Building Controls Division

ECL Comfort 200/300

RS232 protocol.

List of contents.

1. Before using this protocol.

This license applies to the "Protocol description for the use of the RS232 communication for the ECL Comfort 200/300".

You should carefully read the following terms and conditions before using this protocol description.

Disclaimer of Warranty and liability
THIS DOCUMENT IS DISTRIBUTED "AS THEY IS" AND WITHOUT ANY WARRANTIES OR LIABILITIES AS TO PERFORMANCE OR MERCHANTABILITY OR ANY OTHER WARRANTIES WHETHER EXPRESSED OR IMPLIED.
Because of the various hardware and software environments into which the ECL Comfort 200/300 may be put, NO WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE IS OFFERED.

Good data processing procedure dictates that any program is thoroughly tested with non-critical data before relying on it. The user must assume the entire risk of using the protocol. In particular, there is no warranty for the optional commands writing data to the EEPROM. Danfoss A/S have no responsibility for products that have been controlled according to this protocol.

ANY LIABILITY OF THE SELLER WILL BE LIMITED EXCLUSIVELY TO ZERO.

Distribution of Protocol description Provided that you verify that you are distributing the Protocol description. You are hereby licensed to make as many copies of the Protocol description as you wish; give exact copies of the original Protocol description to anyone; and distribute the Protocol description in its unmodified form via electronic means. There is no charge for any of the above.
You are specifically prohibited from charging, or requesting donations, for any such copies, however made; and from distributing the documentation with other products (commercial or otherwise) without prior written permission.

2. Possibilities with this protocol.

The possibilities of this protocol are listed in Table 1.

Parameter	Possibility
Sensor 6	Read only
Sensor 5	Read only
Sensor 4	Read only
Sensor 3	Read only
Sensor 2	Read only
Sensor 1	Read only
Calculated flow temperature Circuit 1	Read only
Calculated flow temperature Circuit 2	Read only
Calculated return temperature Circuit 1	Read only
Calculated return temperature Circuit 2	Read only
Room temperature circuit 1	Read only
Room temperature circuit 2	Read only
Outdoor temperature	Read only
Room temperature influence-max circuit 1	Read/write
Room temperature influence-min circuit 1	Read/write
Room temperature influence-max circuit 2	Read/write
Room temperature influence-min circuit 2	Read/write
Heating curve circuit 1 (*10)	Read/write
Heating curve circuit 2 (*10)	Read/write
Parallel displacement circuit 1	Read/write
Parallel displacement circuit 2	Read/write
Flow temperature-minimum circuit 1	Read/write
Flow temperature-minimum circuit 2	Read/write
Flow temperature-maximum circuit 1	Read/write
Flow temperature-maximum circuit 2	Read/write
Summer cut-out circuit 1	Read/write
Summer cut-out circuit 2	Read/write
Room temperature day setpoint circuit 1	Read/write
Room temperature night setpoint circuit 1	Read/write
Room temperature day setpoint circuit 2	Read/write
Room temperature night setpoint circuit 2	Read/write
Hotwater temperature day setpoint	Read/write
Hotwater temperature night setpoint	Read/write
Week program	Read/write
ECL Comfort application	Read only
Controller mode	Read only

Table 1 RS 232 commands for ECL Comfort 200/300

3. Basic principles
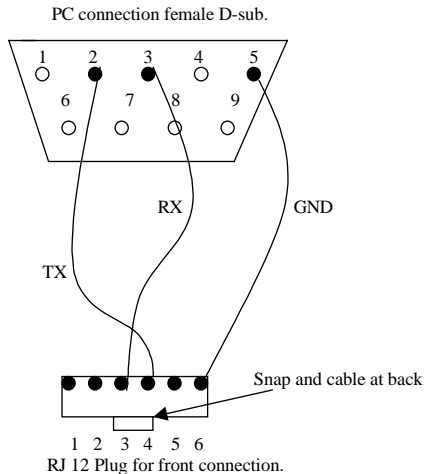
The basic principles are:
The ECL Comfort 300 can communicate using RS232 directly from the front of the controller. If RS 232 is required in the ECL Comfort 200 or RS 232 from the back of the controller are required in the ECL Comfort 200 and 300, then an ECA 81 RS232 options card is required. The ECA 81 options card has code number 087B1151. The Controller can only handle one RS 232 line: Either front or back connection – not both.

