

## ProTIG-200 ProTIG-315-400V





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## 1. GENERAL PROVISIONS

The PATON ProTIG-200/315-400V AC/DC argon-arc inverter is designed for arc welding:

- TIG AC/DC (constant/variable current);
- MMA (direct current);
- RIV (rivet weld mode).

The best offer for DC and AC welding of a wide range of materials: aluminum, aluminum alloys (TIG AC mode), parts and materials made of steel, non-ferrous metals and copper alloys (TIG DC mode). The unit can also be used for welding with coated electrodes (MMA mode). The inverter provides excellent ignition and a constant and stable arc, high-quality welds and easy operation.

By increasing the frequency of the voltage supplied to the transformer, it is tens of times smaller, which is why the unit has several times less weight and dimensions with the same output parameters in comparison with the classic equipment.

### **Main advantages:**

1. Contact and non-contact (built-in oscillator) arc ignition;
2. Storing up to 10 user-defined welding modes;
3. Button mode on 2T and 4T torches;
4. Foot pedal support for stepless adjustment (PED)
5. Pulse function in TIG AC/DC, MMA modes;
6. Increased reliability in dusty environments;
7. Availability of RIV rivet weld;
8. When the temperature reaches 100 °C, the power unit will shut down until the temperature decreases;
9. All electronics in the unit are impregnated with two layers of high-quality varnish, which ensures the reliability of the product during its entire service life;
10. Infinitely adjustable welding parameters;
11. Stabilization of arc burning in TIG AC/DC modes;
12. Adaptive control of the fan depending on the temperature;
13. The unit has a state-of-the-art digital interface with LCD display, which makes it possible to adjust the machine to the welding mode;
14. Three interface languages are supported:
  - English;
  - Russian;
  - Ukrainian.

## 2. TECHNICAL CHARACTERISTICS

Main parameters		ProTIG-200	ProTIG-315-400V
1.	Power supply	220V (190-260V), 50/60Hz	380V (+/-10%) 50/60Hz
2.	Welding current	5-200 A	25-315 A
3.	Basic mode of operation	TIG AC/DC	TIG AC/DC
4.	Additional modes of operation	MMA, RIV	MMA, RIV
4.1	Interface languages	UA, ENG, RU	UA, ENG, RU
5.	Protection class	IP21	IP21
6.	Efficiency	Min. 80%	Min. 80%
7.	Maximum power input	6.3 kW	13.5 kW
8.	MMA mode	10-200 A	25-315 A
9.	TIG AC/DC mode	5-200 A	25-315 A
10.	No-load voltages	60-80 V	65 V
<b>Load duration</b>			
11.	100% (DC)	126 A	180 A
12.	40% (DC)	200 A	315 A
13.	100% (AC)	140 A	200 A
14.	50% (AC)	200 A	315 A
<b>General parameters</b>			
15.	Non-contact arc ignition	Yes	Yes
16.	Welding current indication	Yes	Yes
17.	Mode memory	10 programs	10 programs
18.	Arc control	Yes	Yes
19.	Pulse function in TIG AC/DC, MMA	Yes	Yes
20.	Button mode on torch, TIG AC/DC	2T, 4T	2T, 4T
20.1	Possibility of connecting a foot pedal	Yes	Yes
<b>Cyclogram parameters in TIG AC/DC modes</b>			
21.	Safety gas time before welding	0.1-25 sec	0.1-25 sec
22.	Adjusting start current	5-185 A	25-300 A
23.	Adjusting current ramp up time	0-15 sec	0-15 sec
24.	Adjusting current decay time	0-25 sec	0-25 sec
25.	Adjusting end current	5-185 A	25-300 A
26.	Post weld safety gas time	0.1-25 sec	0.1-25 sec
27.	AC frequency	15-200 Hz	15-70 Hz

28.	Polarity balance for AC welding	15-90%	20-80%
<b>Pulse function parameters</b>			
29.	Pulse frequency	1-200 Hz	1-100 Hz
30.	Pulse balance	15-85 %	15-85 %
31.	Lower current	5-195 A	25-300 A
<b>RIV mode parameters</b>			
32.	Point time	0.5-10 sec	0.1-10 sec
33.	Peak current	5-200 A	25-315 A
<b>Functions in MMA mode</b>			
34.	AntiStick	ON/OFF option	ON/OFF option
35.	HotStart	Adjustment 1-100%	Adjustment 0-100%
36.	ArcForce	Adjustment 1-100%	Adjustment 0-100%
<b>Mass and dimensions</b>			
37.	Dimensions	465x150x350 mm	380x480x330
38.	Weight	12.5 kg	23 kg

Connection to the power line/power panel (at 25°C)

