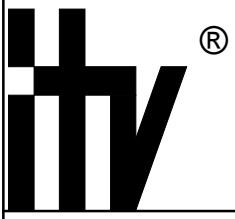
Access Control Panel DLK642

Installation Manual



DLK642

ACCESS CONTROL PANEL

This manual covers installation, programming and utilization of DLK642 access control panel. Read this manual carefully prior to installing and programming the unit.

Design Change Disclaimer

Information due to design changes and product improvements in this manual is the subject to change without notice. ITV reserves the right to change the product design any time, that will subsequently affect the contents of this manual.

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Training and technical support

Integrated Technical Vision Ltd provides training in installation, programming and utilisation of DLK642 access control panel. For detailed information about the training and discussing of our particular requirements to the unit please contact our personnel by the phone numbers below.

It is recommended, for the staff intended for sales and installation of DLK642 access control panel, to take instruction courses conducted by ITV company.

Technical support for all products of Integrated Technical Vision Ltd can be obtained on business time by the following phones:

+380(0)44 248 65 88

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This support assumes the calls of trained specialists. End users must apply to their dealers or installers before phoning us. This information is available on our web site www.itvsystems.com.ua

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Preface

DLK642 is an access control panel which operates as totally stand-alone unit with a fully distributed database. All valid card numbers, time zones and relay pulse times are loaded to control panel memory. The panel can control access into two doors with no dependency on a central computer system.

Primary goals of Access Control System are: identification of a person, confirmation or not confirmation of access, control of movements in a necessary zone. It can provide time and attendance logging, in addition to usual task of restricting individuals' access to certain areas.

All users' access information is captured on a server, where system managers can retrieve and analyse the information. This data provides recording of staff movement within an organization, whether it is a small company or a company that employs thousands.

Features

- Supports all Wiegand reader technologies
- Distributed database for independent operation
- Operates in remote site configurations with dial-up (requires NDC-B052)
- Card, keypad or card and keypad access support
- On-board lithium battery for data storage
- 4-wire RS-485
- 8 supervised programmable inputs
- Tamper alarm
- 2 Form C relays
- Two transistor outputs
- Nonvolatile memory
- Local antipassback function
- Built-in buzzer

Specifications

• Inputs	8 programmable EOL supervised inputs
• Outputs	
• Two	5 A @ 24 V relays
• Two open drain outputs	0.5 A @ 24V (with multifuse protection)
• Networking	RS485 interface
• EPROM:	
• Identificators	1024
• Events	1920
• Time zones	up to 250
• Schedules	up to 250
• Holidays	up to 250
• Input Voltage	+10…15 VDC

- Voltage ripple 500 mV @ 12 V
- Power consumption:
    - Standby current 80 mA@ 12V
    - Maximal current 130 mA@ 12V
- Environmental requirements:
    - Operation temperature 0 °C … +55 °C;
    - Relative Humidity 80% relative at +35°C;
- Physical dimensions:
    - Width 155mm
    - Height 95mm
    - Depth 32mm
    - Weight 0,25 kG

Terms

Access point

Access point is a logical concept of the access control system implying control of passing through a door in one direction. It consists of reader, access control panel (or its part), door supervision devices (like magnetic sensor, RTE etc.) and door locking device. For instance, the turnstile with two way passes has two **Access points** – one for entrance and the other one for exit, door of this type is called *double-sided* door. A door with a reader on one side has only one **Access point** – Entry point, and it is called *single-sided* door.

Antipassback

Antipassback function is implemented in DLK642 access control panel in order to prevent the situation when user gives his ID to another person after passing into the premises. If this function is on, DLK642 tracks an ID position – Inside or Outside the premises. On any attempt to pass in the same direction twice DLK642 denies access and stores “Access Denied, Antipassback” event into the Log.

Antipassback function can be set on only in case of the double-sided door control.

Code matching

DLK642 can activate alarm on attempt of a code (or ID) matching. Code matching is considered when invalid code (or ID) is entered several times succesively. Valid code entering clears the counter. This function switching on and number of code entrances are subjects of programming.

Door Contact (DC)

In access control systems various sensors are used to supervise door status (opened or closed) – magnetic door sensor, sensor of the turnstile rotor position, inductive sensor of car passing through the road barrier, etc.

