

INVERTER WELDING TRANSFORMER

ITE-360C6

OPERATION MANUAL



Thank you for purchasing our product.

- This operation manual explains its method of operation and precautions for use.
- Before using, read this operation manual carefully; after reading, save it in a proper place where you can easily access.

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1. Special Precautions

(1) Safety Precautions

Before using, read “Safety Precautions” carefully to understand the correct method of use.

- These precautions are shown for safe use of our products and for prevention of damage or injury to operators or others. Be sure to read each of them, since all of them are important for safety.
- The meaning of the words and symbols is as follows:

DANGER

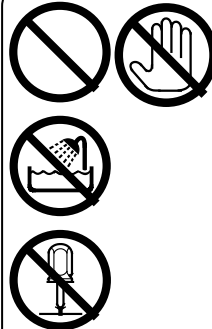
Denotes operations and practices that may imminently result in serious injury or loss of life if not correctly followed.

WARNING

Denotes operations and practices that may result in serious injury or loss of life if not correctly followed.

CAUTION

Denotes operations and practices that may result in personal injury or damage to the equipment if not correctly followed.



These symbols denote "prohibition". They are warnings about actions out of the scope of the warranty of the product.



These symbols denote actions which operators must take.



Each symbol with a triangle denotes that the content gives notice of **DANGER**, **WARNING** or **CAUTION** to the operator.

DANGER



Do not touch the “Terminal block” on the rear panel of the Transformer.

Since very high voltage is applied to the “Terminal block”, it is very dangerous to touch it unnecessarily. When connecting or disconnecting a cable, be sure to turn off the power.

After connecting the cable, install the terminal cover so that operator can not touch the terminal block during work.



Never disassemble, repair or modify the Transformer.

These actions can cause electric shock and fire. Consult your distributor or us for repair and maintenance.



Never burn, destroy, cut, crush or chemically decompose the Transformer.

This product incorporates parts containing gallium arsenide (GaAs).

WARNING



Do not put your hands between the electrodes.

When welding, keep your fingers and hands away from the electrodes.



Ground the Transformer.

If the Transformer is not grounded, you may get an electric shock when there is trouble, or when electricity leaks.



Use the rated voltage.

Applying a voltage exceeding rated voltage can cause abnormal heat and fire.



Securely connect only specified cables.

Use of a cable of insufficient capacity or loose connection can cause fire and an electric shock.



Do not touch +/- terminal, secondary cable, any welded part or electrodes during welding and just after welding finished.

These parts are very hot while and right after processing. Do not touch them; otherwise you may be burnt.



Do not damage the connecting cables.

Do not tread on, twist or tense any cable. The connecting cables may be broken, and that can cause electric shock, short and fire. When repairing or replacing, consult us or your distributor.



Stop the operation if any trouble occurs.

Continuous operation after occurrence of a trouble such as burning smell, abnormal sound, abnormal heat, smoke, etc. can cause electric shock and fire. If such a trouble occurs, immediately consult us or your distributor.



Wear protective glasses.

If you look at the flash directly during welding, your eyes may be damaged. If any surface flash and expulsion gets in your eye, you may lose your eyesight.



Persons with pacemakers must stay clear of the welding machine.

A person who uses a pacemaker must not approach the welding transformer or walk around the welding shop while the welding transformer is in operation, without being permitted by his/her doctor. The welding transformer generates a magnetic field and has effects on the operation of the pacemaker while it is turned on.



Protective gear must be worn.

Put on protective gear such as protective gloves, long-sleeve jacket, leather apron, etc. Surface flash and expulsion can burn the skin if they touch the skin.

CAUTION



Do not use this Transformer for any purpose other than welding.

Use of this Transformer in a manner other than specified can cause electric shock and fire.



Use proper tools (wire strippers, pressure wire connectors, etc.) for termination of the connecting cables.

Do not cut the wire conductor. A flaw on it can cause fire and electric shock.



Install the Transformer on firm and level surface.

If the Transformer falls or drops, injury may result.



Do not splash water on the Transformer.

Water splashed over the electric parts, can cause electric shock and short-circuits.



Do not place a water container on the Transformer.

If water spills, insulation will deteriorate, and this may cause electric leak and fire.



Keep combustible matter away from the Transformer.

Surface flash and expulsion can ignite combustible matter. If it is impossible to remove all combustible matter, cover them with non-combustible material.



Do not cover this Transformer with a blanket, cloth, etc.

Do not cover this Transformer with a blanket, cloth, etc. while you are using it. The cover may be overheated and burn.



