67023D 07/16 (LOA)

USER MANUAL
Comfort System4™
English

Contents

INTRODUCTION 1

CENTRAL CONTROLLER - MENU OVERVIEW 2

FIRST TIME SETTINGS
Setup of the Comfort System4™ 3
Setup Central Controller 3
Connecting thermostats 3
Assign time schedules 3
Adjust time schedules 3

CENTRAL CONTROLLER FOR CS4™
General operation 3
Select room 3
Back 4
Exit 4

OPERATION MODE
Holiday mode 4
Comfort mode 4
Frost mode 4
Manual mode 4

CENTRAL CONTROLLER - MENU
4-event settings: Time schedules 4
Factory settings for the time schedules 4
Preset time schedule 4
Programming of time schedules 4
User setting 5
Time and date 5
Child lock 5
Display settings 5
Energy monitor 5
Engineer settings 5
Offset temperature 6
Adaptive function 6
Application 6
Temperature scale 6
Frost temperature 6
Backlight 6
Sensor selection 6
Language 6
Factory reset 6
Information 6
System settings 6
Add unit 6
Remove unit 6
Switch unit 6
Alarm relay 7
Readout 7
Energy monitor 7
Room status 7

CENTRAL CONTROLLER, GENERAL
Error messages 7
Control signal input 7
Setback 7
Frost protection 7
Off 7

THERMOSTAT FOR CS4™
General operation 7
Wireless signal strength 7
Daily use of thermostat 8
4-event temperature setting (Auto) 8
Local-Manual temperature setting 8
Child Lock 8

THERMOSTAT, SETUP MENU
Menu overview 8
Parameters in the setup menu 8
Max. temperature 8
Min. temperature 8
Max. limit temperature 8
Min. limit temperature 8
Measured floor temperature 8
Measured room temperature 8
Application 8
Adjust 9
Backlight 9
Address readout 9
Repeater function 9
Software version 9

THERMOSTAT, TROUBLESHOOTING
Factory reset 9
Status messages 9
Error messages 9
Error codes, overview 9

RELAY MODULE FOR CS4™
General operation 10
Application 10
Night setback 10
Frost protection 10
Thermostat with external sensor 10
Error messages, LED readouts 10
Factory reset 10

HOW TO PLAN YOUR SYSTEM
Zone-list, names for time schedule 10
Table for time schedules 11

INTRODUCTION

Comfort System4™ is a complete control system for multi-room, electric heating systems consisting of up to 32 rooms. The system consists of a Central Controller with Thermostats and Relay modules. The wireless Central Controller and Thermostat with room and/or floor sensor ensures maximum comfort and minimum energy costs.

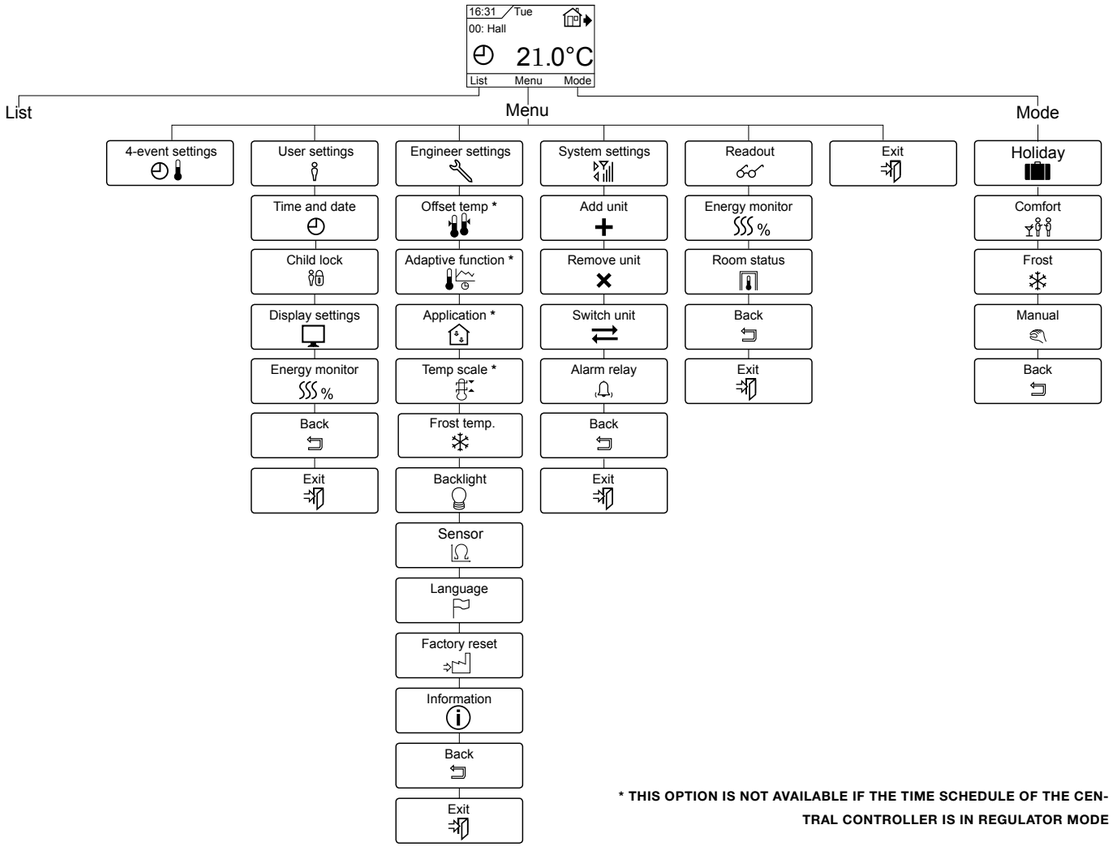
The Central Controller, MCS4/OCS4-10 is the main thermostat, which controls and monitors all the thermostats and relay modules in the different rooms. All thermostats and relay modules in the Comfort System4™ are programmed from the central controller. Animated menu navigation ensures easy setup, monitoring of energy consumption and selection of comfort mode or holiday mode.
The Central Controller has 5 pre-programmed time schedules. For each day of the week, individual temperatures can be set for 4 different periods, called events, all of which can be adjusted to suit your needs. Lowering the temperature when the home is unoccupied reduces energy costs without reducing comfort.
Furthermore, the Central Controller features an adaptive function that automatically adjusts heating period start times to ensure that the required temperature is reached at the required time. After 3 days the adaptive function has learned when the heating must be switched on.

