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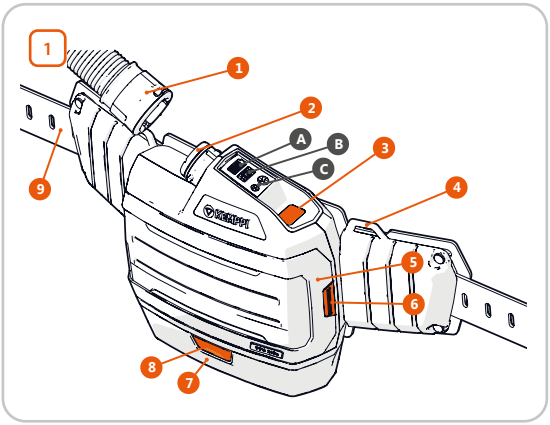
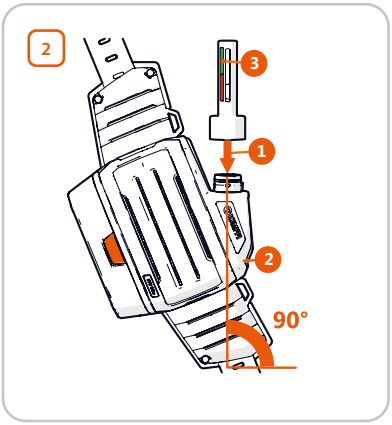
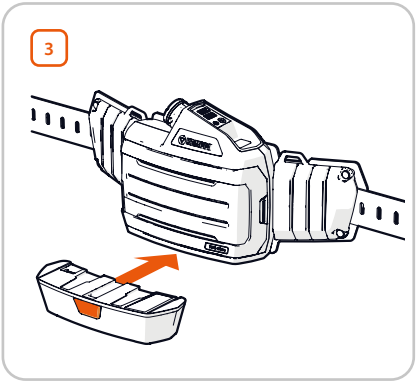
PFU 210e

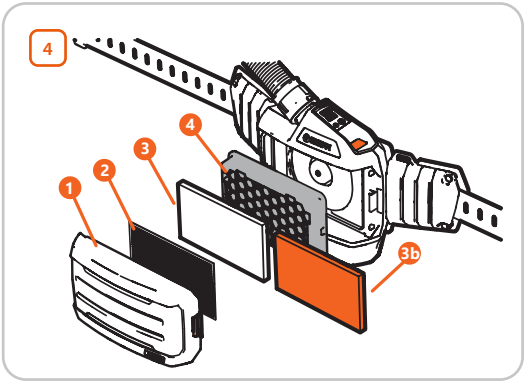
Operating manual

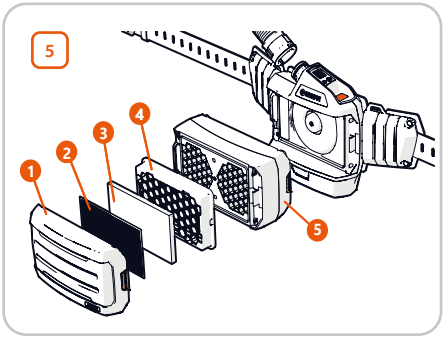
Operating manual – Brugsanvisning – Gebrauchsanweisung – Manual de instrucciones – Käyttöohje – Manuel d'utilisation – Manuale d'uso – Gebruiksaanwijzing – Bruksanvisning – Instrukcja obsługi – Manual de utilização – Manual de utilizare – Инструкции по эксплуатации – Bruksanvisning – Kullanım kılavuzu – 操作手册

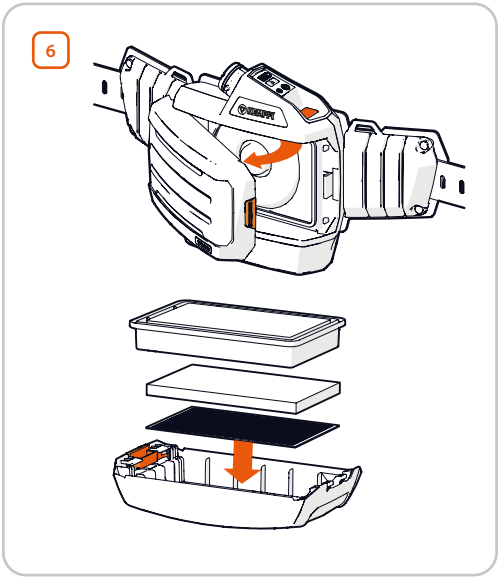












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1. Introduction

1.1 About PFU 210e

The powered filter unit PFU 210e filters ambient air and blows the filtered air to the hood of a welding helmet. The airflow creates positive pressure inside the headpiece, which prevents the external contaminated air from entering the user's breathing zone while supplying the user with clean breathing air. PFU 210e is compatible with Gamma GTH3, Beta FA, Zeta and Epsilon models.