Communication cable:
You can produce the communication cable yourself.
The connection from the PC to the front/rear of the ECL Comfort is shown below.

Front connection.   Rear connection.

PC connection female D-sub.   PC-connection female D-sub stick.

RX   GND   RX   GND

TX   TX

Snap and cable at back

1 2 3 4 5 6   1 2 3
RJ 12 Plug for front connection.   RS 232 option card rear connection.
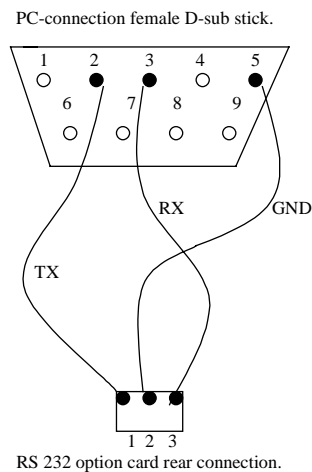
Data transfer mode:

baudrate = 1200
databit = 8
parity = 1
stopbit = 1

Important information!
All commands and answers are given in Hex code, no ASCII code support.
The communications require a delay between reading an answer and sending the next command of 400 ms.

The communication is based on the Principe: Send a command and read the answer.

Sending commands: All telegrams are 5 byte long where the first 4 byte are data and the 5th is checksum. Byte 5 = Byte 1 XOR byte 2 XOR byte 3 XOR byte 4, all in hex code.

Byte 1	Byte 2	Byte 3	Byte 4	Byte 5
Command	address	data byte 1	Data byte 2	Checksum

Table 2 Telegram commando structure

The answer from the ECL

Byte 1	Byte 2	Byte 3	Byte 4	Byte 5
Error code	Command	data byte 1	Data byte 2	Checksum

Table 3 Telegram answer structure

Error codes:
02:     This is an answer from a request.
00:     Unknown value.
10:     Invalid value for date or clock
20:     Non existing circuit is chosen.
30:     Non existing Mode is chosen.
40:     Non existing Port is chosen.
F0:   Communication error.

RAM and EEPROM

A copy of the parameters in EEPROM is stored in the RAM during start up.
Values that are only stored and updated in RAM are shown in Table 4. They will disappear after power down.
If values are changed in RAM they will be lost at power down.
Values changed in EEPROM are stored permanently.
Only values stored in RAM are shown in the controller display.

4. Read a 16-bit value from Controller (read only).

The values in this section are all measured or calculated by the controller, so these values can only be read. It's not all these values that are present in all ECL Comfort applications. If a bad value is read then check if the value is present in your application.

Parameter	Address
Sensor 6	E30
Sensor 5	E32
Sensor 4	E34
Sensor 3	E36
Sensor 2	E38
Sensor 1	E3A
Calculated flow temperature Circuit 1	E46
Calculated flow temperature Circuit 2	E48
Calculated return temperature Circuit 1	E4A
Calculated return temperature Circuit 2	E4C
Room temperature circuit 1	E3E
Room temperature circuit 2	E40
Outdoor temperature	E3C

Table 4 Address table for 16-bit read only values

All values in Table 4 are read from the RAM area.
Command = Cx hex, x = first part of the address (here E).
The read value is data byte 1 (MSB) and data byte 2 (LSB). The data type is a signed 16 bit value. Those 16 bit have to be converted to a temperature. The conversion is shown in Equation 1.

$$Temperature = \frac{16\ bit\ value}{128}$$

Equation 1 Converting to Temperature

Example read sensor 1:
1. Ask for sensor 1 value, Command = CE, address = 3A, Check byte = CE **XOR** 3A = 4F
2. Send command CE3A 0000 4F
3. Wait for answer max. 500 ms.
4. Read 5 byte from ECL Comfort. Answer = 02CE 00FF 33
5. Check if data is OK. 02 **XOR** CE **XOR** 00 **XOR** FF = 33.
6. Convert hex value to decimal value and divide by 128. 00FFhex = 255 dec. 255/128 = 1,99 °C
7. Wait min 400 ms. until next command.

Coded temperature values.

Temperature = 192 °C = No sensor connected or value not present in the application!

