Stiltz™

The home lift company

Circuit Diagrams

LD ASME

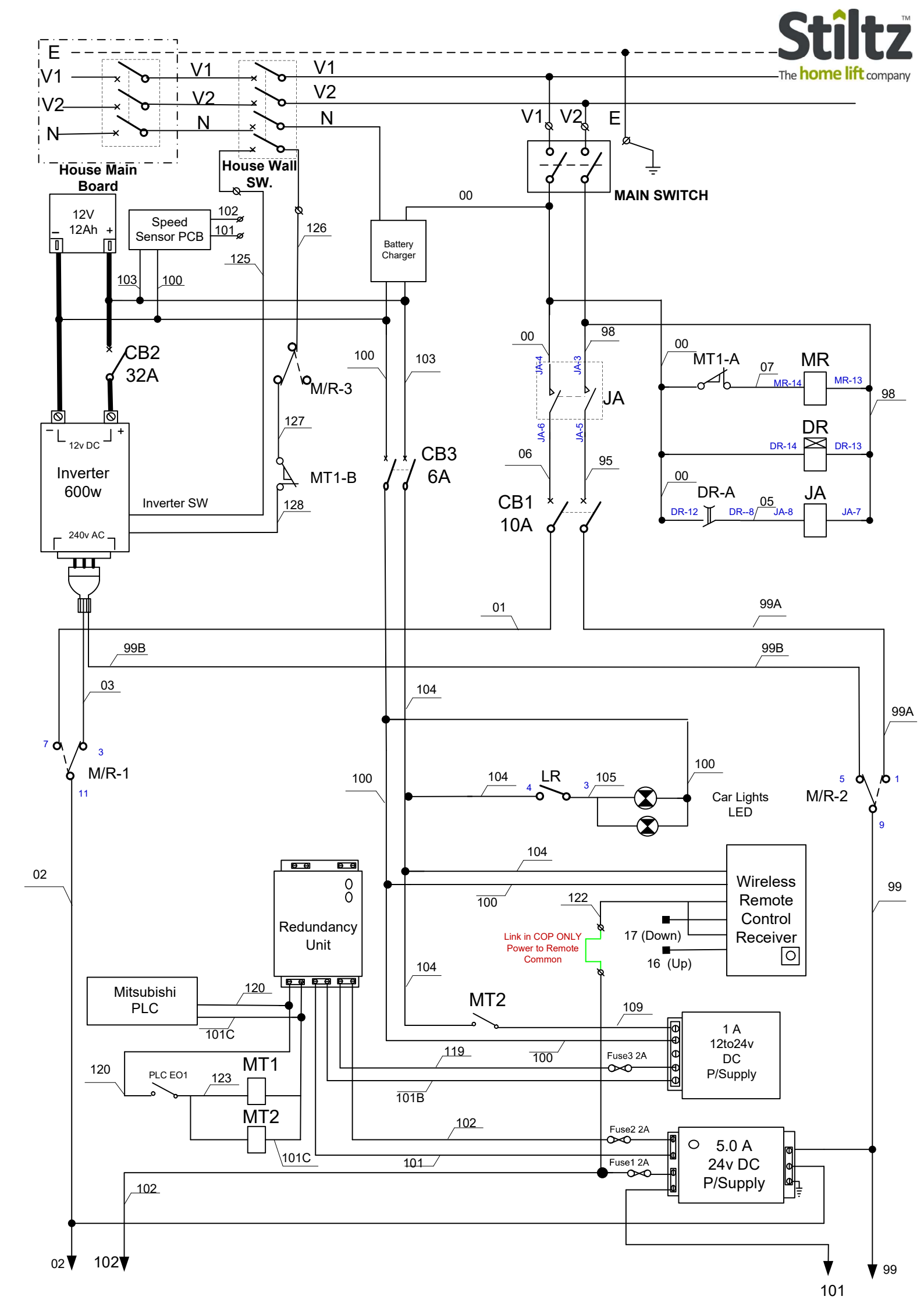
Version:LD ASME-6.5

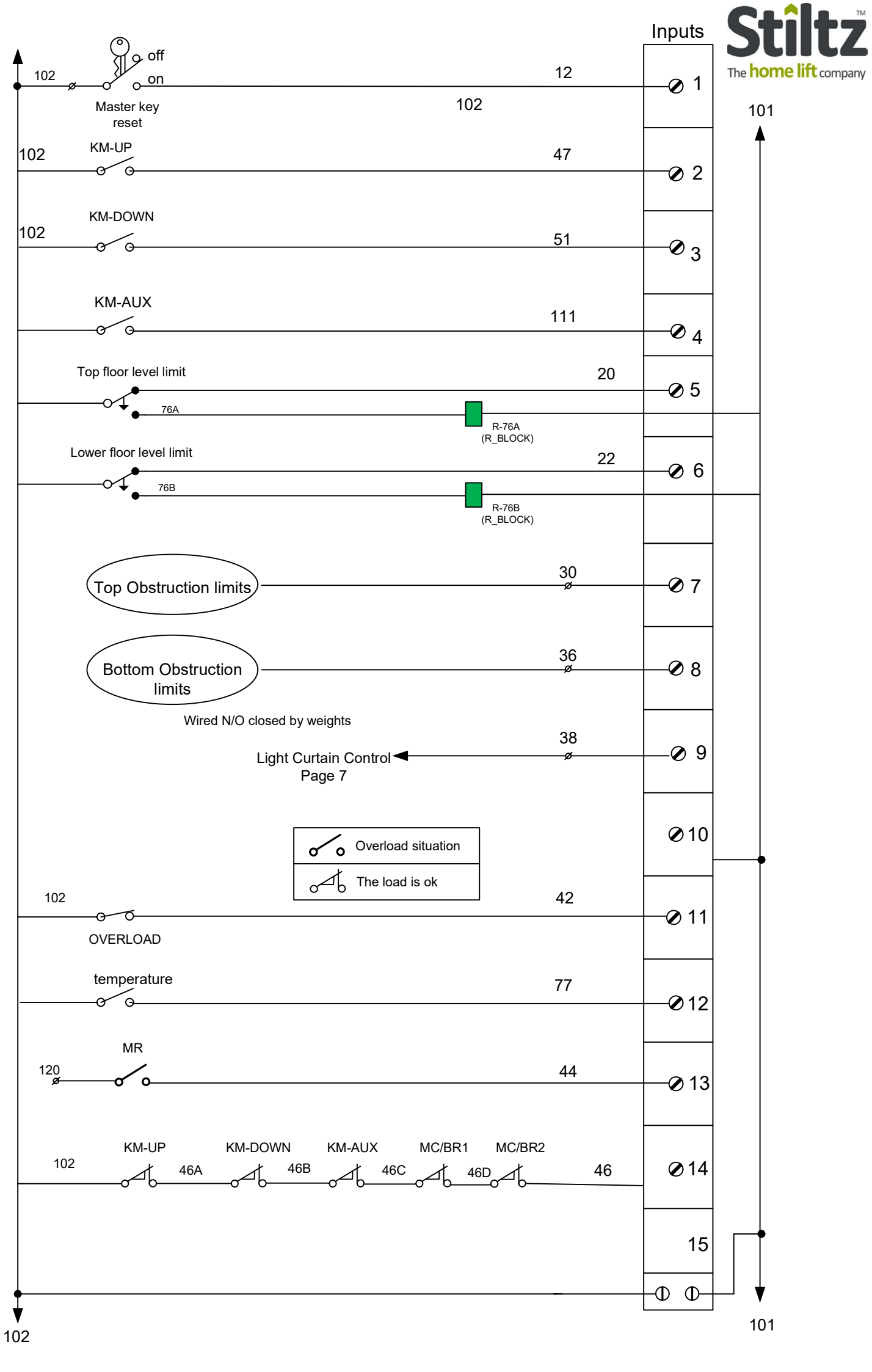
Date : 2021/04/27

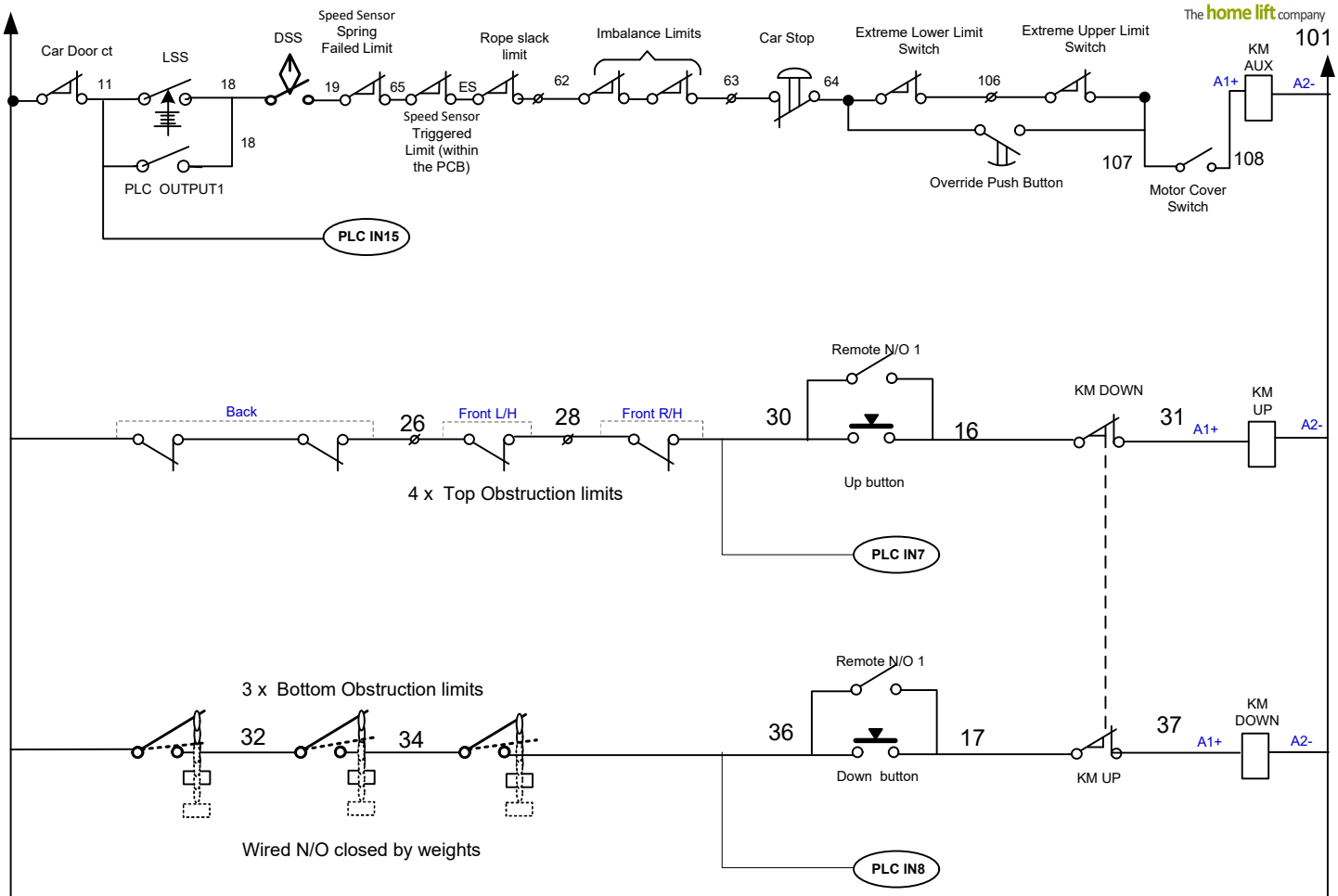
Version Notes

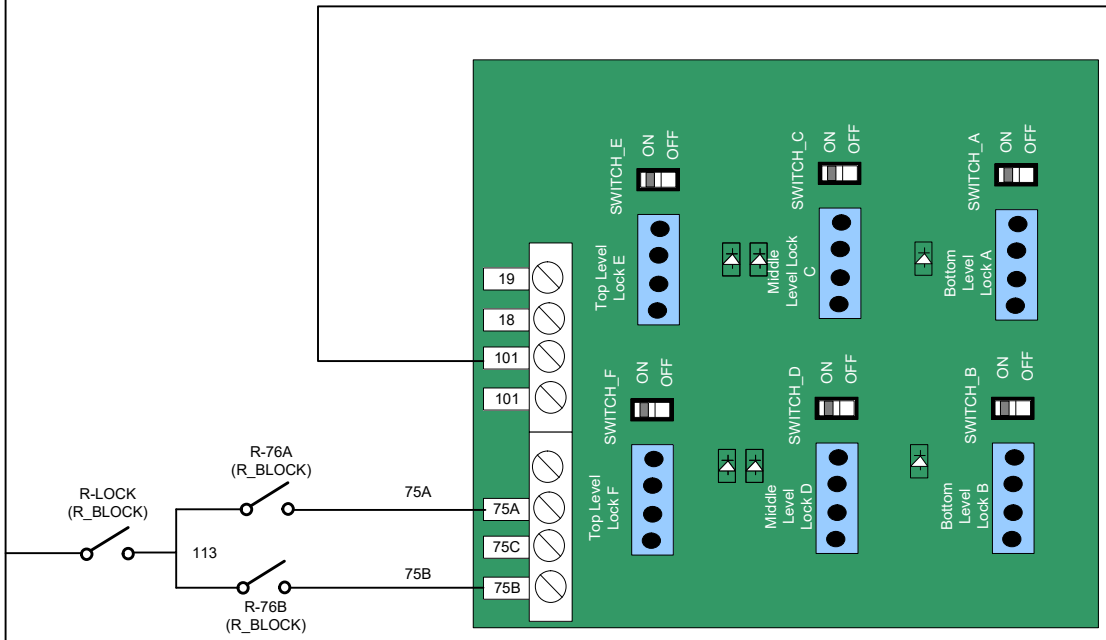
Version / Date	Notes about the version
LD ASME-2	Remove the speed sensor & updated the COP page.
LD ASME-3	Change light curtain from ANT to WECO. This light curtain doesn't have light curtain controller box.
LD ASME-4	Add lock PCB on the electrical panel. All fuse used on panel is 2A.
LD ASME-5	Remove the overload from the safety chain. Change the PLC input of overload to normally close. Move the output terminal for main relay check to expansion module.
LD ASME-5.1	Update Switch NC OverLoad in page 2; Update 11-15 for relay and contactor descriptions; Add Page 7-SLZ-KRT; Add function descriptions for lock, PLC output 1, contactor check in page 8.
LD ASME-6.0	Add electrical Speed Sensor and battery voltage detection feature: - add a laser sensor for speed detection powered by 24VDC - add a solenoid for Speed Sensor trigger powered by 12VDC - add Speed Sensor spring failed limit and Speed Sensor triggered limit inside the safety chain - add Speed Sensor page for terminal description
LD ASME-6.1	Speed Sensor Layout Edited. Added in AC the Speed Sensor PCB. Edited the light status list
LD ASME-6.2	Edited the Safety Pan Lead, now appears a yellow wire and blue connector.
LD ASME-6.3	Edited image of lock (now shows 6 pin) and the description to Contactor Check
LD ASME-6.4	Edited the Fuse of protection for light/remote wiring 103-104.
LD ASME-6.5	"Speed Sensor" naming clarified

