ECOLOGIC

USER MANUAL

EEM IMP. EXP. TRADE CO.
LIFT CONTROL SYSTEMS

CE

ECOLOGIC

LIFT CONTROLLER BOARD
USER MANUAL

Serial Number:…….

Version: 2.00

NOTE: Make sure that the serial number of the user guide and the product is same. Otherwise, the product you use and the explanations given here may not match.

CONNECTOR NUMBERS AND MEANINGS IN ECOLOGIC CONTROL BOARD:

R, S, T	: Main Phases
120	: Stop return, Door contact start
130	: Door contact return, Lock start
140	: Lock return
10A	: Neutral of security circuit
11	: Common terminals of RU1, RU2, RH, RF relays
RU1	: Terminal of down direction for roped lifts
RU2	: Terminal of up direction for roped lifts
RH	: Fast relay for roped lifts
RF	: Slow relay for roped lifts
RX1	: Contactor supply terminal for VVVF controlled lifts. Common (COM).
RX2	: Connection terminal for contactor signals of VVVF controlled lifts. Normally open (NO).
1, 2	: Normally open (NO) terminals of car lamp relay.
LIR1, LIR2	: Normally open (NO) terminals of pump relay.
*031	: Down direction arrow lamp (Common terminal is 1000)
*032	: Up direction arrow lamp (Common terminal is 1000)
*02	: Out of service lamp (Common terminal is 1000)
*12	: Busy lamp (Common terminal is 1000)
190	: Outer floor call common for simple control
100	: +24 Volts
1000	: Common terminal of 100 signal (-24 Volt)
a,b,c,d,e,f,g,2g	: Display outputs (Common terminal is 100)
M1	: Bi-stable switch input (Common terminal is 100)
PTC	: Motor thermistor connection (Common terminal is 100)
804	: Over load contact (Common terminal is 100)
142	: JF precise stopper bi-stable switch if no rescue board is available (Common terminal's 100)
817	: Lower limit stopper bi-stable switch (Common terminal is 100)
818	: Higher limit stopper bi-stable switch (Common terminal is 100)
500	: Inspection down button (Common terminal is 100)
501	: Inspection up button (Common terminal is 100)
869	: Well inspection switch (Common terminal is 100)
KRC	: Contactor control signal input (Common terminal is 100)
401-408	: Call terminals (Common terminal is 100, signal common terminal is 1000)

***NOTE**: The default adjustment of the common terminals for "down arrow", "up arrow", "busy" and "out of service" lamps are 1000. The common terminal can be arranged as 100 from the jumpers over ECOLOGIC.

DOORCOZ CONNECTOR NUMBERS AND MEANINGS:

DTS	: Automatic door closing button (Common terminal is 100)
K20	: Automatic door opening button, photocell contact (Common terminal is 100)
K16	: Automatic door opening limit terminal (Common terminal is 100)
K3	: Closing signal (Common terminal is K15)
K15	: Common terminal of K3-K5
K5	: Opening signal (Common terminal is K15)
K19	: Automatic door closing limit terminal (Common terminal is 100)

CONTROL PANEL CONNECTOR NUMBERS AND MEANINGS:

R, S, T	: Main Phases
Mp	: Neutral
PE	: Ground
U1, V1, W1	: High speed motor outputs for traction lifts
U2, V2, W2	: Low speed motor outputs for traction lifts
100	: +24 Volts
1000	: Common terminal of 100 signal (-24 Volt)
FR+, FR-	: Brake inductor terminals
PO+, PO-	: Pump inductor terminals
1F	: Direct Phase
1	: Direct phase over the cabin
2	: Cabin lamp
110	: Safety circuit start
111,112,113	: Null connectors
120	: Stop return, Door contact start
130	: Door contact return, Lock start
140	: Lock return
K3	: Closing signal (Common terminal is K15)
K5	: Opening signal (Common terminal is K15)
K15	: Common terminal of K3-K5
K16	: Automatic door opening limit terminal (Common terminal is 100)
K19	: Automatic door closing limit terminal (Common terminal is 100)
24+,24-	: 24V DC door opening voltage if rescue board is available in panel

Dear Customer,

Thank you for choosing ECOLOGIC Board prepared based on the latest advancements of microelectronic systems. We would like to present you the best efficacy by our product that was manufactured in our modern facility and was carefully quality controlled. Therefore, we would like to request you to read this user guide thoroughly before starting installation and please keep it as a reference.

We give great care to ensure making installation and use of our product accurately and allow it to be in your service for long years. For this, we continuously update and extend our documents. All technical drawings are presented by carefully checking several times. However, should you notice any mistakes please do not hesitate to inform us. We will be in your service with newer and richer up-to-date versions.

We hope you find our products to be a valuable tool in your business.

ATTENTION: All documents given in this user manual are intended for an advisory. Despite all our attention it may still contain mistakes and flaws. Please apply this information by controlling and thoroughly questioning.

1. INTRODUCTION:

ECOLOGIC elevator control board is a microcontroller based electronic lift control system. This board can be used to control traction drive elevators.

2. FEATURES OF THE PRODUCT:

- It provides unique user-friendliness and performance superiorities for all type of elevators using different application macros.
- Adjustable control type.
- Adjustable number of stops.
- Call lamps and buttons can be connected to the system with a single cable.
- All parameters can be adjusted easily using LCD screen and program buttons.
- Simple and error-free installation provides savings from time and number of control panel connectors.
- Short circuit protected display outputs having adjustable codes for every stop is available.
- Overload function is available.
- Adjustable parking stop and park travel time is available.
- For floor selector gray code and counter mode is available.
- Adjustable position reset function is available.
- In case of bi-stable switch faults, faulty bi-stable switch can be detected easily.
- Auto reset feature of KRC fault, low-speed fault and hi-speed fault is available.
- RLIR relay can be programmed to be used in a different application.
- Warning function in LCD screen is available in case the door is left open for a long time.
- Adjustable busy time wait time on the floor, lock wait time, door stay open time, door open error signal time, parking time, maximum high-speed time and maximum low speed time features are present.
- For different types of buttons, display output type can be chosen as “a,b,c,d Segment”, “Gray Code”, “Reverse Gray”, “Binary Code”, “Reverse Binary”.
- Password protection can be activated for security.
- Auto-door type is eligible and Open/Closed standby mode for the fully automatic door can be adjusted. Also, auto-door type can be chosen separately for each floor. For example door type can be chosen as full automatic for ground and first floor, and it can be chosen as semiauto for garage floor. Also it can be chosen as “open on floor” for ground floor, “closed on floor” for first floor.
- It stores the latest 50 errors.
- All inputs and outputs can be tested on test menu.
- English language options are present as standard feature.

3. PARAMETERS:

A large number of adjustable parameters are provided to the user to meet all demands of elevator on the field. Because many numbers of parameters exist, for ease of use, they have been classified in terms of their characteristics and functions. Therefore, compared with the similar systems, reaching to a parameter and changing its value is more practical and easier.

