INSTALLATION, OPERATION AND MAINTENANCE INSTRUCTIONS



&tech w

09 - 15 - 22 - 28 - 36

Single & Tri Phase

ACV
excellence in hot water

Addendum - E-Tech W Pump

APPLICABILITY : 664Y6500 - Rev B, E-Tech W 09 - 15 - 22 - 28 - 36 Single and Tri Phase

La chaudière E-Tech W est dotée d'une pompe haut rendement de dernière génération, que l'installateur peut configurer en fonction des besoins de l'installation. Cette pompe est dotée de témoins lumineux qui indiquent le mode ou l'état de fonctionnement de la pompe, ainsi que d'un bouton permettant d'accéder aux fonctions de réglage de la pompe.

The E-Tech W boiler is equipped with a new-generation high-efficiency pump that can be set up to meet the system requirements. The pump's LED indicators display the operation mode or the status of the pump, and a pushbutton allows to access the pump settings.



Le premier témoin lumineux est vert en fonctionnement normal, rouge en cas de problème. Les autres sont toujours de couleur jaune lorsqu'allumés. Si la LED verte clignote, cela signifie que le fonctionnement de la pompe a été interrompu par un signal extérieur.

The first LED is green in normal operation, red in case of problem. The others are always yellow when turned on. When the green LED is flashing, it means that the pump has been stopped by an external signal.

Indication des niveaux de performances (affichage par défaut)

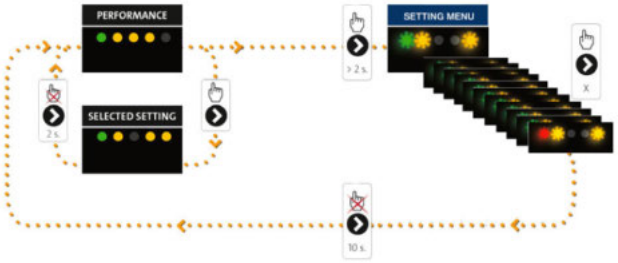


Display of the level of performance (default display)

RÉGLAGE DE LA POMPE

- Une pression brève sur le bouton permet d'afficher le réglage actuel (mode opérationnel)
- Une pression de plus de 2 sec. sur le bouton donne accès aux réglages. Voir le tableau ci-dessous pour voir quels sont les modes de fonctionnement disponibles.
- Au bout de 10 sec. sans action, l'affichage revient au mode "Performance".

PUMP SET-UP



- *Depressing shortly the button allows to display the current set-up (operation mode)*
- *Depressing the button for more than 2 sec. gives access to the setting mode See table below for the available operation modes.*
- *After 10 sec. without action, the "Performance" mode is back.*

MODES DE FONCTIONNEMENT DISPONIBLES

Par défaut, la pompe est réglée sur le mode "Pression proportionnelle" / Courbe 3 (Voir les repères en gras dans le tableau).

AVAILABLE OPERATION MODES

	LED 1	LED 2	LED 3	LED 4	LED 5
Pression proportionnelle / *Proportional pressure*	**Vert/*Green***	o			
Pression constante / *Constant pressure*	Vert/*Green*		o		
Courbe constante / *Constant curve*	Vert/*Green*	o	o		
Courbe / *Curve 1*					
Courbe / *Curve 2*				o	
Courbe / *Curve 3*				o	o
Courbe / *Curve* 4/Auto					o

By default, the pump is set to the "Porportional Pressure" mode / Curve 3 (See symbols in bold in the table).

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Pression proportionnelle :

Mode par défaut, applicable à la plupart des installations de chauffage. La pression augmente et diminue en fonction des demandes de chaleur. Trois courbes préréglées sont disponibles, allant de la courbe la plus basse à la plus élevée. La courbe $AUTO_{ADAPT}$ permet de faire fonctionner la pompe au meilleur rendement pour le type d'installation.Ce mode est recommandé pour les installations à 2 conduites, avec vannes thermostatiques et grandes longueurs de conduites (pertes de charge importantes).

Pression constante :

La pression est maintenue constante, qu'il y ait demande de chaleur ou pas. Ce mode sera typiquement utilisé dans les installations de chauffage par le sol ou celles à conduite unique, à faible perte de charge.

Courbe constante :

Le circulateur fonctionne selon une courbe constante, ce qui correspond à un mode de fonctionnement standard de pompe. Ce mode permet de laisser la pompe fonctionner selon la courbe maxi en période de forte demande, par exemple en cas de priorité sanitaire, et selon la courbe mini quand la demande est faible (mode nuit).

Une fois les réglages effectués, la pompe peut être verrouillée pour éviter toute manipulation involontaire. Appuyer pendant plus de 10 secondes sur le bouton. Toutes les LEDs s'allumeront (sauf la rouge) et clignoteront pendant 1 seconde pour indiquer que le verrouillage est effectif. Le déverrouillage s'effectue de la même manière.



Proportional pressure:

Default mode, applicable to most heating systems. Pressure increases and decreases according to the heat demands. Three preset curves are available, from the lowest to the highest. The $AUTO_{ADAPT}$ curve allows the pump to operate with the best efficiency for the type of system. This is the preferred mode for two-pipe systems, with thermostatic valves and long piping (high pressure drop).

Constant pressure:

Pressure is kept constant whether there is a heat demand or not. This is the typical mode for floor-heating systems or one-pipe systems with low pressure drop.

Constant curve:

The circulation pump works according to a constant curve, which is the standard operation for a pump. The pump will then run following the max curve when demand is high, e.g. in the case of DHW priority, and according to the min curve when demand is low (night mode).

Once the set-up is completed, the pump can be locked to prevent any accidental change. Press the button for more than 10 secondes and all the LED will light (except the red one) and blink for 1 second to indicate that the lock is on. Proceed the same way to unlock.

DÉPANNAGE DE LA POMPE

INDICATIONS D'ALARME	
Blocage	• Rotor de la pompe bloqué; attendre le redémarrage de la pompe ou débloquer mécaniquement l'axe à l'aide d'un tournevis.
Tension électrique trop basse	• Tension d'alimentation trop faible; vérifier la tension d'alimentation
Panne électrique	• Arrêt de la pompe par manque de tension d'alimentation ou à cause d'une panne grave; vérifier la tension d'alimentation ou remplacer la pompe le cas échéant.

DÉMARRAGE DE LA CHAUDIÈRE

Avant la mise en service, veiller à purger l'air du circuit chauffage à l'aide du purgeur situé en haut de la chaudière. S'assurer que le capuchon noir du purgeur est desserré pour que la fonction de purge automatique soit activée.

Une fois la chaudière prêtre à fonctionner, effectuer le réglage de la pompe si nécessaire, en fonction du type d'installation de chauffage.

TROUBLESHOOTING THE PUMP

ALARM STATUS	
Blocking	• *Pump rotor blocked; wait for the pump to restart or mechanically unblock the shaft with a screwdriver.*
Voltage too low	• *Supply voltage too low; check the supply voltage.*
Electrical failure	• *The pump has stopped because of a lack of voltage supply or a serious failure; check the supply voltage or replace the pump, as required.*

STARTING UP THE BOILER

Before starting the boiler, make sure that the air is bled from the heating circuit using the automatic air vent located at the top of the boiler. Note that the black dust cap on the air vent should be left loose to allow the auto vent to function.

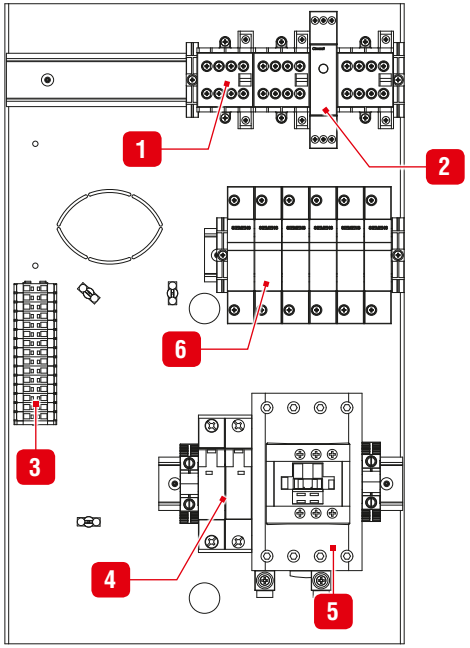
Once the boiler is ready to operate, perform pump setup if required, according to the type of heating system.

Addendum - E-Tech W

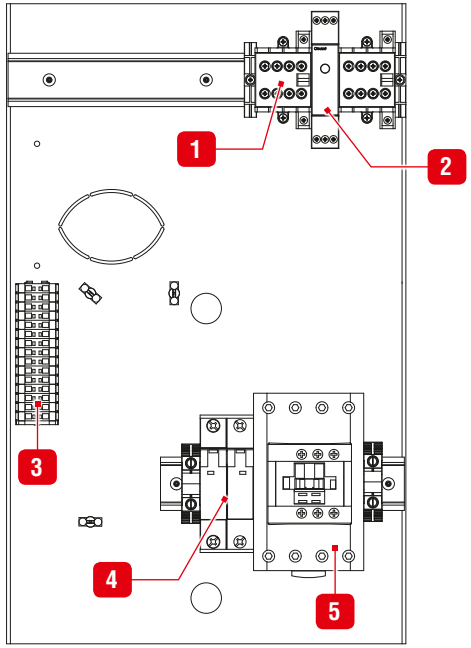
APPLICABILITY : 664Y6500 - Rev B, E-Tech W 09 - 15 - 22 - 28 - 36 Single and Tri Phase, p./Seite/Strona/стр. 5

1. Relay - Contacteur - Aansluitcontacten - Contactor - Relè di potenza - Zeitrelais - Styczniki - Электромагнитное реле
2. Timer - Temporisateur - Timer - Temporizador - Temporizzatore - Zeitschalter - Przekaźnik czasowy - Реле задержки времени включения 2-ой ступени
3. Control terminals - Bornier de commande - Besturingsklemmen - Bornes de mando - Morsettiera di comando - Steuerklemmen - Listwa zaciskowa obwodu sterowania - Клеммная колодка цепи управления
4. Circuit breaker - Disjoncteur magnéto-thermique - Magnetothermische schakelaar - Disyuntor magnetotérmico - Interruttore magnetotermico generale ON/OFF - Sicherung - Bezpiecznik obwodu regulacji - Автоматические выключатели
5. Safety switch - Contacteur de sécurité - Veiligheidsrelais - Contactor de seguridad - Contactor de seguridad - Contattore di sicurezza - Sicherheitsrelais - Przekaźnik główny - Отключающее электромагнитное реле
6. Power terminals with fuse 25A or 32A - Bornier de puissance avec fusible de 25A ou 32A -Vermogensklemmen met zekering van 25A of 32A - Bornes de potencia con fusible 25 o 32 - Morsettiera di potenza con fusibili di 25A o 32A - Leistungsklemmen mit Sicherung 25A oder 32A - Zaciski zasilania z zabezpieczeniem 25A lub 32A - Клеммная колодка силовой цепи с предохранителями 25A или 32A

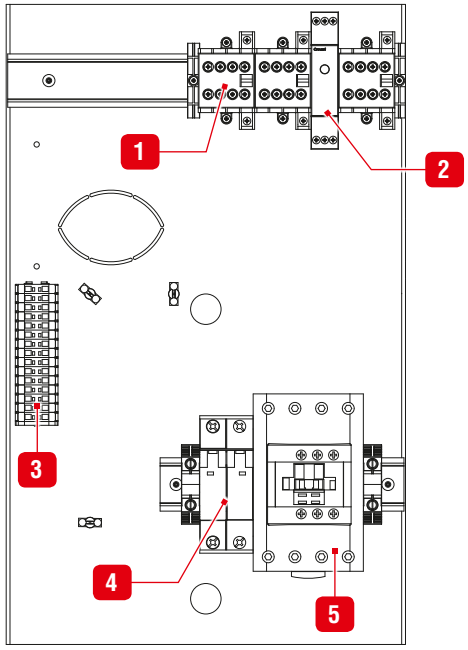
E-Tech W 09 - 15 Single Phase



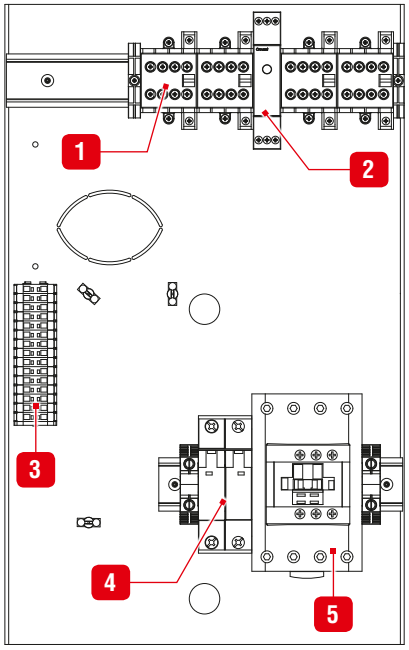
E-Tech W 09 - 15 Tri Phase



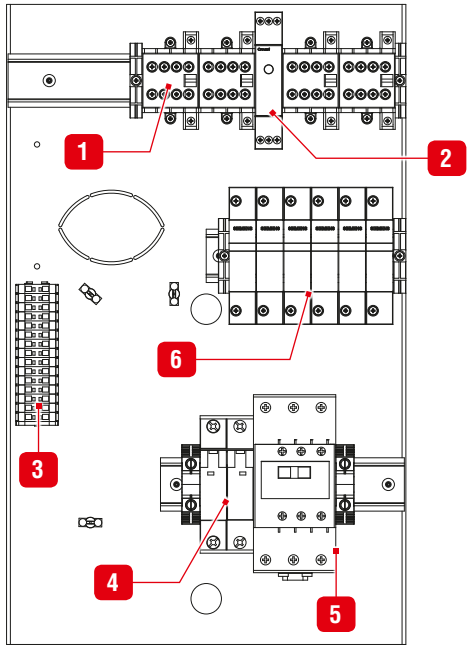
E-Tech W 22 Tri Phase



E-Tech W 28 Tri Phase



E-Tech W 36 Tri Phase



EXCELLENCE IN HOT WATER

CE

EU DECLARATION OF CONFORMITY TO STANDARDS

Product type: **Electric boiler**

Name and address of manufacturer: **ACV International SA / NV**
Oude Vijverweg, 6
B-1653 Dworp
Belgium

This declaration of conformity is issued under the sole responsibility of the manufacturer.

