



# ClareOne 16 Zone Wired Input Module Installation Sheet



**Last modified:** 01/25/21

**Part number:** CLR-C1-WD16

## Description

The ClareOne 16 Zone Wired Input Module allows the takeover of hardwired security zones making them compatible with the ClareOne panel. The input module has 16 wired zone inputs each with LED status, a tamper switch input, a back-up battery charging terminal, and 2 auxiliary power outputs for powered sensors, capable of outputting 500mA @ 12VDC. The module supports powered and unpowered sensors, including contact zones (open/close), motion sensors, and glass break detectors. Input zones 1 and 2 have an optional 2-minute communication time delay which can be enabled to prevent repeated signals from motion sensors being sent to the panel.

Once all sensors are wired to the module, the modules and each zone can be paired to the ClareOne panel. Follow the steps in this installation sheet for module and sensor connection to the panel.

## Notes

- This wireless module works with most wired sensors that do not require a smoke loop.
- Sensors/zones must be in their normally closed state when added to the module.

## Important safety instructions

- Before you install this module, be sure to read, keep, and follow all instructions.
- When using a supervised back up battery, if the battery is low, replace it with a compatible lead-acid rechargeable battery.

## Installation

Use the included screws for installation. The included antennas should be used regardless of location, for optimal RF communication.

**Note:** If the module is being installed in a metal container or equipment rack, the antennas must extend outside the container to ensure that the RF communication is not interrupted.

## To install the module:

1. Carefully select the mounting location, verifying that the module is vertical, and secure it in position using the provided screws.  
**Note:** The module should be within 1000 ft (304.8 m) of the panel, however walls and other construction materials may lessen that distance.
2. Attach each of the antennas to the module, one in each of the ANT terminals on the top of the module.  
**Note:** The antennas should be clear of obstructions and if in a metal enclosure, should extend outside of it.
3. Wire the sensors/leads to the desired terminals marked Zone 1 through 16.

## Wiring notes:

- The module requires 4.7k $\Omega$  of end of line (EOL) resistance on each zone. Some existing installations may already have EOL resistors installed; it is important to determine if this is the case and make appropriate adjustments as needed. How the EOL resistor is installed depends on if the sensor is normally open (N/O) or normally closed (N/C). Refer to Determining EOL resistance and sensor type for

details on determining EOL resistance and if a sensor is N/O or N/C.

- Install one of the included 4.7k  $\Omega$  resistors on each zone that has a sensor attached. Install the resistor in parallel for N/O and in series with N/C sensors.
- For any powered sensors, such as motion sensors and glass break sensors, wire the Positive and Negative leads from the sensor to the "AUX" (+) and "GND" (-) terminals for device power. See Figure 1: Wiring diagram on page 3.

4. Wire the tamper switch input.

#### Notes

- If using a tamper switch, wire it directly to the tamper terminals without the need for an EOL resistor.
- If not using a tamper switch, simply connect a short piece of wire across the tamper input.

5. (Recommended) For any security system that is supervised, a battery should be connected to the CLR-C1-WD16. To provide an independent battery back up to the module, connect the included battery leads to a 12V, 5Ah lead acid rechargeable battery (battery not included). This battery type is common with most traditional hardwired security panels, otherwise it is recommended that you connect the module to an auxiliary 16-volt power supply with its own battery backup. Connect the power supply leads from the provided power supply to the terminals labeled +16.0V and GND on the wired input module.

**Note:** The dashed wire is positive.

6. Plug the power supply into a 120VAC outlet.

**Note:** Do not plug the module into a receptacle controlled by a switch.

## Programming

The following instructions step through pairing the module to the ClareOne panel.

**Note:** The CLR-C1-WD16 hardwired input module must be paired with the ClareOne panel to ensure proper system operation.

#### To add the module to the panel:

1. Once the module is plugged in, open the front cover.
2. Put the ClareOne panel into sensor pairing mode, and then select "Wired Input Module" as the device type. For detailed programming instructions, refer to the [ClareOne Wireless Security and Smart Home Panel User Manual \(DOC ID 1871\)](#).
3. After setting the ClareOne panel to "Add mode", press and hold the Pair button on the module for two seconds. All zone LEDs flash and then extinguish. The Pairing LED illuminates, indicating that the module is in "Pair Mode".
4. Trip the tamper input, either by opening the tamper switch or removing the wire across the inputs. Once complete,

close the tamper switch or replace the wire across the inputs.

