

# **H<sup>4</sup>** Hybrid Power System

Technical Specifications, October 2025

*All specifications are preliminary and subject to change*

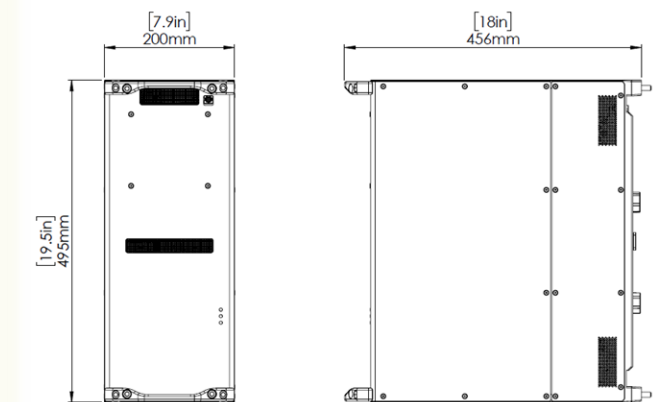
# 5kW Inverter tech specs

## H<sup>4</sup>V5000

| Category               | Specification                       | Unit     | Value          | Notes                                         |
|------------------------|-------------------------------------|----------|----------------|-----------------------------------------------|
| Inverter               | Input voltage range                 | V DC     | 20-30          |                                               |
|                        | Nominal battery voltage             | V DC     | 25.6           |                                               |
|                        | Output voltage                      | V AC     | 230            | ±2%                                           |
|                        | Output frequency                    | Hz       | 50             | ±0.001%                                       |
|                        | Continuous output at 25°C           | W        | 5000           | At unity power factor                         |
|                        | Continuous output at 40°C           | W        | 5000           | At unity power factor                         |
|                        | Continuous output at 65°C           | W        | TBA            | At unity power factor                         |
|                        | Peak power                          | W        | 8000           | 3 secs                                        |
|                        | Input current                       | A DC     | 202            | At 26v                                        |
|                        | Maximum cont. Output current        | A RMS    | 22             |                                               |
|                        | Power factor range                  |          | -1 to 1        |                                               |
|                        | Maximum output fault current        | A        | 50             |                                               |
|                        | Maximum efficiency                  | %        | 97             |                                               |
|                        | Zero load power                     | W        | 20             |                                               |
|                        | AC Output Connector                 |          | Proprietary    | Connection to Rack                            |
|                        | Absolute max solar input voltage    | V DC     | 100            |                                               |
|                        | Solar charge input max current      | A        | 250            |                                               |
|                        | Solar charge input connector        |          | Proprietary    |                                               |
|                        | Fan speed                           | RPM      | 0-13000        | Automatically controlled                      |
| Communications         | NMEA2000                            |          | Yes            | Micro-C                                       |
|                        | USB                                 |          | Yes            | USB-A                                         |
|                        | Ethernet                            |          | Yes            | 10/100                                        |
|                        | Fibre Optic to generator controller |          | Yes            | IF-D91B "Connector less" Generator controller |
| Physical               | Dimensions                          | HxWxD mm | 495x200x456    | Does not include rack                         |
|                        | Weight                              | kg       | 24             |                                               |
| Environmental          | Protection                          |          | IP20           |                                               |
|                        | Operating temp - Full power         | °C       | -30 to +45     |                                               |
|                        | Operating temp                      | °C       | -30 to +60     |                                               |
|                        | Operating humidity                  | %        | TBA            |                                               |
|                        | Storage temp                        | °C       | -40 to +80     |                                               |
| Standards & Compliance | Safety                              |          | EN 62109-1 & 2 |                                               |
|                        | Emissions                           |          | EN-IEC60945    |                                               |
|                        | Others                              |          | ABYC, CE       |                                               |



Dimensional Drawing



Placeholder (this is the battery)

