

IM2075
02/2017
REV00

FLEXTEC 350x CE

OPERATOR'S MANUAL



ENGLISH



THE LINCOLN ELECTRIC COMPANY
22801 St. Clair Ave., Cleveland Ohio 44117-1199 USA
www.lincolnelectric.eu

THE LINCOLN ELECTRIC COMPANY



EC DECLARATION OF CONFORMITY

Manufacturer and technical documentation holder:

The Lincoln Electric Company

Address:

22801 St. Clair Ave.
Cleveland Ohio 44117-1199 USA

EC Company:

Lincoln Electric Europe S.L.

Address:

c/o Balmes, 89 - 8^o 2^a
08008 Barcelona
SPAIN

Hereby declare that welding equipment:

Flextec 350x with CE marking and installed CE filter

Sales codes:

K4420, K4283, K4284, K3441, K3442
(Product numbers may also contain prefixes and suffixes)

Is in conformity with Council Directives and amendments:

Electromagnetic Compatibility (EMC) Directive 2014/30/EU

Low Voltage Directive (LVD) 2014/35/EU

Standards:

EN 60974-10:2014 Arc Welding Equipment
Part 10: Electromagnetic compatibility (EMC) requirements

EN 60974-1:2012, Arc Welding Equipment – Part 1: Welding Power Sources

CE marking affixed in '16

Samir Farah, Manufacturer
Compliance Engineering Manager
21 December 2016

Dario Gatti, European Community Representative
European Engineering Director Machines
22 December 2016

MCD545a



12/05

THANKS! For having chosen the **QUALITY** of the Lincoln Electric products.

- Please Examine Package and Equipment for Damage. Claims for material damaged in shipment must be notified immediately to the dealer.
- For future reference record in the table below your equipment identification information. Model Name, Code & Serial Number can be found on the machine rating plate.

Model Name:	
.....	
Code & Serial number:	
.....
Date & Where Purchased:	
.....

ENGLISH INDEX

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Technical specifications

K4283-1 FLEXTEC350x CE CONSTRUCTION

K4284-1 FLEXTEC350x CE STANDARD

POWER SOURCE – INPUT VOLTAGE AND CURRENT					
Model	Duty Cycle	Input Voltage ±10%	Input Amperes	Idle Amperes	Power Factor
K4283-1	60% rating	380/460/575 3PH	24/22/22	.13/.16/.27	.87/.77/.62
K4284-1	100% rating	380/460/575 3PH	20/19/18	.13/.16/.27	.84/.70/.61
POWER SOURCE – RECOMMENDED INPUT WIRE AND FUSE SIZE S1					
Voltage	Input Amperes	Fuse (super lag) or Breaker size2	Type S, SJ, SJ0 and SJT flexible cord with ambient temperature of 30°C		Notes
380/3/50	21A	35A	10 AWG (6mm ²)		
460/3/60	19A	35A	10 AWG (6mm ²)		
575/3/60	19A	35A	10 AWG (6mm ²)		
1: Cord and Fuse Sizes based upon the U.S. National Electric Code maximum output.					
2: also called 'inverse time' or 'thermal/magnetic' circuit breakers; circuit breakers that have a delay in tripping action that decreases as the magnitude of current increases.					
RATED OUTPUT					
Process	Duty Cycle	Volts at rated Amperes		Amperes	Efficiency (at rated output)
GMAW (CV)	60%	31.5V		350	0.87/0.86/0.85
	100%	29V		300	0.87/0.86/0.85
GTAW (CC)	60%	24V		350	0.83/0.83/0.82
	100%	22V		300	0.83/0.83/0.81
SMAW (CC)	60%	34V		350	0.88/0.87/0.87
	100%	32V		300	0.87/0.87/0.86
FCAW-GS (CV)	60%	31.5V		350	0.87/0.86/0.85
	100%	29V		300	0.87/0.86/0.85
FCAW-SS (CV)	60%	31.5V		350	0.87/0.86/0.85
	100%	29V		300	0.87/0.86/0.85
RATED OUTPUT IEC60974-1					
DUTY CYCLE		VOLTS AT RATED AMPERES		AMPERES	
60%		34		350	
100%		32		300	
PHYSICAL DIMENSIONS					
MODEL	HEIGHT	WIDTH	DEPTH	WEIGHT	
K4283-1	421 mm	338mm	582mm	41.7kg	
K4284-1				43.9kg	
TEMPERATURE RANGES					
OPERATING TEMPERATURE		STORAGE TEMPERATURE		INSULATION CLASS	
-10°C to 55°C*		-40°C to 85°C		CLASS H (180°C), CLASS F (155°C)	
* Power Source is de-rated at temperatures above 40°C.					
AGENCY APPROVALS					
MODEMARKETLCONFORMITY MARK	MARKET	CONFORMITY MARK		STANDARD	
ALL	US AND CANADA	cCSA _{US}		CAN/CSA – E60974-1 ANSI/IEC – 60974-1 IEC 60974-1	

Electromagnetic Compatibility (EMC)

01/11

This machine has been designed in accordance with all relevant directives and standards. However, it may still generate electromagnetic disturbances that can affect other systems like telecommunications (telephone, radio, and television) or other safety systems. These disturbances can cause safety problems in the affected systems. Read and understand this section to eliminate or reduce the amount of electromagnetic disturbance generated by this machine.



This machine has been designed to operate in an industrial area. To operate in a domestic area it is necessary to observe particular precautions to eliminate possible electromagnetic disturbances. The operator must install and operate this equipment as described in this manual. If any electromagnetic disturbances are detected the operator must put in place corrective actions to eliminate these disturbances with, if necessary, assistance from Lincoln Electric.

Before installing the machine, the operator must check the work area for any devices that may malfunction because of electromagnetic disturbances. Consider the following.

- Input and output cables, control cables, and telephone cables that are in or adjacent to the work area and the machine.
- Radio and/or television transmitters and receivers. Computers or computer controlled equipment.
- Safety and control equipment for industrial processes. Equipment for calibration and measurement.
- Personal medical devices like pacemakers and hearing aids.
- Check the electromagnetic immunity for equipment operating in or near the work area. The operator must be sure that all equipment in the area is compatible. This may require additional protection measures.
- The dimensions of the work area to consider will depend on the construction of the area and other activities that are taking place.

Consider the following guidelines to reduce electromagnetic emissions from the machine.

- Connect the machine to the input supply according to this manual. If disturbances occur it may be necessary to take additional precautions such as filtering the input supply.
- The output cables should be kept as short as possible and should be positioned together. If possible connect the work piece to ground in order to reduce the electromagnetic emissions. The operator must check that connecting the work piece to ground does not cause problems or unsafe operating conditions for personnel and equipment.
- Shielding of cables in the work area can reduce electromagnetic emissions. This may be necessary for special applications.

WARNING

EMC classification of this product is class A in accordance with electromagnetic compatibility standard EN 60974-10 and therefore the product is designed to be used in an industrial environment only.

WARNING

The Class A equipment is not intended for use in residential locations where the electrical power is provided by the public low-voltage supply system. There can be potential difficulties in ensuring electromagnetic compatibility in those locations, due to conducted as well as radio-frequency disturbances.







WARNING

This equipment must be used by qualified personnel. Be sure that all installation, operation, maintenance and repair procedures are performed only by qualified person. Read and understand this manual before operating this equipment. Failure to follow the instructions in this manual could cause serious personal injury, loss of life, or damage to this equipment. Read and understand the following explanations of the warning symbols. Lincoln Electric is not responsible for damages caused by improper installation, improper care or abnormal operation.

	<p>WARNING: This symbol indicates that instructions must be followed to avoid serious personal injury, loss of life, or damage to this equipment. Protect yourself and others from possible serious injury or death.</p>
	<p>READ AND UNDERSTAND INSTRUCTIONS: Read and understand this manual before operating this equipment. Arc welding can be hazardous. Failure to follow the instructions in this manual could cause serious personal injury, loss of life, or damage to this equipment.</p>
	<p>ELECTRIC SHOCK CAN KILL: Welding equipment generates high voltages. Do not touch the electrode, work clamp, or connected work pieces when this equipment is on. Insulate yourself from the electrode, work clamp, and connected work pieces.</p>
	<p>ELECTRICALLY POWERED EQUIPMENT: Turn off input power using the disconnect switch at the fuse box before working on this equipment. Ground this equipment in accordance with local electrical regulations.</p>
	<p>ELECTRICALLY POWERED EQUIPMENT: Regularly inspect the input, electrode, and work clamp cables. If any insulation damage exists replace the cable immediately. Do not place the electrode holder directly on the welding table or any other surface in contact with the work clamp to avoid the risk of accidental arc ignition.</p>
	<p>ELECTRIC AND MAGNETIC FIELDS MAY BE DANGEROUS: Electric current flowing through any conductor creates electric and magnetic fields (EMF). EMF fields may interfere with some pacemakers, and welders having a pacemaker shall consult their physician before operating this equipment.</p>
	<p>CE COMPLIANCE: This equipment complies with the European Community Directives.</p>
	<p>FUMES AND GASES CAN BE DANGEROUS: Welding may produce fumes and gases hazardous to health. Avoid breathing these fumes and gases. To avoid these dangers the operator must use enough ventilation or exhaust to keep fumes and gases away from the breathing zone.</p>
	<p>ARC RAYS CAN BURN: 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. Use suitable clothing made from durable flame-resistant material to protect you skin and that of your helpers. Protect other nearby personnel with suitable, non-flammable screening and warn them not to watch the arc nor expose themselves to the arc.</p>
	<p>WELDING SPARKS CAN CAUSE FIRE OR EXPLOSION: Remove fire hazards from the welding area and have a fire extinguisher readily available. Welding sparks and hot materials from the welding process can easily go through small cracks and openings to adjacent areas. Do not weld on any tanks, drums, containers, or material until the proper steps have been taken to insure that no flammable or toxic vapors will be present. Never operate this equipment when flammable gases, vapors or liquid combustibles are present.</p>
	<p>WELDED MATERIALS CAN BURN: Welding generates a large amount of heat. Hot surfaces and materials in work area can cause serious burns. Use gloves and pliers when touching or moving materials in the work area.</p>
	<p>SAFETY MARK: This equipment is suitable for supplying power for welding operations carried out in an environment with increased hazard of electric shock.</p>

	<p>CYLINDER MAY EXPLODE IF DAMAGED: 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. Always keep cylinders in an upright position securely chained to a fixed support. Do not move or transport gas cylinders with the protection cap removed. Do not allow the electrode, electrode holder, work clamp or any other electrically live part to touch a gas cylinder. Gas cylinders must be located away from areas where they may be subjected to physical damage or the welding process including sparks and heat sources.</p>
	<p>MOVING PARTS ARE DANGEROUS: There are moving mechanical parts in this machine, which can cause serious injury. Keep your hands, body and clothing away from those parts during machine starting, operating and servicing.</p>

The manufacturer reserves the right to make changes and/or improvements in design without upgrade at the same time the operator's manual.

