






## BUS BODY ELECTRONICS

# SC Preheater

Operating Instructions  
- Service

# Contents

Contents	1
List of Figures	3
List of Tables	3
1 Introduction	4
1.1 End use	4
1.2 Used symbols	4
1.3 Specification control panel	5
1.4 Display	5
2 Application	6
2.1 Functions of buttons	7
2.1.1 Menu 	7
2.1.2 Selection buttons  	7
2.1.3 Enter 	7
2.1.4 Heating 	7
2.2 Switch on / off device	7
2.2.1 Switch on	7
2.2.2 Switch off	7
2.3 Set time and day	8
2.3.1 Adjust	8
2.3.2 24h-Mode	8
2.3.3 12h-Mode	8
2.4 Adjust operating time	9
2.4.1 Adjust	9
2.5 Adjustment of remaining time	9
2.5.1 Adjust	9
2.6 Adjustment of starting time	10
2.6.1 Adjust	10
2.6.2 Only in 12h-Mode after adjustment of time	10
2.7 Activate/deactivate starting time	11
2.7.1 Activate starting time	11
2.7.2 Deactivate starting time	11
2.8 Instant heating	11
2.8.1 Instant heating - continuous operation	11
2.8.2 Programmed operating time (ignition off)	12

2.8.3	Deactivate instant heating	12
2.9	Remote control	12
2.10	Error	12
2.10.1	Diagnosis of error	12
2.10.2	Error specification	13
3	Parameter mode	13
3.1	Activate	13
3.2	Change parameter	13
3.3	Parameter codes	13
3.4	Deactivation	14
4	Pin configuration	15
5	Technical data	15

## List of Figures

Figure 1 - SC Preheater Control panel .....	5
Figure 2 – SC Preheater Display .....	5
Figure 3 - SC Preheater e.g. menu row .....	7
Figure 4 - SC Preheater e.g. Standard display 24h mode .....	7
Figure 5 - SC Preheater e.g. Standard display 12h mode .....	7
Figure 6 - SC Preheater starting time activated .....	11

## List of Tables

Table 1 - SC Preheater Parameter codes .....	14
Table 2 - SC Preheater Pin configuration.....	15
Table 3 - SC Preheater Technical data .....	15

# 1 Introduction

## 1.1 End use

Chronological programming of motor independent heater can be operated with the digital pre-selection timer. Seven starting times are available for programming.

## 1.2 Used symbols



**Attention**

### 1.3 Specification control panel

The components of the control panel are shown and described in the following picture.

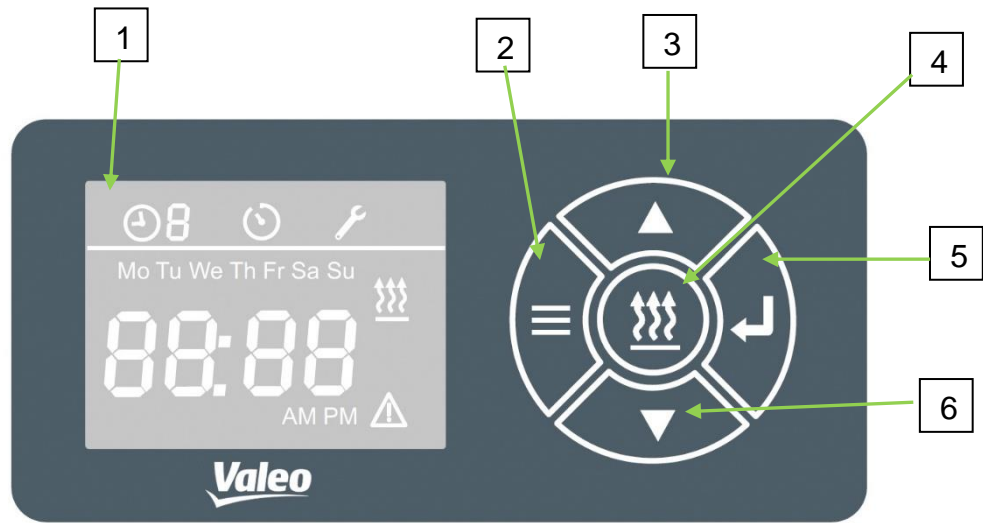


Figure 1 - SC Preheater Control panel

- |                 |                    |
|-----------------|--------------------|
| 1. Display      | 4. Instant heating |
| 2. Menu-button  | 5. Enter           |
| 3. Selection UP | 6. Selection DOWN  |