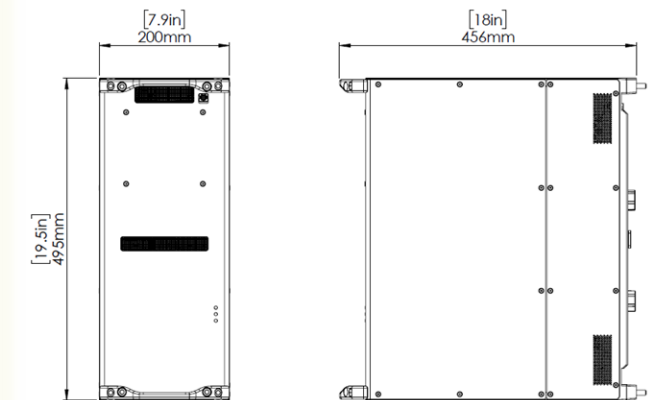
# 10kW Inverter tech specs

## H<sup>4</sup>V10000

| Category               | Specification                  | Unit     | Value          | Notes                                         |
|------------------------|--------------------------------|----------|----------------|-----------------------------------------------|
| Inverter               | Input voltage range            | V DC     | 20-30          |                                               |
|                        | Nominal battery voltage        | V DC     | 25.6           |                                               |
|                        | Output voltage                 | V AC     | 230            | ±2%                                           |
|                        | Output frequency               | Hz       | 50             | ±0.01%                                        |
|                        | Continuous output at 25°C      | W        | 10000          | At unity power factor                         |
|                        | Continuous output at 40°C      | W        | 10000          | At unity power factor                         |
|                        | Continuous output at 65°C      | W        | TBA            | At unity power factor                         |
|                        | Peak power                     | W        | 16000          | 3 secs                                        |
|                        | Input current                  | A DC     | 404            |                                               |
|                        | Maximum cont. Output current   | A AC     | 44             |                                               |
|                        | Power factor range             |          | -1 to 1        |                                               |
|                        | Maximum output fault current   | A        | 100            |                                               |
|                        | Maximum efficiency             | %        | 97             |                                               |
|                        | Zero load power                | W        | 20             | Ideally, TBA                                  |
|                        | AC Output Connector            |          | Proprietary    | Connection to Rack                            |
|                        | Solar charge input voltage     | V DC     | 100            |                                               |
|                        | Solar charge input max current | A        | 250            |                                               |
|                        | Solar charge input connector   |          | Proprietary    |                                               |
|                        | Fan speed                      | RPM      | 0-13000        | Automatically controlled                      |
| Communications         | NMEA2000                       |          | Yes            | Micro-C                                       |
|                        | USB                            |          | Yes            | USB-A                                         |
|                        | Ethernet                       |          | Yes            | 10/100                                        |
|                        | Fibre Optic                    |          | Yes            | IF-D91B "Connector less" Generator controller |
| Physical               | Dimensions                     | HxWxD mm | 495x200x456    | Does not include rack                         |
|                        | Weight                         | kg       | 24             |                                               |
| Environmental          | Protection                     |          | IP20           |                                               |
|                        | Operating temp - Full power    | °C       | -30 to +45     |                                               |
|                        | Operating temp                 | °C       | -30 to +60     |                                               |
|                        | Operating humidity             | %        | TBA            |                                               |
|                        | Storage temp                   | °C       | -40 to +80     |                                               |
| Standards & Compliance | Safety                         |          | EN 62109-1 & 2 |                                               |
|                        | Emissions                      |          | EN-IEC 60945   |                                               |
|                        | Others                         |          | ABYC, CE       |                                               |



Dimensional Drawing



Placeholder (this is the battery)

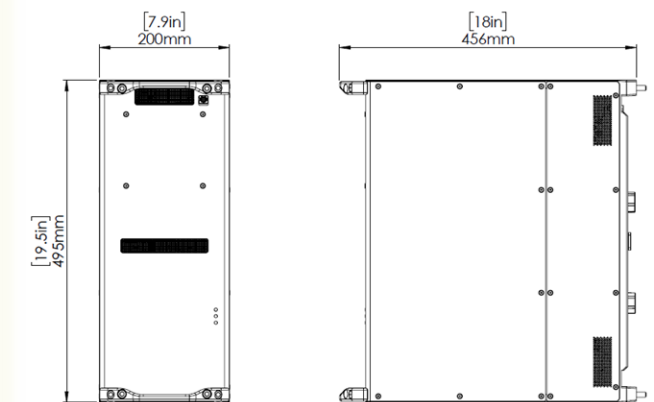
# 200A battery charger tech specs

## H<sup>4</sup>C200

| Category               | Specification                         | Unit        | Value        | Notes                             |
|------------------------|---------------------------------------|-------------|--------------|-----------------------------------|
| Charger                | Max Charge Current                    | A DC 200    |              |                                   |
|                        | Max Alternator Input current (x2)     | A 250       |              |                                   |
|                        | Full load consumption                 | W 5000      |              |                                   |
|                        | Alternator Input disconnect switch    | Yes         |              |                                   |
|                        | Alternator Input load dump protection | Yes         |              |                                   |
|                        | Alternator Input connector            | Proprietary |              |                                   |
|                        | Fan speed                             | RPM 0-13000 |              | Automatically controlled          |
| Shore Power Input      | Input Voltage                         | V AC 85-264 |              |                                   |
|                        | Input Frequency                       | Hz 50/60    |              |                                   |
|                        | Max input current                     | A 22        |              |                                   |
|                        | Shore power input connector           | Proprietary |              | Connection to Rack                |
|                        | Isolation transformer                 | Built in    |              | External transformer not required |
| Physical               | Dimensions                            | HxWxD mm    | 495x200x456  | Does not include rack             |
|                        | Weight                                | kg          | 24           | TBD                               |
| Environmental          | Protection                            |             | IP20         |                                   |
|                        | Operating temp - Full power           | °C          | -30 to +45   |                                   |
|                        | Operating temp                        | °C          | -30 to +60   |                                   |
|                        | Operating humidity                    | %           | TBA          |                                   |
|                        | Storage temp                          | °C          | -40 to +80   |                                   |
| Standards & Compliance | Safety                                |             | IEC 62477-1  |                                   |
|                        | Emissions                             |             | EN-IEC 60945 |                                   |



