



INVERTER WELDER

CUT 40 CUTTER MACHINE

USER MANUAL

[Revision 2.0 March 2016]

RETAIN THIS MANUAL FOR FUTURE REFERENCE

PLEASE READ THIS MANUAL CAREFULLY BEFORE USE

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INTRODUCTION

Thank you for purchasing our welder/cutter.

For your safety, please read this manual and understand its contents before operation.

The Inverter Plasma Cutter is made by the most internationally advanced inverter technology. 50/60 Hz frequency is inverted to high frequency (frequency that is over 100 KHz) by V-MOSFET, and then reduces the voltage and rectification current. The inverter power supply generates powerful DC welding current through PWM technology. Because the inverter technology of the switch power is used, the dimensions and weight of the main transformer has been reduced significantly and efficiency has increased by 30%. The Piloting Arc System can strike arcs easily with the principle of high-frequency oscillation. It can supply gas ahead of time and it can also turn off gas at a later time.

Our Inverter Plasma Cutter has the following characteristics:

- Stabilizing.
- Reliability.
- Lightness.
- Energy-saving and does not generate any noise.
- High-speed cutting.
- Cuts smoothly; no need for further polishing.

The Inverter Plasma Cutter can be used in a wide variety of ways; it is suitable for cutting stainless steel, alloy steel, mild steel, copper and other coloured-metal materials.

We welcome you to use the product of our company and make suggestions; we will try our best to improve our products and services.

GUARANTEE

We give our unreserved guarantee that the Inverter Welding and Cutting Power Source series comply with IEC974 international safety standard; maintenance for one year from the date of purchase.

SAFETY

WARNING

- Make sure that the working area is adequately ventilated.

The Inverter Plasma Cutter is light and compact. The electromagnetic fields are generated by high currents. Natural wind will not sufficiently cool down the components, there is one axial-flow fan within the machine in order to cool it down.

NOTE: The exhaust shutter must not be blocked or covered within a 0.3m radius from the machine to objects. Make sure to always keep improving the ventilation of the environment; it is very important for the Inverter Plasma Cutter.

- **Do not overload!**

The limits of the cutting current is strictly in accordance to the maximum allowable current with all kinds of duty cycles.

Do not exceed the working load in order to prevent the Inverter Plasma Cutter from shortening its life as well as to avoid burning up the machine.

- **Do not overcharge!**

The power voltage range of the Inverter Plasma Cutter is in accordance to the main technical data sheet. Voltage automatic compensation circuit will prevent it from exceeding the allowable range. If the power voltage is too high, the internal components could be damaged. User must exercise caution.

- There is a grounding screw, which is marked “grounding” behind the Inverter Plasma Cutter. Make sure that the mantle is grounded reliably by a cable whose width is 6 millimetres square in order to prevent electricity from leaking and producing electro-static.
- The inter-heat variable component will start if the machine exceeds its duty cycles. That will cause the Inverter Plasma Cutter to stop working immediately and the red diode to light up. User does not need to break the circuit; the fan will continue working in order to cool down the machine. Once the temperature is reduced to a more suitable range, the machine can then be operated again.
- During welding or cutting, do not switch in-between functions. It could damage the machine.
- Plug-off the air plug that is connected to the electrode holder to make sure that the holder is separated from the main machine to avoid an electric shock.
- A certain switch is needed to protect the machine from voltage-leakage.
- Please use high-quality welding and/or cutting tools.
- Operators should be trained and qualified for welding or cutting.

ELECTRIC SHOCK MAY BE FATAL TO LIFE

- Set the earth cable to standard.
- Do not touch electrical parts with bare hands, wet hands and/or clothes.
- Make sure that you and the working piece are properly insulated.
- Make sure that you prioritise your safety while working.

SMOKE MAY BE HARMFUL TO YOUR HEALTH

- Keep your head out of any smoke.
- When welding or cutting, make sure that the air is well-ventilated to avoid breathing in the smoke.

ARC-EMISSION MAY BE HARMFUL TO YOUR EYES AND SKIN

- Wear appropriate welding or cutting mask and clothes to protect your eyes and skin.
- Use suitable screens or curtains to protect the look-ups from the emission.
- The welding or cutting sparks may cause fire; make sure that there are no flammable materials nearby in the working place.

