TECMEN®

TM1000

Flip-up Auto Darkening Welding Helmet

TECMEN®

Professional Quality Welding Helmet

SAFETY WARNINGS - READ BEFORE USING

WARNING
Read & Understand All Instructions Before Using

Auto-Darkening welding helmets are designed to protect the eye and face from sparks, spatter and harmful radiation under normal welding conditions. This auto darkening filter will automatically turn on when pick it up. The filter automatically changes from a light state to a dark state when an arc is struck, and it returns to the light state when welding stops.

The Auto-Darkening welding helmet comes assembled. But before it can be used, it must be adjusted to fit the user properly. Check battery surfaces and contacts and clean it if necessary. Verify if the battery is in good condition and installed properly. Set up for delay time, sensitivity and shade number for your application.

Before welding, please make sure the ADF was set to WELDING / CUTTING mode instead of GRIND mode.

The helmet should be stored in dry, cool and dark area and remove the battery, when not using it for a long time.

WARNING

- This Auto-Darkening welding helmet is not suitable for laser welding.
- Never place this helmet and Auto-Darkening filter on a hot surface.
- Never open or tamper with the Auto-Darkening filter.
- This Auto-Darkening welding helmet will not protect against severe impact hazards.
- This helmet will not protect against explosive devices or corrosive liquids.
- Don´t make any modifications to either the filter or helmet, unless specified in this manual. Don´t use replacement parts any other than those specified in this manual. Unauthorized modifications and replacement parts will void the warranty and expose the operator to the risk of personal injury.
- Should this helmet not darken upon striking an arc, stop welding immediately and contact your supervisor or your dealer.
- Don´t immerse the filter in water.
- Don´t use any solvents on the filter screen or helmet components.
- Use only at temperatures: -10°C ~ +55°C (14°F ~ 131°F). The helmet should be stored in dry cool and dark area and remove the battery, when not using it for a long time.
- Storing temperature: -20°C ~ +70 °C (- 4°F ~ 158°F).
- Protect filter from contacting with liquid and dirt.
- Clean the filter surface regularly; don´t use strong cleaning solutions. Always keep the sensors and solar cells clean using a clean lint-free tissue.
- Regularly replace the cracked / scratched / pitted front cover lens.
- The materials which may come into contact with the wearer's skin, can cause allergic reactions in some circumstances.

WARNING
Severe personal injury could occur if the user fails to follow the above mentioned warnings and/or fails to follow the operating instructions.

COMMON PROBLEMS AND REMEDIES

• Irregular Darkening Dimming

Headgear has been set unevenly and there is an uneven distance from the eyes to the filter lens (Reset the headgear to reduce the difference to the filter).

• Auto-Darkening filter does not darken or flickers

① Front cover lens is soiled or damaged (Change the cover lens).
② Sensors are soiled (Clean the sensors surface).
③ Welding current is too low (Reset the sensitivity level to higher).
④ Check battery and verify they are in good condition and installed properly. Also, check battery surfaces and contacts and clean if necessary. Please refer to the "**BATTERY INSTALLATION**" on page 2.

• Slow response

Operating temperature is too low (Do not use at temperatures below -10 °C or 14 °F).

• Poor vision

① Front / inside cover lens and / or the filter is soiled (Change lens).
② There is insufficient ambient light.
③ Shade number is incorrectly set (Reset the shade number).
④ Check if removing the film on the front cover lens.

• Welding helmet slips

Headgear is not properly adjusted (Readjust the headgear).

WARNING

The user must stop using the auto-darkening welding helmet immediately if the above-mentioned problems cannot be corrected. Contact the dealer.

INSTRUCTIONS FOR USE

WARNING! Before using the helmet for welding, ensure that you have read and understood the safety instructions.

• BATTERY INSTALLATION

Slide the battery holder out of the auto darkening filter, (remove the used battery when replacing battery), put new CR2450 batteries inside the battery holder, and put the battery holder back into the auto darkening filter. Please make sure the anode and cathode of the battery are installed correctly (See fig.1).

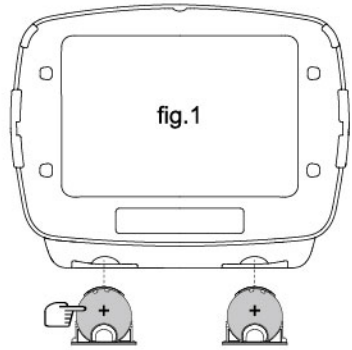


fig.1

Be sure Positive (+) side of battery faces up.

