Access Lift
User Manual

Synel Industries Ltd.

Manual 4/16/07, Catalog no. 653722Part no. (ACCLFT-222-01)

Terminology used in this manual

Warning

To warn readers about possible damage to equipment or data or about potential problems in the outcome of what they are doing.

Note: ***To warn readers about the possibility of minor injury to them-selves or others.***

Caution

To emphasize points or remind readers of something, or to indicate minor problems in the outcome of what they are doing.

Table of Contents

Chapter 1 -The Access Lift

1   Introduction

The Access Lift is a local access controller installed on elevators to manage access to specific floors acting as a buffer to the elevator floor selection mechanism. A person using the elevator identifies himself to Access Lift which determines the floors the person is allowed to access.
The buttons for the floors the person is allowed access to are activated and can be selected. The buttons for the floors the person is not allowed access to remain un-activated and the floor buttons can not be pressed.

Access Lift is unique in that it provides a solution for monitoring access to buildings of up to 28 floor levels. On it's own Access Lift can monitor access to 4 floors. Together with *Synel I/O* systems Access Lift can monitor access to up to 28 floors.
The Access Lift is managed by a standard master unit, which oversees the access restrictions.
Access Lift and it's complying systems are installed into the elevator wall. Access Lift acts as a buffer to the elevator floor selection button mechanism.
Access Lift capabilities are extended using *Synel I/O* cards (of 8 outputs).
Using *Synel I/O* you can set up to 12 ID's for access control.
The number of ID's available for floors depends on the number of ID's which are already in use. For example, if you need to set 28 floors you can start setting the ID's from ID 4.
The I/O model enables setting access control to additional floor levels as follows:

Number of floors	Number of I/O cards	number of ID's
4	no additional card	4
12	1	12
20	2	20
28	3	28

Warning!

The connection between Access Lift and the elevator mechanism is to be installed only by a
Certified Elevator Technician.
Synel is in no way or form responsible for any malfunctions which may occur in the elevator.
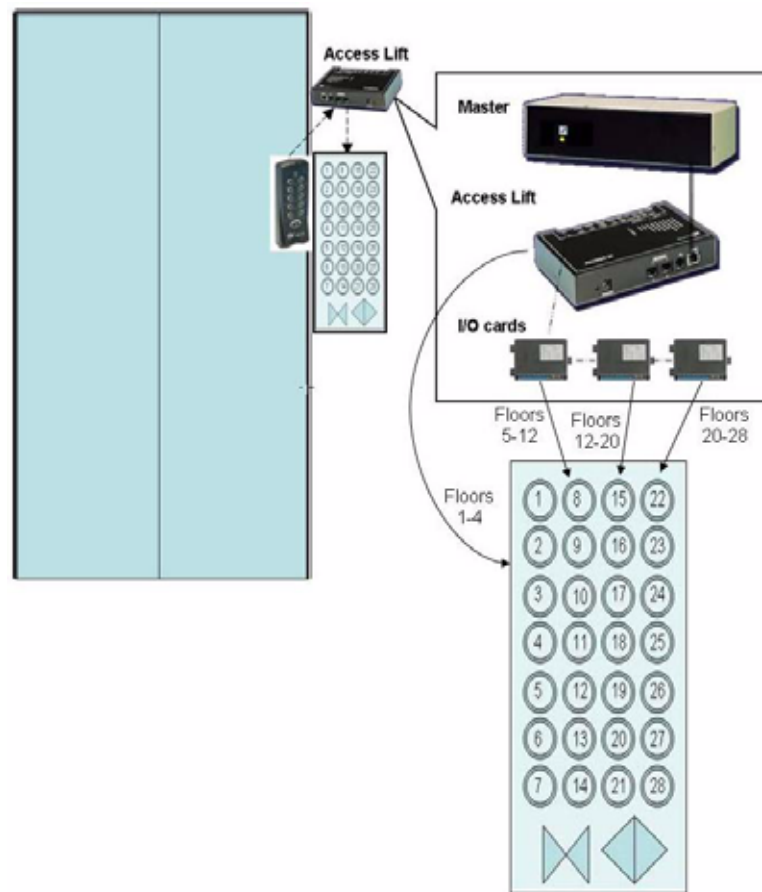
2   Technical Specifications

