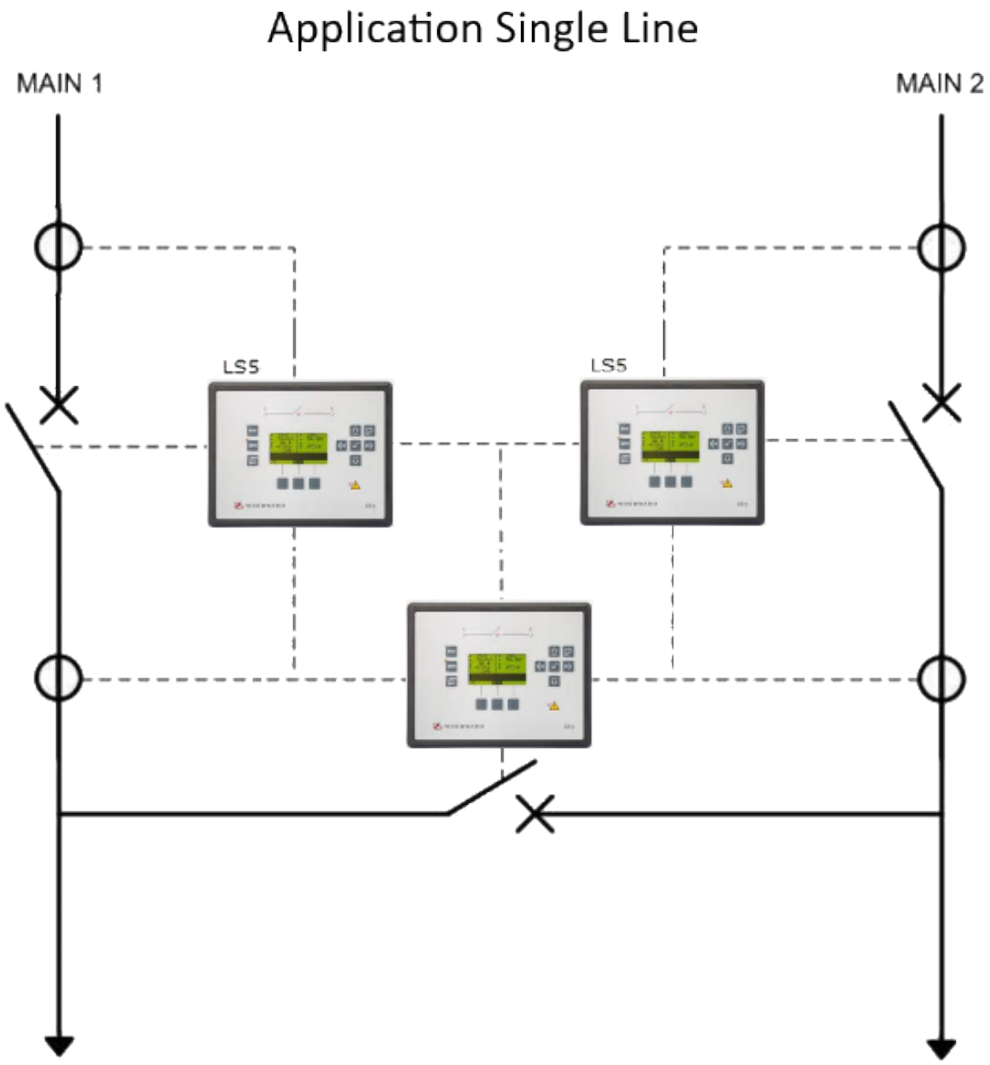
Main-Tie-Main application using 3 LS-5

Clemens - 2024-10-18 - LS-5

Main-Tie-Main Application :





Source MTM Panel:

https://www.linkedin.com/feed/update/urn:li:activity:7199025591147249664?updateEntityUrn=urn%3Ali%3Afs_feedUpdate%3A%28V2%2Curn%3Ali%3Aactivity%3A7199025591147249664%29

https://www.linkedin.com/feed/update/urn:li:activity:7199024766404501505?updateEntityUrn=urn%3Ali%3Afs_feedUpdate%3A%28V2%2Curn%3Ali%3Aactivity%3A7199024766404501505%29

Applicatiom Description:

Main-Tie-Main switchgear application using 3 x LS5-V2 controls

configured to control 2 incoming mains feeder and one bus coupler.

