CONTROL PHILOSPHY OF INVERETER TEST BENCH
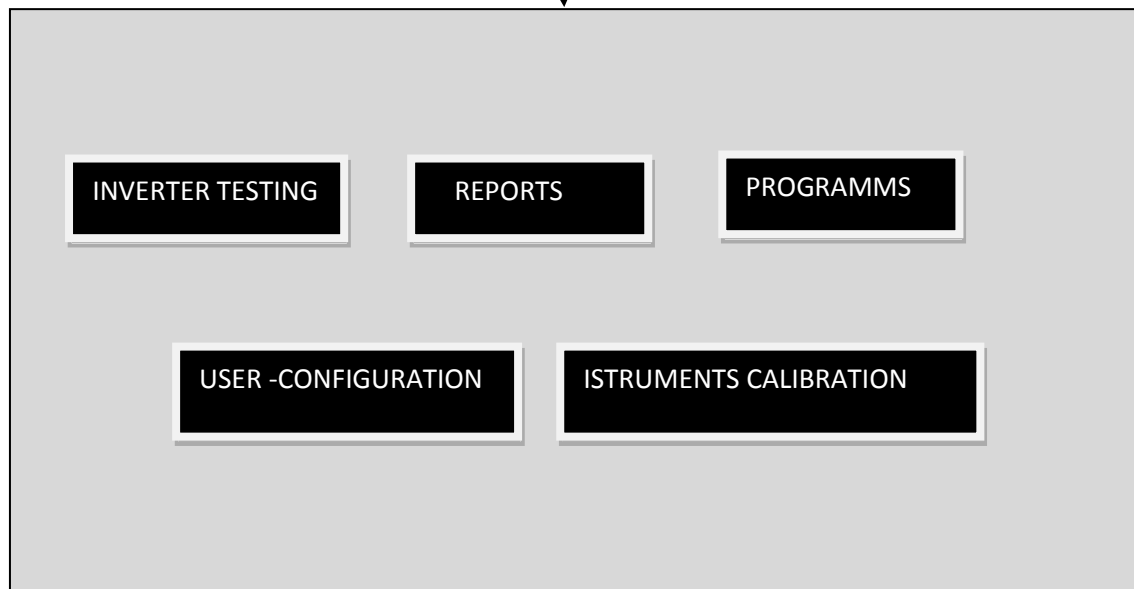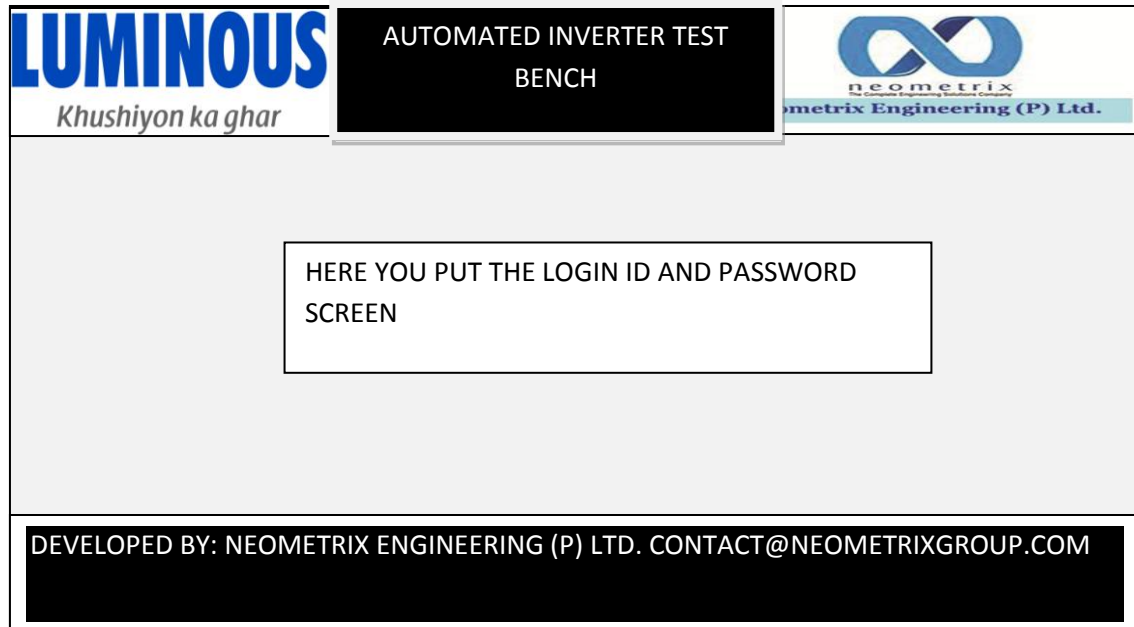
1. User will switch on the three phase power supply an industrial computer.
2. Click on the Test icon available on desktop.
3. Login window will open

