

Upute za uporabu M600-M

Instruction manual **M600-M**

2. SIGURNOSNE UPUTE / SAFETY INSTRUCTIONS

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1. SADRŽAJ PAKIRANJA / SCOPE OF DELIVERY



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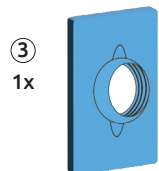
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Sadržaj pakiranja

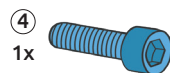
① M600-M ② Upute za uporabu

Scope of supply

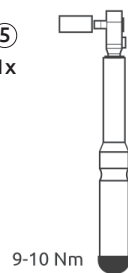
① M600-M ② Instruction manual



③
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④
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9-10 Nm

Potrebna dodatna oprema

③ prirubna matica ④ vijak M8
⑤ moment ključ

Required accessories

③ Flange nut ④ M8 screw
⑤ Torque spanner

DODATNI JEZICI U PREUZIMANJU/
ADDITIONAL LANGUAGES AVAILABLE FOR DOWNLOAD
Website www.brc-solar.de



A) OPĆENITO

- M600-M smije se koristiti samo u skladu s predviđenom namjenom i specificiranim tehničkim podacima.
- Prilikom puštanja u rad, održavanja ili popravka fotonaponskog sustava ne smiju se provoditi kratki spojevi na nizu modula ili na Power Optimizeru.
- Molimo vas da obratite pažnju na sve upute navedene u priručniku za uporabu tvrtke BRC Solar Gmb, kao i na upozorenja na uređaju M600-M. Upozorenja na M600-M moraju uvijek biti lako čitljiva i ne smiju se uklanjati, mijenjati ili manipulirati.
- Važeći lokalni zakoni, propisi, smjernice i norme moraju biti prioritetno poštovani tijekom rada, kao i pri instalaciji, deinstalaciji i održavanju. Sigurnosne upute u priručniku za uporabu nisu potpune i služe samo kao dopuna.

B) ELEKTROTEHNIČARI

- Sve radove povezane s proizvodom smiju izvoditi samo kvalificirani električari. Električar mora prito poštivati nacionalne i regionalne propise.
- Molimo vas da prije instalacije pažljivo pročitate sve upute i slijedite ih. Ako postoje nejasnoće ili trebate detaljne informacije, nazovite našu servisnu telefonsku liniju.
- Električni radovi smiju se izvoditi samo uz poštivanje 5 sigurnosnih pravila elektrotehnike.
- Kako biste izbjegli opekline, električar bi trebao pri demontaži ili zamjeni M600-M, nakon isključivanja sustava, pričekati nekoliko minuta dok se optimizatori dovoljno ne ohlade.
- Instalirajte M600-M na dovoljnoj udaljenosti od krova ili drugih podloga kako biste osigurali odgovajuće odvođenje toplote.
- Instalirajte isključivo ispravne M600-M sa kompletnim sadržajem pakiranja.
- Nemojte provoditi nikakve izmjene na M600-M.
- Posebno pazite da uspostavite čvrstu električnu vezu između M600-M i modula i/ili PV-niza.
- Kabelski snop mora biti dizajniran da podnese maksimalnu struju koja se može pojaviti.

C) KRAJNJI KORISNIK

- Ni pod kojim uvjetima nemojte sami izvoditi radove na M600-M. Nemojte otvarati kućište.
- Neovlaštene osobe ne smiju se približavati fotonaponskom sustavu ili Power Optimizeru.
- Molimo vas da priručnik za uporabu čuvate kako bi bio dostupan za sve aktivnosti povezane s proizvodom

2. SIGURNOSNE UPUTE / SAFETY INSTRUCTIONS

A) GENERAL

- The M600-M may only be operated in accordance with the intended use and the specified technical data.
- When commissioning, maintaining or repairing the PV system, do not short-circuit the module string or the Power Optimizer.
- Please observe all BRC Solar GmbH instructions given in the instruction manual as well as the warning notices on the M600-M. The warning notices on the M600-M must always be clearly legible and must not be removed, changed or manipulated.
- Applicable local laws, regulations, directives and standards must be observed as a matter of priority for operation and during installation, uninstallation and maintenance. The safety instructions in the instruction manual are not complete and serve only as a supplement.

