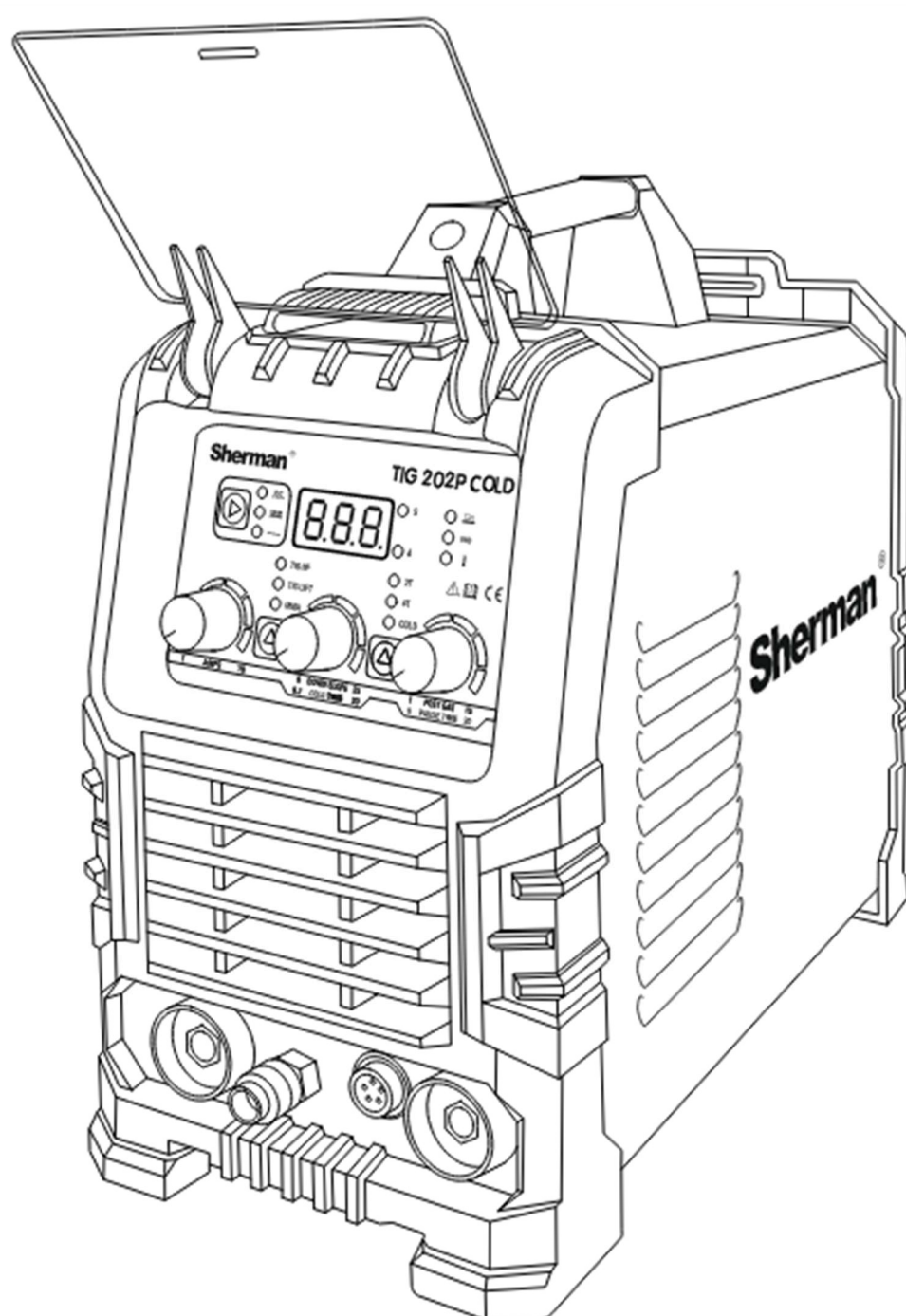


Sherman

V3.3 8/17/26

USER MANUAL

INVERTER WELDER TIG 202P COLD



CE



WARNING!

Before installing and starting the appliance, please refer to this manual

1. GENERAL COMMENTS

The device can only be commissioned and operated after carefully reading these Operating Instructions.

Due to the continuous technical development of the device, some of its functions may be modified and their operation may differ in detail from the descriptions in the manual. This is not a fault of the device, but the result of progress and continuous modification work of the device. The standard equipment of the device is subject to change.

Damage to the device caused by improper operation will void your warranty rights.
Any modifications to the welder are prohibited and will void the warranty.

2. SAFETY

Employees operating the device should have the necessary qualifications to perform welding work:

- they should have an electric welder license in the field of welding with coated electrodes and in gas shields,
- know the health and safety rules in the operation of electric power equipment, such as welding equipment and auxiliary equipment powered by electricity,
- know the rules of health and safety when operating cylinders and installations with compressed gas (argon),
- Be familiar with the contents of this manual and operate the appliance for its intended purpose.



WARNING



Welding may endanger the safety of the operator and other people in the vicinity. Therefore, special precautions must be taken when welding. Before starting welding, you should familiarize yourself with the health and safety regulations applicable at the workplace.

