Operating Manual

RENNER Kompressoren

SCROLLline

SLM-S, SLKM-S, SLDM-S, SLDKM-S

ölfrei Made in Germany

Please read this operation manual carefully before start of operations and follow the instructions.

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Table of Contents

Chapter 0 General Information

Chapter 1 Safety instructions

Chapter 2 Machine Description

Contents (continued)

Chapter 3 Installation and commissioning

Chapter 4 Operation

Chapter 5 Maintenance

Contents (continued)

Chapter 6 Decommissioning and disposal

Appendices

Chapter 0
General Information

Contents

In this chapter you will find general information on

- the use of this operating and maintenance manual
- the machine and
- requirements regarding the operating staff

Overview

This chapter is subdivided into the following sections:

0.1 General points

Contents

Here you can find some general information on the operating manual.

Applicability

This operating manual applies to the following machine:

Characteristic	Description
Model	Multiple scroll compressor
Year of manufacture	
Serial no.	
Plant no.	
Location	

Manufacturer

RENNER GmbH Compressors
Emil-Weber-Strasse 32
D-74363 Güglingen / Germany

Version date

January 2017

Safekeeping and completeness

- This operating manual is a component of the compressor and must be available for consultation by authorised persons at any time.
- Under no circumstances may any chapters be removed from this manual. In the event of loss, the missing operating manual or missing pages - in particular the chapter "Safety Instructions" - must be replaced immediately.

Continued overleaf

0.1 General (continued)

Copyright

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We reserve all other rights.

Modifications to the compressor

Any modifications and changes are only permitted after consultation with the manufacturer for safety reasons.
Once a machine has been modified it may be necessary to change the conformity or manufacturer declaration.This may also invalidate the operating permit of the machine.

In these cases, the process for conformity evaluation pursuant to 2006/42/EC for all components may need to be carried out again.

Supplier Documents
(for optional accessories)

The documents supplied (e.g. for the refrigeration dryer) form part of this Operating Manual and must be stored and observed together with the Operating Manual:

Documentation for	Manufacturer
Operating manual for compressed air dryer RKT	RENNER GmbH D-74363 Güglingen

0.2 Layout and use of the operating manual

Contents

Here you can find information on the layout and use of the operating manual.

Chapter

This operating manual contains the following chapters:

Chapter	Contents
0	● General Information – about the operating manual – the use, and – personnel requirements.
1	● Explanation of the symbols used ● Basic safety instructions
2	● Description and functioning of the machine
3	● Operation and functions of the machine
4	● Maintenance instructions
A(xy)	● Appendix / Appendices

Page numbering

The pages are numbered consecutively per chapter.
Example: 3-2
means: Chapter 3, *Page 2*
Example: AS-1
means: Appendix - Control, *Page 1*

Continued overleaf

0.2 Layout and use of the Operating Manual (continued)

Abbreviations

The following abbreviations are used in the operating manual : verwendet:

Abbreviation	Meaning
Fig.	Figure
O.K.	Okay
Chap.	Chapter
n.O.K.	not okay
Tab.	Table
Exp.	Explanation
s.a.	stated above
No.	Number
Item	Item
u. C.	under certain circumstances

0.3 Proper and improper use

Contents

The proper use of the compressor is described here.

Definitions
Authorised person

A person is an authorised person when it has received adequate training/instructions before it is charged with a defined work on or with the compressor. The key to the guard doors should be made accessible to authorised persons only.

Proper use

The compressor shall be deemed to be used properly once the following points have been observed:

- The compressor must only be used to compress technically pure air without harmful or explosive admixtures or impurities at ambient temperatures below 40°C.
- Only authorised persons must work at the machine.
- The machine must only be operated with the installed safety devices.
- The safety instructions as well as the instructions for use of this manual must be observed.
- Also, the operating instructions of the operator must be observed.
- The statutory accident prevention regulations must be observed.

Improper use

Improper use is deemed to include the following:

- Operation by persons not authorised to do so.
- Operation while disregarding the safety regulations.
- Operation without additional air treatment / cleaning of the compressed air in the field of foodstuff or breathing air.
- Improper use (see above)

  and
- operation with deactivated, modified or defective safety devices.

0.4 Operator's duty of care

Contents

This section outlines the tasks and duties of the operator when handling the machine.

Safety of the plant

The operator must ensure that

- the machine is only used for proper use,
- the machine is operated only in a fault-free, properly functioning condition,
- integrated safety devices are maintained regularly and checked to ensure that they are functioning properly and
- only qualified and authorised personnel operate, maintain and repair the machine.

Protection for personnel

The operator (operating company) must in particular ensure that the required personal protective equipment is available for the

- operating personnel,
- maintenance personnel and
- repair personnel

is available and used.

Education and training

The operator must ensure that

- the personnel is trained in all the pertinent issues relating to the operating safety and environmental protection before taking up work for the first time and also at least once per year thereafter,
- the operating manual is always in a legible condition and available in full at the location of the machine.
- the personnel is familiar with the operating manual and in particular the safety instructions contained therein and
- that the safety and warning instructions affixed to the machine are not removed and remain legible.

0.5 Personnel requirements

Contents

The requirements of operating and maintenance personnel are set out below:

Tasks of the operating personnel

The operating personnel must fulfil the following tasks:

- Check the compressor for fault-free and safe functioning.
- Operate the compressor at the permitted operating locations (see Chap. 2.1).
- Identify and - to the extent possible and permitted - rectify or report any faults or irregularities.

Requirements of the operating personnel

In order to be able to fulfil the duties, the operating personnel must meet the following requirements:

- The operator must have received an orientation or have knowledge of the national Labour Protection Act.
- The operator must have sufficiently understood the orientation and follow the work instructions of the operating company.

Duty of the maintenance personnel

The maintenance and repair personnel must fulfil the following tasks:

- Undertake regular inspections and maintenance work on the compressor.
- Carry out repair work
- Conduct test runs on and with the machine, and
- check the integrated safety devices

Requirements of the maintenance personnel

Only specialists or persons properly instructed may carry out any maintenance work.

- For conducting the "large SCROLL maintenance" the specialist must have attended a special technical training course at RENNER.
- The personnel must follow the maintenance documentation.

Chapter 1
Safety Instructions

Contents

This chapter covers the following:

- Explanation of the symbols used
- basic instructions for the safe handling of the compressor as well as
- instructions for conduct in the event of accidents.

Important Note!
The following safety instructions are to be regarded as a supplement to the already applicable national accident prevention regulations and laws.

Any existing accident prevention regulations and laws must in all cases be adhered to.

Overview

This chapter is subdivided into the following sections:

1.1 Symbols

Contents

This section explains the symbols used.

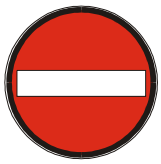
Danger!

This symbol indicates that the life and health of persons is in danger.

For any danger to life, the words
Danger to Life will be used.

Danger!

This symbol indicates that the life and health of persons is in danger due to electrical voltage.



Warning!

This symbol indicates that there is danger to the machine, material or environment.

Note!

This symbol denotes important instructions and information which contribute to your safety as well as a better understanding of the machine processes.

Disposal!

This symbol indicates instructions for the disposal of machine components or operating materials.

1.2 Basic safety instructions

Contents

This section details the basic safety instructions for safe handling of the machine

Danger!

You must follow the safety instructions below in order to avoid the following dangers:

Possible Threat	Preventive Measures
Residual hazards The SCROLL compressor has been designed and built in accordance with state of the art technology and recognised safety regulations and is equipped with safety devices. However, residual hazards cannot be excluded. The dangers are explained in this chapter. Persons can be put into danger due to lacking qualifications and/or operating errors made by the operating personnel. **Explanation:** Operating errors can cause damage to persons or property.	You may operate the machine only if you ● have the necessary qualification and ● have received a full orientation to the machine from the operator and ● have fully read and understood this operating manual. ● Before all maintenance / cleaning work, press the red switch off button The machine must be taken off/isolated from the electrical supply and by being switched on again by a third party.

Protective gloves and glasses must be worn for some maintenance work - please follow the respective instructions!

1.2 Basic safety instructions (continued)

Danger!

You must without fail follow the safety instructions below in order to avoid the hazards associated with electric voltage:

Possible Threat	Preventive Measures
Danger to Life! Danger to persons due to electric shock **Explanation:** The machine operates normally at a voltage of 690 V at correspondingly high current. As currents from 44 mA can be fatal, it is necessary to take relevant safety precautions.	• Do not touch any live cables and connections. • Report any damaged lines immediately to the maintenance personnel. • Keep all the access doors to the electrical devices closed. • Maintenance work may only be carried out by trained personnel. • Wear isolating safety shoes for maintenance work. • Secure the main switch during maintenance work against switching on of the machine by third parties.

There should be no open flames and no sparks at the installation site.

1.2 Basic safety instructions (continued)

Warning!

Follow the instructions below in order to prevent threats to personnel and/or damage to the machine.

Possible Damage	Preventive Measures
Injury to personnel and damage to the compressor by removing or circumventing safety devices	• Do not remove safety devices and do not make them ineffective! • Remedy any identified defects of the devices immediately. • Repairs to the electrical equipment may only be carried out by a qualified electrician!
Damages to the compressor because of overload	• Never exceed the permitted technical thresholds
Burns due to hot compressor components	• Do not touch any compressor components directly after opening the doors of the cabinet.
Burns to the eyes and/or skin due to possible hot, oily condensate spurts	• Wear **safety glasses** when removing the compressed air system. Allow the compressor to cool sufficiently or carry out these activities with utmost caution.
Danger from compressed air **Danger to Life!** Compressed air can severely injure or kill people and house pets.	• Never direct compressed air at living beings!

1.3 Conduct in case of accidents

Contents

This section explains which measures need to be taken in the event of accidents or disasters (e.g. fire, explosions).

Preparation for professional first help at accidents

Carry out the following measures at regular intervals to ensure that you are prepared in the event of an accident:

- Attend a first aid course on a regular basis to refresh your knowledge.
- Regularly inform yourself of which first aid options and rescue institutions are available in your industry.
- Keep a list of the necessary telephone numbers and contact persons at your workplace.

Conduct in case of accidents

Proceed as follows (in this order) in the event of an accident:

Step	If	Then
1	People are injured	always administer first aid in the first instance.
2	there is injury to life or damage to property	state the degree of severity of the injury of persons or damage to property for the targeted use of emergency vehicles.
3	A disaster (fire) has occurred	● immediately leave the machine ● use only the designated escape facilities and routes. ● Do not use the elevators!
4	People are injured or buildings or equipment are damaged	immediately inform your superior or a contact person from the list of first aides (this list is easily visible in the work area).

Chapter 2
Machine Description

Contents

This chapter covers the following:

- Definition of the safe access points for operating the compressor
- Overview of the compressor and its control instrumentation
- Technical data.

Overview

This chapter is subdivided as follows:

2.0 Operating conditions

The SCROLL compressor must be set up in a cool, frost-free, well ventilated room on an even foundation.
The permitted ambient temperatures range from 0° to 40°C
The optimum operating temperature for a multiple SCROLL system, models SLM-S 7,5 / 9 / 11 / 13,5 / 16,5 / 22 is up to 230°C and SLM-S 15 / 22,5 / 30 up to 255°C.

2.1 Authorised access points

Contents

This section defines the authorized access points for operating the compressor and for carrying out minor inspection and maintenance work.

Important Note!

Other access points are not intended for operating the compressor and are therefore not permitted as operator stations! Safe operation can only be guaranteed from the operator terminals specified. Work on the switch box and electrical installations may only be carried out by qualified electricians.

Illustration: Access points

Continued overleaf

2.1 Authorised access points (continued)

Description of the access points

Only the following access points are provided for the operation of the machine:

No.	Operation ...	Actions permitted
1	... of the control panel	● Check working pressure ● Check operating temperature ● Read operating hours ● Switch compressor on ● Emergency stop or shut-down of compressor
2	... of the safety devices	● Carry out inspection and minor maintenance work

2.2 Overview of safety devices

Contents

This section provides an overview of the major compressor elements and their functions.

Figure: Safety devices

Description of the safety devices

The following safety devices are fitted to the outside of the compressor:

Item	Description	Function
1	Emergency off button	Stops compressor immediately in emergency
2	E-box door	Guard door on switch box. To be opened by qualified electricians only Access to the pressure switch, the electrical components and the refrigerant drier. **CAUTION: Danger to life! Electrical voltage!**
3	Control panel	**RENNERtronic Plus**
4	Doors (front and rear)	Access to the air filter, motor, drive belt, relief valve.

2.3 Overview of and instructions for pull-out drawers

Contents

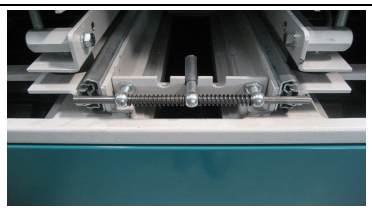
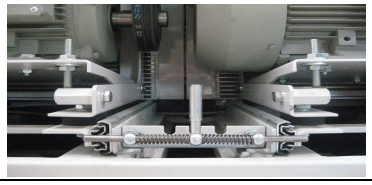
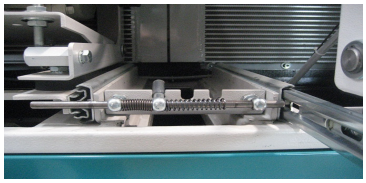
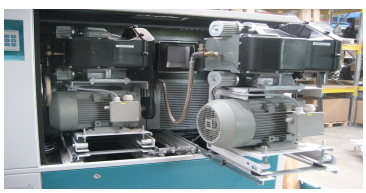
This section provides an overview of the pull-out options of the individual components for various maintenance work.

Figure:
Pulling out of a unit

Warning!
When you pull one unit out, the center of gravity displaced.
Thus, there is an increased risk of tripping.
In 3 or 4x systems, only one unit should be pulled out the simultaneously.

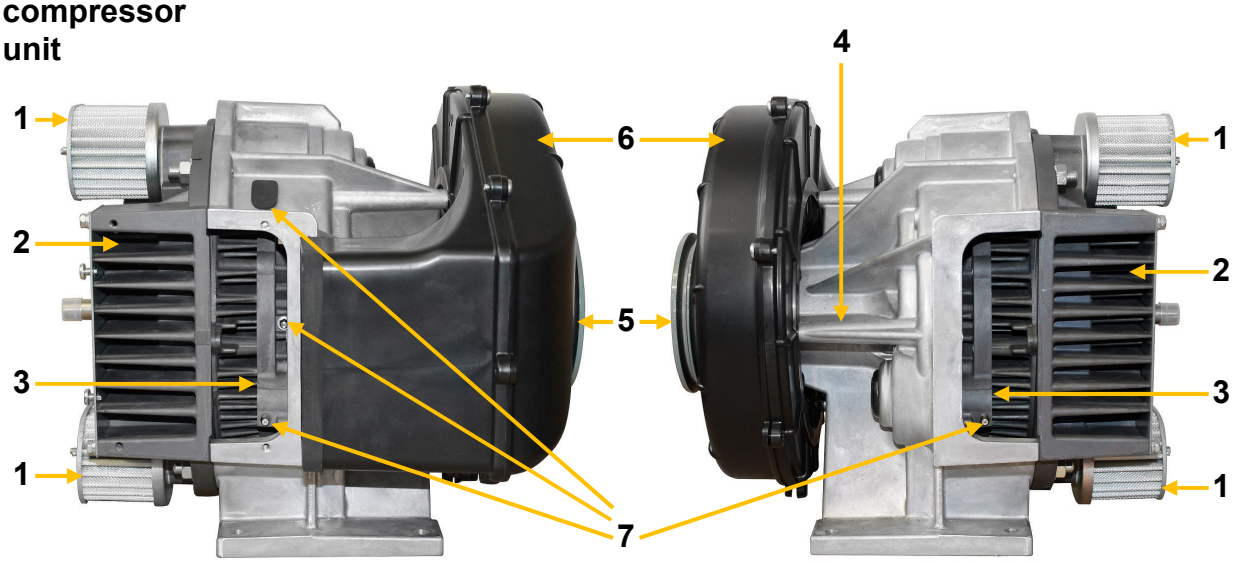
Description of the pulling out of a unit

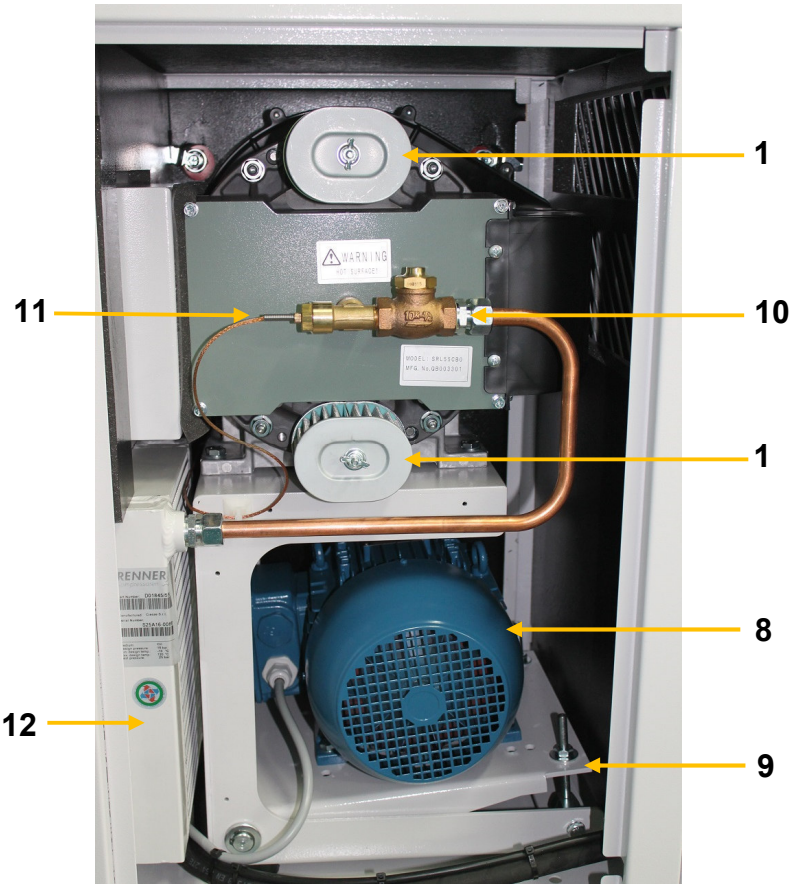
Proceed as follows to pull the unit out of the casing for carrying out maintenance work:

No components can be pulled out when the casing is closed and locked.	
Lift the lever of the lock up to release the lock.	
Move the lever in the relevant direction and place it in the notch provided.	
The opposite unit can now be moved out of the casing.	

2.4 Overview of compressor unit

Figure compressor unit





2.4 Overview of compressor unit

Description of the compressor unit

Item	Description	Function
1	**Suction air filters** (only once on scroll compressor unit 2,2)	Is used to filter suction air
2	**Cooling air outlet**	Cooling the SCROLL spiral
3	**Rotating SCROLL spiral**	Generates air pressure
4	**Socket for the maintenance rack**	Maintenance
5	**Drive belt pulley**	Power transfer
6	**Cooling air fan** (positioned inside)	Intakes cooling air
7	**Lubricate points**	Bearing lubrication
8	**Electric motor**	Drive
9	**Pivoting motor base**	V-belt tension
10	**Non-return valve compressor unit outlet**	Non-return flow protection
11	**Temperature sensor (Combistat)**	Temperature control
12	**Cooler**	Cooling of compressed air

2.4 Overview of compressor unit (continued)

Description aggregate components

Compressor unit (Fig. compressor unit)
RENNER SCROLL compressors are oil-free, stationary, electrically driven compressors.
The SCROLL principle consists of two spirals, in which the moving spiral compresses continuously the sucked-in air through a rotational movement against the fixed spirall. This creates a constant oil-free compressed air flow up to 10 bar gauged pressure. The SCROLL compressors withdraw the control air needed for operation directly from the installed cooler.

Intake Air Filter (item 1)
The intake air filter filters rough dirt particles from the ambient air that is needed for the compressed air processing. For the service life of a SCROLL compressor the best suction quality is of utmost significance.

Cooling air outlet (item 2)
From the cooling air outlet at the air end, the sucked-in cooling air will travel through the after-cooler and this way cools the compressed air.
Please note: always keep the cooling fins clean.

Rotating SCROLL-spiral (Item 3)
These are moving spiral that ensure a continuous build-up of compressed air.

Socket for the maintenance rack (item 4)
One of the three openings for the maintenance rack (special tool) to replace the SCROLL seals (maintenance at 5000 operating hours 10 bar and 10000 operating hours for 8 bar systems) is needed.

Drive belt pulley (item 5)
Power transfer from the electric motor to the compressor, according to the model using one or two drive belt(s).

Cooling air fan (item 6)
The cooling fan is used to suck-in the required quantity of air needed for cooling the compressor and compressed air, and is delivered through the compressor and cooler.

Lubricate points (item 7)
On the lubricate points, the bearings can be lubricated using a grease pistol.

2.4 Overview of compressor unit (continued)

Description aggregate components

Electric motor (item 8)
The electric motor (from 3.7 to 7.5 kW) drives the compressor using the corresponding transmission by using one or two drive belt(s).

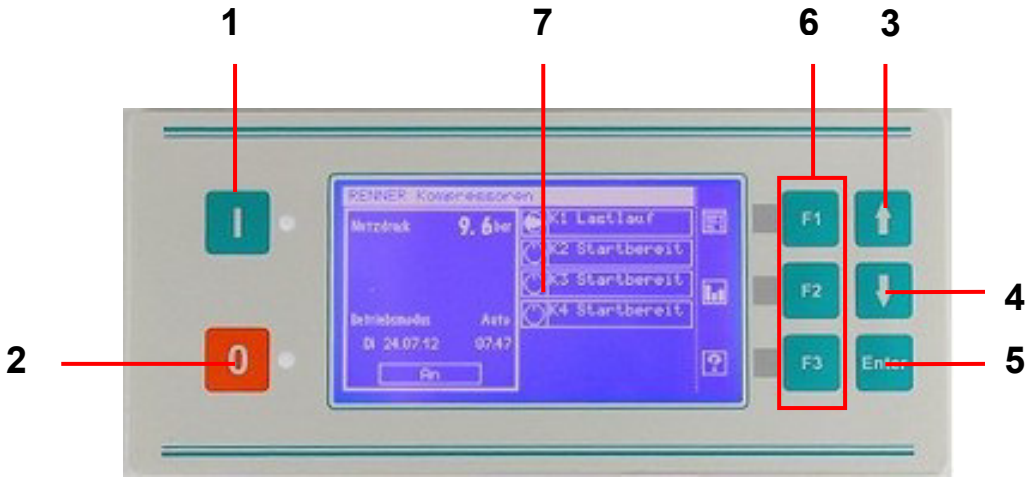
Pressure switch (electric)
The pressure switch is connected to the compressed air outlet of the system. It controls the on and off switching of the compressor, depending on the set end-pressure. The values for p_{max} and p_{min} are set at the pressure switch: p_{max}: upper limit of operating pressure at which the unit cuts out in normal mode.
P_{min}: lower limit of operating pressure at which the unit cuts in again in normal mode.

The pressure switch is adjusted to the correct setting at the factory. The discharge pressure switch may only be adjusted by personnel authorised by the manufacturer!

Safety valve
The safety valve is installed after the cooler. It limits the maximum pressure occurring in the unit to 1-2 bar above the relevant operating pressure (end pressure). The safety valve blows off if the end pressure is exceeded due to a fault in the system.

2.5 Overview of control panel

Figure
Control panel



Description of the control panel

The following controls are found on the control panel:

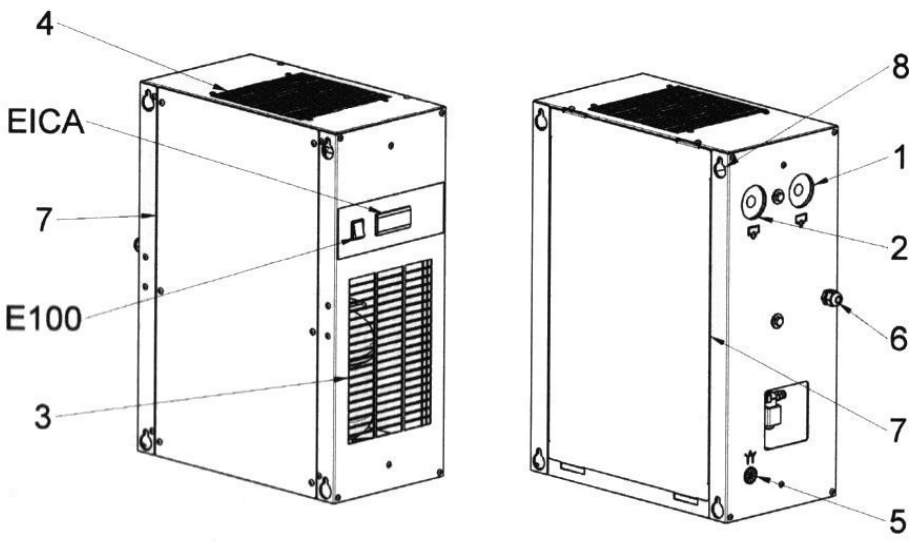
Item	Description	Function
1	**Start button**	Switches the compressor on
2	**Stop button**	Switches the compressor off
3	**Arrow key UP**	Jumps to the previous point / increases values
4	**Arrow key DOWN**	Jumps to the next point / reduces values
5	**Enter**	Confirms a menu point / saves
6	**F1 – F3**	Function keys
7	**Display**	Displays the parameters (temperature, operating overpressure, etc) as well as warning and fault messages

2.6 Overview of refrigerant dryer (optional)

Contents

This chapter provides a brief overview of the optionally installed refrigerant dryer.

Figure
Refrigerant dryer



1.) Compressed air inlet
2.) Compressed air outlet
3.) Cooling air inlet
4.) Cooling air outlet
5.) Steam trap
6.) Electrical connections
7.) Maintenance access
8.) Mounting holes
E100.) “On” switch
EICA.) Electronic controller

Description of the refrigerant dryer

The refrigerant dryer contains a cooling system for cooling the compressed air. The compressed air is also de-humidified. The condensate created here is discharged through a condensate separator.

2.5 Overview refrigerant dryer (continued)

Danger!

Please follow the safety instructions of the refrigeration dryer found in the separate operating manual. It is particularly dangerous to breath-in the cooling agent's vapor or get in contact with the cooling agents. Smoking when working on the refrigerant dryer is prohibited, as the cooling agent will develop poisonous vapours when coming into contact with the glowing end of a cigarette or other open flame (e.g. welding work).

Note!

Please see the explanations in Chapter 4 and Appendix KT and also the supplied manufacturer's operating manual.

Chapter 3
Installation and Commissioning

Contents

This chapter contains the most important information on transporting, installing and storing the compressor.

General Information

The installation plan and the technical data of this specific compressor model can be ordered from RENNER GmbH.
The compressor is delivered on a wooden pallet, packaged in a carton and labelled.

Danger of tipping!
The machine can tip over at an inclination of more than 10°!
Use suitable transport means such as a forklift, lifting gear or loading harness. Support it from the side.

There is no special requirement for unpacking the machine and the (interim) storage in the transport packaging is also not problematic. Protect the compressor against tilting over by storing it on level, firm ground.

Dispose of the packaging material (carton / marked plastic sheets) separately.

Overview

This chapter is subdivided into the following sections:

3.1 Compressor installation

Contents

This section contains important instructions which you need to observe in order to safely install the compressor and to prevent damage or malfunction.

Warning
Follow the safety instructions!
Always stay away from the danger zone of a load beng lifted!

Compressor installation

Key word	Ensure that
Installation site	• Surface: Flat, level, firm • Building ceilings: Check load carrying capacity of floor • Air: Cool, clean, frost-free with as little humidity as possible. Temp:+0°C (32°F) - +40°C (104°F)* • Sufficient ventilation in the room • Air intake must be sufficiently unob-structed • Arrange the air intake opening in such a way that no loose items can be sucked in • The installation site is illuminated (as to read off the instruments, carry out maintenance work…)
Lifting work	• Secure any loose, swinging or pivoting parts before lifting the compressor • Use suitable lifting gear (weight acc. to data sheet) • Always remain outside the danger zone of a lifted load
Pipelines, pres-sure pipes	• Remove all protective flanges, plugs, caps, covers and possible bags with dry-ing agents before mounting conduits • Please note that the connection from the aftercooler to the rigid compressed air mains can expand as a result of heat and must be connected by means of a flexible hose.
Exhaust air	• Exhaust ducts must have a diameter at least equal to that of the cooler surface and should be 3m in max. length with one bow of 90°; for longer ducts, use an additional fan with a capacity 20% greater than the compressor ventilator • When installing several compressors please ensure that no compressor sucks in the heated exhaust air from another compressor

* Please ask your distributor or the manufacturer in the event of higher temperatures.

3.2 Connections

Contents

This section covers important instructions which you need to observe in order to safely connect the compressor to the compressed air system as well as the electrical supply.

Warning!

Before connecting the machine to the compressed air system, all conduits and hose connections inside the compressor must be checked and, if necessary, retraced.

For plants with pressure vessels, an acceptance check of the air collection tank must be made in most countries by a compressed air tank expert before commissioning.
Start an inspection log!

A compressed air connection

The system has all the required conduits and is ready for operation.
The following must be observed when connecting to the compressed air mains:

Compressed air connection

Key word	Ensure that
Pressure	• Suitable screws and conduits are used for the operating pressure • The final pressure of the system is not higher than stated on the rating plate. • A non-return valve between the machine and the compressed air system is not required as it has already been integrated in the machine.
Connection	• Connect the machine to the compressed air mains stess-free and free from vibration e.g. by using a flexible hose
Shut-off valve	• The additional installation of a shut-off valve is recommended to facilitate maintenance tasks at the compressor without de-pressurising the compressed air system.
Condensate	• An automatic condensate trap can be integrated behind the after cooler for improved condensate separation from the compressed air

3.2 Connections (continued)

B Electrical connection

Attention! All wiring work on the controls, and the compressors have to be carried out in consideration of the 5 safety rules.

Only the connection to the electricity supply is now required for the machine which is now ready to use with all conduits installed.

The machine must only be connected by a qualified electrician!

The following must be observed when connecting to the mains supply:

Electrical connection

Key word	Ensure that
Voltage	• The machine must only be connected to the voltage stated on the motor name-plate
Rotation	• The rotational direction must be observed under all circumstances! See corresponding direction of arrows • Checking the rotational direction see chap. 3.3/3.4
Fuses	• Customer to install the fuse and separator with the EMERGENCY OFF function; these must be able to switch at least 1.1 times the motor output and must be clearly allocated to the machine • Make sure that the system has an adequately dimensioned power supply available (selection of the supplies and fuses, see also system data sheet).
Connection	• The power cable must be arranged mechanically “stress-free” so that there is not risk of stumbling • Connect the cable with the individual wires according to the valid electrical guidelines to the connection box provided at the installation side.

3.3 Compressor start-up

Contents

This section covers important information which you need to observe in order to safely start up the compressor.

General points

Each component of the machine is tested at the factory operation at final assembly. The test ensures that the components operate fault-free. During the initial hours of operation the machine should be watched to determine any possible malfunction.

Important!
The respective operating manuals must be read and observed for machines with additional optionally installed components (e.g. refrigerant dryers).

Preparation

The following points must be observed and carried out before the first start-up:

Step	Task to be carried out / Points to be observed:
1	Have an electrician tighten all screw and terminal connections in the control cabinet
2	A clearly visible sign must be affixed to machines with remote control with the following wording: **Warning! This machine is remote controlled and may start without warning!** During remote control of the system, safety precautions must be followed that prevent the system from starting when it is being checked or maintained. (Main switch of the system must be turned off!)

