Operator's Manual

VOYAGE ARC LAN CONTROLLER

For use with machines having Code Numbers:
K5392-1

Register your machine:
www.lincolnelectric.com/register

Authorized Service and Distributor Locator:
www.lincolnelectric.com/locator

Save for future reference

Date Purchased

Code: (ex: 10859)

Serial: (ex: U1060512345)

Need Help? Call 1.888.935.3877
to talk to a Service Representative

Hours of Operation:
8:00 AM to 6:00 PM (ET) Mon. thru Fri.

After hours?
Use "Ask the Experts" at lincolnelectric.com
A Lincoln Service Representative will contact you no later than the following business day.

For Service outside the USA:
Email: globalservice@lincolnelectric.com

IM10667 | Issue Date Apr - 23

THE LINCOLN ELECTRIC COMPANY
22801 St. Clair Avenue • Cleveland, OH • 44117-1199 • U.S.A.
Phone: +1.216.481.8100 • www.lincolnelectric.com

THANK YOU FOR SELECTING A QUALITY PRODUCT BY LINCOLN ELECTRIC.

PLEASE EXAMINE CARTON AND EQUIPMENT FOR DAMAGE IMMEDIATELY

When this equipment is shipped, title passes to the purchaser upon receipt by the carrier. Consequently, claims for material damaged in shipment must be made by the purchaser against the transportation company at the time the shipment is received.

SAFETY DEPENDS ON YOU

Lincoln arc welding and cutting equipment is designed and built with safety in mind. However, your overall safety can be increased by proper installation ... and thoughtful operation on your part. **DO NOT INSTALL, OPERATE OR REPAIR THIS EQUIPMENT WITHOUT READING THIS MANUAL AND THE SAFETY PRECAUTIONS CONTAINED THROUGHOUT.** And, most importantly, think before you act and be careful.

⚠ WARNING

This statement appears where the information must be followed exactly to avoid serious personal injury or loss of life.

⚠ CAUTION

This statement appears where the information must be followed to avoid minor personal injury or damage to this equipment.

KEEP YOUR HEAD OUT OF THE FUMES.

DON'T get too close to the arc. Use corrective lenses if necessary to stay a reasonable distance away from the arc.

READ and obey the Safety Data Sheet (SDS) and the warning label that appears on all containers of welding materials.

USE ENOUGH VENTILATION or exhaust at the arc, or both, to keep the fumes and gases from your breathing zone and the general area.

IN A LARGE ROOM OR OUTDOORS, natural ventilation may be adequate if you keep your head out of the fumes (See below).

USE NATURAL DRAFTS or fans to keep the fumes away from your face.

If you develop unusual symptoms, see your supervisor. Perhaps the welding atmosphere and ventilation system should be checked.

WEAR CORRECT EYE, EAR & BODY PROTECTION

PROTECT your eyes and face with welding helmet properly fitted and with proper grade of filter plate (See ANSI Z49.1).

PROTECT your body from welding spatter and arc flash with protective clothing including woolen clothing, flame-proof apron and gloves, leather leggings, and high boots.

PROTECT others from splatter, flash, and glare with protective screens or barriers.

IN SOME AREAS, protection from noise may be appropriate.

BE SURE protective equipment is in good condition.

Also, wear safety glasses in work area **AT ALL TIMES.**

SPECIAL SITUATIONS

DO NOT WELD OR CUT containers or materials which previously had been in contact with hazardous substances unless they are properly cleaned. This is extremely dangerous.

DO NOT WELD OR CUT painted or plated parts unless special precautions with ventilation have been taken. They can release highly toxic fumes or gases.

Additional precautionary measures

PROTECT compressed gas cylinders from excessive heat, mechanical shocks, and arcs; fasten cylinders so they cannot fall.

BE SURE cylinders are never grounded or part of an electrical circuit.

REMOVE all potential fire hazards from welding area.

ALWAYS HAVE FIRE FIGHTING EQUIPMENT READY FOR IMMEDIATE USE AND KNOW HOW TO USE IT.

SECTION A: WARNINGS

CALIFORNIA PROPOSITION 65 WARNINGS

WARNING: Breathing diesel engine exhaust exposes you to chemicals known to the State of California to cause cancer and birth defects, or other reproductive harm.

- Always start and operate the engine in a well-ventilated area.
- If in an exposed area, vent the exhaust to the outside.
- Do not modify or tamper with the exhaust system.
- Do not idle the engine except as necessary.

For more information go to www.P65 warnings.ca.gov/diesel

WARNING: This product, when used for welding or cutting, produces fumes or gases which contain chemicals known to the State of California to cause birth defects and, in some cases, cancer. (California Health & Safety Code § 25249.5 *et seq.)*

WARNING: Cancer and Reproductive Harm www.P65warnings.ca.gov

ARC WELDING CAN BE HAZARDOUS. PROTECT YOURSELF AND OTHERS FROM POSSIBLE SERIOUS INJURY OR DEATH. KEEP CHILDREN AWAY. PACEMAKER WEARERS SHOULD CONSULT WITH THEIR DOCTOR BEFORE OPERATING.

Read and understand the following safety highlights. For additional safety information, it is strongly recommended that you purchase a copy of "Safety in Welding & Cutting - ANSI Standard Z49.1" from the American Welding Society, P.O. Box 351040, Miami, Florida 33135 or CSA Standard W117.2. A Free copy of "Arc Welding Safety" booklet E205 is available from the Lincoln Electric Company, 22801 St. Clair Avenue, Cleveland, Ohio 44117-1199.

BE SURE THAT ALL INSTALLATION, OPERATION, MAINTENANCE AND REPAIR PROCEDURES ARE PERFORMED ONLY BY QUALIFIED INDIVIDUALS.

FOR ENGINE POWERED EQUIPMENT.

1.a. Turn the engine off before troubleshooting and maintenance work unless the maintenance work requires it to be running.

1.b. Operate engines in open, well-ventilated areas or vent the engine exhaust fumes outdoors.

1.c. Do not add the fuel near an open flame welding arc or when the engine is running. Stop the engine and allow it to cool before refueling to prevent spilled fuel from vaporizing on contact with hot engine parts and igniting. Do not spill fuel when filling tank. If fuel is spilled, wipe it up and do not start engine until fumes have been eliminated.

1.d. Keep all equipment safety guards, covers and devices in position and in good repair. Keep hands, hair, clothing and tools away from V-belts, gears, fans and all other moving parts when starting, operating or repairing equipment.

1.e. In some cases it may be necessary to remove safety guards to perform required maintenance. Remove guards only when necessary and replace them when the maintenance requiring their removal is complete. Always use the greatest care when working near moving parts.

1.f. Do not put your hands near the engine fan. Do not attempt to override the governor or idler by pushing on the throttle control rods while the engine is running.

1.g. To prevent accidentally starting gasoline engines while turning the engine or welding generator during maintenance work, disconnect the spark plug wires, distributor cap or magneto wire as appropriate.

1.h. To avoid scalding, do not remove the radiator pressure cap when the engine is hot.

1.i. Using a generator indoors CAN KILL YOU IN MINUTES.

1.j. Generator exhaust contains carbon monoxide. This is a poison you cannot see or smell.

1.k. NEVER use inside a home or garage, EVEN IF doors and windows are open.

1.l. Only use OUTSIDE and far away from windows, doors and vents.

1.m. Avoid other generator hazards. READ MANUAL BEFORE USE.

ELECTRIC AND MAGNETIC FIELDS MAY BE DANGEROUS

2.a. Electric current flowing through any conductor causes localized Electric and Magnetic Fields (EMF). Welding current creates EMF fields around welding cables and welding machines

2.b. EMF fields may interfere with some pacemakers, and welders having a pacemaker should consult their physician before welding.

2.c. Exposure to EMF fields in welding may have other health effects which are now not known.

2.d. All welders should use the following procedures in order to minimize exposure to EMF fields from the welding circuit:

- 2.d.1. Route the electrode and work cables together - Secure them with tape when possible.
- 2.d.2. Never coil the electrode lead around your body.
- 2.d.3. Do not place your body between the electrode and work cables. If the electrode cable is on your right side, the work cable should also be on your right side.
- 2.d.4. Connect the work cable to the workpiece as close as possible to the area being welded.
- 2.d.5. Do not work next to welding power source.

ELECTRIC SHOCK CAN KILL.

3.a. The electrode and work (or ground) circuits are electrically “hot” when the welder is on. Do not touch these “hot” parts with your bare skin or wet clothing. Wear dry, hole-free gloves to insulate hands.

3.b. Insulate yourself from work and ground using dry insulation. Make certain the insulation is large enough to cover your full area of physical contact with work and ground.

