

ist Hersteller und verantwortlich für:

Konformitätserklärung / Declaration of Conformity

Produkt-Typ:	Plug & Play Photovoltaik-Set für Netzparallelbetrieb steckbar mittels Haushaltsstecker in Endstromkreis
Modell:	Erweiterung 840 Wp Plug & Play (CN), 4 Panels / Hoymiles
Komponenten:	<ul style="list-style-type: none"> • 4x JA Solar JAM54S30-420/GR / 420 Wp / IP-67 / Schutzklasse II • 1x Hoymiles HMS-600W-2T mit N/A Schutz und eingebauter RCMU / IP67 Schutzart / Schutzklasse II / Input max. 60VDC, Output max. 230VAC, 50-60Hz, 600VA, 2,61A • 1x Anschlusskabel vorkonfektioniert mit Betteri Buchse IP67, 5m, 10m, 15m oder 20m / 3x1,5mm² Leitung / AC Seitig CH-Typ 13 Stecker IP 55 • 1x MC4 Evo2 Stecker zur Parallelschaltung, max. 1500 VDC, IP68

Konform nach ESTI-Mitteilung 07/2014 und in Übereinstimmung mit der Verordnung über elektrische Niederspannungserzeugnisse (NEV; SR 734.26) (Stand 08.11.2024).

Dazu angewandte Normen:

JA Solar JAM54S30-420/GR	N 61215-1:2016, EN 61215-1-1:2016, IEC 61215-2:2016, EN 61215-2:2017, IEC 61730-1:2016, EN IEC 61730-1:2018, EN IEC 61730-1:2018/AC:2018-06, IEC 61730-2:2016, EN IEC 61730-2:2018, EN IEC 61730-2:2018/AC:2018-06
Hoymiles HMS-600W-2T	VDE-ARN-N 4105: 2018-11, VDE V 0124-100:2020-06 & EN50549-1:2019, VFR 2019 IEC/ EN 62109-1:2010/-2:2011, IEC/EN 61000-6-1:2019;EN 61000-6-2:2000; EN 61000-6-3:2007+A1:2011; EN 61000-6-4:2019; EN 61000-3-2:2019; EN 61000-3-3:2013+A1:2019, IEC/EN 62311:2008 NEMA (IP67) Gehäuse; 6000 V Stromstosschutz
Hoymiles Anschlusskabel vorkonfektioniert in 5m, 10m, 15m oder 20m	Betteri Buchse Wechselrichterseite, Schutzart IEC EN 60529 IP67, Anschlusskabel 5m oder 10m H07RN-F, EN 50525-2-21: 2011, Stecker CH Typ 13: IEC 60884-1 (Ed 4.0): 2022 / SN 441011-1: 2019 +Corr2019 / SN 441011-2-1:2021, IP55
MC4 Evo2 Stecker zur Parallelschaltung Male/ Female	Salznebelprüfetest, Schärfegrad 6, IEC 60068-2-52; UV-Beständigkeit (ISO 4892-2/3); IEC62852:2014+AMD1:2020; gesteckt Wasserdicht IP68
ROHS Konformität	Gesamtes Set konform gemäss IEC EN 63000: 2018

Michael Sebel, Geschäftsführung
 erneuer.bar services GmbH





Product Service

CERTIFICATE

No. Z2 072092 0295 Rev. 63

Holder of Certificate: **Shanghai JA Solar Technology Co., Ltd.**
No. 118, Lane 3111
West Huancheng Road
Fengxian District
201401 Shanghai
PEOPLE'S REPUBLIC OF CHINA

Certification Mark:



Product: **Crystalline Silicon Terrestrial Photovoltaic (PV) Modules**
Mono-Crystalline Silicon Photovoltaic Module

The product was tested on a voluntary basis and complies with the essential requirements. The certification mark shown above can be affixed on the product. It is not permitted to alter the certification mark in any way. In addition, the certification holder must not transfer the certificate to third parties. This certificate is valid until the listed date, unless it is cancelled earlier. All applicable requirements of the testing and certification regulations of TÜV SÜD Group have to be complied. For details see: www.tuvsud.com/ps-cert

Test report no.: 704061604115-78

Valid until: 2028-07-30

Date, 2023-08-01

(Zhulin Zhang)

ZERTIFIKAT ◆ CERTIFICATE ◆ 認證證書 ◆ CERTIFICADO ◆ CERTIFICAT

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Model(s):

1500 V DC Maximum System Voltage, Double Glass Modules:
 JAM72D00-xxx/BP/1500V, JAM72D00-xxx/BP, xxx= 330 to 385 in steps of 5;
 JAM60D00-xxx/BP/1500V, JAM60D00-xxx/BP, xxx= 275 to 320 in steps of 5;
 JAM60D00-xxx/PR/1500V, JAM60D00-xxx/PR, xxx= 285 to 320 in steps of 5;
 JAM72D00-xxx/PR/1500V, JAM72D00-xxx/PR, xxx= 340 to 385 in steps of 5;
 JAM60D00-xxx/MB/1500V, JAM60D00-xxx/MB, xxx= 310 to 315 in steps of 5;
 JAM72D00-xxx/MB/1500V, JAM72D00-xxx/MB, xxx= 370 to 380 in steps of 5;
 JAM72D09-xxx/BP/1500V, JAM72D09-xxx/BP, xxx= 360 to 400 in steps of 5;
 JAM60D09-xxx/BP/1500V, JAM60D09-xxx/BP, xxx= 300 to 345 in steps of 5;
 JAM72D10-xxx/MB/1500V, JAM72D10-xxx/MB, xxx= 385 to 430 in steps of 5;
 JAM60D10-xxx/MB/1500V, JAM60D10-xxx/MB, xxx= 320 to 355 in steps of 5;
 JAM72D10-xxx/BP/1500V, JAM72D10-xxx/BP, xxx= 385 to 415 in steps of 5;
 JAM60D10-xxx/BP/1500V, JAM60D10-xxx/BP, xxx= 320 to 345 in steps of 5;
 JAM66D10-xxx/MB/1500V, JAM66D10-xxx/MB, xxx= 360 to 380 in steps of 5;
 JAM78D10-xxx/MB/1500V, JAM78D10-xxx/MB, xxx= 435 to 455 in steps of 5;
 JAM72D20-xxx/MB/1500V, JAM72D20-xxx/MB, xxx= 430 to 465 in steps of 5;
 JAM60D20-xxx/MB/1500V, JAM60D20-xxx/MB, xxx= 355 to 385 in steps of 5;
 JAM72D10-xxx/TB/1500V, JAM72D10-xxx/TB, xxx= 400 to 420 in steps of 5;
 JAM60D10-xxx/TB/1500V, JAM60D10-xxx/TB, xxx= 335 to 350 in steps of 5;
 JAM78D30-xxx/MB/1500V, JAM78D30-xxx/MB, xxx= 580 to 605 in steps of 5;
 JAM72D30-xxx/MB/1500V, JAM72D30-xxx/MB, xxx=505 to 555 in steps of 5;
 JAM72D30-xxx/MB/F/1500V, JAM72D30-xxx/MB/F,
 xxx=505 to 555 in steps of 5;
 JAM66D30-xxx/MB/1500V, JAM66D30-xxx/MB, xxx=465 to 505 in steps of 5;
 JAM66D30-xxx/MB/F/1500V, JAM66D30-xxx/MB/F,
 xxx=465 to 505 in steps of 5;
 JAM60D30-xxx/MB/1500V, JAM60D30-xxx/MB, xxx=435 to 460 in steps of 5;
 JAM54D30-xxx/MB/1500V, JAM54D30-xxx/MB, xxx= 390 to 415 in steps of 5;
 JAM54D31-xxx/MB/1500V, JAM54D31-xxx/MB, xxx= 395 to 400 in steps of 5;
 JAM50D40-xxx/MB/1500V, JAM50D40-xxx/MB, xxx= 485 to 500 in steps of 5;
 JAM78D30-xxx/GB/1500V, JAM78D30-xxx/GB, xxx= 585 to 610 in steps of 5;
 JAM72D30-xxx/GB/1500V, JAM72D30-xxx/GB, xxx= 540 to 560 in steps of 5;
 JAM66D30-xxx/GB/1500V, JAM66D30-xxx/GB, xxx= 495 to 510 in steps of 5;
 JAM60D30-xxx/GB/1500V, JAM60D30-xxx/GB, xxx= 450 to 470 in steps of 5;
 JAM54D30-xxx/GB/1500V, JAM54D30-xxx/GB, xxx= 405 to 420 in steps of 5;
 JAM54D31-xxx/GB/1500V, JAM54D31-xxx/GB, xxx= 410 to 420 in steps of 5;
 JAM72D30-xxx/HB/1500V, JAM72D30-xxx/HB, xxx= 530 to 560 in steps of 5;
 JAM78D40-xxx/MB/1500V, JAM78D40-xxx/MB, xxx= 580 to 630 in steps of 5;
 JAM72D40-xxx/MB/1500V, JAM72D40-xxx/MB, xxx= 540 to 585 in steps of 5;
 JAM66D40-xxx/MB/1500V, JAM66D40-xxx/MB, xxx= 500 to 535 in steps of 5;
 JAM60D40-xxx/MB/1500V, JAM60D40-xxx/MB, xxx= 455 to 485 in steps of 5;
 JAM54D40-xxx/MB/1500V, JAM54D40-xxx/MB, xxx= 405 to 440 in steps of 5;
 JAM78D40-xxx/GB/1500V, JAM78D40-xxx/GB, xxx= 580 to 635 in steps of 5;
 JAM72D40-xxx/GB/1500V, JAM72D40-xxx/GB, xxx= 540 to 585 in steps of 5;
 JAM66D40-xxx/GB/1500V, JAM66D40-xxx/GB, xxx= 500 to 535 in steps of 5;
 JAM60D40-xxx/GB/1500V, JAM60D40-xxx/GB, xxx= 455 to 485 in steps of 5;
 JAM54D40-xxx/GB/1500V, JAM54D40-xxx/GB, xxx= 405 to 440 in steps of 5;
 JAM54D41-xxx/GB/1500V, JAM54D41-xxx/GB, xxx= 415 to 435 in steps of 5;
 JAM66D35-xxx/MB/1500V, JAM66D35-xxx/MB, xxx= 650 to 665 in steps of 5;
 JAM60D35-xxx/MB/1500V, JAM60D35-xxx/MB, xxx= 590 to 605 in steps of 5;
 JAM72D30-xxx /TB/1500V, JAM72D30-xxx /TB, xxx= 540 to 580 in steps of 5;
 JAM72D40-xxx/LB/1500V, JAM72D40-xxx/LB, xxx= 575 to 600 in steps of 5;
 JAM54D40-xxx/LB/1500V, JAM54D40-xxx/LB, xxx= 420 to 450 in steps of 5;
 JAM54D41-xxx/LB/1500V, JAM54D41-xxx/LB, xxx= 420 to 440 in steps of 5;
 JAM72D42-xxx/LB/1500V, JAM72D42-xxx/LB, xxx= 605 to 630 in steps of 5;
 JAM54D42-xxx/LB/1500V, JAM54D42-xxx/LB, xxx= 455 to 470 in steps of 5;
 JAM72D30-xxx/LB/1500V, JAM72D30-xxx/LB, xxx= 555 to 575 in steps of 5;
 JAM54D30-xxx/LB/1500V, JAM54D30-xxx/LB, xxx= 420 to 430 in steps of 5;
 JAM66D45-xxx/LB/1500V, JAM66D45-xxx/LB, xxx= 585 to 605 in steps of 5;