3.3 Compressor start-up (continued)

Checking the rotational direction INFO

When first starting up the machine, as well as after each change to another electrical feed line, the rotation of the SCROLL compressor must be checked.
Rotation is anticlockwise seen from the shaft. The rotation of the V-belt pulleys must be in the direction of the arrow on the pulley! If necessary, reconnect the connecting cable (qualified electrician).

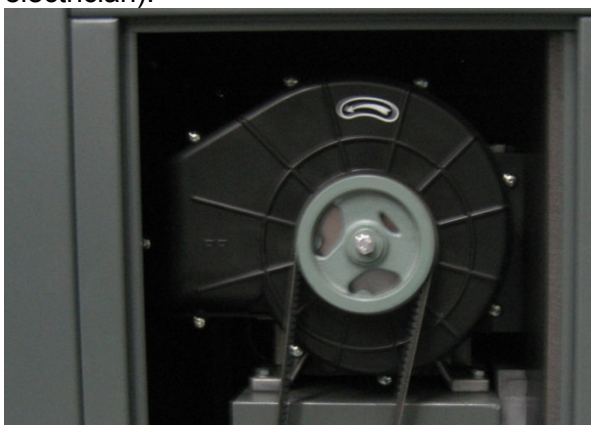


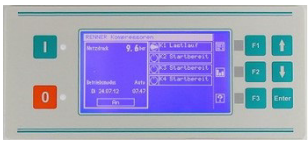
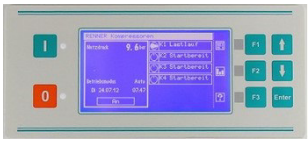
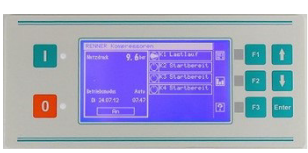
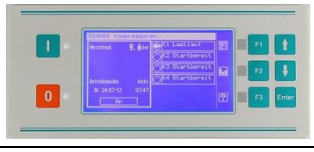
Fig. Arrow for direction of rotation

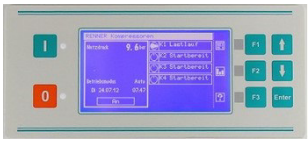
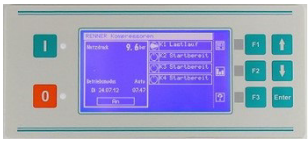
WARNING!

There is a danger from moving parts when checking the rotation with the cover open!

Checking the rotational direction Procedure

Proceed as follows when checking the rotation:

Step	Operation:	Figure / Expl.
1	Open and the maintenance doors. Place them on one side.	
2	Enter the RENNERtronic Plus menu with the service code and set the operating mode to "manual" under operating parameters	
3	Go back to the basic display and press the on-button so that “On” is displayed to the left at the bottom	
4	With the down arrow key select the first compressor	

5	Start the compressor by tapping the green start button once with the one hand; immediately let go of the button	
6	Within 2 seconds stop the compressor by pressing the red stop button with the other hand.	
7	Carry out the procedure in steps 4 - 6 for the other compressors	
8	Enter the RENNERtronic Plus menu with the service code and set the operating mode to “Auto” under operating parameters.	

Once you have determined the correct rotational direction, you are ready to operate the compressor. The phase must be replaced if the rotational direction is incorrect.

Chapter 4
Normal Mode Operation

Contents

This chapter covers the information required for normal operation of the compressor.

Overview

This chapter is subdivided into the following sections:

4.1 Getting to know the control instrumentation

Contents

This section provides an overview of the control instrumentation.

Picture: Control components

Function Control components

The control components have the following function(s):

Item	Description	Function/Use
1	Pushbutton (red) *Stop*	Switches compressor off
2	Pushbutton (green) *Start*	Starts the compressor **Note:** The main switch must be switched on. The main switch is to be installed by the customer at the site.
3	Temperature display - working pressure Operating hour meter	Displays the operating temperature. Switches off when the permitted maximum temperature is exceeded. Displays the current working pressure Counts the number of hours the compressor has actually run

4.2 Starting normal operation

Contents

The following section explains how to start the compressor and contains essential points for normal operation.

Danger!
There are moving parts inside the compressor cabinet which can cause serious injuries.
Never operate the compressor with the cabinet open!

Before starting the compressor

Check the following points before starting the compressor:

- Was the direction of rotation checked?
- Is the main switch on?
- Are any existing shut-off valves open?

Starting the compressor and monitoring normal mode

Step	Operation	Figure / Expl.
1	Press the *Start* button to start the compressor.	
2	Monitor the following points at regular intervals during operation:	
2a	**Operating pressure** The operating pressure displayed must not exceed the maximum permissible value specified on the type plate. If this is the case, switch off the compressor immediately.	
2b	**Operating temperature** For SLM-S 7,5/9/11/13,5/16,5/22 kW, the operating temperature may not exceed 240°C. For SLM-S 15/22,5/30 kW 265°C. The compressor is automatically shut off if there is an excess temperature.	

4.2 Starting normal operation (continued)

Monitor normal operation (contd.)

Step	Operation	Figure / Expl.
2b (contd.)	**Important!** Should the compressor fail to cut out automatically it must be switched off immediately by hand!	
2c	**Operating hour meter** Various maintenance work must be carried out after a specified number of operating hours. The exact maintenance intervals and relevant servicing work are listed in the maintenance schedule. Appendix W 1	

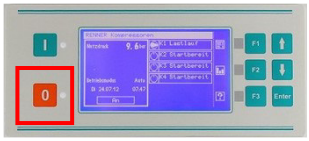
4.3 Switching off the compressor

Contents

This section explains how to switch off the compressor in normal operation and/or when no air is needed any more.

Stopping normal operation

If you want to shut off the compressor:

	Press the *Stop* button STOP	

Shutting off completely

If you want to shut off the compressor completely:
(e.g. after shift end), then in addition to the above, you must also turn off the main switch.

4.4 Remedying malfunctions in normal operation

Contents

This section contains advice on remedying malfunctions/faults.

Danger!

Human error in remedying faults or lack of professional training can lead to serious damage to property or physical injury.
It is therefore essential that faults are rectified by duly qualified persons.

Before eliminating faults

Always take the following steps before starting any work:

- Switch the compressor and main switch off!
- Discharge all the compressed air from the compressor and air vessel!

Malfunctions

The following faults may occur during operation:

Fault	Possible Cause	Remedy
Compressor does not start	• No power • Loose cables or fuses • Motor protection switch has cut out	➢ Establish power supply ➢ Retighten cables or fuses ➢ Unlock motor protection switch (switch cabinet)
	• Controller has cut out / is defective	➢ Ensure correct compressor cooling; install new controller if defective
	• The connecting lines to the controller are kinked	➢ Ensure correct guiding of connection cables

Continued overleaf

4.4 Remedying malfunctions in normal operation (continued)

Malfunctions (contd.)

Fault	Possible Cause	Remedy
Compressor starts with difficulty	• Change over time for star-delta starting is too long or too short (only for systems with star-delta starter) • The non-return valve on after-cooler is defective (only for Y -Δ connection) • Voltage fluctuations the electrical network	➢ Check and adjust time setting, correct setting is 3 seconds on relay K 1T ➢ Check solenoid valve and relief valve and change if necessary ➢ Change non-return valve
Compressor cuts out before reaching the final pressure	• Motor overload is tripping • Controller cuts out due to excessively high temperature	➢ Check and adjust overload setting; check and adjust pressure switch setting; check electrical supply for phase failure. ➢ Ensure correct compressor cooling; install new controller, if defective
Motor protection switch tripping (therm. overcurrent relay) has stopped the compressor	• Seized air end • Phase failure • Motor overloaded • Ambient temperature too high	➢ Eliminate reason for seizure ➢ Check supply line ➢ Check and adjust overload setting; check and adjust pressure switch setting ➢ Ensure adequate ventilation

Continued overleaf

4.4 Remedying malfunctions in normal operation (continued)

Fault	Possible Cause	Remedy
Controller cuts out due to excessively high temperature	• Compressor incorrectly installed • Controller set incorrectly	➢ Refer to recommendations for installation ➢ Set controller
System does not cut out during intermittent operation	• Upper switch-point of pressure switch set too high	➢ Reset pressure switch
Insufficient “free air”	• SCROLL seals are worn • Intake filter clogged • Leaks in the system	➢ Conduct maintenance according to maintenance plan ➢ Clean the air filter
Compressor runs noisily/bumpy	• V-belts not correctly tensioned • V-belt sets not compatible • V-belt pulleys not aligned with each other • Screw connections on compressor and/or motor are loose.	➢ Check V-belt tension and tighten if necessary ➢ Replace with matching set of belts ➢ Check alignment of pulleys and adjust if necessary ➢ Tighten screw connections.
After turning off the system runs in reverse	• Non-return valve on compressor - outlet is defective.	➢ Replace non-return valve.

Chapter 5
Maintenance Instructions

Contents

This chapter contains information on the maintenance work required.

Overview

This chapter is subdivided as follows:

5.1 What to take into account

Contents

In the extract of a unit, the focus of compressor moves. Thus, there is an increased risk of tipping.
For 3- or 4-way compressors, only one unit should be extacted equal-time.

Personnel requirements

Only specialists or persons properly instructed must conduct any maintenance and repair work. The "large maintenance" (5,000 & 10.000 hours at 10 bar SCROLLs and 10,000 hours at 8 bar SCROLLs) must only be completed by authorised* persons.
(* The corresponding qualifications can be obtained from RENNER in special technical courses)

An overview of the personnel requirements are found in Chapter 0.

Danger!

It is essential to adhere to the following safety instructions in order to avoid all risks of personal injury or death:

Potential Source of Danger	Preventive Measures
Crushing from moving parts	● Always maintain a safe distance from all moving parts when carrying out test runs
Electrical shock.	● Switch off all power supplies before starting work. ● Take measures to prevent power supplies from being switched on again by accident
Inappropriate spare parts	● Always replace self-locking nuts and screws ● Only use spare parts included in the RENNER spare part list
Unauthorised/premature approval of compressor for operation	● Do not release the unit for operation until the safety devices are fully functional. **The work is not finished until this is the case!**

5.1 What to take into account (continued)

Warning!
When you pull one unit out, the center of gravity displaced.
Thus, there is an increased risk of tripping.
In 3 or 4x systems, only one unit should be pulled out the simultaneously.

Before starting the work

Please note the following before starting the work:

- SCROLL systems of type 5,5 & 7,5 are equipped with a non-return valve. However, it is still recommended to depressurize the system and block the system's access to the compressed air network before carrying out any maintenance work.
- For the "large maintenance" (see Chapter 5.5), the SCROLL compressor must be entirely cooled down before starting the maintenance work (at least 12 hours).

Once work has been completed

The following steps must be carried out after completing the work:

Step	Operation
1	Follow the maintenance schedule and complete the inspection sheets, activity logs, etc. (see Appendix W “Maintenance Check”).
2	Check that the safety devices are working correctly. Do not release the machine for operation if the safety devices are not in perfect working order.
3	Reinstall and secure any safety devices that have been removed.
4	Remove any tools, foreign objects and materials left lying around.
5	Carry out a test run and check the function of the serviced components.
6	Store and secure the key from unauthorised access if leaving the machine unattended.

5.1 What to take into account (continued)

Spare parts, accessories

Only original spare parts may be used for the replacement components such as air filter, drive belts, etc.

Repairs

Only allow authorised dealers to carry out repair work.
A list of other persons/companies authorised by the manufacturer to carry out repairs can be obtained from the manufacturer on request.

Do not allow repairs to be carried out by any persons other than those authorised by the manufacturer!

Servicing is carried out as agreed with the authorised dealer.

General Notes

Take the standard safety precautions and proceed with great care when carrying out any servicing work.
Please follow especially the points below:

- Servicing work to be carried out by qualified personnel only.
- Correct tools only to be used for servicing work.
- Compressor and power supply to be switched off before any servicing work is carried out. Take measures to ensure that the unit cannot be switched on accidentally!
- Compressor must be allowed to cool before carrying out servicing work to avoid risk of burns!
- Compressor to be disconnected from all sources of pressure and all pressure removed before dismounting pressurised parts.
- Scrupulous standards of cleanliness to be maintained during servicing work; parts and exposed openings to be covered with a clean cloth, paper or masking tape.
- Motor, air filter, electrical components, control equipment, etc. to be protected from ingress of moisture, e.g. when being wiped.
- No tools, loose parts or rags to be left in or on the unit.
- Operating pressures, temperatures, time settings, control equipment and cut-out devices to be checked for perfect working order before unit is released for operation after servicing work.
- Doors on the compressor to be closed before switching on the unit (including for test run)!
- Sound-absorbing materials to be left in place and retained.

5.2 Rectifying faults

Contents

This section covers general points on trouble shooting and contains references to relevant sources of information.

Danger!

- Always take measures to ensure that the machine can be shut off in an emergency by another person.
- You may only remove faults or carry out complete checks if you have the respective technical qualification.
- Adhere to the general safety instructions contained in this operating manual for handling the machine.
- Follow the instructions given in this chapter and all other maintenance instructions issued by the operator and pay due regard to the documentation relating to the components which comprises the unit (e.g. pressure vessel, refrigerant dryer etc.).

List of faults

The necessary action to be taken in the event of faults is outlined ...

... in Chapter 4.4. “Remedying malfunctions in normal operation” and
... in the operator’s internal servicing documents.

5.3 Cleaning work

Contents

The following section contains information on cleaning the compressor and the air filter.

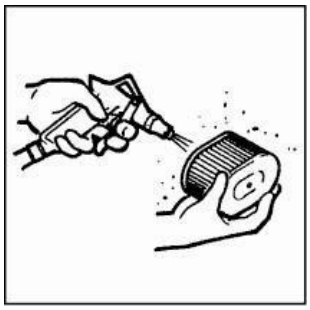
General points

In terms of general cleaning, vacuum the unit or wipe it with a damp cloth. Check the intake passage regularly. Where necessary remove any leaves, dust, dirt or similar matter in the interests of an efficient air supply.

Never direct compressed air at living beings!
Misuse of the compressed air unit can cause serious human tissue damage or even fatal injuries.

5.3.1 Cleaning the air filter

Cleaning the air filter



Step	Operation
1	Disconnect system from the power and compressed air system. Secure from unintended restart.
2	Loosen winged nut of air filter.
3	Remove air filter and carefully blow out.
4	Reinstall filter in reverse order and tighten winged nut.
5	Carry out test run and functional check.
6	Every 2500 operating hours or once a year replace the air filter completely.

5.3.2 Cleaning the cooler

Contents

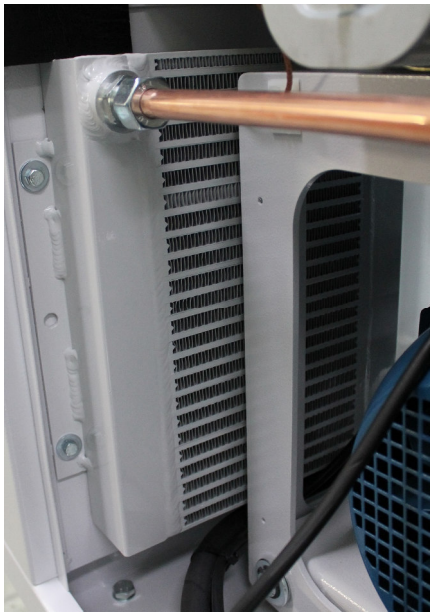
This section outlines the procedure for cleaning the cooler.

General points

If the cooler is not very dirty it can be left in the unit and blown clear with compressed air while the unit is switched off.
If the cooler is very dirty proceed as outlined below.

Cleaning the cooler

Step	Operation
1	Disconnect system from power and compressed air system. Secure from unintentional restart. Allow the system to sufficiently cool.
2	Remove cooler.
3	Steam clean the cooler.
4	Install cooler.
5	Complete a test run and functional test and check system for leaks.



5.3.3 Cleaning the cooling air fan (in scroll compressor)

Contents

This section outlines the procedure for cleaning the cooler fan in the scroll compressor.

Cleaning the ventilator

Step	Operation
1	Disconnect system from power and compressed air system. Secure from unintentional restart. Allow the system to sufficiently cool.
2	Remove drive belt (see also 5.3.5)
3	Loosen screws of fan cover and remove cover (Fig. 1)
4	Check fan and clean, if necessary. (Fig. 2)
5	Reassemble in reverse order
6	Carry out a test run and functional check.

Fig. 1 screws fan cover

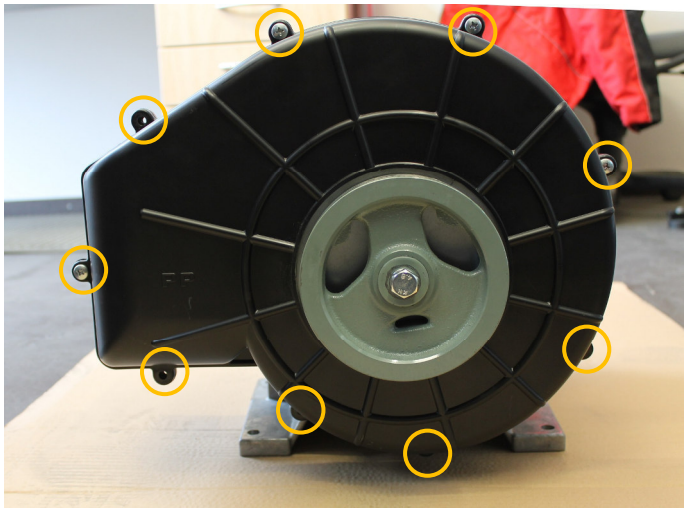


Fig. 2 cooling fan

5.3.4 Cleaning the SCROLL cooling fins

Contents

This chapter provides information about cleaning the cooling fins in the SCROLL compressor

General points

The cooling fins of the SCROLL compressor are an integral part of cooling the compressor and must be checked and cleaned regularly. (see maintenance plan)

Cleaning the cooler fins

Step	Operation
1	Disconnect the compressor from power and compressed air system. Secure from unintentional restart. Allow the compressor to sufficiently cool down.
2	Remove the copper pipe connection between the compressor block (air end) and cooler
3	Loosen the screws (Fig. 2) of the cooler fin cover and then remove the cover (Fig. 1).
4	Loosen the lateral cover of the cooling fins (Fig. 3) from the compressor block.
5	Thereafter, carefully blow out the cooling fins (Fig. 4) or clean with a cloth.
6	Complete assembly in reverse order.
7	Carry out a test run and a functional check.

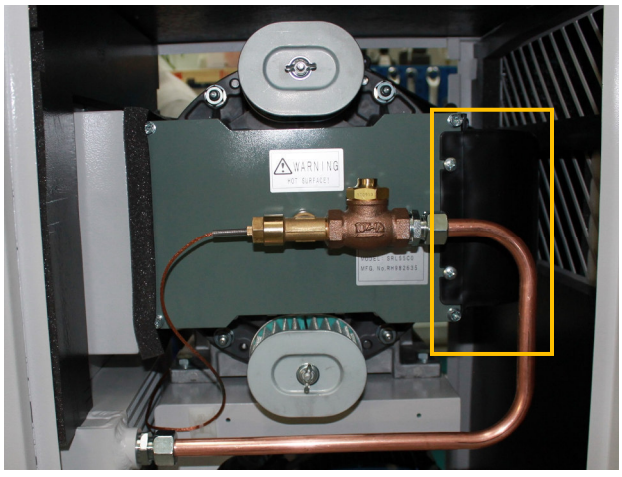


Fig. 1 cooler fin cover

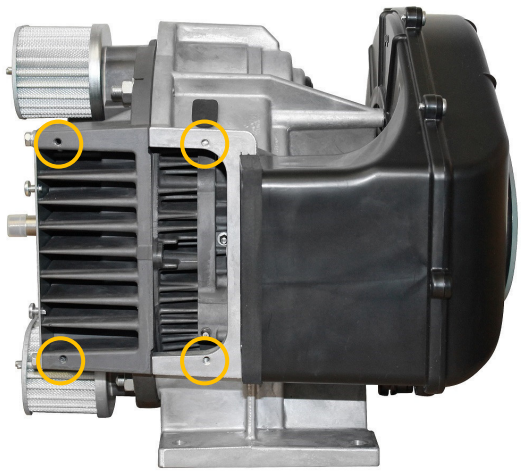


Fig. 2 screws cooler fin cover

5.3.4 Cleaning the SCROLL cooling fins (continued)

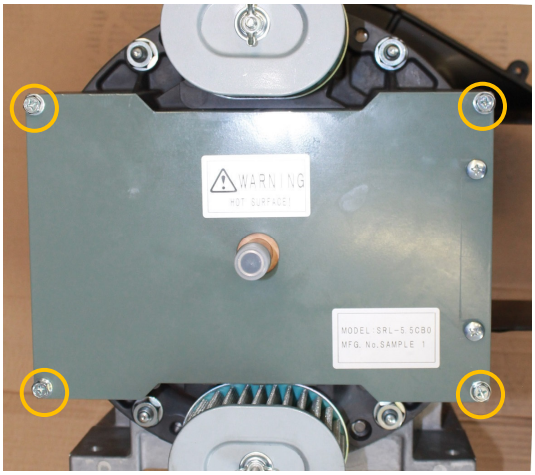


Fig. 3 lateral cover

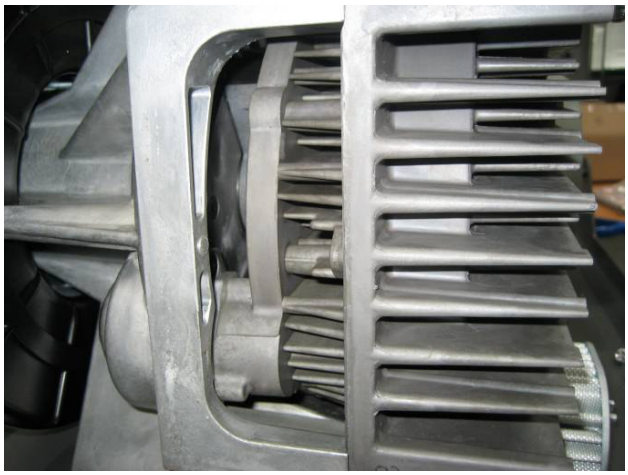


Fig. 4 cooling fins

5.4 Tensioning / changing the V-belts

Contents

This section outlines the procedure for tensioning and/or changing the V-belt.

General

The optimum tension of the V-belt has a significant influence on the running characteristic and the noise level of the compressor system. Additionally, the service life of the V-belt depends on the correct alignment. For SCROLL compressors with 2 belts it must be made sure that it is always replaced as a set.

Step	Operation
1	Disconnect the compressor from power and compressed air system. Secure from unintentional restart. Allow the compressor to sufficiently cool down.
2	Using the tensioning screw(s) and the counter /adjustment screw as to get the correct tension* (fig. counter /adjustment screw)
3	Carry out a test run and a functional check.

5.4 Tensioning / changing the V-belts (continued)

Replace belts

Step	Operation
1	Disconnect the compressor from power and compressed air system. Secure from unintentional restart. Allow the compressor to sufficiently cool down.
2	Loosen tensioning screw(s), remove old belts, put new belts.
3	Tighten belt with the counter nuts above and under the motor plate* (fig. counter /adjustment screw)
4	Carry out a test run and a functional check.

* The belt tension has to be adjusted and measured with a frequency meter. The ideal default settings for the belts are available on request at RENNER GmbH Compressors.

Fig. counter /adjustment screw

Chapter 6
Decommissioning and disposal

Contents

This chapter provides important information on (temporarily) decommissioning or disposing of the compressor.

Overview

This chapter is subdivided as follows:

6.1 Decommissioning the system

Contents

Here you will find information which you will need to observe if you need to decommission the compressor for a longer period of time and the points you need to observe when re-commissioning the compressor after this period.

Decommissioning the plant

For longer periods of decommissioning, prepare the unit as follows:

Step	Operation
1	Disconnect the compressor from the power supply to prevent accidental switching on of the machine by third parties (e.g. lock the power cable in the machine).
2	Remove the tension on the V-belt (see Chap.5 S-10 "Tighten/replace V-belt").
3	Do not cover the unit in such a way so that there is no ventilation - this will enforce corrosion of various parts.

6.2 Re-commissioning after storage

Re-commissioning INFO

Compressor units, which have been switched off, decommissioned or stored for longer than 3 months, must only be re-commissioned once the following measures have been taken.

Re-commissioning after storage

Proceed as follows to re-commission the compressor after a longer period of decommissioning:

Step	Operation
1	Manually rotate the SCROLL compressor several times in the rotational direction.
2	Relax the tension on the V-belt (see Chap.5 S-10 "Tighten/replace V-belt").
3	Connect the unit: see Chap. 3 S-3 "Connections”.
4	Commission the compressor.

6.3 Shut-down and disposal

Contents

This section covers the measures you need to take when decommissioning and disposing.

Danger!

- Follow the safety instructions of this Operating Manual as well as the relevant instructions contained in the documentation supplied by possible sub-suppliers as well as the internal or national accident prevention rules.

Danger to Life!

There is danger to life from swinging loads when lifting the compressor. Never remain in the danger zone and check on persons present.

Danger!

There is also a possible danger of injuries due to cuts from sharp corners and edges of the compressor in the following dismantling work. Always wear work gloves for this work.

Environment

- The following instructions must be followed exactly to prevent possible environmental pollution. Even if the disposal is carried out by an authorised specialist company, the operator of the compressor must ensure proper fulfilment!

Dismantling the compressor

Proceed as follows to dismantle the compressor and observe the following points:

Step	Operation
1	Find out how the individual components or the entire machine must be disposed of. Ask your environmental officer, if available.
2	Remove all system connections.

6.3 Shut-down and disposal (continued)

Material INFO

The following materials were primarily used when manufacturing the compressor:

Material	Used for / in
Batteries, NiCad / Li	• Control
Copper	• Motor / electr. supply lines
Steel	• Machine frame • Side walls and doors • Motor and components
Plastic, rubber, PVC	• Seals and gaskets • Hoses • Cables
Tin	• Boards
Polyester	• Boards

Toxic waste INFO

The following parts and materials must be disposed of separately:

Description	Applies to
LCD displays **Note:** LCD displays contain highly toxic liquids	• Display devices
Electronic scrap	• Electrical supply • Controls (PLCs, etc.) • Boards with electronic components

Environment:
Dispose of all parts of the compressor so that health and environmental damages are excluded.

Appendix T: Technical Data

Typ	Free air delivery		Power	Controller	Sound level	Nomainal current	Voltage	Operation temperature	Cooling air required	Air outlet	HRC fuse	Section of elect. Cable	Dimensions in mm	Weight
	m³/min		kW		db(A)	A	V	° C	m³/h	"	A	mm²	L x W x H	kg
	8 bar	**10 bar**			**8bar/10bar**			**max.**						
SLM-S 7,5	0,794	0,720	2 x 3,7	RT+	58 / 58	2 x 7,7	400	240	4700	1"	25	5 x 4	1400 x 920 x 1020	435
SLM-S 9,0	-	0,810	2 x 4,5	RT+	- / 59	2 x 10,5	400	240	5200	1"	35	5 x 6	1400 x 920 x 1020	465
SLM-S 11,0	1,254	1,040	2 x 5,5	RT+	61 / 60	2 x 10,5	400	240	5200	1"	35	5 x 6	1400 x 920 x 1020	465
SLM-S 13,5	-	1,215	3 x 4,5	RT+	- / 62	3 x 10,5	400	240	7800	1"	50	5 x 10	1400 x 920 x 1890	820
SLM-S 15,0	1,780	1,510	2 x 7,5	RT+	65 / -	2 x 13,9	400	265	8000	1"	35	4 x 6	1400 x 920 x 1020	485
SLM-S 16,5	1,880	1,560	3 x 5,5	RT+	64 / 63	3 x 10,5	400	240	7800	1"	50	5 x 10	1400 x 920 x 1890	820
SLM-S 22,0	2,510	2,080	4 x 5,5	RT+	66 / 65	4 x 10,5	400	240	10400	1"	50	5 x 10	1400 x 920 x 1890	955
SLM-S 22,5	2,670	2,265	3 x 7,5	RT+	68 / 67	3 x 13,9	400	265	12000	1"	50	4 x 10	1400 x 920 x 1890	840
SLM-S 30,0	3,560	3,020	4 x 7,5	RT+	71 / 70	4 x 13,9	400	265	15000	1"	63	4 x 16	1400 x 920 x 1890	975
SLKM-S 7,5	0,794	0,720	2 x 3,7	RT+	58 / 58	2 x 7,7	400	240	5000	1"	25	5 x 4	1400 x 920 x 1020	465
SLKM-S 9,0	-	0,810	2 x 4,5	RT+	- / 59	2 x 10,5	400	240	5500	1"	35	5 x 6	1400 x 920 x 1020	500
SLKM-S 11,0	1,254	1,040	2 x 5,5	RT+	61 / 60	2 x 10,5	400	240	5500	1"	35	5 x 6	1400 x 920 x 1020	510
SLKM-S 13,5	-	1,215	3 x 4,5	RT+	- / 62	3 x 10,5	400	240	8100	1"	50	5 x 10	1400 x 920 x 1890	750
SLKM-S 16,5	1,880	1,560	3 x 5,5	RT+	64 / 63	3 x 10,5	400	240	8100	1"	50	5 x 10	1400 x 920 x 1890	750
SLKM-S 22,0	2,510	2,080	4 x 5,5	RT+	66 / 65	4 x 10,5	400	240	11000	1"	50	5 x 10	1400 x 920 x 1890	1040
SLDM-S 7,5	0,794	0,720	2 x 3,7	RT+	58 / 58	2 x 7,7	400	240	4700	1"	25	5 x 4	1970 x 920 x 1767	645
SLDM-S 9,0	-	0,810	2 x 4,5	RT+	- / 59	2 x 10,5	400	240	5200	1"	35	5 x 6	1970 x 920 x 1767	675
SLDM-S 11,0	1,254	1,040	2 x 5,5	RT+	61 / 60	2 x 10,5	400	240	5200	1"	35	5 x 6	1970 x 920 x 1767	675
SLDM-S 15,0	1,780	1,510	2 x 7,5	RT+	65 / 64	2 x 13,9	400	265	8000	1"	35	4 x 6	1970 x 920 x 1767	695
SLDKM-S 7,5	0,794	0,720	2 x 3,7	RT+	58 / 58	2 x 7,7	400	240	5000	1"	25	5 x 4	1970 x 920 x 1767	675
SLDKM-S 9,0	-	0,810	2 x 4,5	RT+	- / 59	2 x 10,5	400	240	5500	1"	35	5 x 6	1970 x 920 x 1767	710
SLDKM-S 11,0	1,254	1,040	2 x 5,5	RT+	61 / 60	2 x 10,5	400	240	5500	1"	35	5 x 6	1970 x 920 x 1767	720