The thermostat, MSD4/OSD4-1999 is controlled by the central controller of the CS4™. Basic functions can easily be performed locally on the thermostat. Other functions such as 4-event time-program settings can be performed from the Central Controller

The relay module, MSA4/OSA4-10 controlling electric heating panels, etc., featuring night setback, frost protection and floor sensing thermostat mode. The relay module is controlled by the central controller of the CS4™.

© 2016 OJ Electronics A/S

CENTRAL CONTROLLER - MENU OVERVIEW



*** THIS OPTION IS NOT AVAILABLE IF THE TIME SCHEDULE OF THE CENTRAL CONTROLLER IS IN REGULATOR MODE**

© 2016 OJ Electronics A/S

FIRST TIME SETTINGS
Setup of the Comfort System4™

Follow these simple steps to make the system ready for use.

1. **Setup Central Controller.**
2. **Connect thermostats.**
   Connect all thermostats and relay modules in the heating system, to the Central Controller.
3. **Assign time schedules to the thermostats.**
   It is a good idea to divide the thermostats/relay modules into groups with the same time schedule. See "How to plan your system" in the back of this manual.
4. **Adjust time schedules.**
   The time schedules can be programmed with week schedules, times and temperatures to suit the specific needs of the different groups/rooms.

Setup Central Controller

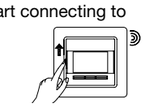
The first time you switch the power interrupter to ON "**I**", basic settings must be set. The menu will automatically guide you through the process.

1. Set **"language", "time"** and **"date"** with the up and down buttons and confirm with **OK**.
2. "**Please select schedule for this thermostat"**
   Name the time shedule with a specific name from the list called "Zone" and confirm with **OK**.
   Tip. Note it down in the table in the back of this manual.
3. "**Please activate thermostats for connection"**
   You can now connect the thermostats/relay modules in the system to the Central Controller. Confirm with **OK**.

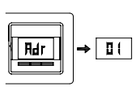
Connecting thermostats and relay modules (units)

When you connect a thermostat or a relay module to the Central Controller it is a good idea to make a plan over your system. ***Go to "How to plan your system" in the back of this manual, and fill out the tables.*** Write down what room the thermostat/relay module is located in and what address was assigned.

1. "**Connecting"** flashes on the Central Controller.
   The units can now be turned on one-by-one.
2. Switch on the power to the unit. The unit will start connecting to the Central Controller.
   "**Con"** flashes on the thermostat or the **"Green LED"** flashes quickly on the relay module.



3. "**Adr/01"** flashes on the thermostat when the connection is ok. Press a button to confirm.
   "Green LED" is constantly ON on the relay module when the connection is ok. If the relay module is not connecting (**"Green LED"** flashes slowly), then switch the relay module off and back on again to restart the connection procedure.
   "**01: Connected"** is displayed in the list on the Central Controller when the unit is connected, and "**Connecting"** flashes to indicate that the Central Controller is ready to connect to the next unit.



4. Go to the next unit to be connected, and switch on the power. Repeat the procedure until all units in the system are connected.
5. The Central Controller will now display a list of all units connected to the system. Use **"arrow up/down"** to go through the list. "00: Schedule-Name" / "01: Connected" / "02: Connected" etc. The connected units now need to have a time schedule assigned.
   Tip. Do not exit this menu, continue to assign time schedules.

Assign time schedules to the units

After all the units are connected to the Central Controller, they need to have a time schedule assigned. Up to 5 different time schedules can be programmed in the system.
It is a good idea to divide the units into groups with the same time schedule. You need to name the time schedules from the list (zone names). Remember you can only have 5 time schedules, but you can have many thermostats using the same one.
Tip. Use the table at the back of the manual to help you get an overview of the units in the groups (e.g. 01-Bedrooms, 02-Kitchen, 03-living area, 04-bathroom, and 05-Utility).

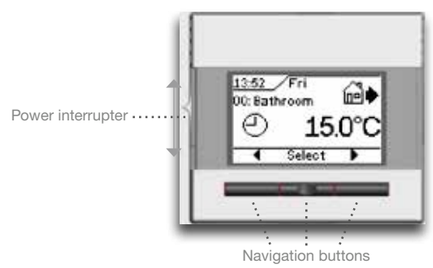
6. Select the thermostat or relay module to change (**"01:connected"**) use **"arrow up/down"** and confirm with OK.
7. Select a name for the time schedule and confirm with OK. You can only have 5 names/zones.
   The unit has now been assigned a time schedule. (e.g. **"01: Bedrooms**").
   Tip. Note it down in the table at the back.
8. Continue until all units have been assigned a time schedule. confirm with **"Exit"** to go to the main menu.
   If a unit has been assigned the wrong time schedule, it can be changed in the **"Switch unit**" menu (Menu/System settings/ switch unit).

Comfort System4™ is now ready for use and will control your heating system in accordance with the pre-programmed time schedule.
NOTE. The 5 time schedules are set at the factory to the same 4-event settings.

Adjust time schedules

You can now adjust the settings in the 5 time schedules to suit the specific needs of the different groups/rooms.
Go to the section: **"Programming of time schedules".**
Tip! *Write down how you want to program the time schedules before to suit your specific needs, and then program them after. Use the tables in the back.*

CENTRAL CONTROLLER FOR CS4™



General operation

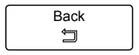
The interrupter button allows you to turn the controller on "**I**" and off "**0**" by sliding the button up and down. When the Central Controller is switched off "**0**", the relay disengages. All settings, including time and date, will be remembered.
The Central Controller is intuitively operated using the navigation buttons.
The function of each button is indicated above the button on the display.

