



ANSI Z87.1 / CSA Z94.3 / CE EN379

HSW-7030 AUTO-DARKENING HELMET OPERATION MANUAL



Please read this manual carefully before
using the auto-darkening welding helmet

Introduction

HSW-7030 auto-darkening welding helmet, with High Definition Filter Optics, delivers a new generation of face and eye protection. Advanced integrated technology, such as LCD, optoelectronics detection, solar power, and microelectronics are coordinated to produce one of the safest, fastest and most reliable auto-darkening helmets available. The auto-darkening welding helmet not only can efficiently protect operator's eyes from injuries caused by arc, but also can make both hands free and strike arc accurately resulting in increased efficiency and improved quality welds. It may be widely used for various welding, cutting, spraying and arc gouging, etc.

Safety Instructions and Warnings

Read and understand all instructions before using.

- This auto-darkening helmet is not suitable for "overhead" welding, laser welding/cutting, oxyacetylene welding/cutting, or plasma cutting applications.
- Welding helmets are designed to protect the eyes and face from sparks, spatter, and harmful radiation under normal welding conditions.
- Make sure the dark shade range (9-13) offers adequate eye protection for the type of welding job you intend to perform.
- This helmet will not protect against explosive devices or corrosive liquids. Machine guards or eye splash protection must be used when these hazards are present.
- Avoid work positions that could expose unprotected areas of the body to spark, spatter, direct and/or reflected radiation. Use adequate protection if exposure cannot be avoided.
- Before each use, check for light tightness and check the inside & outside PC lens are clean and that no dirt is covering the sensors on the front of the auto-darkening-filter (ADF) cartridge.
- Inspect all operating parts before each use for signs of wear or damage. Any scratched, cracked, or pitted parts should be replaced immediately.
- Do not make any modifications to either the ADF cartridge or helmet, other than those specified in this manual.
- Do not use any replacement parts other than those specified in this manual. Unauthorized modifications and replacement parts will void the warranty and expose the user to the risk of personal injury.
- If this ADF does not darken when striking arc, stop immediately and contact our representative.
- Do not immerse this ADF in water if this model is not waterproof.
- Do not use any solvents on any ADF or helmet components.
- The recommended operating temperature range for this ADF cartridge is -10°C-65°C (14°F-149°F). Do not use this device beyond these temperature limits.
- Failure to follow these warnings and/or failure to follow all of the operating instructions could result in severe personal injury.
-  **PROP65 WARNING:** This product can expose you to chemicals including Dichloromethane (Methylene chloride), which is known to the State of California to cause cancer, and Bisphenol A (BPA), which is known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

Characteristics

HSW-7030 auto-darkening welding helmet is equipped with a high definition filter optics set that can become dark. The filter is transparent before welding, so the operators may observe the work surface clearly. When striking arc, the filter immediately darkens automatically. When arc goes out, the filter will become transparent again. The switching time from light to dark is about 0.08ms. The switching time from dark to light may be set up within 0.1-0.9 second. The helmet is equipped with continuous darkness-adjusting unit, so the operator may select an arbitrary dark shade number from shade range (9 to 13).

HSW-7030 auto-darkening welding helmet gives the operators permanent complete protection against UV/IR even in transparent condition. The UV/IR protection level is up to DIN15 at all times. The power is provided by solar cells as well as replaceable batteries.

The helmet is equipped with 4 sets of photo sensors to sense arc light. In addition, the helmet is also provided with an outside PC lens made of high polymer materials. The lens is wear-resistant, thermostable and has no dregs-sticking, thus it is durable.

Specifications

1.ADF Cartridge size	114 x 133 x 9.5 mm (4 1/8" x 5 1/8" x 3/8")
2.LCD Viewing area	100 x 60 mm (3.94" x 2.36")
3.Light State Shade	DIN 4
4.Dark Variable Shades	DIN 9-13
5.UV/IR Protection	Up to DIN 15 at all times
6.Switching time (light to dark)	0.04ms
7.Delay time (dark to light)	Adjustable (MIN-MAX for 0.1-0.9s)
8.Sensitivity	Adjustable (LO-HI)
9.Arc Sensors	4
10.Grind Function	Yes
11.Power Supply	Solar and 2 CR2450 batteries
12.Operating Temperature	-10°C-65°C (14°F-149°F)
13.Storage Temperature	-20°C-85°C (-4°F-185°F)
14. Inside PC lens	106 x 66 x 1 mm (4.17" x 2.60")
15.Outside PC lens	114 x 133 x 1 mm (4 1/8" x 5 1/8")
16.Weight	550g
17.Standards	ANSI Z87.1, CSA Z94.3, CE EN379
18.Warranty	2 years

Method of operation

1. Assembly

HSW-7030 comes assembled. All components are shown on construction and assembly illustration (see Figure 1).