Installation

Read this entire section before installation or operation of the machine.

General Description

The Flextec 350x CE is an inverter based, multi-process, DC power source that has a 5 to 425 Amp output range. The machine is capable of welding in CC and CV modes with common wire types and sizes. The Flextec 350x CE is capable of gouging in either Stick or CV modes. Two units can be paralleled in CC modes for extra gouging power.

The Standard and Construction include GMAW, FCAW, SMAW, and GTAW for a variety of materials including mild steel, some cored wires, gas shielded wires, and aluminum wires. Additional modes are offered supporting reduced open circuit voltages for an added measure of safety. The Flextec 350x CE Standard machine includes an ArcLink mode setting that allows the power source to weld synergic modes.

The Flextec 350x CE Standard is designed to be compatible with the current range of semi-automatic ArcLink wire feeders in addition to the analog and across-the-arc wire feeders. The Flextec 350x CE Standard comes with a 5-pin ArcLink digital feeder connector, a 12-pin remote output connector, and a 14-pin analog feeder connector standard. Voltage sensing is either done at the studs or via a 67 lead when operating with an ArcLink wire feeder.

The Flextec 350x CE Construction machine only comes with a 12-pin remote output connector and is only compatible with across the arc wire feeders and CrossLink™ compatible feeders.

All of the models of Flextec 350x CE come with the CrossLinc™ interface for remote voltage setting with CrossLinc™ compatible feeders or remote controls.

Recommended Processes

Flextec 350x CE is designed for CC-SMAW, CC-GTAW (Touch Start TIG™), CV- GMAW, CV-FCAW-SS, CV-FCAW-G. CAG arc gouging is also supported in the CV and CC modes.

WELD MODE	PROCESS	COMMON MATERIALS	COMMON ELECTRODES
GTAW	TOUCH START TIG® (CC)	STAINLESS, STEEL	
SMAW	STICK-CC	ALUMINUM, STAINLESS, STEEL	6010 6011 7018
CV	MIG (GMAW) FCAW-GS	ALUMINUM, STAINLESS, STEEL	L-50 L-56
CV-INNERSHIELD	FCAW-SS	STAINLESS, STEEL	NR-203 NR-211 NR-440N12

Process Limitations

The Flextec 350x CE is only suitable for the processes listed.

Product Specific Installation Limitations

CrossLinc™ technology uses a communication protocol coupled on the electrode and work cables. For best performance the total voltage drop in the system should be kept under 10V.

CrossLinc™ is not compatible with High Frequency TIG. If HF is in the area, the cables need to be routed as far as possible from each other. Also follow all high frequency best practices, including the driven earth ground.

Design Features

- **Multiple process DC output range:** 5 - 425 Amps.
- **Circuit breaker protected 10 amp auxiliary power** for the Standard, 3 amp auxiliary power for the Construction.
- **Thermostatically protected** with Thermal Light.
- **Simple and Easy to Use**
- **Flexible Multi-Process Capability** – Including stick, TIG, MIG, Flux-cored and CAG.
- **Bright Digital Amp and Volt Meters** – Easy to monitor, even in sunlight, and presettable for precise procedure control, display error codes for troubleshooting.
- **Compact, Durable Case** – Tough IP23 enclosure rating ensures the ability to withstand extreme field environments.

- **Variable Hot Start** – Get the extra starting amperage you need for thick, rusty or dirty material.
- **Variable Arc Control** – In stick mode, vary the arc force to obtain the “soft” or “crisp” arc you want as conditions require. In CV modes vary the pinch or inductance to control spatter, fluidity and bead appearance.
- **Procedure Control** – Utilize ArcLink Feeder capabilities such as user memories, preference options, and procedure lockouts
- **Full-Featured Remote Control Capability** – Use a foot pedal or hand control to remotely vary output up to 100 ft. (30.5 m) away.
- **380 – 575 VAC, 50/60Hz Voltage Input** – Offers the ability to be connected anywhere in the world.
- **Voltage Compensation and Reliable Input Voltage Connection** – Provides consistent operation over $\pm 10\%$ input voltage variation.
- **Easy to Parallel Machines** in CC mode.
- **Severe Duty** – Can be stored outdoors. IP23 Rated.
- **Desert Duty Rated** – Welding outputs are rated for extreme temperature operation up to 55°C - welding output is reduced @ 55°C.
- **ArcLink® Wire Feeder Compatible** – unlock synergic modes to increase productivity and control.
- **Synergic Modes** – for easy, repeatable welds.
- **VRD** – reduces OCV in CC modes when not welding for added safety.
- **Low Operating Cost** – Operates at a high efficiency.
- **Transport** - Reversible handles for ease of lifting.
- **CrossLink™ Technology** allows for remote control of the welding output using the weld cables rather than a control cable when connected to a CrossLink™ compatible wire feeder or remote control.

⚠ WARNING

ELECTRIC SHOCK CAN KILL.
Only a qualified electrician should connect the input leads to the Flextec 350x CE machine. Connections should be made in accordance with local and national electrical codes and the connection diagram located underneath the case top of the machine. Failure to do so may result in bodily injury or death.

COMPATIBLE WIRE FEEDERS – ANALOG & ARCLINK FEEDERS	
PF25M, PF84	POWER FEED SERIES (40VDC INPUT)
PF26, PF44, PF46	POWER FEED SERIES (EXCLUDING PF42 & PF40 FOR FLUX CORED)
ALL MODELS	FLEX FEED SERIES (42VAC INPUT)
ALL MODELS	LN-10, DH-10 (42VAC INPUT)
ALL MODELS	LN-25 PRO SERIES, ACTIVE8

Input and Ground Connections

The Flextec 350x CE comes standard with a power cord. Connect the supply lines to 3 phase power and the ground according to your local and national electrical codes.

Input Fuse and Supply Wire Considerations

Refer to technical specifications for recommended fuse, wire sizes and type of the copper wires. Fuse the input circuit with the recommended super lag fuse or delay type breakers (also called "inverse time" or "thermal/magnetic" circuit breakers). Choose input and grounding wire size according to local or national electrical codes. Using input wire sizes, fuses or circuit breakers smaller than recommended may result in "nuisance" shut-offs from welder inrush currents, even if the machine is not being used at high currents.

Location

Location and Ventilation for Cooling

Place the welder where clean cooling air can freely circulate in through the rear louvers and out through the case sides. Dirt, dust, or any foreign material that can be drawn into the welder should be kept at a minimum. Failure to observe these precautions can result in excessive operating temperatures and nuisance shutdowns.

Tilting

Place the machine directly on a secure, level surface or on a recommended undercarriage. The machine may topple over if this procedure is not followed.

Lifting

The Flextec 350x CE has two handles that can be used to lift the machine.

Both handles should be used when lifting the machine. When using a crane or overhead device to lift using the handles, a lifting strap should be connected to both handles. Do not attempt to lift the Flextec 350x CE with accessories attached to it.

Stacking

The Flextec 350x CE cannot be stacked.

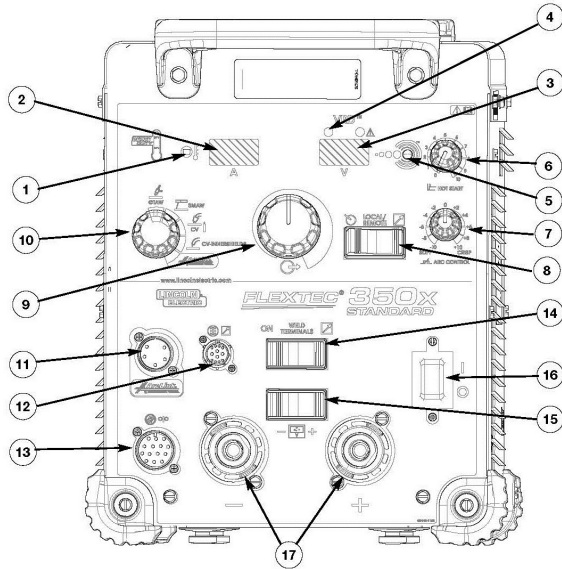
Environmental Limitations

The Flextec 350x CE is IP23 rated for use in an outdoor environment. The machine should not be subjected to falling water during use nor should any parts of it be submerged in water. Doing so may cause improper operation as well as pose a safety hazard. The best practice is to keep the machine in a dry, sheltered area. Do not mount the Flextec 350x CE over combustible surfaces. Where there is a combustible surface directly under stationary or fixed electrical equipment, that surface shall be covered with a steel plate at least .060" (1.6mm) thick, which shall extend not less than 5.90" (150mm) beyond the equipment on all sides.