1.2 About this manual

Read this manual carefully before using the equipment for the first time. Pay particular attention to the safety instructions.

	Convention	Used For
	Note	**Gives the user a piece of information of particular importance.**
	Caution	**Describes a situation that may result in damage to the equipment or system.**
	Warning	**Describes a potentially dangerous situation that may result in personal damage or fatal injury.**

1.3 Disclaimer

While every effort has been made to ensure that the information contained in this guide is accurate and complete, no liability can be accepted for any errors or omissions. Kemppi reserves the right to change the specification of the product described at any time without prior notice. Do not copy, record, reproduce or transmit the contents of this guide without prior permission from Kemppi.

2. Safety

Read the following precautions carefully before using the product.

PFU 210e provides protection against non-toxic hazardous particles and solid and liquid aerosols in breathing air in welding and similar processes.

Warning:

- It is strictly forbidden to use any other than Kemppi branded filters or other parts or accessories with Kemppi's personal protection equipment. If you do not respect this safety regulation, serious damage for your health may occur.

Warning:

- Do not use this product against toxic gases and vapours.
- Oxygen concentration in the surrounding area must not drop under 17%.
- Type and concentration of the contaminants in the working place must be known to the user.
- Do not use PFU 210e in unventilated areas such as tanks, pipes and channels.
- Do no use PFU 210e in areas where there is danger of explosion.
- Use PFU 210e only with the blower unit switched on. If PFU 210e is switched off, a rapid build-up of carbon dioxide and depletion of oxygen within the hood can occur as well as the ingress of contaminants from the environment.
- Before each use, check the air flow. For instructions, see chapter Air flow test.
- If PFU 210e stops working for any reason, leave the contaminated area immediately.
- To provide sufficient protection, the headpiece must fit the user´s face perfectly. If the seal of the headpiece is not fitted properly, for example, due to a beard or long hair breaking the seal, the protective effect of the complete system is reduced.
- Make sure that the air hose does not make a loop or get caught or trapped in the surrounding objects.
- Use the correct type of filter according to the type of contamination. See chapter Filters.
- If the breathing air in the workplace contains both particle and gas contamination, use an adequate combined filter.
- When you are using gas filters to protect you against gases that are difficult to identify by smell or other senses, follow all special rules for the current conditions.
- Immediately replace the filter(s) as soon as you can smell the contaminant.
- Use only original filters certified for the particular respiratory unit.
- Ensure that the air hose is not exposed to sparks, even if an air hose protection cover is used.

- During a period of really hard work, when the user's breathing becomes very intense, pressure inside the hood may decrease and decrease the protective effect.
- The selected RPD must provide a level of protection that ensures the wearer's exposure to hazardous substances is reduced to below the applicable Occupational Exposure Limit (OEL).

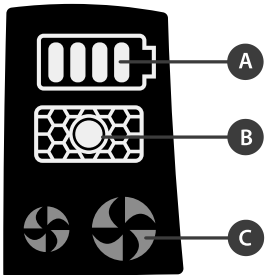
Note: If the recommendations stated in this manual are ignored, the warranty is automatically invalidated and the level of personal protection may not meet the designated standards.
RPD classification according to the maximum inward leakage (IL):
TH2 = maximum IL 2%
TH3 = maximum IL 0,2%
2B = maximum IL 2%
3B = maximum IL 0,50%

3. Parts [1]

Check that the package is complete and that no part has been damaged.

1. Air hose, comes with a cover
2. Air hose connector
3. ON/OFF button
4. Shoulder harness holder
5. Filter cover
6. Filter cover opening button
7. Battery
8. Battery opening button
9. Leather belt

A	Battery status: see chapter "5 Battery".
B	Filter status: when the red light switches on, the filter must be changed.
C	Blower status: maximum and minimum power.



4. Operation

4.1 Assembling PFU 210e

1. Fit the filters and the filter cover properly to the blower unit body.
2. Insert the battery to the blower unit body.
3. Connect the air hose to the blower unit body.
4. Fasten the belt around your waist. A shoulder and a backpack harness are available as accessories.
5. Connect the air hose to the welding helmet.

4.2 Operating PFU 210e

Before each use:

- Check all the parts. Replace damaged or worn parts.
- Perform an air flow test to ensure that the air flow is sufficient.
- Check that the air hose is properly connected at both ends.
- Check that the air flows all the way from the blower to the helmet.

Using the device:

- To turn the blower unit on or off, press and hold the ON/OFF button.
- When turning the blower unit off, press the button until the device beeps several times and then switches off.
- To adjust the blower speed, shortly press the ON/OFF button.

4.3 Air flow test [2]

Perform the air flow test before every use.

