Technical Specification
Automatic Load Bank

AC 415-200kW

Top Rail Services Pty Ltd

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ISO 9001:2015

AUSTRALASIAN RAILWAY ASSOCIATION

1. Foreword

According to the special requirements, we work out a solution AC415-200KW Automatic Load Bank (we called system in following paragraphs), including technical standard of function, performance, instruction, structure, installation and testing.

System consists of measuring control and load bank. Mainly including Dry Type AC Load Bank, Data Acquisition System, Automatic Load/unload Control System, Cooling Device, Assist-control Device and PC software (English).

All the pictures in this solution are only for reference, according to the real object please.

2. Testing System

Note: Power cable and PC, remote controller, printer are not available. If need them, prices will be checked.

Picture just for reference, subject to the real products.

3. Supply List

The following form presents the accessories provided when we make shipment.

Items	Quantity	Remark
AC415-200kW Automatic Load Bank	1	
RS485 or RS232	1	10 meters
RS232, RS485, USB Converter	1	
Product Instruction	1	
Certification	1	
Warranty Card	1	1 year
Packing List	1	
Receiving Apron	1	
Data Processing Software	1	
Test Report	1	

4. Technical Parameter

AC415-200kW Automatic Load Bank	
Rating Voltage/Frequency	415VAC/50Hz, 3 phase 4 wire
Rated Load Power	Resistive load: 210kW
Load Step	1、2、2、5、10、20、20、50、100kW, min step load: 1kW
PF(Power Factor)	1
Load Tolerance（each step）	±5%
Load Tolerance（overall）	±3%
Display Precision	0.5 class
Control Power	External 240VAC single phase, 50HZ
Wire Connection	Load power supply input - Copper bar (star coupling) Control power supply input - Connector-bar
Insulation	F
Duty Cycle	Continuous
Cooling	Forced air cooling
Transportation	Hoisting, with lifting lug on top and castors at the bottom of casing
Dimension	About 1450mm*900mm*900mm(L*W*H)
Weight	About 350kgs
Casing Color	Grey（RAL7035）or as required
Operating Environment Parameter	

Workplace	Indoor
Ambient Temperature	-20℃～+50℃
Relative Humidity	≤95%
Altitude	≤2500 meter
Atmospheric Pressure	86～106kPa
Brands of Main Components	
Contactor	Schneider
Fuse	Miro
PLC	Siemens
Data Processing Software	Top Rail Services（self-developed）
Alloy Resistance	Top Rail Services（self-developed）

5. Function

1) User could load any power within rated power, can test stable state three-phase voltage, current, active power, reactive power, apparent power, power factor, frequency, running time of generating set.
2) Whether load/unload by manual control panel, remote control or by PC software control, user can pre-set the power then press the master load button.
3) Control mode: user can choose local manual control, remote control (optional) or Intelligent control (PC control)

3.1 Local manual control: there is local control panel in load bank, with multi load steps, min load steps 1kW, controlled by buttons.

3.2 Remote control: remote controller connected the load bank with control cable. (optional)

3.3 Intelligent control: user can control load bank by data processing software of PC to make automatic load/unload, display, record and manager the test data, form curve, graph and can be printed.

4) Control mode interlock: there is switch in control panel to choose control mode, other control mode is invalid if user choose one control mode.
5) With data processing software, could form curve of current, active power, reactive power, apparent power, power factor, frequency and can be printed.
6) One-key load/unload: user can load or unload with one key easy to control.
7) 3 line LED multi-function meter display.