High Frequency Protection

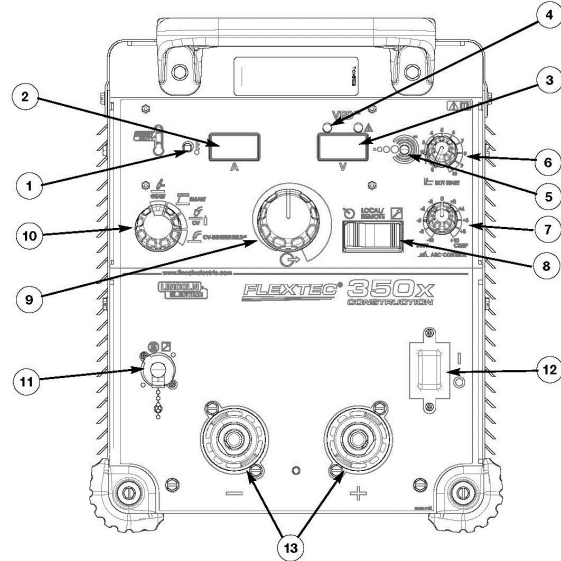
Locate the Flextec 350x CE away from radio controlled machinery. The normal operation of the Flextec 350x CE may adversely affect the operation of RF controlled equipment, which may result in bodily injury or damage to the equipment.

Case Front Control Standard



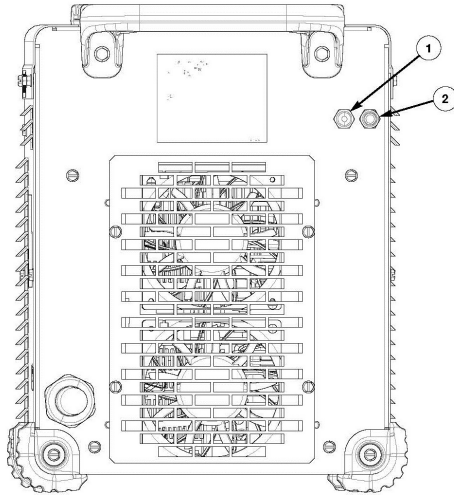
1. **Thermal LED:** A yellow light that comes on when an over temperature situation occurs. Output is disabled until the machine cools down. When cool, the light goes out and output is enabled.
2. **Amperage LCD Display**
3. **Voltage LCD Display**
4. **VRD LED indicators**
5. **Crosslink communication indicator** – When green the power source is connected to a feeder via crosslink.
6. **Hot Start Control Dial** – Full range selection of hot start from 0 to 10.
7. **Arc Force Control Dial:** Full range selection of arc force from -10 to +10.
8. **Local/Remote Selector Toggle Switch:** Choose machine output to be controlled locally through the output control knob or remotely via a remote device connected to the 12-pin connector (i.e. hand amptrol or K870 foot amptrol), 14-pin feeder connector, or through CrossLinc Technology.
9. **Output Control Dial:** Sets the Output Current or Voltage for the selected Weld Process.
10. **Weld Process Selector Switch:** A rotary switch that toggles through the 5 available weld modes for the Flextec 350x CE – CC-SMAW; CC-GTAW; CV; CV-Innershield; ArcLink.
11. **5-pin ArcLink** wire feeder circular connector.
12. **12-pin** remote circular connector for attaching optional remote control devices.
13. **14-pin** wire feeder circular connector for attaching wire feeder control cables.
14. **Weld Terminals On/Remote** selector switch sets output ON all the time or remotely controlled by a wire feeder or remote device.
15. **Wire Feeder Voltmeter polarity** selection switch matches the polarity of the wire feeder voltmeter to the polarity of the electrode.
16. **Power Switch:** Controls input power to the Flextec 350x CE.
17. **Positive and negative welding output connections.**

Case Front Control Construction



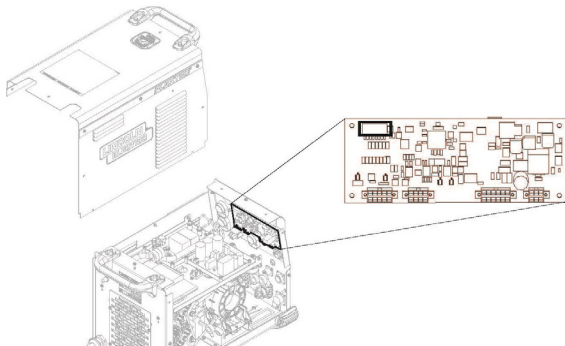
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12. **Power Switch:** Controls input power to the Flextec 350x CE.
13. **Positive and negative welding output connections.**

Case Back Controls



1. **Control Circuit Breaker**
 - 20 amps on all models
2. **Auxiliary Power Circuit Breaker**
 - 10 amps on Standard model
 - 3 amps on Construction model
3. **CE Filter**

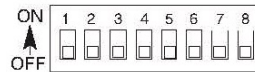
Internal Controls



The User Interface pc board has one bank of dip switches. As shipped from the factory and under normal conditions, the dip switches are all in the 'off' position. There are 3 instances that require a change of the dip switch.

Factory Default Setting

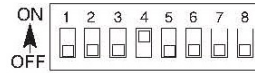
All Switches in the 'OFF' Position



Test Mode Setting

1. **Enter a test mode.** This is utilized when the machine is connected to a grid load for serving
 - a) Turn switch #4 to the "ON" position.

Switch #4 in the 'ON' Position

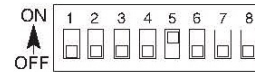


VRD Enabled Setting

2. **Enter VRD mode (VRD Enabled)**

- a) Turn switch #5 to the "ON" position.

Switch #5 in the 'ON' Position

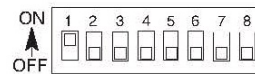


Calibration

3. **Enter Calibration mode.** This allows the machine voltage and current to be calibrated while connected to a grid load.

- a) Turn switch #1 to the "ON" position.

Switch #1 in the 'ON' Position




Wire Feeder & Digital Accessory Connectivity




Arlink Wire Feeder & Digital Accessory Connectivity

Socket 1: 12-Pin Remote Control Connector


Picture	Function	Pin	Wiring
	12-PIN REMOTE CONTROL CONNECTOR FOR REMOTE OR HAND/FOOT AMPTRON AND DIGITAL ACCESSORIES	A	ARCLINK CAN
		B	ARCLINK CAN
		C	REMOTE POTENTIOMETER COMMON
		D	REMOTE POTENTIOMETER WIPER
		E	REMOTE POTENTIOMETER +10V
		F	ALPS CONNECTION
		G	TRIGGER
		H	TRIGGER
		J	40VDC COMMON
		K	40VDC
		L	NOT USED
		M	NOT USED

Socket 2: 5-Pin Arlink Connector

Picture	Function	Pin	Wiring
	5-PIN CONNECTOR FOR WIRE FEEDER CONNECTIVITY	A	ARCLINK CAN
		B	ARCLINK CAN
		C	ELECTRODE SENSE LEAD
		D	40VDC
		E	40VDC COMMON

Analog Wire Feeder Connectivity

Socket 3: 14-Pin Connector

Picture	Function	Pin	Wiring
	14-PIN CONNECTOR FOR WIRE FEEDER CONNECTIVITY	A	
		B	GROUND
		C	TRIGGER COMMON
		D	TRIGGER INPUT
		E	77 REMOTE POTENTIOMETER, 5K
		F	76 REMOTE POTENTIOMETER, WIPER
		G	75 REMOTE POTENTIOMETER, COMMON
		H	VOLTAGE SENSE (21)
		I	40 VDC
		J	
		K	40 VDC
		L	
		M	

Recommended Electrode and Work Cable Sizes for Arc Welding

Connect the electrode and work cables between the appropriate output studs of the Flextec 350x CE per the following guidelines:

- Most welding applications run with the electrode being positive (+). For those applications, connect the electrode cable between the wire drive feed plate and the positive (+) output stud on the power source. Connect a work lead from the negative (-) power source output stud to the work piece.
- When negative electrode polarity is required, such as in some Innershield applications, reverse the output connections at the power source (electrode cable to the negative (-) stud, and work cable to the positive (+) stud).

The following recommendations apply to all output polarities and weld modes:

- **Select the appropriate size cables per the “Output Cable Guidelines” below.** Excessive voltage drops caused by undersized welding cables and poor connections often result in unsatisfactory welding performance. Always use the largest welding cables (electrode and work) that are practical, and be sure all connections are clean and tight.

Note: Excessive heat in the weld circuit indicates undersized cables and/or bad connections.

- **Route all cables directly to the work and wire feeder, avoid excessive lengths and do not coil excess cable.** Route the electrode and work cables in close proximity to one another to minimize the loop area and therefore the inductance of the weld circuit.
- Always weld in a direction away from the work (ground) connection.

(See table 1)

Tabulated below are copper cable sizes recommended for different currents and duty cycles. Lengths stipulated are the distance from the welder to work and back to the welder again. Cable sizes are increased for greater lengths primarily for the purpose of minimizing cable drop.

Table 1

RECOMMENDED CABLE SIZES (RUBBER COVERED COPPER - RATED 75°C)**						
AMPERES	PERCENT DUTY CYCLE	CABLE SIZES FOR COMBINED LENGTHS OF ELECTRODE AND WORK CABLES				
		0 to 15m	15 to 30m	30 to 46m	46 to 61m	61 to 76m
200	60	35mm ²	35mm ²	35mm ²	50mm ²	70mm ²
200	100	35mm ²	35mm ²	35mm ²	50mm ²	70mm ²
225	20	25mm ²	35mm ²	25mm ²	50mm ²	70mm ²
225	40 & 30	35mm ²	35mm ²	35mm ²	50mm ²	70mm ²
250	30	35mm ²	35mm ²	35mm ²	50mm ²	70mm ²
250	40	35mm ²	35mm ²	50mm ²	50mm ²	70mm ²
250	60	50mm ²	50mm ²	50mm ²	50mm ²	70mm ²
250	100	50mm ²	50mm ²	50mm ²	50mm ²	70mm ²
300	60	50mm ²	50mm ²	50mm ²	70mm ²	70mm ²
350	100	70mm ²	70mm ²	70mm ²	70mm ²	95mm ²
350	60	70mm ²	70mm ²	70mm ²	70mm ²	95mm ²
400	60	70mm ²	70mm ²	70mm ²	95mm ²	120mm ²
400	100	70mm ²	95mm ²	95mm ²	95mm ²	120mm ²
500	60	70mm ²	70mm ²	95mm ²	95mm ²	120mm ²

** Tabled values are for operation at ambient temperatures of 104°F(40°C) and below. Applications above 104°F(40°C) may require cables larger than recommended, or cables rated higher than 167°F(75°C).

