# CADI SCIENTIFIC PTE LTD

31 Ubi Road 1, #03-00 Aztech Building Singapore 408694     Tel: (65) 6276 2676  Fax: (65) 6276 6216   www.cadi.com.sg
Company Reg No: 200300306W                                                                GST Reg No: 20-0300306-W

# SMN-870
**Instruction Manual**

## WARNINGS

**For customer in the U.S.A and Canada**

- You are cautioned that changes or modifications not expressly approved by the part responsible for compliance could void the user's authority to operate the equipment.

- 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. 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.

- 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.

- This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. End users must follow the specific operating instructions for satisfying RF exposure compliance. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

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**For customer in Europe**
- This equipment has been tested and found to comply with the limits set out in the R&TTE Directive.
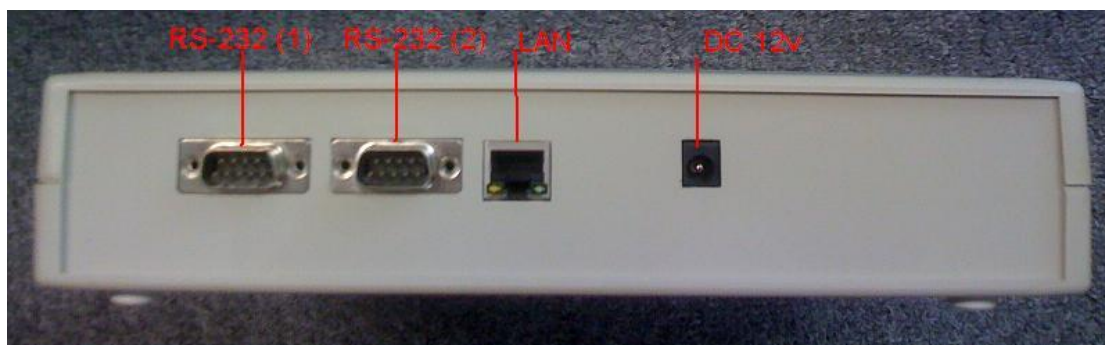
- Where you see this symbol on any of our electrical products/packaging in Europe, it means that at end of life the product/battery must be disposed of in accordance with any applicable laws or requirements for the separate disposal of electrical equipment/batteries.

- The manufacturer of this product is CADI Scientific Pte Ltd, 31 Ubi Road 1, #03-00 Aztech Building, Singapore 408694.

## PRECAUTIONS

- Connect only recommended power supply to the unit.
- Place the unit on a stable and non-slip surface.

## SETUP

The diagram shows the available ports of the SMN-870. They are located on the back of the unit.



The SMN-870 can be powered in 2 ways: external powered by DC adapter or POE (Power over Ethernet).

1. DC adapter powered
        Plug a suitable adapter (e.g. 12vdc 1A) such as the one shown below into the DC port.



2. POE powered
        Plug the LAN cable into the LAN port, making sure the line is a standard 802.3af POE source such as the one shown below.

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Once the power is supplied and the LAN is plugged in, the SMN-870 will automatically turn on and start searching for a server connection. To configure the device, connect a RS-232 null-modem cable to port 1. Open a serial terminal program (e.g. Hyper Terminal for Windows) at 19200bps/N/1 and type in the appropriate information e.g.:

> **SS=10.0.0.64<enter> (the server IP address)**
> **PP=25004<enter> (the port to connect)**
> **NM=255.0.0.0<enter> (the netmask address)**
> **GW=10.0.0.1<enter> (the gateway IP address)**
> **DHCP=True<enter> (for dynamic IP address)**
> *Or*
> **DHCP=False<enter> (for fixed IP address)**
>
> **Note: for fixed IP address, the user must configure an IP address by typing e.g.:**
> **IP=10.0.0.65<enter>**

When the parameters are correctly entered, the Hyper Terminal will echo back the message. Alternatively, to check if the parameters have been entered correctly, use the "?" operator to query e.g.:

> **SS=?<enter> (to display the currently configured server IP addresses)**
> **PP=?<enter> (to display the currently configured port)**
> **NM=?<enter> (to display the current netmask address)**
> **GW=?<enter> (to display the current gateway IP address)**
> **DHCP=?<enter> (to display the current DHCP status)**
> **IP=?<enter> (to display the current IP address of the device)**
> **MAC=?<enter> (to display the device MAC address)**
> **DID=?<enter> (to display the device serial number)**

When the server connection is successful, the left green LED will light up. The device is now ready for use.

