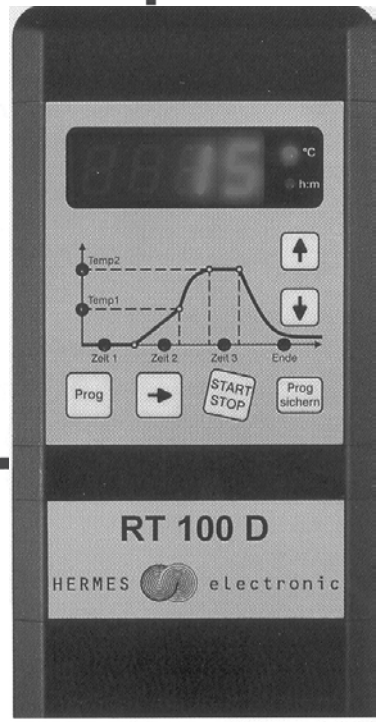
Program Controller RT100D

HERMES electronic

OPERATING INSTRUCTIONS

Please read these operating instructions carefully and in full to

- acquaint yourself with the full range of features offered by this program controller
- acquaint yourself with all operation steps
- prevent operating errors



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6.0 Technical Datas

Powerline	200 bis 250Volt 50 / 60Hz
Fuse	0,04 A T
Power consumption	2 VA
Output	2 Relais n.o. 230 V max. 4 A
Imput	Thermocouple Typ R Pt10Rh / Pt
Solution	1 °C
Display	0,3 % +/- 1 Digit
Dimension	200 * 100 * 45 mm
Weight	0,6 kg
Ambient temperature	0 bis 50 °C

wire No.	AMP Pin-No.	Harting 7D Pin-No.	Harting 15D Pin-No.	Function
+ red -white	1 2	3 4	B5 C5	Thermocouple Platin
+ green -white	11 12	 *	B5 A5	Thermocouple Nickel
1	8	5	A1	Input L1
2	9	2	B1	Input N
3	13	6	A3	Output heating
4	14	1	B3	Output N
7	7	7	C3	Output safety relay

* Using a Harting 7D connector the Pin-No. are not defined

1. Introduction

The controller RT100D is used for controlling of electrical kilns for ceramics and glas fireing.

The RT100D is able to control exactly the temperature and temperature rate in a fireing process. Nine fixed programs are helpful for using this control unit. This programs can be adjusted individually. With this fixed programs the base of adjustment is already done for you.

Programdatas and values can be checked every time and set into the program memory.

The control unit will be delivered with a wall pocket. For programming work you can move the controller out of this pocket and if programming is done you can put it back into the pocket. This feature makes it very easy to handle the control unit.

IMPORTANT: It is **not allowed** to put the control unit **on the top of the kiln during fireing.**

Every control unit RT100D is tested and checked for 100% of quality in our company .

All our control units have an overheating safety relay ,but if you use the control units you should observe the fireing .
Do not fire the kiln without observing.

If you have any problems please have a look into the error list at the end of this manual.

If you are not able to solve your problems by yourself, please contact your sales department.

2. First Start

The control unit has a plug for the connection with the kiln. This plug is safe against wrong connection and it fits only in one position.

At the buttom side of the RT100D you find the main switch, please switch control unit on and wait for the display.(app. 3 sec.). Now you can read the kiln temperature on the display and you are able to program the control unit.

5.0 Error Messages

The control unit can check a lot of functions by itselfs. If the control unit may find any mistake, the kiln will be switched off and the display shows a faulty number:

Display: **F1**
During the full power periode the controller checks the rise of the kiln temperature , it must be more than 1°C in 20 Minutes. If the kiln is to slow the control unit shows F1.
causes:
- heating element is faulty or to old
- with 3 Phase Systems: on Phase is missing
- Thermocouple is short connected.
- door switch is not closed

Display: **F2**
Is the heating time in the full power periode longer than 18 hours the kiln will switched off and the display shows F2.
causes:
- heating element is faulty or to old
- with 3 Phase Systems: on Phase is missing

Display: **F3**
If the measurement from the thermocouple is too high the controller shows F3.
causes:
- Thermocouple faulty
- wire to thermocouple faulty

Display: **F4**
If the measurement from the thermocouple is negative the controller shows F4.
causes:
- thermocouple wrong connected
- wire to thermocouple wrong connected

Display: **F5** or **F6**
Internal System Error.

