

NA-3S & NA-4 Controls and Heads

Processes

Flux-Cored, Submerged Arc

Product Number

K210-2 NA-3S Controller
K388-2 NA-4 Controller
K208A NA-3S/NA-4 Head
K209A NA-3SF/NA-4F Head

See Page 4 for additional models and complete specs

AC Input Power

115/1/50/60

Wire Size Range (Varies by Model)

.035 - 7/32 in (0.9 - 5.6 mm)

Wire Feed Speed Range

NA-3S: 25 - 650 ipm (0.6 - 16.5 m/min)
NA-4: Subject to arc voltage used

Net Weight/Dimensions (H x W x D)

NA-3S:

44 lbs. (20 kg)

11.0 x 13.5 x 12.3 in.
(279 x 343 x 312 mm)

NA-4:

35 lbs. (16 kg)

11.0 x 13.5 x 9.70 in.
(279 x 343 x 246 mm)

Automatic Welding Systems

Improve productivity with the NA-3S or NA-4 automatic wire feeders. These systems have been specially designed to deposit more weld metal at fast travel speeds which eliminates bottlenecks and cuts costs.

FEATURES

- ▶ **Operating Versatility** - Easily adapt to a wide range of wire feed speeds and wire sizes.
- ▶ **Compact Units With Excellent Flexibility** - Fit into simple fixtures or the most complex automated production lines.
- ▶ **Rugged Construction** - Minimize downtime and maintenance costs.

RECOMMENDED LINCOLN ELECTRIC POWER SOURCES

- ▶ **NA-3S**
Idealarc® DC-600, DC-655,
DC-1000 and DC-1500
- ▶ **NA-4**
Idealarc® AC-1200



K209A
NA-3SF/NA-4F Head



K210-2
NA-3S



K208A
NA-3S/NA-4 Head



K388-2
NA-4

WHAT'S REQUIRED

- ▶ Nozzle Assembly
- ▶ Control Cable
- ▶ Weld Power Cable
- ▶ Power Source
- ▶ Wire Reel(s) and mounting

WHAT'S INCLUDED

- ▶ 10 ft. (3.1 m) Control Cable
- ▶ Specific Drive Roll Kit with Each Head

INPUT



OUTPUT

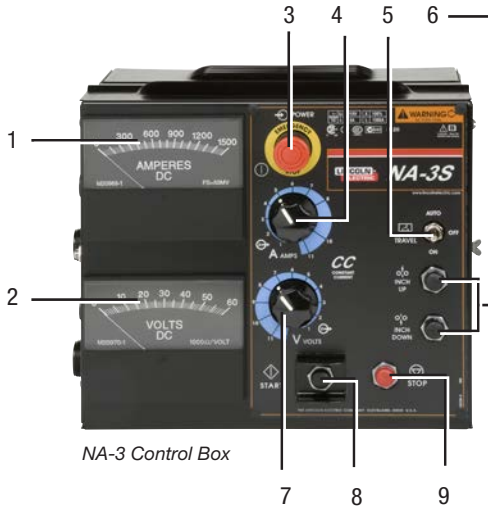


Two Year Extended
Warranty Available in
the U.S.A. and Canada

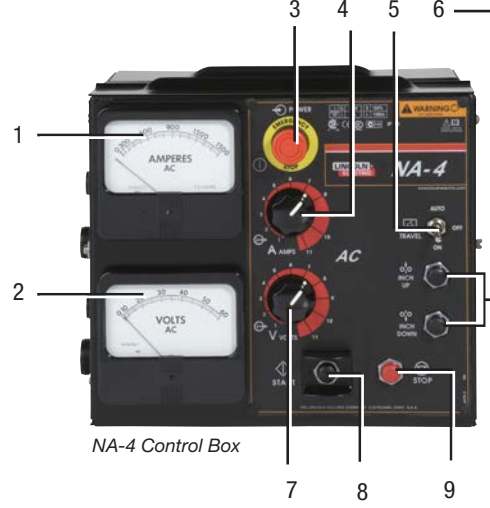
A CLOSER LOOK

1. Ammeter – Indicates current only while welding.
2. Voltmeter – Indicates welding voltage only while welding.
3. Power – Turns wire feeder input power on and off.
4. Current Control – On NA-3S, adjusts wire feed speed to control welding current. On NA-4, adjusts welding current by controlling power source output.

