IM3104
01/2024
REV06

LF 52D LF 56D

OPERATOR'S MANUAL

ENGLISH

Lincoln Electric Bester Sp. z o.o.
ul. Jana III Sobieskiego 19A, 58-260 Bielawa, Poland
www.lincolnelectric.eu

12/05

THANK YOU! For choosing the QUALITY of the Lincoln Electric products.

- Please check packaging and equipment for damage. Claims for material damaged in shipment must be notified immediately to the dealer.
- For ease of use, please enter your product identification data in the table below. Model Name, Code & Serial Number can be found on the machine rating plate.

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

ENGLISH INDEX

Technical Specifications

NAME	INDEX
LF 52D	**K14186-1**
LF 56D	**K14187-1**

INPUT			
	Input Voltage U_1	Input Amperes I_1	EMC Class
LF 52D	40Vdc	4Adc	A
LF 56D			

RATED OUTPUT		
	Duty Cycle 40°C (based on a 10 min. period)	Output Current
LF 52D	100%	420A
	60%	500A
LF 56D	100%	420A
	60%	500A

OUTPUT RANGE		
	Welding Current Range	Peak Open Circuit Voltage
LF 52D	5 ÷ 500A	113Vdc peak
LF 56D		

DIMENSION				
	Weight	Height	Width	Length
LF 52D	17 kg	516 mm	302 mm	642 mm
LF 56D	17,7 kg			

WIRE FEED SPEED RANGE / WIRE DIAMETER			
	WFS Range	Drive Rolls	Drive roll diameter
LF 52D	1.5 ÷ 22 m/min	4	Ø37
LF 56D			
	Solid Wires	Aluminum Wires	Cored Wires
LF 52D	0.8 ÷ 1.6 mm	1.0 ÷ 1.6 mm	0.9 ÷ 1.6 mm
LF 56D			

	Protection Rating	Maximum Gas Pressure
LF 52D	IP23	0,5 MPa (5 bar)
LF 56D		
	Operating Temperature	Storage Temperature
LF 52D	from -10°C to +40°C	from -25°C to 55°C
LF 56D		

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, if necessary with 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 if may be necessary to take additional precautions such as filtering the input supply.
- The output cables should be as short as possible and positioned together as close as possible to each other. 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 which means that 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 may be potential difficulties in ensuring electromagnetic compatibility in those locations, due to conducted as well as radiated disturbances.

Safety

01/11

WARNING

This equipment have to 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 equipment damage. 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.

	WARNING: This symbol indicates that instructions must be followed to avoid serious personal injury, loss of life, or equipment damage. Protect yourself and others from possible serious injury or death.
	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 equipment damage.
	ELECTRIC SHOCK CAN KILL: Welding equipment generates high voltages. Do not touch the electrode, work clamp, or connected work pieces when this equipment is turned on. Insulate yourself from the electrode, work clamp, and connected work pieces.
	ELECTRICALLY POWERED EQUIPMENT: Turn off the input power using the disconnect switch at the fuse box before working on this equipment. Ground this equipment in accordance with local electrical regulations.
	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.
	ELECTROMAGNETIC FIELD MAY BE DANGEROUS: Electric current flowing through any conductor creates electromagnetic field (EMF). EMF fields may interfere with some pacemakers, and welders having a pacemaker shall consult their physician before operating this equipment.
	CE COMPLIANCE: This equipment complies with the European Community Directives.
	ARTIFICIAL OPTICAL RADIATION: According with the requirements in 2006/25/EC Directive and EN 12198 Standard, the equipment is a category 2. It makes mandatory the adoption of Personal Protective Equipment (PPE) having filter with a protection degree up to a maximum of 15, as required by EN169 Standard.
	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.
	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. To protect the skin, use suitable clothing made of durable, fireproof material. Protect other nearby personnel with suitable, non-flammable screening and warn them not to watch the arc nor expose themselves to the arc.

	WELDING SPARKS CAN CAUSE FIRE OR EXPLOSION: Remove fire hazards from the welding area and have a fire extinguisher easily accessible. Welding sparks and hot materials from the welding process can easily go through small cracks and openings to adjadcent 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 use this equipment when flammable gases, vapors or flammable liquids are present.
	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.
	CYLINDER MAY EXPLODE IF DAMAGED: Use only certificate, 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.
	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.
	SAFETY MARK: This equipment is suitable for supplying power for welding operations carried out in an environment with increased risk of electric shock.

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

Introduction

LF 52D and **LF 56D** are digital wire feeders which have been designed to work with Lincoln Electric power sources:

- **POWERTEC® i350S,**
- **POWERTEC® i420S,**
- **POWERTEC® i500S.**

The CAN protocol is used for communication between the power source and the wire feeder. All signals from the power source are displayed on the User Interface located in the wire feeder machine.

Power source – wire feeder set allow the welding:

- GMAW (MIG/MAG)
- FCAW
- SMAW (MMA)

The complete package contains:

- Wire feeder device
- USB with operator's manual
- Lifting sling
- Abridged manual.

Recommended equipment, which can be bought by user, was mentioned in the chapter "Accessories".

Installation and Operator Instructions

Read this entire section before installation or operating the machine.

Exploitation conditions

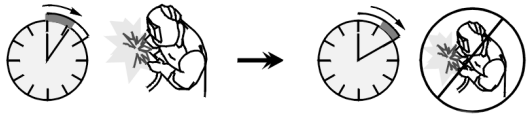
This machine can operate in harsh environments. However, it is important to use the following simple preventive measures that will ensure its long life and reliable operation:

- Do not place or operate this machine on a surface with an incline higher than 15° from horizontal.
- Do not use this machine for pipe thawing.
- This machine must be located where there is free circulation of clean air without restrictions for air movement. Do not cover the machine with paper, cloth or rags when switched on.
- Dirt and dust that can be drawn into the machine should be kept to a minimum.
- This machine has a protection rating of IP23. Keep it dry when possible and do not place it on wet ground or in puddles.
- Locate the machine away from radio controlled machinery. Normal operation may adversely affect the operation of nearby radio controlled machinery, which may result in injury or equipment damage. Read the section on electromagnetic compatibility in this manual.
- Do not operate in areas with an ambient temperature greater than 40°C.