Model:
E-Tech W 9 Mono
E-Tech W 15 Mono
E-Tech W 9 Tri
E-Tech W 15 Tri
E-Tech W 22 Tri
E-Tech W 28 Tri
E-Tech W 36 Tri

We declare hereby that the appliances specified above are conform to the following directives:

Directives	Description	Date
2014/35/EU	Voltage Limits Directive	26.02.2014
2014/30/EU	Electromagnetic Compatibility Directive	26.02.2014

Relevant harmonised standards :

EN 60335-1

EN 60335-2-35

Signed for and on behalf of
ACV International SA/NV

Dworp, 09/08/2018

R&D Director
Sara Stas

TABLE OF CONTENTS

WARNINGS 3

Who should read these instructions 3
Symbols 3
Recommendations 3
Applicable standards 3
Important notes 3
Manual handling instructions 3
Removing the boiler from the packaging 3

INTRODUCTION 4

Description of the specifications 4
User data 6
Setting up 6
Optional internal time clock 6
Pressure in the heating system 6

TECHNICAL CHARACTERISTICS 7

Electrical Characteristics 7
Main Characteristics 7
Electric data of model 09 Single Phase 8
Electric data of model 09 Tri Phase 8
Electric data of model 15 Single Phase 8
Electric data of model 15 Tri Phase 8
Electric data of model 22 Tri Phase 9
Electric data of model 28 Tri Phase 9
Electric data of model 36 Tri Phase 9

INSTALLATION 10

Dimensions 10
Installation room 10
Disassembling 11
Heating connection 12
Heating connection + dHW : "Y" PLAN 12
Heating connection + dHW : "S" PLAN 12
Connecting the power supply 13
Connecting the electrical Accessories 14
Sizing of supply wires 15
Control wiring diagram : E-Tech W 09 - 15 Single phase 16
Power wiring diagram : E-Tech W 09 - 15 Single phase 17
Control wiring diagram : E-Tech W 09 - 15 Tri Phase 18
Power wiring diagram : E-Tech W 09 - 15 Tri Phase 19
Control wiring diagram : E-Tech W 22 Tri Phase 20
Power wiring diagram : E-Tech W 22 Tri Phase 21
Control wiring diagram : E-Tech W 28 Tri Phase 22
Power wiring diagram : E-Tech W 28 Tri Phase 23
Control wiring diagram : E-Tech W 36 Tri Phase 24
Power wiring diagram : E-Tech W 36 Tri Phase 25
Honeywell sundial wiring diagrams : S plan 26
Honeywell sundial wiring diagrams : Y plan 27

COMMISSIONING AND MAINTENANCE 28

Commissioning - water 28
Commissioning - electrical 28
Starting the boiler 28
Maintenance 28

REMOVAL THE HEATING ELEMENTS 29

WHO SHOULD READ THESE INSTRUCTIONS

These instructions should be read by:
- The specifying engineer
- The installer
- The user
- The service engineer

SYMBOLS

Essential instruction for the correct operation of the installation.

Essential instruction for the safety of persons and the environment.

Danger of electrocution.

RECOMMENDATIONS

- **These instructions are an integral part of the equipment to which they refer and the user must be provided with a copy.**
- **The product must be installed and serviced by qualified engineers, in compliance with current standards.**
- **The manufacturer cannot accept liability for any damage resulting from incorrect installation or from the use of components or fittings not specified by the manufacturer.**
- **Any failure to follow instructions relating to tests and test procedures may result in personal injury or risks of pollution.**
- **It is important to switch the boiler off before carrying out any work.**
- **There are no user parts inside the control panel.**

APPLICABLE STANDARDS

The Boilers have been manufactured to comply with the following standards BS EN60335-2-35: 2002, BS EN55014-1: 2001 and BS EN55014-2:1997.

The installation must be in accordance with the current standards.

This appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge, only if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved.

Children shall not play with the appliance.

Cleaning and user maintenance shall not be made by children unless they are aged from 8 years and above and supervised.

This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, unless used under the supervision of a person responsible for their safety.

Children should be supervised to ensure that they do not play with the appliance.

IMPORTANT NOTES

These instructions are an integral part of the equipment to which they relate and must be handed to the user.

The product must be installed and serviced by qualified engineers in accordance with the regulations in force.

The manufacturer declines all liability for any damage caused as a result of incorrect installation or in the event of the use of appliances or accessories that are not specified by the manufacturer.

The manufacturer reserves the right to change the technical characteristics and specification of its products without notice.

The availability of certain versions and their accessories can vary following the market.

Warning : Do not switch ON if there is a possibility that the water in heater is frozen.

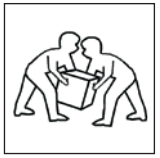
MANUAL HANDLING INSTRUCTIONS



The weight of this boiler is 36Kg, which could present a risk of injury.



Care should be taken when loading and unloading the boiler to and from vehicles.



We recommend that the boiler be handled by two people until it is securely fixed to a wall.



The safest route from the vehicle to the point of installation should be carefully assessed before unloading the boiler.



Mechanical lifting aids should be utilised whenever possible.

REMOVING THE BOILER FROM THE PACKAGING

- Before lifting the boiler from the packaging, ensure that the installation area is clear and that there are no obstacles making installation difficult or unsafe.
- Lay the boiler on its back (as shown on the box side), open the box and remove the cardboard packaging.
- Remove the polythene cover and the polystyrene corner protection pieces.
- With help from another person, lift the boiler from the packaging holding the lipped front edges of the side panels.
- Do not lift or carry the boiler using the top automatic air vent and bottom pump.

DESCRIPTION OF THE SPECIFICATIONS

This wall hung electric boiler is available in 7 models:

- The models Single phase 09 and 15 are supplied with 230 V.
- The models Tri phase 09, 15, 22, 28 and 36 are supplied with 400 V. The maximum power can be adjusted for all models by acting on the switches on the control panel.

The maximum power can be adjusted for this models by acting on the terminals bridges.

	Adjustable power	
MODELS	**MIN**	**MAX**
E-Tech W 09 - Single phase	5.6 kW	8.4 kW
E-Tech W 15 - Single phase	9.6 kW	14.4 kW
E-Tech W 22 - Tri phase	14.4 kW	21.6 kW
E-Tech W 28 - Tri phase	14.4 kW	28.8 kW
E-Tech W 36 - Tri phase	18 kW	36 kW

LINING

The boiler is protected by a steel lining that first of all undergoes a degreasing and phosphation process before being lacquered and burnt at 220°C.

HEATING BODY

The boiler heat exchanger is constructed from mild steel with welded joints. It is hydraulic tested under a pressure of 4.5 bar (maximum working pressure = 3 bar).

HEATING ELEMENTS

Immersion heaters, constructed from stainless steel Incoloy 800 and mounted in the top of the boiler, provide the power source for the Boiler.

EQUIPMENT

The boiler is equipped with all the necessary components to allow direct connection to a heating system without the need for a feed and expansion cistern. These components include; primary 10 litre expansion vessel (suitable for a system water content of up to 160 litres), pressure and temperature gauge, safety valve, circulating pump, low water pressure switch, control and high limit thermostats, on/off and power level switches.

CONNECTION

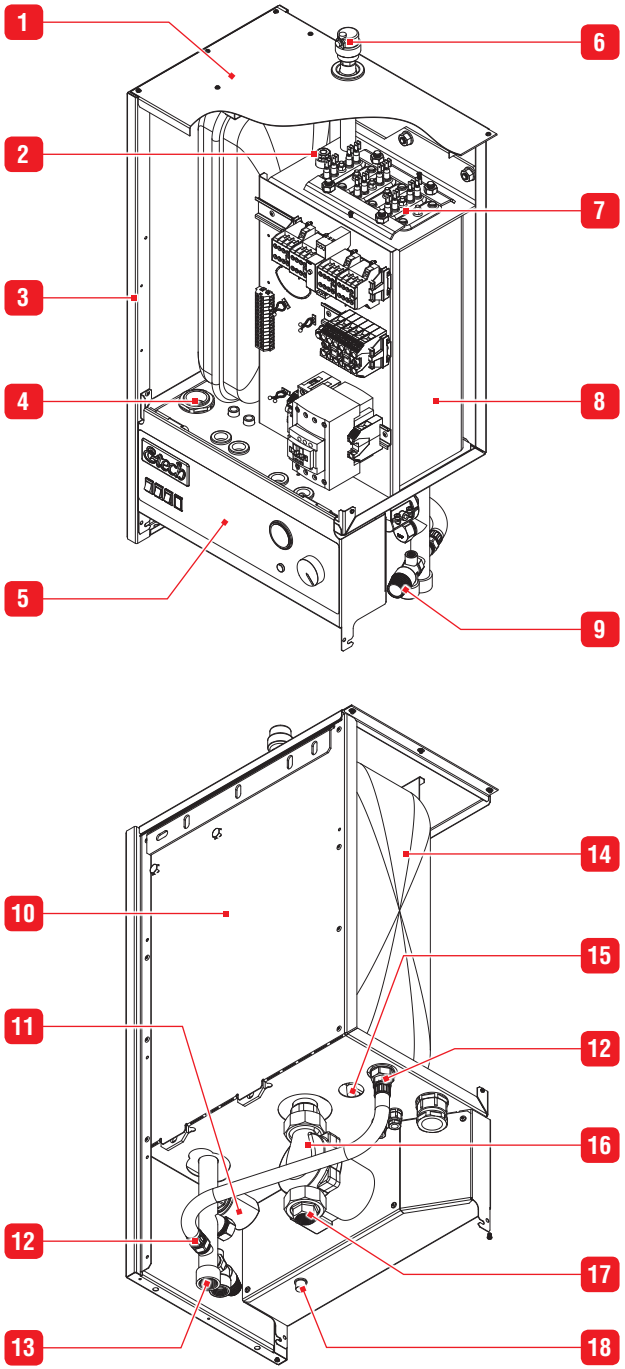
The boiler is suitable for connection to most heating and hot water systems, with a maximum working pressure of 3 bar and a maximum temperature of 87°C. It can also be used in multiple boiler installations allowing greater outputs to be achieved.
The boiler, and connection glands for both the main power supply and optional external controls are provided, suitable for single or three phase electrical supply depending upon boiler output required.
An internal 3 amp MCB is provided to protect the internal control circuit, from which optional controls can be connected e.G. Internal or external timeclock.

CERTIFICATION

The boilers have been manufactured to comply with the following standards BS EN60335-2-35: 1998, BS EN55014-2:1997 and BS EN50081-1-1: 1992.

LEGEND

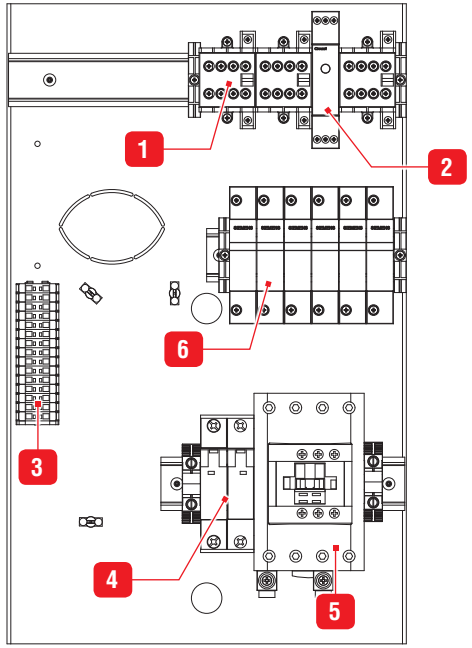
1. Top cover
2. Brass pocket
3. Hand side panel
4. Cable gland
5. Control panel
6. Automatic air vent
7. Heating element
8. Heating body
9. Pressure safety valve
10. Rear panel
11. Water pressure switch
12. Expansion vessel connection
13. Heating return
14. Expansion vessel
15. Valve of expansion vessel
16. Circulating pump
17. Heating flow
18. Manual reset hight limit thermostat



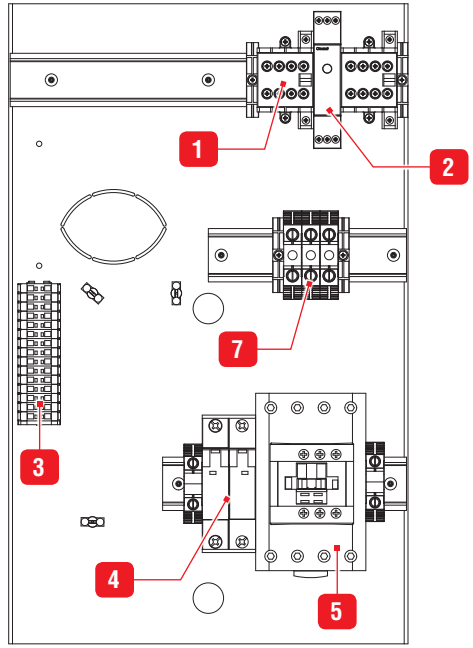
LEGEND

1. Relay
2. Timer
3. Control terminals
4. Circuit breaker
5. Safety switch
6. Power terminals with fuse 25A or 32A
7. Power terminals

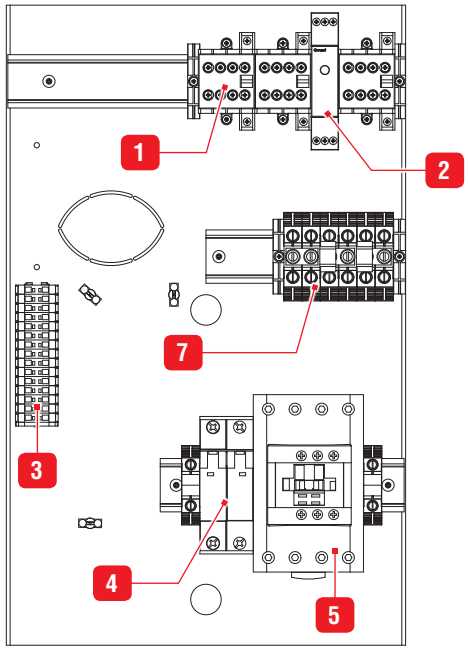
E-Tech W 09 - 15 Single Phase



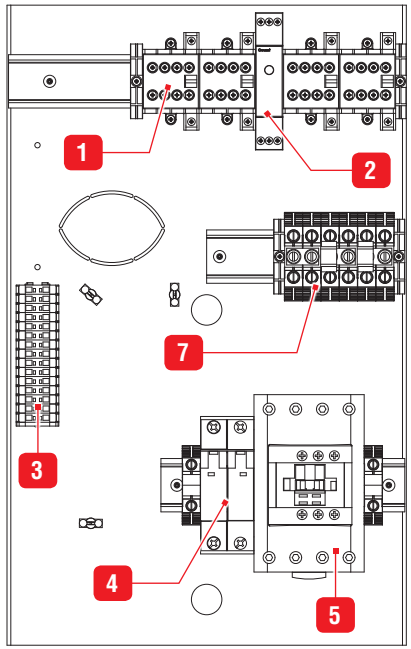
E-Tech W 09 - 15 Tri Phase



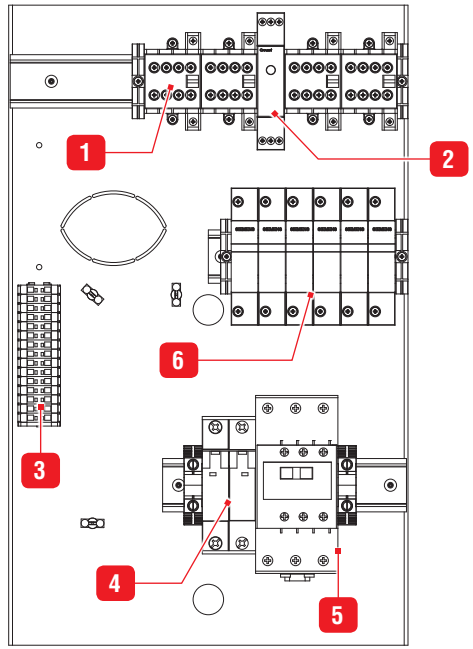
E-Tech W 22 Tri Phase



E-Tech W 28 Tri Phase



E-Tech W 36 Tri Phase



USER DATA

All user controls are situated on the front panel of the boiler, there are no user controls inside the boiler casing.
The following instructions assume that the boiler has been commissioned, and that the system is filled with water and has been fully vented.

