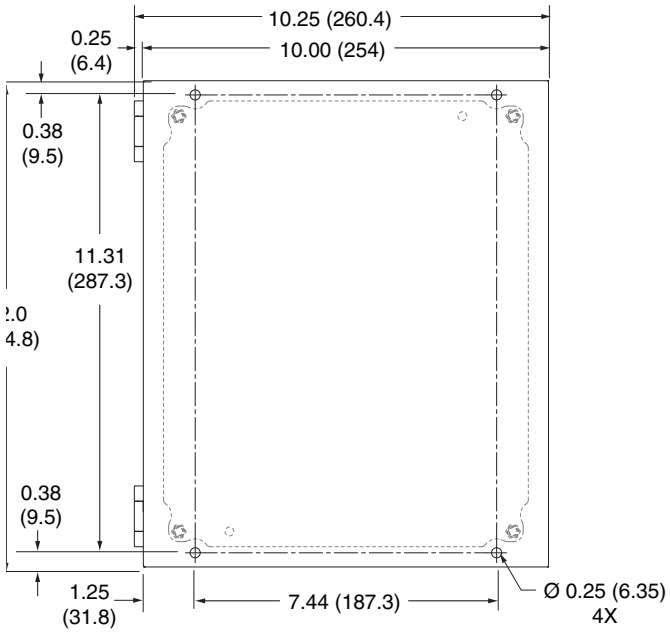


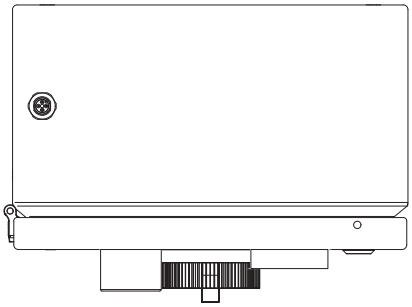
Mounting Information and Overall Dimensions (Inches/mm)

