

## VPR D220ABE100MH/ VPR D220ABE100M LOADBANK BROCHURE



## Advanced Features

### **Clever maintenance:**

**Auto learn feature:** This intelligent feature, with the smart support from software is saves a lot of time for maintenance and alignment of the device with just a few buttons press. It allows the loadbank to self-learn all of resistor parameters changed after long time operation. Auto learn is integrated on the automatic loadbank model VPR D220ABE100M. The automatic input all new values of the control ports are done simply without the support of Marstech's specialized engineers.



The alignment of voltages and currents on these new loadbank models also does not need hardware interference like other conventional loadbank

### **Modular design for easy capacity expansion:**

No need to use a very big loadbank, no need to bring a heavy loadbank to test a small battery source. Even demanding big current do not require heavy cranes



Modular design is a great idea! You only bring the necessary number of modules. Only one main module VPR D220ABE100M is needed to test the load at the rated 160A, or add 1 more extend module VPR D220-100 to test the current up to 320A, or add 2 more extend modules if you need to discharge the 480A current ...



easy ca



**Table of rated current according to the number of modules:**

| Product name             | Product code     | Description                                   | Nominal current | System nominal current | No. Extend module |
|--------------------------|------------------|-----------------------------------------------|-----------------|------------------------|-------------------|
| VPR hybrid loadbank 480A | VPR D220ABE100MH | Operation in automatic or manual control mode | 160A            | 480A                   | 2                 |
| Extend module            | VPR D220A-100    | 160A extend module                            | 160A            | N/A                    | N/A               |

Hybrid loadbank VPR DD220ABE100M can operate in automatic mode control by microprocessor or manual control by ON/OFF switch. This is the best solution and its feature is very helpful when you want to resume an interrupted work in case automatic mode failure. Therefore, it is very suitable for projects that require high continuity and safety such as in the oil and gas industry, in thermal power plants ... when hiring foreign experts they calculated salary on a daily basis very expensive

- ✚ **Test report:** Data discharge test can export to excel file by designed minute for flexibility analysis, voltage chart, current discharge chart...

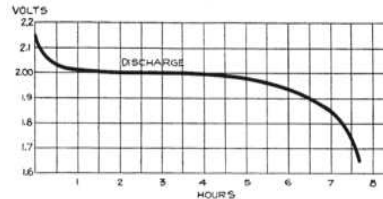


Fig. 22. Voltage Changes During Discharge

- ✚ **Reference test point:** On front panel is a convenient test point for measurement and check the accuracy of voltage and current by mV. Measuring currents in mV improves discharge current accuracy



- ✚ **Auto fan start/ stop:** The cooling fan can be set to start / stop automatically according to design time (in minutes). The cooling fan will stop automatically after the discharge cycle ends (BLVD / low voltage detected) to help reduce noise and save power. The fan tray is designed to easily replace a new one in minutes. Automatic fan speed control according to temperature up or down. We use famous Japanese brands such as Nidec Servo, Sanyo



**System operation and monitoring:**

System operation and monitoring by front control panel including LCD 4 rows 20 characters, built-in keypad. The loadbank status is indicate by 4 leds: Run status – finish status – alarm status – cooling fan status. All alarm status (fan error, overload, over temperature...) by sound is available



(Operation monitor by Keypad)

10" large touch screen is option for easy operation & monitoring, big data storage and more than functions... Data can send to cloud or remote monitoring via internet connection  
Wireless built-in on large touch screen module for remote control monitoring within a radius of 100-120m is an Option



(Remote setting/ monitor via wireless)



(Setting/ monitor by VPR Console)

**Total protection by MCB:**

MCB per each module as an option, it automatically switches OFF electrical circuit during any abnormal condition in the electrical network such as overload & short circuit conditions. which guards the electric wires & electrical load from overcurrent to avoid any kind of fire or electrical hazards. Inside the loadband also have some more protection: overheat, over current, fan error... help double protection



