## Panel 1

# SH-IO 2X2-8F/9F

**TWO WAY WIRELESS**
**2 INPUTS - 2 OUTPUTS**
**RELAY MODULE**

### CROW
*ELECTRONIC ENGINEERING LTD.*

**INSTALLATION INSTRUCTIONS**
P/N 7101760_B

## Panel 2

### INTRODUCTION

The SH-IO 2x2 is an external two-way wireless device, two Inputs (optional 2 zones per one input by EOL resistors) and 2 Output Relays module. SHEPHERD™ control panels and RF-TX/RX UART Modules support it.
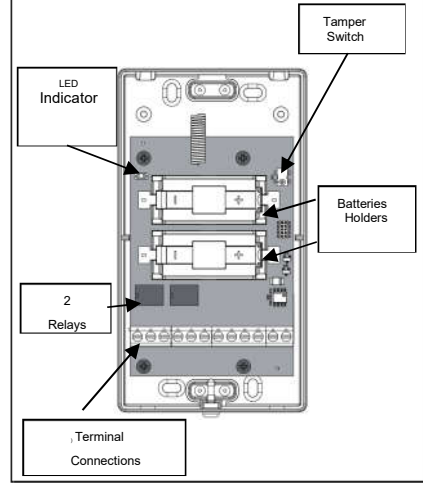
### OPERATION MODES

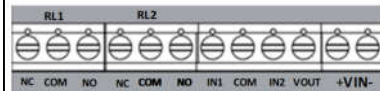The SH-IO 2x2 operates in 2 different modes:
- Operated by 2xCR123A batteries
- External power (from 5V to 12V)

### FEATURES

- Low and cutoff battery indication.
- 2 Inputs, each input can be configured in EOL/GPIO working mode. **GPIO** mode- each input can be configured to NO or NC. **EOL** mode-each input can monitor up to 3 resistors values, 2.2KΩ, 4.7KΩ, and 8.2KΩ.
- 2 Relays control (ON/OFF state only)
- Wire terminals for easy installation
- Bi-Color LED indication
- Fits in a Universal external plastic box
- Sending Alert/Restore events
- Sending Open/Close Tamper events
- Monitor battery level
  Indicates AC fail if module is connected to an external power supply unit.

## Panel 3



Labels: Tamper Switch, LED Indicator, Batteries Holders, 2 Relays, Terminal Connections

## Panel 4

### TERMINAL CONNECTION LAYOUT

RL1    RL2

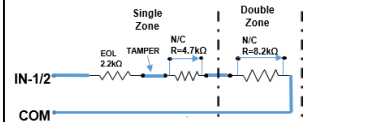NC COM NO   NC COM NO   IN1 COM IN2 VOUT  +VIN-

- **Terminal +VIN-**: connect to external power supply of 5-12VDC
- **Terminal VOUT**: Output of 5-12VDC from Vin source
- **Terminal IN1**: single or double zone option (see table 1below)
- **Terminal IN2**: single or double zone option (see table 1below)
- **Terminal COM**: Common terminal connection
- **Terminal RL1, RL2**: Relay wire connections.

### ZONE WIREING options

Table 1

| MODE | ZONE 1 | ZONE 2 | TAMPER | Normally open or Normally closed |
|------|--------|--------|--------|----------------------------------|
| GPIO | N/A | N/A | N/A | Select NO or NC |
| EOL | 4.7KΩ | 8.2KΩ | 2.2KΩ | N/A |

Single Zone — EOL 2.2kΩ, TAMPER N/C R=4.7kΩ
Double Zone — N/C R=8.2kΩ

IN-1/2

COM

## Panel 5

### LEARNING PROCESS

1. For pairing process, please refer to your control panel instructions.
2. To Learn the device with Shepherd™ panel, please proceed as follows:
3. Enter into installer mode via the "Installer Webpage"
4. Go to "Extenders" level and select the Extender # you want to learn.
5. Add Extender - (Link Type "ISM", insert device's ID, Device Type "IO 2*2 Relay Board".)
6. Set the working mode of Input1& Input2 configuration **EOL** or **GPIO**, please refer to section 4 and table 1 for wiring and resistor connections options, Save configuration
7. Place the batteries, the LED will start blinking Red\green
8. When registration process is successfully completed, the Green LED will constantly light ON for 3 seconds and then turn OFF.
9. **Assign Zones to input**- Go to Zones level, select required zone #
10. Add Zone – select link type: ISM Extender, Extender #, Unit: input number 1/2- Zone 1 or / and Zone 2, save configuration.
11. **Assign Output to RL1/RL2-** Go to Output level, select required output #
12. Add Output – select link type: ISM Extender, Extender #, Unit: RL1 / RL2, save configuration.

