

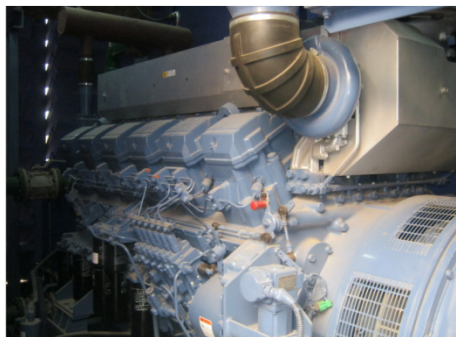
## **Project – 2 x 1450 KVA DG set Paralleling with Grid.**

Commissioning of AGC242 and AGC246 for 2 x 1450 KVA Mitsubishi DG set Parallel with Grid.

Project – Dr. Reddy's Laboratories, Baddi, Himachal Pradesh.

Customer – Lotus Power Gear Pvt. Ltd, Bangalore.

There are two Mitsubishi DG set of 1450KVA supplied by Rai Power.



## Project – 2 x 1450 KVA DG set Paralleling with Grid.

Auto Synchronization panel with AGC242 and AGC246 controller supplied by Lotus Power Gear Pvt. Ltd – Bangalore.



AGC242 is used for

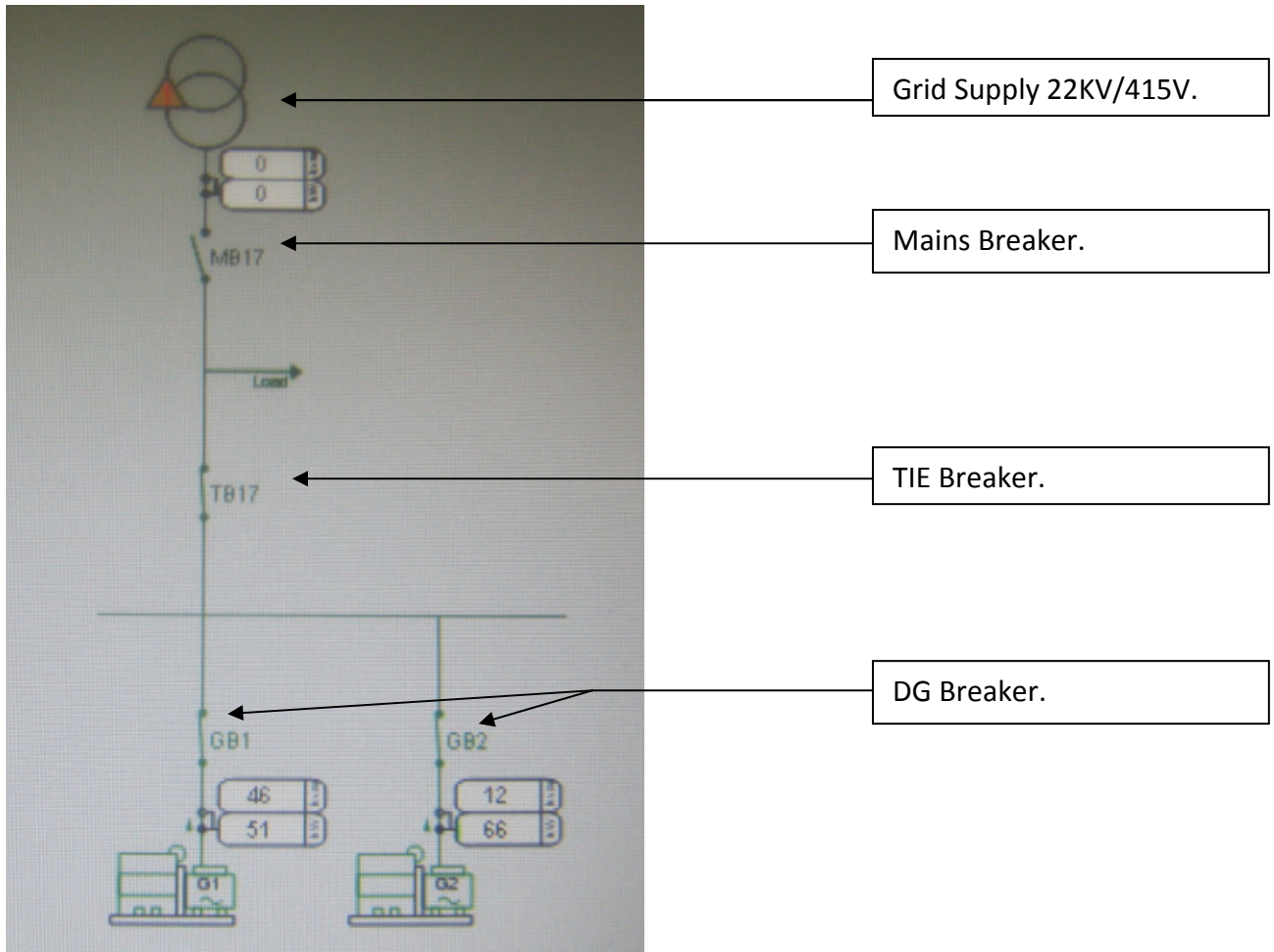
- Auto Starting of DG set in case of Mains Power Failure.
- Synchronization.
- Equal Load Sharing and Power Management.
- To Remote Start and Stop the DG set from PLC Panel.

AGC246 is used for

- Reverse Synchronization of Mains Power and DG set after resuming.
- Forward Synchronization of DG set with available Main Power supply.

