

UPS, UPSD Series 200

Installation and operating instructions



UPS, UPSD Series 200

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Declaration of conformity

GB Declaration of Conformity

We, Grundfos, declare under our sole responsibility that the products UPS and UPSD, to which this declaration relates, are in conformity with these Council directives on the approximation of the laws of the EC member states:

- Machinery Directive (2006/42/EC).
Standard used: EN 809: 1998.
- Low Voltage Directive (2006/95/EC).
Standards used: EN 60335-1: 2002 and EN 60335-2-51: 2003.
- EMC Directive (2004/108/EC).
Standards used: EN 61000-6-2 and EN 61000-6-3.

CZ Prohlášení o shodě

Mi firma Grundfos prohlašujeme na svou plnou odpovědnost, že výrobky UPS a UPSD, na něž se toto prohlášení vztahuje, jsou v souladu s ustanoveními směrnice Rady pro sbližení právních předpisů členských států Evropského společenství v oblastech:

- Směrnice pro strojní zařízení (2006/42/ES).
Použitá norma: EN 809: 1998.
- Směrnice pro nízkonapěťové aplikace (2006/95/ES).
Použitá norma: EN 60335-1: 2002 a EN 60335-2-51: 2003.
- Směrnice pro elektromagnetickou kompatibilitu (EMC) (2004/108/ES).
Použitá norma: EN 61000-6-2 a EN 61000-6-3.

DE Konformitätserklärung

Wir, Grundfos, erklären in alleiniger Verantwortung, dass die Produkte UPS und UPSD, auf die sich diese Erklärung bezieht, mit den folgenden Richtlinien des Rates zur Angleichung der Rechtsvorschriften der EU-Mitgliedsstaaten übereinstimmen:

- Maschinenrichtlinie (2006/42/EG).
Norm, die verwendet wurde: EN 809: 1998.
- Niederspannungsrichtlinie (2006/95/EG).
Normen, die verwendet wurden: EN 60335-1: 2002 und EN 60335-2-51: 2003.
- EMV-Richtlinie (2004/108/EG).
Normen, die verwendet wurden: EN 61000-6-2 und EN 61000-6-3.

GR Δήλωση Συμμόρφωσης

Εμείς, η Grundfos, δηλώνουμε με αποκλειστικά δική μας ευθύνη ότι τα προϊόντα UPS και UPSD στα οποία αναφέρεται η παρούσα δήλωση, συμμορφώνονται με τις εξής Οδηγίες του Συμβουλίου περί προσέγγισης των νομοθεσιών των κρατών μελών της ΕΕ:

- Οδηγία για μηχανήματα (2006/42/ΕΚ).
Πρότυπο που χρησιμοποιήθηκε: EN 809: 1998.
- Οδηγία χαμηλής τάσης (2006/95/ΕΚ).
Πρότυπα που χρησιμοποιήθηκαν: EN 60335-1: 2002 και EN 60335-2-51: 2003.
- Οδηγία Ηλεκτρομαγνητικής Συμβατότητας (EMC) (2004/108/ΕΚ).
Πρότυπα που χρησιμοποιήθηκαν: EN 61000-6-2 και EN 61000-6-3.

FR Déclaration de Conformité

Nous, Grundfos, déclarons sous notre seule responsabilité, que les produits UPS et UPSD, auxquels se réfère cette déclaration, sont conformes aux Directives du Conseil concernant le rapprochement des législations des Etats membres CE relatives aux normes énoncées ci-dessous :

- Directive Machines (2006/42/CE).
Norme utilisée : EN 809 : 1998.
- Directive Basse Tension (2006/95/CE).
Normes utilisées : EN 60335-1 : 2002 et EN 60335-2-51 : 2003.
- Directive Compatibilité Electromagnétique CEM (2004/108/CE).
Normes utilisées : EN 61000-6-2 et EN 61000-6-3.

IT Dichiarazione di Conformità

Grundfos dichiara sotto la sua esclusiva responsabilità che i prodotti UPS e UPSD, ai quali si riferisce questa dichiarazione, sono conformi alle seguenti direttive del Consiglio riguardanti il riavvicinamento delle legislazioni degli Stati membri CE:

- Direttiva Macchine (2006/42/CE).
Norma applicata: EN 809: 1998.
- Direttiva Bassa Tensione (2006/95/CE).
Norme applicate: EN 60335-1: 2002 e EN 60335-2-51: 2003.
- Direttiva EMC (2004/108/CE).
Norme applicate: EN 61000-6-2 e EN 61000-6-3.

BG Декларация за съответствие

Ние, фирма Grundfos, заявяваме с пълна отговорност, че продуктите UPS и UPSD, за които се отнася настоящата декларация, отговарят на следните указания на Съвета за уеднаквяване на правните разпоредби на държавите членки на ЕС:

- Директива за машините (2006/42/EC).
Приложен стандарт: EN 809: 1998.
- Директива за нисковолтови системи (2006/95/EC).
Приложени стандарти: EN 60335-1: 2002 и EN 60335-2-51: 2003.
- Директива за електромагнитна съвместимост (2004/108/EC).
Приложени стандарти: EN 61000-6-2 и EN 61000-6-3.

DK Overensstemmelseserklæring

Vi, Grundfos, erklærer under ansvar at produkterne UPS og UPSD som denne erklæring omhandler, er i overensstemmelse med disse af Rådets direktiver om indbyrdes tilnærmelse til EF-medlemsstaternes lovgivning:

- Maskindirektivet (2006/42/EF).
Anvendt standard: EN 809: 1998.
- Lavspændingsdirektivet (2006/95/EF).
Anvendte standarder: EN 60335-1: 2002 og EN 60335-2-51: 2003.
- EMC-direktivet (2004/108/EF).
Anvendte standarder: EN 61000-6-2 og EN 61000-6-3.

EE Vastavusdeklaratsioon

Meie, Grundfos, deklareerime enda ainuvastutusel, et tooted UPS ja UPSD, mille kohta käesolev juhend käib, on vastavuses EÜ Nõukogu direktiividega EMÜ liikmesriikide seaduste ühitamise kohta, mis käsitlevad:

- Masinate ohutus (2006/42/EC).
Kasutatud standard: EN 809: 1998.
- Madalpinge direktiiv (2006/95/EC).
Kasutatud standardid: EN 60335-1: 2002 ja EN 60335-2-51: 2003.
- Elektromagnetilise ühilduvuse (EMC direktiiv) (2004/108/EC).
Kasutatud standardid: EN 61000-6-2 ja EN 61000-6-3.

