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TECHNICAL **MANUAL**

ONDA PULSE

VENITEM

WARRANTY

All Venitem products are granted for 24 months. In order to improve design and quality of the products, Venitem reserves the right to modify them without prior notice. All faulty or defective items must be returned to the supplier.

DESCRIPTION

Onda Pulse is a backlit multifunction access control keypad. With its elegant metal case, Onda Pulse can be used as stand-alone keypad or with Wiegand interface. The authentication system supports card, PIN or card + PIN for a full proof security. The 2 relays enable the control of 2 openings, to which up to 2000 users can be assigned (each with its own card and PIN). It is equipped with anti-tamper system and is able to support both anti-robbery and anti-vandal functions. Structural robustness and technical features for Onda Pulse: a versatile and reliable security system, suitable for extremely exposed outdoor installations. Full programming from keypad, for ease of installation and management.

FEATURES

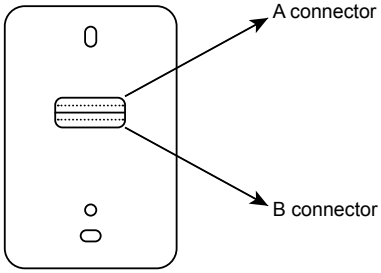
- IP68 waterproof
- Strong and robust metal case (vandal-proof)
- Fully programmable from keypad
- 2000 users with card, PIN or card + PIN
- Usable as stand-alone keypad
- Backlit keys
- 26-37-bit Wiegand for the connection of an external reader or controller
- Low power consumption (30mA)
- Anti-tamper alarm through light dependent resistor (LDR), door contact alarm, anti-robbery alarm function
- Built-in buzzer
- Red and green LED for working status notification
- Doorbell button

TECHNICAL DATA

Voltage	12V AC/DC
MAX number of users	2000
Card reader distance	4 cm
Working current	<60 mA
Idle current	<30 mA
Door relay output	MAX 1 A – 48V
Alarm output (open collector)	10 mA
Operating temperature	-25°C ÷ + 55°C
Operating humidity	10%-90% (RH)
Adjustable door relay time	0-99 sec.
Adjustable alarm time	1-3 min.
Wiegand interface	26-37-bit Wiegand

INSTALLATION

- Remove keypad base using the screw provided
- Drill 2 holes on the wall for fastening and 1 hole for cable
- Insert dowels in the two holes
- Fasten keypad base on the wall with 2 self-tapping screws
- Hook keypad to its base using the screw provided



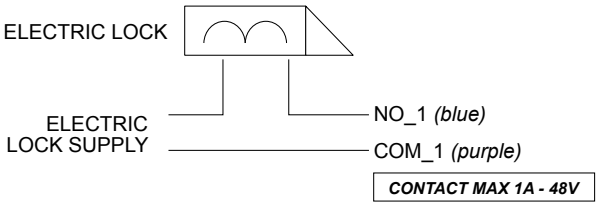
WIRING: A CONNECTOR

COLOUR	FUNCTION	DESCRIPTION
Pink	DOORBELL	Doorbell button
Pink	DOORBELL	Doorbell button
Red	+ ALARM	Positive for alarm open collector
Black	AC_12V	Alternating power input 12V
Yellow	BUTTON_2	Button for door 2 opening (negative input)
Brown	C_IN_2	Magnetic contact for door 2 (negative input)
Grey	ALARM_2	Alarm output (open collector) MAX 1 mA – door 2
Blue	NO_2	Door 2 relay, normally open (N.O.)
Purple	COM_2	Door 2 relay, common (COM)
Orange	NC_2	Door 2 relay, normally closed (N.C.)

