

# CYLON

## Room Temperature Sensor WRF04FC

The Cylon Room Temperature Sensors are surface mounting room temperature sensors and operating panels, designed for

- temperature measurement
- integrated manual control of HVAC applications (change set point, change fan speed)



## Specifications

Sensor Type:	1x 10k3A1
Measuring range	-35°C to +70°C
Accuracy	±0.2°C from 0°C to 70°C
Rotary switch (S)	5-stages (Auto,0,I,II,III), max. load 5VA
Occupancy Switch (T)	close contact, max. load 600mW
Connection	Terminal screws, max. 1,5mm <sup>2</sup>
Housing	for wall mounting, material ASA, colour pure white, similar to RAL9010
Protection	IP20
Cable entry	from behind or side-mounted entry from top/below
Ambient temperature	< 50°C
Ambient humidity	< 85%rF, no condensation

## Norms and Standards

CE-Conformity	89/336/EWG Electromagnetic compatibility
Standards	EN 60730-1: 2000



Due to Cylon's policy of continuous improvements these specifications may be upgraded without notice.

**UNITRON UC32.**  
Building Management System

### Installation

#### Mounting Considerations

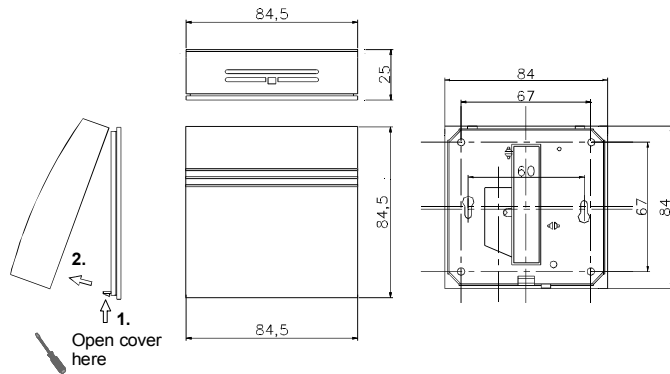
This sensor is attached by means of raw plugs and screws (not supplied) to the smooth wall surface.

For wiring, the snap-on lid must be separated from the base plate.

The Sensor must be installed at a position in the room that is representative of the typical room temperature.

Direct sunlight and draughts should be avoided.

Conduits into the sensor box must be sealed to avoid any draught causing errors in the sensor reading.



#### Location and accuracy of room sensors

Sensors should be mounted at locations where the air temperature is representative of the air temperature throughout the room.

It is important that the flush mounting socket is completely closed at the wall side, so that the circulation of air may take place only through the gaps in the cover. Otherwise, errors in temperature measurement will occur.

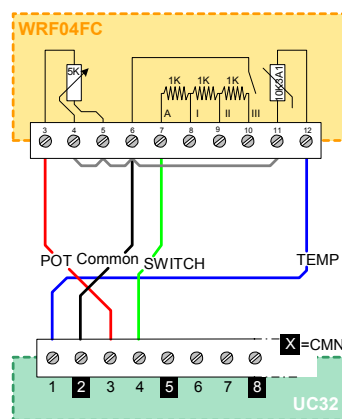
The temperature sensor should not be blocked by furniture etc..

Mounting places next to doors (where draughts may occur) or windows (colder outside wall) should be avoided.

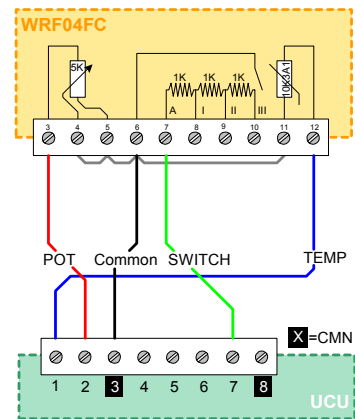
Various wall types (brick, concrete, dividing and hollow brickwork) have different behaviour with regard to thermal variations. A solid concrete wall responds to thermal fluctuations within a room in a much more slowly than a light-weight structure wall. As a result, room temperature sensors installed in flush boxes have a longer response time to variations in air temperature. In extreme cases they may detect the radiant heat of the wall rather than the air temperature in the room. The quicker the thermal response (temperature acceptance) of the wall, or the longer the selected scanning interval of the temperature sensor, the smaller this effect will be.

#### Terminal Connection

##### Connection to UC32 Field Controllers:



##### Connection to UCU Field Controllers:



**Note:** To avoid self-heating, which can affect the accuracy of measurement, the wire current should not exceed 1mA.



Due to Cylon's policy of continuous improvements these specifications may be upgraded without notice.

