



Auto-Darkening Helmet

User Manual

RT-WMASK6



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SECTION 1 - SAFETY WARNINGS – READ BEFORE USING



ARC RAY FROM WELDING CAN BURN EYES AND SKIN. A damaged helmet or auto-darkening filter (ADF) can reduce the protection against harmful rays (intense visible light, ultraviolet and infrared) and result in serious injury.

- Before welding, always inspect the complete helmet and the filter to ensure that they are not damaged. Also check and select the right shade and other filter settings.
- Check both the front and back cover lens to see whether they are clean, clear, undamaged and securely attached to the helmet and cover the auto-darkening filter. They are for the protection of the ADF. Never weld without the cover lenses on.
- Replace any worn or damaged parts immediately.
- Damages to ADF caused by abuse such as excessive temperatures, cracks from impact, and pitting from spatter caused by poor maintenance will void warranty.



WELDING HELMETS DO NOT PROVIDE UNLIMITED EYE, EAR AND FACE PROTECTION.

- Wear impact resistant safety spectacles or goggles and ear protection at all time when using this helmet.
- Do not use this helmet for “overhead” welding, laser welding or laser cutting.
- Do not use the helmet when working with or around explosives or corrosive liquids.



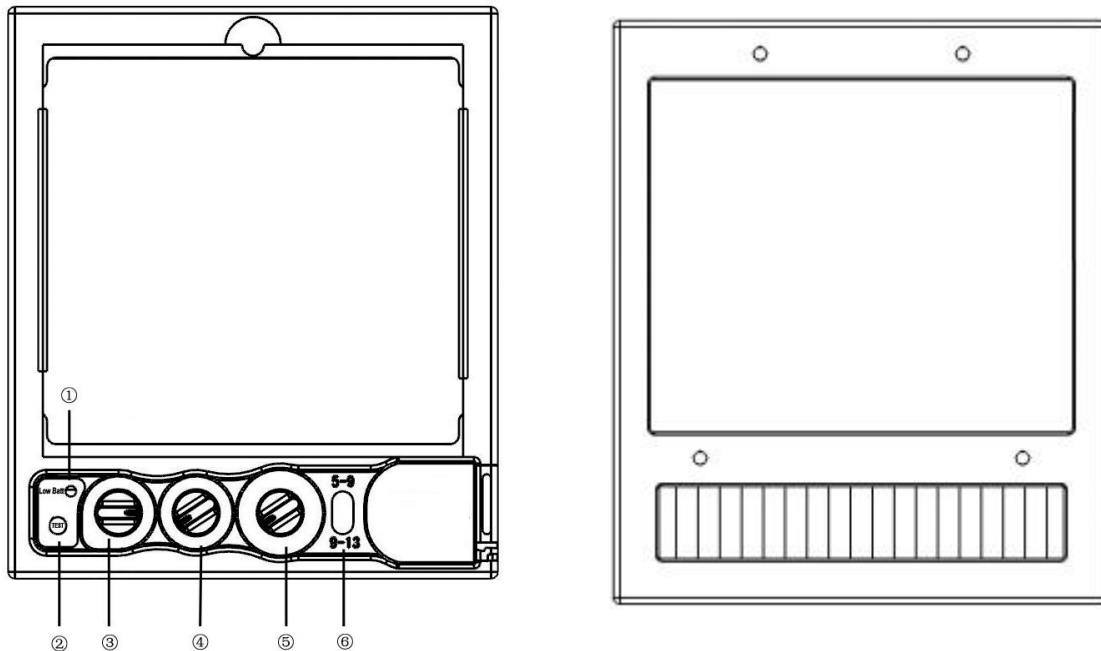
WELDING ALSO PRODUCES SOME OTHER HAZARDS SUCH AS FUME, NOISE, SPARK, AND SPATTER. Other safety precautions are also needed.