- Reader 1 is used as a connector for the user identification unit.
  Reader 2 is N/A.
- A connector for badge readers (PRX30, SY-10 Series reader unit).
- Magnetic, proximity, 26 bit Wiegand and barcode readers can be connected.
- Each reader in addition to reading lines connection is
  supported by three control lines. Control line serves for led and buzzer connection, designated for user indication.
- RS-485 communication
- Four output relays for bell, 2xdoor and alarm.
- Five inputs
- Communication at dumb mode terminal is 19200.

2.1   Physical Dimensions

Height - 18.0 cm (7 inch)
Width – 11.2cm.(41/2 inch)
Depth – 3.4 cm.(1 5/16 inch)
Operating temperature: -5 to +45°C
Relative humidity: 90%, non-condensing

2.2   Power Requirements

It is recommended to connect Access Lift to a power supply outlet via Power socket on the front panel, in addition to power supplied via the master unit. The following lists the power supply specifications:

• 12 Vdc

• power consumption: 1 watt

• recommended power supply adaptor: 9 to 14 Vdc, max @ 880 mA. Adaptors can be connected using wiring to the terminal block position Power.

2.3   Optional Accessories

Product	Description	Quantity	Catalog No.
Readers	Designed for <u>only one</u> reader		
PRX-30	Proximity reader	1	60270004
SY-1	Magnetic reader	1	360055
SY-10/B	Bar code reader, connection up to 300m	1	01000102
SY-10/M	Magnetic reader, connection up to 300m	**1**	**01000101**
Reader unit	Reader bar code unit	1	60250000
Reader unit	Reader magnetic unit	1	60250200
I/O	I/O Extension **Note:** Each I/O Extension added to Access Lift uses a power supply adaptor of it's own.	3	

3   Physical Description

The Access Lift terminal is housed in a strong metal enclosure.
Access Lift and it's acompanying components are installed into the elevator mechanism panel.
The connector panel is located at the front and back panel of the casing. Located therein, are socket openings for all external connections.

3.1   Front Connector Panel

1.   Led indicator
2.   Power supply
3.   External Reader 1
4. I^2C – I/O Extension
5.   Host – RS-485

3.2   Back Block terminal Panel

A Block terminal for input/output connection purposes.
1.   Press the block terminal with a 3mm flat screwdriver and turn Clock wise until the spring is pressed.

Caution:
Do not press screwdriver upward against the enclosure.

2.   Perform wiring, turn to release spring.
3.   Remove screwdriver.
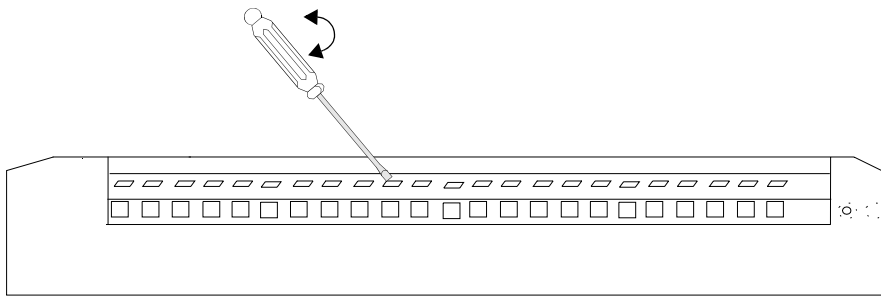
4   Installation

4.1   Unpacking

• Do not throw away the box or packing materials.

