

Doc ID: 900738-002 January 2017

PCR Ass	sistant vpe Setup				
۲	3-Step PCR	🔿 2-Step F	PCR		
PCR					
	Initial Denaturation	95,00 € °C	300,0 🜩 s		
	Denaturation	95,00 车 °C	15,0 🌲 s		
	Annealing	50.00 ≑ °C	15.0 🌲 s		
	Elongation	72,00 🜩 °C	15.0 🌩 s	10 🜩 Cycles	
\checkmark	Final Extension	72,00 🜩 °C	180,0 🜩 s		
$\mathbf{\Sigma}$	Cooling	10,00 ♀ ℃	20.0 🜩 s		
120 — 100 —					Lid Temperature Mount Temperat
-08		∖┲╲┲╲┲╲	<u>┛╲┛╲┛╲┛╲</u> ┛	┟┦┟┦┎══┑╴	
40					
0-()	500	1000	1500	
			lime [s]		
			int Edit		
		Se Scr	ipt Ealt	or	
		FC [®] Script	Editor 3.0 (
	► User´	s Manual			

INHECO Industrial Heating and Cooling GmbH reserves the right to modify their products for quality improvement. Please note that such modifications may not be documented in this manual.

This manual and the information herein have been assembled with due diligence. **INHECO GmbH** does not assume liability for any misprints or cases of damage resulting from misprints in this manual. If there are any uncertainties, please feel free to contact **sales@inheco.com.** \rightarrow How to contact INHECO, page 4.

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1 IMPORTANT NOTES

1.1. General Information

Read the user instructions completely. The manual explains how to use the INHECO ODTC[®] Script Editor (in the following Script Editor) to edit temperature profiles for the ODTC[®] (all versions of ODTC[®]96 and ODTC[®]384). INHECO recommends to use the Script Editor 3. The combination of Script Editor 3 with ODTC[®] firmware version 225 and SiLA version 6046 or higher provide the maximum of performance.

To transfer the temperature profiles into the ODTC[®] it is necessary to use a SiLA Process Management Software (PMS) provided by a robotic system provider. In case of ODTC[®] testing in stand alone condition (without integration) INHECO can assist you with a SiLA PMS test tool. Please contact **techhotline@inheco.com** if you need further information.

Missing or insufficient knowledge of the manual leads to loss of liability against INHECO GmbH.

This manual is part of the ODTC[®] and must be retained until the unit is disposed of and must be passed on with the device when the unit is taken over by a new user.

Manual instructions must be followed in order to ensure safe handling of the unit.

Security-related warnings in this manual are classified as following:

- The signal word NOTE stands for general precautionary measures that have to be taken to avoid issues with the software or your methods. There is no health risk or risk of damaging the device due to the use of this software.

Contact INHECO in case there are any uncertainties of how to operate or how to handle the ODTC[®] Script Editor.

Your opinion about this manual provides us with valuable insights on how we can improve this document. Please do not hesitate to direct your comments to **sales@inheco.com**, \rightarrow How to contact INHECO, chapter 1.3 below.

1.2. Explanation of symbols

Symbol	Explanation
•	Bullet points indicate steps of instructions.
-	Hyphens refer to enumeration.
\rightarrow	Arrows indicate: "refer to" and are mostly active links

1.3. How to contact INHECO

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Address	Fraunhoferstr. 11
	82152 Martinsried
	Germany
Telephone - Sales	+49 89 899593 120
Telephone - Techhotline	+49 89 899593 121
Fax	+49 89 899593 149
E-Mail - Sales	sales@inheco.com
E-Mail - Technical - Hotline	techhotline@inheco.com
Website	www.inheco.com

Technical Support & Trouble Shooting Instructions:

http://www.inheco.com/service/technical-support.html

1.4. Abbreviations and Glossary

Symbol	Explanation
SiLA	Standard in Laboratory Automation
PMS	Process Management Software
ODTC [®]	On Deck Thermal Cycler
FWCS	Firmware Command Set
Temp init step	Temperature initialization step
.exe	executable file
°C	Degree Celsius
LAN	Local Area Network
Gbit/s	GigaBit per second
MB	MegaByte
DEFINITION	
Project:	Comprises all edited temperature initialization steps, standard and PCR methods in one project file
Temp init step:	Is mandatory to set the ODTC [®] mount and lid to a defined start temperature.
Method	Set of temperature steps (programming of simple temperature profiles, no PCR profiles)
PCR	Programming of PCR temperature profiles

2 PRODUCT DESCRIPTION

2.1. Intended Use

The Script Editor allows to create temperature profiles for the ODTC[®] only. The temperature profiles have to be programmed in xml format and then transferred/loaded to the ODTC[®] via the Ethernet connector. The xml files must be created by using the ODTC[®] Script Editor as the ODTC[®] Script Editor automatically compiles a xml file with the correct control parameters for the ODTC[®].



After editing the desired temperature profiles, the xml files must be transferred to the ODTC[®] via the PMS of the liquid handling workstation.

