NETRONIX

User technical documentation

RFID reader

UW-D4G

1. Introduction

The UW-D4G devices are RFID card readers of UNIQUE, HITAG(1,2,S), HID ISO Prox II type.

They are designed to feature following functionality:

- Access control feature,
- Alarm system,
- External device controller.
- RTC with backup to store events

The reader is equipped with RS-485 interface, by means of which many modules can be connected through one long bus. There is possible to hook up a set of readers via RS interface to AccessConfig master software installed on PC computer.

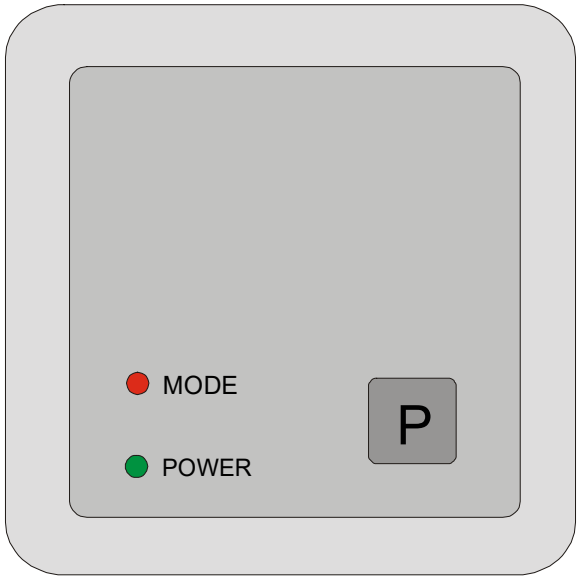
The reader is designed to allow configuring it fully without need to use PC software for it. After logging, access to all options and set-ups is possible by means of appropriate number of front panel key pressings.

Hardware features	
Supply	• DC 7-16 V 100 mA
Communication port	• RS-485 allowing connecting of many readers using one cable 1 km long
Electrical inputs/outputs	• 6 inputs/outputs for UW-D4G version • 1 relay with 3 A capacity • Tamper type input, which warns user, if one attempts to remove a reader • Push-button in front panel of housing
Collision controller	• Allows connecting two readers, which are close to each other (e.g. two readers located on both sides of the same thin wall).
Warnings	• Tri-color LED showing modes and error warnings. • Buzzer
Card management	
Number of cards	• 1000 cards with all allowed rights and actions assigned.
Access right edition	• Any card has particular rights (actions), which has been assigned to it. • Each card may have any combination of rights (actions) declared.
Adding and removing the card	• Optional quick and mass adding or removing the cards. • Adding/removing cards for given position. • Adding/removing cards by means of tool software.
Security	
Safety	• Thanks to implemented system of rights, changing the configuration by installer requires applying administrator card or user (owner) card. • The reader is protected against reading via RS line with PIN code. • Event recording makes possible to monitor subsequent actions of users in case of abuse. • Tamper switch built in housing.

Flexibility	
	• Thanks to system of rights, any card can perform different actions in reader, and one reader can be used as an Access Control device, security system or eternal device controller. • Thanks to possibility of changing rights for card and creating of any combination of rights, great flexibility is obtained. • There is possible to assign functions to successive electrical inputs/outputs without any restriction.
Alarm system	
	• Fast line declaring • Slow line declaring • Input and output time declaring • Arming and disarming by means of cards with proper rights assigned.

Front view

UW-D4G



Indication in picture	Function performed
LED MODE	Tri-color LED Optical warning of mode / set-up
LED POWER	Supply optical warning
P	Front panel push-buttons

The Mode LED and internal buzzer are used for warning a user on current state of reader. Additionally, there is possible to change configuration, which will force supplementary reactions of warning devices. Supplementary reactions can be modified by means of configuration settings of ports.

2. Working with reader

2.1. User categories

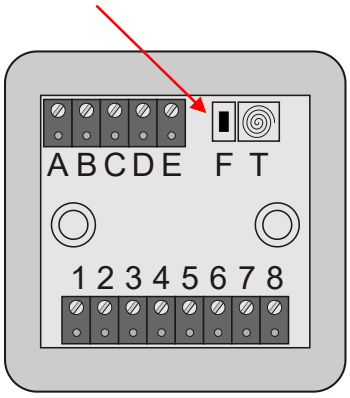
Access control	User who is allowed to open protected door.
Access blockade	User who is allowed to block possibility of door opening.
Alarm system	User who is allowed to enable or disable sleep mode of alarm system.
External device control	User who is allowed to switch external device on.
Master	User who is allowed to enter "master" menu.
Installer	User who is allowed to enter "installer" menu.

Each user can posses any combination of categories (rights).

