HIDRA CRONO controller

MEX

Inputs / Outputs Expansion Module

User Manual

DC84050Q00

ENGLISH

CONTENT

ABOUT THE INPUTS / OUTPUTS EXPANSION MODULE (MEX)

The MEX module is an electronic device designed to increment the number of inputs and outputs of the hidra Crono controller.

The outputs may be used to indicate to third-party systems or to the user, events and different status of the hidra Crono lift.

The inputs may be used by third-party systems or by the user to modify the behaviour of the lift

MINUMUM REQUIRIMENTS FOR ITS INSTALLATION

The MEX expansion modules must be connected to a Hidra Crono controller with a firmware version more or equal than 5.0.

DEVICE DESCRIPTION

Because the needs of additional inputs and outputs may be on car or at any landing, the MEX module can be supplied in two different versions.

Version to connect to the landing communication bus	Version to connect to the car communication bus
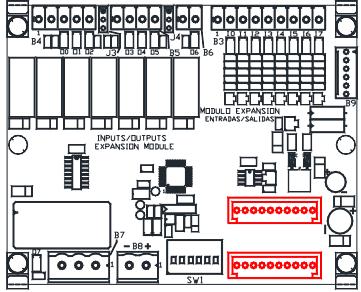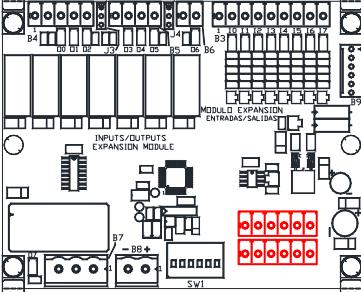
The only differences between both devices are the way they connect to the communication bus. All the functions explained in this document are equivalents on both devices.

INPUTS

The MEX module has 8 inputs I0 to I7. Each one has a red LED to indicate its status. The consumption of each input is 8mA at 24VDC maximum and its connection is shown below
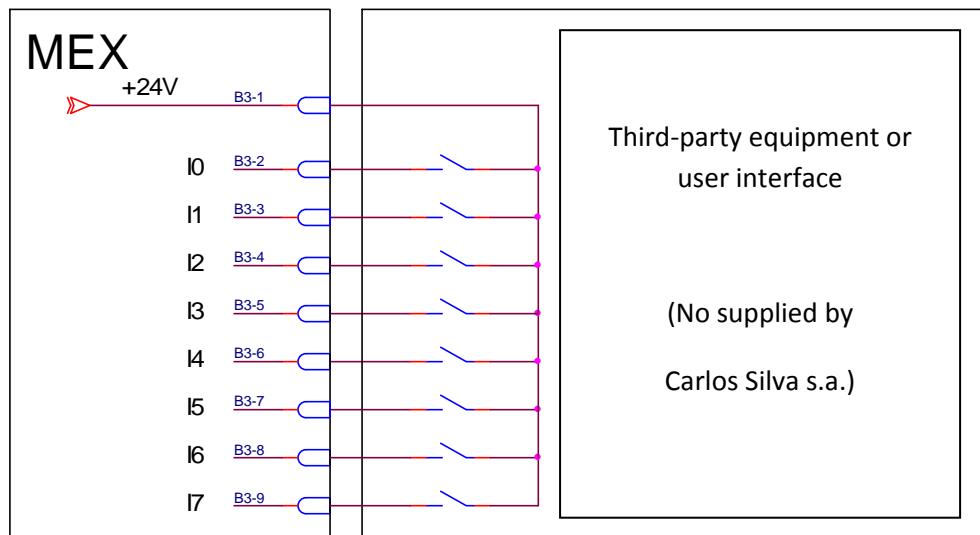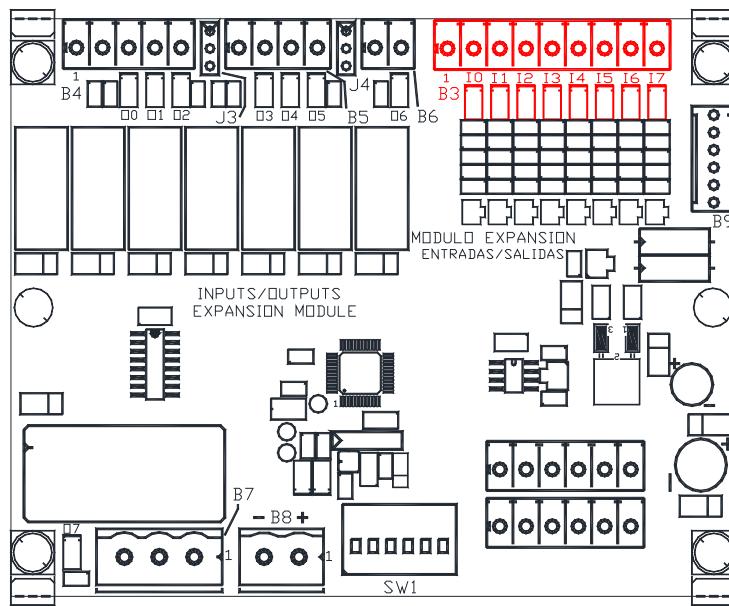
OUTPUTS