Duty cycle and Overheating

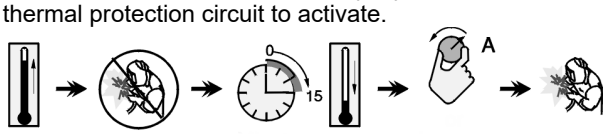
The duty cycle of a welding machine is the percentage of time in a 10 minute cycle at which the welder can operate the machine at rated welding current.

Example: 60% duty cycle:



Welding for 6 minutes. Break for 4 minutes.

Excessive extension of the duty cycle will cause the thermal protection circuit to activate.



Minutes or decrease Duty Cycle

Input Supply Connection

Check the input voltage, phase, and frequency of the power source that will be connected to this wire feeder. The acceptable level of input voltage is indicated in the section „Technical Specifications" and on the rating plate of the power source. Verify the connection of grounding wires from the power source to the input source.

Controls and Operational Features

Front panel LF 52D

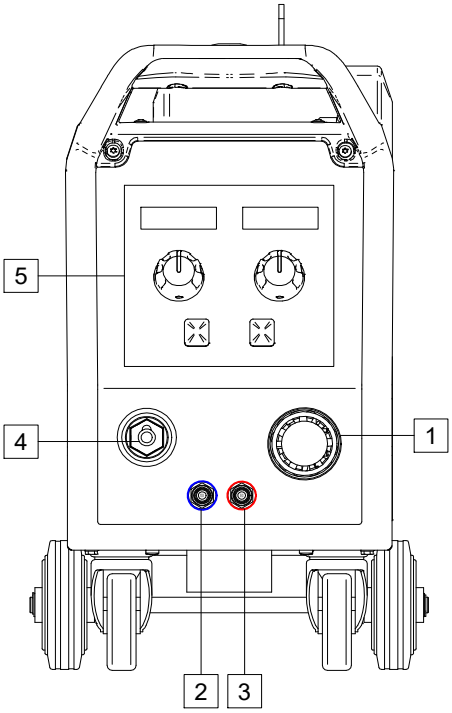


Figure 1

Front panel LF 56D

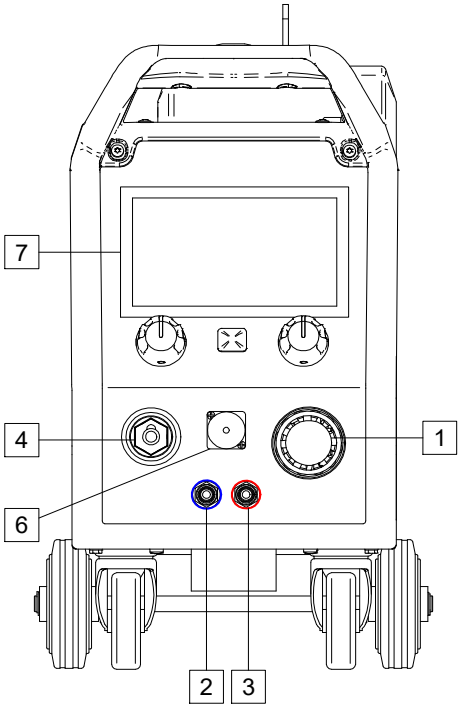


Figure 2

1. EURO socket: For connecting a welding gun (for GMAW, FCAW process).
2. Quick coupling socket: Coolant outlet (supplies cool coolant to the welding gun).
3. Quick coupling socket: Coolant inlet (takes warm coolant from the welding gun).

WARNING

Maximum coolant pressure is 5 bar.

4. Output Socket for the Welding Circuit: For connecting a wire with an electrode holder.
5. U0 User Interface (LF 52D): See „User Interface" section.
6. Remote Control Connector Plug (LF 56D only): For connecting a Remote Control Kit or Cross Switch welding gun.
7. U7 User Interface (LF 56D): See „User Interface" section.

Back panel LF 52D, LF 56D

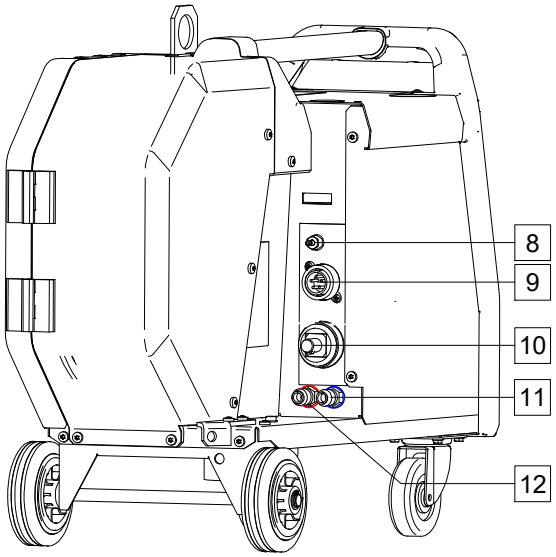


Figure 3

8. Gas quick coupling socket: For connecting a gas pipe.

WARNING

The machine allows the use all suitable shielding gases with a maximum pressure of 5 bar.