5. Follow the ClareOne panel on-screen prompts to complete the process.

**Note:** If you are not adding a battery backup (recommended), disable the low battery notifications by setting "Low Battery Detection" to **Off** under the Wired Input Module's sensor settings.

#### To pair the zones to the module:

**Note:** Each zone must be paired individually, one at a time.

1. Verify that the module's Pairing LED is still illuminated.

**Note:** If the LED is no longer illuminated, press and hold the Pair button for two seconds.

2. Put the ClareOne panel into sensor Pairing mode.

3. Trip the desired hardwired zone.

**Note:** Once a zone is tripped, its module LED illuminates and remains lit until the module exits Pairing mode.

4. Follow the ClareOne panel on-screen prompts to complete the process.

**Note:** If using a motion sensor, it is recommended to connect them to Zone 1 or 2, and then enable the communication delay for that zone. To enable/disable this feature, see Buttons and LEDs – Memory Reset, on page 2. If using more than 2 hardwired motions, allocate the most active areas on these zones. If using motions in an occupancy detection mode for automation, disable this setting.

5. Repeat steps 1-4 for each zone.

6. Once all zones are paired, press the Pair button.

The Pairing LED extinguishes.

## Buttons and LEDs

The following section details the buttons and LEDs found on the module.

#### Buttons

**Pair:** The Pair button, when pressed, puts the module in/out of "Pair Mode".

**Memory Reset:** The Memory Reset button clears the module's memory and returns it to the factory default settings. The Memory Reset button is also used to enable/disable the communication timer delay for Zones 1 and 2.

#### To clear the memory:

1. Remove power from the module.
2. Press and hold the **Memory Reset** button.
3. Reapply power while continuing to hold the Memory Reset button.
4. After 3 seconds, release the Memory Reset button.

The Processor, RF XMIT, and Pairing LEDs flash, indicating the module is reset.

#### To enable communication timer delay on zones 1 or 2:

1. Pair a sensor to zone 1 or 2.

**Note:** Complete the next step before adding another sensor.

2. Press the **Memory Reset** button.

The zone's yellow LED illuminates, signifying that the 2-minute communication timer delay is enabled for that zone.

#### To disable communication timer delay on zones 1 or 2:

1. Enter Pairing Mode.
2. Trip the sensor on zone 1 or 2, and then immediately press the **Memory Reset** button.

The zone's yellow DLY LED extinguishes signifying that the lockout delay is disabled for the zone.

### LEDs

**Pairing:** The Pairing LED illuminates when the module is in "Pair Mode" and is off when the module is in "Normal Operation Mode". If there are no zones learned the Pairing LED flashes.

**Processor LED:** This LED flashes when the module is in "Normal Operation Mode".

**RF XMIT LED:** The RF XMIT LED illuminates when RF transmission is sent.

**Zone LEDs:** During "Normal Operation Mode" each LED remains off until its representative zone is opened, then the LED illuminates. At the beginning of "Pair Mode" all Zone LEDs flash briefly, after which each Zone LED remains off until the zone is learned in and then it turns on and remains on until "Pair Mode" is complete.

**DLY LEDs:** Zones 1 and 2 each have a DLY LED. When a zone's DLY LED is illuminated yellow, that zone has the 2-minute communication timer delay enabled. When the DLY LED is off, that zone's communication timer delay is disabled. When the DLY LED is flashing, the associated zone is tripped, and the 2-minute communication timer delay is in effect. All additional triggers from that sensor are ignored for 2 minutes.

### Testing the module

Verify that the module and zones are working correctly.

#### To test the module/zones:

1. Set the panel to the sensor test mode.
2. Trip each zone on the module one at a time. Monitor the system after tripping the zones.

Refer to the [ClareOne Wireless Security and Smart Home Panel User Manual \(DOC ID 1871\)](#) for specific test information.

### Determining EOL resistance and sensor type

In some instances, it is not visually apparent what is physically connected to a zone in terms of any pre-existing EOL resistors and whether the sensor is N/O or N/C. Use a multimeter to learn this information.

