

LIFT CONTROL WITH HIGH LEVEL INTERFACE (V3 OR LATER)

Lift control logic can be used to control Floor security for a number of Lift Cars. The security of up to 64 floors can be controlled for a maximum of 32 Lift Cars depending on interface method used, memory size, memory configuration and system traffic.

There are three methods of Lift Control available. All methods use a standard Reader Module mounted in each Lift Car for interface to the Reader. An optional LCD Terminal may also be installed in each Lift Car if Card+PIN is required for high security applications:

- 1) Floor Button Enable via simple Relay interface.
-Expander Module/s are installed in the Lift motor room to provide Auxiliary Outputs to enable/disable each Floor selection button. (The Auxiliaries control Relays that provide the interface to the Lift Controller.)

See "Basic Lift Programming" in the Basic Programming Guide section.

- 2) Floor Selection via Button Feedback. (V3 or later)
-Universal Expander Module/s with Lift Interface board/s fitted are installed in the Lift motor room. These provide an Isolated Zone Input and Relay output that are effectively connected in series with each Floor selection button.

See "Lift Control with Button Feedback" in the Applications Programming Guide section.

- 3) High Level Interface via RS232 UART Port. (V3 or later)
-A single RS232 connection is established between a UART Port fitted to the Control Module, and a High Level Elevator Management System (EMS). This allows security mask information to be transferred to the EMS without the need for Expander modules to provide Auxiliaries and Zones for Button Inputs. At present the OTIS protocol is supported with logging of lift buttons.
The High Level interface drastically reduces the amount of cabling and labour associated with the installation which can also lead to a greater level of reliability.

-When a User presents a valid card at the reader in the Lift Car, the system checks the User's "Lift Car List", "Floor List", etc. and sends data to the EMS to enable all the floor buttons for the floor/s allowed. The buttons are enabled for a fixed period of time after the valid card has been presented, and then the system sends data to the EMS to re-instate any floors in secure mode.

-During the button time, the system polls the EMS every half second for any buttons that have been pushed, and if found, logs them to Review.

-If a User is allowed access to more than one floor, it is possible for them to select multiple floors during the button enable time. The EMS sends back data to indicate which floor (or floors) were selected. This data from the EMS allows details the Floor/s selected to be saved to Review along with the "User access/denied at Lift Car ###" message.

-The system refreshes the security mask for each lift in turn every 15 seconds. This ensures that the secure state of floors will be re-instated in the event of the EMS system resetting. The security mask is also downloaded to the EMS every time the EMS Comms Task is started.



Installation Notes:

- 1) CAUTION: If a Control Module is being upgraded from an earlier version firmware to Version 3 for Lift Control features, the Memory will need to be re-configured as new Memory structures have been added.
- 2) State and/or National Building regulations may govern the type of Lift control allowed on any particular site.
- 3) The Reader, along with a standard Reader Module and Power Supply, are normally installed in the Lift Car.
i.e. Allow one Reader Module per Lift Car.
The Reader Module is connected to the LAN via twisted pair cable, preferably shielded, up the Lift shaft. It is recommended that a LAN Isolator is installed in the Lift motor room to isolate the LAN cable in the Lift shaft from the rest of the LAN. One LAN Isolator will provide isolated LAN branches for two Lifts.
- 4) In some circumstances, the Reader Module can be installed in the Lift motor room, and provide the interface to Readers in two Lift Cars. The following points must be noted:
 - The total length of trailing cable from the Reader to the Reader Module must be within the maximum cable length allowed as specified by the Reader manufacturer.
 - The cable from the Reader to the Reader Module must be as specified by the Reader manufacturer. i.e. shielded data cable and not twisted pairs.
 - Only one of the two Readers can be processed at a time. i.e. While Lift buttons are enabled in one Lift Car, the Reader in the other Lift Car will not accept cards.
- 5) -When High Level interface is used, the Access 4000 Control Module, Special Control Module options chip, plus appropriate UART board (1, 2 or 4 Port) and Computer Interface Cable must be used. (No Expander Modules required) The Control Module should be installed within 15 metres of the EMS.
- 6) High Level EMS Protocols currently supported:
 - OTIS EMS - Security/B.M.S. Protocol Ref: 51646B
- 7) In the High Level interface some transfer timing constraints do exist when the EMS reports back the floor/s selected. During periods of peak traffic the "floors selected" message may be delayed as the EMS considers this a lower priority message than the security mask data that it must receive each time a valid card is presented.