1000 V DC Maximum System Voltage, Single Glass Modules:

JAM6(K)-72-xxx/PR, xxx= 345 to 370 in steps of 5;
 JAM6(K)-60-xxx/PR, xxx= 285 to 310 in steps of 5;
 JAM6(K)-72-xxx/4BB, xxx= 320 to 345 in steps of 5;
 JAM6(K)-60-xxx/4BB, xxx= 265 to 285 in steps of 5;
 JAM72S01-xxx/SC/1000V, xxx= 320 to 365 in steps of 5;
 JAM60S01-xxx/SC/1000V, xxx= 265 to 305 in steps of 5;
 JAM72S01-xxx/PR/1000V, xxx= 345 to 390 in steps of 5;
 JAM60S01-xxx/PR/1000V, xxx= 285 to 325 in steps of 5;
 JAM72S01-xxx/MR/1000V, xxx= 365 to 385 in steps of 5;

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JAM60S01-xxx/MR/1000V, xxx= 305 to 320 in steps of 5;
JAM72S03-xxx/PR/1000V, xxx= 360 to 395 in steps of 5;
JAM60S03-xxx/PR/1000V, xxx= 300 to 330 in steps of 5;
JAM72S09-xxx/PR/1000V, xxx= 370 to 405 in steps of 5;
JAM60S09-xxx/PR/1000V, xxx= 310 to 335 in steps of 5;
JAM72S10-xxx/PR/1000V, xxx= 380 to 410 in steps of 5;
JAM60S10-xxx/PR/1000V, xxx= 315 to 345 in steps of 5;
JAM72S10-xxx/MR/1000V, xxx= 390 to 430 in steps of 5;
JAM60S10-xxx/MR/1000V, xxx= 325 to 355 in steps of 5;
JAM60S10-xxx/MR-L/1000V, xxx= 325 to 355 in steps of 5;
JAM78S10-xxx/MR/1000V, xxx= 435 to 465 in steps of 5;
JAM66S10-xxx/MR/1000V, xxx= 345 to 390 in steps of 5;
JAM72S09-xxx/BP/1000V, xxx= 375 to 385 in steps of 5;
JAM60S09-xxx/BP/1000V, xxx= 315 to 320 in steps of 5;
JAM72S10-xxx/BP/1000V, xxx= 385 to 400 in steps of 5;
JAM60S10-xxx/BP/1000V, xxx= 320 to 330 in steps of 5;
JAM72S02-xxx/PR/1000V, xxx= 345 to 390 in steps of 5;
JAM60S02-xxx/PR/1000V, xxx= 285 to 325 in steps of 5;
JAM72S02-xxx/SC/1000V, xxx= 320 to 365 in steps of 5;
JAM60S02-xxx/SC/1000V, xxx= 265 to 305 in steps of 5;
JAM72S02-xxx/MR/1000V, xxx= 365 to 385 in steps of 5;
JAM60S02-xxx/MR/1000V, xxx= 305 to 320 in steps of 5;
JAM72S08-xxx/PR/1000V, xxx= 360 to 395 in steps of 5;
JAM60S08-xxx/PR/1000V, xxx= 300 to 330 in steps of 5;
JAM72S12-xxx/PR/1000V, xxx= 365 to 385 in steps of 5;
JAM60S12-xxx/PR/1000V, xxx= 305 to 330 in steps of 5;
JAM72S17-xxx/PR/1000V, xxx= 380 to 390 in steps of 5;
JAM60S17-xxx/PR/1000V, xxx= 315 to 325 in steps of 5;
JAM72S17-xxx/MR/1000V, xxx= 390 to 430 in steps of 5;
JAM60S17-xxx/MR/1000V, xxx= 315 to 355 in steps of 5;
JAM72S10-xxx/MB/1000V, xxx= 395 to 415 in steps of 5;
JAM60S10-xxx/MB/1000V, xxx= 330 to 345 in steps of 5;
JAM72S20-xxx/MR/1000V, xxx= 430 to 470 in steps of 5;
JAM60S20-xxx/MR/1000V, xxx= 355 to 390 in steps of 5;
JAM78S30-xxx/MR/1000V, xxx= 580 to 605 in steps of 5;
JAM72S30-xxx/MR/1000V, xxx=510 to 555 in steps of 5;
JAM66S30-xxx/MR/1000V, xxx=470 to 505 in steps of 5;
JAM60S30-xxx/MR/1000V, xxx=435 to 460 in steps of 5;
JAM54S30-xxx/MR/1000V, xxx= 390 to 425 in steps of 5;
JAM60S21-xxx/MR/1000V, xxx= 355 to 390 in steps of 5;
JAM50S40-xxx/MR/1000V, xxx= 490 to 500 in steps of 5;
JAM72S20-xxx/MB/1000V, xxx= 450 to 465 in steps of 5;
JAM60S20-xxx/MB/1000V, xxx= 375 to 390 in steps of 5;
JAM72S31-xxx/MR/1000V, xxx= 510 to 545 in steps of 5;
JAM66S31-xxx/MR/1000V, xxx= 470 to 500 in steps of 5;
JAM60S31-xxx/MR/1000V, xxx= 425 to 450 in steps of 5;
JAM54S31-xxx/MR/1000V, xxx= 385 to 405 in steps of 5;
JAM76S11-xxx/PR(B)/1000V, xxx= 395 to 415 in steps of 5;
JAM78S30-xxx/GR/1000V, xxx= 575 to 610 in steps of 5;
JAM72S30-xxx/GR/1000V, xxx= 535 to 560 in steps of 5;
JAM66S30-xxx/GR/1000V, xxx= 500 to 510 in steps of 5;
JAM60S30-xxx/GR/1000V, xxx= 445 to 470 in steps of 5;
JAM54S30-xxx/GR/1000V, xxx= 400 to 420 in steps of 5;
JAM78S31-xxx/GR/1000V, xxx= 570 to 590 in steps of 5;
JAM72S31-xxx/GR/1000V, xxx= 525 to 545 in steps of 5;
JAM66S31-xxx/GR/1000V, xxx= 480 to 500 in steps of 5;
JAM60S31-xxx/GR/1000V, xxx= 430 to 450 in steps of 5;
JAM54S31-xxx/GR/1000V, xxx= 395 to 415 in steps of 5;
JAM72S17-xxx/GR/1000V, xxx= 385 to 400 in steps of 5;
JAM72S40-xxx/GR/1000V, xxx= 540 to 575 in steps of 5;
JAM66S40-xxx/GR/1000V, xxx= 495 to 525 in steps of 5;
JAM60S40-xxx/GR/1000V, xxx= 450 to 480 in steps of 5;
JAM54S40-xxx/GR/1000V, xxx= 405 to 430 in steps of 5;
JAM72S41-xxx/GR/1000V, xxx= 540 to 570 in steps of 5;
JAM66S41-xxx/GR/1000V, xxx= 495 to 525 in steps of 5;
JAM60S41-xxx/GR/1000V, xxx= 450 to 475 in steps of 5;
JAM54S41-xxx/GR/1000V, xxx= 405 to 430 in steps of 5;
JAM66S35-xxx/MR/1000V, xxx= 650 to 670 in steps of 5;
JAM60S35-xxx/MR/1000V, xxx= 590 to 610 in steps of 5;
JAM72S30-xxx/LR/1000V, xxx= 555 to 580 in steps of 5;