**UNITRON UC32.**  
Building Management System

### Application:

The following sample strategies show how inputs from these sensors may be processed by UnitronUC32 Field Controllers

### UC32.xx strategy (Firmware version 6.12 or greater)

#### Sensor Type - CCWRF04FC (Room temperature sensor with Pot and Fan Speed Selector)

**Setpoint Adjust Pot**

Analog Input: 2000.00 (1)

**Fan Speed Selection**

Analog Input: 100.00 (2)

**Room Temperature**

Analog Input: 22.50 (3)

For the Setpoint Adjust Pot -  
Set the Exp. Filter Constant to Five seconds.  
Set the 'Sensor Type' to 0-10 Kohms

Integer block no. 1

Fn43 Integer Constant	2
A=	65486
B=	50
C=	6000
D=	1500

Integer block no. 2

Fn43 Integer Constant	6
A=	2500
B=	3500
C=	0
D=	0

For the Fan Speed Selection Switch -  
Set the Sensor Type to Resistance

Integer Constant block no. 1

Integer Constant	1
A=	minus 50
B=	50
C=	6000
D=	1500

Integer Constant block no. 2

Integer Constant	2
A=	2500
B=	3500
C=	0
D=	0

Advanced Terminal options for Setpoint Adjust Pot

**Advanced Analog Terminal Options**

Module Output: Lower Range: -3 Upper Range: 3

Resolution:  10 Bits  14 Bits

Averaging: 0

UI Input: Lower Range: 0 Upper Range: 5000

Passive Reading:  Pulse  Continuous

OK Cancel

**Auto**

Fn55 Timer Const. Input: 3

On delay =	1
Off delay =	0
Min on time =	0

**Off**

Fn55 Timer Const. Input: 3

On delay =	1
Off delay =	0
Min on time =	0

**Speed 1**

Fn55 Timer Const. Input: 3

On delay =	1
Off delay =	0
Min on time =	0

**Speed 2**

Fn55 Timer Const. Input: 10

On delay =	1
Off delay =	0
Min on time =	0

**Speed 3**

Fn55 Timer Const. Input: 11

On delay =	1
Off delay =	0
Min on time =	0

For the Room Temperature Sensor -  
Set the 'Sensor Type' to 10K3A1

Integer Constant block no. 1

Integer Constant	1
A=	50.00
B=	1500.00
C=	100.00

Integer Constant block no. 2

Integer Constant	5
A=	100.00
B=	6000.00
C=	0

Integer Constant block no. 3

Integer Constant	4
A=	50.00
B=	1500.00
C=	100.00

Integer Constant block no. 4

Integer Constant	7
A=	1500.00
B=	2500.00
C=	100.00

Integer Constant block no. 5

Integer Constant	18
A=	2500.00
B=	3500.00
C=	100.00

### UCU strategy

Sensor Type - CCWRF04FC (Room Temperature Sensor with Pot and Fan Speed Selector)  
Page 1

#### Room Temperature

Analog Input  
25.03 (1)  
A - In

For the Room Temperature -  
Set controller jumpers to : Volt Free  
Set the 'Sensor Type' to 10K3A1

#### Setpoint Adjust

Analog Input  
1743.56 (2)  
A - In

Fx61 Make Linear 31  
Num steps: 11  
NTC = 0  
52.14  
S = 0.00  
Start range: 0  
Eng range: 100

For the Setpoint Adjust -  
Set controller jumpers to : Passive  
Set the 'Sensor Type' to mVolt  
Set the 'Exponential Filter Constant' to 5  
Set the number of linear steps to 11  
Set the Start and End Range to 0 and 100

Use the following values for the constants:  
0, 446, 820, 1136, 1408, 1645, 1852, 2035,  
2198, 2344 and 2475.

#### Lower Range of Pot

Analog Set  
-3.00 (41)  
A

#### Upper Range of Pot

Analog Set  
3.00 (40)  
A

Fx43 Integer Constant 30  
A= 0.00 (27)  
B= 446 446.00 (28)  
C= 820 820.00 (29)  
D= 1136 1136.00 (30)

Fx43 Integer Constant 32  
A= 1408 1408.00 (31)  
B= 1645 1645.00 (32)  
C= 1852 1852.00 (33)  
D= 2035 2035.00 (34)

Fx43 Integer Constant 33  
A= 2198 2198.00 (35)  
B= 2344 2344.00 (36)  
C= 2475 2475.00 (37)  
D= 0 0.00 (38)

Fx29 Max. of 8 Inputs 35  
A 446.00 (28)  
B 020.00 (29)  
C 1136.00 (30)  
D 1408.00 (31)  
E 1645.00 (32)  
F 1852.00 (33)  
G 2035.00 (34)  
H 2198.00 (35)