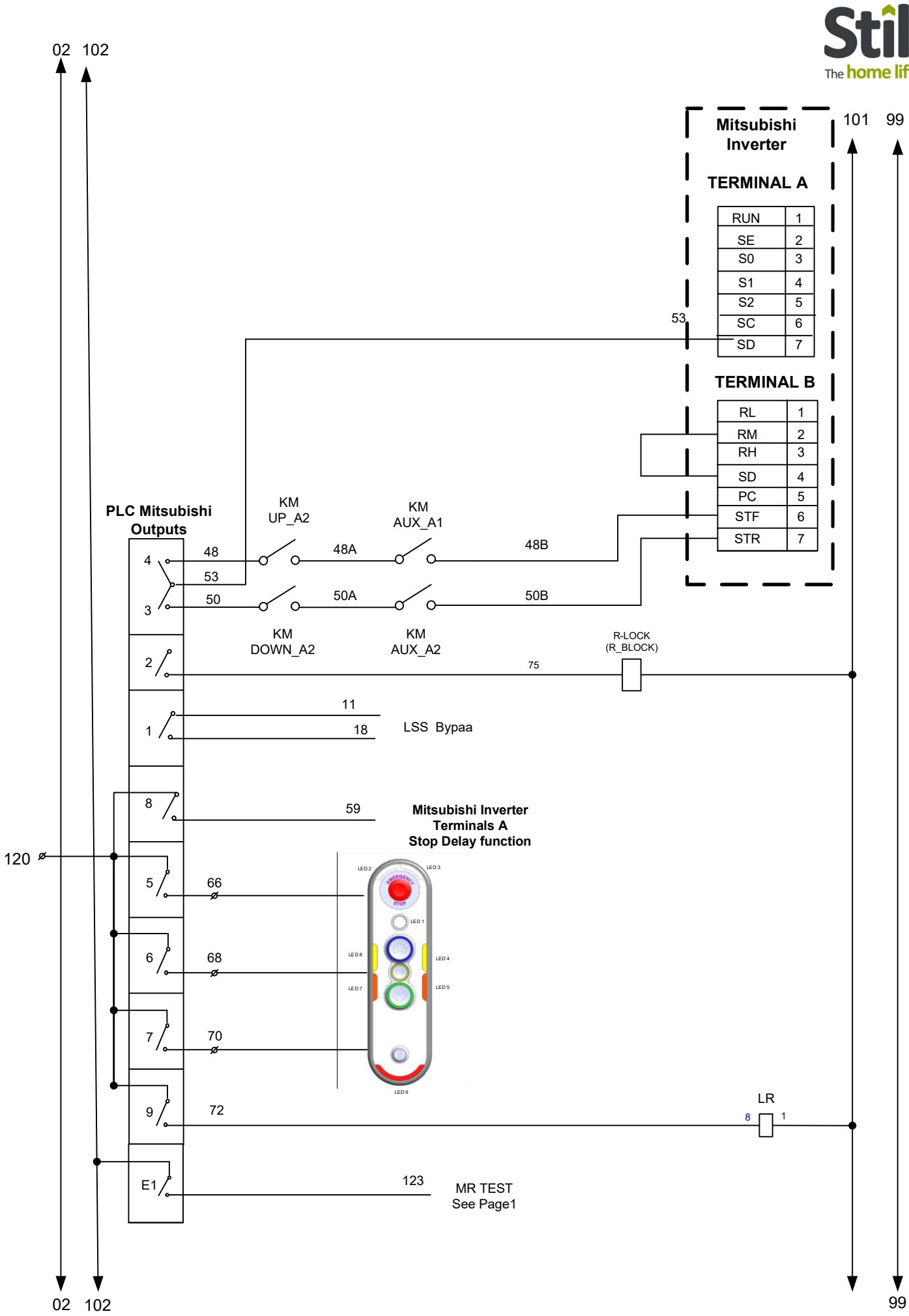
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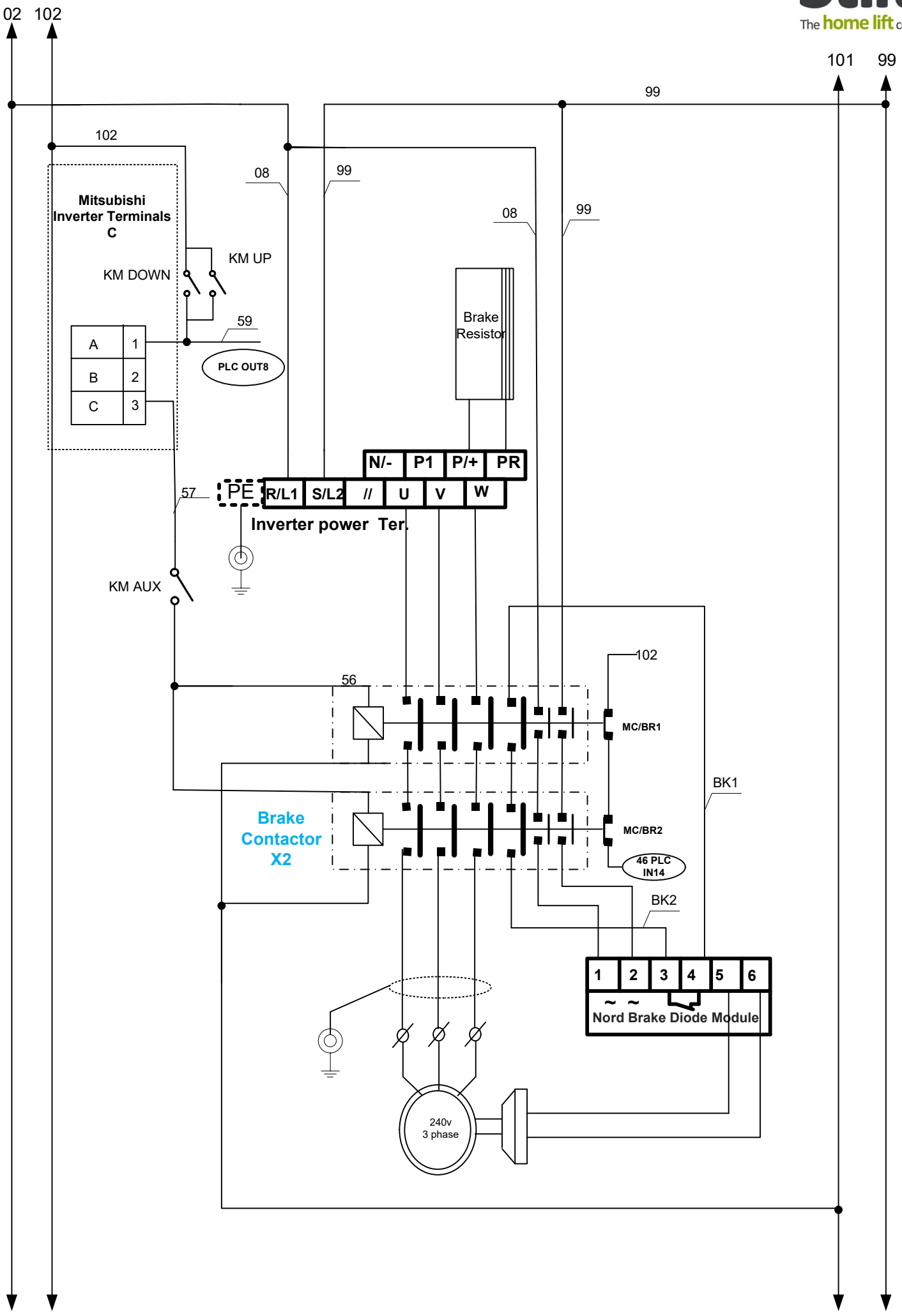

E
V1
V2
N
House Main Board
House Wall SW.
MAIN SWITCH
12V 12Ah
Speed Sensor PCB
Battery Charger
CB2 32A
CB3 6A
CB1 10A
M/R-3
MT1-B
Inverter 600w
12v DC
240v AC
Inverter SW
JA
MT1-A
DR-A
MR
DR
M/R-1
M/R-2
LR
Car Lights LED
Redundancy Unit
Wireless Remote Control Receiver
17 (Down)
16 (Up)
Link in COP ONLY
Power to Remote Common
Mitsubishi PLC
PLC EO1
MT1
MT2
1 A 12to24v DC P/Supply
5.0 A 24v DC P/Supply
Fuse3 2A
Fuse2 2A
Fuse1 2A
00
01
02
03
98
99
99A
99B
100
101
101B
101C
102
103
104
105
109
119
120
122
123
125
126
127
128


Inputs
Stiltz
The home lift company
102
off
on
Master key reset
12
102
1
101
KM-UP
47
2
KM-DOWN
51
3
KM-AUX
111
4
Top floor level limit
20
5
76A
R-76A
(R_BLOCK)
Lower floor level limit
22
6
76B
R-76B
(R_BLOCK)
Top Obstruction limits
30
7
Bottom Obstruction limits
36
8
Wired N/O closed by weights
38
9
Light Curtain Control
Page 7
10
Overload situation
The load is ok
42
11
OVERLOAD
temperature
77
12
MR
120
44
13
KM-UP
KM-DOWN
KM-AUX
MC/BR1
MC/BR2
46A
46B
46C
46D
46
14
15
102
101