The ODTC[®] needs to be addressed by a SiLA PMS (Process Management System) for operation. For the integration into SiLA based liquid handling workstations the already existing workstation SiLA protocol can be used to operate the ODTC[®].

For non SiLA based workstations an additional driver must be written which translates the workstation protocol into a SiLA based protocol. The description of the command set and the SiLA communication protocol are part of the scope of delivery of the ODTC[®]. Please contact your workstation provider for the integration.

Script Editor Version 3 offers some additional features (release 12/2016). For creating new methods INHECO strongly recommends to use the latest version of the Script Editor in combination with the firmware 225 and higher. In case you need further information contact **techhotline@inheco.com**. Scripts created with Script Editor version 2 or lower cannot be imported or edited in Script Editor Version 3.0 or higher.

2.2. Changes to older Script Editor Versions

- easier editing of PCR profiles (PCR Editor)
- adjustable lid temperature for each method
- optimized setting for slopes (heating and cooling speed) by choosing max slopes
- shorter heat up times for Temperature initialization steps
- advanced export function for ODTC® compatible files

3 SOFTWARE INSTALLATION

Please follow the instructions in the given order. Ignoring the correct order may cause complications during installation.

3.1. Hardware and System Requirements

- Windows compatible x86 based CPU (32 and 64 bit are supported)
- Operating system: Windows XP, Windows Vista, Windows 7, Windows 8 or Windows 8.1, Windows 10
- The Script Editor Setup (installer) comprises all necessary prerequisites / software packages for the above mentioned operating systems, e.g. .net Framework 4.0
- Administrator rights are necessary for executing the Script Editor installer. For using the Script Editor administrator rights are not necessary.
- Network Adapter: IEEE 802.3 Ethernet Network Interface (10/100/1000 BASE-T)
- Processor: 1GHz or faster (recommended dual core or better)
- Ram Minimum 512 MB
- Disk space minimum for Script Editor: 200MB with .net framework 4.0 already installed

3.2. Installation of ODTC® Script Editor

3.2.1. Content of USB flash drive

The required file to install the Script Editor can be found on the USB flash drive which is part of the scope of supply of the ODTC[®].

USB flash drive content:

- ScriptEditor3.0.0_Setup

3.2.2. Installation of ODTC® Script Editor

 INHECO offers the Script Editor installer called ScriptEditor3.X.X._setup. This installer provides all necessary items for a successful usage of the Script Editor.

ScriptEditor3.0.0_Setup

28.11.2016 13:48

Fig.2: Installer file in explorer

Follow the instructions in the dialogues given below.
 Additional dialogues could appear, depending on Windows configuration, user rights and firewall. For questions about these, please contact your administrator.

🕼 ODTC Script Editor - InstallSh	nield Wizard		×		
J.	Welcome to the Ins ODTC Script Editor	stallShield Wizard for will install ODTC Script Editor on yo Next.	bur		
	WARNING: This program is p international treaties.	rotected by copyright law and			
🔂 ODTC Scrip	t Editor - InstallShield Wiz	ard	×		
Destination I	Folder		4		
Click Next to	o install to this folder, or click	Change to install to a different fold	er.		
	nstall ODTC Script Editor to: C:\Program Files (x86)\INHECC	GmbH\ScriptEditor 3\	Change		
Ĩ	ODTC Script Editor - Ready to Install the Pr The wizard is ready to	InstallShield Wizard rogram begin installation.		×	
InstallShield —	If you want to review of the wizard. Current Settings: Setup Type: Typical Destination Folder:	r change any of your installation	settings, click Back. Click C	ancel to exit	
	C:\Proc User Inform Name: Compa	C Script Editor - InstallShield ing ODTC Script Editor program features you selected a Please wait while the Inst	Wizard ire being installed. allShield Wizard installs OD	TC Script Editor. This may	•
	anzanomenaUkg	Status:			
		R ODTC Script Editor - Insta	IIShield Wizard		X
	InstallShie		The InstallShield Wizard The InstallShield Wizard Editor. Click Finish to ex	zard Completed	ipt
			< Back	Finish Cance	1

• After click on "Finish" the ODTC[®] Script Editor will open:

Manane Projects	
Project Name Path Coulder Culters Uncaliented Veto Units Viscour (Vinco SmbH Sorge Safer 3 Usange) Beta 6 Cilluers Uncaliented Documents Beta 6 app	
Remove Selector from List Open Cancel	

3.2.3. Start Script Editor from workstation software

 Some workstation provider may include the Script Editor.exe in the workstation software, please visit the workstation provider documentation for further information.

4 DAILY USAGE

4.1. Operation of the ODTC®

Temperature profiles have to be programmed in xml format and then transferred/loaded to the ODTC[®] via the Ethernet connector. The xml files must be created by using the ODTC[®] Script Editor as the ODTC[®] Script Editor automatically compiles a xml file with the correct control parameters for the ODTC[®]. The ODTC[®] Script Editor allows an easy editing of the temperature profiles and the translation into ODTC[®] compatible xml files. After editing the desired temperature profiles, the xml files must be transferred to ODTC[®] via a PMS of the liquid handling workstation.