In addition to the normal safety precautions, if welding must be performed under electrically hazardous conditions (in damp locations or while wearing wet clothing; on metal structures such as floors, gratings or scaffolds; when in cramped positions such as sitting, kneeling or lying, if there is a high risk of unavoidable or accidental contact with the workpiece or ground) use the following equipment:

- Semiautomatic DC Constant Voltage (Wire) Welder.
- DC Manual (Stick) Welder.
- AC Welder with Reduced Voltage Control.

3.c. In semiautomatic or automatic wire welding, the electrode, electrode reel, welding head, nozzle or semiautomatic welding gun are also electrically “hot”.

3.d. Always be sure the work cable makes a good electrical connection with the metal being welded. The connection should be as close as possible to the area being welded.

3.e. Ground the work or metal to be welded to a good electrical (earth) ground.

3.f. Maintain the electrode holder, work clamp, welding cable and welding machine in good, safe operating condition. Replace damaged insulation.

3.g. Never dip the electrode in water for cooling.

3.h. Never simultaneously touch electrically “hot” parts of electrode holders connected to two welders because voltage between the two can be the total of the open circuit voltage of both welders.

3.i. When working above floor level, use a safety belt to protect yourself from a fall should you get a shock.

3.j. Also see Items 6.c. and 8.

ARC RAYS CAN BURN.

4.a. Use a shield with the proper filter and cover plates to protect your eyes from sparks and the rays of the arc when welding or observing open arc welding. Headshield and filter lens should conform to ANSI Z87. I standards.

4.b. Use suitable clothing made from durable flame-resistant material to protect your skin and that of your helpers from the arc rays.

4.c. Protect other nearby personnel with suitable, non-flammable screening and/or warn them not to watch the arc nor expose themselves to the arc rays or to hot spatter or metal.

FUMES AND GASES CAN BE DANGEROUS.

5.a. Welding may produce fumes and gases hazardous to health. Avoid breathing these fumes and gases. When welding, keep your head out of the fume. Use enough ventilation and/or exhaust at the arc to keep fumes and gases away from the breathing zone. **When welding hardfacing (see instructions on container or SDS) or on lead or cadmium plated steel and other metals or coatings which produce highly toxic fumes, keep exposure as low as possible and within applicable OSHA PEL and ACGIH TLV limits using local exhaust or mechanical ventilation unless exposure assessments indicate otherwise. In confined spaces or in some circumstances, outdoors, a respirator may also be required. Additional precautions are also required when welding on galvanized steel.**

5. b. The operation of welding fume control equipment is affected by various factors including proper use and positioning of the equipment, maintenance of the equipment and the specific welding procedure and application involved. Worker exposure level should be checked upon installation and periodically thereafter to be certain it is within applicable OSHA PEL and ACGIH TLV limits.

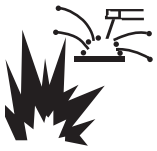
5.c. Do not weld in locations near chlorinated hydrocarbon vapors coming from degreasing, cleaning or spraying operations. The heat and rays of the arc can react with solvent vapors to form phosgene, a highly toxic gas, and other irritating products.

5.d. Shielding gases used for arc welding can displace air and cause injury or death. Always use enough ventilation, especially in confined areas, to insure breathing air is safe.

5.e. Read and understand the manufacturer’s instructions for this equipment and the consumables to be used, including the Safety Data Sheet (SDS) and follow your employer’s safety practices. SDS forms are available from your welding distributor or from the manufacturer.

5.f. Also see item 1.b.

WELDING AND CUTTING SPARKS CAN CAUSE FIRE OR EXPLOSION.



6.a. Remove fire hazards from the welding area. If this is not possible, cover them to prevent the welding sparks from starting a fire. Remember that welding sparks and hot materials from welding can easily go through small cracks and openings to adjacent areas. Avoid welding near hydraulic lines. Have a fire extinguisher readily available.

6.b. Where compressed gases are to be used at the job site, special precautions should be used to prevent hazardous situations. Refer to "Safety in Welding and Cutting" (ANSI Standard Z49.1) and the operating information for the equipment being used.

6.c. When not welding, make certain no part of the electrode circuit is touching the work or ground. Accidental contact can cause overheating and create a fire hazard.

6.d. Do not heat, cut or weld tanks, drums or containers until the proper steps have been taken to insure that such procedures will not cause flammable or toxic vapors from substances inside. They can cause an explosion even though they have been "cleaned". For information, purchase "Recommended Safe Practices for the Preparation for Welding and Cutting of Containers and Piping That Have Held Hazardous Substances", AWS F4.1 from the American Welding Society (see address above).

6.e. Vent hollow castings or containers before heating, cutting or welding. They may explode.

6.f. Sparks and spatter are thrown from the welding arc. Wear oil free protective garments such as leather gloves, heavy shirt, cuffless trousers, high shoes and a cap over your hair. Wear ear plugs when welding out of position or in confined places. Always wear safety glasses with side shields when in a welding area.

6.g. Connect the work cable to the work as close to the welding area as practical. Work cables connected to the building framework or other locations away from the welding area increase the possibility of the welding current passing through lifting chains, crane cables or other alternate circuits. This can create fire hazards or overheat lifting chains or cables until they fail.

6.h. Also see item 1.c.

6.I. Read and follow NFPA 51B "Standard for Fire Prevention During Welding, Cutting and Other Hot Work", available from NFPA, 1 Batterymarch Park, PO box 9101, Quincy, MA 022690-9101.

6.j. Do not use a welding power source for pipe thawing.

CYLINDER MAY EXPLODE IF DAMAGED.

7.a. Use only compressed gas cylinders containing the correct shielding gas for the process used and properly operating regulators designed for the gas and pressure used. All hoses, fittings, etc. should be suitable for the application and maintained in good condition.

7.b. Always keep cylinders in an upright position securely chained to an undercarriage or fixed support.

7.c. Cylinders should be located:

- Away from areas where they may be struck or subjected to physical damage.
- A safe distance from arc welding or cutting operations and any other source of heat, sparks, or flame.

7.d. Never allow the electrode, electrode holder or any other electrically "hot" parts to touch a cylinder.

7.e. Keep your head and face away from the cylinder valve outlet when opening the cylinder valve.

7.f. Valve protection caps should always be in place and hand tight except when the cylinder is in use or connected for use.

7.g. Read and follow the instructions on compressed gas cylinders, associated equipment, and CGA publication P-I, "Precautions for Safe Handling of Compressed Gases in Cylinders," available from the Compressed Gas Association, 14501 George Carter Way Chantilly, VA 20151.

FOR ELECTRICALLY POWERED EQUIPMENT.

8.a. Turn off input power using the disconnect switch at the fuse box before working on the equipment.

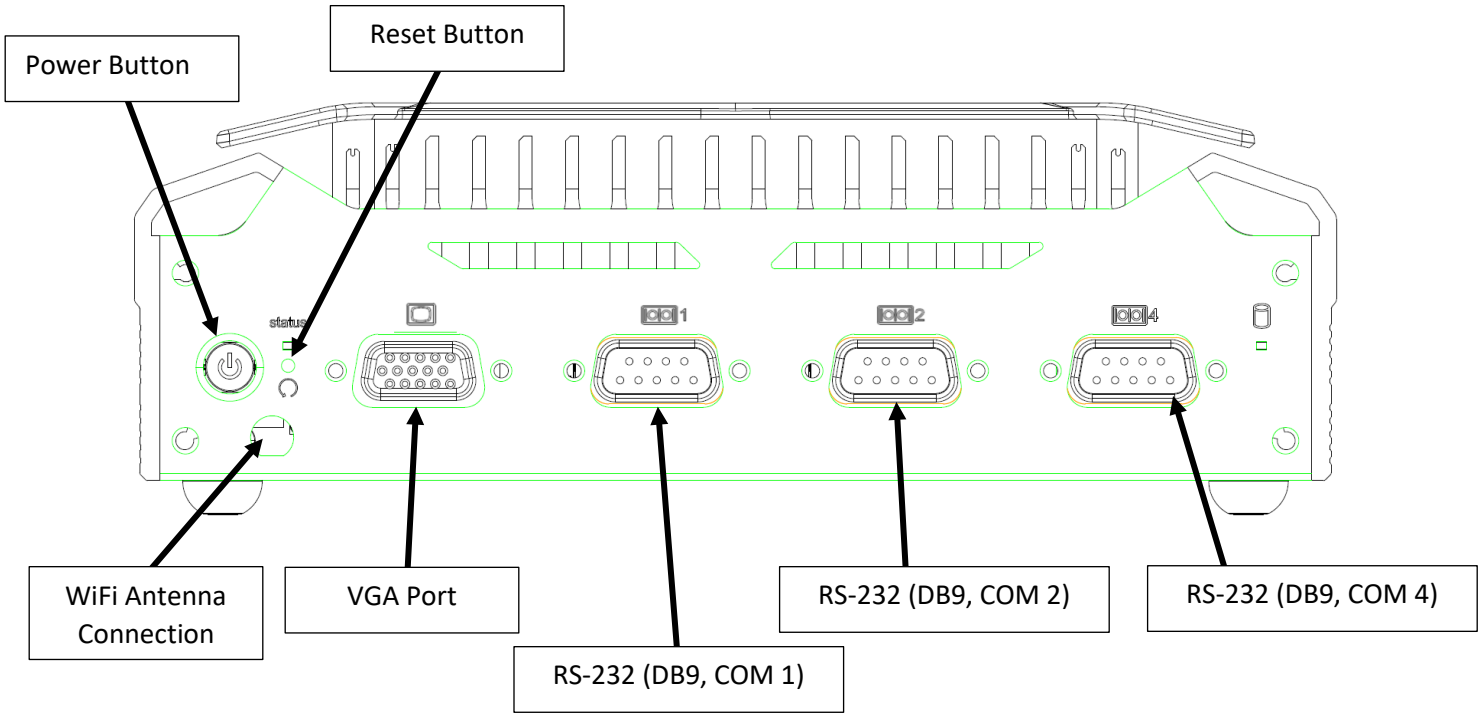
8.b. Install equipment in accordance with the U.S. National Electrical Code, all local codes and the manufacturer's recommendations.

