CE

Vötsch
Industrietechnik

Operating Instructions

Climatic Temperature Controlling CTC
Temperature Controlling TC
E4-Terminal

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1. Introduction

1.1 General information

This manual contains information and instructions for operating **Heraeus Industrietechnik** test systems with the **CTC** controller **(C**limatic **T**emperature **C**ontrolling) or **TC** controller (**T**emperature **C**ontrolling) with built-in control panel **E4.**
The manual gives instructions for operation of the system and for fault rectification.

The entire description of a test system comprises the separate operating instructions for the test chamber and the operating instructions for the controller. In case the C-type controller has been additionally ordered, the CTC-C operating instructions are also enclosed.

Observe the three comments **WARNING, DANGER** and **NOTE**:

DANGER

is used, if non-compliance with the instructions may endanger the operator.

WARNING

is used, if non-compliance with the instructions may cause damage to the system.

NOTE

is used to indicate any form of assistance.

1.2 Warranty

Study this manual and the operating instructions of the respective test system carefully prior to operation, in order to avoid malfunctions and damage resulting from operator errors.

The instructions in this manual must be strictly adhered to in order to ensure trouble-free operation. We accept no responsibility should these instructions be ignored.

No warranty can be given in case of improper use contrary to the instructions in this manual.

1.3 Use and application

The CTC and TC controllers facilitate monitoring and operation of a test system.

1.4 Safety standards

All safety standards relevant to operation of the test system must be observed (refer to the respective test system operating instructions).

2. Description of the keyboard and display

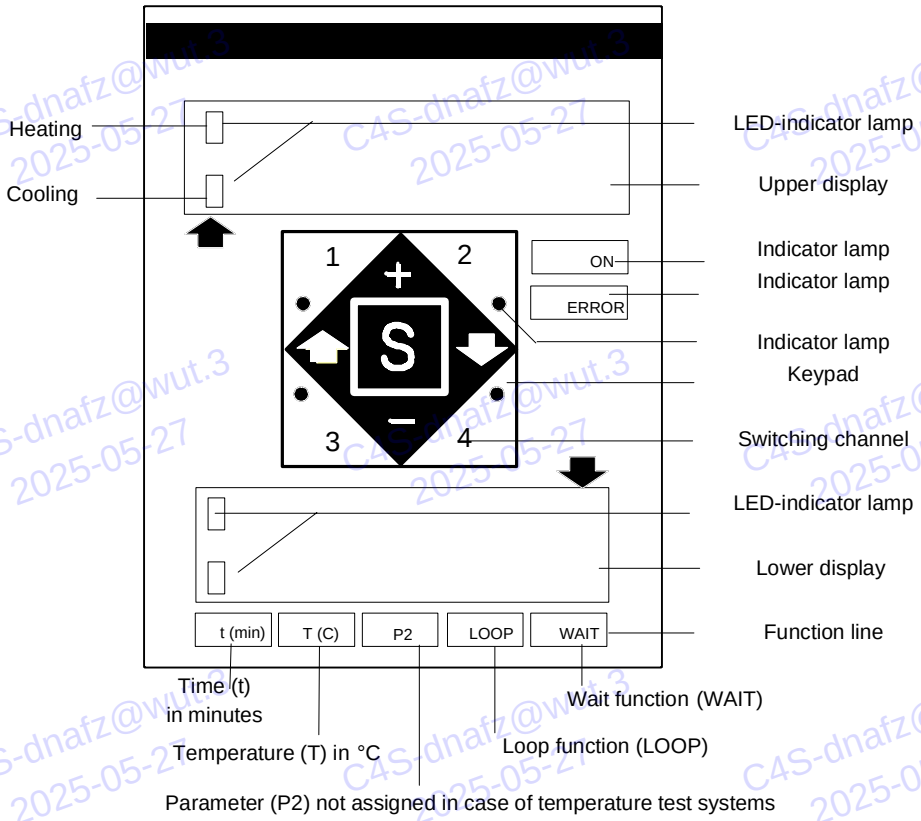


Fig. 1 Control panel

The following control and display elements are located on the **control panel** (fig. 1):

Indicator lamps to signal the current operating state:

ON	Indicator lamp (green)	System switched on
ERROR	Indicator lamp (red)	Error signal
	Indicator lamp (green)	Switching channel on

Keypad:

+ −
a) Increase/decrease input value.
b) Switch from analog channel 1* to other channels and vice versa.
c) Select program and edit program no.

■
a) Set value analog channel 0 (parameter 1= temperature).
b) Temperature limits min. and max.
c) Optional accessories*.
d) Return to other menu levels.

■
a) Set value analog channel 1*, 2* etc. (parameter 2,3 etc.).
b) Continue with program mode.
c) Continue with EDIT program.

S	Start/stop and store key. Clear fault signal.
1	Digital channel 1 on /off
2	Digital channel 2 on /off
3	Digital channel 3 on /off
4	Digital channel 4 on /off
Upper display	The current status is indicated here. a) Actual value analog channel 0 (OFF menu). b) Actual/set value analog channel 0 (ON menu) in fixed and automatic mode. c) Test program no. d) Set value display for input analog channel 0, 1*, 2* etc. e) LED indicator lamp operating state parameter 1 (temp.) upper display -heating- lower display -cooling-
Lower display	The operating state and status is indicated here. a) System -OFF-. b) Actual/set value analog channel 1*, 2* etc. (ON menu). in fixed and automatic mode. c) Test program line. d) Marker (cursor) for the function line. e) Special function -Erase-. f) LED indicator lamp operating state parameter 2*,3* etc. upper display e.g. -humidifying- lower display e.g. -dehumidifying-
Function line	The marker (cursor) above the line in the lower display indicates the appropriate function when inputs are being made.
t (min)	Time input for edit program mode.
T (°C)	Set value input analog channe0 (parameter 1 = temp.). in fixed and edit program mode.
P 2	Set value input **p**arameter 2* etc. (analog channel 1* etc.). in fixed value and edit program mode, e.g. LOOP
LOOP	Loop input in edit program mode (ed = **-1**)
WAIT	Input for wait function in edit program mode. Fixed tolerance range setting ±1 (K, % r.H.* etc)

3. Operation

3.1 General information

The CTC or TC controller with the built-in control panel CTC-E4 facilitate the monitoring and operation of a test system.