The following hazards exist during MMA and TIG electric welding:

- **ELECTRIC SHOCK**
- **NEGATIVE EFFECTS OF THE ARC ON HUMAN EYES AND SKIN**
- **VAPOR AND GAS POISONING**
- **BURNS**
- **EXPLOSION AND FIRE HAZARDS**
- **NOISE**

Electric shock prevention:

- connect the device to a technically efficient electrical system with proper protection and zeroing efficiency (additional protection against electric shock); other devices at the welder's workplace should also be checked and correctly connected to the network,
- install power cables when the device is switched off,
- Do not touch the non-insulated parts of the electrode holder, electrode and welded object at the same time, including the device housing,
- do not use torch and power cords with damaged insulation,
- in conditions of particular risk of electric shock (work in environments with high humidity and closed tanks), work with an assistant supporting the welder's work and watching over safety, use clothing and gloves with good insulating properties,
- if you notice any irregularities, you should contact competent people to remove them,
- It is forbidden to operate the device with the covers removed.

Preventing the negative effects of the electric arc on the eyes and skin of a person:

- Wear protective clothing (gloves, apron, leather shoes),
- Use protective shields or visors with a properly selected filter,
- Use protective curtains made of non-flammable materials and properly choose the colors of the walls that absorb harmful radiation.

Prevention of poisoning by vapours and gases emitted during welding from the electrode coating and metal evaporation:

- Use ventilation devices and exhausts installed in positions with limited air exchange,
- Blow fresh air when working in confined spaces (tanks),
- Use masks and ventilators.

Burn prevention:

- Wear appropriate protective clothing and footwear to protect against burns caused by arc radiation and spatter,
- Avoid staining the garment with greases and oils that may lead to its inflammation.

Explosion and fire prevention:

- It is forbidden to operate the device and weld in rooms at risk of explosion or fire,
- The welding station should be equipped with fire-fighting equipment,
- The welding station should be located at a safe distance from flammable materials.

Preventing the negative effects of noise:

- Use earplugs or other noise protection equipment,
- Warn of danger to people nearby.



WARNING!

Do not use a power source to defrost frozen pipes.

Before starting the device, you should:

- Check the condition of electrical and mechanical connections. It is forbidden to use torch and power cords with damaged insulation. Improper insulation of torch and power wires may result in electric shock,
- Ensure proper working conditions, i.e. ensure proper temperature, humidity and ventilation in the workplace. Outside closed rooms, protect against precipitation,
- Place the welder in a place that allows it to be easily operated.

Welding machine operators should:

- be licensed to weld electrically with coated electrodes and the TIG process,
- know and comply with health and safety regulations applicable when performing welding work,
- use appropriate, specialized protective equipment: gloves, apron, rubber shoes, welding shield or visor with a properly selected filter,
- Know the contents of this instruction manual and operate the welding machine as intended.

Any repairs to the appliance may only be carried out by unplugging the plug from the power socket.

When the appliance is connected to the mains, it is not allowed to touch any components that make up the welding current circuit with your bare hand or through damp clothing.

It is forbidden to remove the external covers when the device is plugged in.

Any modifications to the welder on your own are prohibited and may impair safety conditions.

All maintenance and renovation work may only be carried out by authorized persons in compliance with the occupational safety conditions applicable to electrical equipment.

It is forbidden to operate the welding machine in rooms with a risk of explosion or fire!

The welding station should be equipped with fire-extinguishing equipment.

When you have finished working, the power cord of the appliance must be unplugged.

The hazards and general health and safety rules presented above do not exhaust the issue of welder's work safety, as they do not take into account the specifics of the workplace. An important complement to them are workplace health and safety instructions as well as training and instructions provided by supervision employees.

3. GENERAL DESCRIPTION

TIG 202P is used for welding manual welding of structural steels with coated electrodes (MMA process) and quality steels, copper and its alloys with a non-fusible electrode in an inert gas shield (TIG process). During TIG welding, it is possible to ignite the arc both by ionization (HF) and by rubbing (Lift). The device is designed for workshop work and casual production work. The welding machine has the ability to weld with a pulse and adjust the time of current drop and gas flow. The device operates in 2T and 4T mode and enables spot welding (the so-called Cold Welding).

The device is equipped with a Fan Stop function that turns off the fan at low load on the welder, which reduces noise and improves the comfort of using the welder.

The set includes a TIG welding torch, an electrode wire and a ground wire.

4. TECHNICAL PARAMETERS

4.1 Welding Machine

Supply Voltage	AC 230V $\pm$ 10% 50Hz
Maximum power consumption	MMA: 8.3 kVA, TIG: 7.75 kVA
Rated welding current / duty cycle	MMA: 180A; TIG: 200A / 60%
Rated no-load voltage	70 V
Maximum power consumption	MMA: 36.2 A, TIG 33.7 A
Fuse protection	20 A
Weight (without attachments)	6 kg
Dimensions	388 x 172 x 307 mm
Degree of protection	IP21S

4.1.1 Parameter control ranges

Welding Current	MMA: 20-180 A TIG: 10-200 A
Gas outflow	1 – 15 s
Current Drop	0 – 25 s
Spot welding time (COLD)	0.1 – 20 s
Break time during spot welding	0 – 20 s

4.2 TIG Torch

Torch Type	T-17
Maximum current carrying capacity	200 A
Gas Flow	10-20 l/min
Ignition of the arc	Non-contact (HF)
Length	4 m

Duty cycle

The duty cycle is based on a 10-minute period. A 60% duty cycle means that a 4-minute break is required after 6 minutes of operation of the device. A 100% duty cycle means that the device can operate continuously, without interruptions.

