



INSTRUMENTS & ENGINEERING

FST-AC415V-600KW-R Resistive AC Load Bank

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Why load bank testing is important?

FORESIGHT series AC/DC load banks are for many power supplies load bank testing, to ensure that the standby power supply system say UPS(uninterrupted power supply), battery bank, generator, transformers, inverter etc which especially located in harsh, dusty or corrosive environment working in good condition, when you need them most, if switched to be loaded when the main power supply in maintenance procedure or stop abnormally.

The AC/DC load bank loading test preventative maintenance of such power supply systems could free you from power supply failure, to ensure constant uptime for your power systems and make you prepared for anything. Downtime could also be reduced by regular maintenance and thorough inspections which are the key to power

supply systems maintenance.

Load bank testing could help highlight a large range of faults on the power supply systems it test. The first goal achieved when testing with FORESIGHT AC/DC load bank is to ensure your power supply system is reliable or not by validating the power systems' outputs to its technical specifications. The underlying question that FORESIGHT series AC/DC load bank could answer you is--"how is my power supply systems constant uptime(technical performance) ?" The load bank also tests that the power supply system is not faulty, no faults in construction and components reliable, that the aging of the power supply system is in line with expectations and that there are no pending breakdowns or early signs of wear and tear.

FORESIGHT offers you whole AC/DC load bank testing solutions of predictive failure analysis for UPS(uninterrupted power supply), generator, transformers, PV system, inverter etc, to validate the condition and output of such power systems comprehensively. Integrated AC/DC load bank could be made in one unit or separately with different load voltages as per your need for different applications.



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<p>FORESIGHT AC/DC load banks applications</p> <ul style="list-style-type: none"> ➤ Battery bank system ➤ Energy storage system ➤ Energy meter loop load test ➤ Datacenter rack heat simulating ➤ PV system Inverter anti-islanding test ➤ Voltage regulator, rectifier aging load test ➤ Genset, UPS load bank commission testing ➤ AC/DC power supply, power source commission acceptance test 	<p>FORESIGHT series load banks loading elements (load bank types)</p> <p>Alloy resistors, inductors & capacitors loading elements are combined used in FORESIGHT series AC/DC load bank as per clients' need in different applications:</p> <ul style="list-style-type: none"> ➤ Pure resistive AC load bank ➤ Pure resistive DC load bank ➤ RCD non-linear AC load bank ➤ Resistive & inductive combined AC load bank ➤ Resistive, inductive & capacitive combined AC load bank
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<p>FORESIGHT series load banks protections</p> <p>Standard protections:</p> <ul style="list-style-type: none"> ➤ Emergency pause operation: one-key stop loading ➤ Over temperature alarm/protection: alarm & remove load ➤ Fan interlock protection: loading available after fan activated ➤ Over voltage protection: alarm & remove load 	<p>Optional protections</p> <ul style="list-style-type: none"> ➤ Blower thermal overload protection: alarm & remove load ➤ Short circuit protection by fuse(over current protection) ➤ Phase sequence protection(for fans with 3phase voltage) ➤ Or other functions as requested
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<p>FORESIGHT series load bank control modes</p> <p>Two control modes available for FORESIGHT series AC/DC load banks: The local panel control mode and the PC software remote control mode.</p> <p>Local panel control mode available as below listed:</p> <ul style="list-style-type: none"> ➤ By contactor ➤ By circuit breaker ➤ Or other switches as requested 	<p>PC software remote control(optional)</p> <p>FORESIGHT series AC/DC load bank remote control communication protocol would be provided for clients' integrating the load bank into the ATE system</p>
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Technical Specifications	
Model	FST-AC415V-600KW-R Resistive AC Load Bank
Load Element	Alloy resistors
Load Voltage	AC415V 3phase 4wire, 50Hz
Load Power	Resistive: 600KW for AC415V 3phase 4wire, 50Hz
Load Steps @AC415V 3P4W	Resistive Load Steps (three phase controlled): 1KW, 2KW*2, 5KW, 10KW, 20KW*2, 40KW, 50KW*10 (1-600KW adjustable) <u>(Each load step in series connection with suitable fuse for over current protection)</u>
Power Factor	PF=1.0
Load Accuracy	±5%
Digital Meter	Voltage, Current, Power, Frequency, Power Factor and etc.
Control Power	AC415V 3phase 4wire 50/60Hz (Load bank fans & control power supply)
Control Mode	1. Manual control by push button 2. Remote control by PC software (optional)
Wire Connections	Copper bus bar for wire connections
Insulation Class	F
Fan Noise	90dB
Cooling Mode	Force-air cooling
Work Mode	Continuous work
Protections	Overheating/buzzer alarm, overheating/over voltage protection, emergency stop button



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Ambient Temperature	-10°C~+50°C
Dimension	1100*1370*1826mm(W*D*H)
Weight	900KG
Mobility	6 wheels
Humidity	≤95%
Altitude	≤2500 meters