With a sensor in its active state (i.e. door/window contact is separated from its magnet), take a multimeter set to measure resistance and connect the multimeter across the zone wires. If the multimeter reads a value of 10kΩ or less, the sensor is N/O, if the multimeter reads an open or extremely high resistance (1Ω or higher) than the sensor is N/C. The table below provides guidance for using the measurements to determine the EOL resistance value, as well as the line resistance for N/O sensors. This is the case regardless of the number of sensors connected to a single zone, so long as all sensors on the same zone are in series or in parallel with one another.

**Note:** The module will not work if there is a combination of series and parallel sensors connected to the same input zone.

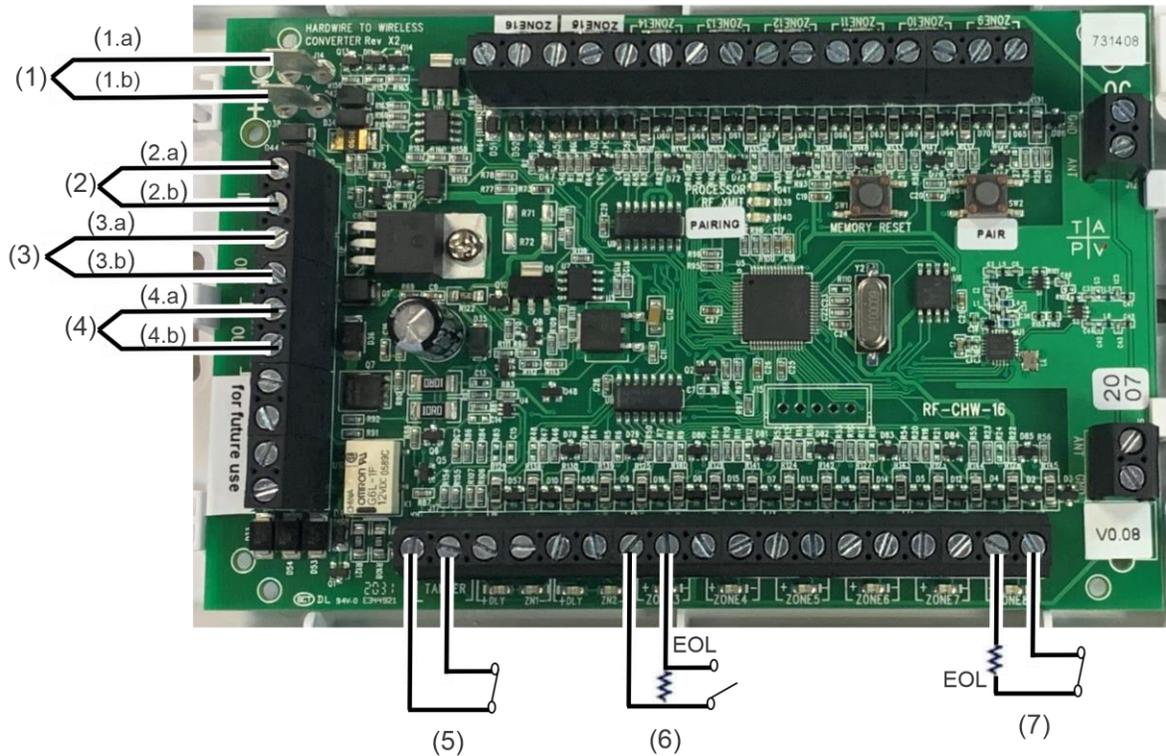
	Multimeter reads for N/O	Multimeter reads for N/C
<b>Sensors active (sensor away from the magnet)</b>	Value for EOL resistor	Open
<b>Sensors inactive (Sensors connected to the magnet)</b>	Value of line resistance (10Ω or less)	Value of EOL resistor plus line resistance

EOL resistance on existing installations typically ranges from 1kΩ - 10kΩ while line resistance should be 10Ω or less. However, there may be some installations that do not have any EOL resistors installed and the measured EOL resistance may be the same as the line resistance. If there is no EOL resistor installed than simply installing the provided 4.7kΩ resistor is all that is needed. Ideally, any existing EOL resistors would be removed and replaced with a 4.7kΩ resistor. If that is not an option, additional resistors must be appropriately added, to get the EOL resistance to 4.7kΩ. For more information, refer to the ClareOne 16 Zone Wired Input Manual (DOC ID 1992).

## Wiring

The graphic below details the module wiring.