6. Data Processing Software Functions

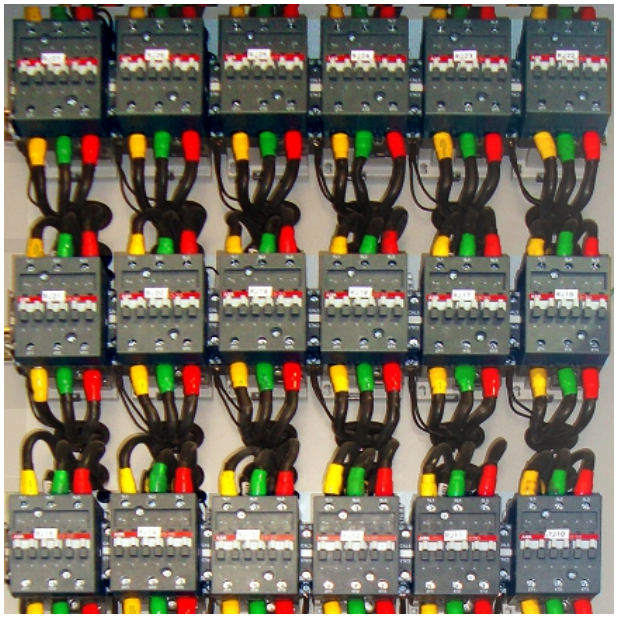
1) Communication type: through RS232, RS485 or USB interface.
2) Load mode: manual load or automatic load.
3) Manual load: input power and power factor.
4) Automatic load: User can set several periods of power and time, and in turn of 0%→25%→50%→75%→100%, etc preset order to make automatic load testing.
5) Parallel testing: when several load banks parallel working, parameters of each load bank can be displayed and recorded, so do the final parameters of paralleling working.
6) Real-time parameter: Current, voltage, power, power factor, frequency, time, etc could be displayed by software.
7) Safety monitoring: User can know the working conditions of load bank through software indicating light. When in abnormal stop protection, software will indicate the reasons of stopping.
8) Data collection interval: the min saving interval is 2 seconds.
9) Data saving and in query: testing data could be saved in software, user can query at any time.
10) Data display: it could display real-time data and history data; user can print voltage, current, frequency, power graphs and charts.
11) Charts and graphs are output in format of JPG while testing data output in Excel format, and all can be printed.

7. Protection

1) User can press the emergency stop button in the panel to unload immediately when the load bank is abnormal while working.
2) Over-load: Automatic load dump and give alarm when voltage is over safety thresholds.
3) Short Circuit Protection: Fuse could avoids damage to equipment when short circuit or current overload.
4) Fan protection: Machine could not do load testing before working power of fan is on.
5) The machine will unload and give alarm when any fan is abnormal or with insufficient air volume, etc.
6) When control power cable in wrong connections, 3 phase fans can also work in good conditions.
7) Protection button: there are some protection buttons can be switched off when false alarm or for special requirements.