SETTING UP

- Before switching on any electrical supplies to the boiler ensure that the combined temperature and pressure gauge reads at least 1 bar and the control thermostat is set to the desired temperature.
- If an internal time clock is fitted ensure that this is switched on (see "Optional Internal Time Clock") and if any other auxiliary controls are fitted e.g. programmer, room thermostats, cylinder thermostats etc, consult appropriate manufacturers' instructions to switch these on.
- Switch on any local means of isolation to boiler.
- Switch the boiler on using the ON/OFF switch (the neon light on the switch should now glow).
- Turn on both power level switches - after a short period of time the boiler temperature should start to rise, indicated by the combined temperature and pressure gauge. If the boiler fails to operate, the overheat safety thermostat should be checked.
  Access to the thermostat reset button is obtained by unscrewing (anti-clockwise) the domed button cover on the front panel (a screwdriver is not required).The reset button can then be seen - press the button, a click should be heard and the button is reset. If no click was heard the device is not at fault and further investigation is required by a suitably qualified engineer.
- The internal clock or external programmer can now be set to allow on/off periods as desired. The ON/OFF switch and 2 power level switches should be left in the ON position during normal use.

☞ **The power level switches will automatically switch on and off during normal boiler operation, depending on boiler temperature.**

- If the boiler is not in regular daily use during cold periods, it is recommended that it be fitted with a frost sensing thermostat to override the timeclock and prevent the system from freezing.
- As with most boilers and heating appliances the casing and pipework can get hot during normal running so the boiler must not be covered and the surrounding area must be kept clear.

OPTIONAL INTERNAL TIME CLOCK

- This operates on a 24-hour sequence. Around- the outside of the clock there are a number of white tabs - these allow 15 minute switching times. To set a boiler cycle simply push outwards the number of tabs required for your heating period.

Remember : Tab OUT = BOILER ON
Tab IN = BOILER OFF

The time of day is marked by an arrow on the inner part of the clock - set the outer time to coincide with this arrow.
On the centre part of the clock there is a switch.
This has three positions :

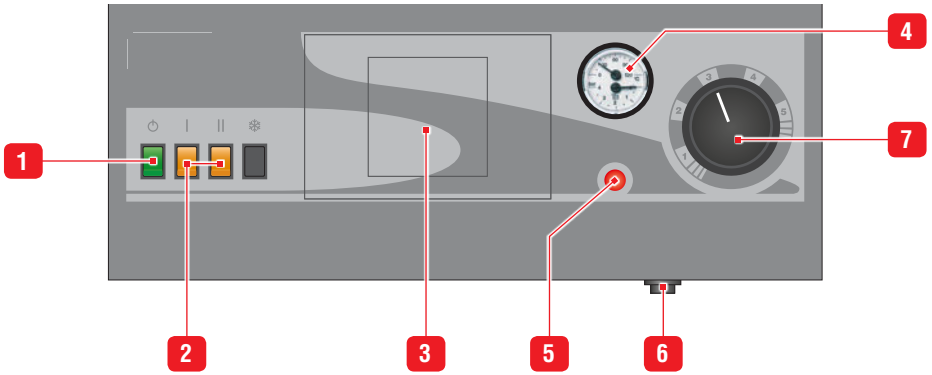
- Switch down - time clock off
- Switch middle - time clock timed (normal position)
- Switch up - time clock on constant.

PRESSURE IN THE HEATING SYSTEM

The CH pressure must be a minimum of 1 bar and must be checked by the end user on a regular basis. If the pressure drops under 0.5 bar, the integrated water pressure switch blocks the appliance until the pressure in the system returns to a level above 0.8 bar.
The installer fits the system with a separate fill valve underneath the appliance. Make sure that the appliance is powered off when filling the system. To do this, turn the on/off switch.
For more information, please ask your installer when the system is delivered.
A safety valve is provided underneath the appliance. If the system pressure exceeds 3 bars, this valve opens and drains the water from the system. In this case, please contact your installer.

LEGEND

1. ON/OFF switch
2. Power levels switch
3. Optional internal clock or controller
4. Combined temperature and pressure gauge
5. Boiler shutdown indicator light
6. Manual reset high limit thermostat
7. Control thermostat :
   1 = 15°C
   2 = 30°C
   3 = 45°C
   4 = 60°C
   5 = 80°C



ELECTRICAL CHARACTERISTICS

E-TECH W

		09		15	
		Single	**Tri**	**Single**	**Tri**
Max Power	kW	8.4	8.4	14.4	14.4
Rated voltage of the power supply	V	230	3 x 400	230	3 x 400
Rated voltage of the control circuit	V	230	230	230	230
Rated frequency	Hz	50	50	50	50
Ohmic resistance of element	Ohm	37.8	37.8	22	22
Heating element type	kW	2 x 1.4	2 x 1.4	2 x 2.4	2 x 2.4
Number of heating elements		3	3	3	3
Electric protection	IP	43	43	43	43

E-TECH W

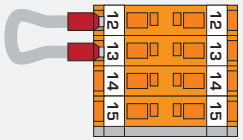
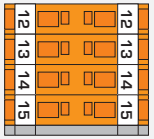
		22 Tri	**28 Tri**	**36 Tri**
Max Power	kW	21.6	28.8	36
Rated voltage of the power supply	V	3 x 400	3 x 400	3 x 400
Rated voltage of the control circuit	V	230	230	230
Rated frequency	Hz	50	50	50
Ohmic resistance of element	Ohm	22	22	17.6
Heating element type	kW	2 x 2.4	2 x 2.4	2 x 3.0
Number of heating elements		5	6	6
Electric protection	IP	43	43	43

MAIN CHARACTERISTICS

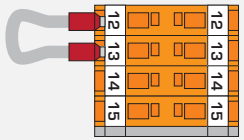
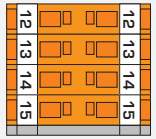
E-TECH W

Capacity (primary)		L	13
Primary circuit expansion vessel volume		L	10
Max. working pressure		bar	3
Min. working pressure		bar	0,8
Max. working temperature		°C	87
Hydraulic pressure drop	E-Tech W • 09 Single / Tri	mbar	10
	E-Tech W • 15 Single / Tri	mbar	20
	E-Tech W • 22 Tri	mbar	45
	E-Tech W • 28 Tri	mbar	85
	E-Tech W • 36 Tri	mbar	125
Heating connection		Ø	3,4" [F]
Height		mm	763
Width		mm	442
Depth		mm	332
Weight empty		kg	45

ELECTRIC DATA OF MODEL 09 SINGLE PHASE

		STAGE 1	STAGE 2	STAGE TOTAL	CONTROL TERMINALS
Single Phase 8.4 kW (*)					
Terminal L1	**(A)**	24	12	36	
Terminal N	**(A)**	24	12	36	
Power	**(kW)**	5.6	2.8	8.4	
Single Phase 5.6 kW (**)					
Terminal L1	**(A)**	12	12	24	
Terminal N	**(A)**	12	12	24	
Power	**(kW)**	2.8	2.8	5.6	

ELECTRIC DATA OF MODEL 15 SINGLE PHASE

		STAGE 1	STAGE 2	STAGE TOTAL	CONTROL TERMINALS
Single Phase 14.4 kW (*)					
Terminal L1	**(A)**	41.6	20.8	62.4	
Terminal N	**(A)**	41.6	20.8	62.4	
Power	**(kW)**	9.6	4.8	14.4	
Single Phase 9.6 kW (**)					
Terminal L1	**(A)**	20.8	20.8	41.6	
Terminal N	**(A)**	20.8	20.8	41.6	
Power	**(kW)**	4.8	4.8	9.6	

ELECTRIC DATA OF MODEL 09 TRI PHASE

		STAGE 1	STAGE 2	STAGE TOTAL
Tri Phase 8.4 kW				
Terminal L1	**(A)**	6	6	12
Terminal L2	**(A)**	6	6	12
Terminal L3	**(A)**	6	6	12
Power	**(kW)**	4.2	4.2	8.4

ELECTRIC DATA OF MODEL 15 TRI PHASE

		STAGE 1	STAGE 2	STAGE TOTAL
Tri phase 14.4 kW				
Terminal L1	**(A)**	10.4	10.4	20.8
Terminal L2	**(A)**	10.4	10.4	20.8
Terminal L3	**(A)**	10.4	10.4	20.8
Power	**(kW)**	7.2	7.2	14.4

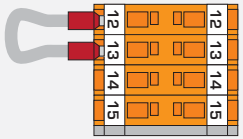
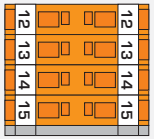
This values are based on standard supply voltage in Europe, that is 1 x 230V for single phase and 3 x 400 Volt for tri phase.

(*) Factory configuration.

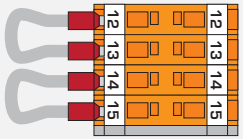
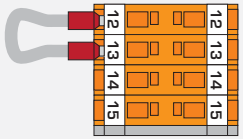
(**) Remove the shunt 12 and 13 on control wiring in order to deactivate the relay.

(***) Remove the shunt 14 and 15 on control wiring in order to deactivate the relay.

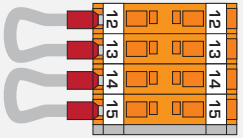
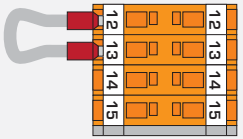
ELECTRIC DATA OF MODEL 22 TRI PHASE

		STAGE			CONTROL TERMINALS
		1	2	TOTAL	
Tri phase 21.6 kW (*)					
Terminal L1	**(A)**	20.8	10.4	31.2	
Terminal L2	**(A)**	20.8	10.4	31.2	
Terminal L3	**(A)**	20.8	10.4	31.2	
Power	**(kW)**	14.4	7.2	21.6	
Tri phase 14.4 kW (**)					
Terminal L1	**(A)**	10.4	10.4	20.8	
Terminal L2	**(A)**	10.4	10.4	20.8	
Terminal L3	**(A)**	10.4	10.4	20.8	
Power	**(kW)**	7.2	7.2	14.4	

ELECTRIC DATA OF MODEL 36 TRI PHASE

		STAGE			CONTROL TERMINALS
		1	2	TOTAL	
Tri phase 36 kW (*)					
Terminal L1	**(A)**	26	26	52	
Terminal L2	**(A)**	26	26	52	
Terminal L3	**(A)**	26	26	52	
Power	**(kW)**	18	18	36	
Tri phase 27 kW (***)					
Terminal L1	**(A)**	26	13	39	
Terminal L2	**(A)**	26	13	39	
Terminal L3	**(A)**	26	13	39	
Power	**(kW)**	18	9	27	

ELECTRIC DATA OF MODEL 28 TRI PHASE

		STAGE			CONTROL TERMINALS
		1	2	TOTAL	
Tri phase 28.8 kW (*)					
Terminal L1	**(A)**	20.8	20.8	41.6	
Terminal L2	**(A)**	20.8	20.8	41.6	
Terminal L3	**(A)**	20.8	20.8	41.6	
Power	**(kW)**	14.4	14.4	28.8	
Tri phase 21.6 kW (***)					
Terminal L1	**(A)**	20.8	10.4	31,2	
Terminal L2	**(A)**	20.8	10.4	31,2	
Terminal L3	**(A)**	20.8	10.4	31,2	
Power	**(kW)**	14.4	7.2	21,6	

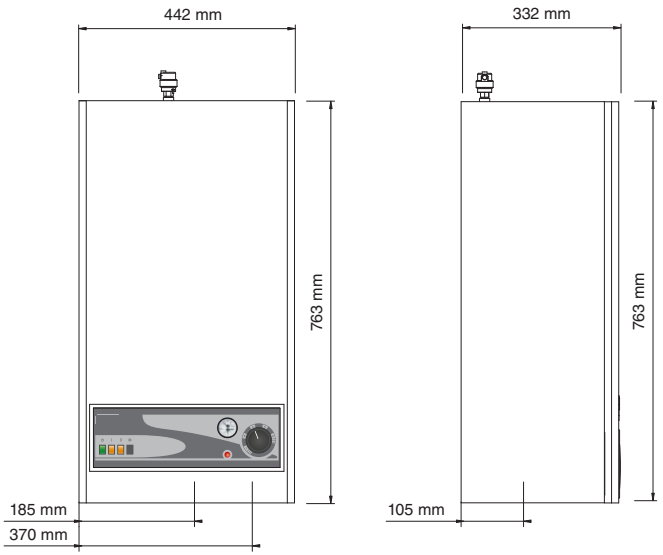
This values are based on standard supply voltage in Europe, that is 1 x 230V for single phase and 3 x 400 Volt for tri phase.

(*) Factory configuration.

(**) Remove the shunt 12 and 13 on control wiring in order to deactivate the relay.

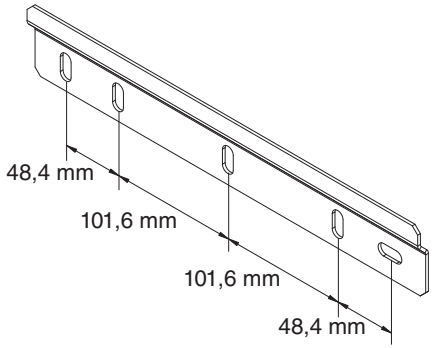
(***) Remove the shunt 14 and 15 on control wiring in order to deactivate the relay.

DIMENSIONS



WALL MOUNTING

- The boiler must be fixed to a non flammable wall.
- Observing the clearances shown below, drill 2 off 14mm x 100mm holes.
- Fit the 2 bolts supplied and hang the wall bracket.
- Fit washers and nuts
- Hang the boiler



FROST PROTECTION

the boiler is NOT fitted with frost protection. If the boiler is being installed in a position where freezing could take place, then a suitable external frost thermostat should be fitted.

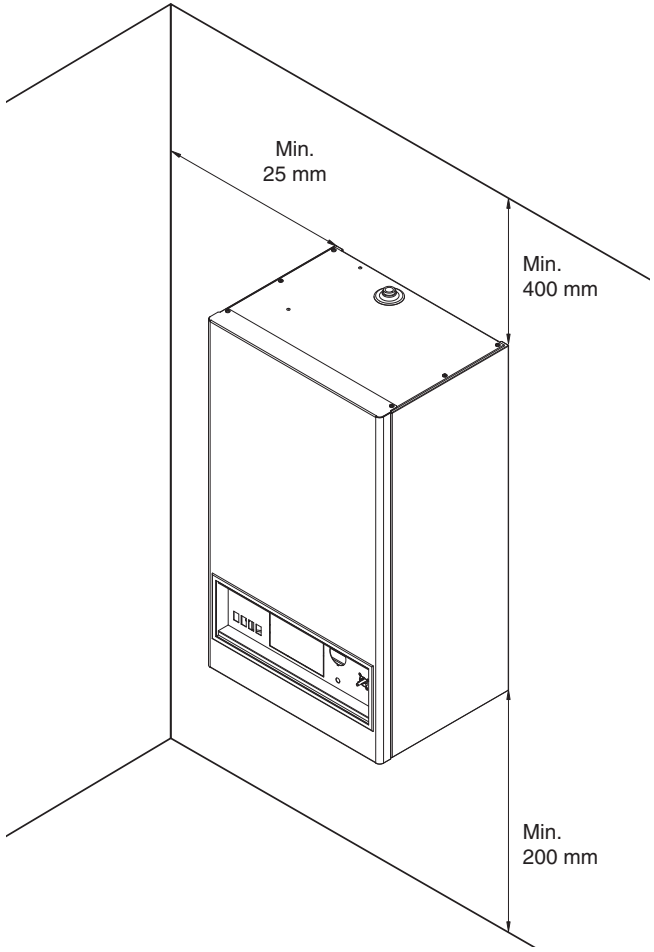
CONNECTING TO THE SYSTEM

the boiler is designed to operate on a sealed system (ie. no open vent or feed and expansion cistern) Hot water expansion within the system is taken up by the internal 10 litre expansion vessel. This is suitable for systems up to 160 litres capacity. If the system capacity is more than this then an additional expansion vessel may be required.This can be fitted external to the boiler at a convenient place on the pipework.