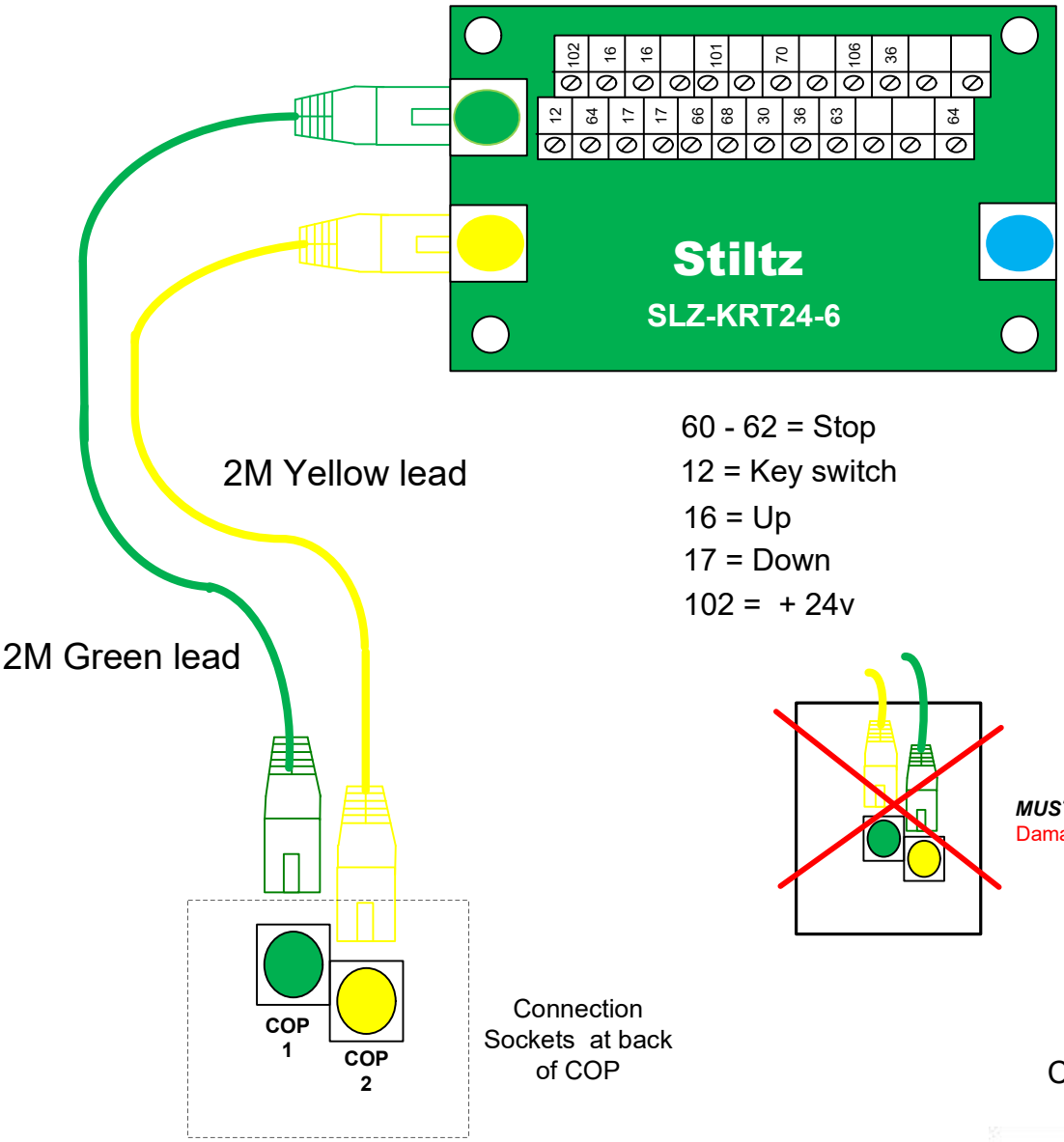

Car Door ct
LSS
DSS
Speed Sensor Spring Failed Limit
Rope slack limit
Imbalance Limits
Car Stop
Extreme Lower Limit Switch
Extreme Upper Limit Switch
KM AUX
A1+
A2-
11
18
19
65
ES
62
63
64
106
101
107
108
18
PLC OUTPUT1
Speed Sensor Triggered Limit (within the PCB)
Override Push Button
Motor Cover Switch
PLC IN15
Remote N/O 1
Back
26
Front L/H
28
Front R/H
30
16
KM DOWN
31
KM UP
4 x Top Obstruction limits
Up button
PLC IN7
3 x Bottom Obstruction limits
32
34
36
17
37
Down button
KM UP
Wired N/O closed by weights
PLC IN8


19
18
101
101
75A
75C
75B
SWITCH_E
SWITCH_F
SWITCH_C
SWITCH_D
SWITCH_A
SWITCH_B
ON
OFF
Top Level Lock E
Top Level Lock F
Middle Level Lock C
Middle Level Lock D
Bottom Level Lock A
Bottom Level Lock B
R-LOCK (R_BLOCK)
R-76A (R_BLOCK)
R-76B (R_BLOCK)
113
75A
75B


02
102
101
99
Mitsubishi Inverter
TERMINAL A
RUN 1
SE 2
S0 3
S1 4
S2 5
SC 6
SD 7
53
TERMINAL B
RL 1
RM 2
RH 3
SD 4
PC 5
STF 6
STR 7
PLC Mitsubishi Outputs
KM UP_A2
KM AUX_A1
48
48A
48B
53
50
50A
50B
KM DOWN_A2
KM AUX_A2
R-LOCK (R_BLOCK)
75
11
18
LSS Bypaa
59
Mitsubishi Inverter Terminals A Stop Delay function
120
66
68
70
72
LR
8
1
123
MR TEST
See Page1
E1
4
3
2
1
8
5
6
7
9


02
102
101
99
99
102
08
99
08
99
Mitsubishi
Inverter Terminals
C
KM UP
KM DOWN
59
A
1
B
2
C
3
PLC OUT8
Brake
Resistor
N/-
P1
P/+
PR
57
PE
R/L1
S/L2
//
U
V
W
Inverter power Ter.
KM AUX
102
56
MC/BR1
BK1
Brake
Contactor
X2
MC/BR2
46 PLC
IN14
BK2
1
2
3
4
5
6
Nord Brake Diode Module
240v
3 phase

Type 3 RJ45 Base Blocks

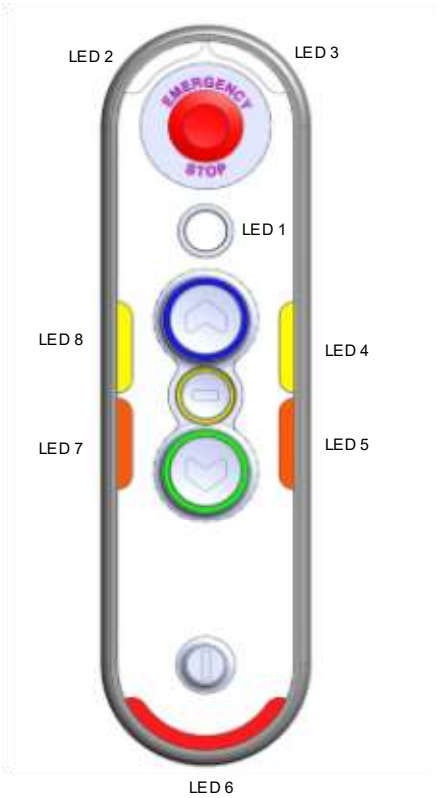


Connection Sockets at back of COP

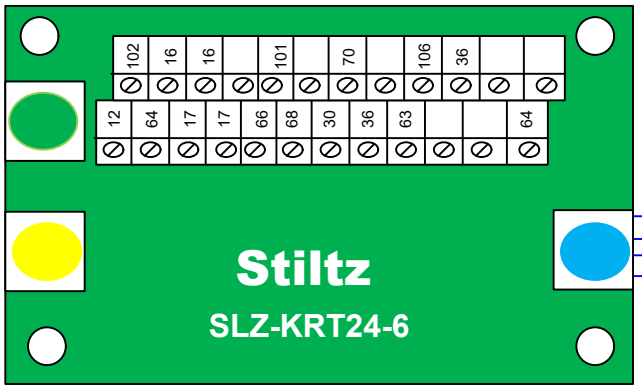
Caution
MUST Connect Correctly
Damage to COP will result

Light Status	ASME
Led1 ON	Ready Signal
Led2 ON	The door is open
Led3 ON	Light Curtain Signal detects something
Led4 ON	There is top obstruction
Led5 ON	There is bottom obstruction
Led6 ON	Safety
Led6 ON+ Buzzing	Emergency Stop signal
Led7 ON	Overload Signal
Led8 ON	No Power Signal
Led1/2/3 Flashing	Key is off
Led1/8 Flashing (0.5s)	Contactor Check Mode

COP Warning Light Functions



Type 3 RJ45 Base Blocks



(Ext Limit)

Join - ORANGE to Orange with white stripe

Join - BLUE to Green with white stripe

(Obs Limits)

