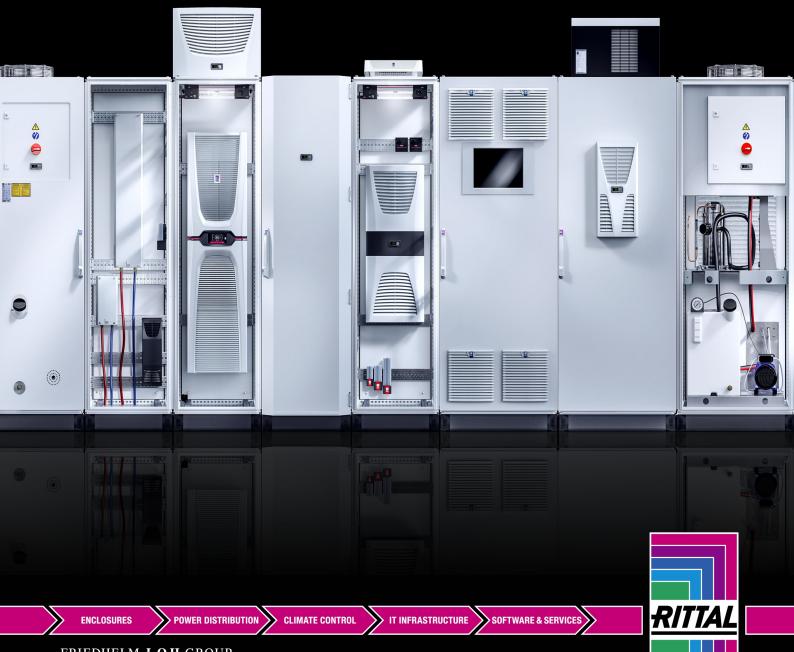
Rittal – The System.

Faster – better – everywhere.

Rittal Therm User Manual Version 6.7



FRIEDHELM LOH GROUP

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 "RiDiag diagnostic software" menu item "Safety data sheets" menu item "Product environment protection" menu item "Options" main menu "SI units" menu item "Imperial units" menu item "Heat loss" menu item "Update via the Internet" menu item "Settings" menu item "Release locked projects" menu item "Help" main menu "Info" menu item "Therm manual" menu item "Contact" menu item 	

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Program description

The basic purpose of the software Rittal Therm is to calculate the effective surface area and the heat dissipation via this surface for a selected housing specification. The external and internal temperatures, and the voltage and frequency of the available power system are required as input parameters. On this basis, the program determines appropriate selections of climate control solutions from the following categories: Fans, air/air heat exchangers, cooling units, air/water heat exchangers, heaters and climate control doors. The program also takes into account the geometry of the available climate control units and specifies only those units which are suitable for the selected housings. An economic water cooling can be configured via the Chiller configurator.

The free-of-charge download for Therm is available at: www.rittal.com/therm

An online version and an offline version for permanent installation on your PC are available.

When Therm is started, a software package integrating the Windows operating system, an Apache-compatible server, a MySQL database and a PHP interpreter is installed on your computer. Such a package type is abbreviated to WAMP. The installation is performed with the Microweb tool from IndigoStar in the version 3.00 dated January 6, 2009. The browser then opens automatically and the Therm start page is displayed.

Therm uses HTML, JavaScript, PHP version 5.2.8, MySQL version 5.1.30 and ionCube PHP Encoder 6.5.13.

PHP is a server-side programming language which can be incorporated into the HTML pages of Web applications. When a page is called, the PHP code contained on that page (together with any files required by this code) is read, parsed and executed; the finished page is then output to the browser.

MySQL is an SQL relational database with data stored as tables. Since May 2003, MySQL handles the database activities of SAP. The SAP DB database system has been renamed MaxDB and is now based on the MySQL core.

ionCube PHP Encoder is a PHP accelerator and encoder solution. It accelerates PHP scripts by saving them in their compiled state, eliminating the need for compilation at runtime. A number of other optimised features also serve to speed up script execution.



Note: If you have any questions concerning Therm, please contact <u>therm@rittal.com</u>.

Therm 6.7 Online version

Use without cost at www.rittal.com/therm

System requirements

- A UTF8-conform browser; the following have been tested
 - o Microsoft Internet Explorer 11.0
 - o Mozilla Firefox 51.0

Registration, login, reset password

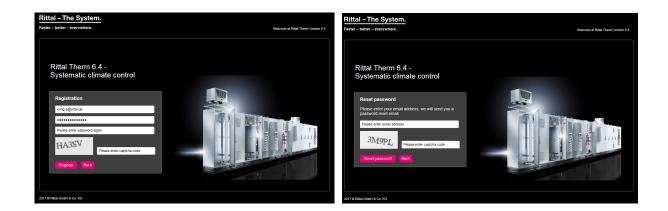
Before starting Therm Online for the first time, you must register yourself with your e-mail address and specify a password of your choice. You then receive a confirmation e-mail that you must confirm within 24 hours.

After confirmation of your registration, you can login with your e-mail address and your password.

Your registration and login are required so you can access your saved projects at any time.

If you want to change your password or you have forgotten it, you can reset it. You receive an e-mail at the registered address that you must confirm within 24 hours. You can then specify a new password.

For security, you must always specify a Captcha shown as graphic.





Note:

For the Therm Online version, you cannot import any projects from a local directory or export there. The other functions are the same as for the offline version.

Therm 6.7 Offline version

Download without cost at www.rittal.com/therm

System requirements

Smooth working requires at least:

- 500 MB free hard disk capacity
- A UTF8-conform browser; the following have been tested
 - o Microsoft Internet Explorer 11.0
 - Mozilla Firefox 51.0
- CPU with 2.0 GHz clock frequency
- Windows 7 or 10
 - o Dual-core or equivalent processor
 - $\circ~$ 1 or 2 GB RAM main memory

Setup

The program is started by double-clicking the "microweb.exe" file. The data is stored in a MySQL database. To allow writing to the database, the data is copied to the Windows installation temporary directory when Therm is started for the first time. To locate this directory on your local PC, you can open the MS DOS command prompt and enter "echo %TEMP%" there.

The Setup provides entries in the Start menu and on the desktop as well as the deinstallation information. To start the Setup, double-click the setup.exe file in the root directory. Follow the instructions given by the Setup. The computer does not need to be restarted.

The installer/deinstaller program is multilingual and starts in the language of your installed Windows.

