Quick installation guide

Subject	Ref. No.	Vers.	Page
Ziehl Abegg EC-Blue motors quick configuration guide			1 / 3
Issued by	**Department**		
A S A R O T T I	Air Business Center		
Approved by	**Date**		
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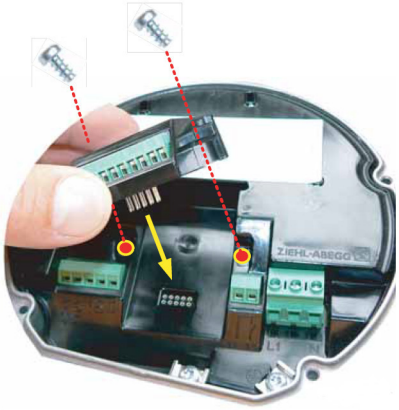
Location			

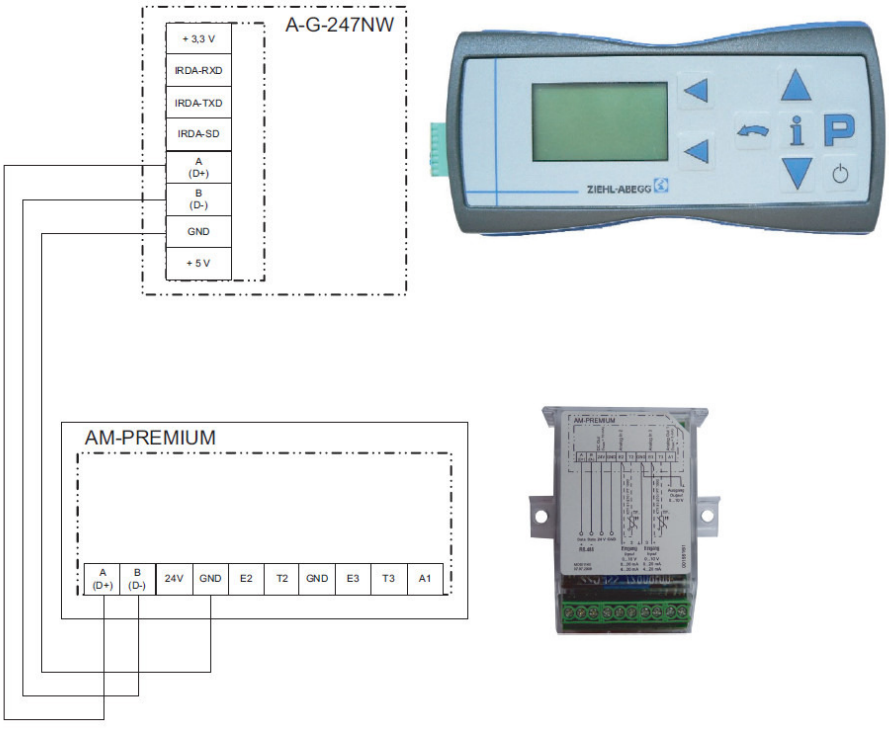
1. CONNECTION CONFIGURATION DEVICE

Add on module (AM_Config)

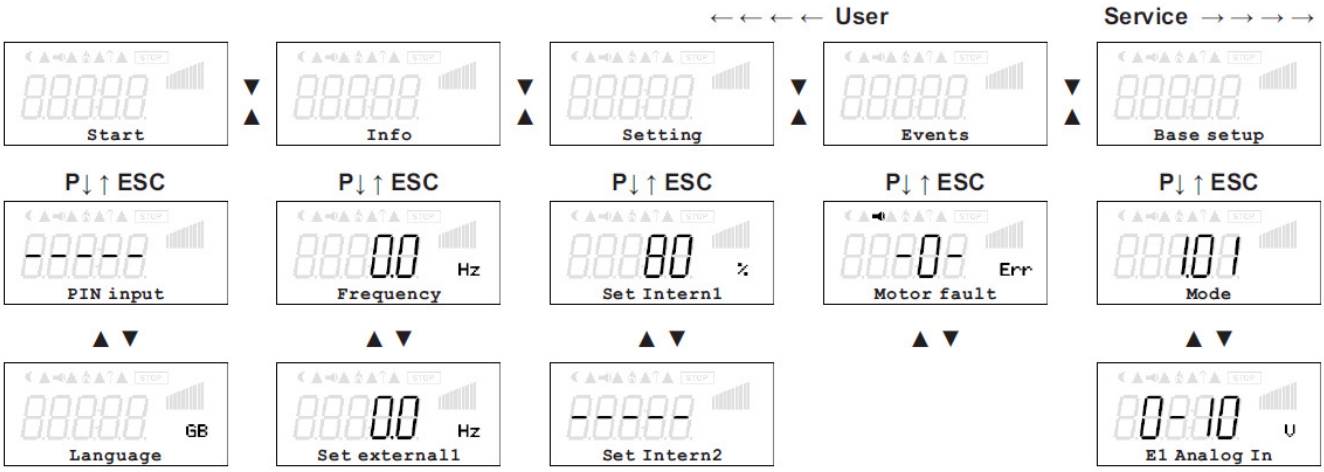
P	Program key and open menu
▼	Menu selection, reduce value
▲	Menu selection, increase value
▼ + ▲	ESC-key combination, Escape = leave menu