Safety pan "Bridging" lead only needed for installation

3 M lead Blue

36

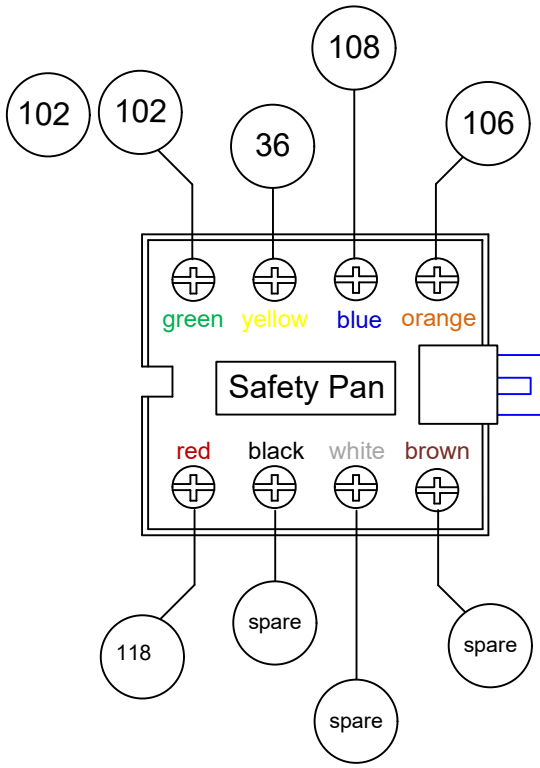
102

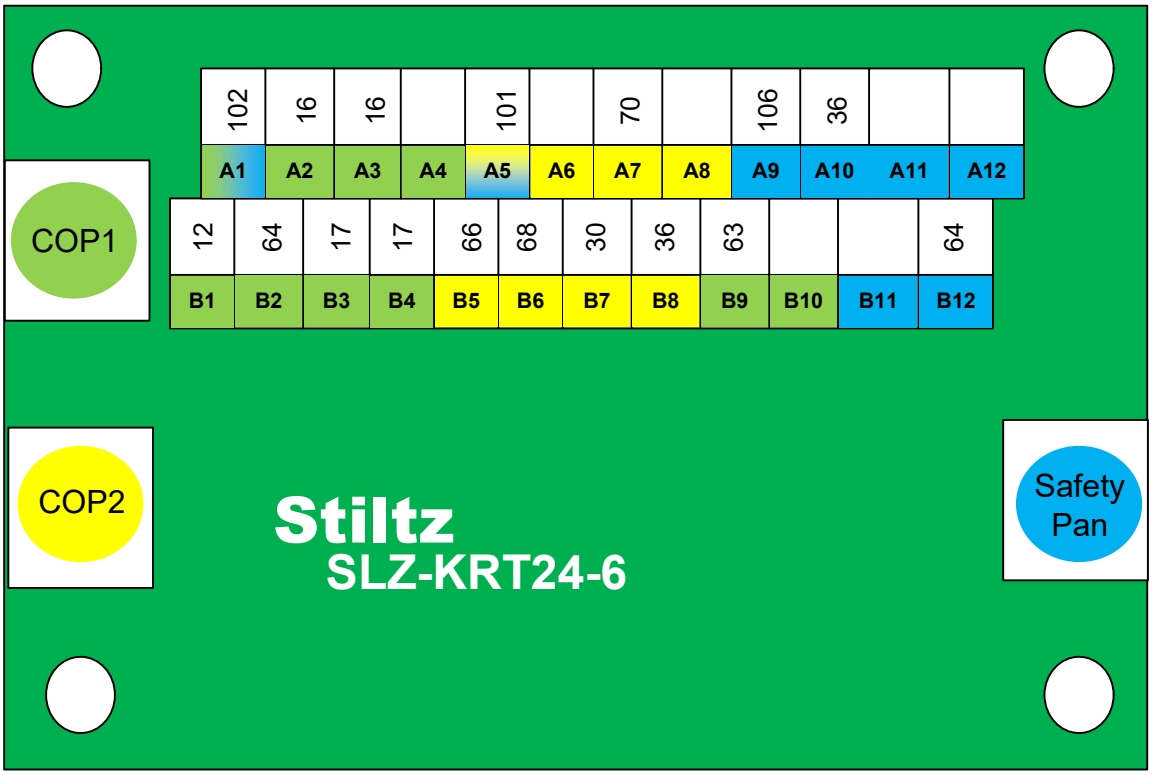
3 x Bottom Obstruction limits

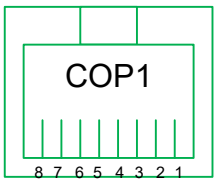
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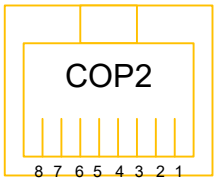
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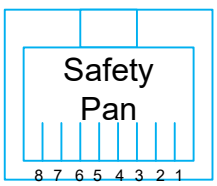
Extreme lower limit switch



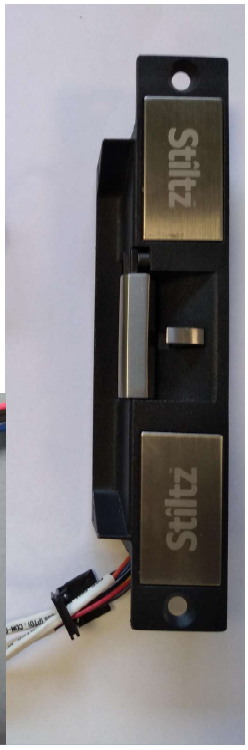


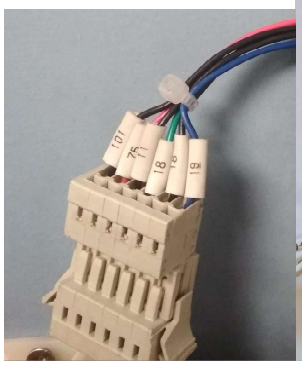






COP	N	WIRE	REMARKS	POSITION
COP1	1		NULL	B10
COP1	2		NULL	A4
COP1	3	17	DOWN	B3,B4
COP1	4	63	E-STOP	B9
COP1	5	64	E-STOP	B2
COP1	6	16	UP	A2,A3
COP1	7	12	KEY SWITCH	B1
COP1	8	102	24V	A1
COP2	1	36	BOTTOM OBST	B8
COP2	2		NULL	A8
COP2	3	30	TOP OBST	B7
COP2	4	70	PLC OUTPUT 7	A7
COP2	5	68	PLC OUTPUT 6	B6
COP2	6		NULL	A6
COP2	7	66	PLC OUTPUT 5	B5
COP2	8	101	GND	A5
SP	1	106	EXTREME LIMIT	A9
SP	2	64	E-STOP	B12
SP	3	36	BOTTOM OBST	A10
SP	4	102	24V	A1
SP	5		NULL	A11
SP	6		NULL	B11
SP	7		NULL	A12
SP	8	101	GND	A5



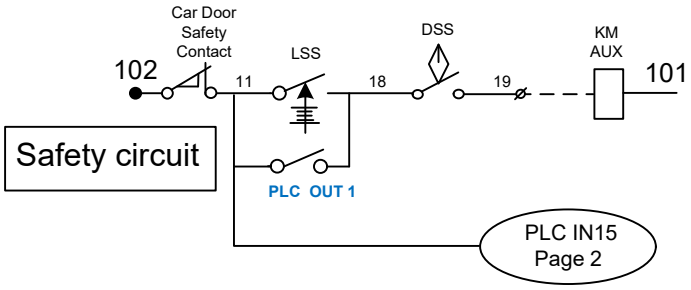


Lock System

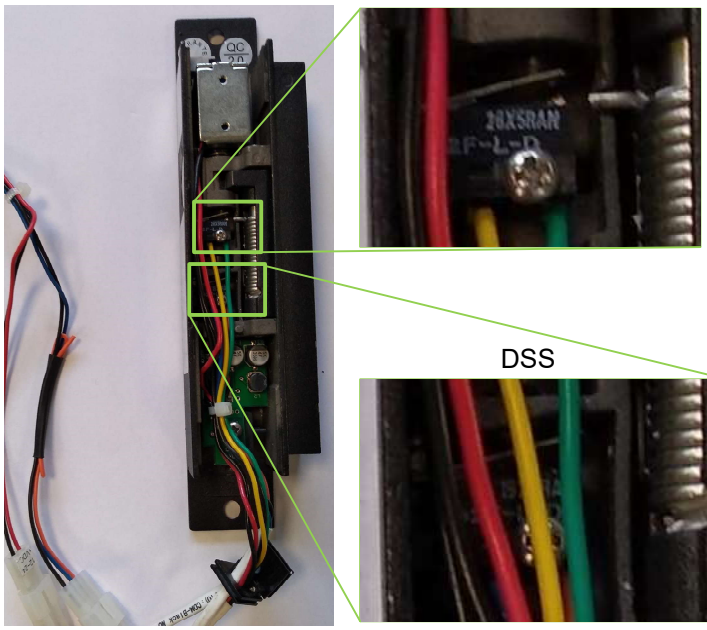
The lock works with 3 signals. One input, and two outputs signals.