Keep a fire extinguisher nearby.

Keep a fire extinguisher in the welding shop in case of fire.



Use ear protectors.

Loud noises can damage hearing.



Maintain and inspect the Transformer periodically.

Maintain and inspect the Transformer periodically, and repair any damage nearby before starting operation.

(2) Precautions for Handling

- When transporting or moving the Transformer, do not lay it down. Also, handle the Transformer with care so as not to make an impact such as drop on it.
- Install this Transformer securely on a firm and level surface. If it is inclined malfunction may result.
- Do not install this Transformer in the following places:
 - Damp places where humidity is higher than 90%,
 - Hot or cold places where temperatures are above 40°C or below 5°C,
 - Places near a high noise source,
 - Places where chemicals are handled,
 - Places where water will be condensed,
 - Dusty places,
 - Places exposed to large amounts of vibration or shock,
 - Places at an altitude above 1000 meters.
- Do not block up the vent slits and provide the clearance of 10 cm minimum for better radiation.
- There's a risk of failure, prevent a foreign matter into the Transformer from slits.
- Clean the outside of the Transformer with a soft, dry cloth or one wet with a little water. If it is very dirty, use diluted neutral detergent or alcohol. Do not use paint thinner, benzine, etc., since they can discolor or deform the Transformer.
- Operate the Transformer according to the method described in this operation manual.
- To use the transformer, it is necessary to prepare the welding power supply, the welding head, and secondary cables for connecting to the welding head, and so on.
- The Transformer is dedicated to our Inverter Welding Power Supply **IPB-5000**□ and cannot be used with other power supplies.
- Verify that contents of the container agree with the kit list. If you see any the deficiency, please contact us.

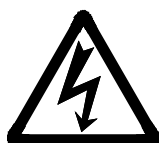
Packaged Kit	Quantity
Main unit	1
Voltage-sensing cable	1

(3) On Disposal

This product incorporates parts containing gallium arsenide (GaAs). At the time of disposal, separate it from general industrial waste or domestic waste and carry out the disposal in accordance with applicable laws and regulations.

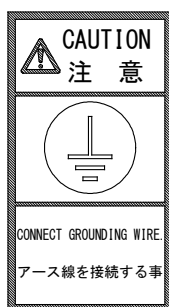
(4) Warning Labels

Warning labels are pasted on the Transformer for safety. The pasting place and meaning of each label is as shown below.



Pasting place: Upper part of the terminal cover

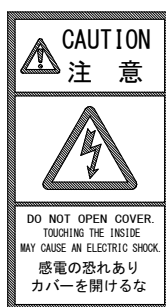
Meaning: Danger of electric shock



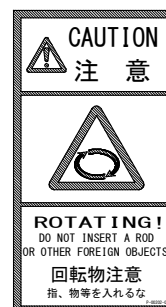
Pasting place: Front side of the upper part of the main unit

Meaning:

Caution for grounding
wire connection



Danger of electric
shock



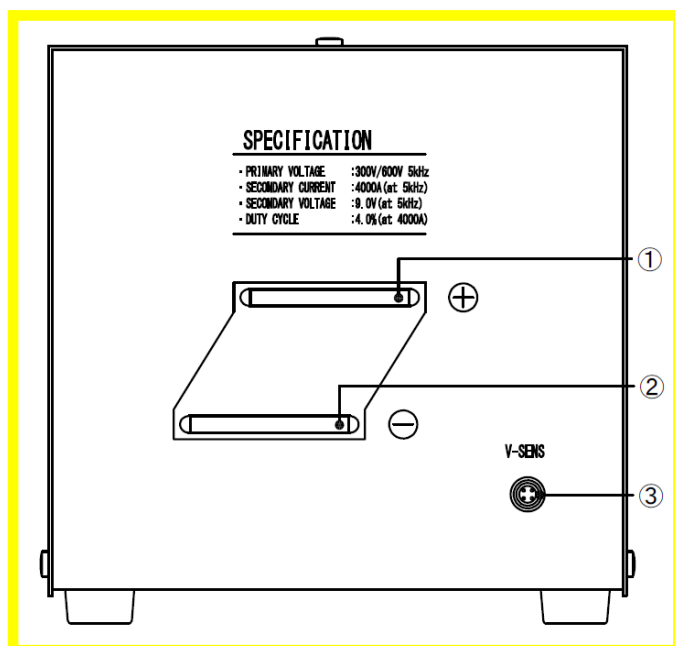
Pay attention to rotary
materials such as fan

2. Overview

(1) Inverter Welding Transformer

An inverter welding transformer is a type of transformer that supplies welding current by converting the high-voltage, high-frequency AC current output of an inverter welding power supply into DC current by using a built-in rectifier diode.