Select room

The initial display allows you to select the room for which you want the actual set temperature and event mode to be displayed.
Press **"List"** and use the left and right arrow to select the desired room.

© 2016 OJ Electronics A/S

Back



Various menus and submenus contain a **Back** option. Use **Back** to return to the previous step.

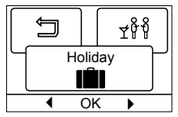
Exit

Returns to the initial display.

OPERATION MODE

The Central Controller features different types of temperature control.
Press "**Mode**" to change the operation mode.
You can always quit the current operating mode and return to the time schedule in progress by pressing **"Auto".**

Holiday mode

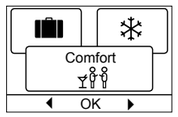


Select Holiday if you want to lower the temperature in all rooms for a specific period to save energy, e.g. if the house is uninhabited for a period of time.

- Select "**Holiday",** set the start date and time, the stop date and time, and required temperature for the holiday. Confirm with **OK**.

The comfort system is now in Holiday mode and a suitcase is displayed. When the period has expired, the system will automatically return to the time schedule in progress.

Comfort mode

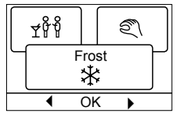


Select Comfort to set a temporary comfort temperature (so-called party mode) for a single room or all rooms.
The comfort temperature becomes the highest temperature for the 4-event time schedule for the day concerned.

- Press "**Comfort",** select a single room or "All rooms" and set the hours for comfort mode (1-8 hours). Confirm with **OK**.

When the period has expired, the system will automatically return to the time scheduled in progress.

Frost mode

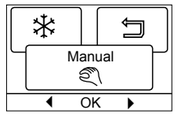


Select Frost to maintain a minimum temperature for frost protection in all rooms.

- Press **Frost**, confirm with **OK** and the frost symbol will be displayed.

The system will continue to operate in Frost mode until you return it to the time schedule in progress by pressing **"Auto".**

Manual mode



Select Manual to override the time schedule by setting a required temperature manually.

- Press **Manual**, select room and set required temperature. Confirm with **OK**.

The thermostat will continue to operate in Manual until you return it to the time schedule in progress by pressing **"Auto".**

CENTRAL CONTROLLER MENU

The Central Controller has several setup menus.

- 4-event settings
- User settings
- Engineer settings
- System settings
- Readout

4-event settings: Time schedules

The Comfort System is automatically controlled in accordance with the time schedule of your choice. For each of the 5 time schedules, you can select the settings for different events during the day.

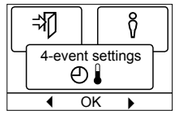
Factory settings for the time schedules

All the time schedules are ready to use with factory pre-programmed settings for easy and economic heating control.
Week schedule:
Factory set to "5:2" - Monday to Friday (Day 1-5) with 4 events and Saturday to Sunday (Day 6-7) with 2 events.
Mode:
Factory set to "Temperature control".
Time and temperature:
Factory set according to the event-schedule below.

Preset time schedule

Days 1-5 with 4-Event			
Event	**Time**	**With floor-sensor**	**With room-sensor**
Morning	06:00-10:00	28 °C	21 °C
Daytime	10:00-16:00	20 °C	15 °C
Evening	16:00-22:00	28 °C	21 °C
Night	22:00-06:00	20 °C	15 °C
Days 6-7 with 2-Event			
Event	**Time**	**With floor-sensor**	**With room-sensor**
Morning	06:00-22:00	28 °C	21 °C
Night	22:00-10:00	20 °C	15 °C

Programming of time schedules



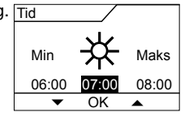
You can now adjust the settings in the 5 time schedules to suit the specific needs of the different groups/rooms.
Tip! fill in the tables for the time schedules in the back before you start the programming.

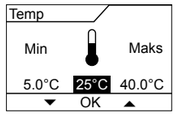
1. **Choose the time schedule**
   Press Menu/4-event settings/OK.
   Press **"the name of the zone"** and select the time schedule (1-5) to be changed.
2. **Choose the week schedule**
   For every time schedule, the 4-event settings follow a specific week schedule. Here, you can choose the type of week schedule required for the group/rooms in the time schedule.
   Press Menu/4-event settings/Schedule.
   Press **"Schedule"**, select the required week schedule 5:2, 6:1 or 7:0 and confirm with OK.
   "**5:2":**
   Monday to Friday with 4 events and Saturday to Sunday with 2 events (this is the factory setting). Typically used if you work from Monday to Friday.
   "6:1":
   Monday to Saturday with 4 events and Sunday with 2 events. Typically used if you work from Monday to Saturday.
   "7:0":
   Monday to Sunday with 4 individual events. Allows you to choose individual schedules for each of the seven days of week.
3. **Choose mode (regulator or temperature)**
   Allows you to change the type of heating control to be used by the thermostats in this time schedule. ***NOTE****! The time schedule of the relay modules have to be in Temperature mode.*

© 2016 OJ Electronics A/S

Press **"Mode"** (Menu/4-event settings/mode), select **"Temp"** or **"Regulator"** and confirm with OK.
Temperature:
Choose **"Temp"** to set the time schedule for temperature control (this is the factory setting).
The thermostats/relay modules, connected to this time schedule, will now control the heating from the temperature.
Regulator:
Choose **"Regulator"** to set the time schedule to work as a regulator. The thermostats connected to this time schedule now function as a simple regulator and no sensors are used. The setting is a percentage.
NOTE! The thermostats must also be set to regulator mode in their own menu. Go to the menu (SCA ⇨ Hi) and set the application to regulator (App ⇨ C).
If the thermostat is in a different mode than the time schedule, then "E8" will be displayed in the central controller and the thermostat will switch to manual mode.