The user requires write rights to the temporary directory because the databases, projects, import/export files, etc. are located in these directories. It must be possible to edit these files while the application is running.

The installer installs the program in the program directory specified by the user. The default directory is "C:\Programs\Rittal\ApplicationName", but it can be changed to any other directory by the user. If the chosen directory does not yet exist, it will be created.

Within the chosen installation directory, further subdirectories will also be created:

- ...\ApplicationName\firefox
- ...\ ApplicationName\htdocs
- ...\ ApplicationName\mysql
- ...\ ApplicationName\php

Modifiable files are managed in the temporary path, where the following folders are installed ...\microweb\localhost\mysql\data00xx

(projects)

- ...\ ApplicationName\projekte
- ...\ ApplicationName\sicherung (backups)
- ...\ ApplicationName\verlustdaten (heat loss data)

All files are installed locally.

Network-compatibility

Each Therm user installs Therm locally on their PC. In the next step, the **content** of the folder "mysql-5.1.30\data" must be copied centrally to a server (for example to H:\data0049).

Each user then specifies the path to this server in their local installed version of Therm in the "microweb.ini" file:

[...]

; MySql start command

```
OnStart="%B%\bin\mysqld.exe" --defaults-file="%B%/my.ini" --basedir="%B%" --
datadir="H:\data0049" --log-error="%C%/mysqllog.txt" --pid-file="%C%/mysql.pid" --bind-
address=127.0.0.1 --innodb_log_group_home_dir="%C%" --skip-innodb --external-locking
```

Also the following line in the microweb.ini file must be changed: ;CopyMysqlFile=1 Please remove the semicolon and change the 1 to 0 CopyMysqlFile=0

You receive an appropriate notification when a project is being processed by another user.

Deinstallation

Deinstallation removes the installed files, directories and Windows registry entries, with the exception of the data in the temporary directory.



Note:

If files or directories that were not installed or generated by the application exist in an installed folder, they will not be deleted.

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User interface

The user interface is based on the Microsoft Windows Standard, i.e. it provides

- a menu bar in text form
- a working area



Note:

The main menu is always displayed while the program is running.

Start screen

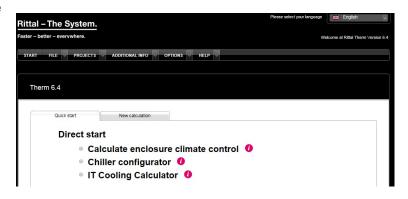
The desired language can be set by clicking the "Please choose your language" button shown on the screen below or changed at any time during program execution. The language selection will influence not only the user interface texts, but also the displayed addresses and the date format.

The start screen will be skipped when Therm is called the next time. If required, this setting can be changed later via the "Options" – "Settings" menu item at "Welcome".

Clicking "Start program" opens the "Quick start" page.

This page contains the options:

- Calculate enclosure climate control
- Chiller configurator
- IT Cooling Calculator



The "Calculate enclosure climate control" function opens a new project.

Clicking "Chiller configurator" opens the online designer for an economical configuration of your required machine and process cooling.

The "IT Cooling Calculator" allows the simple selection of Liquid Cooling Packages (LCP) for the rack and row cooling of your IT infrastructure.

"File" main menu

"Data import" menu item

The "Data import" selection is provided at the "File" menu item in the main menu. This function allows you to transfer all files from a previous version or to import specific heat loss or projects from previously stored files into Therm. You should have exported the data beforehand. "Data import" opens a window with the tabs: "All data", "Heat loss" and "Project data".

When all data is transferred, the project import language must be specified because the names of the loss devices must be transferred to the project data in accordance with this language. The import path can be changed at "Save file as" in the "Options" – "Settings" menu item.

When Therm is started for the first time, the program searches for a previous version of Therm and activates the "All data" tab automatically.

The import of the heat loss and project data is possible only for data that has already	been
exported.	

Rittal – The Faster – better – eve				Please select your language	English
START FILE	V PROJECTS V ADDI	TIONAL INFO 🗸 OPTI	ONS V HELP V		
► DATA IMPORT	DATA EXPORT	► PRINT	► EXIT		
Therm 6.4					
	All data	Heat loss	Project data		
	Import all dat	a from previ	ous Therm datal	base	
	Actual database directory:	chinese deutsch			
	Import language:	english espanol finish francais italiano naderlan norwegisch potlugues russisch svenska tschechisch			
			👍 Dat	a import 🛛 🙀 Close	

"Data export" menu item

"File" in the main menu also contains the "Data export" menu item. This menu item opens a window with the tabs: "Heat loss" and "Project data". This permits you to export specific heat loss or project data from the existing Therm database. The export path can be changed at "Save file as" in the "Options" – "Settings" menu item.

Rittal – Th	ne System.		Please select your language
			Welcome at Rittal Therm Version 6.4
START FIL		 ✓ HELP ✓ ► EXIT 	
Therm 6	5.4	Too too too	
	Heat loss Project data		
	Export heat loss database	Data export	Close

"Print" menu item

Prints the current screen contents.

"Exit" menu item

Closes the program. In Firefox, it is not permissible to close the program using this command; instead, a note is displayed explaining how the program can be closed in another way.

"Projects" main menu

"New" menu item

This menu item opens the "New calculation" tab where it is possible to initiate a new climate control calculation. This page contains the options

- Create new project
 - Specify minimum temperature for heating
 - (Create a new project via EPLAN ProPanel Professional → visible only when you open Therm via the interface from EPLAN ProPanel Professional)
- Edit an existing project

Rittal – The System.	Please select your language	💥 English 🗸
Faster – better – evervwhere.	We	Icome at Rittal Therm Version 6.4
START FILE V PROJECTS V ADDITIONAL INFO V OPTIONS V HELP V		
► NEW ► OVERVIEW		
Therm 6.4		
Quick start New calculation		
Enclosure climate control		
Create new project		
Specify minimum temperature for heating		
Edit existing project		

You can configure an enclosure heating in the "Specify minimum temperature for heating" menu item.

Select first an enclosure, select a heating, and only then specify the minimum external and internal temperatures.

Confirming the temperatures changes the selection list of the heaters.

"Creating a new project via EPLAN ProPanel Professional" supplementary information

Requirements

To perform a climate calculation in EPLAN ProPanel, access to the EPLAN Data Portal must exist.

Settings in the ProPanel project properties

The correct calculation of the total heat loss requires that the involved components are prepared by setting specific properties.