The test system may be operated in **manual** (fixed value) or **automatic mode**.

Extensive test sequences may be programmed with the **EDIT program** and a maximum of 99 test programs stored. Furthermore, up to nine system-specific standard programs are available.
These test and standard programs run in automatic mode.

Specific configuration of the controller is performed by **Vötsch Industrietechnik** and is recorded in the "Data sheet" attached to the system operating instructions
This manual contains examples of menus and parameters which may deviate depending on the test system.

DANGER/ATTENTION

The technical data and safety standards of the respective test system must be observed during operation.

The following symboles are indicated in the display:

A	Automatic mode
F	Manual (fixed value) mode
E	Edit program
P	Program number
L	Program line
CH	Analog channel
LP	Loop number
LH	Temperature limit max. (Limit High)
LL	Temperature limit min. (Limit Low)
OP	Optional accessories (Options)
OFF	Chamber ready for operation

The following overview (fig. 2) represents the **structure of the controller:**

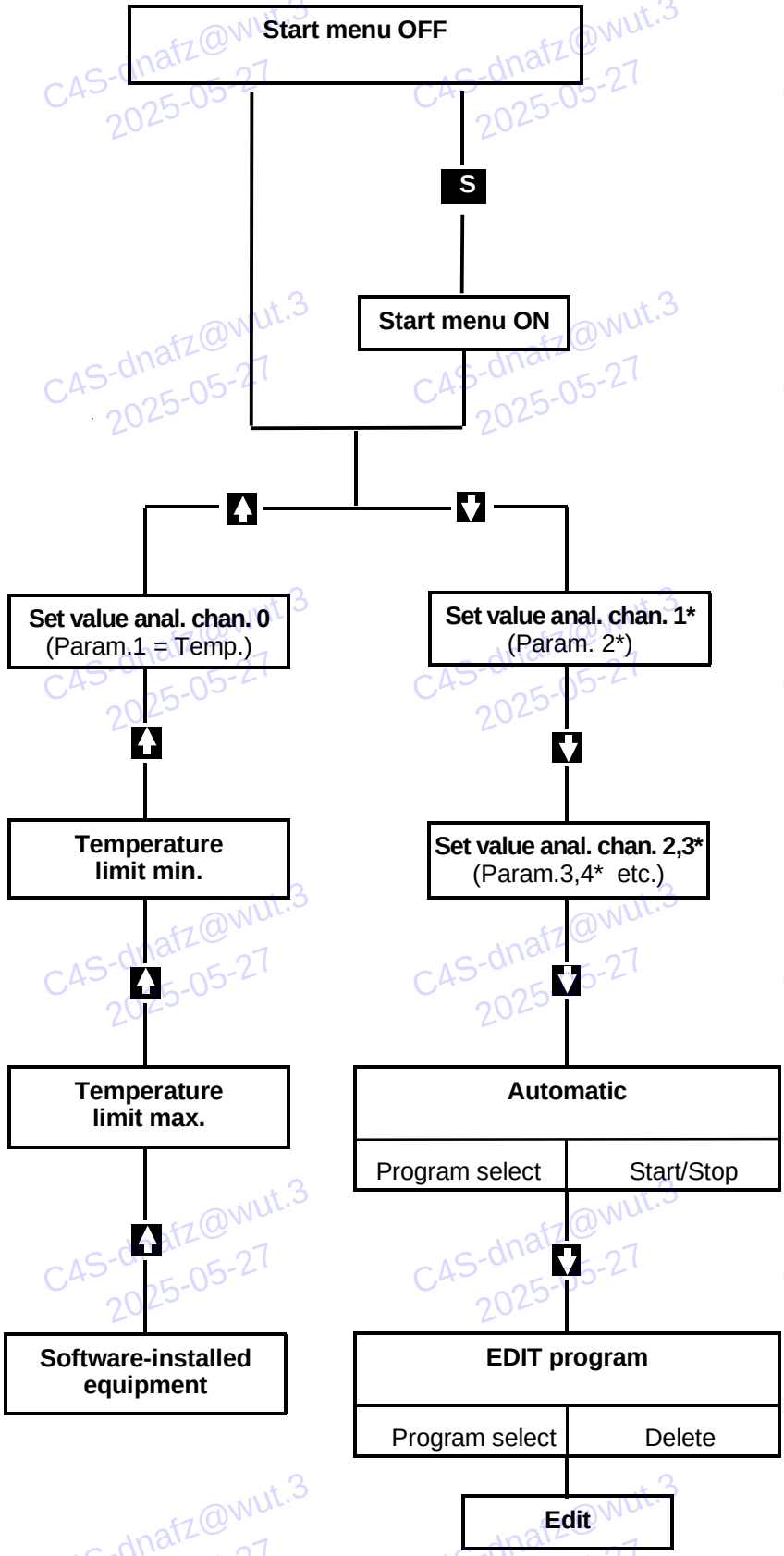


Fig. 2 Controller overview

The following chapters describe the operating modes and the EDIT program step-by-step in great detail. An example may be consulted in chapter 3.4.2.1, and is intended as a further introduction to operation of the system.

Observe the following points:

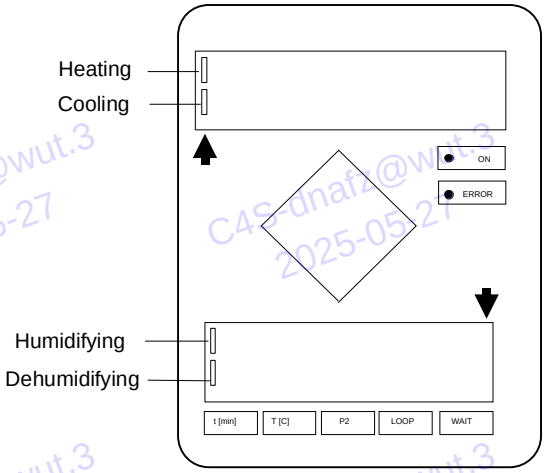
An incorrect input may be written over with a correct input. The input is acknowledged with **S**ave in EDIT mode.