The ODTC[®] needs to be addressed by a SiLA PMS (Process Management Software) for operation. For the integration into SiLA based liquid handling workstations the already existing workstation SiLA protocol (SiLA standard 1.2) can be used to operate the ODTC[®].

For the operation of the ODTC[®] with your liquid handling workstation software please contact your platform provider.

NOTE

The Script Editor provides the possibility to edit temperature profiles only. Other process steps, like "open door" (to allow pipetting or gripping of the disposable) or "close door" must be executed via the PMS. For translation of your application into an ODTC[®] compatible process/sequence please divide your process in temperature and non temperature methods.

4.2. User Interface

open Script Editor

	0 🤤 🛱	u 💿 🧿 🖩 🏘 р	(₩ ^ ■ // (× DEU 2037 21 10 2016
		Remove Selection from List Open Cancel	
		Project Name Path Economic C. Ulbers Jawaslewski/VpcData Reserved Information Science Graft M Science Editor 3: Economic Beta S C. 'Ulbers' Jawaslewski/Documents/Beta Scep	
		Manage Projects	
		nView Options	
File Edit	View Add Tools Help	× Close Alt+F4	

• For existing project, you can either use the selection list or the browse function. To create a new project use button NEW.

• After starting the ODTC[®] Script Editor, the menu bar will allow different functionalities:

						Fer Inverse Incommentation Incommentation Inco
File	Edit	View	Add	Tools	Help	
Beta 7	test					

Fig.5: Functional elements of Start Window

File	Comprises: new project, open project, close project, save, save as, rena-
	me project and exit.
Edit	Comprises: rename or delete existing methods.
View	Allows to select different display modes of temperature profiles/graphs.
Add	Selection for adding a Temperature initialization step, a method or a PCR
	to a project.
Tools	Export function for edited methods.
Help	Shows information about the software version and about INHECO
	(INHECO Website).

General error handling information

The entry of invalid values in the Script Editor can be either indicated as pop up or marked with an exclamation mark.



4.2.1. File Menu

File Edit Vie		-
	ew Add To	Tools
New Project	t Ctrl+N	<u> </u>
Upen Projec	tt Ltfl+O	<u> </u>
Close Projec	ct	
🛃 Save	Ctrl+S	s
Save As		- 1
Rename Pro	iject	
Exit		

Fig.7: File Menu

New project	Creation of a new project file. A project comprises different methods to be
	used in the ODTC [®] .
Open project	Allows the user to search his computer for already existing projects.
	Note: Methods of the Script Editor Version below Version 2 or lower can-
	not be imported into the new Script Editor.
Close Project	Closes the project without closing the Script Editor.
Save	Saves the project with overwriting the opened project.
Save as	The project will be copied and saved with a new name.
Rename project	Opens File-Explorer where you can define a new Project File name.
Exit	Closes the Script Editor.

NOTE

The transfer of xml files to the ODTC[®] has to be performed by the PMS of the workstation \rightarrow please see documentation of workstation provider

DEFINITION	
Project:	Comprises all edited temperature initialization steps, standard and
	PCR methods in one project file
Temp init step:	Is mandatory to set the ODTC [®] mount and lid to a defined start
	temperature.
Method	Set of temperature steps (programming of simple temperature profiles,
	no PCR profiles)
PCR	Programming of PCR temperature profiles

4.2.2. Edit Menu

File	Edit	View	Add	Tools	Help
Beta i		Rename	F2		
Te	×	Delete			
Me	-				
	- <u></u>			_	
PC	R			_	
PC	R			_	
PC	R				
PC	R				
PC	R				
PC	a				
PC	2				
PC	2				

Fig.8: Edit Menu

Rename	Renames an existing method.
Delete	Deletes an existing method.

4.2.3. View Menu

F

le metho	Allways on Top		neter			Step E	iditor						Limits (30 - 74 µl)
emp. In Aethods	Graph	•	× ×	Lid Temperature Mount Temperature	2		Step	Slope	Plateau temp. in	Plateau time in	Go to	Loops	Maximum cooling slopes
Cycle Method	d		-	Real Mount Temperature			- N	III IVS	°C	5	Step		Temp. range Max. cooli
CR		1	-	Real Would Temperature		•	1	4,4	95	120	0	0	99°C - 60°C 2.0 K/s
					× .		2	11	95	10	0	0	60°C - 40°C 1.3 K/s

Allways on Top	When activated the Script E	ditor will always be on top of any other pro-
	gram window.	
Graph	Allows to select different dis	play modes of the temperature graph.
	Lid Temperature	yellow line shows programed Lid Temperature
	Mount Temperature	blue line shows programed Mount Tempera-
		ture
	RealMount Temperature	red line shows Mount Temperature including
		over- and undershoots



Fig.10: Graph showing Lid and Mount Temperature profile



Fig.11: Graph additionally showing RealMount Temperature (over-/undershoots)

NOTE

The RealMount Temperature includes the over and under shoots which are necessary to achieve a correct temperature in the sample. When max cooling/heating slope is selected, a cooling step might also be subdivided into multiple cooling steps depending on the fluid quantity and target temperature. => refer to Appendix.