Details in the project properties

The voltage, frequency and concurrency factor of the climate control must be specified in the project properties.

Concurrency factor

The concurrency factor is an estimate that considers the fact that devices are never all switched on with maximum power concurrently in a system.

The concurrency factor can be set individually for each component or be set generally in the project properties. If a general concurrency factor is defined in the project properties, this property is preset for the devices themselves and can no longer be edited there.

Adding project properties

If the project properties are not listed, they can be added to the project properties with the New 📧 button.

Category:		
All categories	-	
	1	
Property name	Value	
Project description	Schleifmaschine	
Last translation: Date	17.10.2016 10:47:12	
Creator: Short name	SIEMENS AG DF MC MF-WKC DE 4	1
Creator: Street	CLEMENS-WINKLER-STR. 3	
Creator: Zip code (City)	D-09116	L
Creator: City	CHEMNITZ	
Creator: Phone	+49 (371) 475 - 0	
Revision marker format (change tracking)	[14<10155,1,0,0,0,0,0,0,0,0,0,0,0,0,0][LF][14	
Place of installation	LP01	
Manufacturing date	2015	
Customer: Short name	Rauheit GmbH	
Customer: Street	An der alten Ziegelei 2	
Customer: Zip code (City)	D-40789	
Customer: City	Monheim am Rhein	
Customer: Phone	+49 (0)2173 - 39 64 - 0	
Thermal design: Voltage	400 V (including 230 V)	
Thermal design: Frequency	50 Hz	
Thermal design: Total power dissipation for air-conditioning field [1]	1268,45 W	
Thermal design: Simultaneity factor	0,8	

Settings of the housing or enclosure properties

Details required in the ProPanel installation space

After creating the circuit diagram, you can place the components in the installation space. Properties must be prepared for housings/enclosures located in the installation space. To allow a climate calculation to be performed, details must be made for the installation situation, climate area and temperatures. The temperature details must be specified with unit °C.

Displayed DT: +EC01-U0		Full DT: =+EC01-U0	[
Designation:		Function definition: Schrank	
Item: Enclosure			
Properties Category: All categories		• •	**
Property name		Value	
Item designation	Enclosure		
Item description	TS 8 , BHT 800X2000	IX600 MM	
Legend item	1		
	A 4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		
Trade	Mechanics		
Trade Grouping sign for item designation	S1	dua di ca	
Trade Grouping sign for item designation Thermal design: Installation situation	S1 Single housing free	standing	
Trade Grouping sign for item designation Thermal design: Installation situation Thermal design: Air-conditioning field	S1 Single housing free 1	standing	
Trade Grouping sign for item designation Thermal design: Installation situation Thermal design: Air-conditioning field Thermal design: Air-conditioning field (automatic)	S1 Single housing free 1 1	standing	
Trade Grouping sign for item designation Thermal design: Installation situation Thermal design: Air-conditioning field Thermal design: Max. external temperature	S1 Single housing free 1 1 40	standing	
Trade Grouping sign for item designation Thermal design: Installation situation Thermal design: Air-conditioning field Thermal design: Max. external temperature Thermal design: Max. internal temperature	S1 Single housing free 1 1	standing	
Trade Grouping sign for item designation Thermal design: Installation situation Thermal design: Air-conditioning field Thermal design: Max. external temperature Thermal design: Max. internal temperature Thermal design: Min. external temperature	S1 Single housing free 1 1 40 35	-standing	
Trade Grouping sign for item designation Thermal design: Installation situation Thermal design: Air-conditioning field Thermal design: Max. external temperature Thermal design: Max. internal temperature	S1 Single housing free 1 40 35 20 20	-standing 	

Setting the climate area

The climate area can be defined for each housing, e.g. for baying or multiple enclosures in the project. The climate area must be unique, otherwise it is not displayed in Therm. Each climate area can be evaluated individually in Therm.

Adding properties

If the properties

Heat loss: Installation situation Heat loss: Climate area Heat loss: Max. external temperature: Heat loss: Max. internal temperature Heat loss: Min. external temperature Heat loss: Min. internal temperature

are not listed in the properties of the housing/enclosure, they can be added with the New 📧 button in the properties window.

Calculating the total heat loss in ProPanel

Calculation via utility programs

Once the circuit diagram has been created and the components placed in the installation space in a climate area, select \Rightarrow Calculate heat loss via Utility programs. The installation space must be active in order to start the calculation.

<u>R</u> eports Manu <u>f</u> acturing data <u>E</u> dit properties externally <u>A</u> utomated processing	•	<u>G</u> enerate <u>U</u> pdate G <u>e</u> nerate project reports Ge <u>n</u> erate report project	∎
Synchronize Revision control	+	Calculate t <u>o</u> tal power dissipation	
Parts Data Portal <u>M</u> aster data	•	<u>M</u> odel views <u>C</u> opper unfolds <u>2</u> D drilling views Num <u>b</u> er views	
<u>G</u> enerate macros Generate drilling patterns / o <u>u</u> tlines <u>T</u> ranslation	+ + +		
Data transfer Add- <u>o</u> ns API add-i <u>n</u> s Scripts	•		
System messages			

Basis for the calculation

The calculation is based on the heat loss and concurrency factor details of all components installed in the installation space / climate area. The heat loss details are maintained in the **Single part data** tab of the article management. Appropriate values can be obtained from the data sheets provided by the manufacturer. EPLAN Software & Service and Rittal cannot accept any responsibility for the correctness of these details.

The heat loss of a device is calculated using the formula:

actual heat loss of the device = heat loss x concurrency factor

Display of the total heat loss

After being calculated, the total heat loss can be shown in the project properties. Each climate area is listed individually.

Category:		
All categories	•	
Property name	Value	
Last translation: Date	17.10.2016 10:47:12	
Creator: Short name	SIEMENS AG DF MC MF-WKC DE 4	
Creator: Street	CLEMENS-WINKLER-STR. 3	1
Creator: Zip code (City)	D-09116	
Creator: City	CHEMNITZ	
Creator: Phone	+49 (371) 475 - 0	
Revision marker format (change tracking)	[14<10155,1,0,0,0,0,0,0,0,0,0,0,0,0,0][LF][14	
Place of installation	LP01	
Manufacturing date	2015	
Customer: Short name	Rauheit GmbH	
Customer: Street	An der alten Ziegelei 2	
Customer: Zip code (City)	D-40789	
Customer: City	Monheim am Rhein	
Customer: Phone	+49 (0)2173 - 39 64 - 0	
Thermal design: Voltage	230V	
Thermal design: Frequency	50 Hz	
Thermal design: Total power dissipation for air-conditioning field [1]	1268,45 W	
Thermal design: Total power dissipation for air-conditioning field [2]	85,47 W	
Block property: Format (PLC connection point) [1]	120203 2 1 220201 210007 0 0 0 0 0 0 0 de	2

Rittal Therm in the EPLAN Data Portal

To select a suitable component for the climate control, the manufacturer **Rittal** must be selected in the EPLAN Data Portal. The Data Portal is located in the Utility Programs menu.