(2) Name and Functions of Each Section



① **[+] terminal ***

Connect the positive (+) cable of the welding head to this terminal.

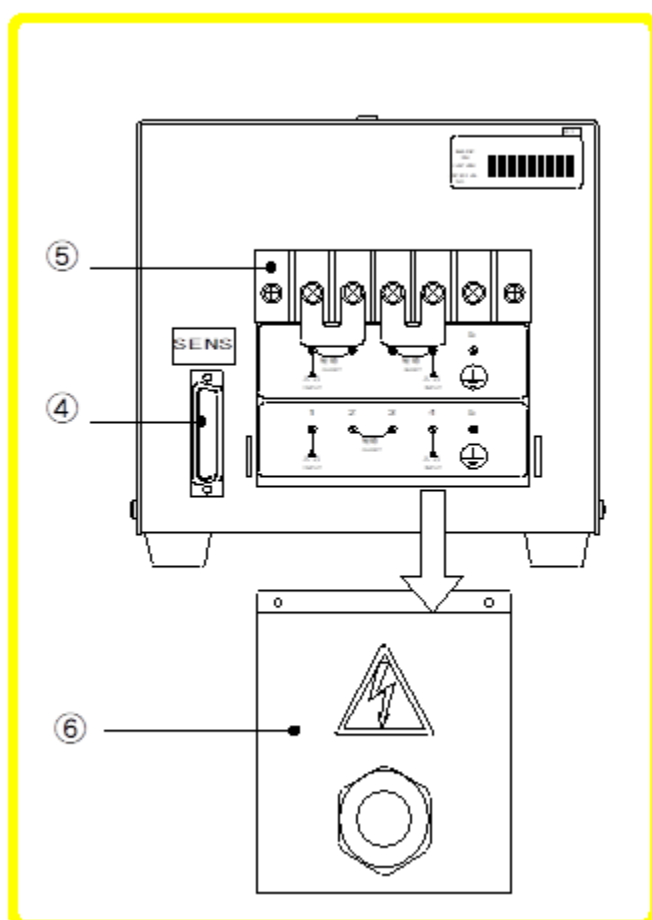
② **[-] terminal ***

Connect the negative (-) cable of the welding head to this terminal.

③ **[V-SENS] connector**

Connect the plug of the attached voltage-sensing cable. Connect the other side of this cable to a screw near the electrode, such as by co-tightening it to the electrode holder of the welding head.

* **[+] terminal** and **[-] terminal** are connected to chassis with a 30 Ω of resistance.



④ **[SENS] connector**

This is a connector for connecting to our inverter welding power supply with a sense cable sold separately.

⑤ **Terminal block**

Connect the output cables(sold separately) to these terminals and to our inverter welding power supply. Terminal screw M5×12.

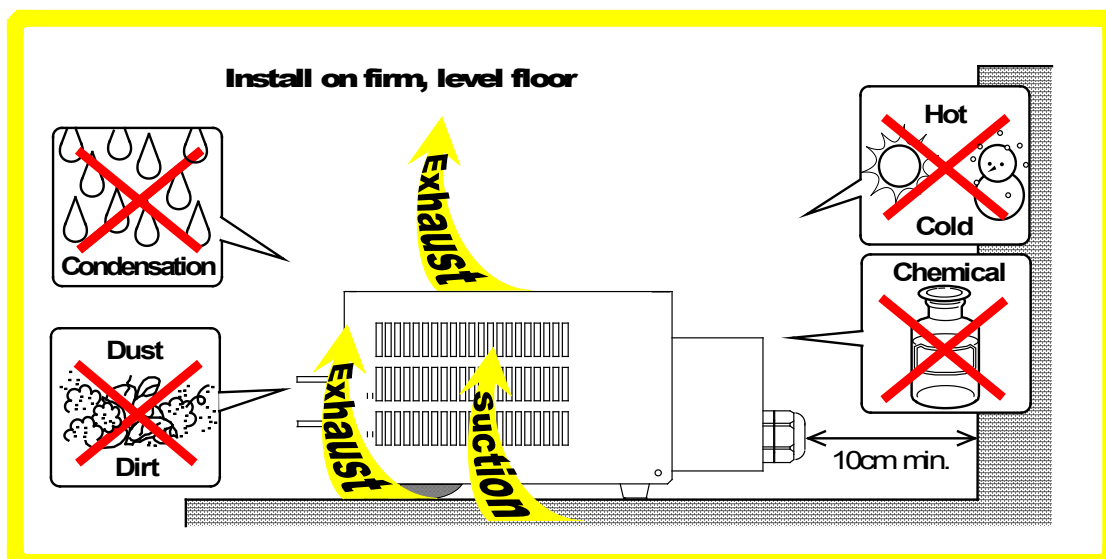
⑥ **Terminal cover**

This cover is installed so that a worker will not touch the terminal block directly. Keep this cover installed normally.

