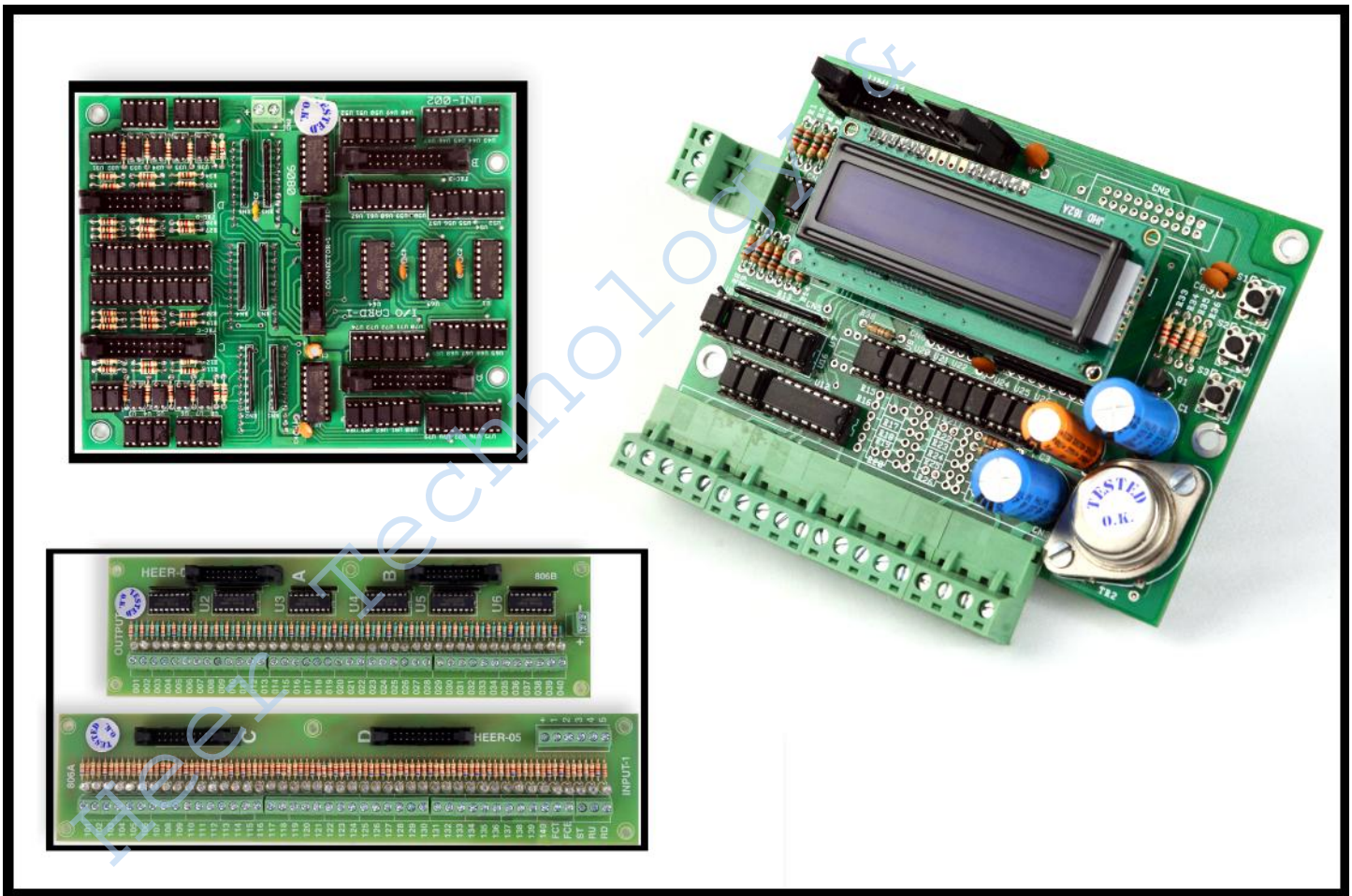


THE ELEVATOR CONTROLLER

UNIVERSAL

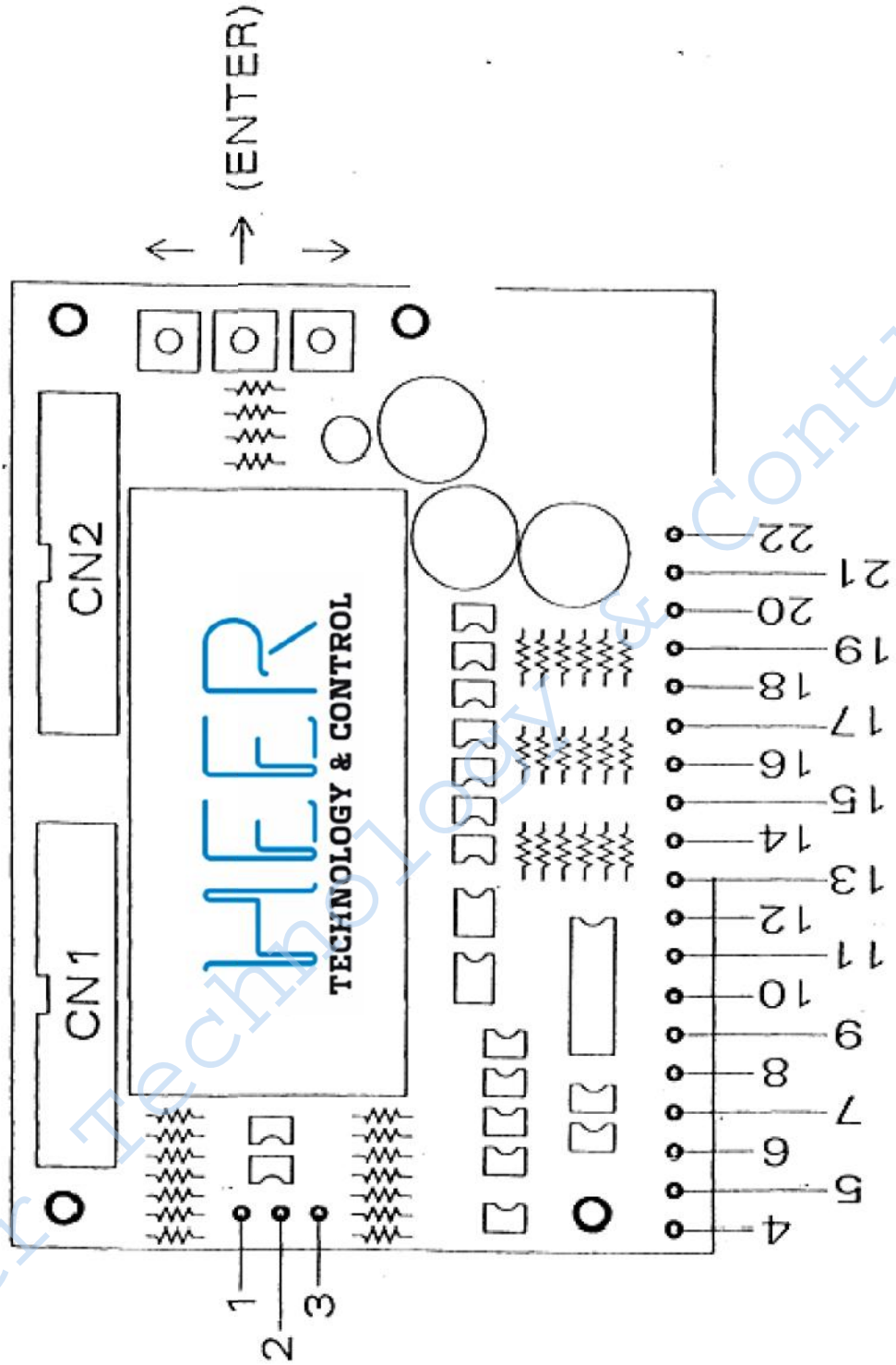
Control



NOTES

- ✓ Do not use 0-9-24 volt tapping transformer. Use 0-9 and 0-24 volt tapping transformer. If possible use separate two transformers of 8 to 9v, 1 Amp & 24v transformer.
- ✓ LED and Display can be connected on output through resistor only. 24v DC relay can be connected directly.
- ✓ Do not connect any device of 110v / 230v directly with any output signal.
- ✓ Do not connect 110v / 220v with any pin of input card and output card.
- ✓ Do not connect 220v with any pin of microprocessor card. 110v can be connected only with pin no. 1, 2 & 3.
- ✓ All 20 pin cables are same and inter changeable. Use smallest cable as connector-1 & connector-2. (Use smallest cable to connect Microprocessor card)
- ✓ To use other output signals which are not available on main relay card (signals like- medium speed, ARD-1 output, door motor-slow, star, fast etc) please use general purpose relay card or separate relays of 24v DC coil.