ABB	Rockwell Automation	Rockwell Automation		bachmann.	🋃 BENDER	Ba	BLOCK	Rexroth Bosch Group	CHNT	CITEL
ABB	Allen-Bradley (IEC Data)	Allen-Bradley (NFPA only)	AVENTICS	Bachmann electronic	Bender	Bernecker + Rainer	BLOCK	Bosch Recroth	CHINT	CITEL
C Comat RELECO		DENN-	DOLD 🕸	© E-T-/A\	FIT-N Party Long Robert		EMERSON	E	FAG	Fandis
Comat	Comtran Cable	DEHN	DOLD	E-T-A	Eaton Industries	EKF	Emerson Industrial Automation	Endress+Hauser	FAG Industrial Services	Fandis
ESTO	finder	FLOWSERVE asma	Gantner	88	GIRA	GOOSVN	HARTING	HYDRAULIK	НВМ	HEINIGER
Festo	Finder	Flowserve Gestra	Gantner	General Electric	GIRA	GOOSVN	HARTING Electric	HAWE	HBM	Heiniger Kabel
HELUKABEL			icotek	6	igus'	- Me	Iskra MIS	1. Schneider	Janitza	שואוטפ
Helukabel	Hirschmann (A BELDEN BRAND)	Hubbell	icotek	ifm electronic	IGUS	ILME	Iskra MIS	J. Schneider Elektrotechnik	Janitza	JUNG
	KEBA	Klemsan °	BLAPPKABEL		4 Leuze electronic	油区达电缆	Lienter	LOYTEC		LUTZE
Kabelschlepp	Keba	Klemsan	LAPP	Larsen & Toubro	Leuze electronic	Liaoning Create Cable	Licatec	LOYTEC	Lumberg automation (A BELDEN BRAND)	Lütze
Martens	MENCOM	Mersen		molex		murrplastik 🖊	NO агк	numatics	OEZ	OMRO
Martens Elektronik	Mencom	Mersen	Mitsubishi Electric	Molex	Murrelektronik	Mumplastik	NOARK	Numatics	OEZ	Omron
ANDUIT	PEPPERL+FUCHS	CONTACT	pilz	PRIORITY		PULS	R	<u>RITTAL</u>	💓 Roxtec	
Panduit	Pepperl+Fuchs	Phoenix Contact	Pilz	Priority Wire & Cable	Promet	PULS	Riedel Transformatorenbau	RITTAL	Roxtec	Sala Burgess Contro
	Calmatidam	~	OCCUPENT			CI01/				

The icon for Therm is located in the upper right corner. Clicking this icon opens the Therm program in the Data Portal.

😋 🛖 🖯 Catalog	K 🖌
Filter scheme: 🛀 User-defined 🛛 🗹 🛒	
Product catalog: EPLAN catalog	
Electrical engineering (753)	
🗄 💽 Amplifiers, controllers (9)	
E == Cables (45)	
E Connections (23)	
E Converters (5)	
🦾 👰 General (5)	
🛱 🖓 Electrical engineering - special items (343)	
⊞. Q Light (46)	
E S Miscellaneous (77)	
General (77)	
🕀 👷 Motors (57)	
Protection devices (87)	
F.Q. Sensor switch and pushbutton (15)	

Importing EPLAN project data into Rittal Therm



Note:

EPLAN ProPanel Professional accesses Therm Online. The login is performed as described in the "Therm 6.7 Online version" item on page 4.

Calculating the enclosure climate control

After the selection, the Therm start screen opens. Select the *Calculate enclosure climate control* menu item.

Rittal – The System.		Please select your language	💥 English 🗸 🗸
Faster – better – evervwhere.		We	Icome at Rittal Therm Version 6.4
START FILE V PROJECTS	ADDITIONAL INFO V OPTIONS V HELP V		
Therm 6.4			
Quick start	New calculation		
Direct star	t		
Cal	culate enclosure climate co	ntrol 0	
◎ Chi	ller configurator 0		
• IT (Cooling Calculator 🛛 🚺		

Import ProPanel project

To now import the settings made in ProPanel, select **Create new project via EPLAN ProPanel Professional** in the menu.

Rittal – The System.	Please select your language	📁 Usa 🗸 🗸
Faster – better – everywhere.	Wel	come at Rittal Therm Version 6.4
START FILE \vee projects \vee additional info \vee options \vee help \vee		
Therm 6.4		
Quick start New calculation		
Enclosure climate control		
Create new project		
Specify minimum temperature for heating	_	
 Create new project via EPLAN Pro Pane Professional 	el	
edit existing project		
ENCLOSURES POWER DISTRIBUTION CLIMATE CONTROL IT INFRASTRUC	TURE SOFTWARE & SERVICE	S RITTAL
FRIEDHELM LOH GROUP		

Climate area and project data in Rittal Therm

Select climate area in Therm

Select the desired climate area (Define climate area, see item 3.2). The selection appears automatically after selecting the **New project via EPLAN** menu item **Create ProPanel Professional**

Rittal – The System.				Nease select your language	Usa 📕	
Faster – better – evervwhere.				w	elcome at Rittal Therm Versio	'n
START FILE V PROJECTS	ADDITIONAL INFO	ONS v HELP v				
Therm 6.4	Please select the A	C range of the Eplan pro	ject			
Quick start	New	Ok C	ancel			
Enclosure	climate control					
	ate new project	e for heating				
	ate new project v fessional	ia EPLAN F	Pro Panel			
◎ Edi	t existing project					
ENCLOSURES PO	VER DISTRIBUTION 🗡 CLIMA	TE CONTROL	IT INFRASTRUCTURE	SOFTWARE & SERVIC	CES RITTA	V
FRIEDHELM LOH GROUP						