2.2. Crating Master/Installer card

Start reader configuration creating a card with user rights of MASTER and INSTALLER categories. To do this:

- Turn reader supply on.
- Restore default settings by pushing and holding "F" key for more than 3 seconds. Defaults restoring indicates alternate blue/red flashing of LED.
- A card applied as a first one will get the rights:



☐ Access control
☐ Access blockade
☐ Alarm system
☐ External device control
☑ Master
☑ Installer
POS: 000

2.3. Leader menu types

2.3.1. Symbols used in documents

★ - blue RED is flashing
★ - red LED is flashing
★ - green LED is flashing
♪ - short beep
♫ - long beep

X⌨ - x short pushes of key
⌨; long push of key

2.3.2. Indicating reader status

Sequence	Display mode	Description
Indication of reader status		
no indication		normal operation
★	cyclically	access control blockade
★★★♪♪	cyclically	arming the alarm system
★	cyclically	alarm system in sleep mode
★ ★	cyclically	alarm system in sleep mode + access control blockade
★★★★	cyclically	restoring the defaults + clearing the card memory
★♫	long single	indicating the key activation (by defaults)
Indication of menu mode		
★	cyclically	main menu
★★	cyclically	master menu
★★ ★	cyclically	master menu, first option
★★ ★★...★	cyclically	master menu, number of green flashings means option number in which reader currently is
★★★	cyclically	installer menu
★★★ ★	cyclically	installer menu, first option
★★★ ★★...★	cyclically	installer menu, number of green flashings means option number in which reader currently is
Indication of errors		
★♫.... ★	single	error of data entered
★♫..... ★★	single	no rights
★♫.... ★★★	single	time exceeded

Depending on number of combinations and rights, there are three menu types available on given card:

Menu type	User categories having access to menu
Main menu	User with more than two rights from category group: Access control, Access blockade, Alarm system and External device control
Master	Master
Installer	User with Master and Installer rights or Installer with Master confirmation

Reader status and actions allowed which can reader perform when is entered In given state

Sleep mode	Main menu	Master menu	Installer menu
Reader reads a cards applied searches them in card memory and checks actions assigned to the card, which has been red out. If one action is assigned to the reader, it is performer immediately If many actions are performed, the reader switches to Main menu. If applied card has a master (or installer) right only, the reader switches to Master menu directly.	[1] Door Access control [2] Blockade reader blocking or unblocking [3] Alarm system arming or unarming alarm system [4] Controlling external device [9] Jump to Master menu [10] Exit to sleep mode	[1] Quick adding access cards [10] Exit to Mater menu [2] Quick clearing cards [10] Exit to Master menu [3] Adding rights [10] Exit to Master menu [4] Clearing rights [10] Exit to Master menu [5] Adding for position [10] Exit to Master menu [6] Clearing for position [10] Exit to Master menu [9] Jump to Installer menu [10] Exit to sleep mode	[1] Setting electrical input [10] Exit to Master menu [2] Setting electrical output [10]Exit to Master menu [3] Reader No. in network [10] Exit to Master menu [4] Alarm timings [10] Exit to Master menu [5] Assigning installer right [10] Exit to Master menu [10] Exit to sleep mode

2.4. Navigation through menu

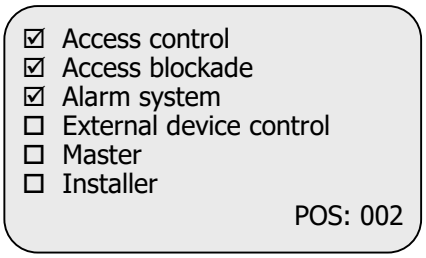
All operations connected with routing through succeeding menu options and with entering configuration data are performed by means of front key “P”. Successive short pushes of the switch, which are indicated by acoustic beep cause incrementing position within menu or incrementing numerical value entered. Longer pressing of the key (for about 1 sec), is indicated by double acoustic beep, and makes the choice to be confirmed. No reaction during 15 seconds makes jump to menu of one level higher.

2.5. Main menu

Option no.	Option name	Description
1	Door	Access control – door open
2	Blockade	Blocking/unblocking access control
3	Alarm system	Arming/unarming alarm system
4	Control	Enable/disable an external device
9	Master menu	Jump to Master menu
10	Exit	Exit from Main menu

Example:

If a card applied has rights as showed in picture on right, entering to Main menu takes place, in which options 1,2,3,10 are active. Pushing front key in 3⌨⌨ sequence will cause enabling of option three i.e. arming alarm system. Attempting to choose option, to which no access is allowed, e.g. External device control, will cause generation of a message warning user on lack of rights.