LUMINOUS
Khushiyon ka ghar

AUTOMATED INVERTER TEST BENCH

neometrix
...ometrix Engineering (P) Ltd.

HERE YOU PUT THE LOGIN ID AND PASSWORD SCREEN

DEVELOPED BY: NEOMETRIX ENGINEERING (P) LTD. CONTACT@NEOMETRIXGROUP.COM

INVERTER TESTING

REPORTS

PROGRAMMS

USER -CONFIGURATION

ISTRUMENTS CALIBRATION

INVERTER TESTING

When user clicks on this icons will be redirected to the select the parameters they want to test.

Please give an option to save the selected test for future testing.

REPORTS

When user select this icon will be redirected to the backup reports or history report saved earlier.

Report will save according to sr. No entered during testing with date and time.

PROGRAMMS

When user select this icon will redirected to all 146 parameters acceptance and rejected limits configuration.

USER -CONFIGURATION

When user select this icon will redirected to the user configuration . user can add more user id and passwords and also change the existing passwords .

ISTRUMENTS CALIBRATION

When user select this icon will redirected to instruments calibration window where due and done date of calibration are mentioned and also when the due date reaches it will give an alarm .

INVERTER TEST WINDOW

INVERTER MODEL			TEST DATE	
INVERTER SR.NO			MAXM LOAD	
TESTED BY			APPROVED BY	
CHECKED BY			VERIFIED BY	

SL.	PARAMETERS	TEST CONDITIONS	TEST SPECS.	TEST DATA	REMARKS

PARAMETER WISE DESCRIPTION

REFERENCE VOLTAGE :

1. SET THE PROGRAMMABLE POWR SUPPLY 1(LOW VOLTAEG) TO ON CONDITION @12VDC.
2. OPERATOR WILL MEASURE THE REFERENCE VOLTAGE AND FEED IN TEST WINDOW.
3. NOW IT WILL MOVE TO NEXT PARAMETER.

DC INPUT CURRENT INVERTER SWITCH OFF:

1. DC POWER SUPPLY CONNECTED AS IT IS
2. OPERATOR WILL SWITCH OFF THE POWER SUPPLY AND PRESS ACK.
3. WE HAVE TO RECORD THE CURRENT IT IS TAKING FROM POWER SUPPLY1 IN SWITCH OFF MODE.

DC INPUT CURRENT INVERTER SWITCH ON:

1. SAME AS ABOVE TESTING IN THIS OPERATOR WILL SWITCH ON THE INVERTER AND PRESS ACK.
2. WE HAVE TO RECORD THE CURRENT IT IS TAKING FROM POWER SUPPLY1 IN SWITCH ON MODE

OUTPUT FREQUENCY:

1. MEASURE THE OUTPUT FREQUENCY AC FREQUENCY COMING FROM POWER ANALYZER FROM 3RD CHANNEL. AND RECORD IT.

OUTPUT VOLTAGE(IN R.UPS MODE)

1. GIVE A MESSAGE TO OPERATOR THAT PUT INVERTER IN R.UPS MODE AND PRESS ACK.
2. MEASURE THE VOLTAGE COMING FROM 3RD CHANNEL OF POWER ANALYAZER .