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JAM54S30-xxx/LR/1000V, xxx= 415 to 435 in steps of 5;
 JAM54S31-xxx/LR/1000V, xxx= 415 to 420 in steps of 5;

1000 V DC or 1500 V DC Maximum System Voltage,
 Single Glass Modules:

JAM72S01-xxx/SC, xxx= 320 to 365 in steps of 5;
 JAM60S01-xxx/SC, xxx= 265 to 305 in steps of 5;
 JAM60S01-xxx/PR, xxx= 285 to 325 in steps of 5;
 JAM72S01-xxx/MR, xxx= 365 to 385 in steps of 5;
 JAM60S01-xxx/MR, xxx= 305 to 320 in steps of 5;
 JAM72S03-xxx/PR, xxx= 360 to 395 in steps of 5;
 JAM60S03-xxx/PR, xxx= 300 to 330 in steps of 5;
 JAM72S09-xxx/PR, xxx= 370 to 405 in steps of 5;
 JAM60S09-xxx/PR, xxx= 310 to 335 in steps of 5;
 JAM72S10-xxx/PR, xxx= 380 to 410 in steps of 5;
 JAM60S10-xxx/PR, xxx= 315 to 345 in steps of 5;
 JAM72S10-xxx/MR, xxx= 390 to 430 in steps of 5;
 JAM60S10-xxx/MR, xxx= 325 to 355 in steps of 5;
 JAM60S10-xxx/MR-L, xxx= 325 to 355 in steps of 5;
 JAM78S10-xxx/MR, xxx= 435 to 465 in steps of 5;
 JAM66S10-xxx/MR, xxx= 345 to 390 in steps of 5;
 JAM72S09-xxx/BP, xxx= 375 to 385 in steps of 5;
 JAM60S09-xxx/BP, xxx= 315 to 320 in steps of 5;
 JAM72S10-xxx/BP, xxx= 385 to 400 in steps of 5;
 JAM60S10-xxx/BP, xxx= 320 to 330 in steps of 5;
 JAM72S02-xxx/PR, xxx= 345 to 390 in steps of 5;
 JAM60S02-xxx/PR, xxx= 285 to 325 in steps of 5;
 JAM72S02-xxx/SC, xxx= 320 to 365 in steps of 5;
 JAM60S02-xxx/SC, xxx= 265 to 305 in steps of 5;
 JAM72S02-xxx/MR, xxx= 365 to 385 in steps of 5;
 JAM60S02-xxx/MR, xxx= 305 to 320 in steps of 5;
 JAM72S08-xxx/PR, xxx= 360 to 395 in steps of 5;
 JAM60S08-xxx/PR, xxx= 300 to 330 in steps of 5;
 JAM72S12-xxx/PR, xxx= 365 to 385 in steps of 5;
 JAM60S12-xxx/PR, xxx= 305 to 330 in steps of 5;
 JAM72S17-xxx/PR, xxx= 380 to 390 in steps of 5;
 JAM60S17-xxx/PR, xxx= 315 to 325 in steps of 5;
 JAM72S17-xxx/MR, xxx= 390 to 430 in steps of 5;
 JAM60S17-xxx/MR, xxx= 315 to 355 in steps of 5;
 JAM72S10-xxx/MB, xxx= 395 to 415 in steps of 5;
 JAM60S10-xxx/MB, xxx= 330 to 345 in steps of 5;
 JAM72S20-xxx/MR, xxx= 430 to 470 in steps of 5;
 JAM60S20-xxx/MR, xxx= 355 to 390 in steps of 5;
 JAM78S10-xxx/MR-J, xxx= 435 to 465 in steps of 5;
 JAM78S30-xxx/MR, xxx= 580 to 605 in steps of 5;
 JAM72S30-xxx/MR, xxx= 510 to 555 in steps of 5;
 JAM66S30-xxx/MR, xxx= 470 to 505 in steps of 5;
 JAM60S30-xxx/MR, xxx= 435 to 460 in steps of 5;
 JAM54S30-xxx/MR, xxx= 390 to 425 in steps of 5;
 JAM60S21-xxx/MR, xxx= 355 to 390 in steps of 5;
 JAM50S40-xxx/MR, xxx= 490 to 500 in steps of 5;
 JAM72S20-xxx/MB, xxx= 450 to 465 in steps of 5;
 JAM60S20-xxx/MB, xxx= 375 to 390 in steps of 5;
 JAM68S11-xxx/PR, xxx= 355 to 365 in steps of 5;
 JAM68S11-xxx/PR(B), xxx= 345 to 365 in steps of 5;
 JAM72S31-xxx/MR, xxx= 510 to 545 in steps of 5;
 JAM66S31-xxx/MR, xxx= 470 to 500 in steps of 5;
 JAM60S31-xxx/MR, xxx= 425 to 450 in steps of 5;
 JAM54S31-xxx/MR, xxx= 385 to 405 in steps of 5;
 JAM76S11-xxx/PR(B), xxx= 395 to 415 in steps of 5;
 JAM78S30-xxx/GR, xxx= 575 to 610 in steps of 5;
 JAM72S30-xxx/GR, xxx= 535 to 560 in steps of 5;
 JAM66S30-xxx/GR, xxx= 500 to 510 in steps of 5;
 JAM60S30-xxx/GR, xxx= 445 to 470 in steps of 5;
 JAM54S30-xxx/GR, xxx= 400 to 420 in steps of 5;
 JAM78S31-xxx/GR, xxx= 570 to 590 in steps of 5;
 JAM72S31-xxx/GR, xxx= 525 to 545 in steps of 5;
 JAM66S31-xxx/GR, xxx= 480 to 500 in steps of 5;
 JAM60S31-xxx/GR, xxx= 435 to 450 in steps of 5;
 JAM54S31-xxx/GR, xxx= 395 to 415 in steps of 5;

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JAM72S17-xxx/GR, xxx= 385 to 400 in steps of 5;
JAM72S40-xxx/GR, xxx= 540 to 575 in steps of 5;
JAM66S40-xxx/GR, xxx= 495 to 525 in steps of 5;
JAM60S40-xxx/GR, xxx= 450 to 480 in steps of 5;
JAM54S40-xxx/GR, xxx= 405 to 430 in steps of 5;
JAM72S41-xxx/GR, xxx= 540 to 570 in steps of 5;
JAM66S41-xxx/GR, xxx= 495 to 525 in steps of 5;
JAM60S41-xxx/GR, xxx= 450 to 475 in steps of 5;
JAM54S41-xxx/GR, xxx= 405 to 430 in steps of 5;
JAM66S35-xxx/MR, xxx= 650 to 670 in steps of 5;
JAM60S35-xxx/MR, xxx= 590 to 610 in steps of 5;
JAM72S30-xxx/LR, xxx= 555 to 580 in steps of 5;
JAM54S30-xxx/LR, xxx= 415 to 435 in steps of 5;
JAM54S31-xxx/LR, xxx= 415 to 420 in steps of 5;