TOO MUCH NOISE MAY BE HARMFUL TO YOUR HEARING

- Please wear protective gears like earmuffs to protect your ears from loud noises.
- Warn the look-ups of the harm the noise may cause.

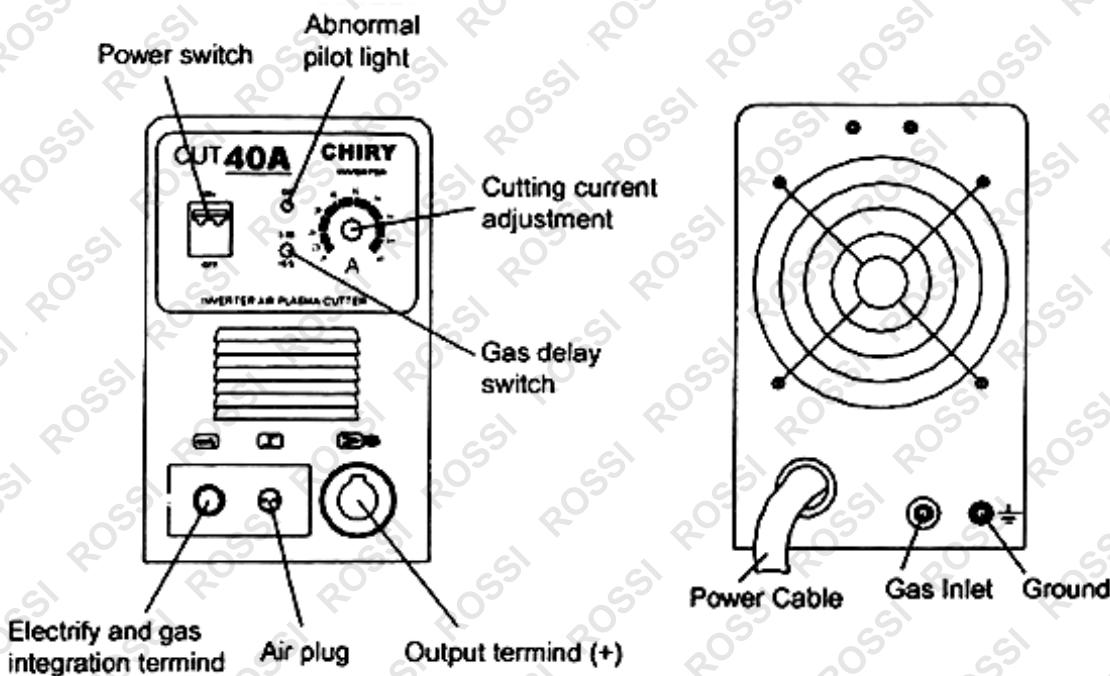
ASK FOR PROFESSIONAL HELP

- If you have any problems in setting up or operating the tool, please consult this manual first.
- If you still can't understand after reading this manual, please contact your supplier or manufacturer to get professional help.