OUTPUT VOLTAGE(IN ECO UPS MODE)

1. GIVE MESSAGE TO OPERATOR THAT PUT INVERTER IN ECO MODE AND PRESS ACK.
2. RECORD THE VOLTAGE COMING FROM THE 3RD CHANNEL OF THE POWER ANALYZER.

DC OVERVOLTAGE

1. INCREASE THE VOLTAGE OF SUPPLY1 FROM 12VDC TO UPWARD .
2. USER WILL PRESS ACK WHEN BEEP SOUND WILL COME.
3. RECORD THE VALUE .

LOAD CURRENT AMP. OUTPUT OFFSET VOLTAGE

1. RESET THE POWER SUPPLY1 TO 12VDC.
2. GIVE A MESSAGE TO OPERATOR THAT PLEASE CHECK THE VOLATEG @PIN NO 3 OF MICRO.
3. OPERATOR WILL FEED THE DATA AND PRESS ACK.

CHARGING CURRENT AMP. OUTPUT OFFSET VOLTAGE

1. GIVE A MESASGE TO OPERATOR THAT PLEASE CHECK THE VOLTAGE @ PIN NO 21 OF MICRO
2. OPERATOR WILL FEED THE DATA AND PRESS ACK.

NO LOAD AUTO SHUT DOWN

1. GIVE A MESSAGE TO OPERATOR THAT THIS TEST WILL PERFORM SEPERATELY WITH BATTERY. PLEASE ENTER THE TEST DATA AND PRESS ACK.

BATTERY LOW SEETING TEST(All setting will increase by 0.15V)

VRLA BATTERY:

BATTERY LOW PRE ALARM ON AT NO LAOD :

1. SET THE PROGRAMMABLE POWR SUPPLY 1(LOW VOLTAEG) TO ON CONDITION @12VDC
2. DECREASE IT SLOWLY BY 0.05V STEP.
3. OPERATOR WILL PRESS ACK WHEN INVERETE GIVE ALARM.
4. WE HAVE TO RECORD THAT VOLTAEG VALUE AND SAVE IT IN REPORT .

BATTERY LOW PRE ALARM OFF AT NO LAOD:

1. INCREASE THE VOLTAGE OF POWER SUPPLY BY 0.05V STEP.
2. DECREASE IT SLOWLY BY 0.05V STEP.
3. OPERATOR WILL PRESS ACK WHEN INVERETE GIVE ALARM.
4. WE HAVE TO RECORD THAT VOLTAGE VALUE AND SAVE IT IN REPORT .

BATTERY LOW AT < 25% LOAD

1. WE HAVE TO PUT THE DC POWER SUPPLY 1 TO 12 VDC.
2. WE HAVE TO PUT 25% OF LOAD WITH 0-10V CONTROL SIGNAL.
3. NOW SLOWLY DECREASE THE VOLTAEG OF POWER SUPPLY1 BY 0.05V STEP.
4. OPEARTOR WILL PRESS ACK WHEN ALARM WILL COME.
5. RECORD THE VOLTAG VALUE FROM POWER SUPPLY AND SAVE IT.

BATTERY LOW AT 25% TO 50% LOAD

1. WE HAVE TO PUT THE DC POWER SUPPLY 1 TO 12 VDC.
2. WE HAVE TO INCREASE 25% TO 50% OF LOAD WITH 0-10V CONTROL SIGNAL
3. NOW SLOWLY DECREASE THE VOLTAEG OF POWER SUPPLY1 BY 0.05V STEP.
4. OPEARTOR WILL PRESS ACK WHEN ALARM WILL COME.
5. RECORD THE VOLTAG VALUE FROM POWER SUPPLY AND SAVE IT.