1500 V DC Maximum System Voltage, Single Glass Modules:

JAM6(K)-72-xxx/PR/1500V, xxx= 345 to 370 in steps of 5;
JAM6(K)-60-xxx/PR/1500V, xxx= 285 to 310 in steps of 5;
JAM6(K)-72-xxx/4BB/1500V, xxx= 320 to 345 in steps of 5;
JAM6(K)-60-xxx/4BB/1500V, xxx= 265 to 285 in steps of 5;
JAM72S01-xxx/SC/1500V, xxx= 320 to 365 in steps of 5;
JAM60S01-xxx/SC/1500V, xxx= 265 to 305 in steps of 5;
JAM72S01-xxx/PR, xxx= 345 to 390 in steps of 5;
JAM60S01-xxx/PR/1500V, xxx= 285 to 325 in steps of 5;
JAM72S01-xxx/MR/1500V, xxx= 365 to 385 in steps of 5;
JAM60S01-xxx/MR/1500V, xxx= 305 to 320 in steps of 5;
JAM72S03-xxx/PR/1500V, xxx= 360 to 395 in steps of 5;
JAM60S03-xxx/PR/1500V, xxx= 300 to 330 in steps of 5;
JAM72S09-xxx/PR/1500V, xxx= 370 to 405 in steps of 5;
JAM60S09-xxx/PR/1500V, xxx= 310 to 335 in steps of 5;
JAM72S10-xxx/PR/1500V, xxx= 380 to 410 in steps of 5;
JAM60S10-xxx/PR/1500V, xxx= 315 to 345 in steps of 5;
JAM72S10-xxx/MR/1500V, xxx= 390 to 430 in steps of 5;
JAM60S10-xxx/MR/1500V, xxx= 325 to 355 in steps of 5;
JAM60S10-xxx/MR-L/1500V, xxx= 325 to 355 in steps of 5;
JAM78S10-xxx/MR/1500V, xxx= 435 to 465 in steps of 5;
JAM66S10-xxx/MR/1500V, xxx= 345 to 390 in steps of 5;
JAM72S09-xxx/BP/1500V, xxx= 375 to 385 in steps of 5;
JAM60S09-xxx/BP/1500V, xxx= 315 to 320 in steps of 5;
JAM72S10-xxx/BP/1500V, xxx= 385 to 400 in steps of 5;
JAM60S10-xxx/BP/1500V, xxx= 320 to 330 in steps of 5;
JAM72S02-xxx/PR/1500V, xxx= 345 to 390 in steps of 5;
JAM60S02-xxx/PR/1500V, xxx= 285 to 325 in steps of 5;
JAM72S02-xxx/SC/1500V, xxx= 320 to 365 in steps of 5;
JAM60S02-xxx/SC/1500V, xxx= 265 to 305 in steps of 5;
JAM72S02-xxx/MR/1500V, xxx= 365 to 385 in steps of 5;
JAM60S02-xxx/MR/1500V, xxx= 305 to 320 in steps of 5;
JAM72S08-xxx/PR/1500V, xxx= 360 to 395 in steps of 5;
JAM60S08-xxx/PR/1500V, xxx= 300 to 330 in steps of 5;
JAM72S12-xxx/PR/1500V, xxx= 365 to 385 in steps of 5;
JAM60S12-xxx/PR/1500V, xxx= 305 to 330 in steps of 5;
JAM72S17-xxx/PR/1500V, xxx= 380 to 390 in steps of 5;
JAM60S17-xxx/PR/1500V, xxx= 315 to 325 in steps of 5;
JAM72S17-xxx/MR/1500V, xxx= 390 to 430 in steps of 5;
JAM60S17-xxx/MR/1500V, xxx= 315 to 355 in steps of 5;
JAM72S10-xxx/MB/1500V, xxx= 395 to 415 in steps of 5;
JAM60S10-xxx/MB/1500V, xxx= 330 to 345 in steps of 5;
JAM72S20-xxx/MR/1500V, xxx= 430 to 470 in steps of 5;
JAM60S20-xxx/MR/1500V, xxx= 355 to 390 in steps of 5;
JAM78S30-xxx/MR/1500V, xxx= 580 to 605 in steps of 5;
JAM72S30-xxx/MR/1500V, xxx=510 to 555 in steps of 5;
JAM66S30-xxx/MR/1500V, xxx=470 to 505 in steps of 5;
JAM60S30-xxx/MR/1500V, xxx=435 to 460 in steps of 5;
JAM54S30-xxx/MR/1500V, xxx= 390 to 425 in steps of 5;
JAM60S21-xxx/MR/1500V, xxx= 355 to 390 in steps of 5;
JAM50S40-xxx/MR/1500V, xxx= 490 to 500 in steps of 5;
JAM72S20-xxx/MB/1500V, xxx= 450 to 465 in steps of 5;
JAM60S20-xxx/MB/1500V, xxx= 375 to 390 in steps of 5;
JAM72S31-xxx/MR/1500V, xxx= 510 to 545 in steps of 5;
JAM66S31-xxx/MR/1500V, xxx= 470 to 500 in steps of 5;

CERTIFICATE

No. Z2 072092 0295 Rev. 63

JAM60S31-xxx/MR/1500V, xxx= 425 to 450 in steps of 5;
JAM54S31-xxx/MR/1500V, xxx= 385 to 405 in steps of 5;
JAM76S11-xxx/PR(B)/1500V, xxx= 395 to 415 in steps of 5;
JAM78S30-xxx/GR/1500V, xxx= 575 to 610 in steps of 5;
JAM72S30-xxx/GR/1500V, xxx= 535 to 560 in steps of 5;
JAM66S30-xxx/GR/1500V, xxx= 500 to 510 in steps of 5;
JAM60S30-xxx/GR/1500V, xxx= 445 to 470 in steps of 5;
JAM54S30-xxx/GR/1500V, xxx= 400 to 420 in steps of 5;
JAM78S31-xxx/GR/1500V, xxx= 570 to 590 in steps of 5;
JAM72S31-xxx/GR/1500V, xxx= 525 to 545 in steps of 5;
JAM66S31-xxx/GR/1500V, xxx= 480 to 500 in steps of 5;
JAM60S31-xxx/GR/1500V, xxx= 435 to 450 in steps of 5;
JAM54S31-xxx/GR/1500V, xxx= 395 to 415 in steps of 5;
JAM72S17-xxx/GR/1500V, xxx= 385 to 400 in steps of 5;
JAM72S40-xxx/GR/1500V, xxx= 540 to 575 in steps of 5;
JAM66S40-xxx/GR/1500V, xxx= 495 to 525 in steps of 5;
JAM60S40-xxx/GR/1500V, xxx= 450 to 480 in steps of 5;
JAM54S40-xxx/GR/1500V, xxx= 405 to 430 in steps of 5;
JAM72S41-xxx/GR/1500V, xxx= 540 to 570 in steps of 5;
JAM66S41-xxx/GR/1500V, xxx= 495 to 525 in steps of 5;
JAM60S41-xxx/GR/1500V, xxx= 450 to 475 in steps of 5;
JAM54S41-xxx/GR/1500V, xxx= 405 to 430 in steps of 5;
JAM66S35-xxx/MR/1500V, xxx= 650 to 670 in steps of 5;
JAM60S35-xxx/MR/1500V, xxx= 590 to 610 in steps of 5;
JAM72S30-xxx/LR/1500V, xxx= 555 to 580 in steps of 5;
JAM54S30-xxx/LR/1500V, xxx= 415 to 435 in steps of 5;
JAM54S31-xxx/LR/1500V, xxx= 415 to 420 in steps of 5;
xxx is standing for rated output power at STC

Parameters:

Construction:	Framed or Frameless, with Junction box, Cable and Connectors.
Test Laboratory:	Yangzhou Opto-Electrical Products Testing Institute No. 10 West Kaifa Road, Yangzhou 225009 Jiangsu, P. R. China
Safety Class:	Class II
Maximum System Voltage:	1500 V DC or 1000 V DC
Fire Safety Class:	Class C according to UL790.
Production Facility(ies):	079395, 095903, 090968, 108746, 072092, 109998, 112017, 113943, 114922, 001783, 004170, 113691, 117043, 119123, 120210, 117684, 114994, 120736, 115500, 120016, 108093, 121678.

Tested according to:

IEC 61215-1:2016
IEC 61215-1-1:2016
IEC 61215-2:2016
IEC 61730-1:2016
IEC 61730-2:2016
EN IEC 61730-1:2018
EN IEC 61730-1:2018/AC:2018-06
EN IEC 61730-2:2018
EN IEC 61730-2:2018/AC:2018-06

440W MBB **LR** Series



Higher output power



Lower LCOE



Better mechanical loading tolerance



Less shading and lower resistive loss



12-year product warranty



25-year linear power output warranty

Half-cell Module JAM54S31 LR 415-440

Comprehensive Certificates

- IEC 61215, IEC 61730, UL 61215, UL 61730
- ISO 9001: 2015 Quality management systems
- ISO 14001: 2015 Environmental management systems
- ISO 45001: 2018 Occupational health and safety management systems
- IEC 62941: 2019 Terrestrial photovoltaic (PV) modules - Quality system for PV module manufacturing