E-LOX-030R3A



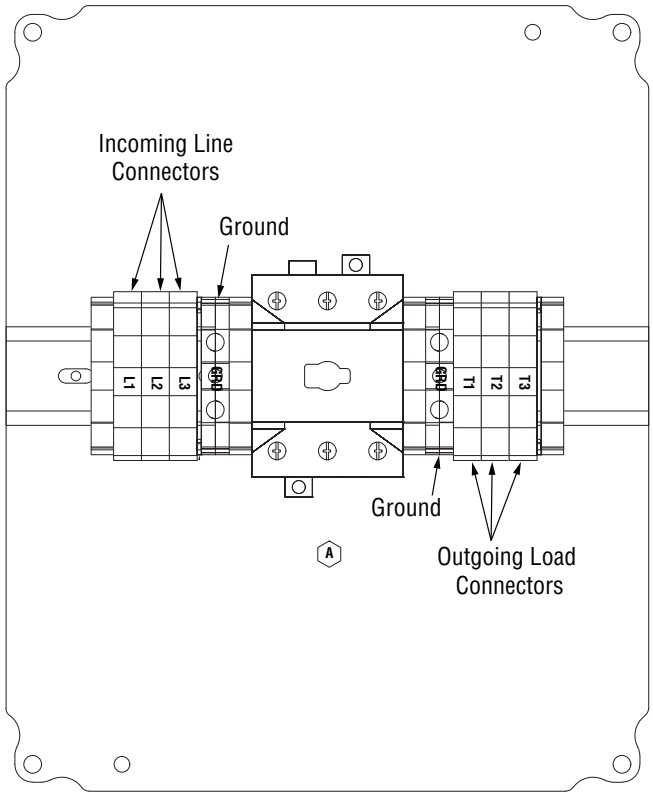


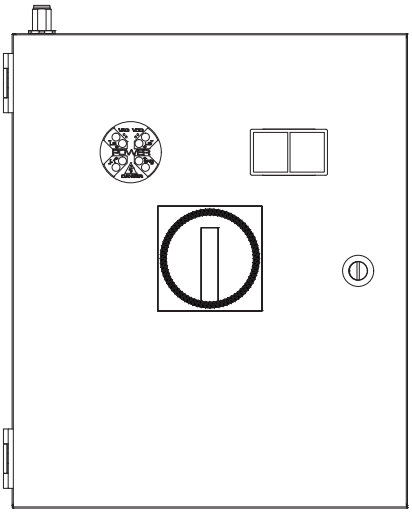


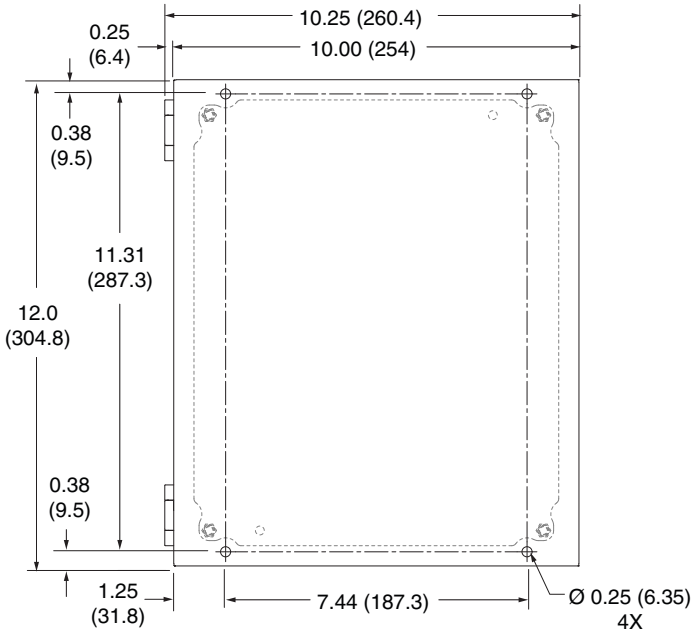


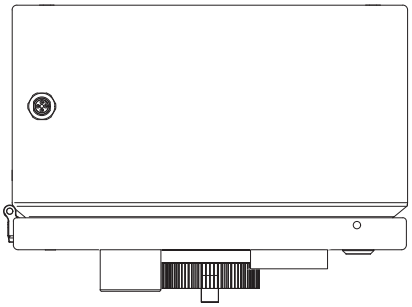
Mounting Information and Overall Dimensions (Inches/mm)