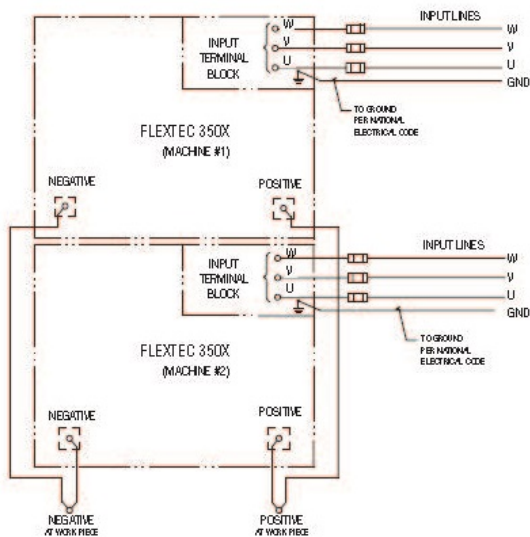
Remote Sense Lead Specifications

Genuine Lincoln Electric control cables should be used at all times (except where noted otherwise). Lincoln Electric cables are specifically designed for the communication and power needs of the Flextec 350x CE. Most are designed to be connected end-to-end for ease of extension. Generally, it is recommended that the total length not exceed 100 feet (30.5 m). The use of non-standard cables, especially in lengths greater than 25 feet (7.6 m), can lead to communication problems (system shutdowns), poor motor acceleration (poor arc starting), and low wire driving force (wire feeding problems). Always use the shortest length of control cable possible, and DO NOT coil excess cable.

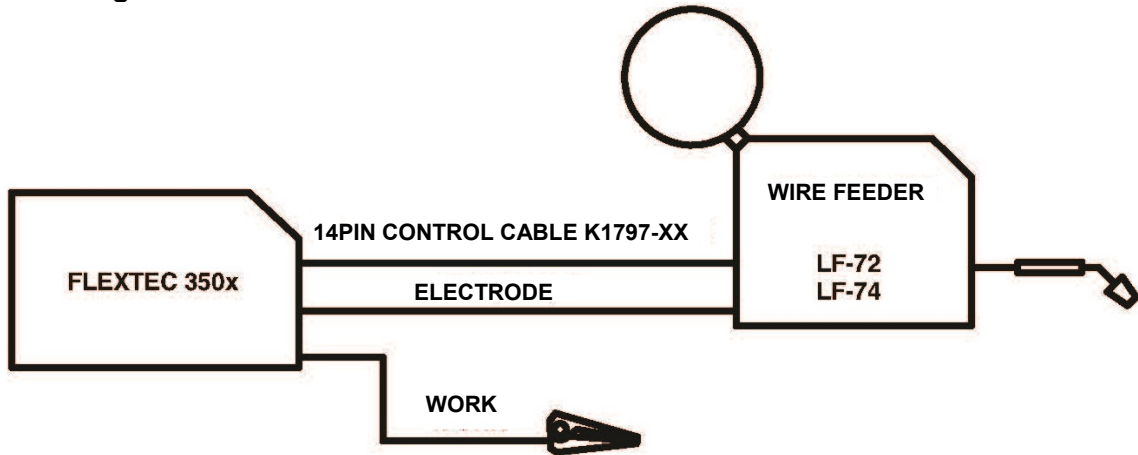
Regarding cable placement, best results will be obtained when control cables are routed separate from the weld cables. This minimizes the possibility of interference between the high currents flowing through the weld cables, and the low level signals in the control cables.

Paralleling Machines

The Flextec 350x CE power sources may be paralleled for increased output requirements in constant current application. No kit is required for paralleling of Flextec 350x CE power sources. The Flextec 350x CE can only be paralleled for constant current processes. Connect the power sources as shown, and set the output control of each power source to one half of the desired arc current.

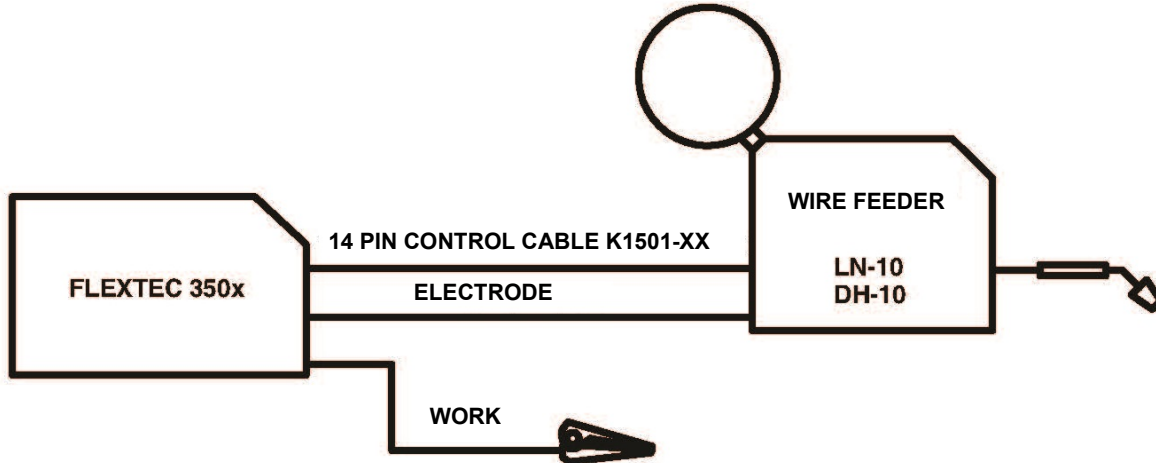


Connecting LF-72 and LF-74 to the Flextec 350x CE



CONTROL SETTING	
WELD MODE	CV, CV-INNERSHIELD
WELD TERMINALS	REMOTELY CONTROLLED
REMOTE/LOCAL	LOCAL
	(REMOTE IF K2329-1 INSTALLED)
VOLTMETER POLARITY	PROCESS DEPENDENT

Connecting LN-10 and DH-10 to the Flextec 350x CE



CONTROL SETTING	
WELD MODE	CV, CV-INNERSHIELD
WELD TERMINALS	REMOTELY CONTROLLED
REMOTE/LOCAL	REMOTE
VOLTMETER POLARITY	PROCESS DEPENDENT

LN-10, DH-10 Control Switch Setup

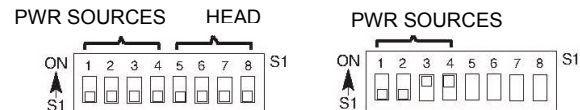
Initial set up of the LN-10, DH-10 control for the system components being used and for general operator preferences is done using a pair of 8-pole DIP switches located inside the LN-10, DH-10 control box.

Setup DIP Switch Access

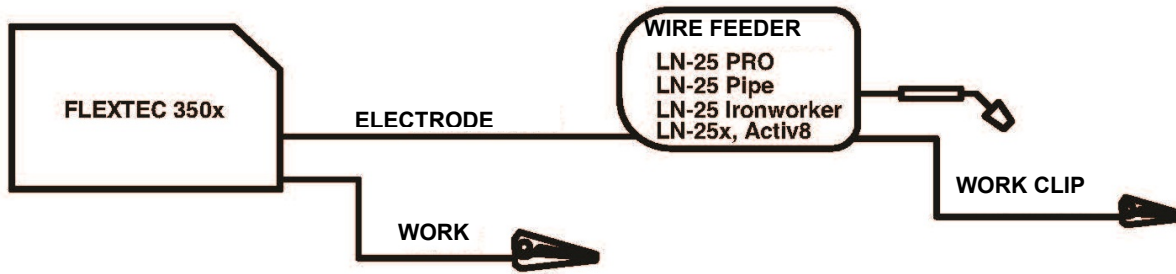
1. Shut off the input power to the LN-10, DH-10 control by turning off the power at the welding power source it is connected to.
2. Remove the two screws on the top of the LN-10, DH-10 control box door and swing the door down to open.
3. Locate the two 8-pole DIP switches, near the top left corner of the LN-10, DH-10 Control P.C. board, labeled S1 and S2.
4. Switch settings are only programmed during input power-up restoration.

Setting the DIP Switches

The DIP switches are each labeled with an "ON" arrow showing the on direction for each of the 8 individual switches in each DIP switch (S1 and S2). The functions of these switches are also labeled and set as described below:

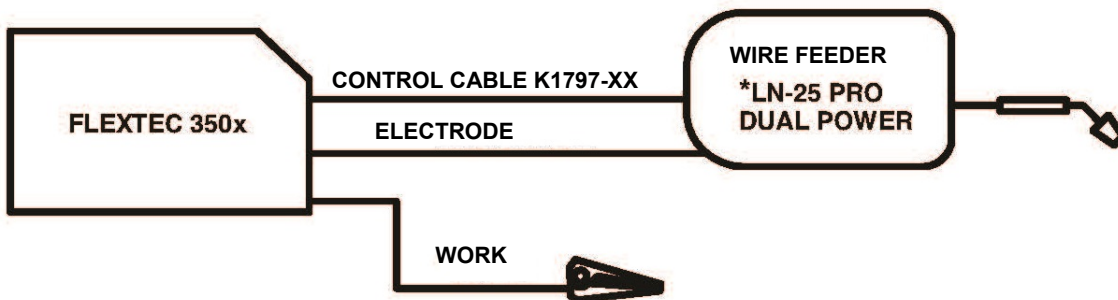


Connecting Active 8, LN-25 Pro Series, LN-25 Pipe, LN-25 Ironworker and LN-25x to the Flextec 350x CE