Load Bank Control Panel Explanation		
Component Picture	Name	Function
	EPO	Emergency pause operation (Press to stop, rotate to release) <u>clockwise rotate before load bank operation</u>
	Power	Fan power with built in light indicator
	Control Mode	Local: local panel manual operation Remote: Remote PC software operation (optional)



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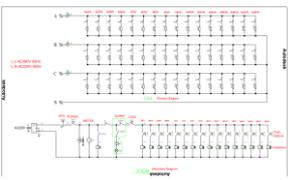
	<p>Meter</p>	<p>Digital meter displaying the voltage, current, frequency, active power, energy, power factor and etc. (see below operation guide)</p>
<p>Alarm</p> 	<p>Alarm</p>	<p>Over temperature (85°C) buzzer alarm</p>
<p>Load</p> 	<p>Load</p>	<p>Load Steps control switch with built in light indicator</p>
	<p>Load Steps: Push Buttons</p>	<p>Push on/off to adjust the load power (by contactor on/off)</p>
	<p>Load Cables Connection Copper Bus Bar: A, B, C & N</p>	<p>4 load cables connection between copper bus bar A, B, C & N, and equipment under test</p>
	<p>RS485 Cable</p>	<p>Extend cable for remote control (One end to load bank, the other end to RS485-USB)</p>



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	<p>RS485-USB Cable Driver (Install driver before software running)</p>	<p>PC software remote control cable (One end to RS485 cable, the other end to PC. Or connect directly between load bank and PC)</p>
	<p>RS485 socket</p>	<p>PC remote control (optional)</p>
	<p>ON-OFF Wheels</p>	<p>Press ON to lock the wheel Press OFF to unlock the wheel</p>
	<p>Grounding connection</p>	<p>Grounding before load bank testing</p>
	<p>Diagram</p>	<p>All design diagrams provided--turn key</p>

Each load bank includes the standard items:

- ① Load Bank Main Unit--1 set
- ② Main Unit Power Cord--1 pcs (inside load bank)
- ③ Products primary and secondary diagram--1 pcs (digital copy)
- ④ User Manual--1 pcs (digital copy)

Load Bank Operation Guide(Switch to “Local”)

Note: please read the designed diagram and manual before any operation.

① Wires connection before loading

- 1) Make sure **all switches are off** before any connections.



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- 2) Grounding connection the load bank before all operation
- 3) Cables connection between load bank bus bar A/B/C/N and equipment under test
- 4) AC415V 3P4W cables connection to the load bank control input terminals.
- 5) Check again to make sure all cables connection reliable.

② Local panel loading operation

- 1)  Clockwise rotate before load bank operation

- 2)  Switch to "Local"

- 3)  Push on "Power" button in local panel--fans working
- 4) Power on the equipment under test.

- 5)  Push on the "Load"--Start loading

- 6)  Push on/off the load steps to adjust the loading power.

- 7) Press LEFT  or RIGHT  keys to view data.

		
001: Voltage	002: Current	003: Active power

		
<p>004: Power factor</p>	<p>005: Reactive power</p>	<p>006: Apparent power</p>

③ Unloading operation

- 1)  Push off all load steps
- 2)  Push off "Load"
- 3)  Push off "Power" after 10-20 minutes cooling
- 4)  Press the "EPO" emergency stop button
- 5) REMOVE ALL the power supply of load bank & equipment under test
- 6) Remove all cables

Note:

- Load power vary according to ohm law if applied to lower voltage than 240/415V.
- Other load bank input voltages as below are available upon requested:
 - 3φ4W+G, Y connection: 190/110,200/115,208/120,220/128,230/132,240/139V
 - 3φ4W+G, Y connection: 380/220, 400/230, 415/240, 440/254, 460/265, 480/277V
 - 3φ3W+G; Delta connection: 220, 230, 240, 380, 400, 415, 440V



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FST-AC400V-600KW-R Resistive AC Load Bank

AC400V-600KW-R Load Bank EPO

COM Port Settings: COM3

Inspector: JERRY Location: FST Series NO.: 01 Notes: TEST

Data Manual Saved

Auto Loading

Load Power

Load: ● Power: ●

Load Power Settings: 50 KW

10KW	20KW	20KW	50KW	50KW	50KW	50KW
50KW						

U _A (V) :	213.50	I _A (A) :	67.79	P _A (KW) :	14.48	ΣS (KVA)
U _B (V) :	210.40	I _B (A) :	66.44	P _B (KW) :	13.98	42.91
U _C (V) :	215.00	I _C (A) :	67.24	P _C (KW) :	14.46	PF (%)
F (HZ) :	49.95	Ī (A) :	67.16	ΣP (KW) :	42.91	1.00

- Input remarks
- view & save data
- Input time & power

Set COM No. in PC

On/Off power

Data testing

Local panel control mode and PC software remote control mode are available for controlling the AC load bank, which are interlocking. ONLY the local panel “EPO” is effective if load bank switched to “REMOTE” mode. GEMA RLC AC load bank PC software allows users to remote control the loading process, monitoring and recording load parameters: voltage, current, frequency, leading & lagging power factor, active power, reactive power, apparent power, energy, time.