Attention! Heating tests were carried out at the temperature of the surrounding air. The duty cycle at 40°C was determined by simulation.

Degree of protection

IP determines the extent to which the device is resistant to the ingress of solid and water contaminants. IP21S means that the device is suitable for indoor use and is not suitable for use in the rain.

5. CONSTRUCTION AND OPERATION

The basis for the construction of the welding machine's electrical energy conversion system are electronic circuits made in IGBT technology, enabling operation in the frequency range above 200 kHz. The principle of operation is to rectify the voltage of a single-phase power supply network to DC voltage, convert the obtained DC voltage into a high-frequency rectangular waveform, transform the voltage into the range required by the welding process, and re-rectify the resulting voltage to DC voltage.

6. CONNECTION TO THE POWER SUPPLY

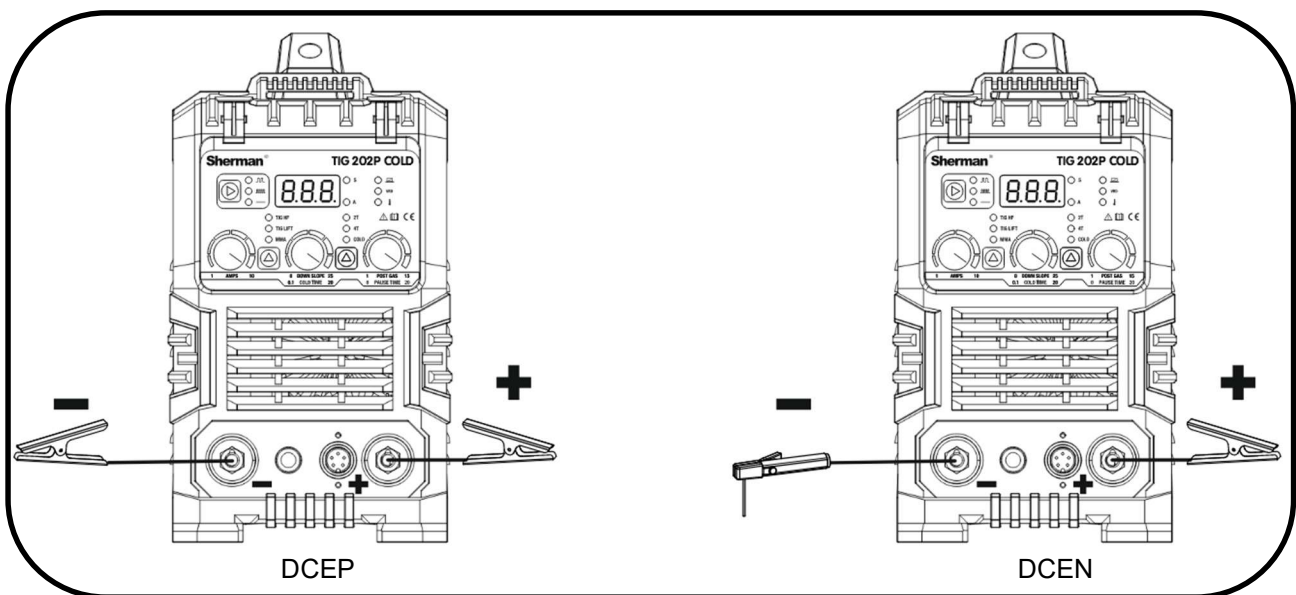
1. The appliance should only be used in a single-phase, three-wire, grounded zero point power supply system.
2. The 202P COLD TIG welding machines are designed to work with a 230V 50Hz network protected by 20 A delay-acting fuses. The power supply should be stable, with no voltage drops.
3. when the power is connected, make sure that the power switch (5) is in the OFF position.

7. PREPARING THE DEVICE FOR OPERATION

If you store or transport the device at low temperatures, bring the device to the correct temperature before starting work!