B) ELECTRICAL SPECIALISTS

- All work related to the product may only be carried out by qualified electricians. The electrician must comply with national and regional regulations.
- Please read all instructions carefully before installation and follow them during installation. If there are any uncertainties or you need detailed information call our service hotline.
- Electrical work may only be carried out in compliance with the 5 safety rules of electrical engineering.
- To prevent burns, the electrician should wait a few minutes after switching off the system until the optimizers have cooled down sufficiently before dismantling or replacing the M600-M.
- Install the M600-M with adequate spacing to the roof or other surfaces to ensure sufficient heat dissipation.
- Only install intact M600-M with a complete scope of delivery.
- Do not make any modifications to the M600-M.
- Take particular care to establish a firm electrical connection between the M600-M and the modules and/or the PV string.
- The string cabling must be designed for the maximum current that may occur.

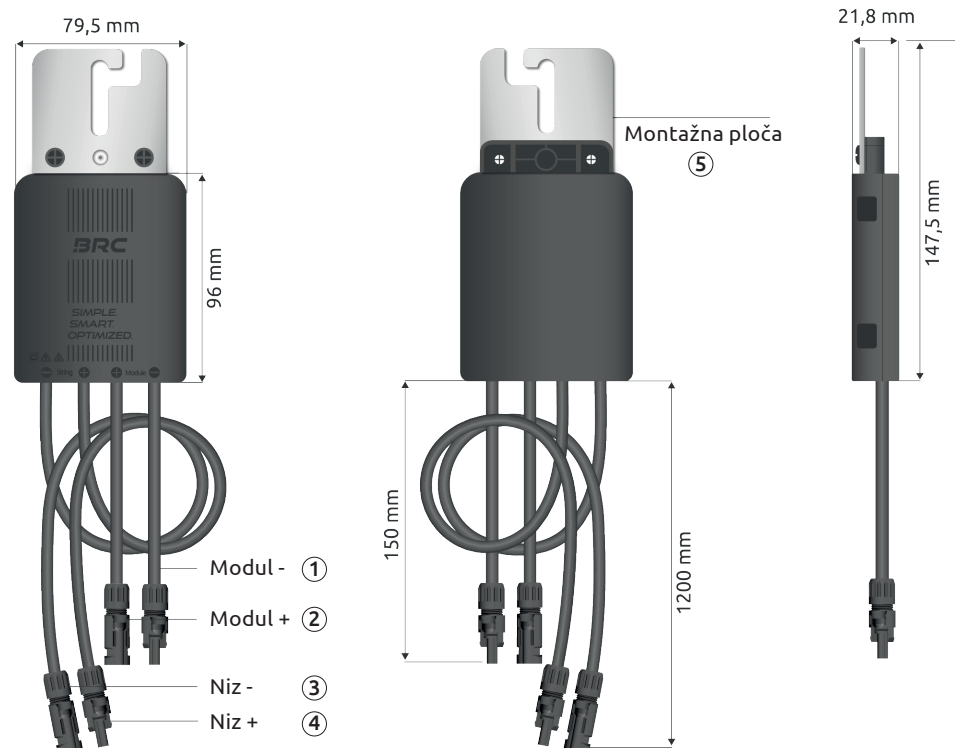
C) END USER

- Do not under any circumstances carry out any work on the M600-M yourself. Do not open the housing.
- Unauthorised persons must not be allowed to enter the vicinity of the PV system or the Power Optimizer.
- Please keep the instruction manual so that it is available for all activities related to the product.

EN

3. PREGLED PROIZVODA / PRODUCT OVERVIEW

A) SASTAVLJANJE / ASSEMBLY



HR Struktura M600-M

- ① Modul - ② Modul + ③ Niz -
④ Niz+ ⑤ Montažna ploča

EN Assembly of the M600-M

- ① Module - ② Module + ③ String -
④ String + ⑤ Mounting Plate



Molimo obratite pažnju na upute za uporabu.
Please observe the instruction manual.



Pažnja, vruća površina.
Warning, hot surface.

IP68

Uređaj ima potpunu zaštitu od dodira, otporan je na prašinu i zaštićen je pri uranjanju.
The device is fully protected against contact, is dust-tight and can withstand immersion.



Uređaj je u skladu s CE normama.
The device is CE compliant.



