AYBEY ELEKTRONİK

TX Series Lift Control System

USER MANUAL

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PREFACE

TX Series Lift Control System has been designed to fulfill the needs of lift sector at new age. One of the main aims of this series is to integrate lift control system with today's advanced computer systems.

TX Series Lift Control System is controlled by a 16-bit high performance microcontroller. It works in one speed, two speed and VVVF systems.

In this manual you find information about using TX Series Lift Control System and technical documents and schematics. If you think that this manual is not enough or it is not compatible with hardware or software version of your system, you can download latest version of the manual from Aybey Elektronik's website (www.aybey.com) or send an e-mail to request by mail.

We will continue to develop this product with your support and suggestions. Therefore if you face any problem while using this product or if you have any suggestions to make it better, please inform us by e-mail (support@aybey.com).

Aybey Elektronik

GENERAL DESCRIPTION

A) TX SERIES BOARDS AND FUNCTIONS

a) TXA (Mainboard)

This board is the main board of the system. It contains microcontroller, main inputs and outputs, 16 I/O for call registers, 7-Segment display, keypads and signal lamp drivers.

b) TXC (Car Board)

This board is the car board of the system. It contains 16 car calls, car display and input signals connection terminals.

c) PI (Input/Output Board)

It is the I/O board for the call registers. One board contains 16 I/Os. Each channel is input for buttons and output for call register lamps. The number of PI required in a system depends on the total number of buttons required. This board is connected to the main board via the parallel bus.

d) SWPOR (Programmable Relay Board)

SWPOR board contains 8 relays for output. It is possible to use more than one SWPOR board which can be programmed up to two different purposes at the same time. This board is also connected to the main board via the parallel bus.

e) TXK (Terminal Board)

It has terminals of panel. Input signals from shaft and display outputs are connected via this board.

f) HTS (Hand Terminal)

Hand terminal with LCD for parameter monitoring and setting.

g) CC7D (Car Display Board 7-Segment)

This board is car floor display board and connects TXC board through data cable. It has 2 7-segment displays on it.

h) INP (Programmable Input Board)

This board is programmable input board. It is optional and it has 4 programmable input.

i) OUT (Programmable Output Board)

This board is programmable output board. It is optional and it has 4 programmable relay output.

j) I/O (Call Register Extra Input Output Board)

This board is extra calls board. It has 8 input output calls.

k) SDC (Car Display Output Board)

This board is digital display output board. Output of board can be 7-segment or Gray Code and it has 9 digital output.

B) PANEL VOLTAGE INFORMATION

- **a. Safety Circuit Voltage**: Depends on the contactor coil voltage. Maximum allowed voltage is 230V AC. Minimum 100 VA power supply is required.
- **b. Signal Voltage:** 24V DC is used for signal lamps and control of relays on the boards. The current of this supply is mainly determined by the current requirements of the pushbuttons used in the system. Minimum 100 VA power supply is required.
- **c. Microcomputer Voltage**: 10V AC is required for the power supply of the microcomputer circuit. Maximum 1A capacity is enough. Minimum 25 VA power supply is required.

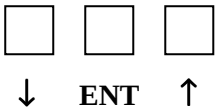
C) INPUTS AND OUTPUTS

The power supply for signal and control is 24V DC. All inputs except safety circuit monitoring are active low. It means that an input signal is active if it is connected to the return (0V) of 24V circuit. All inputs are 100% galvanically isolated from the microcomputer circuit. The outputs are mainly made of relays. Some inputs/outputs are dedicated to a special purpose and some of them are user programmable.

OUTPUT TERMINALS AND THE MEANINGS OF THE ABBREVIATIONS			
100	Signal Circuit Supply (+24V DC)	**DTS**	Open Door Button
1000	Signal Circuit Ground	**K20**	Close Door Button
10AC	10V AC Voltage	**DCM**	Door Signal Common
L1-R, L2-S,L3-T	Main Phases	**CLS**	Close Door Signal (Automatic Door)
MP / N	Neutral	**OPN**	Open Door Signal (Automatic Door)
110	Safety Circuit Supply	**A,B,…,G**	Right Display Segment Outputs
120	Stop Circuit Return	**2BC(1),2G(-)**	Left Display Segment Outputs
130	Door Contacts Return	**K1, K2**	VVVF System Motor Output Contactors
135	Automatic Cabin Door Contact Return	**KF**	VVVF System Break Contactor
140	Door Locks Return	**RU**	Up Direction Contactor
150-151	Safety Circuit Common	**RD**	Down Direction Contactor
18AC	18V AC Voltage	**RH**	High Speed Contactor
840	Positive Terminal of Brake	**RF**	Low Speed Contactor
804	Overload Input	**500**	Inspection Down Motion Button
805	Full Load Input	**501**	Inspection Up Motion Button
802	Half Load Input	**869**	Inspection Input Signal
FKK	Phase Failure Detector Input	**RUN**	Frequency Input in VVVF
M0	Counter	**DER**	Device Error in VVVF
MK	Floor Detector	**CNT**	Contactor Control Input
2000	Negative Terminal of Brake	**D1,D2,D3**	Break, Pump and Signal Circuit Bridge Diodes
2001	Positive Terminal of CAM	**VK**	Contactor Supply Voltage Input
810	Negative Terminal of CAM	**R-N**	Phase-Neutral Line Input (Before Phase Protection Relay and Main Switches)
817	Lower Limit (End of Fast Speed Way)	**1**	Phase Line Output For Cabin (220V AC)
818	Upper Limit (End of Fast Speed Way)	**2**	Phase Line Output For Cabin Lamp (220V AC)
SXX	Fuses	**AL**	Automatic Door Open Limit
SFP	Brake and Cam Fuse	**KL**	Automatic Door Close Limit
SK	Contactor Fuse (220V AC)	**S1**	Programmable Output Relay
SKL	Cabin Lamp Fuse	**O1,O2,O3,O4**	Programmable Output Relay on RLE
SWTX	Safety Line and Contactor Supply Fuse	**12**	Busy Signal
U1,V1,W1	Motor High Speed Inputs	**31**	Down Arrow Signal
U2,V2,W2	Motor Low Speed Inputs	**32**	Up Arrow Signal
FKK/AFK	Phase Failure Detector Board	**35**	Overload Signal
FAN	Supply Voltage for Motor Fan	**39**	Out Of Service (Inspection) Signal
T1-T2	PTC Motor Thermistor Terminals	**C0,C1...C16**	Registration Button Inputs/Register Lamp Outputs
TMS	Thermal Magnetic Circuit Breaker	**VTM**	Waitman Input
TR	Thermal Relay	**FIRE**	Fire Input
190	Hall Call Common For Simple Push Button	**FOT**	Photocell Input
I0,I1,I2,I3, I4	Programmable Inputs	**870**	Electrical Emergency Operation Switch
SA	Car Serial Communication Bus-A	**551**	Manual Control Up Motion Switch
SB	Car Serial Communication Bus-B	**550**	Manual Control Down Motion Switch
HU	3rd Speed Switch Up	**HD**	3rd Speed Switch Down