2. Power supply

The power of HSW-7030 helmet is provided by solar cells and 2-CR2450 lithium batteries. Turning on or off is automatic controlled by circuit. You can use this helmet at any time you need and take it away after working without operating any key.



3. Welding/Grinding mode selection

Weld/Grind mode can be selected by adjusting the **WELD/GRIND** Switch (28).

4. Variable Shade selection

Choose an optimum Shade number for the required welding process or application (see Table 1). Ensure the WELD/GRIND mode is in Welding mode. Turn the SHADE Knob (24) to select the desired Shade number between 9-13.

5. Sensitivity selection

Turning the **SENSITIVITY** knob (25) between range LO-HI will adjust the level of light sensitivity to auto darkened.

Turn to LO: The photosensitivity changes to be lower.

- Suitable for high amperage welding and welding in bright light conditions (sunlight).

Turn to HI: The photosensitivity changes to be higher.

- Suitable for low amperage welding and using in poor light conditions.
- Suitable for using with steady arc process such as TIG welding.
- *Under normal use, a higher sensitivity setting is recommended.*

6. Delay time selection

By turning the **DELAY** knob (26) between range MIN-MAX to adjust the time delay (0.1-0.9s) for the ADF returns to light state after welding. The time delay is for protection of welder's eyes from strong residual rays after welding.

Turn to MIN: The time the ADF lighten after welding to be shorter.

- The shortest time is about 0.1s depending upon welding temperature and shade set.
- This setting is ideal for track welding or production welding with short welds.

Turn to MAX: The time the ADF lighten after welding to be longer.

- The longest time is about 0.9s depending upon welding temperature and shade set.
- This setting is ideal for welding at high amperage for after-glow from the weld.

7. Headgear adjustments

- a) Crown Adjustment: Adjust Headgear for proper depth on the head by band adjustment (14).
- b) Tightness Adjustment: Adjust Head Size circumference by turning the Headband tightness adjusting knob (13) to tighten headband for proper tightness.
- c) View-Angle Adjustment: Select View-Angle by Segmental positioning plate (18).
- d) Forward / backward Adjustment: Adjust eye distance between face and ADF by pressing grey button in Slider block assembly (11) on left and (10) on right. Slide to desired position among 5 slots on Headband slider (12) and lock in place. (Make sure both sides at same slot for balance adjustment).
- e) Up / Down — Eye Level Adjustment: Loosen block nuts (16) at both sides, and select desired eye level among the 2 slots on Slider block assembly (11) by Slider (10) on left and Angle adjustment wheel (15) on right. Re-tighten the Block Nuts when adjustment is completed. (Make sure both sides at equal position for balance adjustment).

8. Low battery warning light

The light (23) will flash when the battery is low.

9. Battery replacement

Open the Battery cover plate (20) at the side of the ADF and replace the Battery (21).

10. Grind flash

The light (27) will flash when using grind mode.

11. Installing Magnifying Lens (not included)

The ADF-Retainer has a Mag Lens slot. If needed, a mag-lens of desired diopter can be installed by sliding it up to the slot from below.

Recommended shade numbers (table 1)

WELDING PROCESS	CURRENT AMPERES																			
	0.5	1	2.5	5	10	15	20	30	40	50	60	100	125	150	175	200	225	250	275	300
					Shade 9				Shade 10				Shade 11				Shade 12			

																				14
																				14
																				15

4	5	6	7	8	9	10	11	12	13	14	15
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Additional operational points for long-life

1. Be sure that the helmet is being used in correct way. Read and understand "Safety Instructions and Warnings".
2. There is liquid crystal-valve in the filter, though it has inside and outside PC lens, it is important to avoid any shock or rough handling that could result in breakage.
3. The outside protective lens of helmet, should be periodically inspected and cleaned, keep it clear. In case of breaking, cracking, pitting or more serious influencing vision effect occurs, the lens must be replaced.
4. In order to operate safely, be sure to select correct dark shade number per chart.
5. Since the filter is not water-proof model, please avoid contacting water/liquid. It should be cleaned with a damp soft cloth.
6. Be sure that the arc light is received completely by the sensors (I.e: no blockage), if not, the filter may not turn dark properly causing harm to the operator.
7. Operate the ADF at ambient temperature between -10°C-65°C (14°F-149°F).
8. DO NOT disassemble the ADF cartridge, any problems arising, please contact manufacturer.
9. To insure long life, store helmet in bag in a clean, dry & safe location after use.

