







### Advantages Of Estar MLPE Microinverters



Safer 100% safe up to 60V DC input voltage (natural rapid shutdown); IP67



Module-level MPPT & unique parallel design ensuring 10-30% higher yield than series-wound PV system

Estar MLPE (Module-level Power Electronics)



#### Smarter

Smarter monitoring for remote module-level troubleshooting and maintenance



#### **More Reliable**

6000V surge protection; MTBF (mean time between failure) >550 years; Yearly failure rate <0.18%; Up to 25 years warranty

# Harvest the Yield for EACH of Your PV Modules



### Microinverter 4 in 1 unit



## HERF-1200 / HERF-1600 / HERF-1800



High CEC Efficiency 96.5%



External strong communicaiton with DCU

Easy installation, Plug click connection



Compliant with European/US/Asia/Aus grid standard and certification

|                                   | HERF-1200   | HERF-1600                   | HERF-1800 |  |  |
|-----------------------------------|---|-----------------------------|-----------|--|--|
| Input Data (DC)                   |   |                             |           |  |  |
| Recommended module power (W)      | 240~420+  | 300~540+                    | 370~670+  |  |  |
| Peak power MPPT voltage range (V) | 16~48   | 16~48                       | 16~48     |  |  |
| Start-up voltage (V)              |   | 22                          |           |  |  |
| Operating voltage range (V)       |   | 16~60                       |           |  |  |
| Maximum input voltage (V)         |   | 60                          |           |  |  |
| Maximum input current (A)         | 4×13  | 4×13.5                      | 4×]4      |  |  |
| No. of MPPTs                      |   | 2                           |           |  |  |
| No. of Inputs per MPPT            |   | 2                           |           |  |  |
| Output Data (AC)                  |   |                             |           |  |  |
| Rated output power (VA)           | 1200  | 1600                        | 1800      |  |  |
| Rated output current (A)          | 5.22  | 6.96                        | 7.83      |  |  |
| Nominal output voltage/range (V)  |   | 230/180-270                 |           |  |  |
| Nominal frequency/range (V)       |   | 50/45-55                    |           |  |  |
| Power factor(adjustable)          |   | 0.8 leading0.8 lagging      |           |  |  |
| Total harmonic distortion         |   | <3%                         |           |  |  |
| Maximum units per branch          | 6*  | 4*                          | 4*        |  |  |
| Efficiency                        |   |                             |           |  |  |
| CEC peak efficiency               |   | 96.50%                      |           |  |  |
| Nominal MPPT efficiency           |   | 99.50%                      |           |  |  |
| Night power consumption (mW)      |   | <50                         |           |  |  |
| Mechanical Data                   |   |                             |           |  |  |
| Ambient temperature range (°C)    |   | -40~+65                     |           |  |  |
| Dimensions (W×H×D mm)             |   | 275×204.5×41.6              |           |  |  |
| Weight (kG)                       |   | 4.9                         |           |  |  |
| Enclosure rating                  |   | IP67                        |           |  |  |
| Cooling                           |   | Natural convection          |           |  |  |
| Features                          |   |                             |           |  |  |
| Communication                     |   | Wireless_2.4G               |           |  |  |
| Isolation Type                    | High Frequency Transformers (Galvanically Isolated) |                             |           |  |  |
| Monitoring                        | Monitoring System                                   |                             |           |  |  |
| Compliance                        | EN 5  | 50549-1: 2019, VDE-R-N 4105 | 5: 2018   |  |  |

\*1 Products marked with asterisks (\*) use 10AWG cables, others use 12AWG cables. \*2 Nominal voltage/frequency range can be changed due to the requirements of local power department. \*3 Refer to local requirements for exact number of microinverters per branch.