PROGRAMMING OF TX SERIES

System parameters of TX Series lift controllers can be observed and modified easily by using three buttons located on the electronic board. These buttons are named as follows:



A) MODIFYING PARAMETERS

You have to hold your finger pushed onto the (ENT) button until you see the following display on the board displays

(ENT).....(ENT)

P A d

Here you see **P** flashing. Push (ENT) button once to enter programming the parameters. You will see the following screen:

n 0 0

Now the system is in programming mode. You can analyze all parameters. This display structure (letter 'n' in first display) shows the program number ('00' in this example, left two displays). The programs with the numbers 00…15 are used for hall and cabin display patterns. Other programs are used as system parameters in controller.

In order to see or modify the data stored in a program number, first you have to find it. When you entered the programming mode first you see a display exactly as above. You can increase program number by pushing (↑) button or decrease it by pushing (↓) button shortly. But when you have reached lower and upper limits then the program number cycles to the opposite limit.

For example let us assume the display shows program 21 as follows:

n 2 3

(↓)

n 2 2

(↓)

n 2 1

In order to see the data stored in a program cell you have to push (ENT) button shortly.

n 2 1

(ENT)

0 0 8

Now the display shows the data stored in program number 21. As an information program number 21 stores the number of stops (floors) in the system. So this controller works with 8 stops.

In order to increase or decrease the data (the number of stops in the system) first get it to inspection mode and then use (↑) and button (↓) exactly as in program finding procedure

(↓)

0 0 7

(↓)

0 0 6

After setting the data (found the number in display which corresponds to the number of stops in the controller) push (ENT) button once to return to the previous level (program selection level).

(ENT)

n 2 1

You can observe and/or modify as many programs as you want in one programming session. Be aware that modified data until now is not written to the EEPROM (permanent memory). The modified data is still in RAM (temporary memory). But when you exit from program selection level by pushing (ENT) button long enough then system leaves the programming mode and last configuration is stored into EEPROM and the controller uses these new parameters in operation. After this point any power breakdown does not influence the parameter memory.

When you exit from programming mode by holding (ENT) button down until the display shows the current floor of car, then system is ready to function as a controller again.

(ENT).....(ENT)

3

Where 3 stands for floor number 3.

B) PARAMETER LIST

n0…15	Digital display codes for floors 0…15
n20	Programming codes
n21	Number of stops
n22	Lift traffic system
n23	Lift door type
n24	Definition of parking floor
n25	Parking floor
n26	Maximum door lock waiting time
n27	Selection for automatic door open/closed wait state at floor (Only in full automatic door)
n28	Busy time
n29	Automatic door open waiting time
n30	Waiting time in floor before departure for the next floor (only in collective models)
n31	FIRE stop
n32	Maximum floor transition period (High Speed)
n33	Maximum busy period
n34	Definition of error reporting
n35	Display output type
n36	Software version
n37	MK delay
n38	Start up delay
n39	Slow speed travel period
n40	Door open period
n41	Park time
n42	System blocking after errors
n43	Number of doors in car
n44	Door A definition (0-7 floors)
n45	Door A definition (8-15 floors)
n46	K20 delay
n47	Lift type
n48	Maximum number of errors
n49	Period to inhibit door close button
n50	Delay to operate door close command
n51	Programmable output (S1-On TXA board)
n52	Programmable output (O1-On RLE board)
n53	Programmable output (O2-On RLE board)
n54	Programmable output (O3/O4-On RLE board)
n55	Programmable input (I0-On TXK board)
n56	Programmable input (I1-On RLE board)
n57	Programmable input (I2-On RLE board)
n58	Door B definition (0-7 floors)
n59	Door B definition (8-15 floor)
n60	Maximum motor period
n61	Direction delay
n62	Open door delay
n63	Motor motion control period
n64	Brake delay
n65	Hall call canceling
n66	Inspection switch selection
n67	Inspection speed selection
n68	Stop failure
n69	Relay board 1 (SWPOR definition)