Programming

1. Note Lift details.

- 1.1 Plan your Lift programming requirements. For each Lift Car note the:
- Lift Car number to be used. (LC002, LC002, etc.)
 - Reader Module being used. (R001, R002, etc.)
 - Reader Module Port that the Reader for each Lift Car is connected to. (Rdr 1 or Rdr 2)
 - Any LCD Terminal/s used for Card + PIN access in Lift Cars.
 - Any restrictions on floors accessed by particular Lift Cars.
 - Any Areas to be assigned to floors. IF required for prevention of entry into Areas that are turned On.

The table at the end of this section may be copied and used to record this information before programming is commenced.

2. Program the Reader Module/s [MENU 7, 2, 4]

Program the attributes required for each Reader Module used for Lift Control.

- 2.1 Adjust the Reader Module "Poll Time" and "LAN Priority" IF this is considered necessary. LAN Priority programming is accessed by pressing the <ON> key when the "Poll Time" is displayed.
- 2.2 Check that the Reader Module Purpose is set to "Lift Control".
- 2.3 Assign the 1st Lift to be controlled by this Reader Module.
- 2.4 IF the Reader Module is to be used in "2 Door/Lift" Mode;
Assign the 2nd Lift to be controlled by this Reader Module. (NOT RECOMMENDED)
- 2.5 Program the Reader Module Options. [C E X F W N T 2]
Comms (LAN) Fail Options:
Not relevant to Lift Control.
Other Options:
-No Valid/Invalid LED control. Set to Yes IF the LED Auxiliaries need to be used for other purposes.
-2 Door/Lift Mode. Set to Yes IF Reader Module is to be used to control 2 Lift Cars.
- 2.6 Program the parameters for the first Reader (Rdr 1) connected to the Reader Module.
- Reader location. Set to Outside (the Reader is used to Enter).
 - Reader Format. Choose the correct Card data format.
 - Reader Mode. Credit Card/Direct Entry/Site Code/Any Card
 - Keypad for PIN code Entry. IF Lift requires Card + PIN for floor access.
 - Module for PINs. IF "LCD Terminal" is selected as the Keypad for PIN in the previous option, program the module number (Txxx) of the LCD Terminal to be used.
- 2.7 Program the parameters for second Reader (Rdr 2) connected to the Reader Module.
Note: In 2 Door/Lift Mode, Rdr 1 controls the 1st Lift and Rdr 2 controls the 2nd Lift.
Options are the same as those for the first Reader.

3. Initialize the LAN

Whenever any programming is done that effects Module parameters, (especially Reader Modules, LCD Terminals and Mini Expanders) the LAN must be initialized to ensure that all changes take effect.

If all modules are connected and operational, and the system is complete, perform the **Secure LAN [MENU 7, 8, 1]** or **Initialize LAN [MENU 7, 8, 2]** functions. ("Secure LAN" Initializes the LAN and sets the Encryption)

4. Program Access Groups. [MENU, 2, 4, 2]

- 4.1 It is recommended that one or more new Access Groups are programmed to define Lift Control requirements.
- 4.2 Program a name for any new Access Groups that you create.
- 4.3 IF it is necessary to restrict the valid period of the Access Group, or provide an alternate set of Access Group permissions for different times of day and/or days of the week, assign an appropriate TimeZone to specify when the Access Group is Valid.
e.g. If "Card Only" operation is adequate during the day, but "Card+PIN" is required after hours.
- 4.4 If a TimeZone is assigned, you may then specify an Alternate Access Group that will be used when the TimeZone specified in the previous step is Invalid.
- 4.5 Program the Entry Parameters required.
 - Entry Mode. Card only / Card AND PIN. ("PIN only" & "PIN or Card" are not relevant for Lift Control)
 - Entry Options. [B L A D]
 - Dual User. Set to Yes IF two User Codes / Cards are required to allow entry.
- 4.6 Program the Exit Parameters required.
 - Exit Mode. Card only / Card AND PIN. ("PIN only" & "PIN or Card" are not relevant for Lift Control)
 - Exit Options. [B L A D]
 - Dual User. Set to Yes IF two User Codes / Cards are required to allow exit.