- Wear protective clothing and footwear made from durable and flame resistant materials.
- Provide adequate ventilation and breathing protection against welding fumes.
- Use protective screens or barriers to protect others from flash and glare.
- Warn others not to watch the arc.

SECTION 2 – PRODUCT SPECIFICATION

Viewing Area / Optics	98 x 90 mm/3.86" x 3.54" Optical Quality 1.1.1.2 True Colour
Cartridge Size	114x133x10mm/4.49"x5.24"x0.39"
Switching Index (s)	1/25,000 (Second)
Light Shade	DIN 4
Dark Shade	DIN 5-9 / 9-13
Sensitivity Control	Low to Hi stepless
Dark to Light Delay	0.2-1 Second stepless
Automatic Power Off	10-15 minute after working
Sensors	4 pcs
Power	Solar Cell + 2 Replaceable CR2450 Lithium Batteries
Lowest Welding Current	Less than 5 Amps
Self-check	Yes
Grinding Mode	Yes
Low Battery Indicator	Yes
UV/IR Protection Level	DIN 16
Operating Temperature	23 F-131F/-5° C - +55° C
Storage Temperature	-4F-158F/-20° C - + 70° C
Helmet Material	High-impact resistant plastic/Polyamide Nylon
Total Weight	510 g (1 lb/ 2 oz.)
Standards	ANSI/CE

SECTION 3- AUTO-DARKENING CARTRIDGE CONTROLS



①**Low Battery Display:** When the battery is low, low battery light will flash intermittently, replace with new battery.

②**Self-check:** Double function: first, to check if the filter works properly or not; second, to distinguish the mode, weld or grind.

③**Sensitivity Knob/Grind Mode:** Step-less adjustment between "Low" & "High" ,according to welding types & welding current - Turn fully anti-clockwise until knob clicks for grind mode.

④**Delay Knob:** Stepless adjustment between "0.2" and "1s" ,this is the delay after welding arc stopped that display will stay in dark mode.

⑤**Shade knob:** Stepless adjustment between"9" and "13", according to the arc strength.

⑥**Shade grades select switch:** The shades are divided to two sections. One is 5-9, the other is 9-13. The shade section can be chosen by the switch.

Use the Shade Guide below to select proper shade based on your welding application. We recommend starting at Shade 13, and adjust it down according to the welding process and personal preference.

SHADE GUIDE TABLE

Welding Process	Arc Current (Amperes)	Shade No.
Stick Electrodes	Less than 40	9
	40-80	10
	80-175	11
	175-300	12
	300-500	13
MIG	Less than 100	10
	100-175	11
	175-300	12
	300-500	13
Gas Tungsten Arc Welding (TIG)	Less than 50	10
	50-100	11
	100-200	12
	200-400	13
Air Carbon	Less than 500	12
	500-700	13
Plasma Arc Cutting	60-150	11
	150-250	12
	250-400	13
Plasma Arc welding	Less than 50	9
	50-200	10
	200-400	12

We recommend a Mid-range sensitivity setting for most applications. When adjusting the sensitivity to accommodate different lighting conditions or if the filter is flashing on and off.

- Turn sensitivity level to the lowest setting;

- Face the filter in the direction of use, exposing it to the surrounding light conditions.
- Increase the sensitivity until the lens darkens, and then lower it down until reaching the level where the lens is clear. Slight readjustment may be necessary for certain application or if the filter is flashing on and off.

Important! When the lens is flashing, the Sensitivity level is at the threshold and the lens will be auto-off after 1-2 minutes to protect the lens. User needs to adjust the sensitivity.

Delay Control: Step-less adjustment between "Min" & "Max" to choose the desired delay level.