n70	Relay board 2 (SWPOR definition)
n71	Base Floor
n72	Not used
n73	Not used
n74	Programmable input no:3 (I3-TXA/INP)
n75	Programmable input no:4 (I4-TXA/INP)
n76	Programmable car output no:6 (O1-TXC)
n77	Programmable car output no:7 (O2-TXC)
n78	Programmable car output no:8 (03-TXC)
n79	Programmable car output no:9 (O4-TXC)
n80	Programmable output no:5 (O4- TXA/OUT)
n81	Programmable car input no:5 (I1-TXC)
n82	Programmable car input no:6 (I2-TXC)
n83	Programmable car input no:7 (I3-TXC)
n84	Programmable car input no:8 (I4-TXC)
n85	Programmable car input no:9 (I5-TXC)
n86	Programmable car input no:10(I6-TXC)
n87	Programmable car input no:11 (I7-TXC)
n88	Programmable car input no:12 (I8-TXC)
n89	3rd Speed (VVVF)
n90	Car display output program (For TXC)

PROGRAM 0…15 : These programs store the digital display codes for the corresponding floors. Program 0 holds the code for the floor 0 and program 6 the code for the floor 6. These codes control hall and cabin displays but not the display on mainboard. When you enter program 0…15 then you will see the characters to be displayed on the panels when the lift stays at that floor. Search with (↓) and (↑) keys all characters, which are possible to be displayed for the system.

PROGRAM 20 : This program does not store any data for any controller function. Program 20 is used to shortcut for some popular digital display configurations.

Here are allowed commands for program 20 and their functions:

1	This command shift all programs between 0…15 one step up. After executing this command program 0 is shifted to 1, program 1 is shifted to 2 and so on. For example a system like 0,1,2,3,4,… is 0,0,1,2,3,… after execution.
2	This command shift all programs between 0…15 two step up. After executing this command program 0 is shifted to 2, program 1 is shifted to 3 and so on. For example a system like 0,1,2,3,4,… is 0,1,0,1,2,3,… after execution.
3	This command shift all programs between 0…15 three step up. After executing this command program 0 is shifted to 3, program 1 is shifted to 4 and so on. For example a system like 0,1,2,3,4,… is 0,1,2,0,1,2,3,… after execution.
8	This command shift all programs between 0…15 one step down. After executing this command program 1 is shifted to 0, program 2 is shifted to 1 and so on. For example a system like 0,1,2,3,4,… is 1,2,3,4,5,… after execution.
11	This command fills the program memories 0 to 15 with the digital codes for numbers 0…15. So resulting digital codes are 0,0,1,2,3,4,5,…
21	This command organizes digital display numbers as -1,0,1,2,3,…
22	This command organizes digital display numbers as -2,-1,0,1,2,…
23	This command organizes digital display numbers as -3,-2,-1,0,1,…
39	Delete all error reports.
57	Restore factory defaults.

PROGRAM 21 : This program holds the number of stops in lift system. You can enter any number between 2 and 16.

PROGRAM 22 : This program stores the parameter which decides the traffic system of the lift as follows:

0	Simple Push Button Car and hall call buttons are connected together. There is no call register memory. No second call is registered when the system deals with a call. No group operation is allowed. Hall calls are not allowed in busy state.
1	Simple Collective Car and hall call buttons are connected together. Call register memory is present. There is no difference between hall and car calls.
2	One Button Down Collective Car and hall call buttons are connected separately. Car calls are collective in both directions where hall calls are collective in downwards. This configuration is useful in residential buildings where the main entrance is in the base floor.
3	One Button Up Collective Car and hall call buttons are connected separately. Car calls are collective in both directions where hall calls are collective in upwards.
4	Two Buttons Full Collective Car, hall up and hall down buttons all are connected separately. Car and landing call are all serviced in full collective manner.

PROGRAM 23 : This program stores the parameter for lift door as follows:

0	Semi-automatic wing landing door, no cabin door
1	Semi-automatic wing landing door, with automatic cabin door
2	Full automatic cabin and landing door

PROGRAM 24 : This program defines the parking facility of the lift as follows:

0	No park floor is defined
1	System has a park floor where car waits with closed doors.
2	System has a park floor where car waits with open doors.

When this parameter is 1 or 2 and the lift has no calls about 2 minutes then moves to this floor and stays there until a call comes with the door opening state specified in program 25.

PROGRAM 25 : This program stores the parking floor if program 24 is 1 or 2. This number must be less than the number stored in program 21.

PROGRAM 26 : This program stores maximum time period (3.0 – 20.0 sec) to wait door lock to be closed after a door close signal is sent. The data is displayed in seconds and can be adjusted in 0.1 second steps.

PROGRAM 27 : The data stored in this program determines the behavior of the door when the car is at floor level.

0	The car waits with closed doors in floor for automatic doors.
1	The car waits with open doors in floor. (Not conformity with EN81-1)

PROGRAM 28 : This program stores busy period (3.0 - 10.0 sec). The data is displayed in seconds and can be adjusted in 0.1 second steps.