Dimensional Drawing



Placeholder (this is the battery)

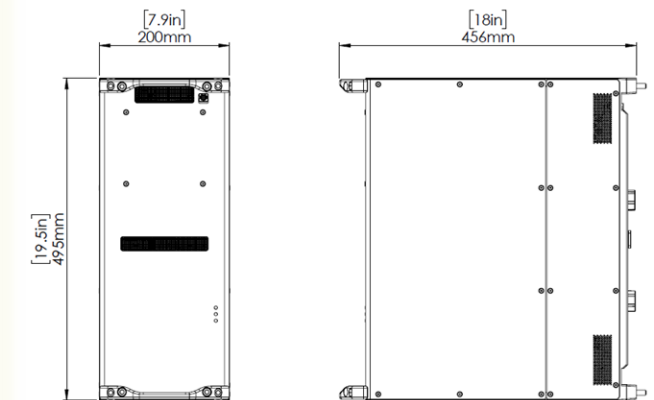
# 8kWh battery tech specs

## H<sup>4</sup>B8000

| Category               | Specification                  | Unit     | Value        | Notes                                              |
|------------------------|--------------------------------|----------|--------------|----------------------------------------------------|
| Battery                | Nominal voltage                | V        | 25.6         |                                                    |
|                        | No load voltage, fully charged | V        | 26.4         |                                                    |
|                        | Nominal capacity (Cn)          | Ah       | 314          |                                                    |
|                        | Nominal energy                 | Wh       | 8000         |                                                    |
|                        | Chemistry                      |          | LiFePO4      |                                                    |
|                        | Cell type                      |          | Prismatic    |                                                    |
|                        | BMS                            |          | Yes          | Built in                                           |
|                        | Battery fuse                   |          | Yes          | Built in                                           |
|                        | Safety Disconnect switch       |          | Yes          | Built in                                           |
|                        | Current measurement shunt      |          | Yes          | Built in                                           |
| Physical               | Dimensions                     | HxWxD mm | 495x200x456  | Does not include rack                              |
|                        | Weight                         | kg       | 65           |                                                    |
| Environmental          | Protection                     |          | IP20         |                                                    |
|                        | Operating temp (discharge)     | °C       | -30 to +60   |                                                    |
|                        | Operating temp (charge)        | °C       | 0 to +60     |                                                    |
|                        | Operating humidity             | %        | TBA          |                                                    |
|                        | Storage temp (recommended)     | °C       | -20 to +35   |                                                    |
| Standards & Compliance | Safety                         |          | IEC 62477-1  |                                                    |
|                        | Emissions                      |          | EN-IEC 60945 |                                                    |
|                        | Transport                      |          | UN38.3       |                                                    |
|                        | Others                         |          | ABYC, CE     |                                                    |
| Logging                | Temperature logging            | °C       |              | Log temp per degree change for lifetime of battery |