8. Picture Show

Note: Pictures only for reference, subject to the real product



Contactor

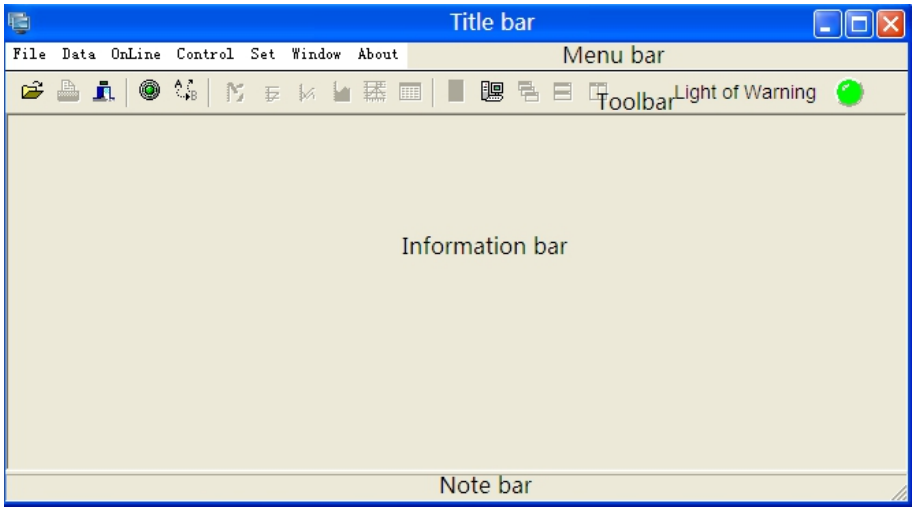
Fuse

Fan

9. Data Processing Software

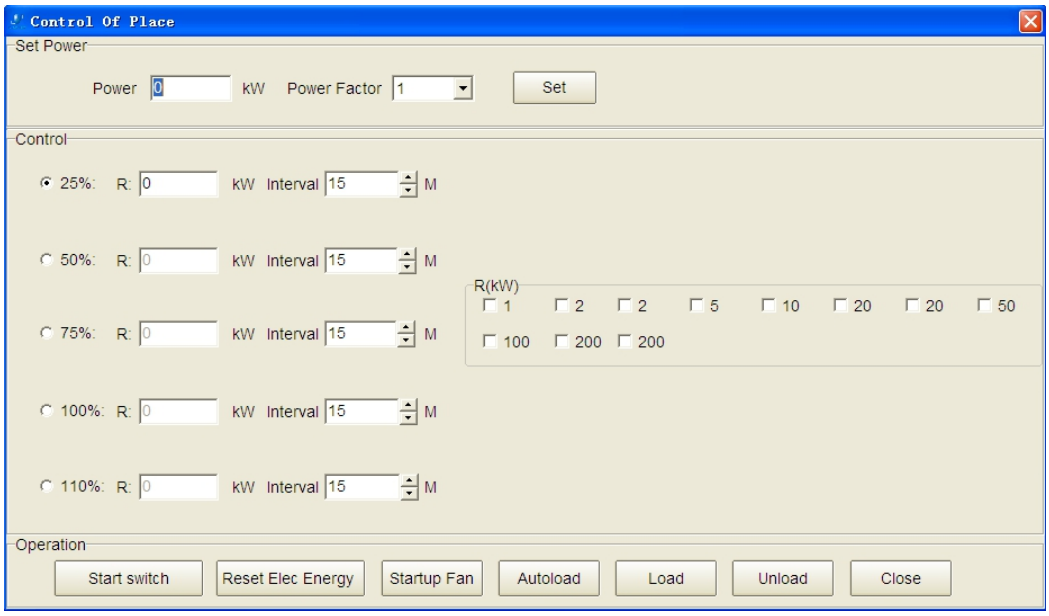
The data processing software is installed in the notebook or PC, customer can connect computer and load bank by data transmission line, and then realize all the test function by intelligent control through the software

（1） **Main Interface:** the software can realize many functions, such as adding load, data collecting, storage, management and so on.



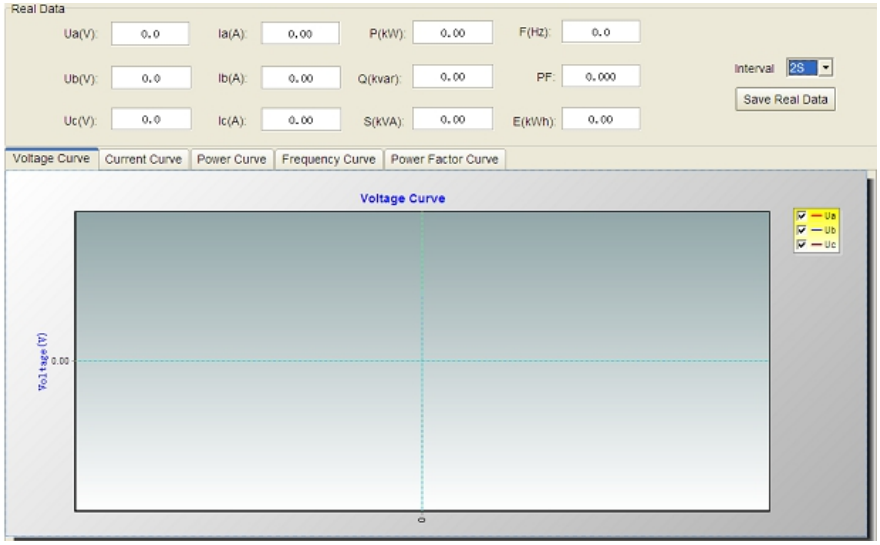
（2）**Add Load:** there are two modes to choose, manual operation or auto.

1) Manual loading: customer select and set the power value, then the system add the load continuously.



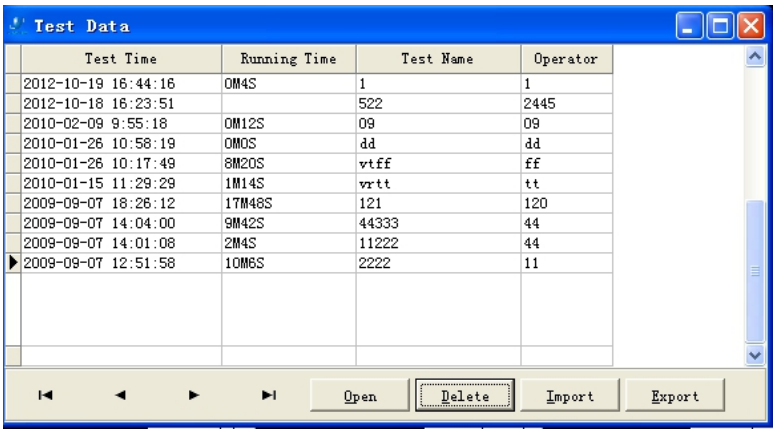
2) **Automatic loading:** customer can set several add stage， each stage can be different in power an time, system completes the add process according this order: 0%→25%→50%→75%→100% or 110%.