PROGRAM 29 : This program stores the time period (4.0 - 15.0 sec) to wait doors to be open before reclosing them when the doors are full automatic. The data is displayed in seconds and can be adjusted in 0.1 second steps.

PROGRAM 30 : This program is used only in collective systems. It stores the parameter for the time period (3.0 - 10.0 sec) where the car waits before departure for the next call. The data is displayed in seconds and can be adjusted in 0.1 second steps.

PROGRAM 31 : This program stores the floor to where car goes in case of fire. After reaching fire-floor car waits there with open doors.

PROGRAM 32 : This program stores a parameter which stands for the maximum time (5.0 - 99.9 sec) allowed the car to move from one floor to the next one. If this time is exceeded then the car is stopped by the system and an error is reported (249). The data is displayed in seconds and can be adjusted in 0.1 second steps.

In case of any mechanical problem, which prevents the car from moving or any fault in floor detector occurs; system may cause some big problems if the motor is not switched off immediately. It is strongly recommended to adjust this function properly when the lift is in service.

PROGRAM 33 : This program stands for maximum busy time (0.0 - 99.9 sec). If the door stays open for a long time then the cabin light and busy signal are switched off after the period stored in this program. The data is displayed in seconds and can be adjusted in 0.1 second steps.

PROGRAM 34 : This program is used to control error reporting mechanism. The allowed numbers and their functions are as follows:

0	System reports all errors and stops the car .
1	Only safety circuit errors are reported and the car is stopped only in safety errors. Secondary errors like 249, 250, 252, 253,… are not processed.

PROGRAM 35 : This program is used to set display output to 7 segment digital display, gray code or binary code.

0	7 Segment Digital Display
1	Gray Code (M0/G-Segment, M1/F-Segment, M2/E-Segment, M3/D-Segment)
2	Binary Code (Bit0/G-Segment, Bit1/F-Segment, Bit2/E-Segment, Bit3/D-Segment)

PROGRAM 36 : This program displays the software version number.

PROGRAM 37 : This program especially use for floor leveling in VVVF systems and slow speed pulley freight lifts. It determines passing to stop mode timer from slow motion after lift comes to target floor and detects MK switch. 1 unit is 30 ms. You can set this parameter up to 50 unit (1.5 sec).

PROGRAM 38 : This program stores a parameter which stands for a delay time (0.0 - 5.0 sec) during start-up. The data is displayed in seconds and can be adjusted in 0.1 second steps. The car waits for a time delay specified in this program after the door lock closed signal returns to the controller before activating contactors to start motion.

PROGRAM 39 : This program stores a parameter which stands for the time limit (5.0 - 30.0 sec) in slow motion. The data is displayed in seconds and can be adjusted in 0.1 second steps. When the car moves in slow motion and the time elapsed exceeds the parameter specified in this program then the car is stopped.

PROGRAM 40 : This program stores a parameter for door open time limit (0.0 - 10.0 sec). The data is displayed in seconds and can be adjusted in 0.1 second steps. When the door is activated to open and elapsed time exceeds the parameter specified in this program while the door is still closed then an error signal is generated and the door is deactivated.

PROGRAM 41 : This program stores a parameter which stands for the time (0.0 – 99.9 sec) to wait to move to the park floor. The data is displayed in seconds and can be adjusted in 0.1 second steps. When the car stays without receiving a call from any floor for a time period specified in this program then a cabin call is given automatically by the system.

PROGRAM 42 : This program stores a parameter which controls system lock after some errors. These parameters are as follows:

0	The system continuous operation.
1	The system is blocked if the number of consequent errors exceeds the number stored in the parameter n48.
2	All call registers are cleared.

PROGRAM 43 : This program stores the number of doors present in the car as 1 or 2.

PROGRAM 44 : This program stores the stops (0…7) at which the first door (Door A) in the car is active. In order to calculate the data for this program you have to add the numbers for the stop at which the first door is active.

FLOOR	**0**	**1**	**2**	**3**	**4**	**5**	**6**	**7**
CODE	1	2	4	8	16	32	64	128

For example assume that we want the first door to be active at stop 0, 3, 4, 6 and passive at other stops. To calculate the data, sum the codes for each stop:

```
Stop 0  :       1
Stop 3  :       8
Stop 4  :       16
Stop 6  : +     64
          -------------
                89
```

If we enter 89 into to program 44 then the first door will be active only at Stop 0, 3, 4, and 6.

PROGRAM 45 : This program stores the stops (8…15) at which the first door (Door A) in the car is active. In order to calculate the data for this program you have to add the numbers for the stops at which the first door is active.

FLOOR	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**
CODE	1	2	4	8	16	32	64	128

For example assume that we want the first door to be active at stop 9,10,13,15 and passive at other stops. To calculate the data, sum the codes for each stop:

```
Stop 9  :        2
Stop 10 :        4
Stop 13 :       32
Stop 15 : +     128
          ----------
              166
```

If we save 166 into to program 45 then the first door will be active only at stops 9, 10, 13 and 15.

PROGRAM 46 : This parameter only works in systems with automatic door. On signal in door open switch input (K20), it determines the time of door open signals. Time unit is second and can be set min 0.6 sec, max 8 sec.