**WARNING!** Consider wall and other extension cords!

### 3. CONTROL ELEMENTS DESIGNATIONS, SETTING OF THE UNIT.

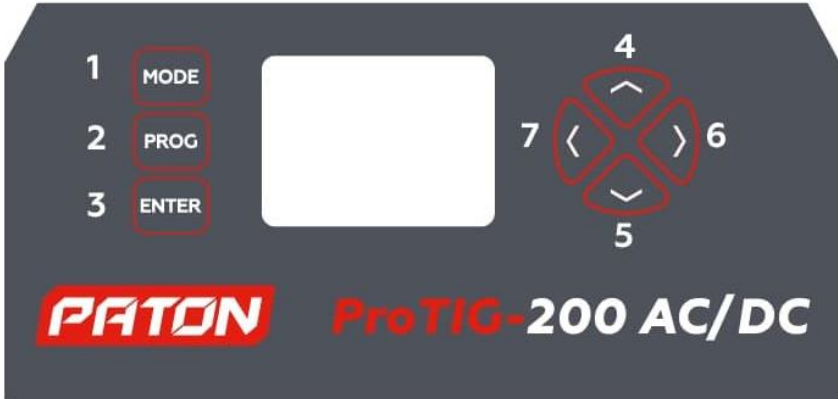


Fig. 3.1 Device control panel

- "Mode" button – welding mode switching;
- "Program" button – user program selection;
- "Enter" button – saving the welding mode to the memory;
- "Up" button – parameter setting (more);
- "Down" button – parameter setting (less);
- "Right" button – welding parameter selection;
- "Left" button – welding parameter selection;
- LCD display – for displaying welding mode parameters;

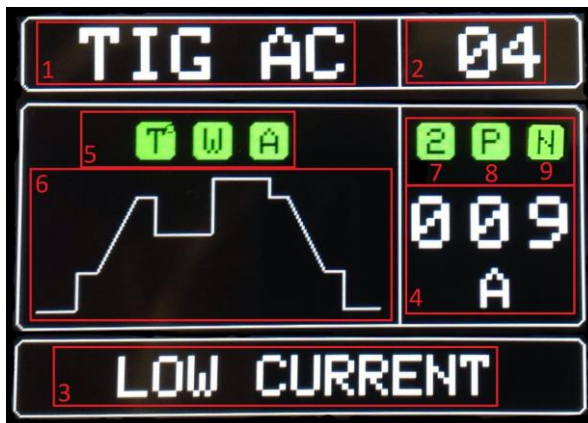


Fig.3.2. Basic controls

1. Welding mode display. It is switched with the "Mode" button and can be:

- TIG AC handheld argon-arc welding with a non-fusing tungsten electrode at alternating current.

- TIG DC handheld argon-arc welding with non-fusible tungsten electrode at direct current.

- MMA handheld argon-arc welding with a coated fusible tungsten electrode at direct current.

- RIV rivet weld mode.

2. The number of the user program is displayed. It is switched with the "Program" button; the maximum number is 10.

3. Parameter name of the selected welding mode is displayed. Each mode has its own set of parameters. It is switched with "Right" and "Left" buttons.

4. The values and units of the selected welding parameter are displayed. They are switched with "Up" and "Down" buttons.

5. Device condition indicators:

- "T°" indicator of the temperature of the most heated parts of the device. If it glows red, it means that the device is overheated and you need to wait until it cools down, and then the indicator becomes green again.

- "W" welding process indicator. If it is blue, it means that the welding process is going on (the button on the torch is pressed) and the setting of all parameters is not available. **Attention!** To start the process in the MMA mode after setting the mode, you have to press the "Enter" button.

- "V" Cooler liquid flow indicator. If it glows red, then the flow switch is not connected, or there is no coolant flow. **Attention!** If the indicator is red, then TIG welding will not be available.

6. The cyclorama of the selected welding mode is displayed. It is different for each type of welding.

7. Button mode status indicators on 2T, 4T, or PED (pedal mode) torches.

8. Pulse mode indicator:

- "P" pulse mode on.

- "N" pulse mode off.

9. Indicator of saving the user program. If "S" is on, it means that the program is already stored in the memory of the device.

### 3.1 Designation of parameters of all welding modes

1. "BUTTON MODE" – button mode on the torch, 2T/4T/ PED.

2. "PREFLOW" – pre-purge time.

3. "START CURRENT" – start current.

4. "RISE TIME" – current ramp up time.

5. "MAIN CURRENT" – main welding current.



6. "FALL TIME" – current decay time.
7. "FINISH CURRENT" – end current.
8. "POSTFLOW" – post-purge time.
9. "BALANCE" – AC balance.
10. "FREQUENCY" – AC frequency.
11. "PULSE BALANCE" – pulse shape balance.
12. "PULSE FREQUENCY" – pulse frequency.
13. "LOW CURRENT" – lower current (pulse mode).
14. "PULSE TIME" – pulse time (RIV).
15. "PEAK CURRENT" – peak current (RIV).
16. "ANTISTICK" – anti-stick function.
17. "HOT START" – hot start function.
18. "ARC FORCE" – arc force function.

### **3.2 Resetting the device to factory settings**

To reset all saved programs in all modes to the factory settings, you must:

- Turn off the device;
- Press and hold the "Program" button;
- Turn on the device. After the resetting is completed, the screen will say "Reset done";
- Release the "Program" button.

### **3.3 Selecting the interface language**

To change the interface language of the device:

- Turn off the device;
- Press and hold the "Mode" button;
- Turn on the device;
- Without releasing the "Mode" button, use "Right" and "Left" buttons to select the desired language;
- Release the "Mode" button.

## **4. TIG AC WELDING CYCLOGRAM**

Identification marks:

- Tp – purging time before welding.

It is necessary for pre-purging of the welding zone, torch nozzle, and providing guaranteed protection before arc ignition.

- Ic – start current.

After pre-purge, the arc is ignited at the starting current and during the time  $T_p$  it rises up to  $I_{zv}$ . It is used mainly for smooth heating of the edge of the piece so that there is no melting.

- $T_p$  – current ramp up time.
- $I_{zv}$  – basic welding current.
- $T_c$  – decay time.