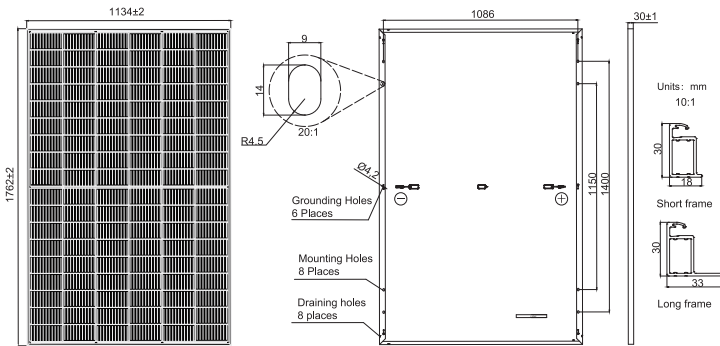


440W

415-440

JAM54S31

LR
Series



Remark: customized frame color and cable length available upon request

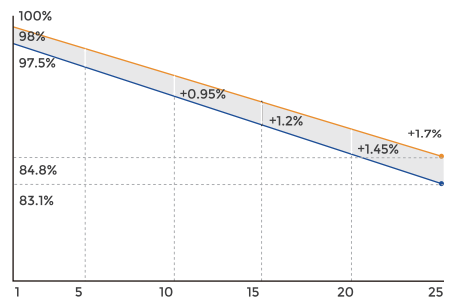
Cell	Mono
Weight	20kg
Dimensions	1762±2mm×1134±2mm×30±1mm
Cable Cross Section Size	4mm ² (IEC), 12 AWG(UL)
No. of cells	108(6x18)
Junction Box	IP68, 3 diodes
Connector	QC 4.10-351/ MC4-EVO2A
Cable Length (Including Connector)	Portrait: 300mm(+)/400mm(-); 800mm(+)/800mm(-)(Leapfrog) Landscape: 1200mm(+)/1200mm(-)
Front Glass	2.8mm
Packaging Configuration	36pcs/Pallet, 936pcs/40ft Container

ELECTRICAL PARAMETERS AT STC

TYPE	JAM54S31 -415/LR	JAM54S31 -420/LR	JAM54S31 -425/LR	JAM54S31 -430/LR	JAM54S31 -435/LR	JAM54S31 -440/LR
Rated Maximum Power(Pmax) [W]	415	420	425	430	435	440
Open Circuit Voltage(Voc) [V]	37.01	37.19	37.37	37.55	37.73	37.91
Maximum Power Voltage(Vmp) [V]	30.92	31.11	31.30	31.49	31.68	31.86
Short Circuit Current(Isc) [A]	14.17	14.25	14.33	14.42	14.50	14.58
Maximum Power Current(Imp) [A]	13.42	13.50	13.58	13.65	13.73	13.81
Module Efficiency [%]	20.8	21.0	21.3	21.5	21.8	22.0
Power Tolerance	0~+5W					
Temperature Coefficient of Isc(α _{Isc})	+0.045% / C					
Temperature Coefficient of Voc(β _{Voc})	-0.275% / C					
Temperature Coefficient of Pmax(γ _{Pmp})	-0.350% / C					
STC	Irradiance 1000W/m ² , cell temperature 25 °C, AM1.5G					

Superior Warranty

0.55% Annual Degradation Over 25 years



- New linear power warranty
- Standard module linear power warranty

ELECTRICAL PARAMETERS AT NOCT

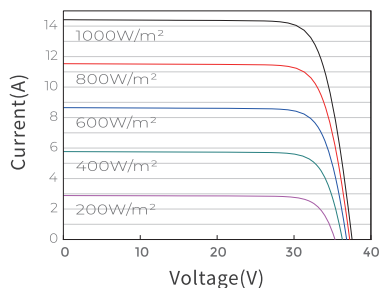
TYPE	JAM54S31 -415/LR	JAM54S31 -420/LR	JAM54S31 -425/LR	JAM54S31 -430/LR	JAM54S31 -435/LR	JAM54S31 -440/LR
Rated Max Power(Pmax) [W]	314	318	322	326	329	333
Open Circuit Voltage(Voc) [V]	35.02	35.19	35.36	35.53	35.70	35.87
Max Power Voltage(Vmp) [V]	29.26	29.44	29.62	29.80	29.98	30.15
Short Circuit Current(Isc) [A]	11.33	11.40	11.47	11.53	11.60	11.67
Max Power Current(Imp) [A]	10.74	10.80	10.86	10.92	10.99	11.05
NOCT	Irradiance 800W/m ² , ambient temperature 20 °C, wind speed 1m/s, AM1.5G					

OPERATING CONDITIONS

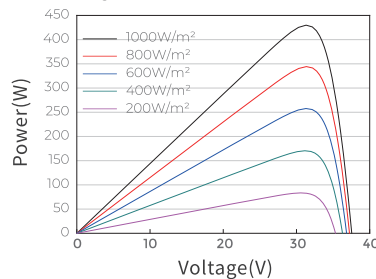
Maximum System Voltage	1000V/1500V DC
Operating Temperature	-40 °C ~+85 °C
Maximum Series Fuse Rating	25A
Maximum Static Load,Front*	5400Pa(112lb/ft ²)
Maximum Static Load,Back*	2400Pa(50lb/ft ²)
NOCT	45±2 °C
Safety Class	Class II
Fire Performance	UL Type 1

CHARACTERISTICS

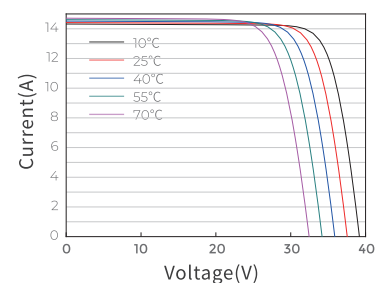
Current-Voltage Curve **JAM54S31-430/LR**



Power-Voltage Curve **JAM54S31-430/LR**



Current-Voltage Curve **JAM54S31-430/LR**





VKF Hagelschutz Nr. 32551

Inhaber /-in
Solarmarkt GmbH
Neumattstrasse 2
5000 Aarau
Schweiz

Hersteller /-in
JA SOLAR
100160 Beijing
China

Gruppe 121 - Dach - Photovoltaik Module

Produkt JAM54S30-Serie, JAM54S31-Serie

Beschreibung Mono-kristallines Halbzellen-PV-Modul (Glas/Folie).
Frontglas t = 2.8 mm aus gehärtetem Glas.
Alu-Rahmen t = 30 mm.

Unterlagen SUPSI PVLab: Prüfbericht '22-089/A-REP1-rev0' (1. Dezember 2022); Institut für Solartechnik SPF: Prüfbericht 'H415' (6. November 2023)

VKF Prüfbestimmungen 25 Photovoltaik Module, Version 1.03 vom 01.11.2016

Klassifikation Hagelwiderstand Funktionalität HW 4
Beurteilung Hagelwiderstand Aussehen HW 4

Bemerkungen

Gültigkeitsdauer 31.12.2028
Ausstellungsdatum 27.11.2023
Ersetzt Dokument vom 09.03.2023

Vereinigung Kantonalen Feuerversicherungen

Martin Jordi

Cornelia Humm

Die Funktionalität ist der minimale Hagelwiderstand von den Bauteilfunktionen:

Lichtdurchlässigkeit	HW --	Mechanik	HW 4
Lichtabschirmung	HW --	Wasserdichtheit	HW --

Vereinigung Kantonalen Feuerversicherungen VKF

Bundesgasse 20 Postfach 3001 Bern T +41 31 320 22 22 mail@vkg.ch www.vkg.ch

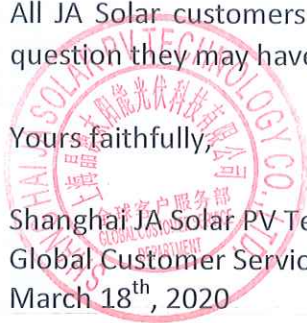
Declaration of antireflection glass

JA Solar as the PV module manufacturer hereby declares that all the JA Solar modules recently manufactured (starting from 2014) have on the front side a tempered and high-transmission glass covered by anti-reflection coating to reduce light reflection and hence absorb more solar energy and generate more electric current.

All JA Solar customers are encouraged to consult with JA Solar technical support staff with any further question they may have.

Yours faithfully,

Shanghai JA Solar PV Technology Co., Ltd.
Global Customer Service Department
March 18th, 2020



EU DECLARATION OF CONFORMITY

(DoC No. 23013002)

We **Hoymiles Power Electronics Inc.**
No.18 Kangjing Road, Hangzhou 310015, Zhejiang Province, P.R. China

as the manufacturer, declare under our sole responsibility that the following products

PRODUCT: **PV Microinverter**
MODELS: **HMS-2000-4T, HMS-1800-4T, HMS-1600-4T**
HMS-2000C-4T, HMS-1800C-4T, HMS-1600C-4T, HMS-1400C-4T
HMS-1000-2T, HMS-900-2T, HMS-800-2T, HMS-700-2T, HMS-600-2T
HMS-500-1T, HMS-450-1T, HMS-400-1T, HMS-350-1T, HMS-300-1T

to which this declaration relates, are in conformity with the following directive and standards:

Directives	2014/53/EU (RE Directive)
Article 3.1(b) EMC	EN 301 489-1 V2.2.3 (2019-11) EN 301 489-3 V2.1.1 (2019-03) EN 61000-6-1:2019 EN 61000-6-2:2019 EN 61000-6-3:2021 EN 61000-6-4:2019 EN 61000-3-2:2019+A1:2021 EN 61000-3-3:2013+A1:2019+A2:2021
Article 3.1(a) Safety	EN 62109-1:2010 EN 62109-2:2011
Article 3.1(a) Health	EN 62479:2010 EN 50663:2017
Article 3.2 Radio	EN 300 220-1 V3.1.1 (2017-02) EN 300 220-2 V3.1.1 (2017-02)

Manufacturer: Hoymiles Power Electronics Inc.

