CYLON smart energy control

UNITRONUC32. How-To guide

# How to connect Thermokon Wireless Sensors to the UnitronUC32 system

Thermokon Wireless Sensors allow temperatures (and other paramters) to be measured and inputted to the UnitronUC32 BMS without the need for reconfiguring installed wiring. This allows reconfiguration of the BMS without expensive retrofitting. It also allows readings to be taken at locations that would otherwise be inaccessible.

This "How To" document describes how to connect Thermokon Wireless Sensors to the UnitronUC32 system, and how to configure system to read values from those sensors.

**Note:** The following procedure can only be used on UC32.netK Communications Controllers with firmware version 1.01.50 or later.



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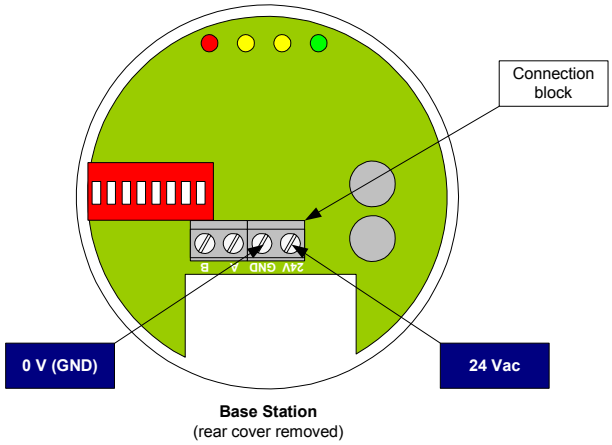
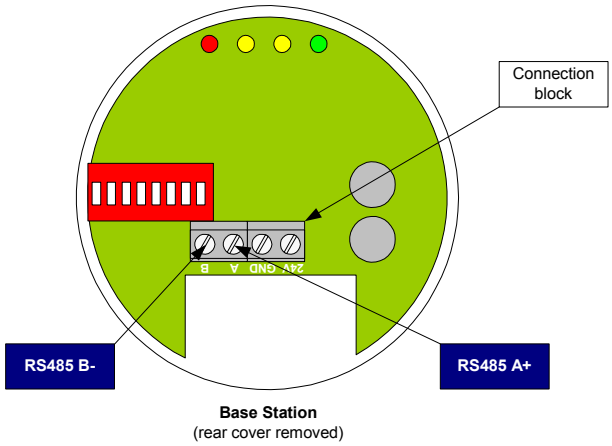
# Connect the Base Station to a UC32.netK/MOD

1. Mount the base station within 30 meters of the planned sensor location.
2. Connect a 24 Vac power supply to the base station.




**Warning**:
It is essential that the polarity of the power supply matches the base station - 0 Vac must be connected to the terminal marked 'GND' and 24 Vac to the terminal marked "24V". If these are connected the wrong way around, the base station will be permanently damaged.

3. Connect Base Station terminals A and B to the RS485 port (port4) on the UC32.netK/MOD Communications Controller.




**Note**: Ensure that the UC32.netK/MOD has firmware A.01.30 or later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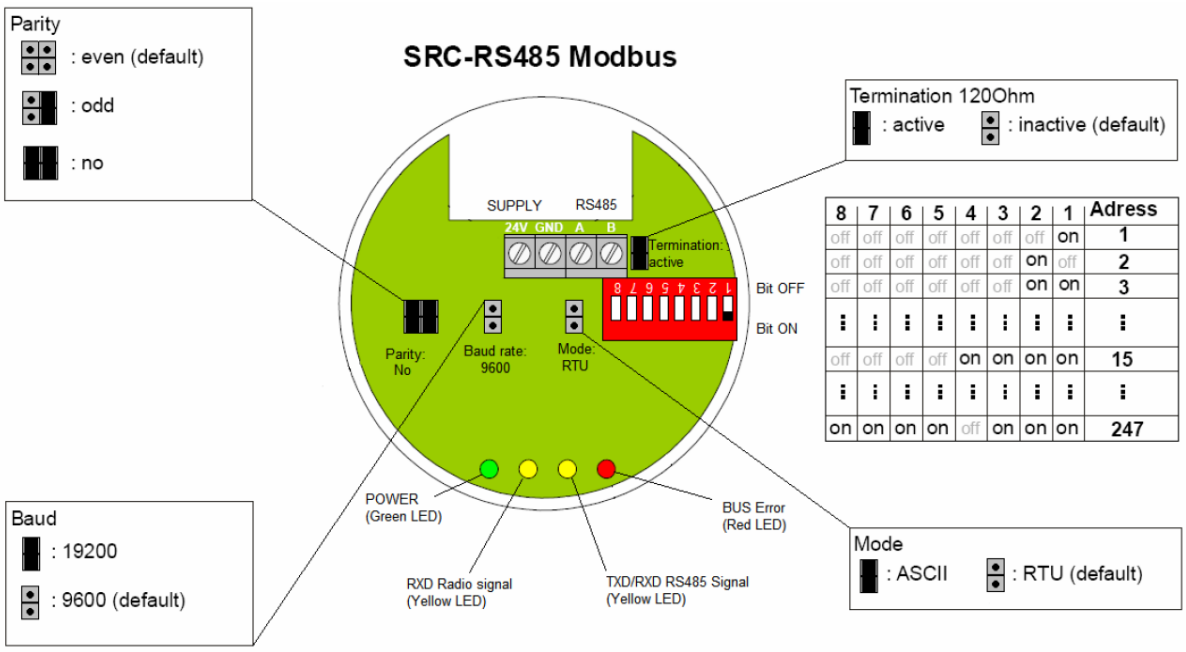
# Set the Base Station address and RS485 port settings