play

### 1.4 Dis-

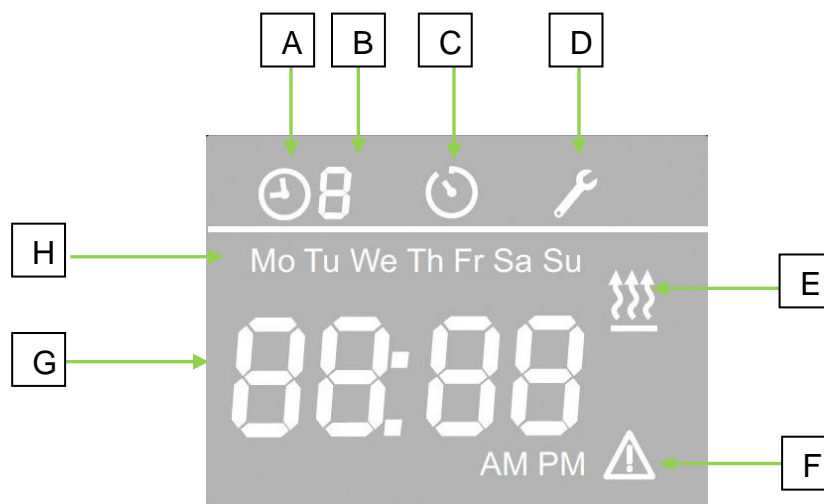


Figure 2 – SC Preheater Display

- |                             |              |
|-----------------------------|--------------|
| A. Preselection time        | E. Heater on |
| B. Active preselection time | F. Error     |
| C. Operating time           | G. Time      |
| D. Settings                 | H. Day       |

## 2 Application



### Attention

#### To display pictures of this manual:

The used figures assume, that the device is configured the first time according to factory settings. Once programmed, the display shows the current actual and configuration values.



### Attention

#### General advices for usage:

- Heating function must be deactivated to get into the menu.
- The chosen or changed value is blinking.
- Fast mode is activated, if selection buttons (Figure 1, 3 & 6) are pushed longer than 0.5 seconds.
- Device returns to standard display, if there is no action during adjusting procedure within 10 seconds.
- The display can only be read to a limited extent at low temperatures (below -20 °C). The instant heating button is still functional!



### Attention

#### Programming of starting times:

- Seven starting times are available for a period of seven days, but only one starting time can be active.
- For safety reasons a starting time can only be activated for the same or next day.
- Activation for Sunday and Monday is possible on Friday, activation for Monday is possible on Saturday.
- Several starting times can't be activated at once.

## 2.1 Functions of buttons

### 2.1.1 Menu

- Switching to upper row of the display (Figure 3)
- Returning to standard display from all menu items (Figure 4 + 5) (not saved settings will be lost)

### 2.1.2 Selection buttons

- Browse the menu / Change values
- Push at once: Open error display

### 2.1.3 Enter

- Confirm a setting

### 2.1.4 Heating

- Ignition on: Activate instant heating
- Ignition off: Activate programmed operating time
- Deactivate heating

## 2.2 Switch on / off device

### 2.2.1 Switch on

- Ignition on: Device is switched on automatically  
**OR** (if ignition is off)
- Push instant heating: Device is activated for the programmed operating time (see 2.4)  
**OR** (if ignition is off)
- Push menu: Device is switched on  
**OR** (through programming of starting time)
- The device starts automatically at the programmed starting time (see 2.6 & 2.7.1)