3. Installation and Connection

(1) Place for installation

For better radiation, ITE-360C6 has slits on side and bottom. Install ITE-360C6 in a well-ventilated place and make a clearance of at least 10 cm from the surrounding walls. Don't block each slit.



(2) Connection

After deciding where to install ITE-360C6, connect it to the other devices according to the explanatory drawings on pages 3-1 to 3-3.

Notice

Explanatory drawing shows how to connect with **MH-21AC** welding head and **IPB-5000** welding power supply.

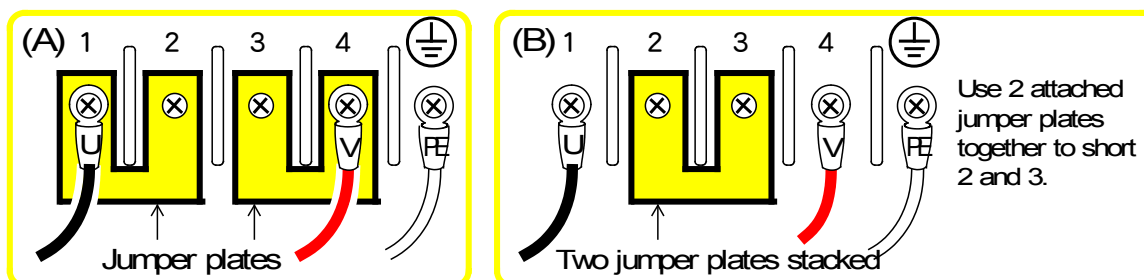
The way of connection varies with the type and usage of the devices to be used. For connection, refer instruction manual of each device.

And make sure to turn off the supplying power before connecting work.

(3) Connecting jumper plate

When the welding power supply voltage is 200V to 240V AC, connect the attached jumper plates to the terminals 1 and 2, and the terminals 3 and 4 as shown in the illustration (A); when, 380 V to 480 V AC, two jumper plates to the terminals 2 and 3 as shown in the illustration (B).

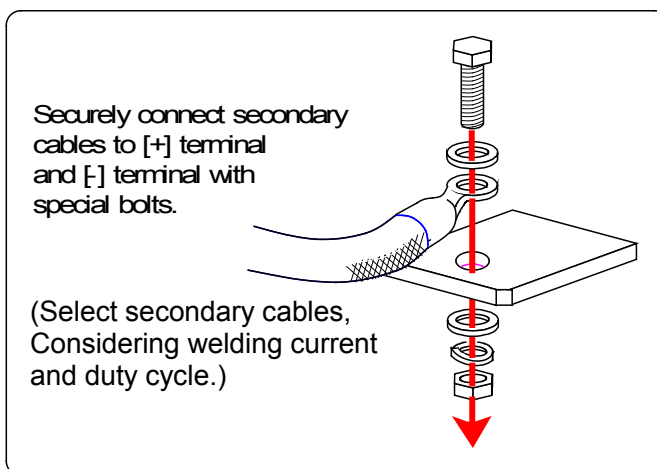
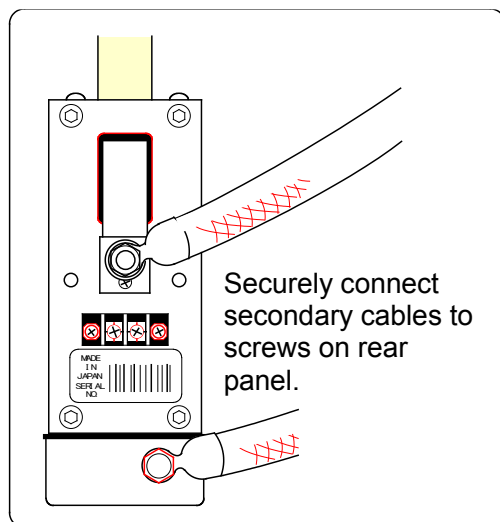
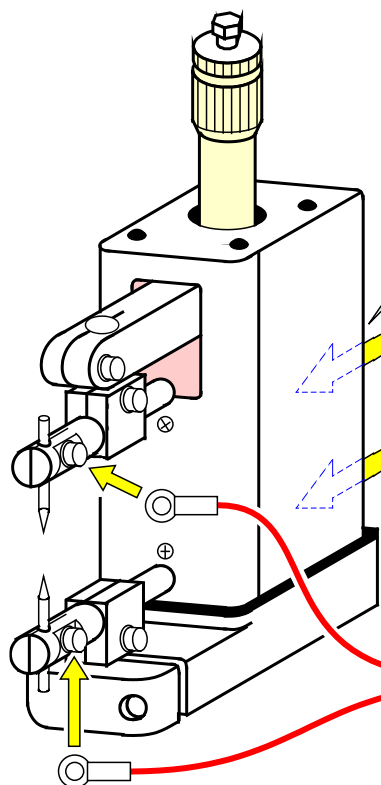
The terminals are factory-wired as shown in (B).



