

Power Wave® i400

Processes

MIG, Pulsed-MIG, Flux-Cored,
Metal-Cored, TIG (Lift Start Only)

Product Number

K2669-1

See back page for complete specs

Input Power

200-208/230/380-415/460/575
3 Phase, 50/60 Hz

Rated Output

350A/31.5V/100% Duty Cycle
400A/34V/60% Duty Cycle
420A/35V/40% Duty Cycle

Output Range

5-420A, 10-35V

Enclosure Rating

IP21S

Weight/Dimensions (H x W x D)

209 lbs. (95 kg)

22.7 x 24.4 x 21.5 in.
(577 x 620 x 546 mm)

Universal Certification

CE, C-Tick, CSA_{C/US}.

Intelligent Robotic Solution

The Power Wave® i400 delivers high performance technologies and advanced welding processes all rolled into one highly efficient inverter power source designed for robotic welding operations.

FEATURES

- ▶ **Flexible Design** - Designed for simple, seamless integration with the FANUC® Robotics SYSTEM R-30iA Controller, or use as a separated configuration to meet your weld cell requirements.
- ▶ **Quality and Consistent Welding Results** - Lincoln Electric Waveform Control Technology® gives you the ability to select the right waveform for each application – that means the arc has been optimized for each wire type and size for exceptionally smooth arc performance.
- ▶ **High Performance Digital Communications** - The Power Wave® i400 can communicate via traditional ArcLink® over a CAN-based network or via ArcLink® XT over an industrial Ethernet connection.
- ▶ **Best in Class Power** - 5-420 amps output delivers the power you need for a wide range of processes and materials, with no derating for pulse waveforms.
- ▶ **Ready to Perform** - Auxiliary outlet offers flexibility to add a fume extraction unit, water cooler, computer or other accessories quickly and easily.
- ▶ **CheckPoint™** - A cloud-based data collection tool allows customers to view and analyze welding data. Track equipment usage, store weld data, configure fault limits and more.



Shown K2669-1

APPLICATIONS

- ▶ Robotic Fabrication

RECOMMENDED WIRE FEEDERS

- ▶ AutoDrive® 4R220
- ▶ AutoDrive® 4R100
- ▶ Power Feed® 10R

INPUT



OUTPUT



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



DESIGN FEATURES

- Fast 120 kHz inverter:
 - Operates at a high efficiency and (.95) power factor at rated output.
 - Capable of operating from a universal input voltage (208 to 575 volts).
- Fan-As-Needed™ (F.A.N.) - reduces power consumption and the amount of debris that gets drawn into the machine by shutting the fan down when it is not needed.
- Engineered Power Distribution:
 - Single power drop saves time and cost.
 - 3 phase input power supplied to robot controller via dedicated reconnect block.
 - 115VAC, 15 amp capacity auxiliary duplex receptacle to power optional water cooler, fume extraction unit, grinder, and computer.
- Recessed connection panel for protection against accidental impact.
- External access to controller mounting hardware.



COAXIAL TRANSFORMER TECHNOLOGY™



Coaxial Transformer Technology™ eliminates inefficiency and power loss. Regardless of the size (power level), a coaxial transformer has superior coupling and efficiency. This is obtained through the coaxial orientation of the primary and secondary windings.

The benefits for the customer include:

- Higher power capabilities with a less complex design.
- Higher efficiency (reduced energy costs).
- Higher reliability (lower stresses on components).
- Proven reliability.



MAINTENANCE AND SERVICE

- Removable left side panel permits easy access to internal components for routine maintenance or repair, even when integrated in a robotic cell.
- Panel mounted status LED indicators allow for quick and easy troubleshooting.
- Lockable on/off power switch on power source for controller/robot. For maintenance purposes power must be disconnected at the wall.
- Mechanical connection to FANUC® controller accessible from exterior of Power Wave® i400 for easy removal of controller.
- Full support of Lincoln Electric Diagnostic Utility software for easy troubleshooting through the Teach Pendant.



The Lincoln Electric Company led the industry with the introduction of ArcLink®, the first digital communications protocol for the arc welding industry. ArcLink® is a protocol, or means of communicating and sharing information between intelligent components for seamless, time-critical data transfer in an arc welding system.



ArcLink® XT extends this communication protocol directly to the FANUC® Robotics controller.