• Check the box and contents for signs of damage that may have occurred during shipment. After checking the box, carefully unpack and check for the following items:

4.2   Package Contents

The Access Lift package contains:
1.   Access Lift terminal
2.   Connection/splitter box
3.   RJ-45 30cm cable
4.   Two RS-45 10 pin male
5.   Four flat head Philips screws and anchors, for terminal mounting purposes
6.   Mounting template
7.   Product manual

4.3   Hardware Setting

For manual hardware setting refer to "Setting Connectors & Jumpers" on page 11, and "Terminal ID" on page 11.
You can also refer to the section describing Jumper and Connector technical data.

4.4   Mounting

Access Lift contains computer components and uses communication cables interfacing therefore, it should not be mounted where it will be exposed to extreme heat or cold, water, steam, violent radiation, high electromagnetic radiation including high voltage power lines and electrical device. If the communication cable is to be wired through the wall, make sure that it is safe to drill a hole at the desired location.
Two mounting options are available for this unit:

Option A- Horizontal position

Step 1.   Mark the horizontal screws position, use the mounting template.
Step 2.   Drill holes using a 3/16" (4.7mm)-drill bit.
Step 3.   Place anchors and fasten screws to the wall.
Step 4.   Hang Access IV back panel, allow a 3mm gap between unit and wall.
Step 5.   Route block terminal wiring and connect them to the unit. Prevent wiring disconnection, secure wiring to the back panel using a clamp fasten by two screws.

Option B - Vertical position

Step 1.   Disassemble Access IV back panel, remove two fastening screws at the unit side panels.
Step 2.   Remove back panel.
Step 3.   Fasten back panel on the wall, place two screws at position B.
Step 4.   Place front cover and secure using two short screws at the unit side panels.
Step 5.   Route block terminal wiring and connect them to the unit. Prevent wiring disconnection, secure wiring to the back panel using a clamp fasten by two screws.
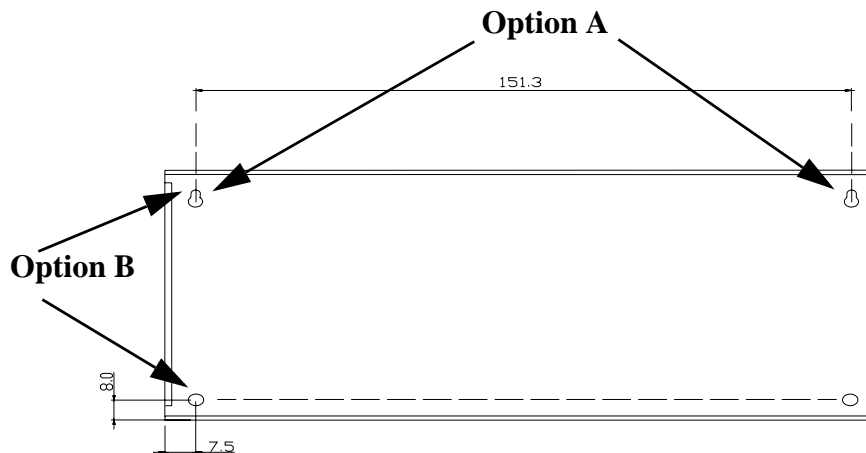
5   Communication

5.1   Host computer Interfacing

Communication with the host computer is performed via the Master unit. The communication between the master unit and terminals is performed at 19200 bps. Access Lift sends a terminal response to the master unit, the actual terminal ID is set according to dipswitch therefore the virtual terminal is as defined in the terminal: ID+4/12/20/28 (according to dipswitch 6 and 7 settings on the I/O card connected to Access Lift).

Note: The Master unit 6 pin connector is connected to Access Lift 8 pin Host connector on the front panel.

5.2   Communication cables Characteristics

Follow the listed guidelines to install the communications cables:
Do not install the cable near EMI sources, such as:

• Motors, generators, alternators, and transformers

• Air conditioners, elevators

• Radio/television transmitters, signal generators and internal communication networks

• Cables should not be within 30 cm. (1 foot) of power lines of less than 5 KVA.