Functionality of the Main-Tie-Main system with both sources available.

1. Mains 1 fail: Mains1 LS5 immediately opens the Mains 1 CB. Mains1 LS5 issue Tie LS5 to close tie breaker.

Tie LS5 check Mains2 LS5 healthy then issue Tie CB to close.

2. Mains1 become available: Mains1 LS5 Sync and closes Mains 1 CB and issue Tie LS5 opens tie breaker.

Tie LS5 check Mains2 LS5 healthy then issue Tie CB to open.

3. Mains2 fail: Mains2 LS5 immediately opens the Mains2 CB. Mains2 LS5 issue Tie LS5 to close tie breaker.

Tie LS5 check Mains1 LS5 healthy then issue Tie CB to close.

4. Mains2 become available: Mains2 LS5 Sync and closes Mains2 and issue Tie LS5 opens tie breaker.

Tie LS5 check Mains1 LS5 healthy then issue Tie CB to open.

5. Mains 1 & 2 fail: Mains 1 & 2 LS5 issue status to Tie LS5.

Tie LS5 maintain open.

6. Maintenance on Mains1 (no breaker condition): On Tie LS5, user manually depressed CB push button to close Tie CB,

Tie LS5 will auto Sync and close CB. On Main1 LS5, user manually depressed CB push button to open Main1 CB.

7. Mains1 return: On Main1 LS5, user manually depressed CB push button to close Mains1 CB,

Mains1 LS5 will auto Sync and close CB. On Tie LS5, user manually depressed CB push button to open Tie CB.

8. Maintenance on Mains2 (no breaker condition): On Tie LS5, user manually depressed CB push button to close Tie CB,

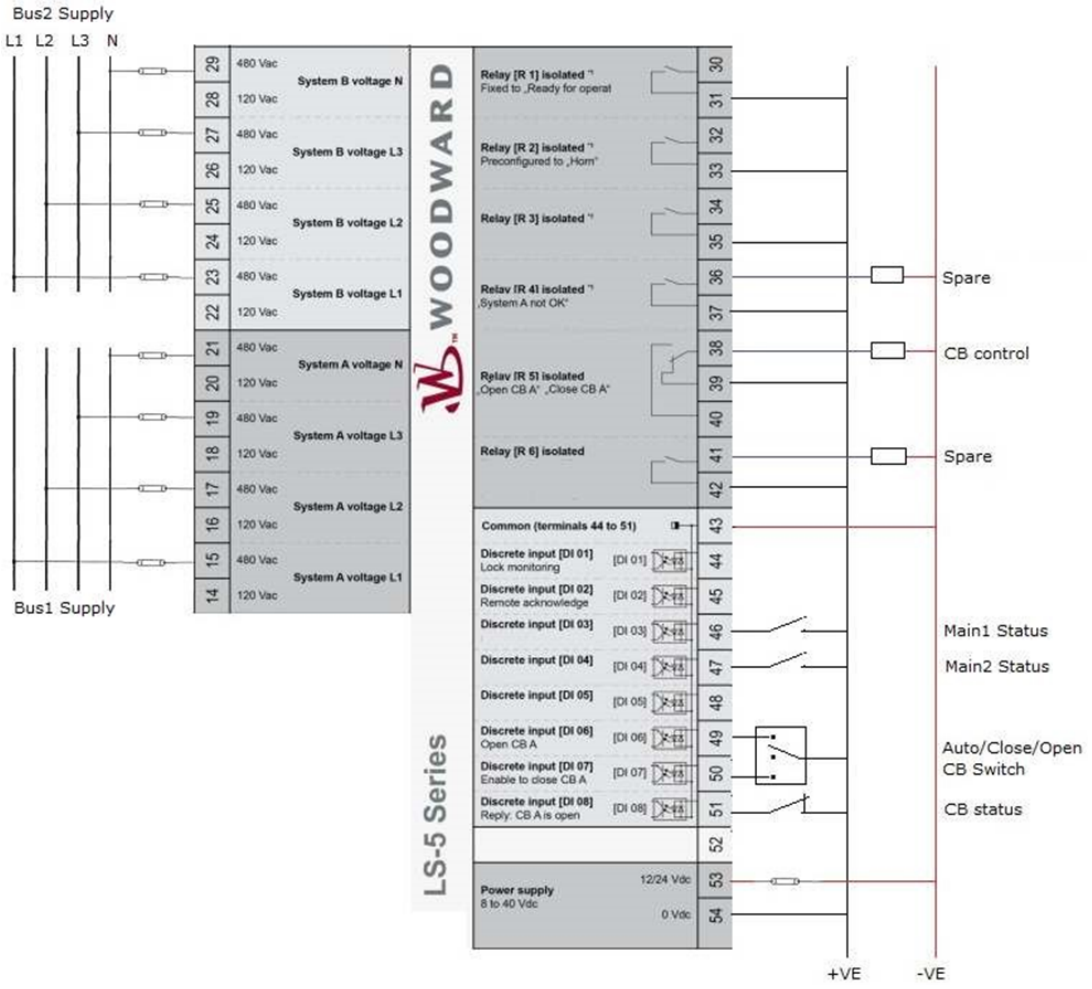
Tie LS5 will auto Sync and close CB. On Main2 LS5, user manually depressed CB push button to open Main2 CB.