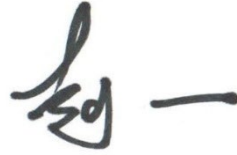
Address: No.18 Kangjing Road, Hangzhou 310015, Zhejiang Province, P.R. China

EU Importer: Hoymiles Power Electronics B.V.

Address: High Tech Campus 9, Unit BK 3.28, 5656 AE Eindhoven, Netherlands

This Declaration of Conformity is not valid any longer, in case, without any written authorization by Hoymiles Power Electronics Inc.:

- The product is modified, supplemented or changed in any other way
- The product is used or installed improperly.

A handwritten signature in black ink, consisting of stylized Chinese characters, positioned above a horizontal line.

Yi Zhao, Vice President.
2023-01-30
Hangzhou, China

Hoymiles Power Electronics Inc.
No.18 Kangjing Road, Hangzhou 310015, China
Tel: +86 571 28056101
Fax: +86 571 28056137
<http://www.hoymiles.com/>

Appendix:

Product Specifications	
Frequency Range	863.25 MHz to 869.75 MHz
RF Output Power (EIRP)	11.69 dBm
Modulation Type	GFSK
Type of Antenna	External Omni Antenna
Antenna Gain	2.0 dBi

Certificate of Conformity

Reingetragene Nr.:
Registered No.:

COCPVP02105/23B-03_R1

Aktenzeichen
File reference

PVP02105/23B-03

Testbericht Nr.
Test report No.

TRPVP02105/23B/03

Ausstellungsdatum
Date of issue

2023-08-03

Auf der Grundlage der durchgeführten Prüfungen wurde festgestellt, dass die Muster des/der folgenden Produkte(s) zum Zeitpunkt der Durchführung der Prüfungen die wesentlichen Anforderungen der genannten Spezifikationen erfüllen:

On the basis of the tests undertaken, the samples of the below product(s) have been found to comply with the essential requirements of the referenced specifications at the time the tests were carried out:

Antragsteller: **Hoymiles Power Electronics Inc.**
Applicant: No. 18 Kangjing Road, Hangzhou, Zhejiang Province, P.R. China

Hersteller: **Hoymiles Power Electronics Inc.**
Manufacturer: No. 18 Kangjing Road, Hangzhou, Zhejiang Province, P.R. China

Fertigungsstätte: **Hoymiles Power Electronics Inc.**
Factory: No. 18 Kangjing Road, Hangzhou, Zhejiang Province, P.R. China

Produkt: PV-Mikrowechselrichter
Product: PV Microinverter

Typenbezeichnung: HMS-600-2T, HMS-700-2T, HMS-800-2T, HMS-900-2T, HMS-1000-2T,
Type designation: HMS-600W-2T, HMS-700W-2T, HMS-800W-2T, HMS-900W-2T, HMS-1000W-2T

Zertifizierungsprogramm: BOS-P-01 Rev. 00
Certification program:

Zertifizierungsgrundlage(n): DIN VDE V 0124-100:2020-06
Certification fundamental(s): VDE-AR-N 4105:2018

Detaillierte Informationen finden Sie im Testbericht.
See test report for detailed information.

Dieses Dokument basiert auf der Auswertung der Proben der oben genannten Produkte. Sie stellt keine Bewertung der Massenproduktion des/der Produkte(s) dar und erlaubt nicht die Verwendung eines TÜV NORD-Zeichens. Der Inhaber dieses Dokuments darf es in Verbindung mit dem/den zugehörigen Prüfbericht(en) verwenden.

This document is based on the evaluation of the samples of the above mentioned product(s). It does not imply an assessment of the mass-production of the product(s), and it does not permit the use of a TÜV NORD mark. The holder of this document may use it in connection with the related test report(s).



Renewable Energy

BOS&ESS-T-009 COC



中国认可
产品
PRODUCT
CNAS C183-P

TÜV NORD (HANGZHOU) CO., LTD.
Member of TÜV NORD Group
Tel: +86-571-85386989
Fax: +86-571-85386986
www.tuv-nord.com/cn
P.R. China

E.6 Zertifikat für den NA-Schutz E.6 Certificate of the network and system protection	
Hersteller: Manufacturer:	Hoymiles Power Electronics Inc. No. 18 Kangjing Road, Hangzhou, Zhejiang Province, P.R. China
Typ NA-Schutz: Type of NS protection:	<input type="checkbox"/> Zentraler NA-Schutz: <i>Central NS protection</i> <input checked="" type="checkbox"/> Integrierter NA-Schutz: Zugewiesen an Stromerzeugungseinheit vom Typ: HMS-600-2T, HMS-700-2T, HMS-800-2T, HMS-900-2T, HMS-1000-2T, HMS-600W-2T, HMS-700W-2T, HMS-800W-2T, HMS-900W-2T, HMS-1000W-2T <i>Integrated NS protection: Assigned to power generation unit of type: HMS-600-2T, HMS-700-2T, HMS-800-2T, HMS-900-2T, HMS-1000-2T, HMS-600W-2T, HMS-700W-2T, HMS-800W-2T, HMS-900W-2T, HMS-1000W-2T</i>
Netzanschlussregel: Network connection rule:	VDE-AR-N 4105:2018 "Erzeugungsanlagen am Niederspannungsnetz" <i>VDE-AR-N 4105:2018 "Generators connected to the low-voltage distribution network"</i> Technische Mindestanforderungen für Anschluss und Parallelbetrieb von Erzeugungsanlagen mit Anschluss an das Niederspannungsnetz <i>Technical minimum requirements for connection and parallel operation of power generation systems connected to the low-voltage network</i>
Prüfanforderung: Test requirement:	DIN VDE V 0124-100 (VDE V 0124-100):2020-06 "Netzintegration von Erzeugungsanlagen - Niederspannung" <i>DIN VDE V 0124-100 (VDE V 0124-100):2020-06 "Network integration of power generation systems - Low voltage"</i> Prüfanforderungen für Erzeugungseinheiten zum Anschluss und Parallelbetrieb am Niederspannungsnetz <i>Test requirements for power generation units intended for connection to and parallel operation on the low-voltage network</i>
Prüfbericht: Test report:	TRPVP02105/23B/03 ausgestellt am 2023-06-08 <i>TRPVP02105/23B/03 issued on 2023-06-08</i>
Der oben bezeichnete Netz- und Anlagenschutz entspricht den Anforderungen der VDE-AR-N 4105. <i>The network and system protection designated above meets the requirements of VDE-AR-N 4105.</i> Dieses NA-Schutzzertifikat darf nicht auszugsweise verwendet werden. <i>This NS protection certificate shall not be used in extracts.</i>	



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 www.tuv-nord.com/cn
 P.R. China

E.7 Anforderungen an den Prüfbericht zum NA-Schutz <i>E.7 Requirements for the test report for the NS protection</i>						
Typ NA-Schutz: <i>Type of NS protection:</i>	<input type="checkbox"/> Zentraler NA-Schutz <i>Central NS protection</i> <input checked="" type="checkbox"/> Integrierter NA-Schutz: Zugewiesen an Stromerzeugungseinheit vom Typ: HMS-600-2T, HMS-700-2T, HMS-800-2T, HMS-900-2T, HMS-1000-2T, HMS-600W-2T, HMS- 700W-2T, HMS-800W-2T, HMS-900W-2T, HMS-1000W-2T <i>Integrated NS protection: Assigned to power generation unit of type: HMS-600-2T, HMS-700-2T, HMS-800-2T, HMS-900-2T, HMS-1000- 2T, HMS-600W-2T, HMS-700W-2T, HMS-800W-2T, HMS-900W- 2T, HMS-1000W-2T</i>					
Software-Version: <i>Software version:</i>	V01.00.02					
Hersteller: <i>Manufacturer:</i>	Hoymiles Power Electronics Inc. No. 18 Kangjing Road, Hangzhou, Zhejiang Province, P.R. China					
Messzeitraum: <i>Measurement period:</i>	Von 2022-03-10 bis 2022-08-28 <i>From 2022-03-10 to 2022-08-28</i>					
-	Stirlinggeneratoren, Brennstoffzellen <i>Stirling generators, fuel cells</i>		Umrichter <i>Inverter(s)</i>			
	direkt oder über Umrichter gekoppelte Synchron- und Asynchrongeneratoren mit $P_n \leq 50$ <i>Synchronous and asynchronous generators with $P_n \leq 50$ coupled directly or via inverters</i>		direkt gekoppelte Synchron- und Asynchrongeneratoren mit $P_n > 50$ kW <i>Directly coupled synchronous and asynchronous generators with $P_n >$ 50 kW</i>			
Schutzfunktion <i>Protective function</i>	Einstellwert <i>Set value</i>	Auslösewert <i>Tripping value</i>	*Auslösezeit NA-Schutz <i>*Tripping time NS protection</i>	Einstellwert <i>Set value</i>	Auslösewert <i>Tripping value</i>	*Auslösezeit NA-Schutz <i>*Tripping time NS protection</i>
Spannungssteigerungsschutz U >> Rise-in-voltage protection U >>	1.15 * Un	N/A	N/A	1.25 * Un	288.2V	108.4ms