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Project Scheme –

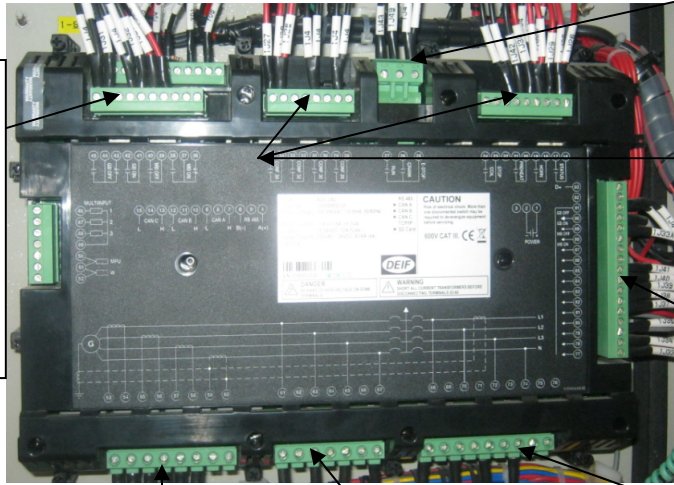


AGC242 is used to controls and synchronize the DG 1 and DG 2 Breaker.

AGC246 is used to controls and synchronize the Mains and TIE Breaker with DG.

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## AGC242 Terminal Overview –



Terminal for Crank/Run and Emergency Stop.

Terminal for DG Breaker Closing and Tripping.

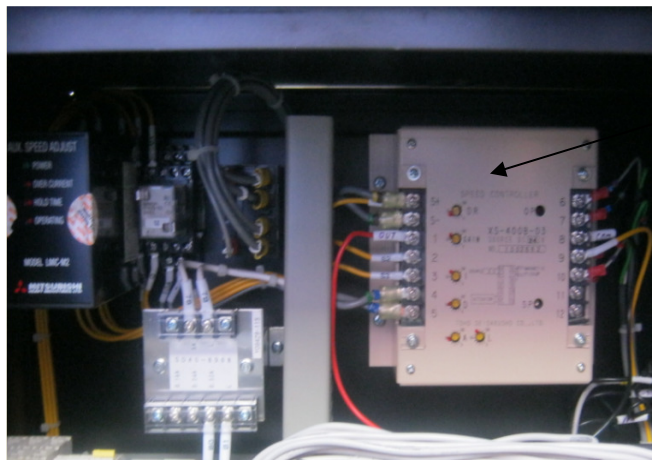
Configurable Relay outputs for Speed and Voltage regulation, Horn, Preheat, Alarm etc.

Digital Inputs for Remote Start and Stop the DG set from the PLC panel.

Terminal strip for Current Measurement.

Terminal strip for DG Voltage Measurement.

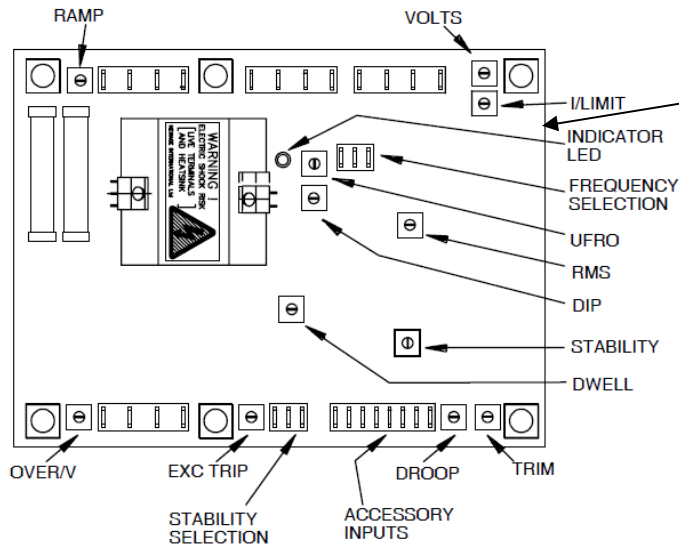
Terminal strip for Busbar Voltage Measurement.



Relay output from the AGC242 is connected to Governor Card for Speed regulation.

Governor Type- XS-400B-03.  
Make – Toho.

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Relay output from the AGC242 is connected to AVR through Motorized Potentiometer for Voltage Regulation.

AVR Type – MX321.  
Make – Stamford.

DG1 AGC242 Folio -



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DG2 AGC242 Folio -



Mains AGC246 Folio -



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Mitsubishi Genset controller for Local Starting of DG set -



MGS731DGCP Engine Controller.

Operational Logic:

Back Synchronization –

1. In case of Mains Power supply Failure, the DG1 and DG2 will start in AMF mode. After closing the Master DG breaker, the TIE breaker will get close and Master DG set will take the Load. The Slave DG set will then Synchronized and will share the load with Master DG. The Load dependant logic will start and suppose the load is 50% less, the Slave DG set breaker will open after 180 second and will get off after 3 minutes cool down time.
2. If the load exceeds 70% greater, the salve DG set will start after 10 second time delay and will synchronized with the Master DG set and will share the Load.
3. After resuming the Mains Power supply, the Grid will parallel with the DG set. The DG will softly shift the load on mains and after de-loading, the TIE and DG set breaker will get open and DG set will get off after the cool down time.

Forward Synchronization:

1. Suppose the Mains Power is available, the DG set will get the Auto Start command from the PLC panel (For such operation, there is Load Take over Mode is activated in the M Logic and used the Digital Input to start the DG set remotely. The operator will be the in-charge to perform the activity).
2. After getting the Start command from PLC, both DG set will start at a time and will get synchronized. After closing the respective breaker, the TIE breaker will synchronizes the DG bus and Mains bus and will get close. DG set will take the load from Grid. After taking the load from Grid, the Grid breaker will get open.