ES Declaración de Conformidad

Nosotros, Grundfos, declaramos bajo nuestra entera responsabilidad que los productos UPS y UPSD, a los cuales se refiere esta declaración, están conformes con las Directivas del Consejo en la aproximación de las leyes de los Estados Miembros del EM:

- Directiva de Maquinaria (2006/42/CE).
Norma aplicada: EN 809: 1998.
- Directiva de Baja Tensión (2006/95/CE).
Normas aplicadas: EN 60335-1: 2002 y EN 60335-2-51: 2003.
- Directiva EMC (2004/108/CE).
Normas aplicadas: EN 61000-6-2 y EN 61000-6-3.

HR Izjava o uskladenosti

Mi, Grundfos, izjavljujemo pod vlastitom odgovornošću da je proizvod UPS i UPSD, na koji se ova izjava odnosi, u skladu s direktivama ovog Vijeća o uskladjivanju zakona država članica EU:

- Direktiva za strojeve (2006/42/EZ).
Korištena norma: EN 809: 1998.
- Direktiva za niski napon (2006/95/EZ).
Korištene norme: EN 60335-1: 2002 i EN 60335-2-51: 2003.
- Direktiva za elektromagnetsku kompatibilnost (2004/108/EZ).
Korištene norme: EN 61000-6-2 i EN 61000-6-3.

KZ Сәйкестік туралы мәлімдеме

Biz, Grundfos компаниясы, барлық жауапкершілікпен, осы мәлімдемеге қатысты болатын UPS және UPSD бұйымдары ЕО мүше елдерінің заң шығарушы жарлықтарына үндестіру туралы мына Еуроодақ Кеңесінің жарлықтарына сәйкес келетіндігін мәлімдейміз:

- Механикалық құрылғылар (2006/42/EC).
Қолданылған стандарт: EN 809: 1998.
- Төмен Кернеулі Жабдық (2006/95/EC).
Қолданылған стандарттар: EN 60335-1: 2002 және EN 60335-2-51: 2003.
- Электр магнитті үйлесімділік (2004/108/EC).
Қолданылған стандарттар: EN 61000-6-2 және EN 61000-6-3.

LV Paziņojums par atbilstību prasībām

Sabiedrība GRUNDFOS ar pilnu atbildību dara zināmu, ka produkti UPS ir UPSD, uz kuriem attiecas šis paziņojums, atbilst šādām Padomes direktīvām par tuvināšanas EK dalībvalstu likumdošanas normām:

- Mašīnbūves direktīva (2006/42/EK). Piemērotais standarts: EN 809: 1998.
- Zema sprieguma direktīva (2006/95/EK). Piemērotie standarti: EN 60335-1: 2002 un EN 60335-2-51: 2003.
- Elektromagnētiskās saderības direktīva (2004/108/EK). Piemērotie standarti: EN 61000-6-2 un EN 61000-6-3.

HU Megfelelőségi nyilatkozat

Mi, a Grundfos, egyedül felelősséggel kijelentjük, hogy a UPS és UPSD termékek, amelyekre jelen nyilatkozik vonatkozik, megfelelnek az Európai Unió tagállamainak jogi irányelveit összehangoló tanács alábbi előírásainak:

- Gépek (2006/42/EK). Alkalmazott szabvány: EN 809: 1998.
- Kisfeszültségű Direktíva (2006/95/EK). Alkalmazott szabványok: EN 60335-1: 2002 és EN 60335-2-51: 2003.
- EMC Direktíva (2004/108/EK). Alkalmazott szabványok: EN 61000-6-2 és EN 61000-6-3.

UA Свідчення про відповідність вимогам

Компанія Grundfos заявляє про свою виключну відповідальність за те, що продукти UPS та UPSD, на які поширюється дана декларація, відповідають таким рекомендаціям Ради з уніфікації правових норм країн - членів ЕС:

- Механічні прилади (2006/42/ЕС). Стандарти, що застосовувалися: EN 809: 1998.
- Низька напруга (2006/95/ЕС). Стандарти, що застосовувалися: EN 60335-1: 2002 та EN 60335-2-51: 2003.
- Електромагнітна сумісність (2004/108/ЕС). Стандарти, що застосовувалися: EN 61000-6-2 та EN 61000-6-3.

PT Declaração de Conformidade

A Grundfos declara sob sua única responsabilidade que os produtos UPS e UPSD, aos quais diz respeito esta declaração, estão em conformidade com as seguintes Diretivas do Conselho sobre a aproximação das legislações dos Estados Membros da CE:

- Directiva Máquinas (2006/42/CE). Norma utilizada: EN 809: 1998.
- Directiva Baixa Tensão (2006/95/CE). Normas utilizadas: EN 60335-1: 2002 e EN 60335-2-51: 2003.
- Directiva EMC (compatibilidade electromagnética) (2004/108/CE). Normas utilizadas: EN 61000-6-2 e EN 61000-6-3.

RO Declarație de Conformitate

Noi, Grundfos, declarăm pe propria răspundere că produsele UPS și UPSD, la care se referă această declarație, sunt în conformitate cu aceste Directive de Consiliu asupra armonizării legilor Statelor Membre CE:

- Directiva Utilaje (2006/42/CE). Standard utilizat: EN 809: 1998.
- Directiva Tensiune Joasă (2006/95/CE). Standarde utilizate: EN 60335-1: 2002 și EN 60335-2-51: 2003.
- Directiva EMC (2004/108/CE). Standarde utilizate: EN 61000-6-2 și EN 61000-6-3.

SI Izjava o skladnosti

V Grundfosu s polno odgovornostjo izjavljamo, da so naši izdelki UPS in UPSD, na katere se ta izjava nanaša, v skladu z naslednjimi direktivami Sveta o približevanju zakonodaje za izenačevanje pravnih predpisov držav članic ES:

- Direktiva o strojih (2006/42/ES). Uporabljena norma: EN 809: 1998.
- Direktiva o nizki napetosti (2006/95/ES). Uporabljeni normi: EN 60335-1: 2002 in EN 60335-2-51: 2003.
- Direktiva o elektromagnetni združljivosti (EMC) (2004/108/ES). Uporabljeni normi: EN 61000-6-2 in EN 61000-6-3.

