

iNFINITY RT

N-type

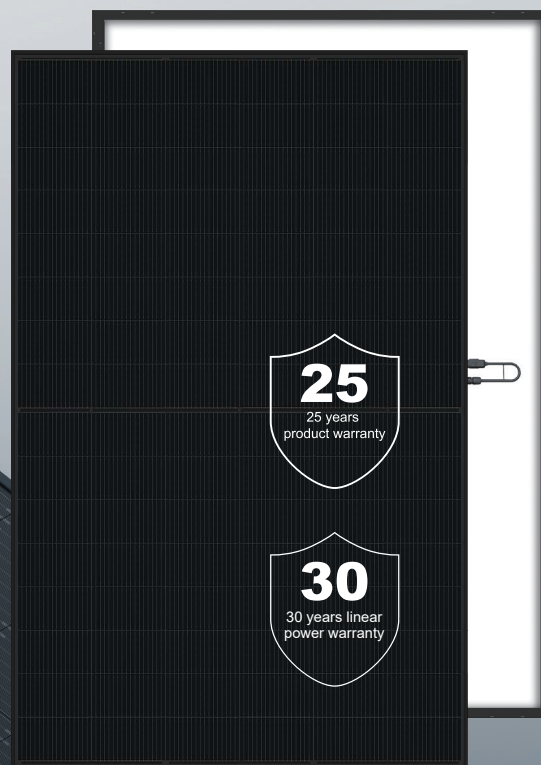
Mono facial Module with Double Glass

DMxxxG12RT-G48HBB

455~475W

23.8%
Max. Efficiency

- **Leading manufacturing**
40+ years experience in high-tech manufacturing.
- **High environmental, social and governance responsibility (ESG)**
100% green production, transparent supply chain and excellent ESG rating in the solar industry.



Outstanding Aesthetics

Designed with aesthetics in mind and manufactured using DMEGC Advanced Black Technology.



Extended Stress Tests

Protection against harsh environmental conditions.



Green Product

Focus on circular economy - low carbon footprint, PFAS-free and recyclable components.

COMPANY MANAGEMENT SYSTEM

SA 8000: ILO Standards. Social responsibility standards
ISO 9001: Quality management system
ISO 14001: Environmental management system
ISO 45001: Occupational health and safety management system
ISO 50001: Energy management system
ISO 27001: Information security management system

PRODUCT CERTIFICATION

IEC 61215, IEC 61730
Ammonia Corrosion (IEC 62716)
Salt Mist Corrosion (IEC 61701)
LeTID (IEC TS 63342)
Dust & Sand (IEC 60068)



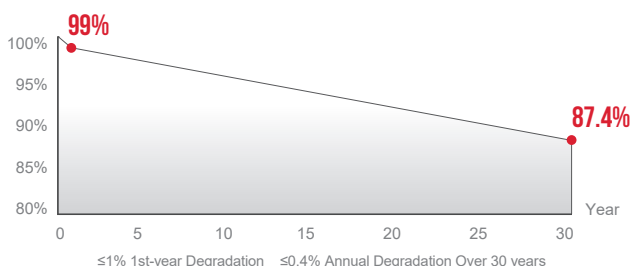
SolarPower
Europe



Warranty partner

Munich RE 

POWER WARRANTY

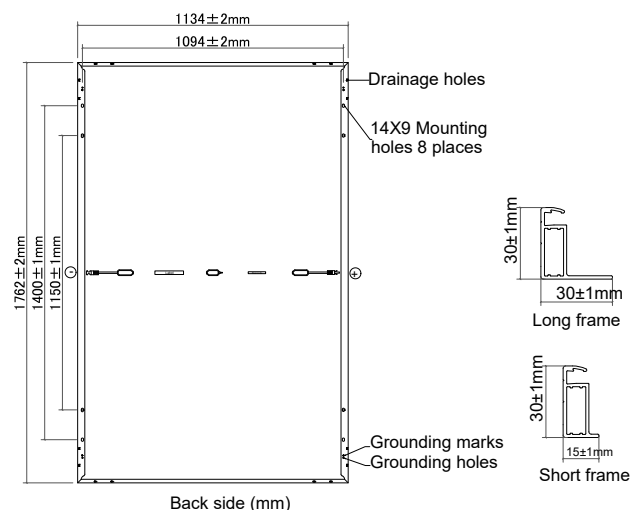


DMxxxG12RT-G48HBB



Module Specification

Cell Type	N type Mono-crystalline, 96 (6×16)
Dimensions (mm)	1762×1134×30
Weight (kg)	24.0
Front Cover	2 mm heat strengthened glass, Anti-reflective coating
Rear Cover	2 mm heat strengthened glass
Junction Box	3 Diodes, IP68 according to IEC 62790
Output Cables (Including Connector)	4 mm ² /Portrait: 300 mm (+) /200 mm (-) Landscape: 1100 mm (+) /1100 mm (-) Length can be customized
Connector Type	PV-ZH202B or MC4-EVO 2A (1500V)



Electrical Specifications¹

Module Type	DM455G12RT-G48HBB		DM460G12RT-G48HBB		DM465G12RT-G48HBB		DM470G12RT-G48HBB		DM475G12RT-G48HBB	
Testing Condition	STC ²	NMOT ³	STC	NMOT	STC	NMOT	STC	NMOT	STC	NMOT
Maximum Power (P _{max} /W)	455	347	460	351	465	354	470	358	475	362
Maximum Power Current (I _{mp} /A)	14.83	12.05	14.87	12.08	14.91	12.11	14.95	12.15	14.99	12.18
Maximum Power Voltage (V _{mp} /V)	30.69	28.80	30.95	29.04	31.21	29.28	31.47	29.53	31.68	29.73
Short-circuit Current (I _{sc} /A)	15.78	12.72	15.83	12.76	15.88	12.80	15.93	12.84	15.98	12.88
Open-circuit Voltage (V _{oc} /V)	36.18	34.82	36.32	34.96	36.46	35.09	36.60	35.22	36.74	35.36
Module Efficiency STC (%)	22.8		23.0		23.3		23.5		23.8	

¹ Measurements according to IEC 60904-3, Measurement tolerance: P_{max}: ±3%, I_{sc}: ±4%, V_{oc}: ±3%

² STC (Standard Test Condition): Radiation 1000 W/m², Module temperature 25°C, AM = 1.5

³ NMOT: Radiation 800 W/m², Ambient temperature 20°C, AM = 1.5, Wind Speed 1 m/s



Operating Conditions

Operating Temperature (°C)	-40 to +85
Maximum System Voltage (V)	1500 DC(IEC)
Overcurrent Protection Rating (A)	25
Power Sorting (%)	0~3
Protection Class	Class II
Fire Class	Class C (IEC)
Max. Test Load, Push/Pull (Pa)	Front 5400 / Back 2400
Max. Design Load, Push/Pull (Pa)	Front 3600 / Back 1600
Hail Class	HW3*

* Reference diameter of ice balls-VKF 30mm, Ice ball storage temp -20°C.



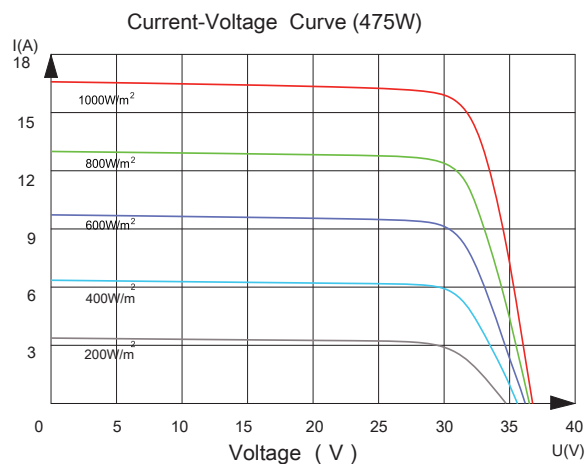
Packaging

Container	40HQ
Pallet Dimensions (mm)	1800x1140x1250
Pieces per Pallet	36
Pieces per Container	936



Temperature Characteristics

Nominal Module Operating Temperature (NMOT)	42±2°C
Temperature Coefficient of P _{max} (%/°C)	-0.29
Temperature Coefficient of V _{oc} (%/°C)	-0.25
Temperature Coefficient of I _{sc} (%/°C)	+0.048



Hengdian Group DMEGC Magnetics Co.,Ltd.
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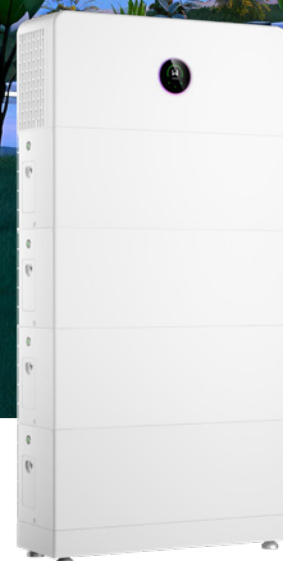
Statement: The installation instructions and the warranty conditions must be followed. Due to technological progress, product parameters will be adjusted accordingly. When signing the contract, the latest data of the company shall prevail. All information in this data sheet corresponds to EN 50380.Changes and errors excepted. Document: EN DS-G12RT-G48HBB-20260105.