PROGRAM 47 : This program defines the lift type

1	One speed rope lift
2	Two speed rope lift
3	Not used
4	VVVF1
5	VVVF2
6	FUJI closed loop
7	RST
8	VVVF3
9	KEB
10	DIETZ

PROGRAM 48 : This program stores the maximum error (minimum 4) becomes continually. System will block if errors exceed this value.

PROGRAM 49 : This program controls the DTS (Close Door) button only in full automatic door systems. DTS (Door close button) is inhibited during the time period (0.0 - 10.0 sec.) given in this parameter. The period starts when the car reaches the floor. The data is displayed in seconds and can be adjusted in 0.1 second steps.

PROGRAM 50 : This program defines time period (0.0 - 2.0 sec) to delay the activation of retiring cam after the landing door has been closed for semi-automatic systems. The data is displayed in seconds and can be adjusted in 0.1 second steps.

PROGRAM 51…54, 76…80 : There are 8 programmable relays in TX Series boards. S1 is standard in all systems. But other programmable relays (O1, O2, O3 and O4) in OUT board are optional. Here are the details of the programmable outputs:

PROG. NO	OUTPUT NO	CODE	PLACE	CONTACT V/I	CONTACT TYPE	DEFINITION
n51	1	S1	RLX	220V/10A	Normally Open Common	Always programmable
n52	2	O1	TXA-OUT	48V/3A	Normally Open	O1, O2 and O3 relays are all have same common terminal.
n53	3	O2	TXA-OUT	48V/3A	Normally Open	
n54	4	O3	TXA-OUT	48V/3A	Normally Open	
n80	5	O4	TXA-OUT	48V/3A	Normally Open	O4 relay has C4 common terminal.
n76	6	O1	TXC-OUT	48V/3A	Normally Open	O1, O2 and O3 relays are all have same common terminal.
n77	7	O2	TXC-OUT	48V/3A	Normally Open	
n78	8	O3	TXC-OUT	48V/3A	Normally Open	
n79	9	O4	TXC-OUT	48V/3A	Normally Open	O4 relay has C4 common terminal.

OUTPUT CODE	SELECTED CASE or FUNCTION
1	**Stop** circuit is closed (Terminal 120 is on)
2	**Stop** circuit is open (Terminal 120 is off)
3	System is in **Inspection** mode (Terminal 869 is on)
4	System is in **Normal** mode (Terminal 869 is off)
5	There is an error
6	There is no error, system works normal
7	The car is moving in **Slow** speed
8	The car is **not** moving in **Slow** speed
9	The car is **not moving**
10	The car is **moving in** any speed
11	The car is moving in **Fast** speed
13	**Door Lock** circuit is closed (Terminal 140 is on)
14	**Door Lock** circuit is open (Terminal 140 is off)
15	The cabin is at **floor level**
16	The car is staying in **Rest** and the cabin is at **floor level**
17	Direction is **up**
18	Direction is **down**
19	**Busy**
20	The system is **moving** or in **START** state
24	Waiting for **park period**
25	The system is in **motion** or in **braking**
26	**Retiring cam.** Door contacts are closed and there is motion.
27	In normal mode : The system is in **motion** or in **braking** In inspection mode : The system is in **motion**
30	The system is in **motion** or **door lock** is on. This output is specially to drive the contactor in speed control systems.
31	There is no call registered.
32	ZERO SPEED output for VVVF drives. (JOG)
33	The system is in inspection mode and in motion
34	M0- Simulator
32	MK- Simulator
33	817- Simulator
38	Overload signal.
39	RESET output for a driver. This output is active as a pulse when a device error is detected (DER).
40,41,42,43	Gray Code M0, M1, M2, M3 outputs respectively
45	Door Close command input for the second door
46	Door Open command input for the second door
47	Gong
51	Door Lock + Brake
53	Down Service Arrow
54	Up Service Arrow
200+i	The car is staying in rest at i^{th} floor

PROGRAM 55…57,74…75, 81…88 : In TX lift control system only 16 inputs are constant. You cannot redefine or change the terminal of the following inputs 120, 130, 140, 870, 817, 818, 550, 551, 869, M0, MK, 804, K20, FKK, DTS and CNT. All other inputs must be programmed by the user according to the needs of the system. Any input can be selected from the available inputs in the list below and can be connected to the desired terminal. The following list gives the input codes and their explanations.

PROGRAM NO	INPUT NO	CODE	BOARD NAME
n55	0	I0	TXK
n56	1	I1	TXA-INP
n57	2	I2	TXA-INP
n74	3	I3	TXA-INP
n75	4	I4	TXA-INP
n81	5	I1	TXC
n82	6	I2	TXC
n83	7	I3	TXC
n84	8	I4	TXC
n85	9	I5	TXC
n86	10	I6	TXC
n87	11	I7	TXC
n88	12	I8	TXC

PARAMETER VALUE	INPUT CODE	DEFINITION
1	FIRE	Fire
2	805	Full Load
3	802	Minimum Load
4	WTM	Waitman
5	RUN	VVVF Frequency Control
6	FOT	Photocell Input
7	SIF	Simulation Inputs (Slow/Fast)
8	SIS	
9	DER	VVVF Device Error
12	869	Car Inspection Signal
13	M0	Counter
14	500	Inspection down switch
15	501	Inspection up switch
16	804	Overload
17	DTS	Door close switch
18	K20	Door open switch
19	HD	3rd Speed switch down
20	HU	3rd Speed switch up

PROGRAM 58 : This program stores the stops (0…7) at which the second door (Door B) in the car is active. Set this parameter as program 44.

