PLC LOGO SIEMENS –Instructions for Input /Output checking – Passenger and material hoist – HOIST AS 400

Inputs check:

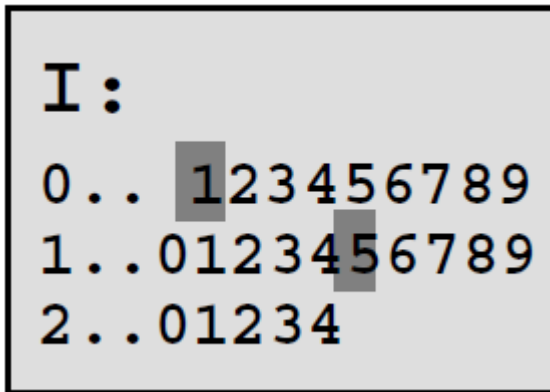When turning on the electrical panel, LOGO screen will display the following :

Fig. 01

Inputs from I1 to I9

Inputs from I10 to I19

Unused Inputs

Inputs of the first line (line 0) are all used, while the inputs used in the second line (line 1) are from 10 to 16.

All other inputs remain unused.

When an input is active it means the voltage is of 110Vac (level 1) and the display will be highlighted **by the number in bold** (see Fig. 01 Input No. 1 - first line and No. 5 - second line).

Use of inputs:

Line 0:

I1 AUXILIARIES "ON" : If there is no particular MALFUNCTION [such as : activated emergency buttons, emergency limit switches not activated, no-intervention of the motor thermal protection, disactivated magneto-thermic breaker 02QF1- for protection of magnetic motor brake -, no-intervention of parachute brake, 16 poles connector (no cable connected) properly seated in its connector on the left side of control panel], after pressing the START button, the equipment must be OPERATIONAL.

I2 ASSEMBLY METHOD: This input should normally be **Inactive** and will become **active** only when using the manual push-button located in the control panel (connector on the left side of the panel). When this input is **ON**, the equipment will exclusively move if "**MANUALLY CONTROLLED**": during the rising **>** up to the Ascent limit switch AND during the descent**>** up to the Down limit switch.

I3: "CLOSED DOORS" INPUT: This input must be ACTIVE if the doors of the hoist and the gates at floor (if any) are closed. On the contrary, if this input is not active NO movement will be possible.

I4: <u>DROP-TEST</u> : This input must **NOT** be active. It will be active only by using the selector on the manual push-button panel for DROP TEST. This will enable the DROP TEST procedure.

I5: "<u>STOP</u>" CONTROL : Normally this input must **NOT** be active .
It turns active only by pushing the STOP button: cage will then stop in whatever position.

I6: "<u>UPRISING</u>" CONTROL: As a rule this input must **NOT** be active. It will become active only by using the manual push-button panel or pressing the button UP . This input will enable the uprising movement of the hoist. Upon release of the button, the input will go back to its inactive state.
This control provides a self-holding device (Presence of operator when manual)

I7: "<u>DESCENT</u>" CONTROL: Normally this input must **NOT** be active .
It will become active only by using the push-button panel or pushing the DOWN button.
If you release the button, the input will go back to its inactive state.
This control provides a self-holding device (Presence of operator when manual)

I8: "<u>STOP AT FLOOR</u>" CONTROL : As a rule this input must **NOT** be active .
It will turn active only by pushing the STOP AT FLOOR button. Active input will allow stop at the intermediate floors provided the presence of relevant limit switches.
If you release the button, the input will go back to the inactive state.
If you want to set the stop at the next floor, it is enough to keep on pushing the button and then release it.

I9: "<u>UP</u>" LIMIT SWITCH: this input must normally be **ACTIVE**.
The type of limit switch connected to this input is a NC type (Normally Closed) . When the limit switch touches the related slide, it opens the circuit and modifies the input state from Active into Inactive.
This input has got three limit switches : **UP** limit switch, **OVERRUN** limit switch, **TEAR-RESISTANT** limit switch of cable support.

<mark>Line 1:</mark>

I10: "<u>DOWN</u>" LIMIT SWITCH: This input must normally be **ACTIVE**.
The type of limit switch connected to this input is NC (Normally Closed) type. When the limit switch touches the related slide, it opens the circuit and modifies the input state from Active into Inactive.
This input has got one DESCENT limit switch and the contact of the PARACHUTE BRAKE .