• Cables should not be within 60 cm. (2 feet) of power lines in the 5-10 KVA range.

Cables should not be within 1.5 meters (5 feet) of power lines of more than 10 KVA. The cables should not run parallel to power lines for more than 15 meters (49 feet).
It is best to use a single cable for the communication line. If it is not possible to use a continuous cable only one indoors connection is allowed, constructed in one of these options:

• Using two connectors with appropriate shielding and cover.

• Using a connection box.

• For aerial installation, use N.Y.Y. shielded cables.

6   Setting Connectors & Jumpers

6.1   Dip-Switch (S1)

1-5 - Defines the basic ID of the Access Lift
6-7 - Sets the number of I/O cards attached to Access Lift as describes in the table below

Switch 6	Switch 7	Number of I/O cards	Number of floors
OFF	OFF	no additional card	4
ON	OFF	1	12
OFF	ON	2	20
ON	ON	3	28

6.2   Terminal ID

To set an ID for each floor:

1.   Start counting from a base number which is the next available ID on the Master unit you are using. For example, if the Master unit is already managing access to 4 doorways using 4 ID's, start your count from ID 5.

2. Add the number appearing in the ID No. column in the table below to the floor number set on switches 6 and 7, as described in the Dip-Switch (S1) section.
You can set up to 28 + 3 ID's.

ID No.*	Jumper Settings				
	4	3	2	1	
01	OFF	OFF	OFF	OFF	S1 - Switches set up
02	OFF	OFF	OFF	ON	
03	OFF	OFF	ON	OFF	**1-4Terminal identification:**
04	OFF	OFF	ON	ON	Jumper *1* is LSB; jumper *4* is MSB.
05	OFF	ON	OFF	OFF	Identification number is in binary format,
06	OFF	ON	OFF	ON	that is a closed jumper is considered as a
07	OFF	ON	ON	OFF	logical 1 and in open jumper, as a logical
08	OFF	ON	ON	ON	0.
09	ON	OFF	OFF	OFF	
10	ON	OFF	OFF	ON	
11	ON	OFF	ON	OFF	
12	ON	OFF	ON	ON	
13	ON	ON	OFF	OFF	
14	ON	ON	OFF	ON	
15	ON	ON	ON	OFF	
16	ON	ON	ON	ON	

6.3   Reader 1/2 - Jumpers position

No	Jumper	Description	Value	Default
1	JP1	Reader 2 type	Magnetic - 1-2	N/A
			Bar code - 2-3	
2	JP2	Reader 1 type	Magnetic - 1-2	1-2
			Bar code - 2-3	
3	J3	Reader 2 type	Magnetic - Open	N/A
			Wiegand - Close	
4	J4	Reader 1 type	Magnetic - Open	Open
			Wiegand - Close	

1.3.1   Other- Jumpers position

No	Jumper	Description	Value	Default
1	J5	Vcc current measuring	Vcc	Close
2	JP3	12V from Master Control Unit	12Vin: 1-2	Open
3	JP4	ON, OFF Tamper switch	ON: 1-2	1-2
			OFF: 2-3	

4	JP5	Pin 2, communication connector	I^{2}C data: 1-2	Open
			External led 1: 2-3	
5	JP6	Pin 7, communication connector	I^{2}C Clock: 1-2	Open
			External led 2: 2-3	
6	JP10	Input1 AC/DC OR Normal operation (Dry contact)	2-3 Closed - AC/DC 1-2 3-4	Normal operation
7	JP11	Input 4 - operated with AC/DC OR Normal operation (Dry contact)	2-3 Closed- AC/DC 1-2 3-4	Normal operation
8	JP12	Relay 1	Closed - DC Open - AC	Closed
9	JP13	Relay 2	Closed - DC Open - AC	Closed
10	JP14	Enables/disables test mode	1-2 - Enable 2-3 - Disable	Disable
11	JP15	For measuring the device power consumption	--------	Closed