PROGRAM 59: This program stores the stops (8…15) at which the second door (Door B) in the car is active. Set this parameter as program 45.

PROGRAM 60 : Maximum time period (20.0 - 99.9 sec) in which motor is allowed to work continuously. (To set this parameter more than 450 (45 sec) is not conformity with EN81 standards. The data is displayed in seconds and can be adjusted in 0.1 second steps.

PROGRAM 61 : Delay period (0.0 - 11.0 sec) to allow the direction to change after stopping. The data is displayed in seconds and can be adjusted in 0.1 second steps.

PROGRAM 62 : This parameter stores the time period (0.0 – 3.5 sec) necessary for the automatic door to open after reaching the floor. The data is displayed in seconds and can be adjusted in 0.1 second steps.

PROGRAM 63 : If there is no signal input to the programmable input with code 5 (RUN) within the time period specified in this parameter (0.0 - 10.0 sec) after a motion command is received then the system is stopped and report error 247. If RUN input is not defined then this timer is not active. The data is displayed in seconds and can be adjusted in 0.1 second steps.

PROGRAM 64 : Brake delay (0.0 - 5.0 sec) in ACVV and VVVF systems. The data is displayed in seconds. You can adjust it in 0.1 seconds. This parameter defines the time delay for programmable relays for selection number 21-25-27.

PROGRAM 65 : Use for hall calls setting.

0	Hall calls are allowed
1	Hall calls are inhibited

PROGRAM 66 : This program defines the inspection input contact type.

0	Closed contact in inspection mode
1	Open contact in inspection mode

PROGRAM 67 : This program defines the inspection speed.

0	Inspection speed is the slow speed in the system.
2	When there is a motion command in inspection mode then only direction command is sent, neither slow nor high speed is activated.

PROGRAM 68 : This program defines the call register canceling or not in stop failure during motion.

0	System continues to work
1	All of the call registers are cleared and the system continues to work.

PROGRAM 69-70: This program defines the functions of SWPOR boards added to the system.

0	Not used
1	Floor indicator lamps
2	Gray code output of car position
3	Binary code output of car position

PROGRAM 71: When there are some stops under entrance floor such as basement, garage set this parameter that is valid only if command system is down collective (n22=2). The calls over entrance floor are collected during down travel and the calls under entrance floor are collected during up travel.

TX SERIES ERROR CODES		
CODE	**EXPLANATION**	**SUGGESTIONS**
120	This code is reported when the stop circuit is broken during motion.	Check 110…120 safety circuit contacts (car, car top, stop, parachute contact, speed regulator, pit switch, limit switches)
130	This code is reported when the door contact circuit is broken during motion.	Check landing door contact in semi-automatic door and cabin door contact in full automatic door.
135	Door could not be opened. This shows that after giving Open Door command door contact circuit was not broken.	Door lock circuit may be shorted. Check n40 parameter.
140	Door lock cannot be sensed as closed after cam or door close signal is applied.	Check n26 parameter setting. It must be set right for door dimensions. And be sure that close door signal (DCM and CLS) is ready, retire cam is active and connection of 140 terminal is OK.
141	This code is reported when door lock circuit is broken during motion.	Check cable of 140, no touch in retire cam and lock during motion, no cut of close door signal during motion and no voltage reduction in safety circuit voltage.
218	Communication Error between mainboard and Car Controller Board.	No communication between TXC and TXA boards. Check SA-SB connections and TXC board supply.
225	This code is reported when the parking floor (program 25) is greater than maximum number of stops (program 21).	Check n25 parking floor parameter. (NOT more than n21)
226	This code is reported when the fire- floor (program 31) is greater than maximum number of stops (program 21).	Check n31 fire floor (NOT more than n21)
241	This code is reported when KSR1 and KSR2 are open at the same time. This error is also reported when stop circuit is open.	Check connections of high speed switches 817(KSR1)-818(KSR2), place of magnets and magnetic switches. (See TX Counter Schematics)
247	No motion detected in defined time.	Check the value in n63. Be sure that the RUN input in inputs menu is defined. If RUN is not used, n63 must be 0.
249	This code is reported when no change in floor number is detected in the time interval defined in program 32 or 39, when the car is in motion. This error may be caused by any mechanical or electrical fault, which inhibits motion, as well as any fault in floor detecting system. Be aware that any number in program 32 or 39, which are very small, can also cause this error.	• Check bi-stable magnetic switches, place of magnets and connections of it. • Check mechanic and rope systems, the values in n32 and n39. (Must be set according to lift speed and the highest floor distance). • Be sure that contactors are active, connections of motor are OK and brake is energized and released.
444	Maximum motor motion period is exceeded.	Check n60 parameter. Be sure that it is set according to speed of lift and height of well. Be sure that motor is in motion and speed is OK.
555	Although there are no contactors activated and the door is open, there is no signal in CONT terminal of TXA board	Check NC contacts of contactors. Be sure that none of contactor is energized. Check CONT input terminal connection on TXK board..
600…612	Same input code on other input error. E.g. 804 input is on 9th and 11th input "Error 609"	Check input codes and change same.
720	Phase Protection Relay (FKK) is out of circuit. Check the Thermistor (T2-T1) circuit and phases.	Check Thermistor (T2-T1) circuit, phase order, phase balance, voltage levels.
817	Bottom KSR error. Bottom limit is cut when car moves down at high speed.	Check 817 (KSR1) switch, cables and place of magnets from TX Counter System Connection Diagram.
818	Top KSR error. Too limit is cut when car moves up at high speed.	Check 818 (KSR2) switch, cables and place of magnets from TX Counter System Connection Diagram.
904	Motion control device reports error	Be sure that the error contact of speed device connection is OK. You can fix the error on display by the help of user manual.