Please note that the circulation pump is fitted to the flow connection.

INSTALLATION ROOM

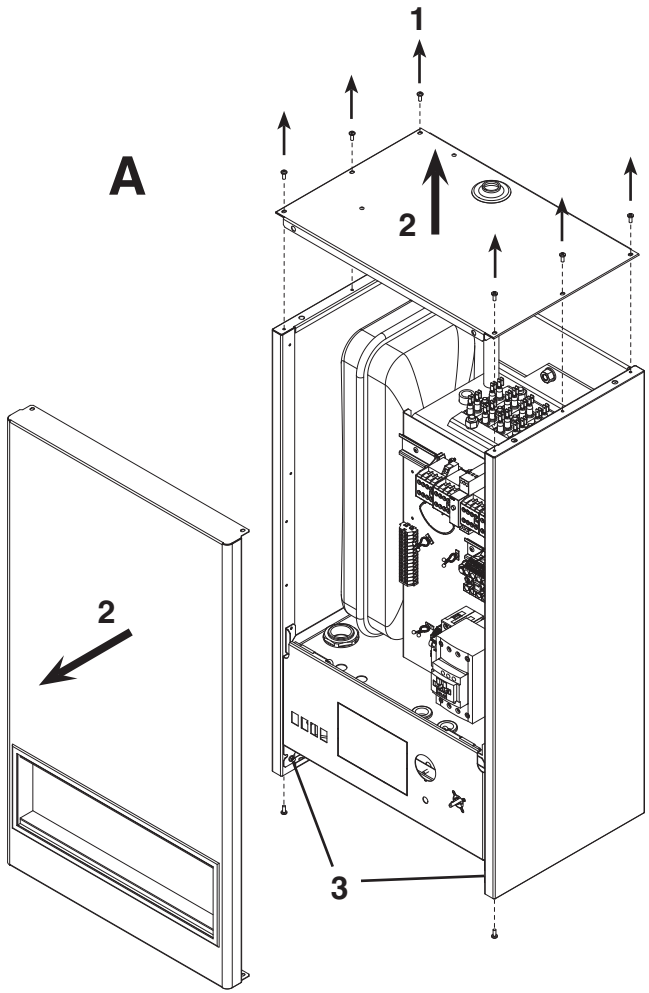
The appliance must be positioned in such a way as to be easily accessible at all times. In addition, the following minimum distances around the appliance must be complied with.

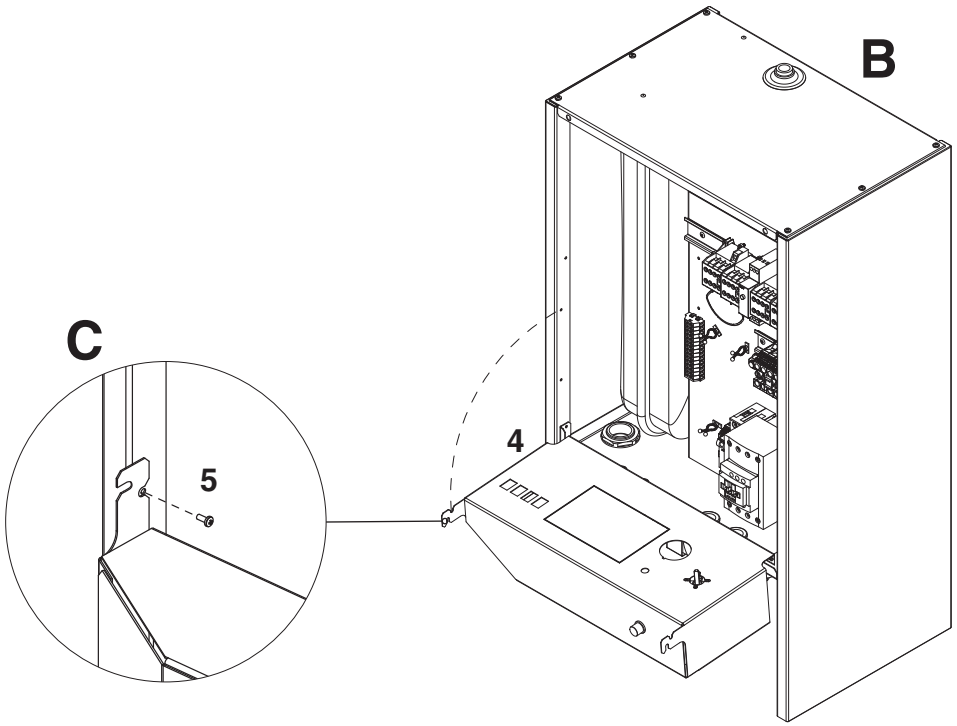


DISASSEMBLING

Panel removal and access to hydraulic connections

1. Undo screws.
2. Tilt panel towards you and lift clear remove the top cover.
3. Loosen screws of the control panel.
4. Turn up the control panel.
5. Block the control panel with the screw.

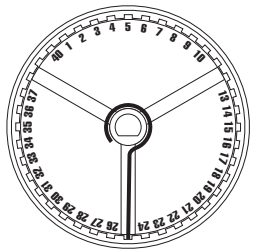




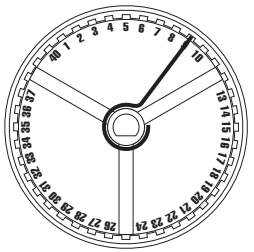
HEATING CONNECTION

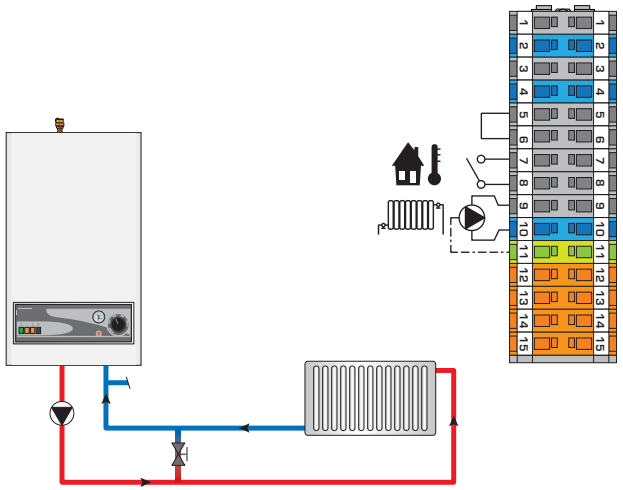
Limiting the maximum adjustable temperature

Factory setting
0 - 87°C



Floor heating
0 - 50°C



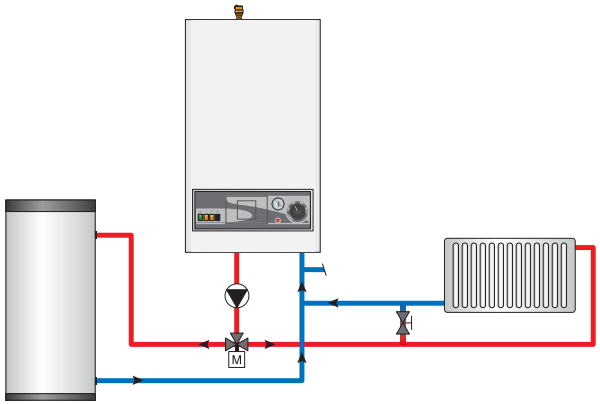


HEATING CONNECTION + DHW : "Y" PLAN

Limiting the maximum adjustable temperature

60 - 87°C

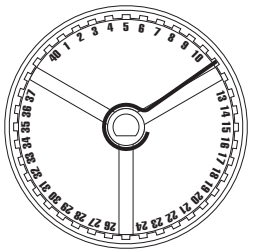


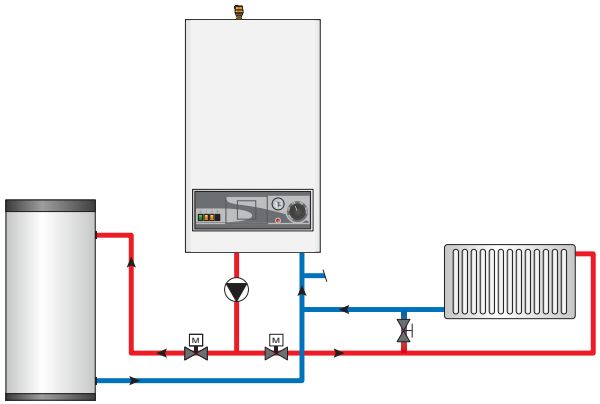


HEATING CONNECTION + DHW : "S" PLAN

Limiting the maximum adjustable temperature

60 - 87°C



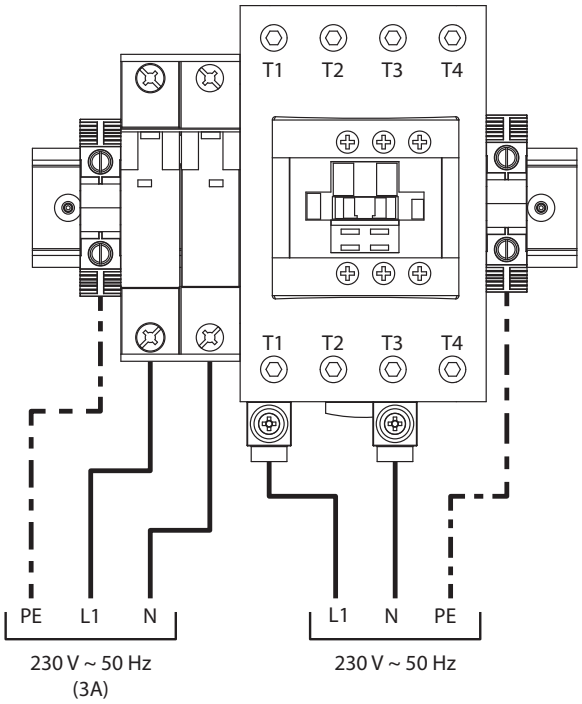


CONNECTING THE POWER SUPPLY

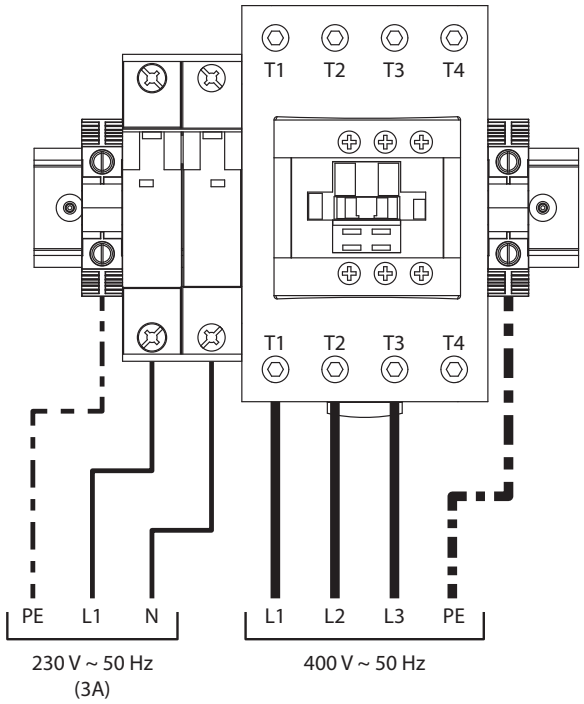
- This appliance must be permanently connected to fixed wiring and must be earthed.
- The wiring must be carried out by a competent person and in accordance with the current IEE Wiring Regulations.



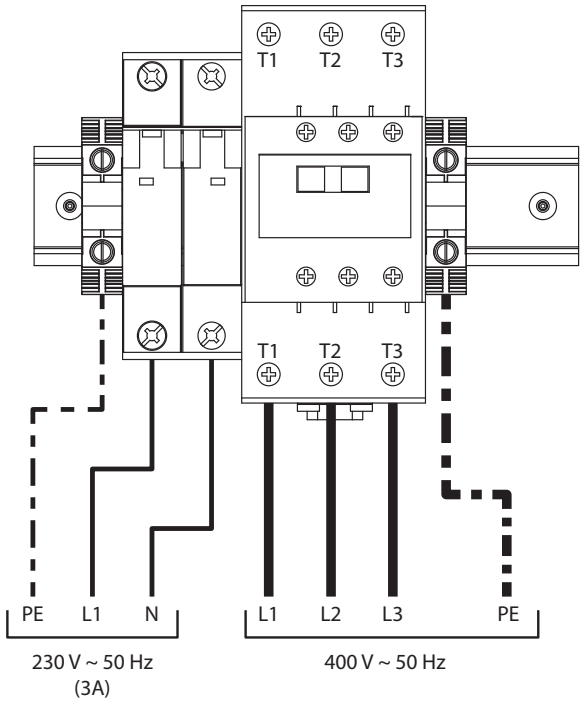
Models E-Tech W 09 - 15 kW Single Phase



Models E-Tech W 09 - 15 - 22 - 28 kW Tri Phase



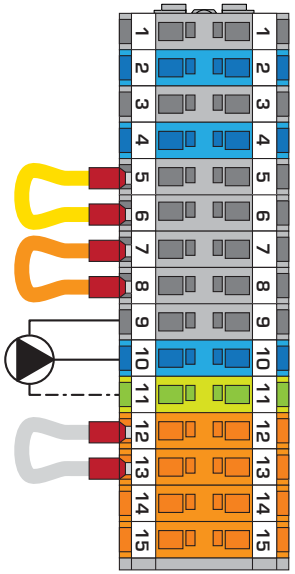
Model E-Tech W 36 kW Tri Phase



CONNECTING THE ELECTRICAL ACCESSORIES

Models : • **E-Tech W 09 - 15 kW Single Phase**
• **E-Tech W 22 kW Tri phase**

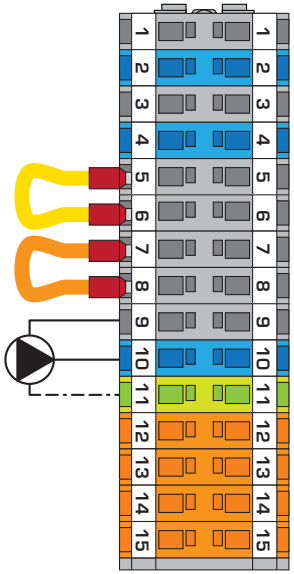
1-2 : Time clock or controller supply (optional)
3-4 : DHW kit (optional)
5-6 : Stop Bridge or time clock switch control (optional)
7-8 : Room thermostat (optional)
9-10-11 : Heating pump
12-13 : Relay K3 deactivated



TB1

Models : • **E-Tech W 09 - 15 kW Tri Phase**

1-2 : Time clock or controller supply (optional)
3-4 : DHW kit (optional)
5-6 : Stop Bridge or time clock switch control (optional)
7-8 : Room thermostat (optional)
9-10-11 : Heating pump



TB1



Models : • E-Tech W 28 - 36 kW Tri Phase

1-2 : Time clock or controller supply (optional)

3-4 : DHW kit (optional)

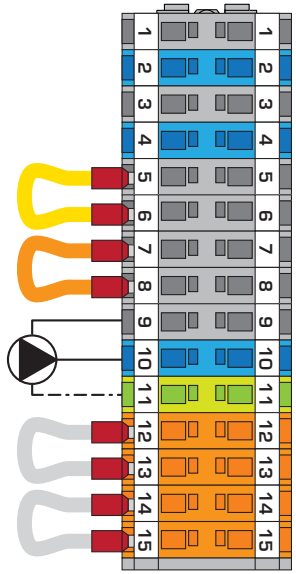
5-6 : Stop Bridge or time clock switch control (optional)