Import the main data of the project from ProPanel

The main data is taken automatically from the EPLAN project properties and the housing or enclosure properties. If the temperatures are not displayed, the unit was not specified for the properties of the housing in the installation space / climate area. **Caution:** If temperatures are changed in Therm, they are **not** written back to the ProPanel project!

	oject data	Enclosure selection	Calculation	Accessories	Summary
P	Project	main data			
Project		[GDC]_Grinding_machine_201	17	1	
Compa	ny:	NN			
Contac	t person:	HEK			
Create	- 2	NN			
	one / Fax:	+49 (371) 475 - 0			
Date:		Save project			
		- Save project			
	Max. external t	100 GE CO		□ including 230 V	er installation
A I		emperature: 20 # * * *C	Frequency: 50	Standa	rd installation 🛛 🗯

Configuring the climate control in Rittal Therm

The heat loss determined in EPLAN ProPanel and the selected housing are transferred automatically to Therm.

err	Project data	Enclosure selection	Calculation	Accessories	Ĩ	Summary
	🜱 Enclosu	ure selection				
	Heat loss Model n	umber	H×W×D		Position	Action
	1268 🥖 🛛 TS 8806	3.500	2000 × 800 × 600		1	× /
				Add enclosure		
		mperature: 41	°C Voltage: 230	including 230 ∨	Standard install	
	Max. external te	· · · · · · · · · · · · · · · · · · ·				ation
	Max. external te Max. internal ter	· · · · · · · · · · · · · · · · · · ·	°C Frequency: 50		stanuaru mstan	

In the next step, the appropriate climate control solution can be selected and accepted in the **Calculation** tab:

Further notes for calculating the heat loss for Therm are provided in the **Calculation** chapter in the Rittal Therm User Manual.

data	Enci	losure selec	tion	Calcu	ulation		Accessories	Sun	imary
louioi	ion.								X
electi	ion of	a co	oling	unit					
					-				
Wall	Root	1	Quantity		_ stain	less Steel	NEMA 4X	Protection cate	jory:
mber	Power [W]	Quantity	Performan	e diagram	Schematic	Technical I	nformation	IP54 internal circ	uit
	1992	2						Cooling unit red Yes	juired:
	2286	2						Necessary cool 1928 W	ing output
							-	💠 Accept	
								X Close	
1		type Wall Roof umber Power [M] 500 Blue e 1992 500 Blue e 2286	type Wall Roof 1 umber Power Quantity 100 Blue e 1992 2 100 Blue e 2286 2	type Wall Roof I Quantity umber Power Quantity Performance i00 Blue e 1992 2 00 Blue e 2226 2	Power [W] Quantity Performance diagram 000 Blue e 1992 2 000 Blue e 2286 2	type Wall Roof TV Quantity Stain Index Power Quantity Performance diagram Schematic i00 Blue e 1992 2 00 Blue e 2286 2	Pype Wall Roof 1 C Quantity Stainless Steel umber Power Quantity Performance diagram Schematic Technical In 1000 Blue e 00 Blue e 1992 2 000 Blue e 2286 2	Pype Wall Roof I vanity Stainless Steel NEMA 4x Imber Power Quantity Performance diagram Schematic Technical Information ^ 100 Blue e 1992 2 00 Blue e 2286 2	Power Quantity Stainless Steel NEMA 4x Immber Power Quantity Performance diagram Schematic 100 Blue e 1992 2 000 Blue e 2266 2 130 Blue e+ 2684 2

Accessories and exporting data into EPLAN Data Portal

Appropriate accessories can be added to the selected component in the **Accessories** tab. They are transferred later to the installation space and bill of materials of the EPLAN ProPanel project.

r se					Summary
	Accessorie	s			
	I number Action Main artii 3006.500 / 3329.50 3329.50 3329.50 3329.50 3329.50 3329.50 3329.50 3329.50	ID 3124.100 Mail ID 3124.200 Int ID 3159.100 Rii ID 3213.320 Air ID 3286.400 Rii ID 3286.410 Mei ID 3301.612 Mei	aster/slave cable For SK BUS s terface board for equipment with Diag II diagnosis softw. incl. cal r diverter Diag II diagnosis softw. incl. cal etal filters	n e-Comfort controller	
	Max. external temperatu	ire: 41 • • •	°C Voltage: 230	including 230 V	installation

The selected climate control solution can now be transferred to the EPLAN Data Portal with **Send configuration to EDP**:

Project data	Enclosure selection C	alculation	Accessories	Summary
Summary				
Project: Contact person: Telephone / Fax:	[GDC]_Grinding_machine_2017 HEK +49 (371) 475 - 0	Company: Created by:	NN NN	ſ
Ambient parameters Maximum temperature outsi Maximum temperature insid Mains voltage:		41 °C 20 °C Frequency:	50 Hz	
Climate control calculation Enclosure element no. 1	TS 8806.500	Height x Width x Depth	2000 x 800 x 600 mm Single enclosure, free-stan	ding on all
k-factor of the enclosure	5,5	Type of installation site	sides	ung on all
Average enclosure tempera Climate control necessary 1 x Addition Heat loss Heat exchange across surfa Heat to be dissipated	Yes	81 °C Cooling unit required 1268 W 1268 W -660 W 1928 W	Yes	

Adding data to the EPLAN project

The EDP shopping basket may need to be emptied beforehand. The components can now be imported from EDP into the EPLAN project and placed in the installation space.

Therm documentation in EPLAN

A documentation of the summary as well as proof of the heating according to DIN EN 61439 can be created as PDF document in the **Summary** tab of the Therm software.

The PDF files can be added as foreign document in the EPLAN pages navigator. After creating the foreign document page, an external file can be added to the project via the page properties.

	<<>			
ull page name:				
⁾ age type:	Externa	l document ()		•
age description:	Titelbla	tt		
Properties				
Category:	All cate	gories	•	
-				
Property r External document	name	Va	ilue	
Plot frame name				.

Documentation as EPLAN page

It is also possible to use a form (base article bill of materials *.f01) of the EPLAN master data to create documentation of the heat loss as EPLAN page.