BATTERY LOW AT 50% TO 75% LOAD

1. WE HAVE TO PUT THE DC POWER SUPPLY 1 TO 12 VDC.
2. WE HAVE TO INCREASE 50% TO 75% OF LOAD WITH 0-10V CONTROL SIGNAL
3. NOW SLOWLY DECREASE THE VOLTAEG OF POWER SUPPLY1 BY 0.05V STEP.
4. OPEARTOR WILL PRESS ACK WHEN ALARM WILL COME.
5. RECORD THE VOLTAG VALUE FROM POWER SUPPLY AND SAVE IT.

BATTERY LOW AT 75% TO 100% LOAD

1. WE HAVE TO PUT THE DC POWER SUPPLY 1 TO 12 VDC.
2. WE HAVE TO INCREASE 75% TO 100% OF LOAD WITH 0-10V CONTROL SIGNAL
3. NOW SLOWLY DECREASE THE VOLTAEG OF POWER SUPPLY1 BY 0.05V STEP.
4. OPEARTOR WILL PRESS ACK WHEN ALARM WILL COME.

5. RECORD THE VOLTAG VALUE FROM POWER SUPPLY AND SAVE IT.

LOAD CAPACITY –BULB/RESISTIVE LOAD (P.F.>0.98)

CONTINOUS MAX LOAD

1. GIVE USER TO SET INVERTER IN R.UPS MODE AND PRESS ACK.
2. SET POWER SUPPLY1 @12VDC.
3. APPLY THE MAXIMUM LOAD USING 4-20mA.
4. RECORD THE LOAD COMING ON CHANNEL-2 OF POWER ANALYZER.

OUTPUT REAL POWER

1. RECORD THE REAL POWER COMING ON CHANNEL-2 OF POWER ANALYZER.
2. SAVE IT FOR REPORT.

OUTPUT VOLTAEG:

1. RECORD THE VOLTAGE COMING ON THE CHANNEL-2 OF POWER ANALYZER
2. RECORD IT AND SAVE FOR REPORT

OVER LAOD MINIMUM LOAD:

1. INCREASE THE MAXIMUM LOAD USING 4-10Ma SLOWLY.
2. OPERATOR WILL PRESS ACK WHEN IT WILL GET OVERLOADED
3. RECORD THE VALUE FROM CH-2 OF POWER ANALYZER AND SAVE IT FOR REPORT.

OVERLOAD DC CURRENT (AVG)

1. RECOD THE OVERLOAD VOLTAGE @TIME OF MAXIMUM LOAD APPLYING IN ABOVE TEST.
2. SAVE IT FOR THE REPORT.

SAME TEST IN ECO MODE

1. GIVE A MESAGE TO USER TO SWITCH INVRTER IN ECO MODE.
2. OTHER TESTING IS SAME AS R.UPS MODE.

LOAD CAPACITY –CFL LOAD (PF- 0.8)

LOAD CAPACITY TUBE LIGHT LOAD(INDUCTIVE LOAD)

INVERTER OUTPUT SHORT CIRCUIT PROTECTION

1. GIVE A MESSAGE TO USER TO ACK FOR SHORT CKT PROTECTION TEST.
2. ON A CONTACTOR USING DO.
3. IT WILL SHORT THE INVERTER OUTPUT.
4. PLEASE RECORD THE CURRENT Vs TIME GRAPH AND RCORD THE TRIP TIME.

EFFECENCY (RESISTIVE LOAD, P.F.=1.0)

1. GIVE A MESSAGE TO USER THAT PUT INVERTER IN R.UPS MODE.
2. SET THE POWER SUPPLY1 @12V.
3. APPLY A LOAD OF 25% , 50% AND 100% AND RECORD THE POWER COMING ON CHANNEL CH-2.