**NOTE1**: If the Green LED continues flashing more than 5 minutes and stopped, (enroll process failed).Please check Extender settings details, remove batteries and repeat step 4, 5, 6

**NOTE2**: Double Zone can be additional detector or AntiMask option identified by 8.2K resistor.

## Panel 6

### TESTING THE IO 2x2 Device

Testing OUPUT functionality
1. From installer programming mode, go to overview level.
2. Select the required output for test and press on the button and make sure output activated, press again for output off.

Testing ZONE functionality
1. From installer programming mode, go to overview level.
2. Press on Start the Walk Test Button.
3. Make some Zone detections and verify Green tick +red point next to the tested Zone # in the Colum Check. See below example
4. To End the walk test tool press on the End Walk Test button.

### BATTERY REPLACMENT

*The battery must be replaced by 3V Lithium*

**Models such as**
1. VARTA CR123A
2. GP CR123A

**CAUTION**
RISK OF EXPLOSION
IF BATTERY IS REPLACED BY DIFFERENT TYPE / MODEL.

DISPOSE USED BATTERY ACCORDING TO INSTRUCTIONS

## Panel 7

### LED INDICATION

| UNIT STATE | GREEN LED | RED LED |
|------------|-----------|---------|
| Power Up | Green and Red blinking alternatively for 500ms during device initialization until device is ready for learning. | |
| Initialization Failure | OFF | Blinking 250ms during 10 sec after power up. |
| Registration Process | Blinking 250ms during learning process | OFF |
| Registration Success | Constant ON during 3 sec | OFF |
| Registration Failure | Blinking ON 250ms and OFF 750ms during 10 seconds | OFF |
| Cut Off | OFF | ON for 10 sec |
| Reset Process | Green and Red blinking alternatively for 500ms during device initialization until the device is ready for learning. | |

## Panel 8

### TECHNICAL SPECIFICATIONS

| | |
|---|---|
| Data Protocol | FW2 Protocol |
| Modulation Type | GFSK (2 frequencies) |
| Frequency band | 8F – 868.35MHz |
| | 9F – 916.5MHz |
| Identification | Unique ID serial number – 24 bit |
| Event Transmission | Output State, Tamper, Supervision, Low battery, Keep alive |
| Supervision Time | 1 min. (by default) |
| Operation | 2 X CR 123A Lithium batteries 3V Battery life up to 5 years Optional External P.S 5V to 12VDC 0.1A |

Current Consumption
Average                            <70 μA
Transmission    ~60 mA
Transmit Power    <14dBm
Max Contact Capacity 1A /24V
Operating temperature -10°C to +55°C
Average current at GPIO mode ~70uA
Average current at EOL mode ~130uA
Relay MAX. Current capacity 24V/1A
VOUT: feed from Vin through resettable fuse 100mA

Dimensions                    128mm x 70mm x27mm
Weight (incl. battery)    148 gr.

## Panel 9

### REGULATORY APPROVALS

The SH-IO 2x2 conforms to essential requirements set out by:
- EMC directive: 2014/30/EU
- LVD directive: 2014/35/EU
- RE directive (RED): 2014/53/EU
- RoHS directive:2011/65/EU

Harmonized standards applicable to this product are:
- EN 301 489-3
- EN 50130-4
- EN 61000-6-3
- EN 301 489-1
- EN 300 220-2
- EN 62368-1

Note 1: use safety approved power supply in accordance with EN 62368-1 or EN 60950-1 with rated output voltage of 5-12VDC max and rated output current of 1A max.

Note 2: Warning: Internal secondary circuit powered by 5-12VDC, 1A max from external certified AC/DC adaptor.

C E ! 🗑 RoHS COMPLIANT

## Panel 10

## Panel 11

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These instructions supersede all previous issues