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ESA Series

5-30kW/5-108kWh | Three Phase Energy Storage Solution (HV)

The GoodWe ESA Series 5-30kW/5-108kWh is a three-phase all-in-one energy storage solution that integrates the inverter, battery, and intelligent energy management into a single system. Its pre-wired, modular design unifies the inverter and battery, delivering an installation-friendly structure that streamlines setup and accelerates commissioning. With four battery module options-5, 6, 8, and 9kWh-up to 12 modules can be connected for a total storage capacity of 108kWh. Featuring simplified configuration, large expandable storage, and an AI-driven EMS for dynamic tariff optimization, the ESA Series 5-30kW/5-108kWh provides an efficient, flexible, and future-ready solution for both residential and small commercial use.



Optimized Performance

- Up to 200% DC oversizing & AC backup overload
- Up to 1C charge/discharge for rapid energy cycling
- Smart fan cooling for quiet operation, noise as low as 30dB*



Flexible & Adaptable Applications

- Dual-port design for whole-home backup
- Flexible battery mixing with different capacity or old & new batteries
- Supports on- and off-grid parallel operation



Superb Safety & Reliability

- Advanced 6-layer safety protection
- AI-driven AFCI 3.0 for safety
- Heating mode ensures reliable performance even in -20°C



Smart Control & Monitoring

- Ready for AI-driven EMS
- Seamless switching to backup <4ms
- One-click upgrade & one-click configuration

Technical Data											
	GW5K- ETA-G20	GW6K- ETA-G20	GW8K- ETA-G20	GW9.999K- ETA-G20	GW10K- ETA-G20	GW12K- ETA-G20	GW15K- ETA-G20	GW20K- ETA-G20	GW25K- ETA-G20	GW29.999K- ETA-G20	GW30K- ETA-G20
Battery Side											
Battery Type	LFP (LiFePO4)										
Nominal Voltage (V)	750										
Voltage Range (V)	700 ~ 950										
Start-up Voltage (V)	720										
Number of Battery Input	1										
Max. Continuous Charging Current (A)	6.7	8.1	10.7	13.4	13.4	16.1	20.1	26.7	33.3	40.0	40.0
Max. Continuous Discharging Current (A)	7.4	8.9	11.8	14.7	14.7	17.7	22.1	29.4	36.7	44.1	44.1
Max. Charging Power (kW)	5.0	6.0	8.0	10.0	10.0	12.0	15.0	20.0	25.0	30.0	30.0
Max. Discharging Power (kW)	5.5	6.6	8.8	11.0	11.0	13.2	16.5	22.0	27.5	33.0	33.0
PV Side											
Max. Input Power (kW)	10	12	16	20	20	24	30	40	50	60	60
Max. Input Voltage (V) ¹	1000										
MPPT Operating Voltage Range (V) ²	120 ~ 950										
Start-up Voltage (V)	150										
Nominal Input Voltage (V)	750										
Max. MPPT Current (A)	21 / 21 / 21					21 / 21 / 21 / 21			21 / 21 / 42 / 42		
Max. MPPT Short Circuit Current (A)	26 / 26 / 26					26 / 26 / 26 / 26			26 / 26 / 52 / 52		
Number of MPPTs	3					4					
Number of Strings per MPPT	1 / 1 / 1					1 / 1 / 1 / 1			1 / 1 / 2 / 2		
AC Side (Grid Port)											
Rated Power (kW)	5	6	8	9.999	10	12	15	20	25	29.999	30
Max. Power (kW)	5	6	8	9.999	10	12	15	20	25	29.999	30
Rated Apparent Power to Grid (kVA)	5	6	8	9.999	10	12	15	20	25	29.999	30
Rated Apparent Power from Grid (kVA)	5	6	8	9.999	10	12	15	20	25	29.999	30
Max. Apparent Power to Grid (kVA) ³	5	6	8	9.999	10	12	15	20	25	29.999	30
Max. Apparent Power from Grid (kVA) ⁴	43.5	43.5	43.5	43.5	43.5	43.5	43.5	43.5	55.2	55.2	55.2
Nominal Voltage (V)	220 / 380, 230 / 400, 3L / N / PE										
Voltage Range (V) (According to local standard)	180 ~ 260										
Nominal Frequency (Hz)	50 / 60										
Frequency Range (Hz)	45 ~ 55 / 55 ~ 65										
Rated Current to Grid (A)	7.6@380V 7.3@400V	9.1@380V 8.7@400V	12.2@380V 11.6@400V	15.2@380V 14.5@400V	15.2@380V 14.5@400V	18.2@380V 17.4@400V	22.8@380V 21.8@400V	30.4@380V 29.0@400V	37.9@380V 36.3@400V	45.5@380V 43.5@400V	45.5@380V 43.5@400V
Rated Current from Grid (A)	7.6@380V 7.3@400V	9.1@380V 8.7@400V	12.2@380V 11.6@400V	15.2@380V 14.5@400V	15.2@380V 14.5@400V	18.2@380V 17.4@400V	22.8@380V 21.8@400V	30.4@380V 29.0@400V	37.9@380V 36.3@400V	45.5@380V 43.5@400V	45.5@380V 43.5@400V
Max. Current to Grid (A) ⁵	7.6@380V 7.3@400V	9.1@380V 8.7@400V	12.2@380V 11.6@400V	15.2@380V 14.5@400V	15.2@380V 14.5@400V	18.2@380V 17.4@400V	22.8@380V 21.8@400V	30.4@380V 29.0@400V	37.9@380V 36.3@400V	45.5@380V 43.5@400V	45.5@380V 43.5@400V
Max. Current from Grid (A) ^{4,5}	63	63	63	63	63	63	63	63	80	80	80
Power Factor	0.8 leading ... 0.8 lagging										
THDi	<3%										
AC Side (Back-up Port)											
Rated Apparent Power (kVA)	5	6	8	10	10	12	15	20	25	30	30
Max. Apparent Power (kVA) ⁶	Off-grid: 5.5 (10.0, 10s) on-grid: 43.5	Off-grid: 6.6 (12.0, 10s) on-grid: 43.5	Off-grid: 8.8 (16.0, 10s) on-grid: 43.5	Off-grid: 11.0 (20.0, 10s) on-grid: 43.5	Off-grid: 11.0 (20.0, 10s) on-grid: 43.5	Off-grid: 13.2 (24, 10s) on-grid: 43.5	Off-grid: 16.5 (30, 10s) on-grid: 43.5	Off-grid: 22.0 (30.0, 10s) on-grid: 43.5	Off-grid: 27.5 (45.0, 10s) on-grid: 55.2	Off-grid: 33.0 (45.0, 10s) on-grid: 55.2	Off-grid: 33.0 (45.0, 10s) on-grid: 55.2
Nominal Voltage (V)	220 / 380, 230 / 400, 3L / N / PE										
Nominal Frequency (Hz)	50 / 60										
Max. Current (A) ⁶	Off-grid: 11.4, on-grid: 63	Off-grid: 13.7, on-grid: 63	Off-grid: 18.2, on-grid: 63	Off-grid: 22.8, on-grid: 63	Off-grid: 22.8, on-grid: 63	Off-grid: 27.3, on-grid: 63	Off-grid: 33.4, on-grid: 63	Off-grid: 33.4, on-grid: 63	Off-grid: 50.0, on-grid: 80	Off-grid: 50.0, on-grid: 80	Off-grid: 50.0, on-grid: 80
THDv (@Linear Load)	<3%										
On / Off-grid Switching Time (ms)	<4										
Efficiency											
Max. Efficiency	98.0%	98.0%	98.0%	98.1%	98.1%	98.1%	98.1%	98.1%	98.2%	98.2%	98.2%
European Efficiency	96.4%	96.9%	97.1%	97.2%	97.2%	97.2%	97.3%	97.3%	97.4%	97.4%	97.4%
Max. Battery to AC Efficiency	98.0%										
Protection											
PV String Current Monitoring	Integrated										
PV Insulation Resistance Detection	Integrated										
Residual Current Monitoring	Integrated										
PV Reverse Polarity Protection	Integrated										
Battery Reverse Polarity Protection	Integrated										
Anti-islanding Protection	Integrated										
AC Overcurrent Protection	Integrated										
AC Short Circuit Protection	Integrated										
AC Overvoltage Protection	Integrated										
DC Switch	Integrated										
DC Surge Protection	Type II (Type I + II optional)										
AC Surge Protection	Type II										
Rapid Shutdown	Optional										
AFCI	Optional										
Remote Shutdown	Integrated										
General Data											
Operating Temperature Range (°C)	-35 ~ +60										
Relative Humidity	0 ~ 100%										
Max. Operating Altitude (m)	4000 (>2000 derating)										
Cooling Method	Smart Fan Cooling										
User Interface	LED, WLAN + APP										
Communication with BMS	CAN										
Communication	RS485, WiFi + LAN + Bluetooth, 4G + Bluetooth (Optional)										
Communication Protocols	Modbus-RTU, Modbus-TCP										
Weight (kg)	34	34	34	34	34	34	34	34	38	38	38
Dimension (W x H x D mm)	800 x 340 x 270										
Ingress Protection Rating	IP66										
Mounting Method	Wall/Floor Mounted										

*1: When the input voltage ranges from 950V to 1000V, the inverter will enter the standby mode, and the voltage returns to 950V to enter the normal operation state.