9. Mains2 return: On Main2 LS5, user manually depressed CB push button to close Mains2 CB, Mains2 LS5 will auto Sync and close CB.

On Tie LS5, user manually depressed CB push button to open Tie CB.

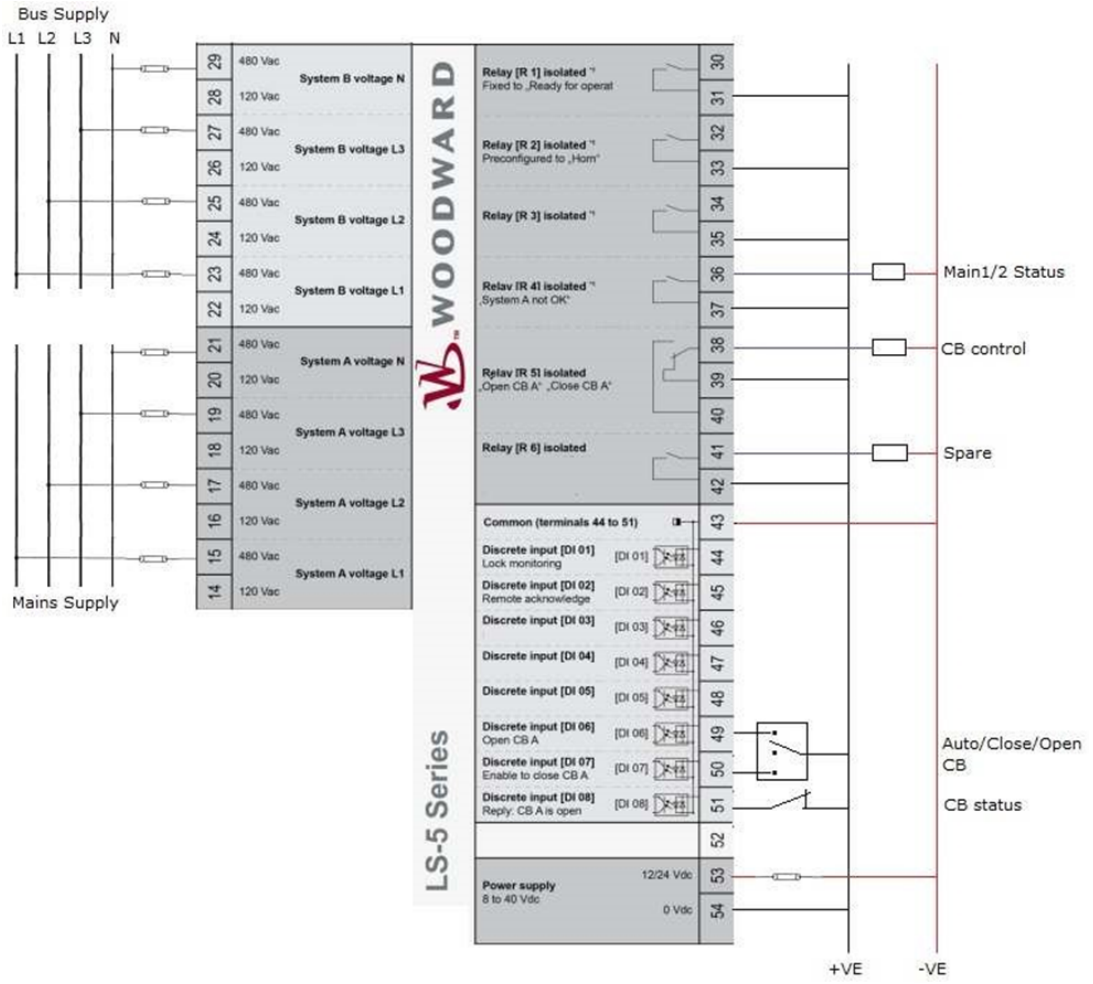
Wiring LS-5 Bus Tie-control

Wiring LS-5 Mains



1 Mains 2 -control

Recommended Settings on LS5



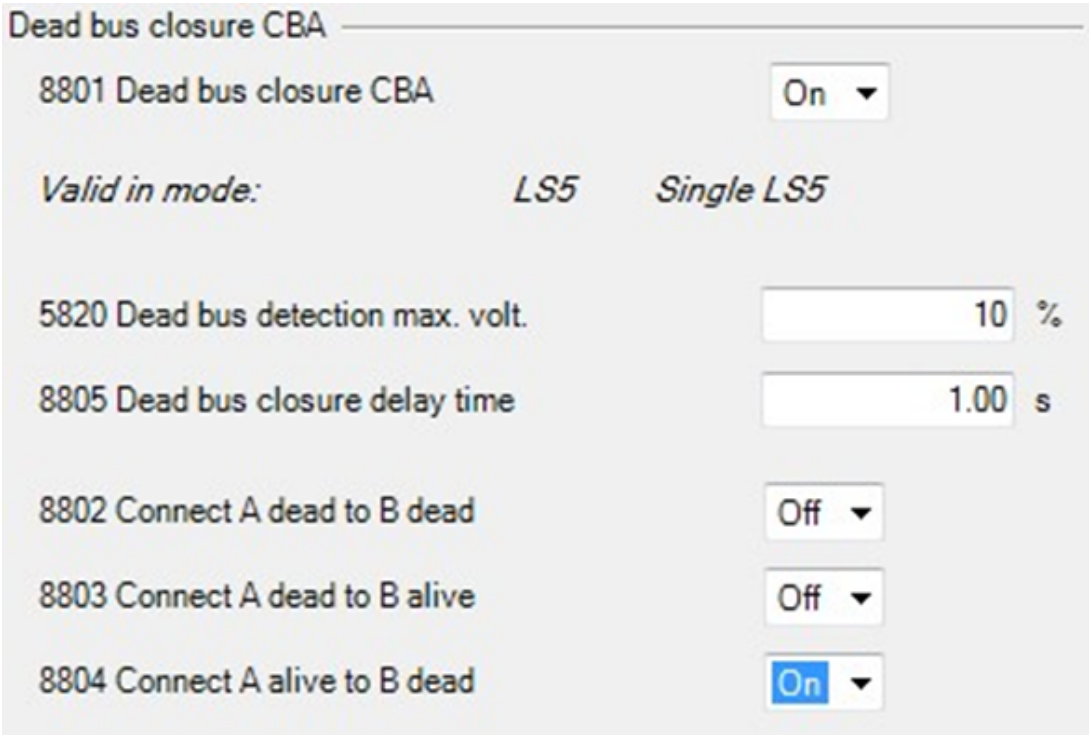
8840 Application Mode “Single LS5”