Reports Manufacturing data Edit properties externally Automated processing Synchronize		#:## #∰ # ♪ !! & ⊡ = ₨₨₨₢ढढ ७ ¦:: ▲ # ቀ	<u>k</u> k ↔
Re <u>v</u> ision control	•		
<u>P</u> arts <u>D</u> ata Portal	•		
<u>M</u> aster data		<u>Symbol library</u>	
<u>G</u> enerate macros Generate drilling patterns / o <u>u</u> tlines <u>T</u> ranslation)))	Symbol Elot frame Outline (extrusion)	
Data transfer	•	Outline (NC data)	* Nau
Add- <u>o</u> ns API add-i <u>n</u> s Scripts	•	Fo <u>r</u> m <u>C</u> onnection point designation / description Identifier	Mew Image: New Image: Open Image: Open Image: Open Image: Open
System messages		Sy <u>n</u> chronize current project Up <u>d</u> ate current project	Copy
		Co <u>m</u> plete current project	
		Sync <u>h</u> ronize system master data	

Example:

a .	1	1		3					•	1				3
Verlustleistung	J												Rittal_Ve	rlustleistun
Artikelnummer	ВМК		Bezeich	nung		т	ypnummer			Geräteverlus	stleistung	Klin	atisierungs- bereich	Positio
PKC.3036149	+ZX1-X1		Durchga	ngsklemme		s	T 16						1	68
SLE-3RV2011-1JA 10-ZW97	=AB1+ZX1-F1	-	LEISTUN	SSCHALTER SCHRAU	BANSCHL 10A	3	RV2011-13A10-	Z W97		49,60	W		1	
SLE-3RV2011-1JA 10-ZW97	=AB1+ZX1-F2	1	LEISTUN	SSCHALTER SCHRAU	BANSCHL 10A	3	RV2011-13A10-	Z W97		49,60	w		1	
SLE-3RV2011-13A 10-ZW97	=AB1+ZX1-F3		LEISTUN	SSCHALTER SCHRAU	BANSCHL 10A	3	RV2011-13A10-	Z W97		49,60	W		1	
SLE-3RV2011-13A10-ZW97	=AB1+ZX1-F4)	LEISTUN	SSCHALTER SCHRAU	BANSCHL 10A	3	RV2011-13A10-	Z W97		49,60	W		1	
SLE-3RV 2011-13A 10-ZW97	=AB1+ZX1-F5		LEISTUN	355CHALTER SCHRAU	BANSCHL 10A	3	RV2011-13A10-	Z W97		49,60	W		1	
											Verlust	leistung:		250 W
	04.0 9.1.213 055 32.041	Projekt	nummer Pogeice	umme bree aufolige	n) Sthebachward	ubessgane Verluttet	sung	Read	i Hš Ca KG šem Sitzebaga	Abelungi SC Eratelari 195		- - -		84

"Overview" menu item

This menu item opens the "Project overview" tab with a tabular overview of all existing projects. Clicking the pen icon or double-clicking a row opens a project. Clicking the red cross deletes a project.

).				Welcome at Rittal The
FILE V PRO	JECTS V ADDITIONAL INF	O V OPTIONS V	HELP V		
	• OVERVIEW				
erm 6.4					
0.11.1		- 16V			
Quick start	New calculati	on			
Action	Project name		Company	Contact person	Originator
× / D	Standard	11.05.2017	NN	NN	NN
× 🖊 🗈	Standard	11.04.2017	NN	NN	NN

>

"Additional info" main menu

START FILE V	PROJECTS V ADDITIONAL	INFO V OPTIONS V	HELP V		
HUMIDITY CALCULATION	BLUE E+ EFFICIENCY CALCULATOR	RIDIAG DIAGNOSIS SOFTWARE	► SAFETY DATA SHEETS	PRODUCT ENVIRONMENTAL PROTECTION	▶ WWW.RITTAL.COM

"Humidity calculation" menu item

This menu item opens a new page with the title "Humidity calculation".

The required input values are the temperature in degrees Celsius and either the relative humidity as a percentage or the dew point in degrees Celsius. Clicking "Calculate" calculates the absolute humidity in grams per cubic metre, and depending on the selection, the relative humidity as percentage or the dew point in degrees Celsius is output.

		X
	Humidity calculation	
	Temperature in °C	
\bigcirc	Relative humidity in %	
۲	Dew point in °C	
	Absolute humidity (g/m ³)	
	Close	

"Blue e+ efficiency calculator" menu item

This links to the Rittal home page <u>https://www.rittal.com/blue e plus</u> The energy saving of all Blue e+ devices as well as their individual amortisation time in the TCO calculator can be determined with this efficiency calculator.



"RiDiag diagnostic software" menu item

This menu item provides diagnostic software for Rittal cooling units and chillers with which you can analyse and parameterise data.

"Safety data sheets" menu item

It is important that the associated safety data sheets are available, in particular for products that contain refrigerant. This menu item provides all required documents for R134a, R407C or R410A.

"Product environment protection" menu item

This menu item provides information concerning product environment protection, such as self-declarations.

"Options" main menu

"SI units" menu item

If you select this function, the following SI units are used in all data screens: °C, mm, W, m^2 , m^3

"Imperial units" menu item

Clicking this menu item causes the following Imperial units to be used in all data screens: °F, BTU, sqft, CFM

"Heat loss" menu item

This menu item opens a window in which the heat loss data for devices can be entered, edited and deleted. This provides the tabs: "Device list" and "Group list". Three hierarchy levels are used on the "Device list" tab": The first level distinguishes the device manufacturers, the second level specifies device types, e.g. frequency converters, and the third level displays the individual devices with the heat loss data. When you call the device list, the display is automatically switched to the level of individual devices; the two higher hierarchy levels can be modified via the group list.