7-8 : Room thermostat (optional)

9-10-11 : Heating pump

12-13 : Relay K3 deactivated

14-15 : Relay K4 deactivated



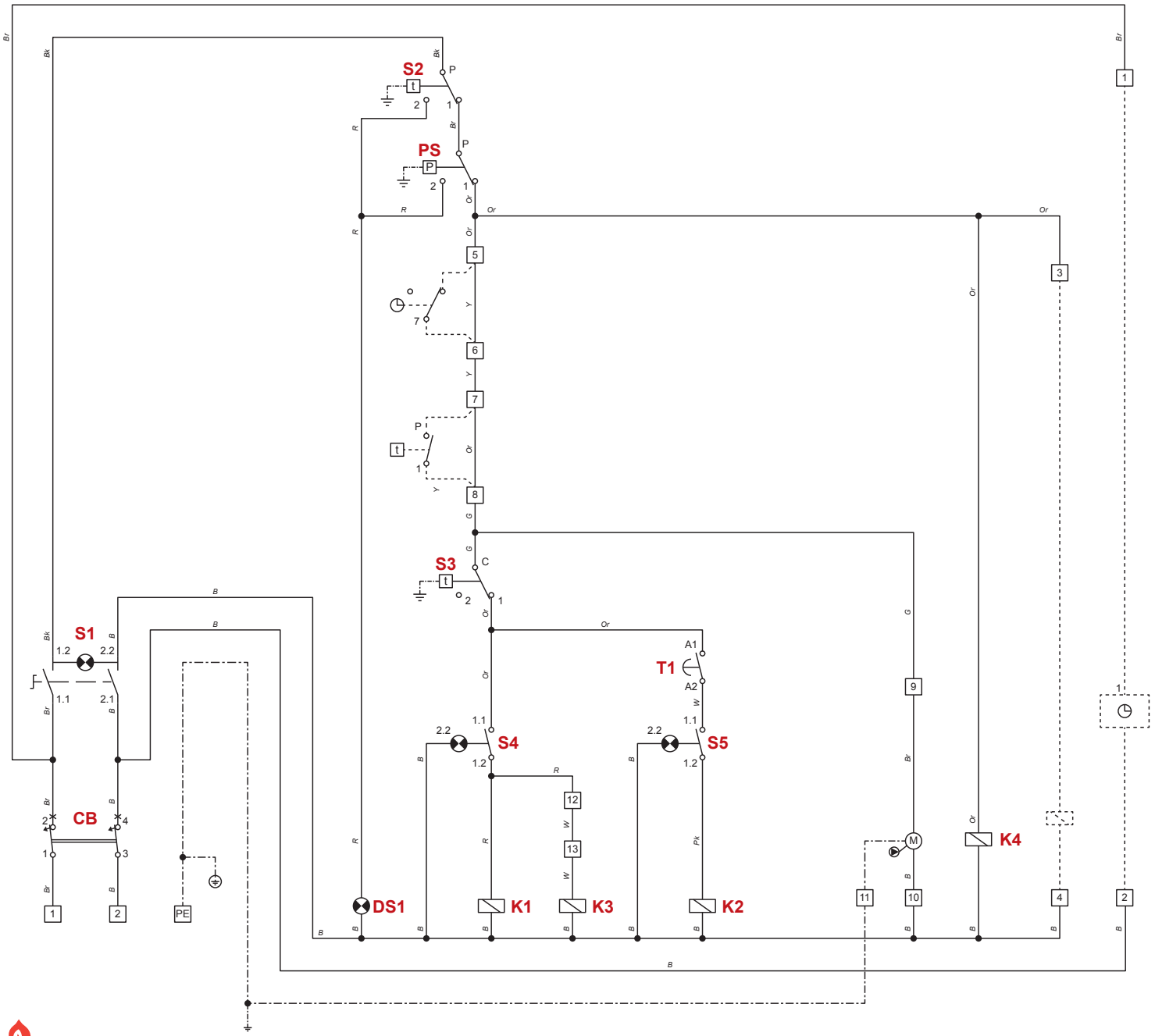
TB1

SIZING OF SUPPLY WIRES

The supply wires are sized depending of the type and current of the MCB. This last firstly sized depending of the nominal current of the boiler. The admissible current of the supply wires depends of the ambient temperature, the section and length of the wires, the wires insulation, the wires canalisation, the mounting and the environment.
The following values are given for information for an ambient temperature of 30°C and a maximal length of 5 meters. In all the cases, the installation must be in accordance with the current IEE Wiring Regulations.

Nominal section (mm)	Nominal current of the MCB (A)
1.5	16
2.5	25
4	32
6	40
10	63
16	80

CONTROL WIRING DIAGRAM : E-TECH W 09 - 15 SINGLE PHASE

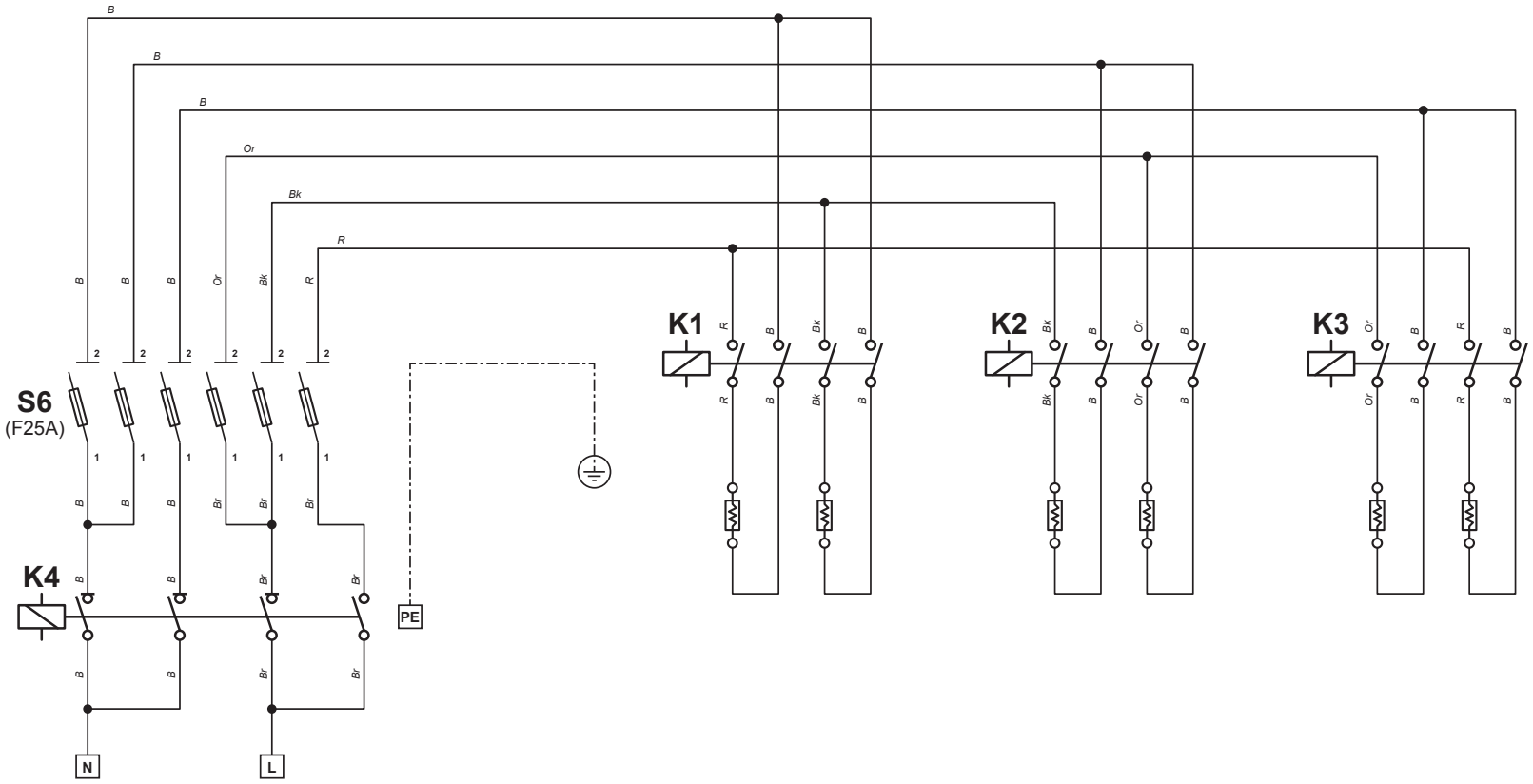


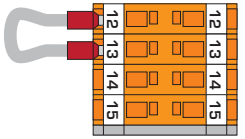
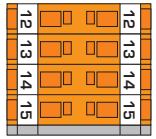
CB : Circuit breaker
S1 : ON/OFF switch + lamp
S2 : Manual reset safety thermostat [103°C]
PS : Low-water pressure switch
DS1 : Alarm
S3 : Control thermostat
S4 : Power switch level 1 + lamp
K1 : Power relay 1 - level 1
K3 : Power relay 2 - level 1
T1 : Timer
S5 : Power switch level 2 + lamp
K2 : Power relay 1 - level 2
K4 : Safety switch

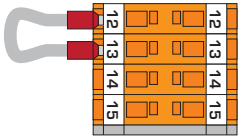
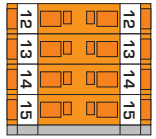
1-2 : Time clock or controller supply (optional)
3-4 : DHW kit (optional)
5-6 : Stop Bridge or time clock switch control (optional)
7-8 : Room thermostat (optional)
9-10-11 : Heating pump
12-13 : Relay K3 deactivated

B : Blue
Bk : Black
Br : Brown
G : Grey
Or : Orange
Pk : Pink
R : Red
W : White
Y : Yellow

POWER WIRING DIAGRAM : E-TECH W 09 - 15 SINGLE PHASE



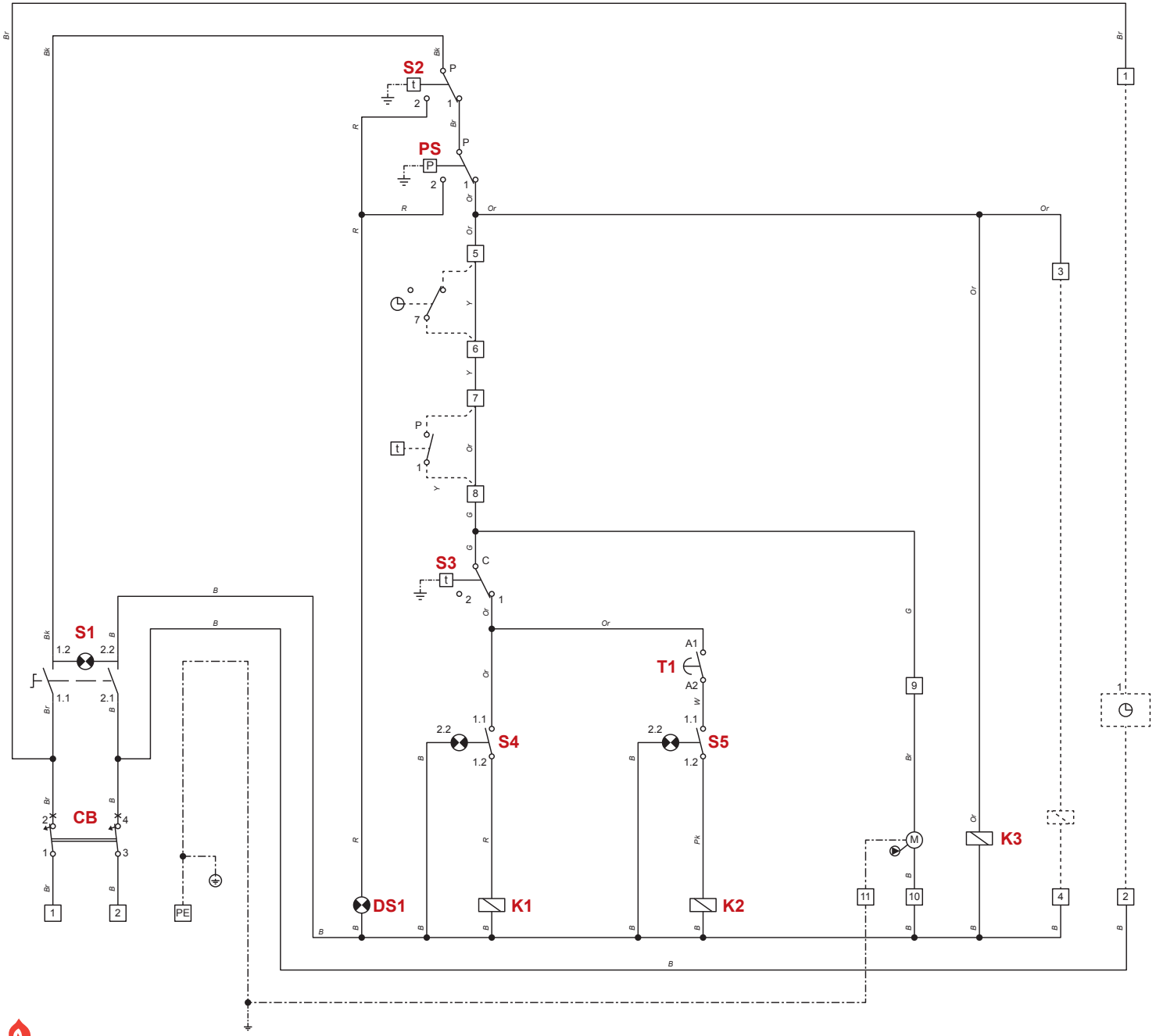
E-Tech W 09		8.4 kW	5.6 kW
Single Phase	TB1		

E-Tech W 15		14.4 kW	9.6 kW
Single Phase	TB1		

S6 : Power terminals with fuse 25A
K1 : Power relay 1 - level 1
K2 : Power relay 1 - level 2
K3 : Power relay 2 - level 1
K4 : Safety switch