### Microinverter 2 in 1 unit



# HERF-600/HERF-800/HERF-1000



#### High CEC Efficiency 96.5%



External strong communicaiton with DCU

Easy installation, Plug click connection



Compliant with European/US/Asia/Aus grid standard and certification

|                                   | HERF-600          | HERF-800                     | HERF-1000      |  |  |
|-----------------------------------|-------------------|------------------------------|----------------|--|--|
| Input Data (DC)                   |                   |                              |                |  |  |
| Recommended module power (W)      | 240~420+          | 300~540+                     | 370~670+       |  |  |
| Peak power MPPT voltage range (V) | 16~48             | 16~48                        | 16~48          |  |  |
| Start-up voltage (V)              |                   | 22                           |                |  |  |
| Operating voltage range (V)       |                   | 16~60                        |                |  |  |
| Maximum input voltage (V)         |                   | 60                           |                |  |  |
| Maximum input current (A)         | 2×13              | 2×13.5                       | 2×14.5         |  |  |
| No. of MPPTs                      |                   | 2                            |                |  |  |
| No. of Inputs per MPPT            |                   | 2                            |                |  |  |
| Output Data (AC)                  |                   |                              |                |  |  |
| Rated output power (VA)           | 600               | 800                          | 980            |  |  |
| Rated output current (A)          | 2.61              | 3.48                         | 4.26           |  |  |
| Nominal output voltage/range (V)  |                   | 230/180-270                  |                |  |  |
| Nominal frequency/range (V)       |                   | 50/45-55                     |                |  |  |
| Power factor(adjustable)          |                   | 0.8 leading0.8 lagging       |                |  |  |
| Total harmonic distortion         |                   | <3%                          |                |  |  |
| Maximum units per branch          | 9                 | 7                            | 5              |  |  |
| Efficiency                        |                   |                              |                |  |  |
| CEC peak efficiency               |                   | 96.50%                       |                |  |  |
| Nominal MPPT efficiency           |                   | 99.50%                       |                |  |  |
| Night power consumption (mW)      |                   | <50                          |                |  |  |
| Mechanical Data                   |                   |                              |                |  |  |
| Ambient temperature range (°C)    |                   | -40~+65                      |                |  |  |
| Dimensions (W×H×D mm)             |                   | 260×197.5×35.6               |                |  |  |
| Weight (kG)                       |                   | 3.9                          |                |  |  |
| Enclosure rating                  |                   | IP67                         |                |  |  |
| Cooling                           |                   | Natural convection           |                |  |  |
| Features                          |                   |                              |                |  |  |
| Communication                     |                   | Wireless_2.4G                |                |  |  |
| Isolation Type                    | High Frequ        | uency Transformers (Galvanic | ally Isolated) |  |  |
| Monitoring                        | Monitoring System |                              |                |  |  |
| Compliance                        | EN                | 50549-1: 2019, VDE-R-N 4105  | : 2018         |  |  |

\*1 Products marked with asterisks (\*) use 10AWG cables, others use 12AWG cables. \*2 Nominal voltage/frequency range can be changed due to the requirements of local power department. \*3 Refer to local requirements for exact number of microinverters per branch.



