

RPB AUTO-DARKENING WELDING FILTER

OPERATION

RPB® auto-darkening welding filters operate on the basis of a liquid crystal light shutter that protects the welder's eyes against intense visible light emitted during the welding process. In combination with the permanent passive IR/UV filter, it protects against hazardous infrared (IR) and ultraviolet (UV) light. The protection against harmful radiation is present regardless of the shade level or potential malfunction of the filter, beyond the darkest shade number marked on each specific model.

RPB® auto-darkening welding filters are manufactured according to ANSI/ISEA Z87.1, EN 379 requirements and are CE certified. They are not intended to be used as a protection against impacts, flying particles, molten metals, corrosive liquids or hazardous gases.

Replace potentially malfunctioned or damaged auto-darkening welding filters (check that the auto-darkening filter turns dark if you strike the welding arc).

USAGE

An auto-darkening welding filter built into a Respirator is considered to be Personal Protection Equipment (PPE) protecting the eyes, face, ears and neck against direct and indirect hazardous light of the welding arc. There should be no tension on the ADF filter caused by the mounting frame or mounting system, as it could cause severe damage to the filter. Make sure that solar cells and photo-sensors are not covered by any part of the helmet, as this could prevent the proper operation of the filter. If any of these conditions occur, the filter may not be suitable for use.

FIELD OF APPLICATION

RPB® Auto darkening filters are suitable for all types of electro-welding: covered electrodes, MIG/MAG, TIG/WIG, plasma welding, and cutting, except for gas welding and laser welding.

FUNCTIONS

RPB® filters are supplied ready for use. Check the degree of required protection for specific welding procedure and select the recommended shade, light sensitivity as well as opening time delay.

SHADE ADJUSTMENT

Our model enables shade adjustment range from 9 to 13. It can be adjusted by the knob »Shade« which is located on the filter.

ADJUSTMENT OF SENSITIVITY

Most welding applications can be performed with

welding light sensitivity set to maximum. The maximum sensitivity level is appropriate for low welding current work, TIG, or special applications. The welding light sensitivity has to be reduced only in some specific surrounding lighting conditions in order to avoid unwanted triggering. As a simple rule for optimum performance, it is recommended to set sensitivity to the maximum at the beginning and then gradually reduce it, until the filter reacts only to the welding light flashes and without annoying spurious triggering due to ambient light conditions (direct sun, intensive artificial light, neighboring welder's arcs etc.)

OPENING TIME DELAY ADJUSTMENT:

The opening time delay can be adjusted from 0.15 to 1.0 seconds. It is recommended to use a shorter delay with spot welding applications and a longer delay with applications using higher currents and longer welding intervals. Longer delay can also be used for low current TIG welding in order to prevent the filter opening when the light path to the sensors is temporarily obstructed by a hand, torch, etc.

STORAGE

When not in use the Auto-Darkening Filter should be stored in a dry place within the temperature range of -4°F (-20°C) to +157°F (70°C). Prolonged exposure to temperatures above 113°F (45°C) may decrease the battery lifetime of the auto-darkening welding filter.

It is recommended to keep the solar cells of the auto-darkening welding filter in the dark or not exposed to light during storage in order to maintain power down mode. This can be achieved by simply placing the filter face down on a storage shelf.

MAINTENANCE AND CLEANING

It is always necessary to keep the solar cells and the light sensors of the auto-darkening welding filter free of dust and spatters: cleaning can be done with a soft tissue or a cloth soaked in mild detergent (or alcohol).

Never use aggressive solvents such as acetone. RPB® filters should always be protected from both sides by protection screens, which should also be only cleaned with a soft tissue or cloth. If protection screens are in any way damaged, they must be immediately replaced.

PRODUCT CARE

Never place the ADF Lens or helmet on hot surfaces. Do not apply paints, solvents, adhesives or

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self-adhesive labels except as instructed by RPB®. This product may be adversely affected by certain chemicals. Do not expose the ADF to liquids and protect it from dirt. Make sure the helmet completely blocks any accidental light. Make sure light can only enter the front of the helmet through the viewing area of the auto-darkening welding filter.

See the "Setup and Care" section for more specific cleaning instructions.

WARRANTY

The warranty period of RPB® Z-LINK® ADF is three years. Failure to follow these instructions may invalidate the warranty. RPB® does not accept responsibility for any issues, which may arise from applications other than welding.

MARKINGS

The marking on the ADF indicates:

3 / 9-13	RPB 1 / 1 / 1 / 2 / EN379
Light Shade	Manufacturer
Dark Shade Range	Optical Class
	Diffusion of light class
	Homogeneity
	Angular dependence
	Number of the Standard

SETTINGS

- **Shade level:** The shade level can be selected between 9 and 13 by rotating the shade level knob.
- **Sensitivity:** With the sensitivity knob the light sensitivity is adjusted according to the welding arc and the ambient light. The middle position corresponds to the recommended sensitivity setting in a standard situation.
- **Opening delay.** The opening delay switch, behind the battery cover, allows the opening delay to be set from dark to light. It is adjustable between 0.15 or 1.0 second. The "Twilight" position corresponds to the recommended delay in a standard situation.

CHANGE THE BATTERIES

The automatic welding filter has replaceable lithium button cell batteries, type CR2032.

The batteries must be replaced when the LED on the cartridge flashes.

1. Carefully remove battery cover.
2. Remove batteries and dispose of in accordance with the national regulations for special waste.
3. Use type CR2032 batteries as depicted.
4. Carefully remount battery cover.