LT Atitikties deklaracija

Mes, Grundfos, su visa atsakomybe pareiškiame, kad gaminiai UPS ir UPSD, kuriems skirta ši deklaracija, atitinka šias Tarybos Direktyvas dėl Europos Ekonominės Bendrijos šalių narių įstatymų suderinimo:

- Mašinų direktyva (2006/42/EB). Taikomas standartas: EN 809: 1998.
- Žemų įtampų direktyva (2006/95/EB). Taikomi standartai: EN 60335-1: 2002 ir EN 60335-2-51: 2003.
- EMS direktyva (2004/108/EB). Taikomi standartai: EN 61000-6-2 ir EN 61000-6-3.

NL Overeenkomstigheidsverklaring

Wij, Grundfos, verklaren geheel onder eigen verantwoordelijkheid dat de producten UPS en UPSD waarop deze verklaring betrekking heeft, in overeenstemming zijn met de Richtlijnen van de Raad in zake de onderlinge aanpassing van de wetgeving van de EG Lidstaten betreffende:

- Machine Richtlijn (2006/42/EC). Gebruikte norm: EN 809: 1998.
- Laagspannings Richtlijn (2006/95/EC). Gebruikte normen: EN 60335-1: 2002 en EN 60335-2-51: 2003.
- EMC Richtlijn (2004/108/EC). Gebruikte normen: EN 61000-6-2 en EN 61000-6-3.

PL Deklaracja zgodności

My, Grundfos, oświadczamy z pełną odpowiedzialnością, że nasze wyroby UPS i UPSD, a których deklaracja niniejsza dotyczy, są zgodne z następującymi wytycznymi Rady d/s ujednolicenia przepisów prawnych krajów członkowskich WE:

- Dyrektywa Maszynowa (2006/42/WE). Zastosowana norma: EN 809: 1998.
- Dyrektywa Niskonapięciowa (LVD) (2006/95/WE). Zastosowane normy: EN 60335-1: 2002 oraz EN 60335-2-51: 2003.
- Dyrektywa EMC (2004/108/WE). Zastosowane normy: EN 61000-6-2 oraz EN 61000-6-3.

RU Декларация о соответствии

Мы, компания Grundfos, со всей ответственностью заявляем, что изделия UPS и UPSD, к которым относится настоящая декларация, соответствуют следующим Директивам Совета Евросоюза об унификации законодательных предписаний стран-членов ЕС:

- Механические устройства (2006/42/ЕС). Примененный стандарт: EN 809: 1998.
- Низковольтное оборудование (2006/95/ЕС). Примененные стандарты: EN 60335-1: 2002 и EN 60335-2-51: 2003.
- Электромагнитная совместимость (2004/108/ЕС). Примененные стандарты: EN 61000-6-2 и EN 61000-6-3.

SK Prehlásenie o konformite

My firma Grundfos prehlasujeme na svoju plnú zodpovednosť, že výrobky UPS a UPSD, na ktoré sa toto prehlásenie vzťahuje, sú v súlade s ustanovením smernice Rady pre zblíženie právnych predpisov členských štátov Európskeho spoločenstva v oblastiach:

- Smernica pre strojevé zariadenie (2006/42/EC). Použitá norma: EN 809: 1998.
- Smernica pre nízkonapäťové aplikácie (2006/95/EC). Použití normy: EN 60335-1: 2002 a EN 60335-2-51: 2003.
- Smernica pre elektromagnetickú kompatibilitu (2004/108/EC). Použití normy: EN 61000-6-2 a EN 61000-6-3.

RS Deklaracija o konformitetu

Mi, Grundfos, izjavljujemo pod vlastitom odgovornostu da je proizvod UPS i UPSD, na koji se ova izjava odnosi, u skladu sa direktivama Saveta za usklađivanje zakona država članica EU:

- Direktiva za mašine (2006/42/EC). Korišćen standard: EN 809: 1998.
- Direktiva niskog napona (2006/95/EC). Korišćeni standardi: EN 60335-1: 2002 i EN 60335-2-51: 2003.
- EMC direktiva (2004/108/EC). Korišćeni standardi: EN 61000-6-2 i EN 61000-6-3.

FI Vaatimustenmukaisuusvakuutus

Me, Grundfos, vakuutamme omalla vastuullamme, että tuotteet UPS ja UPSD, joita tämä vakuutus koskee, ovat EY:n jäsenvaltioiden lainsäädännön yhdenmukaistamiseen tähtäävien Euroopan neuvoston direktiivien vaatimusten mukaisia seuraavasti:

- Konedirektiivi (2006/42/EY).
Sovellettu standardi: EN 809: 1998.
- Pienjännitedirektiivi (2006/95/EY).
Sovellettavat standardit: EN 60335-1: 2002 ja EN 60335-2-51: 2003.
- EMC-direktiivi (2004/108/EY).
Sovellettavat standardit: EN 61000-6-2 ja EN 61000-6-3.

TR Uygunluk Bildirgesi

Grundfos olarak bu beyannameye konu olan UPS ve UPSD ürünlerinin, AB Üyesi Ülkelerin kanunlarını birbirine yaklaştırma üzerine Konsey Direktifleriyle uyumlu olduğunun yalnızca bizim sorumluluğumuz altında olduğunu beyan ederiz:

- Makineler Yönetmeliği (2006/42/EC).
Kullanılan standart: EN 809: 1998.
- Düşük Voltaj Yönetmeliği (2006/95/EC).
Kullanılan standartlar: EN 60335-1: 2002 ve EN 60335-2-51: 2003.
- EMC Direktifi (2004/108/EC).
Kullanılan standartlar: EN 61000-6-2 ve EN 61000-6-3.

SE Försäkrän om överensstämmelse

Vi, Grundfos, försäkrar under ansvar att produkterna UPS och UPSD, som omfattas av denna försäkrän, är i överensstämmelse med rådets direktiv om inbördes närmande till EU-medlemsstaternas lagstiftning, avseende:

- Maskindirektivet (2006/42/EG).
Tillämpad standard: EN 809: 1998.
- Lågspänningsdirektivet (2006/95/EG).
Tillämpade standarder: EN 60335-1: 2002 och EN 60335-2-51: 2003.
- EMC-direktivet (2004/108/EG).
Tillämpade standarder: EN 61000-6-2 och EN 61000-6-3.