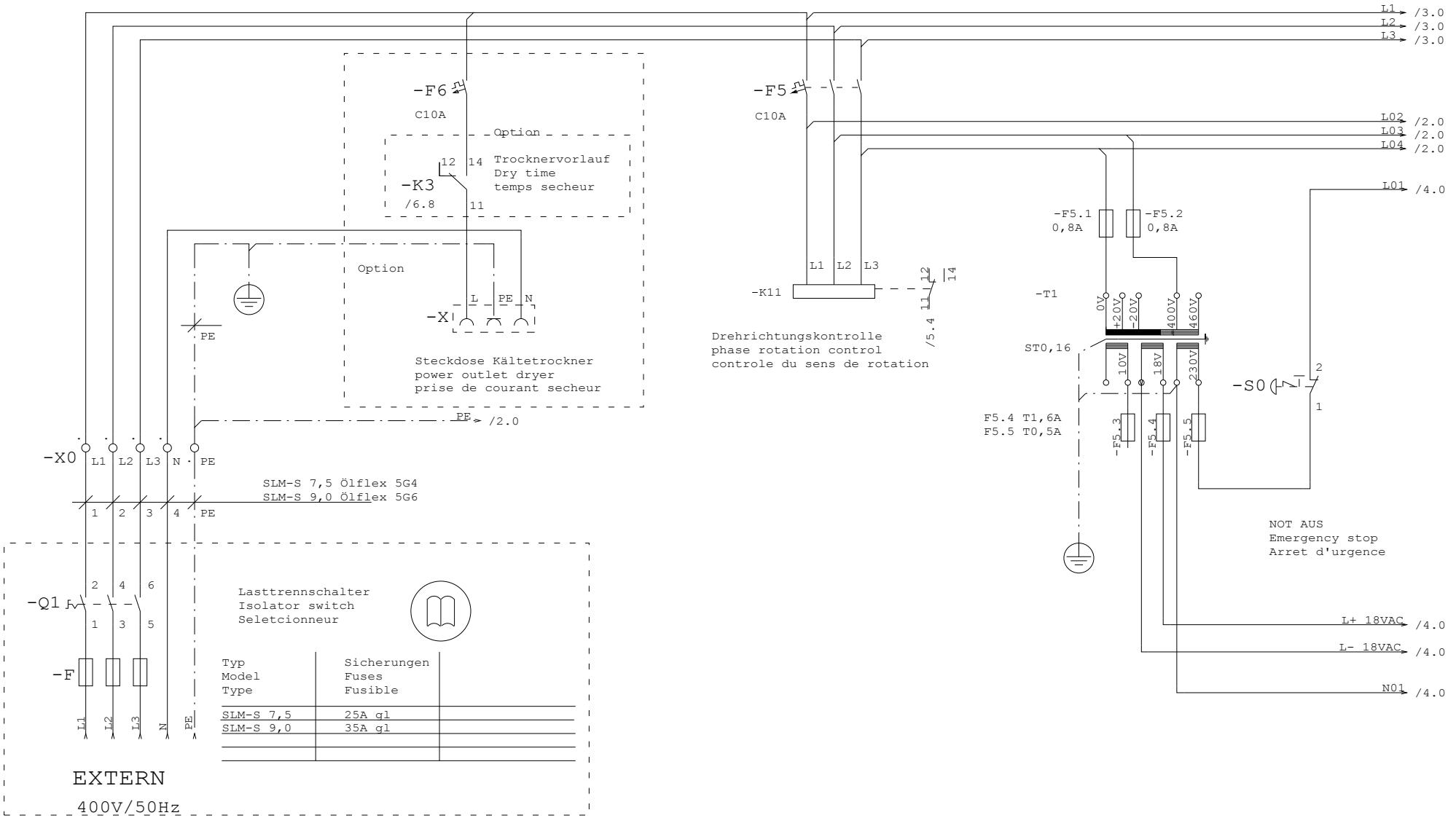
SLKM-S - Compressor with dryer; SLDM-S - Compressor on 500l air receiver; SLDKM-S - Compressor with dryer on 500l air receiver

Appendix St
Wiring Diagrams

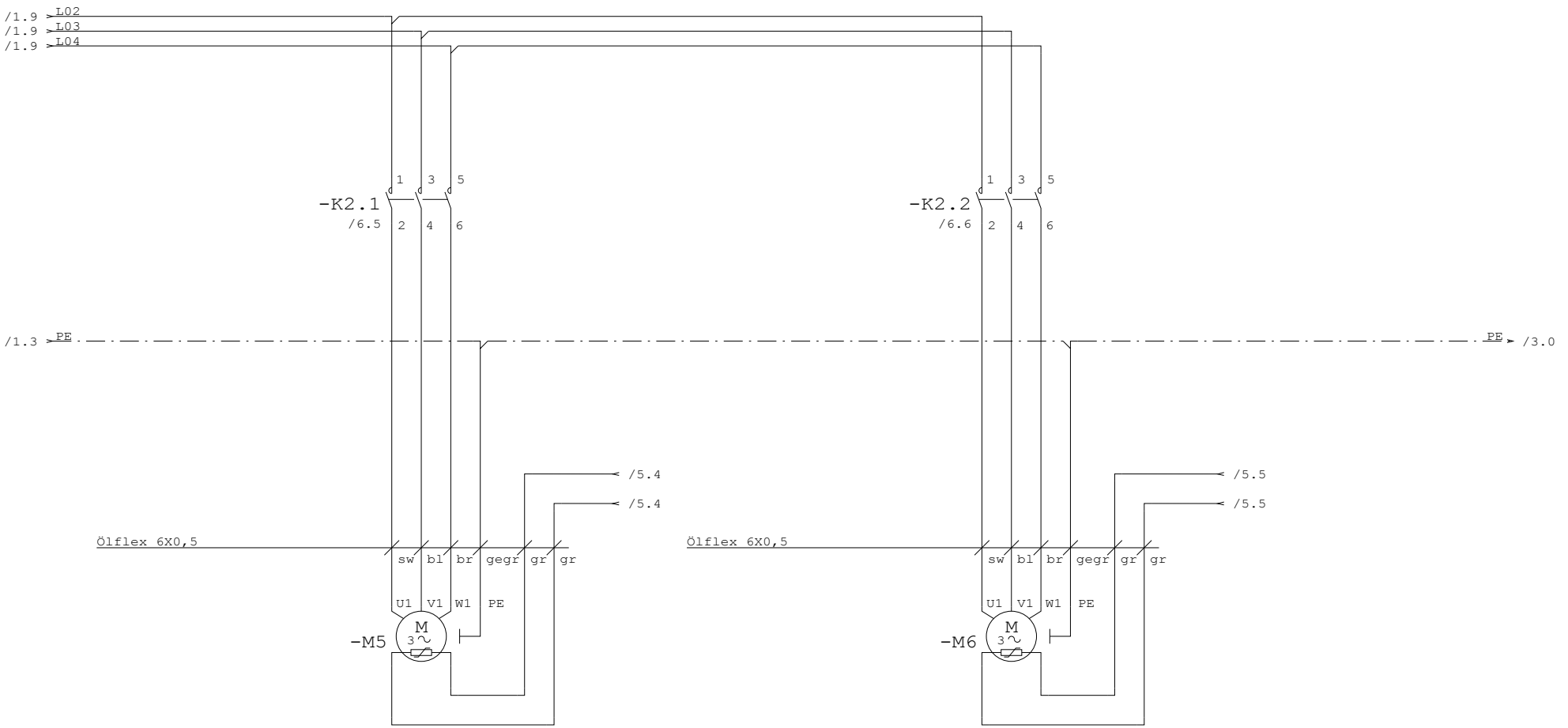
RENNER Scroll Compressors

SLM-S / SLKM-S 7,5 – 15,0 kW
SLM-S / SLKM-S 13,5 – 22,5 kW
SLM-S / SLKM-S 22,0 – 30 kW

Wiring diagrams



				Datum	19.10.12	SLM-S RENNERtronic plus 7,5 - 9,		RENNER GmbH Emil-Weber-Str. 32 D-74363 Güglingen	RENNER Kompressoren	19102012/1	=
				Bearb.	Echle						+
				Gepr.						102012	Blatt 1
Zust.	Änderung	Datum	Name	Norm		Urspr.	Ers. f.	Ers. d.			von 7Bl.



Lüfter K1
Fan K1
Ventilateur K1

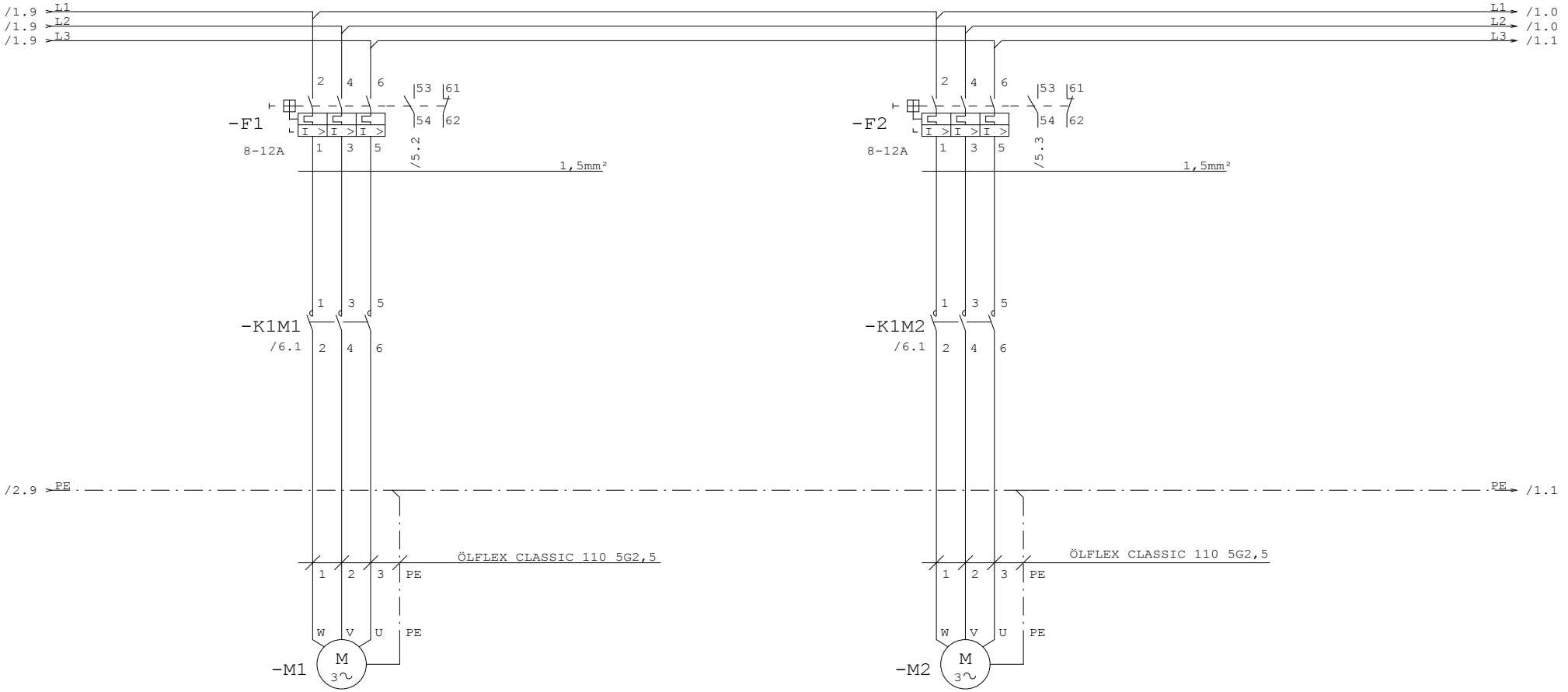
Lüfter K2
Fan K2
Ventilateur K2

				Datum	19.10.12	SLM-S RENNERtronic plus 7,5 - 9,		RENNER GmbH Emil-Weber-Str. 32 D-74363 Güglingen	19102012/1
				Bearb.	Echle				
				Gepr.					102012
Zust.	Änderung	Datum	Name	Norm		Urspr.	Ers. f.	Ers. d.	

RENNER Kompressoren

=
+

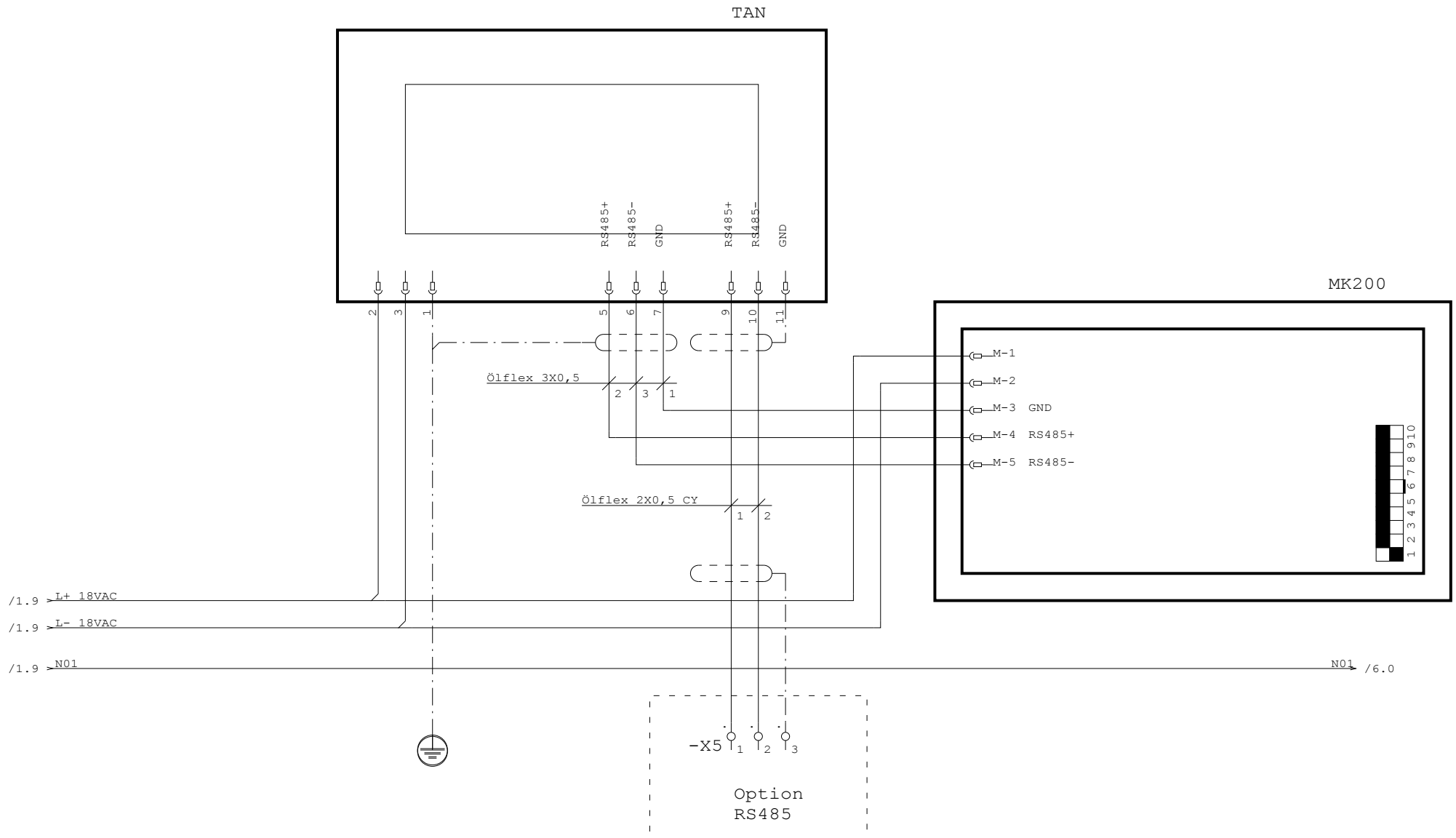
Blatt 2
von 7Bl.



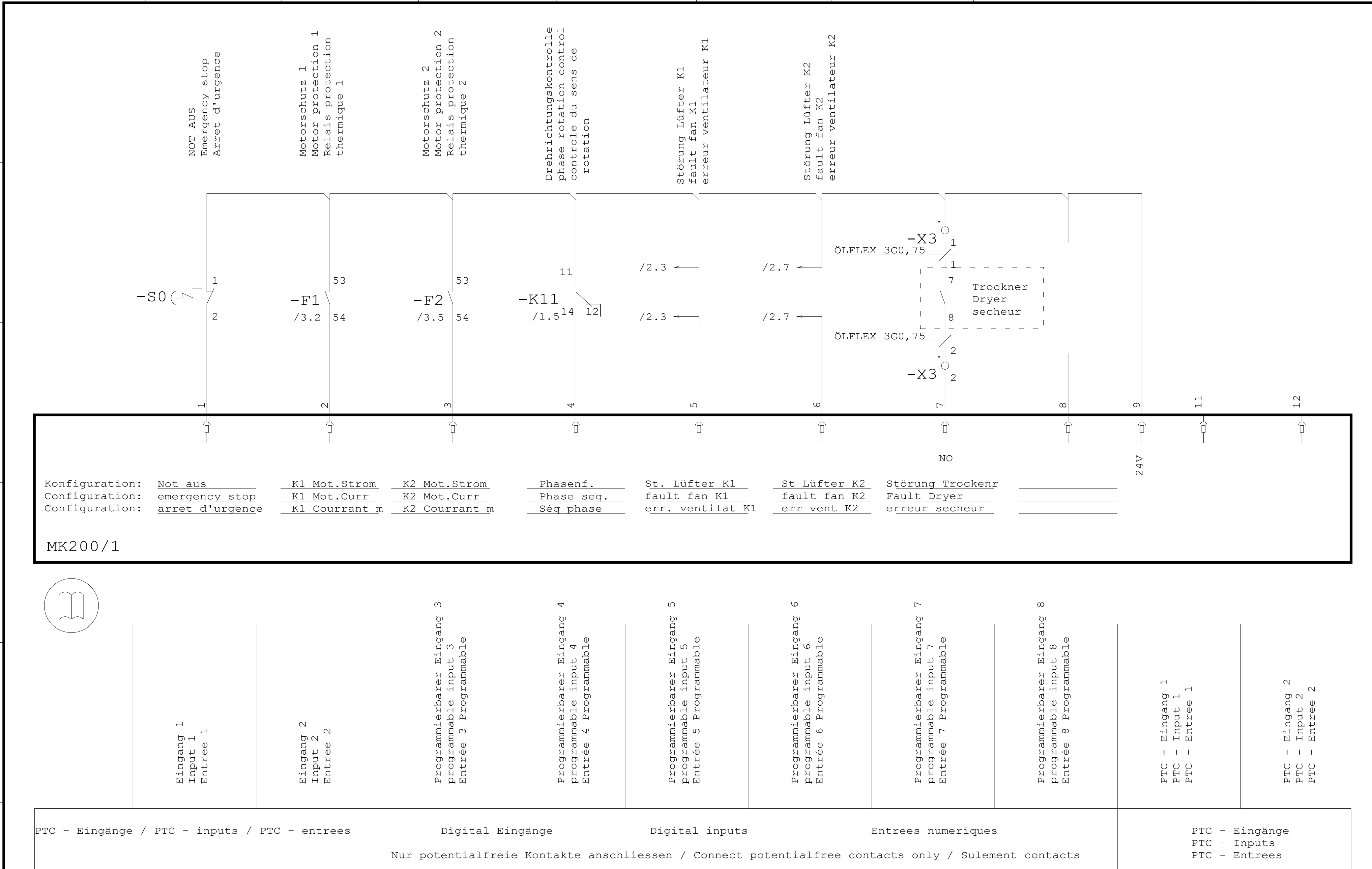
Kompressor - Motor 1
compressor - motor 1
compresseur - moteur 1

Kompressor - Motor 2
compressor - motor 2
compresseur - moteur 2

				Datum	19.10.12	SLM-S RENNERtronic plus 7,5 - 9,		RENNER GmbH Emil-Weber-Str. 32 D-74363 Güglingen	RENNER Kompressoren	19102012/1	=
				Bearb.	Echle						+
				Gepr.						102012	Blatt 3
Zust.	Änderung	Datum	Name	Norm		Urspr.	Ers. f.	Ers. d.			von 7Bl.



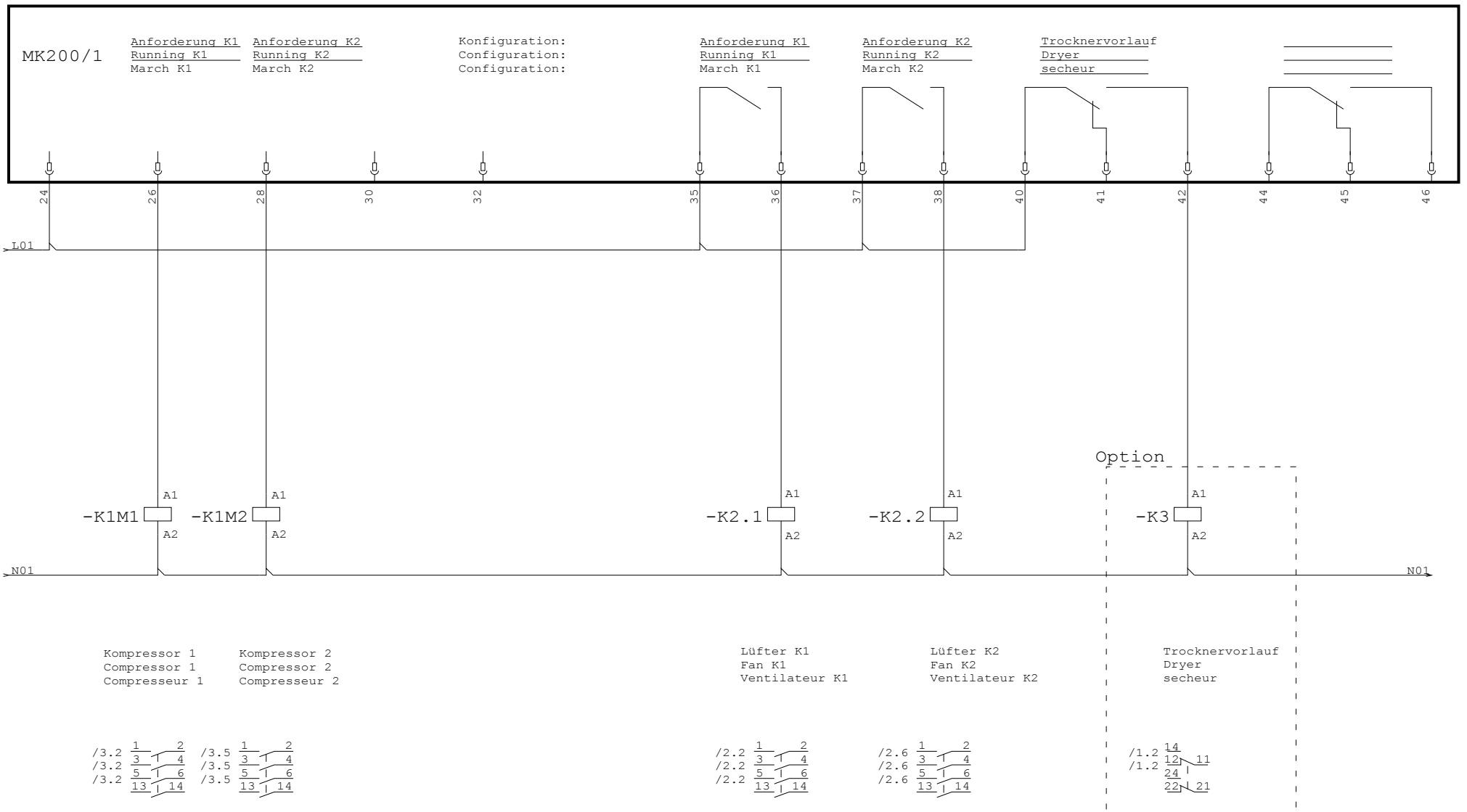
				Datum	19.10.12	SLM-S RENNERtronic plus 7,5 - 9,		RENNER GmbH Emil-Weber-Str. 32 D-74363 Güglingen	RENNER Kompressoren	19102012/1	=
				Bearb.	Echle						+
				Gepr.						102012	Blatt 4
Zust.	Änderung	Datum	Name	Norm		Urspr.	Ers. f.	Ers. d.			von 7Bl.



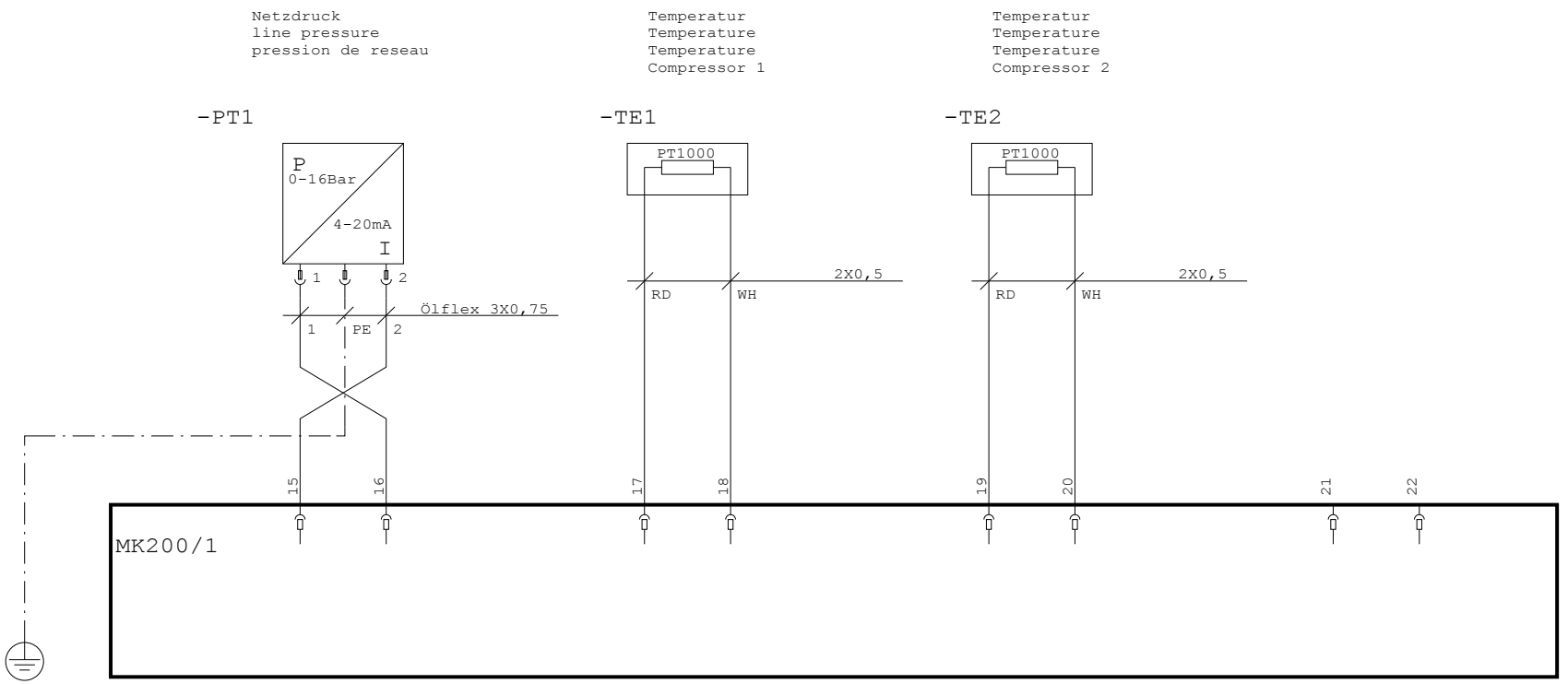
			Datum	19.10.12	SLM-S RENNERtronic plus 7,5 - 9,	RENNER GmbH Emil-Weber-Str. 32 D-74363 Güglingen	19102012/1	=
			Bearb.	Echle				+
			Gepr.				102012	Blatt 5
Zust.	Änderung	Datum	Name	Norm	Urspr. / Ers. f.	Ers. d.		von 7 Bl.

RENNER Kompressoren

Relais Ausgänge / relay outputs / sorties relais max. 2A 230V



				Datum	19.10.12	SLM-S RENNERtronic plus 7,5 - 9,	RENNER GmbH Emil-Weber-Str. 32 D-74363 Güglingen	19102012/1	=
				Bearb.	Echle				+
				Gepr.					Blatt 6
Zust.	Änderung	Datum	Name	Norm		Urspr.	Ers. f.	Ers. d.	102012	von 7Bl.



Analogeingang 1	Analogeingang 2	Analogeingang 3	Analogeingang 4
analoginput 1	analoginput 2	analoginput 3	analoginput 4
entrees analogue 1	entrees analogue 2	entrees analogue 3	entrees analogue 4

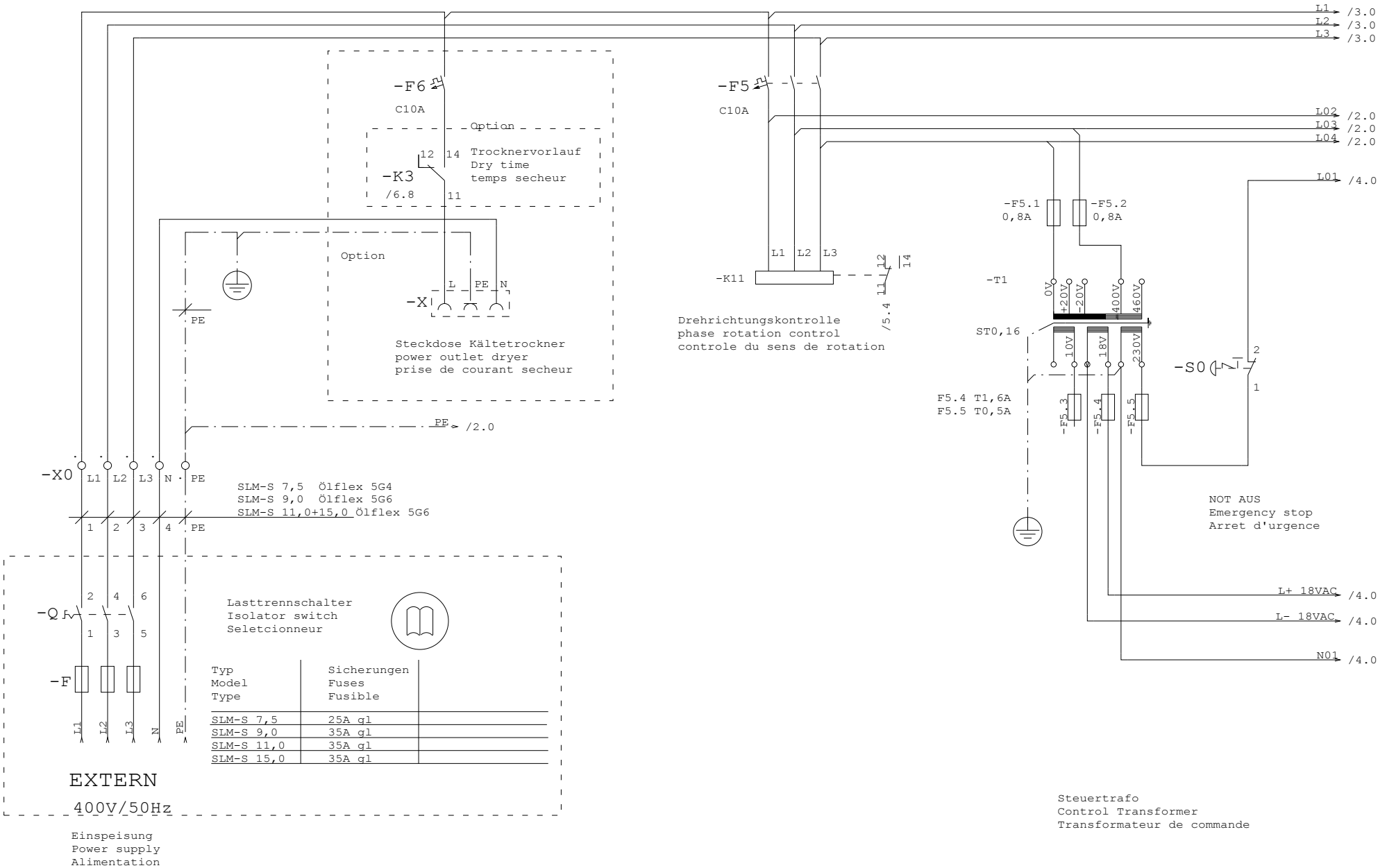
Analogeingänge / analog inputs / entrees analogues

				Datum	19.10.12	SLM-S RENNERtronic plus 7,5 - 9,		RENNER GmbH Emil-Weber-Str. 32 D-74363 Güglingen	19102012/1
				Bearb.	Echle				
				Gepr.					102012
Zust.	Änderung	Datum	Name	Norm		Urspr.	Ers. f.	Ers. d.	

