# Matrix III 220
## Standalone power saving controller
## with built-in EM-Marine reader and 500 keys memory
# User Manual

### 1. OVERVIEW

Matrix III 220 Reader is a power relay controlled by contactless cards. The device is a combo EM-Marine contactless cards reader, and controller with memory up to 500 cards.

The device has a waterproof casing with 2 outgoing cables: 2-wire power supply cable (220 V, 35 mA) and a 3-wire power relay control cable (250 V, 6 A). Also supplied with the device is an interchangeable pocket accessory that can be attached to the device, to secure the card in reader working zone.
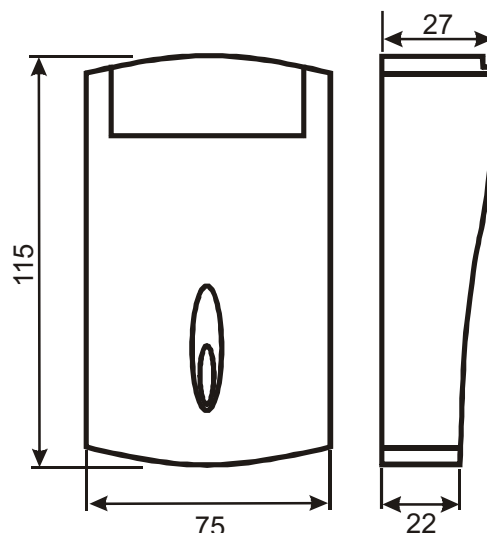
The device can be used to control power supply in hotel rooms, hostels and dormitories, outbuildings, business premises, in events planning and property maintenance and decoration works etc.

Master cards are used to program the device.
Access cards are used to operate the device.
A card becomes a Master card or an Access card during its programming.

### 2. SPECIFICATIONS

Supply voltage: ......................................................................... 220 V
Consumption current: ...............................................................35 mA
Power relay circuit current: .......................................................max 6 A
Power relay circuit voltage: ....................................................max 250 V
Reader working frequency: ......................................................125 kHz
Cards standard: .....................................................................EM-Marine
Reader working distance: ..........................................................6 cm
Maximum cards number: ..............................................................500
Operation mode indication: ........................................Audial and visual
Casing material: ..................................................................ABS plastic
Dimensions, mm: ............................................................115 x 75 x 27

Device dimensions with the pocket accessory clipped on are illustrated in the Fig.:

### 3. OPERATION MODES

**Switch** (green LED). Each touch by an Access card toggles the relay contacts state.
**Energy pocket** (yellow LED). The relay contacts are closed while a card is located within reader working zone.
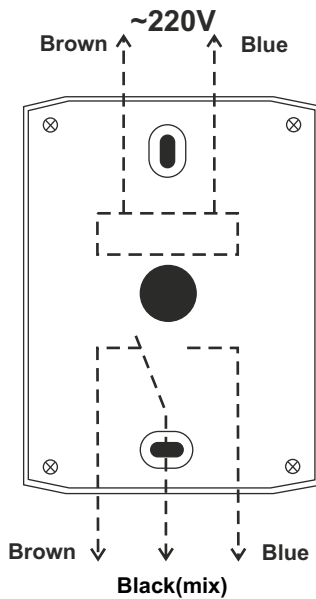**Timed** (red LED). Each touch by an Access card toggles the relay contacts state. However, the contacts are closed no longer than the Release Interval programmed with a Master card.

Device has 3 programming modes: Add Access card, Erase All Cards and Release Interval Setup.

### 4. CABLES PURPOSE

Power Supply Cable (2 wires)

| № | Wire Colour | Purpose |
|---|---|---|
| 1 | Brown | 220 V AC |
| 2 | Blue | 220 V AC |



Power Relay Control Cable (3 wires)

| № | Wire Colour | Purpose |
|---|---|---|
| 1 | Brown | NC - Normally Closed |
| 2 | Black (Mix) | COM – Common |
| 3 | Blue | NO – Normally Open |

## 5. MOUNTING AND CONNECTION

The device should be mounted on a flat surface in the location allowing unobstructed access with cards.

To mount the device using mounting kit, perform the following steps:

1. Unscrew the mounting screw and remove the top device casing lid.
2. Mark and drill two 6 mm holes, each 30 mm deep, in the wall (or other flat surface). Put in the wall plugs.
3. Connect both cables in accordance with electrical layout. Insulate all wires at the junction points.
4. Connect the device to power supply and check its operation.
5. Lead both cables, so that they are not jammed when mounting the device. Fix the device base in position with mounting screws.
6. Put the top casing lid or the pocket accessory in place, and fix it with a screw.

## 6. PROGRAMMING

### 6.1 Select Operation Mode

To select an operation mode, touch the device with a Master card no longer than 5 s. Each touch cycles through the modes: Switch, Energy Pocket, and Timed.