CONTROL SETTING	
WELD MODE	CV, CV-INNERSHIELD
WELD TERMINALS	ON
REMOTE/LOCAL	LOCAL OR REMOTE WHEN USING CROSSLINC
VOLTMETER POLARITY	PROCESS DEPENDENT

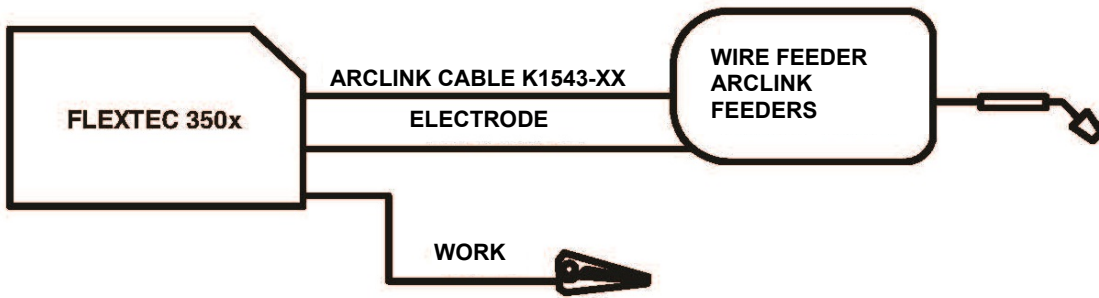
Connecting LN-25 Pro Dual Power to the Flextec 350x CE



CONTROL SETTING	
WELD MODE	CV, CV-INNERSHIELD
WELD TERMINALS	REMOTELY CONTROLLED
REMOTE/LOCAL	REMOTE
VOLTMETER POLARITY	PROCESS DEPENDENT

*CONTROL CABLE SETUP SHOWN. REFER TO LN-25 PRO CONNECTION DIAGRAM IF SETTING UP "ACROSS-THE-ARC" FEEDER.

Connecting Arclink Feeder to the Flextec 350x CE



CONTROL SETTING	
WELD MODE	ARCLINK
WELD TERMINALS	REMOTE
REMOTE/LOCAL	N.A.
	N.A.
VOLTMETER POLARITY	N.A.

Operation

Power-up Sequence

When power is applied to the Flextec 350x CE, the displays will illuminate and the machine electronics will complete a power up sequence indicated by a scrolling bar across each seven segment display. Once the power up sequence is complete and the machine is ready for welding, the seven segment displays will indicate the voltage and amperage settings. Any ArcLink wire feeders present and connected to the 5-pin circular connector will also initialize and begin a power up sequence once power is applied to the machine. For machines connected to CrossLinc™ compatible feeders the green CrossLinc™ will light indicating a connection to the feeder over the electrode cable.

Duty Cycle

The Flextec 350x CE is capable of welding at a 100% duty cycle (continuous welding) at 300 Amps rated output.

The 60% duty cycle rating is 350 amps (based off of a ten minute cycle – 6 minutes on time and 4 minutes off time). The maximum output of the machine is 425 amps. The Flextec 350x CE is also rated for Desert Duty, elevated temperature operation, in a 55°C ambient. The machine is derated in the elevated temperature ambient.

Thermal Protection

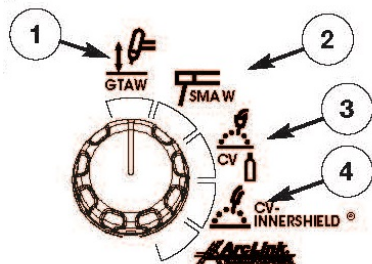
Thermostats protect the machine from excessive operating temperatures. Excessive temperatures may be caused by a lack of cooling air or operating the machine beyond the duty cycle and output rating. If excessive operating temperature should occur, the thermostat will disable the output and run the cooling fan. The displays will remain energized during this time and the thermal light will be illuminated. Thermostats are self-resetting once the machine cools sufficiently. If the thermostat shutdown was caused by excessive output or duty cycle and the fan is operating normally, the Power Switch may be left on and the reset should occur within a 15 minute period.

For FT350 Construction machines the welding output will start again as soon as the thermostats close.

The FT350 Standard output will start again if the welding output controls are set to on. Otherwise the output will be started once the controls are enabled.

Making a Weld

The Flextec 350x CE is a multi-process inverter welder. The Weld Process Selector Switch is used to set the desired weld mode. The Flextec 350x CE Standard has 4 selectable welding modes:



1. **GTAW** – This is a CC (constant current) weld mode used for the GTAW tig welding process.
2. **SMAW** – This is a CC (constant current) weld mode used for the SMAW stick welding process.
3. **CV** – This is CV (constant voltage) weld mode used for welding the GMAW mig welding process and the FCAW-GS, flux cored gas shielded welding process.
4. **CV-Innershield** – This is a CV (constant voltage) weld mode used for welding the FCAW-SS, flux cored self shielded welding process.

The machine is also capable of gouging. Gouging can be done in either the SMAW mode or the CV and CV-Innershield modes.

In addition to the Weld Mode Selector switch, a hot start dial, output control dial and arc control dial are provided to setup and fine tune the welding procedure.

Definition of Welding Modes

NON-SYNERGIC WELDING MODES

- A Non-synergic welding mode requires all welding process variables to be set by the operator.

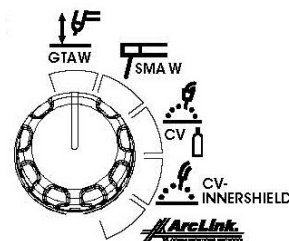
SYNERGIC WELDING MODES

- A Synergic welding mode offers the simplicity of single knob control. The machine will select the correct voltage and amperage based on the wire feed speed (WFS) set by the operator.

Weld Controls and Displays

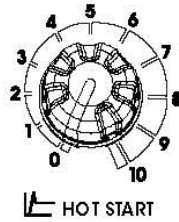
Weld Process Selector Switch

5 or 4 Position switch used to select the welding process



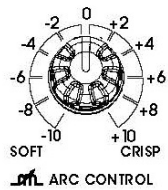
Hot Start Dial

The Hot Start control regulates the starting current at arc initiation. Hot Start can be set to '0' and no additional current is added at arc start. Increasing from 0 to 10 will increase the additional current (relative to the preset current) that is added at arc initiation.



Arc Force Control Dial

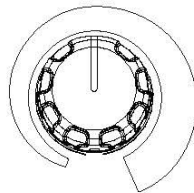
Full range selection of arc control from -10 to +10. In CV mode, this control is an inductance control. In stick mode, the control adjusts the arc force.



Output Control Dial

Output control is conducted via a single turn potentiometer.

Adjustment is indicated by the meters. When in remote modes, this control sets the maximum welding current or voltage output. Full depression of a foot or hand amptrol results in the preset level of current or voltage.

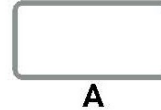


Volt Display Meter



- Prior to CV operation (current flow), the meter displays desired preset voltage value (+/- .1V).
- Prior to STICK or TIG operation, the meter displays the Open Circuit Voltage of the Power Source or four dashes if the output has not been turned on.
- During welding, this meter displays actual average volts.
- After welding, the meter holds the actual voltage value for 5 seconds. The displays blink indicating that the machine is in the "Hold" period.
- Output adjustment while in the "hold" period results in the "prior to operation" characteristics

Amperage Display Meter



- Prior to STICK or TIG operation (current flow), the meter displays preset current value.
- Prior to CV operation, the meter displays four dashes indicating non-presettable AMPS.
- During welding, this meter displays actual average amps.
- After welding, the meter holds the actual current value for 5 seconds. The displays blink indicating that the machine is in the "Hold" period.
- Output adjustment while in the "hold" period results in the "prior to operation" characteristics.

Weld Terminals On/Remote Toggle Switch

(not included on Construction model)



- This switch determines the trigger location.
- When set to the 'ON' position, the weld terminals are at OCV (open circuit voltage) and ready to weld.
- When set to the 'remote' position, output is enabled through a remote trigger such as a welding gun.

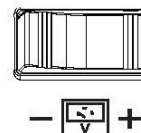
Output Control - Local/Remote Toggle Switch



- Set the switch to 'local' to control output at the Flextec via the Output Control Dial.
- Set the switch to 'remote' to control output via a remote device (K857 hand amptrol or K870 foot amptrol) connected to the 12-pin remote connector or a wire feeder connected to the 14-pin connector or when using a CrossLinc™ enabled wire feeder.

Wire Feeder Voltmeter Polarity Switch

(not included on Construction model)



This switch configures the 21 sense lead in the 14 pin connector to the work weld terminal of the machine. Matches the polarity of the wire feeder voltmeter to the polarity of the electrode.

Thermal Light



This status light indicates when the power source has been driven into thermal overload. If the output terminals were "ON", the output will be turned back on once the unit cools down to an acceptable temperature level. If the unit was operating in the "REMOTE" mode, the trigger will need to be opened before or after the thermal has cleared and closed after the machine has cooled down to an acceptable temperature to re-establish output.

VRD Lights



There are two indicator lights on the case front of the Flextec 350x CE above the Voltage display to indicate the status of VRD operation. As shipped, the VRD function is disabled. VRD is enabled by setting dip switch number 5 to the on position on the User Interface P.C. board. When VRD is active, a green light indicates the open circuit voltage is less than 35V peak, a red light indicates the OCV is at or above 35V peak, Both lights will illuminate for 5 seconds upon power up. The behavior of the VRD lights is listed in the table below. While the VRD lights are always active when VRD has been enabled, VRD applies to the constant current modes of operation. Only in these modes will the OCV been reduced.

MODE		VRD INDICATOR LIGHTS	
		VRD "ON"	VRD "OFF"
CC-SMAW CC-GTAW	OCV	GREEN (OCV REDUCED)	NO LIGHTS ARE ACTIVE
	WHILE WELDING	GREEN OR RED (DEPENDS ON WELD VOLTAGE)*	
CV-GAS CV-INNERSHIELD	OCV	RED (OCV NOT REDUCED) WELD TERMINALS 'ON'	
		RED (OCV NOT REDUCED) WELD TERMINALS REMOTELY CONTROLLED GUN TRIGGER CLOSED	
		GREEN (NO OCV) WELD TERMINALS REMOTELY CONTROLLED GUN TRIGGER OPEN	
	WHILE WELDING	GREEN OR RED (DEPENDS ON WELD VOLTAGE)*	

* It is normal for the lights to alternate between colors while welding.