Dimensional Drawing

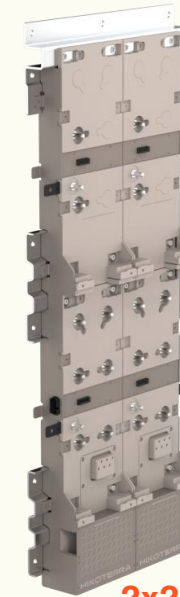


# Mounting rack configs & tech specs

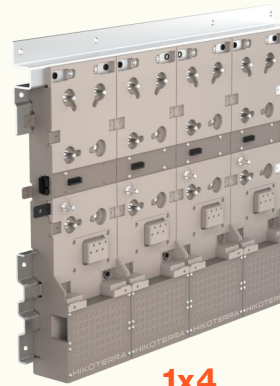
| Category   | Specification                      | Unit     | Value             | Notes                                                              |
|------------|------------------------------------|----------|-------------------|--------------------------------------------------------------------|
| Capacity   | Minimum height                     |          | 1 slots           |                                                                    |
|            | Maximum height                     |          | 2 slots           |                                                                    |
|            | Minimum width                      |          | 3 slots           |                                                                    |
|            | Maximum width                      |          | 8 slots           |                                                                    |
|            | Minimum Capacity 5kW inverter      |          | 3 slots           | 1x 5kW inverter, 1x charger, 1x battery                            |
|            | Minimum Capacity 10kW inverter     |          | 4 slots           | 1x 10kW inverter, 1x charger, 2x battery                           |
|            | Maximum capacity                   |          | 16 slots          |                                                                    |
|            | Minimum Inverters                  |          | 1                 |                                                                    |
|            | Max inverters single phase         |          | 2                 |                                                                    |
|            | Max inverters three phase          |          | 3                 |                                                                    |
|            | Minimum charger                    |          | 1                 |                                                                    |
|            | Maximum charger                    |          | 3                 |                                                                    |
|            | Minimum batteries per 5kW inverter |          | 1                 |                                                                    |
|            | Minium batteries per 10kW inverter |          | 2                 |                                                                    |
|            | Maximum batteries                  |          | 12                | 96 kWh                                                             |
|            | DC Connection studs                |          | M6/M8/M10         |                                                                    |
|            | AC Connection                      |          | M4 ring terminals | One pair per 5kW                                                   |
| Dimensions | 2x2 Rack (incl. Modules)           | HxWxD mm | 1319x522x512      | Some clearances for airflow and cable bend radius will be required |
|            | 1x4 Rack (incl. Modules)           | HxWxD mm | 746x946x512       | Some clearances for airflow and cable bend radius will be required |
|            | Additional width per rack slot     | mm       | 212               |                                                                    |
|            | Other rack configurations          | TBA      | TBA               | Other rack configuration dimensions pending                        |
| Capacity   | Minimum height                     |          | 1 slots           |                                                                    |