1. Connect a flow meter to the blower unit. Make sure it is properly connected and upright.
2. Switch on the blower unit.
3. Check that the ball rises up to the green area.
4. To check the functionality of the alarm mechanism, cover the flow meter with your hand and wait for the alarm to go off. All warnings will be triggered within 15 seconds after activation at or above the minimum flow rate as long as the cause of the warning persists (except for low energy).

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5. Battery 3

The battery status light shows how much charge is left:

- 4 green bars: 80-100 % left
- 3 green bars: 60 - 80 % left
- 2 green bars: 40 - 60 % left
- 1 green bar: 20- 40 % left
- 1 red bar: < 20 % left
- Red bar flashes, the unit vibrates and beeps twice: critically low

5.1 Changing the battery

1. To remove the battery, press the opening button, and pull the battery outwards.
2. To insert the battery, press the battery against the bottom of the blower unit, and slide the battery inwards.

5.2 Charging the battery

The batteries are pre-charged (approx. 50%).

Caution: Only charge the battery in temperatures above 0 °C.

Warning: Only use the Kemppi Charger for charging the battery.
A wrong charger may cause a fire or an explosion.

1. Remove the battery from the blower unit.
2. Connect the Kemppi Charger to a power supply and to the battery. Charging time (80%): ca. 1.5 h/ SD battery, 2.5 h / HD battery.
3. Remaining service time of the RPD after warning is ca. 10 min / SD battery, 20 min / HD battery

6. Filters

1. Filter cover
2. Spark arrester
3. Prefilter / 3b. Odor prefilter (optional)
4. Particle filter
5. Gas filter

4 For protection against particles, always use a particle filter and a prefilter.

5 For protection against gases, always use a gas filter combined with a particle filter and a prefilter. Do not use the odor filter / odor prefilter if a gas filter is present.

When A1B1E1 gas filter is in use, Smart Sense technology automatically regulates the PFU 210e to air speed 160 l/min, extending filter and battery lifetime.

The filter service life depends on the working environment. If the environment is very dirty, Kemppi recommends changing the filter after every work shift. Immediately replace the filter, if you are using the gas filter and you can smell the contaminant, or if the filter status icon flashes red. To warn about a clogged filter, the blower unit also beeps and vibrates at a regular interval.

Caution: Always replace a clogged filter. Never attempt to clean the filter, for example, with pressurized air.

6.1 Changing the filter 6

1. To remove the cover, press the opening button.
2. Check which filters need replacing. Sometimes replacing the prefilter is enough.
3. Before inserting the filter, check that the filter and the filter gasket are undamaged.
4. Insert the filter tightly to the filter cover.
5. To attach the filter cover to the blower unit, first push the hinged side in its place.

7. Daily maintenance

Kemppi recommends cleaning and desinfecting PFU 210e after every use.
Clean and desinfect the outer surface of the blower unit with lukewarm water, mild soap and a soft cloth. Let the unit dry completely before reassembling.

Note:

- Ensure that no water or detergents get into the blower unit / filter.
- Always clean the device in a ventilated room or outside. Be aware of harmful dust settled on any parts of the unit.
- Never use flammable cleaning liquids or abrasive cleaners.

8. Storage

Store PFU 210e in an environment with temperature between -20 °C and +50 °C and humidity <80% Rh. The product has a two-year storage life if stored in its unopened original package. For longer storage periods, keep the charging level of the battery at about 50 %. Check the charging level every 6 months and charge, if necessary.

Filters: see the expiry date on the package. Store the filters in the manufacturer-sealed packages.

9. Technical data

Model	PFU 210e
Manufacturer	Kemppi Oy, PL 13, 15801 Lahti, Finland
Compliance	Regulation (EU) 2016/425 Regulation 2016/425 on personal protective equipment as brought into UK law and amended
Compliance with standards	PFU 210e: EN12941:2023 • With Beta FA: TH2 class • With Gamma GTH3: TH3 class • With Zeta models: TH3 class • With Epsilon 301/301x: TH3 class, clause 5.20.2. excl. PFU 210e: AS/NZS 1716:2012 • With Beta FA: P1 class • With Gamma GTH3: P2 class • With Zeta models: P2 class Particle filters: P Gas filters: A1B1E1
Type inspected by:	FORCE Certification A/S, Notified body No. 0200 Park Allé 345, DK-2605 Broendby (Module B). CCQS Certification Services Limited, Notified body No. 2834, Block 1 Blanchardstown Corporate Park, Ballycoolin Road, Blanchardstown, Dublin 15 D15 AKK1 Dublin, Ireland (Module D). INSPEC International B.V., Notified body no. 2849, Beechavenue 54-62, 1119 PW, Schiphol-Rijk, The Netherlands (Modul B). AS/NZS: SAI Global Certification Services Pty Limited Level 7, 45 Clarence Street, Sydney NSW 2000, Australia.
Airflow	Min. 160 l/min Max. 210 l/min (high flow, particle filter)
Belt size	Max.125 cm
Weight (blower unit, particle filter, battery, hose and belt)	2510 g
Operating temperature	-5...+55 °C
Recommended humidity range for use	< 80 % Rh
Battery type	SD: Li-ion 14.4 V, 3.2 Ah (46 Wh) HD: Li-ion 14.4 V, 6.4 Ah (92 Wh)
Battery charging time	1.5 h (SD) / 2.5 h (HD) (80%)
Battery lifetime	500 charging cycles