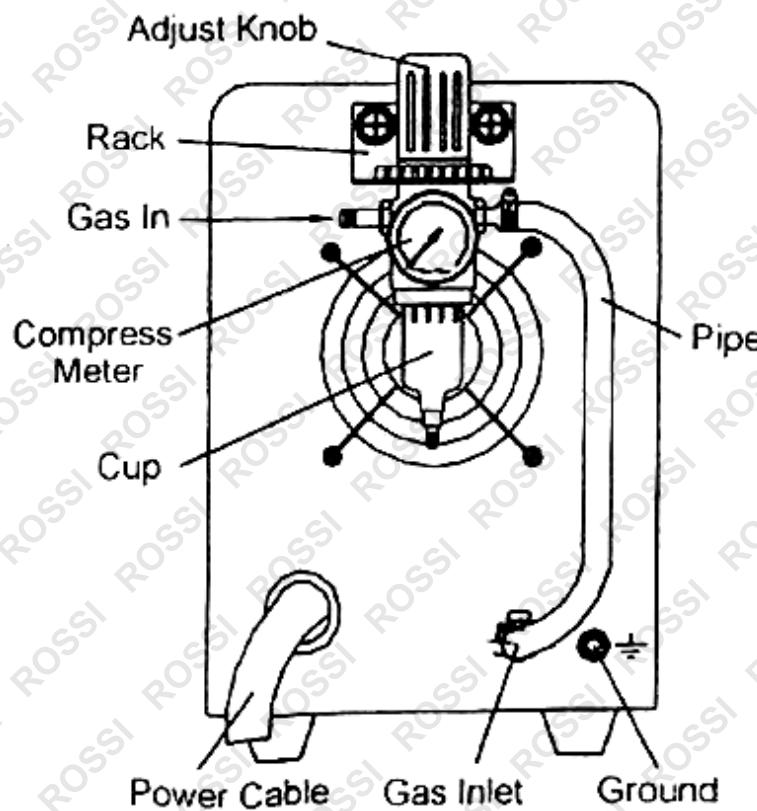
TECHNICAL DATA

ITEM/DATA	CUT-30	CUT-40	CUT-50	CUT-60/220	CUT-60/380
POWER	Single Phase	Single Phase	Single Phase	Single Phase	Three Phase
VOLTAGE (V)	220 ± 15%	220 ± 15%	220 ± 15%	220 ± 15%	380 ± 15%
RATED INPUT POWER (KVA)	3.2	4.7	6.5	8.7	9
No-LOAD VOLTAGE (V)	220	220	225	240	240
RATED OUTPUT CURRENT (A)	30	40	50	60	60
RATED OUTPUT VOLTAGE (A)	90	100	110	120	120
DUTY CYCLE	60%	60%	60%	60%	60%
PILOT ARC MODEL	HF	HF	HF	HF	HF
BURNER INNER DIAMETER (MM)	1.0	1.0	1.0	1.2	1.2
PRESSURE OF AIR COMPRESSOR (MPA)	0.4	0.45	0.45	0.5	0.5
THICKNESS (MM)	1-8	1-12	1-16	1-23	1-23
WEIGHT (KG)	8	9	13	16	17
DIMENSIONS (MM)	390 X 155 X 250	390 X 155 X 250	425 X 205 X 355	425 X 205 X 355	510 X 200 X 350