The system is switched on and off with **S**tart/**S**top in the OFF menu or program no. input menu.

Input values and program no. are selected and changed with [+] [−].

The previous or following menu for other inputs appears on pressing the keys [ ] [ ].

The current operating state is indicated on the left edge of the two displays:



Furthermore, when the system is ON, the operating mode is displayed cyclically every 15 sec. for approx. 3 sec. in the upper display on the left in front of the set value:

F - stands for fixed value
A - stands for automatic

In **automatic** mode, the current program no. also appears for approx. 3 sec. in the upper display and the current program **L**ine in the lower display.

In **EDIT** mode, the **E**DIT program no. to be processed is visible in the upper display and the current program **L**ine in the lower display.

For reasons of clarity, the keys to be actuated are represented in this manual as white lettering on a black background.

The term "...-figure" includes the qualifying symbol and the decimal point where necessary.

Start menu OFF

When a printer is connected, it may be activated by the controller via the -software-installed equipment- menu, abbreviation "OP" (see chap. 3.5). Other optional accessories may be acitvated by switching channels 1 to 4 provided they are appropriately assigned. Refer to the assignment diagram (first sheet after cover) for information as to which switching channels are assigned. The display does not indicate whether a switching channel is set or not, this is only visible at the green indicator lamp.

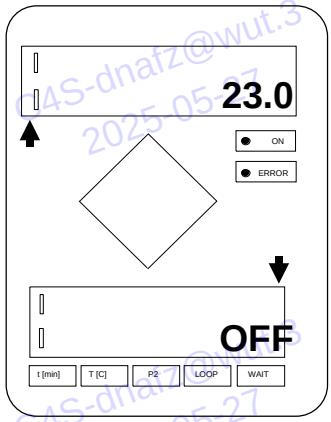
3.2 Putting into operation

1. Ensure that the test system has been properly prepared for the intended operations (refer to the operating instructions of the system).

WARNING/DANGER

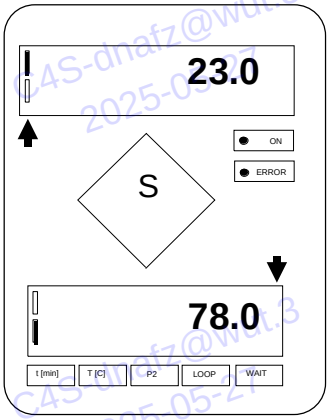
Ensure that the relevant safety standards have been observed on setting up the test system.

2. After initialization of the program, the start menu OFF appears:



Start menu ON

The start menu ON appears with the **S**-key.



The test system is now in operation and runs up to the set values. The displays indicate the current operating state with heating or cooling for parameter 1 - temperature (upper display) or for parameter 2* e.g. humidity with humidifying and dehumidifying (lower display).

3. Menu selection

With the symbol keys ■■ the various input menus may be selected in accordance with the controller overview (chapter 3, fig. 2) The type of input to be made in the selected menu is shown in the lower display by the cursor above the function line.
The inputs are only to be saved during EDIT program operation.

NOTE

If several analog channels have been configured and a simple temperature test is to be run, the set value of the other channels* must be set to -**0**-.
These channels are then switched off.

For further operation, you may select:

- manual (fixed value) mode see chapter 3.3.1
- automatic mode see chapter 3.3.2
- the EDIT program see chapter 3.4

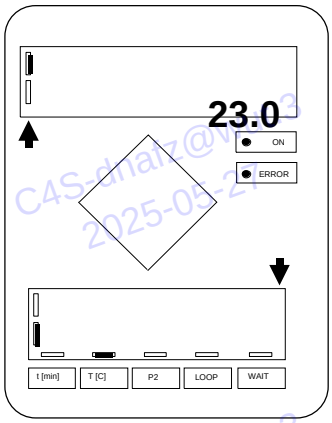
Refer to chapter 4 in case of malfunctions.

3.3 Operating modes

3.3.1 Manual mode

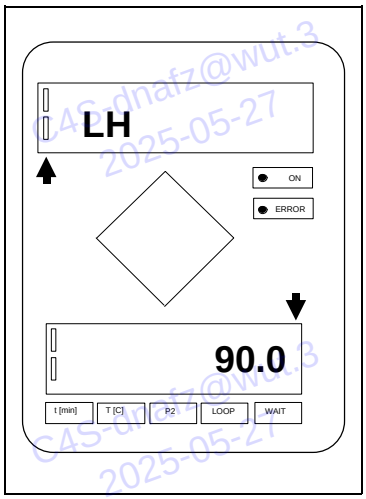
Fixed temperature or temperature-humidity values are run in manual mode. It is possible to change values at any time during operation or edit test programs in the EDIT program.
The following menus serve as examples, other configurations are possible (see "Data sheet" in the system operating instructions).

The input menu for set value analog channel 0 (parameter 1 - temperature) appears with ■:



Continue with ■ and the input menu for the minimum temperature limit appears. Limit Low appears in the upper display.

Continue with ■ and the input menu for the maximum temperature limit appears. **L**imit **H**igh appears in the upper display.



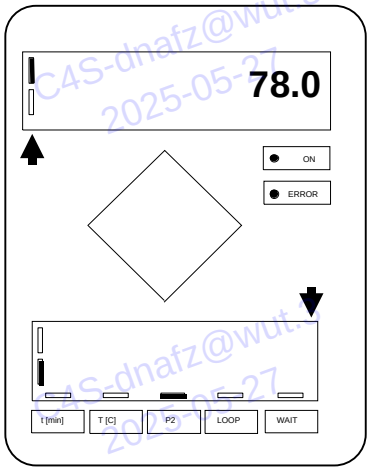
The upper or lower temperature limit is set with ■■.

This value must be approx. 5 K below or above the set temperature value. The lower temperature limit must always be below room temperature.