The MEX module has 8 potential free outputs, O0 to O7. Each one has a green LED to indicate its status.

With the J3 and J4 configuration jumpers is possible to separate the contacts into different groups so they can have different commons.

Contact characteristics.

| Output	Contact type	Contact rating	Maximum Voltage
O0 a O6	Normally open (NO)	5A a 30VDC	110VAC
O7	Switch contact (CO)	5A a 250VAC 5A a 30VDC	230VAC

The schematic of the outputs connection is shown bellow
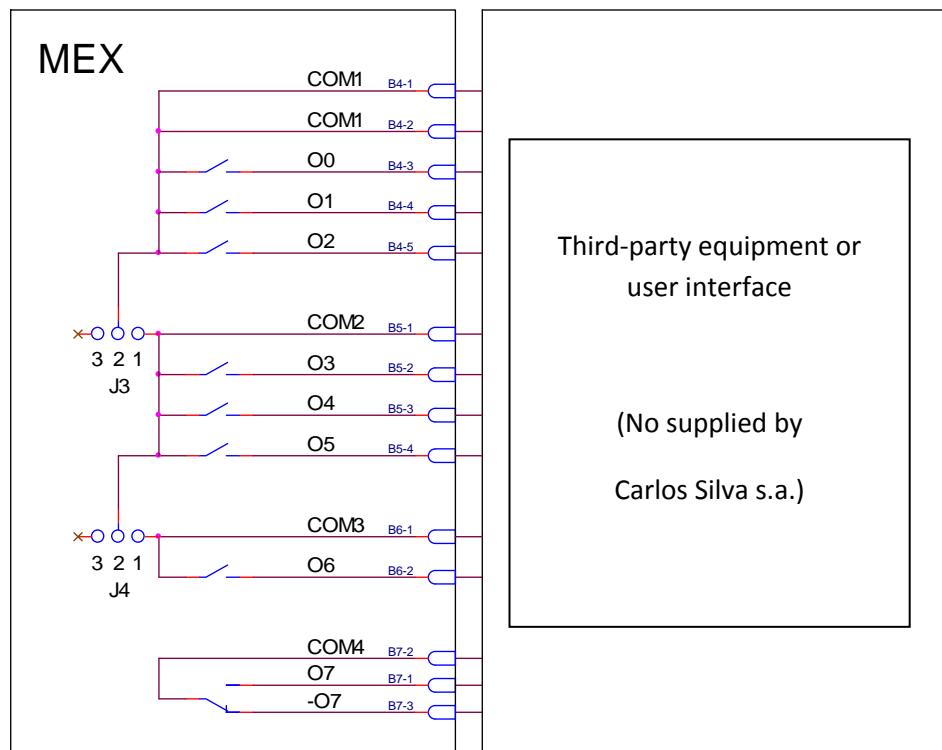
Configuration jumpers J3 and J4 allow the outputs O0 to O6 are connected to a single common or separated into three if required. From factory, the module is supplied with the jumpers adjusted for a single common.