ECOLOGIC Parameter List

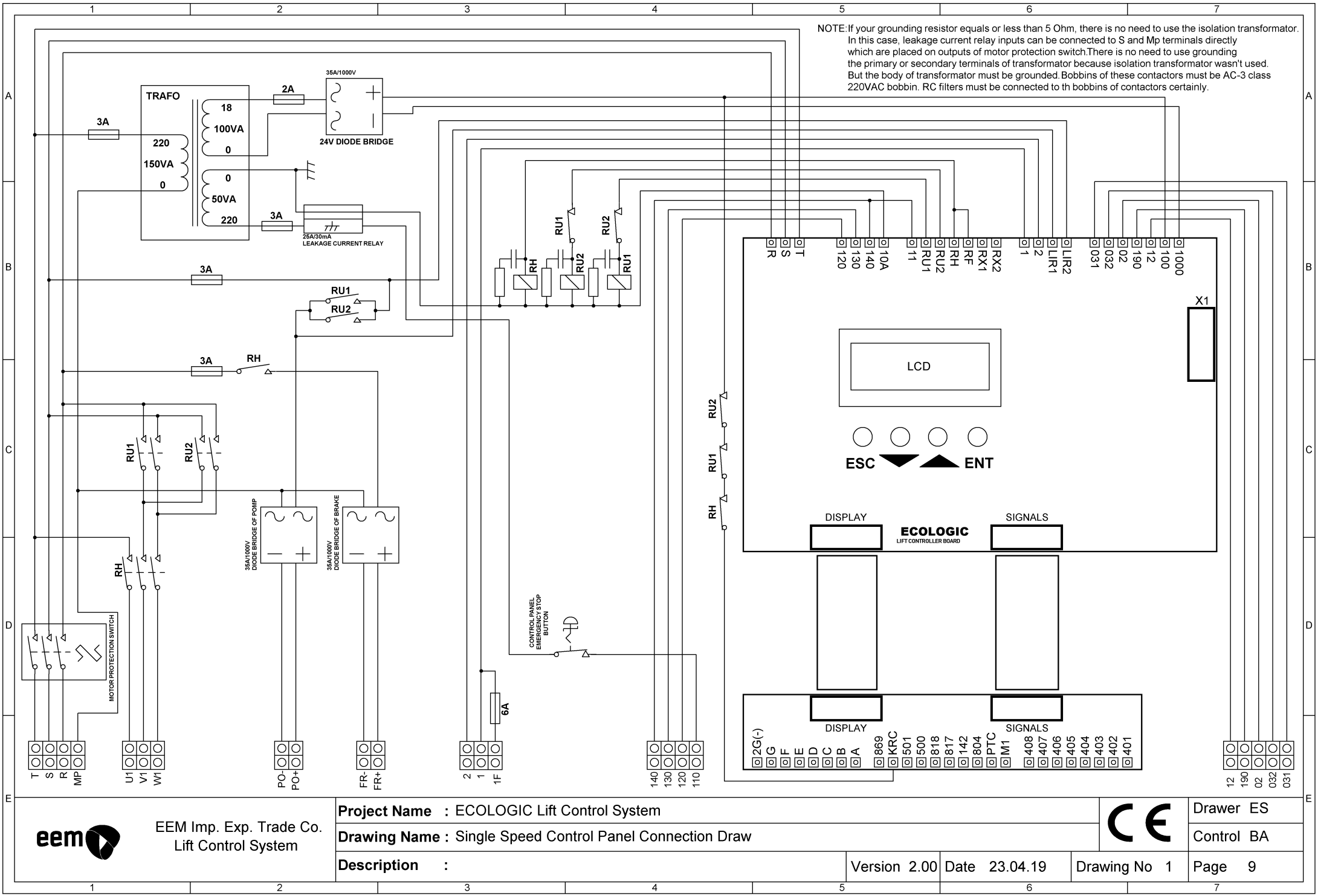
Par. No:	Parameter Name	Setting Field	Default Setting	Explanation
1. WELL SETTINGS				
1.1.	Control Type	Simple Collective Complex Collective One button down collective One button up collective One button full collective Two button full collective	Complex Collective	For connection principle look at the drawings numbered 6x.
1.2.	Auto Door	None Semi Automatic Full Automatic Full Automatic, Open at the Floor Special Door	Semi Automatic	
1.3.	Special Door		-	If the type of door was set as special door, this parameter can only be displayed.
2. TIME SETTINGS				
2.1.	Busy Time	1 ~ 20 seconds	8 seconds	
2.2.	Wait Time at Stops	1 ~ 15 seconds	4 seconds	
2.3.	Lock Wait Time	5 ~ 25 seconds	15 seconds	
2.4.	Door Stay Open Time	1 ~ 40 seconds	6 seconds	If the type of door was set as special door, this parameter can only be displayed.
2.5.	Open Door Fault Time	10 ~ 240 seconds	60 seconds	
2.6.	Parking Time	20 ~ 250 seconds	30 seconds	This parameter can only be displayed if “3.6-Parking Stop” parameter was not set as ‘cancel’.
2.7.	Slow Travel Time	5 ~ 20 seconds	10 seconds	
2.8.	Fast Travel Time	10 ~ 100 seconds	15 seconds	
3. STOP SETTINGS				
3.1.	Number of stops	2 ~ 8 stops	8	
3.2.	Display Output Type	7 Segment Display Gray Code Inverted Gray Binary Code Inverted Binary	7 Segment Display	
3.3.	Display Settings		-	This parameter can only be displayed if “3.2-Display Output Type” parameter was set as “7 segment display”. Also only stops that are adjusted by “3.1-NumberOfStops” can be adjusted.

	3.4.	Parking Stop	Cancel, 1 ~ 8 stops	Cancel	You can adjust the parking time by "2.6-Parking Time" parameter.
	4. FLOOR SELECTION SETTINGS				
	4.1.	Position Reset	Yes No	No	
ECOLOGIC Parameter List	**5. OTHER SETTINGS**				
	5.1.	Phase Protection Control	Yes No	Yes	
	5.2.	Automatic Reset KRC	Yes No	No	
	5.3.	Automatic Reset Low Speed Error	Yes No	No	
	5.4.	Automatic Reset High Speed Error	Yes No	No	
	5.5.	RLIR Relay	Cancel Inspection Gong Error Lift Functions LIR	-	This parameter can be displayed if the type of door was set as "full auto" or "full auto-open at floor". Otherwise, this relay in default operate as a RLIR (Pump) relay.
	5.6.	Stop Clear Call	Yes No	Yes	
	7. FAULTS				
	7.1.	Faults		-	The number of most recent fault is 1.
	7.2.	Erase Faults		-	
	8. SYSTEM INFORMATION				
	8.2.	Version Number		-	
	8.3.	Serial Number		-	
	8.4.	Manufacturer Info		-	
	8.5.	Vendor Info		-	
	9. TEST MENU				
	9.1.	Input Test		-	The order of the information on the screen and general purpose inputs are same.
	9.2.	Call Test		-	The information on the screen is same with the order of call inputs.
	9.3.	Relay Test		-	To enter into menu, the elevator must be operated in inspection mode and emergency stop button must be pressed. Also, if KRC signal is cut for any reason, this menu is automatically exited.
	10. SECURITY				
	10.1.	Password inquiry	On Off	Off	
	10.2.	Change password		-	This menu can not be displayed if password inquiry is off.
	11. RESTORE DEFAULT SETTINGS				
	11.1.	Traction Elevator		-	
	12. LANGUAGE				
	12	Language	English		