2x4

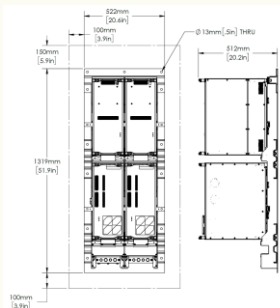


2x2

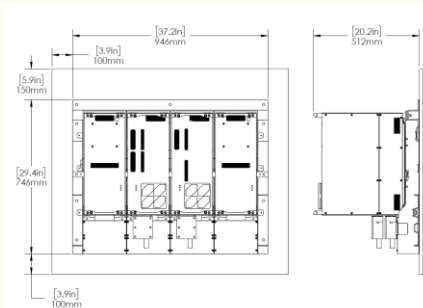


1x4

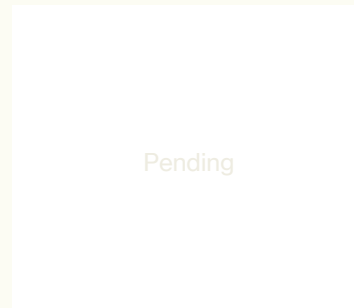
## Dimensional Drawing 2x2



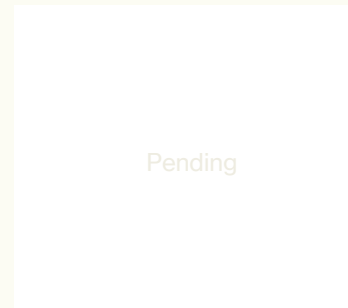
## Dimensional Drawing 1x4



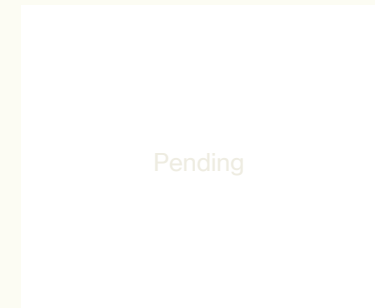
## Dimensional Drawing 3



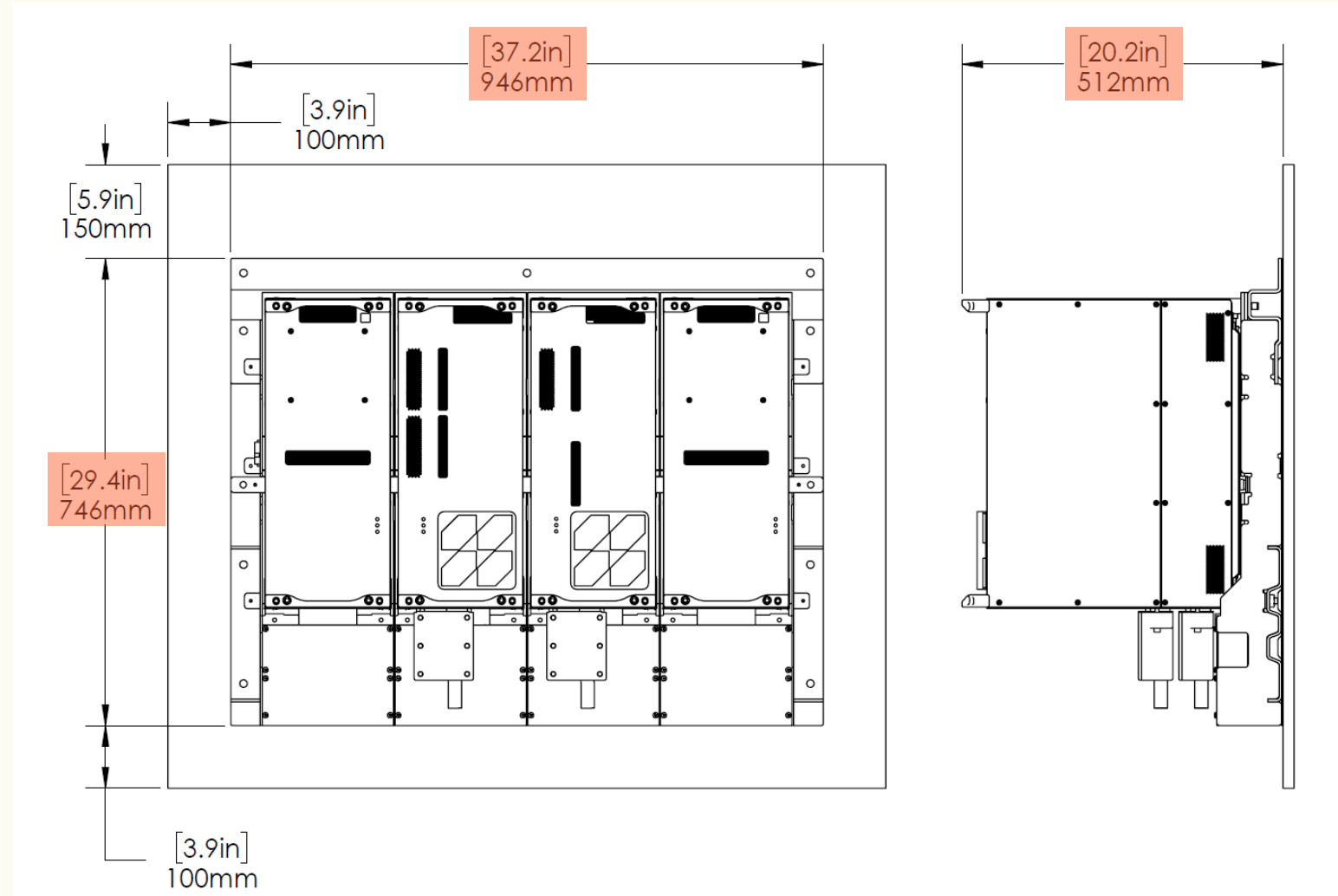
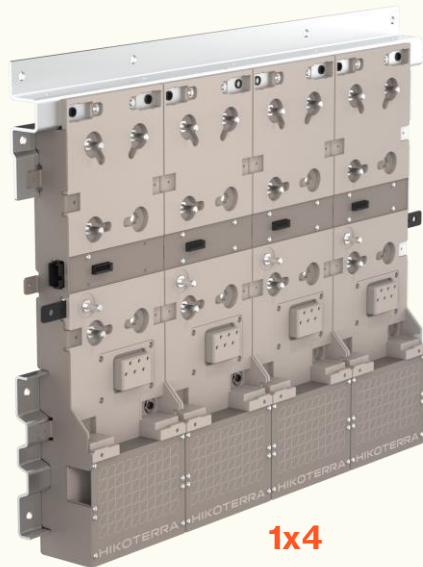
## Dimensional Drawing 4



## Dimensional Drawing 5



# Example system dimensions 1x4



1x4 Rack(incl. Modules)

HxWxD mm 746x946x512

Technical drawing of the 1000mm x 1000mm x 100mm cabinet, showing front and side views with dimensions.

**Front View Dimensions:**

- Top width: 522mm [20.6in]
- Top offset: 100mm [3.9in]
- Left offset: 150mm [5.9in]
- Left height: 1319mm [51.9in]
- Bottom offset: 100mm [3.9in]