8.c. Ground the equipment in accordance with the U.S. National Electrical Code and the manufacturer's recommendations.

Refer to http://www.lincolnelectric.com/safety for additional safety information.

PORTS AND LABELS

Side A (Font View)



Side B (Back View)

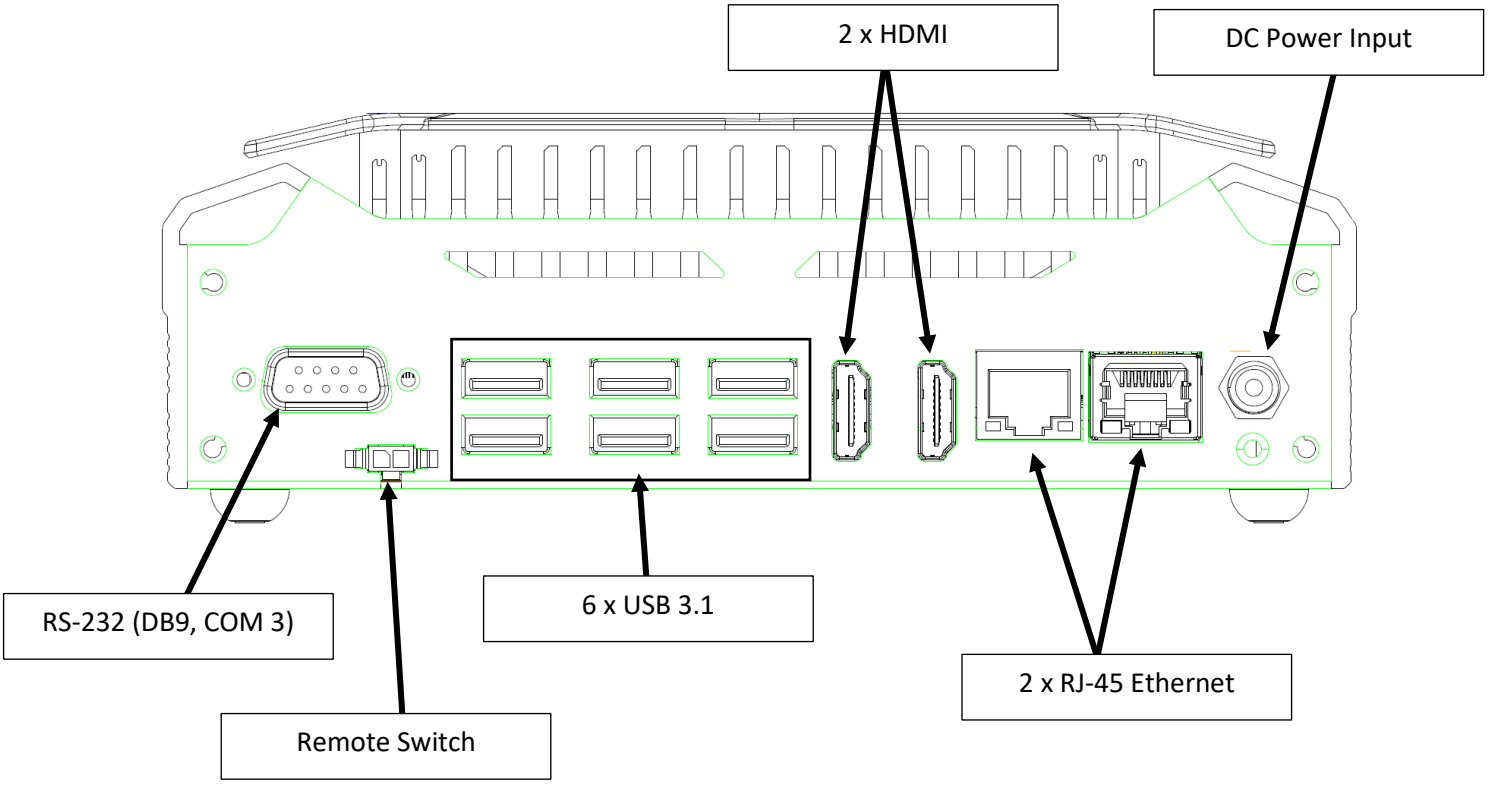


Table of Contents

LAN Controller

Starting the LAN Controller

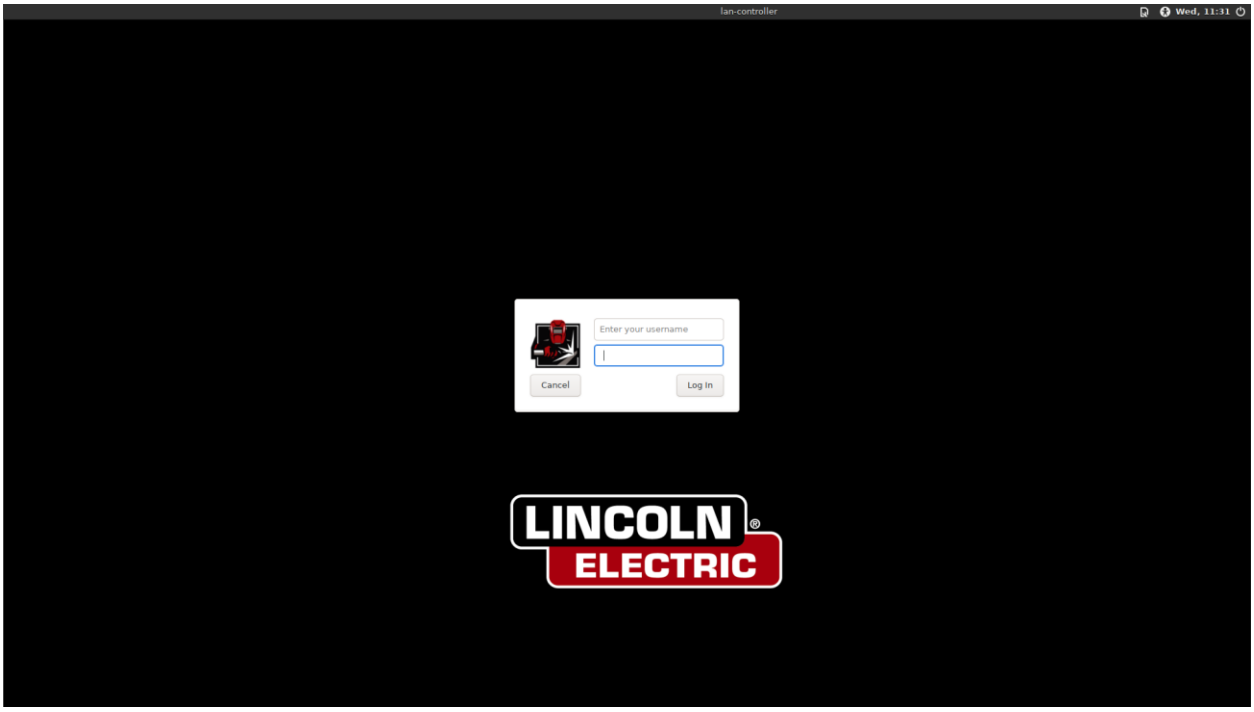
Once you've unpacked the LAN Controller, do the following:

1. Make sure the included WiFi antenna has been attached to the system securely.
2. Attach a keyboard and mouse to any of the available USB ports.
3. Attach a display to any one of the D-SUB/VGA or HDMI ports.
4. Attach and secure the power supply.
5. Press the power button at the front of the system.

LAN Controller Desktop

Desktop Login

Once the LAN Controller has started, you will be presented with a login prompt.