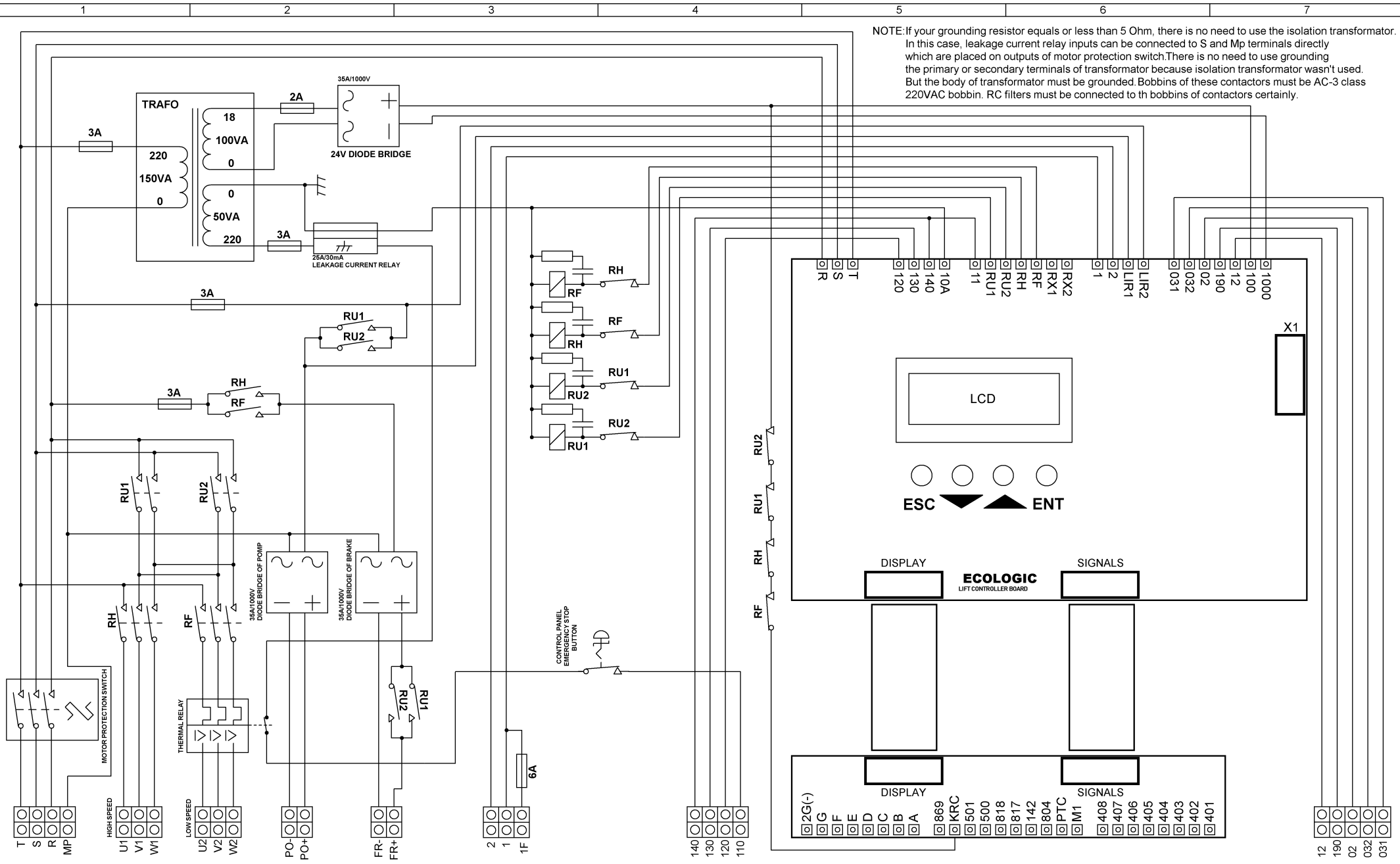
4. DRAWINGS AND DIAGRAMS:

Control panel, car and shaft connection and drawings ECOLOGIC control board listed below.

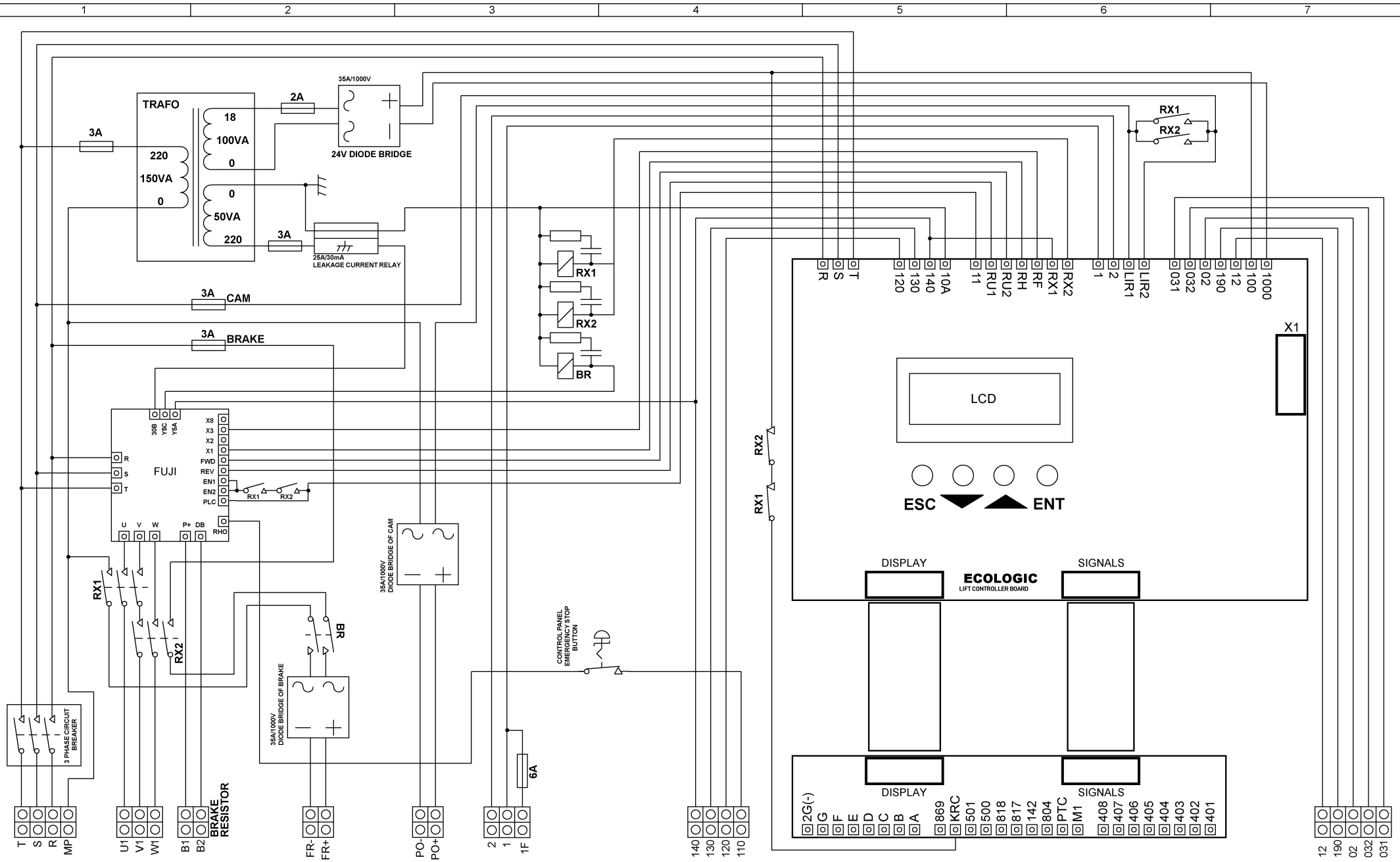
Drawing No	Page	Description
1	9	Single Speed Control Panel Connection Draw
2	10	Double Speed Control Panel Connection Draw
3	11	FUJI VVVF Speed Control Panel Connection Draw
4	12	Security Circuit Connections
5	13	Floor Installation, Brake, Motor, Thermistor Connection
6	14	Car Installation
7	15	Door Card Connection
8	16	Counter System Bi-stable Magnets Order
9	17	Door Board Connection and Call Buttons Connection Drawing
10	18	Gripin and SayGoster Board Connection
11	19	SONIC Sound Announcement Board Connection