4.2.3.1 Zoom Function

The graphical section has a zoom in function. To zoom into the graph just click in the graph hold the left mouse button and drag the mouse or press Ctrl + mouse and use wheel up/down. This feature is only available in Methods and PCR but not in a Temperature initialization step. A right click with the mouse gives you the option to

- show the temperature graph on the full screen
- get back to the default zoom
- copy the graph



Fig.12: Pop up window after right mouse click



Fig.13: Zoomed graph with Restore Previous Zoom button (red arrow)

4.2.4. Add Menu

File Edit View	Add Tools Help
Beta 7 test	Temperature Initialization Step Mathed
Methods	PCR
. OK	
Fig.14: A	dd Menu

Temperature	Starts creating a new Temperature Initialization Step.
Initialization Step	
Method	Starts creating a new Method.
PCR	Starts creating a new PCR profile.

4.2.5. Tools Menu

File	Edit	View	Add	Tools	Help	
test S	cripted	ditor fin	al vers	Ex	port MethodSet	Ctrl+E

Fig.15: Tools Menu

Export MethodSet	Allows to select any desired Methods from the project to be exported to an
	ODTC [®] readable file (xml file).
	Also provides the possibility for "CopyparamsXML to Clipboard". "Copy-
	paramsXML to Clipboard" exports the methods to Windows Clipboard as xml
	file with additional information to allow method transfer to the $ODTC^{\scriptscriptstyle (\! 8\!)}$ via the
	INHECO PMS.

4.2.6. Help Menu

File Edit View Add Tools Beta Z test Temp. Init: Steps Methods PCR	Help NHECO Home About		
Fig.16: Help M	enu		

INHECO Home	Opens www.inheco.com .
About	Opens a window with Script Editor information such as version number
	and author.

4.3. Edit Methods

New Temperature Initialization Steps, Methods or PCRs you can be created by either using Add in the menu bar or right mouse click on the Temperature Initialization Step, Method or PCR (shown in the left part of the window).

4.3.1. Creation of "Temperature Initialization Step"

• select Add => Temperature Initialization Step or by right mouse click

A e Edit View Add Tools Help	B ie Edit View Add Tools Help
Beta 7 test Temperature Initialization Step Temp. Init. Step Method Methods PCR PCR PCR	Beta 7 test Temp. Init. Steps Methods PCR Add new Temperature Initialization Step PCR



 the following window is displayed to configure the initial temperature conditions of the ODTC[®].

nperature Initialization Step Se	tup ?
Set parameters	
Name	[
Description (optional)	
Name of creator	INHECO\AWasilewski
Date of creation	Donnerstag, 27. Oktober 2016
Plate type	
Target temperature Mount [°C]	25
Target temperature LID ["C]	unlock
Duration [min:sec]	

Fig.18: Method Name entry

Temperature initialization step is mandatory to set the ODTC® mount
and lid to a defined start temperature.
Enter your method name.
Enter a description for the method.
Enter name of the method creator.
Enter date of creation.
Choose between 96 and 384 well type of ODTC®
Enter initial start temperature of the Mount in °C
(Min +4°C, Max +99°C).
Enter initial start temperature of the Lid in °C
(Min +30°C, Max +115°C).
Duration of method set (is calculated automatically).
Unlocks the lid temperature and allows to edit lid temperature.

NOTE

The temperature initialization step sets the ODTC[®] mount and lid to a defined start condition and always needs to be executed first, when using the ODTC[®] (must be executed after switching on the ODTC[®] or each power cycle)

For unsealed plates INHECO recommends to set the target temperature of the mount in the temperature initialization step to +25°C (or as close as possible to room temperature) to minimize evaporation of the sample. The evaporation may cause reduced process quality.

- Enter name of method
- Enter description
- · Enter name of creator
- Enter plate type
- · Enter target temperature mount
- Enter target temperature LID

As soon as the plate type is selected the unlock button will be enabled.

		Please make sure that the Lid temperature is always above the highest temperature in the Method to avoid condensation.
110	🔒 unlock	Please note: Lid does not have active cooling. Be aware that cooling down might take some time!

Fig.19: Unlock button and its meaning

NOTE

The default lid temperature is set to +115°C for ODTC[®] 384 and +110°C for ODTC[®] 96 Please make sure that the lid temperature is always above the highest temperature in the method to avoid condensation.

NOTE

Lid does not have active cooling. Be aware that cooling down might take some time!

As soon as all mandatory entries are made OK will be enabled.

After acknowledging all information with clicking on the ok button the temperature initialization step will be displayed in a graph.