Door Contact terminal of DLK642 is intended for connection of these sensors.

Door time

If door sensor is open, corresponding access point goes into alarm. Alarm is not invoked, if contact is opened during Door Time interval. This interval starts when access is granted and lasts for the programmed time or terminates on opening and subsequent closing of door contact.

Downloading

DLK642 is to be downloaded after all parameters setting – modes of inputs, outputs, access rights and others on PC. During downloading parameters are rewritten into access control panel. If you change control panel parameters in your computer, they will not take effect until this parameters are downloaded to control panel.

PIN (Personal Identification Number)

Some readers have built-in keypad. Keypad may be used for PIN entering. It can be both self dependant or used as an additional code to ID. When PIN is programmed as additional code, DLK642 waits for PIN entering after ID is read-out. PIN is associated with ID.

Proximity Identificator

In access control systems each user has ID (identificator) with unique code. Proximity IDs may be in shape of plastic card, keytrinket, etc.

Reader

Readers are devices assigned for reading information from IDs and transmitting it to control panel

There are several types of IDs and readers for them. It is essential that reader and control panel should use the same interface. DLK642 utilizes Wiegand interface.

RTE (Request to Exit)

To exit from the premises with a single-sided door, a button wired to control panel is used. This button is called RTE (Request To Exit) button. If someone opens a door otherwise than pressing RTE button – by re-energising locking device, opening lock with a key etc., "Door Forced Open" event arises.

RTE button may be used for remote door opening as well.

Schedules

DLK642 is capable to store up to 250 time zones. 250 week schedules can be combined from these time zones.

Moreover DLK642 can store several “floating” schedules, based on a period different to a week. The number of such “floating” schedules depends on period length.

“Several IDs' access

To enter high security premises presence of more than one person may be required . DLK642 allows to assign up to 15 groups of people with the access rights. Access is granted only in case when one person from each group is present. For instance you have the room which can be attended only by personnel of R&D department escorted with guard. You can form two groups for this access – group of R&D employees and group of guard. Access is granted if two IDs from different groups read by panel readers – one belongs to R&D department employee and the other one – is a guardian.

Time zone

Any interval of time which has the beginning and the end.

What's inside

General Configuration

The layout of DLK642 is shown on Diagram1 below.

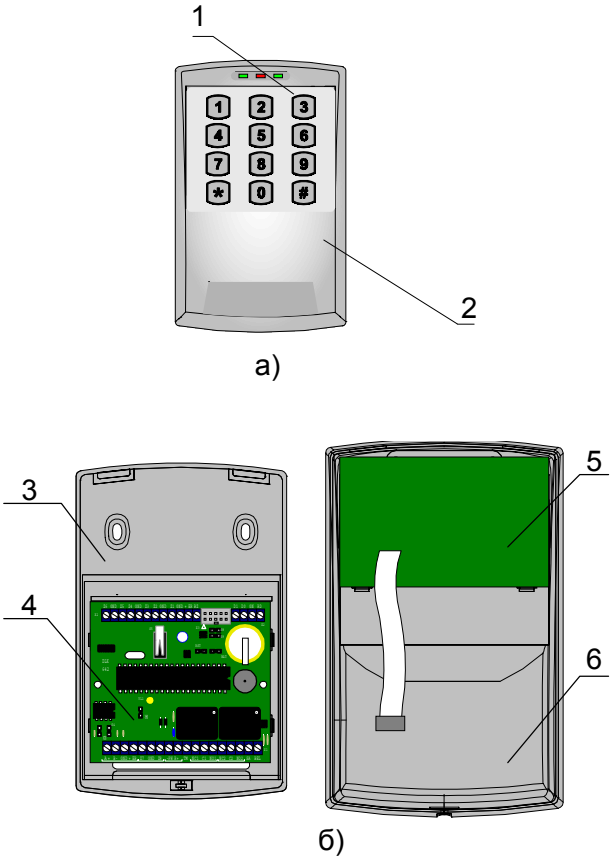


Figure1. a). General view of DLK642, b) DLK642 with front cover off

1 - LEDs,

2 - built-in reader,

3 - backplate,

4 - panel's PCB,

5 - PCB of the reader,

6 - front cover.