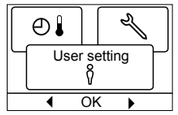
4. **Set time and temperature**.
   Depending on which week schedule has been chosen, the days of the week are now displayed in the time schedule. You can now set the required time and temperature for every event during the available days.
   - Choose the days you want to change (e.g. **"Mon-Fri"**). Confirm with OK.
   - Choose the event you want to change **(Morning, daytime, evening or night)**. Confirm with OK.
   - Set the start time for the event concerned. Confirm with **OK**.
   - Set the temperatures for this event, first the room temperature and then the floor temperature, and confirm with **OK.**





Now you can program the other time schedules. Select "**Back"** to go to the list of time schedules, or "**Exit"** to return to the main screen.

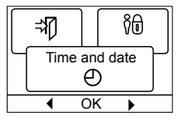
User setting



In the user settings menu you can change the following:

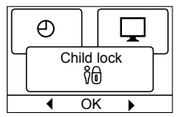
- Time and date
- Child lock
- Display settings
- Energy monitor

Time and date



Press **OK** and set the actual time and date. Confirm with **OK**.
Enable or disable "Daylight saving time" (DST) and confirm with OK.

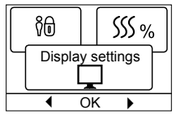
Child lock



Allows you to lock the settings, e.g. in public or other places where you do not want the settings changed. There are four alternative child lock settings:
Central: Locks only the central controller.
Normal: Locks all units, including the controller. Individual thermostats can be unlocked locally.
Full: Locks all units, including the controller. Individual thermostats can only be unlocked from the controller.
Off: Disables the child lock settings.

Confirm your choice with **OK**. The lock symbol will be shown on the display.
On the central controller the child lock can be unlocked by simultaneously pressing both the **left** and **right** buttons for 8 seconds.

Display settings



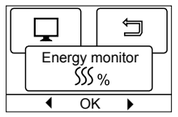
Choose display setting to be shown on the Main screen.

Temps:
Choose ether "Set temp", "Room" or "Floor".
Set temp: Shows the current temperature setting
Room: Shows the actual room temperature
Floor: Shows the actual floor temperature

Scr. saver (ON/OFF)
Switches off the display after 60 seconds if no button is pressed. Any subsequent press of a button reactivates the display. The controller remains active and runs the selected program.

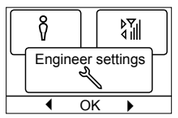
Idle screen
When **Exit** is pressed or there has been no activity for 30 seconds, the central controller reverts to the main screen. There are three different modes.
Single:
Single mode is the standard main screen (Factory setting).
Auto:
Standard main screen with automatic switching between the current status of all connected room thermostats.
Simple:
Simple mode for easy mode shifting. The controller will show the main screen in one of the three modes: **Holiday**, **Comfort** or **Frost**.
To enter the menu, select **Back** and press **OK**.
Press the **OK** button to select or deselect the display options. Then select **Exit** in the menu to return to the main screen and view your chosen settings.

Energy monitor



To view the true cost of the energy consumed, select the actual currency and cost per unit.
Currency:
Press **OK** and choose the required currency. Confirm with **OK**.
Cost/unit:
Press **OK** and set the actual cost of electricity. The cost must be entered per kWh. Press **OK**.
To display actual energy consumption and to specify the load for each thermostat, see **Readout**.

Engineer settings



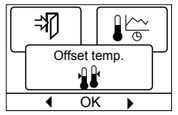
The Engineer settings menu contains the following options:

- Offset temperature *
- Adaptive function *
- Application *
- Temperature scale *
- Frost temperature
- Backlight
- Sensor
- Language
- Factory reset
- Information

*** Not available if the time schedule of the Central Controller is in regulator mode**

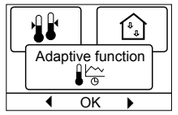
© 2016 OJ Electronics A/S

Offset temperature



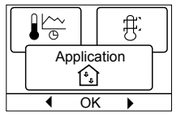
If the actual temperature (measured using a thermometer) does not correspond to the thermostat value shown on the controller, the thermostat can be adjusted by offsetting the temperature.
Press **OK** and enter the measured temperature value. Confirm with **OK**.

Adaptive function



Ensures that the required temperature has already been reached when you get up in the morning or come home from work. After just a few days, the adaptive function will have automatically calculated when the heating must be turned on. The adaptive function applies for all units connected to the system. Press **OK** and set the function.
Press **OK** and set the function to **On**. Confirm with **OK**.

Application

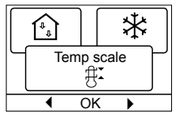


Set the type of control to be used by the Central Controller.

Floor: Controls floor temperature only. A floor sensor must be connected.
Room: Controls room temperature only.
Room/limit: Controls room temperature with min. and max. limits for floor temperature. A floor sensor must be connected.

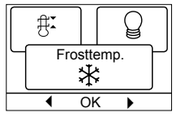
Press **OK** and select the required application. Confirm with **OK**.

Temperature scale



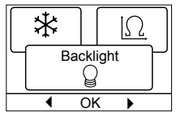
Allows you to set the temperature range within which the Central Controller can be set.
It is then only possible to set a temperature within this range in auto, comfort and manual mode.
Press **OK** to highlight **Min** temperature. Use the Up or Down button to select the minimum permissible temperature. Press **OK** and then select the maximum permissible temperature. Confirm the settings with **OK**.

Frost temperature



The required temperature in frost protection mode. Both room and floor temperature can be set.
Press OK and set the required room temperature using the Up or Down button. Press OK and set the required floor temperature. Confirm the settings by pressing OK.