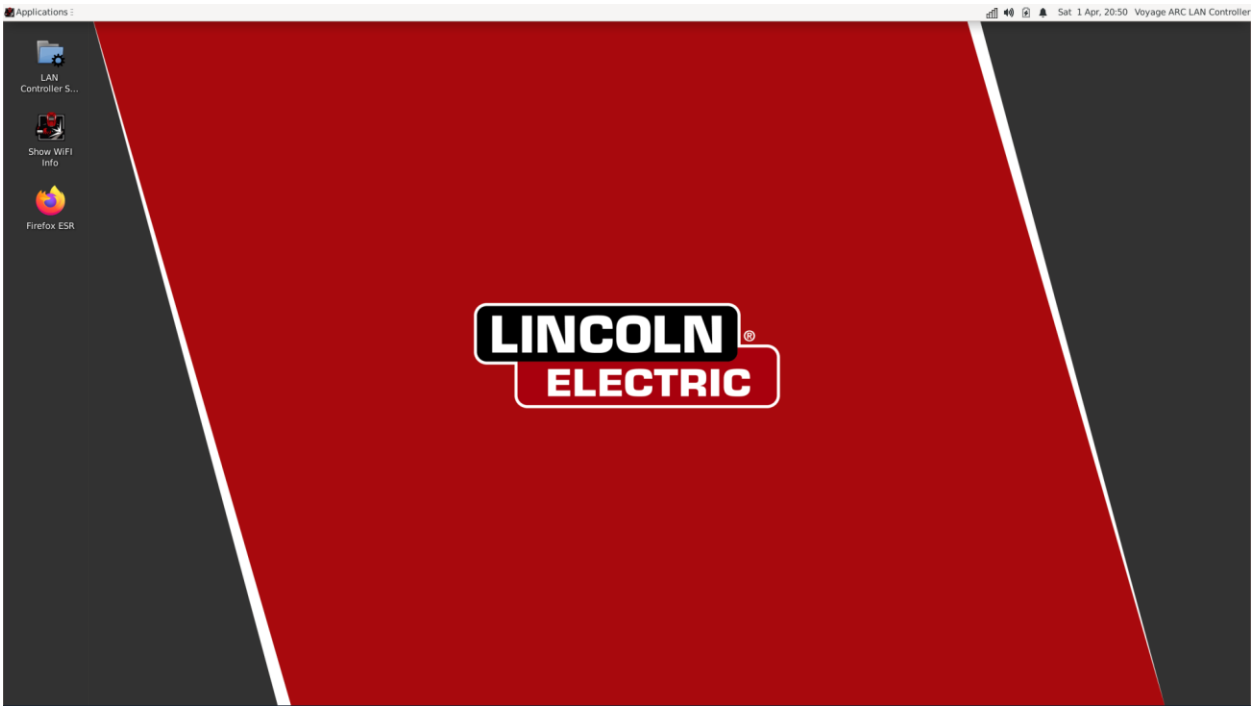


Desktop Login:

Username:	voyage
Password:	1895@EuclidOhio

Desktop

Upon login, you will be presented with the LAN Controller Desktop.



There are three core feature in the desktop interface presented as the icons in the upper-left portion of the desktop:

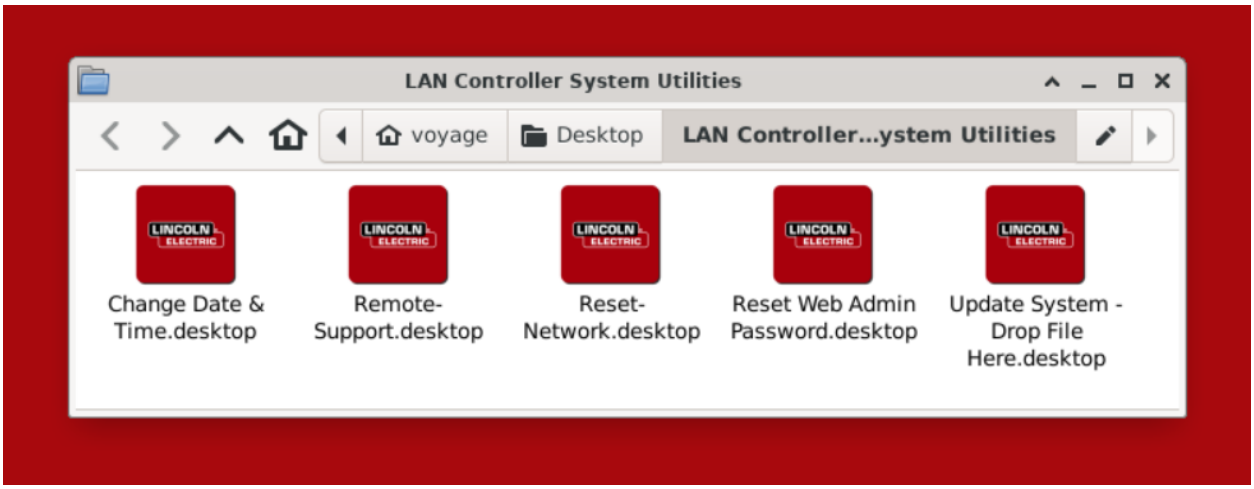
1. Show WiFi Info
2. LAN Controller System Utilities
3. Firefox ESR

Show WiFi Info

This utility is included in the event a new or existing device needs to reconnect to the WiFi network. Starting the utility will display the WiFi network name and password. To exit, press the escape key once to exit full screen. Press the escape key again or close the window to exit.

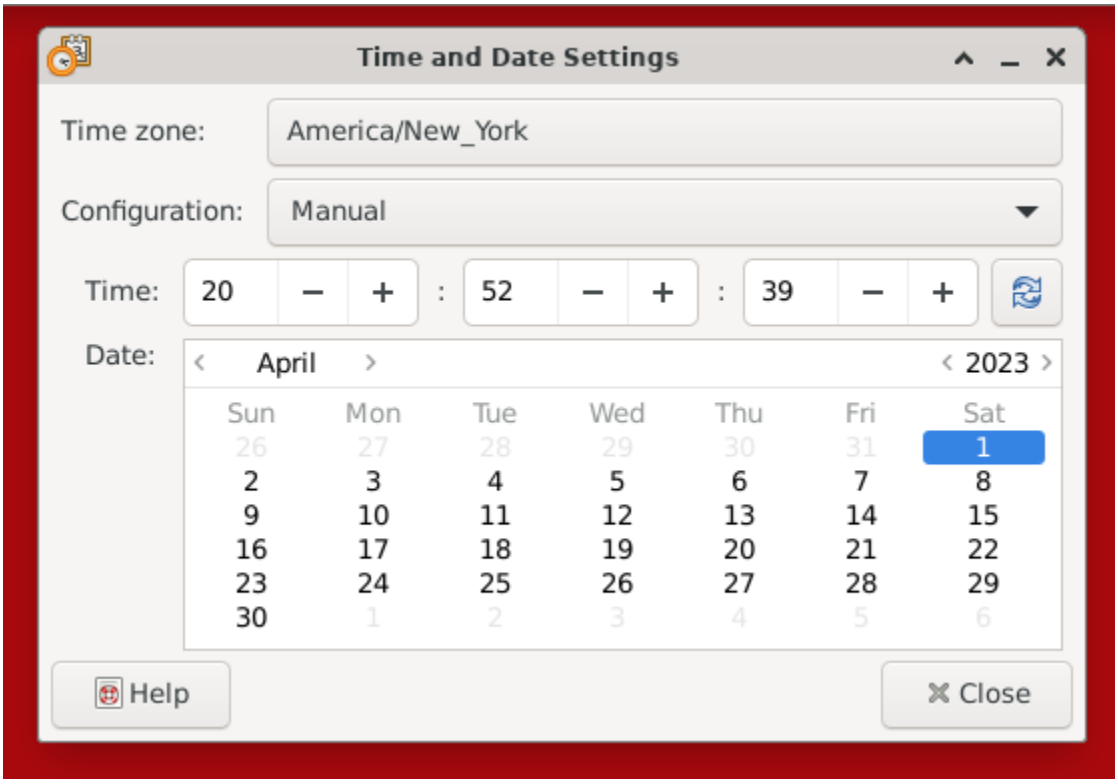
LAN Controller System Utilities

This folder contains the following system utilities:



1. Change Date & Time
2. Remote Support
3. Reset Network
4. Reset Web Admin Password
5. Update System

Change Date & Time

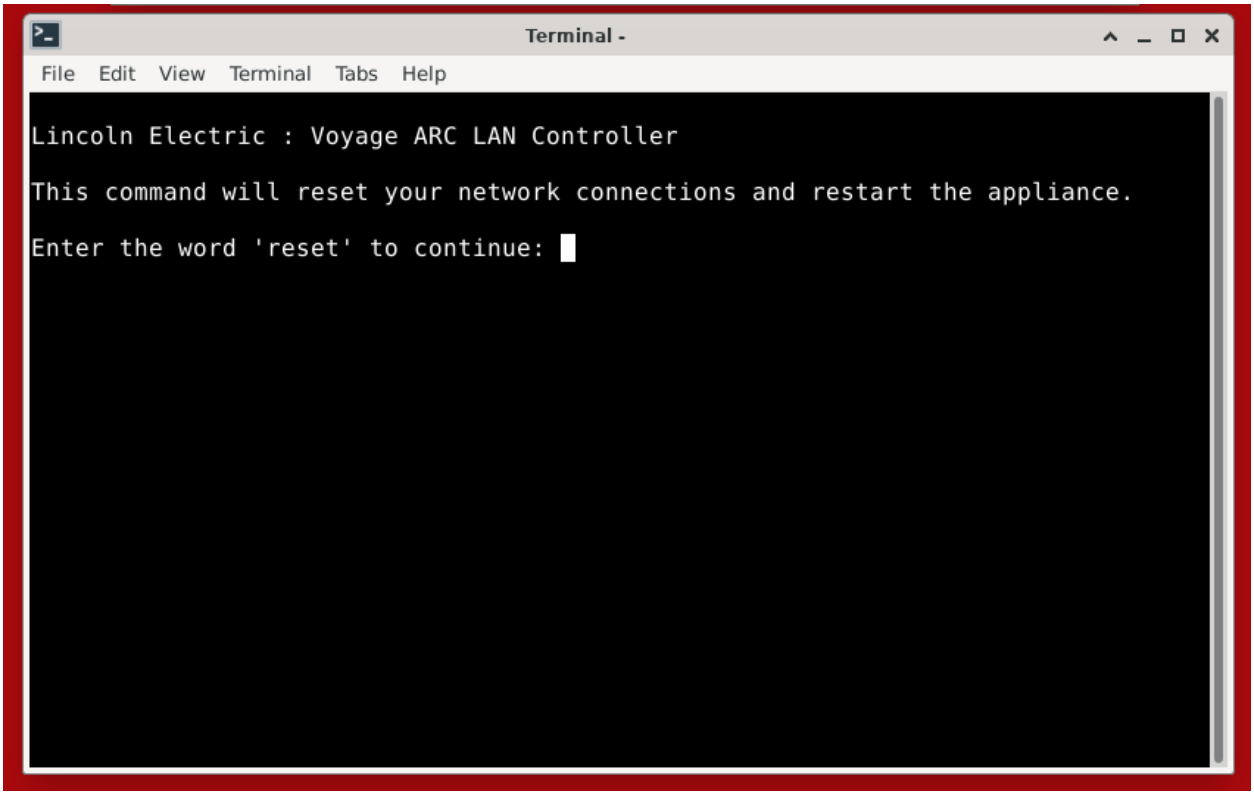


Select this utility to update the date, time, and time zone for the LAN Controller if necessary.

Remote Support

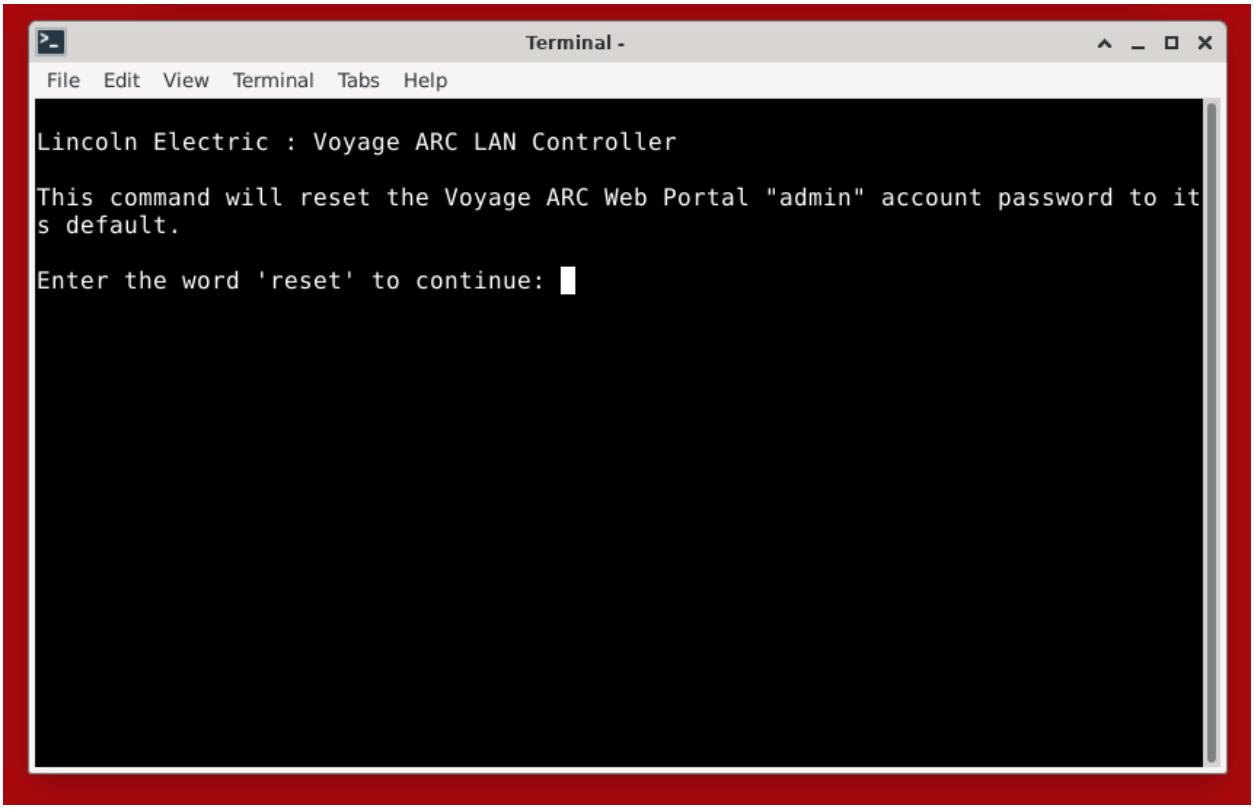
This feature is an advanced support option. Additional usage instructions will be provided if necessary.

Reset Network



In the event any of the default network settings have been changed, running this utility will reset the current network configuration. To apply the change, the system will be automatically rebooted.

Reset Web Admin Password



This utility will reset the Web Portal's *admin* account's password to its default. This applies only to the Web Portal and will not change the Desktop login.

Update System

This utility will allow you to use drag and drop to securely install updates. Future updates will provide further instruction that may vary by distribution method.

Web Browser (Firefox ESR)

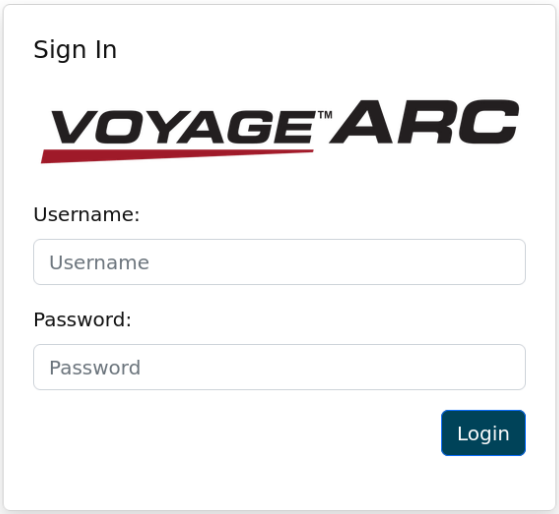
The LAN Controller Desktop includes the Firefox ESR web browser for use accessing the Web Portal.

Web Portal

The Web Portal allows you to add Classes, create Users accounts, and track progress in realtime on the Leaderboard. To access the LAN Controller Web Portal, start Firefox ESR from the desktop and sign-in.

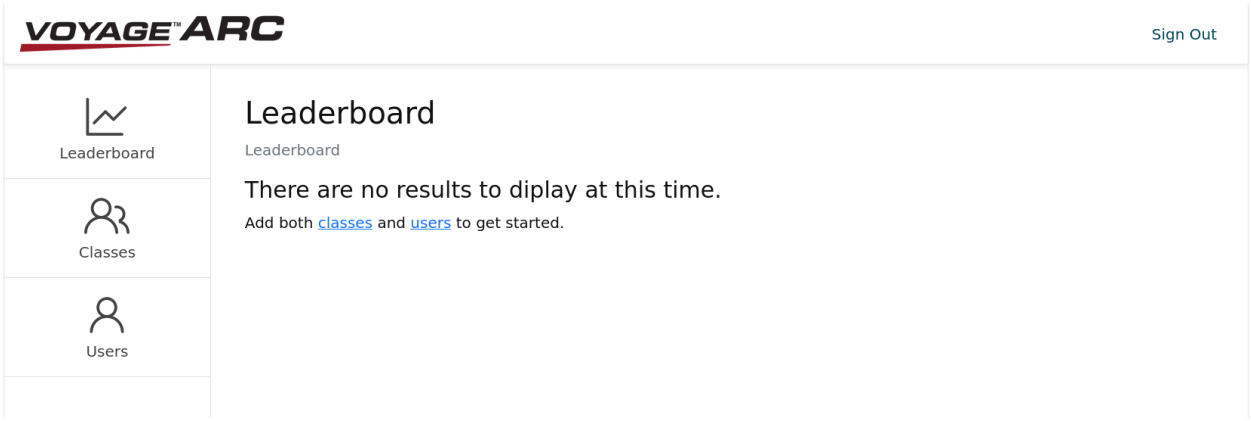
Signing-In

You will be presented with the default login page. If you have reset the default page for the browser you can navigate to the URL in the table below and login.