Spannungssteigerungsschutz U > *Rise-in-voltage protection U > *	1.10 * Un	N/A	N/A	1.10 * Un	-	s
Spannungsrückgangsschutz U < Voltage drop protection U <	0.8 * Un	N/A	N/A	0.8 * Un	183.83V	3068ms
Spannungsrückgangsschutz U << Voltage drop protection U <<	Entfällt N/A			0.45 * Un	103.01V	336.0ms
Frequenzrückgangsschutz f < Frequency decrease protection f <	47.5Hz	N/A	N/A	47.5Hz	47.50Hz	149.0ms
Frequenzsteigerungsschutz f > Frequency increase protection f >	51.5Hz	N/A	N/A	51.5Hz	51.49Hz	154.0ms
<p>* Die Auslösezeit beinhaltet den Zeitraum von der Grenzwertverletzung U/f bis zum Auslösesignal an den Kuppelschalter. * The tripping time includes the period from the limit value violation U/f until the tripping signal to the interface switch.</p> <p>Bei der Planung der Erzeugungsanlage ist die Eigenzeit des Kuppelschalters zum höchsten oben ermittelten Zeitwert zu addieren. When planning the power generation system, the response time of the interface switch shall be added to the maximum time value obtained as indicated above.</p> <p>Die Abschaltzeit (Summe der Auslösezeit NA-Schutz zzgl. Eigenzeit des Kuppelschalters) darf 200ms nicht überschreiten. The disconnection time (sum of tripping time of the NS protection plus response time of the interface switch) shall not exceed 200ms.</p>						
<input checked="" type="checkbox"/> Bei integriertem NA-Schutz For integrated NS protection						
Zugeordnet zur Erzeugungseinheit des Typ: Assigned to power generation unit of type:				HMS-600-2T, HMS-700-2T, HMS-800-2T, HMS-900-2T, HMS-1000-2T, HMS-600W-2T, HMS-700W-2T, HMS-800W-2T, HMS-900W-2T, HMS-1000W-2T		
Typ integrierter Kuppelschalter: Type integrated interface switch:				Typ Schalteinrichtung 1: Galvanische Trennung Hochfrequenz transformator Type of switch 1: Galvanic isolation high frequency transformer		



Renewable Energy

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CNAS C183-P

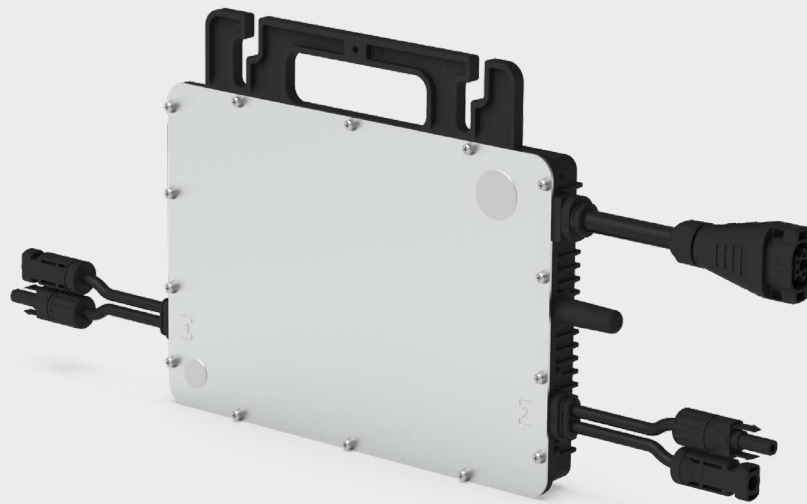
Seite 4 von 5 / Page 4 of 5

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P.R. China

Version 1.0

	Typ Schalteinrichtung 2: Relais Type of switch 2: <i>Relay</i>
Eigenzeit des Kuppelschalters bei integriertem NA-Schutz: <i>Response time of interface switch for integrated NS protection:</i>	8ms

Die Überprüfung der Gesamtwirkungskette "integrierter NA-Schutz - Kuppelschalter" führte zu einer erfolgreichen Abschaltung.
Verification of the entire functional chain "integrated NS protection – interface switch" has resulted in successful disconnection.



Datenblatt Mikro-Wechselrichter

HMS-600
HMS-700
HMS-800
HMS-900
HMS-1000

Beschreibung

Mit einer Ausgangsleistung von bis zu 1000 VA gehört Hoymiles neue Mikrowechselrichter-Serie HMS-1000 zu den leistungsstärksten 2-in-1-Mikro-Wechselrichtern.

Jeder Mikro-Wechselrichter kann an bis zu 2 Modulen angeschlossen werden, wobei unabhängige MPPT- und Überwachungsfunktionen die Stromerzeugung Ihrer Anlage maximieren.

Die neue Sub-1G-Funklösung ermöglicht eine stabilere Kommunikation mit dem Hoymiles-Gateway DTU.

Merkmale

01

Hochleistungs-2-in-1-Mikro-Wechselrichter mit einer Ausgangsleistung von bis zu 1000 VA

02

Mit Blindleistungssteuerung, konform mit EN 50549-1:2019, VDE-AR-N 4105:2018, VFR2019 usw.

03

Sicherer für Aufdach-Solarstationen mit Schnellabschaltung und isoliertem Transformator

04

Unabhängige MPPT und Überwachung sorgen für eine höhere Energieausbeute und einfachere Wartung

05

2-in-1-Design ermöglicht schnellere Installation

06

Die Sub-1G-Funklösung ermöglicht eine stabile Kommunikation in gewerblichen und industriellen Umgebungen

Technische Daten

Modell	HMS-600-2T	HMS-700-2T	HMS-800-2T	HMS-900-2T	HMS-1000-2T
Angaben zum Eingangstrom (DC)					
Üblicherweise verwendete Modulleistung (W)	240 bis 405+	280 bis 470+	320 bis 540+	360 bis 600+	400 bis 670+
Maximale Eingangsspannung (V)	60	60	65	65	65
MPPT-Spannungsbereich (V)	16 - 60				
Einschaltspannung (V)	22				
Maximaler Eingangsstrom (A)	2 x 12	2 x 13	2 x 14	2 x 15	2 x 16
Maximaler Eingangskurzschlussstrom (A)	2 x 20	2 x 20	2 x 25	2 x 25	2 x 25
Anzahl MPPTs	2				
Anzahl Eingänge je MPPT	1				
Angaben zum Ausgangstrom (AC)					
Nennausgangsleistung (VA)	600	700	800	900	1000
Nennausgangsstrom (A)	2,61	3,04	3,48	3,91	4,35
Nennausgangsspannung/-bereich (V) ¹	230/180 - 275				
Nennfrequenz/-bereich (Hz) ¹	50/45 - 55				
Leistungsfaktor (einstellbar)	> 0,99 standardmäßig 0,8 voreilend ... 0,8 nacheilend				
Klirrfaktor	< 3 %				
Maximale Einheiten pro 10-AWG-Strang ²	12	10	9	8	7
Maximale Einheiten pro 12-AWG-Strang ²	7	6	5	5	4
Wirkungsgrad					
CEC-Spitzenwirkungsgrad	96,7 %	96,7 %	96,7 %	96,5 %	96,5 %
MPPT-Nennwirkungsgrad	99,8 %				
Leistungsaufnahme bei Nacht (mW)	< 50				
Mechanische Daten					
Umgebungstemperaturbereich (°C)	-40 bis +65				
Abmessungen (B x H x T mm)	261 x 180 x 31				
Gewicht (kg)	3,1				
Schutzart	Außenbereich IP67 (NEMA 6)				
Kühlung	Natürliche Konvektion - Keine Lüfter				
Merkmale					
Kommunikation	Sub-1G				
Art der Isolierung	Galvanisch isolierter HF-Transformator				
Überwachung	Hoymiles S-Miles Cloud ³				
Konformität	EN 50549-1: 2019, VDE-AR-N 4105: 2018, VFR2019, IEC/EN 62109-1/-2, IEC/EN 61000-6-1/-2/-3/-4, IEC/EN 61000-3-2/-3				

*1 Nennspannung/-frequenzbereich können je nach örtlichen Anforderungen variieren.