RENNER Kompressoren

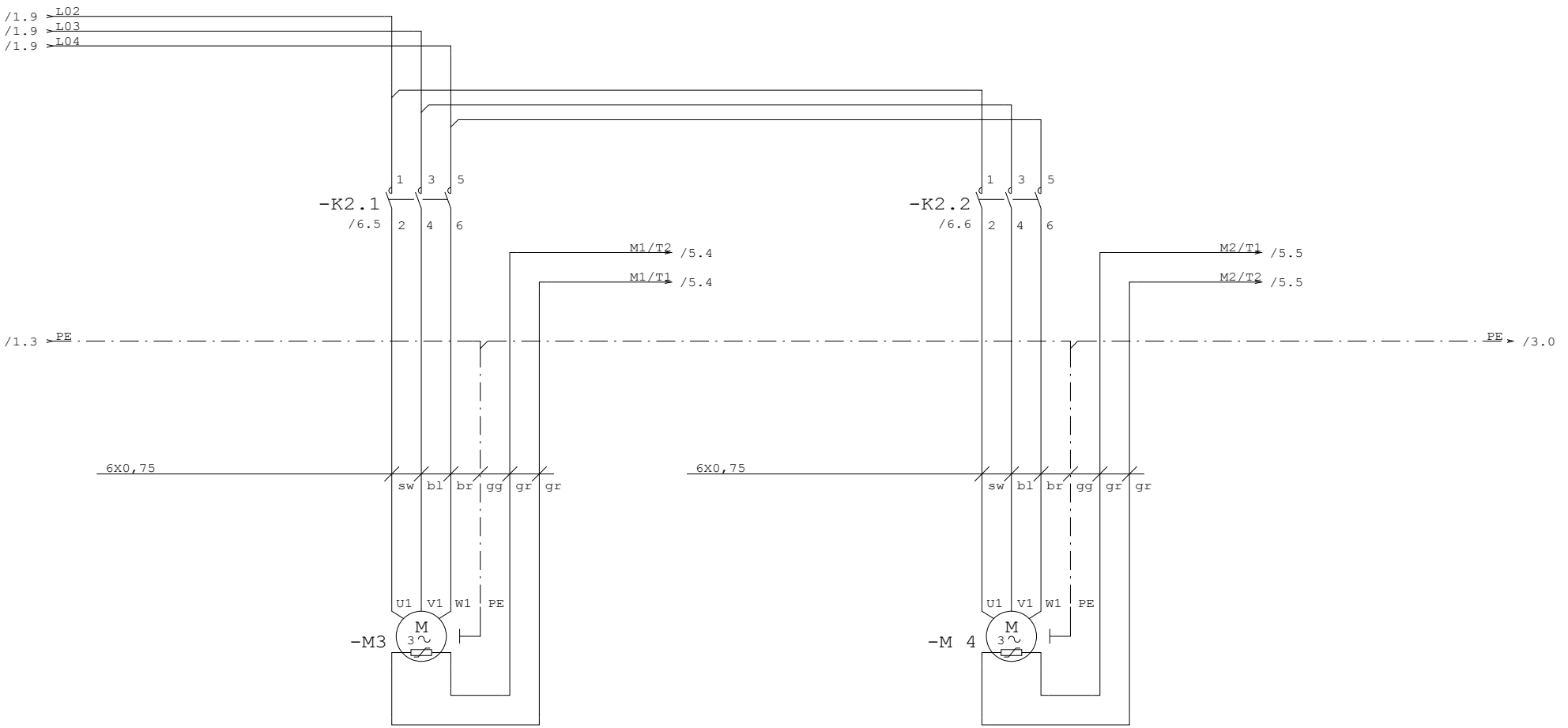
= +

Blatt 7
von 7Bl.



				Datum	24.11.11	SLM-S RENNERtronic plus_7,5 - 11	RENNER GmbH Emil-Weber-Str. 32 D-74363 Güglingen	24112011/1	=
	F5 gL ->C10	09/14	PE	Bearb.	Echle				+
				Gepr.					Blatt 1
Zust.	Änderung	Datum	Name	Norm		Urspr. / Ers. f.	Ers. d.	112011	von 9Bl.

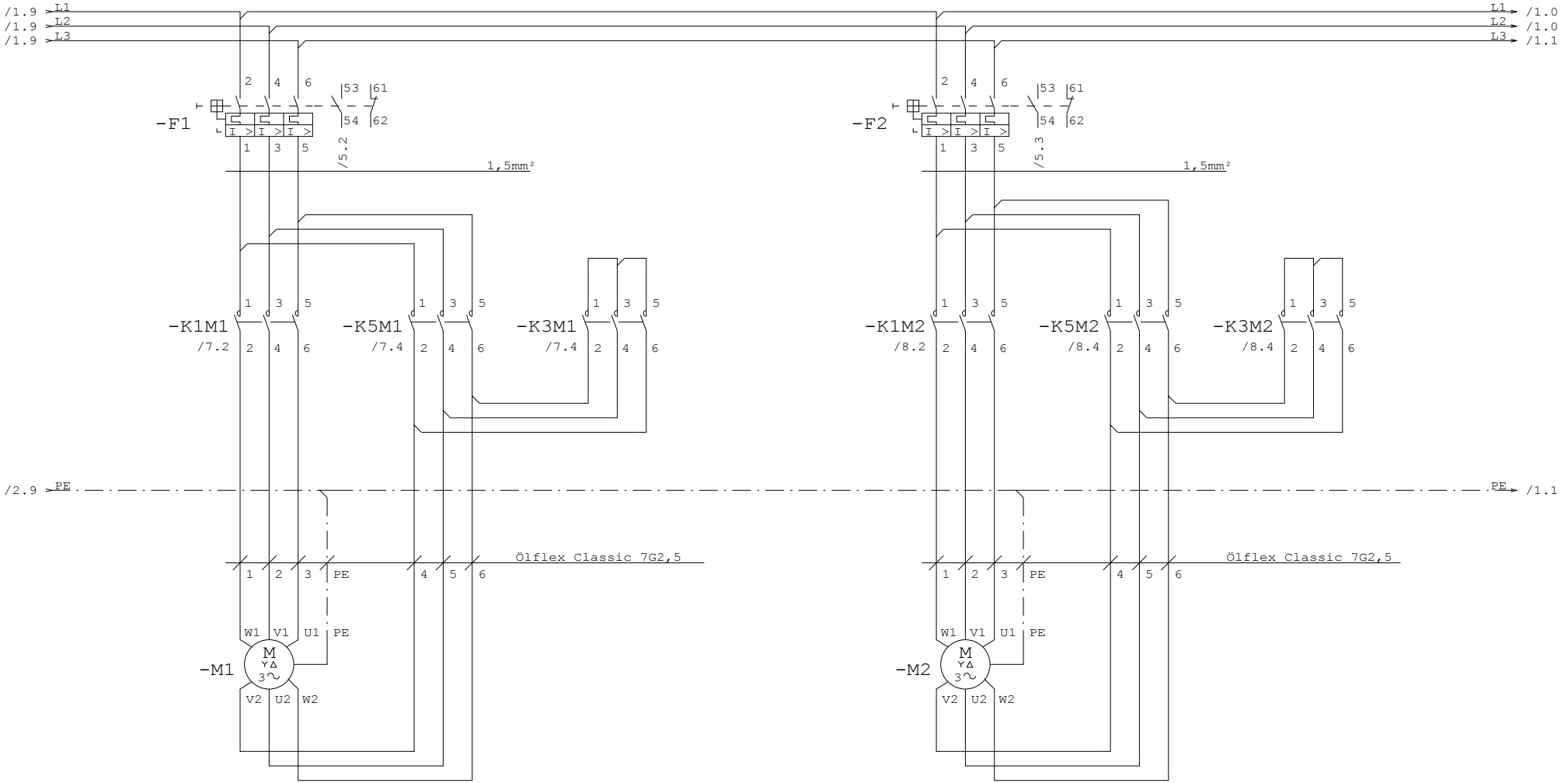
RENNER Kompressoren



Lüfter K1
Fan K1
Ventilateur K1

Lüfter K2
Fan K2
Ventilateur K2

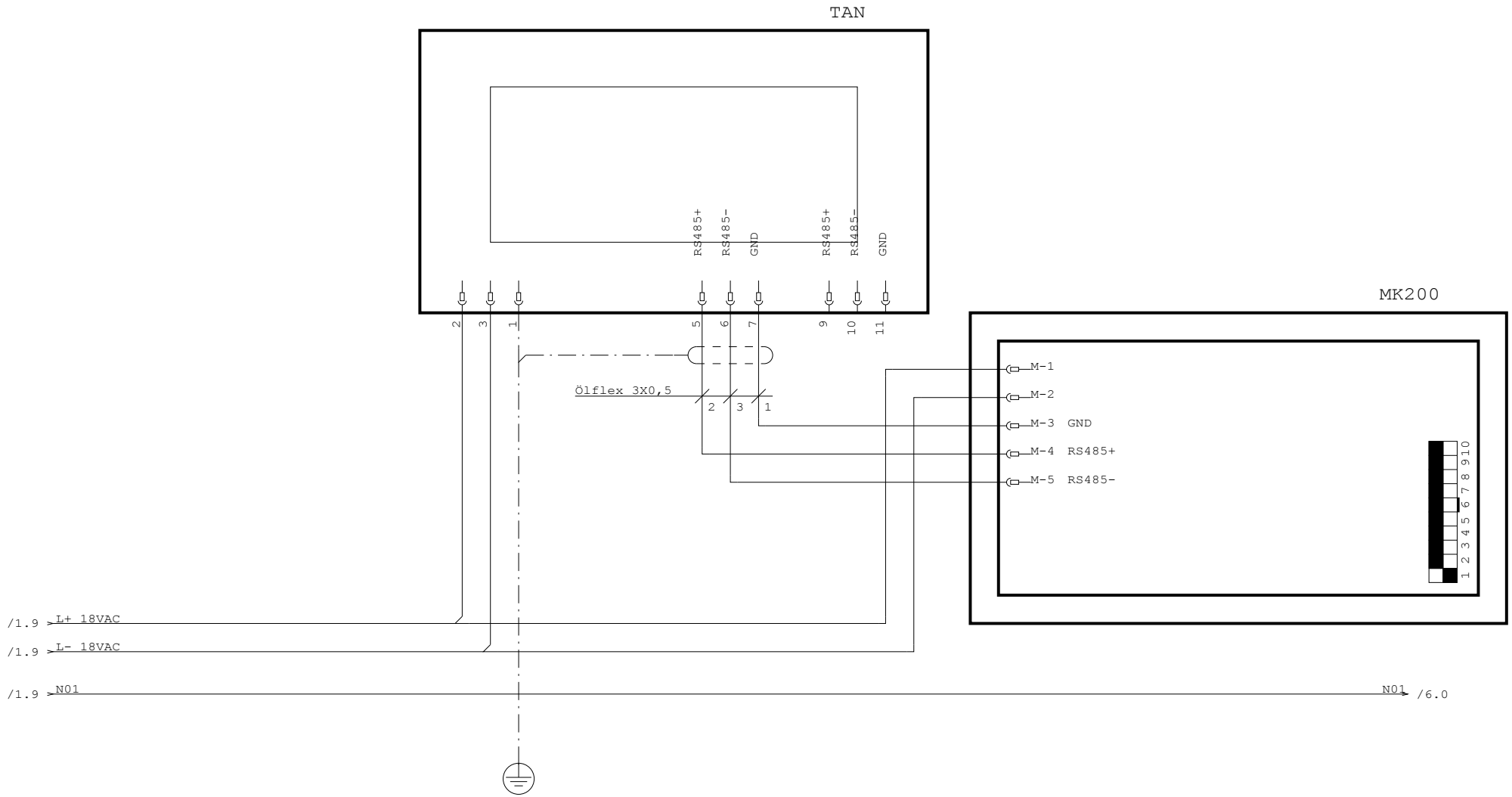
	M3/M4--> PTC	06/14	PE	Datum	24.11.11	SLM-S RENNERtronic plus_7,5 - 11	RENNER GmbH Emil-Weber-Str. 32 D-74363 Güglingen	RENNER Kompressoren	24112011/1	=
				Bearb.	Echle					+
				Gepr.					112011	Blatt 2
Zust.	Änderung	Datum	Name	Norm		Urspr.	Ers. f.	Ers. d.		von 9Bl.



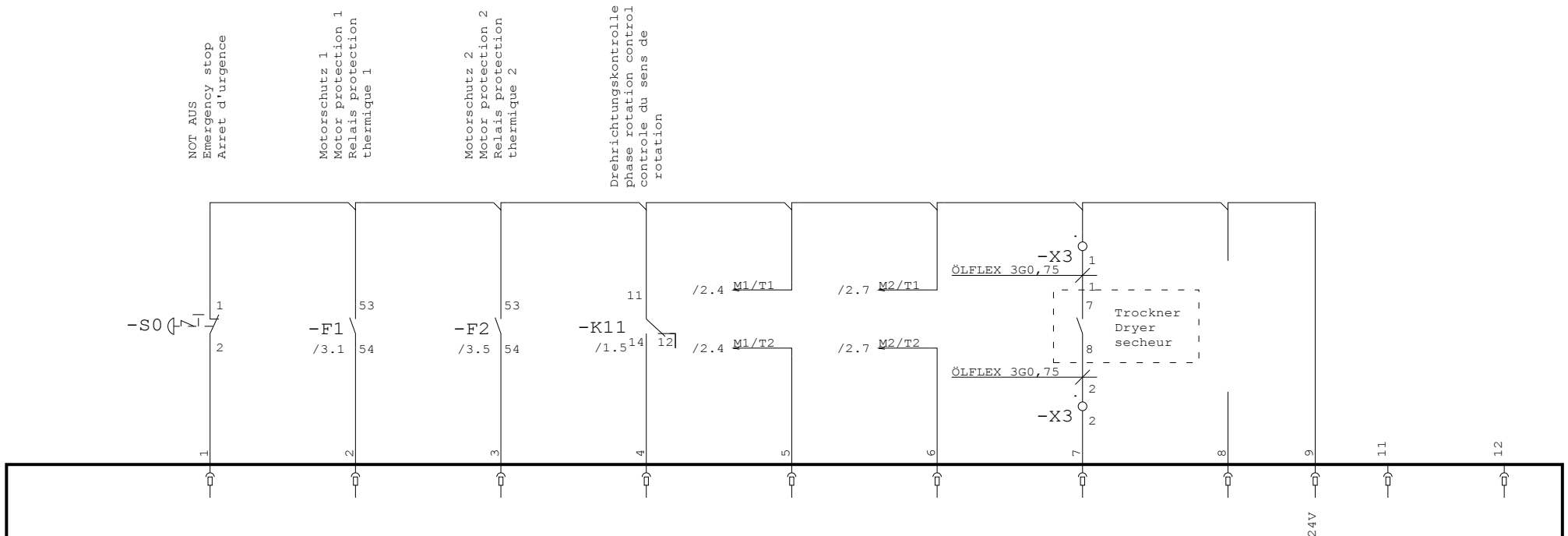
Kompressor - Motor 1
compressor - motor 1
compresseur - moteur 1

Kompressor - Motor 2
compressor - motor 2
compresseur - moteur 2

				Datum	24.11.11	SLM-S RENNERtronic plus_7,5 - 11		RENNER GmbH Emil-Weber-Str. 32 D-74363 Güglingen	RENNER Kompressoren	24112011/1	=
				Bearb.	Echle						+
				Gepr.							Blatt 3
Zust.	Änderung	Datum	Name	Norm		Urspr.	Ers. f.	Ers. d.		112011	von 9Bl.



				Datum	24.11.11	SLM-S RENNERtronic plus_7,5 - 11		RENNER GmbH Emil-Weber-Str. 32 D-74363 Güglingen	RENNER Kompressoren	24112011/1	=
				Bearb.	Echle						+
				Gepr.						112011	Blatt 4
Zust.	Änderung	Datum	Name	Norm		Urspr.	Ers. f.	Ers. d.			von 9Bl.



Konfiguration:	Not aus	K1 Mot.Strom	K2 Mot.Strom	Phasenf.	Stö. Lüfter K1	Stö. Lüfter K2	Störung Trockenr
Configuration:	emergency stop	K1 Mot.Curr	K2 Mot.Curr	Phase seq.	Fault Fan K1	Fault Fan K2	Fault Dryer
Configuration:	arret d'urgence	K1 Courrant m	K2 Courrant m	Séq phase	Err. ventilat K1	Err. ventilat K2	erreur secheur

MK200/1

Eingang 1 / Input 1 / Entree 1

Eingang 2 / Input 2 / Entree 2

Programmierbarer Eingang 3 / programmable input 3 / Entrée 3 Programmable

Programmierbarer Eingang 4 / programmable input 4 / Entrée 4 Programmable

Programmierbarer Eingang 5 / programmable input 5 / Entrée 5 Programmable

Programmierbarer Eingang 6 / programmable input 6 / Entrée 6 Programmable

Programmierbarer Eingang 7 / programmable input 7 / Entrée 7 Programmable

Programmierbarer Eingang 8 / programmable input 8 / Entrée 8 Programmable

PTC - Eingang 1 / PTC - Input 1 / PTC - Entree 1

PTC - Eingang 2 / PTC - Input 2 / PTC - Entree 2

PTC - Eingänge / PTC - inputs / PTC - entrees

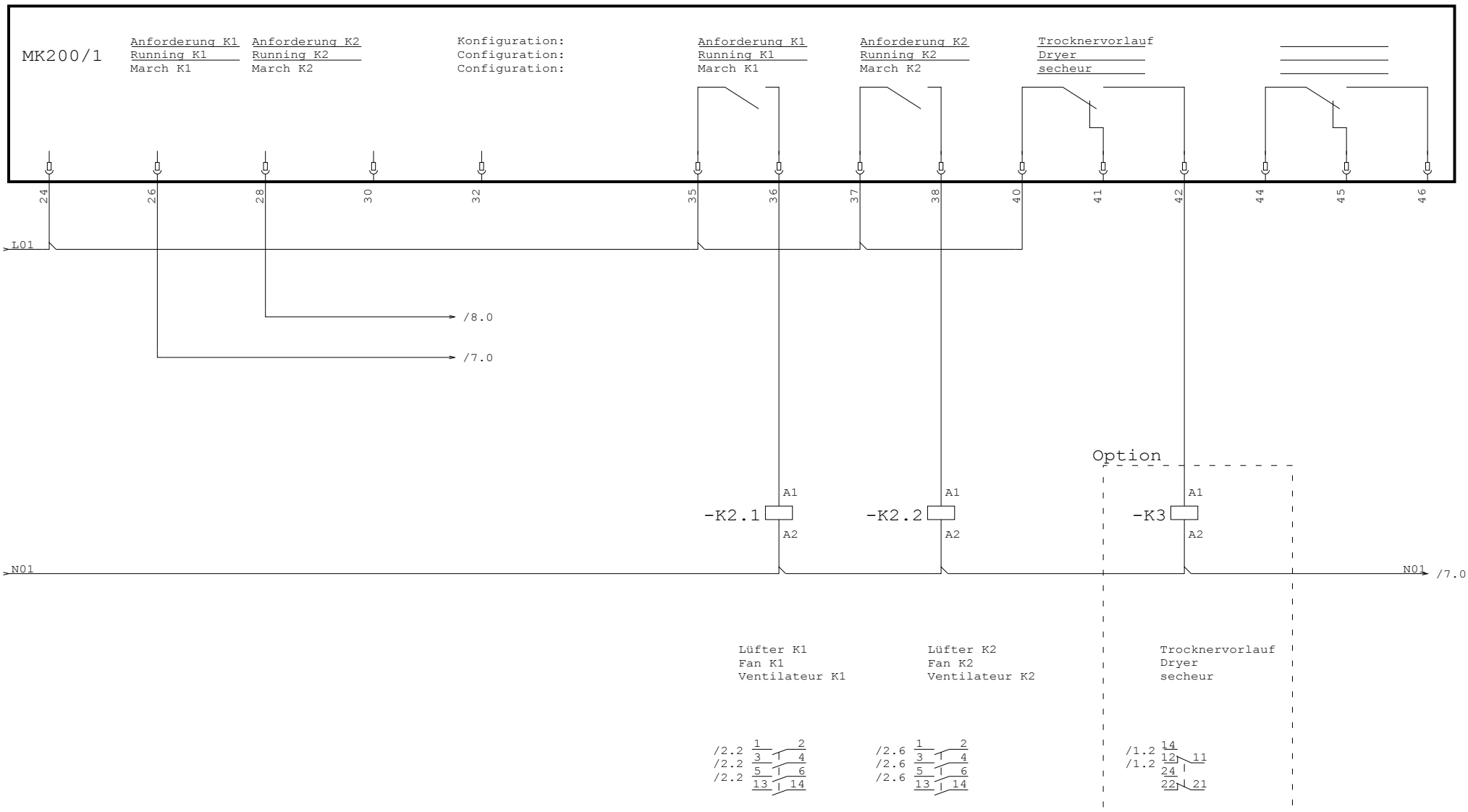
Digital Eingänge — Digital inputs — Entrees numeriques

Nur potentialfreie Kontakte anschliessen / Connect potentialfree contacts only / Sulement contacts

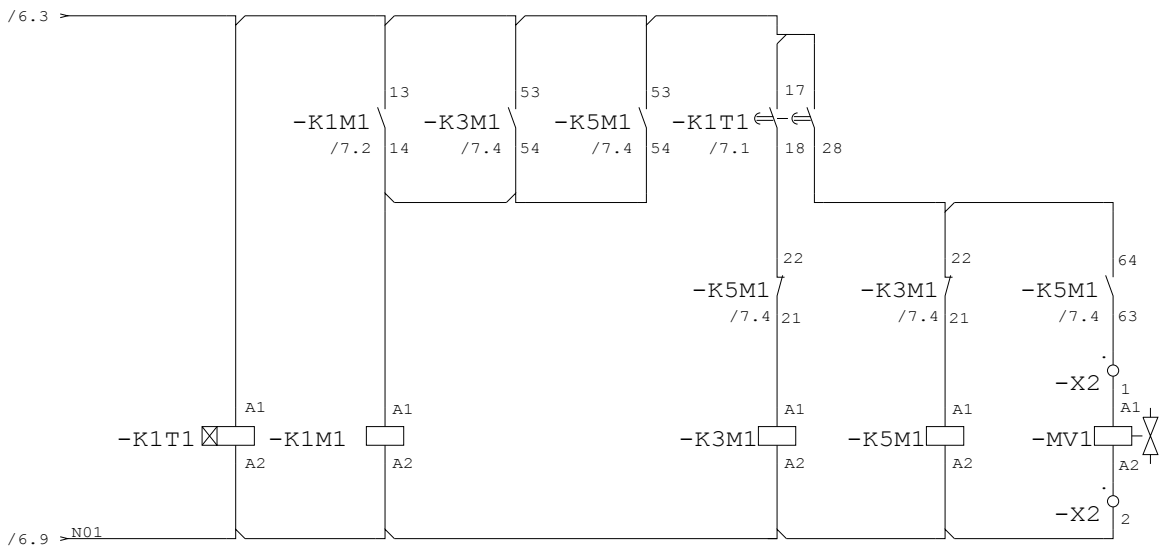
PTC - Eingänge / PTC - Inputs / PTC - Entrees

				Datum	24.11.11	SLM-S RENNERtronic plus_7,5 - 11	RENNER GmbH Emil-Weber-Str. 32 D-74363 Güglingen	24112011/1	=
	Eing 5+6	06/14	PE	Bearb.	Echle				+
				Gepr.					Blatt 5
Zust.	Änderung	Datum	Name	Norm		Urspr.	Ers. f.	Ers. d.	112011 von 9Bl.

Relais Ausgänge / relay outputs / sorties relais max. 2A 230V



				Datum	24.11.11	SLM-S RENNERtronic plus_7,5 - 11	RENNER GmbH Emil-Weber-Str. 32 D-74363 Güglingen	RENNER Kompressoren	24112011/1	=
				Bearb.	Echle					+
				Gepr.						Blatt 6
Zust.	Änderung	Datum	Name	Norm		Urspr.	Ers. f.	Ers. d.	112011	von 9Bl.



Y/D-Relais
Y/D-relay
Y/D-Relais

Netzschütz
Main contactor
contacteur de reseau

Sternschütz
Star contactor
Contacteur étoile

Dreieckschütz
Delta contactor
Contacteur triangle

Magnetventil
Solenoid valve
Electrovanne

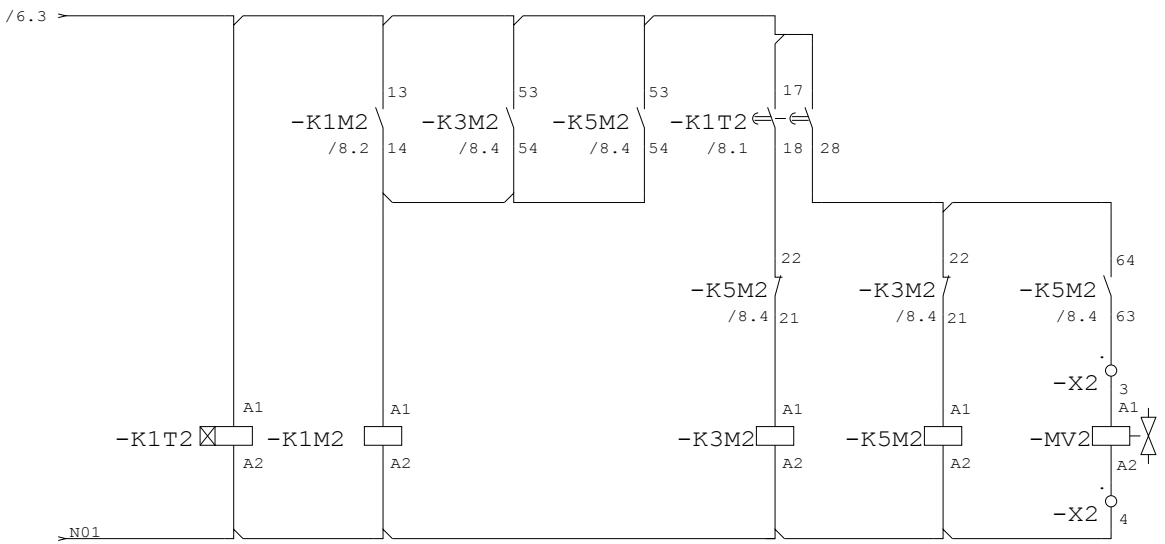
/7.4 17 18 / 17 28

/3.1 1 2 / 3 4 / 5 6 / 13 14
/7.2

/3.3 1 2 / 3 4 / 5 6 / 21 22 / 53 54 / 63 64
/7.4 /7.2

/3.2 1 2 / 3 4 / 5 6 / 21 22 / 53 54 / 63 64
/7.4 /7.3 /7.5

				Datum	24.11.11	SLM-S RENNERtronic plus_7,5 - 11	RENNER GmbH Emil-Weber-Str. 32 D-74363 Güglingen	24112011/1	=
				Bearb.	Echle				+
				Gepr.				112011	Blatt 7
Zust.	Änderung	Datum	Name	Norm		Urspr. / Ers. f.	Ers. d.		von 9Bl.



Y/D-Relais
Y/D-relay
Y/D-Relais

Netzschütz
Main contactor
contacteur de reseau

Sternschütz
Star contactor
Contacteur étoile

Dreieckschütz
Delta contactor
Contacteur triangle

Magnetventil
Solenoid valve
Electrovanne

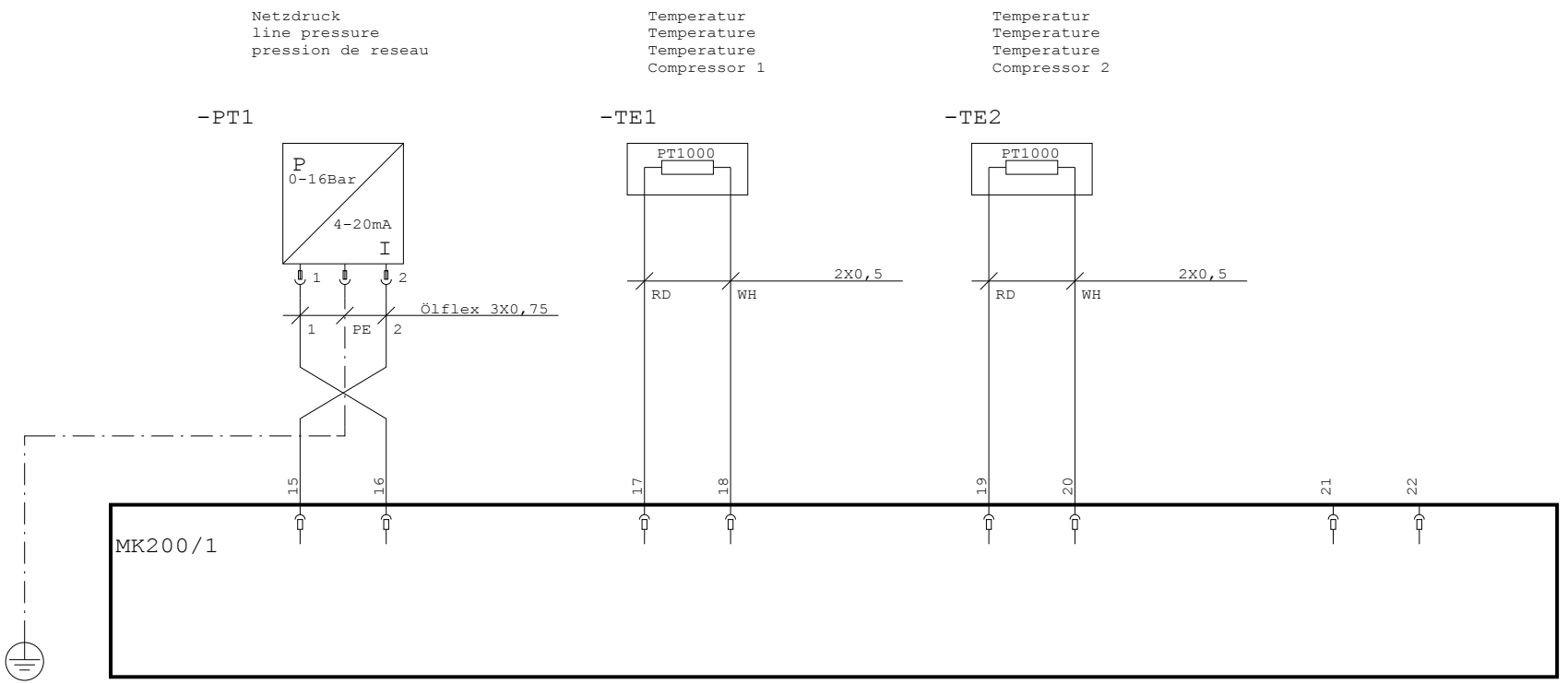
/8.4 17 18 / 17 28

/3.5 1 2
/3.5 3 4
/3.5 5 6
/8.2 13 14

/3.8 1 2
/3.8 3 4
/3.8 5 6
/3.8 21 22
/8.4 53 54
/8.2 63 64

/3.6 1 2
/3.6 3 4
/3.6 5 6
/3.6 21 22
/8.4 53 54
/8.3 63 64
/8.5

				Datum	24.11.11	SLM-S RENNERtronic plus_7,5 - 11	RENNER GmbH Emil-Weber-Str. 32 D-74363 Güglingen	24112011/1	=
				Bearb.	Echle				+
				Gepr.				112011	Blatt 8
Zust.	Änderung	Datum	Name	Norm		Urspr.	Ers. f.	Ers. d.	von 9Bl.