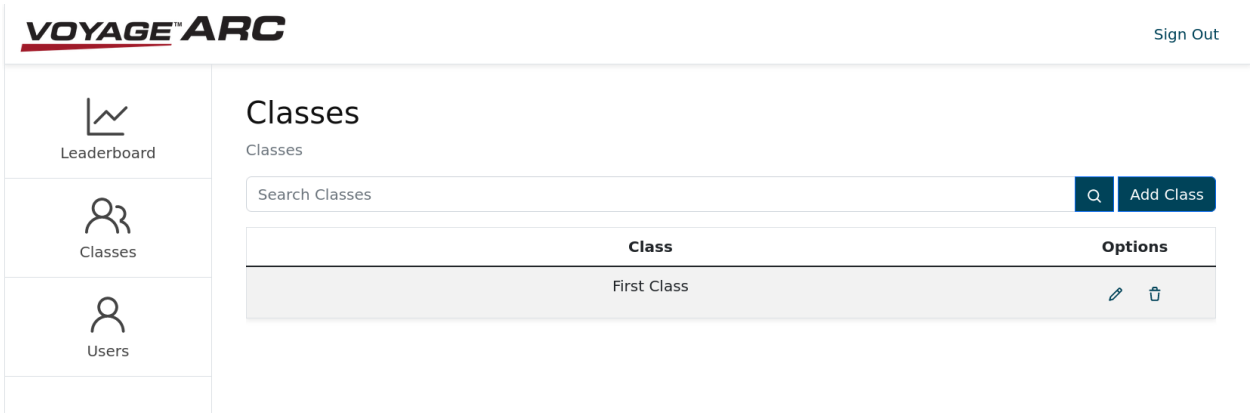
URL:	https://lan-controller.voyage-arc.mercuryxrs.com/
Username:	admin
Password:	welding

Once you've signed in, you will be presented with the initial Leaderboard prompting you to add Classes and Users. Once Classes and Users have been added, they will appear on this page.



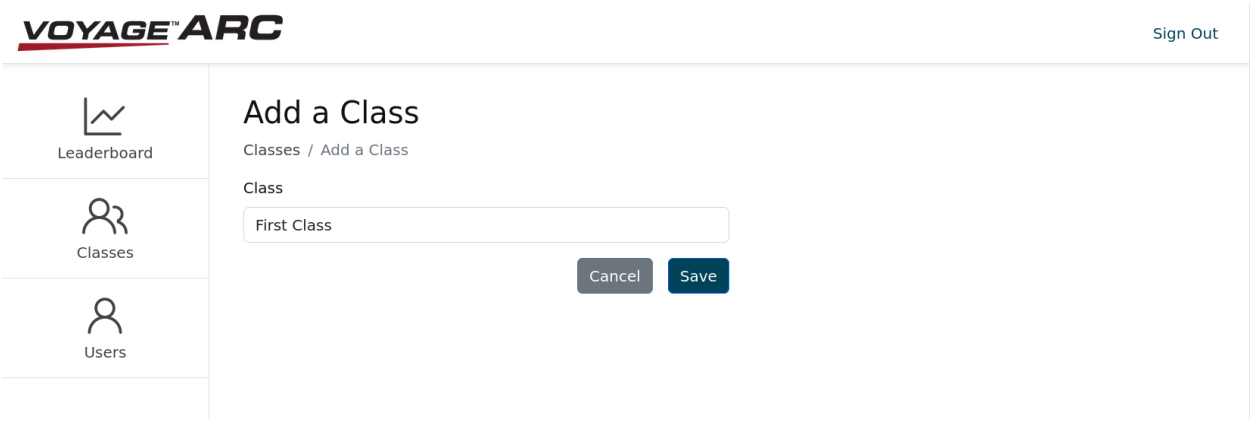
Classes

Classes are the primary unit of organizing your Users. All Users in the Student Role must belong to a Class to them to appear on the Leaderboard. Clicking the Classes link will present you with a searchable list with options to Add, Edit, or Delete Classes.



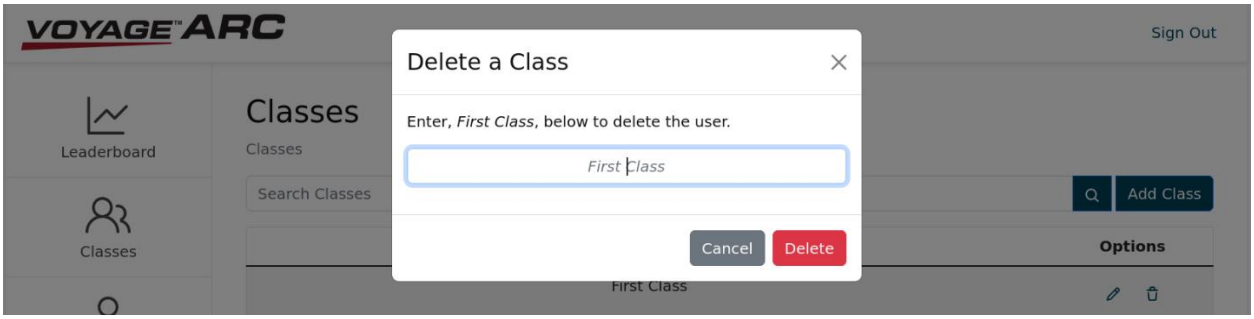
Adding and Editing Classes

To add or edit a Class, click the applicable link and enter a unique name. Click Save to save your changes. If you've added a Class you will be prompted to add another. If you're editing, a confirmation message will appear and you may make additional changes to the Class.



Deleting a Class

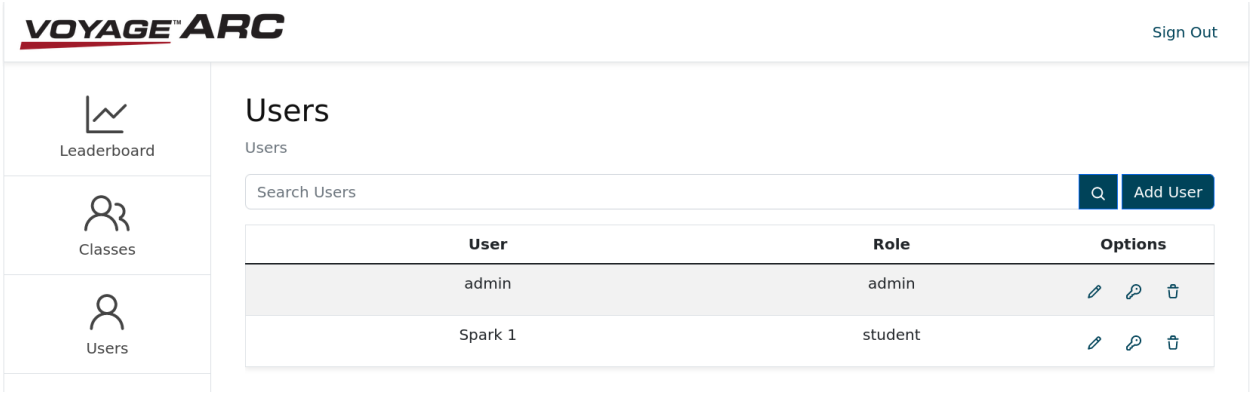
You may delete a Class from the Class list page. You will be prompted to confirm the deletion and, once complete, your Class will have been removed.



Note: *Deleting a Class does not delete its Users. However, deleting a Class that has Users in it will prevent those Users from appearing on the Leaderboard. Only Users assigned to a Class appear on the Leaderboard. Users may be assigned a new Class in the User Editor.*

Users

The Users page provides all account management options for Administrators and Students. This page provides a searchable list of accounts with options to add, edit, delete and change the password for users.