TX HAND TERMINAL

TX hand terminal is an optional system with LCD for parameter monitoring and setting. With 6 buttons and 2x16 LCD, it is easy way to setting parameters.

A) LCD SCREEN AND KEYPAD USAGE

HTS board has LCD screen with 2-rows and 16-characters per line and 6-key keypad.

Keys are located as below:

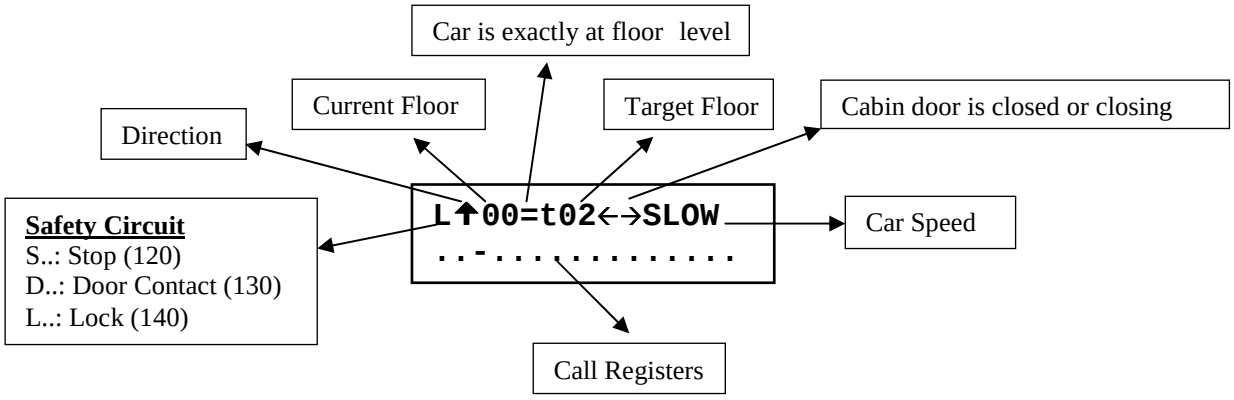
←	↑	→
ESC	↓	ENT

Functions of the keys differ in different menus. But generally, ESC is used to exit current menu; ENT is used to enter a menu and confirm any input; up and down arrows are used to move in menu lists and change value of a variant; left and right arrows are used to move left and right while changing the value of variant.

MAIN SCREEN

```
L↑00=t02→←SLOW
..-.............
```

The main screen shows the most important lift parameters briefly at one look.



TOP ROW:

1st character shows safety circuit state

S : **S**top circuit is closed
D : **S**top and **D**oor Contact circuits are closed
L : **S**top, **D**oor Contact and Door **L**ock circuits are closed

2nd character shows target direction

↑ : Lift has a target on up direction.
↓ : Lift has a target on down direction.

3rd, 4th and 5th characters show current floor and floor level

00= : Car is exactly at floor 5. (Car is exactly at floor level)
00 : Car is at floor 5. (Car is between floors)

6th, 7th and 8th characters show target floor or Inspection

[INS] : Lift is in **INS**PECTION mode.
[t__] : Lift has no target.
[t03] : Lift has a target of Floor 3.

9th and 10th characters show the state of cabin door and CAM

←→ : Door is opening (CAM is active)
→← : Door is closing (CAM is inactive)

11th, 12th, 13th, 14th and 15th characters show speed and state of cabin

STOP : Car is stopping
START : Car is stopping but about to move. Lift is preparing conditions for moving (Closing door)
SLOW : Car is moving at slow speed
FAST : Car is moving at fast speed
HIGH : Car is moving at high speed (over 1m/s)

BOTTOM ROW

This row shows Call Registers. Most left character shows the calls for bottom floor. As moving right, floor number increases. One character is used for each floor. The meanings of symbols are explained below:

• : No Call for this floor
_ : Cabin Call for this floor
▲ : Up Call for this floor
▼ : Down Call for this floor

In a floor 1, 2 or 3 of these symbols can appear together at the same character (except •)

In these rows only defined floor number of characters can be seen.

B) MONITORING OF INPUTS

i) GENERAL SCREENS

On the main screen only very important variables are shown. When you push (←) button in main screen then you will face the following screen:

```
120*130*140 817*
M0_ M1_ MK_ 818
```

In this section we can monitor all of the inputs. More information about inputs is in 'OUTPUT TERMINALS AND THE MEANINGS OF THE ABBREVIATIONS'. You can see number of codes with three characters with a '*' just after some of them. These codes represent an input and they are listed below in a table. The inputs which have a '*' on the right hand side are active at the moment where the others are not active. For example on the screen we see that 120 and 130 are closed where 140 (door locks) are open.

All of the inputs in the system are summarized in four screens. To switch to the second screen you can use (↑) button. Second input screen is shown below.

```
500 550 FKK*870
501 551 CNT*869
```

To return back to the previous screen, (↓) button is available.

ii) GIVING CALLS FROM KEYPAD

In hand terminal it is possible to give any call (up, down or cabin) by using keypad when lift is not in inspection mode.