Analogeingang 1
analoginput 1
entrees analogue 1

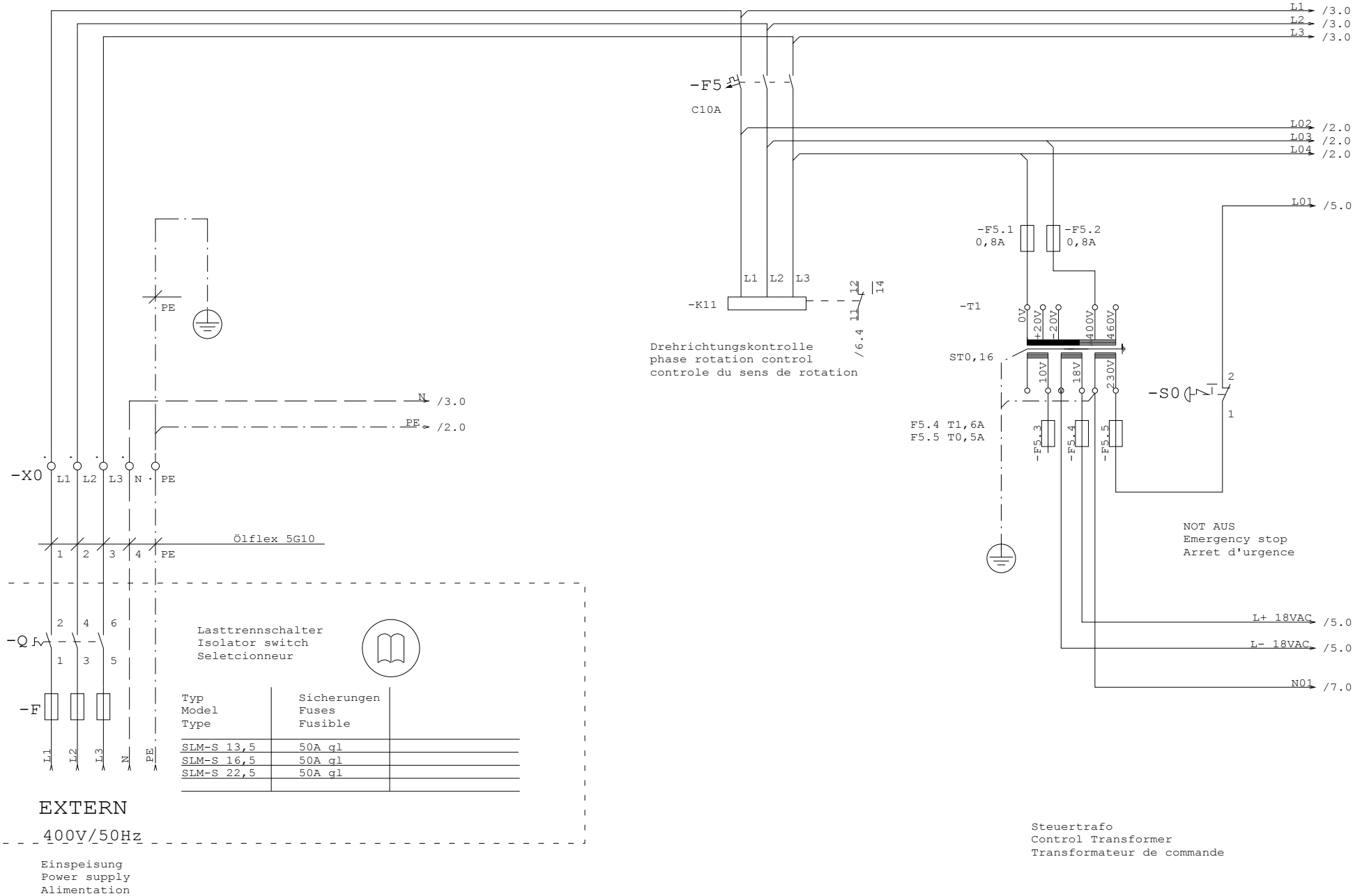
Analogeingang 2
analoginput 2
entrees analogue 2

Analogeingang 3
analoginput 3
entrees analogue 3

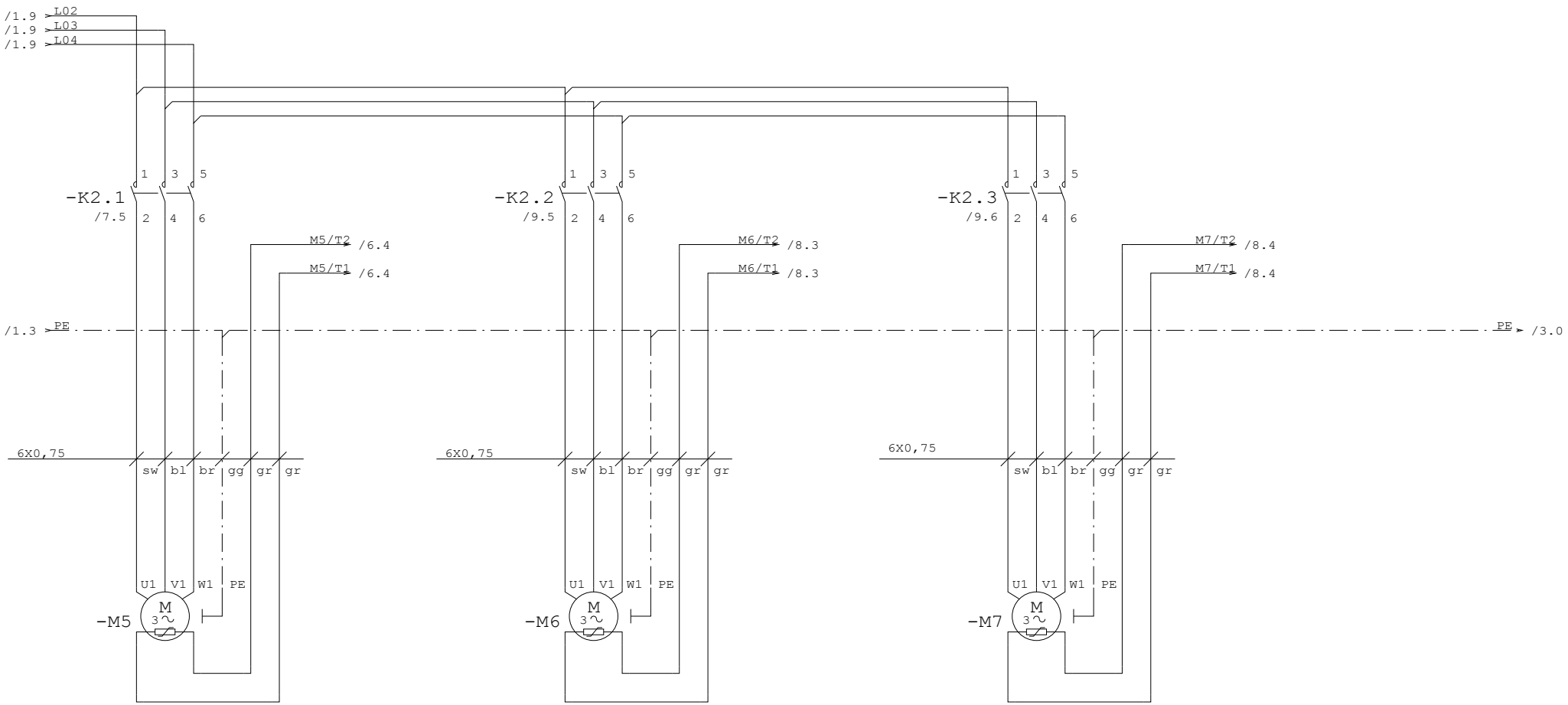
Analogeingang 4
analoginput 4
entrees analogue 4

Analogeingänge / analog inputs / entrees analogues

				Datum	24.11.11	SLM-S RENNERtronic plus_7,5 - 11	RENNER GmbH Emil-Weber-Str. 32 D-74363 Güglingen	RENNER Kompressoren	24112011/1 = +
				Bearb.	Echle				
				Gepr.					Blatt 9
Zust.	Änderung	Datum	Name	Norm		Urspr.	Ers. f.	Ers. d.	112011 von 9Bl.



	F5 gL->C10	09/14	PE	Datum	05.09.14	SLM-S RENNERtronic plus 16,5		RENNER GmbH Emil-Weber-Str. 32 D-74363 Güglingen	05092014	=
				Bearb.	Echle					+
				Gepr.						Blatt 1
Zust.	Änderung	Datum	Name	Norm		Urspr.	Ers. f.	Ers. d.	092014	von 14Bl.



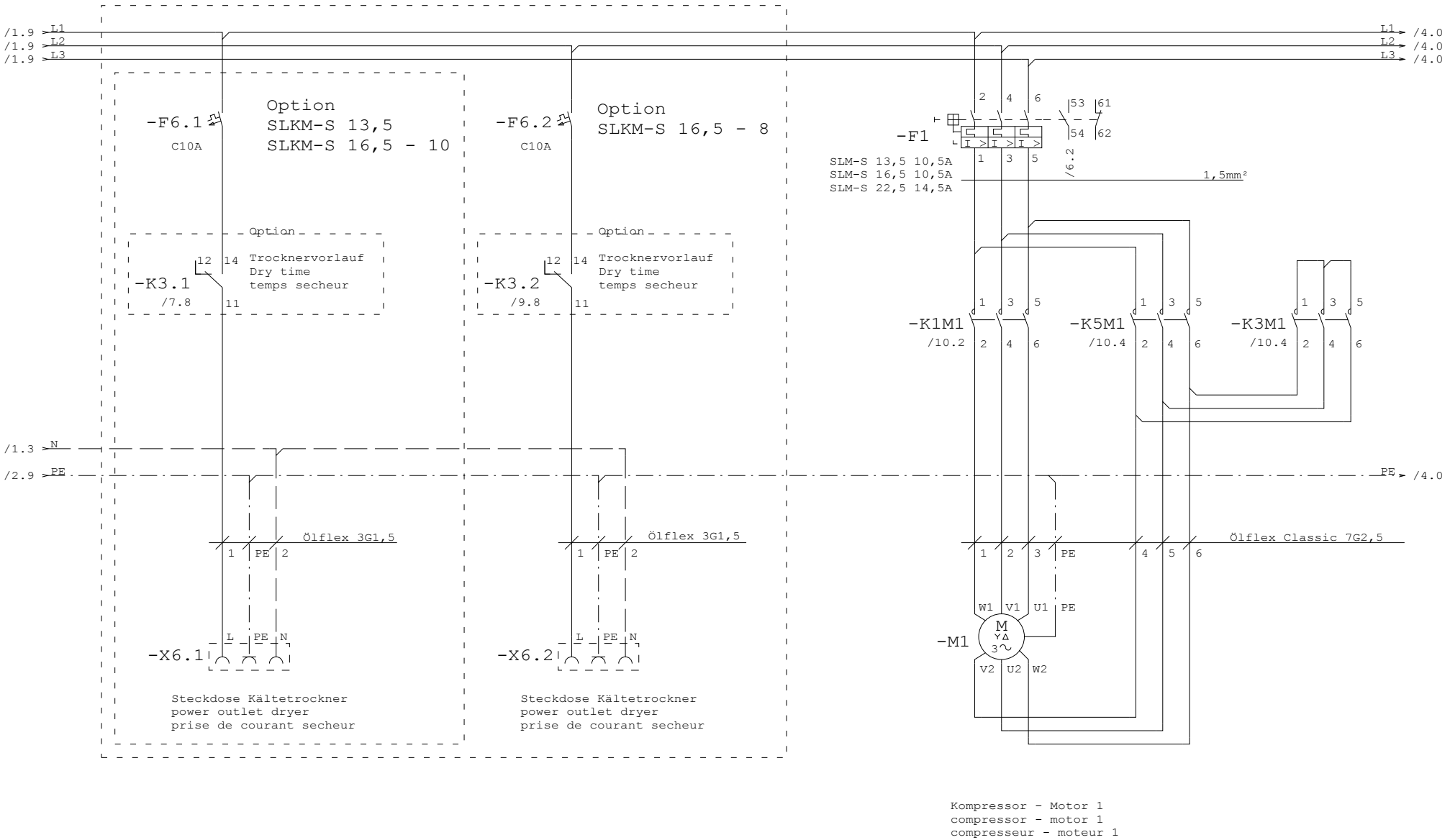
Lüfter K1
Fan K1
Ventilateur K1

Lüfter K2
Fan K2
Ventilateur K2

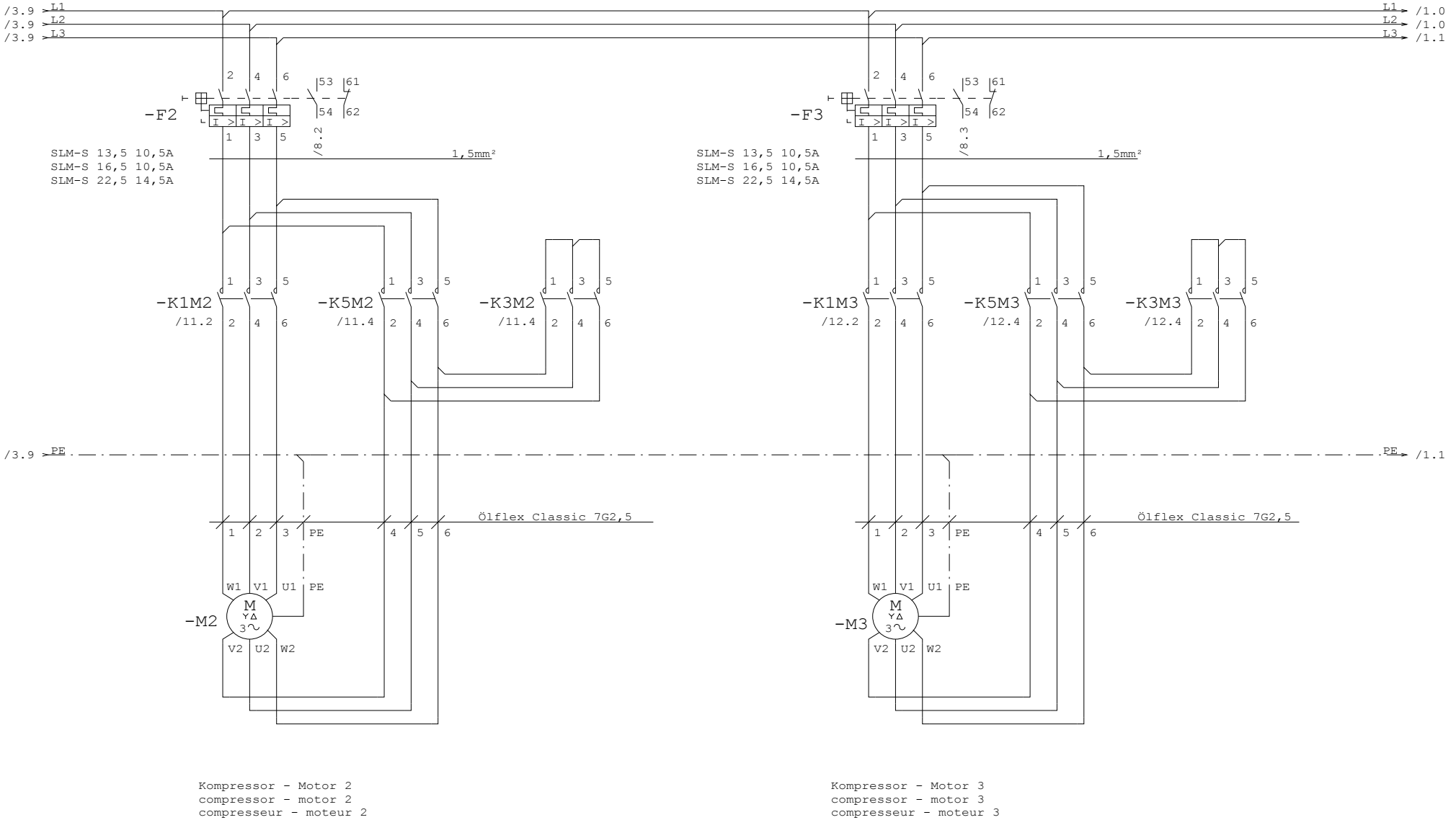
Lüfter K3
Fan K3
Ventilateur K3

				Datum	05.09.14	SLM-S RENNERtronic plus 16,5	RENNER GmbH Emil-Weber-Str. 32 D-74363 Güglingen	05092014	=
				Bearb.	Echle				+
				Gepr.				092014	Blatt 2
Zust.	Änderung	Datum	Name	Norm		Urspr. / Ers. f.	Ers. d.		von 14Bl.

RENNER Kompressoren



				Datum	05.09.14	SLM-S RENNERtronic plus 16,5		RENNER GmbH Emil-Weber-Str. 32 D-74363 Güglingen	RENNER Kompressoren	05092014	=
				Bearb.	Echle						+
				Gepr.						092014	Blatt 3
Zust.	Änderung	Datum	Name	Norm		Urspr.	Ers. f.	Ers. d.			von 14Bl.

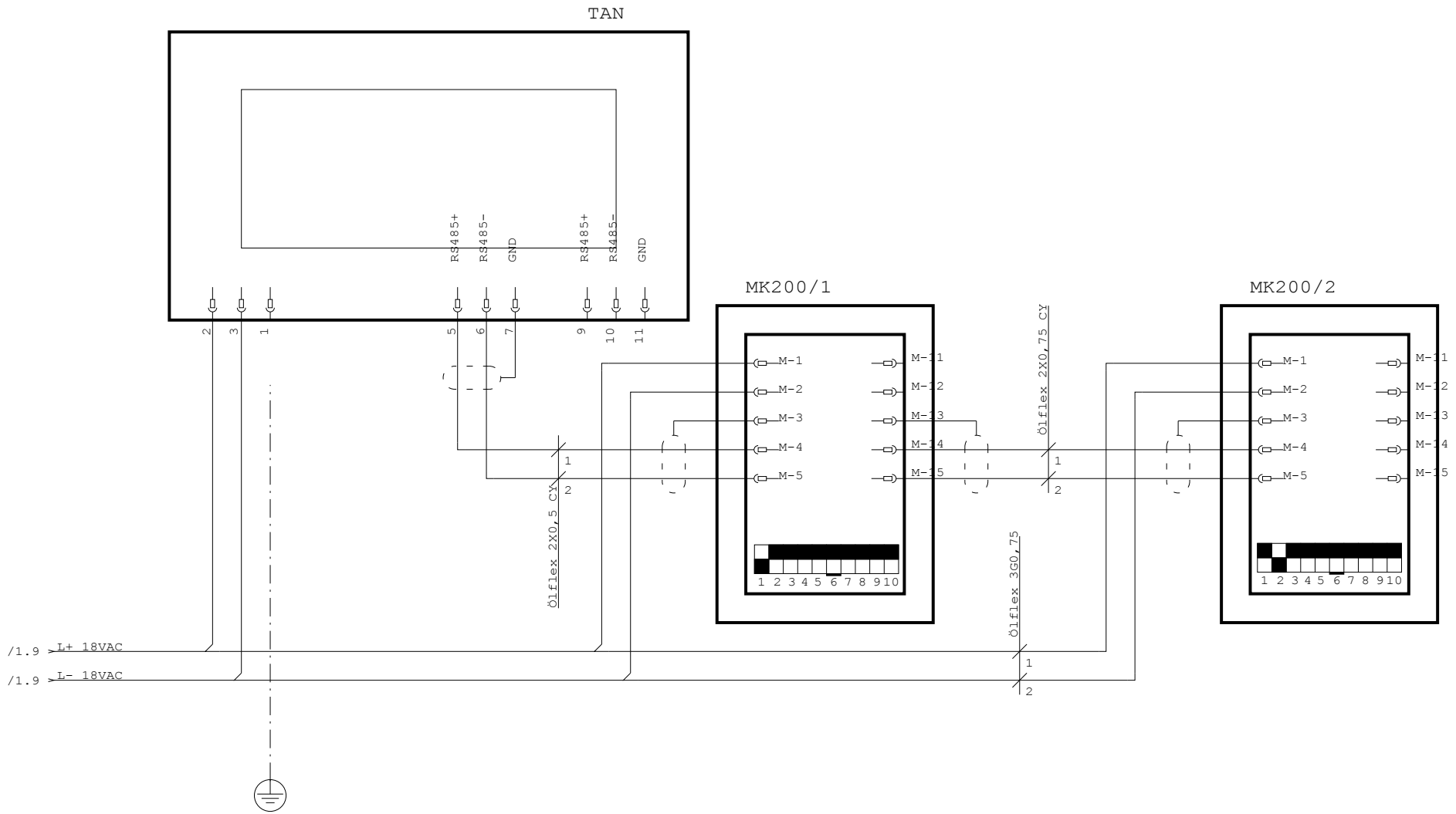


Kompressor - Motor 2
compressor - motor 2
compresseur - moteur 2

Kompressor - Motor 3
compressor - motor 3
compresseur - moteur 3

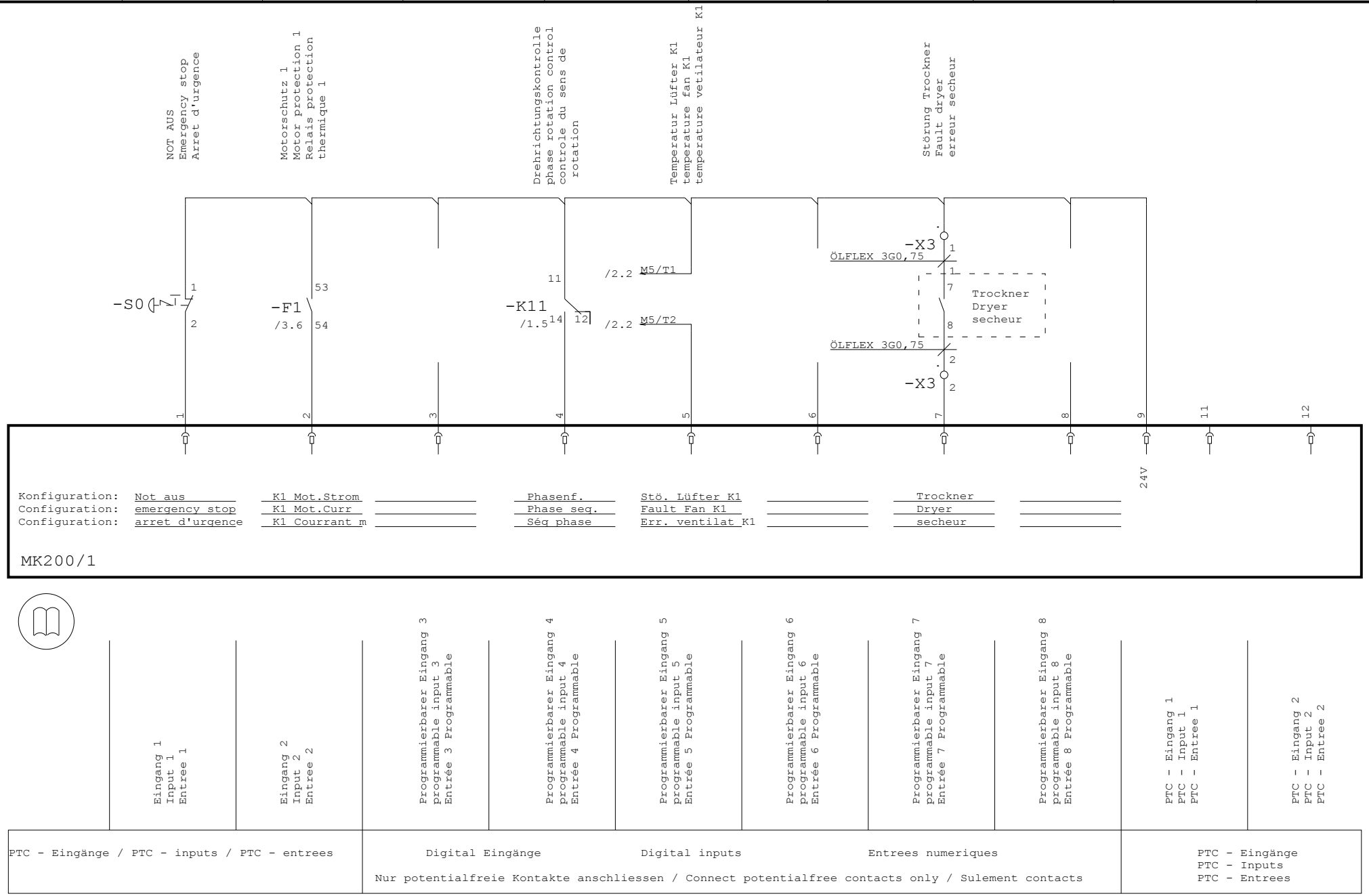
				Datum	05.09.14	SLM-S RENNERtronic plus 16,5	RENNER GmbH Emil-Weber-Str. 32 D-74363 Güglingen	05092014	=
				Bearb.	Echle				+
				Gepr.					Blatt 4
Zust.	Änderung	Datum	Name	Norm		Urspr. / Ers. f.	Ers. d.	092014	von 14Bl.

RENNER Kompressoren



				Datum	05.09.14	SLM-S RENNERtronic plus 16,5		RENNER GmbH Emil-Weber-Str. 32 D-74363 Güglingen	05092014	=
				Bearb.	Echle					+
				Gepr.					092014	Blatt 5
Zust.	Änderung	Datum	Name	Norm		Urspr.	Ers. f.	Ers. d.		von 14Bl.

RENNER Kompressoren



				Datum	05.09.14	SLM-S RENNERtronic plus 16,5	RENNER GmbH Emil-Weber-Str. 32 D-74363 Güglingen	05092014	=
				Bearb.	Echle				+
				Gepr.				092014	Blatt 6
Zust.	Änderung	Datum	Name	Norm		Urspr.	Ers. f.	Ers. d.	von 14Bl.

RENNER Kompressoren

Relais Ausgänge / relay outputs / sorties relais max. 2A 230V

MK200/1

Anforderung K1 _____
Running K1 _____
March K1 _____

Konfiguration: _____
Configuration: _____
Configuration: _____

Anforderung K1 _____
Running K1 _____
March K1 _____

_____

Trocknervorlauf
Dry time
temps secheur

_____

24 26 28 30 32 35 36 37 38 40 41 42 44 45 46

/5.9 L01

Option
SLKM-S 13,5
SLKM-S 16,5 - 10

A1 -K2.1 A2

A1 -K3.1 A2

/1.9 N01 N01 /9.0

Lüfter K1
Fan K1
Ventilateur K1

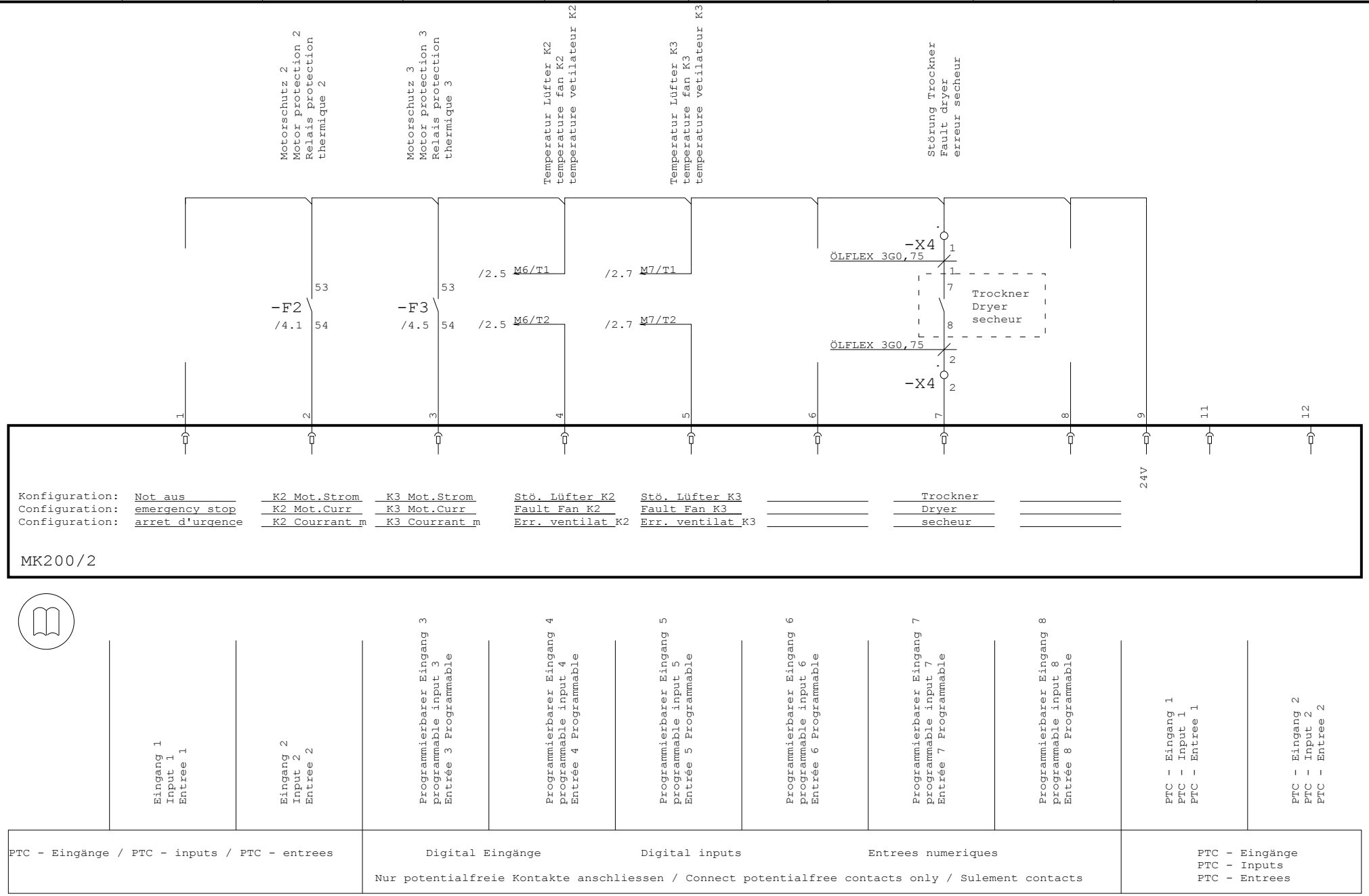
Trocknervorlauf
Dryer
secheur

/2.1 1 2
/2.1 3 4
/2.1 5 6
/2.1 13 14

/3.1 14
/3.1 12 11
24
22 21

				Datum	05.09.14	SLM-S RENNERtronic plus 16,5	RENNER GmbH Emil-Weber-Str. 32 D-74363 Güglingen	05092014	=
				Bearb.	Echle				+
				Gepr.					Blatt 7
Zust.	Änderung	Datum	Name	Norm		Urspr.	Ers. f.	Ers. d.	092014 von 14Bl.

RENNER Kompressoren



				Datum	05.09.14	SLM-S RENNERtronic plus 16,5		RENNER GmbH Emil-Weber-Str. 32 D-74363 Güglingen	RENNER Kompressoren
				Bearb.	Echle				05092014
				Gepr.					092014
Zust.	Änderung	Datum	Name	Norm		Urspr.	Ers. f.	Ers. d.	Blatt 8 von 14Bl.