## COMUNICATION BUS

The MEX module has a communication bus for any positioning indicator or voice Synthesizer supplied by Carlos Silva s.a.
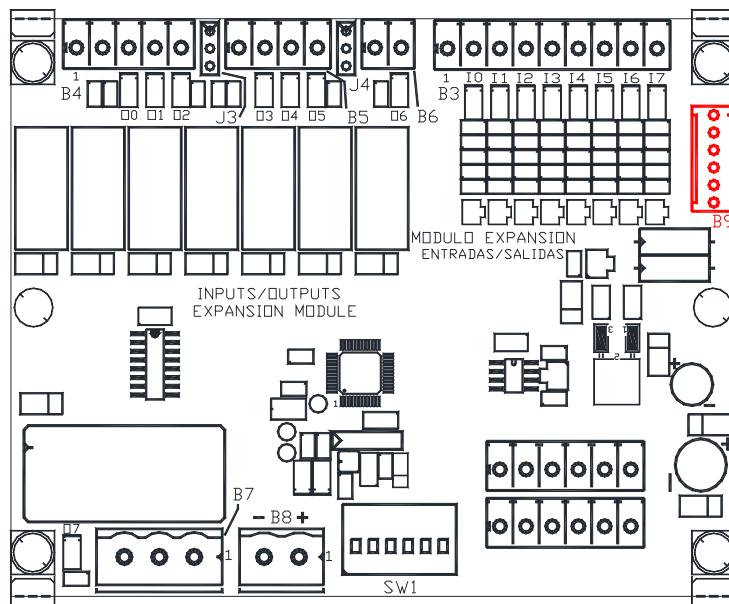
POWER SUPPLY OUTPUT

The module has a 24VDC / 0,5A Max output to supply a third-party system if required.
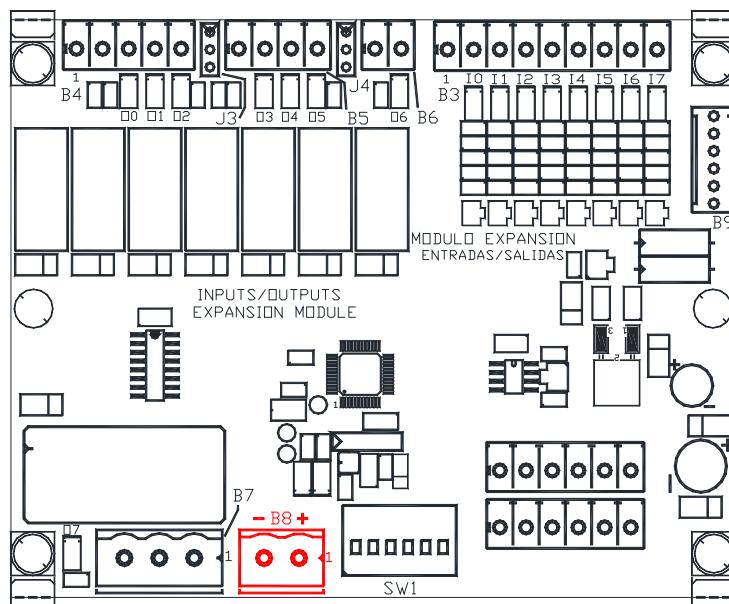
CONFIGURATION SWITCH

Using the configuration switch it is possible to set the MEX module to indicate some predefined information on the outputs, or specific information directly controlled by the Hidra Cono controller.
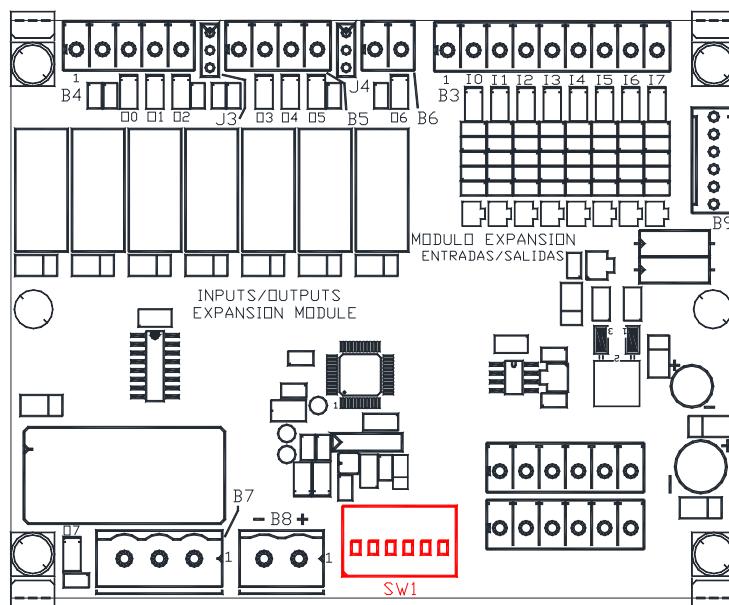
Swithes 1, 2 y 3 sets the **Functioning MODE**	switches 4, 5 y 6 sets the **module ADDRESS**
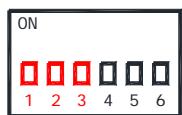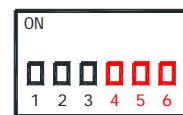
FUNCTIONING MODES