ArcLink® XT Features:

New Standard Features - Ethernet is a standard feature on the Power Wave® i400 with no additional hardware cost and also offers production monitoring as a part of the robotic solution.

Performance Based Design - 100 Mbps, full duplex Ethernet interface offers a reliable and consistent hardware platform for industrial environments, and facilitates future feature expansion.

Lower Cost System - Lower cost system for multi-equipment (multi-arm) through addition of a network Ethernet switch. No additional cards or hardware required.



ArcLink® Features:

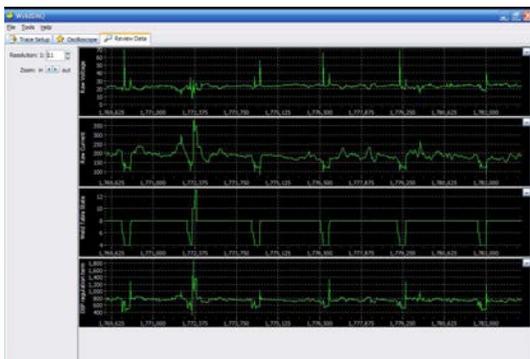
Common User Interface - The Teach Pendant can display actual volts, wire feed speed, etc, in process specific units.

Reduced Set-up Time - As an ArcLink® device, all communication with the robot controller, power source and wire feeder are automatically recognized.

Full Access to Welding Database - Search by process, material, and procedure right from the Teach Pendant and access all set-up variables.



HIGH SPEED DIGITAL CONTROL TECHNOLOGY AND FEATURES



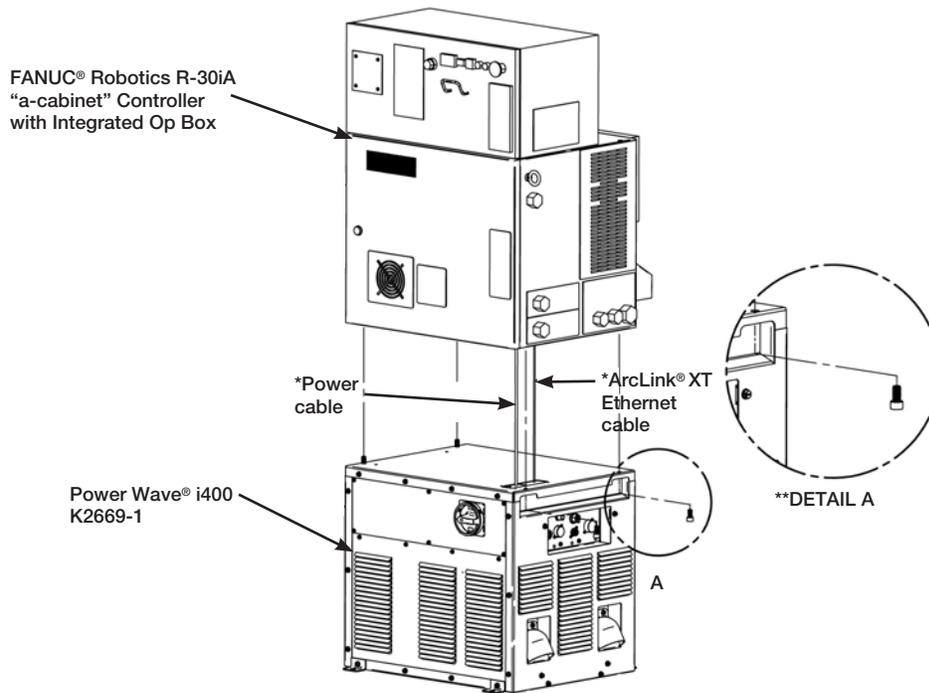
Lincoln Electric features a distributed control architecture design in the Power Wave® i400 system created with future expansion capabilities in mind.