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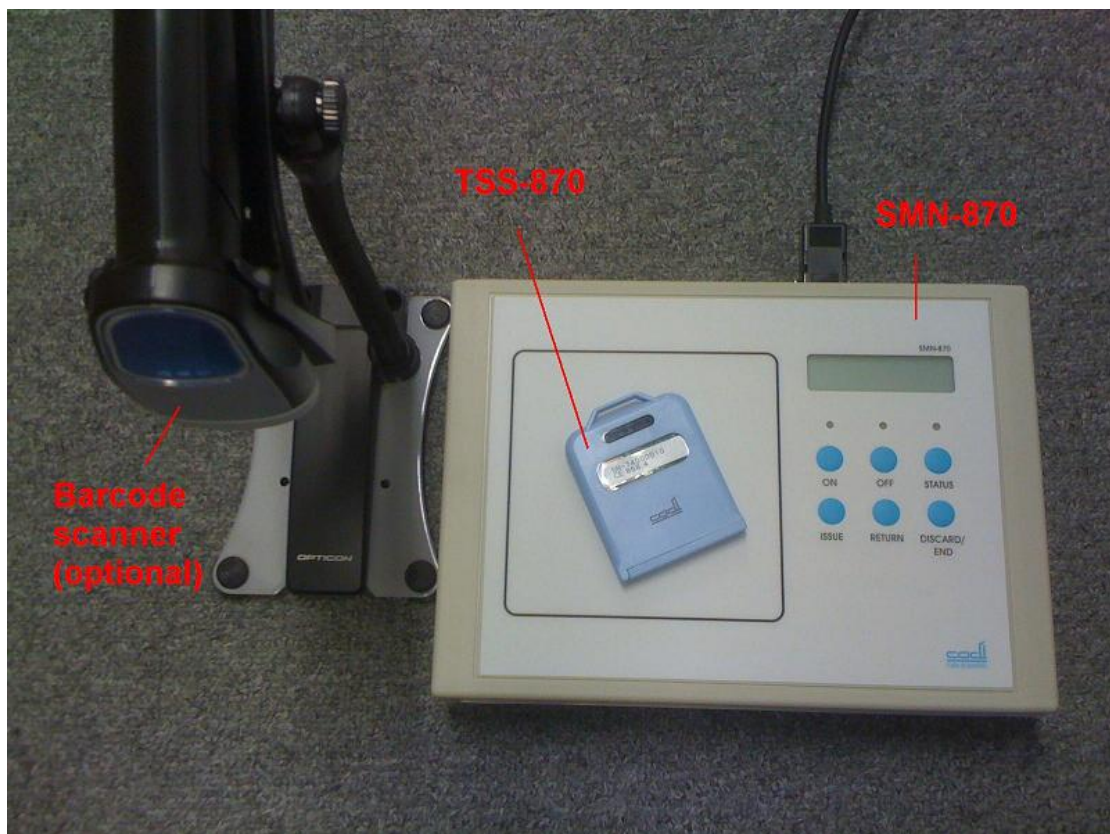
## Description

The SMN-870 SmartNODE is designed as part of the SmartSense suite of products as an interface to communicate with tags such as TSS-870. It transmits LF frequencies, and transmits and receives UHF signals.