5. Program Floor Lists [MENU 2, 3, 4]

IF any Lift Cars are to be restricted to servicing only specific floors, Floor List/s must be programmed to define the floors allowed for each Lift Car.

- 5.1 Determine the Floor/s that different Lift Cars will be restricted to.
From this information you can program the **Floor Lists** required [MENU 2, 3, 4].
- 5.2 IF it is necessary to restrict the valid period of the Floor List, or provide an alternate List of Floors for different times of day and/or days of the week, assign an appropriate TimeZone to specify when the Floor List is Valid.
- 5.3 If a TimeZone is assigned, you may then specify an Alternate Floor List that will be used when the TimeZone specified in the previous step is Invalid.
- 5.4 Assign the Floor/s to each Floor List. A Floor List can support any number of Floors up to the maximum number of Floors allowed in the Memory configuration.

6. Program the Lifts [MENU, 7, 6]

Each Lift Car to be controlled is individually programmed.

- 6.1 Select the Lift Car number to program.
- 6.2 Assign a suitable "Access Group". This will determine the way that the Lift is controlled.
- 6.3 IF the Lift Car is to be restricted to servicing only specific floors, assign a "Floor List".
- 6.4 Define the total "Number of Floors" to be controlled in this Lift Car.
- 6.5 Do not define the "1st Floor Auxiliary". This option must be left blank if a High Level interface is used.
- 6.6 Assign the "Valid Auxiliary" for the Lift if required. This Auxiliary is turned On for the "button time".
- 6.7 Program the "Button Time". This is the maximum time the floor buttons will remain active. Typically set to about 5 seconds.
- 6.8 Program the EMS ID. "00" disables High Level Interface.
 - The first digit is the EMS Group and must be programmed with a value of 1 to 8 inclusive.
 - The second digit is the EMS Lift Car and must be programmed with a value of 1 to 8 inclusive.
- 6.9 Assign the "Floor Areas" if required. Normally left at "None" unless User access is to be restricted based on the Area status and the User Type's Area Off permissions.

7. Program the General System Options. [MENU, 7, 5, 1]

- 7.1 "Reader for User Programming". Reader Module #001 is normally used for Testing Cards, Enrolling User's Cards & programming Backup Cards.
IF another Reader Module is to be used for these purposes, program the Reader Module number in the "Reader for User Programming" option in the General System Options.

e.g. Reader Module #001 may be used in a Lift Car making it inconvenient to use for testing and enrolling Cards etc.

Note: If Door Access Control is already programmed in the system, this option may already be programmed.

8. Program the EMS Comms Task. [MENU, 7, 3, 1]

A Comms Task must be programmed to allow the panel to communicate with the EMS (Elevator Management System)

- 8.1 Select a new Comms Task to program.
- 8.2 Select the "EMS" Format.
- 8.3 Define the UART Port to use. Must be Port 1 to 4. Port 0 is illegal.
- 8.4 Select the Baud rate. This must be the same as the Baud rate set in the EMS.
 Check the Baud rate of other Comms Tasks to ensure that the total Baud rate of all UART Ports combined does not exceed 19200.
 A Baud rate of 9600 or lower should be used. Typically 2400 is preferred.
- 8.5 Define the "Number of EMS Floors". This is the maximum number of floors that this EMS handles.
- 8.6 Assign the EMS "Group x Floor List/s". This option is only required if any floors are not serviced by all the Lifts in the Group. The Floor List assigned will only include the floors serviced by Lifts in this Group.
 A Floor List may be assigned for each of the 8 possible EMS Groups.
 If the Floor List is left at "FL000", then all floors are serviced by at least one Lift in the Group.

9. Program the Site Code/s. [MENU, 2, 5]

- 9.1 IF cards are to be entered into the system using the Site Code method, at least one Site Code will need to be programmed. The Site Code method simplifies card programming, allowing cards to be entered without the need to present the card at a Reader. Site Code method can be used with Inner Range Magnetic Swipe Cards, or Wiegand Cards/ID Tokens with a format in which the system supports Site Codes. e.g. 26 Bit Wiegand.

If Door Access Control is already programmed in the system, the Site Code/s may already be programmed.

- 9.2 Program the Site Code in Hex or Decimal format.
- 9.3 Program a Card Offset if required.
- 9.4 Set "Site Code Present" to Yes.