E-LOX-060R3A



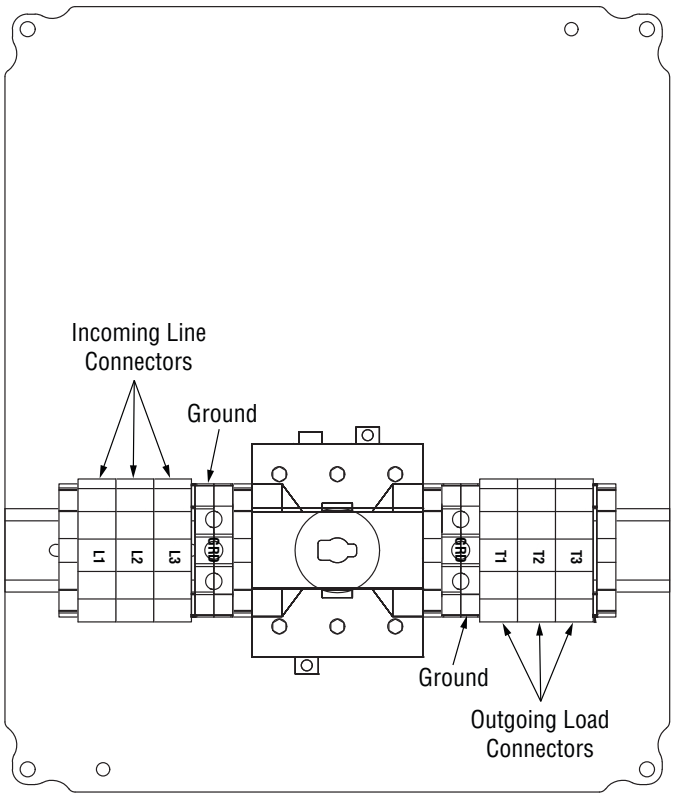


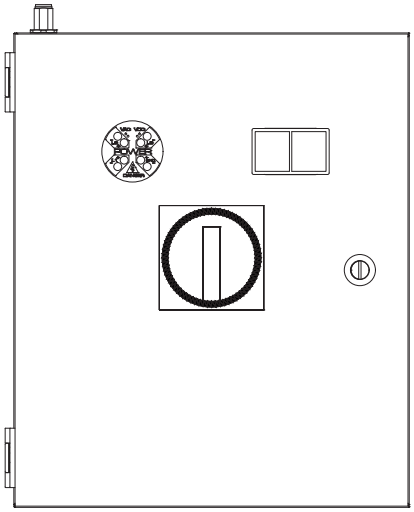


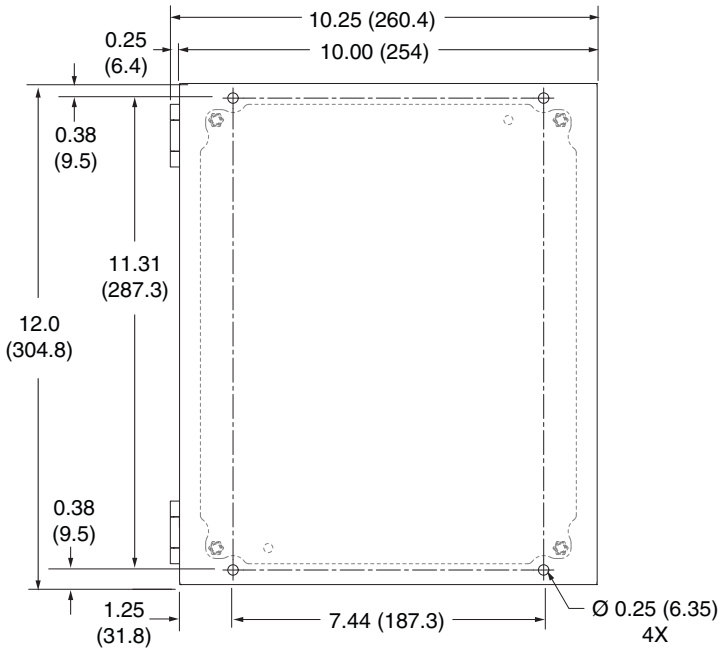


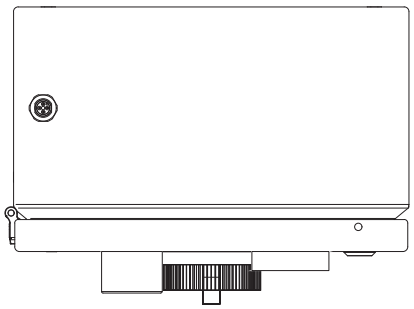
Mounting Information and Overall Dimensions (Inches/mm)