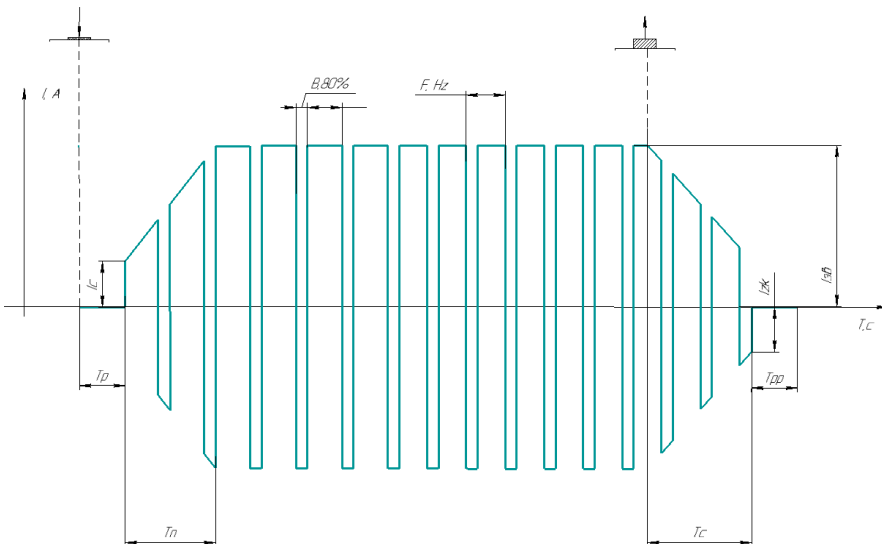
After welding is complete, the main welding current descends smoothly to  $I_{zk}$  for the time  $T_c$ . It is used for crater welding.

- $I_{zk}$  – ending current
- $B_p$  – pulse polarity balance
- $F_p$  – pulse frequency
- $I_p$  – lower pulse welding current

When welding with alternating current, the cyclogram becomes more complicated, and alternating current parameters are added.

- $B$  – polarity balance.
- $F$  – welding current frequency. In handheld welding machines, it is usually adjustable from 20Hz to 200Hz.

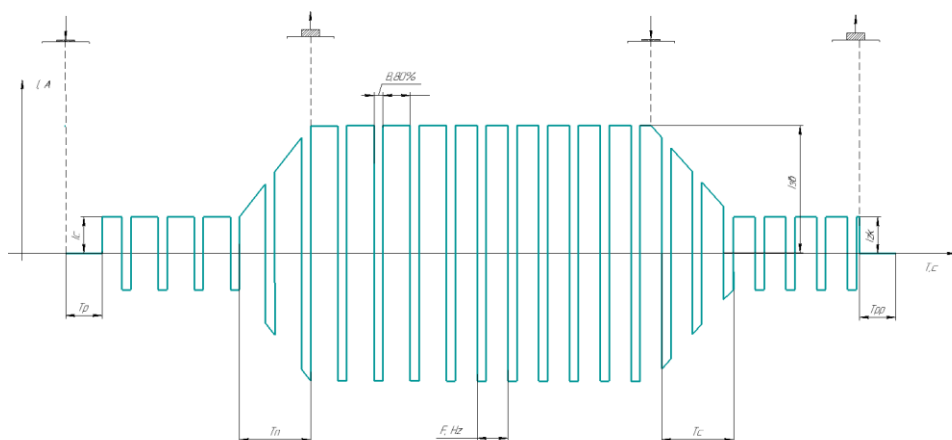
**The AC frequency** can be increased or decreased within acceptable limits. This setting allows the welder to provide more control of the arc by focusing the arc across the width so that welding in hard-to-reach places is possible. It is used as well for welding thin materials.