High performance digital controls:

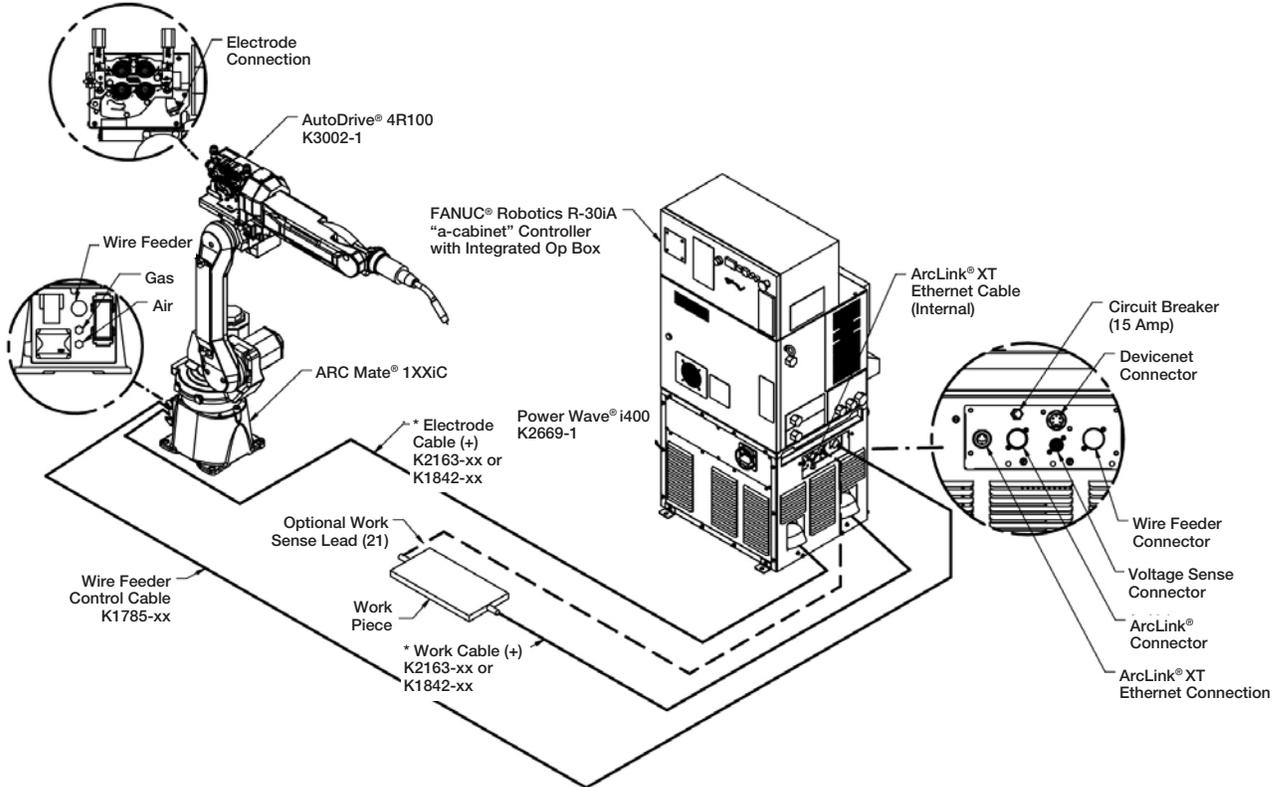
- Over 5000 MIPS processing power
- 100 Mbps full duplex data transfer rate
- 32 Mbytes SDRAM memory
- More than 16 Mbytes FLASH Memory



Easy connection and installation provides for a stress-free commissioning stage. The ease of use and servicing ensures users are efficient and productive with their time.

