

SH-IO 2X2-8F/9F



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



INSTALLATION INSTRUCTIONS
P/N 7101760_B

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.

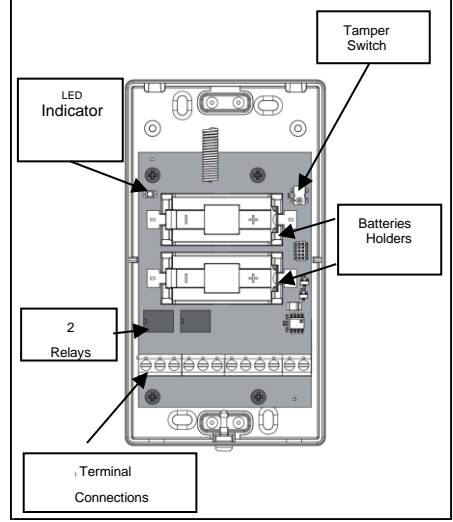
OPERATION MODES

The SH-IO 2x2 operates in 2 different modes:

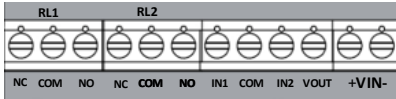
- Operated by 2xCR123A batteries
- External power (from 5V to 12V)

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.



TERMINAL CONNECTION LAYOUT

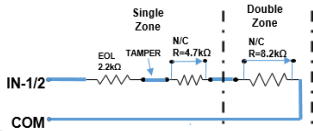


- **Terminal +VIN-**: connect to external power supply of 5-12VDC
- **Terminal VOUT**: Output of 5-12VDC from Vin source
- **Terminal IN1**: single or double zone option (see table 1 below)
- **Terminal IN2**: single or double zone option (see table 1 below)
- **Terminal COM**: Common terminal connection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

ZONE WIRING 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



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.

TESTING THE IO 2x2 Device

Testing OUTPUT 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 Column Check. See below example
4. To End the walk test tool press on the End Walk Test button.

BATTERY REPLACEMENT

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

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.	

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 0.5A

Current Consumption
 Average: <70 μA
 Transmission: ~60 mA
 Transmit Power: <14dBm
 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.

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.



CROW ELECTRONIC ENGINEERING LTD. ("Crow") - WARRANTY POLICY CERTIFICATE

This Warranty Certificate is given in favor of the purchaser (hereunder the "Purchaser") purchasing the products directly from Crow or from its authorized distributor.

Crow warrants these products to be free from defects in materials and workmanship under normal use and service for a period of 24 months from the last day of the week and year whose numbers are printed on the printed circuit board inside these products (hereunder the "Warranty Period"). Subject to the provisions of this Warranty Certificate, during the Warranty Period, Crow undertakes, at its sole discretion and subject to Crow's procedures, as such procedures are from time to time, to repair or replace, free of charge for materials and/or labor, products proved to be defective in materials or workmanship under normal use and service. Repaired products shall be warranted for the remainder of the original Warranty Period. All transportation costs and in-transit risk of loss or damage related, directly or indirectly, to products returned to Crow for repair or replacement shall be borne solely by the Purchaser.

Crow's warranty under this Warranty Certificate does not cover products that is defective (or shall become defective) due to: (a) alteration of the products (or any part thereof) by anyone other than Crow; (b) accident, abuse, negligence, or improper maintenance; (c) failure caused by a product which Crow did not provide; (d) failure caused by software or hardware which Crow did not provide; (e) use or storage other than in accordance with Crow's specified operating and storage instructions.

There are no warranties, expressed or implied, of merchantability or fitness of the products for a particular purpose or otherwise, which extend beyond the description on the face hereof.

This limited Warranty Certificate is the Purchaser's sole and exclusive remedy against Crow and Crow's sole and exclusive liability toward the Purchaser in connection with the products, including without limitation - for defects or malfunctions of the products. This Warranty Certificate replaces all other warranties and liabilities, whether oral, written, (non-mandatory) statutory, contractual, in tort or otherwise. In no case shall Crow be liable to anyone for any consequential or incidental damages (inclusive of loss of profit, and whether occasioned by negligence of the Crow or any third party on its behalf) for breach of this or any other warranty, expressed or implied, or upon any other basis of liability whatsoever. Crow does not represent that these products cannot be compromised or circumvented; that these products will prevent any person injury or property loss or damage by burglary, robbery, fire or otherwise; or that these products will in all cases provide adequate warning or protection.

Purchaser understands that a properly installed and maintained product may in some cases reduce the risk of burglary, fire, robbery or other events occurring without providing an alarm, but it is not insurance or a guarantee that such will not occur or that there will be no personal injury or property loss or damage as a result.

Consequently, Crow shall have no liability for any personal injury; property damage or any other loss based on claim that these products failed to give any warning.

If Crow is held liable, whether directly or indirectly, for any loss or damage with regards to these products, regardless of cause or origin, Crow's maximum liability shall not in any case exceed the purchase price of these products, which shall be the complete and exclusive remedy against Crow.



12 Kineret Street,
Airport City, 7010000
Israel

Tel. +972 39726000

info@crow.co.il
support@crow.co.il

www.thecrowgroup.com

These instructions supersede all previous issues