Fig.20: Temperature initialization step (after entry of all required information)

Name and type of Method	Is shown in the project directory.
Set	
Description of method	Shows entered method name.
Creator	Shows name of the method creator entered for this method.
Created	Shows date when the method was first created.
Target Mount	Shows target temperature of the Mount in °C.
Target Lid	Shows target temperature of the Lid in °C.
Estimated time	Duration of method set is calculated automatically and depends on
	the selected lid temperature.
	Minimum Lid Temperature: 30°C \rightarrow estimated time approx. 1.5 min
	Maximum Lid Temperature: 115°C (ODTC [®] 384) \rightarrow estimated time
	approx. 9 min

4.3.2. Create a "Method"

• select Add => Method or by right mouse click

E Edit View Add Tools Help	B le Edit View Add Tools Help
Temp. Init. Step Methods PCR PCR	Temp. Init. Steps Methods PCR Add new Method
ig.21: Add Method Set via menu ba	ar (A) or right mouse click (B)

The following window will be shown to configure the initial temperature conditions of the $\mathsf{ODTC}^{\scriptscriptstyle \otimes}$.

thod Setup			? ×		
Set parameters					
Name					
Description (optional)			< >		
Name of creator	AWasilewski				
Date of creation	Donnerstag, 2	7. Oktober 2016			
Plate type			~	ODTC® 96	
Ruid quantity			Ŷ	0010#384	
Keep temperatures after method Post Temper)	() On	⊖ Off		10 - 29 µl 30 - 74 µl 75 - 100 µl	
Max cooling/heating slopes	On	⊖ Off			
Start temperature Mount [°C]	25				
Start temperature LID ["C]	U		unlock		
Can't be changed after Setup comp	olete	OK	Cancel		

Fig.22: Method Name entry

Name of method	Enter method name.
Description of	Enter a description for the method.
method	
Name of Creator	Enter the name of the method creator.
Date of Creation	Enter date of creation (is automatically set to current date).
Plate Type	Choose between 96 and 384 well type of ODTC®.
Fluid quantity	Choose fluid quantity range of sample per well (only for ODTC [®] 96). For
	further information refer to the table 1 on the page 19.
Keep temperature	Select parameter "ON" or "OFF". If the ODTC® should keep its tempera-
after method	ture after the method is finished (e.g. open door for pipetting step) set the
	selector to "ON". Set it to "OFF" to switch off the temperature control after
	method is finished.
	Note: If the selector is set to "OFF" no new method can be started within
	the ODTC [®] after this method. \rightarrow Appendix Chapter 6.2, page 31
Max cooling/hea-	Select parameter "ON" or "OFF". In case the slopes should be programmed
ting slopes	individually (according to specifications shown in table below) set the selec-
	tor to "OFF". Set it to "ON" to allow the Script Editor to set the maximum
	cooling/heating slopes automatically.
	Note: This selection cannot be changed after the Set up is completed.
Start temperature	Set temperature with which the method will start.
Mount	Note: Make sure that the start temperature matches always the
	temperature that is set in the "temperature initialization step" or the
	temperature that is set at the end of the previous method.
Start Temperature	Set temperature for the lid for the whole method. (Temperature can differ
Lid	from temperature set in "temperature initialization step or previous method)

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- Enter name of method
- Enter description
- · Enter name of creator
- · Enter well type with selector
- Enter plate type with selector
- Enter fluid quantity (only for ODTC[®] 96[®])

Α		В	
Plate type	ODTC® 96 ~	Fluid quantity	~
Fluid quantity	ODTC® 96 ODTC® 384	Keep temperatures after method (PostTemper)	10 - 29 µl 30 - 74 µl 75 - 100 µl

Fig.23: Selector Plate type (A) and Selector Fluid quantity (B)

NOTE

The fluid quantity is defined as a fluid quantity range. The control parameters of the ODTC[®] will be adjusted depending on the selected fluid quantity range. The control parameters work for the complete selected fluid range (see table 1 below for ODTC[®] 96).

Fluid quantity range	Optimized fluid quantity
10 - 29µl	25μΙ
30 - 74µl	50µl
75 - 100µl	100µl

Table 1: Fluid Quantity

· Select keep temperature after method

NOTE

If the ODTC[®] should keep its temperature after the method is finished (e.g. for a pipetting step) select keep temperature after method "ON".

• Enter start temperature

NOTE

Make sure that the start temperature matches always the temperature that is set in the "temperature initialization step" or the temperature that is set at the end of the previous method.

• Selection of lid temperature

You can now edit the lid temperature **used for the whole method**. The lid temperature is adjustable between 30°C and 115°C (for ODTC 96 Max. 110°)

As soon as the plate type is selected the unlock button will be enabled.

110	anlock	Please make sure that the Lie temperature is always above the highest temperature in the Method to avoid condensation. Please note: Lid does not have active cooling. Be aware that cooling down might take some time!
-----	--------	--

Fig.24: Unlock button and its meaning

NOTE

The default lid temperature is set to +115°C for ODTC[®] 384 and +110°C for ODTC[®] 96 Please make sure that the lid temperature is always above the highest temperature in the method to avoid condensation.