• POWER ON / OFF

This auto darkening filter will automatically turn on when pick it up.
Sensitivity level setting 0 - 9: The welding helmet will be automatically off after 30 minutes not being used.
Sensitivity level setting =10: The filter will be darkening all the time to meet some specially welding application under both WELD MODE and CUTTING MODE. With this setting, the welding helmet will NOT automatically turn off after 30 minutes of not being used.

To save power, remember to set the sensitivity value between 0 - 9 when not being used.

• DIGITAL SCREEN ACTIVATION
Press any of four button to activate the digital screen (See fig.2a). After 15 seconds, digital screen will automatically turn to standby mode. Short press the button again will active the screen once more and previous settings will remain.

• MODE CONTROL
Short Press "ON / MODE" button to select the mode appropriate for the work activity (See fig.2a):

Weld Mode − used for most welding applications. Push "FUNC" button to adjust shade number, sensitivity, and delay settings properly before welding. In this mode the lens turns to dark immediately when you start welding.

Cutting Mode − used for cutting applications. Push "FUNC" button to adjust shade number, sensitivity, and delay settings properly before cutting. In this mode the lens turns to dark immediately when you start cutting.

Grind Mode − used for grinding applications. In this mode the lens shade is fixed shade No. 4. Can not adjust shade number, sensitivity, and delay settings.

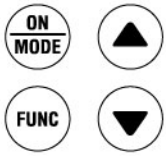


fig.2a

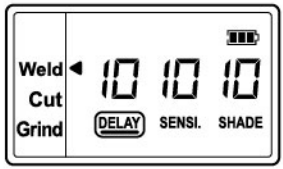


fig.2b

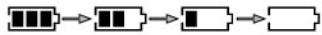


fig.2c

• BATTERY INDICATOR
The symbol "▮▮▮" show the current state of the battery (See fig.2b). The volume of batteries has four levels symbol to appear (See fig.2c). The symbol "▭" appears on the display screen before 1−2 days of battery life remains, the CR2450 lithium batteries should be replaced in time. The symbol of the Battery Indicator is not real-time, should be updated after pressing "ON / MODE" button shortly.

• VARIABLE SHADE CONTROL
After turn on the lens, short press "FUNC" button to choose "SHADE", and adjust the lens shade number. Use "▲" and "▼" buttons to select the lens shade in the dark state. The shade range for each mode are as follows:

Cutting Mode − Shade 5 ~ 8 (See fig.3a) **Weld Mode** − Shade 9 ~ 13 (See fig.3b)

fig.3a

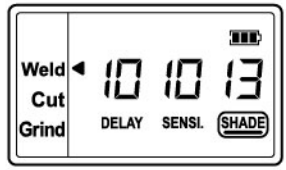


fig.3b

Grind Mode − No. 4 only (See fig.3c). Flip up the front-flip part for grinding job, the auto darkening filter also has grind mode setting.

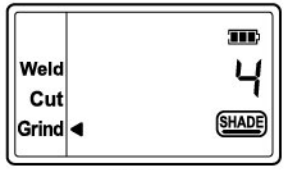


fig.3c

Select the proper shade number for your welding / cutting process, by referring to the "Shade Guide Table" on page 10.

• SENSITIVITY CONTROL

Press "FUNC" button to choose "SENSITIVITY". Use "▲" and "▼" buttons to make the lens more or less sensitive to arc light of different welding processes. Sensitivity setting 5-10 is the normal setting for everyday use. The sensitivity ranges for each mode are as follows:

Cutting Mode (Shade 5 ~ 8) / **Weld Mode** (Shade 9 ~ 13) − Sensitivity 0 ~ 10 (See fig.4a / 4b)

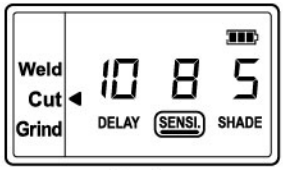


fig.4a

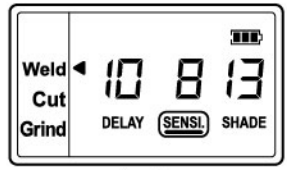


fig.4b

Grind Mode − No sensitivity adjustment

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 flash and without annoying spurious triggering due to ambient light conditions (direct sun, intensive artificial light, neighbouring welder's arcs etc.).

It may be necessary to adjust helmet sensitivity to accommodate different lighting conditions or if lens is flashing On and Off. Adjust helmet sensitivity as follows: Adjust helmet sensitivity in lighting conditions helmet will be used in.