(Total current protection)

| <b>Detail specification</b>                                            |                                                     |
|------------------------------------------------------------------------|-----------------------------------------------------|
| <b>General description</b>                                             |                                                     |
| 160A main hybrid module product code                                   | VPR D220ABE100MH                                    |
| 160A extend module                                                     | VPR D220-100                                        |
| Hybrid module operation type                                           | Hybrid (auto or manual operation)                   |
| Automatic module operation type                                        | Automatic operation only                            |
| Auxiliary power supply (V AC)                                          | Auto volt 80~240 (50/60HZ)                          |
| Auxiliary power consumption (W)                                        | ~250W per each Module                               |
| Loadbank type:                                                         | DC                                                  |
| Loabank mechanical structure type                                      | Module                                              |
| <b>Structural mechanics</b>                                            |                                                     |
| Steel frame                                                            | Electrostatic painting                              |
| Transport                                                              | Flexible moving by 4 wheels/ stainless steel handle |
| Fan motor material                                                     | Aluminum                                            |
| Operating temperature (°C)                                             | 0 ~ 55°C (32°F to +131°F), max 60 °C (140 °F)       |
| Storage & transport temperature                                        | -40°C to +40°C (-40°F to +104°F)                    |
| Humidity                                                               | 5% – 95% RH, non-condensing (max 98%)               |
| Operating time                                                         | 24/24                                               |
| Module dimensions (mm)                                                 | W650 x H340 x D280                                  |
| Weight (kg)                                                            | ~45kg (~99.2lbs)/ module                            |
| <b>Load step</b>                                                       |                                                     |
| Load step in manual control                                            | ≥15 (min step 0.25A/55W)                            |
| Load step in automatic control                                         | 24 (min step 0.1A/22W)                              |
| <b>Resistive bank:</b>                                                 |                                                     |
| Resistor type                                                          | Stainless steel to withstand high temperatures      |
| Resistor bank easy to replace                                          | Yes                                                 |
| Resistive Inaccuracy in case temperature Increase to maximum (260V DC) | ± 3%                                                |
| <b>Capacity exptend</b>                                                |                                                     |
| Maximum self-capacity expanded (A)                                     | 160                                                 |
| Maximum expanded by module (A)                                         | ≥ 480 (full system)                                 |

|                             |                                                                                             |                          |
|-----------------------------|---------------------------------------------------------------------------------------------|--------------------------|
| <input type="checkbox"/>    | Auxiliary power supply built-in (V AC)-auto voltage                                         | ✓                        |
| <input type="checkbox"/>    | Using DC test source as system power supply                                                 | N/A                      |
| <input type="checkbox"/>    | Automatic control by micro Processor.                                                       | ✓                        |
| <input type="checkbox"/>    | Manual control by switch (in manual mode)                                                   | ✓                        |
| <input type="checkbox"/>    | Automatic storage 30 discharge circles to built-in memory.                                  | ✓                        |
| <input type="checkbox"/>    | Built-in memory capacity                                                                    | ≥4MB                     |
| <input type="checkbox"/>    | Smart auto learn function (auto-align voltage, current...)                                  | ✓                        |
| <input type="checkbox"/>    | Operation, setup, monitoring from a PC                                                      | ✓                        |
| <input type="checkbox"/>    | Operation, setup from keypad                                                                | ✓                        |
| <input type="checkbox"/>    | Export test report to pc for easy analysis, report, storage...                              | ✓                        |
| <input type="checkbox"/>    | Automatic count battery capacity (AH)                                                       | ✓                        |
| <input type="checkbox"/>    | Cooling fan can flexibly preset to auto start/ stop time to save energy and noise reduction | ✓                        |
| <input type="checkbox"/>    | Voltage/ mV test point for parallel measurement V/A                                         | ✓                        |
| <b>Power measurement:</b>   |                                                                                             |                          |
| <input type="checkbox"/>    | Power range (kW)                                                                            | 0.0 ~ 2999.9             |
| <input type="checkbox"/>    | Basic inaccuracy (kW)                                                                       | ±(0.5% of reading 0.02)  |
| <input type="checkbox"/>    | Power resolution (W)                                                                        | 0.1                      |
| <input type="checkbox"/>    | Internal power measurement range in CP mode (kW)                                            | 0 ~ 148.59               |
| <b>Current measurement</b>  |                                                                                             |                          |
| <input type="checkbox"/>    | Current display range (A/AH)                                                                | 0.0 ~ 2999.9             |
| <input type="checkbox"/>    | Basic current inaccuracy (A/AH)                                                             | ±(0.5% of reading +0.02) |
| <input type="checkbox"/>    | Current resolution (A/AH)                                                                   | 0.1                      |
| <input type="checkbox"/>    | Internal current measurement range in CC mode (A)                                           | 0.0 ~ 571.5              |
| <b>Voltage measurement:</b> |                                                                                             |                          |
| <input type="checkbox"/>    | Voltage range (V)                                                                           | 0.0 ~ 2999.9             |