Temperature = -64 °C = Sensor is short-circuited!

5. Read and write parameter values

Reading parameter values is always done from the RAM area

The EEPROM address is calculated as shown:

EEPROM address = (RAM adr/2) - 707 hex for equal RAM addresses (highbyte in EEPROM).

EEPROM address = ((RAM adr-1)/2) - 707 hex for unequal RAM addresses (lowbyte in EEPROM).

The EEPROM use word addresses and the RAM use byte addresses.

Writing data to ECL Comfort require 2 steps.

Step 1: Write data to the RAM area, this can be read in the display, but disappears at reset.

Step 2: Write data to the EEPROM area, this can't be read in the display but the written value is active after reset.

Important information!

There is no control of parameter values written to the ECL Comfort, so don't write values in RAM or EEPROM outside the valid area. If a value outside the valid area by mistake is written in Controller RAM or EEPROM, then a copy of all parameters from the smart card to the ECL Comfort is restoring the old settings.

Note: The settings in the controller are now as on the Application Card also if the Card is damaged and contains non valid parameter settings.

Commands:

Read EEPROM (16bit) = 80

Write EEPROM (16 bit) = 90.

Write EEPROM lowbyte = A0.

Write EEPROM highbyte = B0.

Write RAM (16 bit) = DX.

Write RAM lowbyte = EX.

Write RAM highbyte = FX.

6. Read and write parameter values short (16 bit)

Read short from RAM area.

Example read address E76 (Room temperature influence max circuit 1) from RAM area:

Command CE 76 00 00 B8 Returns 02 CE FF DC

FFDC is the signed short value in hex = -36 dec.

A new Room influence max circuit 1 is written:
new value = -60 dec = FFC4 hex

Write to RAM: DE 76 FF C4 89
Write to EEPROM: 90 34 FF C4 9F

Parameter name	RAM address	EEPROM address	Min value	Max value
Room temperature influence-max circuit 1	E76	034	-99	0
Room temperature influence-min circuit 1	E78	035	0	99
Room temperature influence-max circuit 2	E72	032	-99	0
Room temperature influence-min circuit 2	E74	034	0	99

Table 5 16-bit parameter addresses.

7. Read Char (8 bit)

Read char from RAM area.

Example: read address EC9 (heatcurve circuit 1) from RAM area:

Command: CE C9 00 00 07 Returns: 02 CE **15** 19

The RAM area use byte addresses, but the answer is always a word.

Example: Write new room temperature day setpoint circuit 1 = 25
25 decimal = 19 hex.
Address = E9E, see Table 6.
Write to RAM: Command FE 9E 19 00 79 (highbyte because equal address).
Write to EEPROM : Command B0 48 19 00 E1

Parameter name	RAM address	EEPROM address	Min value	Max value
Heating curve circuit 1 (*10)	EC9	05D (low)	2 (= 0,2)	34 (=3,4)
Heating curve circuit 2 (*10)	See appendix 1.			
Parallel displacement circuit 1	See appendix 1.			
Parallel displacement circuit 2	See appendix 1.			
Flow temperature-minimum circuit 1	See appendix 1.			
Flow temperature-minimum circuit 2	See appendix 1.			
Flow temperature-maximum circuit 1	See appendix 1.			
Flow temperature-maximum circuit 2	See appendix 1.			
Summer cut-out circuit 1	EC2	05A(high)	10	30
Summer cut-out circuit 2	EC3	05A(low)	10	30
Room temperature day setpoint circuit 1	E9E	048(high)	10	30
Room temperature night setpoint circuit 1	EA0	049(high)	10	30
Room temperature day setpoint circuit 2	E9F	048(low)	10	30
Room temperature night setpoint circuit 2	EA1	049(low)	10	30
Hotwater temperature day setpoint	See appendix 1.			
Hotwater temperature night setpoint	See appendix 1.			

Table 6 8-bit parameter addresses.

8. Changing the week program.

The ECL Comfort have a weekplan for circuit 1 (weekplan I) and a weekplan for circuit 2 (weekplan II). The weekplan for each day in the week is represented by 48 bit. Each bit indicates half an hour in the weekplan. Each day can be split up in comfort and reduced periods. Each day in the week may not have more than 3 comfort periods. There is no internal check of the number of comfort periods set from RS 232, so do not set-up more than 3 comfort periods for each weekday.

