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2002

# AUTO DARKENING WELDING FILTER

**SA** 35, 60B, 60i

**XA** 47

## INTRODUCTION

The auto-darkening filter (ADF) is an electronic filter cassette that darkens from light state to a pre-selected dark shade when the welding arc is ignited. Select the appropriate shade before you start welding. This product is designed to help protect your eyes from harmful radiation including visible light, ultra-violet radiation (UV) and infra-red radiation (IR) resulting from certain welding processes. ADF offers permanent protection against UV/IR rays, heat and sparks in any state from the light to the dark.

## SAFETY

- When fitted to a suitable face shield that meets the necessary and local safety standards, this ADF is suitable for welding, grinding, cutting, spraying and arc gouging. It is not suitable for laser welding and oxyacetylene welding/cutting processes.
- The ADF does not protect against explosive devices or corrosive liquids.
- Always use the protective lens on the ADF. Replace the protective lens when it becomes dirty/discolored/worn/cracked/scratched/pitted.
- Avoid heavy knocks on the ADF as it may break.
- If the ADF does not darken when the arc ignites, stop welding immediately. Inspect the ADF, check the batteries and change if necessary. If this does not help, contact a Kemppi representative or your supervisor.

- The ADF is not water-proof or water resistant. Do not immerse it in water. Protect the filter from contact with liquids and dirt.
- The recommended operating temperature range is -5°C...+55°C (23°F...131°F). Do not use the ADF beyond this temperature range.
- Never place the ADF on a hot surface.
- Never open or tamper with the ADF.
- Do not make any modifications to the ADF, unless specified in this manual.
- Do not use other replacement parts than those specified in this manual. Unauthorized modifications and replacement parts void the warranty and may expose the wearer to unnecessary risk of personal injury.
- Clean the surface regularly. Do not use strong cleaning solutions or solvents. Always keep the sensors and solar cells clean. See Maintenance.
- Materials which may come into contact with the wearer's skin can cause allergic reactions.
- Failure to follow these safety instructions and/or failure to follow the operating instructions may cause voiding of the warranty and cause a risk of personal injury.

## TROUBLESHOOTING

Problem	Probable cause and recommended actions
The ADF does not darken or flickers.	<ul style="list-style-type: none"> <li>• Front cover lens is soiled or damaged. Change the cover lens.</li> <li>• Sensors are soiled. Clean the sensors' surface.</li> </ul>
Slow response	<ul style="list-style-type: none"> <li>• Operating temperature is too low. Do not use at temperatures below -5°C (23°F).</li> <li>• Add sensitivity.</li> </ul>
Poor vision	<ul style="list-style-type: none"> <li>• Protective lens and/or the ADF is soiled. Change the lens.</li> <li>• There is insufficient ambient light.</li> </ul>

## TECHNICAL DATA

Model	SA 35	SA 60B	SA 60i	XA 47
CE classification	1/1/1/2	1/1/1/1	1/1/1/1	1/1/1/2
True color	No	Yes	Yes	Yes
Viewing area	96x35mm	100x60mm	100x60mm	97x47mm
Cassette size	110x61mm	110x90mm	110x90mm	110x90mm
Arc sensor	2	3	3	2
Shade range	4/9-13	3.5/9-13, CUTTING 5	3/9-13 Automatic, CUTTING 5	4/9-13/14-15, CUTTING 5
Light state	DIN 4	DIN 3.5	DIN 3	DIN 4
Power ON/OFF	Fully automatic	Fully automatic	Fully automatic	Fully automatic

Shade control	Internal	Internal	Automatic	Internal, digital display
Switching time	0.1ms	0.1ms	0.1ms	0.1ms
UV/IR protection	Always	Always	Always	Always
Grinding function	No	Yes	Yes	Yes
Low battery indicator	No	Yes	Yes	Yes
Low amperage TIG rated	5A	3-5A	3-5A	5A
Power supply, replaceable	Solar cell, 2xCR2032	Solar cell, 2xCR2032	Solar cell, 2xCR2032	Solar cell, 1xCR2450
Certification	CE, ANSI, CSA	CE, AS/NZS	CE, AS/NZS	CE, ANSI, CSA, AS/NZS
Compatible with	Alfa e60A	Beta e90A, e90 SFA, Delta	Beta e90Xi, e90 XiFA	Beta e90X, e90 XFA, Delta+

## ORDERING CODES

Model	SA 35	SA 60B	SA 60i	XA 47
ADF	SP9873061	SP9873064	SP9873075	SP9873063
* Protection plate, inside	SP012951	SP012425	SP012425	SP012952

\* There are 5 pcs of protection plate in the package.