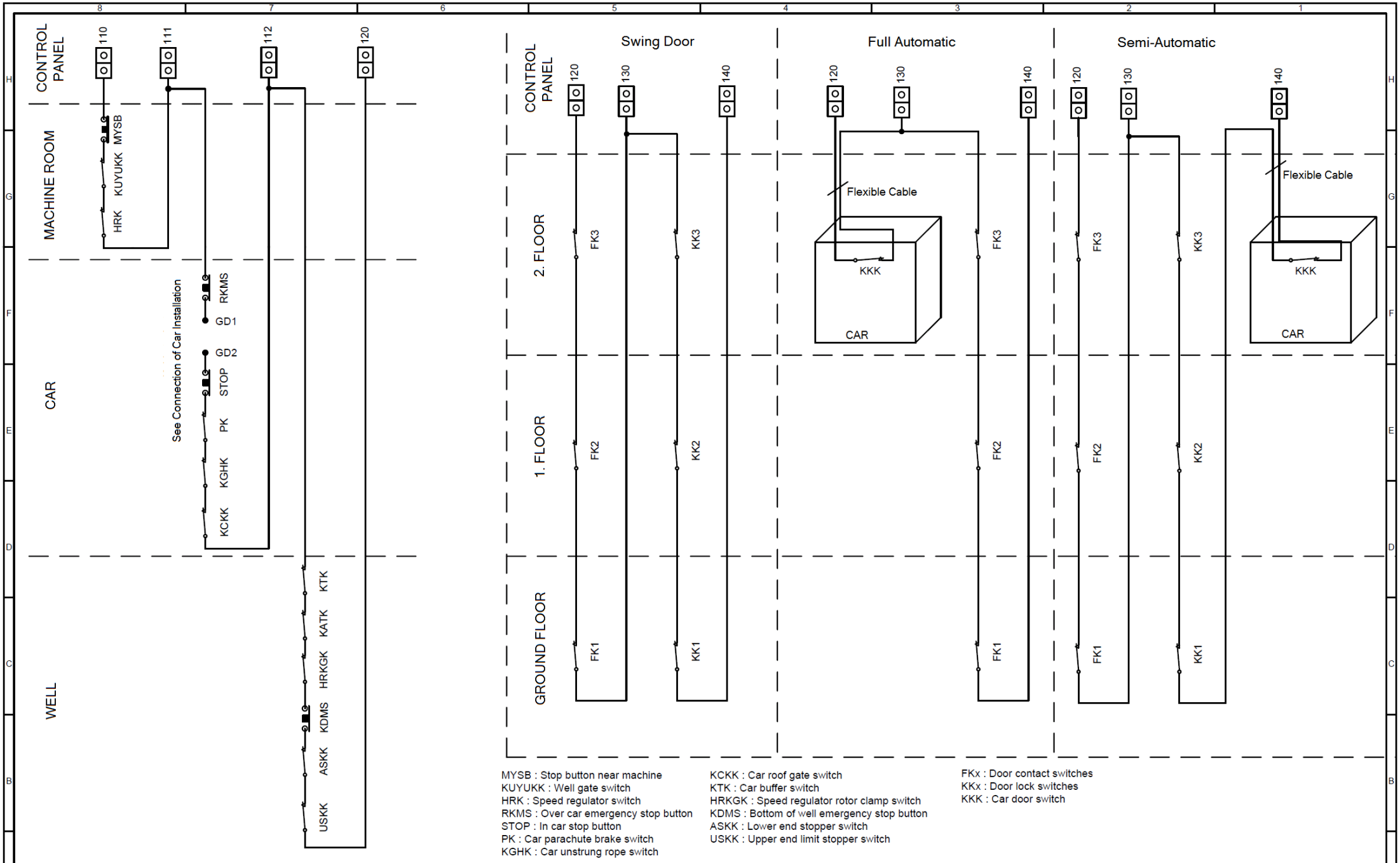
eem	EEM Imp. Exp. Trade Co. Lift Control System	**Project Name** : ECOLOGIC Lift Control System			Drawer ES
		Drawing Name : Single Speed Control Panel Connection Draw			Control BA
		Description :	Version 2.00	Date 23.04.19	Drawing No 1	Page 9



eem	EEM Imp. Exp. Trade Co. Lift Control System	**Project Name** : ECOLOGIC Lift Control System			Drawer ES
		Drawing Name : Double Speed Control Panel Connection Draw			Control BA
		Description :	Version 2.00	Date 23.04.19	Drawing No 2	Page 10



eem	EEM Imp. Exp. Trade Co. Lift Control System	**Project Name** : ECOLOGIC Lift Control System			Drawer ES
		Drawing Name : FUJI VVVF Speed Control Panel Connection Draw			Control BA
		Description :	Version 2.00	Date 23.04.19	Drawing No 3	Page 11



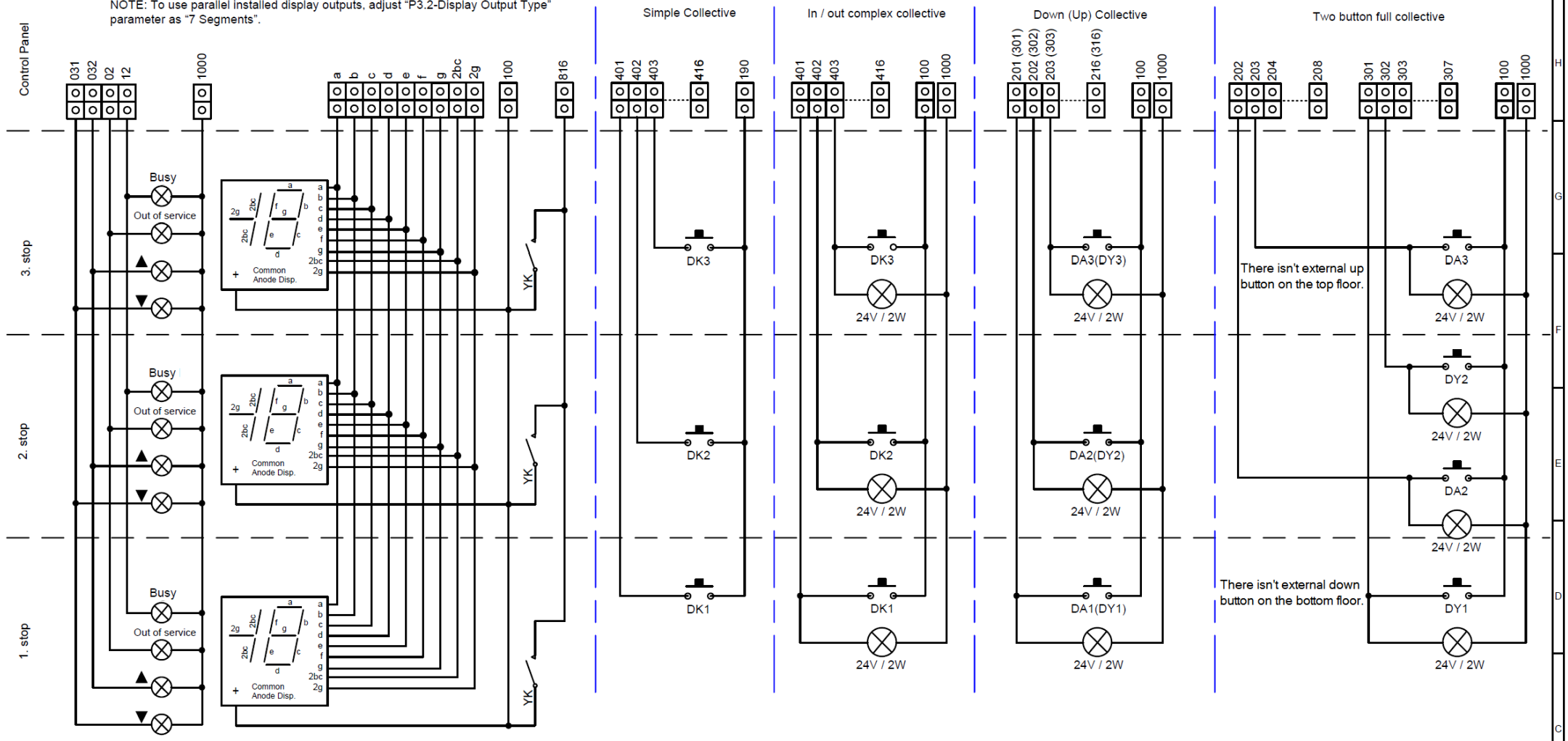
MYSB : Stop button near machine
KUYUKK : Well gate switch
HRK : Speed regulator switch
RKMS : Over car emergency stop button
STOP : In car stop button
PK : Car parachute brake switch
KGHK : Car unstrung rope switch

KCKK : Car roof gate switch
KTK : Car buffer switch
HRKGK : Speed regulator rotor clamp switch
KDMS : Bottom of well emergency stop button
ASKK : Lower end stopper switch
USKK : Upper end limit stopper switch

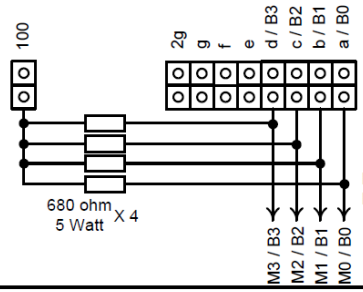
FKx : Door contact switches
KKx : Door lock switches
KKK : Car door switch

eem — EEM Imp. Exp. Trade Co. Lift Control System	Project Name	Ecologic Lift Control System		Drawer	ES
	Drawing Name	Security Circuit Connections		Control	BA
	Description		Version 2.00	Date 23.04.19	Drawing No: 4 — Page 12

NOTE: To use parallel installed display outputs, adjust "P3.2-Display Output Type" parameter as "7 Segments".