|                               |                                                                                                                                                                 |                                                     |
|-------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------|
| <input type="checkbox"/>      | Basic inaccuracy (V DC)                                                                                                                                         | $\pm (0.5\% \text{ of reading } +0.02)$             |
| <input type="checkbox"/>      | Resolution (V)                                                                                                                                                  | 0.1                                                 |
| <input type="checkbox"/>      | Internal voltage range (V DC)                                                                                                                                   | 260                                                 |
| <b>Time measurement:</b>      |                                                                                                                                                                 |                                                     |
| <input type="checkbox"/>      | Inaccuracy                                                                                                                                                      | $\pm 0.1\% \text{ of reading } \pm 1 \text{ digit}$ |
| <input type="checkbox"/>      | Time measurement range (minute)                                                                                                                                 | 0 ~ 29999.0                                         |
| <b>Load control function:</b> |                                                                                                                                                                 |                                                     |
| <input type="checkbox"/>      | Constant current control mode (CC).                                                                                                                             | ✓                                                   |
| <input type="checkbox"/>      | Constant power control mode (CP).                                                                                                                               | ✓                                                   |
| <input type="checkbox"/>      | Constant resistor control mode (CR).                                                                                                                            | ✓                                                   |
| <input type="checkbox"/>      | Time limit mode (TL)                                                                                                                                            | ✓                                                   |
| <b>Alarm and display:</b>     |                                                                                                                                                                 |                                                     |
| <input type="checkbox"/>      | LCD display                                                                                                                                                     | 20 characters x 4 rows                              |
| <input type="checkbox"/>      | 10" large touch screen for more multi parameter display                                                                                                         | Option                                              |
| <input type="checkbox"/>      | VPR Console multi parameter display (pc software)                                                                                                               | ✓                                                   |
| <input type="checkbox"/>      | Simultaneous display of parameters on LCD: total capacity(AH), total power (kW), Constant current set (CC), constant power set (CP), constant resistor set (CR) | ✓                                                   |
| <input type="checkbox"/>      | Alternate 2 zones temperature show on LCD                                                                                                                       | ✓                                                   |
| <input type="checkbox"/>      | Show running status Led                                                                                                                                         | ✓                                                   |
| <input type="checkbox"/>      | Show running status on LCD                                                                                                                                      | ✓                                                   |
| <input type="checkbox"/>      | Show finish status by Led                                                                                                                                       | ✓                                                   |
| <input type="checkbox"/>      | Show finish status on LCD                                                                                                                                       | ✓                                                   |
| <input type="checkbox"/>      | Show low volt on LCD (BLVD)                                                                                                                                     | ✓                                                   |
| <input type="checkbox"/>      | Over temperature alarm showing by Led                                                                                                                           | ✓                                                   |

|                            |                                                               |     |
|----------------------------|---------------------------------------------------------------|-----|
| <input type="checkbox"/>   | Over temperature alarm showing on LCD                         | ✓   |
| <input type="checkbox"/>   | Over current alarm showing by Led                             | ✓   |
| <input type="checkbox"/>   | Over current alarm showing on LCD                             | ✓   |
| <input type="checkbox"/>   | Hight voltage show by Led                                     | ✓   |
| <input type="checkbox"/>   | Hight voltage showing on LCD                                  | ✓   |
| <input type="checkbox"/>   | Fan error showing on Led                                      | ✓   |
| <input type="checkbox"/>   | Fan error showing on LCD                                      | ✓   |
| <input type="checkbox"/>   | Alarm sound: over current, fan error, over temperate...       | Yes |
| <b>Protection function</b> |                                                               |     |
| <input type="checkbox"/>   | Automatically protect over current                            | ✓   |
| <input type="checkbox"/>   | Automatically protect over temperature                        | ✓   |
| <input type="checkbox"/>   | Automatically protect over voltage                            | ✓   |
| <input type="checkbox"/>   | Automatically detect and protect fan error                    | ✓   |
| <input type="checkbox"/>   | Automatically stop if alarm over current, over temperate...   | ✓   |
| <input type="checkbox"/>   | Automatic detect protect pole reverse                         | ✓   |
| <input type="checkbox"/>   | Automatic stop discharging when battery voltage down to BLVD  | ✓   |
| <input type="checkbox"/>   | Automatically detects and protect obstructed radiator airflow | ✓   |
| <input type="checkbox"/>   | Main control module MCB                                       | ✓   |
| <input type="checkbox"/>   | Extend module MCB                                             | ✓   |
| <input type="checkbox"/>   | Emergency stop switch                                         | ✓   |