External terminal Type A-G-247NW



2. MENU STRUCTURE AND NAVIGATION



Menu dependent on device type

Selection of the menu group (e.g. Base setup) to the right through the ▼-▲ key, to the left through the ▼-▲ key.
You can go to the menu items in the menu groups (e.g. mode of operation) by using the **P** key.
Use the arrow keys to move up and down within the menu group.
The menu groups consist of one area for the user (user menu) and one area for installation (service).
The service area can be protected against unauthorized access by using a PIN.
In order to simplify the initial start-up operation, the service level is enabled at first (i.e., not protected by the PIN 0010 (see Controller Setup, PIN protection = OFF).
If PIN protection is activated (ON), the service menu remains enabled after input of PIN 0010 as long as one is pressing keys.
If no keys are pressed for ca. 15 minutes, the PIN is automatically erased, i.e. the service level is blocked.
To make adjustments, press the **P** key after selecting the menu item. If the previously set value starts to flash , it can be adjusted with the ▼ + ▲ keys and then saved with the **P** key. To exit the menu without making any changes, use the “Esc” short-key, i.e., the originally set values remain.

3. STANDARD PARAMETERS

Parallel configuration

Scope of supply:

- 1 AM-CONFIG module (installed in the first motor of the signal chain)

All motors have to be configurated with AM-CONFIG module

Motors parameters		
Menu	Parameter	default value
CONTROLLER SETUP	**ControlMode**	0
Setting	Max Speed	*depend on noise level*

Dry cooler master/slave configuration

Scope of supply:
- 1 AM-PREMIUM module (installed in the first motor of the signal chain - master)
- 1 A-G-247NW panel

Master motor have to be configurated with external terminal Type A-G-247NW

Master motor parameters		
Menu	Parameter	default value
Base Set up	Mode	2,01
IO Setup	A function	2A
Setting	Max Speed	*depend on noise level*
Setting	Setpoint 1	20°
Setting	Pband	5K

Slave motors don't need to be configurated

Condenser master/slave configuration

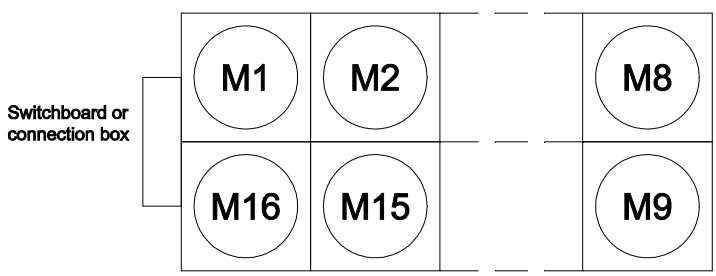
Scope of supply:
- 1 AM-PREMIUM module (installed in the first motor of the signal chain - master)
- 1 A-G-247NW panel

Master motor have to be configurated with external terminal Type A-G-247NW

Master motor parameters		
Menu	Parameter	default value
Base Set up	Mode	3,01
IO Setup	A function	2A
Setting	Max Speed	*depend on noise level*
Setting	Setpoint 1	12bar
Setting	Pband	5bar

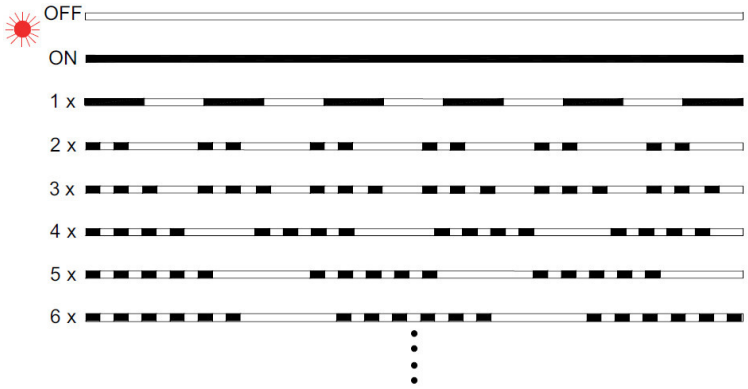
Slave motors don't need to be configurated

4. MOTORS POSITION



5. STATUS OUT WITH FLASH CODE

For motor size "D" and "G" status LED integrated in cover.