CONTROLLED BY HIDRA CRONO

On this mode, the module indicates on its outputs the information programmed on the parameters settings of the Hidra Crono. The function of each one of the inputs is also programmed on the parameters setting of the Hidra crono controller

It is possible to connect up to 8 MEX modules in a Hidra Crono and increase on 64 inputs and outputs its capability. It is possible to install MEX modules on Car or at any landing but it is not possible to repeat addresses. See next table for details of the name of the inputs and outputs depending of the module address.

Setting of the switches 1, 2 and 3 for mode Controlled by Hidra Crono:

| ON [switches 1 2 3] | 1 – OFF
2 – OFF
3 – OFF |

Setting of the switches 4, 5 and 6 for the address:

		O0/I0	O1/I1	O2/I2	O3/I3	O4/I4	O5/I5	O6/I6	O7/I7
ON [4 5 6]	4 – OFF 5 – OFF 6 – OFF	E0000	E0001	E0002	E0003	E0004	E0005	E0006	E0007
ON [4 5 6]	4 – OFF 5 – OFF 6 – ON	E0100	E0101	E0102	E0103	E0104	E0105	E0106	E0107
ON [4 5 6]	4 – OFF 5 – ON 6 – OFF	E0200	E0201	E0202	E0203	E0204	E0205	E0206	E0207
ON [4 5 6]	4 – OFF 5 – ON 6 – ON	E0300	E0301	E0302	E0303	E0304	E0305	E0306	E0307
ON [4 5 6]	4 – ON 5 – OFF 6 – OFF	E0400	E0401	E0402	E0403	E0404	E0405	E0406	E0407
ON [4 5 6]	4 – ON 5 – OFF 6 – ON	E0500	E0501	E0502	E0503	E0504	E0505	E0506	E0507
ON [4 5 6]	4 – ON 5 – ON 6 – OFF	E0600	E0601	E0602	E0603	E0604	E0605	E0606	E0607
ON [4 5 6]	4 – ON 5 – ON 6 – ON	E0700	E0701	E0702	E0703	E0704	E0705	E0706	E0707

Example 1:   It is necessary to indicate the idle state of the lift. We want to use the O7 output of a MEX module with address 0 (4-OFF, 5-OFF, 6-OFF). On the Hidra crono menu we must to set the "*IDLE state indication*" parameter to E0007.

Example 2: It is required to park the lift with a key (park means that the lift does not accept new calls and when become Idle, travels to a prefixed floor and stay there as much time as the key is actuated). It is needed to connect this key on the I0 input of a MEX module with address 1 (4-OFF, 5-OFF, 6-ON). On the Hidra crono menu we must to set the "*input to park the car*" parameter to E0100.

5 bits BINARY OUTPUT (up to 32 floors) + 3 INDICATIONS

The module shows on its outputs the position of the car in 5-bit binary code (up to 32 floors). At the remaining outputs indicates what is configured with the address switches (see table below)

Setting of the switches 1, 2 and 3 for 5-bit binary mode:

ON [switch image: 1 2 3]	1 — OFF 2 — OFF 3 — ON

Setting of the switches 4, 5 and 6 for the address:

		O0	O1	O2	O3	O4	O5	O6	O7
ON [switch image: 4 5 6]	4 — OFF 5 — OFF 6 — OFF	Bit 0	Bit 1	Bit 2	Bit 3	Bit 4	Goes UP	Goes Down	Out of service
ON [switch image: 4 5 6]	4 — OFF 5 — OFF 6 — ON	Bit 0	Bit 1	Bit 2	Bit 3	Bit 4	Goes UP	Goes Down	Inspection
ON [switch image: 4 5 6]	4 — OFF 5 — ON 6 — OFF	Bit 0	Bit 1	Bit 2	Bit 3	Bit 4	Goes UP	Goes Down	Over load
ON [switch image: 4 5 6]	4 — OFF 5 — ON 6 — ON	Bit 0	Bit 1	Bit 2	Bit 3	Bit 4	Goes UP	Goes Down	Blocked doors
ON [switch image: 4 5 6]	4 — ON 5 — OFF 6 — OFF	Bit 0	Bit 1	Bit 2	Bit 3	Bit 4	Goes UP	Goes Down	Fire alarm

4 bits BINARY OUTPUT (up to 16 floors) + 4 INDICATIONS

The module shows on its outputs the position of the car in 4-bit binary code (up to 16 floors). At the remaining outputs indicates what is configured with the address switches (see table below)

**Setting of the switches 1, 2 and 3 for 4-bit binary mode:**

ON ▯ ▮ ▯ 1 2 3	1 — OFF 2 — ON 3 — OFF

Setting of the switches 4, 5 and 6 for the address:

		O0	O1	O2	O3	O4	O5	O6	O7
ON ▯▯▯ 4 5 6	4 — OFF 5 — OFF 6 — OFF	Bit 0	Bit 1	Bit 2	Bit 3	Goes UP	Goes Down	Out of service	Inspection
ON ▯▯▮ 4 5 6	4 — OFF 5 — OFF 6 — ON	Bit 0	Bit 1	Bit 2	Bit 3	Goes UP	Goes Down	Out of service	Over load
ON ▯▮▯ 4 5 6	4 — OFF 5 — ON 6 — OFF	Bit 0	Bit 1	Bit 2	Bit 3	Goes UP	Goes Down	Out of service	Blocked doors
ON ▯▮▮ 4 5 6	4 — OFF 5 — ON 6 — ON	Bit 0	Bit 1	Bit 2	Bit 3	Goes UP	Goes Down	Out of service	Fire alarm
ON ▮▯▯ 4 5 6	4 — ON 5 — OFF 6 — OFF	Bit 0	Bit 1	Bit 2	Bit 3	Goes UP	Goes Down	Inspection	Over load
ON ▮▯▮ 4 5 6	4 — ON 5 — OFF 6 — ON	Bit 0	Bit 1	Bit 2	Bit 3	Goes UP	Goes Down	Inspection	Blocked doors
ON ▮▮▯ 4 5 6	4 — ON 5 — ON 6 — OFF	Bit 0	Bit 1	Bit 2	Bit 3	Goes UP	Goes Down	Inspection	Fire alarm

5 bits GRAY OUTPUT (up to 32 floors) + 3 INDICATIONS

The module shows on its outputs the position of the car in 5-bit gray code (up to 32 floors). At the remaining outputs indicates what is configured with the address switches (see table below)

Setting of the switches 1, 2 and 3 for 5-bit gray mode:

ON ▫ ◻◻ 1 2 3	1 – OFF 2 – ON 3 – ON

Setting of the switches 4, 5 and 6 for the address:

		O0	O1	O2	O3	O4	O5	O6	O7
ON ◻◻◻ 4 5 6	4 – OFF 5 – OFF 6 – OFF	Bit 0	Bit 1	Bit 2	Bit 3	Bit 4	Goes UP	Goes Down	Out of service
ON ◻◻◻ 4 5 6	4 – OFF 5 – OFF 6 – ON	Bit 0	Bit 1	Bit 2	Bit 3	Bit 4	Goes UP	Goes Down	Inspection
ON ◻◻◻ 4 5 6	4 – OFF 5 – ON 6 – OFF	Bit 0	Bit 1	Bit 2	Bit 3	Bit 4	Goes UP	Goes Down	Over load
ON ◻◻◻ 4 5 6	4 – OFF 5 – ON 6 – ON	Bit 0	Bit 1	Bit 2	Bit 3	Bit 4	Goes UP	Goes Down	Blocked doors
ON ◻◻◻ 4 5 6	4 – ON 5 – OFF 6 – OFF	Bit 0	Bit 1	Bit 2	Bit 3	Bit 4	Goes UP	Goes Down	Fire alarm