### 6.2 Select Programming Mode

Touch and hold a Master card to the device. After ~5 s the LED starts blinking green, indicating the Add Access Card Mode. Continue to hold the card to the device, and after another 5 s the LED changes into blinking red, indicating the Erase All Cards Mode. After another 5 s of holding the card, the LED changes into blinking yellow, indicating Release Timer Setup Mode. In further 5 s the blinking stops and the device returns to its normal operation, the LED will become solid and its colour will indicate one of the three Operation Modes selected in paragraph 6.1

Holding the Master card further will repeat the cycle through the programming modes described above: Blinking green, Blinking red, Blinking yellow, solid.

To select a programming mode, take the Master card away when the LED shows the colour corresponding to the desired programming mode.

### 6.3 Adding Access Cards

While the LED is blinking green, please take away the Master card from the reader. The LED starts to blink twice faster, indicating that Add Access Cards Mode is chosen.

Start touching the device with the cards to add as Access cards. When a card is added, the LED will show steady red shortly. If this won't happen, either the card is already present in the database, or is of an incompatible standard.

Device will revert to normal operation either automatically  in 20 s after the last card touch, or immediately after a Master card touch.

### 6.4 Erase All Cards

While the LED is blinking red, please take away the Master card from the reader. The LED starts to blink twice as often, indicating that Erase All Cards Mode is chosen. It will now wait 20 s for another Master card touch. If none followed within 20 s, the mode will end and the keys database erase will be cancelled.

To go forward with the erase, touch and hold the Master card: the LED will slowly blink red, then will flash green once, to acknowledge that all cards, including the Master card, have been erased.
After that, the device will revert into normal operation and indicate its current operation mode by solid indication of one of three LED colours.
Note: After all cards have been erased, the first card that touches the device will be assigned as a Master card.

### 6.5    Setting the Timer    *Function is under construction, for details contact info@ironlogic.lv

While the LED is blinking yellow, please take away the Master card from the reader. The LED starts to blink twice more often, indicating that the reader is ready to set the release timer. The current timer setting will now be displayed.
Timer values are measured in hours (from 0 to 8) and tens of minutes (0, 10, 20, 30, 40, 50). They are shown as series of LED flashes. Red flashes correspond to hours and green flashes to 10-minute units. Single yellow flashes separate the series of red flashes and green flashes.
    An example of timer display may look like this (R  red flash, G  green flash, Y  yellow flash):
    Y RR Y G … (same sequence is then repeated). 2 red flashes stand for 2 hours and 1 green flash stands for 1 10-minute unit. Total time is 2 hours 10 minutes.
    Changing timer value requires a Master card and an Access card. Hours are changed by the Master card and Minutes are changed by the Access Card.
    First touch by each of these cards resets corresponding unit to 0. After that, the hours are set by desired number of Master card touches, and the 10-minutes units  by desired number of Access card touches. The increments are cyclic, after the maximum value for this unit it will reset to zero and increment again.
    Each card touch changes either red flash number or green flash number. Yellow flashes still work as separators between the red and green ones.
    After 20 s without any card touches, the device will exit the timer value programming (storing the new timer value).

### 7.  ADDITIONAL INFORMATION

    1. After the device has been mounted and connected to the mains power (220 V AC), the LED indicator runs indicate self-diagnostic: for 3 s it shines solid yellow. Then LED changes display accordingly to selected operation mode.
    2. The Master card is used only for device programming and never for access control. Only one Master card exists.
    3. In the delivery package, six cards are found, initially all already pre-stored to device card database: one coloured (assigned Master card) and five whites (assigned Access cards). After Erase All Cards operation, the first card that touches the reader is stored as the Master card. To prepare device for use, at least one Access card must be added as well.
    4. After the power supply was lost and later restored, the chosen operation mode and all the settings are retained.
    5. Before external devices are to be connected to the power relay outputs in Switch and Timer modes, please check that the initial contacts state is correct (closed or open).
    In Energy Pocket mode, the contacts state always corresponds to one described in paragraph 4.

## 8. PACKAGE CONTENTS
Reader Matrix III 220   ........................1
Matrix III Pocket Accessory   ...............1
Master Card (coloured)   .....................1
Access Card (white)   ......................... 5
Mounting Kit   .......................................1

## 9. OPERATING CONDITIONS
Ambient temperature limits: 5…40°C.
Humidity: no more than 80% at 25°C.

Device specifications may differ from described in this manual when operating not under recommended conditions.
Device should be operated in absence of: atmospheric precipitation, direct sunlight, sand, dust and moisture condensation.

## 10. LIMITED WARRANTY

This device is covered by a limited warranty for 24 months.
The warranty becomes void if:
- This Manual is not followed;
- Device has physical damage;
- Device has visible traces of exposure to moisture and aggressive chemicals;
- Device circuits have visible traces of being tampered with by unauthorised parties.

Under active warranty, the Manufacturer will repair the device or replace any broken parts, FREE of charge, if the fault is caused by manufacturing defect.

## 11. IRONLOGIC CONTACTS

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The symbol of crossed-throught waste bin on wheels means that the product must be disposed of at f separate collection point. This also applies to the product and all accessories marked with this symbol. Products labeled as such must not be disposed of with normal household waste, but should be taken to a collection point for recycling electrical and electronic equipment. Recycling helps to reduce the consumption of raw materials, thus protecting the environment.

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