MIRCOPROCESSOR CARD / LCD CARD / CONTROLLER



VERIOUS MODE OF CONTROLLER

Besides normal operation (normal mode), controller has other modes which is useful for installation / service engineer. Those are as bellow. These modes are password protected. Each controller has two passwords which are unique and different for all controllers.

- DIAGNOSIS MODE
- USAGE DATA DISPLAY MODE
- SERVICE TIME PROGRAM MODE
- FAULT RECOVERY PROGRAM MODE
- PARAMETER PROGRAM MODE

PARAMETER PROGRAM MODE

Using this mode we can set various parameters and timers which are effecting normal operation of lift. Normally these are useful at the time of new installation.

For entering in to this mode, lift SHOULD NOT IN INSPECTION, keep pressed keys ▲ & ► and power on the controller.

LCD display "PARAMETERS PROGRAM MODE" will appear.

Leave both keys and now controller will ask entering for program password

'PRG PASSWORD = 1234567

Using three keys ▲, ► and ▼ we can set password. Controller will give us maximum three tries to enter password if it is wrong password.

If password is correct, controller will start asking various information / timings related to normal operation of lift.

List of such parameters / timings are as follow.

PROGRAMMABLE PARAMETERS / TIMINGS

Following are parameters with description and Maximum allowable limit for the same.

TOTAL OPENINGS = 32

Indicates numbers of floors.

For Ground + 4, set OPENING=05

For one Basement + Ground + 7 set OPENING=09

TOTAL BASEMENTS = 02

Indicates numbers of basement. The floor number display will be adjusted automatically.

ATTENDANT TYPE = 03

Indicates type of attendant mode.

There are three different type of mode introduced.

If you set "Attendant Type=01", the signal BUTTON_UP & BUTTON_DN will be active. Door will not close till you press any one button out of these two also direction will be decided by the button. All Calls (Car calls and Landing calls) gets registered. This is CONE type mode.

Pin no. 186 = BUTTON_UP

Pin no. 187 = BUTTON_DN

If you set "Attendant Type=02", the signal START will be active. For auto door "Door Close push button" will work as START. Door will not close till you press START button direction will not be decided by the button. All Calls (Car calls and Landing calls) gets registered. This is OTIS type mode. Door Close Push Button = START Button

If you set "Attendant Type=03", control will not register any landing call. If you press any landing call only LED will blink once on appropriate floor button in car. Car person has to press the car button to attend the call. Only car calls get registered. This is regular mode in India.

FLOOR HALT TIME= 999.9 SECONDS

this indicates stoppage (halt) timing on a floor if many calls are present at a time.

FAN OFF TIME=999.9 SECONDS

This indicates time for cabin light / fan continues to be on after Halt timer stops. If you set Halt timer = 5 second and Light timer = 10 seconds, cabin power will be cutoff after 15 seconds automatically if there is no call pending.

BRAKE OPEN TIME= 9.9 SECONDS

Indicates time for which Brake should be on before main motor starts.

Clear On STOP?

YES/NO

Indicates whether all pending calls should be cleared or not on pressing STOP button. If we set YES, all calls will be cleared on STOP.

CONTINUES ARROW?

YES

If you set "Continues Arrow? = Yes", Arrow display will show you direction registration. It will remain on display continuously if further calls are pending.

During door closing, door opening, halting on a floor... etc... arrow remains on.

If you set "Continues Arrow? = NO", Arrow display will be on during main motor running only. During door closing, door opening, halting on a floor... etc... arrow remains off.

FULL SELLECTIVE? NO

SHOULD BE "NO" ONLY

Indicates Down collective operation.

(One push buttons on landing)

MULTIPLE REED?

NO

SHOULD BE "NO" ONLY

(Indicates 2/3 reed switch on cabin (count/oscillator type) floor identification system)

SINGLE DISPLAY?

YES / NO

Yes= only one digit (7-segment) installed.

-2 Floor=U, -1 Floor=b, 10th Floor=t, 11th Floor = | |, 12th Floor = L

No= Two digit (7-segment) installed.

AUTO GROUND?