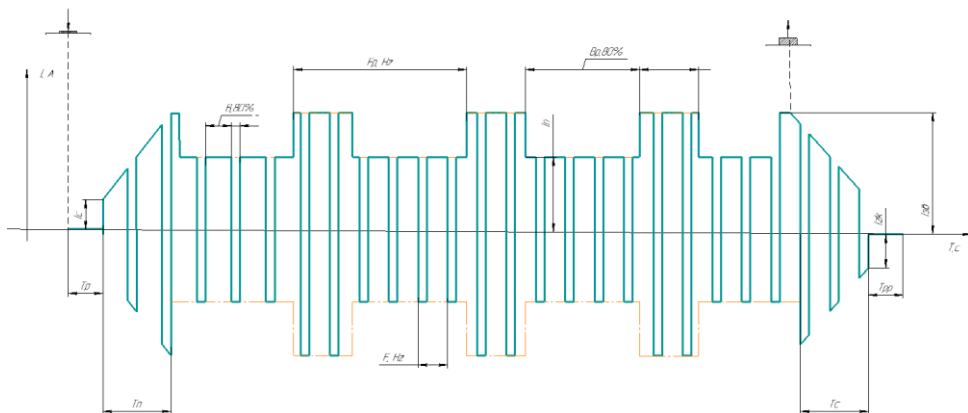


## Typical cyclogram of the 2-stroke button mode (TIG AC/2T)

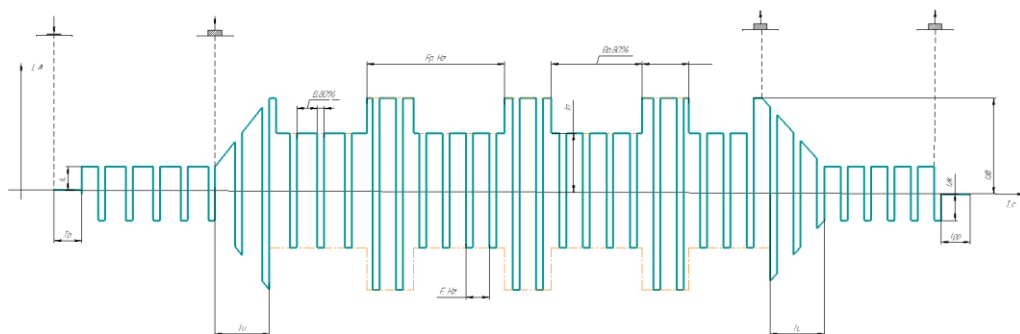
In modern handheld TIG welding torches, there is a button to control the welding process, which is connected to the device. Consider the two modes of 2-stroke operation.

There is purging before welding and smooth increase of current to the set value for the time  $T_p$ . After releasing the button, the set current smoothly decreases to the completion current in the time  $T_s$ . Then the purging after welding takes place.





Typical cyclogram of the 2-stroke button mode (TIG AC/2T+pulse)



Typical cyclogram of the 4-stroke button mode (TIG AC/4T+pulse)

Example of using the pulse mode:

Turn the machine on, switch to the TIG AC welding mode, set the basic parameters as follows:

1. "BUTTON MODE" – button mode on the torch, 2T.
2. "PREFLOW" – pre-purge time, 2 sec.
3. "START CURRENT" – start current, 30 A.
4. "RISE TIME" – current ramp up time, 1 sec.
5. "MAIN CURRENT" – main welding current, 100 A.
6. "FALL TIME" – current decay time, 1 sec.
7. "FINISH CURRENT" – completion current, 30 A.
8. "POSTFLOW" – post-purge time, 5 sec.
9. "PULSE BALANCE" – pulse shape balance, 50 %.
10. "PULSE FREQUENCY" – pulse frequency, 150 Hz.

11. "LOW CURRENT" – lower current (pulse mode), 50 A.
12. "BALANCE" – AC balance, 50 %.
13. "FREQUENCY" – AC frequency, 50 Hz.

**Please note!** To activate the pulse mode, the parameter "LOW CURRENT" must be switched from the OFF position to any other value, and the indicator "P" (pulse mode is on) must light up. Also the parameter "PULSE FREQUENCY" must be at least twice as big as the parameter "FREQUENCY". If this is not done, the process will not be of good quality.

Then the welding can start. The welding arc will oscillate in the amplitude of 100 A to 50 A with the frequency of 150 oscillations per 1 second.

These parameters are set differently in each situation according to the welder's requirements.

### **TIG DC WELDING CYCLOGRAM**

Identification marks:

Tp – purging time before welding.

It is necessary for pre-purging of the welding zone, torch nozzle, and providing guaranteed protection before arc ignition.

Ic – start current.

After pre-purge, the arc is ignited at the starting current and during the time Tp it rises up to Izv. It is used mainly for smooth heating of the edge of the piece so that there is no melting.

Tp – current ramp up time.

Izv – basic welding current.

Tc – decay time.

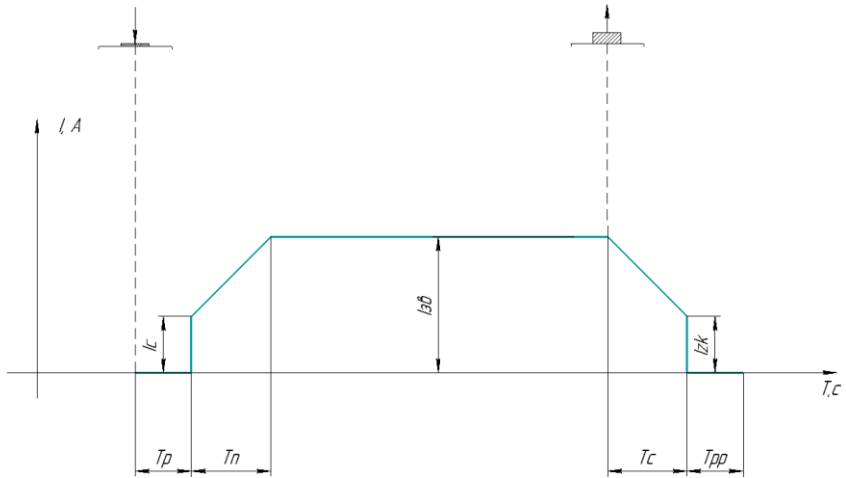
After welding is complete, the main welding current descends smoothly to Izk for the time Tc. It is used for crater welding.

Izk – ending current.

B – pulse polarity balance.

F – pulse frequency.

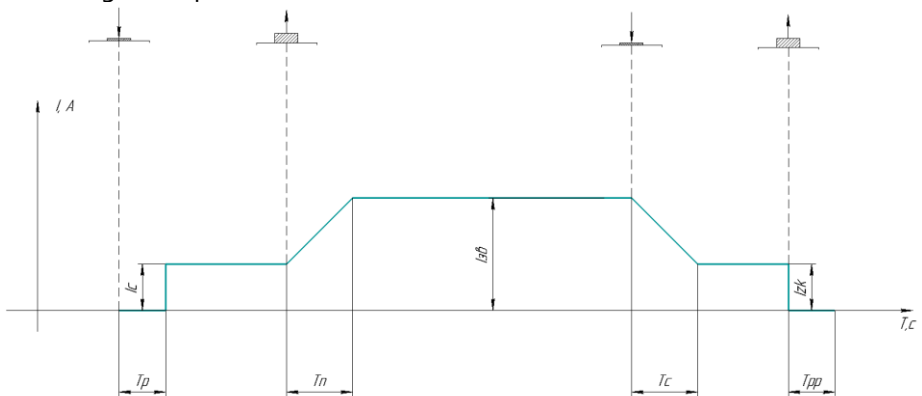
Ip – lower pulse welding current.



