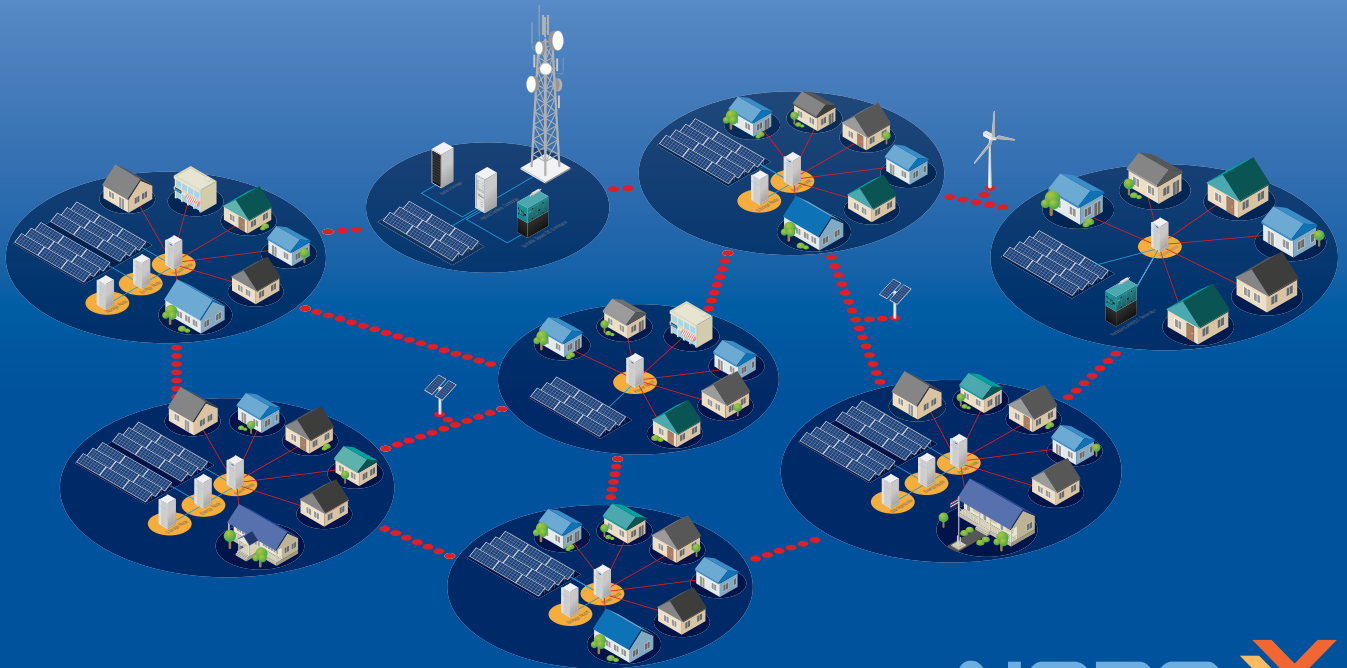


## Decentralized Microgrid with Energy Trading Platform for Remote Village



**Node X**  
Network of Decentralized Energy

NODEX Technology can reduce CAPEX and OPEX of rural electrification by

- Reducing transmission and distribution cost
- Reducing logistic cost for transporting labor and materials to site
- Reducing installation man hours and installation time at site
- Reducing energy transmission loss from energy sources to users

NODEX allows the network of decentralized microgrid grow dynamically with **FLEXIBLE** and **SCALABLE** system power.

NODEX also can parallel 10 Power Nodes for increasing total system power to **EXPAND** subscriber as well as improve power distribution reliability due to capability to operate in **REDUNDANCY** of Power Nodes

### Power Node (PNI)

- 5kVA/6kVA Bidirectional Inverter
- 6kWp Solar Charge Controller
- 12kWh LFP Battery Storage

