

# Technical Specification Automatic Load Bank

## AC415-200kW



## T-power Pty Ltd

# 1. Foreword

According to the special requirements, we work out a solution AC415-200KW Automatic LoadBank(wecalledsysteminfollowingparagraphs),includingtechnicalstandardoffunction,performance,instruction, structure,installation andtesting.

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-controlDevice andPCsoftware(English).

Allthepicturesinthissolutionare onlyfor reference,accordingtotherealobjectplease.

# 2. TestingSystem



Note:PowercableandPC,remotecontroller,printerarenotavailable.Ifneedthem,priceswillbe checked. Picturejustforreference,subject tothereal 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, 3phase 4wire
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
AmbientTemperature	-20℃～+50℃
RelativeHumidity	≤95%
Altitude	≤2500meter
AtmosphericPressure	86～106kPa
<b>BrandsofMainComponents</b>	
Contactora	Schneider
Fuse	Miro
PLC	Siemens
DataProcessing Software	TopRailServices (self-developed)
AlloyResistance	TopRailServices (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 timeofgenerating set.
- 2) Whether load/unload by manual control panel, remote control or by PC software control, usercanpre-set thepowerthen pressthemasterload button.
- 3) Control mode: user can choose local manual control, remote control (optional) or Intelligentcontrol(PC control)
  - 3.1 Local manual control: there is local control panel in load bank, with multi load steps, min loadsteps1kW,controlledby buttons.
  - 3.2 Remotecontrol:remote controllerconnectedtheloadbankwithcontrol cable.(optional)
  - 3.3 Intelligent control: user can control load bank by data processing software of PC to makeautomatic load/unload, display, record and manager the test data, form curve, graph and can beprinted.
- 4) Controlmodeinterlock:thereisswitchincontrolpaneltochoosecontrolmode,othercontrolmode isinvalid ifuserchooseonecontrol mode.
- 5) Withdataprocessingsoftware,couldformcurveofcurrent,activepower,reactivepower,apparentpower,power factor,frequencyand canbeprinted.
- 6) One-key load/unload:usercanloadorunloadwithonekeyeasytocontrol.
- 7) 3lineLEDmulti-functionmeterdisplay.

## 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 a turn of 0% → 25% → 50% → 75% → 100%, etc. in preset order to make automatic load testing.
- 5) Parallel testing: when several load banks are parallel working, parameters of each load bank can be displayed and recorded, so do the final parameters of parallel 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 minimum interval is 2 seconds.
- 9) Data saving and inquiry: 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.

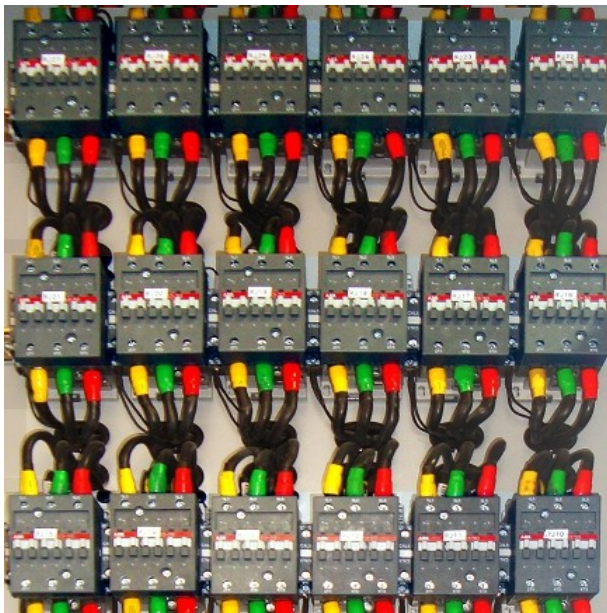
## 7. Protection

- 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 avoid damage to equipment when short circuit or current overload.
- 4) Fan protection: Machine could not do load testing before working power off 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 that can be switched off when false alarm or for special requirements.