YES/NO

Yes= automatically goes to ground floor after some time (time defined by next parameter) if all calls gets completed.

No= No auto grounding.

AUTO GRND TIME= 999.9 Seconds

this parameter will be applicable only if you set AUTO GROUND? YES (above parameter)

Indicates after how much time controller should get automatic ground floor call.

V3FENABLE? Y/N

YES/NO

Yes Main motor v3f/two speed mode

No= Main motor single speed mode

SLOW START?

YES/NO

This parameter will be applicable only if you set V3F ENABLE? =YES (above parameter)

Yes= Main motor start using slow speed and then it resumes fast speed (slow speed time defined by next parameter). Normally this is useful for two speed motor or Hydraulic lift.

No= Main motor start using fast speed directly.

SLOW START TIME= 9.9 SECONDS

this parameter will be applicable only if you set SLOW START? YES (above parameter)

Indicates time period of slow speed operation this much time main motor will travel slowly then it will resume fast speed.

TWO DOOR LOCK?

YES/NO

Yes= Controller uses Car and Landing lock signals separately. Both lock being sensed.

No= Controller uses Landing lock signal only. Car lock should be connected in series with landing locks. Car lock (ILI) will be un-connected on controller.

Controller will not sense car lock signal.

MM TIMER ENABLE?

YES/NO

Yes= Main motor over run timer enable

No= Main motor over run timer disable

MAIN RUN TIME= 999.9 SECONDS

this parameter will be applicable only if you set MM TIMER ENABLE? =YES (above parameter) this is Maximum allowable travel time between two successive floors.

Indicates main motor over-run timing. This is the maximum allowable time to reach / find new floor.

If controller does not find new floor within this specified time, the controller will stop

BRAKE, RAM, and MAIN MOTOR. This is very useful for main motor protection if final limit does not work properly and/or car stacked and/or brake does not open. This timer resets and restarts when it gets any new floor cutting sensor signal during main motor running.

III Practically this time can be idle if we set it 2.5 times of Travel time between two successive floors.

RESCUE ENABLE?

YES/NO

Yes= Automatic Rescue Device support enable
ARD 1 Input/Output signal becomes active
No= Automatic Rescue Device Disable

HYDRAULIC ENABLE?

YES/NO

Yes= Controller installed with Hydraulic lift Re-Level & Start-Delta signals becomes active.
No= Not installed with Hydraulic lift.

STAR>>> DELTA?

YES/NO

Yes== Star — Delta starter enable for main motor.
Star signal becomes active
No= Min motor without star — delta starter.

STAR TIME=9.9 SECONDS

this parameter will be applicable only if you set STAR >>> DELTA? YES (above parameter)

Indicates main motor run timing in STAR connection.

If we set STAR TIME=1.1 Seconds at the time of starting, main motor will run 1.1 Second in star mode then it will be delta mode.

AUTOMATIC DOOR?

YES

SHOULD BE "YES" ONLY for automatic door

REMAINS OPEN?

YES/NO

Indicates whether door should remain open or close on floor when any call is not pending.

Yes = Door remains open
No= Door remains close

BYPASS CHECK?

YES/NO

If we set "Bypass Check=Yes", the controller will not allow bypass (jumper) CAR INTER LOCK and/or LANDING INTER LOCK. The controller will stop all operation.

Power off-on after removing the jumper is only the alternate to come out from these.

The message will appear on LCD Display of controller:

"Car Lock" If we put jumper (bypass) car interlock (Car safety)

"Land Lock" If we put jumper (bypass) landing interlock (Landing safety)

During testing, if you feel not convenient, you can set

"Bypass check? =No" in parameters program mode.

After testing you will set "Bypass check? =Yes" for better safety.

DM ALWAYS ON?

YES/NO

Yes= Door motor continue to run after door closing till destination (target) floor achieves.

No= Door motor will run only for door close/open purpose.

Indicates that door motor also run in closing direction when main motor is running. Some door drive mechanism is such that it requires door motor run for locking gate during up/down.

DOOR RUN TIME=999.9 SECONDS

This is maximum allowable total (slow & fast) travel time for door during door closing/opening. This is maximum run time of door motor.

During closing, if cannot get closed within this much time, controller will open the door and re-try once.

Message "DOOR JAM" will appear on LCD Display.

SLOW BY TIMING?