• Press "▼" button to lower setting to 0.
• Face the helmet in the direction of use, exposing it to the surrounding light conditions.
• Press "▲" button repeatedly until the lens darkens, then press "▼" button until lens clears. Helmet is ready for use. Slight readjustment may be necessary for certain applications or if lens is flashing on and off.

• DELAY CONTROL

Press "FUNC" button to choose "DELAY", begin lens delay adjustments. Use the Lens Delay Control "▲" and "▼" buttons to adjust the time for the lens to switch to the clear state after welding or cutting.

Cutting Mode (Shade 5 ~ 8) / **Weld Mode** (Shade 9 ~ 13) − Delay 0 ~ 10 (See fig.5a / 5b)

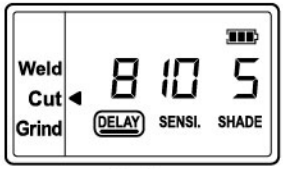


fig.5a

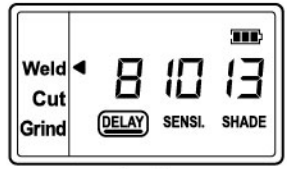


fig.5b

Grind Mode − No sensitivity adjustment

The delay is particularly useful in eliminating bright after-rays present in higher amperage applications where the molten puddle remains bright momentarily after welding. Use the Lens Delay Control buttons to adjust delay from 0 to 10 (0.1 to 1.0 second). When welding stopped, the viewing window automatically changes from dark back to light but with a pre-set delay to compensate for any bright afterglow on the workpiece. The delay time / response can be set from Level 0 to level 10. It is recommended to use a shorter delay with spot welding applications and a longer delay with applications using higher currents. Longer delays can also be used for low current TIG welding, and TIG / MIG / MAG pulse.

• ADJUSTING THE FIT OF THE HELMET

The overall circumference of the headband can be made larger or smaller by rotating the knob on the back of the headband (See adjustment "Y" in fig.6). This can be done while wearing the helmet and allows just the right tension to be set to keep the helmet firmly on the head without it being too tight.

• If the headband is riding too high or too low on your head, adjust the strap which passes over the top of your head. To do this release the end of the band by pushing the locking pin out of the hole in the band. Slide the two portions of the band to a greater or lesser width as required and push the locking pin through the nearest hole (See adjustment "W" in fig.6).

• Front and back bands will automatically self-adjust according to headform, and soft pads suit forehead and back of head perfectly, which will bring more comfort (See fig.7a). Test the fit of the headband by lifting up and closing down the helmet a few times while wearing it. If the headband moves while tilting, re-adjust it until it is stable.

• ADJUSTING THE DISTANCE BETWEEN THE HELMET AND THE FACE

Step 1: Press down and hold the "LOCK" latch on both sides (See fig.7b) and it can be slide back and forth.

Step 2: Loosen the "LOCK" latch and keep it snap into slots. Please make sure the distance between the lens to both eyes are equal, to avoid uneven darkness.

• ADJUSTING VIEW ANGLE POSITION

Tilt adjustment is located on right side of helmet. Loosen the right headgear tension knob and adjust the lever forward or back to the proper position. Re-tighten the right headgear tension knob (See fig.7c).

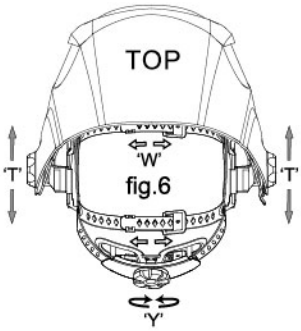
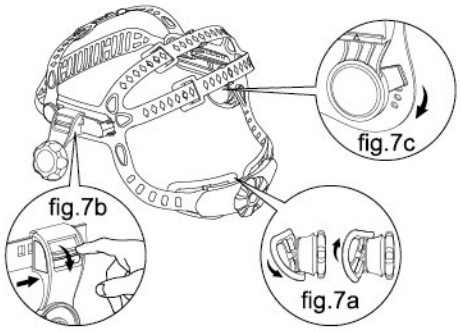


fig.6



MAINTENANCE

REPLACING THE FRONT LENS HOLDER

Disassembling: Remove the front lens holder per fig.8a / 8b.

Assembling: Fit the one side into slot, then press and lock the other side (See fig.8c).