Wiring Configurations

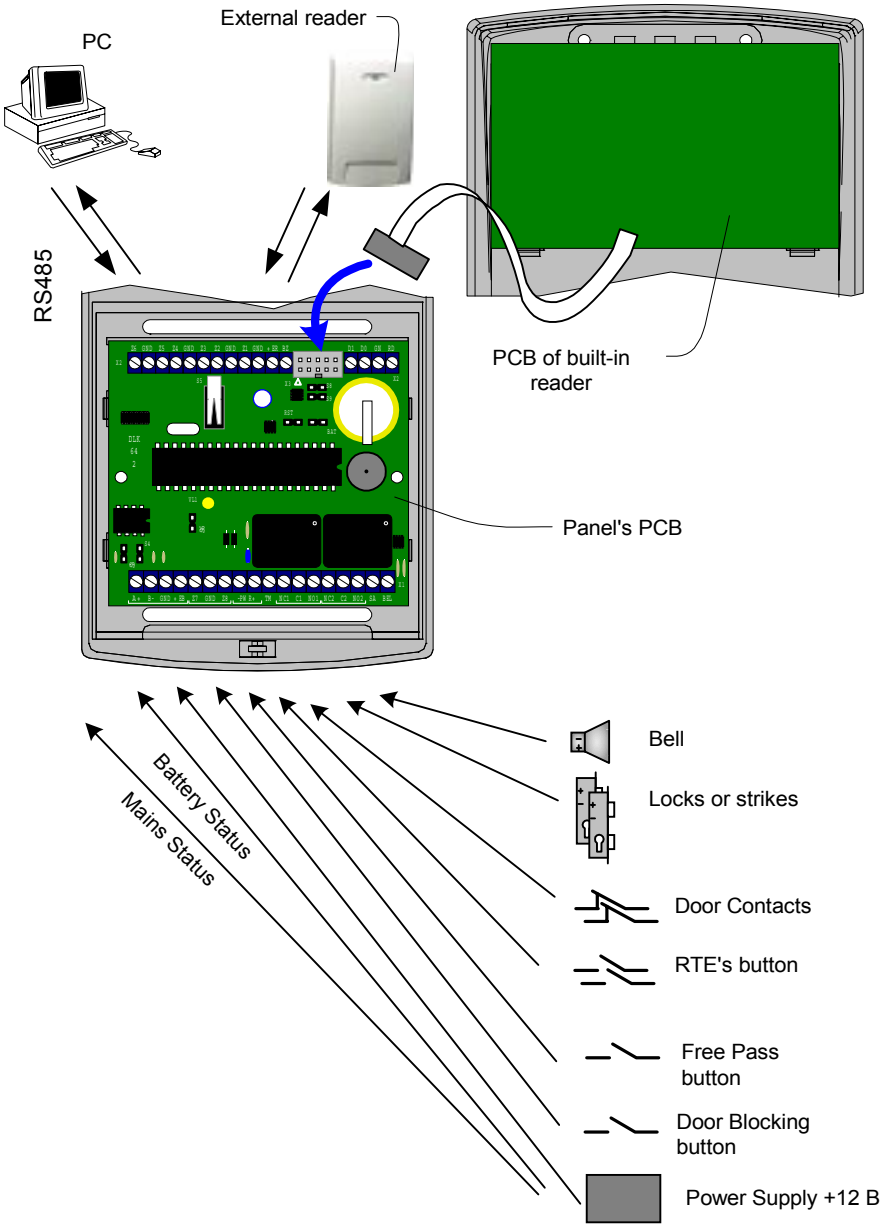


Figure2.Terminals layout.