## 8. PictureShow



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



**Contactors**



**Fuse**



Fan

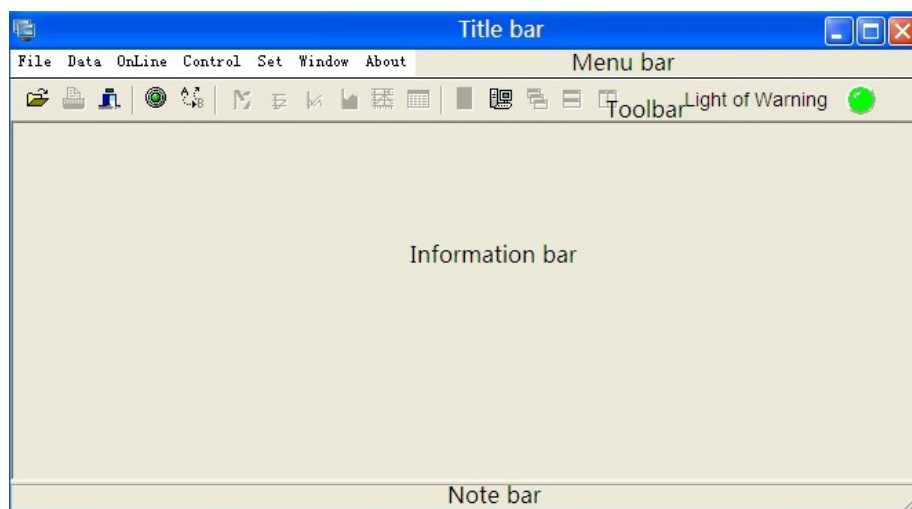
## 9. Data Processing Software



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 )

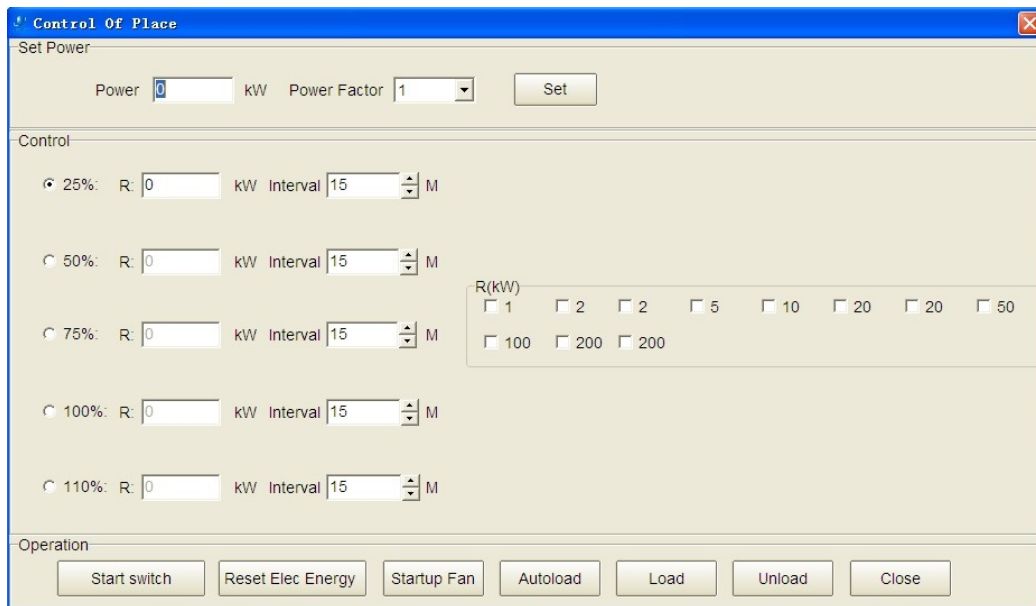
**Main Interface:** the software can realize many functions, such as adding load, data collecting, storage,



management and soon.