*2: Please refer to the user manual for the MPPT Voltage Range at nominal Power.

*3: According to the local grid regulation.

*4: GOODWE ESA series has internal bypass 63A passthrough ability to support whole home backup solution. If the customer don't want to do any breaker upgrade, the main breaker size in SolarGo (or SEMS+) can be set as previous breaker size.

*5: If the backup port is not used, select an appropriate circuit breaker based on the AC maximum output current.

*6: "Off grid" means the energy of backup output only comes from PV and battery. "On grid" means the energy of the backup output includes the energy from grid or generator (on-grid) side.

*: Please visit GoodWe website for the latest certificates.

Technical Data		GW5.1-BAT-D-G20	GW8.3-BAT-D-G20	GW6.0-BAT-D-G20	GW9.0-BAT-D-G20
Battery Type		LFP (LiFePO ₄)			
Rated Energy (kWh)		5.12	8.32	6.0	9.0
Usable Energy (kWh)		5.0 ^{*1}	8.0 ^{*1}	5.8 ^{*2}	8.7 ^{*2}
Operating Voltage Range (V) (single phase system)		350 ~ 550			
Operating Voltage Range (V) (three phase system)		700 ~ 950			
Max. Input Current (System) (A)		12.0	19.0	7.1	10.7
Max. Output Current (System) (A)		13.2	21.0	7.9	11.8
Max. Input Power (System) (kW) ^{*3}		5.0	8.0	3.0	4.5
Max. Output Power (System) (kW) ^{*3}		5.0	8.0	3.0	4.5
Peak Output Power (System) (kW) ^{*3}		7.5 @10s	12 @10s	4.5 @ 10s	6.75 @ 10s
Charging Temperature Range (°C)		-18 ~ +55	-18 ~ +55	-20 ~ +55	-20 ~ +55
Discharging Temperature Range (°C)		-20 ~ +55			
Relative Humidity		4 ~ 100%			
Max. Operating Altitude (m)		4000			
Noise Emission (dB)		≤29	≤29	≤27	≤27
Communication		CAN	CAN	CAN & 485	CAN & 485
Weight (kg)		57.5 ± 1	79 ± 1	61 ± 1	77± 1
Ingress Protection		IP66			
Dimensions (W × H × D mm)		800 × 326 × 270			
Function Configuration		Heating (Integrated); Aerosol fire extinguishing (Integrated)			
Max. Storage time		12 months (-20°C ~ +35°C) 6 months (+35°C ~ +45°C)			
Scalability ^{*4}		12 pcs			
Mounting Method		Floor stacked / Wall-mounted		Floor stacked / Wall-mounted / Grounded	
Cycle Life ^{*5}		≥8000	≥8000	≥10000	≥10000
Standard and Certification	Safety	IEC62619, IEC60730, EN62477, IEC63056, IEC62040, CE, CEC, VDE2510		IEC62619, IEC60730, EN62477, IEC63056, IEC62040, CE, CEC, Regulation 2023 / 1542, VDE2510-50	
	EMC	CE, RCM			
	Transportation	UN38.3, ADR			

*1: Test conditions, 100% DOD (cell 2.85~3.6V voltage range), 0.2P charge & discharge at 25±2°C for battery system at the beginning of life. Usable energy is defined by its initial design value. Actual available energy may vary depending on charge/discharge rate, environmental conditions (e.g. temperature), transport and storage factors.

*2: Test conditions, 100% DOD (cell 2.87~3.61V voltage range), 0.4P charge & discharge at 25±2°C for battery system at the beginning of life. Usable energy is defined by its initial design value. Actual available energy may vary depending on charge/discharge rate, environmental conditions (e.g. temperature), transport and storage factors.

*3: Max. Input Power /Max. Output Power/Peak Output Power derating will occur related to Temperature and SOC.

*4: For single-column stacked installations, the maximum number of parallel units is 6.

*5: Based on test data under specific laboratory conditions.

*: Based on Lynx D G2 Series technology

*: Please visit GoodWe website for the latest certificates.

power in wire and cables



KBE SOLAR DB+



★ H1Z2Z2-K / EN 50618

★ IEC 131 / IEC 62930

★ TÜV 2 PfG 1169/10.19

1.500 V_{DC} / 1.800 V_{DC} max.

UV-Stabilität / UV-stability

erdverlegbar / direct burial

höhere Wasserbeständigkeit/
higher water resistance

Brandklasse D_{ca} nach BauPVO/
flammability class D_{ca} acc. CPR



MADE IN GERMANY

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Die KBE Elektrotechnik GmbH ist Hersteller von Kabeln und Leitungen für die Automobil- und Hausgeräteindustrie sowie mit 40 GW installierter Leistung einer der führenden internationalen Anbieter von Solarleitungen.

Bei unserer verbesserten KBE Solar DB+ haben wir berücksichtigt, dass sich die Anforderungen in den letzten Jahren dramatisch erhöht haben. Aus diesem Grund ist die KBE Solar DB+ die erste 3-fach zertifizierte Solarleitung nach der europäischen Solarleitungsnorm EN 50618, sowie nach der internationalen Norm IEC 62930, als auch nach der TÜV Prüfnorm 2 PfG 1169/10.19 durch den TÜV zertifiziert.

Zusätzlich besitzt die KBE Solar DB+ Solarleitung eine ganze Reihe von Vorteilen gegenüber herkömmlichen Solarleitungen:

- TÜV Zertifizierung nach EN 50618 (H1Z2Z2-K)
- TÜV Zertifizierung nach IEC 62930 (62930 IEC 131)
- TÜV Zertifizierung nach 2 PfG 1169/10.19 (PV 1500-K)
- Ausgelegt für 1.500 V_{DC} (max. 1.800 V_{DC})
- fortlaufende Metermarkierung
- Erdverlegbarkeit durch hochwertige Isolationsmaterialien
- Höhere UV-Beständigkeit
- Höhere Wasserbeständigkeit
- Höherer Isolationswiderstand
- Höhere mechanische Stabilität
- Brandklasse D_{ca} nach BauPVO
- optimiert für Floating PV Anlagen (FPV)

Neben wettbewerbsfähigen Konditionen bietet KBE Ihnen:

- „Made in Germany“ mit Fertigung in Berlin
- Lieferung ab Lager, kurze Lieferzeit
- Kostengünstige Direktlieferung ins weltweite Ausland
- Hohe Qualität und lange Lebensdauer (25 Jahre nach EN 50618)
- Hohe Flexibilität und Biegeweichfähigkeit
- Kompatibilität zu allen gängigen Steckern
- Farben: Schwarz, Rot, Blau
- Aufmachung: 100m Ringe, 500m Spulen, 1.000m Spulen

KBE Elektrotechnik GmbH is manufacturer for wires and cables for the automotive and household appliance industry as well as one of the leading international suppliers of solar cables with 40 GW installed capacity.

The advanced KBE Solar DB+ features the latest, significantly increased, technical requirements for solar cables. As a consequence KBE Solar DB+ is the first triple certified solar cable, which is TÜV certified according to the European standard for solar cables EN 50618 and the international standard IEC 62930 as well as the new TÜV test standard 2 PfG 1169/10.19.

KBE Solar DB+ provides a number of additional advantages in comparison to conventional solar cables:

- TÜV certification acc. to EN 50618 (H1Z2Z2-K)
- TÜV certification acc. to IEC 62930 (62930 IEC 131)
- TÜV certification acc. to 2 PfG 1169/10.19 (PV 1500-K)
- Voltage rating 1.500 V_{DC} (max. 1.800 V_{DC})
- Consecutive meter marking
- Direct burial due to high quality insulation materials
- Higher UV-stability
- Higher water resistance
- Higher insulation resistance
- Higher mechanical stability
- flammability class D_{ca} acc. CPR
- optimized for floating PV systems (FPV)

In addition to competitive conditions KBE offers:

- “Made in Germany” with production in Berlin, Germany
- Delivery from stock, short lead time
- Worldwide deliveries at favourable terms
- High quality and long life time (25 years acc. to EN 50618)
- High flexibility and bending capability
- Compatibility to all common connectors
- Colors: black, red, blue
- Packaging: 100m rings, 500m spools, 1.000m spools