**Side View Dimensions:**

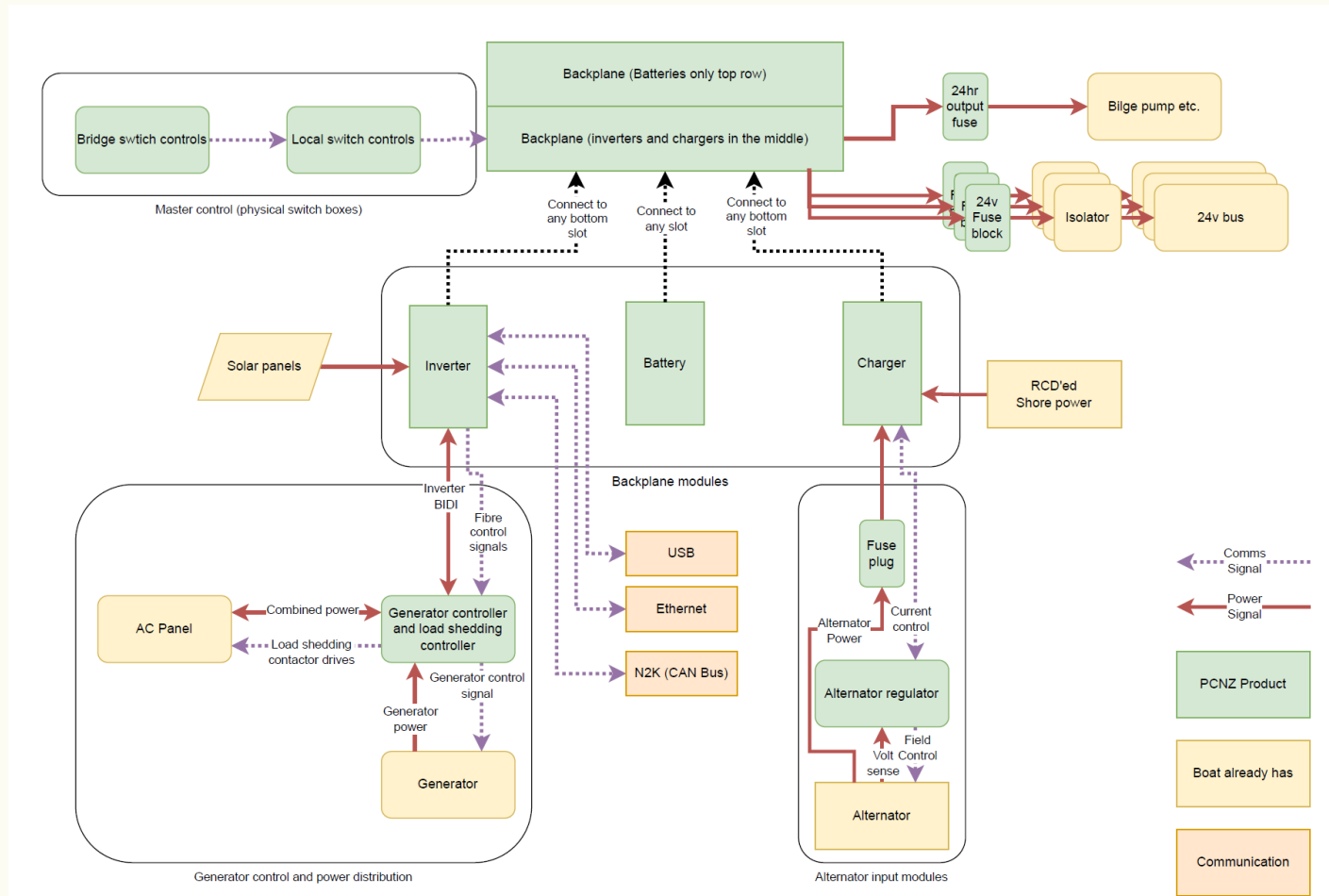
- Depth: 512mm [20.2in]

**Other Features:**

- Ø 13mm [.5in] THRU (hole diameter)

|                 |                     |
|-----------------|---------------------|
| <b>HxWxD mm</b> | <b>1319x522x512</b> |
|-----------------|---------------------|

# Functional Block Diagram





# AC & DC Connections

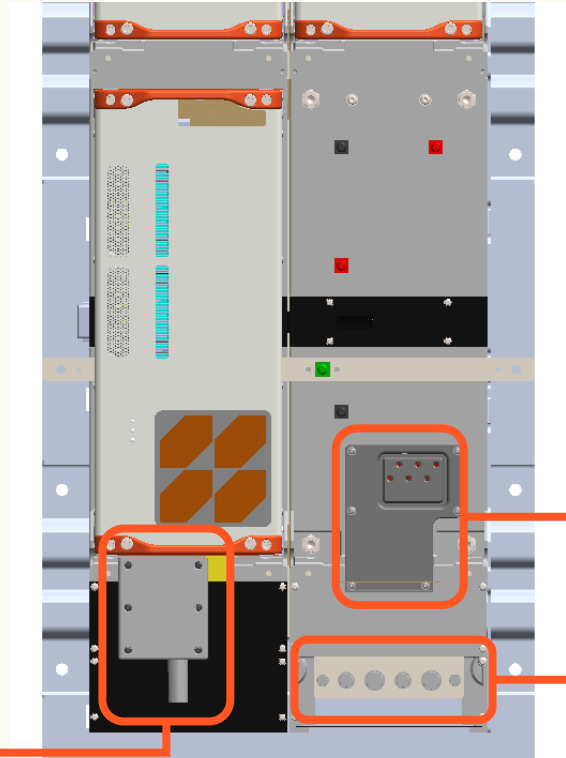
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## AC & DC In

AC in. Shore power to charger

DC in. Alternator to charger.