If "P3.2-Display Output Type" parameter is adjusted as Gray, Inv. Gray, Binary or Inv. Binary, you must make the connection as shown below.

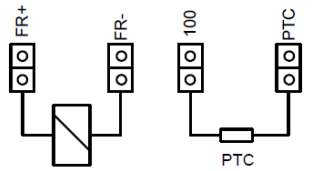


Mx = Gray code connection
Bx = Binary code connection

DKx : Call buttons and lamps
DAx : Down call buttons and lamps
DYx : Up call buttons and lamps
SDS : Out of service lamp
YK : Fire switch

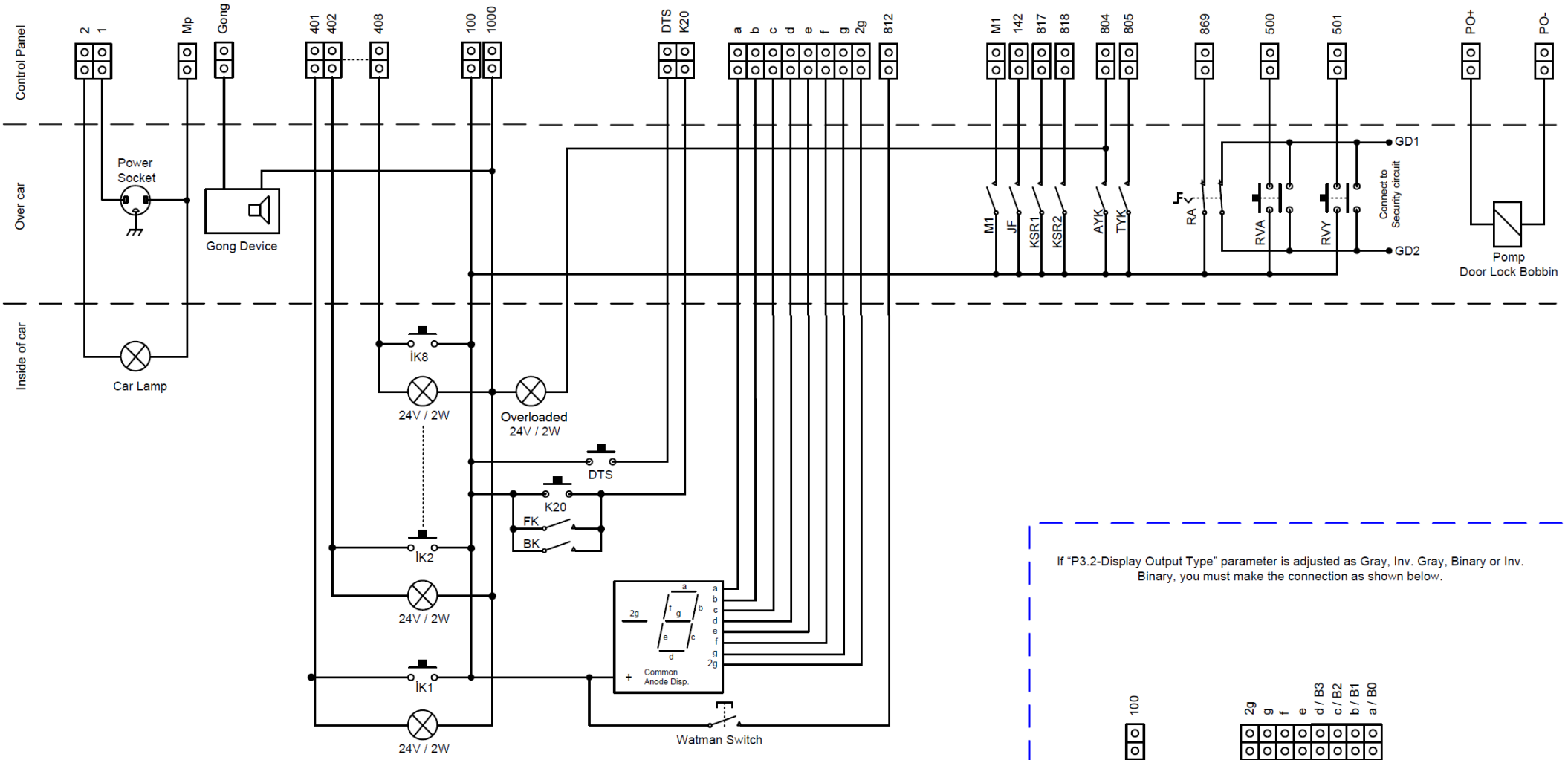
: 24V, max 2W lamp

NOTE: The default adjustment of the common terminals for low arrow, up arrow, busy and out of service lamps are 1000.
The common terminal can be arranged as 100 from the jumpers over Ecologic.



MACHINE ROOM

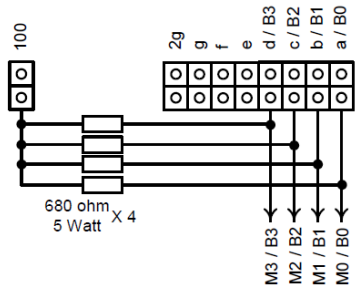
eem — EEM Imp. Exp. Trade Co. Lift Control System	Project Name	Ecologic Lift Control System	CE	Drawer ES
	Drawing Name	Floor Installation, Brake, Motor, Thermistor Connection		Control BA
	Description		Version 2.00 / Date 23.04.19	Drawing No: 5 / Page 13



İKx : Inner controller buttons and call lamps
Mx : Gray code bistable switch
AYK : Over load switch
TYK : Full load switch
JF : Floor leveling bistable switch
KSR1 : Lower limit stopper bistable switch
KSR2 : Higher limit stopper bistable switch
RA : Inspection switch
RVA : Inspection down button
RVY : Inspection up button
VA : Watman switch
BK : Press switch
FK : Photocell switch

NOTE: To use parallel installed display outputs, adjust "P3.2-Display Output Type" parameter as "a,b,c,d Segment"

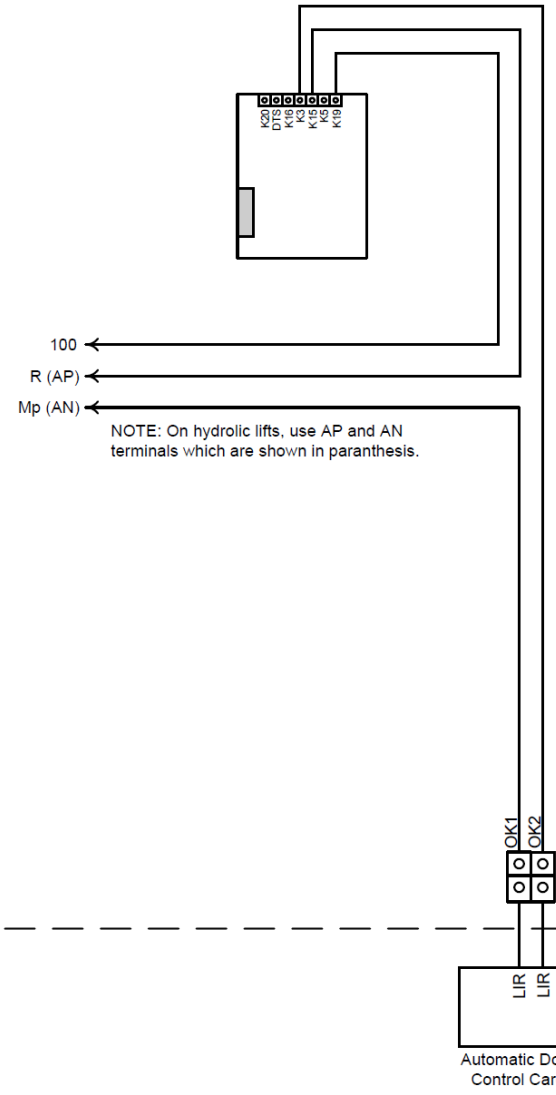
If "P3.2-Display Output Type" parameter is adjusted as Gray, Inv. Gray, Binary or Inv. Binary, you must make the connection as shown below.



