



**Frei wählbare Programme**

Programmstart in min. delay start in min	Anheizzeit in min. ramp in min	Anheiz- temperatur first set point
Brenn- temperatur second set point	Haltezeit in min. soak in mins	Programm speichern set programme

**Festprogramm**

Programm	gespeichertes Programm your 1 programme	Schröhen langsam 2 slow biscuit firing
Schröhen normal 3. normal biscuit firing	Glasur 1050°C 4 glaze firing 1050°C	Glasur 1260°C 5 glaze firing 1260°C
6	7	8
9	0	START

## temperature controller SE3000S

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### 1. GENERAL

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The temperature controller SE3000S is a high precision controller, which heats the kiln to the exact temperature you want.

It is simple to handle because it has nine variable programs to select from.

There is a long wire connecting the temperature controller SE3000S with your kiln, so it is easy to watch the functioning of your SE3000S.

All our temperature controllers are checked carefully in our factory. If there is any defect of the temperature controller please contact your dealer to discuss your problems.

### 2. CONNECTIONS

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For the operation of the temperature controller SE3000S, the appropriate plug contact must be connected to the switch box of the kiln, through this plug contact the temperature controller SE3000S is provided with 220 voltage. At the same time the contact to the elements is achieved.

The main-switch of the temperature controller SE3000S is situated at the left hand side of the case. When the system has been turned on, the temperature of the kiln appears on the digital display; if not, please check:

- 1: Is the kiln power cord plugged in ?
- 2: Is the fuse (bottom, beside the connection wire) okay ?

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3. EXPLANATION OF FEATURES

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There are eight switches to programm the temperature controller SE3000S on the frontside:

switchname:	function:
`start/stop`	Start a programm.
.....	.....
`Prog`	choose fixed programm
.....	.....
`1234567890`	numerical switches
.....	.....
`delay start in min.`	set programm start delay
.....	.....
`ramp in min.`	set ramp time
.....	.....
`first set point`	set ramp temperature
.....	.....
`second set point`	set soak temperature
.....	.....
`soak in min`	set soak time
.....	.....
`set programme`	set user variables programm
.....	.....

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### 3.1 WORK WITH FIXED PROGRAMMS

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The temperature controller SE3000S is provided with nine fixed programmes.

This is how to choose a fixed programm:

pressdown	.	reaction of temperature controller
<hr/>		
switch `Programm`	.	'P=' will be displayed.
<hr/>		
choose your programm- number and press the numerical switch e.g. '2'	.	selected number will be displayed e.g. 'P=2'
<hr/>		
switch `START`	.	the fixed programm has been started
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The following fixed programmes are available:

no.	name	ramp time TIME 1	ramp temp. TEMP 1	soak temp. TEMP 2	soak time TIME 2
<hr/>					
P=1	drying	480 min	120 oC	120 oC	60 min
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P=2	slow biscuit	480 min	650 oC	960 oC	20 min
<hr/>					
P=3	normal biscuit	250 min	650 oC	960 oC	20 min
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P=4	glaze 1050oC	120 min	450 oC	1050 oC	20 min
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P=5	glaze 1260oC	120 min	450 oC	1200 oC	20 min
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P=6,7,8,9 these fixed programmes are free.

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3.2 ADJUSTMENT OF FIXED PROGRAMMS:  
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When there is a need to adjust a value from a fixed programm follow these steps:

1. choose your fixed programm
2. press down switch of your choice to adjust; the following keys are available:
  - 'delay start in min'
  - 'ramp in min'
  - 'first set point'
  - 'second set point'
  - 'soak in min'
3. the value of this function will be displayed
4. now put in your value with the numerical switches
5. press down the 'START' switch

The programm with your adjustment has been started.

e.g. you will start fixed programm no. 4 and change the soak-temperature to the new value of '1080 oC':

switch to press	function-displaying
'Programm'	'P='
'4'	'P=4'
'second set point'	'1050 oC'
'1'	'0501 oC'
'0'	'5010 oC'
'8'	'0108 oC'
'0'	'1080 oC'
'START'	adjusted programm has been started

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3.3 PROGRAMMING WITHOUT FIXED PROGRAMMS:  
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The separate temperature- or time-values can be adjusted without the starting of a fixed programm:

press down switch	. reaction
`ramp in min`	. put in your ramp-time with the . numerical switches
.....	.....
`first set point`	. put in your ramp temperature . with the numerical switches
.....	.....
`second set point`	. put in your soak temperature . with the numerical switches
.....	.....
`soak in min`	. put in your soak time . with the numerical switches
.....	.....
`START`	. your own programm has been started
.....	.....