Figure 1: Wiring diagram



- |  |  |
|--|--|
| <ul style="list-style-type: none"> <li>(1) 12 VDC Backup battery connection               <ul style="list-style-type: none"> <li>(1.a) Negative wire (-)</li> <li>(1.b) Positive wire (+)</li> </ul> </li> <li>(2) 16 VDC Power supply connection               <ul style="list-style-type: none"> <li>(2.a) Positive wire (+)</li> <li>(2.b) Negative wire (-)</li> </ul> </li> <li>(3) 12VDC Auxiliary Power Output 1               <ul style="list-style-type: none"> <li>(3.a) Positive wire (+)</li> <li>(3.b) Negative wire (-)</li> </ul> </li> </ul> | <ul style="list-style-type: none"> <li>(4) 12VDC Auxiliary Power Output 2               <ul style="list-style-type: none"> <li>(4.a) Positive wire (+)</li> <li>(4.b) Negative wire (-)</li> </ul> </li> <li>(5) Tamper input</li> <li>(6) Wired zone N/O loop</li> <li>(7) Wired zone N/C loop</li> </ul> |
|--|--|

**Note:** When wiring a sensor that also has a tamper output, the alarm output and tamper output should be wired in series so that the zone will trigger on either a motion or tamper event.

## Specifications

Compatible panel	ClareOne (CLR-C1-PNL1)
Input voltage	16 VDC Plug-in transformer
Auxiliary voltage output	12 VDC @ 500 mA
EOL supervision	4.7K (resistors included)
Battery backup	12 VDC 5Ah (optional)
Input zones	16
Zone type	N/O or N/C compatible
Tamper zone	Use external switch or wire to short
Dimensions	5.5 x 3.5 in. (139.7 x 88.9 mm)
Operating environment	
Temperature	32 to 122°F (0 to 50°C)
Relative humidity	95%

## Regulatory information

Manufacturer	Clare Controls, Llc. 7519 Pennsylvania Ave, Suite 104 Sarasota, FL 34243
North American standards	FCC: 15.109 Class B 15.231, Industry Canada: ICES-003, RSS-210
FCC compliance	FCC / IC Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

Per FCC 15.19 (a) (3) and (a) (4), This device complies with part 15 of the FCC Rules. Operation is subject to the following conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesirable operation.

Per FCC 15.21, The user manual or instruction manual for an intentional or unintentional radiator shall caution the user that changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.

- Increase the separation between the equipment and receiver.

- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

- Consult the dealer or an experienced radio/TV technician

for help. This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device. Cet appareil est conforme avec Industrie Canada exempts de licence standard RSS (s). Son fonctionnement est soumis aux deux conditions suivantes: (1) cet appareil ne doit pas provoquer d'interférences et (2) cet appareil doit accepter toute interférence, y compris celles pouvant causer un mauvais fonctionnement de l'appareil. In accordance with FCC requirements of human exposure to radio frequency fields, the radiating element shall be installed such that a minimum separation distance of 20 cm is maintained from the general population.

FCCID: 2ABBZ-RF-CHW16-433

IC: 11817A-CHW16433

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation. Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment. This Class B digital apparatus complies with Canadian ICES-3B. Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

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Environmental class	UL: Indoor dry IEC: 3K5
EU compliance	
EN 54	EN 54-00:0000
European Union directives	1999/5/EC (R&TTE directive): Hereby, Clare Controls declares that this device is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC.
 	2002/96/EC (WEEE directive): Products marked with this symbol cannot be disposed of as unsorted municipal waste in the European Union. For proper recycling, return this product to your local supplier upon the purchase of equivalent new equipment, or dispose of it at designated collection points. For more information see: <a href="http://www.recyclethis.info">www.recyclethis.info</a> .
	2006/66/EC (battery directive): This product contains a battery that cannot be disposed of as unsorted municipal waste in the European Union. See the product documentation for specific battery information. The battery is marked with this symbol, which may include lettering to indicate cadmium (Cd), lead (Pb), or mercury (Hg). For proper recycling, return the battery to your supplier or to a designated collection point. For more information see: <a href="http://www.recyclethis.info">www.recyclethis.info</a> .

## Warranty information

Clare Controls offers a two (2) year limited warranty on original Clare Controls components, from the date of shipment from Clare Controls.

## Contact information

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