8800 CBA control “1 Relay”

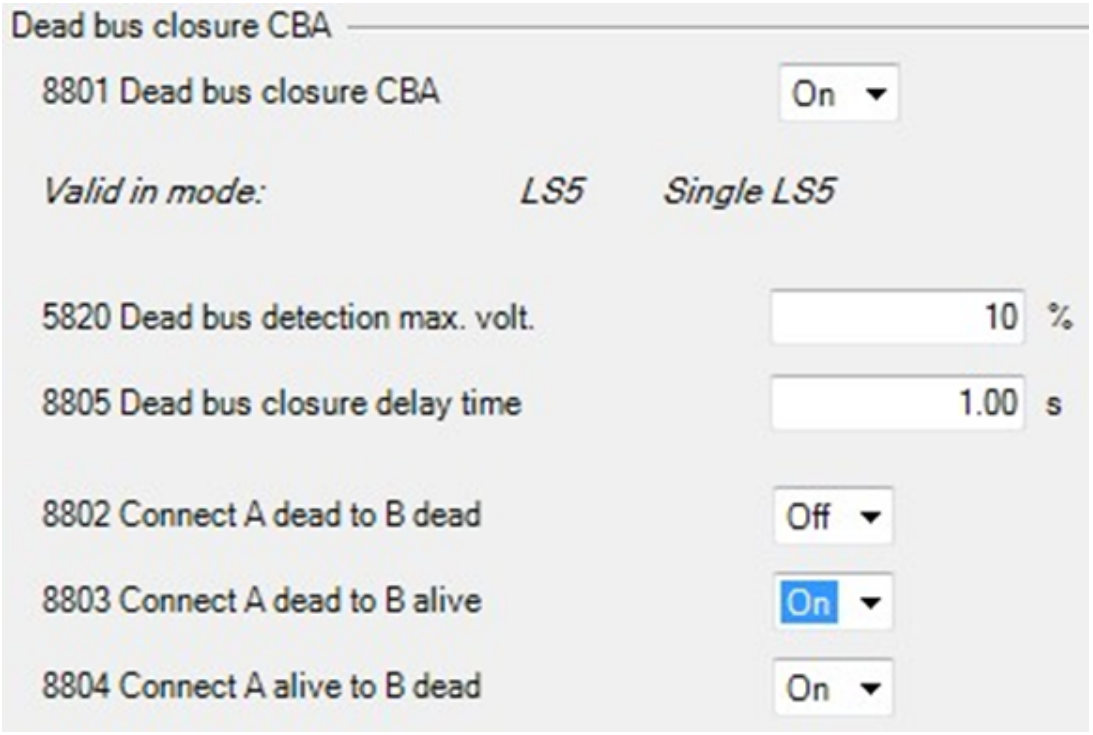
8805 Dead Bus closing Time “1sec” have to be same for Mains1 & 2

Mains settling time “20s”

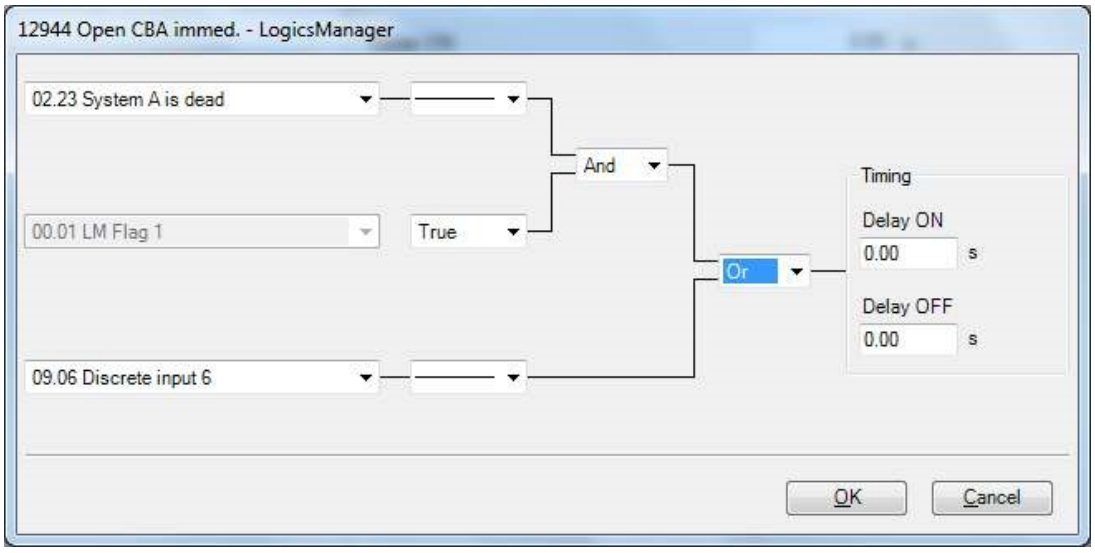
Dead Bus condition for Mains 1 and Mains 2