Device list Group list				
Device list				
Component group		Designation	Heatloss	
		Circuit-breaker 1-pole 16A	2,6	
Choke		Circuit-breaker 1-pole 25A	3,2	
		Circuit-breaker 1-pole 40A	4	
- Filters	=	Circuit-breaker 2-pole 16A	5,2	
Capacitors		Circuit-breaker 2-pole 25A	6,4	
Circuit-breakers		Circuit-breaker 2-pole 40A	8	=
Contactors		Circuit-breaker 63 A	15	1
On-load isolators		Circuit-breaker 125 A	18	
Indicator lights		Circuit-breaker 160 A	25	
Motor circuit-breakers		Circuit-breaker 250 A	35	
Power supply units		Circuit-breaker 400 A	75	
		Circuit-breaker 630 A	85	
NH fuses		Circuit-breaker 1000 A	130	
Miniature circuit-breakers		Circuit-breaker 1250 A	200	
PLC	*	Circuit-breaker 1600 A	480	*
		Add device	Close	

Device list	loss	Sancel More		
Component group General Choke Residual-current circuit-breakers Filters Capacitors Circuit-breakers Contactors On-load isolators Indicator lights Motor circuit-breakers Power supply units NH fuses Miniature circuit-breakers PLC	- H	Designation Circuit-breaker 1-pole 16A Circuit-breaker 1-pole 25A Circuit-breaker 1-pole 25A Circuit-breaker 2-pole 25A Circuit-breaker 2-pole 25A Circuit-breaker 2-pole 40A Circuit-breaker 2-pole 40A Circuit-breaker 2-pole 40A Circuit-breaker 2-pole 40A Circuit-breaker 2-pole 40A Circuit-breaker 2-pole 40A Circuit-breaker 40A Circuit-breaker 400 A Circuit-breaker 400 A Circuit-breaker 400 A Circuit-breaker 400 A Circuit-breaker 400 A	Heat loss 2,6 3,2 4 5,2 6,4 8 15 18 25 35 75 85 130 200	E
-		Circuit-breaker 1600 A	480	ert mode Expre

The data entered here is added directly to the database and is thus available immediately in all projects.

To ensure that the device designations are shown correctly after switching to another language, it is important always to enter at least an English designation. English is the fall-back language which is used if no entry exists in the selected language.



Note:

You must first create a group before you can create the individual components.

"Update via the Internet" menu item

Clicking the menu item checks for the current Therm version. It also specifies where the latest version can be found and downloaded.



Note:

This check requires an active Internet connection.

"Settings" menu item

This menu item opens the "Settings" window with the input fields: "Welcome", "maxTemp", "minTemp" and "Save file as".

The time (in seconds) that the start screen with the flash animation is displayed can be entered for "Welcome". If a time of 0 seconds is set, the Welcome screen is skipped. The "maxTemp" and "minTemp" fields define the permissible range for the temperature inputs.

"Save file as" specifies the path for the directory in which the heat loss data and projects are to be saved.

TS	ANGLO-SAXON UNITS HEAT	LOSS	UPDATE VIA THE INTERNET	► SETTINGS	RELEASE LOCKED PROJECTS
erm 6.4					
					X
	😭 Settings				
					-
	Introduction Page 20 s	maxTemp minTemp	75 °C 20 °C		
	Save file as [ies\\Internet99\\www.ritt	al.com\\therm-onli	ne\\html\\export		
		+	Store	X Close	

"Release locked projects" menu item

If your browser closes during a calculation, the last project used is locked because it is still active. The "Release locked projects" menu item releases this lock and you can continue working in the project.

In case you cannot go to "Release locked projects" because of a locking, use the "release.bat" file in the Therm directory to release all locks.

"Help" main menu

START	FILE	PROJECTS	~ ADD	TIONAL INFO	\sim	OPTIONS	~	HELP	~
INFO) THER	M MANUAL	• C	ONT	ACT			

"Info" menu item

Clicking this menu item displays the current version number and further information relating to the program.

"Therm manual" menu item

Clicking this menu item creates the current Therm manual as PDF.

"Contact" menu item

This menu item shows the contact e-mail address should you have any questions concerning Rittal Therm: <u>therm@rittal.com</u>

"Logout" menu item

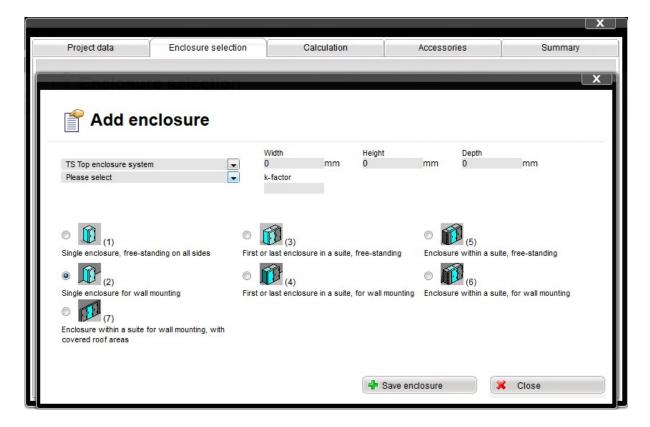
This menu item is available only in the online version of Therm. It closes the program. After a successful logout, you must login with your stored data.

Calculation

The calculations to determine the suitable climate control units for a particular cooling problem take into account not only the ambient conditions and the specified heat losses, but also the geometry specifications of the selected housing. Each calculation involves the following tabs: Project data, Housing selection, Calculation, Accessories, Summary. The "Max. external temperature", "Max. internal temperature", "Voltage" and "Frequency" parameters can be edited at any time during the calculation. The "Project data" tab contains general project information to enable the project to be identified in the overview table and in the results summary.

The following special cases are taken into account at "Housing selection":

- The "SO" product group denotes special housings whose dimensions and k factor can be specified freely
- TS housings can be bayed if the heights and depths of the housings are identical
- CP 6372.009, 6382.009, 6292.009, 6292.109 and 6392.209 are operating panels with variable depths and surfaces.



When you click the "Save housing" button, a message box prompts whether the heat loss data is to be assigned to the selected housing. If no data is to be entered, you must select "Cancel". When you click "OK", a new window opens with three tabs:

- Direct input
- Measured temperature
- Device list selection

Direct Inp	ut M	easured temperature		Select device lis	t				
👕 Devi	ice list								
Manufacturers:	Rittal busbars			Width:	12 💌 mm	Height:	5 🖵 mm	Ì	
Component group:	RiLine		•	Max. busbar temperature:	55 °C	Rated current:	1600 A	Busbar length:	1 m
Device	RiLine60		-	Corresponds to	0: 2598.13	W			
		e busbar system.						Add device	
Action Design									
			Quantity		ss [W]	Simultaneity	factor [%]	Corresponds	to [VV]
X / RiLine			Quantity 1	2598	ss [W]	Simultaneity 100	factor [%]	2598	to [VV]
					ss [W]		factor [%]		to [W]
					ss [W]		factor [%]		; to [W]
					ss [W]				; to [W]

Subsequently, you can select further housings and – if appropriate – then bay them in a new window. Such an enclosure bay requires the TS housing group, identical enclosure height and width, and the correct position of the enclosures (end or centre housing).