1.4   Connection to I/O model

The I/O model acts as an extension to Access Lift which enables setting access control to additional floor levels.
I/O cards are added to extend Access Lift capabilities as follows:

Number of floors	Number of I/O cards
4	no additional card
12	1
20	2
28	3

The typical setup for I/O models is as follows.
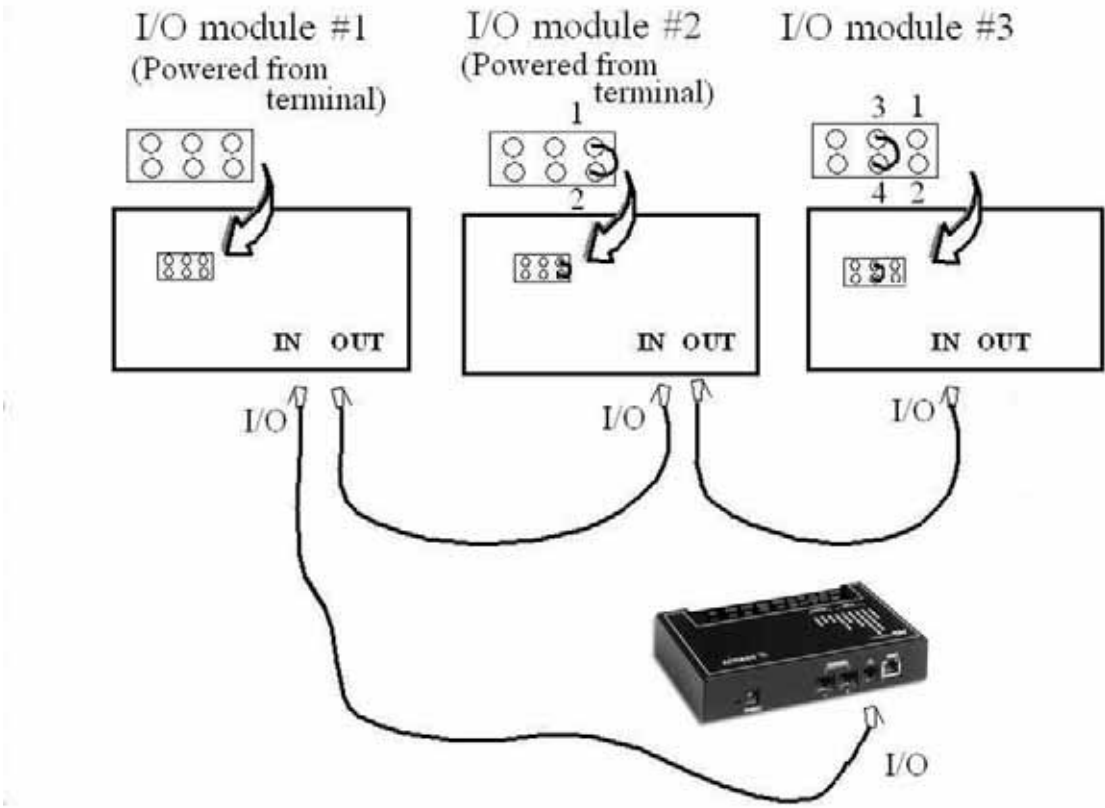
Note: Each I/O Extension added to Access Lift uses a power supply adaptor of it's own.

1.4.0.1   P2 - Address Selection.

A	B	C	I/O Address
OPEN	OPEN	OPEN	ID =0
OPEN	OPEN	CLOSE	ID=1
OPEN	CLOSE	OPEN	ID=2

Appendix A -Internal Connectors

Communication Board   (J1 - Molex 8 Pin)

Pin	Signal	Value	Remarks
1	VCC	5 V	Voltage
2	VCC	5 V	Voltage
3	TXD	Data	Transmit
4	RX1	Data	Receive 1
5	485	Logic	Dirction
6	RX2	Data	Receive 2
7	GND	0 V	Ground
8	GND	0 V	Ground

Communication return (J2 -Molex 6 Pin)