If the automatic welding filter does not darken when the welding arc is ignited, please check battery polarity. To check whether the batteries still have sufficient power, hold the shade cartridge against a bright lamp. If the LED flashes, the batteries are empty and must be replaced immediately. If the shade cartridge does not operate correctly in spite of correct battery replacement, it must be declared unusable and must be replaced.

SLEEP MODE

The automatic welding filter has an automatic switch-off function, which increases the service life. If no light falls on the solar cells for a period of approx. 15 minutes, the cartridge automatically switches off. To reactivate the automatic welding filter, the solar cells must be briefly exposed to daylight. If the cartridge cannot be reactivated or does not darken when the welding arc is ignited, it must be regarded as non-functional and replaced.

EXPECTED LIFETIME

The automatic welding filter has no expiration date. The product can be used as long as no visible or invisible damage or functional problems occur.

TROUBLESHOOTING

Shade automatic welding filter does not darken:

- Adjust sensitivity
- Clean sensors and clean or change the impact lens of the helmet shell
- Check flow of light to the sensors
- Replace batteries

ADF flickers:

- Adjust sensitivity
- Replace batteries

Poor vision:

- Clean or change the impact lens of the helmet shell and automatic welding filter
- Adapt shade level to welding procedure
- Increase amount of ambient light

RECOMMENDED SHADE LEVELS FOR VARIOUS WELDING APPLICATIONS

FIGURE 1.1

Welding Process	Current Amperes																					
	1.5	6	10	15	30	40	60	70	100	125	150	175	200	225	250	300	350	400	450	500	600	
MMA	8						9		10		11		12		13		14*					
MAG	8							9	10		11		12		13							
TIG				8		9		10		11		12		13								
MIG heavy metals								9	10		11		12	13		14*						
MIG light metals Stainless, Alum.									10		11		12	13	14*							
Plasma Cutting									9	10	11	12		13								
Micro Plasma Welding	4	5	6		7	8	9	10		11		12										

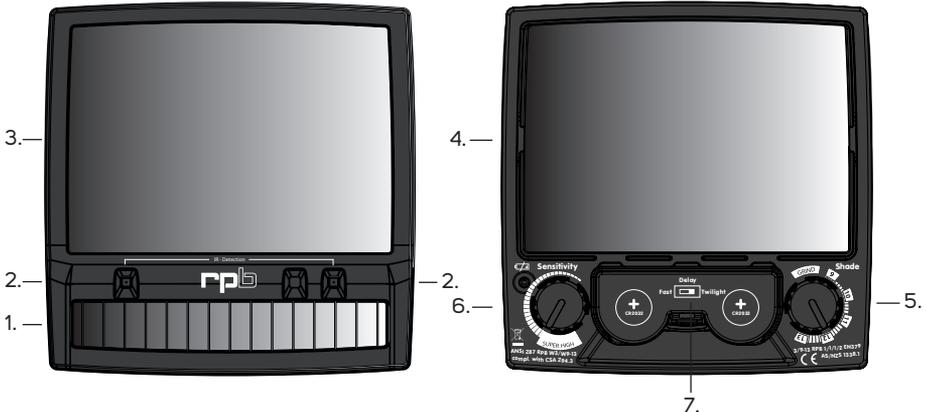
*Shade 14 not achieved with this ADF.

■ According to the perception of the welder it is possible to use the next higher or lower shadenumber.

DESCRIPTION OF RPB® FILTER FEATURES

FIGURE 1.2

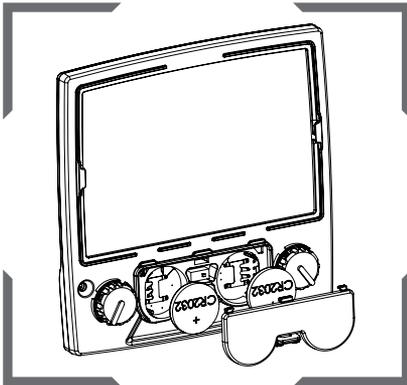
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|---------------------------------|--|
| 1. Solar Cells | 4. Liquid crystal shutter viewing area |
| 2. Photo-sensors (Photo diodes) | 5. Shade adjustment |
| 3. Filter housing | 6. Sensitivity adjustment |
| | 7. Opening time delay adjustment |



TECHNICAL DATA FIGURE 1.3

Model	RPB® ADF
Viewing Area	2.66 x 3.89 in. (67.6 x 98.8 mm)
ADF overall dimensions	4.49 x 4.57 x 0.47 in. (114 x 116.2 x 11.9 mm)
Weight	4.59oz (130g)
Open state shade	3 (Bright Mode)
Closed state shade	9-13 (Dark Mode)
Switching time from light to dark	0.1 ms (23°C / 73°F) 0.1 ms (55°C / 131°F)
Switching time from dark to light	0.15s / 1.0s
UV / IR protection	Maximum protection in light and dark modes
Operating temperature	23 °F – 131 °F (-5 °C – 55 °C)
Storage temperature	-4°F – 157°F (-20°C – 70°C)
Power Supply	Solar cells, 2 pcs. replaceable 3V LI batteries (CR2032)
Classification in accordance with EN379	Optical class = 1 Scattered light = 1 Homogeneity = 1 Viewing angle dependence = 2
Standard	EN379:2003+A1:2009
Certifications	CE, ANSI, compliance with CSA

BATTERIES FIGURE 1.4



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