YES/NO

Indicates type of technique of slowing down door motor. Whether slowing down using time base or using installed limit switch (Physical switch)

Yes= Slowing down door motor using timer

No= Slowing down door motor using door open-slow limit switch & close-slow limit switch.

SLOW CLOSE TIME= 999.9 SECONDS

This parameter will be applicable only if you set SLOW BY TIMING=YES

This is time, for which door motor will run fast and after expiry of this time period, Door motor will run slowly during door closing.

Example: If we set slow close time=3.0 seconds.

During door closing, first 3.0 seconds door motor will run in fast speed, After that it will run slowly till controller gets door-close limit switch signal Or DOOR RUN TIME expires.

SLOW OPEN TIME=999.9 SECONDS

This parameter will be applicable only if you set SLOW BY TIMING=YES

This is time, for which door motor will run fast and after expiry of this time period, Door motor will run slowly during door opening.

DOOR MAIN TIME = 9.9 SECONDS

This defines time period between door closed and main motor starts.

Example: If we set slow close time=0.3 seconds. After closing door, it will wait for 0.3 seconds and then main motor will start.

MAIN DOOR TIME = 9.9 SECONDS

This defines time period between main motor stopped and door motor starts for opening.

Example: If we set slow close time=0.4 seconds. At the time of reaching destination floor, main motor stops, wait for 0.4 seconds then starts door motor for opening the doors.

EXIT

Exit from parameter programming.

It is necessary to come out from programming through EXIT only. When we select EXIT, it will write change / modification in the memory.

“PLEASE POWER OFF” message will appear after proper EXIT which assuring memory writes.

USAGE DATA DISPLAY MODE

The controller keeps record of usage of lift.

Using this mode, we can check how many calls attended for a particular floor number. We know statistical information about floor wise lift usage.

There are 32 counters; each can count up to 50000. One counter is associated with each floor which will increase by one when call of that floor will be completed. When count reaches 50000, it gets re-set and again starts from 00000.

When controller is in INSPECTION MODE, Keep pressed two keys down and right of LCD card during Power-On.

Keep-pressed until message "Usage Data DISPLAY" comes on LCD display.

Now Controller will show you

"Total Usage of
Floor 00=12345"

It means that 12345 times ground floor calls has been attended so far.

Using keys up and down we can see for different floor number (scroll LCD display)

USAGE ATTENTION

There is a built-in feature to get attention of service engineer on pre-defined usage. We can set a five digit ground floor usage count value (which is password protected) through Service Time Program Mode. Whenever usage count value for ground floor becomes equal to this pre-set count value, the lift stops working and LCD will show display "CALL SERVICE MAN"

For coming out from this lift lock condition,
Enter in the Service Time Program Mode and change set count value using proper password.

If you want to disable this feature (usage attention),
set lock count value = 55555 (any figure more than 50000)
Because usage count for ground floor cannot go beyond 50000
When it reaches 50000, it gets reset and re-starts from 00000

EXAMPLE:

If you want attention after 1000 times ground floor calls,
Current usage count for floor 00 = 24130
Please SET LOCK COUNT = 25130 through Service Time Program Mode.

SERVICE TIME PROGRAMMING MODE

Using this mode, we can set/modify count value to lock lift normal operation after pre-defined usage of lift for service engineer attention.

Before entering in to this mode, it is advisable to disconnect all motor / drive wire.

Controller SHOULD NOT IN INSPECTION MODE, Keep Pressed all three keys up, down and right of LCD card during Power-On.

Keep pressed until message "SERVICE TIME PROGRAM MODE" comes on LCD display.

Now controller will ask for entering COUNT PASSWORD.

"COUNT PASSWORD = 1234567"

Using three keys up, down and right we can enter the password.

Now Controller will show you set value of count which was set previously.

"SET LOCK COUNT= 12345"

Now you can change / modify count value using three keys up, down and right.

LCD display "Please Power Off" will come on the display which assures writing of modified data in memory. Now power off.

If you power-off in between programming mode, modification will not be saved. Count value will remain as it is.

DIAGNOSIS MODE

Using this mode, we can check hardware of all Inputs and Outputs.

During some doubts, we can identify whether hardware problem or logic (software) problem. If it is hardware problem, we can solve the problem using FAULT RECOVERY PROGRAMMING MODE.