DC in. Solar to inverter



AC Out

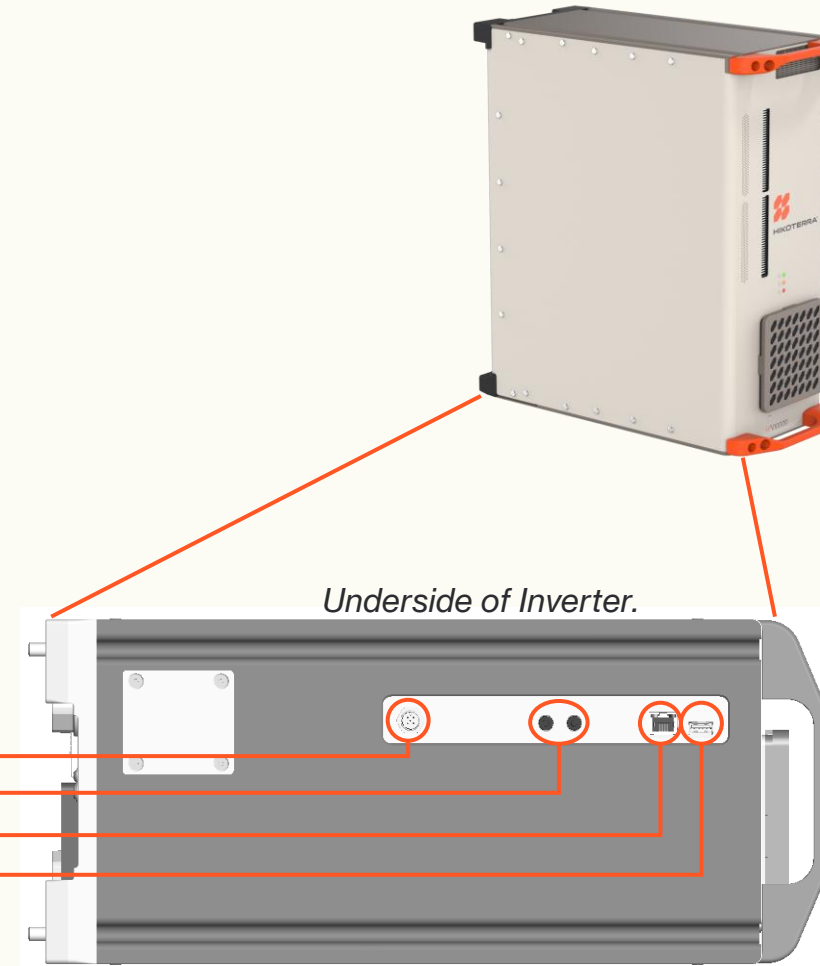
DC Out  
(6/8/10mm)



# Comms & I/O

All accessible comms on Inverter.

| Port        | Connector   | Function                                         |
|-------------|-------------|--------------------------------------------------|
| NMEA2000    | Micro C     | NMEA2000 communication for MFD Integration       |
| Fibre Optic | IF-D91B     | "Connector less" Generator controller            |
| Ethernet    | RJ45 10/100 | Configuration & connection to comms gateway      |
| USB         | USB-A       | SW Updates via USB stick, configuration, logging |





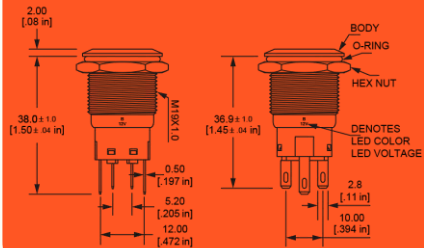
# Control panel & switches

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| Function      | Control | Location | Note                                      |
|---------------|---------|----------|-------------------------------------------|
| System Enable | AC&DC   | Rack     | Within 1m of rack                         |
| DC Isolator   | DC      | Bridge   | Controls an ML downstream of 24hr circuit |
| AC Enable     | AC&DC   | Bridge   | Controls inverter output, on/off          |
| Alarm Mute    | Alarm   | Bridge   | Mutes alarm                               |
| Alarm buzzer  | Alarm   | Bridge   |                                           |