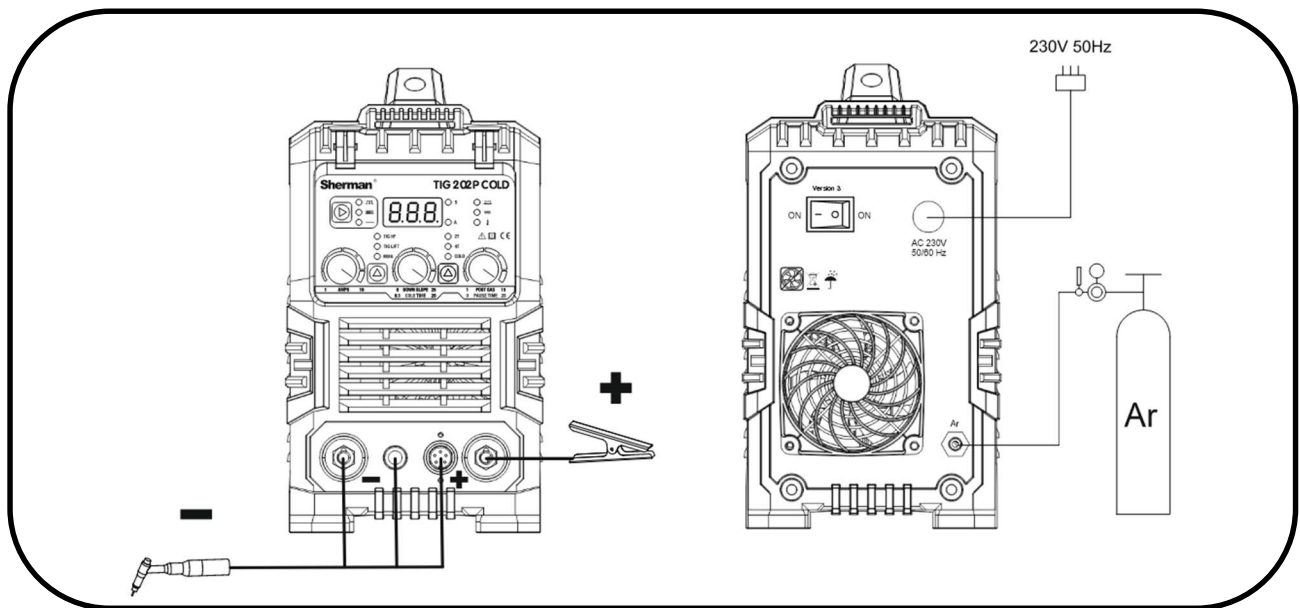
7.1 MMA process

Connect the ends of the welding wires to the sockets (2) and (3) on the faceplate so that the electrode holder has the correct pole for the electrode. The polarity of the connection of the welding wires depends on the type of electrode used and is indicated on the electrode packaging (DCEN negative polarity or DCEP positive polarity). The ground wire clamp must be carefully fixed to the welded material. Connect the appliance plug to a 230V 50Hz mains socket.



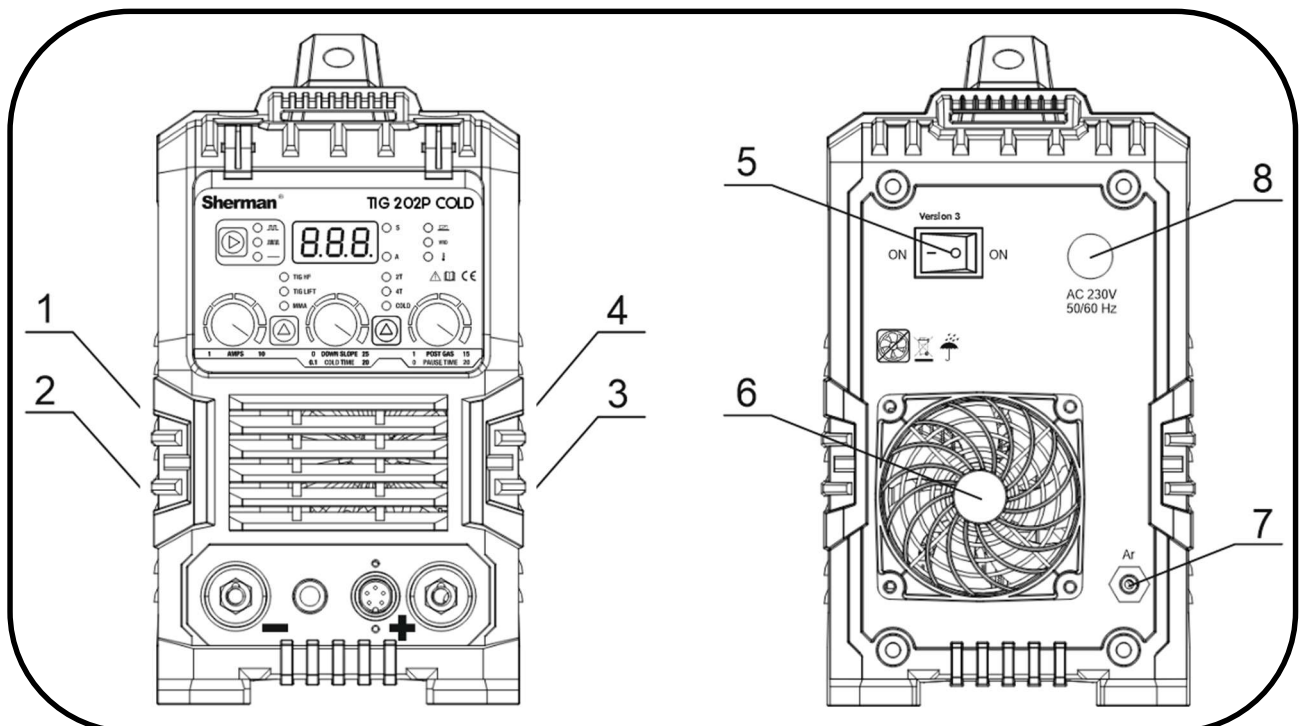
7.2 TIG process

Connect the torch current terminal to the negative bias socket (2), place the torch control plug in the socket (4) and the gas connection plug into the quick connector socket (1). The gas hose from the reducer must be routed and secured to the gas connector (7) located on the back wall of the housing. Connect the positive pole of the source (3) to the welded material using a clamp cable. Connect the appliance plug to a 230V 50Hz mains socket.



