

AMF Panel Wiring Diagram PDF

An AMF controller based control panel together with your backup generator ensures electrical power to your business premises in case of power outage. The following diagram includes the BE242 AMF controller. The changeover switch is made by using two power contactors fitted with auxiliary contacts and mechanical interlock.

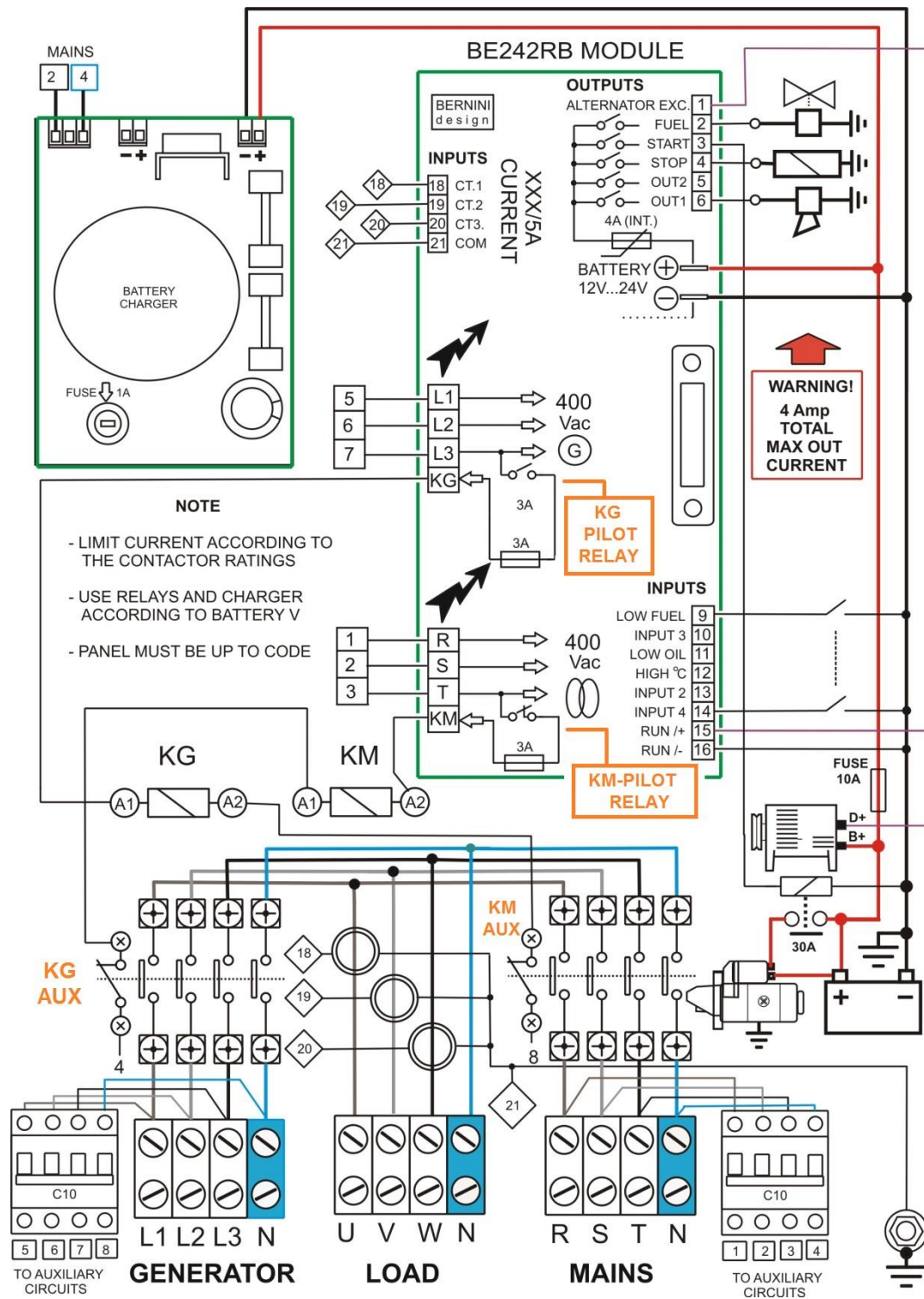
DIAGRAM DESCRIPTION

When the utility power is not available the AMF controller transfers the load to the generator. It will transfer the load back once utility power will be restored. The AMF controller that governs the system ensures that all this is done smoothly and with a short downtime. The AMF controller monitors the parameters of utility power and detects when there are electrical parameters out of the preset limit. The AMF controller will then automatically start the engine via the BE242RB interface board. Once the generator provides the correct frequency and voltage, the AMF controller TRIGGERS THE WARM-UP TIMER. This will allow the engine to reach the working temperature. After restoring the utility power, the AMF controller will take care to transfer the load. After a cooling down time delay, the engine is then stopped.

HOW IT WORKS ON ELECTRICAL POINT OF VIEW

The generator is electrically connected to the LOAD via the KG (contactor of the generator). This is possible only when both contacts, **KM-AUX** and **KG-PILOT** are closed. The **KM-AUX** are the auxiliary contacts fitted on the body of the UTILITY POWER contactor (so called KM). When the KM is open, the **KM-AUX** contacts enable the KG. The AMF controller will energize the relay **KG-PILOT**. In this case, the coil of the KG will be supplied by the N and L3 of the generator via a protection fuse. When switching the Generator to Utility Power the user may observe a short 'power outage'. Normally it is about 2 seconds. This power outage is mandatory especially when big electric motors are running. The counter EMF voltage will create overvoltages and dangerous overcurrents. For this reason is mandatory a BREAK-BEFORE-MAKE actions of the contactors..

UTILITY POWER-LOAD The utility power is connected to the LOAD via the KM contactor. The coil of the KM is energized by the closed contacts **KG-AUX** and **KM-PILOT**. **KG-AUX** are the auxiliary contacts mechanically fitted on the body of the KG (contactor of the generator). Being the contactor of the generator open, the auxiliary contacts are closed in order to enable the KM. The **KM-PILOT** is the UTILITY POWER control relay. This relay is OFF when the utility power is within the settings. In this case the COIL of the KM is supplied by the N and T of the MAINS via a protection fuse. It is really important to note why we use the normally closed contacts of the **KM-PILOT**. By using the normally closed contacts, we make sure to provide priority to UTILITY POWER in case the AMF controller is damaged or without supply. If we use the normally open contacts, all the time we remove the DC supply of we remove the battery of the engine, we disable the contactor of the mains. The user will get an unexpected power failure in the building even if the UTILITY POWER is healthy. This is why we use the normally closed contacts. In case of real power failure, the ATS controller energizes the **KM-PILOT**. The **KM-PILOT** contacts will open and the KM will open as well. This prevents the panel to supply the LOAD with improper electrical parameters. Once the KM is open, the auxiliary contacts **KM-AUX** will close. This is one of the mandatory condition to close the KG (the KM must be open in the first place).



The auxiliary circuits for utility power and generator are protected via 10Amp. circuit breakers. The 4-channel circuit breaker if you want to protect the neutral lines. We always recommend to insert a 16..25Amp fuse on the battery. This will avoid burning the DC cables in case of a direct short circuit of the battery plus and battery minus on the panel side.