9. Control Socket: 5 pins socket for connecting the power source. The CAN protocol is used for communication between the power source and wire feeder.
10. Current Socket: For connecting a welding cable.
11. Quick coupling socket: Coolant inlet (supplies cool coolant from cooler to the welding machine).
12. Quick coupling socket: Coolant outlet (takes warm coolant from welding machine to cooler).
13. Gas Flow Regulator Plug: Gas Flow Regulator can be purchased separately. See "Accessories" section.
14. Switch: wire feed / gas purge: This switch allows wire feeding (wire test) and gas flow (gas test) without switching on the output voltage.

15. USB port (LF 56D only): For connecting the USB memory and software updates.

16. Wire Spool Holder: For wire spool with maximum 16kg weight. Holder allows mounting plastic, steel and fiber spools on the 51mm spindle.

WARNING

Be sure that wire spool case has to be completely closed during welding.

17. Spool with wire: Not supplied as standard.

18. Wire drive: 4-rolls wire drive.

WARNING

The side panel and wire spool case have to be completely closed during welding.

WARNING

Do not use handle to move the machine during operation. See "Accessories" section.

LF 52D

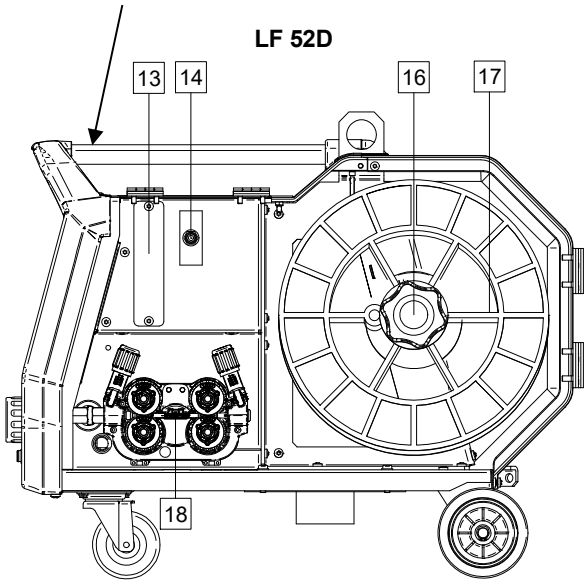


Figure 4

LF 56D

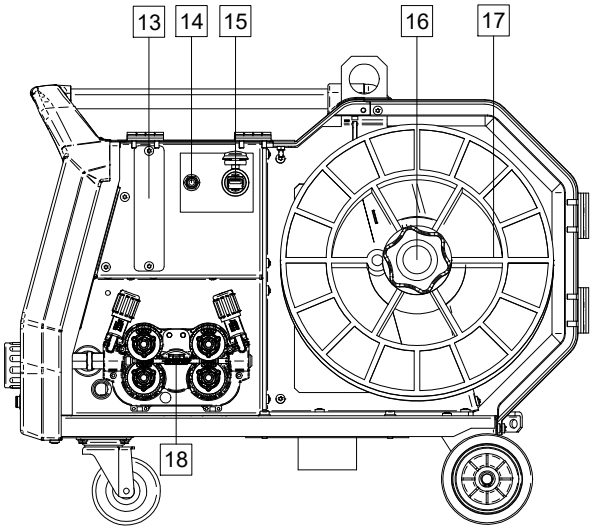


Figure 5

User Interface

Wire feeder **LF 52D** is based on a standard interface (U0) with two separate LED displays, while the **LF 56D** is based on a 7'' TFT display.

Standard Interface (U0)

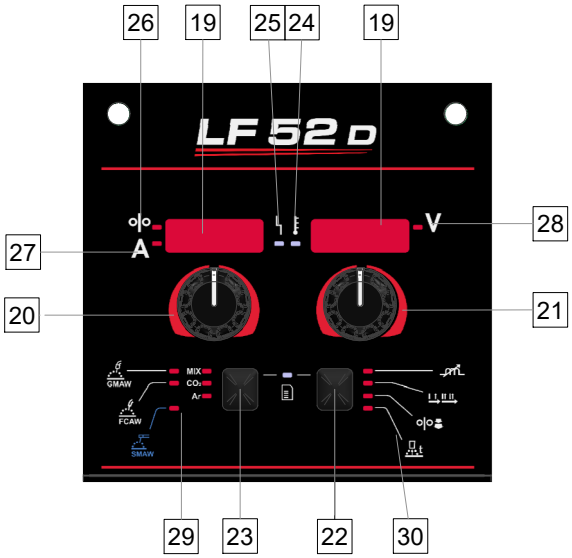


Figure 6

19. Display:
    - Left display: Shows wire feed speed or welding current. During welding shows the actual welding current value.
    - Right display: Shows the welding voltage in volts units or tuning value (Trim). During welding shows the actual welding voltage value.

20. Left Knob: Adjusts values on the left display.

21. Right Knob: Adjusts values on the right display.

22. Right Button: Enables scrolling, changing and setting welding parameters. Quick access.

23. Left Button: Enables changing the welding process and shielding gas.

24. Thermal Overload Indicator: It indicates that the machine is overloaded or that the cooling is not sufficient.

25. Status Indicator: A two color light that indicates system errors. Normal operation is steady green light. LED light conditions and their meanings are described in Table 1.

WARNING

The status light will flash green, and sometimes red and green when the machine is first turned on. When the power source is powered it can take as long as 60 seconds for the machine to be ready to weld. This is a normal situation as the machine goes through initialization.

Table 1 LED Light Conditions

LED Light Condition	Meaning **Only machines which using CAN protocol for communication**
Steady Green	Correct operation mode. The power source communicates normally with all peripheral equipment.
Blinking Green	Occurs during a system reset, and indicates that the power source is mapping (identifying) additional connected components in the system. This condition occurs for 1-10 seconds after connecting the power supply or when the system configuration is changed during operation.
Alternating Green and Red	If the status lights are flashing any combination of red and green color, it means that an error is present in the machine. Each digit of the code represents the number of red flashes of the indicator light. Individual code digits are flashed in red with a long pause between digits. If more than one code is present, the codes will be separated by green light. Read the error code before you turn of the machine. To clear the error, turn off the machine, wait a few seconds, and then turn on the machine again. If the error remains, a maintenance is required. Please contact the nearest authorized service center or Lincoln Electric and report the error code.
Steady Red	Indicate no communication in CAN protocol.