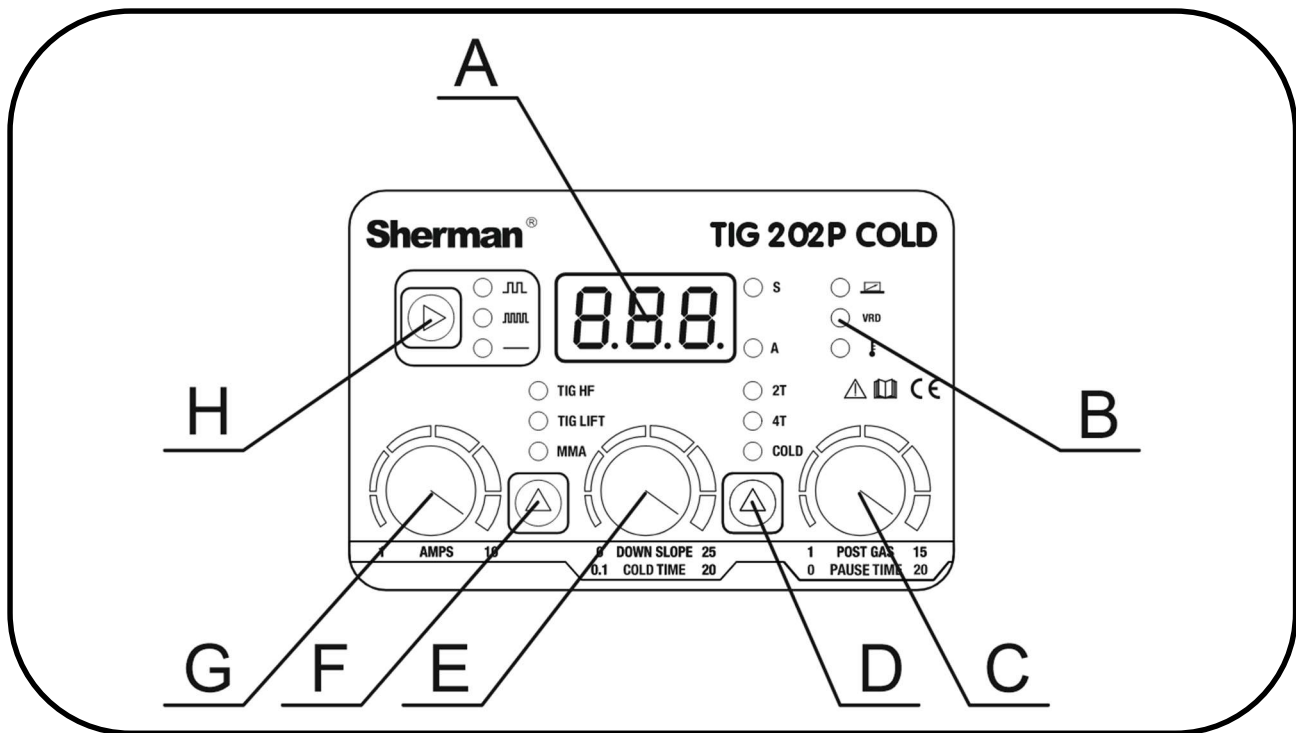
8. DESCRIPTION OF THE FUNCTION OF SWITCHES AND KNOBS

8.1 Front and Rear Panel



1. Shielding Gas Quick Coupler Socket
2. Socket "-"
3. "+" socket
4. TIG torch/control pedal socket
5. Power Switch
6. Fan
7. Shielding gas connection
8. Power cord

8.2 Control Panel

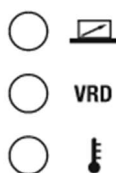


A – Display



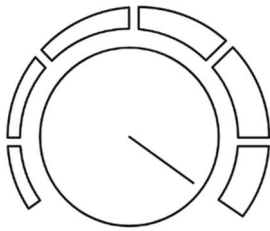
The display indicates the welding current, and when adjusting the current drop, gas flow and spot welding time, the values of these parameters. The parameter unit is indicated by the illumination of the corresponding LED at the display.

B – Signalling LEDs



	Remote control LED. Indicates the connection of the control pedal (optional)
VRD	LED to indicate that the VRD function is activated. This function lowers the voltage in the no-load state. The correct voltage value is only restored just before the arc is ignited. This minimizes the risk of electric shock, but in some cases it can make it difficult to ignite the arc. To activate this function, press and hold the control mode selection button (D) for approx. 3 seconds in MMA mode. Pressing and holding the button again disables the VRD function.
	LED indicating that the overheating protection is activated. Wait a few minutes for the appliance to cool down to a temperature that allows it to switch on again on its own. Do not disconnect the power supply during this time, as the continuously running fan cools the internal heatsinks of the device to reduce the temperature faster. After restarting, remember to limit the welding parameters in order to continue to operate the device continuously.

C – Gas flow / pause time adjustment knob during spot welding



1 POST GAS 15
0 PAUSE TIME 20

Gas flow time control knob from arc extinguishing to gas valve closure to shield the solidifying weld pool from air and to cool the tungsten electrode. Too short a run-out time can result in oxidation of the weld.