Zaštitna klasa II – Uređaj je zaštićen dvostrukom ili pojačanom izolacijom.
Protection class II – The device is protected by double or reinforced insulation.



Nije dopušteno odlaganje putem kućnog otpada.
No disposal with household waste permitted.



Pažnja, rizik od električnog udara!
Warning, risk of electric shock!

- M600-M je DC pretvarač koji se putem Plug-and-Play sustava paralelno povezuje s modulom. Kako biste mogli koristiti funkciju nadzora, potrebno je postaviti BRConnect i BRC Power Manager aplikaciju.
- U slučaju zasjenjenja, on se automatski aktivira putem invertera, slično kao bypass dioda. Kada se aktivira, Power Optimizer smanjuje izlazni napon i povećava izlaznu struju tako da odgovara struji niza. Tako BRC Power Optimizer M600-M i dalje može isporučivati dostupnu snagu modula u PV sustav.
- Proizvod se postavlja na montažni sustav PV modula. Za namjeravanu upotrebu proizvoda potrebna je stacionarna instalacija, koja se prema objašnjenjima pod točkom 4 mora izvesti od strane kvalificiranog električara.
- Molimo vas da prilikom instalacije optimizatora obratite pažnju na poštivanje specificiranih tehničkih podataka. Posebno obratite pažnju na sljedeće upute:
 - Proizvod se može instalirati na otvorenom i odgovara IP zaštitnoj klasi IP68. Kao rezultat toga, optimizator se može koristiti kako u vlažnim uvjetima, tako i pri relativnoj vlažnosti zraka do 100%. Međutim, imajte na umu da se radi o električnom uređaju i da zbog sigurnosnih razloga ne smije biti uronjen u tekućine.
 - Proizvod je dizajniran za rad pri temperaturama okoline od -40°C do +85°C.
 - Proizvod je odobren za rad do 2.000 m nadmorske visine (metara iznad razine mora).
- Optimizator se smije spojiti samo na standardne pretvarače. Balkonski solarni sustavi, mali pretvarači, DC/DC pretvarači i sustavi za pohranu energije u baterijama isključeni su iz njegove predviđene upotrebe.
- Ako se upotreba razlikuje od ovdje objašnjene namjene i specificiranih tehničkih podataka, to se smatra nenamjenskom upotrebom. Proizvođač ne preuzima odgovornost za štete nastale zbog nenamjenske upotrebe. Primenjuju se odredbe ograničenog jamstva proizvođača (<https://brc-solar.de/downloads/>).



NAPOMENA Keine Kurzschlussprüfung oder Isolationswiderstandsprüfung durchführen, falls diese bei der Prüfung den Strang kurzschließt. Die Rückwärtsbestromung des Power Optimizer wird vom bestimmungsgemäßen Gebrauch ausgeschlossen

- The M600-M is a DC/DC converter that is connected in parallel to the module via plug-and-play. To enable the monitoring function, you must set up the BRConnect and BRC Power Manager App.
- In the event of shading, it is automatically activated by the inverter, comparable to the bypass diode. When activated, the Power Optimizer reduces the output voltage and increases the output current so that it corresponds to the string current. Thus, the BRC Power Optimizer M600-M can continue to feed the available module power into the PV system.
- The product is attached to the mounting system of the PV modules. For the intended use of the product, a stationary installation is required, which must be carried out by a qualified electrician according to the explanations in section 4.
- When setting up the optimizer, please ensure compliance with the specified technical data. Pay particular attention to the following information:
 - The product can be installed outdoors and complies with the IP68 protection class. As a result, the optimizer can operate in both wet conditions and relative humidity up to 100%. Please note, however, that this is an electrical device and therefore it should not be immersed in liquids for safety reasons.
 - The product is designed for operation at ambient temperatures of -40°C to +85°C.
 - The product is only approved for operation up to 2,000m above sea level.
- The optimizer may only be connected to standard inverters. PV balcony power plants, microinverters, DC/DC converters, and battery storage systems are excluded from intended use.
- If the use deviates from the use explained here and the specified technical data, this is considered improper use. The manufacturer assumes no liability for damage caused by improper use. The information in the limited product warranty applies (<https://brc-solar.de/downloads/>).