5. Travel – Set to “Off” for no travel; “On” for travel without welding; “Auto” for welding operations.
6. Inch Up and Inch Down – Press to inch electrode at the speed set by “Inch Speed” control on inner panel.
7. Voltage Control – Adjusts arc volts.
8. Start – Pushbutton begins welding cycle.
9. Stop – Pushbutton initiates stopping cycle.



NA-3 Control Box



NA-4 Control Box

NA-3S

Delivers arc sensing or constant wire feed speed control with hot or cold starting for use with either constant current or constant voltage DC power sources.

Applications Include:

- Single and multiple electrode submerged arc.
- Self-shielded and gas-shielded flux-cored welding.

NA-4

Delivers arc sensing control with hot or cold starting for use with constant current AC power sources for submerged arc welding.

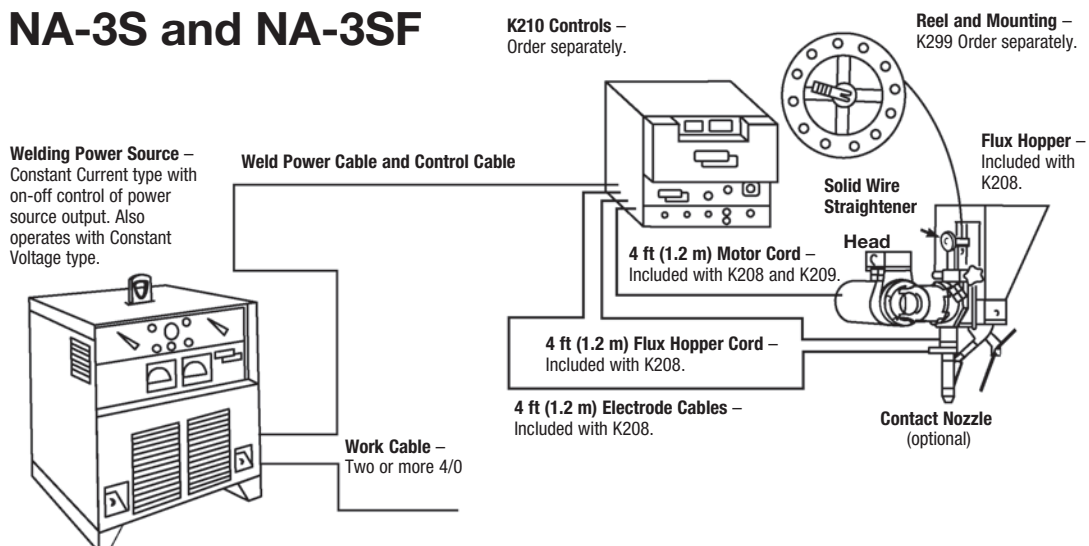
Applications Include:

- AC-AC tandem arc and AC-AC-AC triple arc systems.
- Single electrode submerged arc when arc blow limits the DC welding current and travel speeds.

SYSTEM CONFIGURATION

AC Input Power required for all models is 115 (110) volts, 60 or 50 hertz of 360 volt-amperes capacity for the head and controls. An additional 250 volt-amperes is required for the Lincoln travel carriage and more may be needed for other travel mechanisms. This power is obtained from the welding power source.

NA-3S and NA-3SF





SINGLE ELECTRODE

Submerged Arc Contact Nozzle Assembly

For 5/64 thru 3/16 in. (2.0 thru 4.8 mm) electrode at currents generally below 600 amps. Outer flux cone gives full flux coverage with minimum consumption.

Order K231-1



Innershield® Positive Contact Nozzle Assembly

For welding with Innershield® flux-cored wire at high currents. Optional water cooling attachment (T12928) recommended for currents over 600 amps.

Order

K148A for 3/32-1/8 in. (2.4-3.2 mm) wire

K148B for 5/32-3/16 in. (4.0-4.8 mm) wire



Concentric Flux Cone Assembly

For use with K148, K148 with a K149, or K129 nozzles. Gives concentric flux coverage around the electrode.

Order K285



Narrow Gap Deep Groove Nozzle

Water cooled submerged arc nozzle for welding in a 5/8 in. (15.9 mm) minimum gap up to 10 in. (254 mm) deep. Includes flux delivery tube, flux hose and rackets to permit nozzle rotation, and two contact tips.