**Reference table for current, voltage, power of the loadbank VPR D220ABE100M in independent operation mode and single operation mode**

| <b>A- Parameters Hybrid loadbank VPR D220ABE100M and VPR D220-100Option module when operating in independent mode</b> |                 |                                               |                      |                      |                    |                                  |                                   |                                |
|-----------------------------------------------------------------------------------------------------------------------|-----------------|-----------------------------------------------|----------------------|----------------------|--------------------|----------------------------------|-----------------------------------|--------------------------------|
| Product name                                                                                                          | Product code    | Description                                   | Nominal /max voltage | Nominal /max current | Nominal power/ max | Constant current discharge range | Constant resister discharge range | Constant power discharge range |
| VPR hybridc loadbank 220VDC/480A                                                                                      | VPR D220ABE100M | Operation in automatic or manual control mode | 220V/ max 260V DC    | 160A/ max 190.5A     | 35.2/ max 49.53kW  | (0.1~190.5)A                     | (1.375~2200)Ω                     | (0.022~49.53)kW (**)           |
| 160A extend module                                                                                                    | VPR D220-100    | Extend module                                 | 220/ max 260V DC     | 160A/ max 190.5A     | 35.2/ max 49.53kW  | N/A                              | N/A                               | N/A                            |

| <b>B- Parameters Hybrid loadbank VPR D220ABE100M and VPR D220-100Option module when operating in multi module</b> |                      |                 |                             |                             |                           |                                  |                                   |                                |
|-------------------------------------------------------------------------------------------------------------------|----------------------|-----------------|-----------------------------|-----------------------------|---------------------------|----------------------------------|-----------------------------------|--------------------------------|
| Extend module                                                                                                     | No. of extend module | Manual steps(*) | System nominal /max voltage | System nominal /max current | System nominal power/ max | Constant current discharge range | Constant resister discharge range | Constant power discharge range |
| VPR D220-100                                                                                                      | 1                    | ≥14             | 220V DC max 260V DC         | 320/ Max 381.0A             | 70.4/ Max 99.06kW         | (0.1~381.0)A                     | (0.68~2200)Ω                      | (0.022~99.06)kW (**)           |
|                                                                                                                   | 2                    | ≥15             | 220V DC max 260V DC         | 480/ Max 571.5A             | 105.6/ Max 148.59kW       | (0.1~571.5)A                     | (0.456~2200)Ω                     | (0.022~148.59)kW (**)          |

(\*) Safety operation 24/24 mode discharge voltage range from 0 ~ 260VDC. At 270VDC voltage threshold can be discharge within the limit ≤12h.

(\*\*) The minimum load step in manual mode is 0.25A, automatic mode is 0.1A

**Option note:**

- Large touch screen
- Load test cable more than 2m (built-in 2m)
- Quatest certificate

- VPR DC console software license

***Our customers:***



*Some images about:*



UPS/INVERTER battery bank  
Discharg for Thai Binh  
Thermoelectric Plant





UPS/AC Power Test & Battery  
bank discharge for Vinh Tan  
Thermoelectric Plant



UPS



SAFT Battery bank





Duyen Hai 3 extension



Energsys battery bank



measure the temperature of Vietpro loadbank by infrared thermometer

UPS Power Test & Battery bank  
discharge for Duyen Hai 3  
Extension Thermoelectric plant



Shipping Vietpro loadbank to the  
Construction site



VPR D220A-300 loadbank (2 module  
for extended capacity up to 300A)



Discharge the 2.600AH Energsys  
battery bank



UPS/ DC Power supply



Black & Veatch International (main  
contractor)



UPS Test & Battery bank  
discharge for D Mon  
Thermoelectric plant



FIAMM battery bank



VPR loadbank for Accu discharge



DC disconnecting SW



UPS/DC Power supply



UPS/ battery bank Discharge for  
Sao Vang Dai Nguyen Oil-  
Shore





## GALLAF PROJECT (2020)



HYBRID LOADBANK VPR D220ABE100M

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