Bjerringbro, 18th October 2010



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English (GB) Installation and operating instructions

Original installation and operating instructions.

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Warning

Prior to installation, read these installation and operating instructions. Installation and operation must comply with local regulations and accepted codes of good practice.



Warning

The use of this product requires experience with and knowledge of the product. Persons with reduced physical, sensory or mental capabilities must not use this product, unless they are under supervision or have been instructed in the use of the product by a person responsible for their safety. Children must not use or play with this product.

1. Symbols used in this document



Warning

If these safety instructions are not observed, it may result in personal injury!



If these safety instructions are not observed, it may result in malfunction or damage to the equipment!



Notes or instructions that make the job easier and ensure safe operation.

2. General description

UPS/UPSD multi-speed circulator pumps are capable of operating at three different speeds.

The pumps are available as single-head or twin-head pumps. All pumps incorporate a thermal overload switch in the stator.

The pumps are available as

- cast-iron pumps with black nameplate
- bronze pumps with bronze nameplate and a B in the type designation.

Terminal box modules

Single-head pumps are fitted with a standard module in the terminal box.

Twin-head pumps are fitted with a standard module or a relay module in the terminal box.

The relay module is available as an optional extra for single-head pumps.

3. Applications

The pumps are designed to circulate liquids in heating and air-conditioning systems. The pumps can also be used in domestic hot-water systems.

3.1 Pumped liquids

Thin, clean, non-aggressive and non-explosive liquids, not containing solid particles, fibres or mineral oil.

If the pump is installed in a **heating system**, the water should meet the requirements of accepted standards on water quality in heating systems, for example the German standard VDI 2035.

In **domestic hot-water systems**, it is advisable to use UPS and UPSD pumps only for water with a degree of hardness lower than approx. 14 °dH. For water with a higher degree of hardness, a direct-coupled TP pump is recommended.

Liquid temperature, see section 10. *Technical data.*



Warning

The pump must not be used for the transfer of flammable liquids, such as diesel oil, petrol or similar liquids.

4. Function

4.1 Single-head and twin-head pumps with standard module

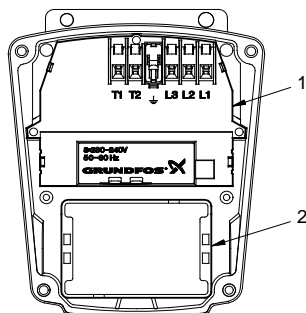


Fig. 1 Standard module and speed switch

Pos.	Description
1	Standard module
2	Speed switch

The function of the indicator lights on the pump is as shown in the following tables.

Single-phase pumps

Single-phase pumps incorporate a green indicator light only.

Indicator light	Description
On	The power supply has been switched on.
Off	The power supply has been switched off, or the pump has been cut out by the thermal overload switch.

Three-phase pumps

Three-phase pumps incorporate a green and a red indicator light.

Indicator lights		Description
Green	Red	
Off	Off	The power supply has been switched off, or the pump has been cut out by the thermal overload switch.
On	Off	The power supply has been switched on.
On	On	The power supply has been switched on. The direction of rotation is wrong.

4.2 Twin-head pumps with relay module

The two terminal boxes are connected via a four-core cable.

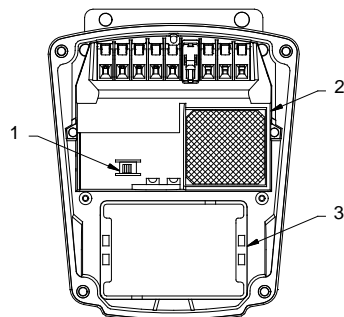


Fig. 2 Terminal box with relay module

Pos.	Description
1	Switch for signal output
2	Relay module
3	Speed switch

The relay module has a signal output for the connection of a transmitter for external operating or fault indication or for the control of the alternating operation of pump 1 and 2.

By means of a selector switch the signal output can be set to activation during:



Operation: The output is activated when the pump is operating.



Fault: The output is activated in case of fault.



Alternating operation: Use this setting when the pumps are to operate alternately as duty and standby pump.

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All pumps with relay module incorporate a green and a red indicator light. The function of the two indicator lights and the signal output is shown in the following table.

Indicator lights		Signal output activated during		Description
Green	Red	Operation	Fault	
Off	Off			The pump has been stopped. The power supply has been switched off or phase missing.
On	Off			The pump is operating.
On	On			Three-phase pumps only: The pump is operating, but the direction of rotation is wrong.
Off	On			The pump has been cut out by the thermal overload switch.
Flashes	Off			The pump has been stopped by an external on/off switch.
Flashes	On			The pump is or has been cut out by the thermal overload switch, and the external on/off switch is switched off.

Three operating modes are available:

- **Alternating operation** (factory setting).
The pumps operate alternately as duty and standby pump.
- **Standby operation.** One pump operates constantly as duty pump and the other constantly as standby pump.
- **Single-pump operation.** The pumps operate independently of each other.
Note: If the pumps are to run simultaneously, they must be set to the same speed.
Otherwise the non-return flap will close off the pump running at the lowest speed.

5. Installation



Warning

The pump must be positioned so that persons cannot accidentally come into contact with the hot surfaces of the pump.

When installing pumps, types UPS(D) 32-xx, 40-xx, 50-xx and 65-xx, with oval bolt holes in the pump flange, washers must be used as shown in fig. 3.

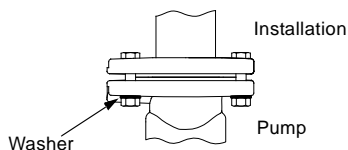


Fig. 3 Position of washers for oval bolt holes

The pump must be installed with the motor shaft horizontal. See fig. 4.

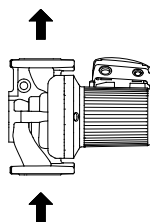


Fig. 4 Horizontal motor shaft

Arrows on the pump housing indicate the liquid flow direction through the pump.