(3) **Data display:** it can display the real-time data, curves and graphs. Customer can save data at any time, and set data storage of interval time freely.

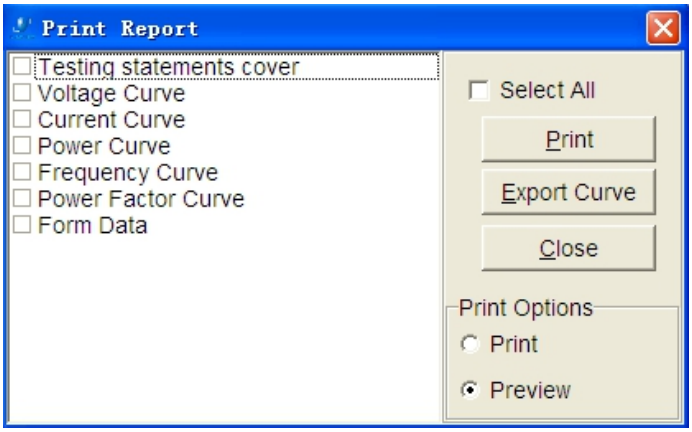


（4）**Data management:** after testing, customer should save useful data, and you can query and print at any time.

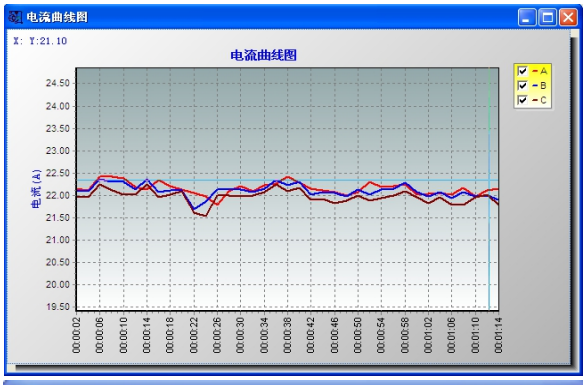
1) Data Query: customer can read testing record which is saved in the past, and view all the data in curve graphs or forms.

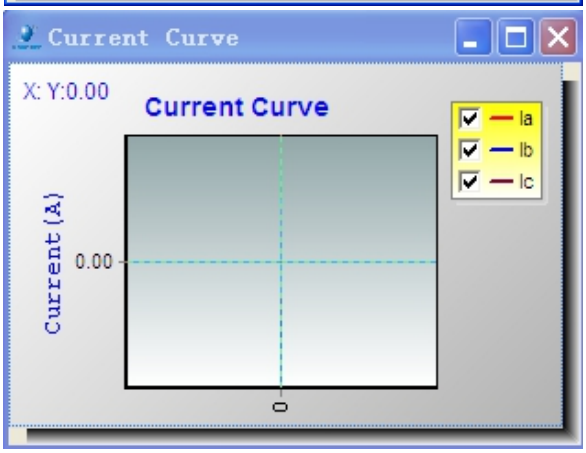


2) Print: customer can choose the testing data curve or graph you need to print.