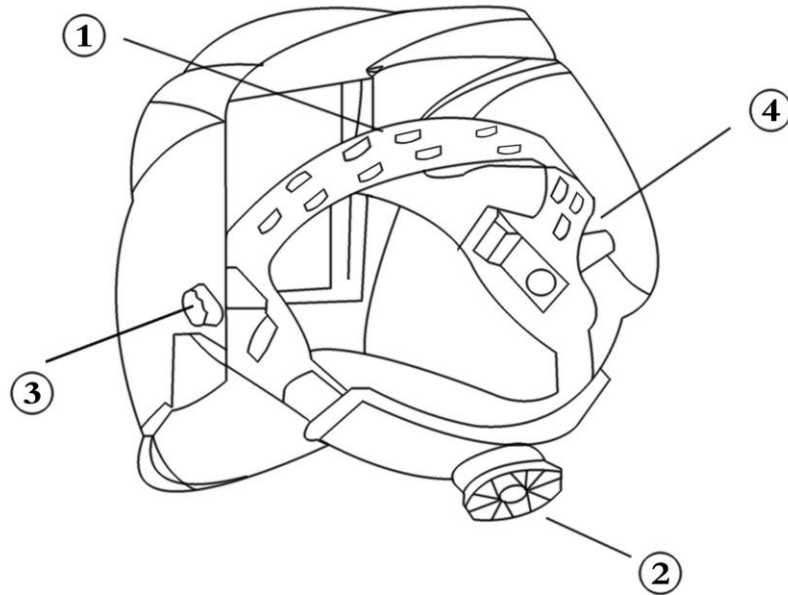
Delay is used to slow the switching time from dark state to clear state after welding. It is particularly useful in eliminating bright after-rays present in high amperage applications where the molten puddle remains bright momentarily after welding. The filter delay runs from 1 (0.2 second) to 10 (1 second). We recommend higher setting for higher amperage welding or for the situation where the lens may be temporarily blocked from seeing the welding arc.

Test the ADF Filter Prior to Welding

Test the ADF filter before welding by facing the front of the filter toward a bright source of light, and then using one hand to cover and uncover the sensors rapidly. The filter shall darken momentarily as the sensors are exposed. Self-test can also be used.

 **Stop working immediately if the filter does not turn dark when striking a welding arc. Check all settings and solve all problems before trying again.**

SECTION 4 – HEADGEAR ADJUSTMENT



One can adjust the headgear in 4 ways.

① **Head Depth Adjustment:** This is on the top of the headgear. Snap in the pins on the left band into the holes on the right band to select the proper depth on the head for balance and stability.

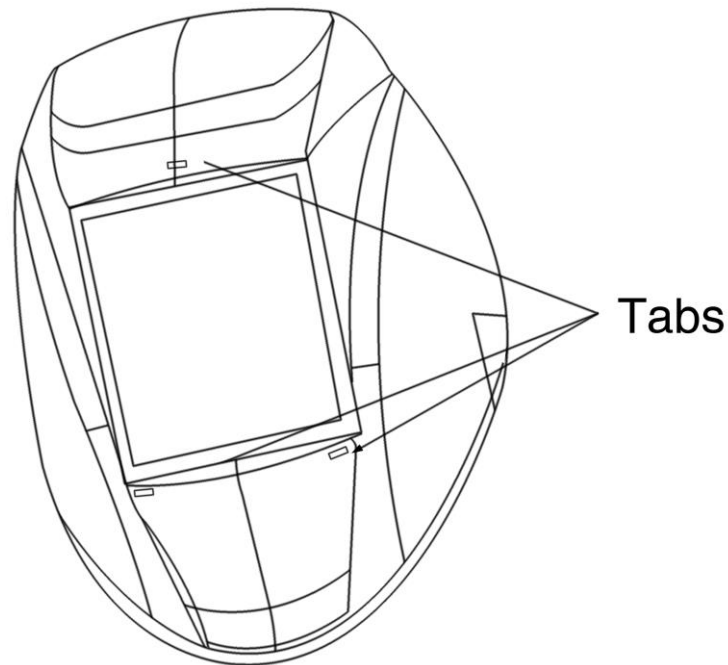
② **Headgear Tightness Adjustment:** Push in the Ratchet Knob on the back of the headgear, and turn to desirable comfort level.