26. LED Indicator: Informs that the left display shows the wire feed speed.

27. LED Indicator: Informs that the left display shows the ampere units.

28. LED Indicator: Informs that the right display shows the volts units.

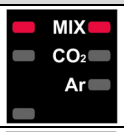
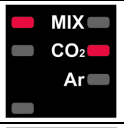
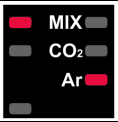
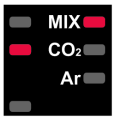
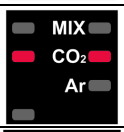
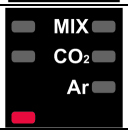
29. Welding Programs Indicators: LED light indicate the active manual weld mode. See Table 2.

30. Welding Parameters Indicators: LED light indicate the active weld parameters. See Table 3.

Welding process change

It is possible to quick recall of one of the six manual welding programs - Table 2.

Table 2 Manual Weld Modes:

Symbol	LED	Process
GMAW		GMAW MIX
		GMAW CO_2
		GMAW AR
FCAW		FCAW MIX
		FCAW CO_2
SMAW		SMAW

To set the welding process:

- Press the left button [23], to select the right weld mode – LED of the current program flashes.
- Again press the left button, the active weld mode indicator will skip to the next program.

WARNING

During switching the displays show a “dotted line” on the screen.

Quick Access and Configuration Menu for U0 User Interface

Users have access to the two menu levels:

- Quick Access – basic menu related with welding parameters settings
- Configuration Menu – advanced menu associated with machine configuration and selected welding parameters.

⚠ WARNING

Access to the menu is not available under welding, or if there is a fault (status LED is not solid green).

Availability of the parameters in the Quick Access and Configuration Menu depend on the selected welding program / welding process.

After the device has been restarted the user settings are restored.

Parameter Selection Mode – the parameter name on the left display [19] blinking.

Parameter Change Value Mode – the parameter value on the right display [19] blinking.

Basic level

To enter the menu (Table 3):

- Press the right button [22] to select mode.
- Use the right knob [21] to set the value of parameter.
- Press the left button [23], to return to main menu.

⚠ WARNING

System returns to the main menu automatically after 2 seconds of inactivity.

Table 3 The default settings of basic menu

Parameter		Definition
		**Inductance** – controls the arc characteristics when short-arc welding. Increasing Inductance higher than 0.0 provides a crisper arc (more spatter) while decreasing the inductance less than 0.0 provides a softer arc (less spatter). • Regulation range: from -10.0 to +10.0. • Factory default, Pinch is OFF.
		**Torch trigger mode (2-step / 4-step) -** changes the function of the torch trigger. • 2 Step trigger operation turns welding on and off as direct response to the trigger. Welding process starts when the torch trigger is press. • 4-Step mode allows to continue welding, when the torch trigger is released. To stop welding, the torch trigger should be pressed again.4-step model facilitates to making long welds.
		**Run-in WFS** – sets the wire feed speed from the time the torch trigger is pressed until an arc is established. • Regulation range: from minimum to maximum of the wire feed speed. • Factory default, Run-in WFS is turned off.
		**Burnback Time** – amount of time that the welding is continue after the wire stops feeding. It prevents the wire from sticking in the puddle and prepares the end of the wire for the next arc start. • Burnback Time is set automatically (0,07s) • Regulation range: from 0s (OFF) to 0,25s

Advanced menu

To enter the menu (Table 4):

- Press the right [22] and left button [23] simultaneously, to access the menu.
- Use the left knob [20], to choose the parameter.
- Press the right button [22], to confirm.
- Use the right knob [21] to choose the value of parameter. At any time you can return to the list of parameters using the left button [23].
- Press the right button [22], to confirm.
- Press the left button [23], to return to main menu.

⚠ WARNING

To exit from the menu with saved changes, press the left [23] and right button [22] simultaneously.

System returns to the main menu automatically after one minute of inactivity.

Table 4 The default settings of advanced menu

Parameter	Definition
	**Spot Welding Settings** – sets the total welding time in the range of 0-120 seconds, even if the torch trigger is still pressed. This function does not work in 4-Step Trigger Mode.
	**Crater Procedure** – turn ON/OFF the crater procedure: • "ON" = Crater can be adjusted. The crater parameter is assigned to the right button on user interface. During adjusting of crater, the LED indicator is on. • "OFF" (factory default) = The Crater Procedure adjustment is OFF and ignored after pressing the right button on the user interface.
	**Preflow Time** – time that shielding gas flows after the torch trigger was pressed before prior to wire feeding. • Factory default, Preflow Time is set at 0.2 seconds. • Regulation range: od 0.1 seconds do 25 seconds.
	**Postflow Time** – time that shielding gas flows after the welding sopped. • Factory default, Postflow Time is set at 0.5 seconds. • Regulation range: from 0.1 seconds to 25 seconds.
	**Arc/Loss Time** – this option can be used to optionally shut off output if an arc is not established, or is lost for a specified amount of time. Error 269 will be displayed if the machine times out. If the value is set to OFF, machine output will not be turned off if an arc is not established or will output be turned off if an arc is lost. When a value is set, the machine output will shut off and error 269 will be displayed if an arc is not established within the specified amount of time after the trigger is pulled or if the trigger remains pulled after an arc is lost. To prevent errors, set the appropriate Arc/Loss Time values taking into account all parameters (Run-in WFS, Wire Feed Speed, Burnback Time etc.). • Regulation range: from OFF (0) to 10 seconds, (OFF is factory default). **Note:** This parameter is disabled while stick welding process.
	**Screen Brightness** – enables setting the display brightness level. • Factory default: 5. • Regulation range: from 1 to 10
	**Feedback Persist** – determines how the welding current value will be displayed after stopped welding. • "n0" (factory default) = last recorded feedback value will blinked for 5 seconds after stopped welding, then return to default values on display. • "Yes" - last recorded feedback value will blinked after stopped welding until the trigger will pressed or the knob will be used or arc ignition.