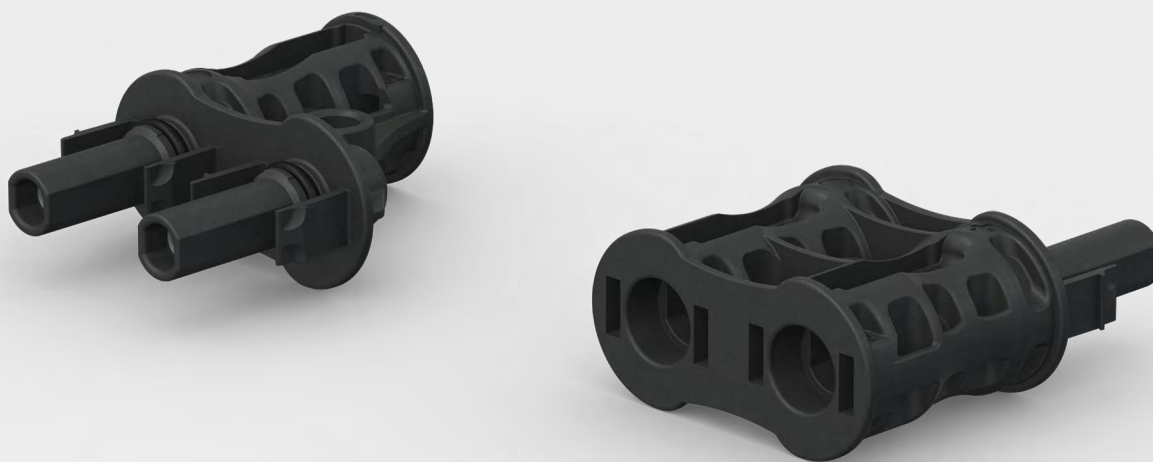
*2 Die genaue Anzahl der Mikro-Wechselrichter pro Strang entnehmen Sie bitte den örtlichen Anforderungen.

*3 Hoymiles-Überwachungssystem

Abzweigsteckverbinder MC4-Evo 2

Erneuerbare Energien | Solar Photovoltaics

DE

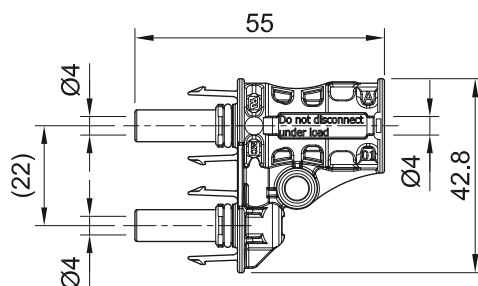


Abzweigsteckverbinder MC4-Evo 2

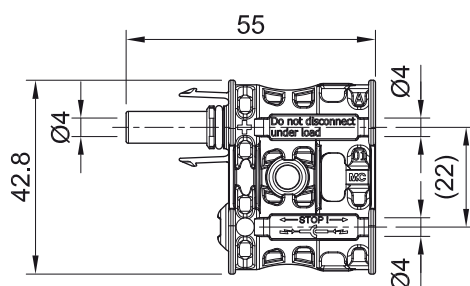
Der weltweit erste zweifach zertifizierte DC 1500 V Abzweigsteckverbinder

- „Plug-and-Play“: kein Crimp- oder Drehmomentwerkzeug erforderlich
- Vielseitig und kompakt
- Kompatibel mit original MC4- und MC4-Evo 2 Steckverbindern
- Zugelassen für DC 1500 V gemäß IEC 62852 und UL 6703
- Beständig gegen Salzsprühnebel
- Bewährte, langzeitstabile MULTILAM-Technologie, dadurch konstant geringe Verlustleistung über die gesamte Lebensdauer der Steckverbinder

PV-AZB4-EVO 2-UR



PV-AZS4-EVO 2-UR



Bestell-Nr.	Typ	Beschreibung
32.0196	PV-AZB4-EVO 2-UR	Abzweigbuchse MC4-Evo 2
32.0197	PV-AZS4-EVO 2-UR	Abzweigstecker MC4-Evo 2


Zubehör

32.0716	PV-BVK4	Verschlusskappe, passend für Buchsenseite
32.0717	PV-SVK4	Verschlusskappe, passend für Steckerseite
32.6066	PV-MS-MC4-EVO	Entriegelungsschlüssel



Montageanleitung MA292

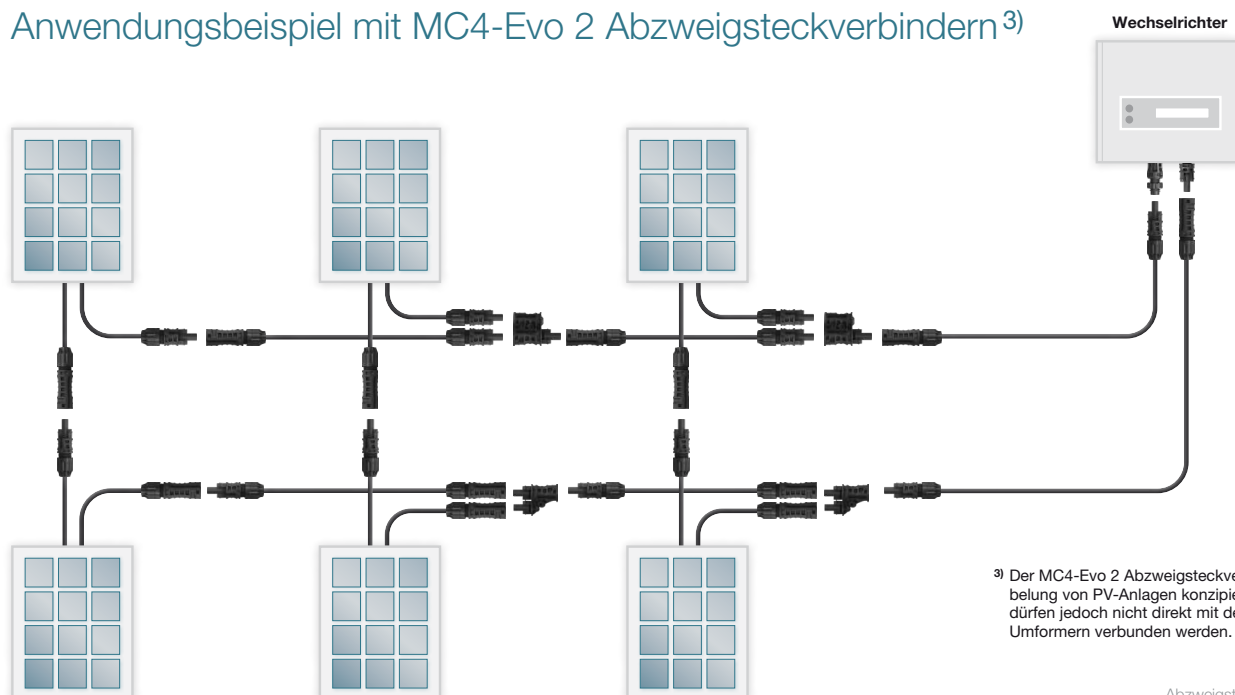
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Technische Daten	
Bemessungsspannung	DC 1500 V (gemäß IEC 62852: 2014 + AMD1:2020) DC 1500 V (gemäß UL 6703)
Prüfspannung	8 kV ²⁾
Bemessungstoßspannung	16 kV
Bemessungsstrom IEC	60 A ¹⁾
Bemessungsstrom UL	50 A ¹⁾
Umgebungstemperaturbereich (IEC)	-40 °C ... +85 °C
Umgebungstemperaturbereich (UL)	-40 °C ... +90 °C
Obere Grenztemperatur IEC	115 °C ¹⁾
Schutzart, gesteckt ungesteckt	IP65; IP68 (1 m/1 h) IP2X
Verschmutzungsgrad	3
Kontaktwiderstand der Steckverbinder	< 0,5 mΩ
Schutzklasse	II
Kontaktsystem	MULTILAM
Kontaktmaterial	Kupfer, verzinkt
Isolationsmaterial	PA
Verriegelungssystem	Verriegelungsart
Flammklasse	UL94-V0
Salznebelprüfetest, Schärfegrad 6, gemäß IEC 60068-2-52	Ja
UV-Beständigkeit (gemäß ISO 4892-2/3)	Ja
TÜV-Rheinland zertifiziert nach IEC62852:2014+AMD1:2020	R 60149724
UL zertifiziert nach UL6703	E343181
Kompatibel mit Steckverbinder	Original MC4 Original MC4-Evo 2
Maximale Einsatzhöhe über Meeresspiegel	5000 m; AK 60159400
	EG-Konformitätserklärung

1) Die Nennspannung und die Nennstromstärke sowie die obere Grenztemperatur sind auf den MC4-Evo 2 Abzweigsteckverbinder bezogen. Weitere Informationen zu diesen Vorgaben finden Sie unter MA292.

2) Bemessungsspannung 1000 V und Prüfspannung 6 kV
Bemessungsspannung 1500 V und Prüfspannung 8 kV

Anwendungsbeispiel mit MC4-Evo 2 Abzweigsteckverbindern³⁾



³⁾ Der MC4-Evo 2 Abzweigsteckverbinder ist für die Verkabelung von PV-Anlagen konzipiert. Abzweigsteckverbinder dürfen jedoch nicht direkt mit den Aufbaudosen von Umformern verbunden werden.



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