Backlight

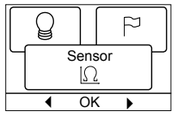


There are three settings for the display backlighting:

- **Auto:** Backlighting is activated whenever a key is pressed and goes out automatically 30 seconds after the last key is pressed.
- **On heat:** Backlighting comes on when heating is called for by the thermostat.
- **Const on:** Backlighting is constantly on.

Select the required backlighting setting and confirm with **OK**.

Sensor selection

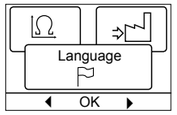


If you are using a sensor with different resistance characteristics than the one supplied with the thermostat, then you need to define the resistance values in this menu.

1. Select the sensor, from the preprogrammed list: **Sensor 2 kΩ, sensor 10 kΩ, sensor 15 kΩ, sensor 33 kΩ** or **factory sensor (12 kΩ)**.
2. Confirm or change the resistance values at 15°C, 20°C, 25°C and 30°C for the sensor in use. Confirm with **OK**. The new sensor values are now stored in the controller.
3. Select **Information** to see the resistance characteristic of the selected sensor.

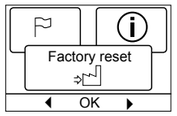
Note: *If an incorrect sensor is selected, there is a risk that the thermostat will not be able to maintain the required temperatures, and damage to the floor construction or covering may therefore occur.*

Language



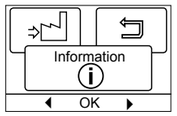
Allows the language used on the display to be changed.
Press **OK** and select the required language. Confirm with **OK**.

Factory reset



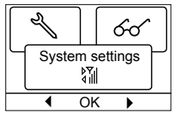
Allows factory settings to be restored.
Your personal settings will be lost, and the connection to all the units will be interrupted.
Press **OK** and choose **Reset** in the menu.
Confirm with **OK**. The Central Controller is now reset.
Go to **"First time settings"** to restart the system and reconnect the units.

Information



Here you can find the information for the thermostat, e.g. the software version.

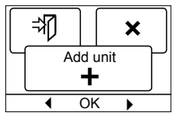
System settings



The System settings menu contains the following options:

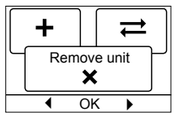
- Add unit
- Remove unit
- Switch unit
- Alarm relay

Add unit



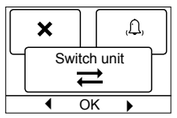
To add a new thermostat or relay module to the comfort system, select **Add unit** and press **OK**. The controller now enters "listening mode".
For details on connecting the thermostats/relay modules, see **Connect thermostats** under **First time settings**.

Remove unit



To remove a thermostat or relay module from the Comfort System, press **OK**. Select the unit you want to remove and press **OK**. Confirm with **OK.**

Switch unit

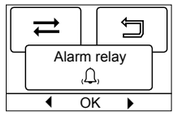


If a thermostat or relay module has been assigned the wrong time schedule, it can be changed here.

© 2016 OJ Electronics A/S

Select the unit concerned and press **OK**. Now select the required time schedule.
Confirm with **OK**.

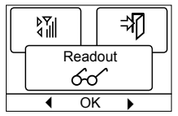
Alarm relay



The Central Controller can be used as an alarm relay for external signals from the output terminals. The alarm relay can be set as follows:

Sensor: The alarm relay is activated by sensor faults on one or more of the connected thermostats.
Overheat: The alarm relay is activated by sensor faults or overheating of units.
Communication: The alarm relay is activated by sensor faults, overheating of units or wireless communication faults.
Off: The alarm relay function is switched off, and the output terminals are used to control an underfloor heating cable.

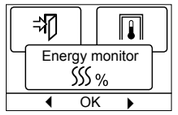
Readout



The Central Controller features readouts of energy consumption and status for each connected room.

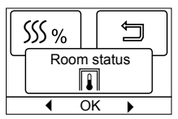
- Energy monitor
- Room status

Energy monitor



Displays energy consumption for the past 2, 30 or 365 days.
Press **OK** and select the room you want to view. Press **OK** for the chosen period. The value in percent (%) shows the relative amount of time the heating has been on. The following figure is the cost for the selected period.
To ensure correct calculation, check the settings for Load.
Load: Press **OK** and enter the connected heating power. The value must be in watt (W). Press **OK**.
Leave the menu by pressing **Exit**.

Room status



Displays the actual status for each room.
Press **OK** for the chosen room.

Signal: Signal strength is displayed in the top right-hand corner, with up to 4 bars at full strength.
Room: The actual room temperature in degrees.
Floor: The actual floor temperature in degrees (if floor or limit control is selected).
Application: The application for the actual thermostat.
Operating hours: The number of hours the unit has been switched on.
ID button: Press ID button to identify the selected Thermostat/relay module. The selected unit will be identified by its ID number in the upper left of the display in one of the following ways:
Thermostat: Display flashes the ID number.
Relay module: LED flashes as many times as the ID number.
The process lasts approx. 10 seconds before the unit returns to normal mode.

CENTRAL CONTROLLER, GENERAL

Error messages

If a fault or error occurs, the Central Controller will display an error code as follows:

E0: Internal failure. The thermostat is defective. Replace unit.
E1: Internal sensor defective or short-circuited.
E2: External sensor defective or short-circuited.
E5: Internal overheating. Inspect the installation.
E6: Communication error. No connection to the thermostat or relay module.
E8: Wrong application. The thermostat is not in the same application as the time schedule from the central controller. Change the application in ether the thermostat (APp) or in the time schedule of the central controller.

Control signal input

The Central Controller is equipped with a control signal input, the terminal for which is marked "S". By means of an external signal, the thermostat can be controlled in three different modes. See wiringdiagram in the Instruction.