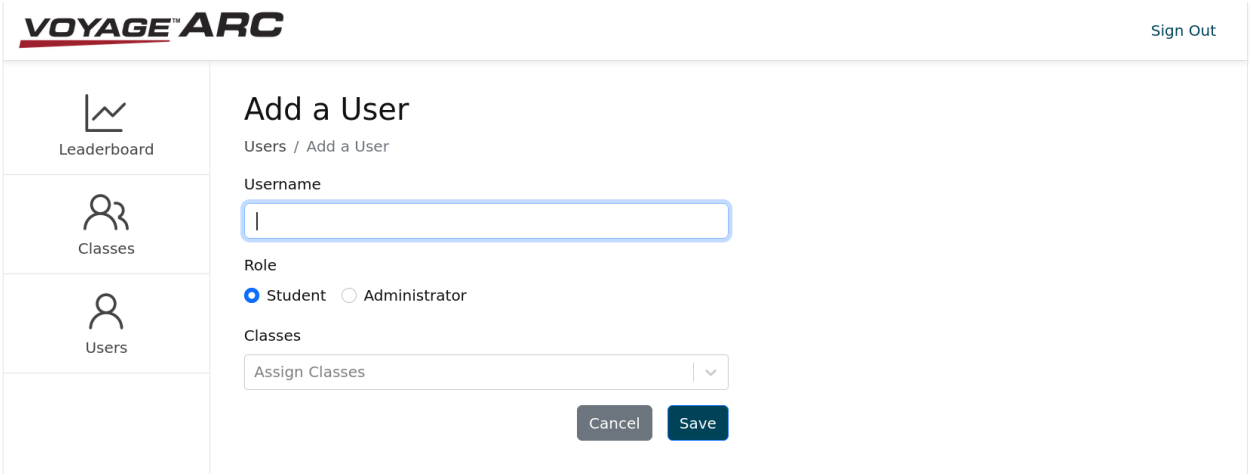
Roles

The following Roles are available for the LAN Controller:

Role	***Description***
Administrator:	Users who may log-in to the Web Portal, manage Users and Classes, and view the Leaderboard. These users will require a password to sign-in to the Web Portal. ***Note:*** *Users in this Role will not appear on the Leaderboard.*
Student:	Users who are able to sign-in to courseware and have their progress tracked on the Leaderboard. These users do not require a password.

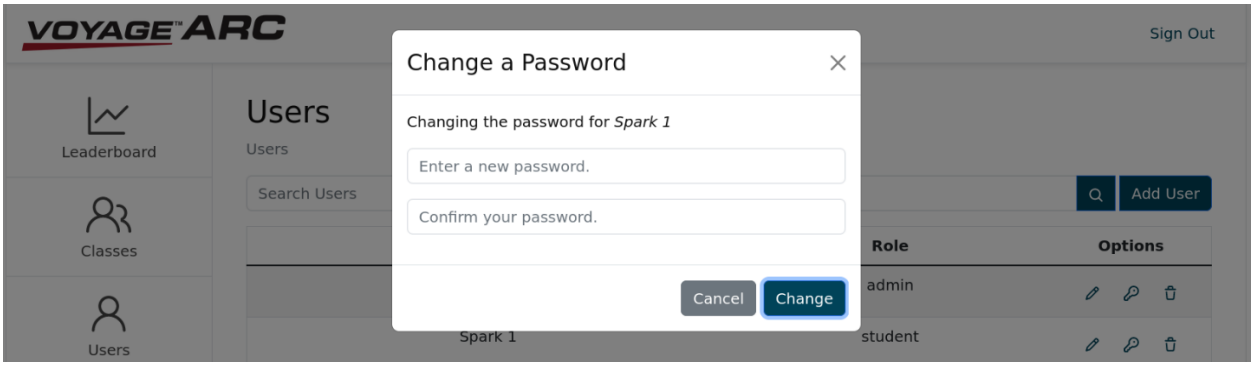
Adding and Editing Users

To Add or Edit a User, you must enter a unique Username and select the appropriate Role. In the case of the Student Role, you will be required to select at least one Class. If the Administrator Role has been selected, you will be prompted to enter and confirm a Password for the account.



Changing A Password

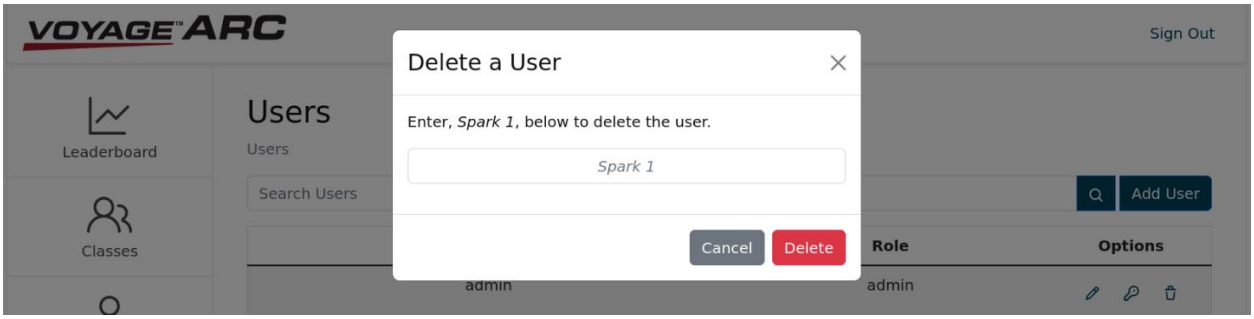
To change a password for a User, click the key icon next to the desired User and enter and confirm a new password to continue.



Note: *If you've changed the admin account password and are no longer able to sign-in, you can use the Reset Web Admin Password Utility available in the System Utility folder on the desktop.*

Deleting a User

To delete a user, click the icon next to the desired user and confirm the deletion.



Warning: *A deleted user cannot be restored at this time.*

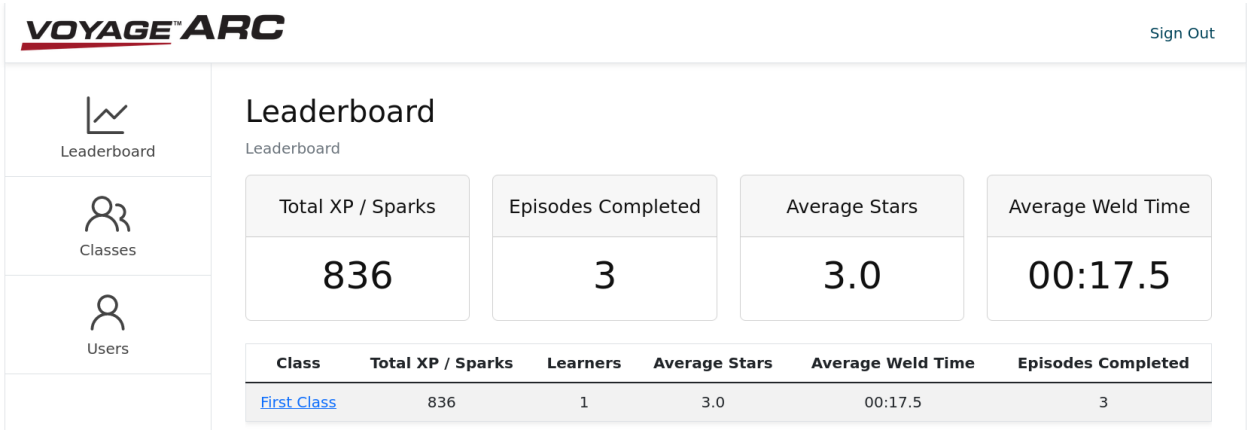
Note: *In the event the admin account was deleted, simply restart the LAN Controller and the account will be added back to the Web Portal automatically.*

Leaderboard

The Leaderboard is a three-tiered report that starts with high-level statistics for all Classes and for each individual Class. The second tier allows you to see progress statistics for a Class and individual Students. Finally, the third tier shows results for an individual student.

Leaderboard

This first tier shows statistics for all students as well as aggregate data for each Class. Clicking the Class name will navigate the Admin to the Class Leaderboard.



Overall Stat Cards

Total XP / Sparks:	The total number of Sparks earned by all Students.
Episodes Completed:	The number of Episodes completed including the Tutorial.
Average Stars:	The average of the number of Stars, out of five, received for completing an Exercise.

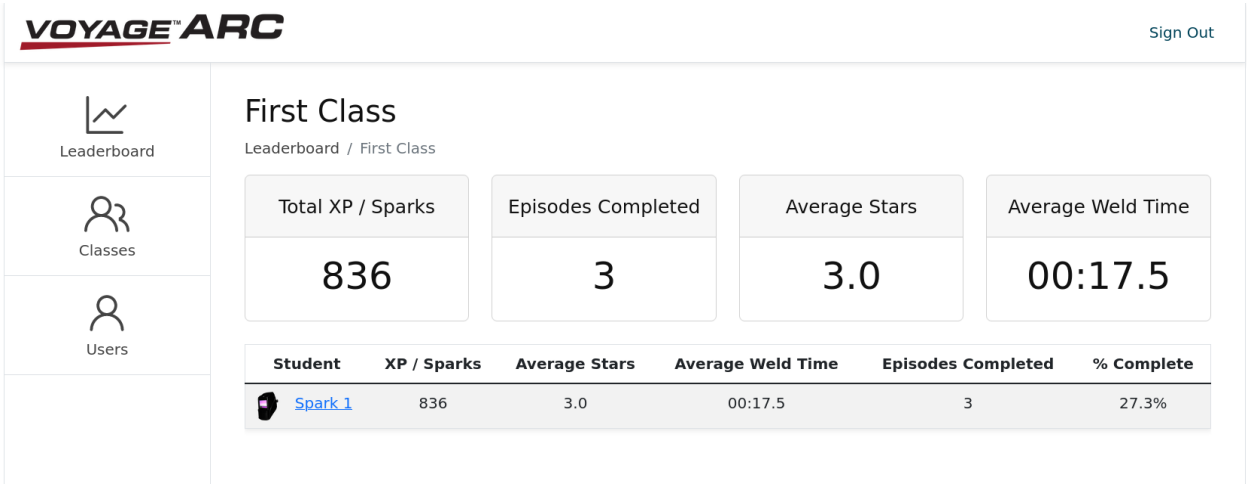
Average Weld Time:	The average time a student needed to complete a weld in *mm:ss.ms* format.