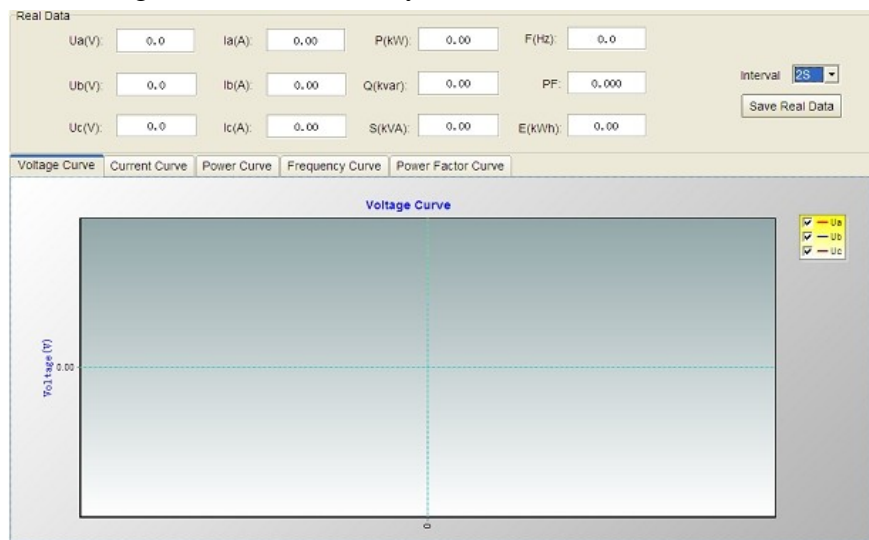
(2) **Add Load:** there are two modes to choose, manual operation or auto.

**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 and time, system completes the add process according to this order: 0%→25%→50%→75%→100%or110%.

**(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, customers 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.



Test Time	Running Time	Test Name	Operator
2012-10-19 16:44:16	0M4S	1	1
2012-10-18 16:23:51		522	2445
2010-02-09 9:55:18	0M12S	09	09
2010-01-26 10:58:19	0M0S	dd	dd
2010-01-26 10:17:49	8M20S	vtff	ff
2010-01-15 11:29:29	1M14S	vrtt	tt
2009-09-07 18:26:12	17M46S	121	120
2009-09-07 14:04:00	9M42S	44333	44
2009-09-07 14:01:08	2M4S	11222	44
2009-09-07 12:51:58	10M6S	2222	11

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

**Print Report**

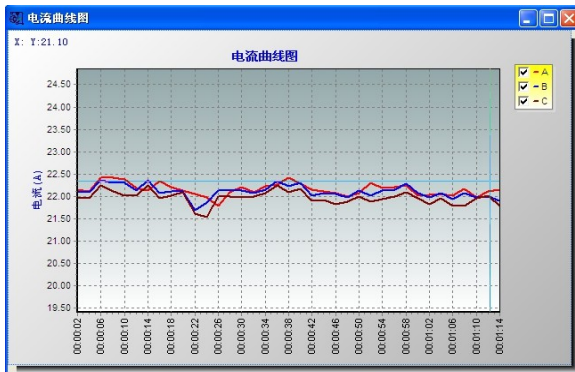
Testing statements cover  
 Voltage Curve  
 Current Curve  
 Power Curve  
 Frequency Curve  
 Power Factor Curve  
 Form Data