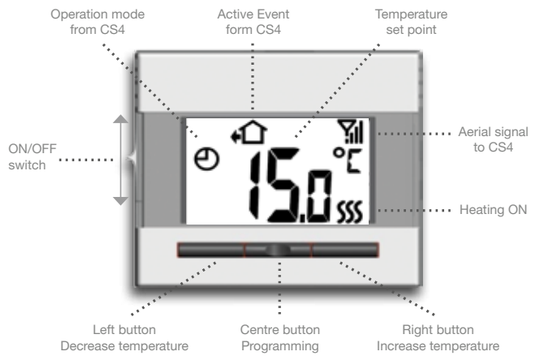
Setback:
In setback mode, the thermostat controls the temperature according to the lowest programmed setting in the 4-event schedule for floor and room temperature respectively.

Frost protection:
In frost protection mode, the thermostat controls room temperature according to the value set under: Engineer settings/Frost temperature.

Off:
Switches the thermostat to Off.

THERMOSTAT FOR CS4™

The thermostat is controlled by the central controller of the CS4™. Basic functions such as manual temperature setting and thermostasetup can easily be performed locally on the thermostat.
Local setting is displayed with the symbol in the thermostat.
Other functions such as 4-event timeprogram settings, energy readouts, etc. can be performed from the Central Controller



General operation

The interrupter button allows you to turn the thermostat on "**I**" and off "**0**" by sliding the button up and down. When the thermostat is switched off "**0**", the relay disengages. All settings will, however, be remembered.
The thermostat is intuitively operated using the navigation buttons.

Wireless signal strength

The aerial strenght to the Central Controller is displayed in 1 to 4 bars. 4=Full signal, 1=very low signal.
If no aerial bars are shown, there is no connection to the central controller.
If the thermostat is installed far from the controller or there are signal absorbing materials in the building, it may be necessary to

© 2016 OJ Electronics A/S

use a nearby thermostat with a strong signal and connect it as a repeater, see **Repeater function** (rEp ⇨ ON).

Daily use of the thermostat

The thermostat has a temperature setting range from 0 to +40°C.
You can define your own limits in the menu **"SCA ⇨ High/Low"** and **"Limit ⇨ High/Low".**

4-event temperature setting (Auto)

The thermostat will start up using the preset temperature according to the 4-event time schedule from the Central Controller.
Change temperature in the central controller.
You can set the time, temperature, week schedule and control mode for in the 4-event time schedules availible in the central controller.

Local-Manual temperature setting

Local-Manual allows you to override the 4-event time schedule for the actual event.
Set temperature locally.
You change the temperature locally on the thermostat, using the left or right button. The thermostat will then go in "Local-Manual".

- Press the right button to increase the temperature.
- Press the left button to decrease the temperature.
- The temperature flashes for five seconds and then the new set-point will be shown on the display continuously.

The thermostat will now regulate the heating using this setpoint until the next programmed event in the time schedule starts.
Three waves SSS will be displayed when the heating is on.
You can always cancel local-manual operation, by pressing the middle button. The thermostat will automatically start on the active 4-event time schedule from the central controller.

Child lock

Allows thermostats in public and other places to be locked, thus preventing unauthorised alteration of the settings. Press and hold the left and right buttons simultaneously for 10 seconds. A "lock" symbol indicates that the thermostat is locked.
The child lock can be released by pressing the left and right buttons simultaneously for 10 seconds.

THERMOSTAT, SETUP MENU
Menu overview

Note. *The structure of the menu will vary depending on the setup.*

Parameter	Shown on display	Factory setting
Max. temperature	SCA ⇨ Hi ⇨ 40	40°C (0-40°C)
Min. temperature	SCA ⇨ Lo ⇨ 0	0°C (0-40°C)
Max. limit temperature FLOOR	Li ⇨ Hi ⇨ 28	28°C (0-40°C + OFF)
Min. limit temperature FLOOR	Li ⇨ Lo ⇨ 15	15°C (0-40°C + OFF)
Measured floor temperature	FLo ⇨ 24.5 (exampel)	
Measured room temperature	ro ⇨ 21.5 (exampel)	
Application	APp ⇨ F (Floor sensor) ⇨ A (Room sensor) ⇨ AF (Room sensor with floor limit) ⇨ C Regulator %	F : Floor
Adjust	Adj ⇨ 24.5 (exampel)	Actual temperatur (+/- 10°C)
Backlight	LHt ⇨ OFF	OFF (OFF/ON)
Address readout	Adr ⇨ 01 - 31	
Repeater function	rEp ⇨ OFF	OFF (OFF/ON)
Software version	SU ⇨ 1.1x	

Parameters in the setup menu

The menu allows you to view or change the thermostat settings.

1. Press and hold the centre button for 3 seconds to activate the menu. **SCA** will be displayed for 1 second, followed by **Hi** and finally **40** will appear on the display.
2. Press the centre button to go to the next parameter.
3. Press the left or right button to change the setting.

If no buttons are pressed for 30 seconds, the program returns to the main screen.

Max. temperature

The highest temperature to which the thermostat can be adjusted.

Min. temperature

The lowest temperature to which the thermostat can be adjusted.

Max. limit temperature

If a limit/floor sensor is connected to the thermostat, the highest floor temperature allowed for wooden or other floor types can be set here.
Note. Only available if APp ⇨ AF is selected under Application

Min. limit temperature

If a limit/floor sensor is connected to the thermostat, the lowest floor temperature allowed for tiled or other floor types can be set here.
Note. Only available if APp ⇨ AF is selected under Application

Measured floor temperature

Readout of actual floor temperature (if a floor sensor is connected).
Note. With no or disconnected sensor, "- -" is shown on the display.

Measured room temperature

Readout of actual room temperature.
Note. With no or disconnected sensor, "- -" is shown on the display.

Application

Depending on which sensor you have for the thermostat, you can select the following temperature control applications.

Thermostat with sensor for:	APp⇨F Floor	APp⇨A Room	APp⇨AF Room/floor limit	APp⇨C Regulator
Floor	x			x
Room (built-in)		x		x
Room (built-in) and Floor	x	x	x	x

Floor (F):
The thermostat controls floor temperature only.
Note. Only available if an floor sensor is connected.