*Typical cyclogram of the 2-stroke button mode (TIG DC/2T)*

In modern handheld TIG welding torches, there is a button to control the welding process, which is connected to the device. Consider the two modes:

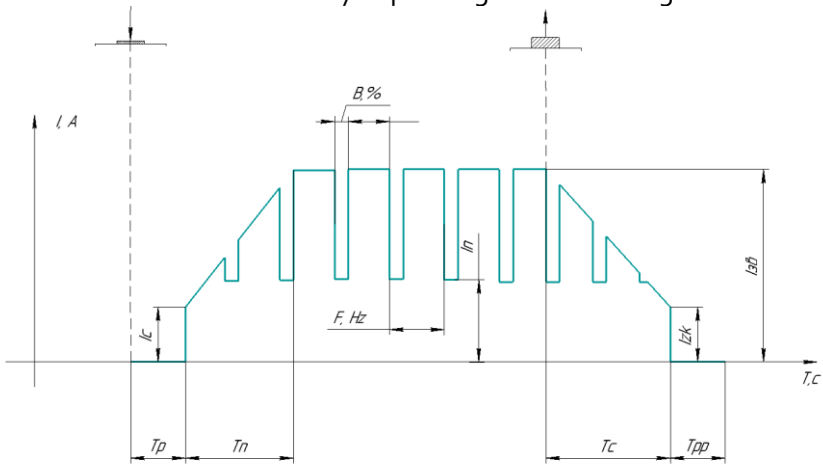
- **2-stroke mode:** There is purging before welding and smooth increase of current to the set value for the time  $T_p$ . After releasing the button, the set current smoothly decreases to the completion current in the time  $T_s$ . Then the purging after welding takes place.



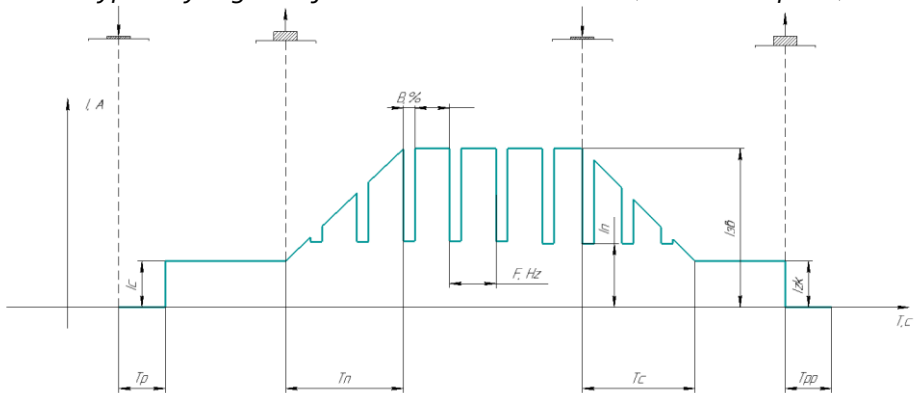
*Typical cyclogram of the 4-stroke button mode (TIG DC/4T)*

- **4-stroke mode:** After the button is first pressed and held down, the welding process begins. There is a pre-welding purge and arc ignition at the start current. The start current will be maintained until the button is released, after which the

start current will smoothly increase to the set value for the time  $T_p$ . After pushing the button again and holding it, the set current will smoothly decrease to the completion current in the time  $T_s$ , and will remain until the button is released. Then the arc will go out and the post-welding purge will take place. The welder chooses the button modes individually depending on the welding conditions.



*Typical cyclogram of the 2-stroke button mode (TIG DC/2T+pulse)*



*Typical cyclogram of the 4-stroke button mode (TIG DC/4T+pulse)*

Example of using the pulse mode:

Turn the machine on, switch to the TIG DC welding mode, set the basic parameters as follows:

1. "BUTTON MODE" – button mode on the torch, 2T.
2. "PREFLOW" – pre-purge time, 2 sec.

3. "START CURRENT" – start current, 30 A.
4. "RISE TIME" – current ramp up time, 1 sec.
5. "MAIN CURRENT" – main welding current, 100 A.
6. "FALL TIME" – current decay time, 1 sec.
7. "FINISH CURRENT" – completion current, 30 A.
8. "POSTFLOW" – post-purge time, 5 sec.
9. "PULSE BALANCE" – pulse shape balance, 50 %.
10. "PULSE FREQUENCY" – pulse frequency, 150 Hz.
11. "LOW CURRENT" – lower current (pulse mode), 50 A.
12. "ARC STABILIZER" – arc stabilization (TIG DC), OFF.

**Please note!** To activate the pulse mode, the parameter "LOW CURRENT" must be switched from the OFF position to any other value, and the indicator "P" (pulse mode is on) must light up. Then the welding can start. The welding arc will oscillate in the amplitude of 100 A to 50 A with the frequency of 50 oscillations per 1 second. These parameters are set differently in each situation according to the welder's requirements.