B : Blue
Bk : Black
Or : Orange
R : Red

CONTROL WIRING DIAGRAM : E-TECH W 09 - 15 TRI PHASE

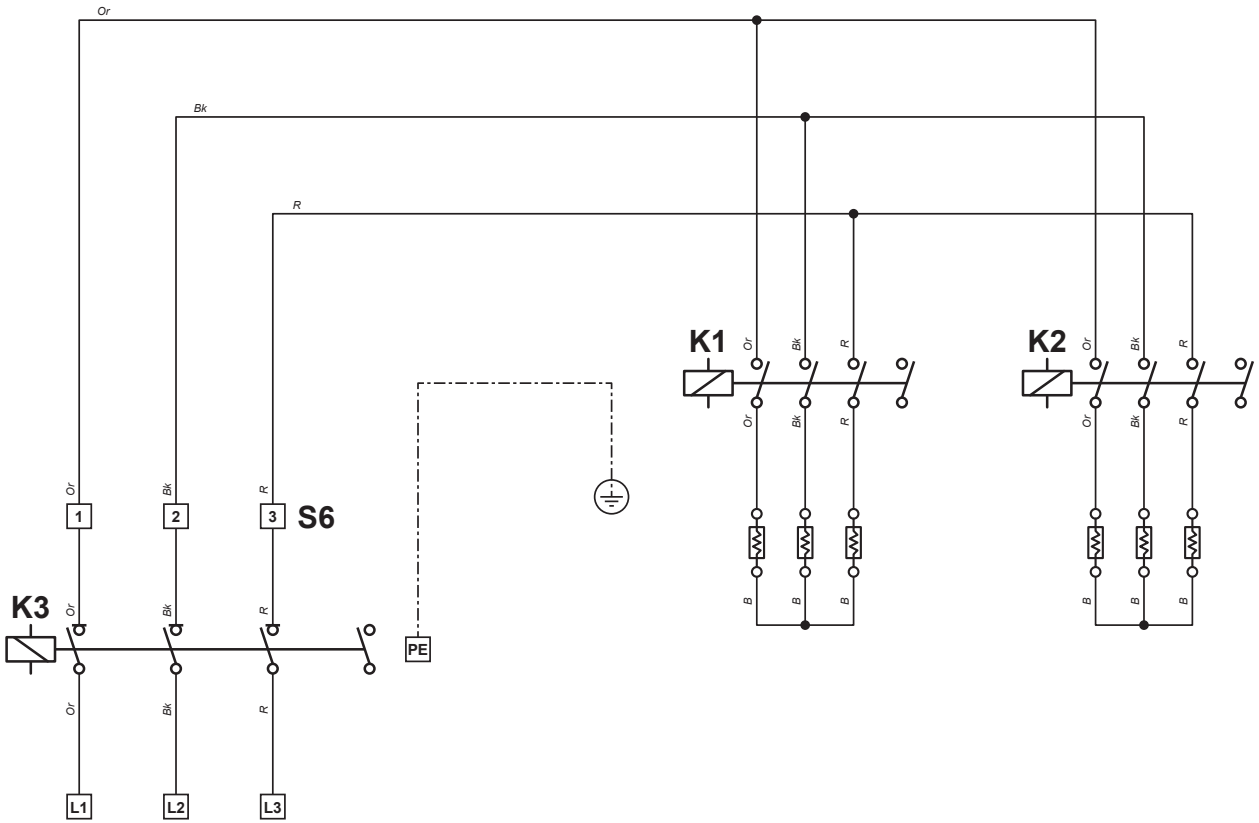


CB : Circuit breaker
S1 : ON/OFF switch + lamp
S2 : Manual reset safety thermostat [103°C]
PS : Low-water pressure switch
DS1 : Alarm
S3 : Control thermostat
S4 : Power switch level 1 + lamp
K1 : Power relay 1 - level 1
T1 : Timer
S5 : Power switch level 2 + lamp
K2 : Power relay 1 - level 2
K3 : Safety switch

1-2 : Time clock or controller supply (optional)
3-4 : DHW kit (optional)
5-6 : Stop Bridge or time clock switch control (optional)
7-8 : Room thermostat (optional)
9-10-11 : Heating pump

B : Blue
Bk : Black
Br : Brown
G : Grey
Or : Orange
Pk : Pink
R : Red
W : White
Y : Yellow

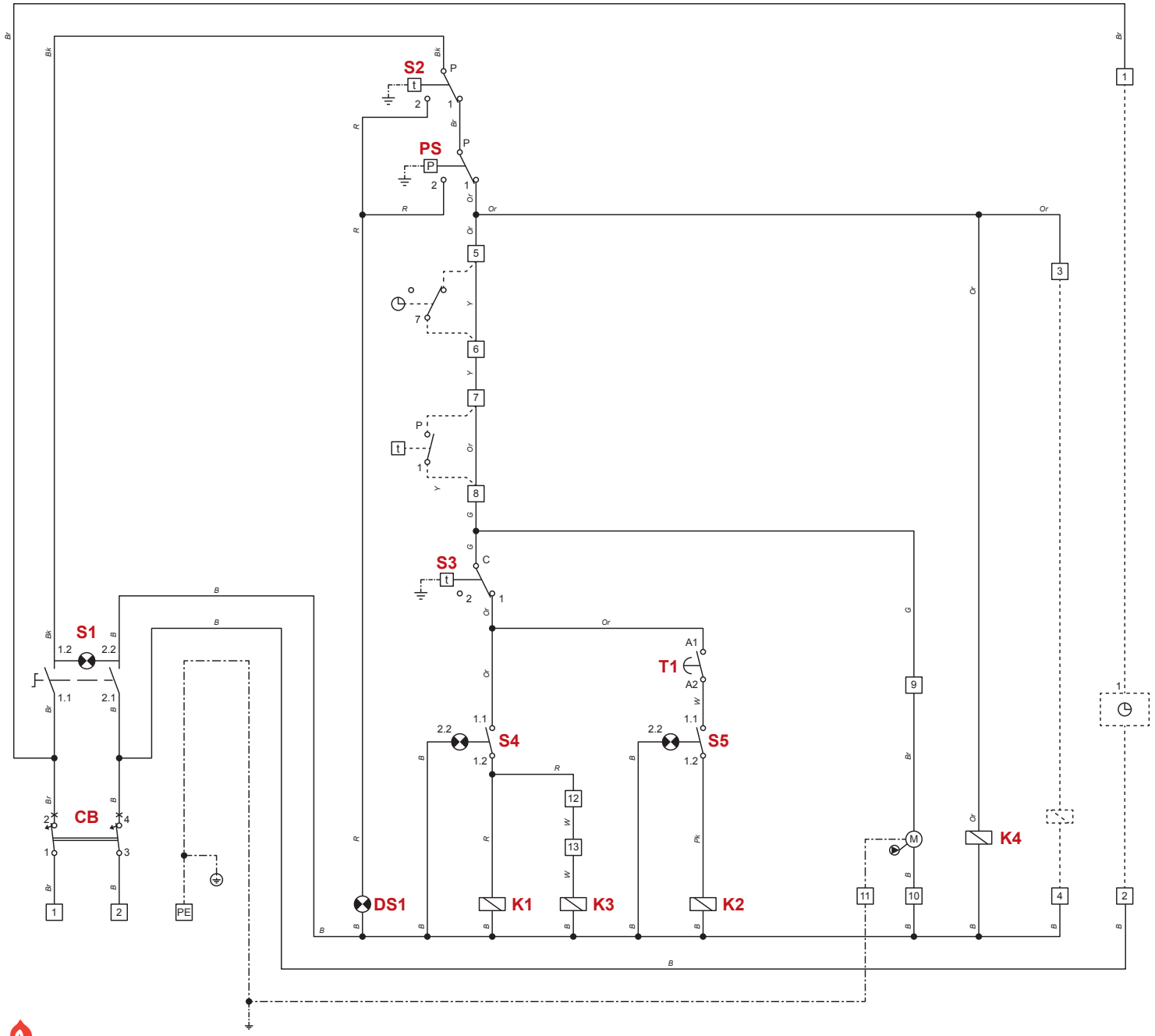
POWER WIRING DIAGRAM : E-TECH W 09 - 15 TRI PHASE



S6 : Power terminals
K1 : Power relay 1 - level 1
K2 : Power relay 1 - level 2
K3 : Safety switch

B : Blue
Bk : Black
Or : Orange
R : Red

CONTROL WIRING DIAGRAM : E-TECH W 22 TRI PHASE

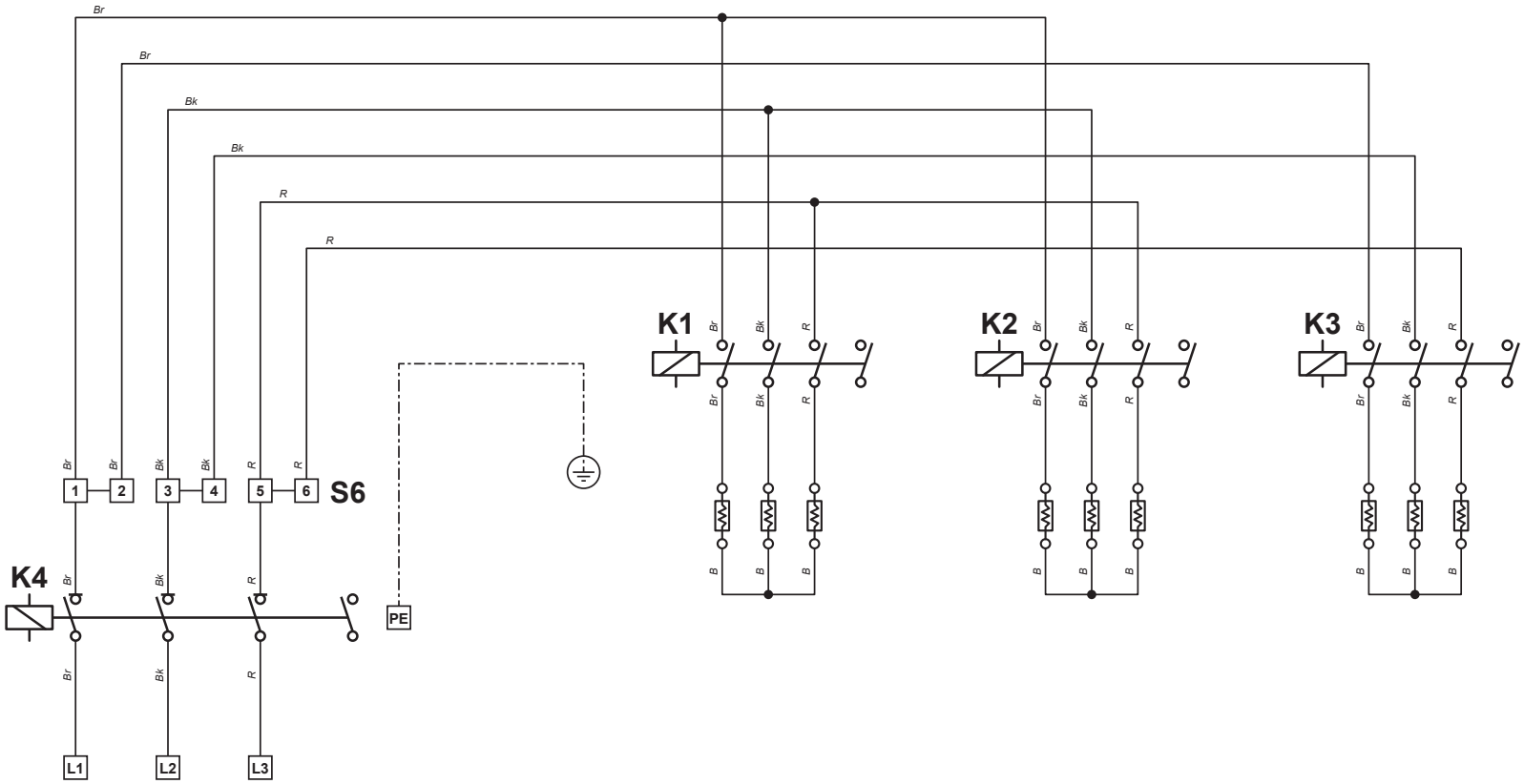


CB : Circuit breaker
S1 : ON/OFF switch + lamp
S2 : Manual reset safety thermostat [103°C]
PS : Low-water pressure switch
DS1 : Alarm
S3 : Control thermostat
S4 : Power switch level 1 + lamp
K1 : Power relay 1 - level 1
K3 : Power relay 2 - level 1
T1 : Timer
S5 : Power switch level 2 + lamp
K2 : Power relay 1 - level 2
K4 : Safety switch

1-2 : Time clock or controller supply (optional)
3-4 : DHW kit (optional)
5-6 : Stop Bridge or time clock switch control (optional)
7-8 : Room thermostat (optional)
9-10-11 : Heating pump
12-13 : Relay K3 deactivated

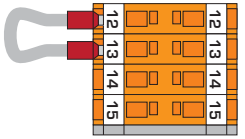
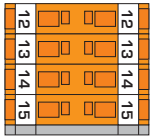
B : Blue
Bk : Black
Br : Brown
G : Grey
Or : Orange
Pk : Pink
R : Red
W : White
Y : Yellow

POWER WIRING DIAGRAM : E-TECH W 22 TRI PHASE

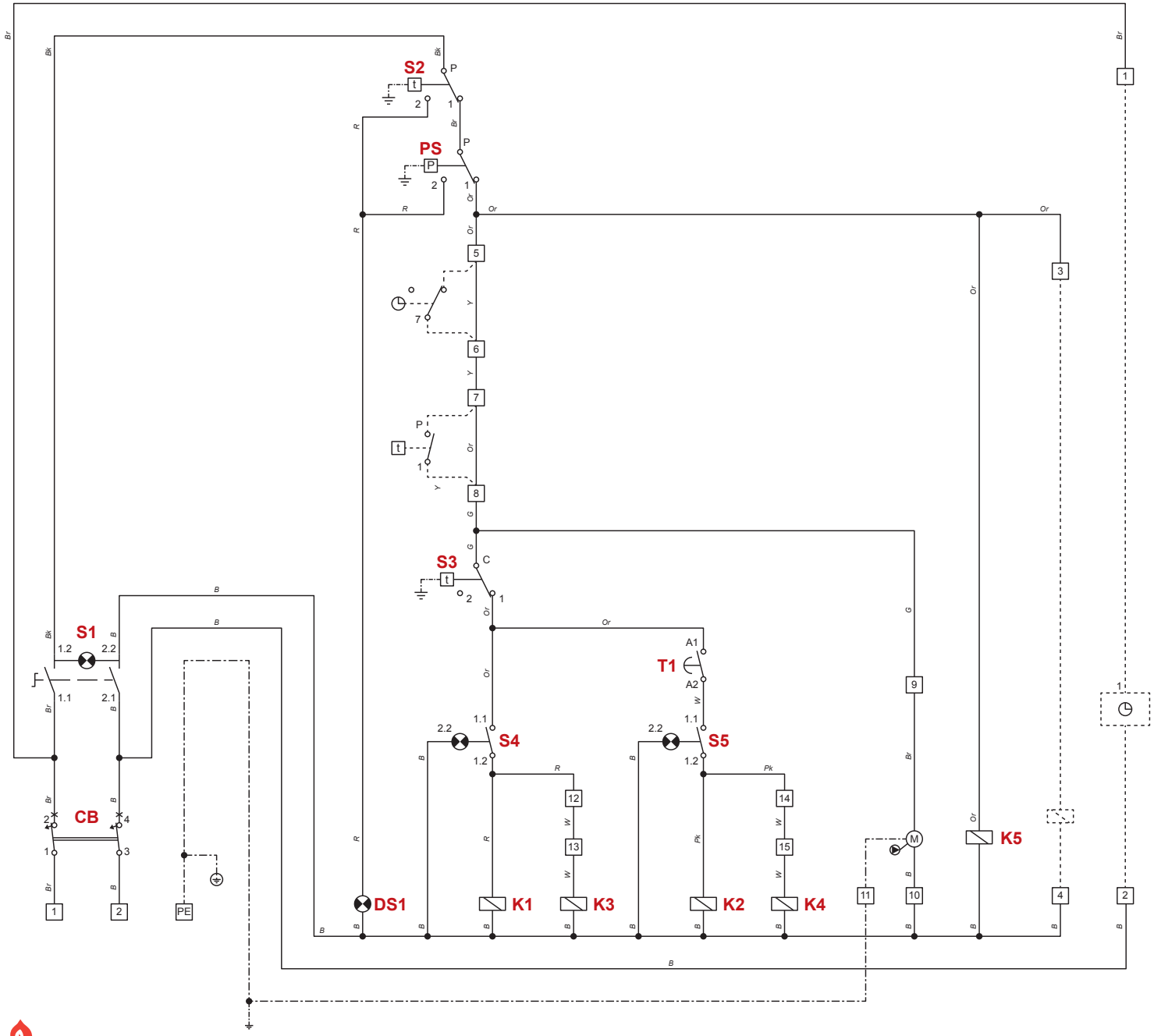


S6 : Power terminals
K1 : Power relay 1 - level 1
K2 : Power relay 1 - level 2
K3 : Power relay 2 - level 1
K4 : Safety switch