	**Wire Feed Speed (WFS) unit** – enables change of the displayed WFS unit: • CE (factory default) - m/min; • US - in/min.
	**Hot Start** - percentage regulation of growth nominal current value during arc start. It cause temporary rise up of output current which makes ignition of the electrode easier. • Factory default: 0.0 • Regulation range: from -10.0 to +10.0. This parameter is only for SMAW.
	**Arc Force** - temporary increased of the output current to prevent sticking of the electrode in order to facilitate welding process. Lower values will provided less short circuit current and a softer arc. Higher settings will provided a higher short circuit current, more forceful arc and possibly more spatter. • Factory default: 5.0 • Regulation range: from 0.0 to +10.0
	**Restore to Factory Settings** – it allows to restore the factory settings.
 	**View Software version** – used for viewing the software version on user interface. • First view shows the effect after getting access to the Soft menu. • Second view shows the effect after getting access to parameter edit.
	**Cooler** – option is available when cooler is connected. This function allows following cooler modes: • FILL – Filling. • AUTO – Automatic mode. • On – Cooler on in the continuous mode. • Off – Cooler off. Refer cooler instruction manual for more details**.**

Interface Marking Guide

Table 5 Symbols description

	Select Welding Process		Select Welding Program		Process SMAW (MMA)
	Process GMAW (MIG/MAG)		Process FCAW		Recall from the User Memory
	Save to the User Memory		User setup		Advanced Setup
	Configuration		Arc Force		Hot Start
	Pinch		Preflow Time		Postflow Time
	Burnback Time		Run-in WFS		Select Function of Gun Trigger (2-Step / 4-Step)
	Limits		2-Step		Crater Procedure
	Spot Welding Settings		4-Step		Start Procedure
	Cold Feed		Brightness Level		Restore Factory Setting
	Machine information		A/B Procedure		USB Memory
	Check Mark		Resignation Mark		Access control
	Error		ESCape Button		Confirm Button
	Wire Feed Speed [in/min]		Welding Voltage		Welding Current
	Locked		Support		Wire Feed Speed [m/min]
	Set the Language		Advanced UI look		Display Configuration Settings
	Standard UI look		Enable/ Disable Jobs Save		Select Item to lock
	Enable/ Disable Jobs Mode or Select Jobs for Jobs Mode		Save		Lock
	Weld History		Load		Service weld logs
	SnapShot		Cooler		Service Menu

User Interface Advanced (U7)

Figure 7

Detailed operation of User Interface U7 can be found in the Advanced (U7) IM3170 user manual.

Loading the Wire Spool

Wire spool type S300 and BS300 can be installed on the wire spool support without adapter.
Wire spool type S200, B300 or Readi-Reel® can be installed with use applicable adapter that must be purchased separately (see "Accessories" chapter).

Wire Spool Type S300 & BS300 Loading

WARNING

Turn the input power OFF at the welding power source before installation or changing a wire spool.

- Turn the input power OFF.
- Open the spool wire case.
- Unscrew the Locking Nut [16] and remove it from the Spindle.
- Place the spool type S300 or BS300 [17] on the Spindle [16] making certain the Spindle Brake Pin is put in the hole in back side of spool type S300 or SB300.

WARNING

Position the spool type S300 or SB300 so that it will rotate in the same direction as wire feed and electrode wire should feed from the bottom side of the spool.

- Install the locking nut [16]. Make sure that the locking nut is tightened.

Wire Spool Type S200 Loading

WARNING

Turn the input power OFF at the welding power source before installation or changing a wire spool.

- Turn the input power OFF.
- Open the spool wire case.
- Unscrew the Locking Nut [16] and remove it from the Spindle.
- Place the adapter of spool type S200 on the spindle [16] making certain the spindle brake pin is put in the hole in back side of the adapter. The adapter of spool type S200 can be purchased separately (see "Accessories" chapter).
- Place the spool type S200 [17] on the spindle [16] making certain that the adapter brake pin is put in the hole in the back side of the spool.

WARNING

Position the spool type S200 so that it will rotate in the same direction as wire feed and electrode wire should feed from the bottom side of the spool.

- Install the locking nut [16]. Make sure that the locking nut is tightened.

Wire Spool Type B300 Loading

WARNING

Turn the input power OFF at the welding power source before installation or changing a wire spool.

- Turn the input power OFF.
- Open the spool wire case.
- Unscrew the Locking Nut [16] and remove it from the Spindle.
- Place the adapter of spool type B300 on the spindle [17]. Make certain that the spindle brake pin is put in the hole in the back side of the adapter. The adapter of spool type B300 can be purchased separately (see "Accessories" chapter).
- Install the locking nut [16]. Make sure that the locking nut is tightened
- Rotate the spindle and adapter so the retaining adapter spring of the adapter is at the 12 o'clock position.
- Place the spool type Readi-Reel® on the adapter. Set one of the spool wire inside in the groove of the locking spring.

WARNING

Position the spool type B300 so that it will rotate in the same direction as wire feed and electrode wire should feed from the bottom side of the spool.