Controls and connections on board

Terminals' assignment

Terminal block	Terminal	Function	Description
X1	A+	RS485-A	RS485 dropline
	B-	RS485-B	
	GND	RS-485 Common	
	+EB	+12 RS485	
	Z7	Zone7	EOL supervised programmable inputs 7, 8 connection
	GND	Common	
	Z8	Zone8	
	-PWR+	Power	Terminals for connecting power supply
	TM	Tamper Contact	Tamper contact output (Normally closed)
	NC1	Normally closed	Relay 1 contacts
	C1	Common	
	NO1	Normally open	
	NC2	Normally closed	Relay 2 contacts
	C2	Common	
	NO2	Normally open	
	SA	Transistor output +12 V @ 0,3A	For connection of executional devices
	BEL	Transistor output (open drain) @ 0,3A	
X2	Z6	Zone 6	1-6 EOL inputs' connection
	GND	GND	
	Z5	Zone 5	
	Z4	Zone 4	
	GND	GND	
	Z3	Zone 3	
	Z2	Zone 2	
	GND	Common	
	Z1	Zone 1	
	GND	-12V	Reader connection terminals
	+EB	+ 12 V	
	BZ	Buzzer control	
	D1	DATA 1	
	D0	DATA0	
	GN	Green LED control	
	RD	Red LED control	

Jumpers and LED

- RST - Reset jumper
- S3, S4, S6 - Jumpers for RS-485 load selection
- S5 - Tamper
- BAT - Real-time clock power switch
- S8, S9 - Reader mode (Wiegand/Special reader) setting jumpers
- VL1 - Live function indicator

Jumper BAT should be shorted before installation and broken during transportation and storage.

Control Panel Operation

Control panels are supplied unprogrammed. In this state reader LEDs do not light. VL1 panel yellow LED blinks 5 times per second. Panel does not respond to IDs' passing and inputs' opening and closing. A panel should be downloaded to start operation mode with DC Configurator or Golden Gate program.

Yellow LED starts to blink one time per second and switches to the main mode automatically after successful settings' downloading.

Panel can be turned to the unloaded status only with command from PC, see programming instruction.

Panel can control two independent access points. Each access point may be in one of four modes: main mode, alarm, blocked or free pass. Free pass mode has the highest priority, as panel switches to this mode in case of fire; then blocked, alarm and main modes follow.

Main Mode

Panel grants or denies access to cardholders in this mode. In Main mode reader's LEDs blink red.

Access with ID

To access the premises cardholder passes identificator to a reader. If it is valid a panel grants access, unlocks a door and green LED switches on.

Access with ID and PIN

To access the premises cardholder passes ID to the reader. The panel checks necessity of PIN entering and if it is necessary, reader starts to blink yellow, that means PIN entering is awaited. After valid PIN entering door is unlocked, reader's LED lights green.

Using RTE

To exit out of the premises with a single-sided door, users have to depress (press & release) Request to Exit button. Reader and panel LEDs light green.

“Several IDs” access

To access the high security premises, bank depot for instance, the presence of more than one person may be required. At least two people should enter the depot, for example a board member escorted with a guard. You can program the panel thus access will be granted after two cards of different groups are passed to the reader.

Access Denial

Access may be denied for the following reasons (LED lights red):

- Panel is not downloaded (LED does not light or blink)
- ID is not enrolled (red LED and buzzer switch on for a second)
- ID time expired (red LED and buzzer switch on for a second)
- Access is prohibited at the present moment/day (red LED and buzzer switch on for a second)
- Attempt of repeated access with Antipassback function switched on (red LED and buzzer switch on for a second)
- Lost or blocked ID is passed (red LED and buzzer switch on for a second)
- The panel is in Alarm mode (red LED lights uninterruptedly)
- The panel is in Blocked mode (LED blinks red and yellow)
- Attempt of code matching (if the function was switched during programming)

In Alarm mode panel activates outputs assigned for Bell and Alarm. Alarm output is deactivated when panel switches into a mode different to alarm.

Bell output is deactivated after programmed time.

If access point is in Alarm state it is prohibited to pass through this point. RTE button unlocks a door.

To switch Alarm mode off pass ID card with “Alarm off” sign or give a command from PC.

Alarm Mode

In alarm mode reader red LED lights constantly.

Access point switches into Alarm mode for following reasons:

- In case of door ajar
- Attempt of access with lost ID
- If door is opened too long (door time expired)
- In case of attempt of code matching (if switched on during programming).

Access point does not go into alarm mode in case of panel box tampering, alarm output activates only.

You can forbidd access point change into Alarm mode in case of "Door opened too long" event. The prohibition can be programmed for each door separately.

In alarm mode panel activates outputs assigned for BELL and ALARM. Alarm output is deactivated when panel switches into a mode different to alarm mode and it is recommended to program duration time for BELL output.