### Microinverter Single unit



# HERF-300/HERF-400/HERF-500



High CEC Efficiency 96.5%



External strong communicaiton with DCU

Easy installation, Plug click connection



Compliant with European/US/Asia/Aus grid standard and certification

|                                   | HERF-300   | HERF-400                    | HERF-500 |  |  |
|-----------------------------------|--|-----------------------------|----------|--|--|
| Input Data (DC)                   |  |                             |          |  |  |
| Recommended module power (W)      | 240~420+   | 300~540+                    | 370~670+ |  |  |
| Peak power MPPT voltage range (V) | 16~48  | 16~48                       | 16~48    |  |  |
| Start-up voltage (V)              |  | 22                          |          |  |  |
| Operating voltage range (V)       |  | 16~60                       |          |  |  |
| Maximum input voltage (V)         |  | 60                          |          |  |  |
| Maximum input current (A)         | 13   | 13.5                        | 14.5     |  |  |
| No. of MPPTs                      |  | 2                           |          |  |  |
| No. of Inputs per MPPT            |  | 2                           |          |  |  |
| Output Data (AC)                  |  |                             |          |  |  |
| Rated output power (VA)           | 300  | 400                         | 490      |  |  |
| Rated output current (A)          | 1.3  | 1.74                        | 2.13     |  |  |
| Nominal output voltage/range (V)  |  | 230/180-270                 |          |  |  |
| Nominal frequency/range (V)       |  | 50/45-55                    |          |  |  |
| Power factor(adjustable)          |  | 0.8 leading0.8 lagging      |          |  |  |
| Total harmonic distortion         |  | <3%                         |          |  |  |
| Maximum units per branch          | 19   | 14                          | 11       |  |  |
| Efficiency                        |  |                             |          |  |  |
| CEC peak efficiency               |  | 96.50%                      |          |  |  |
| Nominal MPPT efficiency           |  | 99.50%                      |          |  |  |
| Night power consumption (mW)      |  | <50                         |          |  |  |
| Mechanical Data                   |  |                             |          |  |  |
| Ambient temperature range (°C)    |  | -40~+65                     |          |  |  |
| Dimensions (W×H×D mm)             |  | 165×197×31.1                |          |  |  |
| Weight (kG)                       |  | 2.35                        |          |  |  |
| Enclosure rating                  |  | IP67                        |          |  |  |
| Cooling                           |  | Natural convection          |          |  |  |
| Features                          |  |                             |          |  |  |
| Communication                     | Wireless 2.4G  |                             |          |  |  |
| Isolation Type                    | –<br>High Frequency Transformers (Galvanically Isolated) |                             |          |  |  |
| Monitoring                        | Monitoring System  |                             |          |  |  |
| Compliance                        | EN   | 50549-1: 2019, VDE-R-N 4105 | 2018     |  |  |

\*1 Products marked with asterisks (\*) use 10AWG cables, others use 12AWG cables. \*2 Nominal voltage/frequency range can be changed due to the requirements of local power department. \*3 Refer to local requirements for exact number of microinverters per branch.



### Microinverter Accessories



| Name                  | Function   | Applicable Models |
|-----------------------|--|-------------------|
| 1 AC Female Connector | AC female connector is provided to make<br>AC end cable or AC extension cable. | ALL               |
| 2 AC Male Connector   | AC male connector is provided to make<br>AC end cable or AC extension cable.   | ALL               |
| 3 AC Female End Cap   | IP67 female end cap is provided to seal AC female connector of microinverter.  | ALL               |
| 4 AC Male End Cap     | IP67 male end cap is provided to seal AC male connector of microinverter.      | ALL               |

### Wireless Communication for Both Microinverter & Cloud



| Communication to Microinverter <sup>1</sup>   |  |
|---|--|
| Туре  |  |
| Maximum distance (open space)   |  |
| Monitoring data limit from solar panels   |  |
| Communication to Cloud  |  |
| Signal  |  |
| Sample rate   |  |
| Communication to Meter  |  |
| Signal  |  |
| Maximum distance (RS485 cable)  |  |
| Interaction   |  |
| LED   |  |
| APP   |  |
|   |  |
| Power Supply (Adapter)  |  |
| Power Supply (Adapter)<br>Type  |  |
| Power Supply (Adapter)         Type         Adapter input voltage/frequency   |  |
| Power Supply (Adapter)TypeAdapter input voltage/frequencyAdapter output voltage/current   |  |
| Power Supply (Adapter)TypeAdapter input voltage/frequencyAdapter output voltage/currentPower consumption  |  |
| Power Supply (Adapter)TypeAdapter input voltage/frequencyAdapter output voltage/currentPower consumptionMechanical Data   |  |
| Power Supply (Adapter)TypeAdapter input voltage/frequencyAdapter output voltage/currentPower consumptionMechanical DataAmbient temperature (°C)   |  |
| Power Supply (Adapter)TypeAdapter input voltage/frequencyAdapter output voltage/currentPower consumptionMechanical DataAmbient temperature (°C)Dimensions (W×H×D mm)  |  |
| Power Supply (Adapter)TypeAdapter input voltage/frequencyAdapter output voltage/currentPower consumptionMechanical DataAmbient temperature (°C)Dimensions (W×H×D mm)Weight (kG)                             |  |
| Power Supply (Adapter)TypeAdapter input voltage/frequencyAdapter output voltage/currentPower consumptionMechanical DataAmbient temperature (°C)Dimensions (W×H×D mm)Weight (kG)Installation options         |  |
| Power Supply (Adapter)TypeAdapter input voltage/frequencyAdapter output voltage/currentPower consumptionMechanical DataAmbient temperature (°C)Dimensions (W×H×D mm)Weight (kG)Installation optionsFeatures |  |

\*1 If the DCU instalLation location is inside the metal box or under the metal/concrete roof, extended antenna will be suggested. \*2 Depending on the installation environment, please refer to user manual for more details.



