



## EMERGENCY 3-PHASE INVERTER “IPOW”

### OPERATION DESCRIPTION

The device drives the gear motor during emergency run and it is available in 4 different sizes: IPOW1 – IPOW2 – IPOW3 – IPOW4.

**MAXIMUM MOTOR POWER APPLICABLE:**

| DEVICE      | MOTOR 400Vac |         |
|-------------|--------------|---------|
|             | For LIFTS    | VVVF    |
| IPOW size 1 | 10 kW        | 7.4 kW  |
| IPOW size 2 | 15 kW        | 11 kW   |
| IPOW size 3 | 22 kW        | 16 kW   |
| IPOW size 4 | 33 kW        | 24.7 kW |

IPOW in 1-2-3 sizes, is powered by a direct voltage 48V and supplies to the motor a 36V 3-phase six step output voltage, while in 4 size, it is powered by a direct voltage 36V and supplies a 26V 3-phase six step output voltage. Frequency is adjustable from 2 to 20 Hz through trimmer P11.

The device starts its operation when the connection between terminals 1 – 2 of the M12 terminal board is closed: IPOW carries out an operation test in both the run directions for a few seconds, checking the absorbed current in both cases: if in the second test the current is lower than in the first one, the run continues in this direction, otherwise the motor stops and starts again in the first checked direction.

If the sensor of maximum current activates during one of the two test, run direction is reversed and the inverter starts once again. If protection activates also in the second run direction (overcurrent detected in both the run directions), the device stops working and the protection trip is memorized; to reset it you must cut off the power supply from the device.

The overcurrent level adjustment is set during the device test in the factory, and it mustn't be modified.

Once the direction has been chosen, the sensor of minimum current will activate, to avoid the motor is pulled by the load: if the current absorbed by the motor goes down under the threshold value set by trimmer P12 (motor is regenerating), IPOW switches off then turns on again in the same run direction, to carry the car to floor with a “jogging” operation (the stop time is set, the run time is adjustable through trimmer P13).

IPOW also powers up the brake coil, through a bridge rectifier and a relay which is directly controlled by the inverter run; when the solder-point SP11 is closed, the inverter switch-off is delayed, in relation to the brake de-energization, to keep the load controlled even in lift systems equipped with highly reversible gears.

Terminal board M12 performs a further function: closing the terminal 3 with 2 (common), the most favourable run test is disabled, and the motor rotation is forced in the direction set by jumper H11. Moving the jumper H11 from 1 to 2, you can reverse the motor rotation.

|           |            |                              |
|-----------|------------|------------------------------|
| <b>02</b> | 12-06-2006 |                              |
| REL.      | DATE       | Checked and Approved by T.M. |

## FUNCTION SUMMARY

### TERMINALS

|              |       |                                  |
|--------------|-------|----------------------------------|
| PA - NA      |       | DC Power Supply (48VDC or 36VDC) |
| UA - VA - WA |       | 3-phase Output Voltage           |
| M11          | 1 - 2 | DC Output supply for brake coil  |
|              | 3 - 4 | AC Input supply for brake coil   |
| M12          | 1 - 2 | Run Enable                       |
|              | 2 - 3 | Forced Run Command               |

### SIGNAL LEDS

|                    |                                   |
|--------------------|-----------------------------------|
| DL11               | Inverter powered up               |
| DL12               | Inverter running                  |
| DL13               | Minimum current detection         |
| DL14               | Overcurrent protection            |
| DL15 - DL16 - DL17 | Inverter output frequency display |

### TRIMMERS

|      |   |
|------|---|
| P11: | Inverter output frequency: can be adjusted within the 2 – 20 Hz range. Increasing the frequency, increases the rotating speed of the lift motor, but decreases the torque transmitted.            |
| P12: | Minimum current detection level: if adjusted in anti-clockwise direction the sensor is excluded, if rotated in clockwise direction the sensor will intervene at an ever increasing current level. |
| P13  | Brake command relay de-energizing delay in relation to the intervention of the minimum current sensor.  |

### FUSES

|      |  |
|------|--|
| F11: | Inverter power board supply protective fuse: 2A - 250V |
| F12: | Output 1 – 2 of M11 protective fuse: 10A - 250V        |