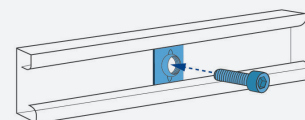
NOTE Do not perform a short circuit test or an isolation test if this short-circuits the string during testing. The reverse current supply of the Power Optimizer is excluded from intended use.

- Nemojte instalirati u paralelnim nizovima.
- Tijekom rada Power Optimizer-a, površina kućišta može se jako zagrijati. Kako ne bi došlo do ometanja odvođenja topline, Power Optimizer treba biti montiran slobodno i s dovoljno prostora za ventilaciju. Ne smije se montirati na zapaljive površine.
- Osigurajte da tijekom montaže, puštanja u pogon i demontaže ne može doći do električnih lukova. Pažljivo provjerite priključke na konektorima.
- Power Optimizer treba montirati tako da voda/vlaga može neometano otečati.
- Kod ulaza pretvarača s MPP strujom (IMPP) većom od 16 A, samo 50% modula u nizu smije biti opremljeno optimizatorima.
- Ne postavljajte PV kabele izravno pored AC kabela i maksimalno povećajte udaljenost od izvora smetnji kako biste smanjili rizik od prekida komunikacije.

- Do not install in parallel strings.
- During operation, the surface of the Power Optimizer can become very hot. To ensure proper heat dissipation, the Power Optimizer must be installed with adequate ventilation and clearance. It must not be mounted on flammable surfaces.
- Ensure that no arcs can occur during installation, commissioning, and dismantling. Carefully check the plug connections.
- The Power Optimizer must be mounted in a way that allows water/moisture to drain freely.
- For inverter inputs with an MPP current (IMPP) of more than 16 A, only 50% of the modules in the string may be equipped with optimizers.
- PV cables must not be installed directly next to AC cables. Maintain the greatest possible distance from sources of interference to minimize the risk of communication disruptions.

Korak 1: Pričvršćivanje M600-M na nosač PV modula

Step 1: Fastening the M600-M to the PV module support



1

Postavite prirubnu maticu s vijakom M8 u montažni okvir.

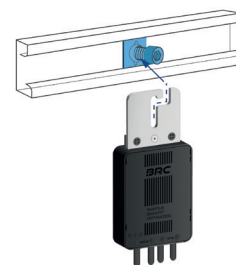


Prirubna matica /
Flange nut

vijak M8 /
M8 screw

EN

Place the flange nut with an M8 screw in the mounting frame.

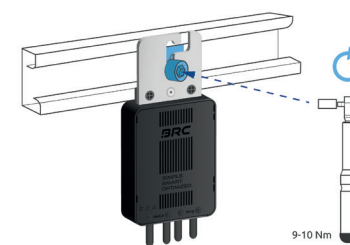


2

Montirajte M600-M na montažni okvir.

EN

Mount the M600-M on the mounting frame.



3

Zategnite vijak moment ključem (9-10 Nm) kako biste učvrstili M600-M.

EN

Tighten the screw with a torque spanner (9-10 Nm), to fasten the M600-M.

Korak 2: Zaštitne mjere protiv električnog udara

Obratite pažnju na sigurnosne upute na stranici 2, kao i na 5 sigurnosnih pravila za električne radove. Prije nego što povežete M600-M s nizom, provjerite da nema protoka struje u nizu.

EN Step 2: Protective measures against electric shock

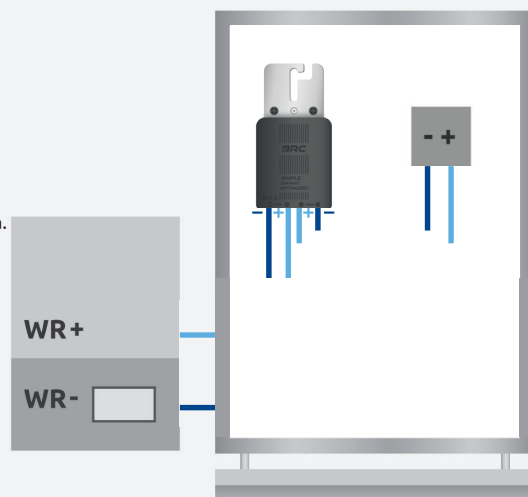
Observe the safety instructions on page 3 and the 5 safety rules for electrical engineering. Before connecting the M600-M to the string, check that no string current is flowing.