## RIV welding mode

RIV is a rivet weld or short weld mode.

RIV welding mode is a kind of argon-arc welding with a non-fusible electrode at direct current. The welding time is permanently fixed by the "pulse time" parameter, which allows the welder to make many short identical welds.

Consider an example. Let's set the mode:

- peak Current – 100A;
- postflow – 2 sec;
- preflow – 2 sec;
- pulse time – 3 sec.

Put the torch to the piece so that the tungsten electrode does not touch the it. Press the button on the torch. Then:

1. The valve opens and gas comes in. There is a preflow time (preflow) of 2 sec.
2. The arc is ignited at a current (Peak Current) of 100 A.
3. The arc burns exactly the time we set (pulse time) – 3 sec.
4. After 3 seconds, the arc goes out.
5. After the arc goes out, there is a postflow time of 2 sec.

The process is finished. To start the process again, press the button on the torch.



## Coated electrode MMA welding mode

Identification marks:

$I_s$  – hot start current;

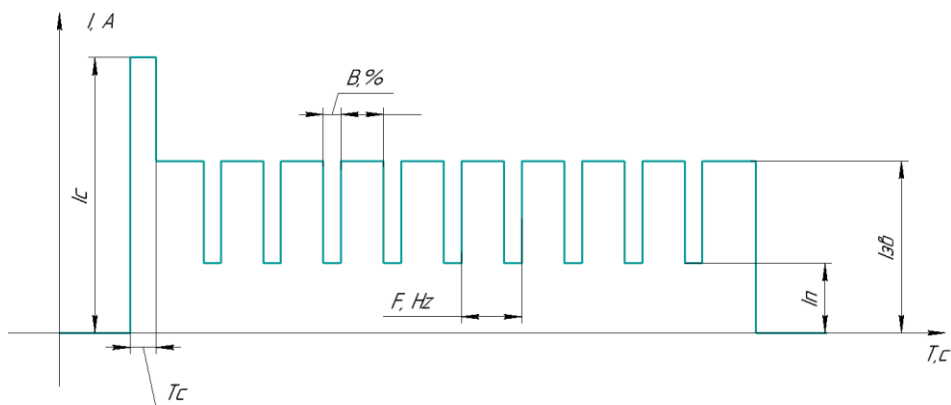
$T_s$  – hot start time;

$I_{zv}$  – basic welding current;

$B$  – pulse polarity balance;

$F$  – pulse frequency;

$I_p$  – lower pulse welding current.



*Typical MMA+pulse operating cyclogram*

Example of using the pulse mode:

Turn the machine on, switch to the TIG DC welding mode, set the basic parameters as follow:

1. "MAIN CURRENT" – main welding current, 100 A.
2. "PULSE BALANCE" – pulse shape balance, 50 %.
3. "PULSE FREQUENCY" – pulse frequency, 50 Hz.
4. "LOW CURRENT" – lower current (pulse mode), 50 A.
5. "ANTISTICK" – ON.
6. "HOT START" – 100 mode.
7. "ARC FORCE" – OFF.

**Please note!** To activate the pulse mode, the parameter "LOW CURRENT" must be switched from the OFF position to any other value, and the indicator "P" (pulse mode is on) must light up. To start welding in the MMA mode, press the ENTER button after setting the mode. The "W" indicator should light up red. After that you can start welding. At the beginning of the process, the current will increase to 150 A ("HOT START") for a stable ignition. The welding arc will oscillate

in the amplitude of 100 A to 50 A with the frequency of 50 oscillations per 1 second. These parameters are set differently in each situation according to the welder's requirements.

## 5. COMMISSIONING

**WARNING!** Before commissioning, please read the Section "Safety instructions".

### 5.1 Intended use.

The welding machine is designed exclusively for manual arc welding with a stick electrode and argon TIG welding.

Any other use is considered improper. The manufacturer is not liable for any damage caused by improper use.

Intended use is subject to the instructions in this operating manual.

### 5.2 Placement requirements

The welder can be placed and operated outdoors. The internal electrical parts of the unit are protected against direct exposure to humidity.

**WARNING!** The unit can be life-threatening after a hard fall. Install on a stable hard surface.

Place the machine so that there is unobstructed cooling air in and out through the air vents on the front and rear panels. Make sure that metal dust (e.g. from sanding) is not sucked directly into the machine by the cooling fan.

### 5.3 Mains connection

The welding machine is designed as standard for:

1. 190-260V for the ProTIG-200 AC/DC model. **WARNING:** If you use the ProTIG-200 AC/DC with a supply voltage higher than 300V, all manufacturers' warranties are void!
2. 380V for ProTIG-315 AC/DC model.

The mains connector, the cross-sections of the power supply cables, as well as the mains fuses must be selected according to the technical data of the unit.

### 5.4 Connection of the mains plug

**WARNING!** The mains plug must be suitable for the supply voltage and current consumption of the welding machine (see technical data). For safety reasons, use power sockets with a **guaranteed** ground connection!