Wire Spool Type Readi-Reel® Loading

- Turn the input power OFF.
- Open the spool wire case.
- Unscrew the Locking Nut [16] and remove it from the Spindle.
- Place the adapter of spool type Readi-Reel® on the spindle [17]. Make certain that the spindle brake pin is put in the hole in the back side of the adapter. The adapter of spool type Readi-Reel® can be purchased separately (see "Accessories" chapter).
- Install the locking nut [16]. Make sure that the locking nut is tightened.
- Rotate the spindle and adapter so the retaining spring of the adapter is at the 12 o'clock position.
- Place the spool type Readi-Reel® on the adapter. Set one of the spool wire inside in the groove of the locking spring.

⚠ WARNING

Position the spool type Readi-Reel® so that it will rotate in the same direction as wire feed and electrode wire should feed from the bottom side of the spool.

Loading the Electrode Wire

- Turn the input power OFF.
- Open the spool wire case.
- Unscrew the locking nut of the sleeve [16].
- Load the spool wire on the sleeve such that the spool turns clockwise when the wire is feed into the wire feeder.
- Make sure that the spindle brake pin goes into the fitting hole on the spool.
- Screw in the locking nut of the sleeve.
- Open the wire drive door.
- Put on the wire roll with the correct groove corresponding to the wire diameter.
- Free the end of the wire and cut off the bent end making sure it has no burr.

⚠ WARNING

Sharp end of the wire can hurt.

- Rotate the wire spool clockwise and thread the end of the wire into the wire feeder as far as the Euro Socket.
- Adjust force pressure roll of the wire feeder properly.

Adjustments of Brake Torque of Sleeve

To avoid spontaneous unrolling of the welding wire the sleeve is fitted with a brake.
Adjustment is carried by rotation of its screw M10, which is placed inside of the sleeve frame after unscrewing the brake locking nut.

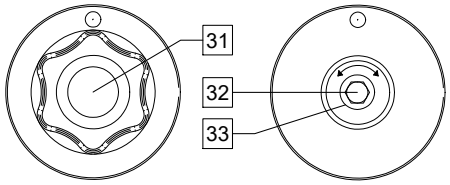


Figure 8

31. Locking Nut.
32. Adjusting Screw M10.
33. Pressing Spring.

Turning the M10 screw clockwise increases the spring tension and increase the brake torque

Turning the M10 screw anticlockwise decreases the spring tension and decrease the brake torque.

After finishing of adjustment, you should screw brake locking nut again.

Adjusting of Pressure Roll Force

The pressure arm controls the amount of force the drive rolls exert on the wire. Pressure force is adjusted by turning the adjustment nut clockwise to increase force, counterclockwise to decrease force. Proper adjustment of pressure arm gives the best welding performance.

⚠ WARNING

If the roll pressure is too weak the roll will slide on the wire. If the roll pressure is set too heavy the wire may be deformed, which cause feeding problems in the welding. The pressure force should be set properly. For this purpose decrease the pressure force slowly until the wire just begins to slide on the drive roll and then increase the force slightly by turning of the adjustment nut by one turn.

Inserting Electrode Wire into Welding Torch

- Turn the welding machine off.
- Depending of welding process connect proper welding torch to the euro socket. Rated parameters of the torch and welding machine should be matched.
- Depends on type of gun must be remove the nozzle from the gun and contact tip or protection cap and contact tip.
- Turn the welding machine on.
- Hold the Cold Feed/Gas Purge Switch [14] or use torch trigger until wire appear over threaded end of the gun.
- When the Cold Feed switch or torch trigger is released spool of wire should not unwind.
- Adjust wire spool brake accordingly.
- Turn the welding machine off.
- Install a proper contact tip.
- Depending on the welding process and the type of the gun, install the nozzle (GMAW process) or protection cap (FCAW process).

⚠ WARNING

Take precaution to keep eyes and hands away from the end of the gun while the wire is being come out of the threaded end.

Changing Driving Rolls

⚠ WARNING

Turn the input power off before installation or changing drive rolls.

Wire Feeders **LF 52D** i **LF 56D** are equipped with drive roll V1.0/V1.2 for steel wire. For others wires and sizes it is required to install proper drive rolls kit (see "Accessories" chapter) and follow instruction:

- Turn the input power OFF.
- Unlock 4 rolls by turning 4 Quick-Change Carrier Gear [34].
- Release the pressure roll levers [38].
- Change the drive rolls [35] corresponding to the used wire.

⚠ WARNING

Be sure that the gun liner and contact tip are also size to match the selected wire size.

⚠ WARNING

For wires with the diameter larger than 1.6mm, the following parts have to be changed:

- The guide tube of the feeding console [36] and [37].
- The guide tube of the Euro Socket [39].

- Lock 4 new rolls by turning 4 Quick-Change Carrier Gear [34].
- Insert the wire through the guide tube, over the roller and through the guide tube of Euro Socket into liner of gun. The wire can be pushed into the liner manually for a few centimeters, and should feed easily and without any force.
- Lock the pressure roll levers [38].

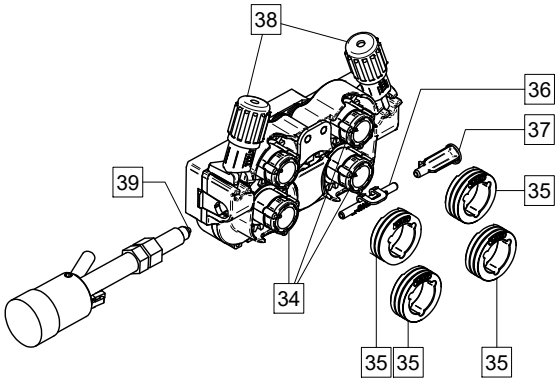


Figure 9

Gas Connection

WARNING

- CYLINDER may explode if damaged.
- Always fix the gas cylinder securely in an upright position, against a cylinder wall rack or purpose-made cylinder cart.
- Keep cylinder away from areas where it may be damaged, heated or electrical circuits to prevent possible explosion or fire.
- Keep cylinder away from welding or other live electrical circuits.
- Never lift welder with cylinder attached.
- Never allow welding electrode to touch cylinder.
- Build up of shielding gas may harm health or kill. Use in a well-ventilated area to avoid gas accumulation.
- Close the gas cylinder valves thoroughly when not in use to avoid leaks.