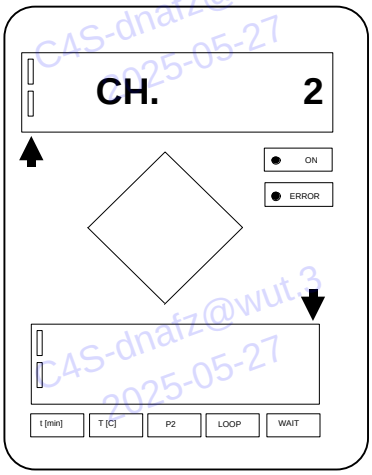
NOTE

If the temperature limits are not reset, the temperature limit values of the previously made settings take effect.

Return with ■ until the input menu for set value analog channel 1* (parameter e.g. humidity) appears:



Continue with ■ and the selection menu for optional analog channels* (2,3 etc., refer to the data sheet for channel assignment) appears:



Select from the factory-configured channels* (**CH**annel) with ■■.

To enter set values of these channels, return with ■ to the input menu for parameter 2 (P2 cursor display).

NOTE

If more than 2 analog channels* are entered, the actual value of the last channel is indicated for parameter P2* and the set value is set. The appropriate channel must be selected beforehand in the selection menu for set value input of these additional channels.

1. **Enter set value:**
   The value in the respective input menu is increased or decreased with the keys +/−

   Max. five-figure input.

   If no key is actuated for approx. 5 sec. in the set value inputmenus, the controller automatically switches back to the general operating display (start menu ON).

2. **Enter min. and max. temperature limits.**

3. **Start manual (fixed value) operation.**

   Start the test system with S.

   The values entered are immediately implemented by the system, i.e. inputs need not be saved in this operating mode.

4. **Calling up the EDIT program:**
   A test program may be edited during operation, see chapter 3.4.

   Depending on which input menu for set value setting is in the display, it may be necessary to actuate ■ several times (see controller overview, chapter 3, fig. 2), until the input menu EDIT program appears.

5. **Digital switching channels**
   Digital switching channels may be switched on and off with the keys 1 2 3 4.

   The corresponding green LED indicates the "on" status on lighting up. The switching channel can only be activated when it is enabled in the program. When using optional accessories, e. g. water spray or corrosive gas, please note that the switching channel is only enabled within the permissible temperature range (refer to the separate decription of the respective test system). Refer to the assignment diagram for information on which switching channel number is assigned and which optional accessory has been allocated to this switching channel.

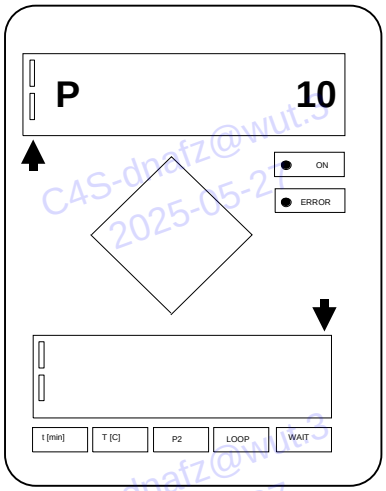
6. **Stop manual (fixed value) operation**.

   Put the system out of operation with S.

3.3.2 Automatic mode

Test programs generated with EDIT run in automatic mode. It is possible to process other test programs in EDIT during operation.
The following menus serve as examples, other configurations are possible (see "Data sheet").

Actuate ■ several times from the start menu OFF until the AUTOMATIC menu appears.
The program last processed appears in the display.



1. **Select program and start:**

   Select the previously stored test program no. with ➕➖

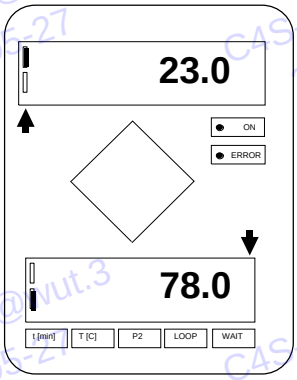
   Max. three-figure input.

No. 1 to 99	Customer-specific test programs generated in EDIT
No. 101 to 119	Standard programs (system-specific, (see separate test system operating instructions.)

   With **S** the selected program has to be started within 10 sec.

2. **Start program**.

The general operating display appears after 10 sec. This indicates the current test system status:



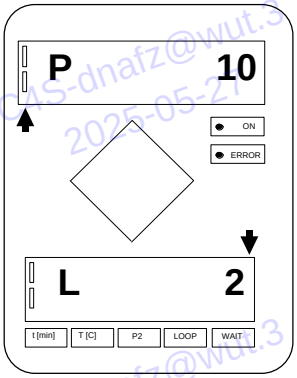
Example

Actual value parameter 1 (temp.) with status -Heating-

Actual value parameter 2* (humidity) with status -Dehumidifying-

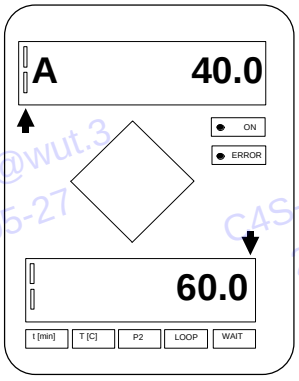
In this menu, the following displays appear cyclically after approx. 15 sec. for approx. 3 sec.:

a) the current **P**rogram status with the number of **L**ines still to be processed



subsequently for another 3 sec.:

b) the set values for **A**utomatic mode



Set value parameter 1 (temp.)

Set value parameter 2* (humidity)

3. **Stop program**

   The current program is stopped with **S**.
   The system is switched off and start menu OFF appears.
   The program commences again at the beginning when started.

4. Further program generation by **calling up the EDIT program**:

   A test program may be edited during operation.

   The input menu of the EDIT program appears with ■
   (see chapter 3.4).

5. The system is switched off at the end of the program and **start menu OFF** appears.

3.4 EDIT program

Test programs are generated and organized with the EDIT program. The structure is shown in the overview (fig. 3).