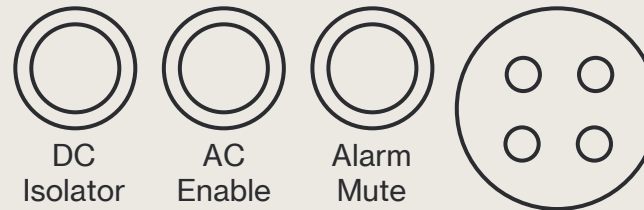
## Recommended Switch

### Langir L19A

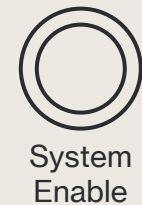


Gold contacts required

## Bridge



## Rack

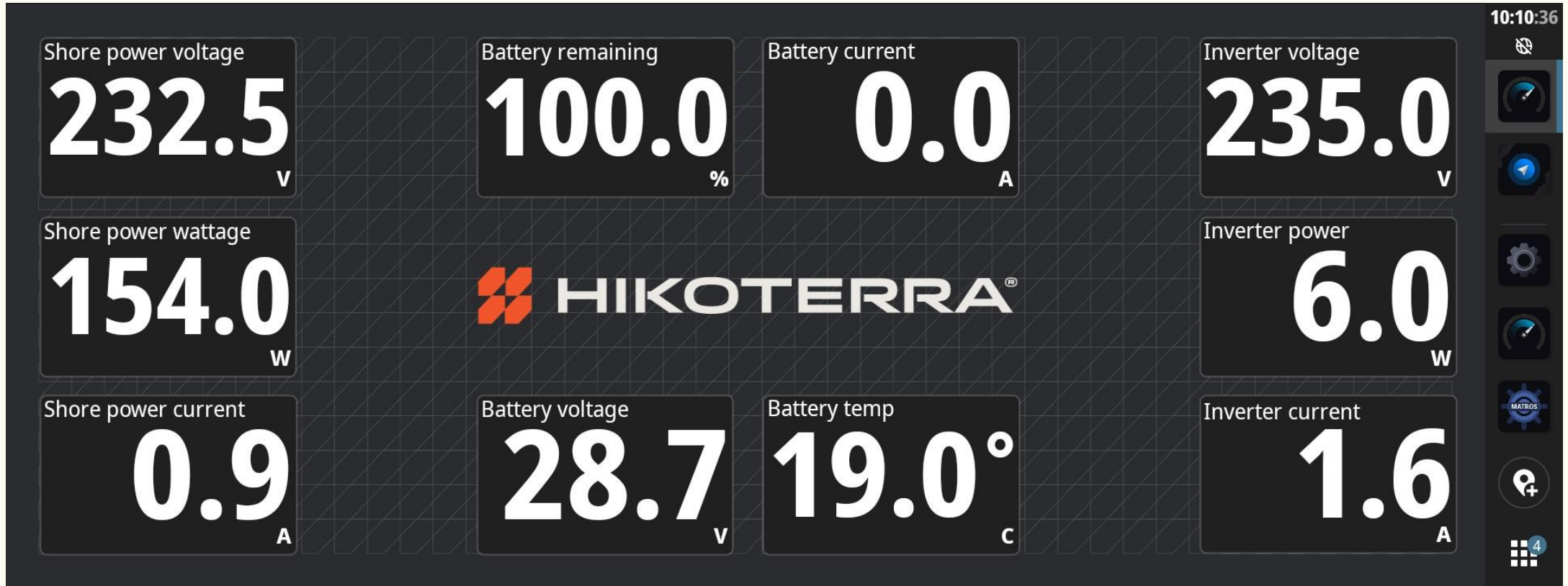


Deutsch  
connector

# Integration, NMEA2000-Supported PGN's

| PGN    | Description                            |
|--------|----------------------------------------|
| 59392  | ISO_ACKNOWLEDGEMENT                    |
| 59904  | ISO_REQUEST                            |
| 60416  | ISO_TRANSPORT_PROTOCOL                 |
| 60928  | ADDRESS_CLAIMED                        |
| 65240  | ISO_COMMANDED_ADDRESS                  |
| 126208 | COMMAND_GROUP_FUNCTION                 |
| 126464 | PGN_LIST                               |
| 126983 | ALERT                                  |
| 126984 | ALERT_RESPONSE                         |
| 126992 | SYSTEM_TIME                            |
| 126993 | CONFIGURATION_INFORMATION              |
| 127491 | ELECTRIC_ENERGY_STORAGE_STATUS_DYNAMIC |
| 127503 | AC_INPUT_STATUS                        |
| 127504 | AC_OUTPUT_STATUS                       |
| 127506 | DC_DETAILED_STATUS                     |
| 127507 | CHARGER_STATUS                         |
| 127508 | BATTERY_STATUS                         |
| 127509 | INVERTER_STATUS                        |
| 127510 | CHARGER_CONFIGURATION_STATUS           |
| 127511 | INVERTER_CONFIGURATION_STATUS          |
| 127512 | AGS_CONFIGURATION_STATUS               |
| 127513 | BATTERY_CONFIGURATION_STATUS           |
| 127514 | AGS_STATUS                             |
| 127744 | AC_POWER_CURRENT_PHASE_A               |
| 127747 | AC_VOLTAGE_FREQUENCY_PHASE_A           |
| 127750 | CONVERTER_STATUS                       |
| 127751 | DC_VOLTAGE_CURRENT                     |
| 129033 | LOCAL_TIME_OFFSET                      |
| 130060 | LABEL                                  |
| 130567 | WATERMAKER                             |
| 127502 | SWITCH BANK CONTROL (backlog)          |
| 127501 | BINARY STATUS REPORT (backlog)         |

# MFD Integration, NMEA2000, Simrad NSX



Screenshot taken from H<sup>4</sup> system & Simrad NSX 15UW