2.6. Menu Master

No.	Option name	Description
1	Quick adding	Quick adding access control cards. Next cards applied are added to card base as cards of Access control category
2	Quick clearing	Quick clearing of cards. Next cards applied are removed from memory of card reader base.
3	Adding rights	Adding rights (categories) to which are existed in card base.
4	Clearing rights	Clearing rights (categories) existed in card base.
5	Adding for position	Adding access card for given ID position.
6	Clearing cards from position	Clearing cards from given position.
10	Exit	Exit from Main menu

2.6.1. Adding/removing user cards

2.6.1.1. Quick adding/removing of cards

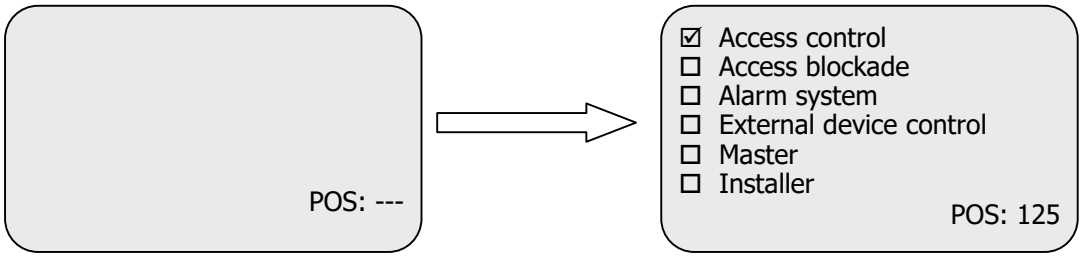
This method of quick adding bases on quick entering of unique ID number of cards, which have been applied to first vacant position in reader memory. When we use this mode, we don't know position under which, card is saved. It makes such card not possible to remove in case it is lost.

To clear quickly a card existed in base; apply the card, which is supposed to be removed.

2.6.1.2. Adding cards for given position

Thanks this option, we will know a position of card added in card base. The result is that is possible to remove a card in case it is lost.

☝ *An example of use:*

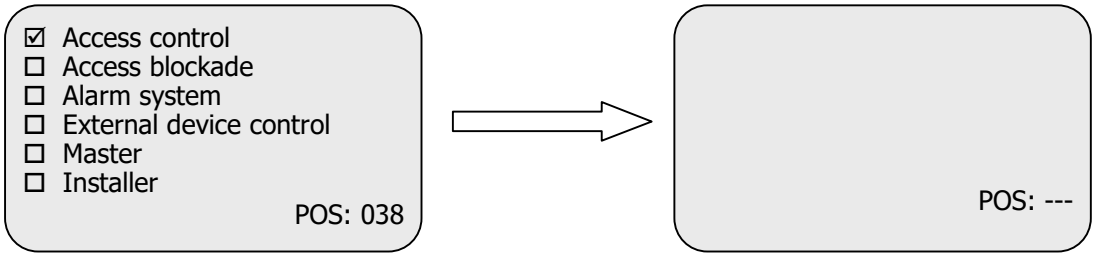


To perform operation showed above:

- Apply card with MASTER right.
- Be sure to be in Master menu.
- Enter option '5' using push sequence of 5 keys.
- Enter position of added card, in this case 125, using push sequence of 1;2;5 keys.
- Apply card, which is to be added.
- Enter Master menu using push sequence of 10 keys or wait for 15 sec.
- Exit the Master menu using push sequence of 10 keys or wait for 15sec.

2.6.1.3. Clearing cards from given position

☝ *An example of use:*



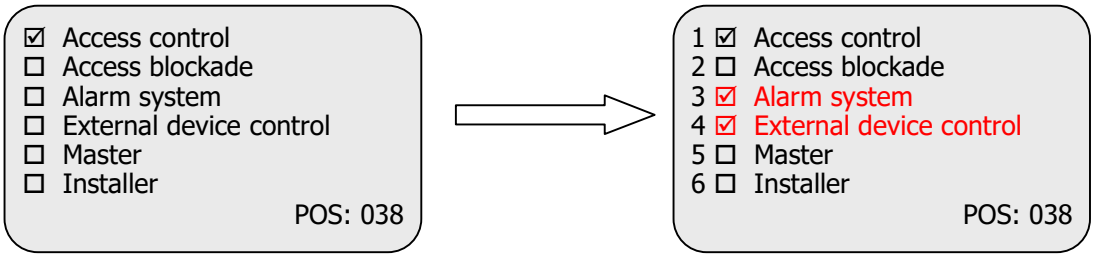
To perform operation showed above:

- Apply card with MASTER right.
- Be sure to be in Master menu.

- Enter option ‘6’ by using push sequence of 6 keys.
- Enter position of added card, in his case 038, using push sequence of: **;3;8** keys.
- Enter Master menu using push sequence of 10 keys.
- Exit the Master menu using push sequence of 10 keys.