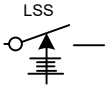
The input signal energises the solenoid and allows the door to be opened.

The output signal advises us about the status to the door. DSS signal notices if the door is open or closed and LSS signal advises if the door is locked or not.



LSS





If the door can open, the switch is open and then the AUX relay is not energised.

DSS



If the door is open, the switch is open and then the AUX relay is not energised.

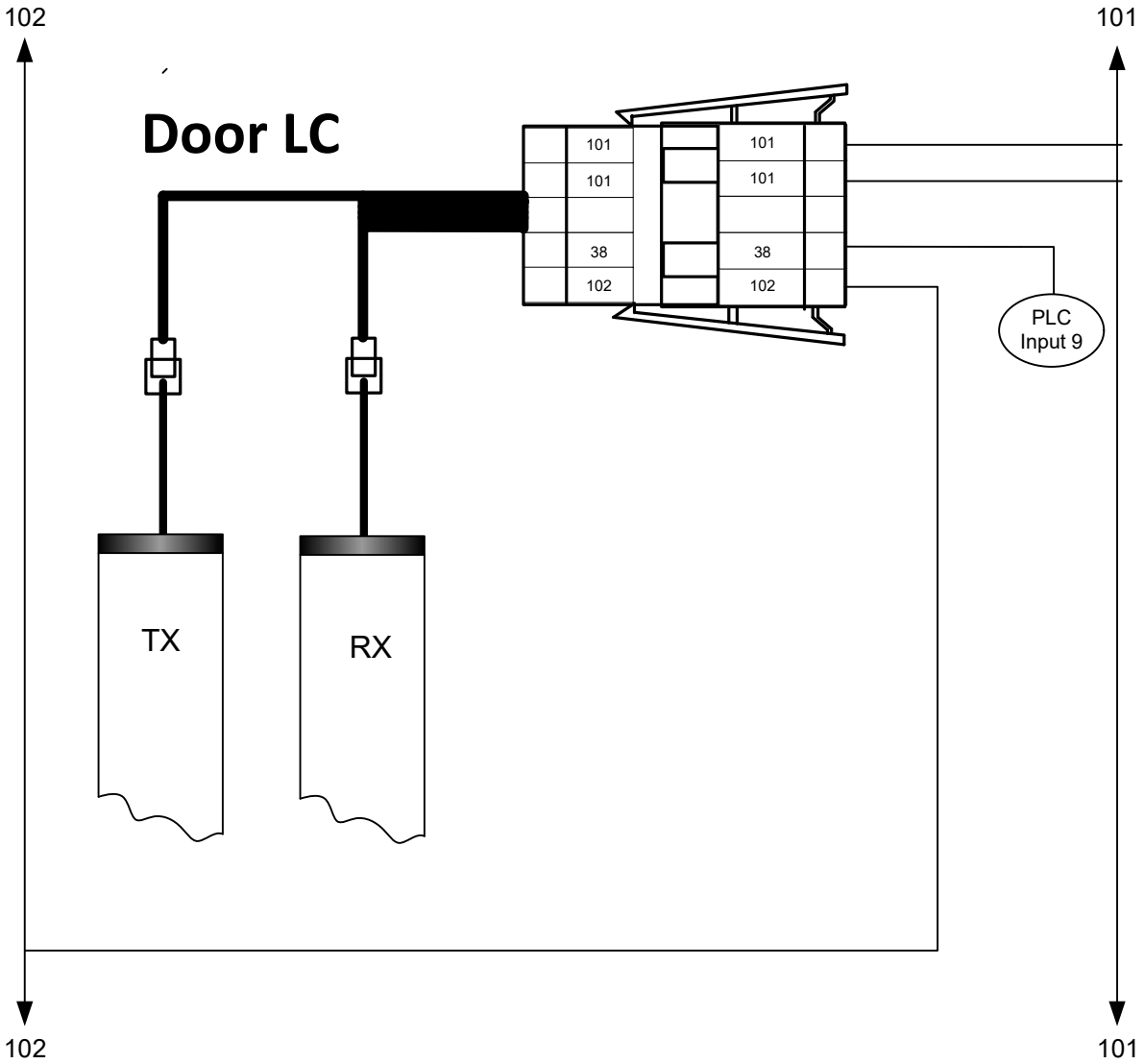
The purpose to the PLC out 1 is to ignore the LSS safety sensor when the lift is into the switch range, because in this range, the door is unlocked and, therefore, the switch LSS is open.

The PLC 2 output enables the unlock that allows to open the door.

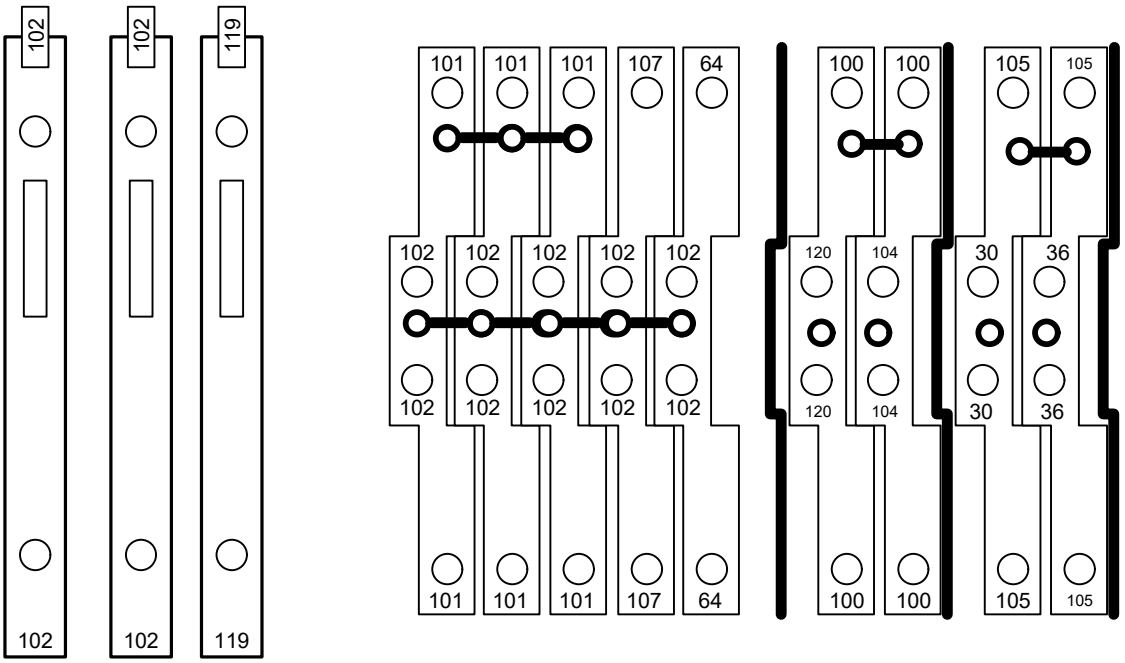
Contactor Check

The PLC starts the contactor check and returns to normal mode 1 second later.

When the lift is within range of the magnetic switch it opens output 1 for 1 second and carries out the contactor check. If the PLC detects that the safety circuit is open, then it allows the return to normal mode.