10. Program Access Alarm processing

When Lift Access Control is implemented in a system additional System Inputs are available to be processed and/or monitored as required. e.g.

Relevant Reader Module System Inputs:

Cabinet Tamper, Low Volts, Illegal Card and LAN Comms.

Relevant LCD Terminal System Inputs:

Cabinet Tamper, Panic, Operator Duress, Too many tries and LAN Comms.

- 10.1 Identify the Lift Access Control System Inputs that you wish to process and/or monitor in some way.
- 10.2 Return to "Alarm Processing"; Steps 1 (Program the Inputs), 2 (Check/Program Process Group Requirements), and 4 (Program the Areas) to add the System Inputs and any additional Zone Inputs on Reader Modules and LCD Terminals used for Access Control.

NOTE: You may choose to simply use the "Add System Inputs" default feature in Area Programming to add the Access Control System Inputs to an Area if this fulfils system monitoring requirements.

11. Securing the Floors

When Lift Access Control operation is being commissioned the required Floors must be placed on security by a Floor Control operation. This can be done via "Lift Control" in the Control Menu [MENU, 9, 4]

- 11.1 Select "Lift Control" in the Control Menu. [MENU, 9, 4]
- 11.2 Enter the Lift Car number to control. ("00" = All Lifts)
- 11.3 Enter the Floor number to control. ("00" = All Floors)
- 11.4 Press the "7" (S) key to Secure the Floor/s. (The "1" (A) key is used to Access Floor/s)

12. Automated Free Access and Securing of Floor/s

It may be necessary to have a facility to provide automatic “Free Access” and/or “Securing” of Floors.

This can be a useful feature in sites where free access is required on specific floors during specified times and/or under certain circumstances.

12.1 At Specific Times and/or for Specified period/s of Time. Program TimeZone/s. [MENU, 5, 2]

Refer to the “TimeZone Function” options under TimeZone programming in the Programmer’s Reference section:

Lift Car & Floor
Lift Car & Floor List
Lift Car List and Floor
Lift Car List & Floor List

12.2 As a result of any event in the system that can control an Auxiliary.

e.g. Keyswitch, Area On/Off, Alarm, etc.

Program Calculated Auxiliaries. [MENU, 7, 5, 4]

Refer to the “Calculated Auxiliary Action” options under Calculated Auxiliary programming in the Programmer’s Reference section:

Secure on +ON
Free on +ON
Secure on -OFF
Free on -OFF

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Lift Programming Planning Sheet - High Level Interface.

LIFT NUMBER [Menu, 7, 9]	DESCRIPTION	ACCESS GROUP [Menu, 2, 4, 2] AG ____ Name:	READER connected to Reader Module: [Menu, 7, 2, 4] R ____ Rdr 1 / Rdr 2	LCD Terminal for PINs [Menu, 7, 2, 1] T ____	FLOOR LIST [Menu, 2, 3, 4] FL ____	NUMBER OF FLOORS (max 64)	EMS ID --
LC ____		AG ____ Name:	R ____ Rdr 1 / Rdr 2	T ____	FL ____		--
LC ____		AG ____ Name:	R ____ Rdr 1 / Rdr 2	T ____	FL ____		--
LC ____		AG ____ Name:	R ____ Rdr 1 / Rdr 2	T ____	FL ____		--
LC ____		AG ____ Name:	R ____ Rdr 1 / Rdr 2	T ____	FL ____		--
LC ____		AG ____ Name:	R ____ Rdr 1 / Rdr 2	T ____	FL ____		--
LC ____		AG ____ Name:	R ____ Rdr 1 / Rdr 2	T ____	FL ____		--
LC ____		AG ____ Name:	R ____ Rdr 1 / Rdr 2	T ____	FL ____		--
LC ____		AG ____ Name:	R ____ Rdr 1 / Rdr 2	T ____	FL ____		--
LC ____		AG ____ Name:	R ____ Rdr 1 / Rdr 2	T ____	FL ____		--
LC ____		AG ____ Name:	R ____ Rdr 1 / Rdr 2	T ____	FL ____		--
LC ____		AG ____ Name:	R ____ Rdr 1 / Rdr 2	T ____	FL ____		--
LC ____		AG ____ Name:	R ____ Rdr 1 / Rdr 2	T ____	FL ____		--