The SMN-870 has a user interface consisting of a LCD display, 3 bi-colour LEDs, and 6 pushbuttons. The descriptions are as follows:

1. Left wireless zone box: proximity communication surface
2. Buzzer(internal): To serve as alert for positive keypress or notification
3. LCD: To display information
4. Left LED: server connection status indicator
5. Centre LED: Tag communication indicator
6. ON button: To turn on a tag
7. OFF/END button: To turn off a tag or end a process
8. STATUS button: To check the status of the tag
9. ISSUE button: to issue a tag
10. RETURN button: to return a tag
11. DISCARD button: to discard a tag

In some installations, the SMN-870 is provided with a barcode scanner to supplement its operation. For these cases, the barcode scanner should be connected to RS-232 port 2.

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## USAGE

The SMN-870 works in 2 modes: HSA mode and Hospital mode. In HSA mode, only the ON, OFF, and STATUS buttons are available. In Hospital mode, only ISSUE, RETURN, STATUS, and DISCARD buttons are available.

Note: the unit will not respond to user input if server connection is not detected (i.e. left green LED is not lit up)

### HSA mode operation

**Turn On tags**
Place a tag (e.g. TSS-870) onto the box on the left. Press ON to turn on the tag. LCD display shows "Please wait…", then switches to "ID:xxxxxxxxxxxx" "Logging,Batt:xx% (centre green LED lights up briefly), then to "ID:xxxxxxxxxxxx Tag is ON"

| Please wait… |
| --- |

| ID:xxxxxxxxxxxx |
| --- |
| Logging,Batt:xx% |

| ID:xxxxxxxxxxxx |
| --- |
| Tag is ON |

**Turn Off tags**
Place a tag (e.g. TSS-870) onto the box on the left. Press OFF to turn off the tag. LCD display shows "Please wait…", then switches to "ID:xxxxxxxxxxxx" "OFF,Batt:xx% (centre green LED lights up briefly), then to "ID:xxxxxxxxxxxx Tag is OFF"

| Please wait… |
| --- |

| ID:xxxxxxxxxxxx |
| --- |
| OFF,Batt:xx% |

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```
ID:xxxxxxxxxxx
Tag is OFF
```

### Status of tags

Place a tag (e.g. TSS-870) onto the box on the left. Press STATUS to display the tag's current status. LCD display shows "ID:xxxxxxxxxxx" "OFF,Batt:xx%" (centre green LED lights up briefly), or "ID:xxxxxxxxxxx" "Logging,Batt:xx%" (centre green LED lights up briefly).

```
ID:xxxxxxxxxxx
Logging,Batt:xx%
```

```
ID:xxxxxxxxxxx
OFF,Batt:xx%
```

### Hospital mode operation

### Issuing tags

Press ISSUE button to start the issue process. The LCD will display: "Issuing Mode". Place a tag onto the box on the left. The LCD will display: "ID:xxxxxxxxxxx Cur:xx Max:xx ⁰C". Press ISSUE button again to confirm issue of the tag. Remove the tag and place another tag onto the box. Press ISSUE button again to confirm issue of the tag. Repeat by placing new tags onto the box and pressing ISSUE. End the process by pressing END button.