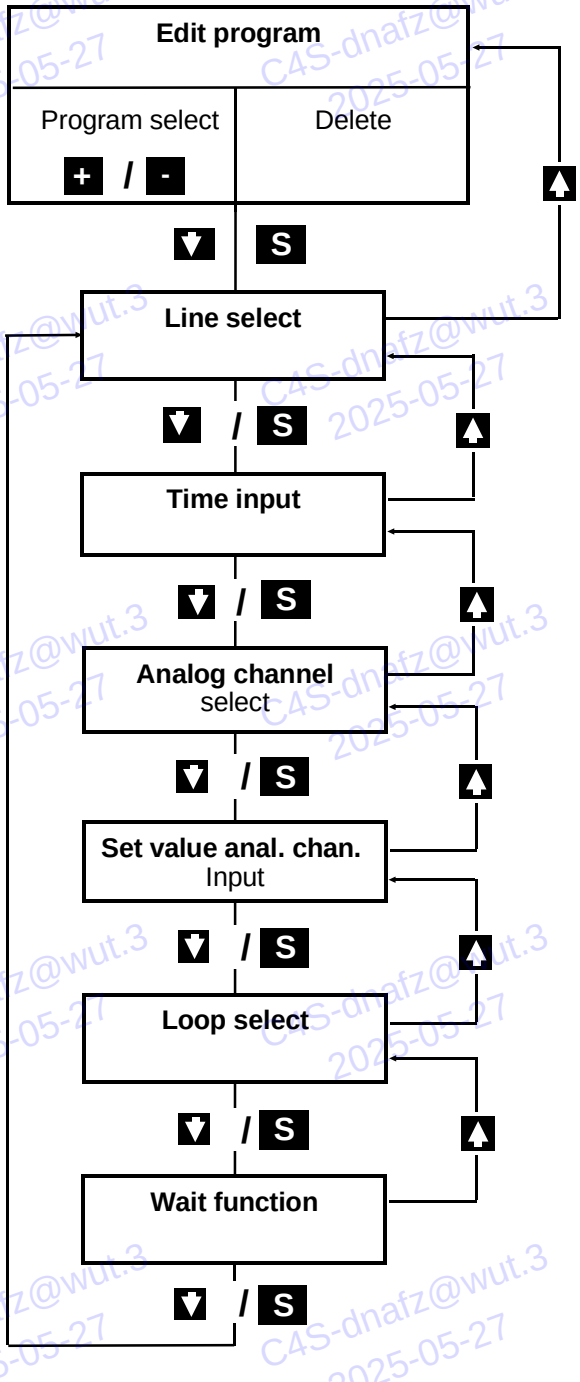


Fig. 3 Overview, EDIT

A maximum of 99 test programs each consisting of 99 program lines and a maximum of 10 loops may be stored.

In addition, standard programs (no. 101 to 119) are stored. The standard programs are write-protected and cannot be modified with the program editor.

3.4.1 Test program data

A test program consists of the program number and the program lines. When creating a test program, first select a free program location, i.e. the program no. and then edit the program lines.

Details of the individual data inputs are described as of page 17.

1. **Program no.**

   Actuate ■ several times from the start menu OFF until E _ _ _ _ appears. Select free program location with +/−.

   A free program location is indicated by an empty lower display:

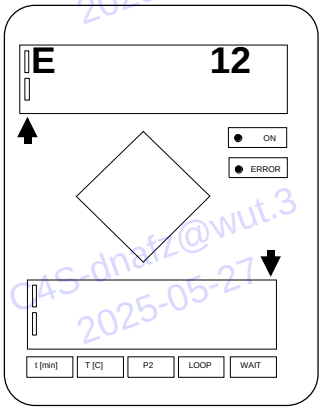


Fig. 4 Free program location

2. **Program lines**

The program lines consist of various input menus, which may be selected one after the other, required for execution of the program.

The menus are shown in fig. 5 in one line (program line) for reasons of clarity. The columns represent the various input menus (see enclosed programming sheet).

Return to the previous menu with ■.

1	2	3	4	5	6
0	0 min	0	23.0[°C]	0	0
1	15 min	0	23.0[°C]	10	0
2	0 min	0	185.0[°C]	0	1
3	90 min	0	185.0[°C]	-1	0
4	0 min	0	85.0[°C]	0	0

Fig. 5 Program lines

The **program lines** (fig. 5) incorporate the following information in the columns from left to right:

1 Serial number of the program line

2 Switching time 0000 to 9999 in min.

The cursor above the function line indicates the type of input [t (min)].

Digital channels:
Directly after the time input, switching channels for optional accessories* may be switched on and off by acutating the "switching channel no." key.

3 Analog channel
The cursor above the function line indicates the type of input
[T (°C)] or [P 2]*

4 Set value depending on system configuration and defined analog channel.
The cursor above the function line indicates the type of input
[T (°C)] or [P 2]*

5 Loops
pos. number = repetition factor, -1 = end of loop

6 Wait function
0 = off, 1 = on (fixed tolerance bandwidth ± 1K, % r.H.* etc.)

3.4.1.1 Wait function

The wait function may be defined as follows:
The function defines the tolerance band for a setpoint to be reached over the entire system range (e.g. HC00.. temperature 10°C to 90°C). The program only continues when the tolerance band is reached. The reference parameters for the wait function are the configured analog channels.

Example (fig. 6 and 7):

A test specimen is to be tested for 25 min. on reaching temperatures +60°C and +80°C.
The initial temperature is 20°C and is to last for 10 min.
In this case, the wait function ensures that the test only continues when the actual value has reached the tolerance range of ±1K of the set value.

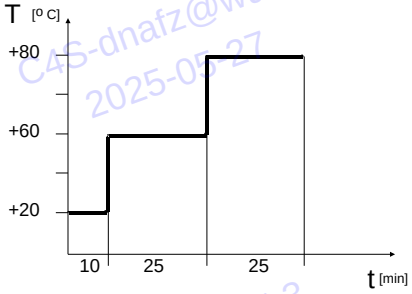


Fig. 6 Programmed temperature characteristics

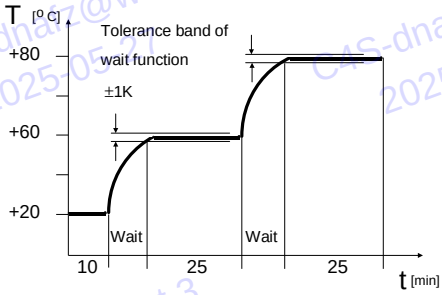


Fig. 7 Actual value characteristics

The wait function is also used when switching over from a temperature program having temperature values outside the humidity range to a section with humidity values (P2)*.
In this case, the humidity program can only continue when the temperature range for humidity testing has been reached (see example 2, program line 10 and 13).

