

# INVERTEC® 275S

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## OPERATOR'S MANUAL



ENGLISH





**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:	
.....	.....

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# Technical Specifications

NAME		INDEX		
INVERTEC® 275S INVERTEC® 275S (VRD)		K14242-1 K14242-2		
INPUT				
INVERTEC® 275S	Input Voltage $U_1$		EMC Class	
	400V +/- 15% 3 phases		A	
	$I_{1eff}$		$I_{1max}$	
	9.8A		15,3A	
	Input Power at Rated Cycle	Input Amperes $I_{1max}$	PF (400V)	
SMAW	7,1 kVA @100%	10,1A	0,79	
	9,1 kVA @60%	12,9A	0,85	
	11 kVA (@25%)	15,3A	0,89	
GTAW	5,9 kVA @100%	8,4A	0,75	
	6,9 kVA @60%	9,8A	0,78	
	8,3 kVA @35%	11,8A	0,82	
RATED OUTPUT				
SMAW	Duty Cycle 40°C (based on a 10 min. period)		Output Current $I_2$	
	100%		180A	
	60%		230A	
	25%		270A	
GTAW	100%		200A	
	60%		230A	
	40%		270A	
OUTPUT RANGE				
SMAW	Welding Current Range		Peak Open Circuit Voltage $U_0$	
	5 - 270A		K14242-1: 70V	
GTAW	5 - 270A		K14242-2: 11.7V	
RECOMMENDED INPUT CABLE AND FUSE SIZES				
	Fuse Type gR or Circuit Breaker Type Z		Power Lead	
	16A, 400V AC		4 Conductors, 1,5mm <sup>2</sup>	
DIMENSIONS AND WEIGHT				
	Weight	Height	Width	Length
	14,1Kg	360 mm	230 mm	498 mm
OTHERS				
	Protection Rating		Maximum Gas Pressure	
	IP23		0,5 MPa (5 bar)	
	Operating Temperature		Storage Temperature	
	from -10°C to +40°C		from -25°C to +55°C	

# ECO design information

The equipment has been designed in order to be compliant with the Directive 2009/125/EC and the Regulation 2019/1784/EU.

Efficiency and idle power consumption:

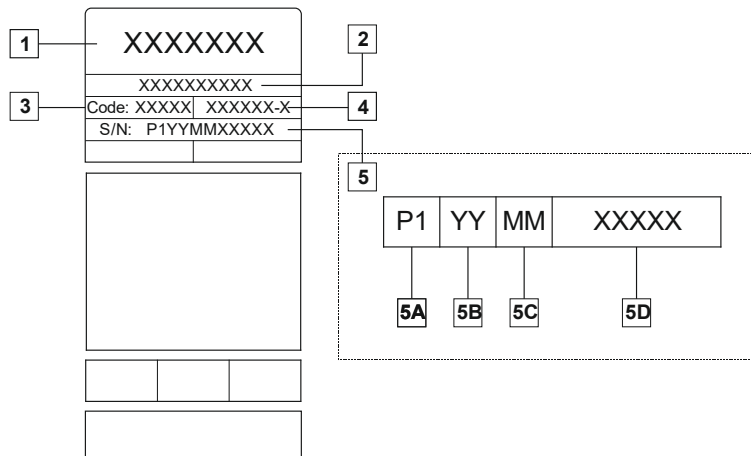
Index	Name	Efficiency when max power consumption / Idle power consumption	Equivalent model
K14242-1 K14242-2	INVERTEC® 275S	85% / 19W	No equivalent model

Idle state occurs under the condition specified in below table

IDLE STATE	
Condition	Presence
MIG mode	
TIG mode	X
STICK mode	
After 30 minutes of non-working	X
Fan off	X

The value of efficiency and consumption in idle state have been measured by method and conditions defined in the product standard EN 60974-1:20XX.

Manufacturer's name, product name, code number, product number, serial number and date of production can be read from rating plate.



Where:

- 1- Manufacturer name and address
- 2- Product name
- 3- Code number
- 4- Product number
- 5- Serial number
  - 5A- country of production
  - 5B- year of production
  - 5C- month of production
  - 5D- progressive number different for each machine

Typical gas usage for **MIG/MAG** equipment:

Material type	Wire diameter [mm]	DC electrode positive		Wire Feeding [m/min]	Shielding Gas	Gas flow [l/min]
		Current [A]	Voltage [V]			
Carbon, low alloy steel	0,9 ÷ 1,1	95 ÷ 200	18 ÷ 22	3,5 – 6,5	Ar 75%, CO <sub>2</sub> 25%	12
Aluminium	0,8 ÷ 1,6	90 ÷ 240	18 ÷ 26	5,5 – 9,5	Argon	14 ÷ 19
Austenitic stainless steel	0,8 ÷ 1,6	85 ÷ 300	21 ÷ 28	3 - 7	Ar 98%, O <sub>2</sub> 2% / He 90%, Ar 7,5% CO <sub>2</sub> 2,5%	14 ÷ 16
Copper alloy	0,9 ÷ 1,6	175 ÷ 385	23 ÷ 26	6 - 11	Argon	12 ÷ 16
Magnesium	1,6 ÷ 2,4	70 ÷ 335	16 ÷ 26	4 - 15	Argon	24 ÷ 28