I11: <u>SLOWDOWN COUNTING LIMIT SWITCH</u>: this input must normally be **ACTIVE**.
The type of limit switch connected to this input is NC type (Normally Closed) . When the limit switch touches the related slide, it opens the circuit and modifies the input state from Active into Inactive.
One limit switch only.

I12: <u>FREE INPUT</u>

I13 : <u>LIMIT SWITCH FOR STOP AT THE INTERMEDIATE LEVEL</u> - This input must normally be **ACTIVE**. The type of limit switch connected to this input is NC type (Normally Closed) . When the limit switch touches the related slide, it opens the circuit and modifies the input state from Active into Inactive.
One limit switch only.

I14 : <u>RECTIFIER CONTROL (MOTOR MAGNETIC BRAKE)</u>
This input must normally be **INACTIVE** but must turn ACTIVE when a hoist moving command is given.
Should the input remains Inactive , the moving command will reset after 2 seconds and the red light of **" broken rectifier"** will turn on.
Replace the rectifier inside the motor and close to the terminal box. Reset the alarm pushing the RED emergency mushroom button and then the BLUE Button " START AUXILIARIES"

I15 : <u>OVERLOAD CONTROL</u> - <u>PREALARM</u>
This input must normally be **INACTIVE** and turns ACTIVE after receiving the signal of the loading cell. The **YELLOW** Light " OVERLOAD PRE-ALARM" will turn on.
The hoist can operate.

I16 : <u>OVERLOAD CONTROL</u> – <u>ALARM</u>
This input must normally be **INACTIVE** and turns ACTIVE after receiving the signal of the loading cell. The **RED** Light " OVERLOAD ALARM" will turn on and the buzzer will sound.
The hoist cannot operate and it is therefore necessary to reduce the loads in the cage.

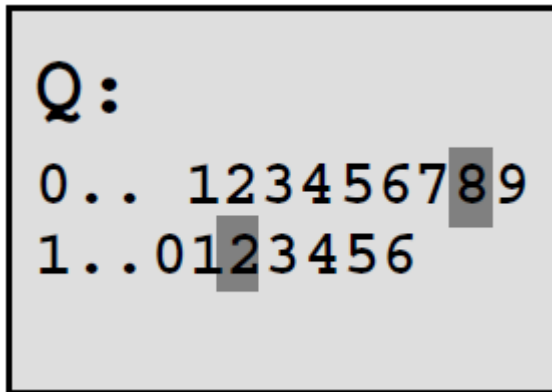Push the button "**RIGHT ARROW**" positioned on the front of the Plc Logo. The display will show the following:

Fig. 02

Outputs from da Q1 to Q9

Outputs from Q10 to Q16

Line 1 (line 0) - Used outputs: ALL OF THEM
Line 2 (line 1) – Used outputs : from 10 to 12

When output is active (level 1) - through a NO (Normally Open) contactor located inside the Plc- the voltage is 24Vac: Final user and the display will be highlighted **by the number in bold** (see fig. 02 input n° 8 – first line and n° 2- second line).

Use of outputs:

Line 0:

Q1: "UP" CONTROL : Normally **INACTIVE**. Used to operate the frequency converter for the upclimbing of the hoist.

Q2: "DOWN" CONTROL : Normally **INACTIVE**. Used to operate the frequency converter for the descent of the hoist.

Q3: " SPEED CHANGE CONTROL ": Normally **INACTIVE** – Used to change the hoist speed when approaching a floor level.

Q4: DROP – TEST CONTROL : Normally **INACTIVE** – Used to open the motor magnetic brake for the DROP TEST procedure

Q5: DESCENT ALARM CONTROL : Normally **INACTIVE.** Used to command the alarm and alert the approach of the cabin to the ground floor.

Q6: <u>CALL AT FLOOR CONTROL</u> : Normally **INACTIVE.** Used to activate the relay 07KA1 for 10 seconds at the hoist stop and avoid the floor calling so that to enter or exit from the cage.

Q7: <u>UNLOCK CAGE DOOR CONTROL:</u> Normally **INACTIVE.** Activated to unlock the door cage at the ground, the top floor, the intermediate floor (if any)

Q8: <u>FREE OUTPUT:</u>

Q9 : "OPEN DOOR " LIGHT – Normally **INACTIVE** – Activated when doors are opened.

Q.10 : " BROKEN RECTIFIER " Light – Normally INACTIVE – Activated in case of broker rectifier only

Q.11 : " OVERLOAD PRE-ALARM" Light – Normally INACTIVE – Activated in case of alarm only

Q.11 : " OVERLOAD ALARM" Light – Normally INACTIVE – Activated in case of alarm only