As soon as all mandatory entries were made OK will be enabled.

After acknowledging all information with clicking on the ok button the Method will be displayed:

a 7 test	Parameter			Step E	ditor							
Temp. Init. Steps premethod 250 Methods Incubate 37 PCR	Descr.				Step	Slope in K/s	Plateau temp.in 'C	Plateau time in s	Go to Step	Loops		
	Creator	AWasilewski										
	Start Mount ['C]	25										
	Start Lid ['C]	80										
	Fluid	30 - 74 µ	~									
timated Duration	Post Temp, Max Slope											
00h : 00m : 00s	Created	2016-10-27 20:46:22										
												Lid Temperatu Mount Temper

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4.3.2.1 Edit temperature steps within a method

The temperature step of the temperature profile must be edited in the temperature profile editor.

	step	slope in °C/s	plateau temp. in °C	plateau time in s	go to step	loops
*						

Fig.26: Temperature profile editor

NOTE

The maximum number of temperature steps within one method is 100.

 Enter slope (only possible when Maximum cooling/heating slope was set to OFF) The table displayed at the right informs you about the maximum possible average heating and cooling rates (slope) that can be entered depending on ODTC[®] type (96 or 384) fluid quantity and target temperature.

	Step E	Editor							Limits (30 - 74 µ	d)
÷		Step	Slope in K/s	Plateau temp.in °C	Plateau time in s	Go to Step	Loops		Maximum cool Temp range	ing slopes
).	1	4,4	95	120	0	0		99°C - 60°C	2.0 K/s
		2	4,4	95	10	0	0		60°C - 40°C	1.3 K/s
		3	1,3	55	15	0	0		40°C - 20°C	0.75 K/s
		4	4.4	72	15	0	0		20°C - 4°C	0.23 K/s
		5	4.4	95	10	3	10			
		6	1.3	55	15	0	0		Maximum heat	ing slopes
		7	4.4	72	15	0	0		Temp, range	Max, heatin
		8	4.4	72	300	0	0		4°C - 99°C	4.4 K/s
	*								Maximum plate Minimum plate	eautemp.:99°C autemp.:4°C
j.										

Fig.27: Table displayed on the right in the Script Editor for ODTC® 96 and ODTC® 384

NOTE

Depending on the language settings of your operating system you must either use "." or "," as decimal separator. If you use the wrong separator the field will be red for a short time and the separator is not accepted.

- Enter your target temperature. Minimum temperature: +4°C and maximum temperature: +99°C.
- · Enter the plateau time.
- For PCR profiles please use the PCR Method Set. The programming of repeating steps in the Method Editor is quite complex (looping conditions). For further information please → Appendix or contact INHECO (techhotline@inheco. com).

NOTE

The maximum number of methods within one project is 255.



Fig.28: User Interface with edited data (last row needs to be empty to save method).

4.3.3. Edit a "PCR Method"

• select Add => PCR or by right mouse click

e Edit View Add Tools Help	B le Edit View Add Tools Help
Beta 7 test Temperature Initialization Step Temp. Init. Step Method Methods PCR PCR	Beta 7 test Temp. Init. Steps Methods PCR
Fig.29: Add Method Set via menu bar	· (A) or right mouse click (B)

The following window will be shown to configure the initial temperature condition of the $\mathsf{ODTC}^{\circledast}$.

R Setup		?	į.
Set parameters			
Name			
Description (optional)			< >
Name of creator	AWasilewski		
Date of creation	Freitag , 2	8. Oktober 2016	•
Plate type			~
Fluid quantity			
Keep temperatures after method (PostTemper)	O On	⊖ Off	
* Max cooling/heating slopes	On	Off	
Start temperature Mount [°C]	25		_
Start temperature LID [°C]	ų	an la contraction de la contractica de la contra	lock
		OK Can	icel

Fig.30: Method Name entry

Name of method	Enter method name.
Description of method	Enter a description for the method.
Name of Creator	Enter the name of the method creator.
Date of Creation	Enter date of creation (is automatically set to current date)
Plate Type	Choose between 96 and 384 well type of ODTC [®] .
Fluid quantity	Choose fluid quantity range of sample per well (only for ODTC [®] 96).
	For further information refer to the table 1 page 19
Keep temperature after	Select parameter "ON" or "OFF". If the ODTC® should keep its tempe-
method	rature after the method is finished (e.g. open door for pipetting step)
	set the selector to "ON". Set it to "OFF" to switch off the temperature
	control after method is finished.
	Note: If the selector is set to "OFF" no new method can be started
	within the ODTC $^{\odot}$ after this method. \rightarrow Appendix, page 31
Max cooling/heating	Sets the maximum cooling/heating slopes automatically.
slopes	Note: no parametrization possible in PCR method.
Start temperature	Set temperature with which the method will start.
Mount	Note: Make sure that the start temperature matches always the
	temperature that is set in the "temperature initialization step" or the
	temperature that is set at the end of the previous method.
Start Temperature Lid	Automatically set to 110°C for ODTC 96 and 115°C for ODTC 384.(not
	accessible).