WARNING

Welding machine supports all suitable shielding gases at a maximum pressure of 5,0 bar.

WARNING

Before use, make sure that the gas cylinder contains gas suitable for the intended purpose.

- Turn off input power at the welding power source.
- Install a proper gas flow regulator to the gas cylinder.
- Connect the gas hose to the regulator using the hose clamp.
- The other end of gas hose connect to the gas connector on the power source rear panel or directly to the quick connector located on the rear panel of the wire feeder [8]. More details you will found in power source instruction manual.
- Connect by dedicated interconnection cable (see „Accessories" chapter) wire feeder and power source.
- Turn on input power at the welding power source.
- Open the gas cylinder valve.
- Adjust the shielding gas flow of the gas regulator.
- Check gas flow with Gas Purge Switch [14].

WARNING

To weld GMAW process with CO_2 shielding gas, CO_2 gas heater should be used.

Transport and Lifting

WARNING

Falling equipment can cause injury and damage to unit.

During transportation and lifting with a crane, adhere to the following rules:

- The device contains elements adapted for transport.
- For lifting a suitable lifting equipment capacity.
- For lifting and transport use only dedicated belt [40] which is basic wire feeder equipment.

WARNING

Welding operation under lifting is permitted only with belt [40].

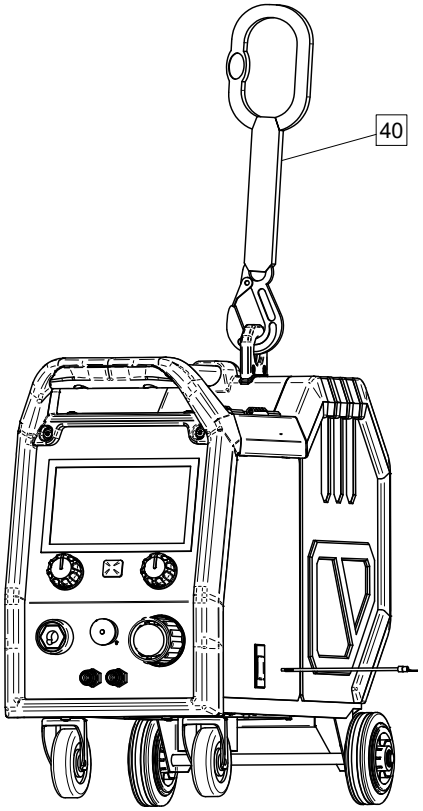


Figure 10

Maintenance

WARNING

For any repair operations, modifications or maintenances, it is recommended to contact the nearest Technical Service Center or Lincoln Electric. Repairs and modifications performed by unauthorized service or personnel will cause, that the manufacturer's warranty will be lost.

Any noticeable damage should be reported immediately and repaired.

Routine maintenance (everyday)

- Check condition of insulation and connections of the work leads and insulation of power lead. If any insulation damage exists replace the lead immediately.
- Remove the spatters from the welding gun nozzle. Spatters could interfere with the shielding gas flow to the arc.
- Check the welding gun condition: replace it, if necessary.
- Check condition and operation of the cooling fan. Keep clean its airflow slots.

Periodic maintenance (every 200 working hours but at least once a year)

Perform the routine maintenance and, in addition:

- Keep the machine clean. Using a dry (and low pressure) airflow, remove the dust from the external case and from the cabinet inside.
- If it is required, clean and tighten all weld terminals.

The frequency of the maintenance operations may vary in accordance with the working environment where the machine is placed.

WARNING

Do not touch electrically live parts.

WARNING

Before removed case, machine has to be turned off and the power lead has to be disconnected from mains socket.

WARNING

Mains supply network must be disconnected from the machine before each maintenance and service. After each repair, perform proper tests to ensure safety.

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.

Error

Table 6 Interface Components

Figure 11

Interface description
41. Error code 42. Error description.

Table 7 shows list of basic errors that can appear. To get full list of error codes, please contact with authorize Lincoln Electric service.

Table 7 Error codes

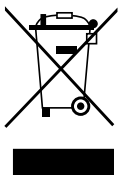
Error code	Symptoms	Cause	Recommended Course of Action
6	Power source is not connected.	The User Interface cannot seem to communicate with the Power Source.	• Check cable connections between the power source and the user interface.
36	The machine has shut down because it has overheated.	System detected a temperature level beyond the normal system operating limit.	• Be sure process does not exceed duty cycle limit of the machine. • Check the setup for proper air flow around and through the system. • Check that the system has been properly maintained, including removal of accumulated dust and dirt from the intake and outlet louvers. • User interface show information when machine will be cooled down. To continue welding operation Please press left knob or start welding operation by the torch trigger. 
81	Motor overload, long term.	The wire drive motor has overheated. Check that the electrode slides easily through the gun and cable.	• Remove tight bends from the gun and cable. • Check that the spindle brake is not too tight. • Verify the adequacy of the electrode to the welding process. • Verify a high quality electrode is being used. • Check drive rolls alignment and gears. • Wait for the error to reset and the motor to cool (approximately 1 minute).

WARNING

If for any reason you do not understand the test procedures or are unable to perform the tests/repairs safely, contact your Local Lincoln Authorized Field Service Facility for technical troubleshooting assistance before you proceed.

WEEE

07/06



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

Part List reading instructions

- Do not use this part list for a machine if its code number is not listed. Contact the Lincoln Electric Service Department for any code number not listed.
- Use the illustration of assembly page and the table below to determine where the part is located for your particular code machine.
- Use only the parts marked "X" in the column under the heading number called for in the assembly page (# indicate a change in this printing).