### 2.2.2 Switch off

- Ignition off: Device in sleep mode  
**OR** (if ignition is off)
- Device switches off after remaining time or programmed operating time  
**OR** (if ignition is off, heating off, standard display)
- If there is no action for 10s, the Device goes into sleep mode



Figure 3 - SC Preheater e.g. menu row



Figure 4 - SC Preheater e.g. Standard display 24h mode

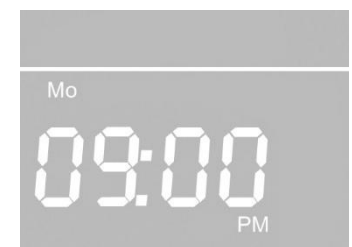


Figure 5 - SC Preheater e.g. Standard display 12h mode



## 2.3 Set time and day



### Attention

If the device is switched on in factory settings or is divided from voltage source for a longer time, settings have to be adjusted again. The programmed starting times will remain.

### 2.3.1 Adjust




- Push : Menu row appears on display
- Push and buttons until is blinking
- Push : Hour mode is opened, display shows
- Push and to switch between 12h and 24h-mode, display shows for 12h-mode and for 24h-mode
- Push to confirm mode

### 2.3.2 24h-Mode

- Display shows
- Push and to choose day
- Push to confirm day
- Push and to adjust hours
- Push to confirm hours
- Push and to adjust minutes
- Push to confirm minutes, standard display appears (figure 4)

### 2.3.3 12h-Mode

- Display shows
- Push and to choose day
- Push to confirm day
- Push and to adjust hours
- Push to confirm hours
- Push and to adjust minutes
- Push to confirm minutes, Display shows

- Push  and  to switch between AM and PM, display shows **AM** or **PM**
- Push  to confirm, standard display appears (figure 5)



### Attention

In the following, all steps indicate that the 24h mode has been set.

## 2.4 Adjust operating time












### Attention

The operating time is the period, when the heater is on through pushing the heating button or after activating of a starting time.

The operating time can be adjusted in a range between 10 minutes and the maximum value, which is programmed in the parameter mode (chapter 3.2)

### 2.4.1 Adjust

- Push : Display shows menu row 
- Push  and  until  is blinking
- Push : Display shows the adjusted operating time
- Push  and  to adjust the operating time
- Push  to confirm the operating time, standard display appears (figure 4)

## 2.5 Adjustment of remaining time





### Attention

The remaining time is the period, when the heater remains on after ignition is switched off. The remaining period can be adjusted in a range between 1 minute and the value, which is programmed in the parameter mode (chapter 3).

### 2.5.1 Adjust

- If the ignition is switched off while the heater is on, the remaining time can be adjusted:  
Display shows adjusted value

→ Push  and  to adjust remaining time

→ Push  to confirm, the heater switches automatically after remaining time is passed off



### Attention

The remaining time will not be saved. It has to be adjusted and confirmed every further time. If the remaining time will not be confirmed within 10 seconds, the heater switches off.




















## 2.6 Adjustment of starting time






### Attention

The starting time is the programmed time, when the heater is switched on by the preselection timer, providing that the starting time is activated.

### 2.6.1 Adjust

- Push : Display shows menu row 
- Push  and  until  is blinking
- Push : starting time  appears
- Push  and  to browse starting times
- Push  to choose starting time: Display shows day and time, day can be adjusted
- Push  and  to adjust day (Mo, Tu, We, Th, Fr, Sa, Su)
- Push  to confirm day
- Push  and  to adjust hours
- Push  to confirm hours
- Push  and  to adjust minutes
- Push  to confirm minutes, standard display appears (figure 4)

### 2.6.2 Only in 12h-Mode after adjustment of time

- Push  and  to switch between AM and PM
- Push  to confirm, standard display appears (figure 5)