4 bits BINARY OUTPUT (up to 16 floors) + 4 INDICATIONS

The module shows on its outputs the position of the car in 4-bit gray code (up to 16 floors). At the remaining outputs indicates what is configured with the address switches (see table below)

Setting of the switches 1, 2 and 3 for 4-bit gray mode:

1 – ON
2 – OFF
3 – OFF

Setting of the switches 4, 5 and 6 for the address:

		O0	O1	O2	O3	O4	O5	O6	O7
	4 – OFF 5 – OFF 6 – OFF	Bit 0	Bit 1	Bit 2	Bit 3	Goes UP	Goes Down	Out of service	Inspection
	4 – OFF 5 – OFF 6 – ON	Bit 0	Bit 1	Bit 2	Bit 3	Goes UP	Goes Down	Out of service	Over load
	4 – OFF 5 – ON 6 – OFF	Bit 0	Bit 1	Bit 2	Bit 3	Goes UP	Goes Down	Out of service	Blocked doors
	4 – OFF 5 – ON 6 – ON	Bit 0	Bit 1	Bit 2	Bit 3	Goes UP	Goes Down	Out of service	Fire alarm
	4 – ON 5 – OFF 6 – OFF	Bit 0	Bit 1	Bit 2	Bit 3	Goes UP	Goes Down	Inspection	Over load
	4 – ON 5 – OFF 6 – ON	Bit 0	Bit 1	Bit 2	Bit 3	Goes UP	Goes Down	Inspection	Blocked doors
	4 – ON 5 – ON 6 – OFF	Bit 0	Bit 1	Bit 2	Bit 3	Goes UP	Goes Down	Inspection	Fire alarm

7 SEGMENTS INDICATOR OUTPUTS

On this mode, the outputs may be used to power up the segments of a 7 segment indicator. Through a bridge in a MEX input it is possible to set the number of basements in the indication sequence. Next, the configuration details are shown.

**Setting of the switches 1, 2 and 3 for 7 segments indicator mode:**


```
1 – ON
2 – OFF
3 – ON
```
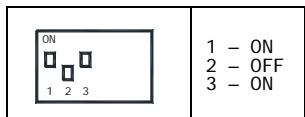
Setting of the switches 4, 5 and 6 for the address:

		O0	O1	O2	O3	O4	O5	O6	O7
	UNITS 4 – OFF 5 – OFF 6 – OFF	A1	B1	C1	D1	E1	F1	G1	G2 / B2-C2
	TENS 4 – OFF 5 – OFF 6 – ON	A	B	C	D	E	F	G	

With only one MEX configured as UNITS (4-OFF, 5-OFF, 6-OFF) and depending of the connection of O7, it is possible to show sequences from -8 to 9 or 0 to 19. If the sequence to show is other, two MEX modules are required, one of them configured as UNITS (4-OFF, 5-OFF, 6-OFF) and the other one configured as TENS (4-OFF, 5-OFF, 6-ON). Next it is shown the connection schematic on each case