If access point is in alarm mode passing through this point is prohibited. RTE button unlocks the door.

To switch alarm mode off pass ID with “Alarm OFF” sign or switch it off with command from computer.

Free Pass Mode

Sometimes situations arise when a door should be open for free pass to everyone, e.g. in case of fire, earth quake or any other disaster. For such cases the panel has Free Pass mode.

In this mode reader LED blinks green and yellow alternately.

Access point switches into Free Pass mode with PC operator command or if an input, programmed as “Free Pass”, is violated.

Access point is in Free Pass Mode until this input is open or operator cancels the mode.

While Access point is in Free Pass mode the locking device is locked and the panel does not respond to IDs' passing, PIN entry or RTE button pressing.

The control panel allows you assigning of Free Pass function to an input for one access point A, B or two access points together (A + B).

Blocked Mode

Blocked Mode is intended for use in situations when access to the premises should be prohibited for everyone, in case of security alarm for instance. When Access point is in the Blocked mode access is granted only to IDs with “Security Service” sign. Door cannot be unlocked with RTE button.

During Blocked mode time reader LED blinks red and yellow alternately.

Access point switches into Blocked mode with PC operator command or when input, programmed as “Blocking” is violated. Access point remains in Blocked mode while this input is violated or operator cancels the mode.

The control panel allows you assigning of Blocking function to an input for one access point A, B or two access points together (A + B).

Mounting

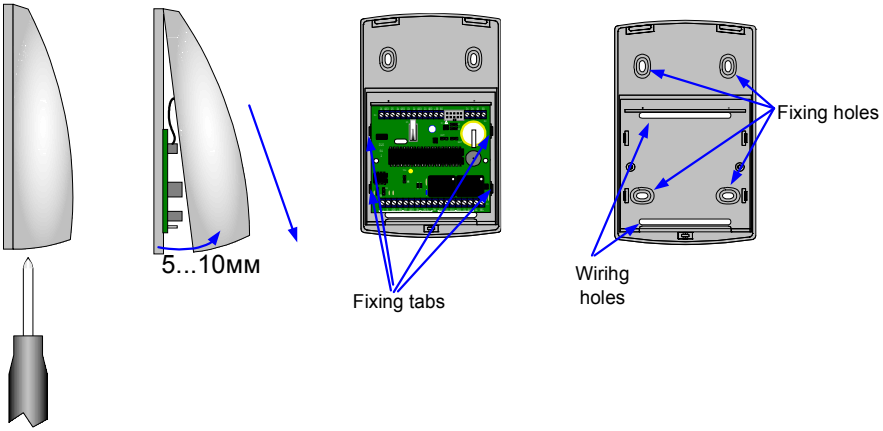
Design and view of DLK642 access control panel allow to mount it directly at a door and use built-in reader and keypad. It should be stationed at access point at a height, convenient for all users.

While mounted on metal surface, reading range decreases.

Do not mount the panel or lay wires closely to mains power wiring and other sources of electromagnetic interference.

To mount the panel on a wall proceed as follows:

- Release the screw in the lower part of cover (Figure 3a)
- Lift front cover slightly in the bottom part and pull it downwards (Figure 3b)



a) b) c) d)

Figure3. DLK642 mounting specifications.

While istalling the panel set jumper BAT into lower position before programming. Set it into upper position for a long term storage and trasportation.