**Tig Process:**

In TIG welding process, gas usage depends on cross-sectional area of the nozzle. For commonly used torches:

Helium: 14-24 l/min

Argon: 7-16 l/min

**Notice:** Excessive flow rates causes turbulence in the gas stream which may aspirate atmospheric contamination into the welding pool.

**Notice:** A cross wind or draft moving can disrupt the shielding gas coverage, in the interest of saving of protective gas use screen to block air flow.



**End of life**

At end of life of product, it has to be disposal for recycling in accordance with Directive 2012/19/EU (WEEE), information about the dismantling of product and Critical Raw Material (CRM) present in the product, can be found at <https://www.lincolnelectric.com/en-gb/support/Pages/operator-manuals-eu.aspx>

# 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.

## **WARNING**

Provided that the public low voltage system impedance at the point of common coupling is lower than:

- 224mΩ for the **INVERTEC® 275S**.

This equipment is compliant with IEC 61000-3-11 and IEC 61000-3-12 and can be connected to public low voltage systems. It is the responsibility of the installer or user of the equipment to ensure, by consultation with the distribution network operator if necessary, that the system impedance complies with the impedance restrictions.

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 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.



## **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.

	<p><b>WARNING:</b> 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.</p>
	<p><b>READ AND UNDERSTAND INSTRUCTIONS:</b> 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.</p>
	<p><b>ELECTRIC SHOCK CAN KILL:</b> 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.</p>
	<p><b>ELECTRICALLY POWERED EQUIPMENT:</b> 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.</p>
	<p><b>ELECTRICALLY POWERED EQUIPMENT:</b> 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><b>ELECTROMAGNETIC FIELD MAY BE DANGEROUS:</b> 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.</p>
	<p><b>CE COMPLIANCE:</b> This equipment complies with the European Community Directives.</p>
	<p><b>ARTIFICIAL OPTICAL RADIATION:</b> 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.</p>
	<p><b>FUMES AND GASES CAN BE DANGEROUS:</b> 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><b>ARC RAYS CAN BURN:</b> 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.</p>

	<p><b>WELDING SPARKS CAN CAUSE FIRE OR EXPLOSION:</b> 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 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 use this equipment when flammable gases, vapors or flammable liquids are present.</p>
	<p><b>WELDED MATERIALS CAN BURN:</b> 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><b>CYLINDER MAY EXPLODE IF DAMAGED:</b> 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.</p>
	<p><b>MOVING PARTS ARE DANGEROUS:</b> 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>
	<p><b>SAFETY MARK:</b> This equipment is suitable for supplying power for welding operations carried out in an environment with increased risk of electric shock.</p>

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



# Introduction

**INVERTEC® 275S** is a SMAW power source with GTAW lift capability.

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

The complete package contains:

- Power source
- USB with operator's manual
- Label Lincoln

# Installation and Operator Instructions

Read this entire section before installation or operating the machine.

## Exploitation conditions

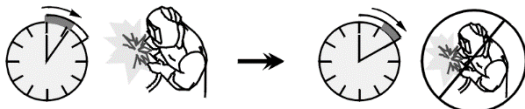
This machine can operate in harsh environments. However, it is important to use the following simple preventive measures that will ensure its long life and reliable operation:

- 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.

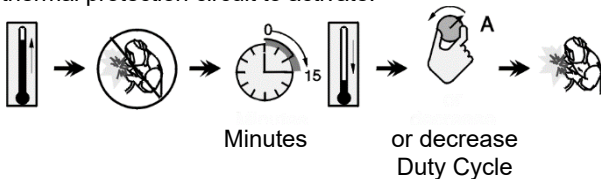
Example: 60% duty cycle:



Welding for 6 minutes.

Break for 4 minutes.

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



## Input Supply Connection

### **WARNING**

Only a qualified electrician can connect the welding machine to the supply network. Installation had to be made in accordance with the appropriate National Electrical Code and local regulations.

Check the input voltage, phase and frequency supplied to this machine before turning it on. Verify the connection of ground wires from the machine to the input source. The welding machine must be connected to a correctly installed plug-in socket with an earth pin. Input voltage is 400 Vac 50/60Hz. For more information about input supply refer to the technical specification section of this manual and to the rating plate of the machine.