Connection for sequences -9 to 9	Connection for sequences 0 to 19
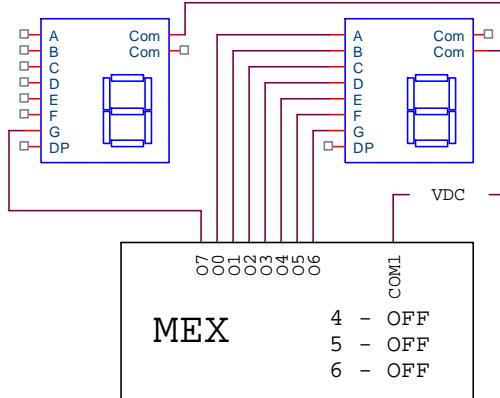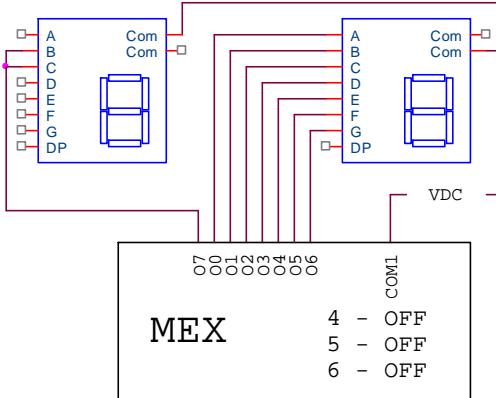
Connection for sequences -9 to 31
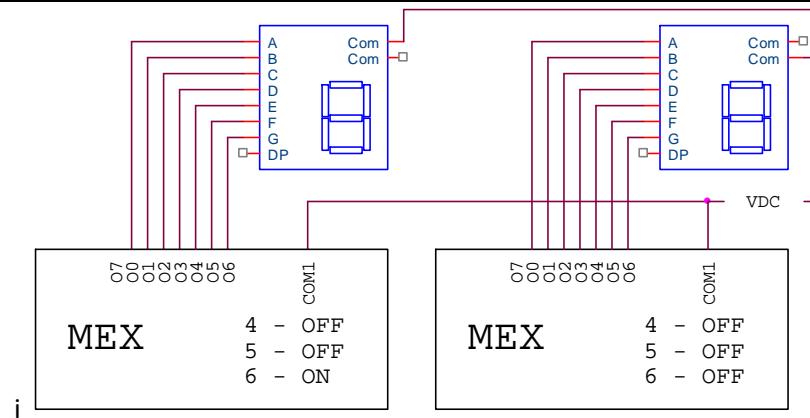
The configuration of the number of basements is done making a bridge to energize one of the inputs in the MEX module. Next table shows the relation between inputs and the number of basements

Powered input	Sequence shown	O7 wired on
No input powered	0 a 19	B and C segments of the tens digit
I0	-1 a 9	G segment of the tens digit
I1	-2 a 9	G segment of the tens digit
I2	-3 a 9	G segment of the tens digit
I3	-4 a 9	G segment of the tens digit
I4	-5 a 9	G segment of the tens digit
I5	-6 a 9	G segment of the tens digit
I6	-7 a 9	G segment of the tens digit
I7	-8 a 9	G segment of the tens digit

POSITIONAL OUTPUT

El MEX module indicates on its outputs the position of the car with one output for each floor.

**Setting of the switches 1, 2 and 3 for positional indication mode:**


```
1 – ON
2 – ON
3 – OFF
```

Setting of the switches 4, 5 and 6 for the address:

	O0	O1	O2	O3	O4	O5	O6	O7
4 – OFF 5 – OFF 6 – OFF	Floor 0	Floor 1	Floor 2	Floor 3	Floor 4	Floor 5	Floor 6	Floor 7
4 – OFF 5 – OFF 6 – ON	Floor 8	Floor 9	Floor 10	Floor 11	Floor 12	Floor 13	Floor 14	Floor 15
4 – OFF 5 – ON 6 – OFF	Floor 16	Floor 17	Floor 18	Floor 19	Floor 20	Floor 21	Floor 22	Floor 23
4 – OFF 5 – ON 6 – ON	Floor 24	Floor 25	Floor 26	Floor 27	Floor 28	Floor 29	Floor 30	Floor 31

GENERIC INFORMATION

The module indicates on its outputs information related with the lift status. This information is shown below.

Setting of the switches 1, 2 and 3 for generic information mode:

ON ▢▢▢ 1 2 3	1 – ON 2 – ON 3 – ON

Setting of the switches 4, 5 and 6 for the address:

		O0	O1	O2	O3	O4	O5	O6	O7
ON ▢▢▢ 4 5 6	4 – OFF 5 – OFF 6 – OFF	Status (see status table)			Series closed	Door 2 close order	Door 2 open order	Door 1 close order	Door 1 open order
ON ▢▢▢ 4 5 6	4 – OFF 5 – OFF 6 – ON	5-bit binary position (see position table)					Goes UP	Goes Down	standstill machine
ON ▢▢▢ 4 5 6	4 – OFF 5 – ON 6 – OFF	Idle	Full load	Over load	Blocked Doors	Fire alarm	VIP		

O0	O1	O2	
OFF	OFF	OFF	Out of service
OFF	OFF	ON	Centring / correcting
OFF	ON	OFF	Under public service
OFF	ON	ON	Under inspection

Status table

O0	O1	O2	O2	O3
Bit 0	Bit 1	Bit 2	Bit 3	Bit 4

Position table

NOTES

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NOTES

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