Fx19 Fiescale From 0-100 34  
A -3.00 (41)  
B 3.00 (40)  
C -0.14 (42)  
D 52.23 (39)

Fx29 Max. of 8 Inputs 36  
A 2344.00 (36)  
B 2475.00 (37)  
C 0.00 (38)  
D 0.00 (39)  
E 0.00 (40)  
F 0.00 (41)  
G 0.00 (42)  
H 0.00 (43)

### Page 2

#### Fan Speed

Analog Input  
1200.50 (3)  
A - In

For the Fan Speed Selection -  
Set the 'Sensor Type' to mVolt  
Set the 'Exponential Filter Constant' to 0

Set jumpers to : Volt Free

Fx43 Integer Constant 22  
A= -50 -50.00 (17)  
B= 50 50.00 (18)  
C= 500 500.00 (19)  
D= 1500 1500.00 (20)

Fx43 Integer Constant 23  
A= 150 150.00 (21)  
B= 250 250.00 (22)  
C= 300 300.00 (23)  
D= 400 400.00 (24)

Fx43 Integer Constant 24  
A= 400 400.00 (25)  
B= 500 500.00 (26)  
C= 0 0.00 (27)  
D= 0 0.00 (28)

Fx34 Vin. Comparator 17  
A -50.00 (17)  
B 50.00 (18)  
C 1200.40 (19)  
D 0 (20)

Fx34 Vin. Comparator 18  
A 500.00 (19)  
B 1500.00 (20)  
C 1200.01 (21)  
D 0 (22)

Fx34 Vin. Comparator 19  
A 150.00 (21)  
B 250.00 (22)  
C 1200.77 (23)  
D 0 (24)

Fx34 Vin. Comparator 20  
A 300.00 (23)  
B 400.00 (24)  
C 1200.03 (25)  
D 0 (26)

Fx34 Vin. Comparator 21  
A 400.00 (25)  
B 500.00 (26)  
C 1200.42 (27)  
D 0 (28)

Fx56 Timer Const. Input4 25  
On delay = 1 (17)  
Off delay = 0 (18)  
Min on time = 0 (19)  
R 0 (20)

Fx56 Timer Const. Input4 26  
On delay = 1 (18)  
Off delay = 0 (19)  
Min on time = 0 (20)  
R 0 (21)

Fx56 Timer Const. Input4 27  
On delay = 1 (19)  
Off delay = 0 (20)  
Min on time = 0 (21)  
R 0 (22)

Fx56 Timer Const. Input4 28  
On delay = 1 (20)  
Off delay = 0 (21)  
Min on time = 0 (22)  
R 0 (23)

Fx56 Timer Const. Input4 29  
On delay = 1 (21)  
Off delay = 0 (22)  
Min on time = 0 (23)  
R 0 (24)

AUTO  
OFF  
LOW SPEED  
MEDIUM SPEED  
HIGH SPEED

## ABOUT UNITRONUC32

Cylon sensors are part of the UnitronUC32 range of products, which offers the following benefits:

### Unique Flexibility with UniPut™ I/O

The UnitronUC32 range uniquely presents UniPut I/O, a revolutionary answer to flexible point configuration, offering maximized utilisation of controller capacity along with flexibility in strategy changes. Built on a modern, web-based architecture, the UnitronUC32 range has a wide application scope with the flexibility of being stand-alone or network enabled. Easily customisable, the UnitronUC32 range has optional internal or external keypads for a powerful yet user-friendly interface, matched by extensive monitoring and logging capabilities.

### Cost Effective, low entry point for building control.

The UnitronUC32 range offers reduced costs in terms of training, implementation, rollout and maintenance. Modular, extendible packages along with low installation costs mean a low entry point for building control. Advanced web based technology provides expanded facilities for maintenance personnel, while day to day access is offered via intuitive web pages. The future proof UnitronUC32 range provides forward & backward compatibility, meaning an effortless upgrade path for existing Unitron Systems.

### Highly programmable and extendable through web enabled HVAC technology

The UnitronUC32 range offers an advanced, web based, 32-bit architecture, with advanced programmability through the UnitronUC32 Engineering Centre. Inbuilt diagnostics along with expanded data logging and strategy storage is further enhanced by UniPut I/O, offering up to 8 Universal inputs, up to 8 UniPut connections (AI/DI/AO/DO) and up to 8 UniPut I/O with relays.



Due to Cylon's policy of continuous improvements these specifications may be upgraded without notice.

**UNITRONUC32.**  
Building Management System