If it is logic problem, we can change/modify required parameter using PARAMETER PROGRAMMING MODE

Before entering in to this mode, it is necessary to disconnect all motor / drive wire. Because all safety logic will be bypassed.

When controller is in INSPECTION MODE, Keep pressed two keys up and right of LCD card during Power-On.

Keep pressed until message “DIAGNOSIS MODE” comes on LCD Display.

Now Controller is in Diagnosis mode. Controller will show you which input is On (Pin number of input - 101 to 199) in the LCD display.

During this time, controller will switch on same output (Pin number 001 to 099).

EXAMPLE:

If you press STOP switch (Pin no.101 ON), Display on LCD will be

“INPUT ON =101
OUTPUT ON 001”

And Segment-A (Pin no. 001) will be ON.

If LCD display does not show us “Input on =101” that means pin no 101 is faulty.

If input is ok but if pin no. 001 is not ON, that means pin no 001 is faulty.

FAULT RECOVERY PROGRAMMING MODE

Using this mode, we can solve hardware problem of Inputs and Outputs without changing any electronics component.

We can change Pin Number for a particular signal. Maximum 16 signals can be changed (pin number can be re-assigned).

Before entering in to this mode, it is advisable to disconnect all motor/drive wire. Controller SHOULD NOT IN INSPECTION MODE, Keep pressed all three keys up, down and right of LCD card during Power-On. Keep pressed until message "Fault recovery programming mode" comes on LCD display.

Now Controller is in Fault Recovery Programming mode. Now you can change pin number /& see previously modified pin no.

LCD display "(A) Faulty Pin = 105

Use Pin No= 139"

Means we have assigned pin no 139 in place of pin no 105 because Pin no 105 was faulty. We have removed wire connected with pin no 105 and connected with pin no.139 which was un-connected/vacant/un-used.

EXAMPLE:

STOP switch signal (Pin no. 101) is faulty / not working.

We found that pin no 140 is un-connected / vacant.

We want to use pin number 140 for STOP signal.

Using three keys up, down and right

Bring LCD display "(B) Faulty Pin= 101

Use Pin No=140"

Come out from Fault Recovery Program Mode through Exit.

LCD display "Please Power Off" will come on the display.

Now power off.

Remove connection of Stop Switch wire from pin no.101 and

Connect with pin no.140 now stop signal will start working.

If you power-off in between programming mode, modification will not be saved.

TECHNICAL BULLETIN FOR HOW TO ALTER/SWAP/CHANGE FAULTY INPUT & OUTPUT OF LCD/MICROPROCESSOR CARD (PCB#0606)

USING FAULT RECOVERY PROGRAM MODE IN OUR UNIVERSAL CONTROLLER

All inputs of LCD card can be diverted to input card using fault recovery program mode. Input Pin number is as follow for fault recovery program mode.
(You can also refer page no.6 of technical document)

| Signal Name | Pin no. |
|-------------|---------|
| FCT | 192 |
| FCB | 193 |
| ST | 194 |
| RU | 195 |
| RD | 196 |

All output of LCD card can be diverted to output card using fault recovery program mode.

Output Pin number is as follow for fault recovery program mode.
(You can also refer page no. 10 of technical document)

| Signal Name | Pin no. |
|-------------|---------|
| SLOW | 92 |
| COMMON | 95 |
| FAN | 96 |

DISPLAY ON LCD

SERIAL NUMBER OF CONTROLLER

SR.NO. BAC5DE001

There will be unique serial number for all controllers which will appear on the LCD at the time of power on for some time period.

FLOOR NUMBER AND TARGET FLOOR

FLOOR= 01 CALL= 02

during normal operation, LCD will show us current floor number and floor number of next stoppage.

STATUS

the controller will show us status of the lift continuously which is very help us for fault finding. Various status displays along with description are as follow.

STATUS = BRAKE ON

Indicates brake timer is running.

At this time common contactor, cabin Fan, will be ON

Up/Dn contactor should be OFF

STATUS = CAR LOCK

Indicates that you have bypassed car interlock (dead shorted car interlock safety).

After this message lift will not work. Power off and On after removing shorted wire link is only the solution for coming out from this status. Also please refer parameters

“Bypass check?” in parameter programming.

STATUS = CAR OPEN

Indicate cabin is open during up or down running condition. This indicates door close limit switch signal is available but car lock (IL1) signal not available.