3.4.1.2 Power failure time

A power failure time of 10 min. is preset in the control unit. If a power failure occurs during a test sequence, the program is stored at the moment of of the power failure. If power becomes available again within 10 min., the program coninues. If the power failure lasts longer than 10 min. it returns to start menu "OFF" and the system must be restarted.

The power failure time may be changed with the CTC-controller*.

3.4.2 Editing a test program

1. **Min. and max. temperature limits**.

   If no new temperature limits are entered, the last test sequence are automatically used.

   Proceed as follows if new temperature limits are to be entered in the test program being generated:

   a) Press ■ until the min. temperature limit input menu (**L**imit **L**ow) appears in the upper display:

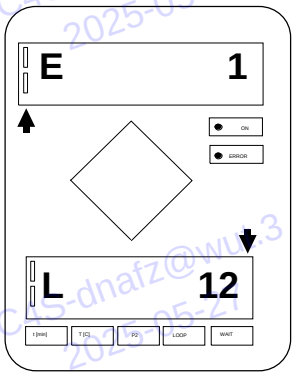
   Enter the lower temperature limit with +/−.

   b) Press ■ until the max. temperature limit input menu (**L**imit **H**igh) appears in the upper display:

   Enter the upper temperature limit with +/−.

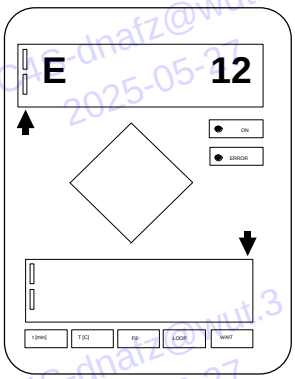
   The value to be entered must be approx. 5K above or below the max. or min. temperature set values set in the program. The lower temperature limit (LL) must always be below room temperature.

2. Press ■ until the **EDIT program** menu appears:



3. Select **program number**:

   Select a free program location with +/−.
   A free program location is indicated by an empty lower display.



   Max. two-figure program no. selection.

4. **Line selection**

   Call up the line select menu with ■.
   The current program line appears in the upper display.
   The available program lines are selected with +/−.
   If the line is assigned to a loop, the loop no. (**L**oo**P**) appears.

5. **Enter time**:

   Call up the time input menu with■.
   The running time of this program line is entered in minutes in the upper display. The time is increased or decreased with +/−.
   In this case, the cursor in the lower display above the function line is at t (min)

   Immediately after entering the time, a digital switching channel* can be switched on or off via the keys 1 to 4 (The switching channels may also be switched on or off after channel selection or set value input). Only one switching channel per line is possible. Whether and which switching channel has been activated is only indicated at the appropriate indicator lamp.

6. **Channel select**:

   Call up the channel select menu with ■.
   The current analog channel appears in the upper display.
   If several channels* have been factory-configured, you can select them with +/−.
   In this case, the cursor in the lower display above the function line is at T (°C) or with other channels* at P 2 (param. 2,3..).
   The subsequent setpoint is only applicable to this selected channel.

7. **Set value input**:

   Call up the set value input menu with ■.
   The current set value appears in the upper display.
   The desired set value is set with +/−.
   In this case, the cursor in the lower display above the function line is at T (°C) or P 2 * depending on the selected channel.

NOTE

Take the limit values of the test system into consideration when making inputs.

If the set value of an analog channel remains the same in the following time segments, the corresponding programming of lines becomes superfluous here. This means that this analog channel is automatically maintained until the next set value change (see example in chapter 3.4.2.1, line 2, 4 and chapter 3.4.2.2, line 4/5).
Remember that an uninterrupted run is guraranted by an analog channel. This means even when the set value is the same, a line with the desired time must be entered (see example in chapter 3.4.2.1, line 8 and chapter 3.4.2.2, line 6).

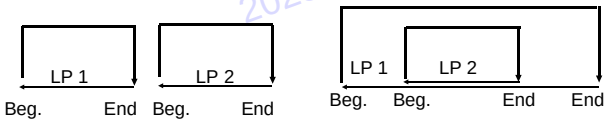
8. **Loop select**:

Call up the loop select menu with ■.
The current repeat factor appears in the upper display.
A maximum of ten loops are possible within one program.

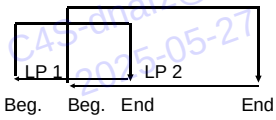
NOTE

Loops must not overlap chronologically.

Examples for possible loops:



Example for loops which cannot be performed:



a. Loop begin

Select a positive value for the loop repeat factor with ➕➖.

The loop starts in the line where a repeat factor has been programmed with **LOOP**.

b. Loop end
-1 is selected for the repeat factor in the desired line.

The loop ends in the line where the repeat factor has been programmed with -1 with **LOOP**.

In this case, the cursor in the lower display above the function line is at LOOP.

Loops may also be inserted at a later date (see example in chapter 3.4.2.2).

9. Wait function

Call up the wait function menu with ■.

The upper display shows whether this function is active or inactive:

0 = inactive
1 = active

Switch the wait function on or off with +/−.

The tolerance range is factory-set to ± 1K when the function is active.

In this case, the cursor in the lower display above the function line is at WAIT.

10. Save program

When programming has been completed, the program must be saved with S.

Return to the automatic menu with ■ for immediate program starting.

3.4.2.1 Example 1 - Climatic system: Analog channel 0 : Parameter 1 - temperature ——
Temp. range +10/+90 °C Analog channel 1*: Parameter 2 - humidity - - - -
Humidity range 30/95%r.H.