E-LOX-100R3A



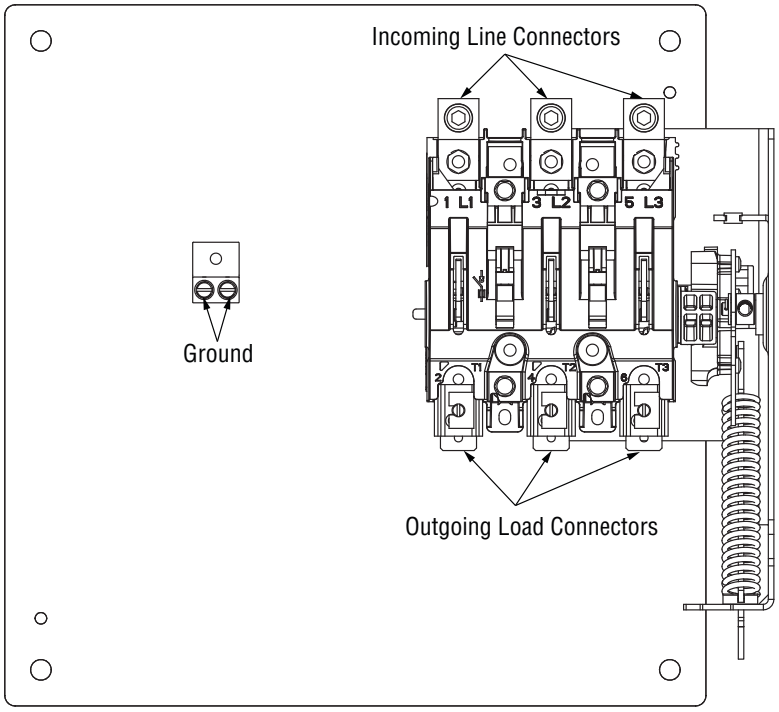


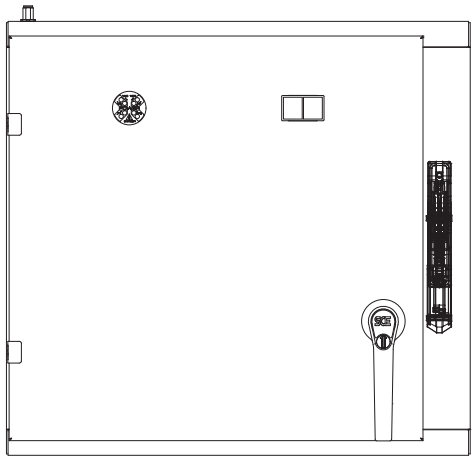


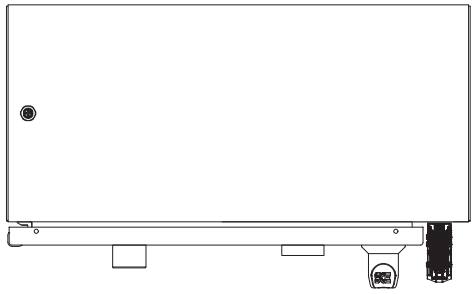


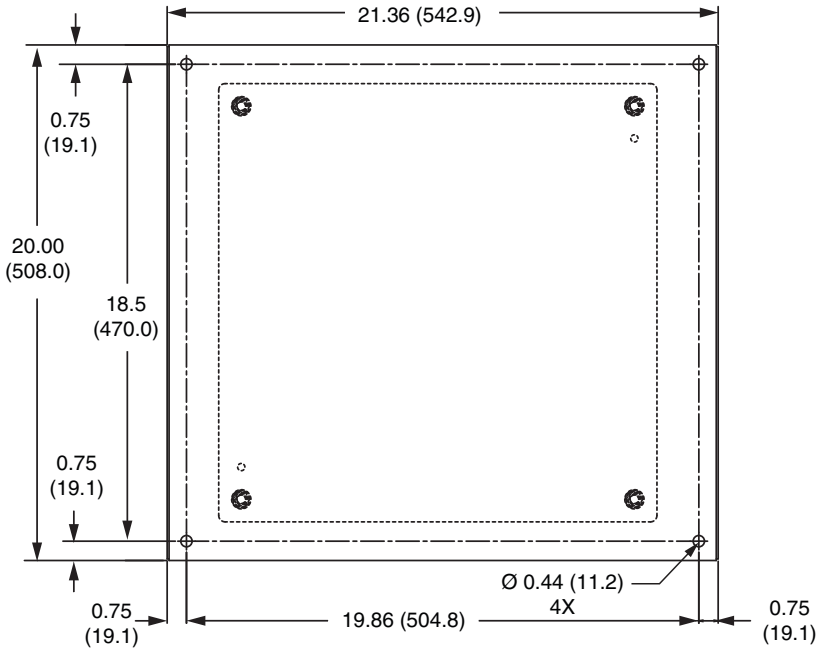
Mounting Information and Overall Dimensions (Inches/mm)

E-LOX-200F3A









1. About this Documentation

These instructions contain important information for the safe and appropriate assembly and commissioning of the product.