In Table 7 all addresses for weekplan I and II can be found. The weekplan is only changed in the EEPROM so use the read and write commands for EEPROM. It is not possible to calculate the RAM address with base in the EEPROM address.

The display in the ECL Comfort will not be updated until the actual screen is reselected.
Bit value 1 = Comfort period, bit value 0 = reduced period.

Example: Read weekplan Monday circuit 1:

Command: 80 72 00 00 F2
Answer: 02 80 **00 FC**   Weekprogram 0000 0000 1111 1100

Command: 80 73 00 00 F3
Answer: 02 80 **0F 00**   Weekprogram   0000 1111 0000 0000

Command: 80 74 00 00 F4
Answer: 02 80 **FF 0F**   Weekprogram   1111 1111 0000 1111

3.30-0.00 / 7.30-4.00	11.30-8.00 / 15.30-12.00	19.30-16.00 / 23.30-20.00
0000 0000 1111 1100	0000 1111 0000 0000	1111 1111 0000 1111

To see a clear picture of the weekplan the bit can be shown as below.

0.00 - 3.30	4.00 – 7.30	8.00 – 11.30	12.00–15.30	16.00-19.30	20.00-23.30
0000 0000	0011 1111	1111 0000	0000 0000	1111 1111	1111 0000

Reduced period: 0.00 – 04.30 and 10.00 15.30 and 22.00 –23.30
Comfort period: 05.00 – 9.30 and 16.00 – 21.30

EEPROM address.	Weekplan data
72	Monday Weekplan I 3.30-0.00 / 7.30-4.00
73	Monday Weekplan I 11.30-8.00 / 15.30-12.00
74	Monday Weekplan I 19.30-16.00 / 23.30-20.00
75	Monday Weekplan II 3.30-0.00 / 7.30-4.00
76	Monday Weekplan II 11.30-8.00 / 15.30-12.00
77	Monday Weekplan II 19.30-16.00 / 23.30-20.00
78	Tuesday Weekplan I 3.30-0.00 / 7.30-4.00
79	Tuesday Weekplan I 11.30-8.00 / 15.30-12.00
7A	Tuesday Weekplan I 19.30-16.00 / 23.30-20.00
7B	Tuesday Weekplan II 3.30-0.00 / 7.30-4.00
7C	Tuesday Weekplan II 11.30-8.00 / 15.30-12.00
7D	Tuesday Weekplan II 19.30-16.00 / 23.30-20.00
7E	Wednesday Weekplan I 3.30-0.00 / 7.30-4.00
7F	Wednesday Weekplan I 11.30-8.00 / 15.30-12.00
80	Wednesday Weekplan I 19.30-16.00 / 23.30-20.00
81	Wednesday Weekplan II 3.30-0.00 / 7.30-4.00
82	Wednesday Weekplan II 11.30-8.00 / 15.30-12.00
83	Wednesday Weekplan II 19.30-16.00 / 23.30-20.00
84	Thursday Weekplan I 3.30-0.00 / 7.30-4.00
85	Thursday Weekplan I 11.30-8.00 / 15.30-12.00
86	Thursday Weekplan I 19.30-16.00 / 23.30-20.00
87	Thursday Weekplan II 3.30-0.00 / 7.30-4.00
88	Thursday Weekplan II 11.30-8.00 / 15.30-12.00
89	Thursday Weekplan II 19.30-16.00 / 23.30-20.00
8A	Friday Weekplan I 3.30-0.00 / 7.30-4.00
8B	Friday Weekplan I 11.30-8.00 / 15.30-12.00
8C	Friday Weekplan I 19.30-16.00 / 23.30-20.00
8D	Friday Weekplan II 3.30-0.00 / 7.30-4.00
8E	Friday Weekplan II 11.30-8.00 / 15.30-12.00
8F	Friday Weekplan II 19.30-16.00 / 23.30-20.00
90	Saturday Weekplan I 3.30-0.00 / 7.30-4.00
91	Saturday Weekplan I 11.30-8.00 / 15.30-12.00
92	Saturday Weekplan I 19.30-16.00 / 23.30-20.00
93	Saturday Weekplan II 3.30-0.00 / 7.30-4.00
94	Saturday Weekplan II 11.30-8.00 / 15.30-12.00
95	Saturday Weekplan II 19.30-16.00 / 23.30-20.00
96	Sunday Weekplan I 3.30-0.00 / 7.30-4.00
97	Sunday Weekplan I 11.30-8.00 / 15.30-12.00
98	Sunday Weekplan I 19.30-16.00 / 23.30-20.00
99	Sunday Weekplan II 3.30-0.00 / 7.30-4.00
9A	Sunday Weekplan II 11.30-8.00 / 15.30-12.00
9B	Sunday Weekplan II 19.30-16.00 / 23.30-20.00