Fig. 8 Example 1

Sequence in the program line as in fig. 5, chapter 3.4.1

1	2	3	4	5	6
0	0 min	0	20.0[°C]	0	0
1	0 min	1	60.0[rh	0	0
2	30 min	0	20.0[°C]	0	0
3	0 min	0	40.0[°C]	0	-
4	30 min	0	40.0[°C]	0	0
5	0 min	1	70.0[rh]	0	0
6	120 min	1	70.0[rh]	0	0
7	0 min	1	60.0[rh]	0	0
8	30 min	0	40.0[°C]	0	0
9	0 min	0	20.0[°C]	0	0
10	30 min		20.0[°C]	0	0

Explanation of the program ([ ] = maintained values):

Program line	Activity
0 to 2	Constant climate 20°C, 60% r.h.
3	Heating to 40 °C, [const. 60 % r.h.]
4	Constant temperature 40°C, [const. 60 % r.h.]
5	Humidification to 70% r.h. [const. 40 °C]
6	Constant humidity 70% r.h. [const. 40°C]
7	Dehumidification to 60 % r.h.
8	Constant temperature 40°C [const. 60 % r.h.]
9	Cooling to 20°C [const. 60 % r.h.]
10	Constant humidity 20 °C, 60 % r.h.

3.4.2.2 Example 2 - temperature and humidity system: Temp. range -40/+180 °C humidity range 10/98% r.h.

A Analog channel 0 : Parameter 1 - temperature
Analog channel 1* : Parameter 2 - humidity

Fig.9 Example 2

Sequence in the program line as in fig. 5, chapter 3.4.1

1	2	3	4	5	6
0	0 min	0	20.0[°C]	0	0
1	0 min	1	50.0[rh]	0	0
2	30 min	0	20.0[°C]	0	0
3	-	-	-	10	-
4	30 min	0	40.0[°C]	0	0
5	30 min	1	20.0[rh]	0	0
6	30 min	0	40.0[°C]	0	0
7	-	-	-	-1	-
8	0 min	0	50.0[°C]	0	0
9	30 min	0	50.0[°C]	0	0
10	0 min	1	0.0[rh]	0	0
11	0 min	0	-20.0[°C]	0	1
12	60 min	0	-20.0[°C]	0	0
13	0 min	0	20.0[°C]	0	1
14	0 min	1	50.0[rh	0	0
15	30 min	0	20.0[°C]	0	0

Explanation of the program ([ ] = maintained values):

Program line	Activity
0 to 2	Constant climate 20 °C, 50% r.h.
3	Beginning of loop, repeat 10 x
4	Controlled heating to 40 °C [50% r.h.]
5	Controlled dehumidification to 20% r.h.[const. 40°C]
6	Constant temperature 40 °C [20 % r.h.]
7	End of loop (-1)
8	Heating to 50 °C [const. 20% r.h.]
9	constant temperature 50 °C [const. 20% r.h.]
10	Switch off humidity (set value =0)
11	Cooling to -20 °C with wait function
12	Constant temperature -20 °C

Program line	Activity
13	Heating to 20 °C with wait function
14	Humidity-On- at 50%r.h. when T=+20°C(wait funct.)
15	Constant climate 20 °C 50 % r.h.

3.4.3 Deleting a test program

1. Select program no.:
   Select the program to be deleted in the EDIT program menu with
   +/−.

2. Call up the line select menu with ■.
   The **first** program line (line no. L_ _ _0) appears.

3. Call up the time input menu with ■.

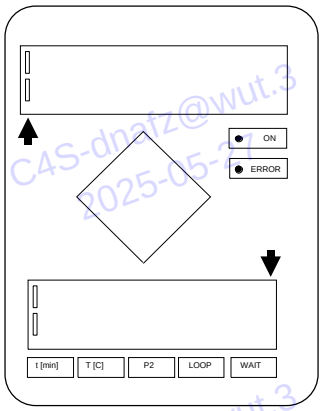
   Set the running time of the line to a negative value with - to delete this program:

   In case of display from -21 (min.) The lower display changes between -ErASE- and the program no. to be deleted.
   In case of display from -51 (min.) Program is deleted

3.5 Software-installed equipment

The interfaces of the system are configurated in the menu optional accessory (**OP**tions). Various optional accessories may be connected via the RS 232 and RS 485 interfaces. To enable communication between system control and the optional accessories connected, the following parameters must be set (see chapter 3.5.6).

Actuate ■ from the start menu until the menu -optional accessory- (**OP**) appears.
Only existing and/or configurated accessories appear in the displays.



With ± the next optional accessory (OP0 - OP4) is selected and with S the function within this accessory is progressed.

With ■ you can go back to the previous menus.

Unless another key is actuated in the menu optional accessory within approx. 5 sec., the general operating display appears.

The interface is factory-set to:
9600 Bd, 8 Bit, 1 Stopbit, No parity.

Accessories with fixed installed software:

OP 0	Interface log
OP 1	Printer function
OP 2	Interface type
OP 3	Address selection
OP 4	Language

3.5.1 Interface log OP 0

Select with S the desired log type

0	LPT Lineprinter mode
1	LX 300 mode
2	LQ 860 mode
3	ASCII log
4	TSI log
5	SPS-Debugger (for VIT Service)
6	EDV-Bedienteil (for VIT Service)

3.5.2 Printer function OP 1

Continue with + for selecting the printer function.

Select the desired function with S.

0 printer switched off

1 test program printout by storage with EDIT

If the printer is operated in this mode, the program in the EDIT menu prints out the following modes when storing with S:

1. In the menu EDIT program (see chapter 3.4.2, point 2):

   With S
   - printout of table of contents of the program

2. In the menu line selection (see chapter 3.4.2, point 4):

   With S
   - alphanumerical printout of program
   - storing of program.

3. Other menus in EDIT operation (see chapter 3.4.2, as of point 5):

   With S
   - graphical printout of program
   - storing of program

2 Printer in recording mode (recording function)

In this mode the configurated or input analog channels are recorded graphically.
The time axis and the resolution are system-specifically preset in the factory.

3.5.3 Interface type OP 2

Continue with + for interface type selection.

This menu can only be selected if the ASCII or TSI interface log has been chosen before in chapter 3.5.1.

Select the desired function (type) with S:

0 - RS 232

1 - RS 485

3.5.4 Address selection OP 3

Continue with + for RS 485 address selection.

This menu can only be selected if the RS 485 interface type has been chosen before in chapter 3.5.3.

Select the address with S:

0 - 31 - system addresses-

System 1 has address 0

3.5.5 Language OP 4

Continue with + for selection of the desired language.

The texts issued by the printer are written in the selected language.