- ► Read these Instructions all the way through. For more information see last page for contact information, or visit www.rosscontrols.com.
- ► In addition, observe all applicable local and national regulations on accident prevention and on environmental protection.

1.1. Warning Notices in these Operating Instructions

In these operating instructions, warning notices precede sections with handling requirements which incur risks of personal injury or material damage.
Warnings are structured as follows:

⚠ SIGNAL WORD
Type or source of hazard! Consequences ► Measures to avert danger

- **Warning triangle:** Indicates a risk of fatal or severe injuries.
- **Signal word:** Indicates the severity of the danger.
- **Type or source of hazard:** States the type of danger or the source of the hazard.
- **Consequences:** Describes possible consequences of ignoring the warning.
- **Measures to avert danger:** Indicates how to avoid the danger. It is essential that the measures to avert danger are complied with.

⚠ DANGER	Indicates an imminent and serious danger that will result in severe or even fatal injury if you fail to avoid it.
⚠ WARNING	Indicates a possible danger that could result in severe or even fatal injury if you fail to avoid it.
⚠ CAUTION	Indicates a danger that may result in minor to moderate injuries if you fail to avoid it.
ATTENTION	Indicates potential property damage that may be incurred by the product or its surroundings if you fail to avoid it.

2. Notes on Safety

The product has been manufactured according to the accepted rules of current technology. There is risk of injury or damage if the following safety instructions and warnings given in this instruction manual are not observed.

2.1. Intended Use

The e L-O-X® Series electrical energy isolation devices are designed and manufactured in accordance with Machinery Directive 2006/42/EC. The intended use is to provide a local means to isolate and control electrical energy for the purposes of Lockout/Tagout for normal maintenance. Note that the e L-O-X® is only intended to be used for isolating electrical energy. There may be other sources of energy such as pneumatic, hydraulic, gravity, etc., that require additional means of isolation for those forms of energy.

IMPORTANT NOTE: Per specifications and regulations, the e L-O-X® products are defined as energy isolation devices, NOT AS EMERGENCY STOP DEVICES.

The e L-O-X® is comprised of an enclosure with a load-rated disconnect switch (either rotary or flange-type), a red STOP pushbutton, a green START/TEST pushbutton, and a 3-phase LED power indicator.

The red pushbutton, if utilized, can be used to send a STOP signal to the machine (or zone) controls to stop the machine prior to disconnecting power with the disconnect switch. The STOP switch is a momentary pushbutton-operated NC switch.

The disconnect switch on the e L-O-X® electrical energy isolation device connects (ON position) and disconnects (OFF position) electrical power to a machine (or machine zone) via a manually operated disconnect switch that is lockable only in the OFF position. Placing the disconnect switch in the OFF position disconnects the electrical power to the machine to isolate the machine from the electrical energy source.

The green START/TEST pushbutton, if utilized, provides a method to send a start signal to the machine (or zone). The START/TEST switch is a momentary pushbutton-operated NO switch that can be integrated into the machine controls to provide a signal to start the machine. Pressing the green pushbutton after the electrical disconnect switch is placed in the off position and locked could also be used to TEST the system to verify electrical power is disconnected and dissipated.

The 3-phase LED power indicator is used to indicate the presence of electrical power on the load side of the disconnect switch (terminals T1, T2, & T3).

2.1.1. Foreseeable Misuse

⚠ WARNING
Risk of Injury! Misuse may result in injury or damage. ► The product must be used exclusively as intended.