- Enter name of method,
- Enter description,
- Enter name of creator,
- Enter well type with selector,
- · Enter plate type with selector,
- Enter fluid quantity (only for ODTC[®] 96[®])

Α		В		
Plate type	ODTC® 96 ~	Fluid quantity	~	
Fluid quantity	ODTC® 96 ODTC® 384	Keep temperatures after method (PostTemper)	10 - 29 µl 30 - 74 µl 75 - 100 µl	

Fig.31: Selector Plate type (A) and Selector Fluid quantity (B)

NOTE

The fluid quantity is defined as a fluid quantity range. The control parameters of the ODTC[®] will be adjusted depending on the selected fluid quantity range. The control parameters work for the complete selected fluid range (see table 1 page 19).

• Select keep temperature after method

NOTE

If the ODTC[®] should keep its temperature after the method is finished (e.g. for a pipetting step) select keep temperature after method "ON".

· Enter start temperature lid and mount

NOTE

Make sure that the start temperature matches always the temperature that is set in the "temperature initialization step" or the temperature that is set at the end of the previous method.

As soon as all mandatory entries are made OK will be enabled

After acknowledging all information with clicking on the OK button the PCR Method will be displayed:

7 test	Parameter		PCR Assistant
emp. Init. Steps premethod 250 Iethods Incubate 37	Descr.		PCR Type Setup • 23 Sep FCR • 3 Sep FCR
incuste 4. CR PCR 55C annealing	Creator Start Mount [*C] Start Lid [*C] Plate type Fluid Post Temp.	AWaalevviki 25 110 001C® 96 30 - 74 µl	PCR Image: State of the
nated Duration	Max Slope		✓ Cooling 10.00
00h : 13m : 26s	Constant	2016-10-27 20:55:18	Y
120 100 80 60 40 20			
0			·
0		200	400 600 800

• select 3-Step PCR or 2-Step PCR

select temperature for the different steps in °C

Penaturation
 Penaturation

• select duration for the different steps in sec

 Initial Denaturation
 95.00 ⊕ ℃
 300.0 ⊕ s

 Denaturation
 95.00 ⊕ ℃
 15.0 ⊕ s

 Fig.35:
 Change of duration

· select number of cycles

15.0 🜩 s 1 🖨 Cycles

Fig.36: Change number of cycles

• uncheck steps if not needed

AWasilewski	PCR Initial	
_	Denaturation	95,00
25	Denaturation	95,00 🖨
110	Annealing	50.00
ODTC® 96 ~	Elongation	72,00 🜩
30 - 74 µl 🗸	Final Extension	72,00
T	Cooling	10,00







4.3.4. Delete a Step

• right mouse click on the row then select Delete Step

	۲	7.7	55	10	•	•
•		4.0	ee.	15	0	0
		sert new Sto	ep	15	0	0
		Delete Step		10	3	10

Fig.40: Delete Step

NOTE

A row can only be deleted when the slope of the following step will be according to the limit table. In case the value is out of the given limits you will receive an error message \rightarrow figure 41 and 42 that the "cooling slope is higher than max. value".

						Limi	its (30 - 74 µ	1)
Step	Slope	Plateau temp.in	Plateau time in	Go to	Loops	·	Maximum cooli	ing slopes
0.0	11103	°C	S	Jtop	1.5	Te	emp. range	Max. cooling
1	4,4	95	120	0	0	99	0 C - 60 C	2.0 K/s
2	4,4	95	10	0	0	60	1°C - 40°C	1.3 K/s
3	1,3	55	15	0	0	40	PC - 20°C	0.75 K/s
4	4,4	72	15	0	0	20	1°C - 4°C	0.23 K/s
5	4,4	95	10	3	10			
	1.0	ee.	15		0		Maximum heat	ing slopes
Delete	new Step		15	0	0	Te	emp. range	Max. heating
Delete	step		300	0	0	4'	C - 99°C	4.4 K/s
		Del	ete Step E	rror			Minimum plate	au temp.: 4°C
5	5	5	S C P	tep 7: ooling sl arameter	ope value hi name: Slop		Lid Temp Mount Te	perature emperature

Fig.41: Example for error message when slope of following step is incorrect

Step 7 does have a slope of 4.4 in case step 6 is deleted this step will then be a cooling step and the max slope cannot be higher than 2.0.



In this case, you need to delete all steps after step 6 first and then delete step 6 or adjust the slope settings of the following step according to the slope conditions.

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4.3.5. Insert a step

· right mouse click on the row then select Insert new Step





NOTE

A row can only be inserted in looped steps when the loop parameter (\rightarrow **Appendix**) are correct. You will receive an error message \rightarrow fig. 44 when the loop parameter does not match.