KBE Solar DB+ Datenblatt / Technical Data Sheet

Stand: 01.08.2020

		Anforderungsprofil - KBE Solar DB+	Requirement Profile - KBE Solar DB+
	Bezeichnung / Product name	KBE Solar DB+	KBE Solar DB+
	Bauartkurzzeichen/ Leitungscode / Code designation	H1Z2Z2-K / 62930 IEC 131 / PV 1500-K	H1Z2Z2-K / 62930 IEC 131 / PV 1500-K
	Verfügbare Querschnitte / Cross selections available	4,0 mm ² - 10 mm ²	4,0 mm ² - 10 mm ²
	Normen / Approbationen / Standard / Approbations	DIN EN 50618; TÜV Zertifikat-Nr. R60147048; IEC 62930 2 PFG 1169/10.19	DIN EN 50618; TÜV Certificate-No. R60147048; IEC 62930 2 PFG 1169/10.19
		Allgemeine Angaben	General Information
	Leiter / Conductor	E-Cu verzinkt nach IEC 60228 Klasse 5	E-Cu tinned acc. IEC 60228 Class 5
	Isolation / Insulation	Vernetztes Spezial Polyolefin	Crosslinked special Polyolefin
	Mantel / Sheathing	Vernetztes Spezial Polyolefin	Crosslinked special Polyolefin
	Bedruckung / Printing	KBE SOLAR DB+ X,XX mm ² H1Z2Z2-K 62930 IEC 131 PV 1500-K HALOGEN FREE LOW SMOKE R60147048 MADE IN GERMANY CE EAC	KBE SOLAR DB+ X,XX mm ² H1Z2Z2-K 62930 IEC 131 PV 1500-K HALOGEN FREE LOW SMOKE R60147048 MADE IN GERMANY CE EAC
	Abstand der Bedruckung / Continuity of marks	≤ 550 mm	≤ 550 mm
	Mantelfarbe / Sheat colour	rot, blau, schwarz (Verwendung der Farbe mit sehr hoher Lichtechtheit (BWS 8) nach ISO 4892)	red, blue, black (Usage of colour with very high lighth fastness (BWS 8) according to ISO 4892)
	Erwartete Gebrauchsdauer / Expected period of use	25 Jahre	25 years
		Elektrische Anforderungen	Electrical Specifications
	Nennspannung / Rated Voltage U _{0/U}	1,0/1,0 kV _{AC} 1,5/ 1,5 kV _{DC}	1,0/1,0 kV _{AC} 1,5/ 1,5 kV _{DC}
	Höchstzulässige Betriebsspannung / Max. permissible operating voltage	1,2/ 1,2 kV _{AC} 1,8/ 1,8 kV _{DC} (Leiter-Leiter, Leiter-Erde)	1,2/ 1,2 kV _{AC} 1,8/ 1,8 kV _{DC} (conductor-conductor, conductor-ground)
	Strombelastbarkeit / Current carrying capacity	gemäß EN 50618, Tabelle A-3	acc. to EN 50618, table A-3
	Leiterwiderstand / Resistance of the conductor	EN 50395 Abschnitt 5 gemäß EN 50618, Tabelle 2	EN 50395 clause 5 acc. to EN 50618, table 2
	Spannungsprüfung AC / DC an der vollständigen Leitung / Voltage test on the complete cable with AC or DC	EN 50395 Abschnitt 6 (6,5 kV _{AC} oder 15 kV _{DC} ; 5 Minuten)	EN 50395 clause 6 (6,5 kV _{AC} or 15 kV _{DC} ; 5 min)
	Oberflächenwiderstand / Surface resistance	EN 50395 Abschnitt 11	EN 50395 clause 11
	Isolationswiderstand / Insulation resistance	EN 50395 Abschnitt 8.1 durchgeführt bei 20 °C & 90 °C in Wasser Ergebnisse gemäß EN 50618, Tabelle 1 2 PFG 1169/10.19 durchgeführt bei 20 °C & 90 °C in Wasser Ergebnisse gemäß 2 PFG 1169/10.19 mindestens: 1050 MΩ*km @ 20 °C 1,05MΩ*km @ 90 °C	EN 50395 clause 8.1 performed at 20 °C & 90 °C in water results acc. to EN 50618, table 1 2 PFG 1169/10.19 performed at 20 °C & 90 °C in water results acc. to 2 PFG 1169/10.19 at minimum: 1050 MΩ*km @ 20 °C 1,05MΩ*km @ 90 °C
	Durchlaufspannungsprüfung / Spark test	EN 62230, Anhang A	EN 62230, Annex A
	Gleichspannungsbeständigkeit / Long term resistance of insulation to DC	EN 50395 Abschnitt 9 (10 Tage, 85 °C in NaCl 3 %, 1,8 kV _{DC})	EN 50395 clause 9 (10 days, 85 °C in NaCl 3 %, 1,8 kV _{DC})
		Mechanische Anforderungen	Mechanical Specifications
	Eigenschaften vor Alterung / Properties before ageing	EN 60811-1-1; EN 60811-1-2 (Zugfestigkeit Isolierung ≥ 8,0 N/mm ² Zugfestigkeit Mantel ≥ 8,0 N/mm ² Reißdehnung ≥ 125 %)	EN 60811-1-1; EN 60811-1-2 (tensile strenth insulation ≥ 8,0 N/mm ² tensile strenth jacket ≥ 8,0 N/mm ² elongation at break ≥ 125 %)
	Wärmedehnungsprüfung / Hot Set test	EN 60811-2-1 (200 °C; 15 Min. unter Last; 20 N/cm ² Belastung)	EN 60811-2-1 (200 °C; 15 min. under load; 20 N/cm ² stress)
	Biegeradius / Bending radius	≥ 4 x Aussendurchmesser	≥ 4 x outer diameter
	Dynamische Durchdringungsprüfung / Dynamic penetration test	gemäß EN 50618 - Anhang D	acc. to EN 50618 - Annex D
		Thermische Anforderungen	Thermal Specifications
	Umgebungstemperatur im Betrieb / Ambient temperature in operation	-40 °C bis +90 °C	-40 °C to + 90 °C
	Tiefste, zulässige Umgebungstemperatur zur Installation / Min. ambient temperature for installation	-25 °C	-25 °C
	Tiefste, zulässige Umgebungstemperatur / Min. allowable ambient temperature	-40 °C	-40 °C
	Höchste Temperatur am Leiter / Max. temperature at conductor	120 °C, basierend auf der EN 60216-1 (20.000 h; 50 % Restdehnung)	120 °C, based on EN 60216-1 (20.000 h; 50 % residual elongation)
	Kurzschluss temperatur / Short-circuit temperature	+250 °C (am Leiter max. 5 Sek.)	+250 °C (max. 5 sec on conductor)
	Feuchte Wärme-Prüfung / Damp heat test	EN 60068-2-78 (1.000h bei 90 °C und 85 % Luftfeuchte)	EN 60068-2-78 (1.000h at 90 °C and 85 % relative humidity)
	Schrumpungsprüfung / Shrinkage test	EN 60811-503 (120°C, 1h, Schrumpfung <2,0%)	EN 60811-503 (120°C, 1h, shrinkage <2,0%)
	Kältewickelpprüfung / Cold bending test	EN 60811-504 (-40 °C, Vorkonditionierung: 16 h)	EN 60811-504 (-40 °C, duration of conditioning: 16 h)
	Kälte dehnungstest / Cold elongation test	DIN EN 60811-505 (-40 ± 2°C, Vorkonditionierung: 16 h)	DIN EN 60811-505 (-40 °C ± 2 °C, duration of conditioning: 16 h)
	Kälteschlagprüfung / Cold impact test	EN 60811-506 und EN 50618, Anhang C (-40 °C; Masse des Fallgewichts 1.000 g)	EN 60811-506 and EN 50618, Annex C (-40 °C; mass of hammer 1.000 g)