102
101
Door LC
101
101
38
102
101
101
38
102
PLC
Input 9
TX
RX
102
101

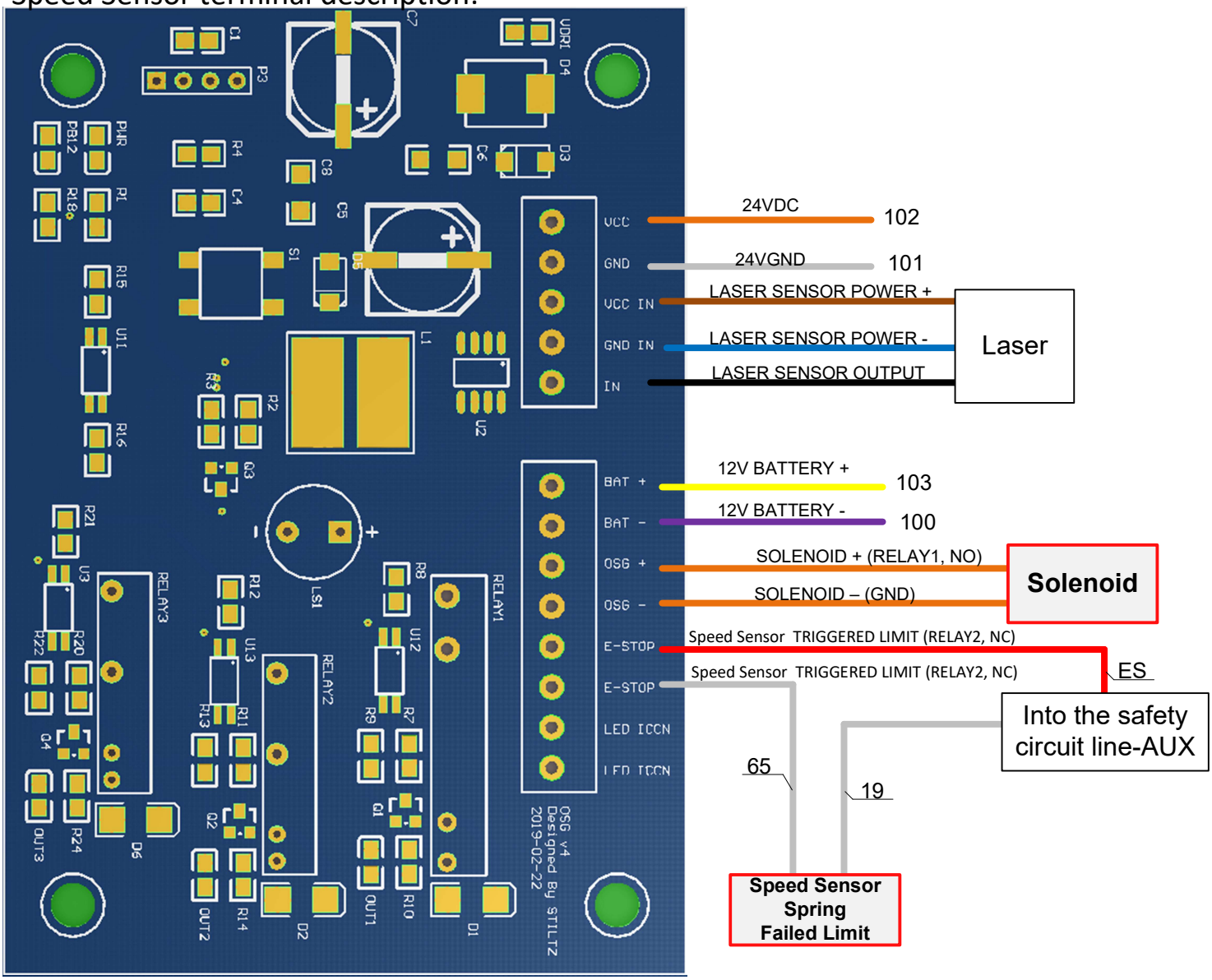
Terminal Strip Layout



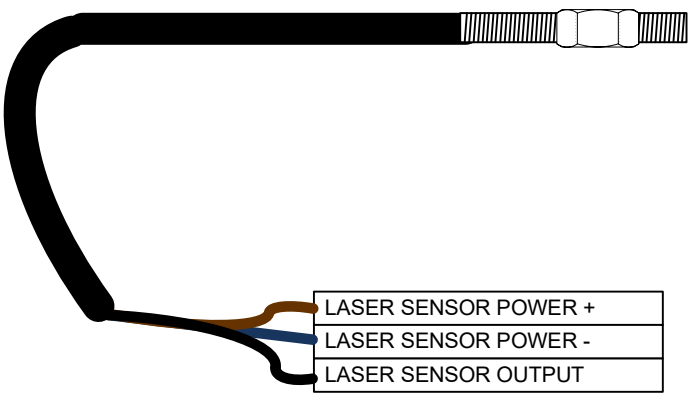
102- 38 Bridge Supplied for Installation to Enable Light Curtain Controller

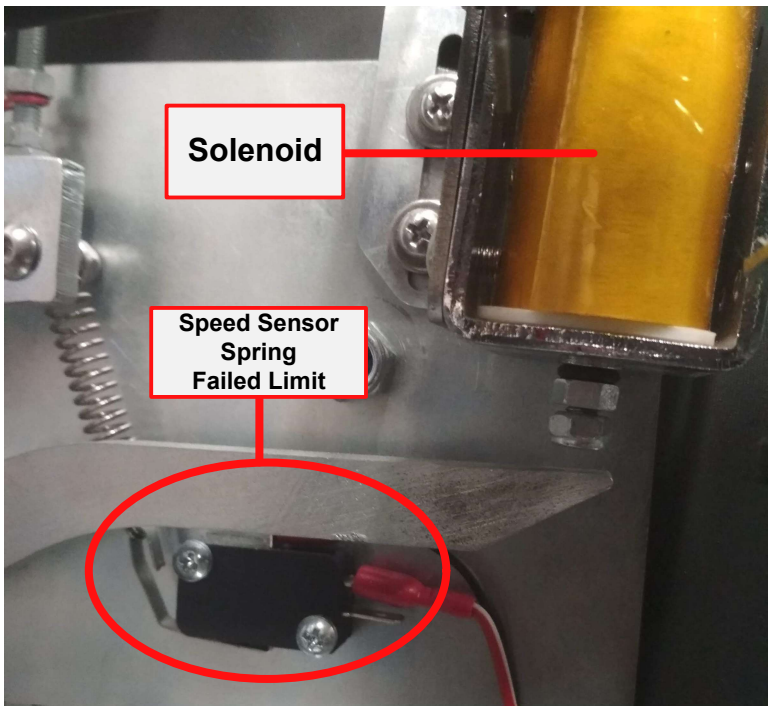
Speed Sensor
LAYOUT

Speed Sensor terminal description:



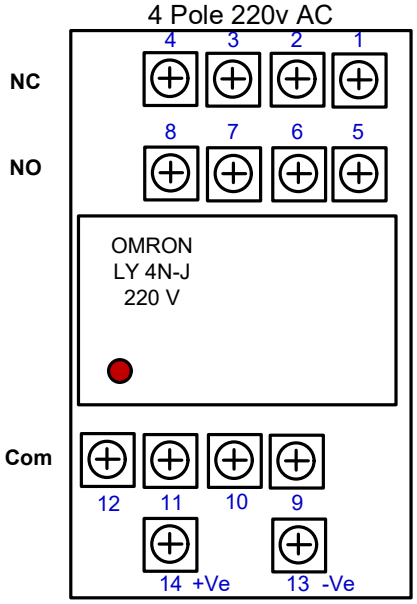
Laser sensor terminal description:

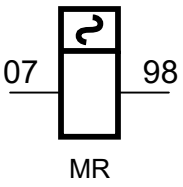




Relay Terminal Layouts

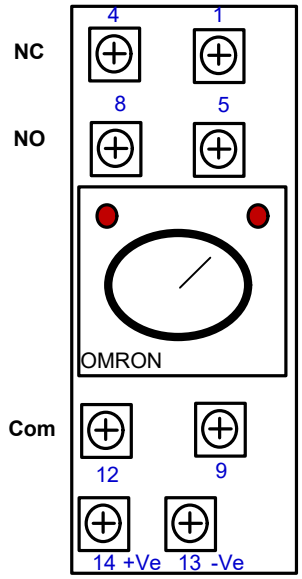
Relay MR
4 Pole 220v AC

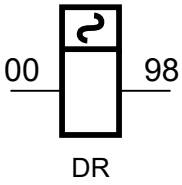




MR	Switch	Remarks
NC	IS-IS	Disable the inverter
NC	02-03	When there is not power, the inverter supplies it
NO	02-01	Normal use for the power
NC	99-99B	When there is not power, the inverter supplies it
NO	99-99A	Normal use for the power
NO	102-44	Notify the PLC if the power is off