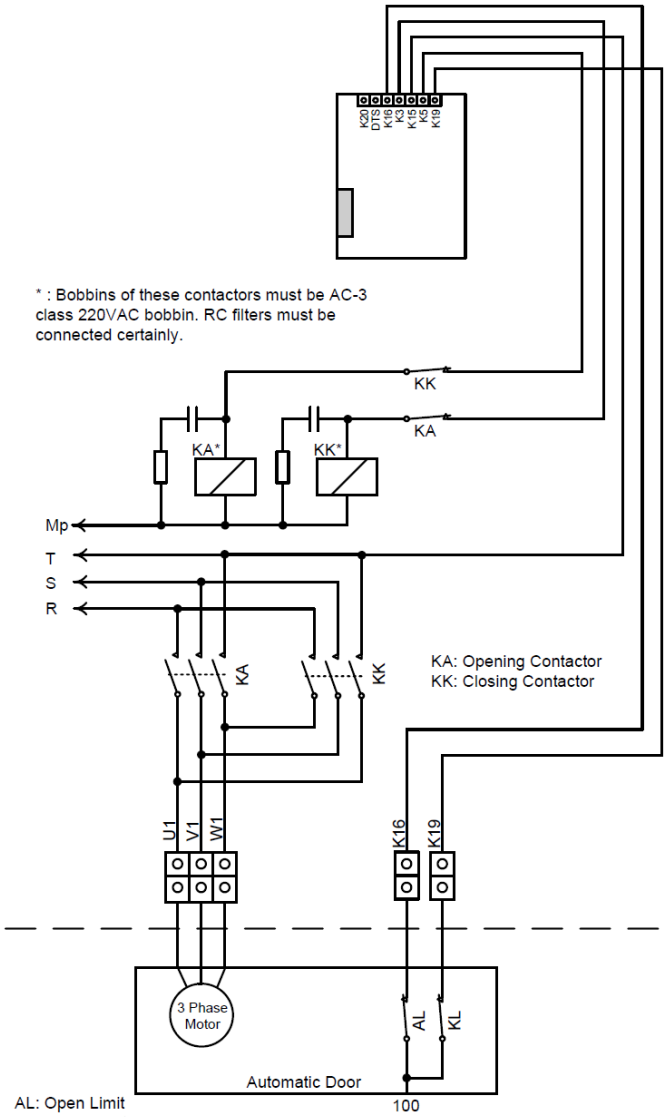
Mx = Gray code connection
Bx = Binary code connection

eem — EEM Imp. Exp. Trade Co. Lift Control System	Project Name	Ecologic Lift Control System		Drawer	ES
	Drawing Name	Car Installation		Control	BA
	Description		Version 2.00	Date 23.04.19	Drawing No: 6 / Page 14

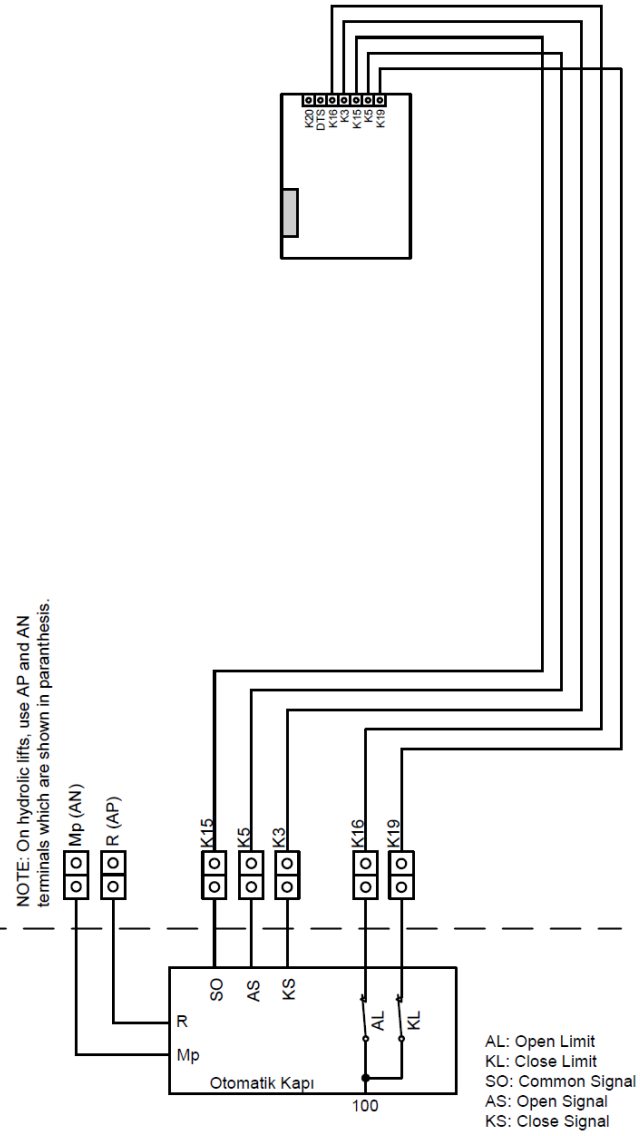
1. AUTO-DOOR CARD CONNECTION WHICH OPERATES BY POMP SIGNAL



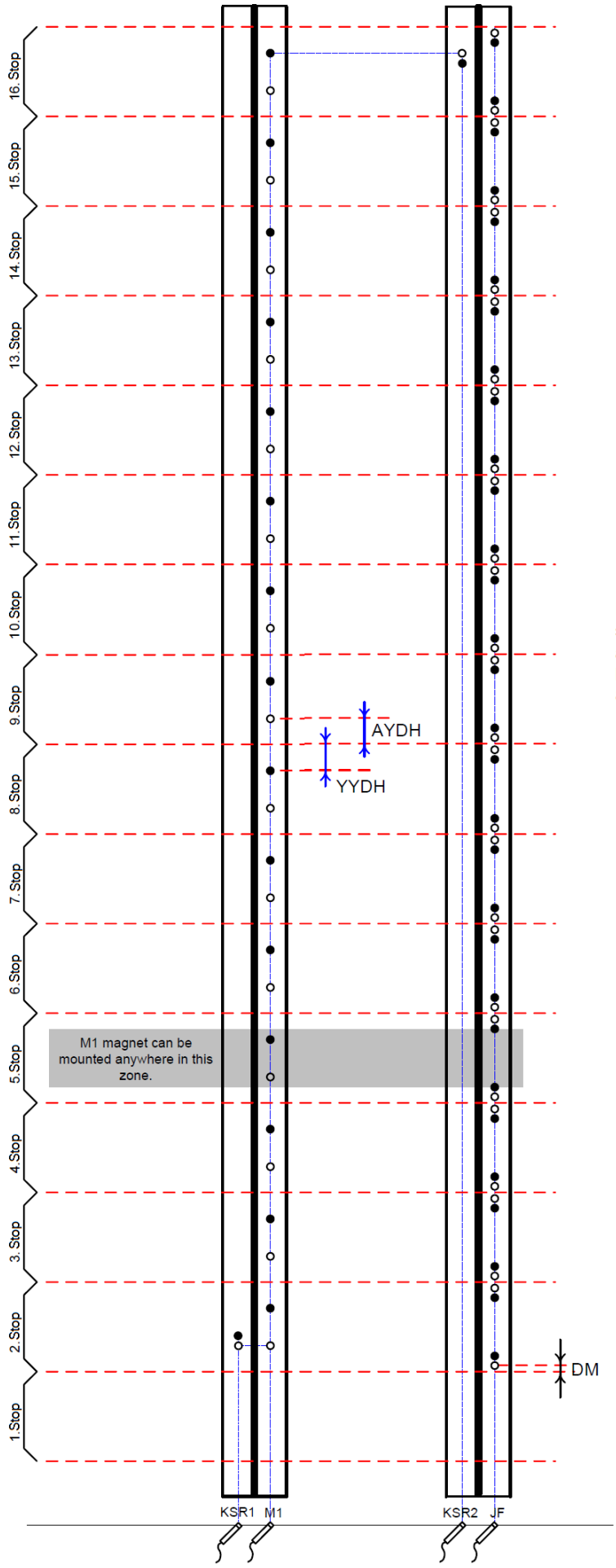
2. 3 PHASES 380V MOTORIZED AUTO-DOOR CARD CONNECTION WITHOUT CONTROL CARD



3. AUTO-DOOR CARD CONNECTION WITH CONTROL CARD



eem — EEM Imp. Exp. Trade Co. Lift Control System	Project Name	Ecologic Lift Control System	CE	Drawer	ES
	Drawing Name	Door Card Connection		Control	BA
	Description		Version 2.00	Date 23.04.19	Drawing No: 7 — Page 15



NOTE: The distance between M1 magnet and floors are shown as a model. These magnets can be mounted anywhere between two black magnets of JF in the same stop because of to make a floor setting. But the distance must be 8-10cm between two side by side mounted M1 magnets.