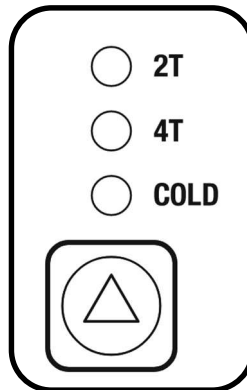
In COLD mode, the knob is used to adjust the pause time during Cold Welding. Setting the pause time to 0 (OFF) will enable the single welding mode. Setting a value greater than zero will enable the continuous welding mode.

Adjustment range:

Gas flow: 1 – 15s.

Spot welding break time: 0 – 20s.

D – Control mode selection button

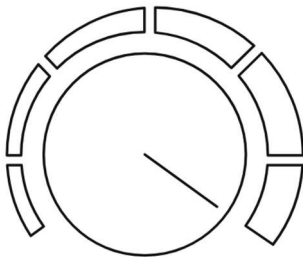


In TIG HF and TIG LIFT modes, the button is used to select the control mode of the device:

2T	Two-stroke mode. In this mode, pressing the switch in the torch of the torch will turn on the ionizer and ignite the arc. Welding is carried out with the switch pressed. Releasing the switch will end welding.
4T	Four-stroke mode. In this mode, pressing the switch in the torch of the chuck will turn on the ionizer and ignite the arc, then release the switch and perform welding with the switch released. Pressing the switch again will end welding.
COLD	Spot welding (Cold Welding). Spot welding can be carried out in single or continuous mode. In single mode (when the pause time is set to 0 (OFF) (knob (C))), after igniting the arc, welding will be carried out for the time set by the user using the knob (E), after which the arc will be extinguished automatically. Setting the time with the knob (C) greater than 0 will enter continuous mode. In this mode, when the button in the torch of the torch is pressed and held, the arc will be cyclicalized for the time set by the knob (E) and the arc will be extinguished for the time set by the knob (C).

In MMA mode, pressing and holding the button for approx. 3 seconds will activate the VRD function. Activation of the function is confirmed by the LED **VRD** lighting up. Pressing and holding the button again will disable this feature.

E – Current Drop/Spot Time Adjustment Knob



In 2T and 4T modes, the knob is used to adjust the time of current decreasing before the arc is extinguished. In COLD mode, the knob is used to adjust the spot welding time

Adjustment range:

Current drop: 0 – 25s.

Spot welding time: 0.1 – 20s

0 DOWN SLOPE 25
0.1 COLD TIME 20

F – Welding process selection button

The button is used to select the welding process.

TIG HF	welding with tungsten electrode in shielded gases with non-contact ionization ignition
TIG LIFT	welding with a tungsten electrode in shielded gases with rubbing ignition. This process of ignition is used in cases where there is a risk of interference with the operation of the electronics by the high-frequency current generated by the ionizer, e.g. during welding near electronic devices in cars
MMA	coated electrode welding (MMA)

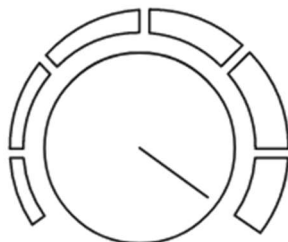
☐ TIG HF

☐ TIG LIFT

☐ MMA



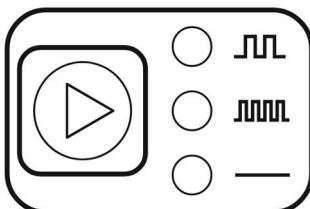
G – Welding current control knob



1 AMPS 10

The knob is used to adjust the welding current.

H – Pulse mode selection button



Switch active only during TIG welding. It is used to control the operation of the pulsator:

	welding with a pulse frequency of 0.8 Hz
	welding with a pulse frequency of 150 Hz
	pulseless welding

8.3 Remote Control Pedal (Optional)

During TIG welding, the welding machine can be controlled by means of a control pedal. The pedal control plug must be placed in the remote control slot (4). The device will detect the pedal automatically, which will be confirmed by the LED lighting up .

9. WELDING

9.1 Arc ignition and Coated Electrode Welding (MMA)

Arc initiation in coated electrode welding involves touching the electrode to the welded material, rubbing it briefly and tearing it off. In the case of arc initiation with electrodes, the coating of which forms non-conductive slag after solidification, the tip of the electrode should be pre-cleaned by hitting the hard surface several times until metallic contact with the welded material is achieved. To complete the welding, the electrode must be detached from the welded material.

9.2. Arc ignition and shielded gas welding (TIG process).

The TIG 202P enables TIG welding in non-contact ionizing arc ignition (TIG HF) and friction (TIG LIFT) modes. To ignite an arc in TIG HF mode, bring the electrode closer to the welded material at a distance of 2 millimeters and press the button in the torch holder to turn on the ionizer. Then there will be a short pulse of high-frequency current and the arc will ignite.

To ignite an arc in TIG LIFT mode, touch the electrode to the welded material, press the button in the torch of the torch and slightly lift the electrode over the weld material.

10. BEFORE YOU CALL FOR SERVICE

In the event of malfunction of the machine, before sending the welding machine for service, remove the housing and clean the unit inside by blowing with compressed air to remove dust and metallic filings from the control boards and wiring and electrical connections, and then check the list of basic failures and try to fix them yourself.