Make sure that the amount of mains power available from the input supply is adequate for normal operation of the machine. The necessary delayed fuse or circuit breaker and cable sizes are indicated in the technical specification section of this manual.

### **WARNING**

The welding machine can be supplied from a power generator of output power at least 30% larger than input power of the welding machine.

### **WARNING**

When powering the machine from a generator be sure to turn off welder first, before generator is shut down, in order to prevent damage to welder!

## Controls and Operational Features

Front panel INVERTEC® 275S



Figure 1

1. Output negative socket.
2. Output positive socket.



### WARNING

For getting the proper electrode polarity for the electrode to be used. Consult the electrode data for this information.

3. USB connector
4. Remote Control Connector Plug: For connecting a Remote Control Kit.
5. User Interface: See “User Interface” section.

Back panel



Figure 2

1. Power Switch

## User Interface



Figure 3

1. Display: 5" TFT display shows welding processes parameters. Navigation is available in dedicated User Manual IM3187.
2. Left Button: Home & Back.
3. Central Knob: Parameter access and validation by pushing knob.
4. Right Button: Access to specific parameter of the current selected page.

For more information, refer to IM3187.

## 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:

- Power source does not include the eye bolt which can be used to transport or lifting the machine.
- To lift use of suitable lifting equipment capacity.
- To lifting and transport use a travers and minimum two belts.
- Lift only power source without gas cylinder, cooler, or/and any other accessories.

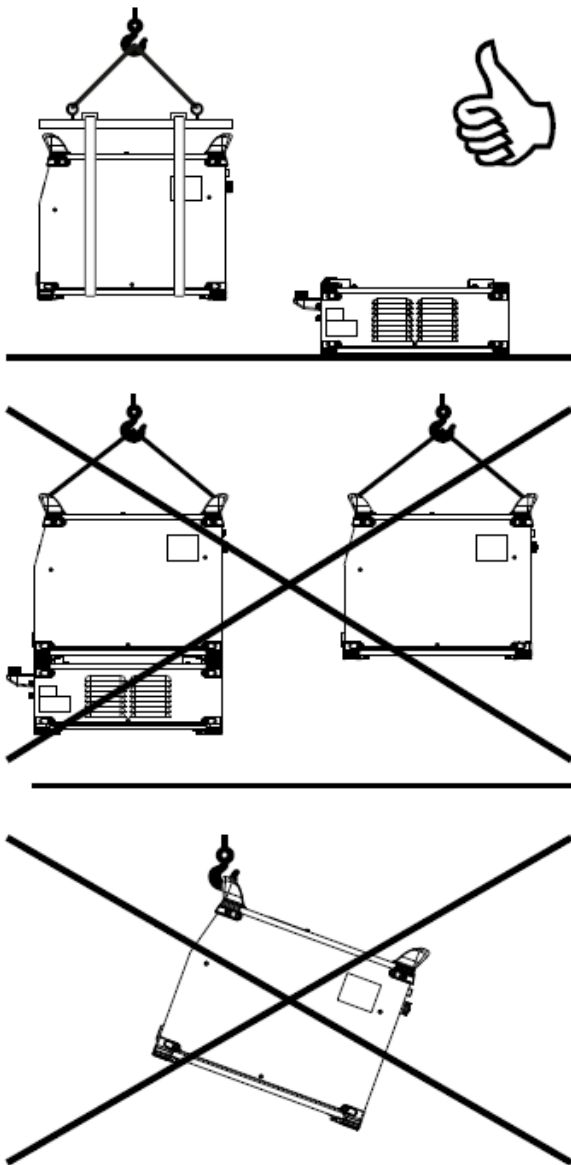


Figure 4

## 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](http://www.lincolnelectric.com) for any updated information.

## 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](http://www.lincolnelectric.com/en-gb/Support/Locator).

## Electrical Schematic

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

## Accessories

<b>TIG TORCHES AIR</b>	4mt	8mt
WTT2 17 V	W10529-14-4V	
WTT2 26 V		W000278885
<b>MMA CABLE KITS</b>		
Kit 25C25	W000011138	
Kit 25C25+	W000260683	
Kit 25C50	W000260684	
Kit 35C50	W000011139	
Kit 50C50	W000260681	
Kit 50C50+	W000260682	
<b>REMOTES CONTROL</b>		
Manual remote control	K10095-1-15M	
Foot remote control	K870	
<b>OPTIONS</b>		
Cart 24	K14191-1	
Carte 24 interface (to order with Cart 24)	K14384-1	
Cover	K14383-1	
Extension Cord 15m (*)	K14148-1	

Warning: Increasing the length of torch or return cables more than manufacturer maximum specified length will increase the risk of electric shock.

(\*) Only 2 Extension Cord for a maximum total length of 45m can be used.