# Set the Controller to recognise the Base Station

4. Power up the UC32.netK/MOD controller.
5. Set up port 4 on the UC32.netK/MOD to match the base station baud rate and transmission type (RS485). This must be done using the embedded configuration web pages in the Communications Controller.
6. Press  followed by the Config Password to enter Configuration Keypad mode.
7. In the Configuration Keypad menu, select ' Wireless Sensors'.
8. Enter the address of the base station through which the sensor is to communicate - as set on the base station's DIP switch (see Thermokon datasheet).
9. Press 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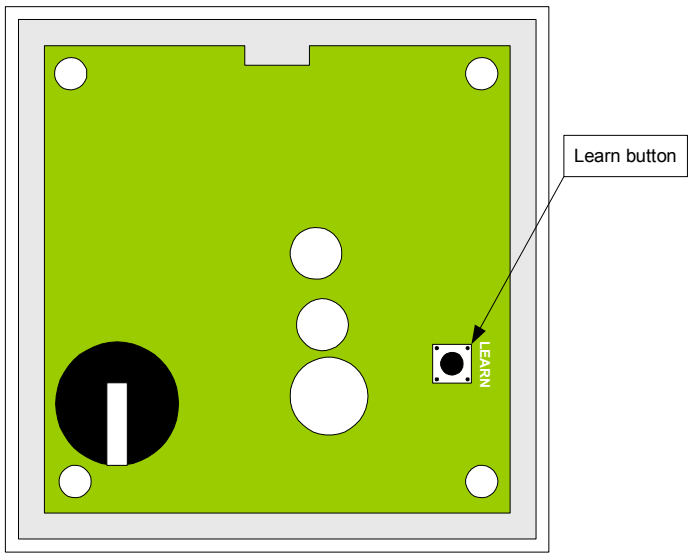
# Add the required sensors to the Base Station

10. Choose the Sensor Settings number corresponding to the number of the sensor you are about to set up.
11. Press 
12. Select 'Learn Sensor' and press  .

    This puts the Base Station into learn mode. The keypad will display a message in the form: "Updating unit no *n*, Sensor no *m*, Press learn button on sensor now!!"

13. Press the learn button on the sensor.




**Sensor**
(rear cover removed)

14. On the UC32.netK/MOD keypad, select 'Read Data' and press  .

    The sensor code displayed should match the label on the sensor itself. For example, a message should be displayed in the following format: "Base station 1 Sensor no 1 SR04 *nnn*sec *nn.n*°C "

15. Press  , then select 'Change Sensor Type'
16. On the list that is displayed, select the model number of the sensor.
17. Repeat steps 9-15 for each sensor connected to the base station.
18. Repeat steps 6-15 for each connected base station.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# Make sensor values available to controller strategies

19. On the Supervisor PC, open the Unitron Engineering Centre.

20. Set up a UC32-type Field Controller ("Virtual Controller") to represent the base station.

**Note**: The base station must be represented by a UC32-type Virtual Field controller rather than any other Field controller type, so the full range of sensors (using point numbers 1-1024) can be covered.

21. Set the address of the Modbus Virtual Field Controller corresponding to the base station from the following table:

| Base Station Address | Virtual Controller Number |
|---|---|
| 1 | 131 |
| 2 | 132 |
| 3 | 133 |
| ⋮ | ⋮ |
| 30 | 160 |
| 31 | 161 |
| 32 | 162 |

22. In the 'strategy' for that virtual controller, add an Analog Setpoint module. This module will be assigned a point number automatically. Double-click on the setpoint in the strategy drawing, and change its point number to the number corresponding to the required sensor value in the following table:

| Virtual point numbers in strategy | | | | | Point value represents |
|---|---|---|---|---|---|
| sensor 1 | sensor 2 | sensor 3 | ..... | sensor 32 | |
| 1 | 33 | 65 | ..... | 993 | Temperature based on sensor type set on keypad |
| 2 | 34 | 66 | ..... | 994 | Temperature from SR04 and SR04PST |
| 3 | 35 | 67 | ..... | 995 | Temperature from SR65_AKF62, SR65_AKF135, SR65_AKF192, SR65_AKF465 and SR65_VFG. |
| 4 | 36 | 68 | ..... | 996 | Temperature from SR04RH |
| 5 | 37 | 69 | ..... | 997 | Temperature from SR65 and SR65_TF_250 |
| 6 | 38 | 70 | ..... | 998 | Humidity |
| 7 | 39 | 71 | ..... | 999 | Setpoint value |
| 8 | 40 | 72 | ..... | 1000 | Fan speed |
| 9 | 41 | 73 | ..... | 1001 | Ticks since last read |
| 10 | 42 | 74 | | 1002 | Not used |
| ⋮ | ⋮ | ⋮ | | ⋮ | ⋮ |
| 32 | 64 | 96 | | 1024 | Not used |


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23. Add a global to the 'strategy' of the virtual controller, connect it to the Analog Setpoint module, and configure the global to send the point value to the Field Controller strategy or strategies in which it is required.

24. Save the virtual strategy.

25. Open a real strategy in any of the field controllers on the current Fieldbus.

26. Download that strategy , in order to start the global operating on the Fieldbus.

**Note**: Batteryless sensors can not be used straight out of the box. They need 200Lx of light for at least 2 hours in order to charge the solar cell. They will then work for 14 hours in total darkness.

**Note**: An EPM-100 Field strength meter is needed in order to determine the best location for the SRC-RS485 MODBUS base station so as it can receive radio signals from all of the wireless sensors in the building.


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