Pin	Signal	Value	Remarks
1	NC		N/A
2	-TRXD	level RS-485	RS-485
3	+TRXD	level RS-485	RS-485
4	RXD	level RS-232	RS-232
5	TXD	level RS-232	RS-232
6	NC		N/A

P7 - Molex - 3 pin

Pin	Signal	Value	Description	Remarks
1	VCC	5V	Power supply	Voltage
2	EXT.RES	5V	External reset input - Active low	Reset
3	GND	0V	Ground	Ground

Appendix B -Access Lift External Connectors

HOST RJ-45 (8 pin with LEDs)
- Communications with master, Access IV 2-7 installation pins are compatible with Access II 1-6 pins
- RS-485 Communication with host.

Pin		Master	Host	Remarks
1	RXD	-	RXD	RS-232
2	I^{2}C/Led	I^{2}C	-	According to JP5
3	Vin or Vout	12 Vin		According to JP3
4	+TXD, RXD	+TXD,RXD	-	RS-485
5	+TXD, RXD	+TXD, RXD	-	RS-485
6	GND	GND	GND	
7	I^{2}C	I^{2}C	-	Depend on JP6
8	TXD	-	TXD	RS-232

I^{2}C BusRJ 11 (6 Pin)

Pin	Signal	Value	Remarks
1	Serial Clock	SCL	Clock I^{2}C
2	NC		N/A
3	NC		N/A
4	NC		N/A
5	GND		Ground
6	Serial data	SDA	Data I^{2}C

Reader 1 RJ 45 (10 pin)

Pin	Device Signal	Magnetic	Paxton	Bar-Code	Wiegand	PRX-30	Remarks
1	RDD1 -	Data -				-	For RS-485 signal only
2	BZ1	Led 1				Buzzer	Max current 35 mA
3	LD1	Led 2				Led 1	Max current 25mA
4	VCC	VCC	VCC	VCC	VCC	VCC	
5	GND	GND	GND	GND	GND	GND	
6	LD2	Led 3				Led 2	Max current 25 mA
7	RDC1+	Clock	Clock	-	Data 0	Clock	Clock + , For RS-485
8	RDD1+	Data	Data	Data	Data 1	Data	Data + , For RS – 485
9	12 V	-		-	-	-	
10	RDC1-	Clock -			-	-	For RS 485 signal only

Power Socket-PL1

Pin	Signal	Value	Remarks
1	VCC	+12 V	Voltage for power supply
2	GND	0 V	Ground

Relays (J7 - Block terminal 23 Pin)

Pin	Port	Signal	Value	Function	Function	Remarks
1	Relay 2	A112		Floor 2	Normally closed	Max current 24 Vdc @ 1A 110 Vac @0.5 A
2	Relay 2	B2			Normally Open	
3	Relay 2	C2			Common	
4	Relay 3	A113		Floor 3	Normally closed	Max current 24 Vdc @ 1A 110 Vac @0.5 A
5	Relay 3	B3			Normally open	
6	Relay 3	C3			Common	
7	Relay 4	A114		Floor 4	Normally closed	Max current 24 Vdc @ 1A 110 Vac @0.5 A

8	Relay 4	B4			Normally open	
9	Relay 4	C4			Common	
10	Relay 1	A111		Floor 1	Normally closed	Max current 24 Vdc @ 1A 110 Vac @0.5 A
11	Relay 1	B1			Normally open	
12	Relay 1	C1			Common	
13	Input 1		GND	N/A		
14	Input 1	IP1			Data signal	Max current 10mA
15	Input 2		GND	N/A		
16	Input 2	IP2			Data signal	Max current 10mA
17	Input 3		GND	N/A		
18	Input 3	IP3			Data signal	Max current 10mA
19	Input 4		GND	N/A		
20	Input 4	IP4			Data signal	Max current 10mA
21	Input 5		GND	N/A		
22	Input 5	IP5			Data signal	Max current 10mA
23	Input 5		GND			

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