Basic Modes of Operation

GTAW

This weld mode is a constant current (CC) mode featuring continuous control from 10–425 amps. It is intended for the GTAW TIG welding processes.

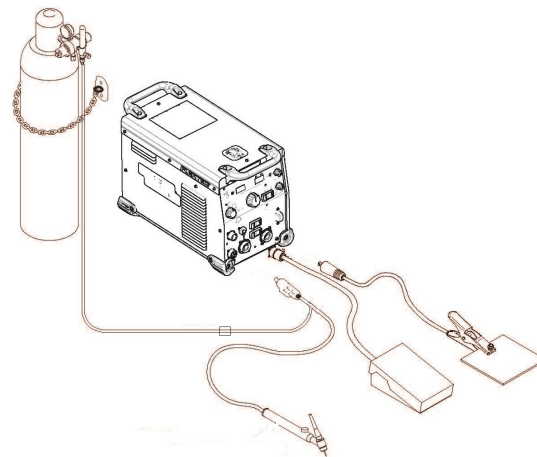
Hot Start - Hot start regulates the arc initiation current. A setting of +10 results in the most positive arc initiation.

Arc Control – This control is not used in the GTAW mode.

Weld Terminals On/Remote

- When set to the 'ON' position, the weld terminals are at OCV (open circuit voltage) and ready to weld.
- When set to the 'remote' position, output is enabled through a remote trigger.

Voltage Display – This display will display three dashed lines when the machine is in the idle state. This indicates that voltage is not settable in this weld mode. While output is enabled, the actual welding voltage will be displayed. After welding, the meter holds the actual voltage value for 5 seconds. Output adjustment while in the "hold" period results in the "prior to operation" characteristics stated above. The displays blink indicating that the machine is in the "Hold" period.



Amperage Display – This display will display the pre-set welding current when the machine is in the idle state. After welding, the meter holds the actual amperage value for 5 seconds. Output adjustment while in the "hold" period results in the "prior to operation" characteristics stated above. The displays blink indicating that the machine is in the "Hold" period.

Output Control Local/Remote – When the control is set to local (no remote potentiometer/control plugged into the 12-pin or 14-pin connectors), the output is controlled through the Output Control dial on the front of the Flextec 350x CE. Set this switch to 'Remote' when an external potentiometer/control is connected.

- When a remote potentiometer is connected, the output control on the Flextec and the remote act as a master/slave configuration. Use the output control dial on the Flextec to set the maximum welding current. The remote will control output from minimum to the pre-set maximum.

Output Control Dial

- When the Local/Remote is set to Local, this dial sets the welding amperage.
- When the Local/Remote is set to Remote, this dial sets the maximum welding amperage. The remote potentiometer then controls the amperage from minimum to this pre-set maximum.

SMAW

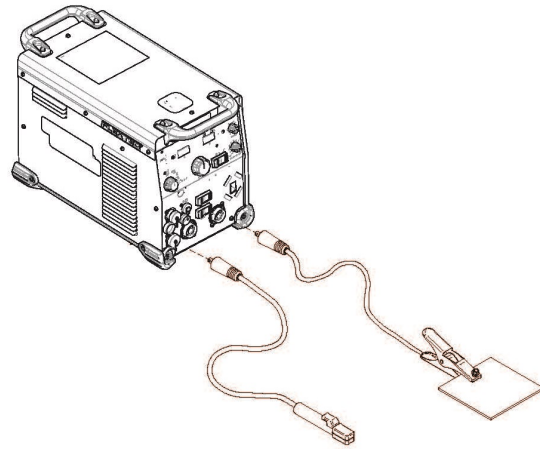
This weld mode is a constant current (CC) mode featuring continuous control from 15 – 425 Amps. It is intended for the SMAW stick welding processes and arc gouging. The mode can also be used for TIG operation without changing modes (as long as Hot Start=0 and Arc Control=(-10). Values of Hot Start greater than 0 will result in a higher current arc start. Values of Arc Control greater than the minimum setting of (-10) will result in a higher output than the intended preset value).

Hot Start - The Hot Start control regulates the starting current at arc initiation. Hot Start can be set to '0' and no additional current is added at arc start. Increasing from 0 to 10 will increase the additional current (relative to the preset current) that is added at arc initiation.

Arc Control - The Arc Control regulates the Arc Force to adjust the short circuit current. The minimum setting (-10) will produce a "soft" arc and will produce minimal spatter and shallow penetration. The maximum setting (+10) will produce a "crisp" arc and will minimize electrode sticking with deeper penetration.

Weld Terminals On/Remote – Set to "On" so the machine is in the ready to weld state. Setting the machine to "On" enables the machine OCV.

Voltage Display – This display will display three dashed lines when the machine is in the idle state. This indicates that voltage is not settable in this weld mode. While output is enabled, the actual welding voltage will be displayed. After welding, the meter holds the actual voltage value for 5 seconds. Output adjustment while in the "hold" period results in the "prior to operation" characteristics stated above. The displays blink indicating that the machine is in the "Hold" period.



Amperage Display – This display will display the pre-set welding current when the machine is in the idle state. After welding, the meter holds the actual amperage value for 5 seconds. Output adjustment while in the "hold" period results in the "prior to operation" characteristics stated above. The displays blink indicating that the machine is in the "Hold" period.

Output Control Local/Remote – When the control is set to local (no remote potentiometer/control plugged into the 12-pin or 14-pin connectors), the output is controlled through the Output Control dial on the front of the Flextec 350x CE. Set this switch to 'Remote' when an external potentiometer/control is connected.

- When a remote potentiometer is connected, the output control on the Flextec and the remote act as a master/slave configuration. Use the output control dial on the Flextec to set the maximum welding current. The remote will control output from minimum to the pre-set maximum.

Output Control Dial

- When the Local/Remote is set to Local, this dial sets the welding amperage.
- When the Local/Remote is set to Remote, this dial sets the maximum welding amperage. The remote potentiometer then controls the amperage from minimum to this pre-set maximum.

CV-Gas

This weld mode is a constant voltage (CV) mode featuring continuous control from 10 to 45 volts. It is intended for the GMAW, FCAW-GS, MCAW welding processes and arc gouging.

Hot Start – Rotate from the '0' position to the '10' position to provide more energy during the start of a weld.

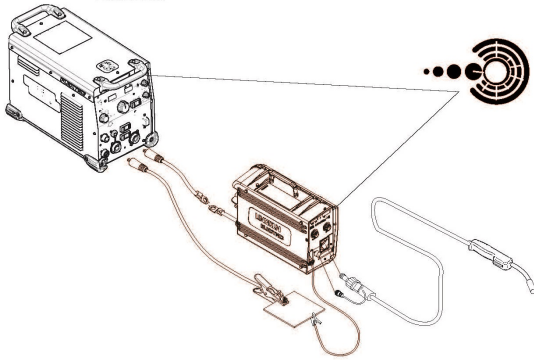
Arc Control – The Arc Control regulates pinch effect. At the minimum setting (-10), minimizes pinch and results in a soft arc. Low pinch settings are preferable for welding with gas mixes containing mostly inert gases as well as aluminum alloys. At the maximum setting (+10), maximizes pinch effect and results in a crisp arc. High pinch settings are preferable for welding FCAW and GMAW with CO₂.

Weld Terminals On/Remote

- When set to the 'ON' position, the weld terminals are at OCV (open circuit voltage) and ready to weld. This selection is used for across the arc wire feeders. The 12-pin connector remote input is used

to adjust the voltage with a master/slave relationship with the output control dial.

- When set to the 'remote' position, output is enabled through a remote trigger. The 14-pin connector remote input is used to adjust the voltage with a master/slave relationship with the output control dial.



Amperage Display – This display will display three dashed lines when the machine is in the idle state. This indicates that amperage is not settable in this weld mode. While output is enabled, the actual welding amperage will be displayed. After welding, the meter holds the actual amperage value for 5 seconds. Output adjustment while in the "Hold" period results in the "prior to operation" characteristics stated above. The displays blink indicating that the machine is in the "Hold" period.

Voltage Display – This display will display the pre-set welding current when the machine is in the idle state. After welding, the meter holds the actual amperage value for 5 seconds. Output adjustment while in the "Hold" period results in the "prior to operation" characteristics stated above. The displays blink indicating that the machine is in the "Hold" period.

Output Control Local/Remote – When the control is set to local (no remote potentiometer/control plugged into the 12-pin or 14-pin connectors), the output is controlled through the Output Control dial on the front of the Flextec 350x CE. Set this switch to 'Remote' when an external potentiometer/control is connected or using a CrossLinc™ feeder.

- When a CrossLinc™ equipped feeder like the LN-25X is used, output will then be controlled at the CrossLinc™ remote through the full range of the voltage allowable. The output control dial on the Flextec 350x CE will no longer set the maximum amperage.

Output Control Dial

- When the Local/Remote is set to Local, this dial sets the welding amperage.
- When the Local/Remote is set to Remote, and the weld terminal switch is in the "ON" position, this dial sets the maximum welding voltage. The remote potentiometer controls the voltage from minimum to this pre-set maximum. If the weld terminal switch is in the "REMOTE" position, the output is controlled via the 14-pin input.

Crosslinc™

crossLinc is a new welding system communication technology. When using a CrossLinc enabled power

source such as the Flextec350x CE and a CrossLinc enabled wire feeder such as the LN25x, welding voltage can be controlled remotely without the use of an additional control cable.

The digital meters on the LN25x will show the pre-set values for wire feed speed and voltage prior to welding. During welding, the meters will show actual current and voltage present at the wire feeder. After welding the meters will then flash the last welding current and voltage that was present during welding for 10 seconds after welding. If WFS or V is adjusted during this 10 second period, the meters will go back to the pre-set value.