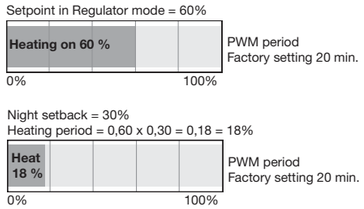
Room (A):
The thermostat controls room temperature only.

Room/limit (AF):
The thermostat controls room temperature with min. and max. limits for floor temperature.
Note. Only available if an floor sensor is connected.

Regulator (C):
The thermostat functions as a simple regulator. The floor and room sensors are not used. Heating is controlled on a scale of 0-10, corresponding to 0-100% of full power. (Factory setting: 50%).
Note. The time schedule in the central controller must also be set in regulator mode.

© 2016 OJ Electronics A/S

"Regulator" mode in combination with "Night setback"
The input for night setback can be set to increase or decrease the temperature. The thermostat can also decrease the heating period in % when set to regulator mode.
The setpoint multiplied by the night setback gives the heating period when night setback is activated.



Adjust

If the actual temperature (measured using a thermometer) does not correspond to the thermostat value, the thermostat can be adjusted by offsetting the temperature.

Backlight

The display is lit by backlighting whenever a button is pressed. After 30 seconds the light goes out unless a button is again pressed. This menu option allows constant low lighting to be chosen by selecting LHt On.

Address readout

Displays the thermostat address.

Repeater function

If a thermostat or relay module has insufficient or no signal, a second thermostat with strong signal can be configured to repeat the signal. Set the repeater function on the second thermostat to ON and connect the thermostat, see FIRST TIME SETTINGS.

Software version

Displays the thermostat software version.

THERMOSTAT, TROUBLESHOOTING
Factory reset

Allows factory settings to be restored. Your personal settings will be lost for this thermostat, and the connection to the central controller will be interupted.

1. Press and hold the middle button until the display stops flashing and the manual symbol is shown (after 10 seconds).The factory settings are now restored and the thermostat is in manual mode.
2. Turn the thermostat OFF and back ON to reconnect to the Central Controller.

Status messages

Explanation of messages and symbols shown on the display.

Display	Description / Troubleshooting
Con	**Connecting to the central controller.** Flashes: The thermostat attempts to connect to the central controller.
Adr 01	**Address assigned.** Flashes: The central controller and the thermostat will display the assigned address, e.g. "Adr/01". • Press OK to confirm, otherwise it will flash for 2 minutes.
	Aerial signal with bars. Connection to central controller OK. • The bars show the signal strength. Full signal = 4 bars. Very low signal = 1 bar.
	Aerial signal *without* bars. No connection to the central controller. The thermostat will switch to "Local-Manual" mode. • Check if the central controller is ON, and the unit has not been removed. • Try to reconnect, or use the repeater from another thermostat.
	4-events The active event from the central controller is displayed. • Morning • Daytime • Evening • Night
	Manual mode The thermostat is in manual mode.
	Frost protection The thermostat is in frost protection mode.
	Holiday mode The thermostat is in holiday mode.
	Comfort mode / Auto Comfort mode: The clock flashes. Auto: The clock appears and the thermostat follow the active 4-event time schedule.
	Child lock The thermostat is locked in child lock. Press left and right buttons for 10 secunds to unlock.
	Local setting Settings has been performed locally.
SSS	**Heating ON** The relay for the heating is ON.

Error messages

Error codes, overview

If a fault occurs, the thermostat will display one of the following error codes.

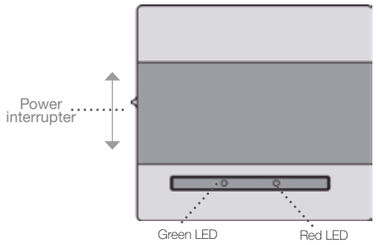
Display	Description / Troubleshooting
E0	**Internal fault - Thermostat.** The thermostat is defective. • Replace the thermostat.
E1	**Built-in room sensor defective.** The built-in room sensor is not working, the thermostat will turn the heating system off. • Replace the thermostat • You can also continue, without the defective sensor, using another application. See overview under "Parameters in the setup menu".

© 2016 OJ Electronics A/S

Display	Description / Troubleshooting
E2	**External wired floor sensor defective.** The external floor sensor is not working, the thermostat will turn the heating system off. • Replace the floor sensor and/or the cable • You can also continue, without the defective sensor, using another application. See overview under “Parameters in the setup menu”.
E5	**Internal overheating - Thermostat.** The thermostat is not working, and the heating system is off. • Check that heating cables are not overloaded. • Check that ambient temperature is not excessive. • When internal temperature drops, the thermostat automatically reactivates.
E8	**Wrong application - CS4.** The thermostat is not in the same application as the time schedule from the central controller. • Change application in the menu (APp). See overview under “Parameters in the setup menu”.

RELAY MODULE FOR CS4™

Relay module for controlling electric heating panels, etc., featuring night setback, frost protection and floor sensing thermostat mode. Only for use in combination with the MCS4-10 Central Controller for wireless communication.



General operation

The interrupter button allows you to turn the Relay module on “**I**” and off “**0**” by sliding the button up and down. When the Relay module is switched off “**0**”, the relay disengages. The wireless settings will be remembered.
The two LED on the front indicate actual status.

Application

The relay module can be used for three different control types: Night setback, Frost protection or with an external floor sensor. The type is determined by the way in which the relay module is wired and configuration occurs automatically.

Night Setback:
The relay module lowers the temperature according to the selected time schedule (Connect the heating panel to terminal 4).
Frost protection:
The relay module enters frost protection mode if chosen on the Central controller (Short-circuit terminals 5 and 6 then the relay module uses the built-in room sensor)

Thermostat with external sensor:
The relay module controls the temperature according to the selected 4-event time schedule in the central controller (connect a floor sensor to terminals 5 and 6).