The device is not sealed and the user can remove the welding machine housing to remove minor malfunctions. Removal of the housing and any repairs to the device may only be carried out after disconnecting the plug from the power socket.

ATTENTION! The welding machine is equipped with a Fan Stop function that turns off the fan a few minutes after welding is finished and the device has cooled down. The fan restarts under load.

Symptoms	Cause	Procedure
Lack of power, malfunction signal, or malfunction of the device	No connection or loose plug inside the device	Check and correct the connections of all electrical plugs inside the device
The arc does not ignite	Lack of proper contact of the ground cable terminal	Improve the contact of the ground terminal
	Damaged switch in the TIG holder	Replace the switch
When the power is turned on, the power on indicator light does not light up	No supply voltage	Check the fuses on the mains connection
The control panel lights up, the fan is running, the LED is on 	The device has overheated.	The device has overheated. Wait a few minutes. After the LED goes out, continue welding.
Fan not working	The fan has been blocked by a bent cover	Straighten the fan cover
Unsatisfactory weld quality in MMA welding, the electrode sticks to the welded material	Improper polarity of welding cables	Check the connection polarity of the welding wires for the type of coated electrode
	Wet electrode	Replace the electrode.
	The welding machine is powered by a generator or through a long extension cord with too small a cable cross-section	Connect the device directly to the mains
Unsatisfactory weld quality in TIG welding	Inadequate or poor-quality materials or consumables used,	Replace consumable parts. Change the tungsten electrode or gas cylinder to suitable or higher quality materials
	Shielding gas flows out with inappropriate intensity	Check the gas supply hose, improve the hose connection to the fittings and the condition of the quick connectors Check Cylinder Reducer

List of errors indicated on the display

Error code	Description
E02	Overheating protection. Wait a few minutes for the appliance to cool down to a temperature that allows it to switch on again on its own. Do not disconnect the power supply during this time, as the continuously running fan cools the internal heatsinks of the device to reduce the temperature faster. After restarting, remember to limit the welding parameters in order to continue to operate the device continuously.
E04	Failure of the temperature controller of the device. Contact the service

11. OPERATING INSTRUCTIONS

The operation of the TIG 202P should take place in an atmosphere free of corrosive components and high dust. Do not place the appliance in dusty areas, near running grinders, etc. Dust and metallic swarf contamination of control boards, cables and connections inside the device can lead to an electrical short circuit and, as a consequence, damage to the welding machine.

Avoid use in environments with high humidity, especially in situations where dew occurs on metal components. In the event of dew on metal elements, e.g. after introducing a cool device into a warm room, wait until the dew disappears. It is recommended that the welding machine be placed under a roof in order to protect it from adverse weather conditions.

The TIG 202P device should be operated under the following conditions:

- changes in the rms value of the supply voltage not greater than 10%
- ambient temperature from -10°C to $+40^{\circ}\text{C}$
- atmospheric pressure 860 to 1060 hPa
- relative humidity of atmospheric air not exceeding 80%
- altitude up to 1000m above sea level

List of consumable parts of the T-17 TIG torch:

Lp	Name
1	Tungsten electrode
2	T-17 Terminal Sleeve
3	T-17 Current Connector
4	T-17 gas nozzle

A full list of consumables and spare parts is available on the www.tecweld.pl website and at TECWELD. It is possible to purchase these parts directly.

12. MAINTENANCE INSTRUCTIONS

As part of daily operation, keep the welding machine clean, check the condition of external connections, and the condition of electrical wires and cables.

Replace consumable parts regularly.

Periodically (depending on the operating conditions), remove the housing and clean the device inside by blowing with compressed air to remove dust and metal swarf from the control boards and electrical cables and connections.

At least once every six months, a general inspection and condition of electrical connections should be carried out, in particular:

- state of protection against electric shock
- isolation status
- security system status
- correct operation of the cooling system

Damage resulting from operating the welding machine under improper conditions and failure to follow maintenance recommendations are not covered by warranty repairs.