Here is an example.

```
L 00=t__→←STOP
......
```

On Main Screen push (→)

```
Cabin button
Floor No.?000002
```

In this screen you can change floor number by arrow keys and when you push ENT a cabin call is given.

On Main Screen you can give up and down call in the same way by pushing (↑) and (↓) buttons respectively.

C) MAIN MENU

If you push ENT button on Main Screen you see the following Main Menu screen.

```
>M1-PARAMETERS
 M2-ERROR LIST
```

We will see this kind of menus lots of times. The '>' (Pointer) character on most left column points a sub menu and if you want to enter pointed menu you must push ENT button. You can move '>' by using (↑) and (↓) up and down respectively.

This menu has 5 sub-menus. In the first screen above you see only 4 of them. To see others, use (↓) button. By this way cursor moves one row down at each push. If you push (↓) button when the cursor at bottom row, all lines moves one upper, the top line disappear and a new line comes from down as below:

```
>M2-ERROR LIST
 M3-LANGUAGE/DiL
```

Instead of moving one step at each time you can use (→) button to see next 4 items and (←) button to see previous 4 items.

D) SETTING PARAMETERS

System must be in inspection mode for parameter setting!

To see or change any parameter you must enter M1-PARAMETERS menu.

For example let's set the parameter 'Number of Stops in System'. **At first take the lift in inspection mode.**

```
>M1-PARAMETERS
 M2-ERROR LIST
```

In Main Menu screen, use (↑) and (↓) buttons and when the pointer points 'M1-PARAMETERS' as above, push ENT button.

```
00.FLOOR DISPLAY
n00: 0
```

To change the parameter 21-NUMBER OF STOPS push ENT again.

```
NUMBER OF FLOORS
n21:0008
```

Push ENT button

```
n21-?000008
```

Now, you see general parameter change screen. In this type of screens you always see 6 digit numbers. When you first enter this screen, cursor is always located under left most digit. You can increase or decrease value of the digit under which cursor is located, by using (↑), (↓) buttons respectively.

You can move cursor left and right by using (→), (←) buttons.

In this screen stored parameter data is 8 and cursor is located under digit (8). Now let's see some example about how to change value of a parameter.

?000008

(↓)

?000007

(↓)

?000006

(↓)

?000005

(←)

?000005

(↑)

?000015

After setting the parameter, if you push ENT the new value on screen is saved. But if you push ESC changes are cancelled. In both cases you turn previous screen and you see value of parameter.

Here we push ENT and see the following screen.

```
NUMBER OF FLOORS
n21:0015
```

So we have changed number of floor in system as 15 and this change is saved and stored in memory.

E) ERROR LOG AND ERROR CODES

In TX Series Control System all determined errors are reported at runtime on main screen and stored in permanent memory. Error storing capacity of system is limited by 128. If an error occurs when there are already 128 errors in memory, then oldest error is cleaned and the new one is stored. You can see the stored last 128 error anytime by using LCD screen or computer connection. Here we will see how to see error list reports by using keypad and LCD.

On main menu enter M2-ERROR LIST sub-menu.

```
 M1-PARAMETERS
>M2-ERROR LIST
```

In a few second you see the following message:

```
Errors loading..
```

And then you see the list of stored error logs.

```
141:FLOOR:1
249:FLOOR:9
```

Here error logs are sorted by turn. In this screen you can see error code and floor. If you want to see more detailed report, select an error by using arrow keys and push ENT.

```
MAX.MOTOR PERIOD
444-F:1 FAST  ↓
```

In this screen you see error definition at first line and error number, floor, speed and direction of car at second line.

F) LANGUAGE

Another item in main menu is M3-DiL/LANGUAGE

```
 M2-ERROR LOG
>M3-LANGUAGE/DiL
```

You can change active menu language by this menu. When this manual is prepared, supported languages are Turkish and English. New languages will be supported near future.

G) PARAMETER TRANSFER

i) READ PARAMETERS

Another menu in main menu is M4- READ PARAMETERS.

```
 M3-LANGUAGE/DiL
>M4-READ PARAMS
```

This parameter is for parameter transfer from TX main board to hand terminal. Place pointer to M4-READ PARAMETERS menu and when push ENT

```
READ PARAMETERS
ESC-EXIT ↑-GO
```

screen display. Push ESC for deleting and return to main menu or push (↑) for starting.

```
READ PARAMETERS
getting params..
```

This message displays when parameter transfer operation from TX mainboard to hand terminal completed. Return main menu by ENT button.

```
READ PARAMETERS
READ COMPLETED
```

ii) WRITE PARAMETERS

Another item in main menu is M5-WRITE PARAMETERS. This parameter is for parameter transfer from hand terminal to TX main board.

```
 M4-READ PARAMS
>M5-WRITE PARAMS
```

Place pointer to M5-WRITE PARAMETERS and when push ENT button

```
WRITE PARAMETERS
ESC-EXIT ↑-GO
```

screen display. Push ESC for deleting and return to main menu or push (↑) for starting.

```
WRITE PARAMETERS
saving params..
```

This message displays when parameter transfer operation from hand terminal to TX mainboard completed. Return main menu by ENT button.

```
WRITE PARAMETERS
WRITE COMPLETED
```