2.6.2. Adding rights for card, which exists in base

An example of use:

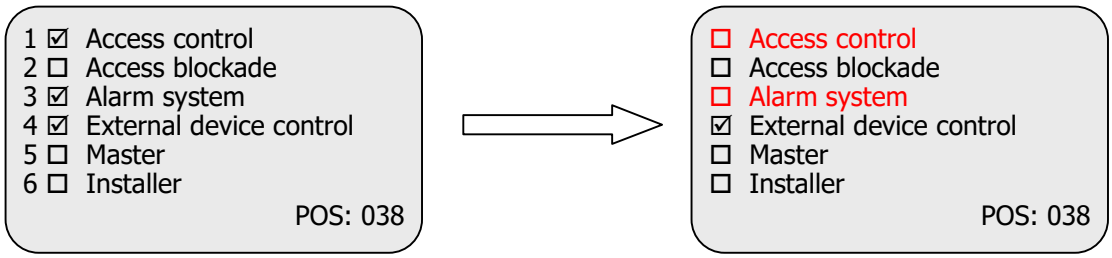


To perform operation showed above:

- Apply card with MASTER right.
- Be sure to be in Master menu.
- Enter option ‘3’ using push sequence of 3 keys.
- Enter number of rights, we suppose to add (in this example: 3 and 4) using push sequence of **3;4** keys.
- Apply cards a rights of which, we are about to add.
- Enter Master menu using push sequence of 10 keys.
- Exit the Master menu using push sequence of 10 keys.

2.6.3. Removing cards from card existed in base

An example of use:



To perform operation showed above:

- Apply card with MASTER right.
- Be sure to be in Master menu.
- Enter option ‘4’ using push sequence of 4 keys.
- Enter numbers of rights, we suppose to remove (in this example:1 and 3) using push sequence of **1;3** keys.
- Apply card rights of which we are to remove.

- Exit the Master menu using push sequence of 10 keys.
- Enter Master menu using push sequence of 10 keys.

3. Access control module

3.1. Configuration

For proper operation, the module requires:
- to register user cards from „*ACCESS CONTROL*" category
- to configure by means of installer inputs and outputs related to access control

3.2. Blockade of access control module

There is possibility to block access control module. Do to this, apply card with „*ACCESS BLOCKADE"* right. After next using of card with „*ACCESS BLOCKADE"* right, the card will be unblocked.

4. Alarm system module

4.1. Configuration

For proper operation, the alarm system module requires:
- to register user cards from „*ACCESS CONTROL*" category.
- to register user cards of „*ALARM SYSTEM*" category.
- to configure by installer inputs and outputs related to alarm system.

4.2. Operating the alarm system

Arming and disarming of alarm system is performed by applying card of „*ALARM SYSTEM*" category. Arming process is indicated by cyclic flashing of red LED diode and short cyclic acoustic beeps. Sleep mode is indicated by cyclic flashing of red LED diode. Reaction for sensor signal will conform input/output settings. In alarm system, there are used sensors acting fast or slowly. The slow sensors do not trip alarm during arming or disarming of alarm system.

5. External device control module

Using external device module it is possible to enable or disable any module connected to one output of reader I/O terminals assuring that permissible limit current for given output is not exceeded. Enabling of the device is performed by applying card of „*external device control"* type. After next apply of the same card, the device is disabled.

For proper operation the module requires:
- to register user cards of „*DEVICE CONTROL*" category.
- to configure by installer inputs and outputs related to external device control module.

6. Clearing the card memory and return to default settings

To restore default settings, push and hold for ca. 5 second key „F" located on rear panel of housing. During return to default settings, are fixing following parameters of reader:

Parameter name and functionality	Value or setting
Address on serial bus	0x01
Baud rate on serial bus	9600 b/s
Total internal memory of transponders including Mater card	0xff ff ff ff ff, i.e. memory cleared
Access password	0x31 32 33 34 00, it means „1234" in character notation
Port 00 – front key	optional functionality disabled
Port 01 – I/O1	input for door opening
Port 02 – green LED	controlled via RS485 bus
Port 03 – red LED	indication of magnetic lock enable
Port 04 – buzzer	indication of magnetic lock enable
Port 05 – relay	indication of magnetic lock enable
Port 06 – blue LED	controlled via RS485 bus
Port 07 - tamper	disabled
Port 08 – IO2	immediate acting sensor of alarm system
Port 09 – IO3	delay acting sensor of alarm system
Port 10 – IO4	immediate acting sensor of alarm system
Port 11 – IO5	alarm signal output of alarm system
Port 12 – IO6	output for enabling of external device
Enter time of alarm system	10 seconds
Exit time of alarm system	10 seconds
Master card	no Master card in card memory
Configuration of „autoreader" module	automatic, single sending of ID number of applied card in netronix format card including acoustic warning

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