M1 : Counter bi-stable switch
JF : Floor leveling bi-stable switch
KSR1 : Lower limit stopper bi-stable switch
KSR2 : Higher limit stopper bi-stable switch
DM : Stopping distance
AYDH : Low speed distance for down direction
YYDH : Low speed distance for up direction

○ : Bi-stable switch at on state (The led on the controller is light off)
● : Bi-stable switch at off state (The led on the controller is light on)

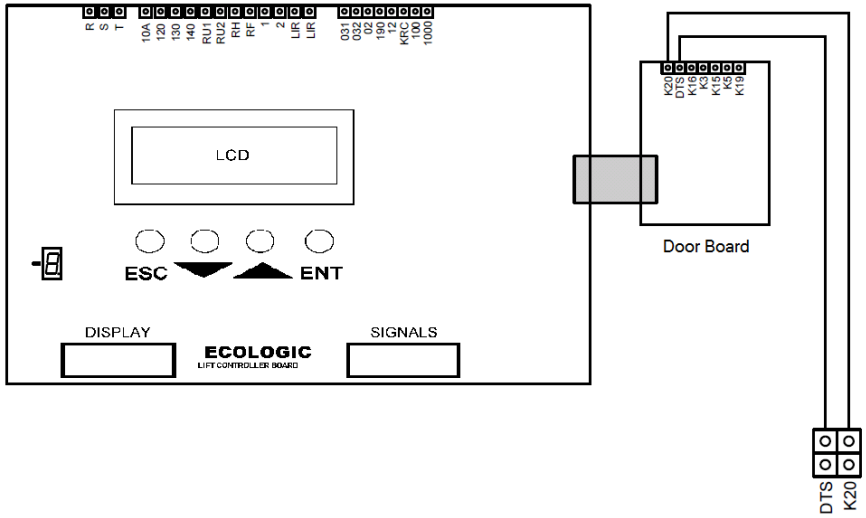
eem EEM Imp. Exp. Trade Co. Lift Control System	Project Name	Ecologic Lift Control System	CE	Drawer	ES
	Drawing Name	Counter System Bistable Magnets Order		Control	BA
	Description		Version 2.00	Date 23.04.19	Drawing No: 8	Page 16

CALL BUTTONS CONNECTION PRINCIPLE

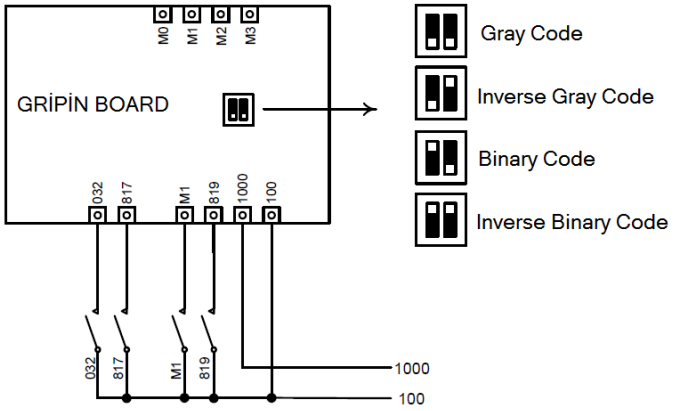
202-216 : Down external calls.
301-315 : Up external calls.
401-416 : Car internal calls.
601-616 : External calls.

Call Inputs of Control Card

CONTROL TYPE \ CALL TERMINALS	X1	X2	X3	X4	X5	X6	X7	X8
Simple Collective Complex Collective (Maximum 16 stops)	401	402	403	404	405	406	407	408
One button down collective One button up collective One button full collective (Maximum 8 stops)	601	602	603	604	401	402	403	404
Two button full collective (Maximum 6 stops)	202	203	301	302	401	402	403	Boş

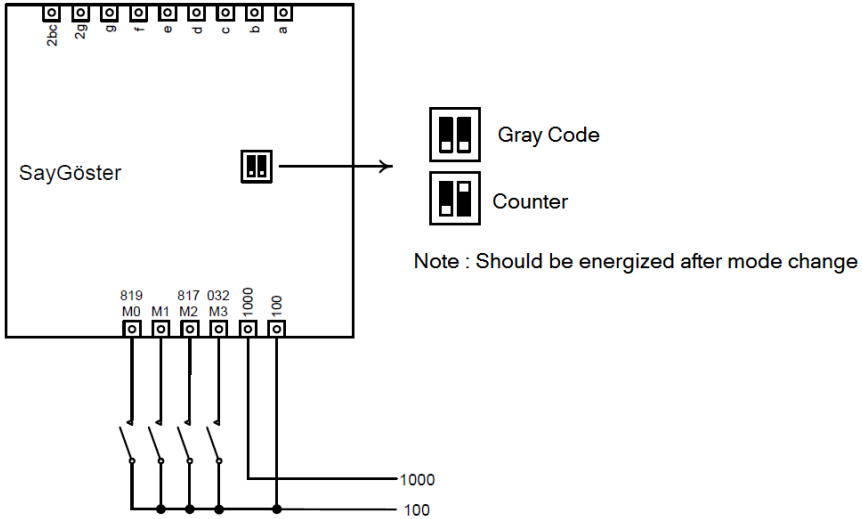


eem — EEM Imp. Exp. Trade Co. Lift Control System	Project Name	Ecologic Lift Control System		Drawer	ES
	Drawing Name	Door Board Connection and Call Buttons Connection Drawing		Control	BA
	Description		Version 2.00 / Date 23.04.19	Drawing No: 9	Page 17



Gripin Board:
For elevators, in which COUNTER system has been used as floor selection, Gripin board transforms the floor the cabin is placed to the gray, inverse gray, binary and inverse binary code for different needs.

NOTE: For elevators with 1m/s and lower speed leave the connection 819 unconnected. For elevators with speeds higher than 1m/s, 819 cable must be connected to 819 connector.



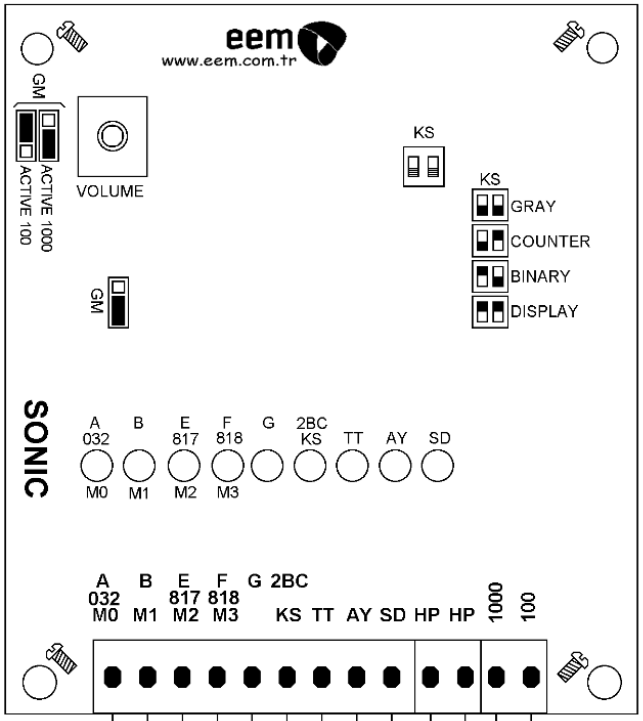
Note : Should be energized after mode change

