PROCEDURE FOR TESTING
P143
SYNCHRONIZING RELAY
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CHAPTER 1
INTERFACING PC WITH RELAY
A. COMMUNICATION WITH RELAY.
CLICK MICOM S1 AS MENTIONED IN BELOW PICTURE.
1. Now we have to create new system hence click new system as mentioned in below picture.
2. Assign name for new system and click OK
3. NOW SYSTEM IS CREATED AND THEN CLICK QUICK CONNECT AS SHOWN IN BELOW PICTURE
4. ENTERING QUICK CONNECT THE PAGE WILL OPENED AS SHOWN IN BELOW PICTURE.
5. NOW WE NEED TO ENTER THE DEVICE TYPE, AS PER OUR CONCERN OUR RELAY IS P143 HENCE IT FALLS IN PX40 SERIES. CLICK PX40 AND THEN OK
6. NOW WE NEED TO ASSIGN OUR COMMUNICATION TYPE, HENCE CLICK BELOW OPTION AS PER OUR REQUIREMENT.
7. WE NEED TO ENTER THE COMMUNICATION ADDRESS WHAT WE USED IN OUR PC, THEREFORE ASSIGN AS PER OUR REQUIREMENT AND CLICK FINISH.
8. NOW THE COMMUNICATION PROCESS IS STARTED WHICH IS MENTIONED IN BELOW PICTURE.
9. NOW WE NEED TO ENTER THE NAME AND THEN CLICK FINISH
10. AFTER THIS NOW WE SUCCESSFULLY COMPLETED OUR COMMUNICATION AND NOW WE NEED TO EXTRACT THE SETTINGS FROM RELAY.
11. GO TO EXTRACT AND CLICK EXTRACT SETTINGS.
12. After extracting settings and PSL it will show with name as 000 and hence we need to rename as default.

13. For our testing purpose we should not disturb the default values and hence do this process for both settings and PSL once more and name it as Test.
14. NOW CLICK TEST AND NEW WINDOW WILL BE OPENED WITH ALL THE DEFAULT CONFIGURATION AND SETTING VALUES.

THIS CHAPTER DEALS WITH HOW TO COMMUNICATE WITH RELAY AND HOW TO EXTRACT THE DEFAULT VALUES.
CHAPTER 2
1. WE NEED TO CHANGE THE SYSTEM VALUES AS PER OUR REQUIREMENT AND OUR SCHEMES

2. ACCORDING TO OUR SCHEMES WE NEED TO CHANGE THE SYSTEM DATA AND VT RATIO AS MENTIONED IN ABOVE PICTURE.

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3. After sending saved values to the relay, it starts loading process then at last it will show as mentioned in below picture.

4. Now with Freja 300 equipment inject the secondary voltage and measure the primary voltage to perform the metering test.
PHASE ANGLE AND UNDER VOLTAGE ELEMENT

1. Go to Group G1 and make system check enable and save settings as shown in below picture.
3. WE HAVE TO SELECT THE OUTPUT FOR PHASE ANGLE ELEMENT IN PSL.

4. AFTER ASSIGNING ALL THE VALUES AND OUTPUT DEFINED IN PSL, WE HAVE TO SEND TO THE RELAY.
5. PERFORM THE PICK UP AND DRP OUT TEST FOR PHASE ANGLE ELEMENT.
6. NOW GO TO SYSTEM CHECK, ENABLE CS VOLTAGE BLOCK AS UNDER VOLTAGE WHICH IS SHOWN IN BELOW PICTURE.

7. SAVE THE SETTING VALUES AND GO TO PSL FOR ENABLING THE CORRESPONDING OUTPUT.
8. BELOW PICTURE SHOWS THE OUTPUT ASSIGNED FOR UNDER VOLTAGE ELEMENT.

9. NOW PERFORM THE PICK UP AND DROP OUT TEST FOR UNDER VOLTAGE.
10. NOW GO TO SYSTEM CHECK, ASSIGN THE DIFFERENTIAL VOLTAGE AS 5.0 V AS SHOWN IN BELOW PICTURE.

11. GO TO PSL FOR ASSIGNING CORRESPONDING OUTPUT FOR DIFFERENTIAL VOLTAGE.
12. BELOW PICTURE SHOWS THE OUTPUT ENABLE IN PSL FOR DIFFERENTIAL VOLTAGE.

13. PERFORM PICK UP AND DROP OUT TEST FOR DIFFERENTIAL VOLTAGE ELEMENT.
14. NOW ENABLE SYSTEM SPLIT ELEMENT AS SHOWN IN BELOW PICTURE.

15. ASSIGN THE PSL OUTPUT FOR SYSTEM SPLIT ELEMENT.
16. BELOW PICTURE SHOWS THE PSL OUTPUT ASSIGNED FOR SYSTEM SPLIT ELEMENT.

![Diagram showing PSL output assignment for system split element]

17. PERFORM THE PICK UP AND DROP OUT TEST FOR SYSTEM SPLIT ELEMENT.
18. IN ORDER TO CHECK TIMING TEST FOR SYSEM SPLIT GO TO TIME SETTING AND SET AS 5.0 SECONDS AS SHOWN IN BELOW PICTURE.

19. PERFORM THE TIMING TEST FOR SYSTEM SPLIT ELEMENT.
20. TO PERFORM VOLTAGE MONITOR TEST, SET THE LIVE VOLTAGE AND DEAD VOLTAGE AS SHOWN IN BELOW PICTURE.

21. NOW WE NEED TO ASSIGN IN PSL FOR VOLTAGE MONITOR TEST.
22. TO PERFORM THIS TEST WE SHOULD TAKE THREE CONDITIONS.
   A. DEAD LINE AND LIVE BUS.
   B. LIVE LINE AND DEAD BUS.
   C. DEAD LINE AND DEAD BUS.

23. FIRST WE WILL TAKE DEAD LINE AND LIVE BUS THEN WE NEED TO ASSIGN THE OUTPUT IN PSL.

24. PERFORM THIS TEST BY RAMPING METHOD IN FREJA.
25. NOW WE WILL TAKE FOR SECOND CONDITION LIVE LINE AND DEAD BUS AS MENTIONED IN BELOW PICTURE.

26. PERFORM THE TEST BY RAMPING METHOD IN FREJA.
27. FOR THIRD CONDITION WE NEED TO ASSIGN THE OUTPUT IN PSL AS DEAD LINE AND DEAD BUS.

28. PERFORM THIS TEST BY RAMPING METHOD IN FREJA

CONCLUSION:
THIS CHAPTER DEALS WITH HOW TO COMMUNICATE RELAY AND HOW TO TEST THE SYNCHRONISING RELAY.

THANK YOU.

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