Table 7 Weekplan addresses.

9. Reading the controller mode.

Reading controller mode can be done via RS232.

Read Controller mode.
Circuit can be 1,2 or 3

Command   11 circuit 00 00 Checksum
Answer: 02 11 00 **MODE** checksum.
MODE can be:
00 = Manuel
01 = Clock mode
02 = Comfort mode
03 = Reduced mode
04 = Standby mode.

10.   Reading the application in ECL Comfort

The application is read from the EEPROM:

Command: 80 09 00 00 89
Answer: 02 80 v**alue1 value2** checksum

Value1 is the application type in Table 8 the possibilities are shown.

Read vaule	0	1	2	3	4	5	6	7	8	9	10	11	12
Application type	A	b	C	d	E	F	G	H	L	n	o	P	U

Table 8 Application type / value.

Value2 is the application number.

E.g. value1 = 2 and value2 = 66 means application C66.

11.   Reading input values from analog I/O card.

The analog I/O card (ECA 83, 087B1153) can only be mounted in the ECL Comfort 300.
Reading of analog input voltage requires a reference signal to adjust the DC value. The
reference signal is read before the analog value, and used in the calculation of DC level
see Equation 2.
The reference signal is used for compensation of the DC value if deviations in the DC
supply voltage occur.

References signal.
Command: CD 0D 00 00 C2
Reading Data: Error code, Command, don't care, **reference** signal, checksum.

Analog value.
Command: CD 0F 00 00 C2
Reading Data: Error code, Command, Analog **input 1**, Analog **input 2**, Checksum.

Converting from 8 bit input value to 0-10 v. DC signal:

$$DC\ value = \frac{input \bullet 128}{255 \bullet reference} \bullet 10\ volt$$

Equation 2 Converting to DC value

Analog I/O print connections.
The reading of analogue input is only possible in ECL Comfort 300, with an analog i/o
card mounted.
Table 9 show the connections on the analog i/o print.
Figure 1 and Figure 2 shows how to make the physical connections.

Pin number	Function
1	Analog output number 1
2	Analog output ground.
3	Analog output number 2
4	Pulse input.
5	Analog input number 1
6	Analog input ground.
7	Analog input number 2.

Table 9 Analog I/O connectors

ECL Comfort 300

Analog option

1 2 3 4 5 6 7
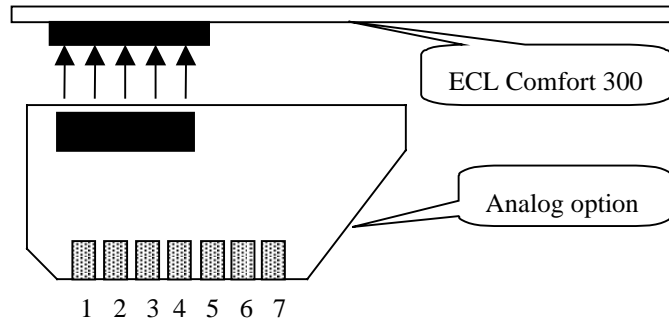
Figure 1 Analog i/o card

1 2 3 4 5 6 7
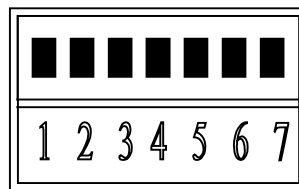
Figure 2 Connector top view.