## OPERATION

Shade defines how dark the filter becomes when the arc ignites. See the Shade level chart for the most suitable shade level.

Sensitivity defines how easily the ADF reacts to light. Low sensitivity is ideal for high amperage welding and welding in bright light conditions, such as lamp light or sunlight. High sensitivity is ideal for low amperage welding, welding in poor light conditions and using steady arc process, such as TIG welding.

Delay defines how long the ADF stays in the dark state to protect eyes from the afterglow, when the arc is switched off. MIN delay time is ideal for track welding and production welding with short welds. MAX delay time is ideal for welding at high amperage, where there is a strong afterglow from the weld.

## Before use

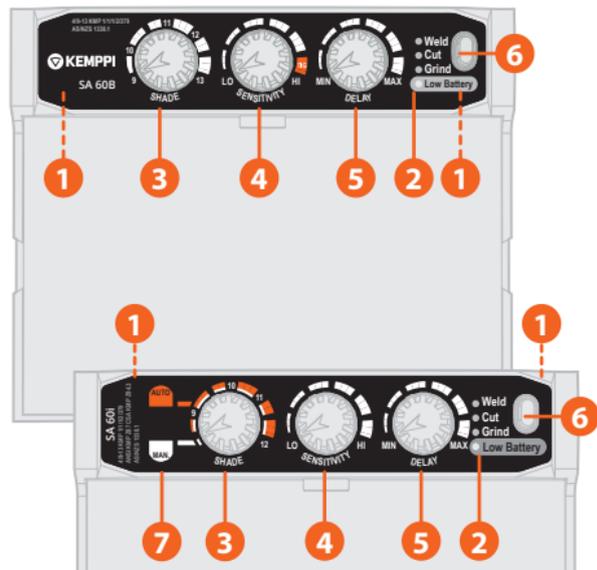
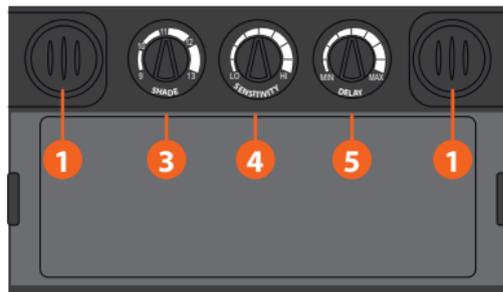
- Make sure the protective lens is clean. Remove the protective film.
- Make sure there is no dirt covering the sensors at the front part of the ADF.

## SA 35, SA 60B AND SA 60i

1. Battery holder (2 x CR2032).
2. Low battery indicator.
3. Shade selection: 9–13.
4. Sensitivity adjustment: Low–High. Use higher sensitivity for lower welding currents.
5. Delay adjustment (from dark to light): 0.1–0.9 s.
6. Weld, Cut or Grind selection.
7. Shade mode selection: Manual/Auto.

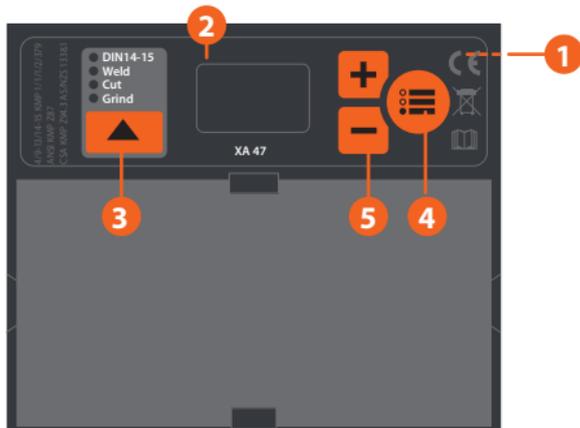
In Auto mode, the shade is adjusted automatically based on the welding arc. Preadjustment by +/- 2 steps is available with the shade selection knob (min. and max. shade values in Auto mode are 8 and 14).