THD (RESISTIVE LOAD P.F.=1.0)

1. GIVE USER A MESSAGE TO PUT INVERTER IN R.UPS MODE.
2. REMOVE THE LOAD.
3. SET POWER SUPPY1@12VDC.
4. RECORD THE THD FROM CH-2 OF POWER ANALYZER .
5. PUT FULL LOAD ON INVERTER AND RECORD THE THD WAVEFORM FROM CH-2 POWER ANALYZER.

ECO MODE MAIN SETTING

INPUT OVER VOLTAGE

1. INCREASE THE AC POWER SUPPLY VOLTAGE FROM 230VAC TO UPWARD BY 5VOLT STEP.
2. USER WILL PRESS ACK WHEN IT WILL SWITCH FROM MAIN TO INVERTER MODE.
3. RECORD THE VOLTAGE FROM AC SOURCE AND SAVE FOR THE REPORT .

OVER VOLTAGE RESTORATION

1. NOW DECREASE AC VOLTAGE BY STEP OF 5VOLT .
2. USER WILL PRESS ACK WHEN IT WILL SWITCH FROM INVERTER TO MAIN MODE.
3. RECORD THE VOLTAGE FROM AC SOURCE AND SAVE FOR THE REPORT .

AVR RELAY OFF

1. SET AC POWER SOURCE @230VAC.
2. DECREASE VOLTAGE SLOWLY BY STEP OF 5 VOLT
3. USER WILL PRESS ACK RECORD THE VALUE AND SAVE IT FOR REPORT.

AVR RELAY RESTORATION

1. START INCREASING THE AC VOLTAGE BY STEP OF 5 VOLT.
2. USER WILL PRESS ACK WHEN RELAY RESTORTION TAKE PLACE
3. RECORD THE VOLTAG AND SAVE IT FOR REPORT .

INPUT UNDERVOLTAEG

1. SET AC SOURCE @150VAC
2. DECREASE IT SLOWLY BY STEP OF 5VAC
3. USER WILL PRESS ACK WHEN BEEP SOUND WILL COME.
4. RECORD THAT VALUE AND SAVE IT FOR REPORT

U/V RESTORATION :

1. NOW INCREASE THE AC VOLTAGE SLOWLY BY STEP OF 5VAC.
2. USER WILL PRESS ACK WHEN BEEP SOUND WILL COME.
3. RECORD THAT VALUE AND SAVE IT FOR REPORT.

R.UPS MODE MAINS SETTING

NOTE: SAME AS ECO MODE MAINS SETTINGS

CHARGER SETTINGS (HIGH CURRENT MODE)

CHARGING CURRENT (AVG DC)

1. GIVE A MESSAGE TO USER TO SELECT HIGH CURRENT MODE
2. MEASURE THE CHARGING CURRENT BY CLAMP METER
3. USER WILL PRESS ACK. RECORD THE CURRENT VALUE AND SAVE FOR REPORT.

REGULATION MODE MINIMUM INPUT:

1. SET AC POWER SOURCE @ 200VAC
2. STEP DOWN SLOWLY THE INPUT VOLTAGE BY 5VDC STEP.
3. DRAW THE GRAPH OF CURRENT AND VOLTAGE FROM CH-3 OF POWER ANALYZER.
4. RECORD THE MINIMUM VOLTAGE AT WHICH REGULATION WILL TAKE PLACE.

CHG CURRENT AT UNREG U/V RESTORE

1. NOW STEP UP THE INPUT AC VOLTAGE SLOWLY AND RECORD THE GRAPH BETWEEN VOLTAGE AND CURRENT FROM CH-3 OF POWER ANALYZER.
2. RECORD THE CURRENT AT WHICH UNREGULATED VOLTAGE RESTOR . SAVE IT FOR REPORT

EFFICIENCY AT REGULATION MINIMA

1. SET THE AC SOURCE @ 200VAC AND STEP DOWN IT SLOWLY BY 5VAC.
2. CALCULATE THE CHARGING EFFICIENCY @ MINIMUM AC INPUT VOLTAGE FROM CH-3 OF POWER ANALYZER.
3. RECORD AND SAVE IT FOR REPORT.