KBE Solar DB+ Datenblatt / Technical Data Sheet

Stand: 01.08.2020

		sicherheitsspezifische Anforderungen	specifications regarding safety
BauPVO Dca	Bauproduktenverordnung (BauPVO) / Construction Product Regulation (CPR)	Klasse D _{ca} in Übereinstimmung mit EN 50575:2014	class D _{ca} in accordance with EN 50575:2014
	Beständigkeit gegen Säuren und Laugen / Resistance against acid and alkaline solution	EN 60811-404 7 Tage; 23 °C (N-Oxalsäure; N-Natronlauge)	EN 60811-404 7 days; 23 °C (N-Oxalic-acid; N-Sodium hydroxide solution)
UV	Prüfung der Ozonbeständigkeit der vollständigen Leitung / Ozone resistance on completed cable	EN 50396 Abschnitt 8.1.3, Verfahren B	EN 50396 clause 8.1.3, method B
	Bewitterung/UV-Prüfung am Mantel / Weathering/ UV-resistance on sheath	entspricht EN 50618, Anhang E EN 50289-4-17, Verfahren A (720h; 60 °C ± 3 °C; 50 ± 5 % Luftfeuchte) entspricht 2 PFG 1169/10.19 mit Test von 2.000h und damit deutlich höher als 720h nach EN 50618	meets EN 50618, Annex E EN 50289-4-17, method A (720 h; 60 °C ± 3 °C; 50 ± 5 % relative humidity) meets 2 PFG 1169/10.19 test with 2.000h and exceeds significantly the test of 720h acc. EN 50618
	Prüfung der vertikalen Flammenausbreitung an der vollständigen Leitung / Test for vertical flame propagation on complete cable	EN 60332-1-2	EN 60332-1-2
	Rauchentwicklung an der vollständigen Leitung / Smoke emission of complete cable	EN 61034-2 (Lichtdurchlässigkeit > 70 %)	EN 61034-2 (light transmittance > 70 %)
	Prüfung auf Halogenfreiheit / Bestimmung von Halogenen - Elementarprüfung Assessment of halogens / Determination of halogens - Elemental test	EN 50525-1, Anhang B	EN 50525-1, Annex B
		Zusätzliche interne Tests der KBE	Additional internal tests of KBE
Erdverlegbar / Direct burial	Erdverlegbar / Direct burial	KBE-interne Prüfung gemäß UL 854: - Abschnitt 23: Impact-Resistance Test - Abschnitt 24: Crushing-Resistance Test	KBE internal test acc. To UL 854: -Section 23 Impact-resistance Test -Section 24 Crushing-Resistance Test
	Langzeitisolationswiderstand im Wasser / Long-term insulation resistance in water	KBE Test gemäß UL 44 Abschnitt 5.4 & UL 2556, Abschnitt 6.4: 90 °C ± 5 °C; 2000V (DC) ≥ 3 GΩ×m nach 12 Wochen Testergebnis KBE: > 50 GΩ×m nach 12 Wochen	KBE test acc. to UL 44 Section 5.4 & UL 2556, Section 6.4: 90 °C ± 5 °C; 2000V (DC) ≥ 3 GΩ×m after 12 weeks test result KBE: > 50GΩ×m after 12 weeks
Eingruppierung in Kategorie AD8 / Classification to the category AD8	Eingruppierung in Kategorie AD8 / Classification to the category AD8	in Anlehnung an die EN 50525-21 - Anhang E geprüft: - Spannungsprüfung im Wasser bei 1 kV AC, bei 50 °C über 100 Tage ohne Unterbrechung - Wasseraufnahme des Mantels nach 100 Tage Wasserlage- rung bei 50 °C < 40 % - Isolationswiderstand von mindestens 10 ¹¹ Ω·cm	Tested acc. to EN 50525-21 – Annex E: - Voltage at 1 kV on cable in water at 50 °C during 100 days without any break - Water absorption on sheath after immersion 100 days at 50 °C less than 40 % - Insulation resistance tests with a minimum resistivity of 10 ¹¹ Ω·cm
	Langzeitisolationswiderstand in der Luft / Long-term insulation resistance in air	KBE Test gemäß UL 44, Abschnitt 5.5 & UL 2556, Abschnitt 6.4: 120 °C; 2000V (DC) ≥ 50 GΩ×m nach 12 Wochen	KBE test acc. to UL 44, Section 5.5 & UL 2556, Section 6.4: 120 °C; 2000V (DC) ≥ 50 GΩ×m after 12 weeks
	maximal zulässige Betriebsspannung mit KBE / Max. permissible operating voltage by KBE	2,0/ 2,0 kV _{DC}	2,0/ 2,0 kV _{DC}
	Durchschlagsfestigkeit / Dielectrical strength	12 kV 60 Min. Vergleich zur Anforderung von EN 50618: 6,5 kV; 5 Min.	12 kV 60 min Comparison to Requirement of EN 50618: 6,5 kV; 5 min
	Widerstand gegen Salzwasser / Resistance against salt water	Lagerung bei 23 °C für 7 Tage in gesättigter Salzlösung Änderung der Zugfestigkeit < 5 %	storage at 23 °C for 7 days in saturated salt solution Change of tensile strength < 5 %
Widerstand gegen Ammoniak / Resistance against Ammonia	Widerstand gegen Ammoniak / Resistance against Ammonia	7 Tage bei 23 °C gesättigter Ammoniakatmosphäre (interner Test)	7 days at 23 °C saturated ammonia atmosphere (int. Test)
	Elektrische Kapazität und relative Dielektrizitätskonstante / Electrical capacitance and relative permittivity	KBE Test gemäß UL 44, Abschnitt 5.6 & UL 2556, Abschnitt 6.5: 90 °C ± 5 °C Wassertemperatur; Untertauchen für 14 Tage Relative Permittivität nach 1 Tag Untertauchen ≤ 6 % Kapazität nach 14 Tagen Untertauchen ≤ 10 % Kapazitätsun- terschied von Tag 7 bis Tag 14 ≤ 4 %	KBE test acc. to UL 44, Section 5.6 & UL 2556, Section 6.5: 90 °C ± 5 °C water temperature; immersion for 14 days relative permittivity after 1 day immersion ≤ 6 % capacitance after 14 days immersion ≤ 10 % difference in capacitance from day 7 to day 14 ≤ 4 %
TUV	Richtlinien & Zertifikate / Certificates & Guidelines	EN 50618, IEC 62930, 2 PFG 1169/10.19 TÜV Zertifikat-Nr. R60147048 RoHS 2011/65/EU + 2015/863/EU REACH 1907/2006	EN 50618, IEC 62930, 2 PFG 1169/10.19 TÜV certificate-Nr. R60147048 RoHS 2011/65/EU + 2015/863/EU REACH 1907/2006

Bedruckung / Printing:

KBE SOLAR DB+ X,XX mm² H1Z2Z2-K 62930 IEC 131 PV 1500-K HALOGEN FREE LOW SMOKE MADE IN GERMANY CE EAC

Querschnitt / cross section	Leiteraufbau / conductor design	Widerstand / resistance	min. Wandstärke Isolation / min. insulation thickness	min. Wandstärke Mantel / min. jacket thickness	Außen Ø / outer Ø	Gewicht / weight	Aufma- chung / packaging	KBE-Artikelnnummer / KBE item no		
[mm²]	n x max- Ø [mm]	Rmax. [mΩ/m]	[mm]	[mm]	[mm]	[kg/km]	[Meter]	schwarz / black	rot / red	blau / blue
4,0	56 x 0,310	5,09	0,53	0,58	5,4	55	500 / 1.000	730400015060QUSW	730400015060QURT	730400015060QUBL
4,0	56 x 0,310	5,09	0,53	0,58	5,4	55	100 Ring	820400015060QUSW	820400015060QURT	820400015060QUBL
6,0	80 x 0,310	3,39	0,53	0,58	6,0	75	500 / 1.000	730600015060QUSW	730600015060QURT	730600015060QUBL
6,0	80 x 0,310	3,39	0,53	0,58	6,0	75	100 Ring	820600015060QUSW	820600015060QURT	820600015060QUBL
10,0	80 x 0,410	1,95	0,53	0,58	7,1	115	500	731000015060QUSW	731000015060QURT	731000015060QUBL
10,0	80 x 0,410	1,95	0,53	0,58	7,1	115	100 Ring	821000015060QUSW	821000015060QURT	821000015060QUBL

power in wire and cables

Stand: 01.08.2020

Zertifikat

Certificate

Zertifikat Nr. Certificate No.
R 60147048

Blatt Sheet
0001

Ihre Zeichen Client Reference	Unser Zeichen Our Reference	Anstellungsdatum Date of Issue
1837/19	0010 - 60193773 002	03.03.2020 (day/month/year)

Genehmigungsinhaber License Holder
KBE Elektrotechnik GmbH
Symeonstr. 8
12279 Berlin
Deutschland

Fertigungsstätte Manufacturing Plant
KBE Elektrotechnik GmbH
Symeonstr. 8
12279 Berlin
Deutschland

Prüfzeichen Test Mark

Type Approved
Safety
Regular Production
Surveillance
www.tuv.com
IE 11102081

Geprüft nach Tested acc. to
EN 50618:2014

Zertifiziertes Produkt (Geräteidentifikation)
Certified Product (Product Identification)

Lizenzentgelte - Einheit
License Fee - Unit

PV Components for BOS - electrical / PV cable

Type Designation:	KBE Solar DB+	13
Code designation:	H1222-K	
Cross section:	4,0mm ² ; 6,0mm ² ; 10,0mm ²	
Rated voltage:	AC U0/U 1,0/ 1,0kV DC 1,5kV	
max. voltage:	DC 1,8kV (conductor/conductor and conductor/earth)	
Ambient temperature range ta:	-40°C to +90°C	
max. temperature at conductor:	+120°C @ 20,000h	
Colour insulation:	White	
Colour sheath:	black	
Material insulation:	crosslinked Polyolefine	
Material sheath:	crosslinked Polyolefine	
Remark:		
Sheath also in red and blue when requested		

13

Dem Zertifikat liegt unsere Prüf- und Zertifizierungsmessung zugrunde und es bestätigt die Konformität des Produktes mit den oben genannten Standards und Prüfbedingungen. Zusätzliche Anforderungen in Ländern, in denen das Produkt in Verkehr gebracht werden soll, müssen zusätzlich beachtet werden. Die Einhaltung der Zertifizierungsmessung wird überwacht. This certificate is based on our Testing and Certification Regulation and traces the conformity of the product with the standards and testing requirements in detail above. Any additional requirements in countries where the product is going to be marketed have to be considered additionally. The manufacturing of the certified product is subject to surveillance.