Order K386



Contact Jaw Assembly

Rugged contact jaws for maximum life at currents over 600 amps. For 1/8 in. thru 7/32 in. (3.2 thru 5.6 mm) diameter wire.

Order K226R



Contact Nozzle Extension

Linc-Fill™ attachment for K148A or K148B. Required for long stickout welding technique [2 - 5 in. (51-127 mm)].

Order

K149-5/32 for 5/32 in. (4.0 mm) wire



5 in. Nozzle Extension

Extends the wire by 5 inches [up to 1/4 in. (6.4 mm) diameter wire]. For K231-X only.

Order KP2721-1



K231 Nozzle Contact Tips

Order

Severe Duty

KP2082-2B1

for 5/64 in. (2.0 mm) wire

KP1962-3B1

for 3/32 in. (2.4 mm) wire

KP1962-1B1

for 1/8 in. (3.2 mm) wire

KP1962-4B1

for 5/32 in. (4.0 mm) wire

KP1962-2B1

for 3/16 in. (4.8 mm) wire

KP1962-5B1

for 7/32 in. (5.6 mm) wire



Extended Life

KP3162-3B1

for 3/32 in. (2.4 mm) wire

KP3162-1B1

for 1/8 in. (3.2 mm) wire

KP3162-4B1

for 5/32 in. (4.0 mm) wire

KP3162-2B1

for 3/16 in. (4.8 mm) wire

KP3162-5B1

for 7/32 in. (5.6 mm) wire

GENERAL OPTIONS

Start Controls P.C. Board

Adjusts starting current and voltage on NA-3S installations and voltage only on NA-4 installations for a settable period of time as needed to control penetration, bead size or other factors.

Order K221



Crater Fill Controls P.C. Board

Adjusts ending current and voltage on NA-3S installations and voltage only on NA-4 installations for a settable period of time as needed to control bead size or fill craters.

Order K245



Horizontal Head Adjuster

Provides crank adjustment of head position. Has 2 in. (51 mm) horizontal travel.

Order K96



Vertical Lift Adjuster

Provides 4 in. (102 mm) hand crank adjustment of vertical head position. It also includes up to 3-3/4 in. (95.2 mm) in-and-out horizontal adjustment with stops that can be preset for simple repetition of the same adjustment.

Order K29



TC-3 Self-Propelled High Capacity Travel Carriage

Carries head and controls in either direction on a beam of suitable length. The TC-3 operates either automatically with the weld controls or manually. The speed range, set with a continuous, calibrated speed control without gear changes, for the available model is 5-75 ipm (0.1-1.9 m/min). Plugs into the 115 (110) volt AC, 60 or 50 hertz travel receptacle of the Automatic Control Box.

Order K325HCS



Mounting Kit

For mounting control box to the TC-3 Travel Carriage.

Order T14469

Flux Hopper Kit

For submerged arc welding. Includes electric flux valve.

Order K219



Wire Reel Assembly

Includes wire reel for 50-60 lb. (22.7-27.2 kg) coils, wire reel mounting and brake.

Order K299



Solid State Spreadarc

Oscillate the head across the line of travel. For hardfacing build-up using a Twinarc® or single arc nozzle. Calibrated dwell time and oscillation speed controls permit the Spreadarc to cover large areas quickly with smooth beads of minimum admixture. Flux-cored electrode, open arc and submerged arc procedures can be used.

Order K278-1



TWINARC®

Tiny Twinarc® Contact Assemblies

Feeds two electrodes for high speed submerged arc welds. Includes contact nozzle, wire guides, drive rolls and guides, and a second wire reel and mounting bracket.

Order

K129-1/16

for 1/16 in. (1.6 mm) wire

K129-5/64

for 5/64 in. (2.0 mm) wire

K129-3/32

for 3/32 in. (2.4 mm) wire



Large Wire Twinarc®

Feeds two 5/64, 3/32, or 1/8 in. (2.0, 2.4, or 3.2 mm) electrodes for high speed submerged arc welding on "Fast Fill" joints or hardfacing beads.

Order K225



Tiny Twinarc® Wire Straightener

Straightens wire diameters .045 in. thru 3/32 in. (1.2 thru 2.4 mm). Particularly valuable on longer electrical stickout procedures.