Users could conduct the loading either manually by clicking load steps push buttons to adjust the load power or automatically by setting the load profile. Test report available by EXCEL format, easy for printing.

Note: please practice the software while load banks disconnected with the ETU (equipment under test), before actual loading.

Software Installation

Double click setup to install the load bank remote control software

RS485-USB cable driver installation

Double click CDM21216_Setup to install the RS485-USB cable driver

Load bank remote control operation guide

① Wires connection before remote loading

- 1) Make sure all switches are off before any connections.
- 2) Grounding connection the load bank before all operation
- 3) Copper bus bar star/delta connection



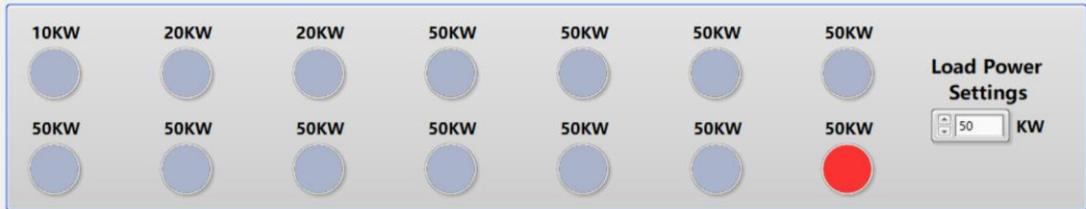
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- 4) Cables connection between load bank and equipment under test.
- 5) Switch the control modes "LOCAL/OFF/REMOTE" into **"REMOTE"**
- 6) Connect the 485-USB cable between load bank & computer
- 7) AC415V 3P4W cables connection to the load bank control input terminals.
- 8) Check again to make sure all cables connection reliable.

② PC software remote control loading operation

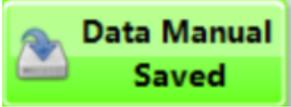
1)	 <p>You may need to set the COM No. in your computer "Device Manager". Select the right in use port of RS485-USB so as to operate the software, or the software could not be operated. Communication abnormal if port selected wrong.</p>
2)	 <p>Click "Power" to activate fan working.</p>
3)	 <p>Click "Load" to activate loading.</p>
4)	 <p>Click the buttons to increase/decrease the load power</p>
5)	 <p>Click to set the loading duaration & power as below form:</p>



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	 <p>Automatic Load Settings</p> <p>Duration Settings Load Power Settings</p> <table border="1"><tr><td>1.</td><td>0</td><td>h</td><td>0</td><td>min</td><td>0</td><td>s</td><td>0</td><td>KW</td></tr><tr><td>2.</td><td>0</td><td>h</td><td>0</td><td>min</td><td>0</td><td>s</td><td>0</td><td>KW</td></tr><tr><td>3.</td><td>0</td><td>h</td><td>0</td><td>min</td><td>0</td><td>s</td><td>0</td><td>KW</td></tr><tr><td>4.</td><td>0</td><td>h</td><td>0</td><td>min</td><td>0</td><td>s</td><td>0</td><td>KW</td></tr><tr><td>5.</td><td>0</td><td>h</td><td>0</td><td>min</td><td>0</td><td>s</td><td>0</td><td>KW</td></tr><tr><td>6.</td><td>0</td><td>h</td><td>0</td><td>min</td><td>0</td><td>s</td><td>0</td><td>KW</td></tr><tr><td>7.</td><td>0</td><td>h</td><td>0</td><td>min</td><td>0</td><td>s</td><td>0</td><td>KW</td></tr><tr><td>8.</td><td>0</td><td>h</td><td>0</td><td>min</td><td>0</td><td>s</td><td>0</td><td>KW</td></tr><tr><td>9.</td><td>0</td><td>h</td><td>0</td><td>min</td><td>0</td><td>s</td><td>0</td><td>KW</td></tr><tr><td>10.</td><td>0</td><td>h</td><td>0</td><td>min</td><td>0</td><td>s</td><td>0</td><td>KW</td></tr><tr><td>11.</td><td>0</td><td>h</td><td>0</td><td>min</td><td>0</td><td>s</td><td>0</td><td>KW</td></tr></table> <p>Confirm Cancel</p> <p>Loading will be auto conducted to the next, once previous load profile completed. Load will auto stop once all load profiles completed.</p>	1.	0	h	0	min	0	s	0	KW	2.	0	h	0	min	0	s	0	KW	3.	0	h	0	min	0	s	0	KW	4.	0	h	0	min	0	s	0	KW	5.	0	h	0	min	0	s	0	KW	6.	0	h	0	min	0	s	0	KW	7.	0	h	0	min	0	s	0	KW	8.	0	h	0	min	0	s	0	KW	9.	0	h	0	min	0	s	0	KW	10.	0	h	0	min	0	s	0	KW	11.	0	h	0	min	0	s	0	KW
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