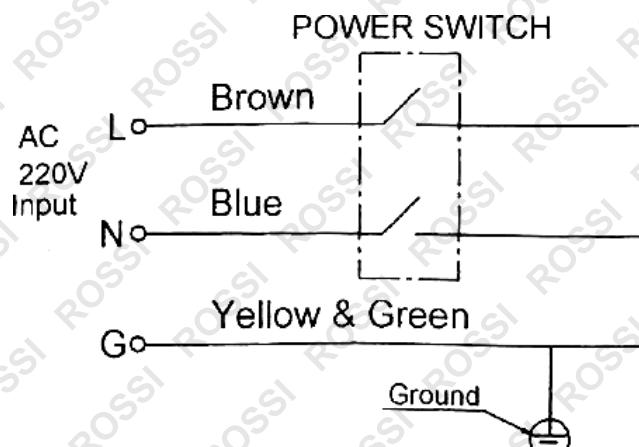
PARTS SCHEMATIC

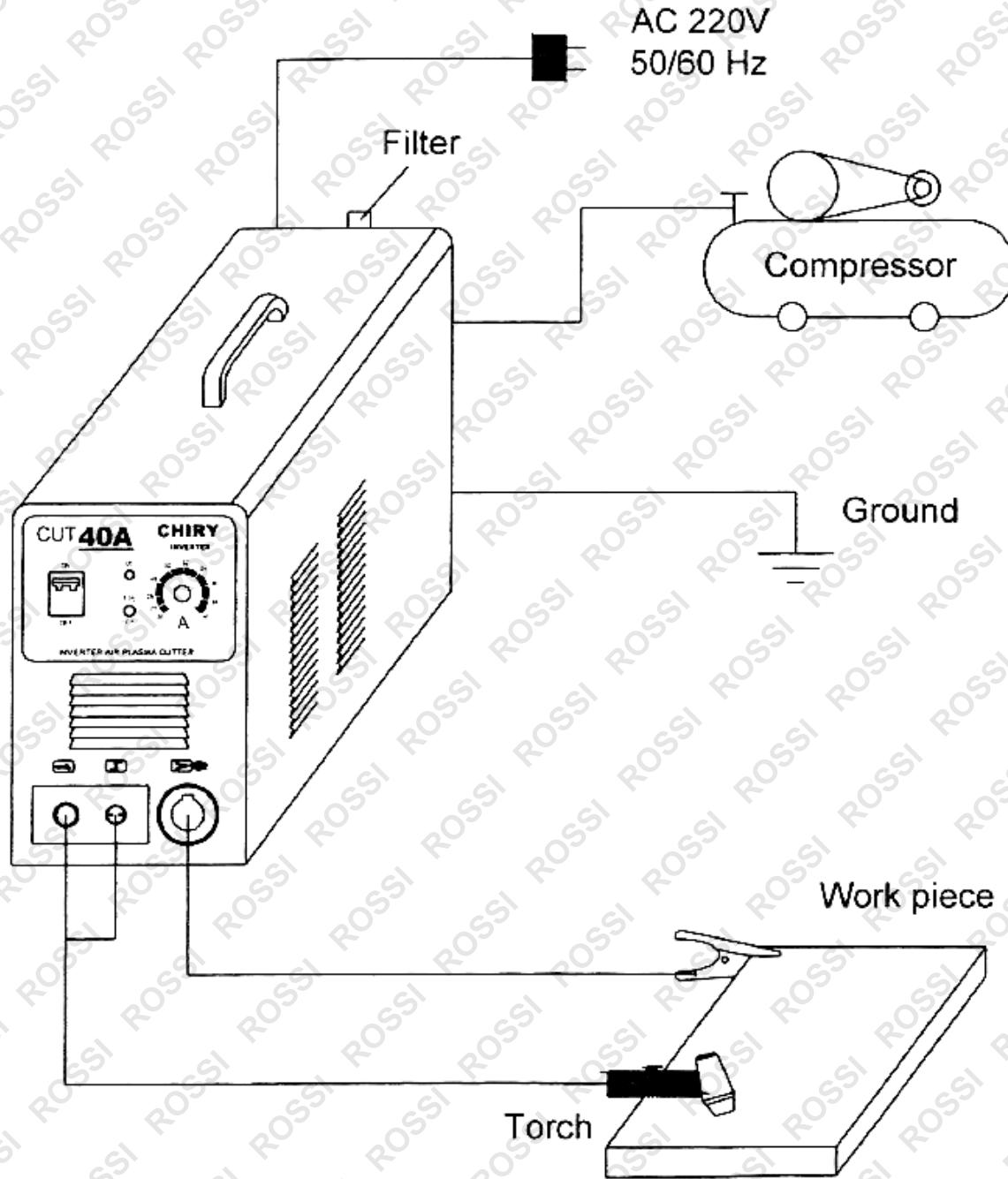


AIR ADJUSTER ASSEMBLY DIAGRAM



POWER INPUT DIAGRAM





INSTALLATION

INPUT CABLE CONNECTION

See diagrams above.

- Each machine is equipped with a power cable, which must be connected to the correct voltage class according to the input voltage of the Inverter Plasma Cutter. If the Inverter Plasma Cutter, whose power voltage is 220V, is connected to the wrong AC 380V, it will cause the components of the machine to burn up.
- Make sure that the power cable is connected to the power switch reliably so as to avoid it from oxidising. Make sure that the power voltage stays within the recommended range.

OUTPUT CABLE CONNECTION

- Make sure that the tube of compressed air is firmly connected to the copper connector by a high-pressure rubber tube.
- Make sure that the copper screw at the other end of the torch is connected to power-up the integration terminal, then tighten them in a clockwise direction (preventing it from leaking gas). For the mobile plug at the other end of the grounding cable pincer, make sure to connect it to the positive terminal of the front panel, then tighten it.
- Make sure that the air plug of the torch is connected to the switch connector of the panel (if it is an arc-supporting cutter, the arc-supporting cable of the torch should be connected to the terminal of the arc-supporting).