Caution *Twin-head pumps mounted in horizontal pipes must be fitted with an automatic air vent in the upper part of the pump housing. See fig. 8.*

The automatic air vent is not supplied with the pump.

Caution *The technical data in section 10. must be observed.*

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5.1 Terminal box positions

At the bottom close to the pump housing, the stator housing has two drain holes to enable condensed water to escape. The drain holes must point downwards.

Possible terminal box positions for single-head pumps are shown in fig. 5. The positions apply to mounting in both vertical and horizontal pipes.



Fig. 5 Terminal box positions, single-head pumps

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Caution *The terminal box must only be turned to the positions in fig. 5.*

For standard terminal box positions, see fig. 6.

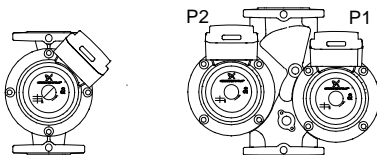


Fig. 6 Standard positions

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Possible flow directions for single-head pumps, see fig. 7.

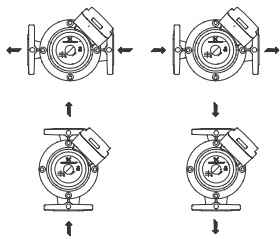


Fig. 7 Flow directions, single-head pumps

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Possible flow directions for twin-head pumps, see fig. 8.

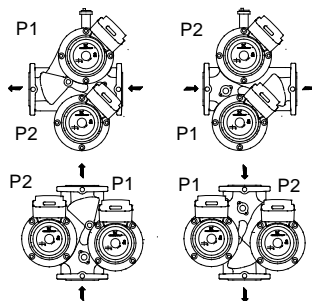


Fig. 8 Flow directions, twin-head pumps

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Warning



Before the screws are removed, the system must be drained, or the isolating valves on either side of the pump must be closed, as the pumped liquid may be scalding hot and under high pressure.

Change the terminal box position as follows:

1. Remove the four screws holding the pump head.
2. Turn the pump head to the desired position.
3. Refit the four screws and tighten securely.

When changing the terminal box position of twin-head pumps, it may be necessary to remove the cable connecting the two terminal boxes. It is advisable to disconnect the cable from pump 1.



Warning

Never make any connections in the pump terminal box unless the power supply has been switched off.

Do not start the pump until the system has been filled with liquid and vented. Furthermore, the required minimum inlet pressure must be available at the pump inlet. See page 322.

Caution

When the terminal box position has been changed, the pump nameplate must be turned so that the cutout points downwards. This allows water from a possible venting to escape.

To change the nameplate position, ease the outer edge of the nameplate at the cutout with a screwdriver, turn the nameplate to the new position, and push it into place.

5.2 Frost protection

If the pump is not being used during periods of frost, the necessary steps must be taken to prevent frost bursts.

6. Electrical connection

The electrical connection must be carried out according to local regulations.

Warning

Never make any connections in the pump terminal box unless the power supply has been switched off.



The pump must be earthed.

The pump must be connected to an external mains switch with a minimum contact gap of 3 mm in all poles.

Check that the supply voltage and frequency correspond to the values stated on the nameplate.

The thermal overload switch must be adjusted to the pump full-load current (stated on the pump nameplate) according to the speed selected. See fig. 21 at the end of these instructions.

Earthing or neutralisation can be used for protection against indirect contact. A current- or voltage-operated earth-leakage circuit breaker can be used as extra protection.

6.1 Single-head and twin-head pumps with standard module

The pump must be connected to the power supply via an external contactor.

The contactor must be connected to the thermal overload switch incorporated in the pump, terminals T1 and T2, to protect the pump against overloading at all three speeds.

If the pump is also protected by a motor-protective circuit breaker, this circuit breaker must be set to the current consumption of the pump at the selected speed. The motor-protective circuit breaker setting must be changed every time the pump speed is changed. The current consumption at the individual speeds is stated on the pump nameplate.

Caution

Figures 13 and 14 at the end of these instructions show the possible connections:

- **Fig. 13** shows the electrical connections when using external **impulse contacts** for start/stop.
- **Fig. 14** shows the electrical connections when using an external **changeover contact** for start/stop.

6.2 Twin-head pumps with relay module

The pump is connected directly to the mains as it incorporates overload protection at all three speeds. The pumps are factory-set to alternating operation as duty and standby pump. Pump change takes place every 24 hours.

Figures 15 to 17 at the end of these instructions show the possible connections and the setting of the selector switch for the various operating modes.

- **Fig. 15: Alternating operation.**
- **Fig. 16: Standby operation** with pump 1 as duty pump and pump 2 as standby pump.

Caution

The selector switch of pump 2 must have been set to either fault or operating indication in this operating mode.

- **Fig. 17: Standby operation** with pump 2 as duty pump and pump 1 as standby pump.

Caution

The selector switch of pump 1 must have been set to either fault or operating indication in this operating mode.

In the case of **single-pump operation**, the cable between the pumps is to be removed. The pumps must be set individually and connected separately to the mains. See figs 18 and 19:

- **Fig. 18:** Electrical connection and setting of the selector switch when using the signal output for **operating indication**.
- **Fig. 19:** Electrical connection and setting of the selector contact when using the signal output for **fault indication**.

Caution

In the case of single-pump operation, the selector switch must be set to either fault or operating indication.

Fault or operating indication for twin-head pumps in alternating operation

If the signal output is to be used for fault or operating indication, an intermediate relay **must** be used.

Figure 20 shows a single-phase pump in alternating operation with external fault indication if pump 2 or both pumps are faulty.

Fault or operating indication for twin-head pumps in standby operation

If the signal output of the **duty pump** is to be used for fault or operating indication, an intermediate relay **must** be used.

If the signal output of the **standby pump** is to be used for fault or operating indication, proceed as shown in fig. 18 or 19.

6.3 Frequency converter operation

All three-phase pumps with standard module can be connected to a frequency converter, but please note the following:

- Even if the red indicator light is on, the pump is operating normally.
- Pumps fitted with other modules than the standard module **must not** be connected to a frequency converter.
- Depending on the frequency converter type, this may cause increased acoustic noise from the motor. Furthermore, it may cause the motor to be exposed to detrimental voltage peaks.
- The motors must be protected against voltage peaks higher than 650 V between the motor terminals.