Foreseeable misuse includes:

- Use outdoors
- Use in non-industrial applications/residential areas
- Unauthorized modifications
- Bypassing the safety function or diagnostics features
- Exceeding the Technical Specification limits of the product.
- Replacing components with unauthorized components.
- Tampering with the switches or power indicator.
- Failing to use the Start/Test button and the LED power indicator to verify energy dissipation prior to accessing the machine.
- Failing to lock the disconnect switch in the OFF position prior to accessing the hazardous area of the machine (or machine zone).

2.2. Responsibilities of the System Owner

The e L-O-X® must be properly integrated into the machine system to facilitate its use for local electrical energy isolation (Lockout/Tagout).

- Observe the information on assembly and operating conditions listed in the operating instructions.
- Steps for using the e L-O-X® must be incorporated into the machine energy isolation procedure.
- Initial and periodic training on the energy isolation procedure must be provided to all authorized employees and all affected personnel.
- No maintenance work may be done on the machine (or zone) if the e L-O-X® has not been switched off, locked-out, and energy isolation verified. Note the voltage present. Also, note any additional sources of energy. Make sure that all energy sources are properly isolated and locked-out.
- General safety and accident prevention regulations pertaining to operating the unit/system are to be adhered to.
- Check the e L-O-X® at least once a month to ensure its proper operation.
- Selection and installation of replacement components must take place in accordance with the manufacturer's specifications.

2.3. Safety Instructions

The e L-O-X® Electrical Isolation Device features a state-of-the-art design. Reliable and safe operation cannot be ensured unless all instructions and output limits applicable to the unit supplied are adhered to.

The systems involved are voltage-generating systems whose components are electrically conductive; the systems may pose a hazard if not dealt with properly.

- In case of high levels of machine vibration, use appropriate vibration-reducing elements when installing the e L-O-X®.
- Supply the proper voltage as overvoltage and undervoltage situations can result in system burnout or failures.

3. Prerequisites for Use of the Product

- ► Make these operating instructions available to the engineer and assembly technician of the machine/system in which the product will be used.
- ► Keep these operating instructions for the entire product life cycle.

3.1. Qualified Personnel

Assembly, installation, commissioning, maintenance, and decommissioning should only be carried out by qualified personnel that have the required knowledge of and experience in dealing with electrical control technology.

All work may be performed only by properly trained and qualified individuals who have been specifically instructed for the tasks assigned to them. The levels of responsibility of personnel are to be clearly delineated by the owner/operator. Protective clothing and gear is to be worn when performing all work. The relevant safety and accident prevention regulations are to be adhered to. Any special safety requirements specified in the documentation for the unit/system are to be complied with.

4. Package Contents

Items included:

- e L-O-X® Electrical Isolation Device panel
- Operating Instructions

5. Service, Repair, and Maintenance

- In case of technical problems or a required repair, please contact your local ROSS® representative.
- Checks should be conducted at least once a month to ensure the pushbutton switches, disconnect switch, and the power indicator are in functioning order.

5.1 Maintenance

⚠ WARNING

- All maintenance activities must be conducted by competent and qualified staff.
- Always isolate and verify the isolation of the relevant part of the electrical system before any maintenance.
- When performing maintenance on the e L-O-X® itself the electrical supply to the e L-O-X® must be isolated prior to opening the e L-O-X® enclosure. SHUTTING OFF THE e L-O-X® DISCONNECT SWITCH DOES NOT REMOVE FEED POWER TO THE e L-O-X®.
- Always ensure cleanliness when working on the e L-O-X® electrical energy isolation device.

6. Product Identification

The e L-O-X® assembly is marked with Model Number, Serial Number, Maximum Voltage (VAC), Maximum Current (Amps), and date of manufacture and location.

Product Label Identification

ROSS e L-O-X®
Electrical Isolation Device

Model Number	
Serial Number	
Max. Voltage	
Max. Current (Amps)	
Mfr. & Test Date	
ROSS Tester	

www.rosscontrols.com

7. Assembly and Installation

⚠ WARNING

The following information is only a guide for proper installation. ROSS Controls cannot assume responsibility for the compliance or non-compliance to any code, national, local, or otherwise for the proper installation of the e L-O-X® or associated equipment.