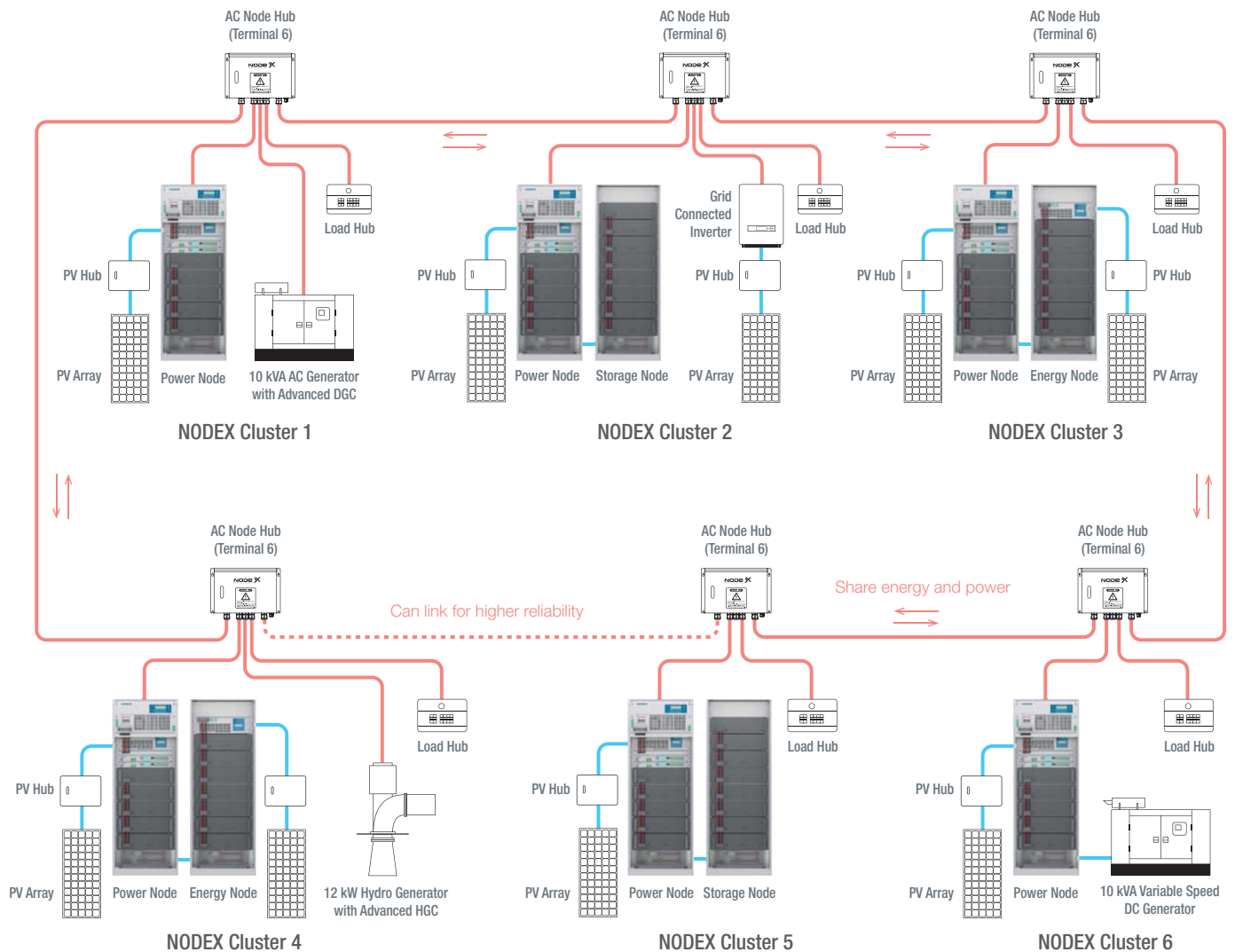
### Energy Node (ENi)