LED Code	Relays K1*	Cause Explanation	Reaction of Controller Adjustment
OFF	de-energized, 11 - 14 interrupted	no line voltage	Line voltage available? Unit switch OFF and automatically ON when the voltage has been restored
ON	energized, 11 - 14 bridged	Normal operation without fault	
1 x	energized, 11 - 14 bridged	**no enable = OFF** Terminals “D1” - “24 V / 10 V” (Digital In 1) not bridged.	Switch OFF by external contact
2 x	energized, 11 - 14 bridged	**Active temperature management** The device has an active temperature management to protect it from damage due to too high inside temperatures. In case of a temperature rise above the fixed limits, the modulation is reduced linearly. To prevent the complete system being switched off externally (in this operation permissible for the controller) in case of reduced operation due to too high an internal temperature, no fault message is sent via the relay.	With a drop in temperature the modulation rises again llinear. Check cooling of the controller
3 x	de-energized, 11 - 14 interrupted	**HALL-IC** Incorrect signal from the Hall-ICs, error in the commutation. Internal plug connection faulty.	The controller switches the motor off. Automatic restart if no faults are recognised. Replace fan / motor

LED Code	Relays K1*	Cause Explanation	Reaction of Controller Adjustment
4 x	de-energized, 11 - 14 interrupted	**Line failure** (only for 3 ~ types) The device is provided with a built-in phase-monitoring function for the mains supply. In the event of a mains interruption (failure of a fuse or mains phase) the unit switches off after a delay (approx. 200 ms). Only functioning with an adequate load for the controller.	Following a shutoff, a startup attempt is made after approximately 15 seconds, if the voltage supply is high enough. This keeps occurring until all 3 supply phases are available again. Check power supply
5 x	de-energized, 11 - 14 interrupted	**Motor blocked** If after 8 seconds of commutation no speed is measured > 0, the fault "Motor blocked" is released.	EC-Controller switches off, renewed attempt to start after about 2.5 sec. Final shutoff, when fourth starting test fails. It is then necessary to have a reset by disconnecting the line voltage. Check if motor is freely rotatable.
6 x	de-energized, 11 - 14 interrupted	**IGBT Fault** Short circuit to earth or short circuit of the motor winding.	EC-Controller switches off, renewed attempt to start after about 60 sec. Final shutoff, if - following a second starting test – a second fault detection is detected within a period of 60 seconds. It is then necessary to have a reset by disconnecting the line voltage.
7 x	de-energized, 11 - 14 interrupted	**DC undervoltage** If the DC-link voltage drops below a specified limit the device will switch off.	If the DC-link voltage rises above the limit within 75 seconds, then the controller will attempt to start. Should the DC-link voltage stay for more than 75 seconds below the limit, the device will switch off with a fault message.
8 x	de-energized, 11 - 14 interrupted	**DC overvoltage** If the DC-link voltage increases above a specified limit, the motor will switch off. Reason for excessively high input voltage or alternator motor operation.	If the DC-link voltage drops below the limit within 75 seconds, then the cotroller will attempt to start. Should the DC-link voltage stay above the limit for more than 75 seconds, the device will switch off with a fault message.

LED Code	Relays K1*	Cause Explanation	Reaction of Controller Adjustment
9 x	energized, 11 - 14 bridged	**IGBT cooling down period**	IGBT cooling down period for approx. 60 sec. Final shutoff after 2 cooling-off intervals
11 x	de-energized, 11 - 14 interrupted	**Fault motor start** If a starting command is given (enable available and Setpoint > 0) and the motor does not start to turn in the correct direction within 5 minutes, then an error message will appear.	If it is possible to start the motor in the target direction of rotation after the error message, the error message will disappear Should a voltage interruption occur in the meantime, the time taken up to the switch off will begin again. Check if motor is freely rotatable. Check if the fan is driven in reverse direction by an air stream (Behaviour in rotation by air current in reverse direction).
12 x	de-energized, 11 - 14 interrupted	**Line voltage too low** If the DC-link voltage drops below a specified limit the device will switch off.	If the line voltage rises above a specified limit within 75 seconds, then the controller will attempt to start. Should the line voltage stay below the specified limit for more than 75 seconds, the device will switch off with an error message
13 x	de-energized, 11 - 14 interrupted	**Line voltage too high** Cause to high input voltage If the line voltage increases above a specified limit, the motor will switch off.	If the line voltage drops below the specified limit within 75 seconds, then the controller will attempt to start. Should the line voltage stay above the specified limit for more than 75 seconds, the device will switch off with an error message.
14 x	de-energized, 11 - 14 interrupted	**Error Peak current** If the motor current increases above the specified limit (even in a short time-frame) the device will switchoff.	After a switch off the controller waits for 5 seconds then the controller attempt a start. Arises within 60 sec. in series 5 further disconnections a final switch off with fault indication follows. Should no further switch off be exceeded in 60 sec. the counter will be reset.
17 x	de-energized, 11 - 14 interrupted	**Temperature alarm** Excess of the max. permissible inside temperature.	Controller switches off motor. Automatic restarting after cooling down. Check cooling of the controller

** K1: programmed function at factory: Fault indication not inverted*