A personal injury and/or equipment hazard exists if codes are ignored during installation.

⚠ DANGER

Risk of injury or death due to installation with live parts!

- To avoid serious injury or death, prior to beginning the installation and wiring process, make sure that all forms of energy to the installation site have been turned OFF and locked out. Installation while the electrical power is switched on can result in injury or death due to electrical shock.
- Secure the system to prevent it being switched back on again.

ATTENTION

Destruction of components!

- Chemical substances can damage the surface, the markings, and the enclosure seals of the device.
- Install the device such that it is protected against the effects of chemicals.

7.1. Installation Instructions

Secure the assembly using the mounting holes in the back of the e L-O-X® enclosure. See the Mounting Information and Overall Dimensions section.

7.1.1. Component Inspection

Prior to use, a careful examination of the e L-O-X® panel must be performed. The e L-O-X® must be checked for correct style, size, model number, and external condition. The e L-O-X® panel should also be examined for cleanliness, absence of external defects or gouges or otherwise deformed parts or other imperfections. DO NOT use any item that displays any signs of nonconformance. Any electrical connectors used to connect to the e L-O-X® must be subjected to the same examination.

7.1.2. Preparation For Installation

The e L-O-X® must be mounted in an area that prevents physical damage to the panel and/or panel components. The e L-O-X® system is a wall mount panel that can be mounted on a wall or on a customer provided panel stand. See the Mounting Information and Overall Dimensions section.

Prepare for assembly as follows:

1. Lockout all energy sources to the machine prior to beginning any installation work.
2. Let the e L-O-X® system acclimatize itself for several hours before installation, otherwise water may condense in the housing.

7.2. Electrical Connections

1. Installer will have to make their own holes for the incoming and outgoing 3-phase and ground wires. Inspect the inside of the enclosure to make sure no internal wiring in the e L-O-X® is damaged when drilling the holes.
2. Connect the load side 3-phase wires from the machine or zone to be controlled to terminals T1, T2, T3 on the e L-O-X® terminal block. Be sure to use the Ground terminal to connect the Ground wire from the machine or zone. Refer to Wiring Diagram.
3. Connect the control signal wires from the machine or zone to be controlled to the M12 connector on the top of the e L-O-X® enclosure for the START/TEST & STOP pushbuttons. Refer to the Wiring Diagram.
4. Connect the feed side 3-phase wires from the machine or zone to be controlled to terminals L1, L2, L3 on the e L-O-X® terminal block. Be sure to use the Ground terminal to connect the Ground wire from the Feed side. Refer to Wiring Diagram.
5. Tighten all connections according to the component manufacturer's recommended torque.

8. Commissioning and Operation

⚠ DANGER

Risk of injury or death while working on the system while it is running.
Maintain a sufficient safe distance from moving machine components.

Make sure that the Technical Specifications match the operating criteria of the machine and the electrical system.

Before commissioning, the installation must be carefully verified by a qualified, trained professional. Make sure that the power feed to the e L-O-X® panel is off and locked-out. Next make sure the e L-O-X® panel has been connected per these instructions.

8.1. Verify that all Electrical Connections are Correct.

NOTE: * If the START/TEST & STOP pushbuttons are not utilized, then the steps involving these components may be skipped.

Prior to applying power to the e L-O-X®:

Make sure the upstream disconnect is off and locked-out.
Make sure the e L-O-X® disconnect switch is in the OFF position and locked-out.
Make sure there is no power indicated by the 3-phase power indicator – all LEDs off.

Apply line voltage to the e L-O-X® panel to terminals L1, L2, & L3.

Verify that there is no power indicated by the 3-phase power indicator – all LEDs off.
Verify that actuating the Green Start/Test button does not start the machine.*

Remove the lock from the e L-O-X® disconnect switch.