Expected battery operation time

Blower speed	Battery operation time (hours)
Normal flow level	SD = 7 h with particle filter and pre-filter HD = 13 h with particle filter and pre-filter and 9 h with gas and particle filter
High flow level	SD = 5 h with particle filter and pre-filter HD = 10 h with particle filter and pre-filter

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- The expected operation time is with a clean filter. If the filter is clogged the battery lifetime is considerably shorter
- The battery operation time depends on the type of work and environment
- Using the work ligths reduces the battery operating time by 20% and the odor pre-filter by 40% (odor pre-filter is optional for Beta, Gamma and Zeta models)
- The battery operating time with supplementary work lights:
  Normal flow SD=5,6 h/HD=10,4 h, High flow SD=4h/HD=8h

10. Ordering codes

Part	Ordering code
Blower unit pack (incl. body of blower unit, filter cover, belt)	SP011996
Body of blower unit	SP012217
PFU 210e Battery HD	SP012021
PFU 210e Battery SD	SP012584
PFU 210e Battery charger	SP012426
Belt	SP010243
Harness	SP011894
Backpack harness	SP029596
Flow meter	SP012492
Filter cover	SP012095
Spark arrester 10 pcs	SP9320003
Prefilter	SP9320002 10 pcs / SP9320002MP 100 pcs
Particle filter Life+	SP010415 5 pc / SP010415MP 20 pcs
Gas filter Life+	SP009934
Odor prefilter 10 pcs	SP027163

11. Disposal of the unit

Note: Do not dispose of any electrical equipment with normal waste!

At the end of the useful working life of the unit and its accessories, make sure that you follow national and local regulations regarding the disposal of the unit. The unit includes some parts that include or are made of non-environmentally friendly or hazardous materials.

In observance of WEEE Directive 2012/19/EU on waste of electrical and electronic equipment and European Directive 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment, and their implementation in accordance with national law, electrical equipment that has reached the end of its life must be collected separately and taken to an appropriate environmentally responsible recycling facility. The owner of the equipment is obliged to deliver a decommissioned unit to a regional collection centre, as per the instructions of local authorities or a Kemppi representative. By applying these European Directives you improve the environment and human health.

Electrical and electronic waste – Elektrisk og elektronisk affald – Elektro- und Elektronikschrott – Residuo eléctrico y electrónico. – Sähkö- ja elektroniikkajäte – Déchets électriques et électroniques – Rifiuti di apparecchiature elettriche ed elettroniche – Elektrisch en elektronisch afval – Elektrisk og elektronisk avfall – Odpady elektryczne i elektroniczne – Descarte de eletroeletrônicos – Echipamente electrice și electronice – Электрические и электронные отходы – El- och elektronikavfall – Elektrikli ve elektronik atiklar – 电气和电子废弃物

See information supplied by the RPD manufacturer – Se oplysningerne fra RPD-producenten – Siehe die vom RPD-Hersteller bereitgestellten Informationen – Véase la información suministrada por el fabricante de la unidad RPD – Katso hengityksensuojaimen valmistajan toimittamat tiedot – Voir les informations fournies par le fabricant du RPD – Vedere le informazioni fornite dal produttore RPD – Zie de informatie die is verstrekt door de RPD-fabrikant – Se informasjon som leveres av RPD-tilvirker – Patrz informacje podane przez producenta zaworu – Veja as informações fornecidas pelo fabricante do RPD – Consultați informațiile furnizate de producătorul RPD – См. информацию, предоставленную производителем средств индивидуальной защиты органов дыхания – Se information från RPD-tillverkaren – RPD üreticisinin sağladiği bilgilere bakiniz – 请参见 RPD 制造商提供的信息

CE 2834

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Declaration of Conformity – Overensstemmelseserklæring – Konformitätserklärung – Declaración de conformidad – Vaatimustenmukaisuusvakuutus – Déclaration de conformité – Dichiarazione di conformità – Verklaring van overeenstemming – Samsvarserklæring – Deklaracja zgodności – Declaração de conformidade – Declarație de conformitate – Заявления о соответствии – Försäkran om överensstämmelse – Uygunluk Beyanı – 符合性声明

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