Acoustic noise and detrimental voltage peaks can be reduced by fitting an LC filter between the frequency converter and the motor.

For further information, please contact the frequency converter supplier or Grundfos.

7. Start-up

Do not start the pump until the system has been filled with liquid and vented. Furthermore, the required minimum inlet pressure must be available at the pump inlet. See page 322.

Note

The system cannot be vented through the pump.



Warning
If the inspection screw (fig. 9) is to be slackened, care should be taken to ensure that the escaping, scalding hot liquid does not cause personal injury or damage to components.

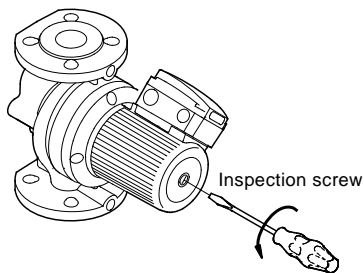


Fig. 9 Venting the pump

8. Speed selection

The speed switch in the terminal box can be turned to three positions. The speed in the three positions appears from the table below:

Switch position	Speed in % of maximum speed	
	Single-phase pumps	Three-phase pumps
1	approx. 60 %	approx. 70 %
2	approx. 80 %	approx. 85 %
3	100 %	100 %

Change to lower speed settings offers considerable reduction in energy consumption and less noise in the system.

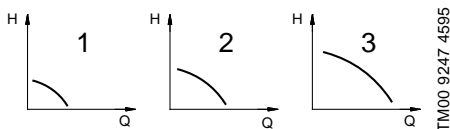


Fig. 10 Pump performance, speeds 1, 2 and 3



Warning

Never make any connections in the pump terminal box unless the power supply has been switched off.

Change the pump performance as follows:

1. Switch off the power supply to the pump with the external mains switch. The green indicator light in the terminal box must be off.
2. Remove the terminal box cover.
3. Pull out the speed switch module, and insert it so that the number of the required speed is visible through the window in the terminal box. See fig. 11.

Caution

When changing to/from speed 1, the cover of the speed switch must be removed and fitted on the other side of the switch.

4. Fit the terminal box cover.
5. Switch on the power supply. Check that the green indicator light is permanently on or flashing.

Caution

The speed switch module must not be used as an on/off switch.

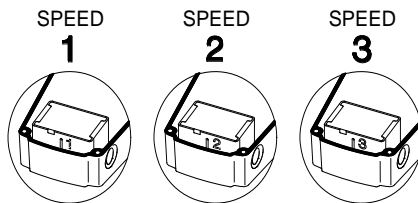


Fig. 11 Speed selection

9. Fault finding

This section consists of two subsections, i.e. for pumps with terminal box with standard module and for twin-head pumps with terminal box with relay module.



Warning

Before removing the terminal box cover, make sure that the power supply has been switched off and that it cannot be accidentally switched on.

The pumped liquid may be scalding hot and under high pressure. Before any removal or dismantling of the pump, the system must therefore be drained, or the isolating valves on either side of the pump must be closed.

9.1 Single-head and twin-head pumps with standard module

Fault	Cause	Remedy
The pump does not run. None of the indicator lights are on.	One fuse in the installation is blown.	Replace the fuse.
	External mains switch switched off.	Switch on the mains switch.
	Current-/voltage-operated earth-leakage circuit breaker has tripped out.	Repair insulation defects, and cut in the circuit breaker.
	The pump has been cut out by the thermal overload switch.	Check that the liquid temperature falls within the specified range. With external on/off changeover contact : The pump will restart automatically when it has cooled to normal temperature. With external on/off impulse contacts : The pump can be restarted when it has cooled to normal temperature.
The pump does not run. The green indicator light is on.	Rotor blocked, but the pump has not been cut out by the thermal overload switch.	Switch off the power supply, and clean or repair the pump.
	The speed switch module has not been fitted.	Switch off the power supply with the external mains switch, and fit the speed switch module.
Only three-phase pumps: The pump is running. The red and green indicator lights are on.	The pump is running with wrong direction of rotation.	Switch off the power supply with the external mains switch, and interchange two phases in the pump terminal box.
Noise in the system. The green indicator light is on.	Air in the system.	Vent the system.
	The flow is too high.	Reduce the pump performance (change to lower speed).
	The pressure is too high.	Reduce the pump performance (change to lower speed).
Noise in the pump. The green indicator light is on.	Air in the pump.	Vent the pump.
	The inlet pressure is too low.	Increase the inlet pressure, and/or check the air volume in the expansion tank, if installed.
Insufficient heat in some places in the heating system.	The pump performance is too low.	Increase the pump performance (change to higher speed), if possible, or replace the pump with a pump with a higher flow.

9.2 Twin-head pumps with relay module

Fault	Cause	Remedy
The pump does not run. None of the indicator lights are on.	One fuse in the installation is blown.	Replace the fuse.
	External mains switch switched off.	Switch on the mains switch.
	Current-/voltage-operated earth-leakage circuit breaker has tripped out.	Repair insulation defects, and cut in the circuit breaker.
	Missing phase (only three-phase pumps).	Check fuses and connections.
The pump does not run. The green indicator light flashes.	The pump has been stopped by the external on/off switch.	Switch on the external on/off switch.
The pump does not run. The green indicator light is on.	Rotor blocked, but the pump has not been cut out by the thermal overload switch.	Switch off the power supply, and clean or repair the pump.
The pump does not run. The red indicator light is on. The green indicator light is off.	The pump has been cut out by the thermal overload switch due to high liquid temperature or blocked rotor.	Check that the liquid temperature falls within the specified range. The pump will restart automatically when it has cooled to normal temperature. Note: If the thermal overload switch has cut out the pump three times within a short period, the pump must be restarted manually by switching off the power supply.
	The speed switch module has not been fitted.	Switch off the power supply with the external mains switch, and fit the speed switch module.
The pump does not run. The green indicator light flashes. The red indicator light is on.	The pump is or has been cut out by the thermal overload switch and the external on/off switch is switched off.	Check that the liquid temperature falls within the specified range. Note: If the thermal overload switch has cut out the pump three times within a short period, the pump must be restarted manually by switching off the power supply.
	The pump has been stopped by the external on/off switch. The pump will be running with wrong direction of rotation, if started.	Switch off the power supply with the external mains switch, and interchange two phases in the terminal box.
The pump is running. The red and green indicator lights are on.	The pump is running with wrong direction of rotation (only three-phase pumps).	
Noise in the system. The green indicator light is on.	Air in the system.	Vent the system.
	The pump flow is too high.	Reduce the pump performance (change to lower speed).
	The pressure is too high.	Reduce the pump performance (change to lower speed).
Noise in the pump. The green indicator light is on.	Air in the pump.	Vent the pump.
	The inlet pressure is too low.	Increase the inlet pressure, and/or check the air volume in the expansion tank, if installed.
Insufficient heat in some places in the heating system.	The pump performance is too low.	Increase the pump performance (change to higher speed), if possible, or replace the pump with a pump with a higher flow.