③ **Distance (Face to Filter) Adjustment:** loosen both outside tension knobs. Move forward or backward to desired position and then retighten the tension knobs. Both sides must be equally positioned for proper vision.

④ **Helmet Angle (or Tilt) Adjustment:** Position washers with 5 holes on the one sides of the headgear is used for adjusting the forward tilt of the helmet. To adjust, loosen both outside tension knobs, and move the position washers on both sides into the desired holes (two washers must be in the same position). Retighten the tension knobs.

SECTION 5 – REMOVING AND INSTALLING ADF CARTRIDGE


The cartridge is secured to the helmet by a cartridge holder with two tabs at bottom and a tab on top of the holder.



Removing ADF Cartridge: Use one finger to press down the tab and at the same time another finger to push off the retainer on the helmet. Start from the bottom and then the top. Remove the cartridge holder and the cartridge.

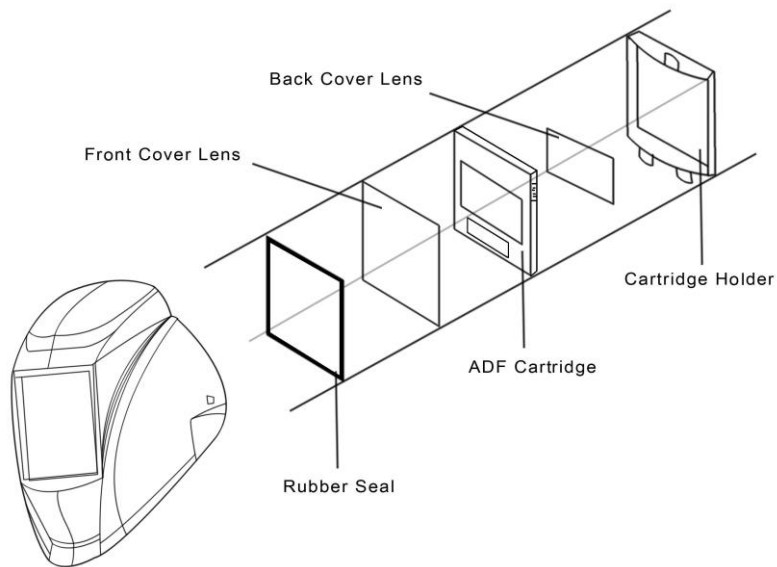
Installing ADF Cartridge: Insert the tab on the top to the retainer first, and then press down the bottom of the holder and push back the retainers to click on the tabs at the bottom.

SECTION 6 – REPLACEMENT OF COVER LENSES

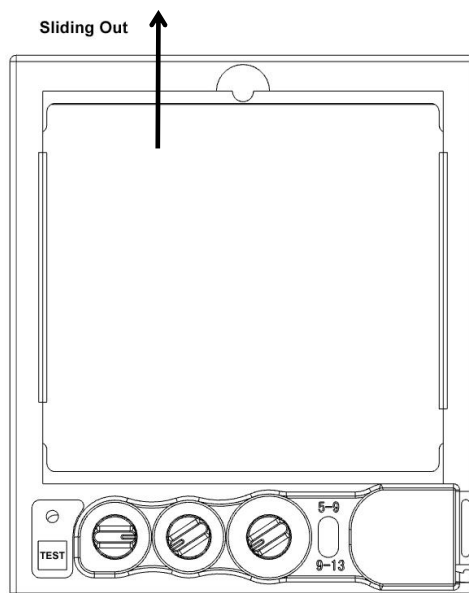
 Front and back cover lenses are for the protection of the auto-darkening filter. Never use the ADF without these cover lenses properly installed. Welding spatter will damage the auto-darkening filter and void the warranty.

Inspect the cover lenses frequently and change if damaged (cracked, pitted, spattered etc.) immediately.

Replacing the Front Cover Lens: Remove the ADF cartridge from the helmet, take out the front lens gasket and the front cover lens. Install the new front cover lens by reversing the above process.