SA 35



SA 60B

SA 60i

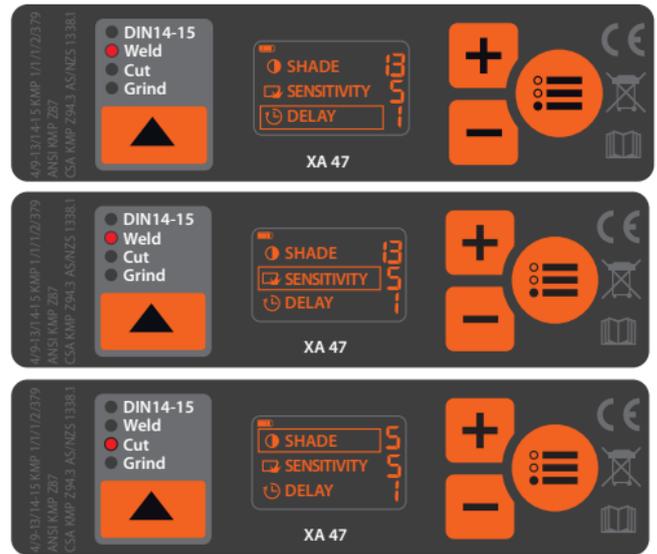


XA 47

1. Battery holder (1 x CR2450).
2. Low battery indicator: Immediately replace the battery when the indicator and display flashes.
3. Grind, Cut, Weld or DIN 14–15 selection.

**i** When DIN14-15 mode is selected, the indicator lights in front of both WELD and DIN14-15 light up.

4. Shade, Sensitivity or Delay selection.
5. Adjust Shade, Sensitivity or Delay values, +/- .
  - Shade: WELD mode: 9-13  
14-15 mode: 14-15
  - Sensitivity: 1-5
  - Delay: 1-5



**i** You can adjust the function values for the WELD mode and DIN14-15 mode only. For the CUT and GRIND modes, the values of sensitivity and delay remain the same as they were in WELD mode, and the shade value changes to 4 for GRIND and to 5 for CUT.

## MAINTENANCE

Clean the ADF regularly (for example, when you change the protective lens). You can either wipe the surface with a clean, dry piece of cloth, clean it with a piece of smooth cloth moistened with pure alcohol, or clean it with commercial disinfectant. If used properly, the ADF requires no further maintenance during its lifetime.

## Storage

Storage temperature: -20°C...+50°C (-4°F...122°F). Store the ADF in a dry, cool and dark environment. If the ADF is not to be used for a prolonged period of time, remove the battery.

## Disposal of the product

Do not dispose of the product with household waste. Follow the local laws and regulations on safe and ecological disposal of electronic devices.



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Declarations of Conformity – Overensstemmelseserklæringer –  
Konformitäts-erklärungen – Declaraciones de conformidad –  
Vaatimustenmukaisuusvakuutuksia – Déclarations de conformité –  
Dichiarazioni di conformità – Verklaringen van overeenstemming –  
Samsvarserklæringer – Deklaracje zgodności – Declarações de  
conformidade – Заявления о соответствии – Försäkran om  
överensstämmelse – 符合性声明

## SHADE GUIDE TABLE

	MMA (E-Hand)	MIG, Ss	MIG, Al	TIG	MAG, (CO <sub>2</sub> )		Carbon arc gouging	Plasma cutting
15 A				9				
20 A	9			10				
30 A								
40 A	10				10			
60 A		10	10	11				
80 A					11			
100 A	11			12				11
125 A		11	11		12		10	
150 A								
175 A			12	13			11	12
200 A								
225 A	12	12			13		12	
250 A			13	14			13	13
275 A								
300 A					14			
350 A	13	13	14				14	
400 A								
450 A								
500 A	14	14	15		15		15	

### SELECTING SHADE LEVEL

Select the required shade level according to the welding process.

Refer to the "Shade guide table".

And you know.