Order K281



TANDEM ARC

Tandem Arc Framework

Provides mountings with desired positioning adjustments for two standard Automatic Wire Feed Heads. Includes insulation and hardware to permit direct mounting to a high capacity TC-3 Carriage, or to the user's gantry or fixture for either direction of travel.

Order K387



Tandem Arc Wire Reels

For mounting two wire reels on TC-3 Travel Carriage.

Order K390



Flux Hopper for Tandem Arc

Flux Hopper for K387 mountings.

Order K389

RECOMMENDED ACCESSORIES

WELD POWER CABLES

Product Number	Description
K2163-35	Lug to Lug, 4/0, 35 ft. (10.7 m) (Two cables per package)
K2163-60	Lug to Lug, 4/0, 60 ft. (18.3 m) (Two cables per package)
K1842-110	Lug to Lug, 4/0, 600A, 60% duty cycle, 110 ft. (33.5 m)



K1797-L Control Cable Extension.



K1798 Control Cable Adapter.

DRIVE ROLL/GUIDE TUBE KITS

Wire Size in. (mm)	Product Number
3/32 – 7/32 (2.4 – 5.6) 1/16, 5/64, 3/32 (1.6, 2.0, 2.4)	KP1899-1 KP1899-2
.035, .045, .052 (0.9, 1.1, 1.3) .045 – .052 Cored (1.1 – 1.3)	KP1899-3 KP1899-4

CONTROL CABLE, EXTENSIONS AND ADAPTERS

Product Number	Description
K1820-10	Control Cable Female 9 pin to Male 14 pin, 10 ft. (3.1 m)
K1797-10*	Control Cable Extension, Male 14 pin to female 14 pin, 10 ft. (3.1 m)
K1797-25*	Control Cable Extension, Male 14 pin to female 14 pin, 25 ft. (7.6 m)
K1797-50*	Control Cable Extension, Male 14 pin to female 14 pin, 50 ft. (15.2 m)
K1798	Control Cable Adapter Female 14 pin to terminal strip

* Requires K1820-10

PRODUCT SPECIFICATIONS

Product Number	Description	Wire Feed Speed Range ipm (m/min)	Wire Size Range in. (mm)	Gear Ratio
K210-2	NA-3S Controller	25-650 (0.6-16.5)	.035 – 7/32 (0.9-5.6)	--
K388-2	NA-4 Controller	Subject to arc voltage used	.035 – 7/32 (0.9-5.6)	--
K208A	NA-3S / NA-4 Head	Subject to arc voltage used	3/32 – 7/32 (2.4-5.6)	142:1
K208B	NA-3S / NA-4 Head	Subject to arc voltage used	.035 – 3/32 (0.9-2.4)	95:1
K209A	NA-3SF / NA-4F Head	Subject to arc voltage used	3/32 – 7/32 (2.4-5.6)	142:1
K209B	NA-3SF / NA-4F Head	Subject to arc voltage used	.035 – 3/32 (0.9-2.4)	95:1

"F" suffix indicates model for machinery and fixture builders. The following parts are excluded: head mounting, electrode cables, cross seam adjuster, flux hopper and pointer.

**For best welding results with Lincoln Electric equipment,
always use Lincoln Electric consumables. Visit www.lincolnelectric.com for more details.**

Manufactured at a facility with certified ISO Quality and Environmental Management Systems.

CUSTOMER ASSISTANCE POLICY

The business of The Lincoln Electric Company is manufacturing and selling high quality welding equipment, consumables, and cutting equipment. Our challenge is to meet the needs of our customers and to exceed their expectations. On occasion, purchasers may ask Lincoln Electric for information or advice about their use of our products. Our employees respond to inquiries to the best of their ability based on information 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. Accordingly, Lincoln Electric does not warrant or guarantee or assume any liability with respect to such information or advice. Moreover, the provision of such information or advice does not create, expand, or alter any warranty on our products. Any express or implied warranty that might arise from the information or advice, including any implied warranty of merchantability or any warranty of fitness for any customers' particular purpose is specifically disclaimed.

Lincoln Electric is a responsive manufacturer, but 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.

Subject to Change – This information is accurate to the best of our knowledge at the time of printing. Please refer to www.lincolnelectric.com for any updated information.