10. Technical data

Supply voltage

	Single-phase pumps	Three-phase pumps
Europe except Norway	1 x 230-240 V 50 Hz	3 x 400-415 V 50 Hz
Norway	1 x 230-240 V 50 Hz	3 x 200-230 V 50 Hz
Japan	1 x 100-110 V 50 Hz 1 x 100-110 V 60 Hz	3 x 200-230 V 50 Hz 3 x 200-230 V 60 Hz

Supply voltage tolerances

The motors meet the requirements to temperature rise at $\pm 6\%$.

Furthermore, the motors have been tested at $\pm 10\%$ of the voltage range. During these tests, the motors operate without problems and without being thermally cut out.

The motor voltage tolerances are intended for mains voltage variations. They should not be used for running motors at other voltages than those stated on the nameplates.

Enclosure class

IPX4D.

Ambient temperature

0 °C to +40 °C.

Relative air humidity

Maximum 95 %.

Liquid temperature

Water in heating systems:

Continuously: -10 °C to +120 °C.

For short periods: Up to +140 °C.

Domestic hot-water: Up to +60 °C.

Special version with FKM seals: Up to +80 °C.

Insulation of pump

The pump head must not be insulated.

If the liquid temperature is lower than the ambient temperature, the drain holes in the stator housing must not be covered if the pump is insulated.

System pressure

The system pressure is indicated on the pump flanges.

The table shows the maximum permissible system pressure at different temperatures:

Pressure	Cast-iron pumps			Bronze pumps
	$\leq 120\text{ °C}$	130 °C	140 °C	$\leq 140\text{ °C}$
	[bar] / [MPa]			
PN 6	6 / 0.6	5.8 / 0.58	5.6 / 0.56	6 / 0.6
PN 10	10 / 1.0	9.7 / 0.97	9.4 / 0.94	10 / 1.0
PN 6/10	See PN 6 and PN 10			
PN 16	16 / 1.6	15.6 / 1.56	15 / 1.5	16 / 1.6

Flange connection

Pump type	PN 6	PN 10	PN 6/10	PN 16	Number of bolt holes
UPS(D) 32-xx			•	•	4
UPS(D) 40-xx			•	•	4
UPS(D) 50-xx			•	•	4
UPS(D) 65-xx			•	•	4
UPS(D) 80-xx	•				4
		•		•	8
UPS(D) 100-xx	•				4
		•			8

Test pressure

PN 6: 10 bar ~ 1.0 MPa.

PN 10: 15 bar ~ 1.5 MPa.

PN 6 / PN 10: 15 bar ~ 1.5 MPa.

PN 16: 20.8 bar ~ 2.08 MPa.

The pressure test has been made with water containing anti-corrosive additives at a temperature of +20 °C.

Inlet pressure

The minimum pressures required at the pump inlet during operation can be found on page 322.

Sound pressure level

The sound pressure level of the pump is lower than 70 dB(A).

Thermal overload switch

Operating voltage		12.....500 VAC	
Rated voltage		250 VAC	500 VAC
Rated current	cos ϕ = 1.0	2.5 A	0.75 A
	cos ϕ = 0.6	1.6 A	0.5 A
Maximum switching current		5.0 A	2.5 A

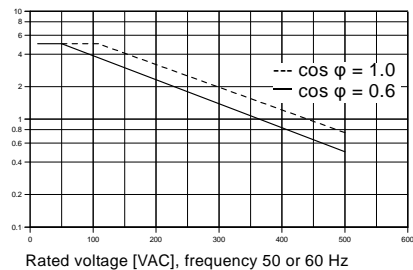
Curves

For rated currents at other voltages than those listed above, the curves below can be used.

The switching current can be calculated from the formula:

Rated voltage x switching current = constant
(at cos ϕ = 1.0).

Rated current [A]



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Fig. 12 Rated voltage and current

Start/stop input (basic module/relay module)

External potential-free contact.
Maximum load: 250 V, 1.5 mA.
Minimum load: 100 V, 0.5 mA.

Operating/fault signal output (relay module)

Internal potential-free changeover contact.
Maximum load: 250 V, 2 A, AC.
Minimum load: 5 V, 100 mA, DC.

11. Disposal

This product or parts of it must be disposed of in an environmentally sound way:

1. Use the public or private waste collection service.
2. If this is not possible, contact the nearest Grundfos company or service workshop.