Korak 3: Priključak Power Optimizer-a

NAPOMENA M600-M je standardno opremljen Stäubli MC4 priključcima. Oni se ne smiju spajati s drugim vrstama priključaka.

EN Step 3: Connecting the Power Optimizer

NAPOMENA The M600-M is fitted with Stäubli MC4 connectors as standard. These must not be connected to other connector types.



1 Ako je modul već povezan s nizom, odvojite priključke od susjednih modula.

EN If the module is already connected on the string side, disconnect the connections from the neighbouring modules.

2 Prvo priključite kratke kabele na PV modul. **Obratite pažnju na polaritet.**

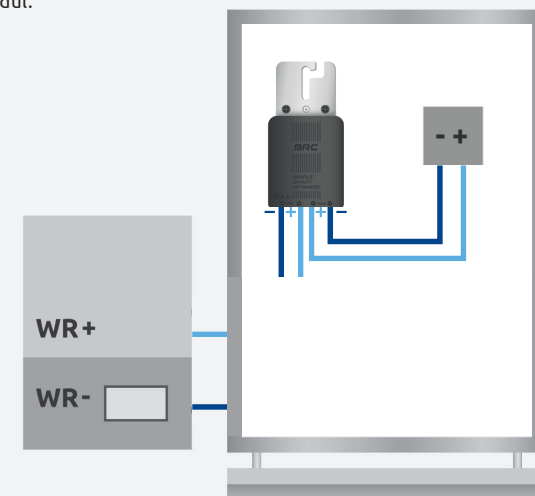
NAPOMENA:

Možete provjeriti izlaze optimizatora pomoću mjerača napona. Nakon ispravnog pokretanja optimizatora, mora biti prisutan približan napon praznog hoda modula.

EN First, connect the short cables to the PV module. **Pay attention to the polarity.**

Note:

You can measure the output of the optimizer with a voltmeter. After the optimizer has booted correctly, the approximate open-circuit voltage of the module must be present.



3 Dugi kablovi se povezuju na stranu niza. **Obratite pažnju na polaritet.**

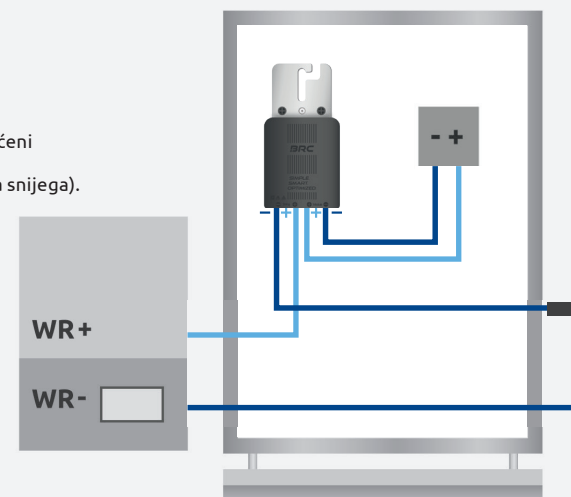
EN The long cables are connected on the string side. **Pay attention to the polarity.**

NAPOMENA Pazite da su kablovi pričvršćeni na montažnu konstrukciju i osigurani (npr. od klizanja snijega).

Osigurajte da kablovi nisu pretjerano savijeni ili presavijeni. Izbjegavajte naprezanja na kablama

NAPOMENA Ensure that the cables are secured to the mounting system to protect them (e.g. from sliding snow).

Ensure that the cables are not excessively bent or kinked. Avoid tension on the cables.



Korak 4: Postavite QR kod na plan niza

Odvojite QR kod i zalijepite ga na plan niza. Plan niza se razlikuje prema nizu 1, 2 i 3. Obratite pažnju na ispravnu dodjelu. Ako QR kod bude izgubljen, skenirajte QR kod na tipskoj pločici kako biste prikazali ID optimizatora (npr.: FAC1AA02).

NAPOMENA: Za sigurnost, fotografirajte dovršeni plan niza.

EN Step 4: Attach QR code to string plan

Remove the QR code and stick it onto the string plan. The string plan is divided into string 1, 2, and 3. Ensure the correct assignment. If the QR code is lost, scan the QR code on the nameplate to display the Optimizer ID (e.g., FAC1AA02).

Note: To be safe, take a photo of the completed string plan.

Plan niza za preuzimanje na našoj web stranici.
String plan for download on our website.