- 6kWp Solar Charge Controller
- 16.8kWh LFP Battery Storage

### Storage Node (SNI)

- 19.2kWh LFP Battery Storage

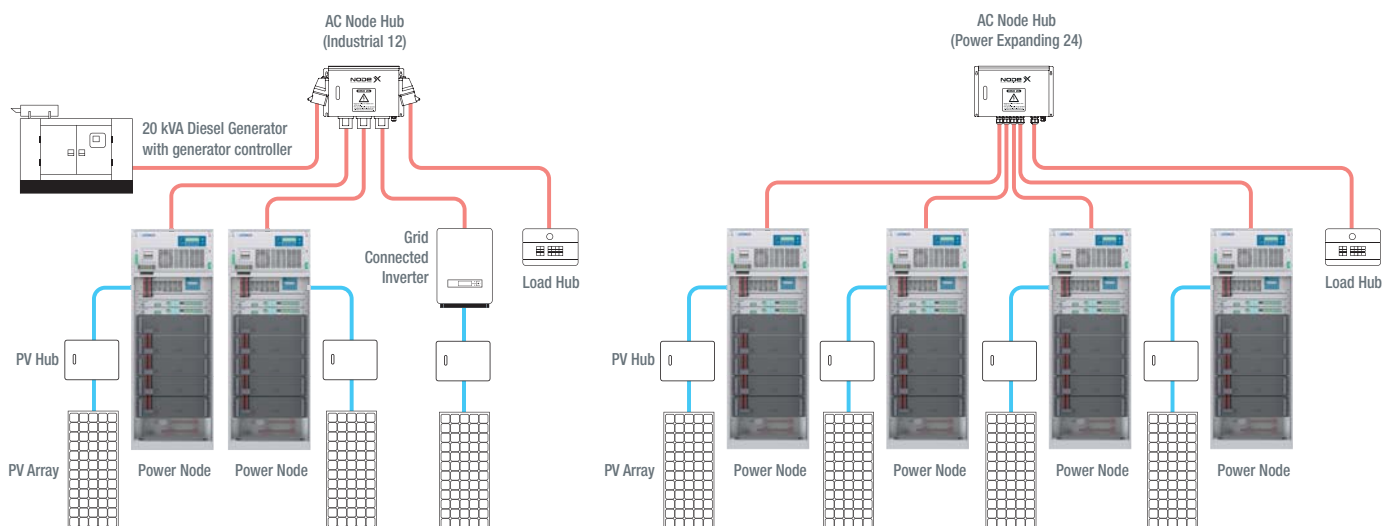




\*\*\* Minimum Network cable size is 6 sq.mm. and cable length can be up to 300 m.

## 36 kW Decentralized Microgrid System

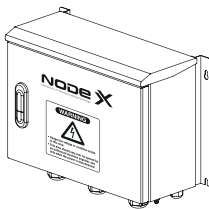
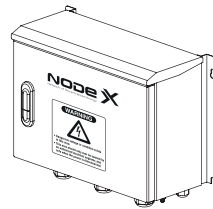
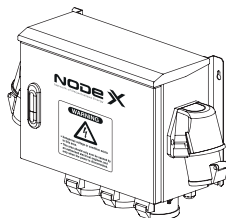
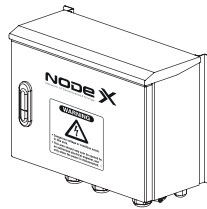
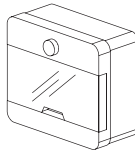
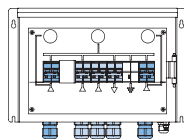
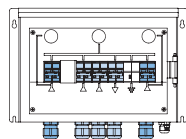
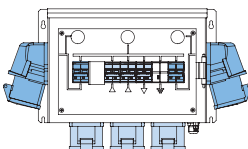
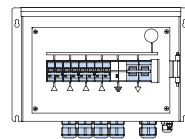
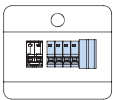
With the AC Node Hub (ANH-series), it allows you to link each NODEX cluster as the network easily and efficiently. Energy can be shared. Power can be expanded. In the event of failure in any NODEX, the system remains continuously operating because the other NODEXs cluster can provide power and share their energy to the failure node.