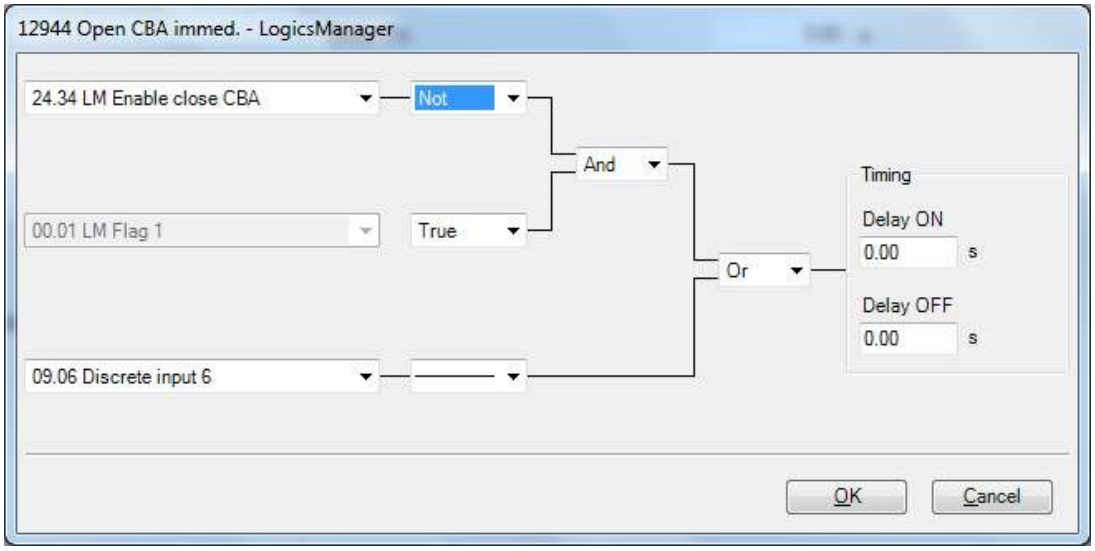
Dead Bus condition for Tie



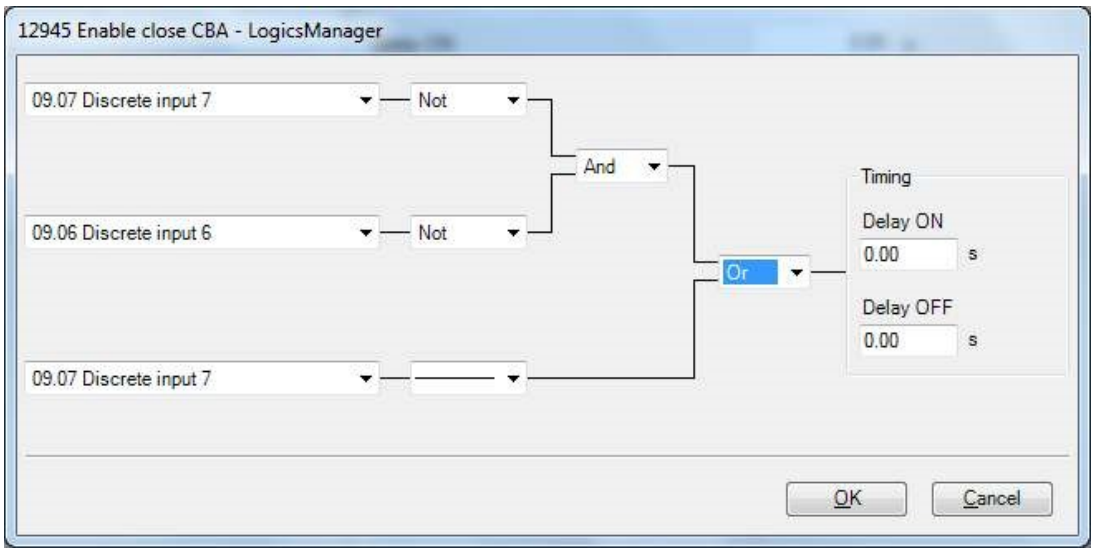
12944 Open CBA logic settings for Mains1/2 LS5