TUV Rheinland LGA Products GmbH, Tillystraße 2, 90431 Nürnberg
Tel.: +49 221 806-1371 e-mail: cert-validity@tuv.com
Fax: +49 221 806-3035 http://www.tuv.com/safety

Zertifizierungsstelle

Guido Volberg

Zertifikat	Certificate	TÜVRheinland
Zertifikat Nr. Certificate No. R 60147048	Blatt Sheet 0002	
Ihr Zeichen Client Reference 1837/19	Unser Zeichen Our Reference 0010--60193773 003	Ausstellungsdatum Date of Issue 03.03.2020 <i>(day/month/year)</i>
Genehmigungsinhaber License Holder KBE Elektrotechnik GmbH Symeonstr. 8 13279 Berlin Deutschland	Fertigungsstätte Manufacturing Plant KBE Elektrotechnik GmbH Symeonstr. 8 12279 Berlin Deutschland	
Prüfzeichen Test Mark  Type Approval Lighting Regular Production Surveillance www.tuv.com © 11/12/2017	Geprüft nach Tested acc. to IEC 62330:2017	
Zertifiziertes Produkt (Geräteidentifikation) Certified Product (Product Identification)	Lizenzentgelte - Einheit License Fee - Unit	
PV Components for BOS - electrical / PV cable		
Type Designation: Code designation: Cross section: Rated voltage: max. voltage: Ambient temperature range ta: max. temperature at conductor: Colour insulation: Colour sheath: Material Insulation: Material sheath:	XBE Solar DB- 62330 IEC 131 4,0mm² ; 6,0mm² ; 10,0mm² AC U0/U 1,0/1,0kV DC 1,5kV DC 1,6kV (conductor/conductor and conductor/earth) -40°C to +30°C +120°C ± 20.000h white black crosslinked Polyolefine crosslinked Polyolefine	1
Remark: Sheeth also in red and blue when requested		
		1
Das Zertifikat liegt unsere Prüf- und Zertifizierungsanforderung zugrunde und es bestätigt die Konformität des Produkts mit den oben genannten Standards und Prüfpflichten. Zusätzliche Anforderungen in Ländern, in denen das Produkt in Verkehr gebracht werden soll, müssen zusätzlich beachtet werden. Die Herstellung des zertifizierten Produktes wird überwacht. This certificate is based on our Testing and Certification Regulation and states the conformity of the product with the standards and testing requirements as indicated above. Any additional requirements in countries where the product is going to be marketed have to be considered additionally. The manufacturing of the certified product is subject to surveillance.		
TÜV Rheinland LGA Products GmbH, Tillystraße 2, 90431 Nürnberg Tel.: +49 221 896-1931 • e-mail: zsm-vollzeit@tuv.com Fax: +49 221 896-1935 • http://www.tuv.com/safety	Zertifizierungssigil  Goldes Gültiger	

Declaration of Performance: DoP 0225

According to Annex III of regulation (EU) no. 305/2011

1. Unique identification code of the product type:	H1Z22Z-K
2. Product name	KBE Solar DB+
3. Usage:	Cables for general applications in construction works subject to fire in fire
4. Manufacturer:	KBE Elektrotechnik GmbH Symeonstraße 8 12279 Berlin

5. System of assessment and verification of consistency of performance:	System 3
6. Product certification body:	ISSEp - Institut scientifique de service public No. 2659
7. In case of declaration of performance concerning a construction product covered by a harmonized standard:	The product certification body performed the type testing under system 3 subject to reaction to fire and issued: • Test report no. 0626-1 up to -A2/020 • Test report no. 0627-3 up to -A2/020 • Test report no. 0671-1 up to -A2/020 • Classification report no. 1012/2020

8 Declared performance:

Essential characteristics	performance	Harmonized technical standard
• Reaction to fire	Dca-s2, d2, a1	EN 50575 2014 + A1:2016
• Hazardous substances	NPD	-

9. The performance of the product identified in points 1 & 2 is in conformity with the declared performance in point 8. This declaration of performance is issued under the sole responsibility of the manufacturer identified in point 4

Signed for and on behalf of the manufacturer by:

Berlin, 29.05.2020

(Place, Date)

KBE Elektrotechnik GmbH
Symeonstraße 8
12279 Berlin
Dr. Mike Szarmata
Executive Director R & D KBE / DLB Group

power in wire and cables

Diese Plakette bewirkt die Überzeichnung in der gesamten Röhre. Ist doch eine Auszeichnung von E-geräten für untergeordnete Verwendung. Die Sicherheitsanforderungen der Produktspezifikationen sind zu beachten.

KBE Elektrotechnik GmbH
Symeonstr. 8
12279 Berlin, Deutschland

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Fax: +49 (0) 30 2526-140
info@kbe-elektrotechnik.com

Zertifikat		Certificate		 TÜVRheinland®	
Zertifikat Nr. / Certificate No.		Blatt / Sheet			
R 60147048		0003			
Ihr Zeichen / Client Reference	Unser Zeichen / Our Reference	Ausstellungsdatum	Date of Issue		
448/20	0010 - 60193773 004	09.07.2020	(day/month/yr)		
Genehmigungsinhaber / License Holder		Fertigungsstätte / Manufacturing Plant			
KBE Elektrotechnik GmbH		KBE Elektrotechnik GmbH			
Symeonstr. 8		Symeonstr. 8			
12279 Berlin		12279 Berlin			
Deutschland		Deutschland			
Prüfzeichen / Test Mark		Geprüft nach / Tested acc. to			
 Type Approved Safety Regular Production Low-voltage www.tuv.com ID 111020001		2 PFG 1169/10.19			
Zertifiziertes Produkt (Geräteidentifikation)		Lizenzentgelte - Einheit			
Certified Product (Product Identification)		License Fee - Unit			
PV Components for BOS - electrical / PV - Cables					
as page 0001 - 0002/					
Supplement:					
Product complies also with the above mentioned standard.					
Additional Code designation: PV 1500-K					

Das Zertifikat liegt unserer Prüf- und Zertifizierungsordnung zugrunde und es bestätigt die Konformität des Produktes mit den oben genannten Standards und Prüfgrundsätzen. Zusätzliche Anforderungen in Ländern, in denen das Produkt in Verkehr gebracht werden soll, müssen zusätzlich berücksichtigt werden. Die Herstellung des zertifizierten Produktes wird überwacht. This certificate is based on our Testing and Certification Regulation and attests the conformity of the product with the standards and testing requirements as indicated above. Any additional requirements in countries where the product is going to be marketed have to be considered additionally. The manufacturing of the certified product is subject to surveillance.

TÜV Rheinland LGA Products GmbH, Tillystraße 2, 90431 Nürnberg
 Tel.: +49 221 806-1371 e-mail: cert-sales@tuev.com
 Fax: +49 221 806-3015 Internet: www.tuv.com/cert





 Zertifizierungsstelle
 Guido Volberg

power in wire and cables



>40 GW weltweit / >40 GW worldwide

Original MC4-Evo 2

Renewable Energy | Solar Photovoltaics

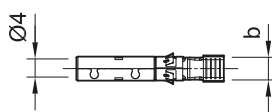
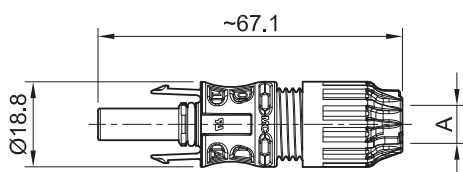
EN



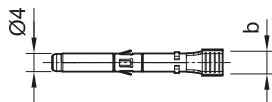
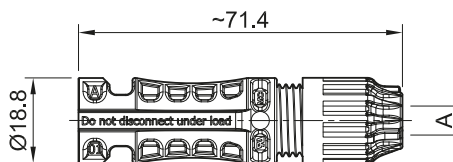
Female and male cable coupler MC4-Evo 2

Female and male cable coupler as individual part (including insulating part)

PV-KBT4-EVO 2A/...



PV-KST4-EVO 2A/...



Sealing caps see catalog tools and accessories, page 21

Tools see catalog tools and accessories, page 4 – 16

www.staubli.com/re-downloads.html → English → Catalog → Tools and accessories



Assembly instructions see MA298

www.staubli.com/re-downloads.html → English → Assembly info → MA298

Internationally certified with IEC, UL, JET, cTÜVus. Approved for DC 1500 V (IEC, JET), DC 1500 V (UL) unrestricted access. MULTILAM Technology, has proven the

quality and durability several 100 million times since 2004. Suited for all climatic environments due to UV resistance, ammonia and high IP degree. Available as a field and

preassembled connector, standard crimping tools can be used. Mating compatibility with MC4 connector family.