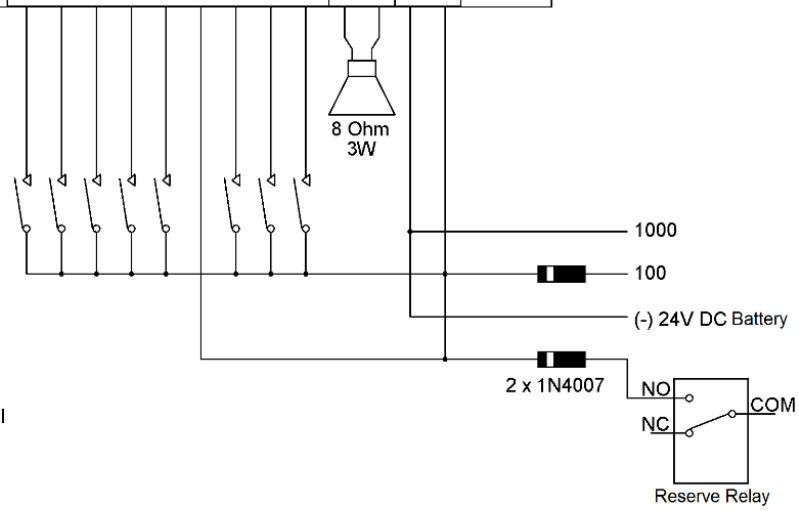
SayGöster Board:
Saygöster board is used to create needed digital terminals for display present in cabin socket over the cabin without any need to cabling from flexible. For elevators, in which COUNTER system has been used as floor selection, Gripin board transforms the floor the cabin is placed to the gray, inverse gray, binary and inverse binary code for different needs.

In systems that use GRAY CODE as floor selection,
1. Connect M0 cable to M0 connector
2. Connect M1 cable to M1 connector
3. Connect M2 cable to M2 connector
4. Connect M3 cable to M3 connector
5. Connect 1000 cable to 1000 connector
6. Connect 100 cable to 100 connector

In systems that use COUNTER as floor selection,
1. For elevators with speeds higher than 1m/s, 819 cable must be connected to 819 connector. For elevators with 1m/s and lower speed leave this unconnected.
2. Connect M1 cable to M1 connector
3. Connect 817 cable to 817 connector
4. Connect 032 cable to 032 connector
5. Connect 1000 cable to 1000 connector
6. Connect 100 cable to 100 connector

eem	EEM Imp. Exp. Trade Co. Lift Control System	Project Name	Ecologic Lift Control System	CE	Drawer ES
		Drawing Name	Gripin and SayGöster Board Connection		Control BA
		Description		Version 2.00 / Date 23.04.19	Drawing No: 10 / Page 18





In system that use GRAY code as floor selection

1- Set KS switch as GRAY position.
2- Set GM jumper as ACTIVE 100 position.
3- Connect speaker to HP HP terminals.
4- Connect to GRAY code 0 signal to M0 terminal.
5- Connect to GRAY code 1 signal to M1 terminal.
6- Connect to GRAY code 2 signal to M2 terminal.
7- Connect to GRAY code 3 signal to M3 terminal.
8- Connect to trigger signal to TT terminal.
9- Connect to rescue signal to KS terminal.
10- Connect to overloaded signal to AY terminal.
11- Connect to out of service signal to SD terminal.

In system that use COUNTER as floor selection

1- Set KS swich as COUNTER position.
2- Set GM jumper as ACTIVE 100 position.
3- Connect speaker to HP HP terminals.
4- Connect to 032 (UP arrow) signal to 032 terminal.
5- Connect to M0/M1 counter signal to M1 terminal.
6- Connect to 817 signal to 817 terminal.
7- Connect to trigger signal to TT terminal.
8- Connect to rescue signal to KS terminal.
9- Connect to overloaded signal to AY terminal.
10- Connect to out of service signal to SD terminal.

In system that use BINARY code as floor selection

1- Set KS switch as BINARY position.
2- Set GM jumper as ACTIVE 100 position.
3- Connect speaker to HP HP terminals.
4- Connect to BINARY code 0 signal to M0 terminal.
5- Connect to BINARY code 1 signal to M1 terminal.
6- Connect to BINARY code 2 signal to M2 terminal.
7- Connect to BINARY code 3 signal to M3 terminal.
8- Connect to trigger signal to TT terminal.
9- Connect to rescue signal to KS terminal.
10- Connect to overloaded signal to AY terminal.
11- Connect to out of service signal to SD terminal.

100 : +24V
1000 : -24V
SD : Out of service signal
AY : Overloaded signal
TT : Triggering signal
KS : Rescue signal

NOTE 1: Connect to 24V DC from high speed contactor NO terminal for triggering signal to play background music and floor announcement.

NOTE 2: Connect power SONIC Announcement System from control panel 100-1000 terminal and connect to battery over HSK-1 Emergency Rescue System Reserve Relay. When power cuts rescue system will work and SONIC will play rescue announcement. In addition to the supply connection must be connected diodes as shown connection diagram.

NOTE 3: Should be used Reserve Relay on HSK-1 Emergency Rescue Board to play rescue announcement. Reserve Relay must working with RM Relay. Connect 24V DC from battery to Reserve Relay COM terminal. Reserve Relay NO terminal connect to SONIC Announcement System 100 terminal and KS terminal.

NOTE 4: In system that use UPS for rescue process, connect 100 signal from KAK contactor NO terminal to KS terminal.

eem — EEM Imp. Exp. Trade Co. Lift Control System	Project Name: SONIC Sound Announcement System			CE	Drawer: HU
	Drawing Name: Connection drawing when using floor selector as GRAY code ,COUNTER and BINARY code				Control: BA
	Description	Version: 2.00	Date: 20.04.2015	Drawing No: 11	Page: 19

Dear Costumer,

We, as EEM Co., Ltd. give utmost importance to the costumer satisfaction. We are seeking your help about this. Please contribute developing our products by kindly spending a few minutes of your precious time to fill up this form and send it to us by post or fax. Thank you very much for your contribution.

❖ *Please introduce us your firm?*

Firm Name: Contact Person :

Adress :

Tel :

Fax :

❖ *What is your firm's area of interest?*

☐ Installation ☐ Electronic equipment for lifts

☐ Equipment wholesale ☐ Mechanical parts production

☐ Control panel production ☐ Other .....

❖ *How did you hear about us?*

☐ Fair ☐ Internet

☐ Advise ☐ Magazine/Newspaper ads

☐ Other .....

❖ *Which products of ours have you used? Are you satisfied with our service?*

Service\ Product	Rescuer	Control Card	Speed Control Eq.	Control Panel	Revision Set	Door Card
Sale	☺ 😐 ☹	☺ 😐 ☹	☺ 😐 ☹	☺ 😐 ☹	☺ 😐 ☹	☺ 😐 ☹
Price	☺ 😐 ☹	☺ 😐 ☹	☺ 😐 ☹	☺ 😐 ☹	☺ 😐 ☹	☺ 😐 ☹
Quality	☺ 😐 ☹	☺ 😐 ☹	☺ 😐 ☹	☺ 😐 ☹	☺ 😐 ☹	☺ 😐 ☹
Delivery	☺ 😐 ☹	☺ 😐 ☹	☺ 😐 ☹	☺ 😐 ☹	☺ 😐 ☹	☺ 😐 ☹
Installation	☺ 😐 ☹	☺ 😐 ☹	☺ 😐 ☹	☺ 😐 ☹	☺ 😐 ☹	☺ 😐 ☹
Technical Support	☺ 😐 ☹	☺ 😐 ☹	☺ 😐 ☹	☺ 😐 ☹	☺ 😐 ☹	☺ 😐 ☹
After Sale Service	☺ 😐 ☹	☺ 😐 ☹	☺ 😐 ☹	☺ 😐 ☹	☺ 😐 ☹	☺ 😐 ☹

☺ : Good 😐 : Medium ☹ : Bad

❖ *Are you seeking for a new product, technical support or supplier firm?*

☐ Yes ☐ No Explanation:.....

❖ *In your opinion, what are the two prime factors for a product? (Please make at most two choices.)*

☐ Confidence ☐ Easy Installation ☐ Price ☐ After Sales Service ☐ Delivery Time ☐ Technical Support


eem
LIFT CONTROLLER and RESCUE SYSTEM