- When a LN25x CrossLinc enabled feeder is connected with the Flextec 350x CE using the standard weld power cable and the LN25x sense lead is attached to the work piece, the CrossLinc light will automatically illuminate on both the Flextec350x CE and the LN25x. no additional pairing of the machine to the feeder is needed. This light indicates the CrossLinc connection is active and that control of the Flextec350x CE voltage can be made at the LN25x feeder.
- The Flextec350x CE Weld terminals On/Remote toggle should be set "ON". This powers the weld terminals for an across-the-arc LN25x wire feeder.
- The Flextec350x CE Output Local/Remote switch should be set to "remote" allowing for remote control of the output at the CrossLinc equipped feeder.

CV-Innershield

This weld mode is a constant voltage (CV) mode featuring continuous control from 10 to 45 volts. It is intended for the FCAW-SS welding process and arc gouging.

Hot Start – Toggle from the '0' position to the '10' position to provide more energy during the start of a weld.

Arc Control – The Arc Control regulates pinch effect. At the minimum setting (-10), minimizes pinch and results in a soft arc. At the maximum setting (+10), maximizes pinch effect and results in a crisp arc.

Weld Terminals On/Remote

- When set to the 'ON' position, the weld terminals are at OCV (open circuit voltage) and ready to weld. This selection is used for across the arc wire feeders. The 12-pin connector remote input is used to adjust the voltage with a master/slave relationship with the output control dial.
- When set to the 'remote' position, output is enabled through a remote trigger. The 14-pin connector remote input is used to adjust the voltage with a master/slave relationship with the output control dial.

Amperage Display – This display will display three dashed lines when the machine is in the idle state. This indicates that amperage is not settable in this weld mode. While output is enabled, the actual welding amperage will be displayed. After welding, the meter holds the actual amperage value for 5 seconds. Output adjustment while in the "hold" period results in the "prior to operation" characteristics stated above. The displays blink indicating that the machine is in the "Hold" period.

Voltage Display – This display will display the pre-set welding voltage when the machine is in the idle state. After welding, the meter holds the actual voltage value for 5 seconds. Output adjustment while in the "hold" period results in the "prior to operation" characteristics stated above. The displays blink indicating that the machine is in the "Hold" period.

Output Control Local/Remote – When the control is set to local (no remote potentiometer/control plugged into the 12-pin or 14-pin connectors), the output is controlled through the Output Control dial on the front of the FLEXTEC 350x CE. Set this switch to 'Remote' when an external potentiometer/control is connected or using a CrossLinc™ feeder.

Output Control Dial

- When the Local/Remote is set to Local, this dial sets the welding voltage.
- When the Local/Remote is set to Remote, and the weld terminal switch is in the 'ON' position, this dial sets the maximum welding voltage. The remote potentiometer controls the voltage from minimum to this pre-set maximum. If the weld terminal switch is in the 'REMOTE' position, the output is controlled via the 14-pin input.

ArcLink

This weld mode is intended to unlock basic non-synergic and synergic modes intended for use with a compatible ArcLink wire feeders. All of the Flextec350x CE user interface controls are disabled in this mode and controlling the power source is accomplished from the wire feeder user interface.

Hot Start – Not used for this welding process.

Arc Control – Not used for this welding process.

Weld Terminals On/Remote

- Not used for this welding process
- Not used for this welding process

Amperage Display – This display will display three dashed lines when the machine is in the idle state. This indicates that amperage is not settable in this weld mode. While output is enabled, the actual welding amperage will be displayed. After welding, the meter holds the actual amperage value for 5 seconds. Output adjustment while in the "hold" period results in the "prior to operation" characteristics stated above. The displays blink indicating that the machine is in the "Hold" period.

Voltage Display – This display will display the pre-set welding voltage when the machine is in the idle state. After welding, the meter holds the actual voltage value for 5 seconds. Output adjustment while in the "hold" period results in the "prior to operation" characteristics stated above. The displays blink indicating that the machine is in the "Hold" period.

Output Control Local/Remote – Not used for this welding process

Output Control Dial

- Not used for this welding process
- Not used for this welding process

Maintenance



WARNING

Before carrying out service, maintenance and/or repair jobs, fully disconnect power to the machine.



WARNING

Use Personal Protective Equipment (PPE), including safety glasses, dust mask and gloves to avoid injury. This also applies to persons who enter the work area.



WARNING

MOVING PARTS can injure.

- Do not operate with doors open or guards off.
- Stop engine before servicing.
- Keep away from moving parts



WARNING

Have qualified personnel do all maintenance and troubleshooting work.

Visual Inspection

Clean interior of machine with a low pressure air stream. Make a thorough inspection of all components. Look for signs of overheating, broken leads or other obvious problems. Many problems can be uncovered with a good visual inspection.

Routine Maintenance

Every six months the machine should be cleaned with a low pressure air stream. Keeping the machine clean will result in cooler operation and higher reliability. Be sure to clean the following areas:

- All printed circuit boards
- Power switch
- Main transformer
- Input rectifier
- Heatsink fins
- Auxiliary Transformer
- Fans (Blow air through the rear louvers)

Examine the sheet metal case for dents or breakage. Repair the case as required. Keep the case in good condition to ensure that high voltage parts are protected and correct spacing is maintained throughout. All external sheet metal screws must be in place to ensure case strength and electrical ground continuity.

Current Calibration

1. Connect the resistive load band and test voltmeter to the welding output terminals.
2. Put dipswitch 1 in the on position.
3. Rotate the Hot Start knob and Arc Control knob to the minimum.
4. Turn on the FLEXTEC 350x CE.
5. The display should read "Cur CAL".
6. Rotate the Hot Start knob until a message scrolls across the screen.
7. Adjust the output control knob until the actual output amperage reading on the test ammeter is 300 amps +/- 2 amps.
8. Toggle the Local/Remote switch to save the calibration.
9. The display should flash "CAL SET".

10. Rotate the Hot Start knob to the minimum.
11. Rotate the Hot Start knob until a message scrolls across the screen.
12. Verify amperage reading on the test ammeter is 300 amps +/- 2 amps.
13. Repeat calibration steps starting from step 7 if necessary.

Voltage Calibration

1. Connect the resistive load band and test voltmeter to the welding output terminals.
2. Put dipswitch 1 in the on position.
3. Rotate the Hot Start knob and Arc Control knob to the minimum.
4. Turn on the FLEXTEC 350x.
5. The display should read "Cur CAL".
6. Rotate the Arc Control knob until the display reads "VoL CAL".
7. Rotate the Hot Start knob until a message scrolls across the screen.
8. Adjust the output control knob until the actual output voltage reading on the test volt meter is 20 volts +/- .5 volts.
9. Toggle the Local/Remote switch to save the calibration.
10. The display should flash "CAL SET".
11. Rotate the Hot Start knob to the minimum.
12. Rotate the Hot Start knob until a message scrolls across the screen.
13. Verify voltage reading on the test volt meter is 20volts +/- .5 volts.
14. Repeat calibration steps starting from step 8 if necessary.

To Restore Factory Current Calibration

1. Connect the resistive load band and test voltmeter to the welding output terminals.
2. Put dipswitch 1 in the on position.
3. Rotate the Hot Start knob and Arc Control knob to the minimum.
4. Turn on the FLEXTEC 350x.
5. The display should read "Cur CAL".
6. Rotate the Arc Control knob until the display reads "Fct Cur".
7. Rotate the Hot Start knob until a message scrolls across the screen.
8. Toggle the Local/Remote switch to save the calibration.
9. The display should flash "CAL SET".

To Restore Factory Voltage Calibration

1. Connect the resistive load band and test voltmeter to the welding output terminals.
2. Put dipswitch 1 in the on position.
3. Rotate the Hot Start knob and Arc Control knob to the minimum.
4. Turn on the FLEXTEC 350x.
5. The display should read "Cur CAL".
6. Rotate the Arc Control knob until the display reads "Fct VoL".
7. Rotate the Hot Start knob until a message scrolls across the screen.
8. Toggle the Local/Remote switch to save the calibration.
9. The display should flash "CAL SET".

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 advice or information about their use of our products. We respond to our customers based on the best information in our possession at that time. Lincoln Electric is not in a position to warrant or guarantee such advice, and assumes no liability, with respect to such information or advice. We expressly disclaim any warranty of any kind, including any warranty of fitness for any customer's particular purpose, with respect to such information or advice. As a matter of practical consideration, we also cannot assume any responsibility for updating or correcting any such information or advice once it has been given, nor does the provision of information or advice create, expand or alter any warranty with respect to the sale of our products.

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.

WEEE

07/06

English



Do not dispose of electrical equipment together with normal waste!

In observance of European Directive 2012/19/EC on Waste Electrical and Electronic Equipment (WEEE) and its implementation in accordance with national law, electrical equipment that has reached the end of its life must be collected separately and returned to an environmentally compatible recycling facility. As the owner of the equipment, you should get information on approved collection systems from our local representative.

By applying this European Directive you will protect the environment and human health!