Technical data	
Connector system	Ø 4 mm
Ambient temperature range	-40 °C ... +85 °C (IEC/UL)
Transportation/storage temperature range	-30 °C/+60 °C
Transportation/storage relative humidity	< 70 %
Upper limiting temperature	115 °C (IEC)
Degree of protection, mated	IP65/IP68 (1 m, 1 h)
Degree of protection, unmated	IP2X
Overvoltage category	III
Contact resistance of plug connectors	< 0.2 mΩ
Locking system	Locking type
Class (IEC)	II
Contact system	MULTILAM
Type of termination	Crimping
Warning	Do not disconnect under load
Contact material	Copper, tin plated
Insulation material	PA
Flame class	UL94-V0
Ammonia resistance (TÜV Rheinland certified acc. to 2 PFG 1911/03.2011)	Q60139020-0001
TÜV-Rheinland certified according to IEC 62852:2014+Amd.1:2020	R 60127169
UL recognized component in accordance with UL6703	E343181
Maximum altitude above sea level for operation	5000 m
Temperature Level according to IEC TS 63126	Level 2

Female and male cable coupler MC4-Evo 2

Female and male cable coupler as individual part (including insulating part)

Order No.	Type	Socket	Plug	Outer diameter of cable	Width of crimp opening	IEC 62852			UL 6703			Approvals	
				A (mm)	b (mm)	mm ²	DC V	A	AWG	DC V	A	TÜV Rheinland	UR
32.0310P0001	PV-KBT4-EVO 2A/2.5I	x		4.7-6.4	4	2.5	1500	39				x	x
									14	1500	30		
32.0311P0001	PV-KST4-EVO 2A/2.5I		x	4.7-6.4	4	2.5	1500	39				x	x
									14	1500	30		
32.0312P0001	PV-KBT4-EVO 2A/2.5X	x		5.9-7.3	4	2.5	1500	39				x	x
									14	1500	30		
32.0313P0001	PV-KST4-EVO 2A/2.5X		x	5.9-7.3	4	2.5	1500	39				x	x
									14	1500	30		
32.0314P0001	PV-KBT4-EVO 2A/2.5II	x		6.4-8.4	4	2.5	1500	39				x	x
									14	1500	30		
32.0315P0001	PV-KST4-EVO 2A/2.5II		x	6.4-8.4	4	2.5	1500	39				x	x
									14	1500	30		
32.0316P0001	PV-KBT4-EVO 2A/6I	x		4.7-6.4	5.8	4	1500	45				x	x
						6	1500	53					
									12	1500	35		
									10	1500	50		
32.0317P0001	PV-KST4-EVO 2A/6I		x	4.7-6.4	5.8	4	1500	45				x	x
						6	1500	53					
									12	1500	35		
									10	1500	50		
32.0318P0001	PV-KBT4-EVO 2A/6X	x		5.9-7.3	5.8	4	1500	45				x	x
						6	1500	53					
									12	1500	35		
									10	1500	50		
32.0319P0001	PV-KST4-EVO 2A/6X		x	5.9-7.3	5.8	4	1500	45				x	x
						6	1500	53					
									12	1500	35		
									10	1500	50		

Note:

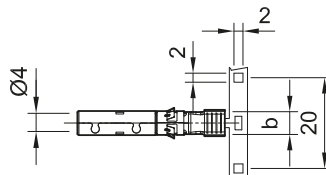
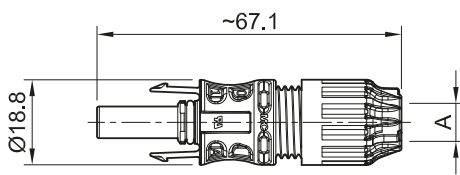
For detailed information concerning the suitable cable gland range, please consult MA298.

Order No.	Type	Socket	Plug	Outer diameter of cable	Width of crimp opening	IEC 62852			UL 6703			Approvals	
				A (mm)	b (mm)	mm ²	DC V	A	AWG	DC V	A	TÜV Rheinland	UR
32.0320P0001	PV-KBT4-EVO 2A/6II	x		6.4-8.4	5.8	4	1500	45				x	x
						6	1500	53					
									12	1500	35		
									10	1500	50		
32.0321P0001	PV-KST4-EVO 2A/6II		x	6.4-8.4	5.8	4	1500	45				x	x
						6	1500	53					
									12	1500	35		
									10	1500	50		
32.0322P0001	PV-KBT4-EVO 2A/10X	x		5.9-7.3	6.5	10	1500	69				x	x
									8	1500	70		
32.0323P0001	PV-KST4-EVO 2A/10X		x	5.9-7.3	6.5	10	1500	69				x	x
									8	1500	70		
32.0324P0001	PV-KBT4-EVO 2A/10II	x		6.4-8.4	6.5	10	1500	69				x	x
									8	1500	70		
32.0325P0001	PV-KST4-EVO 2A/10II		x	6.4-8.4	6.5	10	1500	69				x	x
									8	1500	70		

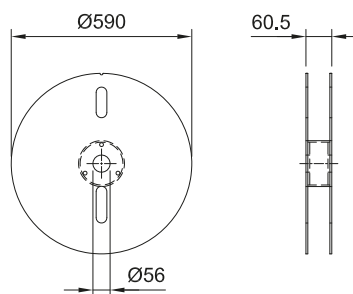
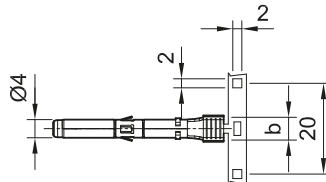
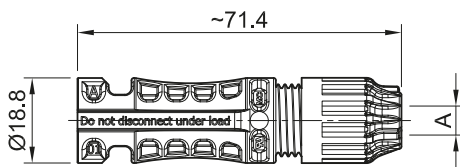
Female and male cable coupler MC4-Evo 2

Contacts on carrier band (including insulating part)

PV-KBT4-EVO 2A/...



PV-KST4-EVO 2A/...



Sealing caps see catalog tools and accessories, page 21

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Assembly instructions see MA298

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Internationally certified with IEC, UL, JET, cTÜVus. Approved for DC 1500 V (IEC, JET), DC 1500 V (UL) unrestricted access. MULTILAM Technology has proven the qual-

ity and durability several 100 million times since 2004. Suited for all climatic environments due to UV resistance, ammonia and high IP degree. Available as a field and pre-

assembled connector; standard crimping tools can be used. Mating compatibility with MC4 connector family.

Technical data	
Connector system	Ø 4 mm
Ambient temperature range	-40 °C ... +85 °C (IEC) -40 °C ... +90 °C (UL)
Transportation/storage temperature range	-30 °C/+60 °C
Transportation/storage relative humidity	< 70 %
Upper limiting temperature	115 °C
Degree of protection, mated	IP65/IP68 (1 m, 1 h)
Degree of protection, unmated	IP2X
Overvoltage category	III
Contact resistance of plug connectors	< 0.2 mΩ
Locking system	Locking type
Class (IEC)	II
Contact system	MULTILAM
Type of termination	Crimping
Warning	Do not disconnect under load
Contact material	Copper, tin plated
Insulation material	PA
Flame class	UL94-V0
Ammonia resistance (TÜV Rheinland certified acc. to 2 PFG 1911/03.2011)	Q60139020-0001
TÜV-Rheinland certified according to IEC 62852:2014+Amd.1:2020	R 60127169
UL recognized component in accordance with UL6703	E343181
Maximum altitude above sea level for operation	5000 m
Temperature Level according to IEC TS 63126	Level 2

Female and male cable coupler MC4-Evo 2

Contacts on carrier band (including insulating part)

Order No.	Type	Socket	Plug	Outer diameter of cable	Width of crimp opening	IEC 62852			UL 6703			Contacts per reel	Approvals	
						mm ²	DC V	A	AWG	DC V	A		TÜV Rheinland	UR
32.0310P2000	PV-KBT4-EVO 2A/2.5I	x		4.7-6.4	4.0	2.5	1500	39				2000	x	x
									14	1500	30			
32.0311P2000	PV-KST4-EVO 2A/2.5I		x	4.7-6.4	4.0	2.5	1500	39				2000	x	x
									14	1500	30			
32.0312P2000	PV-KBT4-EVO 2A/2.5X	x		5.9-7.3	4.0	2.5	1500	39				2000	x	x
									14	1500	30			
32.0313P2000	PV-KST4-EVO 2A/2.5X		x	5.9-7.3	4.0	2.5	1500	39				2000	x	x
									14	1500	30			
32.0314P2000	PV-KBT4-EVO 2A/2.5II	x		6.4-8.4	4.0	2.5	1500	39				2000	x	x
									14	1500	30			
32.0315P2000	PV-KST4-EVO 2A/2.5II		x	6.4-8.4	4.0	2.5	1500	39				2000	x	x
									14	1500	30			
32.0316P2000	PV-KBT4-EVO 2A/6I	x		4.7-6.4	5.8	4	1500	45				2000	x	x
						6	1500	53						
									12	1500	35			
									10	1500	50			
32.0317P2000	PV-KST4-EVO 2A/6I		x	4.7-6.4	5.8	4	1500	45				2000	x	x
						6	1500	53						
									12	1500	35			
									10	1500	50			
32.0318P2000	PV-KBT4-EVO 2A/6X	x		5.9-7.3	5.8	4	1500	45				2000	x	x
						6	1500	53						
									12	1500	35			
									10	1500	50			
32.0319P2000	PV-KST4-EVO 2A/6X		x	5.9-7.3	5.8	4	1500	45				2000	x	x
						6	1500	53						
									12	1500	35			
									10	1500	50			

Note:

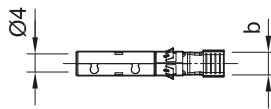
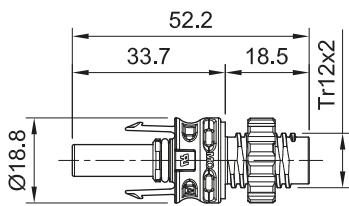
For more detailed information concerning the suitable cable gland range, please consult MA298.