Class Table

Class:	The name of the Class. Clicking this will give you more information about the Class.
Total XP / Sparks:	The number of Sparks earned by the Class for completing Exercises.
Students:	The number of students in a Class.
Average Stars:	The average of the number of Stars, out of five, the Class received for completing an Exercise.
Average Weld Time:	The average time a student in the class needed to complete a weld in *mm:ss.ms* format.
Episodes Completed:	The total number of Episodes completed by the Class.

Class Leaderboard

The Class Leaderboard contains statistics for the Class overall and aggregate information for individual students. Student Progress View can be viewed by clicking the student's Username.



Class Stat Cards

Total XP / Sparks:	The total number of Sparks earned by the Class.
Episodes Completed:	The number of Episodes completed including the Tutorial.

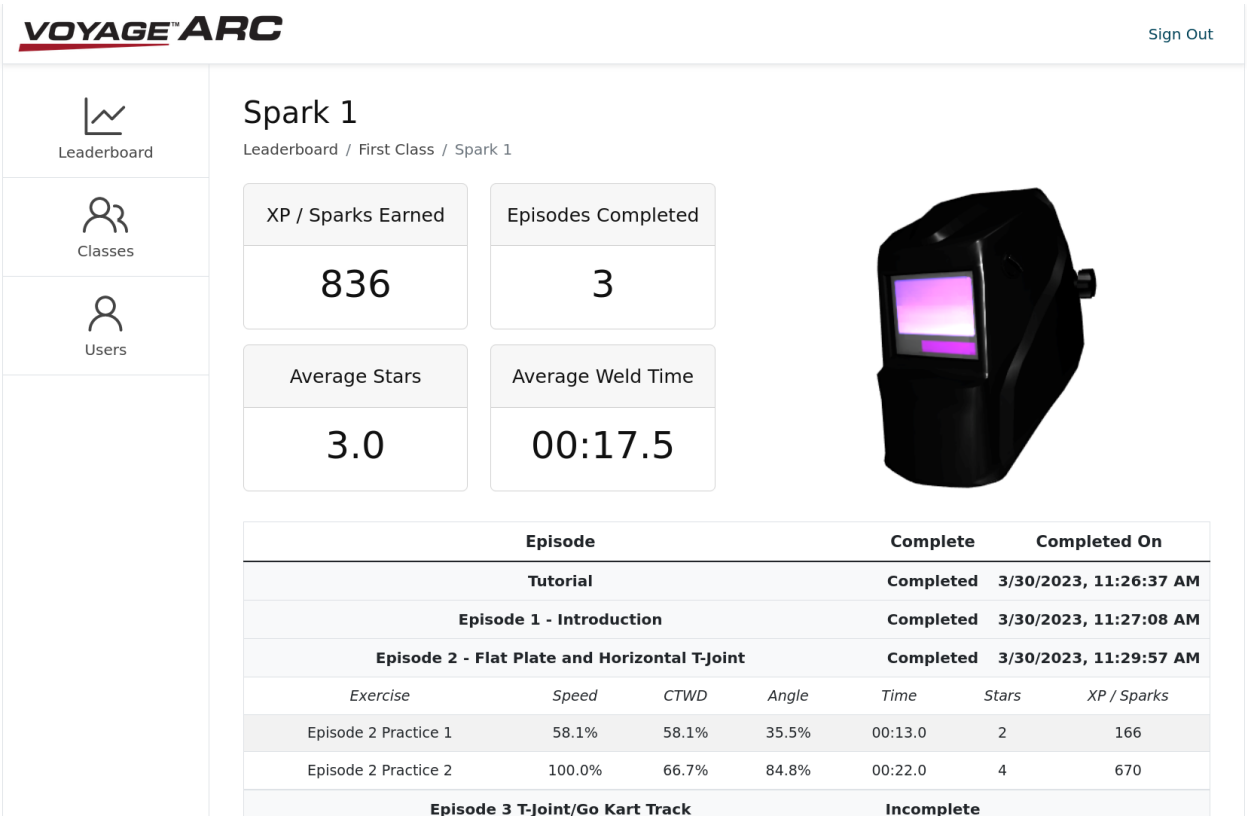
Average Stars:	The average of the number of Stars, out of five, the Class received for completing an Exercise.
Average Weld Time:	The average time a student needed to complete a weld in *mm:ss.ms* format.

Student Table

Student:	This column contains the Username for the Student as well as an icon of the Helmet they selected.
Total XP / Sparks:	The number of Sparks earned by the student for completing Exercises.
Average Stars:	The average of the number of Stars, out of five, the student received for completing an Exercise.
Average Weld Time:	The average time needed to complete a weld in *mm:ss.ms* format.
Episodes Completed:	The total number of Episodes completed.
% Complete	The percentage of all Episodes completed.

Student Progress View

This view shows the progress made by the student as they complete Episodes and Exercises. To the right of the header stats block the student's selected helmet is displayed prominently. Episode completion status and date are displayed and performance for each of the Episode’s Exercises are shown below their corresponding Episode.



Student Stat Cards

Total XP / Sparks:	The total number of Sparks earned by the Class.
Episodes Completed:	The number of Episodes completed including the Tutorial.
Average Stars:	The average of the number of Stars, out of five, the student received for completing an Exercise.
Average Weld Time:	The average time a student needed to complete a weld in *mm:ss.ms* format.

Episode Table

Episode:	The Title of the Episode.
Complete:	Completion status of the Episode*(Complete / Incomplete).*
Completed On:	The date and time the Episode was completed.

Exercise Table

Exercise:	The title of the Exercise.

Speed:	The percentage of total weld time the student maintained a speed that was within the acceptable range for the type of weld.
CTWD:	The percentage of total weld time the student maintained a Contact Tip to Work Distance within the acceptable range for the type of weld.
Angle:	The percentage of total weld time the student maintained an angle with the torch that was within the acceptable range for the type of weld.
Time:	The time to complete a weld in *mm:ss.ms* format.
Stars:	The number of Stars received for the weld out of five total based on the Speed, CTWD and Angle.
XP / Sparks	The number of Sparks earned for completing the Exercise.

CUSTOMER ASSISTANCE POLICY

The business of Lincoln Electric is manufacturing and selling high quality welding equipment, automated welding systems, consumables, and cutting equipment. Our challenge is to meet the needs of our customers, who are experts in their fields, and to exceed their expectations. On occasion, purchasers may ask Lincoln Electric for information or technical information about their use of our products. Our employees respond to inquiries to the best of their ability based on information and specifications provided to them by the customers and the knowledge they may have concerning the application. Our employees, however, are not in a position to verify the information provided or to evaluate the engineering requirements for the particular weldment, or to provide engineering advice in relation to a specific situation or application. Accordingly, Lincoln Electric does not warrant or guarantee or assume any liability with respect to such information or communications. Moreover, the provision of such information or technical information does not create, expand, or alter any warranty on our products. Any express or implied warranty that might arise from the information or technical information, including any implied warranty of merchantability or any warranty of fitness for any customers' particular purpose or any other equivalent or similar warranty is specifically disclaimed.

Lincoln Electric is a responsive manufacturer, but the definition of specifications, and the selection and use of specific products sold by Lincoln Electric is solely within the control of, and remains the sole responsibility of the customer. Many variables beyond the control of Lincoln Electric affect the results obtained in applying these types of fabrication methods and service requirements.

WELD FUME CONTROL EQUIPMENT

The operation of welding fume control equipment is affected by various factors including proper use and positioning of the equipment, maintenance of the equipment and the specific welding procedure and application involved. Worker exposure level should be checked upon installation and periodically thereafter to be certain it is within applicable OSHA PEL and ACGIH TLV limits.

THE LINCOLN ELECTRIC COMPANY
22801 St. Clair Avenue • Cleveland, OH • 44117-1199 • U.S.A.
Phone: +1.216.481.8100 • www.lincolnelectric.com