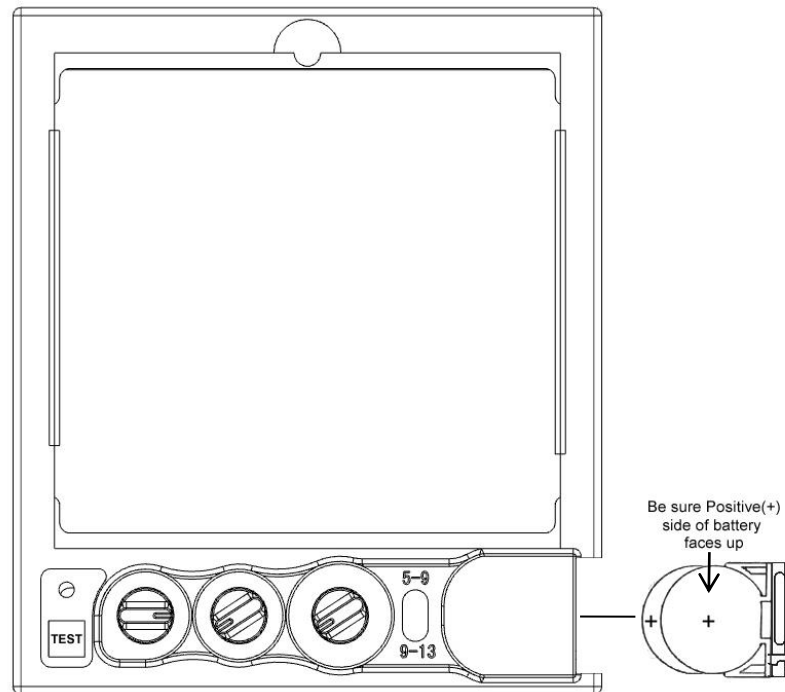
Replacing the Back Cover Lens: Take out the filter cartridge. Slide the back safety lens out as shown in the figure below, and then slide a new lens back.



SECTION 7 – REPLACEMENT OF BATTERY

When following situations occur, the lithium batteries are too low and shall be replaced immediately.

- When the lens is on, the Low Battery light is flashing (only 8 hours of battery power left).
- When pressing the TEST button, the ADF didn't work.

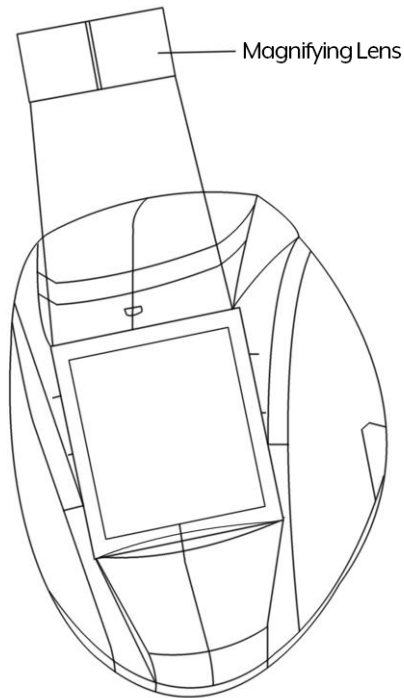


The ADF filter uses two CR2450 lithium cell batteries. Open the battery compartment by sliding the battery tray out. Replace the old battery cells with the new ones. The positive end (+) of the battery must face up. Insert the battery tray back to the cartridge, and then test whether the filter works properly.

SECTION 8 – INSTALLING MAGNIFYING LENS

Simply insert the magnifying lens from top down as shown in the figure below, and then slide it into the desired position in the retaining brackets.

To prevent lens fogging, install flat side of magnifying lens toward auto-darkening filter.



SECTION 9 – MAINTENANCE

Helmet and Cover Lens: Periodically clean them by using a soft cloth dampened with a mild soap and water solution. Allow to air dry.