When there is a demand to put this programm into a user fixed programm follow these steps:

1. the same way as programming without fixed programmes, but do not press the `START` switch.
2. now you can press the `set programme` switch
3. after this the display shows `S=`
4. put in your selected programm no.

Now you have pushed your own programm into the user fixed programm memory.

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### 3.4 DELAY START FUNCTION

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If the switch 'delay start in min' is pressed, a delay in the programm start can be obtained through the number keys. If a programm start delay is programmed, the display will show, after pressing the switch 'START', the remaining delayed time. When the delay time has run out, the temperature control system will start by itself and the temperature of the kiln is indicated.

### 3.5 KEYBOARD LOCKING

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After pressing the key 'START', the keyboard of the temperature control system can be locked with a key switch. It is then protected from any adjustment by unauthorized persons.

### 4. CONTROL LAMPS

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The exact phase at which the temperature control system is, can be read on the control lamps. During programming, the corresponding control lamps blink at intervals of about one second.

### 5. "READ OUT" OF THE PROGRAMDATA

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When the temperature controller SE3000S is being started the time-values are decreasing. It is easy to check the values of your programm, when you press one function switch, e.g. 'soak in min' to check soak-time. After this, the temperature controller SE3000S is being displayed the value of this function. After the checking you must press the switch 'START' to continue the programm run down.

### 6. POWER-DOWN ACTIVITY

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All data will be stored until it has been switched on again. When the temperature controller SE3000S has been switched on again, it will work with the old data, so it is possible to span a powerline cut off.

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### 5.ERROR MESSAGES

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The temperature controller SE3000S is able to check itself, when there is a defect the temperature controller SE3000S will switch off the kiln and display an error message.

#### Display: F1

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When your kiln is slower than 4 °C per hour in the full power heat up stage, the temperature controller SE3000S will switch off the kiln and display error message 'F1'.

#### Possible causes:

- thermocouple has a short circuit
- door-switch is not really closed
- heating-wire is defect or too old
- check kiln fuses

#### Display: F2

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When your kiln takes longer than 18 hours to heat up during the full power stage, the temperature controller SE3000S will switch the kiln off and display error message 'F2'.

#### Possible causes:

- door-switch is not really closed
- heating-wire is faulty or too old
- check kiln fuses



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Display: F3

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The temperature controller SE3000S checks constantly the data. When there is a defect with the thermocouple it will be displayed by the message 'F3'.

Possible causes:

- Thermocouple defect
- Thermocouple-wire defect

Display: F4

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This error message will be displayed when the thermocouple is wrongly connected.

Display: F5

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If the temperature input is too high, the temperaturcontroller will display F5.

Display: F6

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F6 will be displayed by a selftest error.  
Please contact your dealer to get more instructions.

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6. TECHNICAL DATA

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Input : Thermocouple Type S (Pt/Pt10Rh)  
Thermocouple Type K (NiCr/Ni)  
-factory installing necessary -

powerline : 210-250 Volt 50/60 Hz

power-  
consumption: 14 VA

fuse : 0.1 A slow

Output : relay contact 220V ac max.4A

measurement-  
range: +10 ... +1500 oC Thermocouple Type S  
+10 ... +1300 oC Thermocouple Type K

temperature-  
compensation: +8oC ... +40oC

exactness : 0.3% +/- 1 Digit

Input-restrictions:

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Temp.-  
range: +0 ... +1300 oC Thermocouple Type S  
+0 ... +1200 oC Thermocouple Type K  
adjustable in steps of 1 oC

time-  
range: 0 ... 9999 min  
adjustable in steps of 1 min

lowest heating  
up ramp: 4 K / 60 min

highest heating  
up ramp: 4000 K / min

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control-retain :        TIME 1: P-control (kp=15)

                      TIME 2: two point control

Display:            13 mm LED red, 7-segment

size     :        250 mm \* 320 mm \* 100 mm

weight   :        1.8 kg

outside-temperature range :        0 oC ... 50 oC

connection-wire   :        1.6 m

Plug     :        AMP-plug 14 pins

Pin-connection:

8 input L1 220 V

9 input N

7 output L1 -switched by main-switch

13 output L1 coil of contactor

14 output N

1 Thermocouple Type S   + side

2 Thermocouple Type S   - side

alternative:

12 Thermocouple Type K   + side

11 Thermocouple Type K   - side