Switch the e L-O-X® disconnect switch to ON.

Verify that power is indicated by the 3-phase power indicator – all LEDs on.
Verify that the power indicator LEDs are not flashing.
Verify that the machine did not start up.

Momentarily push the START/TEST button.*

Verify that the machine starts.
Verify that power is still indicated by the power indicator - all LEDs on and not flashing.

Momentarily push the STOP button.*

Verify that the machine stops.
Verify that power is still indicated by the power indicator – all LEDs on and not flashing.

Switch the e L-O-X® disconnect switch to OFF position and lock it in this position.

Verify that the machine is still stopped.
Verify that power is not indicated by the power indicator – all LEDs off.

Momentarily push the START/TEST button.*

Verify that the machine does not start.
Verify that power is still not indicated by the power indicator – all LEDs off.

8.2. Operation

8.2.1. STOP Switch (if utilized)

Momentarily push the STOP pushbutton switch to signal the machine to stop.

8.2.2. Disconnect Switch

Switch the e L-O-X® disconnect switch to the OFF position in order to isolate power from the machine or zone.

Switch the e L-O-X® disconnect switch to the ON position in order to supply power to the machine or zone.

8.2.3. START/TEST Switch (if utilized)

When the e L-O-X® disconnect switch is in the ON position push the START/TEST pushbutton momentarily to signal the machine to start up.

When the e L-O-X® disconnect switch is in the OFF position, push the START/TEST pushbutton momentarily to verify power is isolated. Pushing the START/TEST pushbutton in this situation should not start-up the machine.

8.2.4. 3-Phase Power Indicator

The 3-phase power indicator indicates voltage presence on all phases and, also, if phases are out of balance.

Voltage Indicator LED Truth Table

Condition	T1	T2	T3	Ground
Color	Red	Red	Red	Red
Normal: Delta System with Isolated Ground	●	●	●	⊗
Normal with Ø to Ground Leakage	●	●	●	●
Ø Loss: L2 Open with Isolated Ground (Separately derived, standalone ground system)	●	⊗	●	●
Ø Unbal: Isolated Ground (Separately derived, standalone ground system)	●	●	●	●

On (illuminated) = ● Off = ⊗ Phase = Ø
*Grounded N = N (Neutral) directly grounded

9. Disconnecting and Removal

⚠ WARNING

Risk of injury due to disconnecting or removal with live parts!

- ► Disconnecting an electrical component while electrical power is supplied can result in injury or death due to electrical shock, or unexpected movement.
- ► Isolate and lockout the electrical systems before disconnecting the unit.

⚠ WARNING

Risk of Injury!

Misuse may result in injury or death.

- ► The product must be used exclusively as intended.

1. Failure to observe the prescribed procedures and cautions may represent a risk for personal injury.
2. Electrical equipment must only be installed/removed by qualified personnel.
3. Electrical components must not be interchanged.

10. Technical Specifications

Actuation	Disconnect Switch 30-A, 60-A, & 100-A	Rotary handle-operated
	Disconnect Switch 200-A	Flange-type handle (pull-down)
	Start/Test Switch	Pushbutton (momentary)
	Stop Switch	
Mounting	Wall-mount	
Electrical Connection	Terminal Block	
Voltage	Main Disconnect & Power Indicator Up to 600 VAC, 3 Phase	
	Start/Test/Stop	24 volts VDC at 1.5 amps 110 VDC at 0.5 amps
Rated Current	E-LOX-030R3A	30A
	E-LOX-060R3A	60 A
	E-LOX-100R3A	100 A
	E-LOX-200F3A	200 A
Enclosure Rating	NEMA Type 12, Dust-tight, IP55	

11. Disposal

Dispose of the valve in accordance with the applicable statutory regulations in your country.

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		ROSS DECCO	Tel: +1-248-764-1800	www.rossdecco.com
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	Japan	**ROSS** ASIA K.K.	Tel: +81-42-778-7251	www.rossasia.co.jp

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