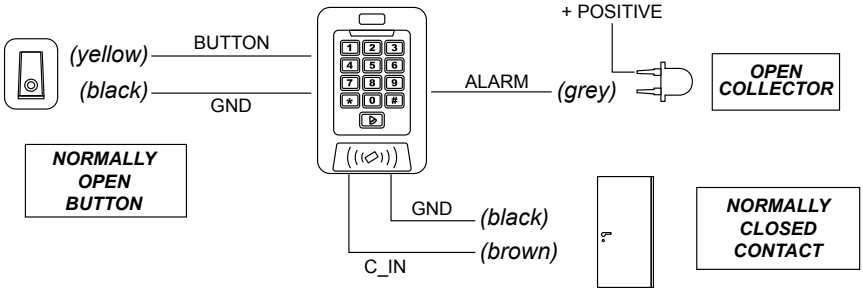
WIRING: B CONNECTOR

COLOUR	FUNCTION	DESCRIPTION
Green	D0	D0 output Wiegand
White	D1	D1 output Wiegand
Red	DC_12V	Positive power input +12V DC
Black	GND	Common negative power input
Yellow	BUTTON_1	Button for door 1 opening (negative input)
Brown	C_IN	Magnetic contact for door 1 (negative input)
Grey	ALARM_1	Alarm output (open collector) MAX 10 mA – door 1
Blue	NO_1	Door 1 relay, normally open (N.O.)
Purple	COM_1	Door 2 relay, common (COM)
Orange	NC_1	Door 2 relay, normally closed (N.C.)

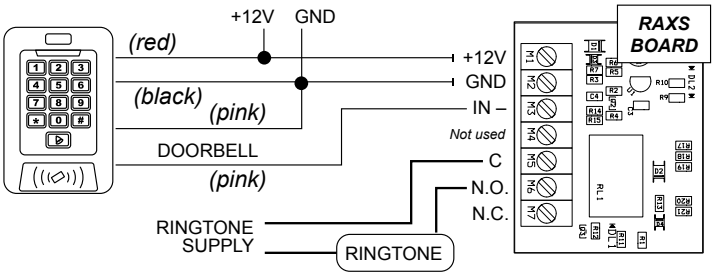
CONNECTION EXAMPLE: ELECTRICK LOCK FOR OPENING 1



CONNECTION EXAMPLE: ENTRY, BUTTON, DOOR CONTACT AND ALARM OUTPUT



CONNECTION EXAMPLE: DOORBELL



Please note! It is recommended to use Venitem interface board for an optimal functioning of doorbell button.

RESTORE FACTORY SETTINGS

1. Disconnect keypad power supply;
2. Press # and connect power supply;
3. After 2 beeps, release #. Keypad is now restored to factory settings.

PLEASE NOTE! This procedure restores only installer's data (not users').

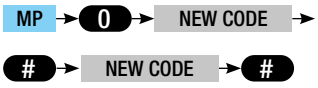
SOUND AND LIGHT INDICATION

STATUS	RED LIGHT	GREEN LIGHT	BUZZER
Stand-by	Blinking	-	-
Pressed button	-	-	Beep
Successful operation	-	Steady	Beep
Failed operation	-	-	Beep Beep Beep
Programming mode	Steady	-	Beep
Door 1 opening	-	Steady	Beep
Door 2 opening	-	Blinking	Beep
Alarm	Blinking	-	Alarm

PROGRAMMING

Please note! Onda Pulse is able to manage up to 2000 users in total for both openings. The registration of new users needs to performed carefully in succession, to avoid same user number for both openings.

MASTER USER SETTINGS:

Enter programming mode (shortened as MP) 999999 is the master code by default	
Exit programming mode	
Change master code (can be 6 to 8 digit long)	

Attention! Steps not signalled by MP can be performed through USER ID

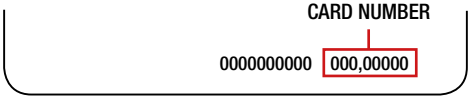
KEYPAD WORKING MODE	
Wiegand reader for controller	MP → 3 → 1 → 0 → #
Keypad for single opening control	MP → 3 → 1 → 1 → # *(default)*
Keypad for double opening control If keypad is used to control 2 openings, the first number of user PIN must be: 1 for opening 1 and 2 for opening 2 control.	MP → 3 → 1 → 2 → #
Keypad and Wiegand controller with external reader for 2 openings control With this mode set, keypad accepts only PINs configured for opening 1; on the contrary, PINs configured for opening 2 need to be processed only through Wiegand interface, using a reader or an external keypad.	MP → 3 → 1 → 3 → #
Interlocked keypad and Wiegand controller for 2 openings With this mode set, opening 2 will open only and exclusively if opening 1 is closed and vice versa. Keypad controls opening 1 and Wiegand reader opening 2.	MP → 3 → 1 → 4 → #
Anti-passback keypad and Wiegand controller for single opening With this mode set, card entry/exit is controlled. Cards can not enter if not previously exited and vice versa. Keypad controls entry and Wiegand reader exit (this only applies to cards, not PINs).	MP → 3 → 1 → 5 → #
Anti-passback keypad and Wiegand controller for double openings With this mode set, card entry/exit is controlled. Cards can not enter if not previously exited and vice versa. Keypad controls entry for opening 1 and Wiegand reader exit for opening 2 (this only applies to cards, not PINs).	MP → 3 → 1 → 6 → #