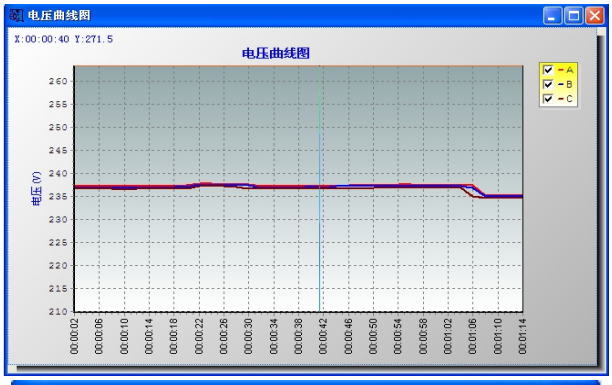


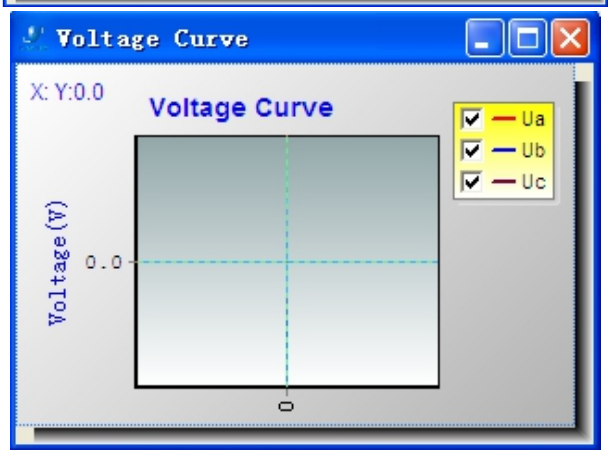
Current curve



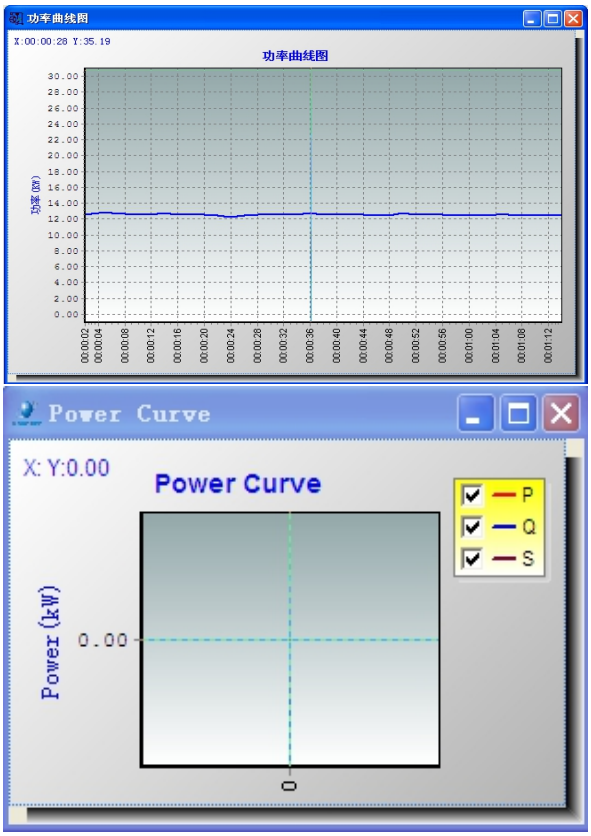


Voltage curve

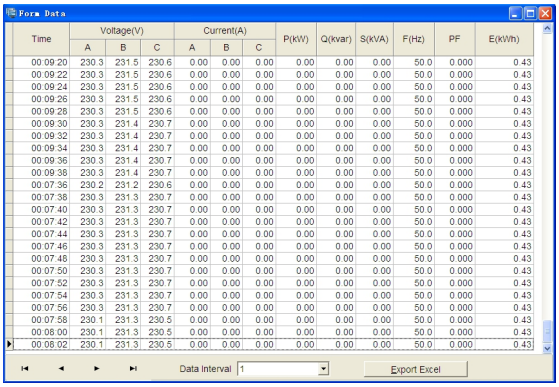




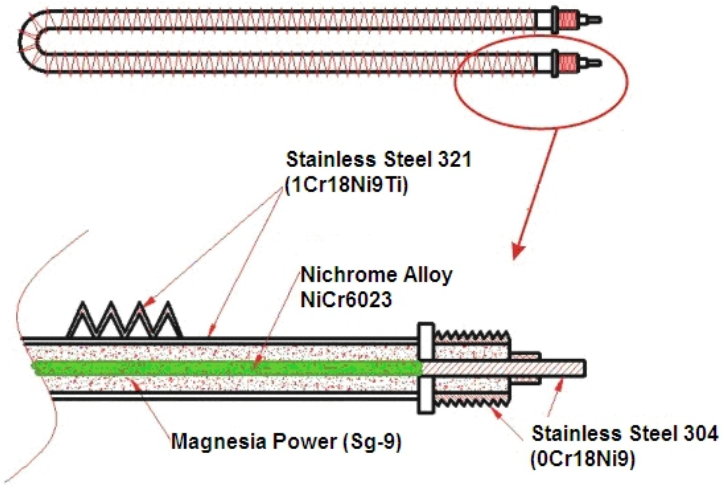
Power curve



Data



10. Resistor



About resistor alloy, we use nickel-chromium alloy (NiCr6023) which can withstand high temperature (Max operation temperature at 1,300℃), be of small temperature drift (5*10-5/℃) and steady electrical performance.

11. After-sale Service

(1) Warranty period is one year.

(2) If required, technicians will be sent to help customer install and debug the machine.

(3) We can provide training service on site for customer's technicians to meet the requirement of daily work and maintenance.

(4) Customer has the right of technical consulting service for free forever.