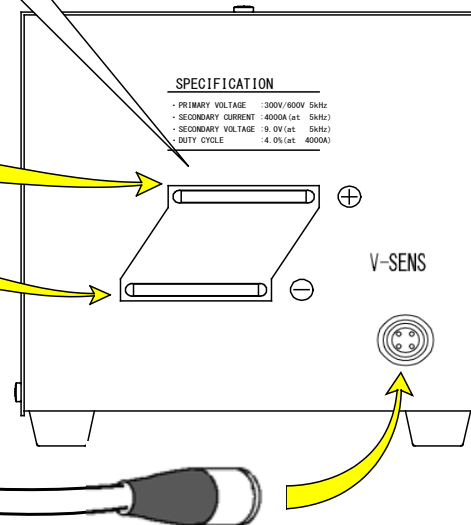
All of the following components except the ITE-360C6 are sold separately.

The illustration below shows
ITE-360C6 connected to
MH-21AC, our welding head

MH-21AC



ITE-360C6

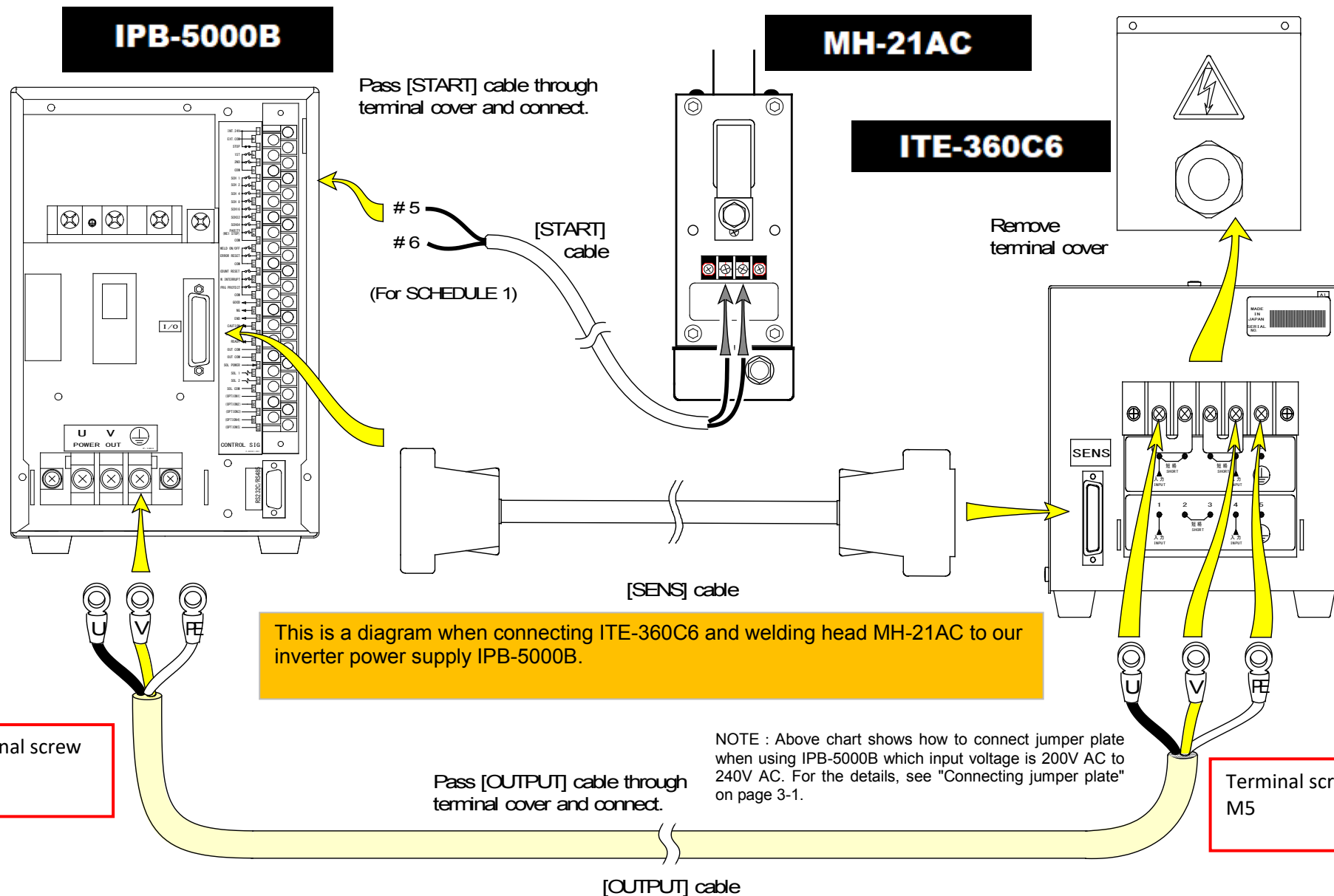


Secondary cable

Voltage-sensing cable

Refer this page and next page to connect ITE-360C6 with peripheral devices. To connect with devices other than MH-21AC, refer instruction manuals attached to each devices.

All of the following components except the ITE-360C6 are sold separately.



4. Specifications

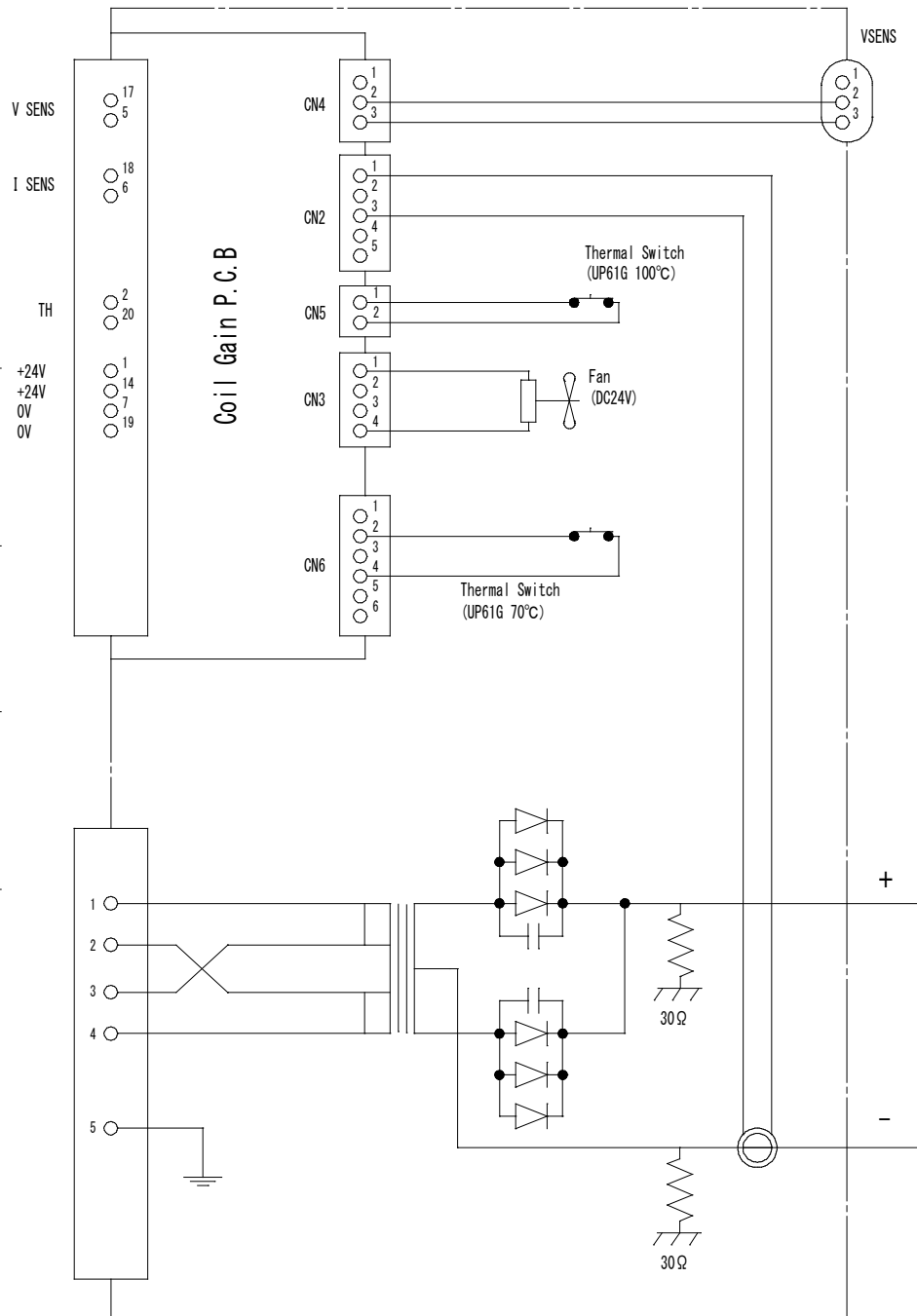
Rated capacity	10.2 kVA
Continuous capacity	7.2kVA
Number of phases	1
Rated frequency	5kHz
Rated Input voltage	200–240 V AC of welding power supply: 300 V 380–480 V AC of welding power supply: 600 V
Rated No-load svoltage⁽¹⁾	9 V
Turn ratio	200–240 V AC of welding power supply: 33:1 380–480 V AC of welding power supply: 66:1
Max. short circuit current	4000A ⁽²⁾
Continuous output current	800A
Max. duty cycle	4% (4000A) (cf.7. Duty Cycle Graph)
Cooling method	Forced air cooling
Overheat protection	100°C thermostat switch (built-in)
Operating environment	Temperature between 5°C-40°C, Humidity 90% or less (Dew condensation not allowed), Altitude 1000 meters or lower Caution: Use this product in the environment without conductive dust. If conductive dust enters in the product, this may result in a failure, electric shock, or fire. When using this product in this environment, make contact with us.
Storage environment	Temperature between -10°C and +55°C, dew condensation not allowed
Insulation class	H
Protection class	IP20
Protection class for electric shock	Class I
Compliance standards	GB15578-2008
Outline dimensions	183 (H) × 190 (W) × 401 (D) mm (Not including projections)
Weight	Approx. 11 kg
Accessories	Voltage-sensing cable × 1