Select All

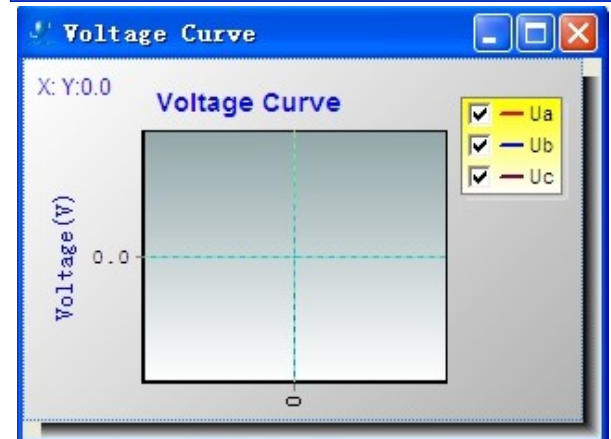
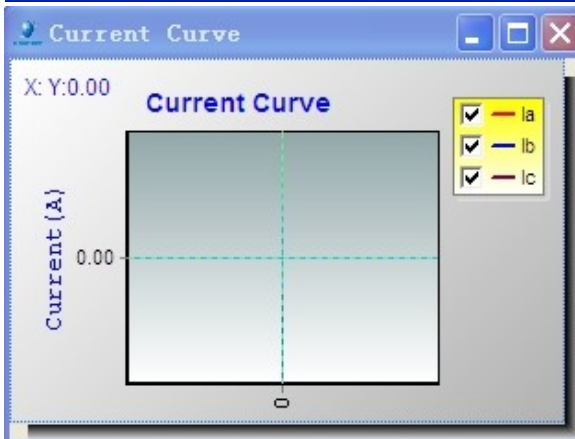
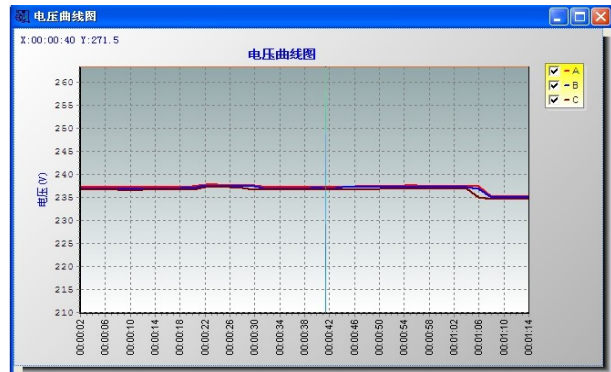
Print Options