*Fig. 5.1 Device interface*

- 1 – “Mode” – button – welding mode switching;
- 2 – “Program” button – user program selection;
- 3 – “Enter” button – saving the welding mode to the memory;
- 4 – “Up” button – parameter setting (more);
- 5 – “Down” button – parameter setting (less);
- 6 – “Right” button – welding parameter selection;
- 7 – “Left” button – welding parameter selection;

- 13 – Socket for connecting the Argon gas cylinder.
- 11 – On/off button of the device.
- 3 – Power lead, B "-" socket (black).
- 4 – Plug for connecting the button on the torch, as well as the pedal.
- 10 – Gas hose connection socket on the torch.
- B – Power lead, A "+" socket (red).

## 6. MANUAL ARC WELDING WITH COATED ELECTRODE (MMA)

To start working in the MMA mode, you must:

- Connect the electrode holder cable to B "-", the ground holder cable to socket A "+", setting the polarity to direct welding;
- Connect the mains plug to the mains supply;
- Set mains switch to "I" position;
- Turn the machine with the button "Mode" to the MMA mode;
- Set the main welding current;
- Press the "Enter" button.

Now you can start welding.

## 7. HANDHELD ARC WELDING WITH A NON-FUSIBLE ELECTRODE IN AN INERT GAS ENVIRONMENT (TIG AC/DC)

To start working in the TIG AC/DC mode, you must:

- Connect the torch to the black "-" socket of the B source;
- Connect the gas connector of the torch to the socket No. 5;
- Connect the torch button to the socket No. 4;
- Connect gas hose to connector No. 1;
- Connect the grounding holder to the red "+" socket of the A source;
- Connect the grounding holder to the piece;
- Connect the mains plug to the mains supply;
- Set mains switch No. 2 to "I" position;
- Set the "Mode" button to TIG AC/DC mode;
- Set the machine to the mode.

**WARNING!** After the mode setting is done, the machine is ready to work. Pressing the button on the torch starts welding; the oscillator will trigger in the first seconds, so be extremely careful with the high voltage.

## 8. PEDAL OPERATION IN TIG AC/DC MODE

To start working with the pedal, you must:

- Connect the pedal to socket No. 4;
- Connect the torch to the black socket of the source B "-";
- Connect gas connector of the torch to the socket No. 5;
- Connect gas hose to connector No. 1;
- Connect the grounding holder to the red "+" socket of the A source;
- Connect the grounding holder to the piece;
- Connect the mains plug to the mains supply;
- Set mains switch No. 2 to "I" position;
- Set the "Mode" button to TIG AC/DC mode;
- "BUTTON MODE" parameter. Set the button mode on the torch to "PED".

Now you can start welding. After the minimum pressure on the pedal, the arc will ignite at the start current that you set (START CURRENT). The welding current will be adjusted according to the pressure of the pedal (the more the pedal is pressed, the more current). If the pedal is pressed to the lower limit, the maximum current that you set (MAIN CURRENT) will be set. In short, the pedal allows you to change the current during welding from "START CURRENT" to "MAIN CURRENT".

## 9. MAINTENANCE

**WARNING!** Before opening the machine, switch it off and disconnect the mains plug. Allow the internal circuits of the machine to discharge (approx. 10 min.) before proceeding. Place a sign prohibiting switching on when leaving.

To keep the machine in good working condition for many years, several rules must be observed: Perform safety inspections at specified intervals (see Section "Safety Instructions").

## 10. STORAGE REGULATIONS

Preserved and packed source should be kept in storage conditions of State Standard 15150-69 for 5 years.

Unpacked source should be stored in a dry closed room at air temperature not lower than +5 °C. There should be no vapors of acids and other active substances on the premises.

## 11. TRANSPORTATION

Packed source can be transported by all means ensuring its safety in compliance with the rules of transportation established for the relevant type of transport.

## 12. TECHNICAL DATA

**WARNING!** If the source is designed for a specific supply voltage, its technical data can be found on the identification plate on the rear panel. In this case, the mains plug and mains cable must be selected according to the voltage used.

Parameters	ProTIG-200 AC/DC	ProTIG-315 AC/DC
Nominal mains voltage 50/60Hz, V	~220	3x380 3x400
Mains voltage variation limits, V	190-260	±10%
Efficiency (at rated current), %	>80%	>80%
Control limits of welding current, A	5 – 200	25 – 315
Welding current (DC) at: 5 min/40% LD 5 min/100% LD	200 126	315 180
Max. power input, kVA	6.3	13.5
Normal operating voltage, V: - MMA - TIG AC/DC	20.4 – 26.8 10.4 – 18	

## 13. SCOPE OF DELIVERY

Argon-arc inverter	– 1 pc;
ABITIG Argon-arc torch	– 1 pc;
ABICOR BINZEL welding cable with ground terminal, 3 m	– 1 pc;
Data sheet and operating manual	– 1 pc;
Shoulder strap (for ProTIG-200 AC/DC)	– 1 pc;
PATON branded corrugated box	– 1 pc;
Argon quick connector, 8 mm	– 1 pc.

## 14. SAFETY INSTRUCTIONS

### 14.1 General Instructions

The welding machine is manufactured following technical standards and established safety regulations. Nevertheless, if handled improperly, there is a risk of:

- Injury to operating personnel or a third party;
- Damage to the machine or material assets in the workplace;
- Disruption of an efficient work process.

All persons involved in the commissioning, operating, maintenance and servicing of the machine must:

- Take appropriate certification;
- Possess knowledge of welding;

- Adhere strictly to these instructions.

Faults that could impair safety must be eliminated immediately.

#### **14.2 User obligations**

The user is obliged to allow only those persons to work on the machine who:

- The user is obliged to allow only those persons to work on the machine who;
- Have read the "Safety instructions" section and the safety precautions in this manual and confirm this with their signature.