Relais Ausgänge / relay outputs / sorties relais max. 2A 230V

MK200/2

Anforderung K2 Running K2 March K2	Anforderung K3 Running K3 March K3	Konfiguration: Configuration: Configuration:

Anforderung K2 Running K2 March K2	Anforderung K3 Running K3 March K3	Trocknervorlauf Dry time temps secheur

24 26 28 30 32 35 36 37 38 40 41 42 44 45 46

L01

/11.0

/10.0

Option
SLKM-S 16,5 - 8

-K2.2 A1 A2

-K2.3 A1 A2

-K3.2 A1 A2

/7.9 N01

N01 /10.0

Lüfter K2
Fan K2
Ventilateur K2

/2.3 1 2
/2.3 3 4
/2.3 5 6
/2.3 13 14

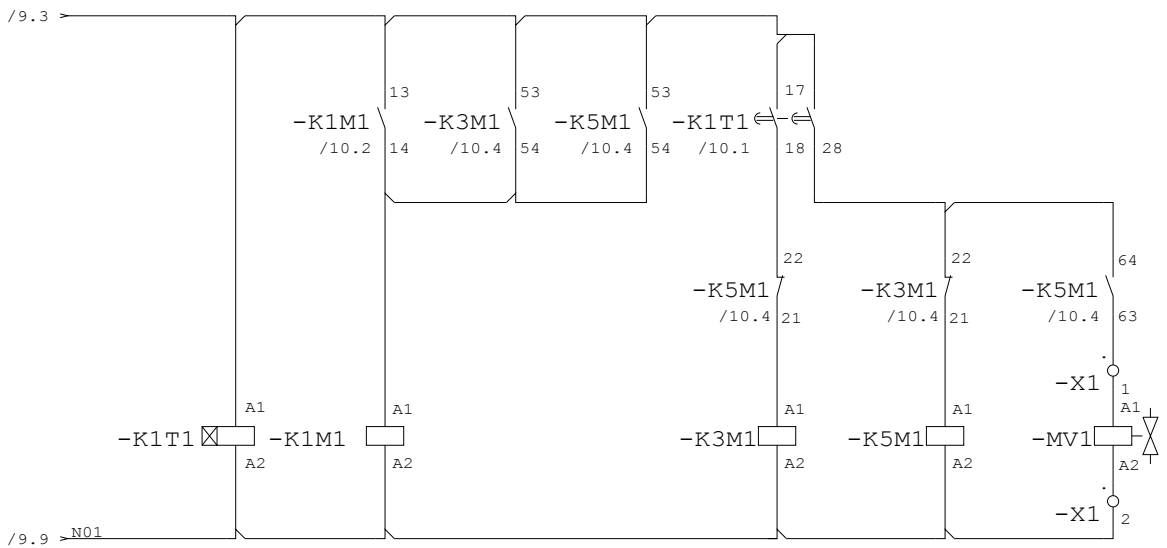
Lüfter K3
Fan K3
Ventilateur K3

/2.6 1 2
/2.6 3 4
/2.6 5 6
/2.6 13 14

Trocknervorlauf
Dryer
secheur

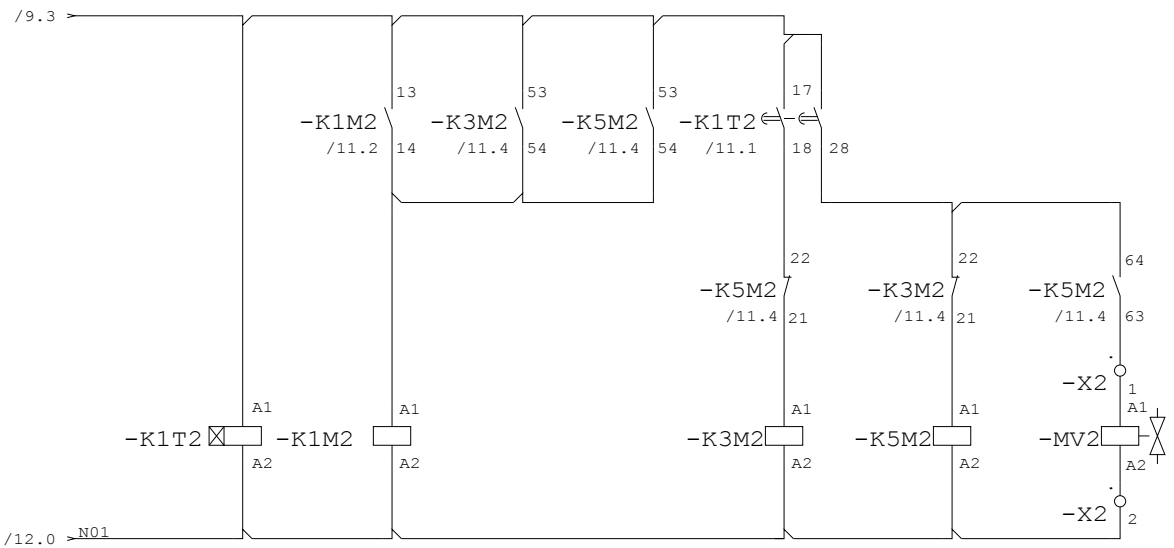
/3.3 14
/3.3 12 11
24
22 21

				Datum	05.09.14	SLM-S RENNERtronic plus 16,5	RENNER GmbH Emil-Weber-Str. 32 D-74363 Güglingen	RENNER Kompressoren	05092014
				Bearb.	Echle				
				Gepr.					092014
Zust.	Änderung	Datum	Name	Norm		Urspr.	Ers. f.	Ers. d.	Blatt 9 von 14Bl.



				Datum	05.09.14	SLM-S RENNERtronic plus 16,5		RENNER GmbH Emil-Weber-Str. 32 D-74363 Güglingen	05092014	=
				Bearb.	Echle					+
				Gepr.					092014	Blatt 10
Zust.	Änderung	Datum	Name	Norm		Urspr.	Ers. f.	Ers. d.		von 14Bl.

RENNER Kompressoren



Y/D-Relais
Y/D-relay
Y/D-Relais

Netzschütz
Main contactor
contacteur de reseau

Sternschütz
Star contactor
Contacteur étoile

Dreieckschütz
Delta contactor
Contacteur triangle

Magnetventil
Solenoid valve
Electrovanne

/11.4 17 18 / 17 28

/4.1 1 2 / 3 4 / 5 6 / 13 14
/11.2

/4.3 1 2 / 3 4 / 5 6 / 21 22 / 53 54 / 63 64
/11.4 /11.2

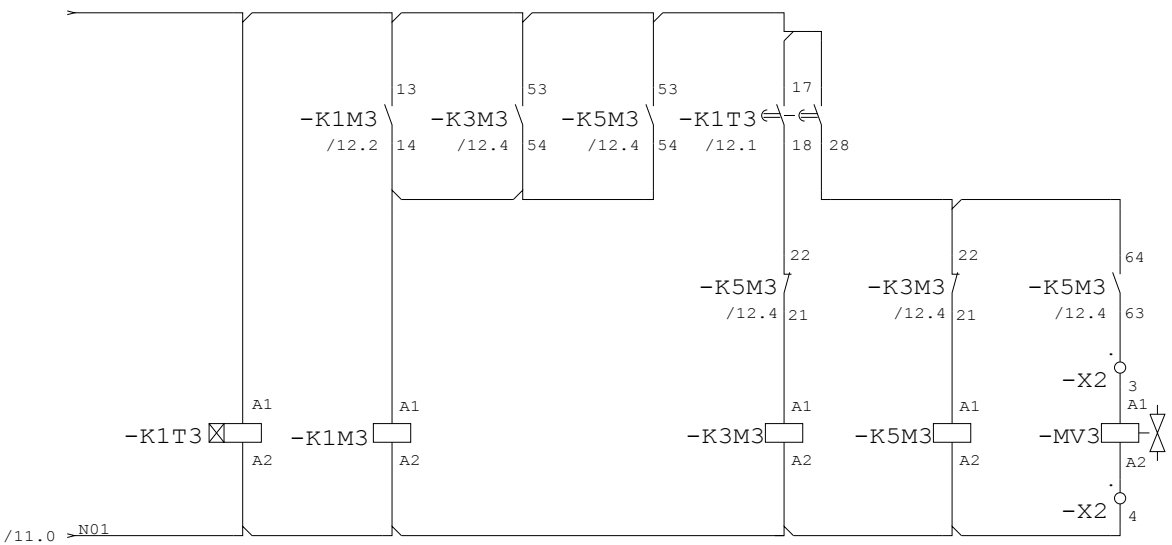
/4.2 1 2 / 3 4 / 5 6 / 21 22 / 53 54 / 63 64
/11.4 /11.3 /11.5

				Datum	05.09.14	SLM-S RENNERtronic plus 16,5		RENNER GmbH Emil-Weber-Str. 32 D-74363 Güglingen	05092014
				Bearb.	Echle				
				Gepr.					092014
Zust.	Änderung	Datum	Name	Norm		Urspr.	Ers. f.	Ers. d.	

RENNER Kompressoren

= +

Blatt 11
von 14Bl.



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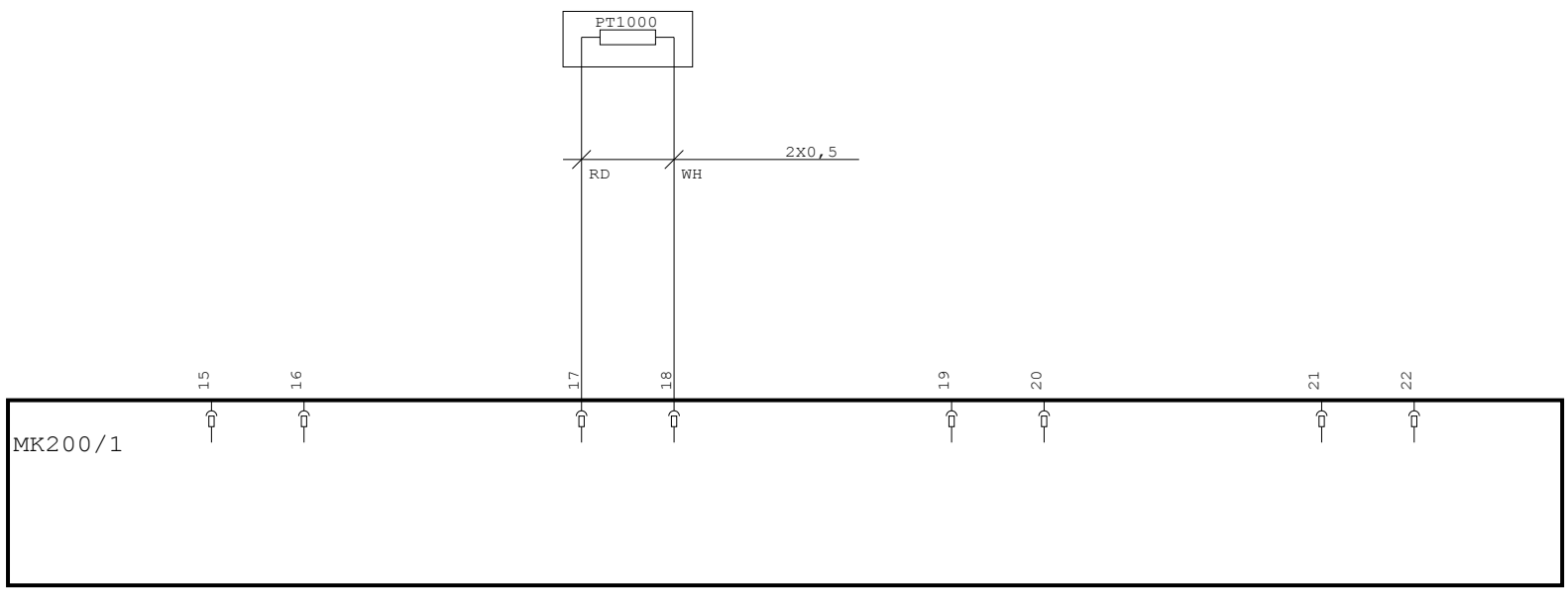
				Bearb.	Echle					+
				Gepr.					092014	Blatt 12
Zust.	Änderung	Datum	Name	Norm		Urspr.	Ers. f.	Ers. d.		von 14Bl.

RENNER Kompressoren

Temperatur
Temperature
Temperature
Compressor 1

-TE1



Analogeingang 1 analoginput 1 entrees analogue 1	Analogeingang 2 analoginput 2 entrees analogue 2	Analogeingang 3 analoginput 3 entrees analogue 3	Analogeingang 4 analoginput 4 entrees analogue 4

Analogeingänge / analog inputs / entrees analogues

				Datum	05.09.14	SLM-S RENNERtronic plus 16,5		RENNER GmbH Emil-Weber-Str. 32 D-74363 Güglingen	
				Bearb.	Echle				
				Gepr.					
Zust.	Änderung	Datum	Name	Norm		Urspr.	Ers. f.	Ers. d.	

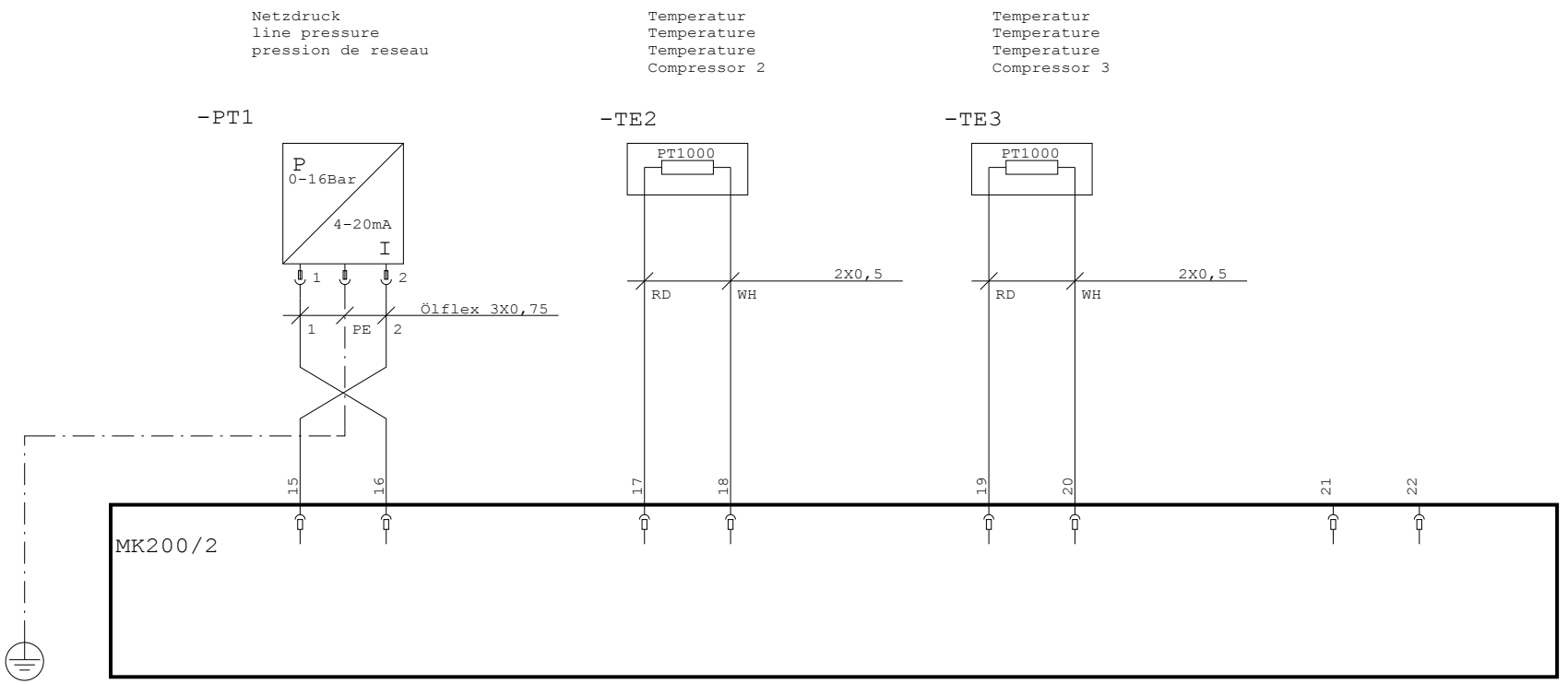
RENNER Kompressoren

05092014

092014

=
+

Blatt 13
von 14Bl.



Analogeingang 1
analoginput 1
entrees analogue 1

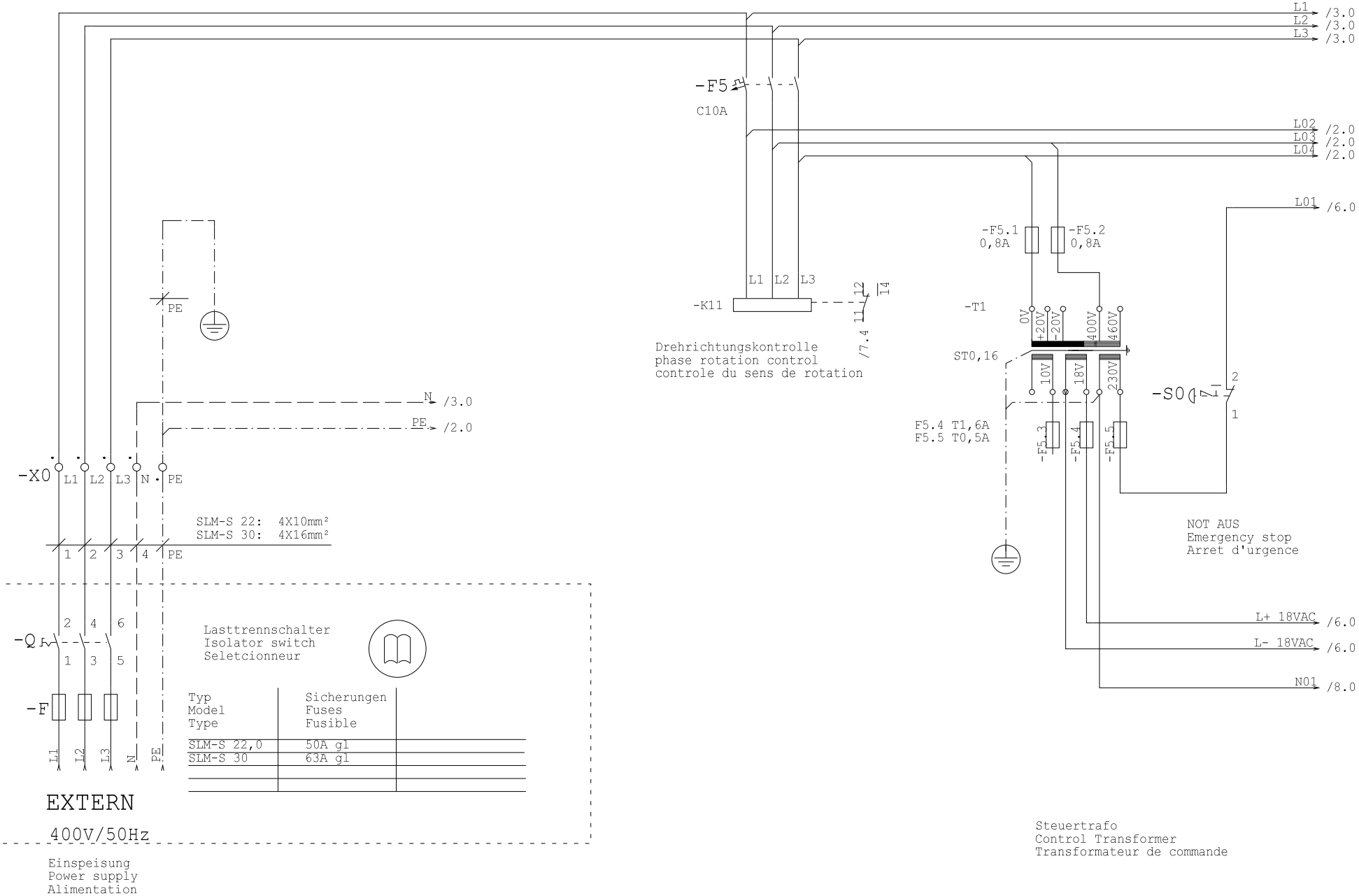
Analogeingang 2
analoginput 2
entrees analogue 2

Analogeingang 3
analoginput 3
entrees analogue 3

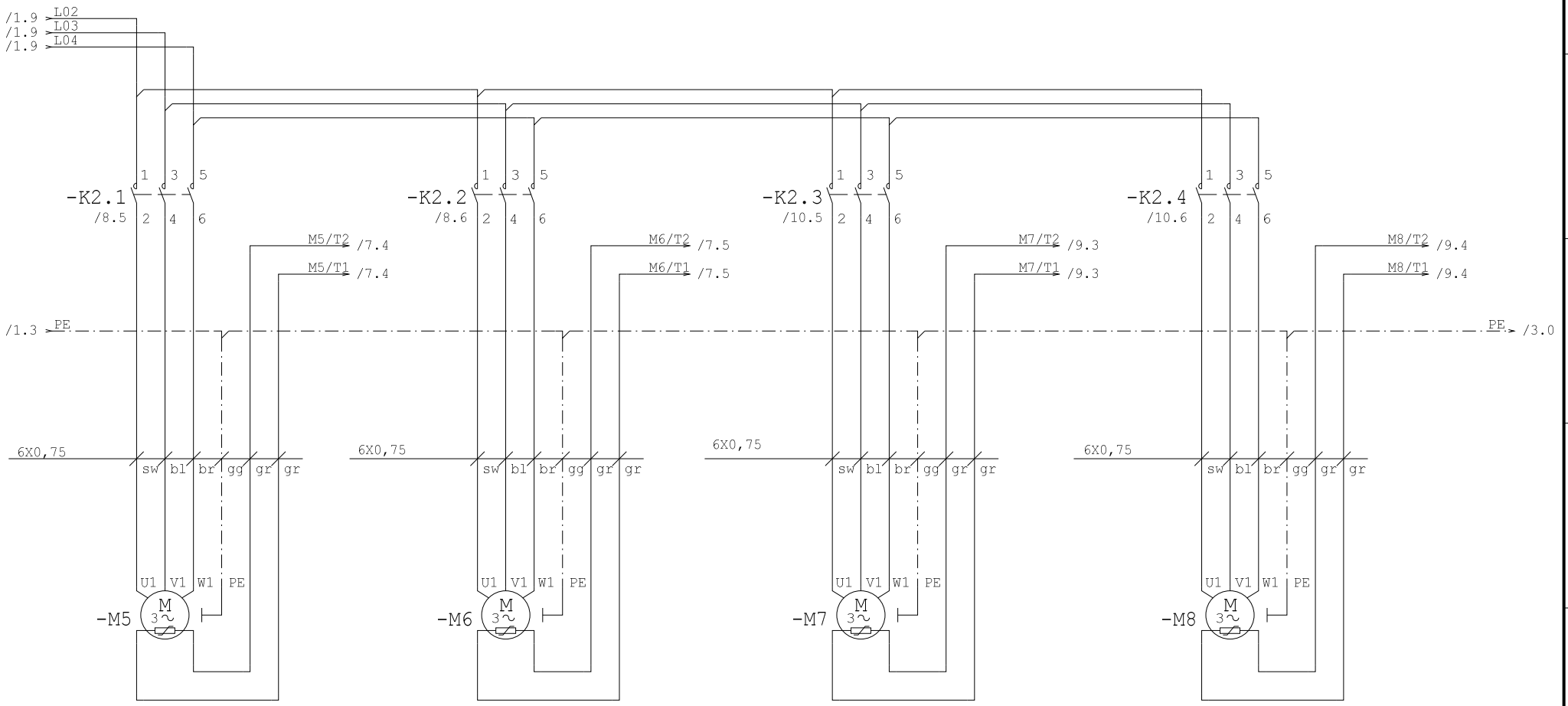
Analogeingang 4
analoginput 4
entrees analogue 4

Analogeingänge / analog inputs / entrees analogues

				Datum	05.09.14	SLM-S RENNERtronic plus 16,5		RENNER GmbH Emil-Weber-Str. 32 D-74363 Güglingen	05092014	=
				Bearb.	Echle					+
				Gepr.					092014	Blatt 14
Zust.	Änderung	Datum	Name	Norm		Urspr.	Ers. f.	Ers. d.		von 14Bl.



	F5/ GL-->LS	08/14	PE	Datum	07.03.13	SLM-S RENNERtronic plus 22,0	RENNER GmbH Emil-Weber-Str. 32 D-74363 Güglingen	RENNER Kompressoren	07032013/1	=
				Bearb.	Echle					+
				Gepr.						Blatt 1
Zust.	Änderung	Datum	Name	Norm		Urspr.	Ers. f.	Ers. d.	032013	von 16Bl.



Lüfter K1
Fan K1
Ventilateur K1

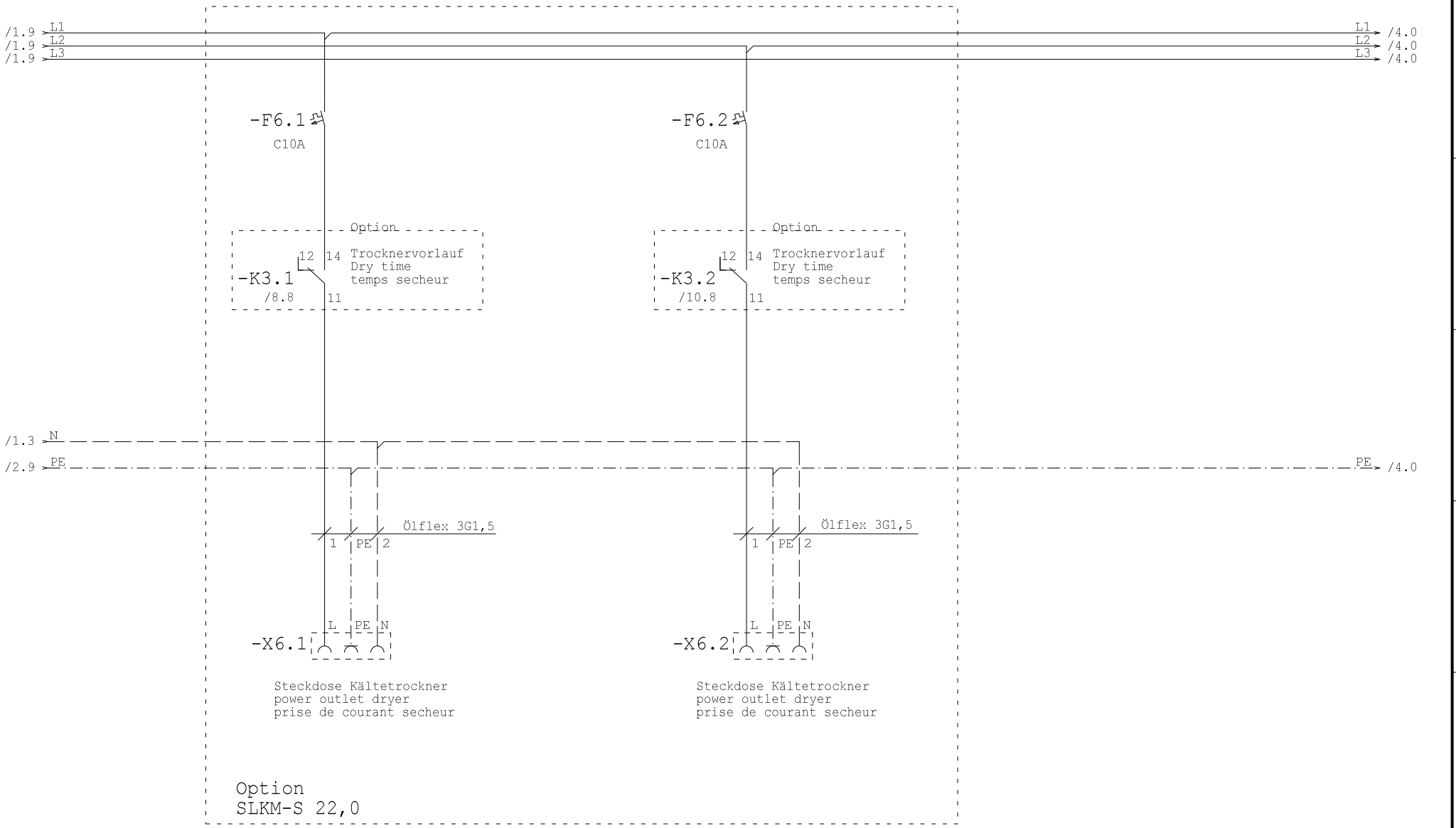
Lüfter K2
Fan K2
Ventilateur K2

Lüfter K3
Fan K3
Ventilateur K3

Lüfter K4
Fan K4
Ventilateur K4

	M5-M8	07/14	PE	Datum	07.03.13	SLM-S RENNERtronic plus 22,0	RENNER GmbH Emil-Weber-Str. 32 D-74363 Güglingen	07032013/1
				Bearb.	Echle			
				Gepr.				032013
Zust.	Änderung	Datum	Name	Norm		Urspr. / Ers. f.	Ers. d.	Blatt 2 von 16Bl.