```
Issuing Mode
```

```
ID:xxxxxxxxxxx
Cur:xx Max:xx ⁰C
```

### Returning tags

Place a tag onto the box on the left and press RETURN button. LCD display briefly switches to "Returning…", then to "ID:xxxxxxxxxxx Cur:xx Max:xx ⁰C" (green LED lights up briefly), then LCD switches to "ID:xxxxxxxxxxx Return Success", then to "Date: xx/xx/xx Time xx:xx:xx". Repeat the whole process for the next tag.

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Returning…
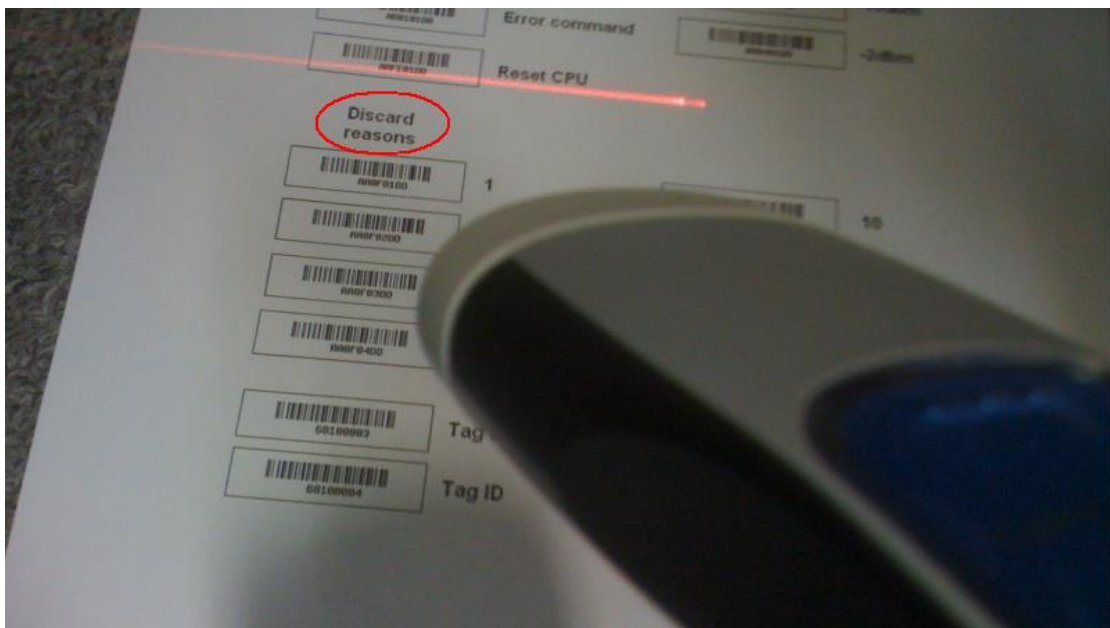
ID:xxxxxxxxxxx
Cur:xx Max:xx ºC

ID:xxxxxxxxxxx
Return Success

Date: xx/xx/xx
Time xx:xx:xx

**Discarding tags**

Place a tag onto the box on the left and press Discard button. LCD display shows "ID:xxxxxxxxxxx Scan Reason" (centre green LED lights up briefly). Use the barcode scanner to scan a valid discard reason from the supplied barcodes sheet. LCD switches to "ID:xxxxxxxxxxx Discard Success", then back to "Date: xx/xx/xx Time xx:xx:xx" Repeat the whole process for the next tag.

ID:xxxxxxxxxxx
Scan Reason

```
ID:xxxxxxxxxxxx
Discard Success
```

```
Date: xx/xx/xx
Time xx:xx:xx
```

**Status of tags**
Place a tag (e.g. TSS-870) onto the box on the left. Press STATUS to display
the tag's current status. LCD display shows "ID:xxxxxxxxxxxx" "OFF,Batt:xx%"
(centre green LED lights up briefly), or "ID:xxxxxxxxxxxx" "Logging,Batt:xx%"
(centre green LED lights up briefly).

```
ID:xxxxxxxxxxxx
OFF,Batt:xx%
```

```
ID:xxxxxxxxxxxx
Logging,Batt:xx%
```

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## SPECIFICATIONS

| Power | 12v dc |
|---|---|
| Power consumption | Max 12VA |
| External dimensions (excluding projecting parts) | 250w x 180d x 52h mm |
| Mass | Approx. 700 g (1.54 lb) |
| Operating temperature | 20°C - 50°C (68°F - 122°F) |
| Storage/transport temperature | 10°C - 50°C (50°F - 122°F) |
| Inputs/outputs | RS-232 DB-9M x2<br>10/100Mbps LAN x1<br>DC connector x1 |
| Supplied accessories | Barcode scanner Opticon OPR-3201 (optional) |
| Transmission frequency | 868.4 MHz (For customer in Europe)<br>919.8 MHz (For customer in U.S.A)<br>925.0 MHz (For customer in U.S.A)<br>125 kHz (all regions) |