(1) Excluding losses in diode.

(2) The maximum current fluctuates, when load fluctuates.

When connecting a welding head, the approximate maximum current is 3000A..

● Schematic



● Main parts list

Item	Q'ty
Fan motor	1
W transformer	1
Thermal protector	1
SBD module	3

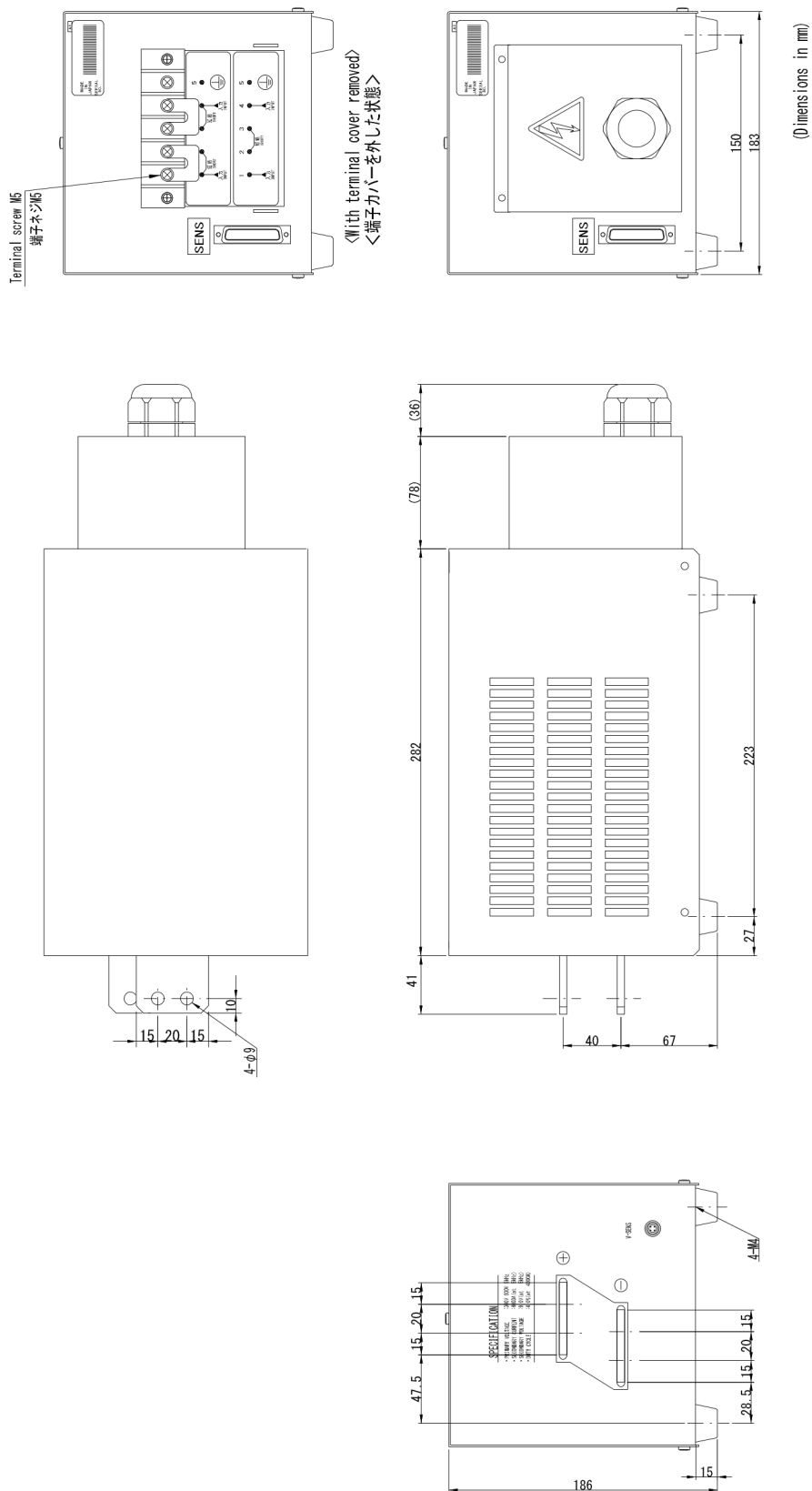
4. Specifications

5. Troubleshooting

Contents	Cause	Measures
Body of ITE-360C6 becomes hot extremely.	Fan motor does not working properly.	Consult us or your distributor.
Current does not flow.	Secondary cables are not connected correctly.	Check that all cables are connected correctly.
	Output cable attached to power supply is not connected correctly.	
Current is reduced.	The connections of secondary cables oxidized. For example, secondary cables and electrode holder, or secondary cables and [+] / [-]terminal of, transformer, or electrode and electrode holder, and so on.	Disconnect secondary cables and polish their contacts.
	Internal trouble of transformer	Consult us or your distributor.

6. Outline Drawing

(Dimensions in mm)



Specification sticker