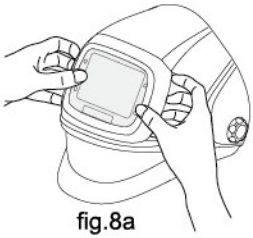


fig.8a

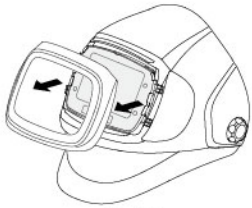


fig.8b

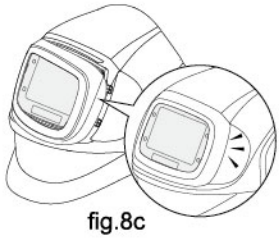


fig.8c

REPLACING THE AUTO DARKENING FILTER

Disassembling: Press the thumb on the bottom sides of the auto darkening filter and push it upward (See fig.9a), remove the filter from the helmet shell (See fig.9b).

Assembling: First insert the auto darkening filter into the slots on left and right sides. Then push the filter down till the locks click (See fig.9c).


fig.9a


fig.9b

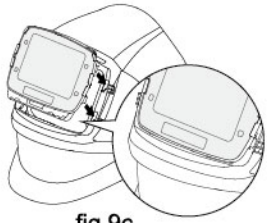


fig.9c

REPLACING THE OUTSIDE COVER LENS
Replace the outside cover lens if it is damaged.
Disassembling: Remove the front lens holder per fig.8a / 8b. Place your fingernail in recess above filter view window and flex lens upwards until it releases from edges of filter view window (See fig.10a).
Assembling: Install with one side into the slot, then insert the other side.

REPLACING THE INSIDE COVER LENS
Replace the inside cover lens if it is damaged.
Disassembling: Place your fingernail in recess above filter view window and flex lens upwards until it releases from edges of filter view window (See fig.10b).
Assembling: Assemble inside cover lens the same way as it was removed.

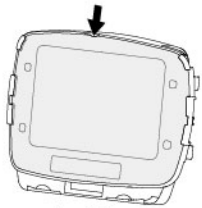


fig.10a


fig.10b

REPLACING THE GRIND LENS HOLDER AND GRIND LENS
Disassembling: Remove the grind lens holder per fig.11a / 11b. Remove the grind lens per fig.11c.
Assembling: Install with one side into the slot, then insert the other side.


fig.11a


fig.11b

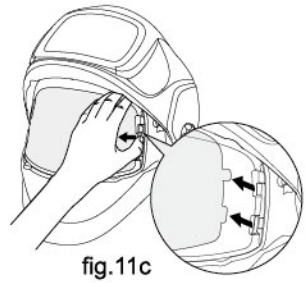


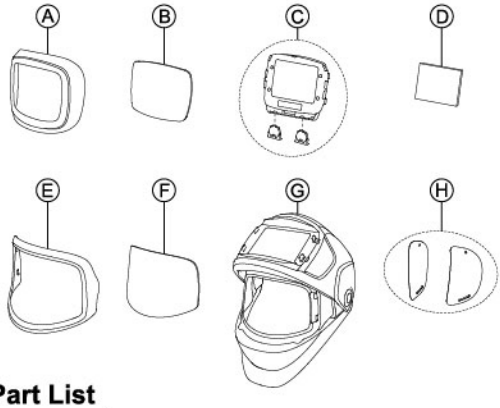
fig.11c

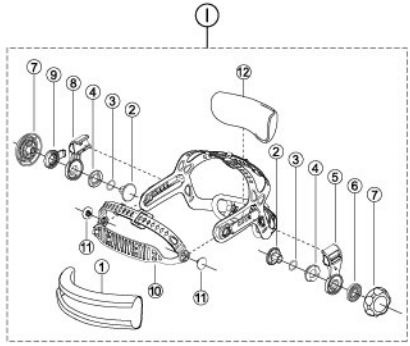
CLEANING
Clean helmet by wiping with a soft cloth. Clean the filter surfaces regularly. Do not use strong cleaning solutions. Clean sensors and solar cells with methylated spirit and a clean cloth and wipe dry with a lint-free cloth.