CHECKING

- Check if the Inverter Plasma Cutter is grounded reliably according to required standards.
- Check if all of the connectors are connected firmly.
- Check if the power voltage is correct.

PRE-OPERATION

1. Open the power switch of the front panel, switch in into the “ON” position. With this, the time indicator of the power switch is also turned on. Screen will then show the current volume.
2. Adjust the gas pressure in a way that is suitable to the machine, then open the valve of compressed air.
3. Press the control knob of the torch, which should start the electromagnetic valve. After which, the sound of HF arc-strokes can be heard and that the burner of the torch should be emitting gas (Burner of the arc-supporting cutter should spurt).
4. Make sure that the cutting current is suitable for the machine according to the thickness of the cutting piece flame.
5. The distance from the copper tip to the work piece should be 1mm (Farther if it is the arc-supporting cutter). Press the knobs of the torch and the burn and strike arc. Sparks of HF arc-strokes will diminish immediately. User can now begin to cut.

OPERATION

OPERATING ENVIRONMENT

- The Inverter Plasma Cutter can perform in an environment where conditions are particularly harsh and with outside temperatures between -10 and +40 degrees centigrade, with a dampness level of max. 80%.
- Avoid using the Inverter Plasma Cutter under direct sunlight; do not drop the Inverter Plasma Cutter.
- Keep the Inverter Plasma Cutter dry and avoid letting it make contact with water and other liquids.
- Do not use the Inverter Plasma Cutter in an environment where the condition is filled with a high concentration of dust and/or corrosive gases in the air.

NOTES ON CUTTING

- Make sure that the copper tip should not connect to the work piece directly when user is cutting. Torch should be held inclined and 1mm from the inter-hole of the copper tip to the work piece in order to protect the copper tip.
- As an arc-supporting cutting machine, if the arc-supporting frequency is down or if there is no arc-supporter, user can get rid of the oxidised film of the inner electrode with an abrasive paper. Then the machine can be operated normally.

MAINTENANCE

- Remove dust and/or dirt with compressed air regularly. If the Inverter Plasma Cutter is placed in an environment where the condition is filled with smoke and/or dust, the Inverter Plasma Cutter must be cleaned of dust/dirt every day.
- Adequate pressure is set for cutting in order to protect the little components in the machine.
- Check the electrical connectors and make sure that the connectors are connected firmly (especially when connecting and inserting components). If not, tighten the connectors.
- Avoid contact with water or other liquids. If the machine has been exposed to wetness/dampness, it must be dried immediately and measure the insulation by meters. After ascertaining that there are no problems, the machine can then be operated again.
- If the Inverter Plasma Cutter will not be used for a long time, it should be put in its own packing box and stored in a dry environment.

TROUBLESHOOTING

FAULTS	SOLUTIONS
The power pilot light isn't on, and the fan isn't working; no cutting voltage output	<ul style="list-style-type: none"> ▪ The power switch is broken. ▪ Check whether the electric net connected to the input wire has electricity. ▪ Check whether the input cable has short-circuited.
The power switch is turned on, but the fan isn't revolving or only revolving slowly; there is no cutting voltage output.	<ul style="list-style-type: none"> ▪ It may be wrongly connected to the 380V power supply, thus causing the over-voltage protection to kick in. Re-connect it to a 220V power supply, then restart the machine.
The fan is on and the warning pilot light is not on; no HF electricity being emitted; cannot start the arc.	<ul style="list-style-type: none"> ▪ The voltage from the power board to the MOSFET should be about DC308. <ul style="list-style-type: none"> – Whether it short-circuited or whether the bridge wire is well-connected. – There are four capacitors on the bottom board, one of which may be leaking; just replace it. ▪ The assistant power supply is abnormal, it should be DC24V. ▪ Check all of the connections in the machine. ▪ Something is wrong with the control circuit, find the problem or contact the seller.
The warning pilot light is off; no sound when electricity has been released; no cutting voltage output.	<ul style="list-style-type: none"> ▪ The welding cable is broken. ▪ The earth cable is broken or it is not connected to the work piece. ▪ The “+” output terminal is not connected well.
The warning pilot light is not on; no sound when electricity has been released.	<ul style="list-style-type: none"> ▪ The primary wires of the transformer and the power board are not well-connected; re-connect them. ▪ The nozzle has been oxidised or too far away; remove the oxidation on the surface. Place the distance to 1mm.
The warning pilot light is on	<ul style="list-style-type: none"> ▪ It may be due to the over-charge protection kicking in. Please turn off the power until the warning pilot light is off, and let the machine recover. ▪ It may be due to the over-charge protection kicking in. No need to turn it off, just wait for two or three minutes; or there may be something wrong with the inverter circuit. If so, unplug the power plug on the MOSFET of the main transformer, and then restart the machine. <ul style="list-style-type: none"> – If the warning pilot light is still turned on, turn off the machine and unplug the HF arc-leading power plug, and then restart the machine.