12 kW PV-DG Hybrid Microgrid System

24 kW PV Stand-alone Microgrid System

| SPECIFICATIONS                                                                                                            |                                         |                                  | Power Node                                                                                                       |                  | Energy Node                                            | Storage Node      |
|---------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|----------------------------------|------------------------------------------------------------------------------------------------------------------|------------------|--------------------------------------------------------|-------------------|
|                                                                                                                           |                                         |                                  | PNi-050612/xx                                                                                                    | PNi-060612/xx    | ENI-0616                                               | SNi-19            |
| <b>BIDIRECTIONAL INVERTER</b><br>        | AC Output                               | Rated power                      | 5 kVA / 5 kW                                                                                                     | 6 kVA / 6 kW     | -                                                      | -                 |
|                                                                                                                           |                                         | Maximum power at 25°C for 1 hour | 5.5 kVA / 5.5 kW                                                                                                 | 6.5 kVA / 6.5 kW | -                                                      | -                 |
|                                                                                                                           |                                         | Voltage                          | 220 / 230 / 240 Vac (L-N)                                                                                        |                  | -                                                      | -                 |
|                                                                                                                           |                                         | Voltage regulation               | ± 1% (steady load)<br>< 7% at 100% step load within 0.1 sec.                                                     |                  | -                                                      | -                 |
|                                                                                                                           |                                         | Phase                            | Single phase                                                                                                     |                  | -                                                      | -                 |
|                                                                                                                           |                                         | Frequency                        | 50 / 60 Hz ± 0.1% (auto sensing)                                                                                 |                  | -                                                      | -                 |
|                                                                                                                           |                                         | Wave form                        | Pure sine wave                                                                                                   |                  | -                                                      | -                 |
|                                                                                                                           |                                         | Total harmonic distortion (THDv) | Total < 3%                                                                                                       |                  | -                                                      | -                 |
|                                                                                                                           |                                         | Maximum AC current               | 22.7 A                                                                                                           | 27.3 A           | -                                                      | -                 |
|                                                                                                                           |                                         | Inverter peak efficiency         | > 96.5%                                                                                                          |                  | -                                                      | -                 |
| <b>SYSTEM CONTROLLER</b><br>             | System Control Unit (SCU)               | Wifi (standard), LAN (optional)  | Monitor and control system, send and receive system data, local or remote monitoring                             |                  | -                                                      | -                 |
|                                                                                                                           | Master Battery Management System (MBMS) | LAN (standard)                   | Monitor, control and balance battery system, send and receive battery system data for local or remote monitoring |                  | -                                                      | -                 |
| <b>SOLAR CHARGE CONTROLLER</b><br>       | PV Input                                | Maximum PV power                 | 6.6 kWp                                                                                                          |                  | 6.6 kWp                                                | -                 |
|                                                                                                                           |                                         | Number of PV input               | 1 x terminal block (MC4 optional)                                                                                |                  | 1 x terminal block (MC4 optional)                      | -                 |
|                                                                                                                           |                                         | Maximum current (Isc) per MC4    | 30 A                                                                                                             |                  | 30 A                                                   | -                 |
|                                                                                                                           |                                         | Maximum PV current               | 100 A                                                                                                            |                  | 100 A                                                  | -                 |
|                                                                                                                           |                                         | MPPT tracking voltage (Vmp)      | 88 - 126 Vdc                                                                                                     |                  | 88 - 126 Vdc                                           | -                 |
|                                                                                                                           |                                         | Max. open circuit voltage (Voc)  | < 150 Vdc                                                                                                        |                  | < 150 Vdc                                              | -                 |
|                                                                                                                           |                                         | Charger peak efficiency          | > 98%                                                                                                            |                  | > 98%                                                  | -                 |
|                                                                                                                           | DC Output                               | Nominal battery voltage          | 48 Vdc                                                                                                           |                  | 48 Vdc                                                 | -                 |
|                                                                                                                           |                                         | Maximum charging current         | 120 A                                                                                                            |                  | 120 A                                                  | -                 |
|                                                                                                                           |                                         | Battery type                     | Sealed lead acid / Lithium-Ion (LFP)                                                                             |                  | Sealed lead acid / Lithium-Ion (LFP)                   | -                 |
| <b>ENERGY STORAGE SYSTEM (ESS)</b><br> | Battery per module                      | Type                             | Lithium-Ion (LFP)                                                                                                |                  | Lithium-Ion (LFP)                                      | Lithium-Ion (LFP) |
|                                                                                                                           |                                         | Nominal voltage                  | 48 Vdc                                                                                                           |                  | 48 Vdc                                                 | 48 Vdc            |
|                                                                                                                           |                                         | Capacity                         | 2.4 kWh                                                                                                          |                  | 2.4 kWh                                                | 2.4 kWh           |
|                                                                                                                           |                                         | Discharge current                | 50 A                                                                                                             |                  | 50 A                                                   | 50 A              |
|                                                                                                                           | ESS Module                              | Number of module                 | 5 modules                                                                                                        |                  | 7 modules                                              | 8 modules         |
|                                                                                                                           |                                         | Capacity                         | 12 kWh                                                                                                           |                  | 16.8 kWh                                               | 19.2 kWh          |
|                                                                                                                           | Operating Condition                     | Operating temperature            | -20°C to +65°C                                                                                                   |                  | -20°C to +65°C                                         | -20°C to +65°C    |
|                                                                                                                           |                                         | Operating SOC                    | 10 - 90%                                                                                                         |                  | 10 - 90%                                               | 10 - 90%          |
| <b>ENVIRONMENT</b>                                                                                                        |                                         | Temperature                      |                                                                                                                  |                  | 0 - 45°C                                               |                   |
|                                                                                                                           |                                         | Relative humidity                |                                                                                                                  |                  | 0 - 95 % (Non - condensing)                            |                   |
|                                                                                                                           |                                         | Pollution degree classification  |                                                                                                                  |                  | III                                                    |                   |
|                                                                                                                           |                                         | Maximum operating altitude       |                                                                                                                  |                  | 2,000 m / 6,560 feet (without derating)                |                   |
| <b>DESIGN REGULATION</b>                                                                                                  | Standard                                |                                  |                                                                                                                  |                  | IEC 61683, IEC 62109-1, IEC 62109-2                    |                   |
|                                                                                                                           | Ingress protection                      |                                  |                                                                                                                  |                  | IP30                                                   |                   |
|                                                                                                                           | Protective class                        |                                  |                                                                                                                  |                  | I                                                      |                   |
|                                                                                                                           | Overvoltage category                    |                                  |                                                                                                                  |                  | II (input and output) (in accordance with IEC 62109-1) |                   |
| <b>DIMENSION</b>                                                                                                          | W x H x D                               |                                  |                                                                                                                  |                  | 54.6 x 144.5 x 73.3 cm (30U)                           |                   |
| <b>WEIGHT</b>                                                                                                             | Approximate in kg                       | Included LFP battery modules     | 390 kg                                                                                                           |                  | 401 kg                                                 | 431 kg            |