RENNER Kompressoren



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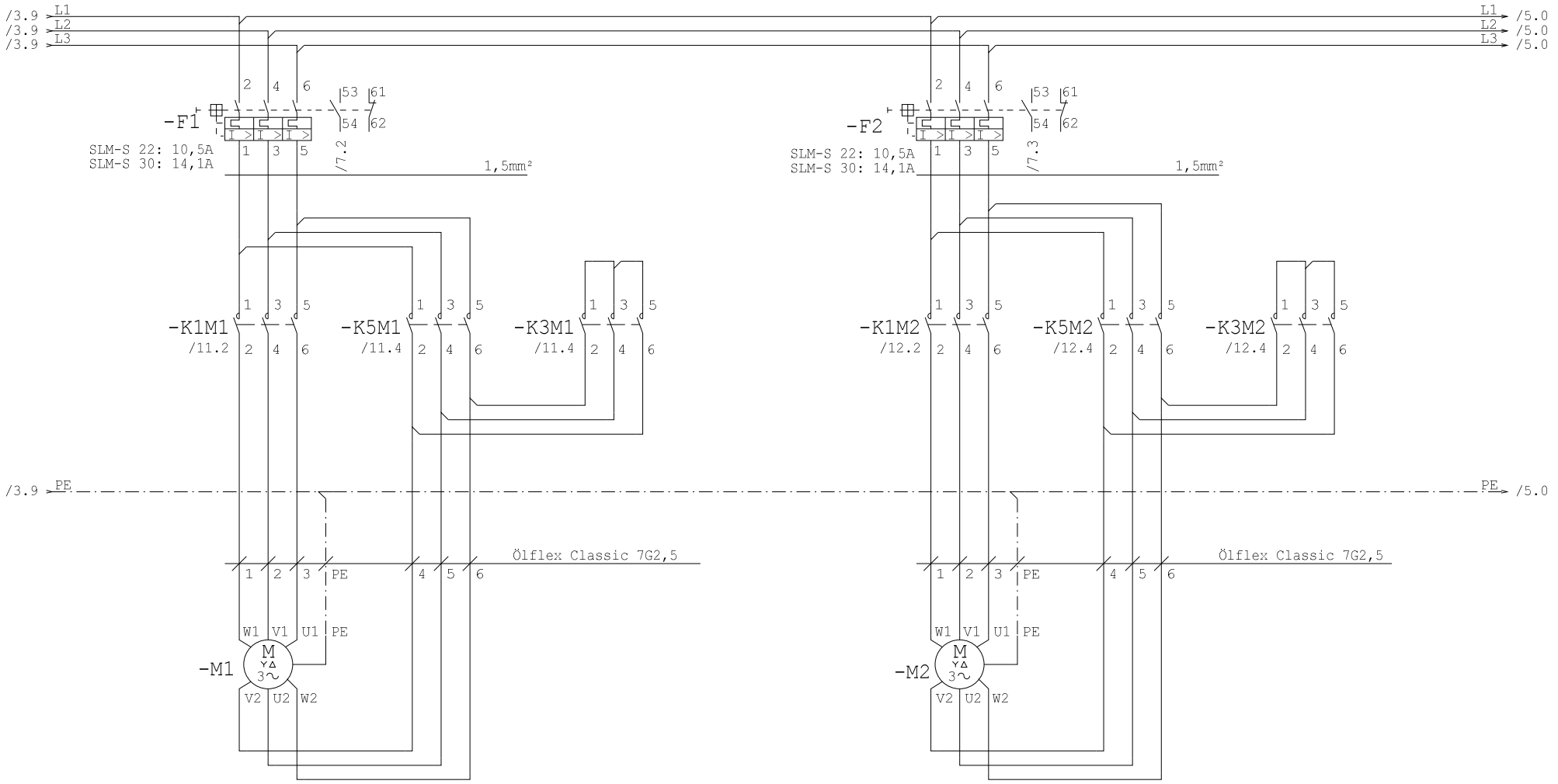
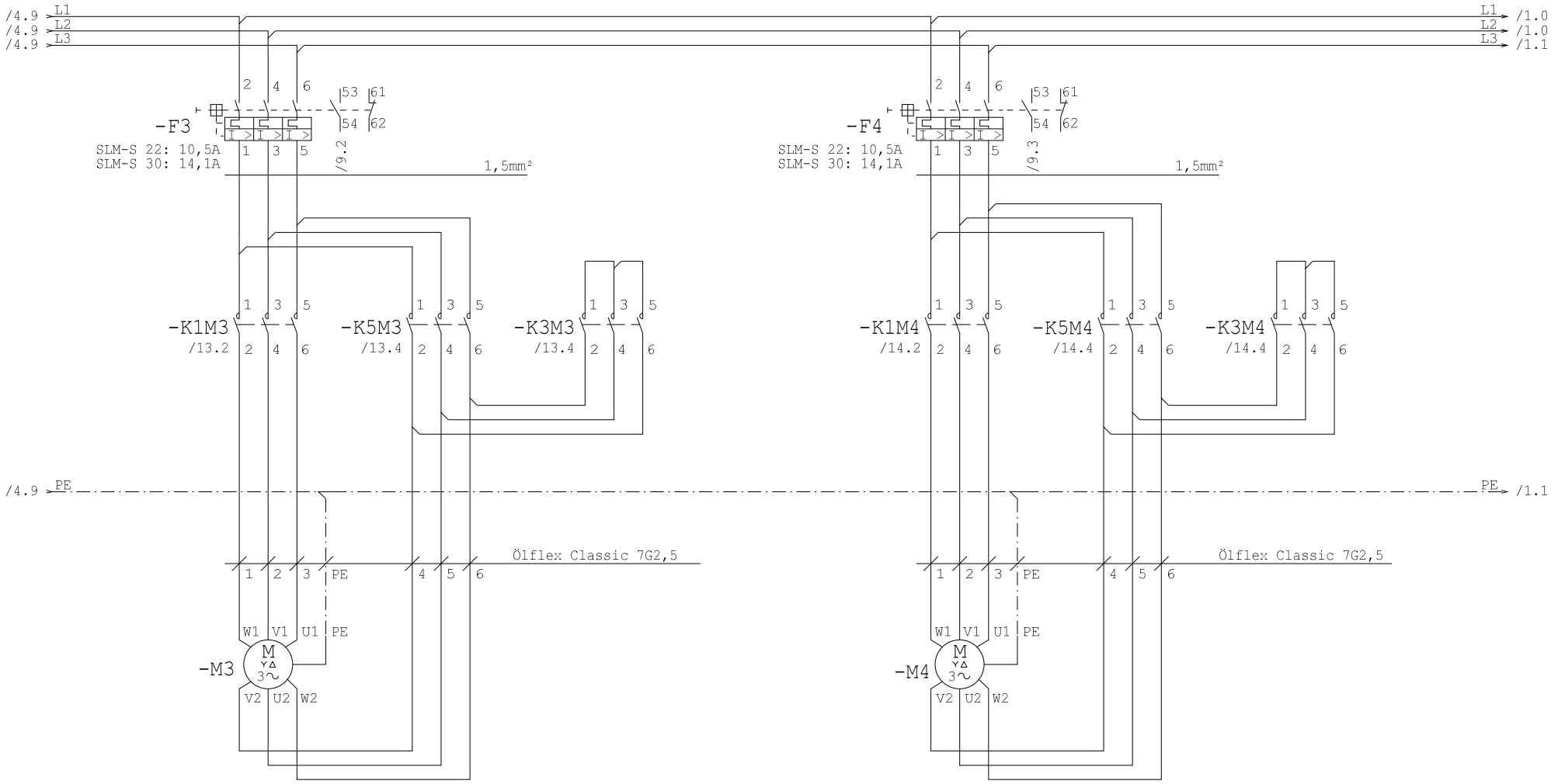
				Bearb.	Echle						+
				Gepr.							
Zust.	Änderung	Datum	Name	Norm		Urspr.	Ers. f.	Ers. d.		032013	Blatt 3 von 16Bl.



Kompressor - Motor 1
compressor - motor 1
compresseur - moteur 1

Kompressor - Motor 2
compressor - motor 2
compresseur - moteur 2

				Datum	07.03.13	SLM-S RENNERtronic plus 22,0	RENNER GmbH Emil-Weber-Str. 32 D-74363 Güglingen	RENNER Kompressoren	07032013/1 = +
				Bearb.	Echle				
				Gepr.					032013 Blatt 4
Zust.	Änderung	Datum	Name	Norm		Urspr.	Ers. f.	Ers. d.	von 16Bl.

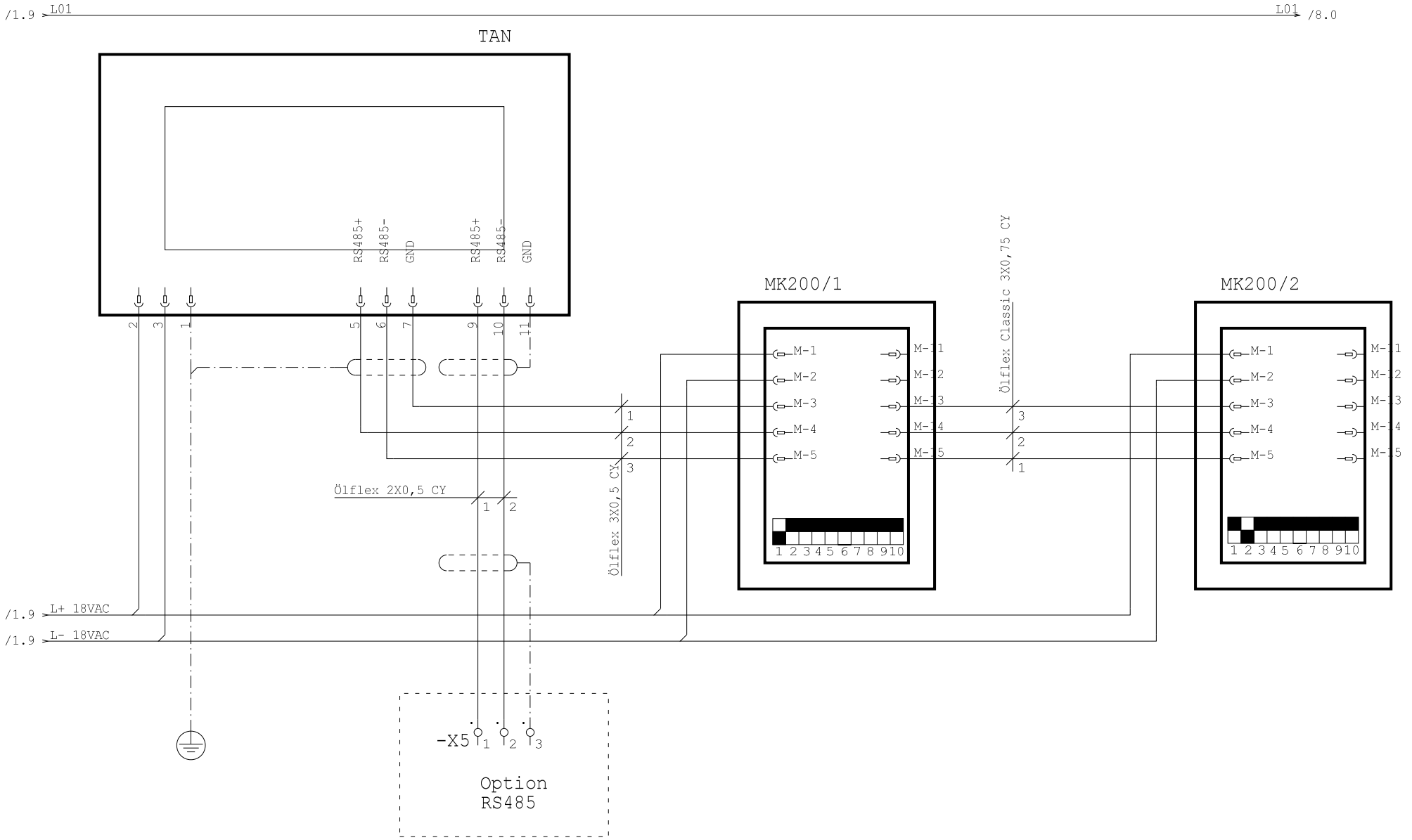


Kompressor - Motor 3
compressor - motor 3
compresseur - moteur 3

Kompressor - Motor 4
compressor - motor 4
compresseur - moteur 4

				Datum	07.03.13	SLM-S RENNERtronic plus 22,0	RENNER GmbH Emil-Weber-Str. 32 D-74363 Güglingen	07032013/1	=
				Bearb.	Echle				+
				Gepr.				032013	Blatt 5
Zust.	Änderung	Datum	Name	Norm		Urspr. / Ers. f.	Ers. d.		von 16Bl.

RENNER Kompressoren



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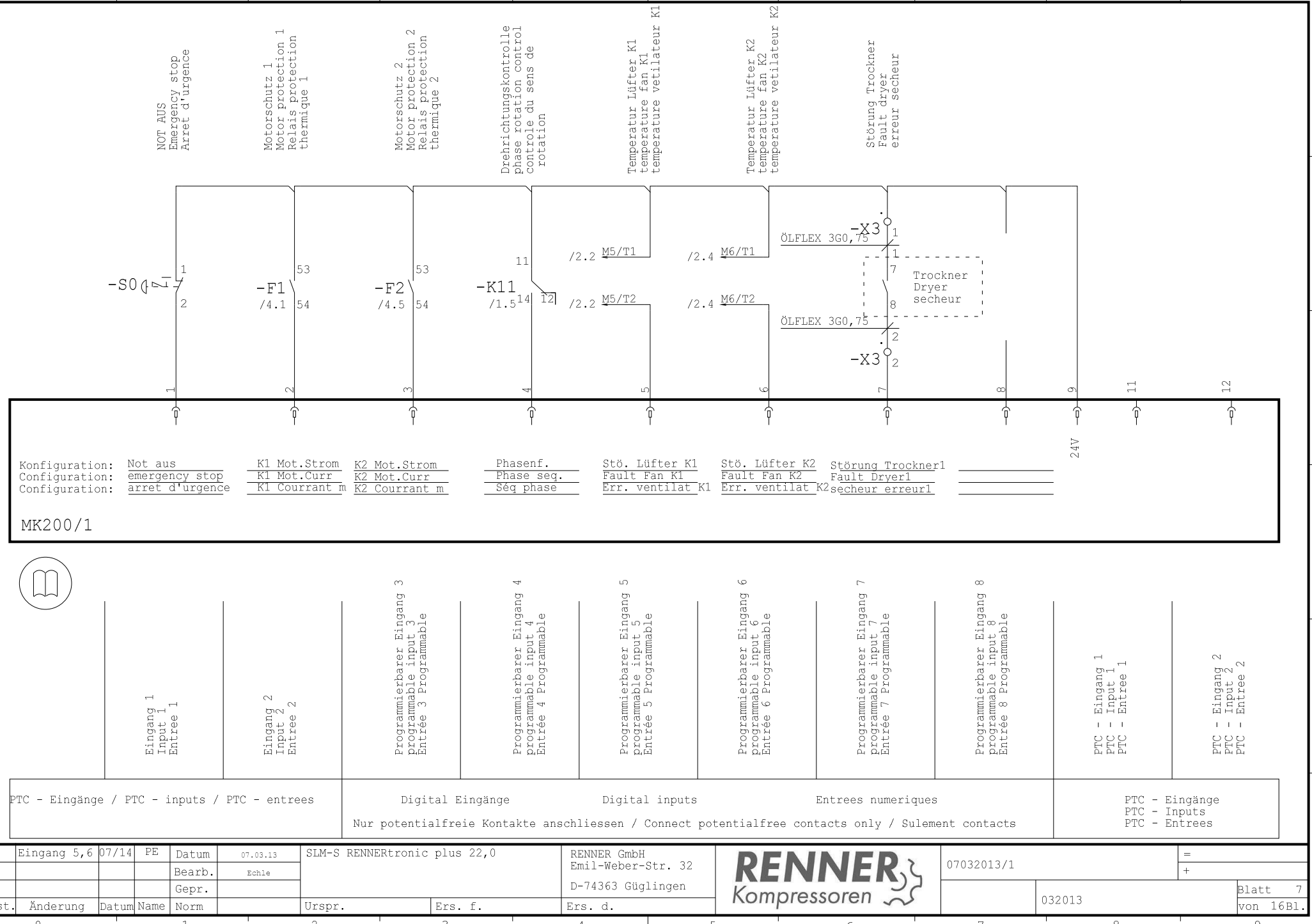
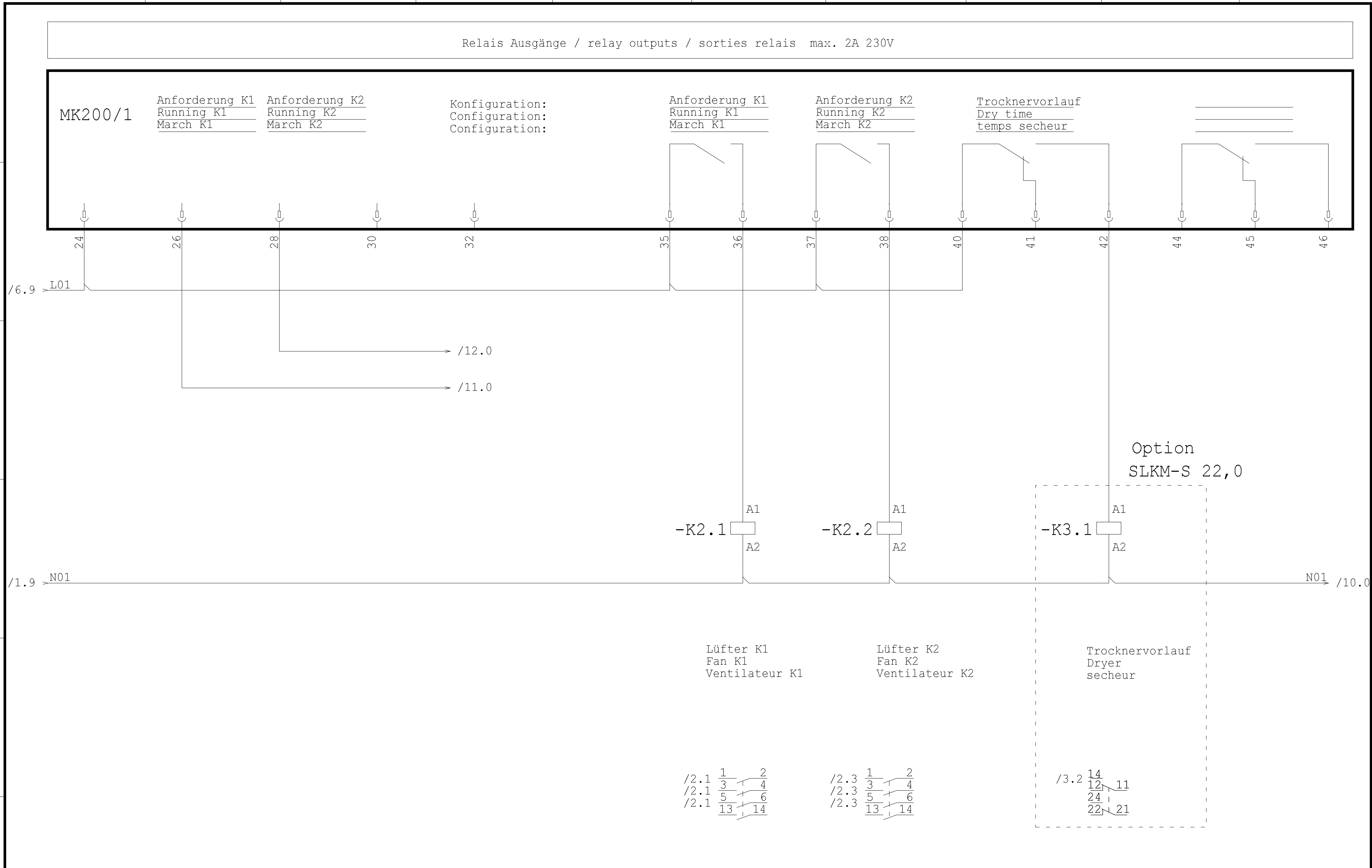
				Bearb.	Echle					+
				Gepr.						
Zust.	Änderung	Datum	Name	Norm		Urspr.	Ers. f.	Ers. d.	032013	Blatt 6 von 16Bl.

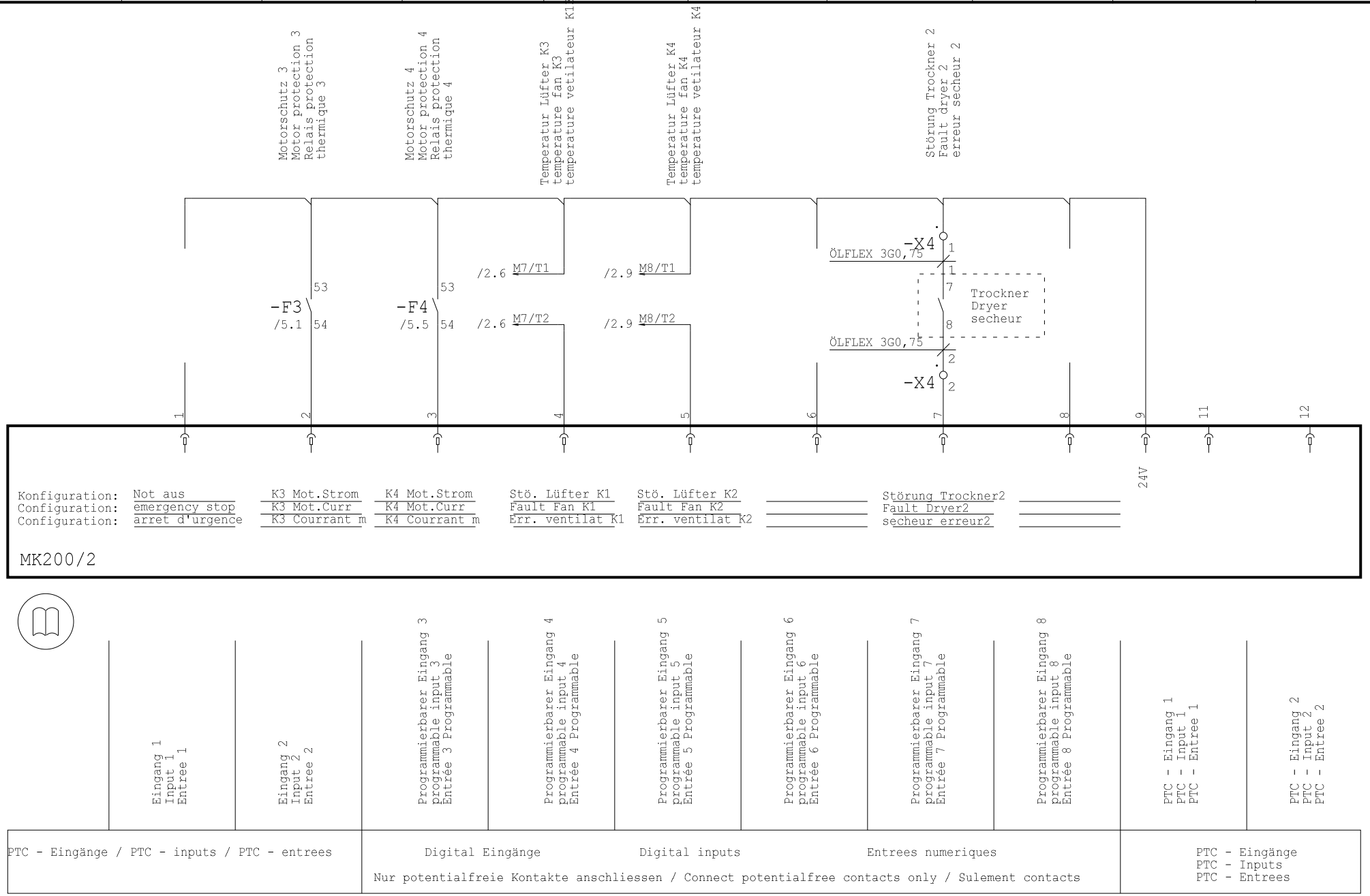


	Eingang 5,6	07/14	PE	Datum	07.03.13	SLM-S RENNERtronic plus 22,0	RENNER GmbH Emil-Weber-Str. 32 D-74363 Güglingen	07032013/1	= +
				Bearb.	Echle				
				Gepr.				032013	Blatt 7
Zust.	Änderung	Datum	Name	Norm		Urspr.	Ers. f.	Ers. d.	von 16Bl.

RENNER Kompressoren

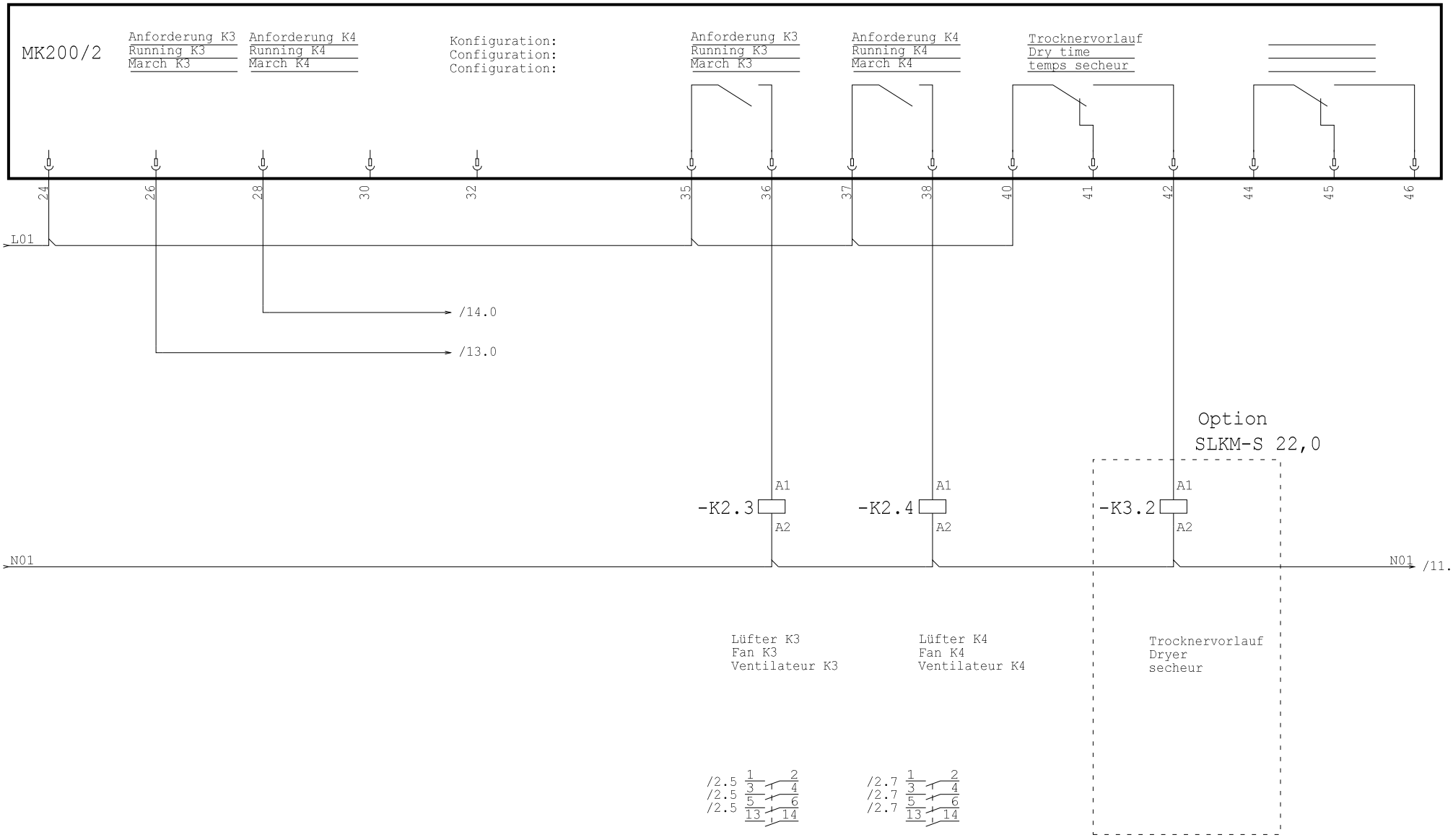


			Datum	07.03.13	SLM-S RENNERtronic plus 22,0	RENNER GmbH Emil-Weber-Str. 32	RENNER Kompressoren	07032013/1	=
			Bearb.	Echle					+
			Gepr.			D-74363 Güglingen		032013	Blatt 8
Zust.	Änderung	Datum	Name	Norm	Urspr. / Ers. f.	Ers. d.			von 16Bl.



	Eingang 4,5	07/14	PE	Datum	07.03.13	SLM-S RENNERtronic plus 22,0	RENNER GmbH Emil-Weber-Str. 32 D-74363 Güglingen	RENNER Kompressoren	07032013/1	=
				Bearb.	Echle					+
				Gepr.						Blatt 9
Zust.	Änderung	Datum	Name	Norm		Urspr. / Ers. f.	Ers. d.		032013	von 16Bl.

Relais Ausgänge / relay outputs / sorties relais max. 2A 230V



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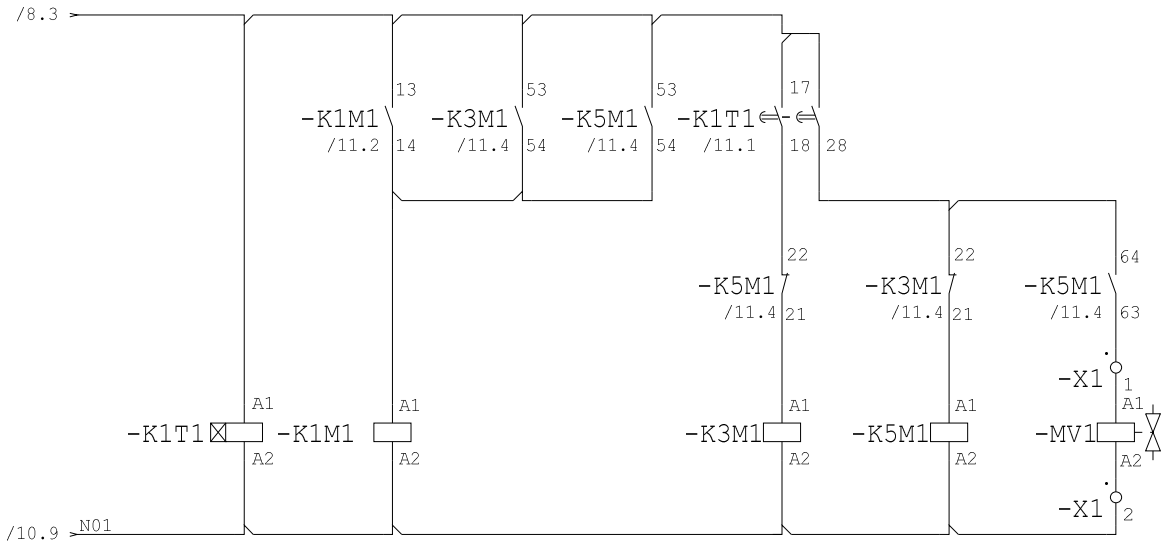
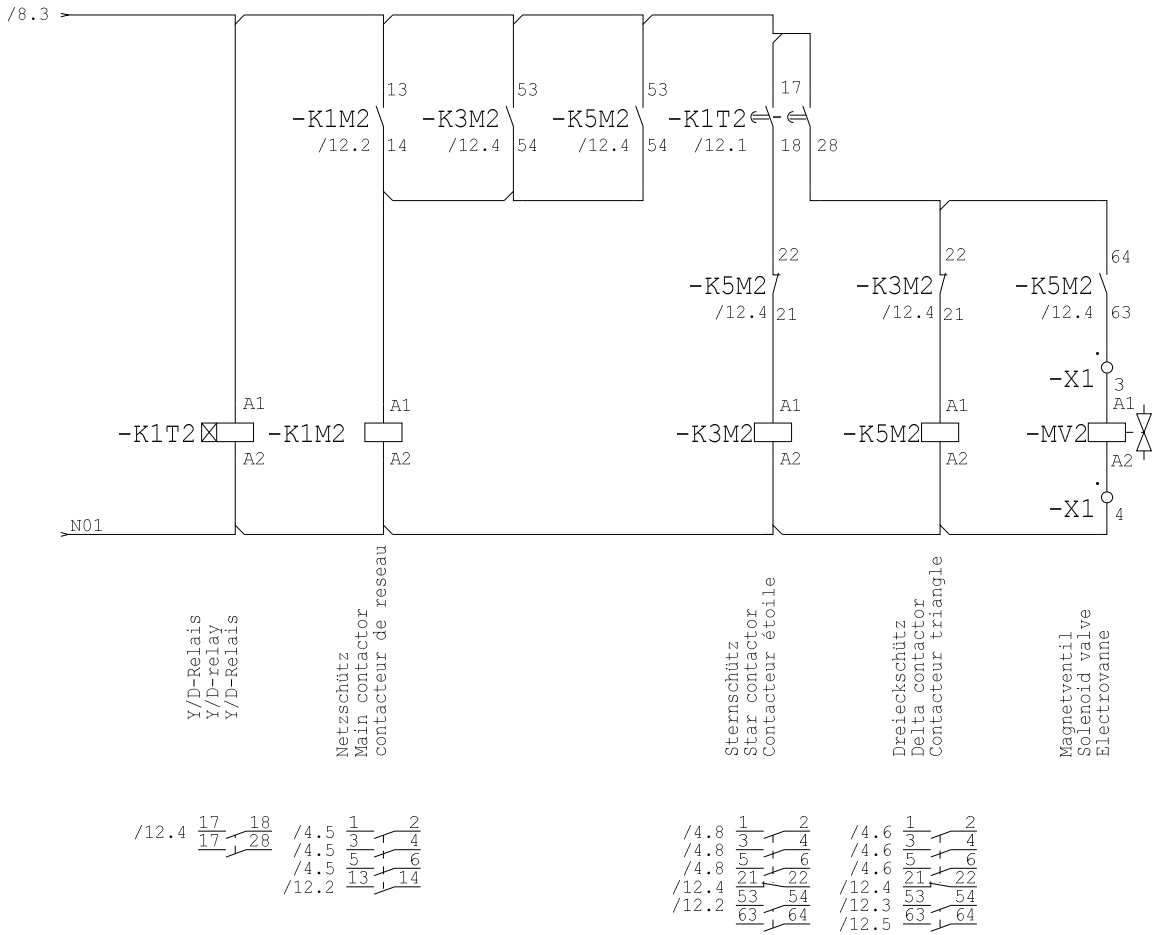
				Bearb.	Echle						+
				Gepr.							
Zust.	Änderung	Datum	Name	Norm		Urspr.	Ers. f.	Ers. d.		032013	Blatt 10 von 16Bl.