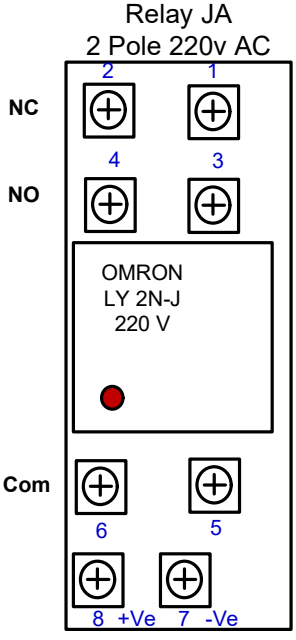
Relay DR
2 Pole 220v AC

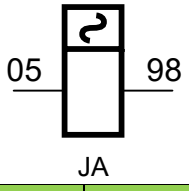




DR	Switch	Remarks
NO	00-05	Enable the JA relay after 8 seconds

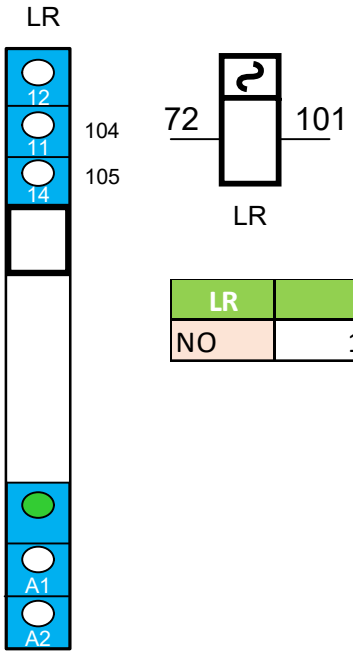
Relay JA
2 Pole 220v AC



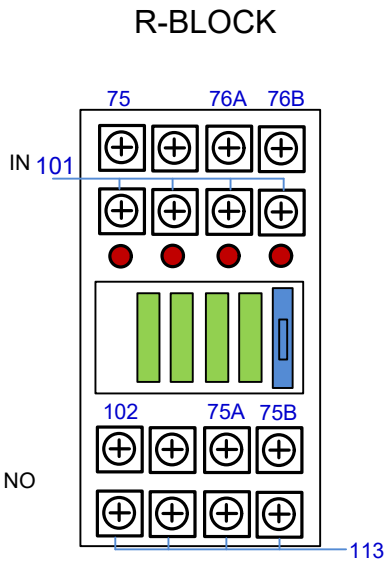


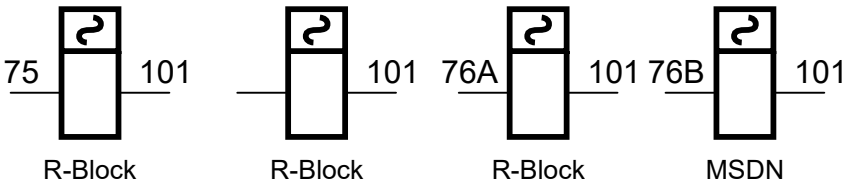
JA	Switch	Remarks
NO	00-06	Enable the power
NO	98-95	Enable the power

Relay Terminal Layouts



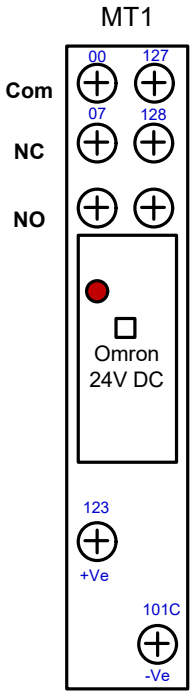
LR	Switch	Remarks
NO	104-105	Enable the lights

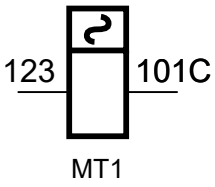




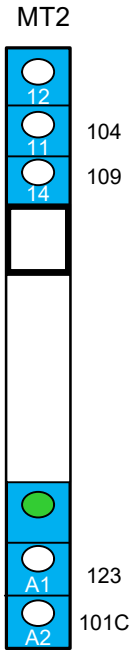
R-BLOCK	SWITCH	REMARKS
NO	102-113	Enable the lock PCB power.
NO	NULL	Link lower extreme switch at bottom landing position.
NO	113-75A	Enable top doors.
NO	113-75B	Enable bottom doors.

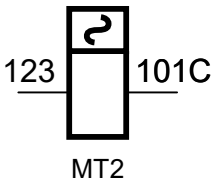
Relay Terminal Layouts





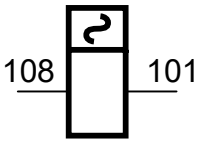
UP	SWITCH	REMARKS
NO	00-07	Cut off the power for MR.
NO	127-128	Cut off the inverter switch.



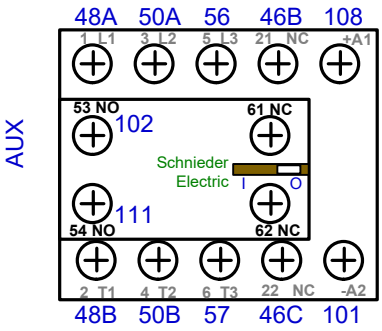


UP	SWITCH	REMARKS
NO	104-109	This enable the 12V to 12V-24V power supply.

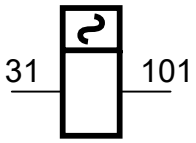
Contactor Terminal Layouts



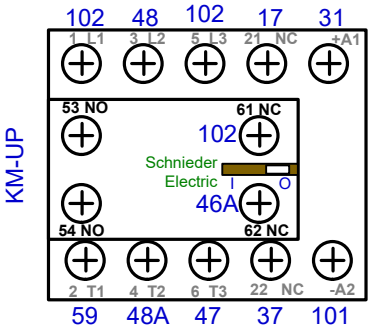
KM-AUX



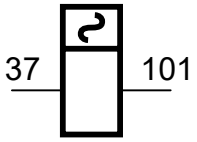
AUX	SWITCH	REMARKS
NC	46B-46C	This disables the input 14. Page 2
NO	102-111	This enables the input 4. Page 2
NO	56-57	This enables MC/BR1 & MC/BR2. Page 4
NO	48A-48B	This enables the inverter. Page 4
NO	50A-50B	This enables the inverter. Page 4



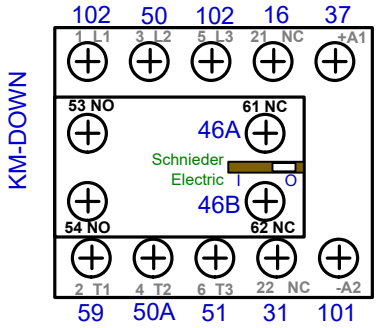
KM-UP



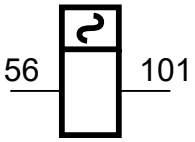
UP	SWITCH	REMARKS
NC	17-37	This disables the Contactor DOWN. Page 3
NC	102-46A	This disables the input 14. Page2
NO	102-47	This enables the input 2. Page 2
NO	102-59	This enable wire 59, terminal C in the inverter. Page 4
NO	48-48A	Enable the signal to inverter.



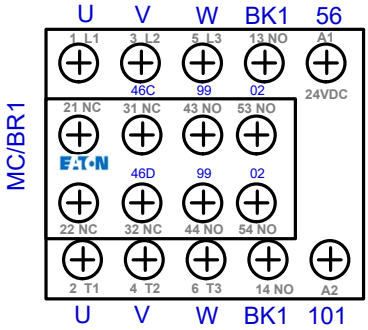
KM-DOWN



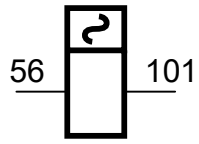
DOWN	SWITCH	REMARKS
NC	16-31	This disables the Contactor UP. Page 3
NC	46A-46B	This disables the input 14. Page2
NO	102-51	This enables the input 3. Page 2
NO	102-59	This enable wire 59, terminal C in the inverter. Page 4
NO	50-50A	Enable the signal to inverter.



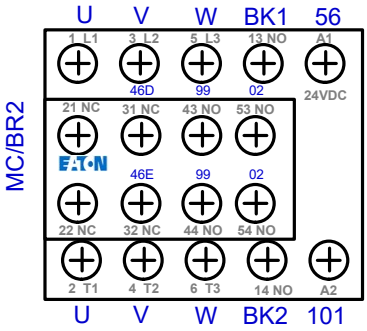
MC/BR1



MC/BR1	SWITCH	REMARKS
NC	46C-46D	This disables the input 14. Page 2
NO	U	This enables power in the motor. Page 4
NO	V	This enables power in the motor. Page 4
NO	W	This enables power in the motor. Page 4
NO	99	This enables power in the motor brake. Page 4
NO	02	This enables power in the motor brake. Page 4
NO	BK1	This enables power in the motor brake. Page 4



MC/BR2



MC/BR2	SWITCH	REMARKS
NC	46D-46E	This disables the input 14. Page 2
NO	U	This enables power in the motor. Page 4
NO	V	This enables power in the motor. Page 4
NO	W	This enables power in the motor. Page 4
NO	99	This enables power in the motor brake. Page 4
NO	02	This enables power in the motor brake. Page 4
NO	BK1-BK2	This enables power in the motor brake. Page 4