AMADA WELD TECH CO., LTD. 日本制造 生产地址: 95-3 Futatsuka, Noda, Chiba, Japan 产品名称: 电阻焊机 产品型号: ITE-360C6 执行标准: GB15578-2008
焊接电流: ===== 额定空载电压: $U_{2d} = 9.0 \text{ V}$ 次级最大短路电流: $I_{2cc}=4000\text{A}$ (4.0%负载持续率) 连续输出电流: $I_{2p} = 800\text{A}$
相数及额定频率: 1 ~5kHz 额定输入电压: $U_{1n} = \sim 300\text{V}/600\text{V}$ 4%负载持续率下的功率: $S_4 = 36\text{kVA}$ 50%负载持续率下的功率: $S_{50} = 10.2\text{kVA}$ 100%负载持续率下的功率: $S_{100} = 7.2\text{kVA}$
外壳防护等级: IP20 变压器耐热等级: H 质量: 11 kg

Address	95-3Futatsuka,Noda,Chiba,Japan
Product name	Resistance welding equipment Product model : ITE-360C6
Compliance standards	GB15578-2008

Weld current	===== DC
Rated no-load output voltage	$U_{2d} = 9.0\text{V}$
Maximum short-circuit current in class	$I_{2cc} = 4000\text{A}$ (4%Load duration)
Continuous output current	$I_{2p} = 800\text{A}$

Number of phases and rated frequency	1~5kHz
Rated input voltage	$U_{1n} = \sim 300/600\text{V}$
Power at 4% duty cycle	$S_4 = 36\text{kVA}$
Power at 50% duty cycle	$S_{50} = 10.2\text{kVA}$
Power at 100% duty cycle	$S_{100} = 7.2\text{kVA}$

Protection class	IP20
Insulation class	H
Weight	11kg

7. Duty Cycle Graph