Fig.44: Example for error message when looping parameter is incorrect

The new Step 3 does not have the correct loop parameter (in this case temperature) to handle the looping from step 5 to 3. If you confirm with yes, the row will be deleted.

4.3.6. Save a Project

• Select file => Save as

1	New Project Open Project	Ctrl+N Ctrl+0			
	Close Project				
	Save Save As Rename Project.	Ctrl+S			
	Exit				

Enter file name and storage location and save project to PC or network

4.3.7. Export MethodSet

This function allows to select (with a check mark) all or any desired methods to be exported as $ODTC^{\otimes}$ readable file.

	File Edit View Add rcle method_1 Temp. Init. Steps Methods PCR	Tools Help Export MethodSet	Ctrl+E			
--	--	--------------------------------	--------	--	--	--

NOTE

In case the Delete All function ON is selected all existing methods on the ODTC[®] will be deleted, as soon as the exported MethodSet is loaded onto the ODTC[®]. This functions is set to OFF as default. In this case the exported MethodSet is added to the already existing methods on the ODTC[®]. Methods with the same name will be overwritten on the ODTC[®].

"CopyparamsXML to Clipboard" exports the methods to Windows Clipboard as xml file with additional information to allow method transfer to the ODTC[®] via the INHECO PMS.

Delete All Existing Content From Device	
Off (Default)	On
When On is selected, every existing Temperature Initialization Step; Method or F Option Off performes a merge of existing and new content but overwriting any ex	PCR on ODTC will be deleted before new content will be appl disting.
Export Temperature Initialization Steps	
Colort All (Nore	
Select All / None	
Export Methods	
Select All / None	
Cycle Method	
Incubate 37	
Export PCRs	
Select All / None	

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4.3.8. Current limitations of Script Editor

- Maximum temperature profile steps within one method are 100 steps.
- Maximum methods within one project are 255 methods / PCR and 255 temperature initialization steps.
- Maximum file size for a method set is 500kB (only of relevance for method sets with many methods or steps, e.g. 100 methods with 10 steps each). There will be a warning during export of the MethodSet. The project file can have a size larger than 500kB.

5 TROUBLE SHOOTING

5.1. Feasibility of .xml files

The ODTC[®] Script Editor will check all programmed steps of a method (definition \rightarrow page 5) and will only allow steps which the ODTC[®] is capable of handling. However, in case you have issues with running a method on the ODTC[®] or if you need assistance with programming the xml files, please contact **techhotline@inheco.com**. Please send us your requirements and temperature profiles needed for testing your application on the ODTC[®] here at INHECO. If this information should contain proprietary information, please send us a NDA to cover this.

INHECO will evaluate if your temperature profiles are feasible.

6 APPENDIX

6.1. Example of correct method sequence

Following features have to be taken into account when defining a method set:

- If another method follows this method you should select keep temperature after method: ON
- The following method must start with the end temperature of the prior method, otherwise the ODTC[®] goes into error status.

Blue arrows indicate interaction phases with liquid handling instrument and allows commands like open door or close door.



Fig.48: Example of correct method sequence

Different combinations of methods within a method set are possible:





6.2. Example of wrong method sequence



Fig.50: Example of wrong Method Combination

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6.3. Example Method with correct loop parameter

When programming temperature profiles with loops with the "Methods" option, the looping conditions have to be considered in order to generate a valid method.

The programming of correct looping conditions is mandatory to make sure that the ODTC[®] will always be operated with the optimal over- / undershoots.

The calculations of the over-/undershoots is depending on

- Temperature difference between start temperature and end temperature in each temperature step
- Heating and cooling speed (slope)

The looping conditions are as follows:

A loop back is only possible if start temperature, end temperature and slope of the step are the same as in the previous step before the looping (see fig. 51. step 5 = step 2, start temperature 95° C, end temperature 55° C, slope 1.3 K/s)

The Script Editor will automatically evaluate the entries and only allow the programming of temperature profiles with correct looping conditions.

The following example shows how to program an amplification process in the method mode

6.3.1. Standard PCR Process (amplification) in the method mode

Step 1: Denaturation at 95°C for 120 seconds

Step 2: Denaturation at 95°C for 10 seconds

Step 3: Incubation at 55°C for 15 seconds

Step 4: Incubation at 72°C for 15 seconds

Step 5: Incubation at 95°C for 10 seconds

Got to Step 3 10 times

Step 6: Incubation at 55°C for 15 seconds

Step 7: Incubation at 72 for 15 seconds

Step 8: Incubation at 72 for 300 seconds



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Fig.52: Example of wrong looping parameter (indicated by question mark) in this case the temperature of the "go to step" is incorrect.

NOTE

In case, you encounter difficulties with loops in a standard method contact techhotline@inheco.com

6.4. RealMount Temperature

The RealMount Temperature includes the over- / undershoots which are necessary to achieve a correct temperature in the sample. When max cooling/heating slope is selected, a cooling step might be also subdivided into multiple cooling steps depending on the fluid quantity and target temperature (refer to red area below).