FAULTS	SOLUTIONS
The output current is not stable, or out of the control of the potentiometer; current is not stable.	<ul style="list-style-type: none"> If the warning pilot light is on, there is something wrong with the MOSFET, check and replace the MOSFET. If the warning pilot light is not on, there is something wrong with the step-up transformer; if so, replace it. If the warning pilot light is not on: <ul style="list-style-type: none"> There may be something wrong with the transformer on the centre PCB. You can use the electric bridge to measure the transformer. $L = 0.9 - 1.6\text{mH}$ $Q > 35$. There may be something wrong with the secondary rectifier. (Model: F30U60DN) on the centre PCB; check and then replace it. There may be something wrong with the connection (CN12) on the centre board; check and then replace it. The feedback circuit may have short-circuited.
Cutting power is not enough; arc is not consistent	<ul style="list-style-type: none"> The 1K potentiometer is broken; replace it. The connections are not well-connected, especially the plug-ins. The Current input voltage is too low. The earth cable is too long or not well-connected. The air pressure is too high or too low. The nozzle and the electrode of the torch don't match well or not good enough, and the being given is too small.

If you still cannot solve the problem after consulting the above table, please contact the manufacturer or an authorised service centre.

TECHNICAL SPECIFICATIONS

INPUT VOLTAGE	220-240V 50Hz (10A Plug)
OUTPUT CURRENT	20-40 Amps
POST FLOW TIMER	2.5-5 Seconds
OUTPUT VOLTAGE	100V
DUTY CYCLE	60%
INPUT AIR PRESSURE	0.45Mpa
CUTTING CAPACITY	1-14mm
PILOT ARC MODE	HF
EFFICIENCY	85%
GENERATOR SAFE	5.5kVA recommended



Some experts believe that the incorrect or prolonged use of almost any product may cause serious injury or death. To help reduce your risk of serious injury or death, refer to the information below. For more information, see www.datastreamserver.com/safety

- Consult all documentation, packaging and product labelling before use. Note that some products feature documentation available online. It is recommended to print and retain the documentation.
- Before each use, check the product for loose/broken/damaged/missing parts, wear or leaks (if applicable). Never use a product with loose/broken/damaged/missing parts, wear or leaks.
- Products must be inspected and serviced (if applicable) by a qualified technician every 6 months. This is based on average residential use by persons of average size and strength, and on a property of average metropolitan size. Use beyond these recommendations may require more frequent inspections/servicing.
- Ensure that all users of the product have completed a suitable industry recognised training course before being allowed access to the product.
- The product has been supplied by a general merchandise retailer that may not be familiar with your specific application or description of application. Be sure to attain third-party approval from a qualified specialist for your application before use, regardless of any assurances from the retailer or its representatives.
- This product is not intended for use where fail-safe operation is required. As with any product (for example, automobile, computer, toaster), there is the possibility of technical issues that may require the repair or replacement of parts, or the product itself. If the possibility of such failure and the associated time it may take to rectify could in any way inconvenience the user, business or employee, or financially affect the user, business or employee, then the product is not suitable for your requirements. This product is not intended for use where incorrect operation or a failure of any kind, including but not limited to, a condition requiring product return, replacement, parts replacement or service by a technician may cause financial loss, loss of employee time or an inconvenience requiring compensation.
- If this product has been purchased in error when considering the information presented here, contact the retailer directly for details of their returns policy, if required.