TECHNICAL SPECIFICATIONS

Optical Class:	1 / 1 / 1 / 1
Viewing Area:	107 x 75 mm (4.21" x 2.95")
Cartridge Size:	156 x 123 x 33 mm (6.14" x 4.84" x 1.30")
Arc Sensor:	4
Light State:	DIN 4
Grind State:	DIN 4
Cutting Shade:	Shade No. from 5 to 8
Welding Shade:	Shade No. from 9 to 13
Shade Control:	Internal, Digital Display Control
Power On / Off:	Automatic On / Off
Sensitivity Control:	Low ~ High, Digital Display Control
UV / IR Protection:	Up to Shade DIN16 at all times
Power Supply:	Solar cell. Battery replaceable, 2 × CR2450 lithium battery
Switching Time:	1/25,000 s. from Light to Dark
Grinding:	Yes
Delay (Dark to Light):	0.1 ~ 1.0 s, Digital Display Control
Low Amperage TIG Rated:	≥ 2 amps (DC); ≥ 2 amps (AC)
Operating Temp.:	-10 °C ~ +55 °C (14 °F ~ 131 °F)
Storing Temp.:	-20 °C ~ +70 °C (- 4 °F ~ 158 °F)
Helmet Material:	High Impact Resistance Nylon
Total Weight:	765 g
Application Range:	Stick Welding (SMAW); TIG DC&AC; TIG Pulse DC; TIG Pulse AC; MIG/MAG/CO2; MIG/MAG Pulse; Plasma Arc Cutting (PAC); Plasma Arc Welding (PAW); Air Carbon Arc Cutting (CAC-A); Oxyfuel Gas Welding (OFW); Oxygen Cutting (OC); Grinding
Approved:	DIN*plus*, CE, ANSI Z87.1, CSA Z94.3, AS/NZS 1338.1

PARTS LIST & ASSEMBLY





Part List

ITEM	DESCRIPTION	QTY
A	Front lens holder	1
B	Outside cover lens (160.36×107.3 mm)	1
C	Auto darkening filter	1
D	Inside cover lens (107×80 mm)	1
E	Grind lens holder	1
F	Grind lens (anti-fog, 223×129.8 mm)	1
G	Helmet shell	1
H	Side lens cover	1
I*	Headgear (Including sweatband and soft pad)	1

Part List of I*

ITEM	DESCRIPTION	QTY
1	Front Sweatband	1
2	Boot Screw	2
3	Rubber Washer	2
4	Fixed Washer	2
5	Left Cantilever	1
6	Washer	1
7	Block Nut	2
8	Right Cantilever	1
9	Angle Limitation Washer	1
10	Front Headgear	1
11	Lock Latch	2
12	Rear Soft Pad	1

SHADE GUIDE TABLE

GUIDE FOR SHADE NUMBERS

OPERATION	ELECTRODE SIZE 1/32 in. (mm)	ARC CURRENT (A)	MINIMUM PROTECTIVE SHADE	SUGGESTED[1] SHADE NO. (COMFORT)
Shielded metal arc welding	Less than 3 (2.5) 3-5 (2.5–4) 5-8 (4–6.4) More than 8 (6.4)	Less than 60 60-160 160-250 250-550	7 8 10 11	— 10 12 14
Gas metal arc welding and flux cored arc welding		Less than 60 60-160 160-250 250-500	7 10 10 10	— 11 12 14
Gas tungsten arc welding		Less than 50 50-150 150-500	8 8 10	10 12 14
Air carbon Arc cutting	(Light) (Heavy)	Less than 500 500-1000	10 11	12 14
Plasma arc welding		Less than 20 20-100 100-400 400-800	6 8 10 11	6 to 8 10 12 14
Plasma arc cutting	(Light)[2] (Medium)[2] (Heavy)[2]	Less than 300 300-400 400-800	8 9 10	8 12 14
Torch brazing		–	–	3 to 4
Torch soldering		–	–	2
Carbon arc welding		–	–	14

PLATE THICKNESS				
	in.	mm		
Gas welding Light Medium Heavy	 Under 1/8 1/8 to 1/2 Over 1/2	 Under 3.2 3.2 to 12.7 Over 12.7		 4 or 5 5 or 6 6 or 8
Oxygen cutting Light Medium Heavy	 Under 1 1 to 6 Over 6	 Under 25 25 to 150 Over 150		 3 or 4 4 or 5 5 or 6

[1] As a rule of thumb, start with a shade that is too dark, then go to a lighter shade which gives sufficient view of the weld zone without going below the minimum. In oxyfuel gas welding or cutting where the torch produces a high yellow light, it is desirable to use a filter lens that absorbs the yellow or sodium line the visible light of the (spectrum) operation

[2] These values apply where the actual arc is clearly seen. Experience has shown that lighter filters may be used when the arc is hidden by the workp iece.

Data from ANSI Z49.1-2005