#### **14.3 Personal protective equipment**

Observe the following rules for personal protection:

- Wear sturdy shoes that retain their insulating properties, including in wet conditions;
- Protect your hands with insulating gloves;
- Protect your eyes with a protective mask with a UV filter that meets safety standards;
- Use appropriate inflammable clothing.

#### **14.4 Hazard of harmful gases and vapors**

- Remove any smoke and harmful gases from the workspace using special means;
- Ensure an adequate supply of fresh air;
- Solvent vapors must not enter the radiation zone of the welding arc

#### **14.5 Sparking hazard**

- Flammable objects must be removed from the workspace;
- Welding work is not allowed on containers storing or having stored gases, fuels, petroleum products. There may be a risk of explosion of residues of these products;
- Special rules according to national and international regulations must be observed in fire and explosion hazardous area.

#### **14.6 Hazard of mains and welding currents**

- Electrical shock can be fatal;
- Magnetic fields generated by high currents can have a negative effect on the function of electrical devices (e.g. pacemakers). Persons wearing such devices should consult a physician before approaching the welding site;
- Welding cable must be strong, undamaged and insulated. Loose connections and damaged cables must be replaced immediately. All mains and welding machine cables should be checked regularly for correct insulation by an electrician;
- The outer cover of the machine must not be removed during operation.

#### **14.7 Informal safety precautions**

- Keep the manual close to the place of use of the welding machine at all times;
- In addition to the instructions, comply with the general and local safety and environmental regulations in force;
- Keep all the instructions on the welding machine in a legible condition.

### 14.8 Stray welding currents

- Make sure that the ground cable is firmly connected to the piece;
- If possible, do not place the welding machine directly on the conductive surface of the floor or work table. Use insulating pads.

### 14.9 Common precautions

Check the machine at least once a week for external damage and operation of the safety devices.

## 15. WARRANTY OBLIGATIONS

PATON INTERNATIONAL warrants that the source will operate properly if the user follows the operating, storage and transportation conditions.

**WARNING! There is no free warranty service if the welding machine is mechanically damaged!**

Machine model	Warranty period
ProTIG-200 AC/DC	<b>2 years</b>
ProTIG-315-400V AC/DC	<b>1 year</b>

The main warranty period is calculated from the date of sale of the inverter equipment to the end customer.

During the main warranty period, the seller undertakes, at no charge to the owner of the PATON inverter equipment:

- To make a diagnostic and identify the cause of the breakdown,
- To provide the units and elements necessary for repair,
- replace defective components and units,
- To test the repaired equipment.

The main warranty does not cover the equipmen:

- With mechanical damage that affects the performance of the equipment (deformation of the housing and parts as a result of falling from a height or falling of heavy objects on the equipment, falling out of the buttons and connectors),
- With traces of corrosion, which caused the defective condition,
- Failed due to exposure of its power and electronic components to excessive moisture,
- Failed due to accumulation of conductive dust inside (coal dust, metal chips, etc.),
- In the case of an unauthorized attempt to repair its components and/or replace the electronic elements,
- Depending on the operating conditions, it is recommended to remove the protective cover and clean the internal elements and units with compressed air once every six months to avoid the failure of the device. Cleaning should be carried out carefully, keeping the compressor hose at a sufficient distance to avoid damaging the soldered electronic components and mechanical parts.



The main warranty also does not cover damaged external parts of the equipment that are subject to physical contact and accessories/consumables, which must be claimed within two weeks of the date of sale:

- On and off button,
- Welding parameter control knob,
- Cable and hose connectors,
- Control connectors,
- Power cord and power cord plug,
- Carrying handle, shoulder strap, case, box,
- Electrode holder, ground clamp, torch, welding cables and hoses.

The seller reserves the right to refuse to provide warranty repairs, or set the month and year of manufacture of the device (determined by the serial number) as the date of the warranty obligations beginning:

- In case of loss of the certificate by the owner,
- In the absence of correct or any filling of the certificate by the seller when selling the machine,
  - The warranty period is extended for the period of warranty service in the service center.

## 16. ACCEPTANCE CERTIFICATE

PATON ProTIG-200/315-400V AC/DC

Serial number \_\_\_\_\_, recognized as serviceable.

Sale date " \_\_\_\_ " \_\_\_\_\_ 20 \_\_\_\_.

Seal here.

\_\_\_\_\_  
(seller's signature)

=====



Date of acceptance for repair " \_\_\_\_ " \_\_\_\_\_ 20 \_\_\_\_ г.

\_\_\_\_\_  
(signature)

Signs of inoperability:

\_\_\_\_\_

Cause: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

=====

Date of acceptance for repair " \_\_\_\_ " \_\_\_\_\_ 20 \_\_\_\_ г.

\_\_\_\_\_  
(signature)

Signs of inoperability:

\_\_\_\_\_

Cause: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

=====

Date of acceptance for repair " \_\_\_\_ " \_\_\_\_\_ 20 \_\_\_\_ г.

\_\_\_\_\_  
(signature)

Signs of inoperability:

\_\_\_\_\_

Cause: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

=====

Date of acceptance for repair " \_\_\_\_ " \_\_\_\_\_ 20 \_\_\_\_ г.

\_\_\_\_\_  
(signature)

Signs of inoperability:

\_\_\_\_\_

Cause: \_\_\_\_\_

\_\_\_\_\_

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