Wiring

Connecting readers

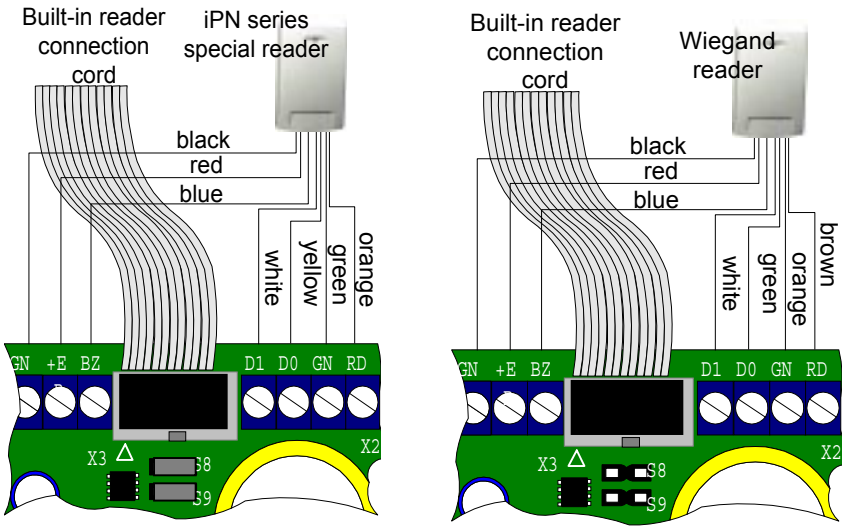
DLK642 can control two access points using two readers, one is built-in reader the other one is external reader. They can be readers produced by ITV Ltd or other readers with Wiegand interface.

X2 terminal block is intended for access point A (entrance in case of double-sided door) reader connection. It can be iPN series reader or another one with Wiegand interface.

X3 terminal is intended for access point B (exit in case of double-sided door) reader connection.

Reader and controller are to be mounted on wall directly at a door at convenient height.

The wiring is shown on Diagram below.



- Wires colours can differ in readers of other vendors. Please refer to your reader installation manual.

  External reader connecting cable length can be increased up to 50 meters by AWG 8x0.22 cable.
- During increasing of cable length mind the conductors.
- Do not mount the reader on metal surface. It decreases reading distance.
- Reader is to be mounted at 50sm minimum distance from controller. Otherwise reading distance will be decreased.

Inputs wiring

DLK642 has eight EOL inputs. All inputs are programmable - see details in Golden Gate manual. After reset to factory defaults all inputs become unassigned and not supervised. All inputs supervise shortage and break. EOL usage is mandatory.

The following input functions are possible:

- door sensor (A, B, A+B)
- RTE button
- door sensor + RTE button
- free pass (A, B, A+B)
- blocking (A, B, A+B)
- state monitoring

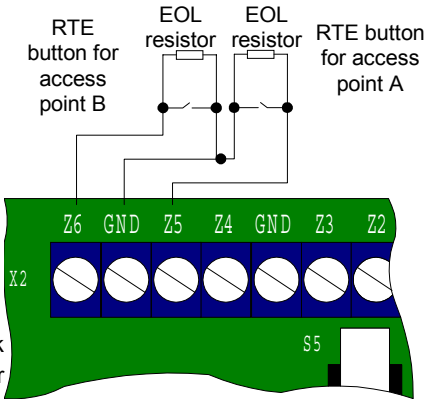
Input normal state is from 1,4 kOm up to 3 kOm. Input short circuit is less than 1,4 kOm and input break is more than 3 kOm.

RTE button

Request To Exit (RTE) button is to be used in case of single-sided door. In this case door opens on depressing of RTE button.

RTE button may be used for remote door opening - for secretary or guard to open a door, for instance.

On the diagram wiring of normally opened RTE button is shown. RTE is wired to Z5 and Z6 terminals.



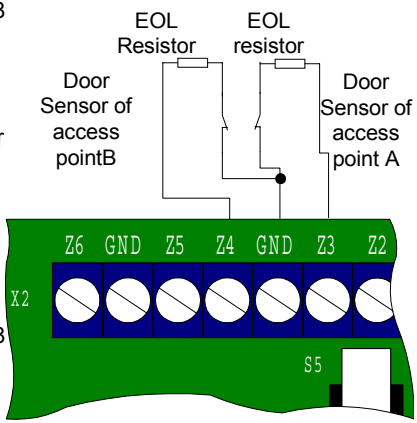
Usage of deblocking button on electric lock instead of RTE buton will cause "Door forced open" event.

It is not recommended to use Z7 and Z8 terminals for RTE button connection.

Door Sensor

Door state (opened or closed) is determined by the state of door sensor. If door sensor is not connected, the panel is not able to determine events of door forced open or unclosed door.

Wiring of normally closed door sensors to Z3 and Z4 terminals is shown on wiring diagram.



It is not recommended to use Z7 and Z8 terminals for door sensor connection.