## 2.7 Activate/deactivate starting time

### 2.7.1 Activate starting time




















- Push : Display shows menu row 
- Push  and  until  (respectively Symbol „Active starting time“ (figure 2 – B))
- Push  to confirm
- Push  and  to browse starting times 1-7 (Programmed days and times are shown too)
- Push  to activate starting time: Activated starting time appears in the display (figure 6)



Figure 6 - SC Preheater starting time activated

### 2.7.2 Deactivate starting time

- Push : Display shows menu row 
- Push  and  until symbol „Active starting time“ (figure 2 – B) blinks
- Push  to confirm
- Push  and  until  and  appears in the display
- Push  to deactivate starting time, standard display appears (figure 4)




## 2.8 Instant heating



### Attention

Date and time have to be adjusted in the settings, that instant heating can be activated.

### 2.8.1 Instant heating - continuous operation






- Push  when ignition is on:  is blinking
- After positive feedback from heater  appears permanently in the display: Instant heating is in continuous operation



### Attention

If the ignition is switched off during instant heating, the remaining time starts. If ignition is switched on again, the heater is in continuous operation again.

## 2.8.2 Programmed operating time (ignition off)


- Push  when ignition is off: standard value appears in the display
- Push  and  to adjust operating time
- Push  to confirm: Symbol  appears in the display and the heater operates for the adjusted time. After process the heater switches off automatically.



### Attention

If the ignition is switched on during the programmed operating time, the heater switches to instant heating.


## 2.8.3 Deactivate instant heating

- Push : instant heating is deactivated

## 2.9 Remote control




### Attention

Remote control function correlates to the function instant heating . Therefore the heater operates for the programmed operating time.




## 2.10 Error



### Attention

If there is an error of the heater  is blinking in the display. Only the current error is shown in the display.

### 2.10.1 Diagnosis of error

- Push  and  at once: error code appears in the display
- Push  to return to standard display

## 2.10.2 Error specification



### Attention

The shown error code is the error code of the used heater. The concrete specification is shown in the instruction manual of the used heater.

## 3 Parameter mode

### 3.1 Activate

- Push at once and switch on ignition
- OR
- Push at once and push
- Display shows , Pin 7825 must be setted
- Push and to set the figures
- Push to confirm the figure and to reach the next one
- Repeat this process for the remaining figures. After confirmation of the last figure the display shows - the first two figures show the parameter ID (P1), the last two figures (30) show the value of the parameter


### 3.2 Change parameter

- Push and to choose the parameter ID
- Push to change the value of the chosen parameter ID
- Push and to set the value of the required parameter
- Push to confirm value of the parameter

### 3.3 Parameter codes

Parameter code	Parameter	Description	Value range	Standard value
P1	Max. operating time [min]		10-90	30
P2	Max. remaining time [min]		10-90	15
P3	Set back to factory settings	Push   to set value on 5. Push  to confirm	-	-

### 3.4 Deactivation

- Switch off ignition
- Push  longer than 2 seconds
- After two minutes the parameter mode is deactivated automatically

## 4 Pin configuration

Pin	Description
1	Clamp 58
2	Load outlet
3	Not used
4	Not used
5	Not used
6	Not used
7	Activation by the remote control
8	Error code
9	Not used
10	Clamp 15
11	Clamp 30
12	Clamp 31

Table 2 - SC Preheater Pin configuration

## 5 Technical data

<b>Nominal voltage</b>	12 – 24 V DC
<b>Voltage range</b>	9 – 32 V DC
<b>Temperature range</b>	- 40 °C – 85 °C - 20 °C – 70 °C (→ display)
<b>Power consumption Normal:</b> <b>Power consumption Standby:</b>	approx. 0,6 A (Self consumption with LED) < 0,5 mA
<b>Dimensions in mm</b>	90 x 42 x 37 (LxWxH)
<b>Mass</b>	ca. 200 g
<b>Protection</b>	IP54 (Front)
<b>Certifications</b>	E1 10R-04 6821

Table 3 - SC Preheater Technical data