Select the desired language with S:

0 German (or language of country in question)

1 English

3.5.6 Configuration Examples

3.5.6.1 Networking with TSI

If the test system is to be controlled with PC software TSI-DOS or TSI-MT, the PC must be connected to the test system via the system interface RS 232.
The test system must be configured as follows:

OPtions	Setting (Function)	Explanation of setting
OP 0	4	TSI log as per chapter 3.5.1
OP 1	-	no selection possible
OP 2	0	RS 232 interface
OP 3	0	Address for first system
OP 4	0	Channel display in German language (or language of the country in question)

3.5.6.2 Connecting the printer LX 300

OPtions	Setting (Function)	Explanation of setting
OP 0	1	LX 300 mode
OP 1	2	Printer in recording mode for actual values
OP 2	-	No selection possible as RS 232 is set automatically with printer selection
OP 3	-	No address possible
OP 4	0	Text on printout in German language (or language of the country in question)

NOTE

Options or settings which are not required are not selectable.

3.6 Putting out of operation

1. Ensure that the start menu OFF is displayed.
2. Ensure that the test system is put out of operation correctly (refer to the operating instructions of the test system).

DANGER/WARNING

Ensure that all safety standards are duly observed.

4. Fault diagnosis and rectification

Faults which occur during operation are signalled by the red ERROR indicator lamp and the large flashing word ERROR in the upper display.The system is switched off permanently depending on the type of fault.

Faults are displayed in the lower display by fault index numbers.
In case of several faults, the fault messages are displayed successively.

Proceed as follows in case of faults:

1. Operational faults are signalled by the red ERROR indicator lamp and by a number. As to the type of fault please refer to the chapter "Fault diagnosis and rectification" in the operating instructions of the test system where you will also find the cause and rectification. Contact our service organisation if the same faults occur repeatedly

2. Clear fault message with **S**.

   If during a climatic program (temperature and humidity*) the temperature falls outside the temperature range for climatic tests, the humidity will be switched off. The appropriate fault message appears.The test system continues running as mere temperature test system. This fault message can only be cleared when the temperature is back within the range which is suitable for climatic tests.
   If the fault is not/cannot be rectified, return to start menu OFF with **S**.

3. Continue operation of the test system.

Contact our service organisation if you need assistance with fault rectification.

In Germany

Vötsch Industrietechnik GmbH
Service Centre
D-35447 Reiskirchen-Lindenstruth
Tel.: 06408 / 84-0
Fax.: 06408 / 6 45 47

or

Vötsch Industrietechnik GmbH
Frommern
Beethovenstrasse 34
D-72336 Balingen
P.O. Box address:
P.O. Box 10 04 53, D-72304 Balingen
Tel.: 07433/303-0
Fax: 07433/303-220

abroad

the representative of Vötsch Industrietechnik
(see list attached)

NOTE

The following information is always required to minimize handling time and to ensure quick fault rectification:

Type of system, ID no.
System accessories
Program version
Fault messages in the fault menu

Index

A
Adress selection 26, 28
Analog channel 2, 4, 8, 10,17
Automatic operation 4, 5, 6, 8, 12

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Display 2, 3

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Time 3, 17, 20

W
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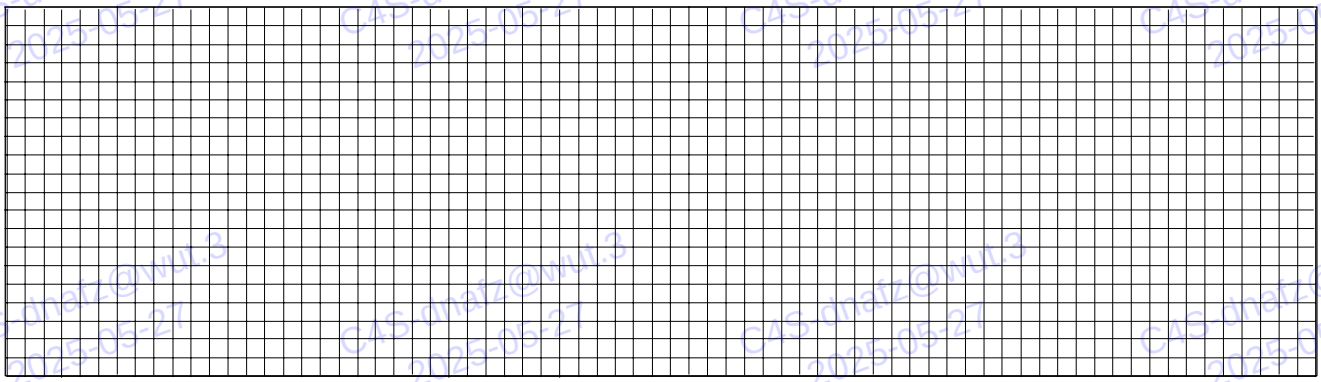
Programmier - Vorlage / Program - Layout CTC-E4

Vötsch Industrietechnik

Programm-Name/ -Bezeichnung : **Prog.-Nr. :**
Program-Name/ -Designation : ..... Prog.-No.: .....

Erstellt/Created Datum/Date:..... Name: .....



Temperaturbegrenzer/Temperature limiter: - LL- (min.): . . . . . °C -LH_-(max.) . . . . . °C

Zeile line	t (min) t (min)	Dig. arbeitender Kanal/ digitally working channel	Analog-Kanal Analog channel P 2	Sollwert Setpoint T (°C)	(. . .)	Schleife Loop LOOP	Wait-Funktion WAIT
00							
01							
02							
03							
04							
05							
06							
07							
08							
09							
10							
11							
12							
13							
14							
15							
16							

Vötsch Industrietechnik

Programmier - Vorlage / Program - Layout CTC-E4

Programm-Name/ -Bezeichnung : **Prog.-Nr. :**
Program-Name/ -Designation : ..... **Prog.-No.: .....**

Zeile line	t (min) t (min)	Dig. arbeitender Kanal/ digitally working channel	Analog-Kanal Analog channel P 2	Sollwert Setpoint T (°C)	(. . .)	Schleife Loop LOOP	Wait- Funktion WAIT
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
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