				Datum	07.03.13	SLM-S RENNERtronic plus 22,0		RENNER GmbH Emil-Weber-Str. 32 D-74363 Güglingen	RENNER Kompressoren	07032013/1	=
				Bearb.	Echle						+
				Gepr.						032013	Blatt 11
Zust.	Änderung	Datum	Name	Norm		Urspr.	Ers. f.	Ers. d.			von 16Bl.



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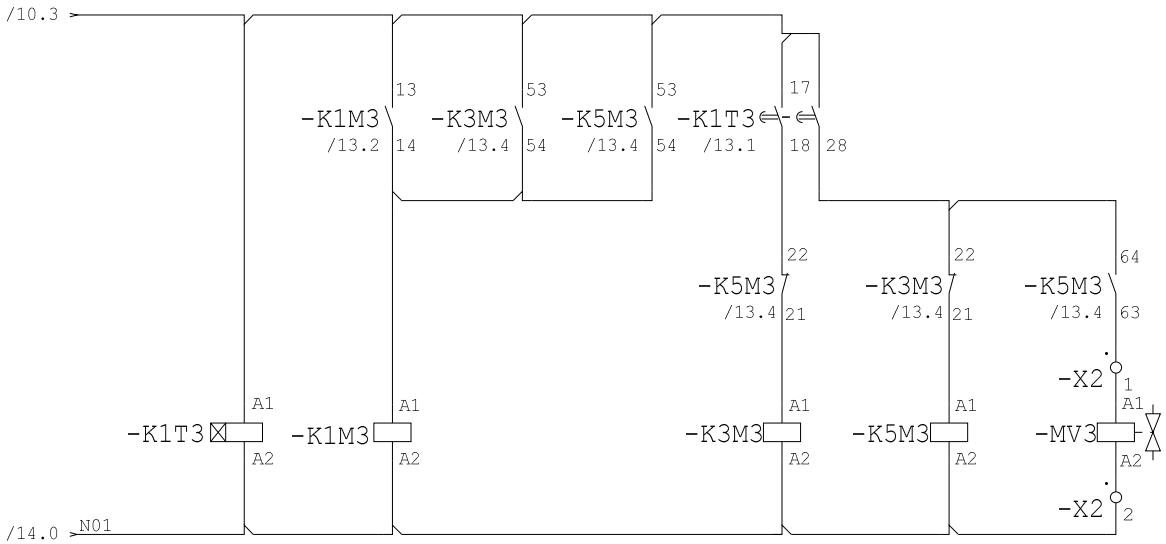
				Bearb.	Echle						+
				Gepr.						032013	Blatt 12
Zust.	Änderung	Datum	Name	Norm		Urspr.	Ers. f.	Ers. d.			von 16Bl.



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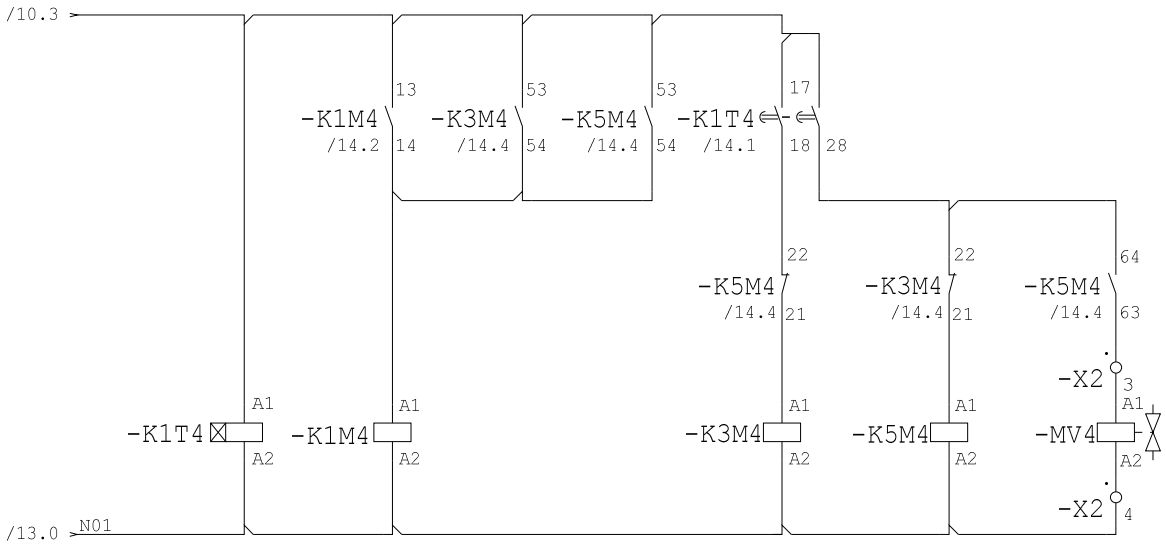
				Bearb.	Echle						+
				Gepr.						032013	Blatt 13
Zust.	Änderung	Datum	Name	Norm		Urspr.	Ers. f.	Ers. d.			von 16Bl.



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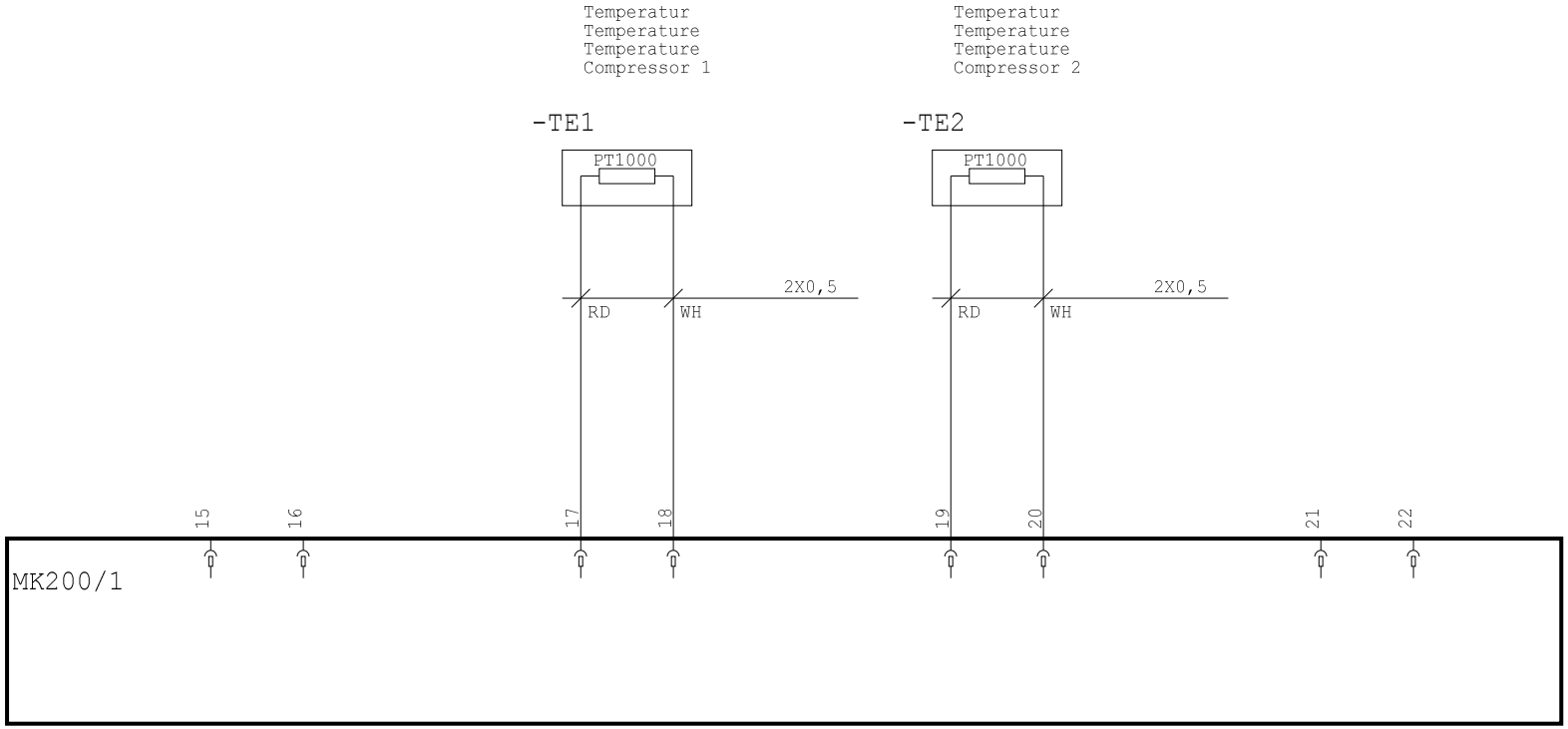
				Bearb.	Echle						+
				Gepr.						032013	Blatt 14
Zust.	Änderung	Datum	Name	Norm		Urspr.	Ers. f.	Ers. d.			von 16Bl.



Analogeingang 1
analoginput 1
entrees analogue 1

Analogeingang 2
analoginput 2
entrees analogue 2

Analogeingang 3
analoginput 3
entrees analogue 3

Analogeingang 4
analoginput 4
entrees analogue 4

Analogeingänge / analog inputs / entrees analogues

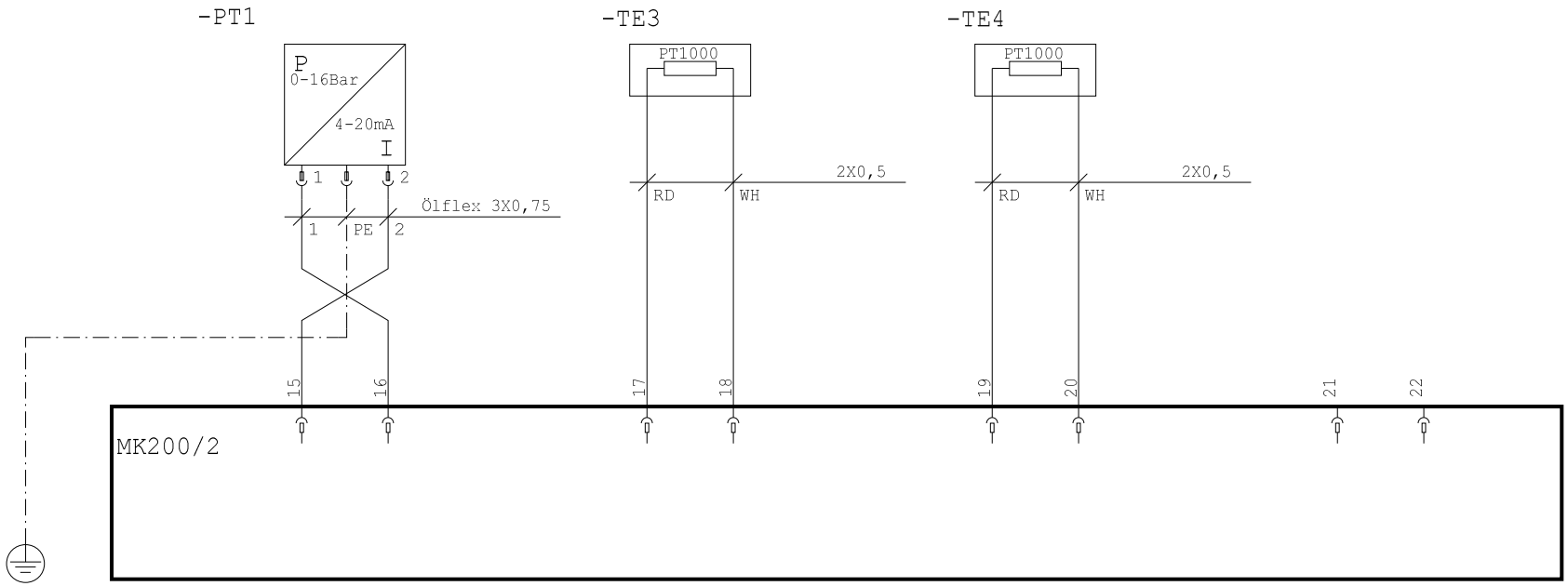
				Datum	07.03.13	SLM-S RENNERtronic plus 22,0		RENNER GmbH Emil-Weber-Str. 32 D-74363 Güglingen	RENNER Kompressoren
				Bearb.	Echle				
				Gepr.					
Zust.	Änderung	Datum	Name	Norm		Urspr.	Ers. f.	Ers. d.	

07032013/1		=
		+
	032013	Blatt 15
		von 16Bl.

Netzdruck
line pressure
pression de reseau

Temperatur
Temperature
Temperature
Compressor 3

Temperatur
Temperature
Temperature
Compressor 4



Analogeingang 1
analoginput 1
entrees analogue 1

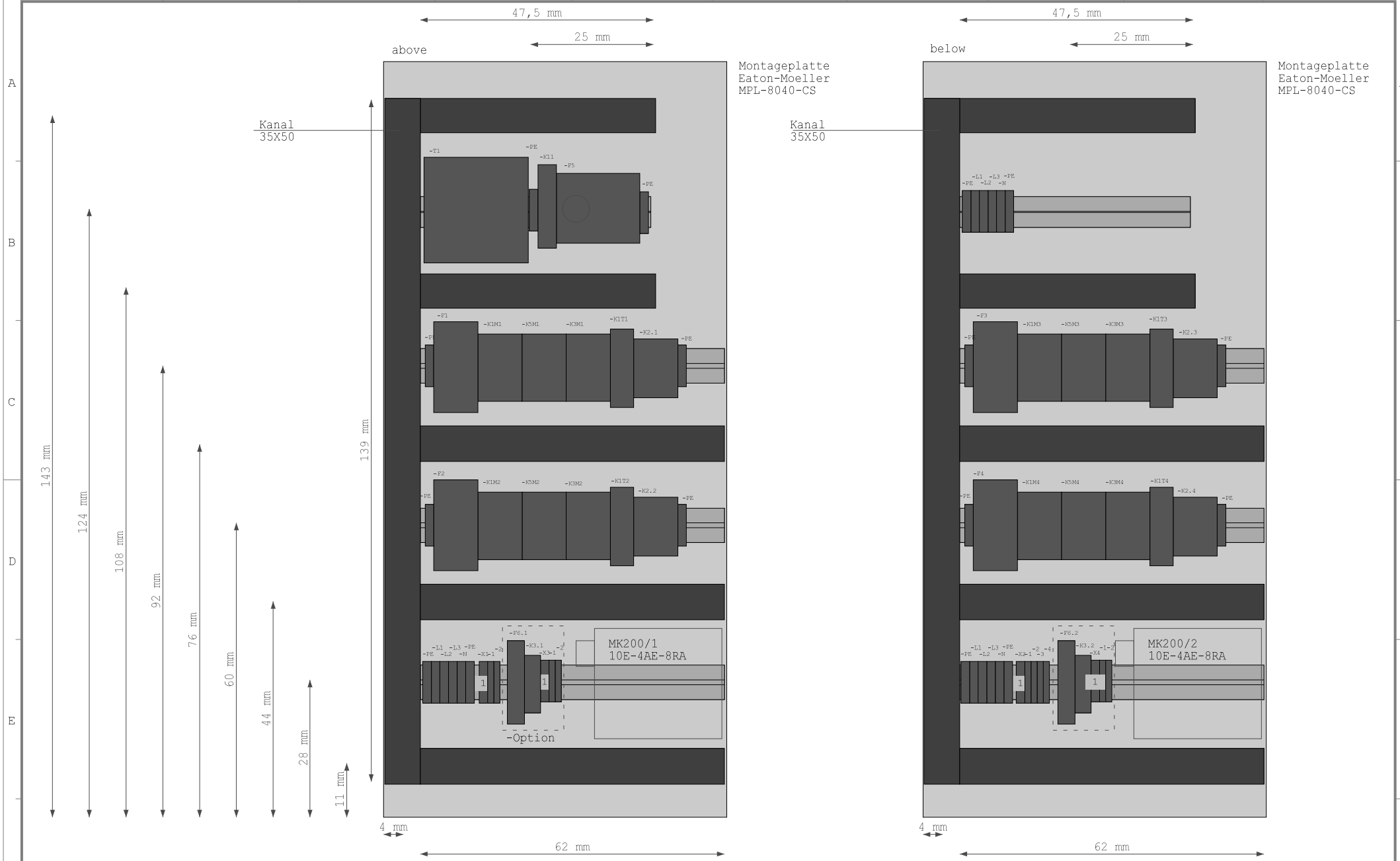
Analogeingang 2
analoginput 2
entrees analogue 2

Analogeingang 3
analoginput 3
entrees analogue 3

Analogeingang 4
analoginput 4
entrees analogue 4

Analogeingänge / analog inputs / entrees analogues

				Datum	07.03.13	SLM-S RENNERtronic plus 22,0	RENNER GmbH Emil-Weber-Str. 32 D-74363 Güglingen	RENNER Kompressoren	07032013/1	=
				Bearb.	Echle					+
				Gepr.						
Zust.	Änderung	Datum	Name	Norm		Urspr.	Ers. f.	Ers. d.	032013	Blatt 16 von 16Bl.



				Datum	20.11.2013	SLM-S RENNERtronic plus 22,0	RENNER GmbH Emil-Weber-Str. 32 D-74363 Güglingen	07032013/1	=
				Bearb.	Echle				+
				Gepr.					Blatt 1
Zust.	Änderung	Datum	Name	Norm		Urspr.	Ers. f.	Ers. d.	032013 von 1Bl.

Appendix W - Maintenance check SCROLL SL/SL-I/SL-S 1,5 - 7,5 kW 8 and 10 bar SLM-S 7,5 - 30,0 kW 8 and 10 bar

When due	8 bar	10 bar	Maintenance Work	Parts required
Start-up	x	x	Tighten electric terminals	
			Control/tighten pipe/hose connections	
			Control direction of rotation	
			Check V-belt tension	
Daily regularly	x	x	Drain condensate on air storage vessel (if any)	
every **250 h** or monthly	x	x	Control/clean air intake filter	
every **1000 h** or every 6 months	x	x	Check condition of hoses for leaks, cracks etc.	
after 2.500 h or once a year	x	x	Tighten electric terminals	
	x	x	Check V-belt for wear and replace if necessary	V-belt
	x	x	Check alignment of pulleys and tension and adjust if required	
	x	x	Check all pipes, if well fitted and tight	
	x	x	Change suction filter cartridge	cartridge
	x	x	Change silencer at solenoid valve²	Solenoid valve
	x	x	Change non-return valve at compressed air outl	non-return valve
	x	x	Check correct setting of pressure switch and adjust if required	
after 5.000 h	x	x	Clean suction fan	
	x	x	Clean cooling fins	
	x	x	Change solenoid valve²	Solenoid valve
		x	SCROLL Maintenance I* *(Seal kit)*	MK 2 (10 bar)
after 10.000 h	x	x	Clean suction fan	
	x	x	Clean cooling fins	
	x		SCROLL Maintenance I* *(Seal kit)*	MK 3 (8 bar)
		x	SCROLL Maintenance I* *(Seal kit)*	MK 2 (10 bar)
after 15.000 h	x	x	Clean suction fan	
	x		Clean cooling fins	
		x	SCROLL Maintenance II *(compressor unit)*	MK 3 (10 bar)
after 20.000 h	x		SCROLL Maintenance II *(compressor unit)*	MK 4 (8 bar)

*Only authorized and certified dealers by RENNER are allowed to carry through a "major maintenance".

² Required for YΔ- started motors

Only original RENNER parts and components must be used.

Appendix W2
Maintenance of Motor Bearings

Contents

This Appendix provides an overview of how motor bearings are to be maintained. This description applies only to current machines and may differ to the maintenance required for older motors.

Continuously lubricated motor bearings

Our compressors **up to 37kW** are fitted with motors having closed, continuously lubricated deep-groove ball bearings – theoretical service life is between 15,000 and 30,000 operating hours (oh). If operating conditions are different to that defined in the instruction manual, it is imperative that the maintenance intervals are adjusted to the prevailing circumstances and conditions to ensure reliable operations. Should there be high levels of dirt and dust, frequent switch-ons and high ambient temperatures as well as operations at 60Hz, the maintenance intervals must be adjusted accordingly.

Description Procedure for replacing bearings

1. Switch off unit and prevent it from being restarted by accident.
2. If applicable, uninstall the motor and remove the ancillary components (fan impeller, frame, fan cover, pulley)
3. Disassemble the bearing cover (center) and bearing shield (outside)
4. Remove the old bearing with a puller (if difficult, carefully warm up the bearing) and remove the old grease
5. Carefully warm up the inner ring of the new bearing
6. Push the new bearing to the arrestor on the shaft and keep it there briefly
7. Generously grease the new bearing with suitable grease
8. Re-assemble the bearing cover and bearing shield
9. Re-install bearing seal

The type designations of the motor bearings can be found in Table 1.

Appendix W2 Maintenance of Motor Bearings (continued)

Idleness of motors

If the motors are out of use for a longer period of time, the motor shaft should be rotated once a month. Rotate the motor shaft manually for at least 5 rotations and bring to a stop in a different position to the starting position.
If the motors are out of use for more than 6 months, the motor bearings must be re-lubricated before start-up.
If the motors are out of use for more than 2 years, the motor bearings must be replaced.

Here are the details of the bearings installed. The lubrication quantities to be filled (only for WEG motors) are listed below:

Frame size	Motor size (kW)	D-side	N-side
90	1,5 / 2,2	6205 ZZ	6204 ZZ
112	3,7	6307 ZZ	6206 ZZ
132	4,5 / 5,5 / 7,5	6308 ZZ	6207 ZZ

Table 1

Wartungskontrollblatt – Maintenance controll – fiche de contrôle d'entretien

RENNER Kompressoren

Kompressor Typ / compressor type / modèle compresseur:	
Maschinen Nummer / serial number / numéro de serie:	
Verkaufsdatum / date of invoice / date d'achat:	
Installationsdatum / date of installation / date de la mise en place:	
Händlername / distributor / distributeur agrée:	

Betriebsstunden Operating hours Nombre d'heures de service	Wartungsdatum Date of maintenance Date d'entetien	Nächste Wartung Next maintenance Prochain entretien	Ansaugluftfilter Air filter Filtre à air		Kühlluft-Ventilator Cooling fan Ventilateur	Kühlluftrippen Cooling fins Ailettes	Magnetventil Solenoid valve Electrovanne		Rückschlagventil Non-return valve Soupape de retenue		Keilriemen Drive belt Courroie			SCROLL Dichtungen SCROLL seals Joints du SCROLL	SCROLL-Lager SCROLL-bearings Roulements-SCROLL	andere Wartungsarbeiten other maintenance work autres travaux entretien	Unterschrift Signature Signature
			gereinigt cleaned nettoyé	erneuert replaced remplacé	gereinigt cleaned nettoyé	gereinigt cleaned nettoyé	geprüft checked vérifié	erneuert replaced remplacé	geprüft checked vérifié	erneuert replaced remplacé	geprüft checked vérifié	nachgespannt re-tightened tendu	erneuert replaced remplacé	erneuert replaced remplacé	geschmiert greased graissés	(z.B. Verdichter getauscht f.e. air end changed p.e. changement bloc)	

Ausgeführte Arbeiten ankreuzen und durch Unterschrift bestätigen /
Mark the operations done and confirm by signature.
Cocher les traveaux effectués et confirmer par signature.

EC Declaration of Conformity according to machine guideline 2006/42/EC Appendix II 1.A

The manufacturer / distributor

RENNER GmbH Kompressoren
Emil-Weber-Straße 32
74363 Güglingen

hereby declares that the following product

Product description:	**RENNER SCROLL Compressor**
Manufacturer:	**RENNER**
Serial no.:	
Series / type description:	**SLM-S, SLKM-S, SLDM-S, SLDKM-S**

Description:
Scroll Compressor for generating compressed air of 8 to 10 bar

meets all relevant provisions of the above stated guideline and the other applied guidelines (to follow) - including the changes applicable at the time of the declaration.

The following further EC guidelines were applied:

EMC directive 2014/30/EU

Directive 2014/29/EU

RoHS directive 2011/65/EU

The following harmonised standards were applied, in its current version:

EN 1012-1	Compressors and vacuum pumps - Safety requirements - Part 1: Compressors
EN 286-1	Simple unfired pressure vessels designed to contain air or nitrogen - Part 1: Pressure vessels for general purposes
EN 60204-1	Safety of machinery - Electrical equipment of machines - Part 1: General requirements
EN ISO 12100	Safety of machinery - General principles for design - Risk assessment and risk reduction
EN ISO 13849-1	Safety of machinery -Safety relevant parts of controls - Part 1: General principles for design
EN ISO 13849-2	Safety of machinery -Safety relevant parts of controls - Part 2: Validation

Name and address of person who is authorised to compile the technical documentation:
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(B. Renner)
Managing Director

(Michael Zottl)
Contractor for documentation

Appendix KT
Operating instructions for the refrigerant dryer

Content

In this chapter you receive a brief overview for the optionally installed refrigerant dryer.

Please follow the refrigerant dryer safety instructions found in the separate operating manual. It is particularly dangerous to breath-in the cooling steam or get in contact with the cooling agents. Smoking when working on the refrigerant dryer is prohibited, since the cooling agent will develop poisonous vapours when getting in touch with the glowing end of a cigarette or other open flame (e.g. welding work).

Function

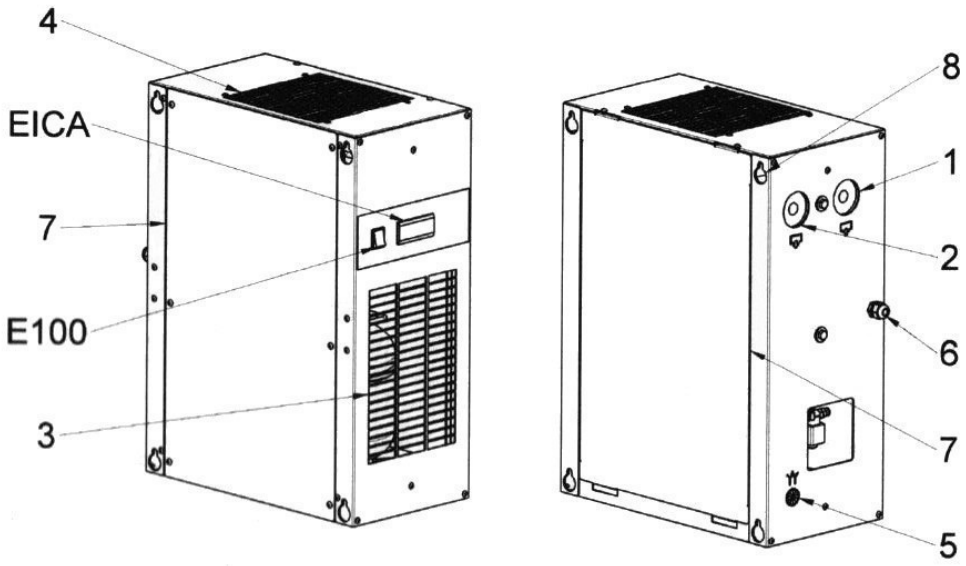
The refrigerant air dryer contains a cooling system for cooling the compressed air. The compressed air is also de-humidified. The condensate created here is discharged through a condensate separator.

Make sure that the air inlet and outlet is never hindered or blocked. Adequate distance must be maintained between the ventilation grids and room walls.
Please follow the figure in Chapter 2.3 and the information in Chapter 2.3.1 of the Operating Manual of the refrigerant dryer supplier.

After turning on the refrigerant dryer, wait 5 minutes until the pressure has equalised. Only then, start the compressor.

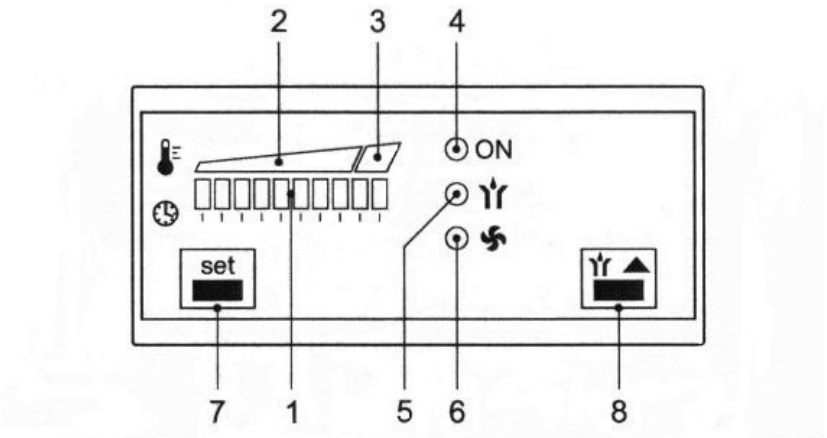
Appendix KT refrigerant dryer (continued)

Figure
Refrigerant Dryer



1.) Compressed air inlet
2.) Compressed air outlet
3.) Cooling air inlet
4.) Cooling air outlet
5.) Steam trap
6.) Electrical connections
7.) Maintenance access
8.) Fixing holes
E100.) Switch-on
EICA.) Electronic regulator

Figure
control panel



Appendix KT refrigerant dryer (continued)

Electronic Regulator

Item	Description	Function
1	**10 x green LED**	Pressure dew point indicator
2	**Green area**	Pressure dew point normal
3	**Red area**	Pressure dew point is too high
4	**Green LED**	Compressed air dryer is turned on In the setting mode the blinking **LED** shows which data will be displayed.
5	**Yellow LED**	Condensate magnetic valve is active
6	**Yellow LED**	Ventilator is turned on
7	**Setting switch**	Multi-function key for editing the parameter. **Press the button for 2 seconds:** Switch from display to setting mode **Briefly press the button:** Switch between menus **Press button together with up key:** Current setting is changed
8	**Up key**	Up / deflector test Pressing the up key will exit the setting mode

Appendix KT refrigerant dryer (continued)

Maintenance

Before completing any maintenance work, please follow all safety provisions for electrical systems and electrical devices (see Chapter 1 of the original operating manual).

The compressed air refrigerant dryer must be maintained at different intervals. The maintenance intervals heavily depend on the utilisation type and the conditions of the installation site. The following maintenance work must be completed daily:

1. Check the function of the steam trap; check if water is drained; valve test (manual drain condensation).

2. Check the pressure dew point display; for deviations from the normal range, see chapter 5.2.2 and 5.2.3 in the original operating manual

3. Check the compressor for contamination

Specific notes about other maintenance intervals and work can be found in the manufacturer original operating manual under Point 5 Maintenance.

Appendix AD
Compressed air receiver

Illustration: air receiver

Description of air receiver

No.	Description	Function
1	**Connection from compressor**	Inlet of compressed air into the air receiver
2	**Safety valve**	Protects the air receiver against too high a pressure
3	**Compressed air outlet**	Outlet of compressed air to the c.a. system
4	**Condensate drain**	Drains the condensate for collection

- Please observe the regional laws and regulations for the control of air receivers and notice the periodic inspections
- Please take care for a condensate drain system
- Please take the necessary mesures as to discharge the condensate if no automatic system

Caution!
To grant the functionality of the air receivers, all flexible hoses of the receivers have to be changed after 2 years at the latest. This affects especially the 2 x 90l air receivers. Both receivers have to be able to be discharged separately.
The number of load changes in the air receiver should not be too high. Therefore, the compressor is not disconnected from the mains and do not let the pressure in the receiver fall too low. (purchase quantity < delivery quantity)