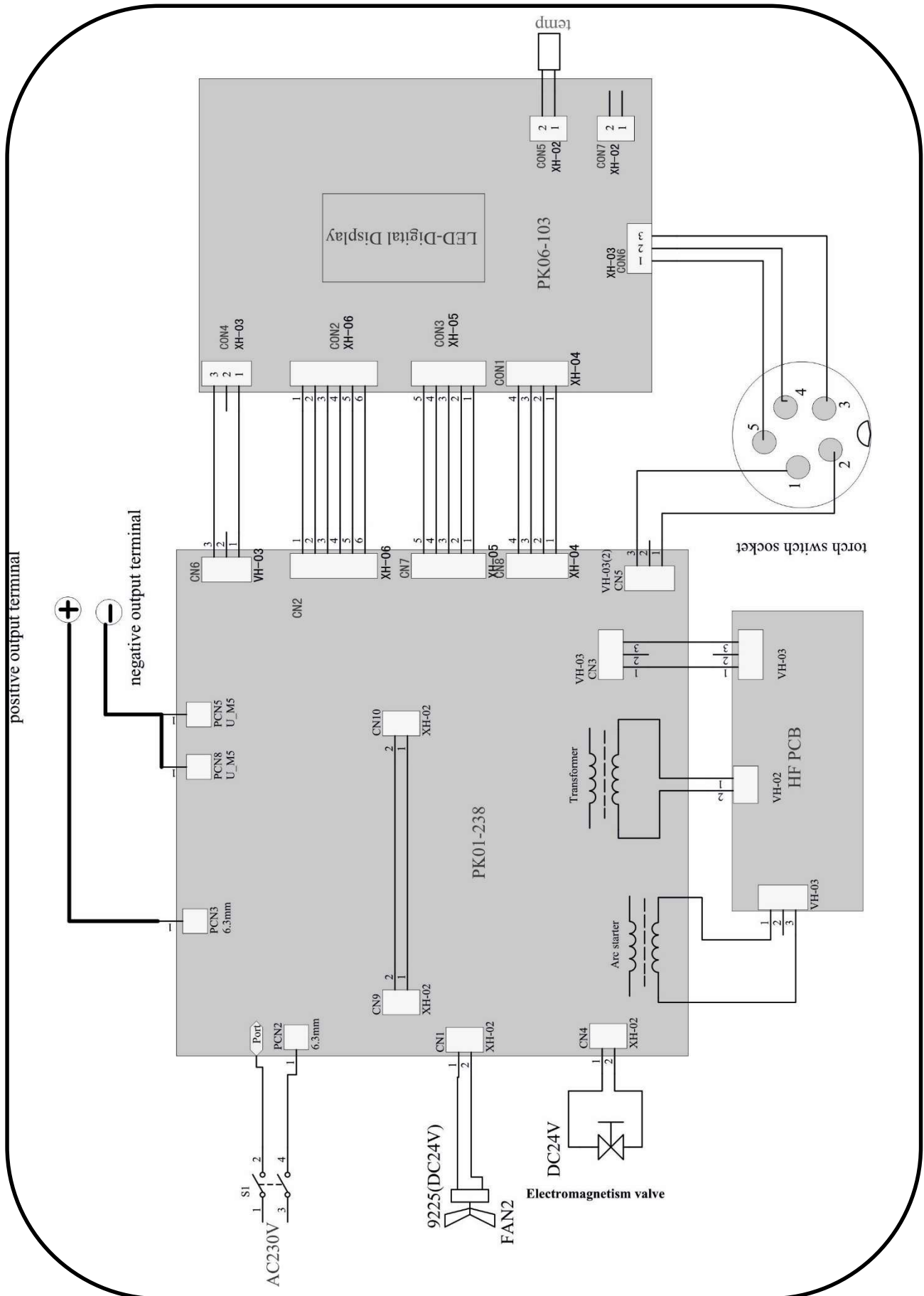
13. STORAGE AND TRANSPORT INSTRUCTIONS

Store the appliance at a temperature of -10°C to $+40^{\circ}\text{C}$ and a relative humidity of up to 80% free of corrosive fumes and dust. Transport of packaged equipment should be carried out by covered means of transport. During transport, the packaged device should be protected against movement and provided with the correct position.

14. SET SPECIFICATION

1. TIG 202P Source	1 pc.
2. TIG welding torch	1 pc.
3. Clamp Clamp Ground Cable	1 pc.
4. Electrode holder wire	1 pc.
5. Shielding gas hose	1 pc.
6. User Manual	1 pc.
7. Packaging	1 pc.

15. ELECTRICAL DIAGRAM



16. WARRANTY

The warranty is granted for a period of 12 months for business entities, but excluding warranty claims, or 24 months for consumers from the date of sale.

The warranty will be respected upon presentation by the complainant of proof of purchase (invoice or receipt) and a warranty card with the product name, serial number, date of sale and stamped point of sale.

To order a warranty repair, you need to fill in the form on the www.tecweld.pl website in the SERVICE tab. On the basis of the notification, the device will be transported to the service by a courier company. Devices sent in any other way at TECWELD's expense will not be accepted!

The welding machine must be supplied with the welding torch. Complaints about a device without a welding torch will not be considered.

The device sent for complaint must be packed in the original cardboard box, secured with original polystyrene fittings. TECWELD is not responsible for damage to the welding machine resulting from transport.



If you are going to dispose of this product, do not throw it away with ordinary household waste. According to the WEEE Directive (Directive 2012/19/EU) in force in the European Union, separate disposal process must be used for used electrical and electronic equipment.

In Poland, in accordance with the provisions of the Act of 11 September 2015 on Waste Electrical and Electronic Equipment, it is prohibited to place waste equipment marked with the crossed-out bin symbol together with other waste.

The user who intends to dispose of this product is obliged to take the waste electrical and electronic equipment to a waste equipment collection point. Collection points are run, m.in., by wholesalers and retailers of this equipment and by municipal organizational units conducting waste collection activities.

The above statutory obligations have been introduced in order to reduce the amount of waste generated from waste electrical and electronic equipment and to ensure an appropriate level of collection, recovery and recycling of waste equipment. The correct implementation of these obligations is especially important when there are hazardous components in used equipment that have a particularly negative impact on the environment and human health.

TECWELD Piotr Polak
41-943 Piekary Śląskie, 21/3/6 Szmaragdowa St.

Branch:
41-909 Bytom, 1G Krzyżowa Street
Tel. +48 32 386 94 28
E-mail: info@tecweld.pl, www.tecweld.pl