#### DCU

2.4G RF 200m 99<sup>2</sup>

WIFI(802.11b/g/n)<sup>2</sup>/Ethernet Per 15 minutes

> RS485 500m

LED Indicator×3 - RUN, Cloud, MI Local APP

External adapter 100 to 240V AC / 50 or 60Hz 5V/2A 2.5W (typical), 5W (maximum)

> -20~+55 200×101×29 0.28

Wall mounting/Desktop mounting

N60950-1, EN61000-3-2, EN61000-3-3, EN301489, EN300328, EN300440, RCM



### **3rd Generation Monitoring Platform**



#### How to set up a monitoring system?

Download and access the monitoring application easily with the use of your Smartphone/Pad; each PV monitoring station will be setup in 3 easy steps





#### Privacy protection of personal information

Compliant with GDPR (the General Data Protection Regulation) of EU

#### Key features of new smart monitoring system

Module-level remote monitoring for microinverter's operating status in real time.



#### Availability for downloading module-level operating & failure report.



#### Smart operation for adding, cancelling, checking & revising power station data.



|               |        |       |       | Station | ie: DEMO_3 | RW    |       |  |
|---------------|--------|-------|-------|---------|------------|-------|-------|--|
| Cycle: Day    | × 2018 | 65-21 | n   6 | R fight | eletions 2 | P     |       |  |
| <b>0</b> 9:00 | 10:00  | 12:00 | 14:00 | 16:00   | 16:00      | SD:00 | 22:00 |  |
|               |        |       |       |         |            |       |       |  |
|               |        |       |       |         |            |       |       |  |
|               |        |       |       |         |            |       |       |  |
|               |        |       |       |         |            |       |       |  |
|               |        |       |       |         |            |       |       |  |
|               |        |       |       |         |            |       |       |  |

|                  |                       |                         | Search for a sta    | tion or device    | Q                          | 0                 | Ľ     | Demoinstaller | 中文 |
|------------------|-----------------------|-------------------------|---------------------|-------------------|----------------------------|-------------------|-------|---------------|----|
| nect: Net o      | onnectv               | Search Reset            | Export              | More V            | i un martin                |                   |       |               |    |
|                  |                       |                         |                     | Firmware upgra    | des .                      |                   |       |               |    |
| Connected<br>DTU | Connected<br>repeater | Hardware item<br>number | hardware<br>version | Restart<br>Delete |                            | Action            |       |               |    |
| 10403333555<br>5 |                       | -                       |                     | Boat<br>Shut dawn |                            | Restart<br>More Y | Finne | are upgrades  |    |
| 10603333555<br>5 |                       |                         |                     |                   | Normal                     | Restart<br>More V | Firms | are upgrades  |    |
| 10F1316035<br>D4 | 10E031602179          | -                       | H0.0.0              |                   | <ul> <li>Normal</li> </ul> | Restart<br>More Y | Firms | are upgrades  |    |
| 10F1316035<br>04 | 10E031602179          | -                       | H0.0.0              |                   | <ul> <li>Normal</li> </ul> | Restart<br>More V | Firms | are upgrades  |    |
| 10F1316035<br>D4 | 10E031602179          | -                       | H0.0.0              |                   | <ul> <li>Normal</li> </ul> | Restart<br>More Y | Firms | are upgrades  |    |



# **Global Applications**

### Asia



Residential Project in Indonesia 6kW



Residential Project in Malaysia 3kW



Residential Project in Philippines 3kW



Residential Project in Indonesia 6kW

#### Africa



Residential Project in Philippines 3kW



# **Global Applications**

### Europe



Residential Project in Sweden 10kW



Commercial Project in Estonia 63.6kW



Residential Project in Poland 3kW



Residential Project in Sweden 10kW

### North America



Residential Project in USA 10kW

### South America



Gas Station Project in Brazil 26kW

Residential Project in Mexico 5kW