Spare Parts

12/05

For Spare Parts references visit the Web page: <https://www.lincolnelectric.com/LEExtranet/EPC/>

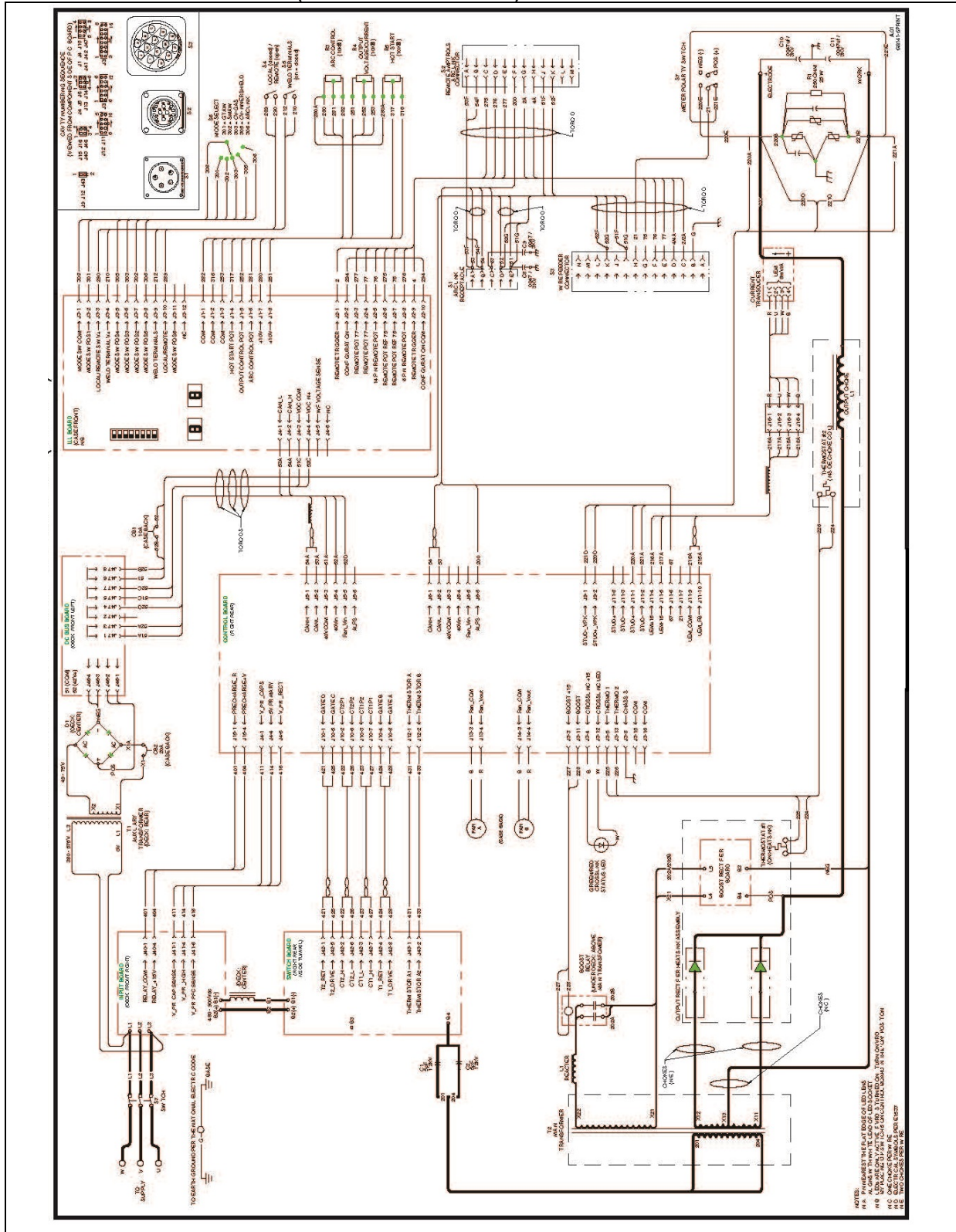
Authorized Service Shops Location

09/16

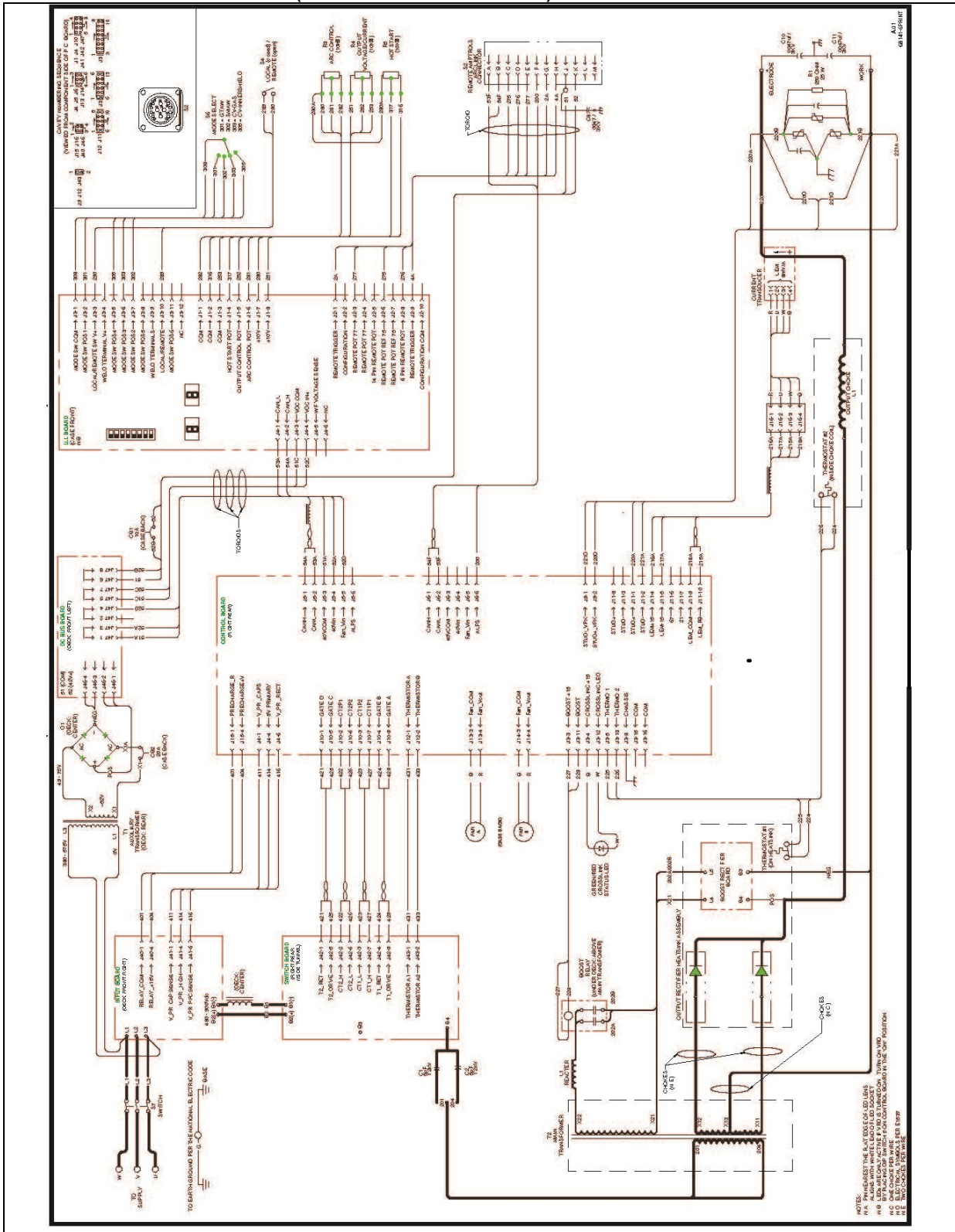
- The purchaser must contact a Lincoln Authorized Service Facility (LASF) about any defect claimed under Lincoln's warranty period.
- Contact your local Lincoln Sales Representative for assistance in locating a LASF or go to www.lincolnelectric.com/en-gb/Support/Locator.

Electrical Schematic

WIRING DIAGRAM – CODE 12679 (FT350x Standard K4284-1)





















WIRING DIAGRAM – CODE 12678 (FT350x Construction K4283-1)



NOTE: this diagram is for reference only. It may not be accurate for all machines covered by this manual. The specific diagram for a particular code is pasted inside the machine on one of the enclosure panels. If the diagram is illegible, write to the Service Department for a replacement. Give the equipment code number.

Suggested Accessories

Optional Kits & Accessories.		
Item	Description	Picture
K3059-4	Inverter and Wire Feeder Cart. Rear-wheeled cart with front casters and gas bottle platform. Convenient handles allow for easy cable storage. Small footprint fits through 30 in. (762 mm) door. Not intended for use with double head wire feeders.	
K3091-1	Multi-Process Switch. Easily switch between CC and CV processes. Requires Locking Foot Kit (K4424-1).	
K4424-1	Flextec 350x Locking Foot Kit: allows the Flextec to lock to the inverter cart, Multi-Process Switch, Cool-Arc 55 water cooler.	
3100211	Harris Argon Flowmeter Regulator and Hose Kit	
K3019-1	Arc Tracker. The Arc Tracker monitor s information regarding your welding arc by connecting it between any DC welding power source and the work clamp. Weld Fume Control Solutions. Lincoln Electric offers a wide variety of welding fume control solutions, ranging from portable systems easily wheeled around the shop to shop-wide central systems servicing many dedicated welding stations	
K2909-1	12-pin to 6-pin Adapter	
K2910-1	7-pin to 12-pin Adapter	
K4345-1	CrossLinc Remote: allows for remote output control of the Flextec power source through the weld cable without additional cables.	
K10413-36PHD-xM K10413-42PHD-xM	Gas cooled gun, x=3/4/5; LGP 360 G (300A@60%) LGP 420 G (350A@60%)	
Stick Options		
K857-2	12-pin Remote Output Control with Universal Connector. Permits remote adjustment of output.	
K10095-1-15M	Remote control (6PIN, 15m)	
K10398	Extension cable for remote control box K10095-1-15M, 15m	

GRD-400A-70-xM*	Ground cable 400A 70 mm ² ; x=5/10/15 m	
E/H-400A-70-xM*	Electrode holder 400A/70mm ² ; x=5/10m	
KIT-400A-70-5M	Cable kit 400A, 70mm ² , 5m	
Tig Options		
K870-2	Foot Amptrol® . Provides 25 ft. (7.6 m) of remote current control for TIG welding. (12-pin plug connection).	
K963-4	Hand Amptrol® - Provides 25 ft. (7.6 m) of remote current control for TIG welding. (12-pin plug connection)	
K10529-26-4V	Linc Torch Premium LTP 26 GV , manual valve 4m	
FL060583010	FLAIR 600 Gouging torch with mounted lead 2,5m	