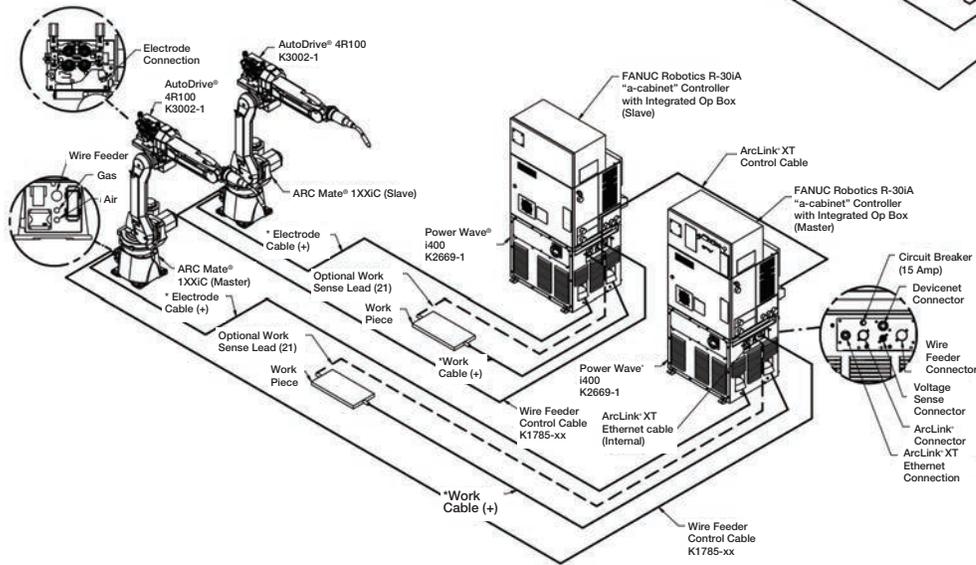
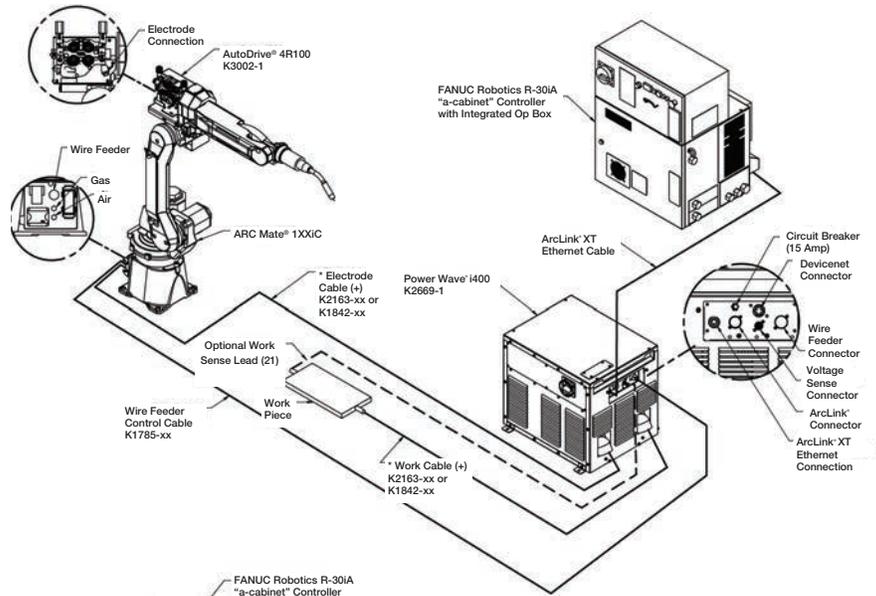


New FANUC® Robotics/Lincoln Electric solution providing the latest technology and features together - the best of robotics and robotic welding combined.



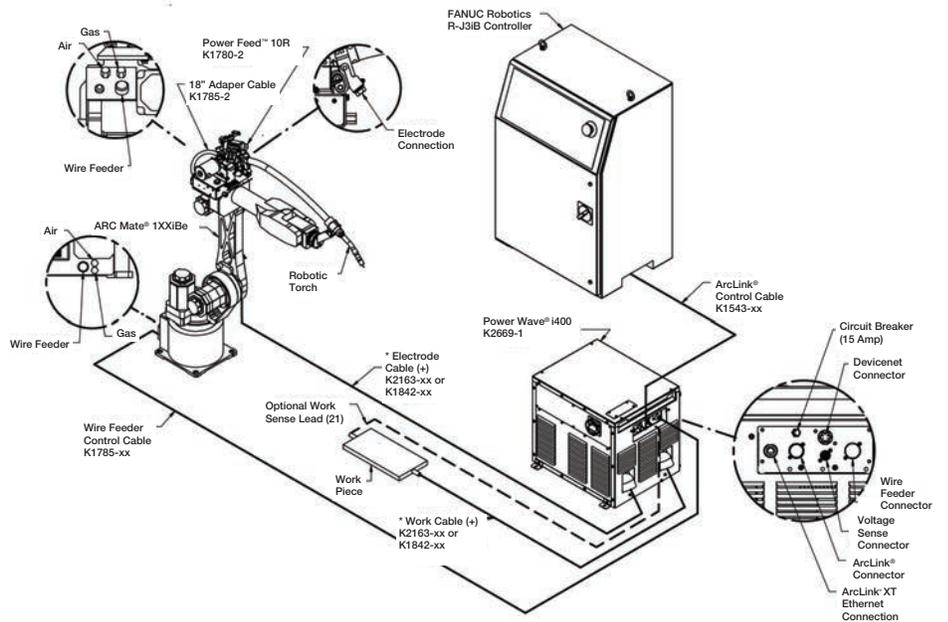
* Refer to Output Cable Guidelines for recommended cable size in Power Wave® i400 Instruction Manual.