First, read the Part List reading instructions above, then refer to the "Spare Part" manual supplied with the machine that contains a picture-descriptive part number cross-reference.

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

Refer to the "Spare Part" manual supplied with the machine.

Accessories

K14183-1	POWERTEC® i350S
K14184-1	POWERTEC® i420S
K14185-1	POWERTEC® i500S
K14204-1	WIRE FEEDER DRUM QUICK CONNECTOR
K14175-1	GAS FLOW METER KIT (POWERTEC-i)
K10095-1-15M	REMOTE CONTROL 6-PINS, 15M
K2909-1	6-PIN/12-PIN ADAPTER
K14091-1	REMOTE MIG LF 45 PWC300-7M (CS/PP)
E/H-400A-70-5M	ELECTRODE HOLDER 400A/70MM² - 5M
K10158-1	ADAPTER FOR SPOOL TYPE B300
K10158	ADAPTER FOR SPOOL TYPE B300
R-1019-125-1/08R	ADAPTER FOR SPOOL S200
FL060583010	FLAIR 600 GOUGING TORCH WITH MOUNTED LEAD 2,5M
MIG/MAG TORCHES	
W10429-36-3M	LGS2 360 G-3.0M MIG GUN AIR COOLED
W10429-36-4M	LGS2 360 G-4.0M MIG GUN AIR COOLED
W10429-36-5M	LGS2 360 G-5.0M MIG GUN AIR COOLED
W10429-505-3M	LGS2 505 W-3.0M MIG GUN WATER COOLED
W10429-505-4M	LGS2 505 W-4.0M MIG GUN WATER COOLED
W10429-505-5M	LGS2 505 W-5.0M MIG GUN WATER COOLED
PROMIG MAGNUM	
W000345072-2	PROMIG MAGNUM 370 3M
W000345073-2	PROMIG MAGNUM 370 4.5M
W000345069-2	PROMIG MAGNUM 400W 3M
W000345070-2	PROMIG MAGNUM 400W 4.5M
W000345075-2	PROMIG MAGNUM 500W 3M
W000345076-2	PROMIG MAGNUM 500W 4.5M
ROLL KIT FOR SOLID WIRES	
KP14150-V06/08	ROLL KIT 0.6/0.8VT FI37 4PCS GREEN/BLUE
KP14150-V08/10	ROLL KIT 0.8/1.0VT FI37 4PCS BLUE/RED
KP14150-V10/12	ROLL KIT 1.0/1.2VT FI37 4PCS RED/ORANGE
KP14150-V12/16	ROLL KIT 1.2/1.6VT FI37 4PCS ORANGE/YELL
KP14150-V16/24	ROLL KIT 1.6/2.4VT FI37 4PCS YELL/GREY
KP14150-V09/11	ROLL KIT 0.9/1.1VT FI37 4PCS
KP14150-V14/20	ROLL KIT 1.4/2.0VT FI37 4PCS
ROLL KIT FOR ALUMINIUM WIRES	
KP14150-U06/08A	ROLL KIT 0.6/0.8AT FI37 4PCS GREEN/BLUE
KP14150-U08/10A	ROLL KIT 0.8/1.0AT FI37 4PCS BLUE/RED
KP14150-U10/12A	ROLL KIT 1.0/1.2AT FI37 4PCS RED/ORANGE
KP14150-U12/16A	ROLL KIT 1.2/1.6AT FI37 4PCS ORANGE/YELL
KP14150-U16/24A	ROLL KIT 1.6/2.4AT FI37 4PCS YELL/GREY
ROLL KIT FOR CORED WIRES	
KP14150-V12/16R	ROLL KIT 1.2/1.6RT FI37 4PCS ORANGE/YELL
KP14150-V14/20R	ROLL KIT 1.4/2.0RT FI37 4PCS
KP14150-V16/24R	ROLL KIT 1.6/2.4RT FI37 4PCS YELL/GREY
KP14150-V09/11R	ROLL KIT 0.9/1.1RT FI37 4PCS
KP14150-V10/12R	ROLL KIT 1.0/1.2RT FI37 4PCS -/ORANGE

WIRE GUIDES	
0744-000-318R	WIRE GUIDE SET BLUE Ø0.6-1.6
0744-000-319R	WIRE GUIDE SET RED Ø1.8-2.8
D-1829-066-4R	EURO WIRE GUIDE Ø0.6-1.6
D-1829-066-5R	EURO WIRE GUIDE Ø1.8-2.8
INTERCONNECION CABLES	
K14198-PG	CABLE PACK 5PIN G 70MM2 1 M
K14198-PG-5M	CABLE PACK 5PIN G 70MM2 5M
K14198-PG-10M	CABLE PACK 5PIN G 70MM2 10M
K14198-PG-15M	CABLE PACK 5PIN G 95MM2 15M
K14198-PG-20M	CABLE PACK 5PIN G 95MM2 20M
K14198-PG-25M	CABLE PACK 5PIN G 95MM2 25M
K14198-PG-30M	CABLE PACK 5PIN G 95MM2 30M
K14199-PGW	CABLE PACK 5PIN W 95MM2 1 M
K14199-PGW-5M	CABLE PACK 5PIN W 95MM2 5M
K14199-PGW-10M	CABLE PACK 5PIN W 95MM2 10M
K14199-PGW-15M	CABLE PACK 5PIN W 95MM2 15M
K14199-PGW-20M	CABLE PACK 5PIN W 95MM2 20M
K14199-PGW-25M	CABLE PACK 5PIN W 95MM2 25M
K14199-PGW-30M	CABLE PACK 5PIN W 95MM2 30M

Connection configuration