12.   Appendix 1. Application specific addresses.
ECL Comfort 300 Applications.

Application C14	RAM address	EEPROM address	Min value	Max value
Heating curve circuit 2 (*10)	Non active			
Parallel displacement circuit 1				
Parallel displacement circuit 2				
Flow temperature-minimum circuit 1	EA6	04C high	10	110
Flow temperature-minimum circuit 2	Non active			
Flow temperature-maximum circuit 1	ECC	05F high	10	110
Flow temperature-maximum circuit 2	Non active			
Hotwater temperature day setpoint				
Hotwater temperature night setpoint				

Table 10 C14 Addresses.

Application C25	RAM address	EEPROM address	Min value	Max value
Heating curve circuit 2 (*10)	Non active			
Parallel displacement circuit 1	EA8	04D high	-9	9
Parallel displacement circuit 2	Non active			
Flow temperature-minimum circuit 1	ECB	05E low	10	110
Flow temperature-minimum circuit 2	Non active			
Flow temperature-maximum circuit 1	ECC	05F high	10	110
Flow temperature-maximum circuit 2	Non active			
Hotwater temperature day setpoint	ED0	061 high	10	110
Hotwater temperature night setpoint	ED1	061 low	10	110

Table 11 C25 Addresses.

Application C35	RAM address	EEPROM address	Min value	Max value
Heating curve circuit 2 (*10)	Non active			
Parallel displacement circuit 1	EA8	04D high	-9	9
Parallel displacement circuit 2	Non active			
Flow temperature-minimum circuit 1	ECB	05E low	10	110
Flow temperature-minimum circuit 2	Non active			
Flow temperature-maximum circuit 1	ECC	05F high	10	110
Flow temperature-maximum circuit 2	Non active			
Hotwater temperature day setpoint	ED0	061 high	10	110
Hotwater temperature night setpoint	ED1	061 low	10	110

Table 12 C35 Addresses

Application C37	RAM address	EEPROM address	Min value	Max value
Heating curve circuit 2 (*10)	Non active			
Parallel displacement circuit 1	EA7	04C low	-9	9
Parallel displacement circuit 2	Non active			
Flow temperature-minimum circuit 1	ECD	05F low	10	110
Flow temperature-minimum circuit 2	Non active			
Flow temperature-maximum circuit 1	ECC	05F high	10	110
Flow temperature-maximum circuit 2	Non active			
Hotwater temperature day setpoint	ED0	061 high	10	110
Hotwater temperature night setpoint	ED1	061 low	10	110

Table 13 C37 Addresses

Application C47	RAM address	EEPROM address	Min value	Max value
Heating curve circuit 2 (*10)	Non active			
Parallel displacement circuit 1	EA8	04D high	-9	9
Parallel displacement circuit 2	Non active			
Flow temperature-minimum circuit 1	ECB	05E low	10	110
Flow temperature-minimum circuit 2	Non active			
Flow temperature-maximum circuit 1	ECC	05F high	10	110
Flow temperature-maximum circuit 2	Non active			
Hotwater temperature day setpoint	ED0	061 high	10	110
Hotwater temperature night setpoint	ED1	061 low	10	110

Table 14 C47 Addresses

Application C55	RAM address	EEPROM address	Min value	Max value
Heating curve circuit 2 (*10)	ECC	05F high	2 (= 0,2)	34 (=3,4)
Parallel displacement circuit 1	EA9	04D low	-9	9
Parallel displacement circuit 2	EAA	04E high	-9	9
Flow temperature-minimum circuit 1	ECE	060 high	10	110
Flow temperature-minimum circuit 2	ECF	060 low	10	110
Flow temperature-maximum circuit 1	ED0	061 high	10	110
Flow temperature-maximum circuit 2	ED1	061 low	10	110
Hotwater temperature day setpoint	ED8	065 high	10	110
Hotwater temperature night setpoint	ED9	065 low	10	110

Table 15 C55 Addresses

Application C60	RAM address	EEPROM address	Min value	Max value
Heating curve circuit 2 (*10)	ED9	065 low	2 (= 0,2)	34 (=3,4)
Parallel displacement circuit 1	EA8	04D high	-9	9
Parallel displacement circuit 2	EA9	04D low	-9	9
Flow temperature-minimum circuit 1	ECB	05E low	10	110
Flow temperature-minimum circuit 2	EDB	066 low	10	110
Flow temperature-maximum circuit 1	ECC	05F high	10	110
Flow temperature-maximum circuit 2	EDC	066 high	10	110
Hotwater temperature day setpoint	Non active			
Hotwater temperature night setpoint	Non active			

Table 16 C60 Addresses.