Display: **F7**
If the kiln temperature is higher than 20°C over the top temperature and takes this problem longer than five minutes the control unit switch te kiln off and shows F7.
causes:
- relay in the kiln is faulty

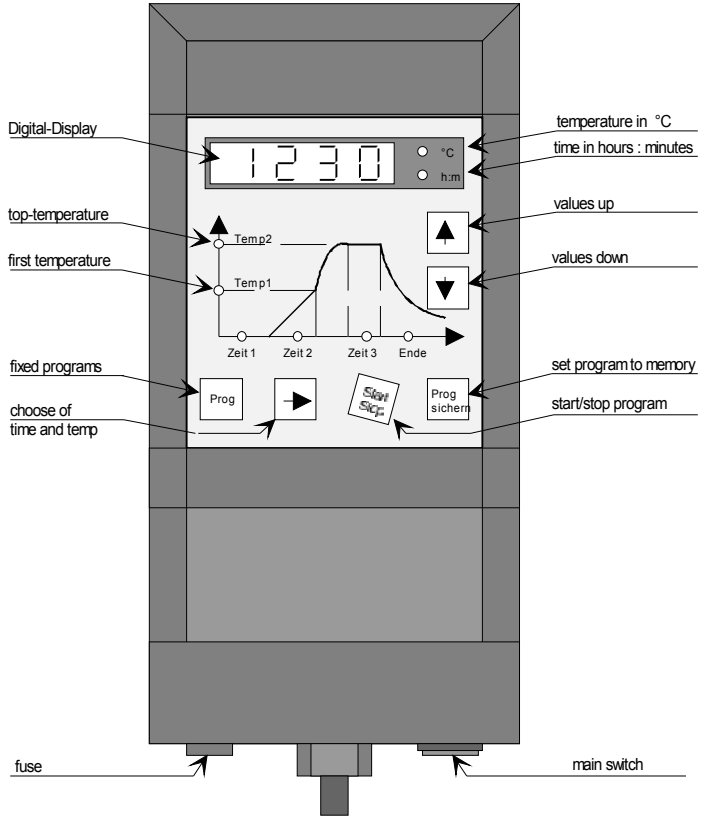
4.0 Use of Program Datas

After you have pressed the start switch the control unit will start the program .

The first point of working is the delay time.After you have programmed the delay time the controller wait till this time is zero. On the display you will see the value of the delay time.
The control unit starts the fireing program as soon as the delay time reached zero.
This feature will be used if you like to start a kiln e.g. in the evening.

The fire-process beginns with the ramp time. The control unit calculats the right heating power to bring the kiln slowly to the firtst set point during the ramp time. If the ramp time reached zero the kiln will be fired with full power. If the kiln temperature reached the top temperature the control unit soak during the soak time.
After the soak time the controller switchs the kiln of and the kiln temperature will cool down.

3. Description of the face



3.1 Using of fixed programs

The control unit RT100D will be delivered with 9 fixed programs all this programs can be adjusted by the customer.
The following switches should be pressed to start a fixed program.

switch: **Prog**
switch: ⇑ or ⇓

please press this switch a few times ,
if you get the right program number on
the display please stop pressing the key.
switch: **start/stop**

Program will start

Here you find the list of the fixed programs:

Programm Nr.	1	2	3	4	5	6
	P1	P2	P3	P4	P5	P6
Zeit 1	0h 00	0h 00	0h 00	0h 00	0h 00	0h 00
Zeit 2	4h00	5h 00	7h 00	10h 00	3h 00	4h 00
Temp 1	500°C	500°C	500°C	930°C	400°C	400°C
Temp 2	1230°C	1230°C	1230°C	1230°C	800°C	800°C
Zeit 3	0h 30	1h 00	1h 00	1h 00	0h 30	1h 00

Programm No: 7 - 9 are all zero.
Descprition:
All time values are in hours and minutes.
0h30 = 0 hours and 30 minutes

Zeit 1: delay time
Zeit 2: ramptime

Temp 1: first set point
Temp 2: top temperature

Zeit 3: soak time

3.2 Program Adjustment

If you like to adjust program datas you should use the following description:

Please load and start your programm (see section 3.1) and press the following switches:

switch: **start/stop**

switch: ⇒

please press this switch a few times if the

right data is displayed stop pressing.

switch: ⇑ **or** ⇓
to adjust values

If you have changed all datas like you wish, you can start your programm with the start/stop switch.

switch: **start/stop**

This adjustment that you have made will only used for the present fireing. If you like to store this datas into the memory, please use the following way:

switch: **set Prog**

switch: **start/stop**

Important:

The delay time can not be stored in memory.