USER SETTINGS:

Please note! For steps signalled by V, simply enter opening number

SET USER MODE	
• **Card only users** (access only through card)	MP → V → 3 → 0 → #
• **Card + PIN users** (access through card and PIN)	MP → V → 3 → 1 → #
• **Card or PIN users** (access through card or PIN)	MP → V → 3 → 2 → # *(default)*

PROGRAMMING OF USERS ACCESS: EITHER CARD OR PIN MODE *see page 9*	
Add PIN user USER ID is a number between 1-2000. PIN code is a 4-digit number between 0000-9999 (except for 1234)	MP → V → 1 → USER ID → # → PIN → # *Users can be added consecutively without exiting programming mode (as indicated by the arrow)* *Example: Enter USER1 with 2233 as PIN* *999999# → 1 → 1 → 1 → # → 2233 → #
Delete PIN user with PIN	MP → V → 2 → USER ID → # *Users can be deleted consecutively without exiting programming mode (as indicated by the arrow)*
Change PIN to PIN user	* → USER ID → # → OLD PIN → # → NEW PIN → # → NEW PIN → #
Add card user (method 1) It is the fastest way to register cards. User ID number automatically generated	MP → V → 1 → READ CARD → # *Cards can be added consecutively without exiting programming mode, associated to the first available user number (as indicated by the arrow)*
Add card user (method 2) It is an alternative way to register cards using assigned ID number. This way, each ID user is linked to a card (only one ID user for card).	MP → V → 1 → USER ID → # → READ CARD → # *Cards can be added consecutively without exiting programming mode, associated to the first available user number (as indicated by the arrow)*

Add card user (method 3) Card number given by the 8 digits on the back (see image below). User ID number automatically generated.	MP → V → 1 → CARD NUMBER → # *Users can be added consecutively without exiting programming mode, associated to the first available user number (as indicated by the arrow)*
Add card user (method 4) This method allows to assign a user ID to a card number. Only one user ID for card number (see image below).	MP → V → 1 → → USER ID → # → CARD NUMBER → # *Users can be added consecutively without exiting programming mode (as indicated by the arrow)*
	
Delete card user with card	MP → V → 2 → READ CARD → # *Users can be deleted consecutively without exiting programming mode (as indicated by the arrow)*
Delete card user with user ID To perform in case of card loss.	MP → V → 2 → USER ID → # *Users can be deleted consecutively without exiting programming mode (as indicated by the arrow)*
Delete card user with card number To perform in case of card loss.	MP → V → 2 → CARD NUMBER → # *Users can be deleted consecutively without exiting programming mode (as indicated by the arrow)*

PROGRAMMING OF CARD + PIN USERS *see page 9*	
Add card + PIN user PIN must contain 4 numbers between 0-9999 (except for "1234", reserved for programming)	**Add card with one of the 4 methods described on page 7 and press * to exit programming mode.** To link PIN to card: * → READ CARD → 1234 → # → → PIN → # → PIN → #
Change PIN with PIN and card (method 1)	* → READ CARD → OLD PIN → # → NEW PIN → # → NEW PIN → #

Change PIN with PIN and card (method 2)	* → USER ID → # → OLD PIN → NEW PIN → # → NEW PIN → #
Delete card + PIN user, removing card	MP → V → 2 → USER ID → #

PROGRAMMING CARD ONLY USER *see page 9*	
Add and delete card user	Same procedure as per “Add and delete card user” described on page 10.

DELETE ALL USERS	
Delete all users. Risky procedure, to be used very carefully.	MP → 0 → 7 → 2 → 0000 → #

DOOR RELAY ACTIVATION	
By **PIN**	Enter PIN and press #
By **card user**	Read card
By **card + PIN user**	Read card, enter PIN and press #
By master menu (opening 1)	MP → 5 → 1 → #
By master menu (opening 2)	MP → 5 → 2 → #

KEYPAD SETTINGS:

Door relay activation time Between 0 and 99 seconds	MP → V → 4 → 0-99 → # → * *(default 5)*
Monostable output (when entering a valid code, output will be active for the time set)	MP → V → 5 → 0 → # *(default)*
Bistable output (when entering a valid code, output inverts its state)	MP → V → 5 → 1 → #

