Quadri di Manovra per Ascensori
Lifts Control Panels

USER INSTRUCTION FOR PROGRAMMING
INVERTER FUJI FRENIC MEGA

Rev.1 - 24 February 2016

The inverter assembled in the control panel is already programmed to work correctly, but doing the motor auto-tuning is always required as described at pages 3.

Sometimes, to improve performance, it is necessary to change the value of some parameters for adapting it to the specific motor.

All parameters are changed and modified using the keypad supplied with the inverter.

As a precaution, it is important to know that inside the inverter there are some very high capacitors: therefore, after main input voltage cut-off, it is necessary waiting a few minutes before touch wires and connectors concerned the power supply input and output circuits. The capacitors charge is indicated by the inverter keypad: **until the keypad is lit, avoid any contact with the power supply input and output circuits.**

PARAMETERS CHANGE

At power on the inverter display shows "0.00". This indication means that inverter is in steady state and ready to work.

PHASE A: entry in programming mode

- Press PRG button.
- Using arrows choose the suitable parameters group:
  1.F_ _, 1.E_ , 1.C _ , 1.P_ _ etc.
- Press "FUNC/DATA" button to entry in parameter list.

PHASE B: choice of the interested parameter

- Press arrows to search for the parameter to modify.
- When parameter to be modified is shown press "FUNC/DATA" to see the current parameter value.

PHASE C: changing the value

- Modify the shown value using arrows.
- To memorize the new value press "FUNC/DATA" button. Doing so the next parameter is shown.
- For not memorizing and leaving the previous value of parameter (instead of "FUNC/DATA") press "PRG" button. The display returns to show the same parameter.

PHASE D: return in operation

- Press several times "PRG" button until the display shows "0.00". This indication means that inverter is ready to work.

MOTOR AUTO-TUNING PROCEDURE

The inverter has been already programmed during the control panel test, following the order form.
It is recommend to compare the data on motor nameplate with data stored in the inverter; only if different modify them with values specified on the motor nameplate:

- P01= motor poles
- P02= motor rated power [kW]
- P03= motor rated current [A]
- F03= motor speed regulation [Hz]
- F04= motor rated speed [Hz]
- F05= motor rated voltage [V]

AUTO-TUNING START PROCEDURE

- Enable control panel service mode by the "MAINTENANCE" switch.

- Move cabin outside the re-phase magnets with UP/DOWN command in maintenance mode.

- Set parameter P04 =1 following steps A,B,C of paragraph "PARAMETERS CHANGE". The inverter will wait any maintenance command. Activate a maintenance up or down command. Important: release the maintenance command only when inverter has finished the auto-tuning procedure indicated by the message: "END" (elapsed maximum time 40s).

- Pressing "PRG" button the display shows "0.00" and the inverter is ready to work.

OUTPUT FREQUENCY, VOLTAGE, CURRENT VALUES VISUALIZATION

As default mode the display shows output frequency.
Pressing "FUNC/DATA" button is possible to visualize: output current [A], output voltage [V], output frequency [Hz].

FAULTS VISUALIZATION

When fault occurs (fault code flashing), pressing "FUNC/DATA" button all details (current, voltage, power) will be visualised.

LIST OF PARAMETERS PROGRAMMABLE BY CUSTOMER

Annexed with the electrical diagram, a list of the programmable parameters is supplied.
Of these parameters, only some could be modify without compromise the proper operation
of elevator. For this reason we present the parameters list programmable by customer:

- C06: NOMINAL SPEED (HIGH SPEED) [Hz]

  It is always calibrated according to the elevator speed, as foreseen in the lift book.
  Only for "short floor" or difficulty during stop, try to decrease its value.

- C05: LEVELLING SPEED (LOW SPEED) [Hz]

  It is already calibrated according to the elevator speed.
  Do not decrease the factory set value in order to avoid some torque decrease at this
  speed. Increase this value of a few Hz if cabin does not succeed to reach the floor level.

- C07: INSPECTION SPEED [Hz]

  It is already calibrated according to the elevator speed, paying attention not exceeding
  0,63 m/s according to EN 81.

- F07: ACCELERATION TIME [s]

  A slow acceleration and a motor current reduction during acceleration are obtained
  increasing this value.