ADF Filter: Occasionally clean it with a lint-free tissue or dry soft cloth or eye glass wipes. Do NOT submerge it in water or other solution

SECTION 10 – STORAGE

The helmet and ADF filter shall be stored in dry and well ventilated place. When stored in extremely cold temperature, warm helmet to ambient temperature before welding.

SECTION 11 – TROUBLE SHOOTING

Symptom	Possible Causes	Solution
Filter not darkening (see "Staying dark" and "Stay light" below)	Battery contact may not be good, and/or the battery may not be new or fully charged.	Check batteries; Check and clean the battery contact; Check the On button for operation
Filter Not Switching (staying light and not darkening when welding)	1. Obstruction of the light to the sensors by a dirty cover lens	1. Clean and/or replace the cover lens; clean sensors in front of the lens
	2. The angle of the sensor to the light is too big. If the unit is turned away from the arc at an angle of 45 degrees or more, the unit will not switch to dark	2. Position the filter so that the sensors face the arc. The optimum is a direct position in front of the arc.
	3. Airborne contaminants such as smoke prevent the sensors from receiving sufficient light to switch (darken)	3. Ensure there is adequate ventilation in the work area.
Filter Not Switching (staying dark after the arc is extinguished, or no arc is present)	This may be caused by the ambient lighting or sunlight. The sensor is designed not to react to sunlight but once the filter is switched to dark, sunlight may be bright enough to prevent it from switching back to light state again.	Turn the filter unit away from any source of light and/or pass you hand in front of the sensors briefly. Fine tune sensitivity to lower level.
Filter Switching or Flicking	If the filter switches to dark and then turns to light again while there is still an arc, the sensitivity level may not be properly selected or there is some obstruction of light from the arc to the sensors.	1. Increase the sensitivity level; 2. Move the filter closer to the arc (1-2 feet from the arc is optimum)-but not close. 3. Make sure that the filter is pointed directly at the arc, and that the sensors are not blocked from direct exposure to the arc (including not blocked by your arm, welding torch gun or nozzle); 4. Make sure that the cover lens is clean.
Lighter shaded areas at the edge and corner of the filter lens	The auto-darkening filter uses liquid crystal which exhibits an angle of view effect. In the dark state, it is normal for welder to notice slightly lighter shaded areas at the edge and corners of the filter lens. This does not represent any health or safety hazard. The optimum viewing angle of the auto-darkening filter is designed to be perpendicular to the surface of the filter lens.	No corrective action is needed

Symptom	Possible Causes	Solution
Spots in the filter lens. The shape and/or spots may appear to "grow" in the lens	It occurs after the lens has been shut off. The liquid crystal within the filter unit loses its electrical polarity after the electrical current is cut off. The liquid crystal, therefore, "relaxes" and causes the shape/spot to appear. It is a normal condition, and has no impact on the operation of the lens	No corrective action is needed.
Partial light/shading	There appears to be a distinct shade difference in portion of the filter lens and there is no crack in the unit. It may be caused by the leakage of light in the filter unit or reflection of light from light clothing into the helmet or the angle of looking through the lens, or optical illusion caused by "visible light" when wearing bifocals.	1. Make sure the filter unit is properly installed; 2. Wear dark clothing; 3. Make sure the welding helmet is adjusted properly so that the welder is looking straight and directly through the lens; 4. Welder who wears bifocals may notice a lighter shade in the bottom of the filter lens. This is normal and an optical illusion caused by "visible light." No correction is needed for this symptom.
Sections of the filter not going dark, distinctive lines between light and dark areas	The ADF filter may be cracked. The crack can be caused by dropping or hitting the helmet or by welding spatter on the filter.	Stop welding immediately, and replace the filter if cracked.
Short Battery Life	If the batteries last only a few days even when usage is not intense, either the battery is wrong type or the battery contact is not good.	Check the battery, and battery contact. The batteries shall be CR2450 lithium batteries.