Flexible solution for integrated or separated installations. The system adjusts to your needs.



Dual Arm System

Backward compatibility is supported to ensure existing robotic cells can be integrated with Power Wave® i400 (shown here is a Power Wave® F355i replacement).



OPTIONS

WIRE DRIVE CONTROL CABLE (14-pin to 14-pin)

Description	Cable Length ft. (m)	Order Number
For use with FANUC® arms having integrated cable	16 (4.8) heavy duty	K1785-16
	25 (7.6) heavy duty	K1785-25
	50 (15.2)	K1785-50
	100 (30.4)	K1785-100
For external dress of FANUC® arm or hard automation	25 (7.6)	K2709-25
	50 (15.2)	K2709-50
	100 (30.4)	K2709-100



RECOMMENDED ACCESSORIES

GENERAL OPTIONS



Integration Kit

For mounting FANUC® SYSTEM R-30iA Controller directly to Power Wave® i400. Includes industrial ethernet cable, power cable, protective grommets, mounting plate, and dust proof strain relief.

Order K2677-1

CE Filter

Required to meet CE and C-Tick conducted emission requirements. Input power limited to 380-415/3/50/60 with kit installed.

Order K2670-1

DeviceNet™ Kit

Allows the Power Wave® i400 to communicate via DeviceNet™ protocol.

Order K2780-1

Sense Lead Kit

Recommended for extended cable length. Application allows machine to sense voltage directly at the work piece for improved arc performance.

Order K940-25 for 25 ft. (7.6 m)
Order K940-75 for 75 ft. (23 m)



Welding Fume Extractors

Lincoln Electric offers a wide variety of welding fume extraction environmental system solutions, ranging from portable systems easily wheeled around the shop to shopwide central systems servicing many dedicated welding stations.

Request Publication MC08-70.



WIRE FEEDER OPTIONS

AutoDrive® 4R100

The AutoDrive® 4R100 is a compact 4-roll wire drive featuring the MAXTRAC® Wire Drive System. Designed for robotic and hard automation applications, the AutoDrive® 4R100 is optimized for the FANUC® ARC Mate® 100iC arm. The 4R100's small, light weight package maximizes arm speed and working envelope. Learn more in publication E10.12.

Order K3002-1

AutoDrive® 4R220

The AutoDrive® 4R220 is a powerful yet compact 4-roll wire drive for robotic and hard automation applications. It features the MAXTRAC® Wire Drive System and is best for feeding larger diameter wires, pulling wire through long conduits and in applications requiring extra ruggedness. Learn more in publication E10.12.

Order K2685-1



AutoDrive® 19 Controller

Relays wire feed commands from Power Wave® S-Series power source to any AutoDrive® Series robotic wire drive for automated welding operation. Not compatible with Power Wave® R-Series power sources.

Order K3004-1



AutoDrive® 19 Tandem Controller

Relays wire feed commands from Power Wave® S-Series power source to any AutoDrive® Series robotic wire drive for automated tandem welding operations.

Order K3171-1

PRODUCT SPECIFICATIONS

Product Name	Product Number	Input Power ⁽¹⁾ Voltage/Phase/Hertz	Rated Output ⁽²⁾ Current/Voltage/Duty Cycle	Input Current @ Rated Output	Output Range	H x W x D inches (mm)	Net Weight lbs. (kg)
Power Wave® i400	K2669-1	200-208/230/380-	350A/31.5V/100%	40/37/21/18/15A	5-420A 10-35V	22.7 x 24.4 x 21.5 (577 x 620 x 546)	209 (95)
		415/460/575/ 3/50/60	400A/34V/60%	50/45/26/23/18A			
			420A/35V/40%	54/49/28/25/20A			

⁽¹⁾ CE compliance is provided with a CE Filter Kit. Input voltage is limited to 380-415/3/50/60 with kit installed. ⁽²⁾ No derating for CV versus Pulse modes.

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.

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