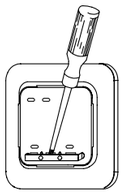
Error massages, LED readouts

The relay module has a green and a red LED to indicate actual status.

Green ON:	Power ON, Relay module OK.	
Green flashes quickly:	Connection sequence in progress	
Green flashes slowly:	No connection to Central Controller	
Red ON:	Relay ON, power to heating source	
Red flashes quickly:	Error code.	
	1 flash	E1: Internal sensor defective or short-circuited.
	2 flashes	E2: External sensor defective or short-circuited
	5 flashes	E5: Internal overheating. Inspect the installation.
	6 flashes	E6: Communication error

Factory reset

Allows factory settings to be restored and cancels the connection to the Central Controller.



1. Remove the cover by inserting a small screwdriver into the hole on one side of the thermostat.
2. Now hold the screwdriver on the contact points under the LEDs.
   Hold it until both LEDs flash three times.
   The relay module has now been reset.
3. Mount the cover and turn the power off and on again. The relay module will now connect to the Central Controller.

HOW TO PLAN YOUR SYSTEM

All the units connected to the Central Controller, need to have a time schedule assigned.

1. Name the time schedules in your system. Choose up to 5 names from the zone-list below.
   You can have many thermostats using the same time schedule/name.
2. Fill out the tables for the time schedules, this gives you a good overview of your system.
3. Program the time schedules in the Central Controller.
   Go to **”Programming of time schedules”** (Menu/4-event settings/OK).

Zone-list, names for time schedules

Choose the names for your groups of thermostats with the same time schedule (max. 5 names can be chosen).
Note. The names may vary depending on the model.

Living Areas	Bathroom	Kitchen
Mast.Bedroom	Bedroom 1	Bedroom 2
Bedroom 3	Bedroom 4	Mast. Ensuite
Ensuite 1	Ensuites	WC
Dining Area	Formal Dining	TV Room
Shower Room	Bath/ES/WC	Utility
Study	Bedrooms	Gym

© 2016 OJ Electronics A/S

Table for time schedules

Group the thermostats in your house together into different time schedules.
See example below.

Name	Living Areas		
Mode	*Temp ~~or regulator~~*		
Week Schedule	*5:2, ~~6:1 or 7:0~~*		
Time and temperature *In regulator mode you only have one setting pr. event (in %)			
Days with 4-Event	Start (time)	Temp. Floor (°C) *Regulator (%)	Temp. Room (°C)
Morning	06:00	25	21
Daytime	08:00	20	15
Evening	16:00	25	21
Night	23:00	20	15
Days with 2-Event	Start (time)	Temp. Floor (°C) *Regulator (%)	Temp. Room (°C)
Morning	08:00	25	21
Night	23:00	20	15
Rooms / Thermostats ID and description			
Adr. 00 – Living room, downstairs			
Adr. 03 – Dining room, downstairs			
Adr. 05 – Living room, upstairs			
Adr. 07 – Dining room, upstairs			

Name			
Mode	*Temp or regulator*		
Week Schedule	*5:2, 6:1 or 7:0*		
Time and temperature *In regulator mode you only have one setting pr. event (in %)			
Days with 4-Event	Start (time)	Temp. Floor (°C) *Regulator (%)	Temp. Room (°C)
Morning			
Daytime			
Evening			
Night			
Days with 2-Event	Start (time)	Temp. Floor (°C) *Regulator (%)	Temp. Room (°C)
Morning			
Night			
Rooms / Thermostats ID and description			

Name			
Mode	*Temp or regulator*		
Week Schedule	*5:2, 6:1 or 7:0*		
Time and temperature *In regulator mode you only have one setting pr. event (in %)			
Days with 4-Event	Start (time)	Temp. Floor (°C) *Regulator (%)	Temp. Room (°C)
Morning			
Daytime			
Evening			
Night			
Days with 2-Event	Start (time)	Temp. Floor (°C) *Regulator (%)	Temp. Room (°C)
Morning			
Night			
Rooms / Thermostats ID and description			

Name			
Mode	*Temp or regulator*		
Week Schedule	*5:2, 6:1 or 7:0*		
Time and temperature *In regulator mode you only have one setting pr. event (in %)			
Days with 4-Event	Start (time)	Temp. Floor (°C) *Regulator (%)	Temp. Room (°C)
Morning			
Daytime			
Evening			
Night			
Days with 2-Event	Start (time)	Temp. Floor (°C) *Regulator (%)	Temp. Room (°C)
Morning			
Night			
Rooms / Thermostats ID and description			

© 2016 OJ Electronics A/S

Name			
Mode	*Temp or regulator*		
Week Schedule	*5:2, 6:1 or 7:0*		

Time and temperature
*In regulator mode you only have one setting pr. event (in %)

Days with 4-Event	Start	Temp. Floor (°C)	Temp. Room (°C)
	(time)	*Regulator (%)	
Morning			
Daytime			
Evening			
Night			
Days with 2-Event	Start	Temp. Floor (°C)	Temp. Room (°C)
	(time)	*Regulator (%)	
Morning			
Night			

Rooms / Thermostats
ID and description

Name			
Mode	*Temp or regulator*		
Week Schedule	*5:2, 6:1 or 7:0*		

Time and temperature
*In regulator mode you only have one setting pr. event (in %)

Days with 4-Event	Start	Temp. Floor (°C)	Temp. Room (°C)
	(time)	*Regulator (%)	
Morning			
Daytime			
Evening			
Night			
Days with 2-Event	Start	Temp. Floor (°C)	Temp. Room (°C)
	(time)	*Regulator (%)	
Morning			
Night			

Rooms / Thermostats
ID and description

OJ ELECTRONICS A/S
Stenager 13B · DK-6400 Sønderborg
Tel.: +45 73 12 13 14 · Fax +45 73 12 13 13
oj@ojelectronics.com · www.ojelectronics.com

© 2016 OJ Electronics A/S · ® The OJ trademark is a registred trademark belonging to OJ Electronics A/S