- F08: DECELERATION TIME [s]

  A slow deceleration is obtained increasing this value, but in this case an increasing
  of deceleration space is required.

- P06: NO LOAD MOTOR CURRENT

  Usually it is not necessary to modify it, eventually increase it one ampere per time if motor
  does not succeed to move the cabin at start, or during levelling speed the cabin does not
  succeed to reach the floor level.

- P12: RATED SLIP FREQUENCY

  The auto-tuning procedure automatically calculates this value.

- H06: INVERTER FAN COMMAND

  0 = Fan is always active
  1 = Controlled activation/deactivation according to inverter temperature

TROUBLESHOOTING

⚠ WARNING
If any of the protective functions has been activated, first remove the cause. Then, after checking that the all run commands are set to OFF, release the alarm. If the alarm is released while any run commands are set to ON, the inverter may supply the power to the motor, running the motor. **Injury may occur.** - Even though the inverter has interrupted power to the motor, if the voltage is applied to the main circuit input terminals L1/R, L2/S and L3/T, voltage may be output to inverter output terminals U, V, and W. - Turn OFF the power and wait at least five minutes for inverters with a capacity of 22 kW or below, or at least ten minutes for inverters with a capacity of 30 kW or above. Make sure that the LED monitor and charging lamp are turned OFF. Further, make sure, using a multimeter or a similar instrument, that the DC link bus voltage between the terminals P (+) and N (-) has dropped to the safe level (+25 VDC or below). **Electric shock may occur.**

○ **Description of major protective functions**

Alarm code	Alarm name	Alarm description
Oc1	Overcurrent protection during acceleration	Excessive output current due to: - Excessive motor load. - Acceleration (deceleration) too fast. - Short circuit in the output circuit. - Ground fault (this protection is effective only during start up).
Oc2	Overcurrent protection during deceleration	
Oc3	Overcurrent protection at constant speed	
Ou1	Overvoltage protection during acceleration	Voltage in the DC link too high (400 V for 200 V class inverters; 800 V for 400 V class inverters) due to: - Deceleration too fast. - The motor is regenerating energy and there is no braking resistor connected to the inverter.
Ou2	Overvoltage protection during deceleration	
Ou3	Overvoltage protection at constant speed	This protection may not protect the case where the supply voltage is excessive
Lu	Undervoltage protection	Voltage in the DC link too low (200 V for 200 V class inverters; 400 V for 400 V class inverters). In the case F14=4 or 5, then this alarm does not go off when the voltage in the DC link is low.
Lin	Input phase loss protection	Input phase loss. If the inverter load is low or a DC reactor is installed the event of an input phase loss may be not detected.
Opl	Output phase lost protection	An output phase of the inverter is in open circuit.
Oh1	Overheat protection	Excessive heat sink temperature due to: - Inverter fan is not working. - The inverter is overloaded.
Dbh	External braking resistor overheat	Overheating of the external braking resistor
Olu	Overload protection	IGBT internal temperature calculated from the output current and from the temperature inside the inverter is over the preset value.
Oh2	External alarm input	A digital input is programmed with the function THR (9) and has been deactivated.
Ol1	Electronic thermal overload motor 1	The inverter is protecting the motor in accordance with the electronic thermal overload protection setting: - F10 (A06, b06, r06) =1 is for general purpose motors. - F10 (A06, b06, r06) =2 is for inverter motors. - F11 (A07, b07, r07) defines the operation level (current level). - F12 (A08, b08, r08) defines the thermal time constant. F functions are for motor 1, A functions are for motor 2, b functions are for motor 3 and r functions are for motor 4.
Ol2	Electronic thermal overload motor 2	
Oh4	PTC thermistor	The thermistor input has stopped the inverter to protect the motor. The thermistor has to be connected between terminals [C1] and [11]. Also the slide switch has to be set to the correct position and functions H26 (enable) and H27 (level) have to be set.
Er1	Memory error detection	Memory error has been detected during power up.
Er2	Keypad communications error detection	The inverter has detected a communications error with the keypad (standard keypad or multifunction keypad).
Er3	CPU error detection	Inverter has detected a CPU error or LSI error caused by noise or some other factors.
Er4	Option communications error detection	Inverter has detected a communications error with the option card.
Er5	Option error detection	The option card has detected an error.