Plan niza / String plan

Klijent: Naziv postrojenja:				Instalater: Niz:				Stranica: BRC	
A	B	C	D	E	F	G	H	I	J
1									
2									
3									
4									
5									

Stranica: _____

Korak 5: Provjera montaže

Provjerite pričvršćenje M600-M na montažni okvir kao i ispravnu električnu vezu priključaka.

EN Step 5: Checking the installation

Afterwards, check the fastening of the M600-M to the mounting frame and the correct electrical connection of the plugs.

Korak 6: Puštanje u rad uključivanjem pretvarača

Povežite niz s DC ulazom pretvarača i postavite DC sklopku na UKLJUČENO. Obratite pažnju na polaritet.

Napomena: Možete provjeriti napon praznog hoda cijelog niza pomoću mjerača napona prije nego što se niz poveže s pretvaračem.

EN Step 6: Commissioning by switching on the inverter

Connect the string to the DC input of the inverter and turn the DC switch to ON. Pay attention to the polarity.

Note: You can measure the open-circuit voltage of the entire string with a voltmeter before connecting the string to the inverter.

Korak 7: Povezivanje s BRConnect i BRC Power Manager aplikacijom

Pri korištenju BRConnect s BRC Power Manager aplikacijom, molimo vas da obratite pažnju na upute za uporabu BRConnect Gatewaya. Tamo ćete pronaći sve daljnje korake.

EN Step 7: Connection with BRConnect and BRC Power Manager App

When using a BRConnect with the BRC Power Manager App, please refer to the instruction manual for the BRConnect Gateway. There you will find all further steps.

5. RAD I ODRŽAVANJE

- Isključite PV sustav na pretvaraču prije početka čišćenja. Nemojte čistiti pod visokim pritiskom, čišćenje provodite isključivo čistom vodom. Nemojte vršiti mehanički pritisak na Power Optimizer.
- M600-M ne zahtijeva održavanje; u slučaju trajnog kvara obratite se podršci.

6. ZAMJENA I POPRAVAK

Radni koraci demontaže M600-M trebaju se izvesti obrnutim redoslijedom od montaže (vidi poglavlje 4):

- Isključite pretvarač
- Odvojite stranu niza optimizatora
- Odvojite stranu modula optimizatora
- Demontirajte optimizator

Popravak se ne smije provoditi.

7. ZBRINJAVANJE

- Ambalaža za transport može se reciklirati putem lokalnog zbrinjavanja otpada.
- M600-M i sve pripadajuće komponente nakon uporabe trebaju se zbrinuti kao elektonički otpad u skladu s važećim zakonima u zemlji

8. USKLAĐENOST PROIZVODA I KONTAKT

BRC Solar GmbH sa sjedištem u Gehrstraße 7, D-76275 Ettlingen, izjavljuje da proizvod M600-M, uz poštivanje uputa za instalaciju i namjeravanu upotrebu, ispunjava osnovne zahtjeve nacionalnih smjernica. Potpunu izjavu o sukladnosti možete pronaći na web stranici BRC Solar GmbH (www.brc-solar.de)

5. OPERATION AND MAINTENANCE

- Turn off the system at the inverter before starting the cleaning process. Do not clean with a high-pressure; clean exclusively with clear water. Do not apply mechanical pressure to the Power Optimizer.*
- The M600-M is maintenance-free; contact support if a persistent issue occurs.*

6. REPLACEMENT AND REPAIR

The steps for dismantling the M600-M should be carried out in the reverse order of installation (see chapter 4):

- Turn off the inverter*
- Disconnect the string side of the Power Optimizer*
- Disconnect the module side of the Power Optimizer*
- Dismount the Power Optimizer*

Repairs must not be carried out.

7. DISPOSAL

- The transport packaging can be recycled under local waste disposal.*
- After use, the M600-M and all associated components must be disposed of as electronic waste in accordance with the laws applicable in the country.*

8. PRODUCT COMPLIANCE AND CONTACT

BRC Solar GmbH, located at Gehrstraße 7 in D-76275 Ettlingen, Germany, declares that the product M600-M complies with the basic requirements of the national directives if the installation instructions are observed and the product is used as intended. A complete declaration of conformity can be found on the website (www.brc-solar.de) of BRC Solar GmbH.