B : Blue
Bk : Black
Br : Brown
R : Red

E-Tech W 22		21.6 kW	14.4 kW
Tri Phase	TB1		

CONTROL WIRING DIAGRAM : E-TECH W 28 TRI PHASE

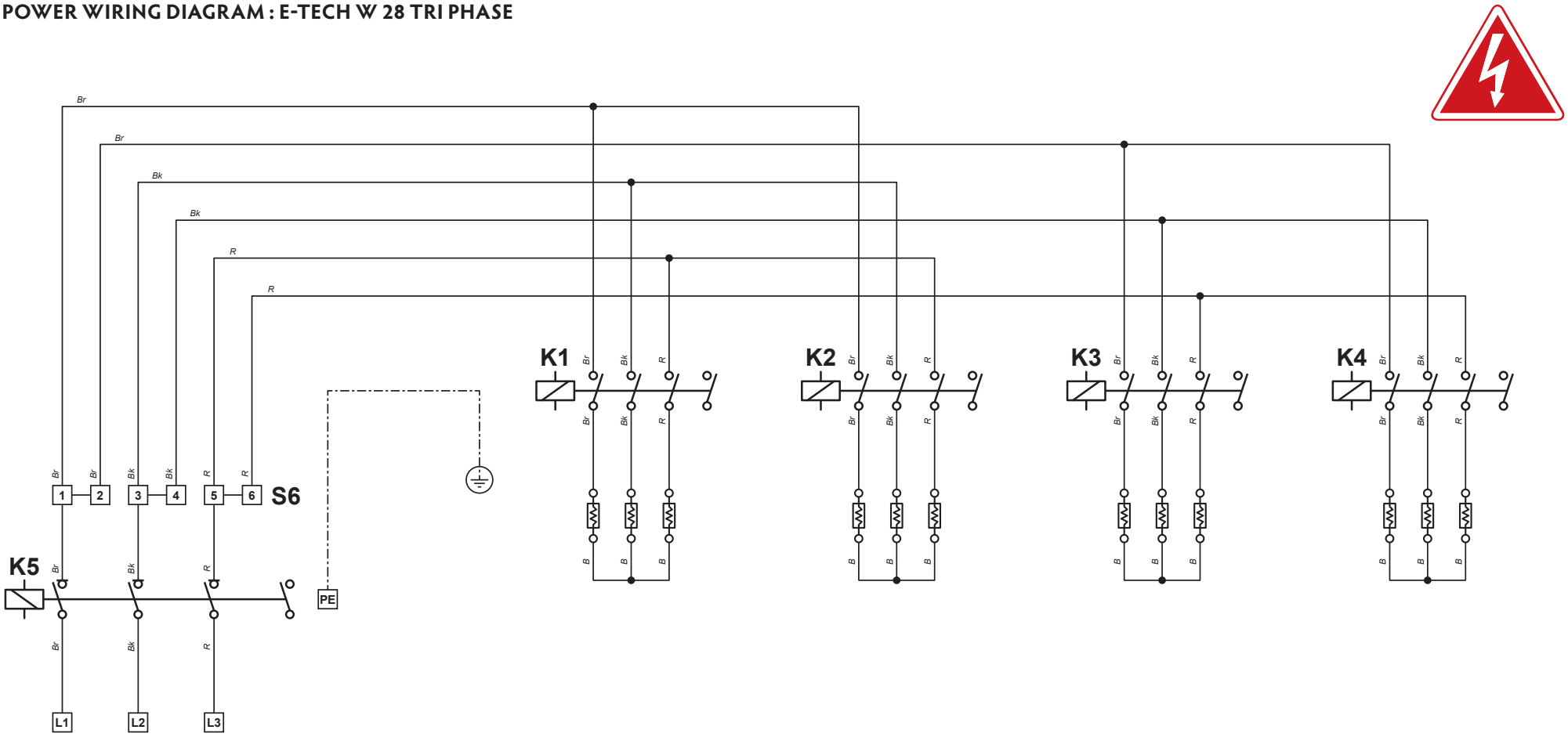


CB : Circuit breaker
S1 : ON/OFF switch + lamp
S2 : Manual reset safety thermostat [103°C]
PS : Low-water pressure switch
DS1 : Alarm
S3 : Control thermostat
S4 : Power switch level 1 + lamp
K1 : Power relay 1 - level 1
K3 : Power relay 2 - level 1
T1 : Timer
S5 : Power switch level 2 + lamp
K2 : Power relay 1 - level 2
K4 : Power relay 2 - level 2
K5 : Safety switch

1-2 : Time clock or controller supply (optional)
3-4 : DHW kit (optional)
5-6 : Stop Bridge or time clock switch control (optional)
7-8 : Room thermostat (optional)
9-10-11 : Heating pump
12-13 : Relay K3 deactivated
14-15 : Relay K4 deactivated

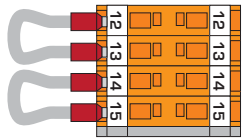
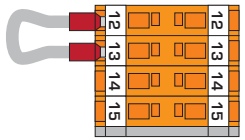
B : Blue
Bk : Black
Br : Brown
G : Grey
Or : Orange
Pk : Pink
R : Red
W : White
Y : Yellow

POWER WIRING DIAGRAM : E-TECH W 28 TRI PHASE

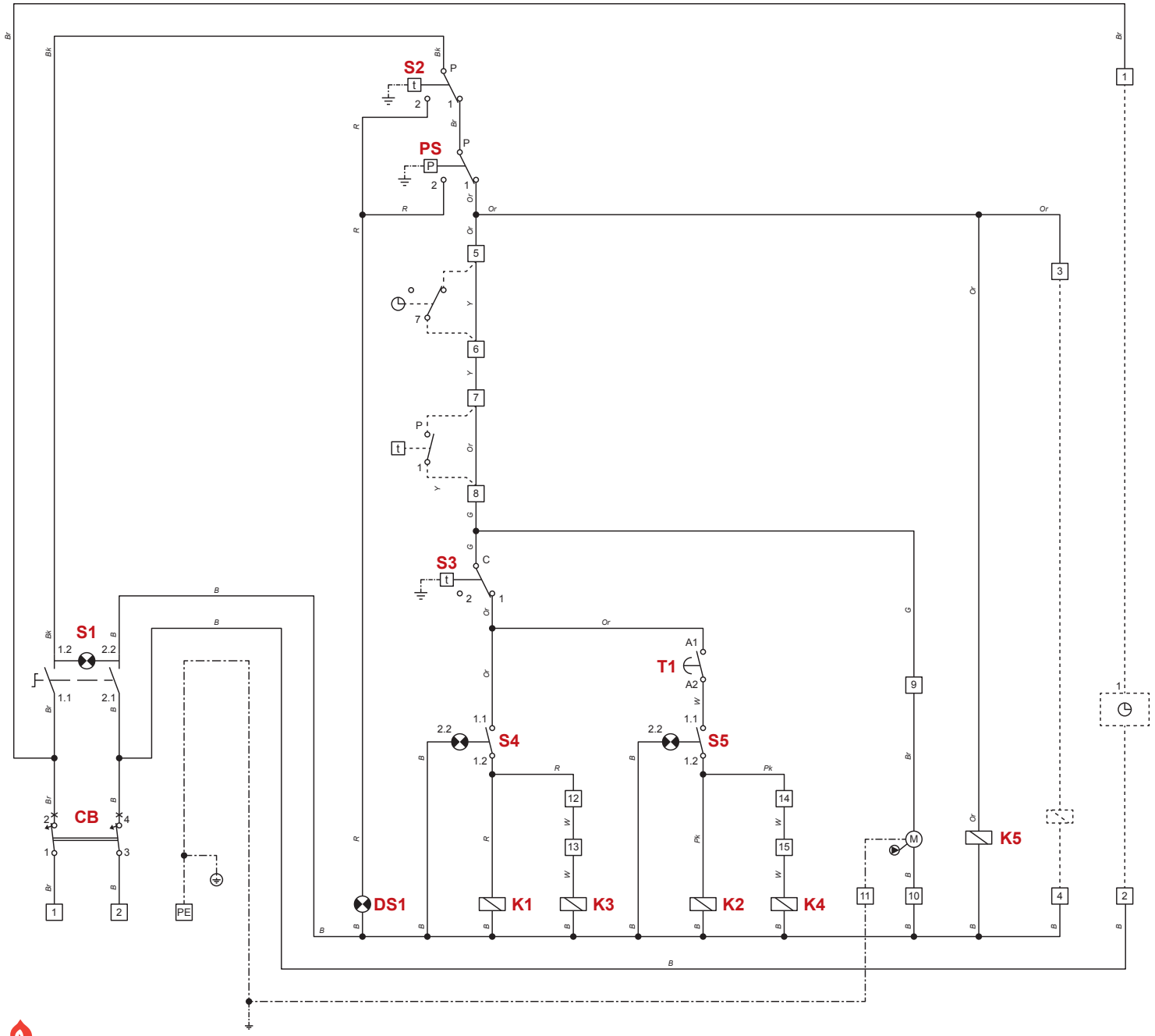


S6 : Power terminals
K1 : Power relay 1 - level 1
K2 : Power relay 1 - level 2
K3 : Power relay 2 - level 1
K4 : Power relay 2 - level 2
K5 : Safety switch

B : Blue
Bk : Black
Br : Brown
R : Red

E-Tech W 28		28.8 kW	21.6 kW	14.4 kW
Tri Phase	TB1			

CONTROL WIRING DIAGRAM : E-TECH W 36 TRI PHASE

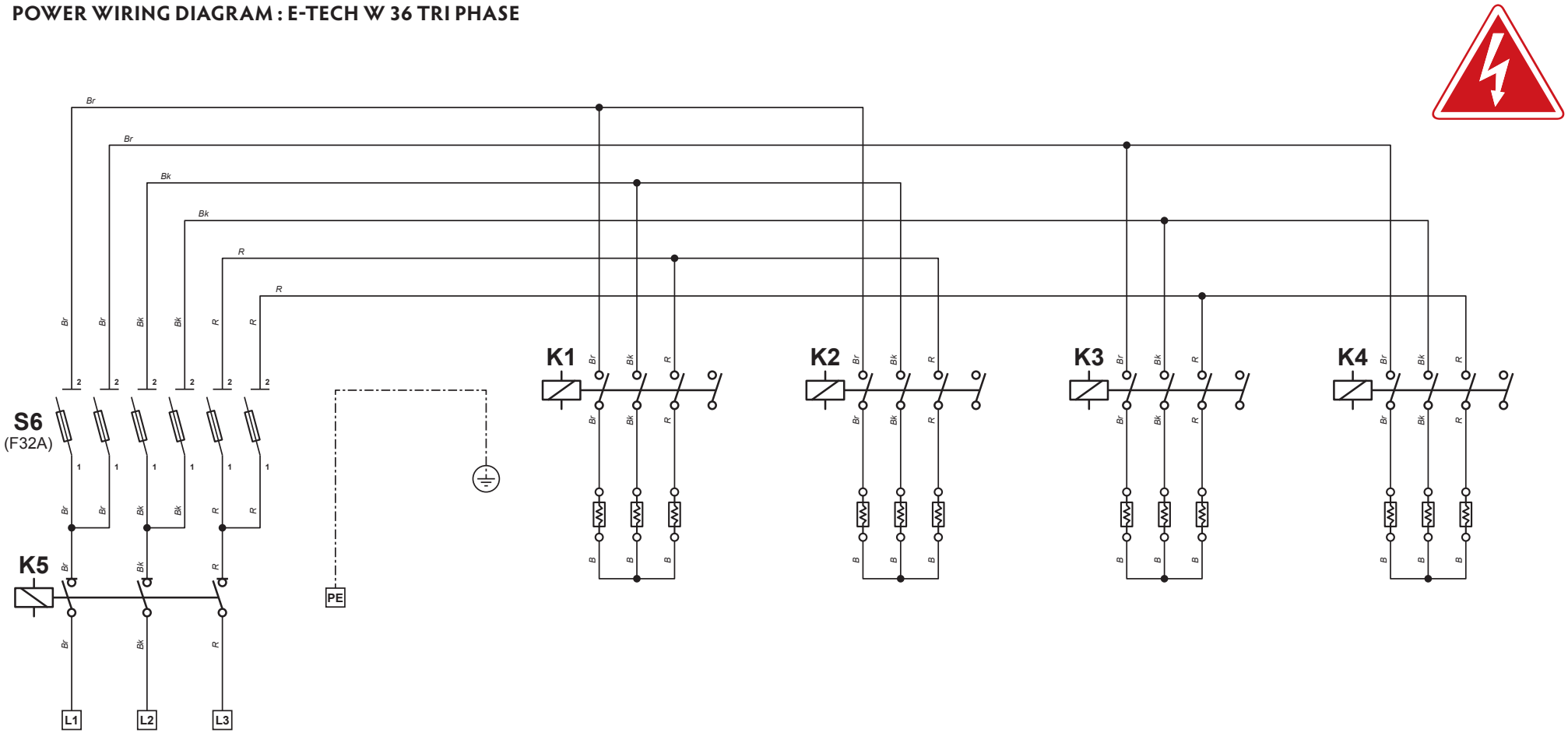


CB : Circuit breaker
S1 : ON/OFF switch + lamp
S2 : Manual reset safety thermostat [103°C]
PS : Low-water pressure switch
DS1 : Alarm
S3 : Control thermostat
S4 : Power switch level 1 + lamp
K1 : Power relay 1 - level 1
K3 : Power relay 2 - level 1
T1 : Timer
S5 : Power switch level 2 + lamp
K2 : Power relay 1 - level 2
K4 : Power relay 2 - level 2
K5 : Safety switch

1-2 : Time clock or controller supply (optional)
3-4 : DHW kit (optional)
5-6 : Stop Bridge or time clock switch control (optional)
7-8 : Room thermostat (optional)
9-10-11 : Heating pump
12-13 : Relay K3 deactivated
14-15 : Relay K4 deactivated

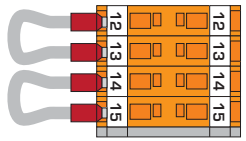
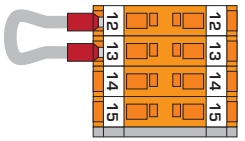
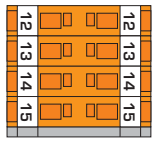
B : Blue
Bk : Black
Br : Brown
G : Grey
Or : Orange
Pk : Pink
R : Red
W : White
Y : Yellow