ALARM OUTPUT DURATION	
Alarm output activation time (between 1-3 minutes) By default, alarm output does not turn on, if not set.	MP → 3 → 4 → 1-3 → # *(not set by default)*

KEYPAD BLOCK AND ALARM OUTPUT OPTIONS In the event of 10 wrong and invalid PIN/cards entered within 10 minutes, keypad will block for 10 minutes. According to option set, alarm or built-in buzzer will turn on for the entire alarm duration.	
No block or alarm	MP → 3 → 5 → 0 → # *(default)*
Blocked keypad	MP → 3 → 5 → 1 → #
Operating alarm and built-in buzzer	MP → 3 → 5 → 2 → #
Disable notification for forced opening	READ CARD or MASTER CODE → #
Disable notification for door opening for an extended period	Close door, READ CARD or MASTER CODE → #

RED LED NOTIFICATION	
Disable red LED blinking	MP → 4 → 3 → 0 → #
Enable red LED blinking	MP → 4 → 3 → 1 → # *(default)*

WIEGAND PROGRAMMING	
Wiegand bit format	MP → 0 → 6 → 26-37 → # *(default 26)*
Facility code	MP → 3 → 0 → 0-15 → # *(default 0)*

TRANSMISSION FORMAT	
Wiegand transmission format	MP → 3 → 3 → 0-2 → # *(default 0)*

WIEGAND 0

Keypad in Wiegand 0 format sends PIN data only after pressing #

Format: decimal with 10 digits, facility code (from 1st to 4th digit) + PIN (from 5th to 10th digit).

Example: *(facility code 15, PIN: 9999): Press 9999# and the number transmitted will be 0015009999*

WIEGAND 1 AND 2

Keypad in Wiegand 1 and 2 format send data at every key pressing

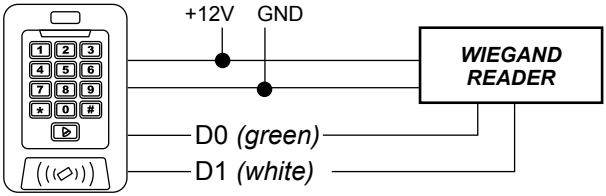
Buttons	WIEGAND 1		WIEGAND 2	
	Hex output	Binary output	Hex output	Binary output
0	0	0000	0	11110000
1	1	0001	1	11100001
2	2	0010	2	11010010
3	3	0011	3	11000011
4	4	0100	4	10110100
5	5	0101	5	10100101
6	6	0110	6	10010110
7	7	0111	7	10000111
8	8	1000	8	01111000
9	9	1001	9	01101001
*	A	1010	A	01011010
#	B	1011	B	01001011

CONNECTION TO A WIEGAND CONTROLLER

Thanks to Wiegand interface, Onda Pulse can be connected to access control systems. Simply connect the 2 cables D0 and D1 to the controller, select "**Wiegand reader for controller**" working mode *(see page 8)* and set Wiegand according to controller features *(see page 13)*. With any key pressed, keypad will send command through Wiegand.

CONNECTION TO A WIEGAND READER

Thanks to Wiegand interface, Onda Pulse can be connected to a Wiegand reader. Simply connect the 2 cables D0 and D1 to the reader, select working mode for external reader *(see page 8)* and set Wiegand according to reader features *(see page 13)*.



KEYPAD BACKLIGHTING	
Backlight OFF	MP → 4 → 2 → 0 → #
Backlight ON	MP → 4 → 2 → 1 → # *(default)*
Backlight ON at key press (backlight automatically turns off after 30 seconds)	MP → 4 → 2 → 2 → #

ANTI-DURESS CODE By entering anti-duress code, opening unlocks and at the same time alarm output silently activates to notify coercion. Only one 8-digit code for opening	
Add card user for opening 1	MP → 0 → 3 → READ CARD → #
Add card user for opening 2	MP → 0 → 4 → READ CARD → #
Add PIN user for opening 1	MP → 0 → 5 → PIN → #
Add PIN user for opening 2	MP → 0 → 6 → PIN → #

NOTE

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MADE IN ITALY

DISPOSAL:
This product must be disposed of using the appropriate bins for electrical and electronic products. This product must not be placed in bins for collection of other waste types.

VENITEM

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AZIENDA CERTIFICATA

UNI EN ISO 14001 UNI EN ISO 9001

DESIGN E PRODUZIONE IN ITALIA
ITALIAN DESIGN AND PRODUCTION

MA-TA-ONPU-01-00