Application C62	RAM address	EEPROM address	Min value	Max value
Heating curve circuit 2 (*10)	ED9	065 low	2 (= 0,2)	34 (=3,4)
Parallel displacement circuit 1	EA8	04D high	-9	9
Parallel displacement circuit 2	EA9	04D low	-9	9
Flow temperature-minimum circuit 1	ECB	05E low	10	110
Flow temperature-minimum circuit 2	EDB	066 low	10	110
Flow temperature-maximum circuit 1	ECC	05F high	10	110
Flow temperature-maximum circuit 2	EDC	066 high	10	110
Hotwater temperature day setpoint	Non active			
Hotwater temperature night setpoint				

Table 17 C62 Addresses,

Application C66	RAM address	EEPROM address	Min value	Max value
Heating curve circuit 2 (*10)	Non active			
Parallel displacement circuit 1	EA8	04D high	-9	9
Parallel displacement circuit 2	Non active			
Flow temperature-minimum circuit 1	ECB	05E low	10	110
Flow temperature-minimum circuit 2	Non active			
Flow temperature-maximum circuit 1	ECC	05F high	10	110
Flow temperature-maximum circuit 2	Non active			
Hotwater temperature day setpoint	ED0	061 high	10	110
Hotwater temperature night setpoint	ED1	061 low	10	110

Table 18 C66 Addresses

Application C67	RAM address	EEPROM address	Min value	Max value
Heating curve circuit 2 (*10)	ED9	065 low	2 (= 0,2)	34 (=3,4)
Parallel displacement circuit 1	EA8	04D high	-9	9
Parallel displacement circuit 2	EA9	04D low	-9	9
Flow temperature-minimum circuit 1	ECB	05E low	10	110
Flow temperature-minimum circuit 2	EDB	066 low	10	110
Flow temperature-maximum circuit 1	ECC	05F high	10	110
Flow temperature-maximum circuit 2	EDC	066 high	10	110
Hotwater temperature day setpoint	ED0	061 high	10	110
Hotwater temperature night setpoint	ED1	061 low	10	110

Table 19 C67 Addresses

Application C75	RAM address	EEPROM address	Min value	Max value
Heating curve circuit 2 (*10)	ECC	05F high	2 (= 0,2)	34 (=3,4)
Parallel displacement circuit 1	EA9	04D low	-9	9
Parallel displacement circuit 2	EAA	04E high	-9	9
Flow temperature-minimum circuit 1	ECE	060 high	10	110
Flow temperature-minimum circuit 2	ECF	060 low	10	110
Flow temperature-maximum circuit 1	ED0	061 high	10	110
Flow temperature-maximum circuit 2	ED1	061 low	10	110
Hotwater temperature day setpoint	ED8	065 high	10	110
Hotwater temperature night setpoint	ED9	065 low	10	110

Table 20 C75 Addresses.

ECL Comfort 200 Applications.

Application P16 & P17	RAM address	EEPROM address	Min value	Max value
Heating curve circuit 2 (*10)	Non active			
Parallel displacement circuit 1				
Parallel displacement circuit 2				
Flow temperature-minimum circuit 1				
Flow temperature-minimum circuit 2				
Flow temperature-maximum circuit 1				
Flow temperature-maximum circuit 2				
Hotwater temperature day setpoint	ED0	061 high	10	110
Hotwater temperature night setpoint	ED1	061 low	10	110

Table 21 P16 & P17 Addresses

Application P20 & P30	RAM address	EEPROM address	Min value	Max value
Heating curve circuit 2 (*10)	Non active			
Parallel displacement circuit 1	EA8	04D high	-9	9
Parallel displacement circuit 2	Non active			
Flow temperature-minimum circuit 1	ECB	05E low	10	110
Flow temperature-minimum circuit 2	Non active			
Flow temperature-maximum circuit 1	ECC	05F high	10	110
Flow temperature-maximum circuit 2	Non active			
Hotwater temperature day setpoint				
Hotwater temperature night setpoint				

Table 22 P20 & P30 Addresses.