|                                                                                                                                                                                                                                                                                                                                                                                                 |                    |                  |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                       |              |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-----------------------|--------------|
| <div>AC Node Hub</div> <ul style="list-style-type: none"><li>Flexible AC connection hub</li><li>LED digital voltage meter</li><li>AC surge protection</li><li>Easy connection and installation</li><li>Link your NODEX together as the network</li></ul> <div>Load Hub</div> <ul style="list-style-type: none"><li>LED digital voltage meter</li><li>Easy connection and installation</li></ul> |                    |                  |  |  |  |  |  |                       |              |
|                                                                                                                                                                                                                                                                                                                                                                                                 |                    |                  | AC Node Hub<br>Terminal 6                                                          | AC Node Hub<br>Terminal 12                                                          | AC Node Hub<br>Industrial 12                                                        | AC Node Hub<br>Power Expanding 24                                                   | Load Hub                                                                            |                       |              |
|                                                                                                                                                                                                                                                                                                                                                                                                 |                    |                  | ANH65-0666606s                                                                     | ANH65-1266612s                                                                      | ANH65i-1266612s                                                                     | ANH65-666624s                                                                       | LD6                                                                                 |                       |              |
|                                                                                                                                                                                                                                                                                                                                                                                                 |                    |                  |  |  |  |  |  |                       |              |
| NETWORK PORT                                                                                                                                                                                                                                                                                                                                                                                    |                    |                  | Number of channel                                                                  | 2 channels                                                                          | 2 channels                                                                          | 2 channels                                                                          | -                                                                                   | -                     |              |
|                                                                                                                                                                                                                                                                                                                                                                                                 |                    |                  | Max. power per channel                                                             | 6 kVA / 6 kW                                                                        | 12 kVA / 12 kW                                                                      | 12 kVA / 12 kW                                                                      | -                                                                                   | -                     |              |
|                                                                                                                                                                                                                                                                                                                                                                                                 | For using with     | AC Node Hub      | Max. power per channel                                                             | 6 kVA / 6 kW                                                                        | 12 kVA / 12 kW                                                                      | 12 kVA / 12 kW                                                                      | -                                                                                   | -                     |              |
|                                                                                                                                                                                                                                                                                                                                                                                                 |                    | Diesel generator | Max. generator power                                                               | 7.5 kVA / 6 kW                                                                      | 15 kVA / 12 kW                                                                      | 15 kVA / 12 kW                                                                      | -                                                                                   | -                     |              |
|                                                                                                                                                                                                                                                                                                                                                                                                 |                    | Load             | Maximum load power                                                                 | 6 kVA / 6 kW                                                                        | 12 kVA / 12 kW                                                                      | 12 kVA / 12 kW                                                                      | -                                                                                   | -                     |              |
| LOCAL PORT                                                                                                                                                                                                                                                                                                                                                                                      | For using with     |                  | Number of channel                                                                  | 3 channels                                                                          | 3 channels                                                                          | 3 channels                                                                          | 5 channels                                                                          | 6 channels            |              |
|                                                                                                                                                                                                                                                                                                                                                                                                 |                    |                  | BDI + GCI                                                                          | Maximum power                                                                       | 6 kW + 6 kW                                                                         | (6 kW x 2) + 6 kW                                                                   | (6 kW x 2) + 6 kW                                                                   | 6 kW x 4              | -            |
|                                                                                                                                                                                                                                                                                                                                                                                                 |                    |                  | Load                                                                               | Maximum load power                                                                  | 6 kVA / 6 kW                                                                        | 6 kVA / 6 kW                                                                        | 6 kVA / 6 kW                                                                        | 24 kVA / 24 kW        | 6 kVA / 6 kW |
| SYSTEM                                                                                                                                                                                                                                                                                                                                                                                          |                    |                  | Voltage                                                                            | 220 / 230 / 240 Vac, 50 /60 Hz                                                      |                                                                                     |                                                                                     |                                                                                     |                       |              |