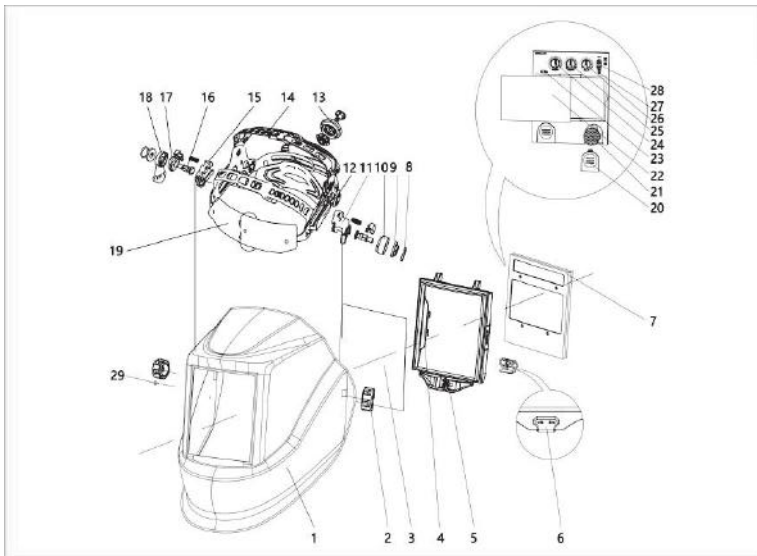
Padding list

1. Helmet body (including ADF Cartridge) ----- 1 piece
2. Headband ----- 1 piece
3. Extra Outside PC lens-----2 pieces
4. Storage Bag----- 1 piece
5. Operation manual----- 1 piece

CONSTRUCTION AND ASSEMBLY HSW-7030 (Figure 1)

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|--|--|
| 1. Helmet shell* | 16. Block nut* |
| 2. Headgear screw knob (HSW-7030-1) | 17. Headband screw(long, on right)* |
| 3. Outer protection lens (HSW-7038) | 18. Segmental positioning plate* |
| 4. ADF cradle (HSW-7030-2) | 19. Sweatband (HSW-7036-1) |
| 5. Magnifying lens holder* | 20. Battery cover plate (2pcs)* |
| 6. Cradle lock* | 21. Battery CR2450 (2pcs) |
| 7. Auto filter (HSW-7035) | 22. inner protection lens (HSW-7039) |
| 8. O-Ring (left & right) * | 23. Low battery flashing light* |
| 9. Block washer (left & right)* | 24. Shade knob* |
| 10. Slider (on left) * | 25. Sensitivity knob* |
| 11. Slider block assembly (on left)* | 26. Delay knob* |
| 12. Headband Slider (with 5 slots) * | 27. Grinding flashing light* |
| 13. Headband tightness adjusting knob * | 28. Welding/Grinding selecting knob* |
| 14. Headband adjustment (up and down)* | 29. Positioning point for the segmental plate* |
| 15. Block washer adjustment (up and down)* | |

* = Non-separate spare part.



Trouble Shooting

Trouble	Remedy
The ADF does not darken when welding.	- Stop welding immediately. - Make sure the sensors are facing the arc and no obstructions. - Check the mode that is on WELD not GRIND. - Review sensitivity recommendations and adjust sensitivity. - Replace the battery if necessary.
The ADF stays dark after welding or there is no arc present.	- Adjust the sensitivity to the lower level (LO). - If the welding place is extremely bright, it is recommended to reduce the surrounding light level.
The ADF Switching or flickering during the welding.	- Increase the sensitivity if possible. - Make sure the sensors are facing the arc and no obstructions. - Increase Delay by 0.1-0.3 second may also reduce switching.
Inconsistent shade number on the corner of ADF.	- It is a natural feature and will not be dangerous for the eyes. - In order to get a maximum comfort, try to keep an view angle at around 90°.

- If the above trouble shooting recommendations do not resolve the problem, do not use the ADF. Contact company or sales representative for further information.



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