POWER WIRING DIAGRAM : E-TECH W 36 TRI PHASE

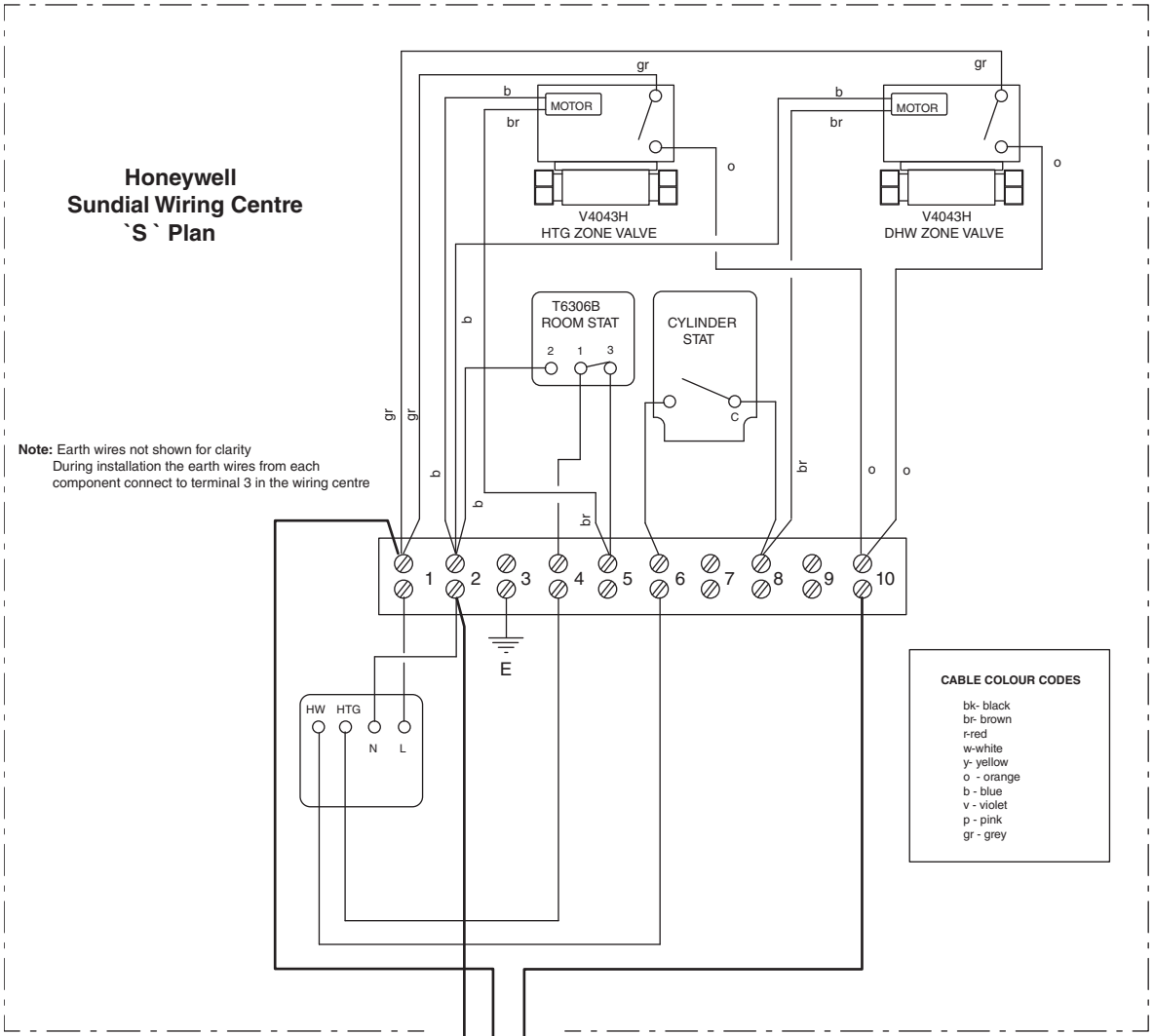


S6 : Power terminals with fuse 32A
K1 : Power relay 1 - level 1
K2 : Power relay 1 - level 2
K3 : Power relay 2 - level 1
K4 : Power relay 2 - level 2
K5 : Safety switch

B : Blue
Bk : Black
Br : Brown
R : Red

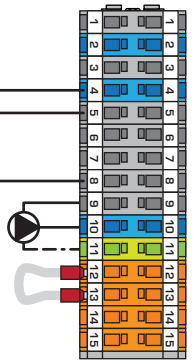
E-Tech W 36		36 kW	27 kW	18 kW
Tri Phase	TB1			

HONEYWELL SUNDIAL WIRING DIAGRAMS : S PLAN



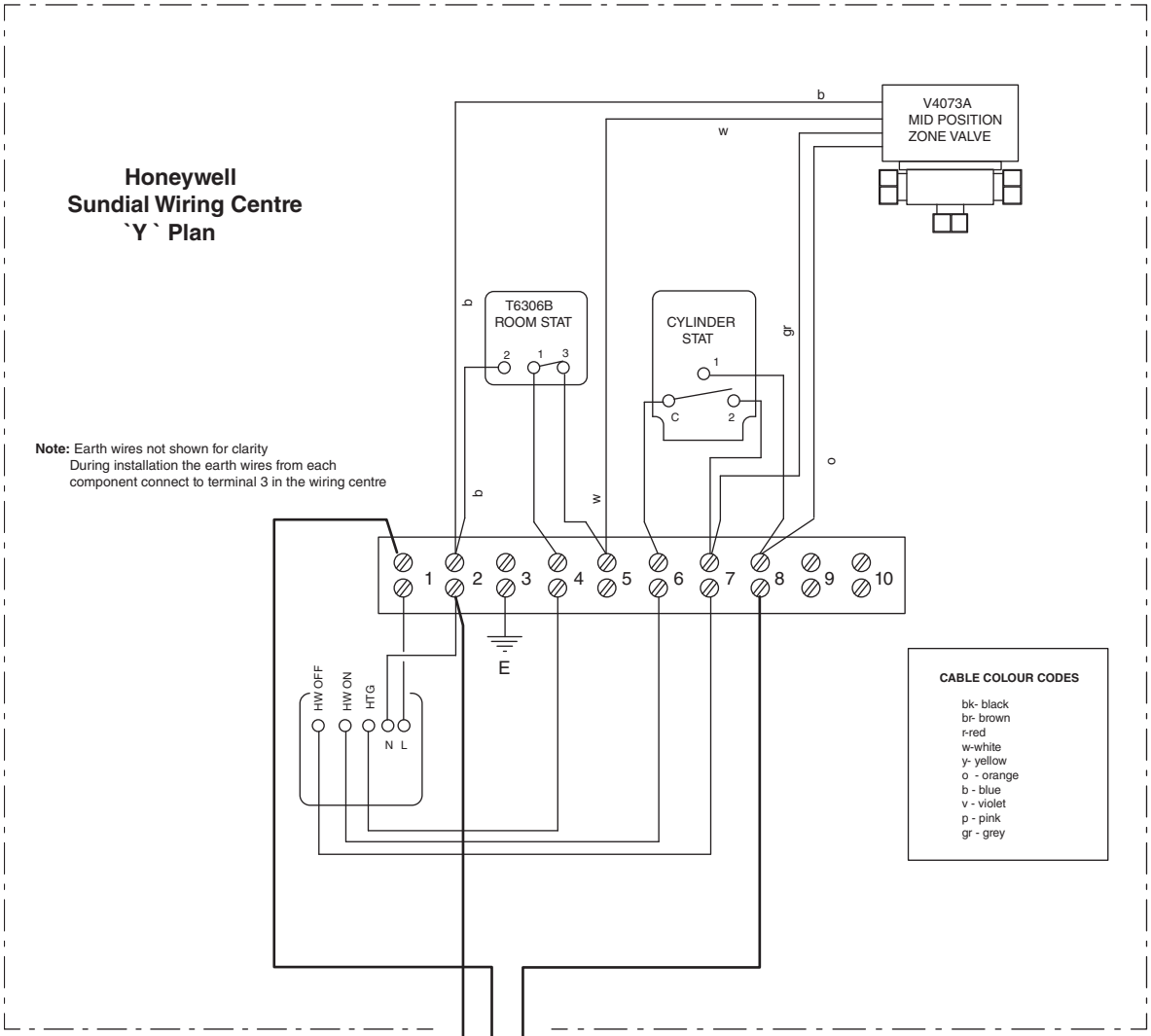
Note: Earth wires not shown for clarity
During installation the earth wires from each component connect to terminal 3 in the wiring centre

Note: All bold numbers indicate a DIN rail terminal connection



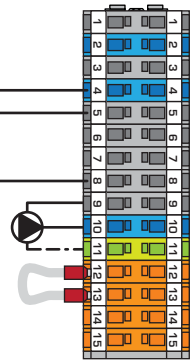
Note: Illustrated model = 22 kW Tri Phase

HONEYWELL SUNDIAL WIRING DIAGRAMS : Y PLAN



Note: Earth wires not shown for clarity
During installation the earth wires from each component connect to terminal 3 in the wiring centre

Note: All bold numbers indicate a DIN rail terminal connection



Note: Illustrated model = 22 kW Tri Phase

COMMISSIONING - WATER

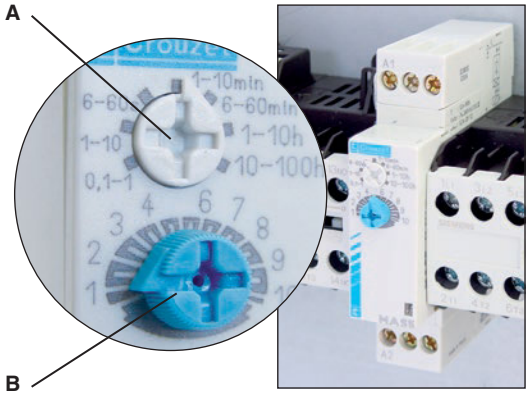
1. The system must be thoroughly cleansed prior to connection of the boiler. The system water should be treated to prevent general corrosion and deposition of scale or sludge in the boiler, please refer to BS7593. If installing the boiler into an existing system, ACV recommend that an approved system cleaner is used.
2. Fill and pressurise the boiler and system to 1.5 bar, making sure to vent the boiler via the automatic air vent on top of the boiler. Note that the black dust cap on the air vent should be left loose to allow the auto vent to function.
3. Check for leaks.
4. For specialist advice on water treatment products, contact:

Fernox, Britannia Works
Clavering, Essex CB11 4QZ
Tel 01799 550811

COMMISSIONING - ELECTRICAL

The Electrical installation supplying this boiler must conform to the current IEE Regulations.

1. Remove the front panel and check all electrical connections for tightness.
2. Ensure all internal relays, contactors etc are secure on the DIN rails.
3. Set all panel control switches to off.
4. Check the power stage delay timer settings - Adjuster (**A**) is factory set to the 1 to 10 minute position which is the optimum setting for the boiler and should be verified during commissioning.
   Adjuster (**B**) is used to set the DELAY ON time of the following stage contactors, the available settings are in 1 minute increments if A is set to 1 to 10 minutes.
   This function is particularly useful in areas where gradual switching of electrical load is required and the resulting maximum demand kept to a minimum. The timers add to the flexibility of the installation but must be optimised by a qualified engineer. The normal setting is 1.
5. Set internal MCB to off position.
6. Set the control thermostat to desired temperature.



STARTING THE BOILER

1. Switch on the internal or external timeclock (if fitted).
2. Switch on internal MCB.
3. Switch on local isolator to boiler.
4. Turn the boiler on using the ON/OFF switch.
5. Switch on the power levels switch stage 1, the first stage contactors will energise.
6. Switch on the power levels switch stage 2, after a short delay the second stage contactors will energise. Note: the power stage delay timer settings should be verified as shown in item 4 under “Commissioning - Electrical”.
7. The boiler temperature will now rise as indicated by the combined temperature and pressure gauge.
8. The temperature will continue to rise until the control thermostat temperature setting is reached then the boiler will switch off.

Once these procedures have been followed the system can be left to operate normally by the following method.

1. Ensure that boiler thermostat is set to the desired temperature.
2. Turn the boiler on using the ON/OFF switch.
3. Turn on power level switch 1.
4. Turn on power level switch 2.
5. Set timeclock (if fitted) and/or external controls to desired boiler operating on/off times.

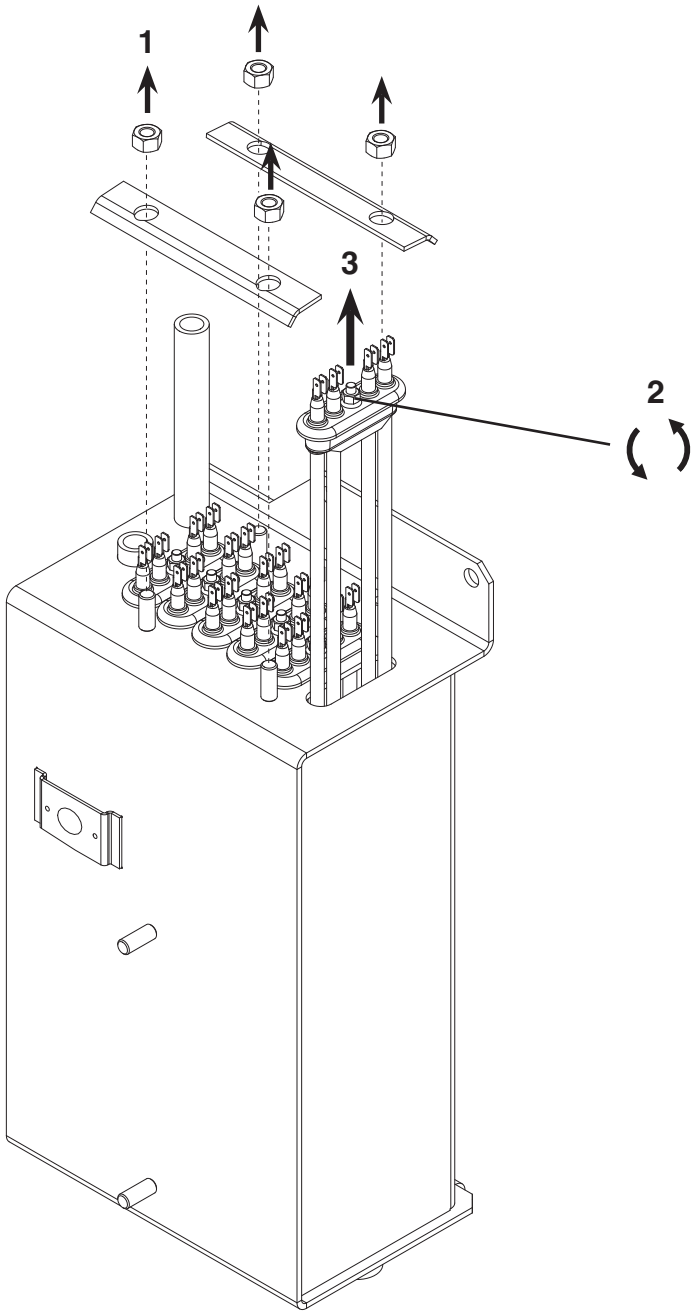
After one week of operation all electrical connections should be re-checked for tightness and the boiler water system checked for leaks and air and rectified if necessary.

MAINTENANCE

For safety reasons it is recommended that the boiler is serviced annually and that servicing is carried out by a qualified service engineer.

☞ **Before carrying out any work on the system ensure that the boiler is cool and all electrical supplies are isolated.**

1. After removing front cover undo the four screws retaining the front control panel and gently let the panel suspend on the wiring to the rear of the panel. Undertake a visual inspection of the boiler looking out for signs of water leakage from joints, expansion vessel, and the area around the elements on top of the boiler.
2. Undertake a visual inspection of all cabling in the boiler casing checking for signs of overheating or burning.
3. Check all push-on electrical connectors for tightness and good connection to the relative components.
4. Using a correct fitting screwdriver check all electrical terminals on DIN rails and on all components for tightness.
5. Check the settings on the internal timers in accordance with the “Commissioning - Electrical” section.
6. Replace the control panel and the boiler front cover and refit screws.
7. Reinstate the electrical supply and follow the procedures set out in the commissioning section.


1
3
2