|                                                                                                                                                                                                                                                                                                                                                                                                 |                    |                  | Phase                                                                              | Single phase                                                                        |                                                                                     |                                                                                     |                                                                                     |                       |              |
| PROTECTION                                                                                                                                                                                                                                                                                                                                                                                      | AC surge protector |                  | Protection mode                                                                    | Common modes (L - E, N - E)                                                         |                                                                                     |                                                                                     |                                                                                     | -                     |              |
|                                                                                                                                                                                                                                                                                                                                                                                                 |                    |                  | Surge capability (Imax)                                                            | 40 kA (8/20 μs wave form)                                                           |                                                                                     |                                                                                     |                                                                                     | -                     |              |
| MEASUREMENT                                                                                                                                                                                                                                                                                                                                                                                     | Voltage            |                  |                                                                                    | LED digital voltage meter                                                           |                                                                                     |                                                                                     |                                                                                     |                       |              |
|                                                                                                                                                                                                                                                                                                                                                                                                 | Power (option)     |                  | Load / Network                                                                     | -                                                                                   | DIN rail digital power meter (RS-485 modbus) as optional                            |                                                                                     | -                                                                                   | -                     |              |
| CONNECTION                                                                                                                                                                                                                                                                                                                                                                                      |                    |                  |                                                                                    | Circuit breaker terminal                                                            |                                                                                     | Industrial power socket                                                             | Circuit breaker terminal                                                            |                       |              |
| ENVIRONMENT                                                                                                                                                                                                                                                                                                                                                                                     |                    |                  | Temperature                                                                        | 0 - 50°C                                                                            |                                                                                     |                                                                                     |                                                                                     |                       |              |
|                                                                                                                                                                                                                                                                                                                                                                                                 |                    |                  | Relative humidity                                                                  | 0 - 95% (non-condensing)                                                            |                                                                                     |                                                                                     |                                                                                     |                       |              |
| DESIGN REGULATION                                                                                                                                                                                                                                                                                                                                                                               | Ingress protection |                  |                                                                                    | IP65                                                                                |                                                                                     |                                                                                     |                                                                                     | IP44                  |              |
| DIMENSION                                                                                                                                                                                                                                                                                                                                                                                       | W x H x D          |                  | Cabinet                                                                            | 35.2 x 25 x 17 cm                                                                   |                                                                                     |                                                                                     |                                                                                     | 23.8 x 20.6 x 10.2 cm |              |
|                                                                                                                                                                                                                                                                                                                                                                                                 |                    |                  | Overall                                                                            | 40 x 29.6 x 17 cm                                                                   |                                                                                     | 68 x 31.5 x 17 cm                                                                   | 40 x 29.6 x 17 cm                                                                   | -                     |              |
| WEIGHT                                                                                                                                                                                                                                                                                                                                                                                          | Approximate in kg  |                  |                                                                                    | 9 kg                                                                                | 9 kg                                                                                | 11.5 kg                                                                             | 9 kg                                                                                | 7.5 kg                |              |

BDI = Bidirectional Inverter, GCI = Grid Connected Inverter. Continuous product development is our commitment. In that manner, the above specifications may be changed without prior notice.

Authorized Distributor

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