Print  
 Preview

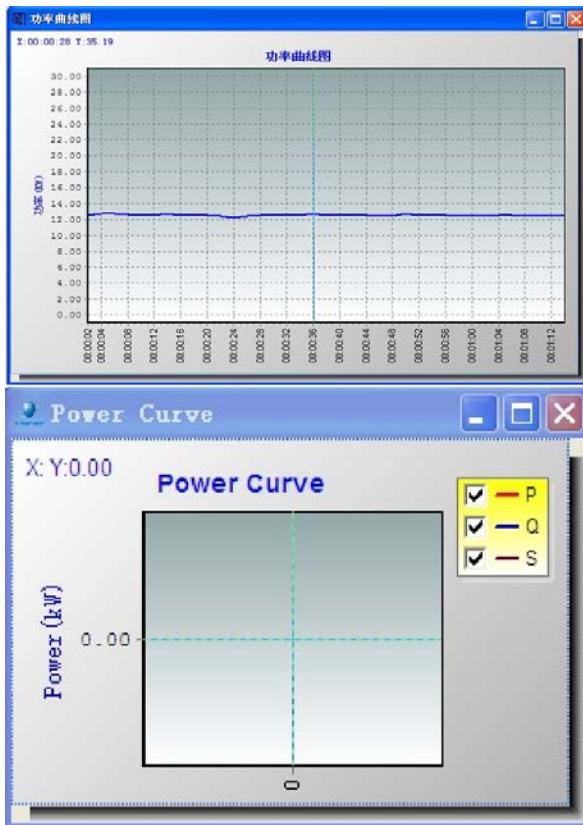
**Current curve**



**Voltage curve**



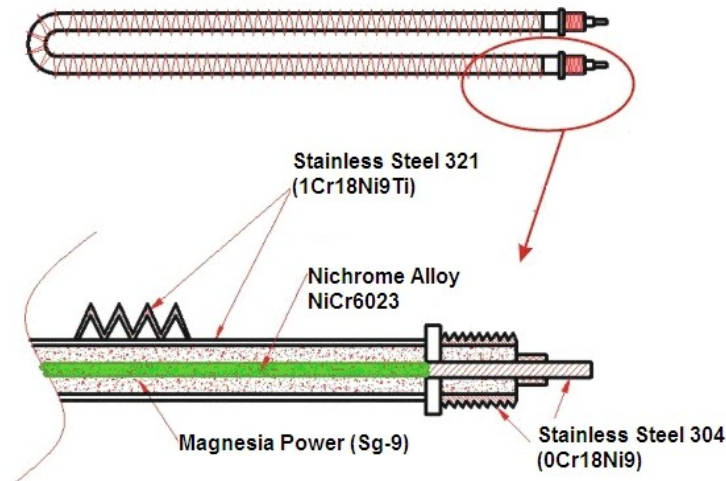
### Powercurve



### Data

Time	Voltage(V)			Current(A)			P(kW)	Q(kvar)	S(kVA)	F(Hz)	PF	E(kWh)
	A	B	C	A	B	C						
00:09:20	230.3	231.5	230.6	0.00	0.00	0.00	0.00	0.00	0.00	50.0	0.000	0.43
00:09:22	230.3	231.5	230.6	0.00	0.00	0.00	0.00	0.00	0.00	50.0	0.000	0.43
00:09:24	230.3	231.5	230.6	0.00	0.00	0.00	0.00	0.00	0.00	50.0	0.000	0.43
00:09:26	230.3	231.5	230.6	0.00	0.00	0.00	0.00	0.00	0.00	50.0	0.000	0.43
00:09:28	230.3	231.5	230.6	0.00	0.00	0.00	0.00	0.00	0.00	50.0	0.000	0.43
00:09:30	230.3	231.4	230.7	0.00	0.00	0.00	0.00	0.00	0.00	50.0	0.000	0.43
00:09:32	230.3	231.4	230.7	0.00	0.00	0.00	0.00	0.00	0.00	50.0	0.000	0.43
00:09:34	230.3	231.4	230.7	0.00	0.00	0.00	0.00	0.00	0.00	50.0	0.000	0.43
00:09:36	230.3	231.4	230.7	0.00	0.00	0.00	0.00	0.00	0.00	50.0	0.000	0.43
00:09:38	230.3	231.4	230.7	0.00	0.00	0.00	0.00	0.00	0.00	50.0	0.000	0.43
00:07:36	230.2	231.2	230.6	0.00	0.00	0.00	0.00	0.00	0.00	50.0	0.000	0.43
00:07:38	230.3	231.3	230.7	0.00	0.00	0.00	0.00	0.00	0.00	50.0	0.000	0.43
00:07:40	230.3	231.3	230.7	0.00	0.00	0.00	0.00	0.00	0.00	50.0	0.000	0.43
00:07:42	230.3	231.3	230.7	0.00	0.00	0.00	0.00	0.00	0.00	50.0	0.000	0.43
00:07:44	230.3	231.3	230.7	0.00	0.00	0.00	0.00	0.00	0.00	50.0	0.000	0.43
00:07:46	230.3	231.3	230.7	0.00	0.00	0.00	0.00	0.00	0.00	50.0	0.000	0.43
00:07:48	230.3	231.3	230.7	0.00	0.00	0.00	0.00	0.00	0.00	50.0	0.000	0.43
00:07:50	230.3	231.3	230.7	0.00	0.00	0.00	0.00	0.00	0.00	50.0	0.000	0.43
00:07:52	230.3	231.3	230.7	0.00	0.00	0.00	0.00	0.00	0.00	50.0	0.000	0.43
00:07:54	230.3	231.3	230.7	0.00	0.00	0.00	0.00	0.00	0.00	50.0	0.000	0.43
00:07:56	230.3	231.3	230.7	0.00	0.00	0.00	0.00	0.00	0.00	50.0	0.000	0.43
00:07:58	230.1	231.3	230.5	0.00	0.00	0.00	0.00	0.00	0.00	50.0	0.000	0.43
00:08:00	230.1	231.3	230.5	0.00	0.00	0.00	0.00	0.00	0.00	50.0	0.000	0.43
00:08:02	230.1	231.3	230.5	0.00	0.00	0.00	0.00	0.00	0.00	50.0	0.000	0.43

## 10. Resistor



About resistor alloy, we use nickel-chromium alloy (NiCr6023) which can withstand high temperature (Max operation temperature at 1,300°C), be of small temperature drift ( $5 \times 10^{-5}/^{\circ}\text{C}$ ) 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.