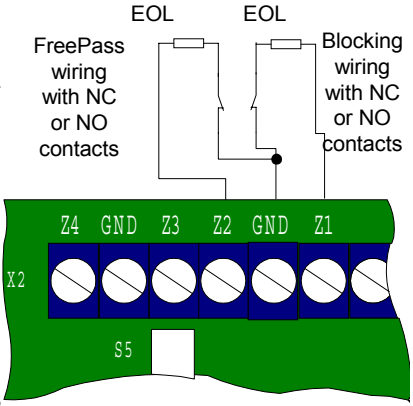
Free Pass and Blocking

An input may be programmed for Free Pass or Blocking.

If input is programmed for Free Pass DoorA & DoorB, Free Pass Door A or Free Pass Door B then shortage or opening of this input unlocks corresponding locking device and personnel can pass freely through the door.

If input is programmed for Blocking, then shortage or breaking of this input discards access rights to all IDs, except for those with “Security service” mark.

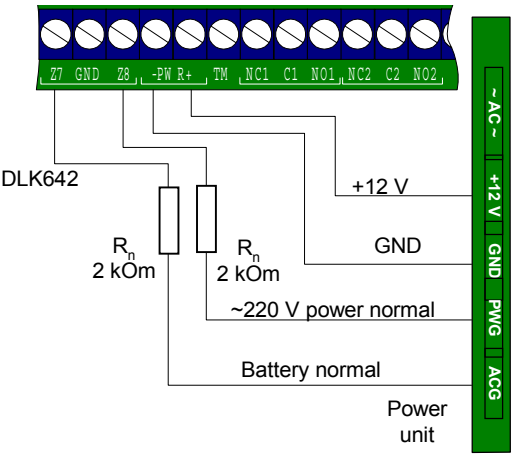
Wiring of normally closed (NC) or normally open (NO) control panel contacts to Z1 and Z2 terminals is shown on wiring diagram.



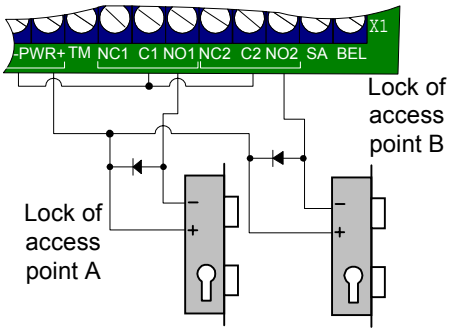
It is not recommended to use Z7 and Z8 terminals for free pass and blocking iinputs accessing.

Power supply wiring

It is recommended to use PSU 1,5 power supply with battery backup, manufactured by ITV Ltd. This power supply provides 12V power rated at 1,5A. 4AH or 7AH battery may be used as well. PSU1,5 power supply has outputs for signalling of mains power state and battery state. Wiring with mains power and battery state supervising with Z7 and Z8 terminals is shown on the picture.



Locking devices



DLK642 has two relay outputs with C form contacts. Operation time of this outputs may be programmed from 1 to 255 sec. That allows to control practically any type of locking device.

Wiring of locking devices is shown on wiring diagram.

Relay contact rating is 5 Amp @ 24 Volts.

Commutation of inductive load, electric lock for instance, causes high energy electric impulse induced through relay contacts. To save contacts from damage, protect them with diode, connected in reverse to current supply of the coil.

Note the fact, that some cheap electric door strikes are not intended for being energized for prolonged time. Program relay time as short as possible to avoid door strike coil overheating.

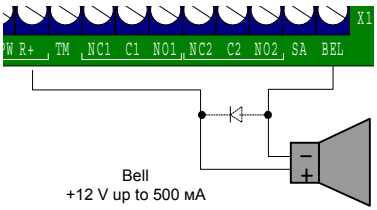
Sirens, Bells and agents

There are two additional programmable transistor outputs for siren, bell or other agents control.

Bell output is rated at 300 mA @ 12V and sinks to the ground.

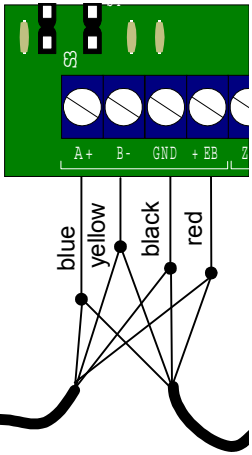
SA is rated at 300 A @ 12V and sinks to the ground.