EFFICIENCY AT 230VAC INPUT

1. SET THE AC SOURCE @ 230VAC.
2. CALCULATE THE CHARGING EFFICIENCY @ MINIMUM AC INPUT VOLTAGE FROM CH-3 OF POWER ANALYZER
3. RECORD AND SAVE IT FOR REPORT.

EFFICIENCY AT UNREG O/V RESTORE

1. SET THE AC SOURCE @ 200VAC AND STEP DOWN IT SLOWLY BY 5VAC.
2. CALCULATE THE CHARGING EFFICIENCY @ MINIMUM AC INPUT VOLTAGE FROM CH-3 OF POWER ANALYZER.
3. RECORD AND SAVE IT FOR REPORT.

CHARGER SETTINGS (MIDIUM CURRENT MODE)

CHARGER SETTING (LOW CURRENT MODE)

NOTE: BOTH OF ABOVE TEST WILL BE SIMILAR TO CHARGER SETTINGS (HIGH CURRENT MODE)

TRANSFER TIME (R.UPS MODE)

1. GIVE A MESSAGE TO USER TO PUT INVERTER IN R.UPS MODE.
2. APPLY <25% LOAD OUTPUT USING 0-10VDC CONTROL SIGNAL.
3. SWITCH ON THE MAIN AC SOURCE @230VAC. SLOWLY STEP UP IT BY 5VAC.
4. AND RECORD THE GRAPH OF VOLTAGE V/S TIME FROM CH-2. AND CAPTURE THE TRANSFER TIME AND RECORD IT FOR REPORT.

MAIN U/V CUT & RESTORATION

1. SET MAIN AC INPUT VOLTAGE @200VAC.
2. SLOWLY STEP DOWN THE VOLTAGE BY 5VAC
3. RECORD THE GRAPH OF VOLTAEG VS TIME FROM CH-2 AND CAPTURE THE U/V RESTORATION TIME.
4. RECOORD IT AND SAVE IT FOR REPORT.

MIAN SWITCH OFF & ON AT 230VAC

1. SET MAIN AC INPUT VOLTAGE @230VAC.
2. CAPTURE THE GRAPH BETWEEN VOLTAEG AND TIME FROM CH-2
3. USER WILL PRESS ACK AFTER COPLETING THE CYCLE.

4. RECORD AND SAVE THE VALUE OF TIME FOR REPORT.

INPUT FREQUENCY BAND

FREQUENCY LOW ECO MODE

1. GIVE A MESSAGE TO OPERATOR TO SET INVERTER IN ECO MODE.
2. SWITCH ON AC SOURCE @230VAC.
3. RECORD THE INPUT FREQUENCY FROM CH-1. AND SAVE IT FOR REPORT

MISCELLANEOUS PARAMETERS

OVER LOAD AUTO RESET-ECO MODE

1. GIVE A MESSAGE TO USER TO SWITCH INVERTER IN ECO MODE
2. USER WILL PRESS ACK IF TEST IS OK
3. USEER WILL PRESS NOT OK WHEN TEST IS FAIL. RECORD IT FOR REPORT.

OVER LOAD AUTO RESET –R.UPS MODE

1. GIVE A MESSAGE TO USER TO SWITCH INVERTER IN R.UPS MODE
2. USER WILL PRESS ACK IF TEST IS OK
3. USEER WILL PRESS NOT OK WHEN TEST IS FAIL. RECORD IT FOR REPORT.

NOTE: ALL MISCELLANEOUS ,VISUAL INDICATION AND AUDIO ALARM TESTS ARE USER DEPENDENT. IF USER PRESS OK THEN TEST IS PAAS AND IF USER PRESS NOT OK TEST IS FAIL. SAVE THE REPORT ACCORDIGLY

NOTE: THERE MAY BE SOME VARIATION OR CHANGEMENT GIVEN BY USER AT THE TIME OF PDI(PRE DISPATCH INSPECTION).