Common contactor, up/down contactor, brake should be OFF

STATUS = CLOSING

Indicates door are closing, UP/Down, Common, Brake, Door Open relay will be off. Door Close relay will be on; slow door motor relay will be off.

STATUS= DOOR JAM

Indicates door cannot be closed within predefined time for running door motor closing direction. Indirectly this indicates door motor over run (cannot find door close limit switch signal during door closing, within specified door run time).

Common contactor, up/down contactor, brake, will be OFF.

STATUS= DOOR - MAIN

Indicates door-main timer is running. This is the timing between door closed & main motor starts.

Timing of this timer can be set using parameter program mode. At this time common contactor, up/dn contactor and door motor should be OFF.

STATUS=DOOR OPEN

Indicates door is opening during up or down running condition. This indicates that door close limit switch signal is available but car lock (IL-1) & Landing lock (IL-2) signal is not available. Common contactor, up/dn contactor, brake should be OFF.

STATUS=DOWN

Indicates lift is going down. Common contactor, down contactor, ram, and brake will be ON. Up contactor, slow main relay should be OFF.

STATUS=FIRE

Indicates lift is in fire mode.

Only car buttons will be accessible. Landing calls will not be accepted.

STATUS= HALT

Indicates halt timer is on. After completion of this time period, lift may process for other pending calls.

STATUS= INSPECTION

Indicates lift is in inspection / inching / testing mode.

Car-0 & Car-1 push button will control reverse & forward direction of Main motor.

STATUS=LAND LOCK

Indicates that you have bypassed Landing (wall) interlock (dead shorted landing interlock safety). After this message lift will not work. Power off and on is the only way to come out of this status. Also please refer parameter "Bypass check?" in parameter programming.

STATUS=LAND OPEN

Indicates any one landing door is open.

This indicates that Landing lock (IL2) signal not available. Common contactor, Up / Down contactor, Brake, will be OFF.

STATUS= MAIN - DOOR

Indicates main door timer is running. This is the timing between main motor stopped & door starts opening. Timing of this timer can be set using parameter program mode. At this time common contactor, up/dn contactor and door motor should be OFF.

STATUS= MEMORY ERROR

Indicates that program memory is corrupted. After 10 seconds, controller will load default parameter and starts normal working. We have to re-program all parameters for proper working.

STATUS= NO TARGET

Indicates lift is not doing anything and waiting for call.

STATUS= NO POWER

Indicates 3 phase main power not available and controller uses alternate power resource (under ARD mode) Input signal ARD-1 is not active. This message will appear only if we set Rescue Enable = YES.

STATUS= OPENING...

Indicates doors are opening. Up, Down, Common, brake, door close relays will be OFF.

STATUS= OVER RUN

this is indicates main motor over run.

Controller could not get new floor within predefined time period. Floor cutting sensor (reed switch) may not be working properly. Using display FLOOR = CALL= and location of car, we can judge about the floor where reed switch is not working properly. Power OFF & ON is the only way to come out from this error. Main motor over run check can be bypass by setting MM TIMER ENABLE? =N

STATUS= SLOW UP

Indicates lift is going up in slow speed. Common contactor, up contactor, Brake, Slow relay will be ON. Down contactor should be OFF.

STATUS= SLOW DN

Indicates lift is going down in slow speed. Common contactor, down contactor, Brake, Slow relay will be ON. Up contactor should be OFF.

STATUS= SLOW OPEN

Indicates door is closing in slow speed.

STATUS= SLOW CLOSE

Indicates door is opening in slow speed.

STATUS = STOP

Indicates lift is stopped using STOP button by pressing any call button, lift may start traveling if STOP signal not coming continuously.

STATUS = UP

Indicates lift is going up. Common contactor, Up contactor, Brake will be ON. Down contactor, SLOW-MAIN, STAR relay should be OFF.

STATUS=UP-STAR

Indicates lift is just startup for going up. Common contactor, Star contactor, Brake will be ON. Down contactor, SLOW-MAIN, UP relay should be OFF.

This display will appear only if we set STAR >>>DELTA? =YES and Hydraulic Lift? =YES

STATUS= REVERSE

Indicates that lift has traveled in reverse direction. Please power-OFF. Accident or reverse phasing can be the cause of this thing.

STATUS= TWO REED

Indicates two floor cutting sensor are sensed together. Please check reed switches and replace it if shorted. Power Off and On is the only way to come out of this status.