This outputs are electronically protected against overload. In case of overload corresponding event is generated.



- Some sirens require polarity observing.
- Electric bells are often the inductive load for power supply. While connecting bells mind the warning about the inductive load above.

RS-485 Interface



RS-485 Interface is used for networking of the system components - PC and panels. The range of RS-485 bus is up to 1200 meters. The number of panels is up to 32.

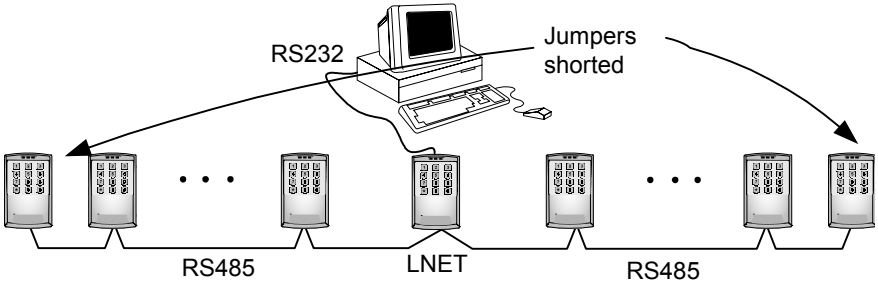
RS-485 port is protected against overvoltage (60V) and crosspolarity.

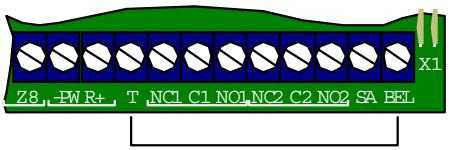
Unshielded four-wire cable may be used for RS-485 wiring. To obtain the maximal range of 1200 meters use 0.4 mm 2 cross section wire. 0.2 mm two-cross section wire will provide the range of 500 meters .

On the first and last panel in the drop-line short jumpers S3, S4 and S6 to add the resistive load.

Take care of proper grounding of all panels in the network.

Adress setting





Each panel on RS-485 drop line must have the unique address from 0 to 31.

To set panel's address proceed as follows:

1. Disconnect feeding of the panel
2. Short terminals TM and BEL
3. Supply feeding. Buzzer will beep several times and current address settings will be displayed with buzzer beeps and right green LED blinks. The digit is displayed as number of beeps and blinks with a pause between digits. For example, number 23 is displayed as:

2 beeps and right green LED blinks, pause, 3 blinks and beeps.

Zero is displayed with continuous sound and LEDs blink. For example, number 04 is displayed as:

1 continuous sound and right green LED blink then 4 blinks and beeps.

After current address settings displaying, all LEDs blink simultaneously.

4. Enter desired address and press [#] button. Two digits have to be entered necessarily, for example address 1 is to be entered as [0][1][#].
5. Disconnect feeding of the panel
6. Remove shortage from TM and BEL terminals

Panel is ready for operation with new address.

Limited Warranty

Integrated Technical Vision Ltd. warrants that for a period of eighteen months from the date of purchase, the product shall be free of defect in materials and workmanship under normal use and that in fulfilment of any breach of such warranty, Integrated Technical Vision Ltd. shall, at its option, repair or replace the defective equipment upon return of the equipment to its repair depot. This warranty applies only to defects in parts and workmanship and not damaged incurred in shipping or handing, or damaged due to causes beyond the control of Integrated Technical Vision Ltd. such as lightning, excessive voltage, mechanical shock, water damage, or damage arising out of abuse, alteration or improper application of the equipment.

The foregoing warranty shall apply only to the original buyer, and is and shall be lieu of any and all other warranties, whether expressed or implied and of all other obligations or liabilities on the part of Integrated Technical Vision Ltd. This warranty contains the entire warranty. Integrated Technical Vision Ltd. neither assumes, nor authorizes any other person purporting to act on its behalf to modify or to change this warranty, nor to assume for it any warranty or liability concerning this product.

In no event shall Integrated Technical Vision Ltd. be liable for any direct, indirect or consequential damages. Loss of anticipated profits, loss of time or any other losses incurred by the buyer in connection with the purchase, installation or operation or failure of this product.

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