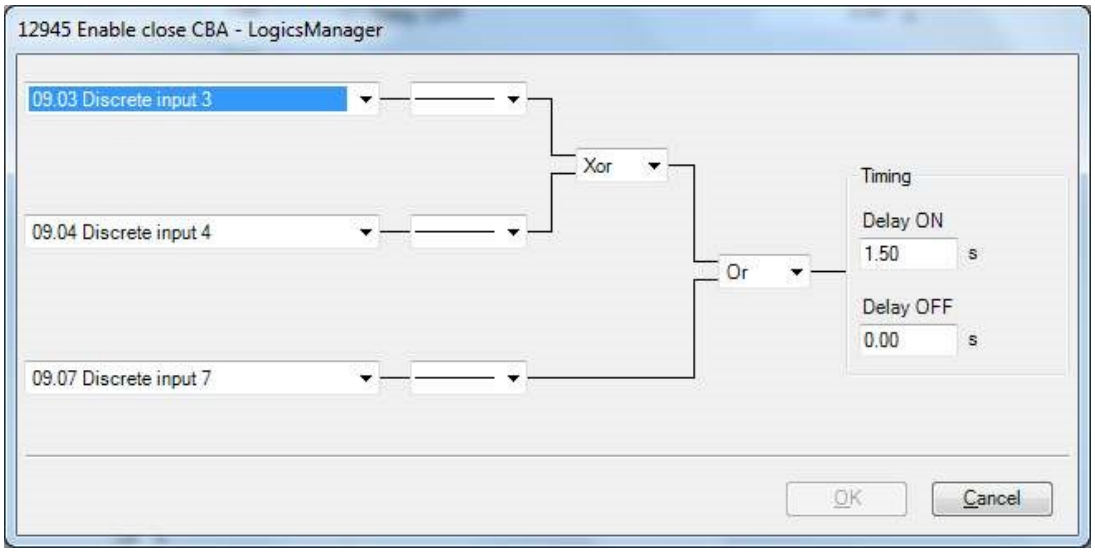
12944 Open CBA logic settings for Tie LS5



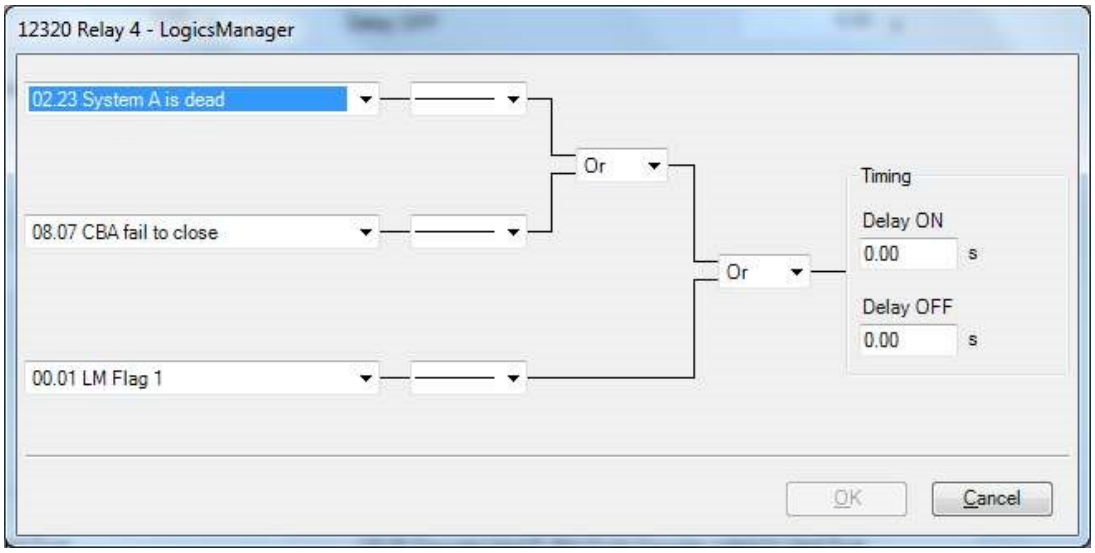
12944 Enable close CBA logic settings for Mains1/2 LS5



12945 Enable Close CBA logic settings for Tie LS5



Mains LS5 condition to issue command to Tie LS5 when Mains fail or CB fail to close. 12320 Relay4 output to Tie LS5 settings



Basic condition settings needed include in this bulletin, additional condition can be arranged depends on the features of the LS5 controller.

LS5 Product Spec Doc. 37611, LS-5 Product Manual Doc. 37649

https://wss.woodward.com/manuals/PGC/LS-5_series