The calculated results are displayed on the "Calculation" tab. Clicking the associated group of climate control devices outputs a recommendation based on these results. Fans and air/air heat exchangers can only be selected if the maximum external temperature is colder than the maximum permissible internal temperature. Otherwise, the external air would not be able to cool the housing interior to the desired temperature. Furthermore, no climate control units are displayed if no cooling is necessary, i.e. the prescribed internal temperature is already observed without climate control.

If you choose an air/water heat exchanger, Therm shows which chiller can efficiently provide it with water.

Desient data	Enclosure s	election	Calculation	Assessment) Our	X
Project data	Enclosures	election	Calculation	Accessories	Sur	imary
😭 Calculat	ion					
Details & product selection	on				Model number	Position Actio
Parameters					TS 8808.500	
Effective surface area	5,4 m ²				TS 8808.500	4 🦯
Installed heat loss	500 W Total he	at loss		352 V	V	
Dissipation via surface	148 W Medium	internal enclos	ure temperature without clin	nate control 47 °	С	
Climate control unit type		Wall-mounted	Roof-	mounted		
🕈 🖉 Fan						
🕈 🖉 Air/air heat excl	hanger					
🕈 🖉 Cooling unit						
🕈 🖉 Air/water heat e	exchanger					
🛨 🖉 Heating						
+ / Climate control	doors					
fl Internal fan						
Rittal can not assume an	y <mark>liability for the</mark> ca	alculation, dimen	sioning and selection.		Baying	
Max. external tem	nperature: 30	0° ₩₩₩	Voltage: 400	■ including 230 V		
Max. internal tem	perature: 35		Frequency: 50	St	andard installatio	

The "Accessories" tab offers only compatible accessories.

The "Summary" tab documents the project. The "GM" button creates a file in a special file format used by General Motors. The remaining buttons output the calculation results in various formats.

The "Temperature-rise proof DIN EN 61439/60890" button calculates the over-temperature for low-voltage switchgear assemblies in accordance with IEC 61439. For switchgear assemblies up to 1600 A, IEC 61439 permits verification via the determination and calculation of heat losses in the operating equipment used.

Successful verification requires proof that dissipation of the heat loss is guaranteed, to prevent excessively high temperatures in the enclosure interior.

As an optimum addition for the verification according to IEC 61439 the total heat loss of the busbar system, the adaptors and equipment mounted on it, and other heat loss producers can be calculated with the software Rittal Power Engineering beforehand.

Project data	Enclosure selection	Calculation	Accessories	Summary	
🜱 Summary					
Climate control calculation with TI	nerm 6.4			08 05 2017	
Project:	Standard	Company:	NN		
Contact person:	NN	Originator:	NN		
Telephone / Fax:	NN				
Ambient parameters					
Maximum temperature outside	the enclosure Ta:	30 °C			
Maximum temperature outside	the enclosure Ti:	35 °C			
Mains voltage:	400 V including 230 V	Frequency:	50 Hz		
Climate control calculation					
Enclosure element no. 1	TS 8808.500	Width x Height x Depth		The second second second	
k-factor of the enclosure	5,5	Type of installation site	First or last enclosure mounting	e in a suite, for wall	
Average enclosure temperatur	e without climate control	47 °C	mounting		
Climate control necessary	Yes	Cooling unit required	No		
1 x Addition		500 W			
Heat loss		500 W			
	🖪 🖷 🕅 🛵 IEC 61439	0			S

Interface

The "htdocs/interface" subdirectory contains three example files: "data.txt", "data.xml" and "startdatatransfer.bat". These three files contain comments describing the interface for data transfer to Therm.

You can open either the "data.txt" or "data.xml" file with a text editor of your choice and can then enter data for use in Therm. The "data.txt" file possesses a simpler data structure, but is limited to one enclosure and a maximum of 20 devices with heat loss data. The "data.xml" file must be used for more complex projects.

The data transfer to Therm is started with the "startdatatransfer.bat" file. This file specifies from which of the two text files the data is to be read. This bat file then starts the Therm software and displays the project overview.

"microweb.ini" file

The "microweb.ini" file is located in the root directory of Therm. It is a text file that contains the setting parameters and can be opened in the text editor with a double-click. The following parameters can be edited there:

- The name of the Web page in the browser:
 - o hostName=localhost

The real host with this name will then be temporarily unattainable, however, because the IP is saved intermediately by the browser. The value **hostname=default** instructs Microweb to take the host name of the computer on which it is currently running.

• The port number of the Web page:

Normally, Microweb always assigns a port number not being used. It is also possible, however, to assign a specific port number: **port=4001**

- Browser selection:
 - Microweb starts the default browser. It is also possible, however, to select a different browser with one of the following entries:

```
browser=ie
browser=netscape
browser=none
```

Furthermore, you can start a browser from the command line with one of the following commands:

-browser=ie -browser=netscape -browser=none

If no browser is selected, the only way to close the Web server is to press CTRL-ALT-DEL or else to terminate the program via the Task Manager menu. A warning message will be displayed, but can be ignored in this case.

You can also start a specific different browser using the following command line: browserpath=
browser path>

The path can be specified either as an absolute path or relative to the server root directory. To start the browser in kiosk mode, use the following entry: **browseroptions=-k**

- Use a MySQL database:
 - If the mysql/data directory cannot be written, to create a working copy, Microweb copies automatically the content of the mysql\data directory to the temporary %TEMP%\microweb-dataVVV directory when it starts for the first time. VVV is the DatabaseVersion parameter that can also be changed in "microweb.ini".

The working copy of the data is only created when Microweb is used for the first time. To cause Microweb to copy the data again, the version number of the database must be changed: **DatabaseVersion=0043**

The value can be any valid directory name. It is appended to the path to the working copy of the database.

If a MySQL database server is already running on the target computer, you must use an alternative port. To change the MySQL server port number, use the following entry: OnStart=%%\$server_root\mysql\bin\mysqld%% --skip-innodb --standalone -basedir=%%\$unix_server_root/mysql%% -- datadir=%%\$mysql_data_dir%% -port=3000

OnExit=%%\$server_root\mysql\bin\mysqladmin%% --user=root --port=3000 shutdown Note that pairs of percentage characters must be used in place of a quotation mark in the INI file.

- Permit display of the directory contents:
 AllowListing=1
- Permit remote access from other computers:
 - By default, a Web page can only be viewed on the PC on which it is running. The following entry also permits viewing from other computers on the network: allowRemoteAccess=1

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