Order No.	Type	Socket	Plug	Outer diameter of cable	Width of crimp opening	IEC 62852			UL 6703			Contacts per reel	Approvals	
				A (mm)	b (mm)	mm ²	DC V	A	AWG	DC V	A		TÜV Rheinland	UR
32.0320P2000	PV-KBT4-EVO 2A/6II	x		6.4-8.4	5.8	4	1500	45				2000	x	x
						6	1500	53						
									12	1500	35			
									10	1500	50			
32.0321P2000	PV-KST4-EVO 2A/6II		x	6.4-8.4	5.8	4	1500	45				2000	x	x
						6	1500	53						
									12	1500	35			
									10	1500	50			
32.0322P1500	PV-KBT4-EVO 2A/10X	x		5.9-7.3	6.5	10	1500	69				1500	x	x
									8	1500	70			
32.0323P1500	PV-KST4-EVO 2A/10X		x	5.9-7.3	6.5	10	1500	69				1500	x	x
									8	1500	70			
32.0324P1500	PV-KBT4-EVO 2A/10II	x		6.4-8.4	6.5	10	1500	69				1500	x	x
									8	1500	70			
32.0325P1500	PV-KST4-EVO 2A/10II		x	6.4-8.4	6.5	10	1500	69				1500	x	x
									8	1500	70			

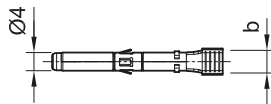
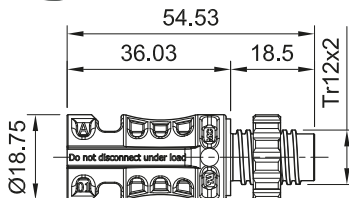
Female and male panel receptacle MC4-Evo 2

Female and male panel receptacles as individual part (including insulating part)

PV-ADB4-EVO 2A/...



PV-ADS4-EVO 2A/...



Sealing caps see catalog tools and accessories, page 21

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Assembly instructions see MA713

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MC4-Evo 2 panel-receptacle connectors are the interface between the inverter or the distributor housing and string. Assembly directly via the threads or in the perforated plate with the plastic nut (contained in

scope of delivery). Thanks to the D-shape thread the connection is secured against twisting. For 1500 DC V (IEC), 1500 DC V (UL) approved without constraints. Degree of protection IP65/IP68 (1 m, 1 h) guarantees

highest connection safety. Fast and clean connection. Plug compatible with the original MC4 plug connector family. With preassembled flat seal.

Technical data	
Connector system	Ø 4 mm
Ambient temperature range	-40 °C...+85 °C (IEC) -40 °C...+90 °C (UL)
Upper limiting temperature	115 °C
Degree of protection, mated	IP65/IP68 (1 m, 1 h)
Degree of protection, unmated	IP2X
Overvoltage category	III
Locking system	Locking type
Contact system	MULTILAM
Type of termination	Crimping
Contact material	Copper, tin plated
Insulation material	PA
Flame class	UL94-V0
TÜV Rheinland certified according to IEC 62852:2014+Amd.1:2020	R 60127171
UL recognized component in accordance with UL6703	E343181
Maximum altitude above sea level for operation	5000 m
Temperature level according to IEC TS 63126	Level 2

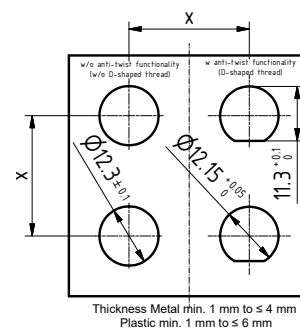
Order No.	Type	Socket	Plug	Width of crimp opening	IEC 62852			UL 6703			Approvals	
				b (mm)	mm²	DC V	A	AWG	DC V	A	TÜV Rheinland	UR
32.0344P0001	PV-ADB4-EVO 2A/2.5	x		4.0	2.5	1500	32				x	x
								14	1500	30		
32.0345P0001	PV-ADS4-EVO 2A/2.5		x	4.0	2.5	1500	32				x	x
								14	1500	30		
32.0346P0001	PV-ADB4-EVO 2A/6	x		5.8	4	1500	42				x	x
					6	1500	47					
								12	1500	35		
								10	1500	50		
32.0347P0001	PV-ADS4-EVO 2A/6		x	5.8	4	1500	42				x	x
					6	1500	47					
								12	1500	35		
								10	1500	50		
32.0352P0001	PV-ADB4-EVO 2A/10	x		6.5	10	1500	62				x	x
								8	1500	70		
32.0353P0001	PV-ADS4-EVO 2A/10		x	6.5	10	1500	62				x	x
								8	1500	70		

Note:

For more detailed information concerning the suitable cable gland range, please consult MA713

Note

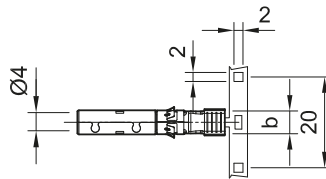
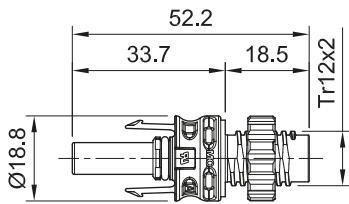
When using panel receptacles in housings (e.g. inverter maker) confirm that the minimum plastic wall thickness shall be between 1 mm and 6 mm; on metal housings, wall thickness shall be between 1 mm and 4 mm. In case of wall thickness undercut or exceedance, the panel receptacle usage in the end-application has to be verified by the installer.



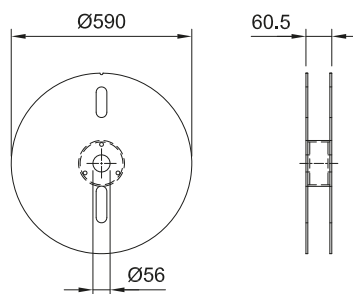
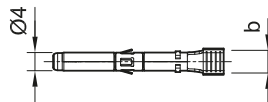
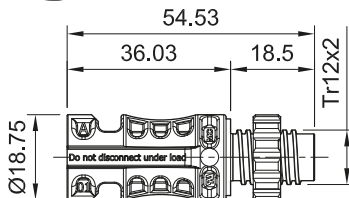
Female and male panel receptacle MC4-Evo 2

Contacts on carrier band (including insulating part)

PV-ADB4-EVO 2A/...



PV-ADS4-EVO 2A/...



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Assembly instructions see MA713

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MC4-Evo 2 panel-receptacle connectors are the interface between the inverter or the distributor housing and string. Assembly directly via the threads or in the perforated plate with the plastic nut (contained in

scope of delivery). Thanks to the D-shape thread the connection is secured against twisting. For 1500 DC V(IEC), 1500 DC V (UL) approved without constraints. Degree of protection IP65/IP68 (1 m, 1 h) guarantees

highest connection safety. Fast and clean connection. Plug compatible with the original MC4 plug connector family. With preassembled flat seal.

Technical data	
Connector system	Ø 4 mm
Ambient temperature range	-40 °C...+85 °C (IEC) -40 °C...+90 °C (UL)
Upper limiting temperature	115 °C
Degree of protection, mated	IP65/IP68 (1 m, 1 h)
Degree of protection, unmated	IP2X
Overvoltage category	III
Locking system	Locking type
Contact system	MULTILAM
Type of termination	Crimping
Contact material	Copper, tin plated
Insulation material	PA
Flame class	UL94-V0
TÜV Rheinland certified according to IEC 62852:2014+Amd.1:2020	R 60127171
UL recognized component in accordance with UL6703	E343181
Maximum altitude above sea level for operation	5000 m
Temperature level according to IEC TS 63126	Level 2

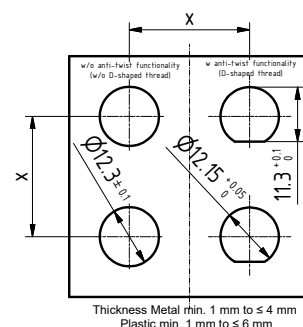
Order No.	Type	Socket	Plug	Width of crimp opening	IEC 62852			UL 6703			Contacts per reel	Approvals	
					mm ²	DC V	A	AWG	DC V	A		TÜV Rheinland	UR
32.0344P2000	PV-ADB4-EVO 2A/2.5	x		4.0	2.5	1500	32				2000	x	x
								14	1500	30			
32.0345P2000	PV-ADS4-EVO 2A/2.5		x	4.0	2.5	1500	32				2000	x	x
								14	1500	30			
32.0346P2000	PV-ADB4-EVO 2A/6	x		5.8	4	1500	42				2000	x	x
					6	1500	47						
								12	1500	35			
								10	1500	50			
32.0347P2000	PV-ADS4-EVO 2A/6		x	5.8	4	1500	42				2000	x	x
					6	1500	47						
								12	1500	35			
								10	1500	50			
32.0352P1500	PV-ADB4-EVO 2A/10	x		6.5	10	1500	62				1500	x	x
								8	1500	70			
32.0353P1500	PV-ADS4-EVO 2A/10		x	6.5	10	1500	62				1500	x	x
								8	1500	70			

Note:

For more detailed information concerning the suitable cable gland range, please consult MA713

Note

When using panel receptacles in housings (e.g. inverter maker) confirm that the minimum plastic wall thickness shall be between 1 mm and 6 mm; on metal housings, wall thickness shall be between 1 mm and 4 mm. In case of wall thickness undercut or exceedance, the panel receptacle usage in the end-application has to be verified by the installer.





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