Appendix

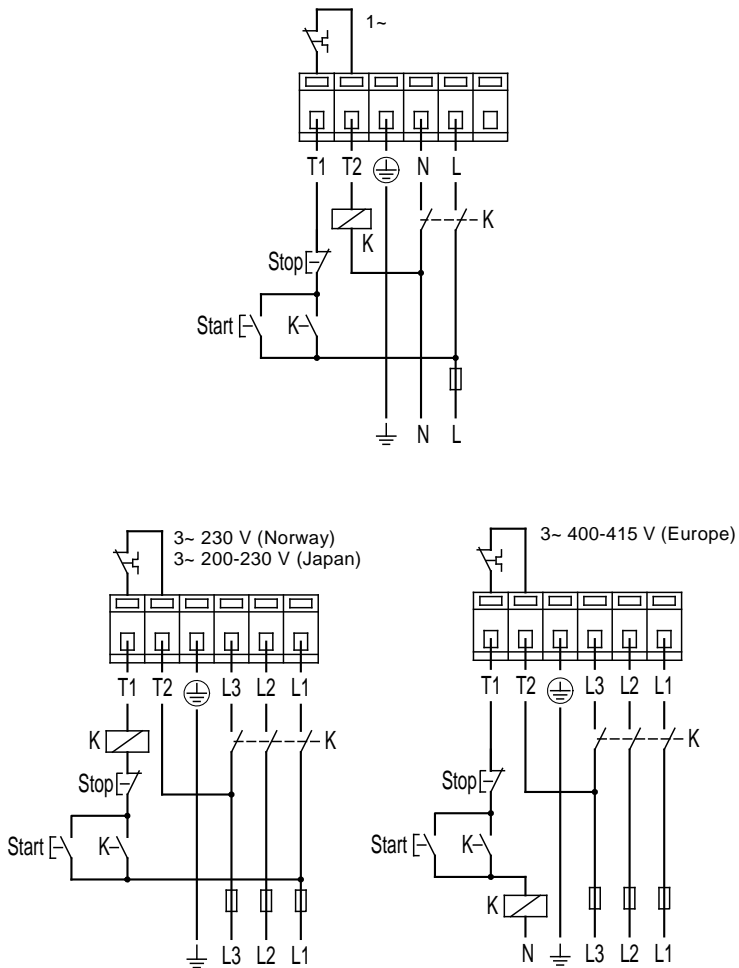


Fig. 13

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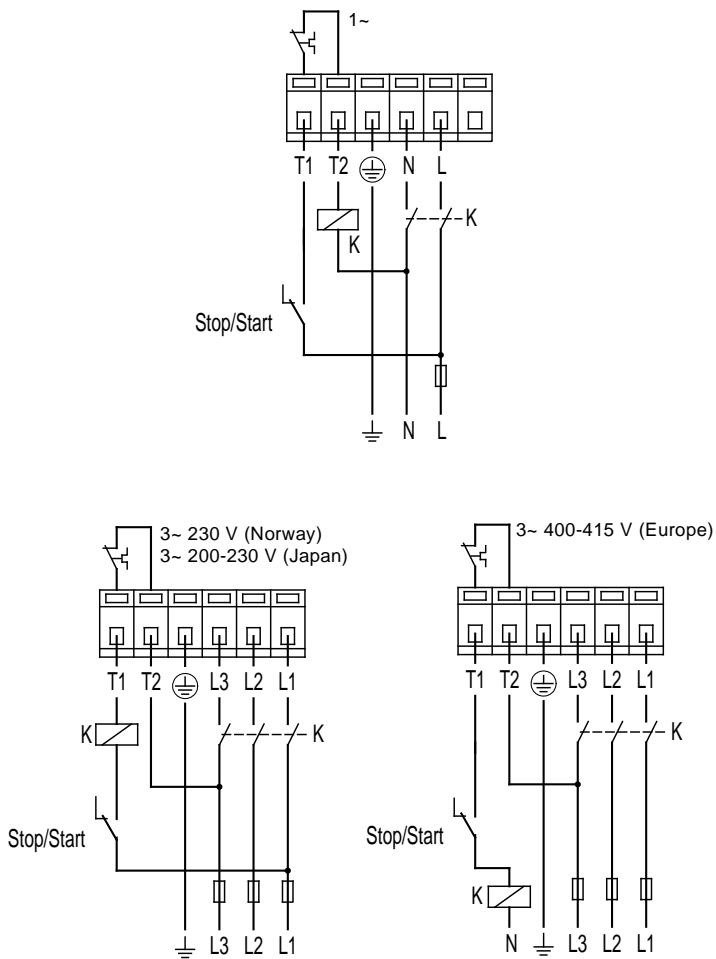


Fig. 14

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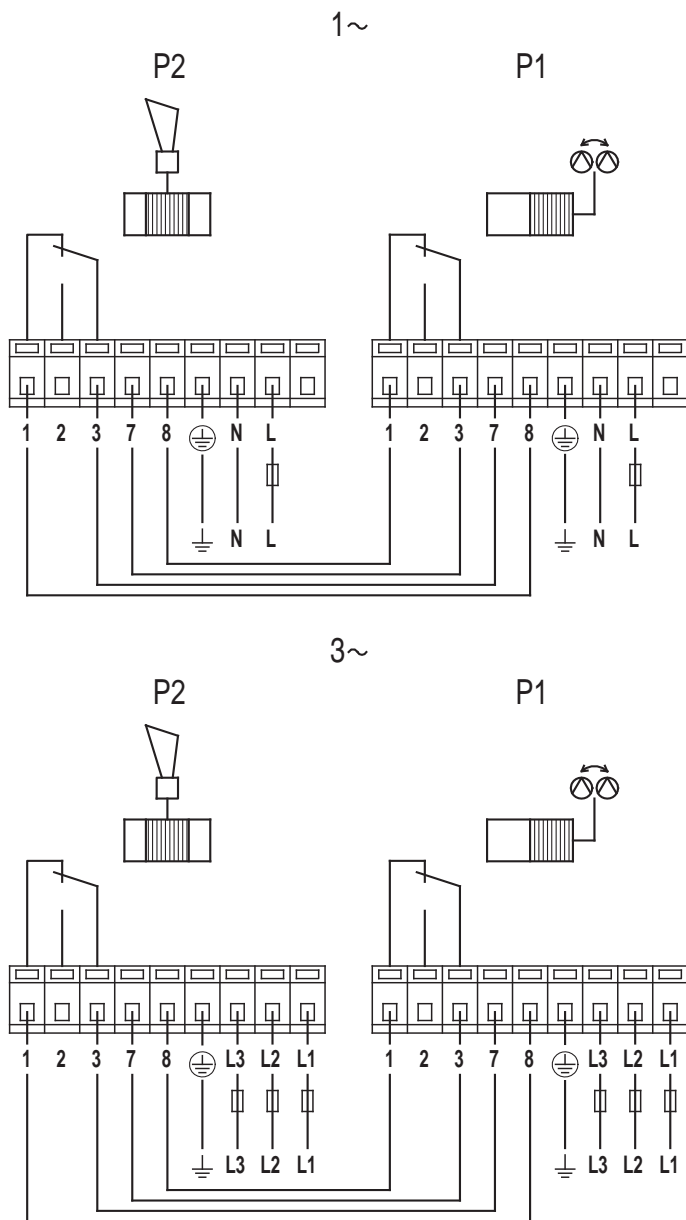


Fig. 15

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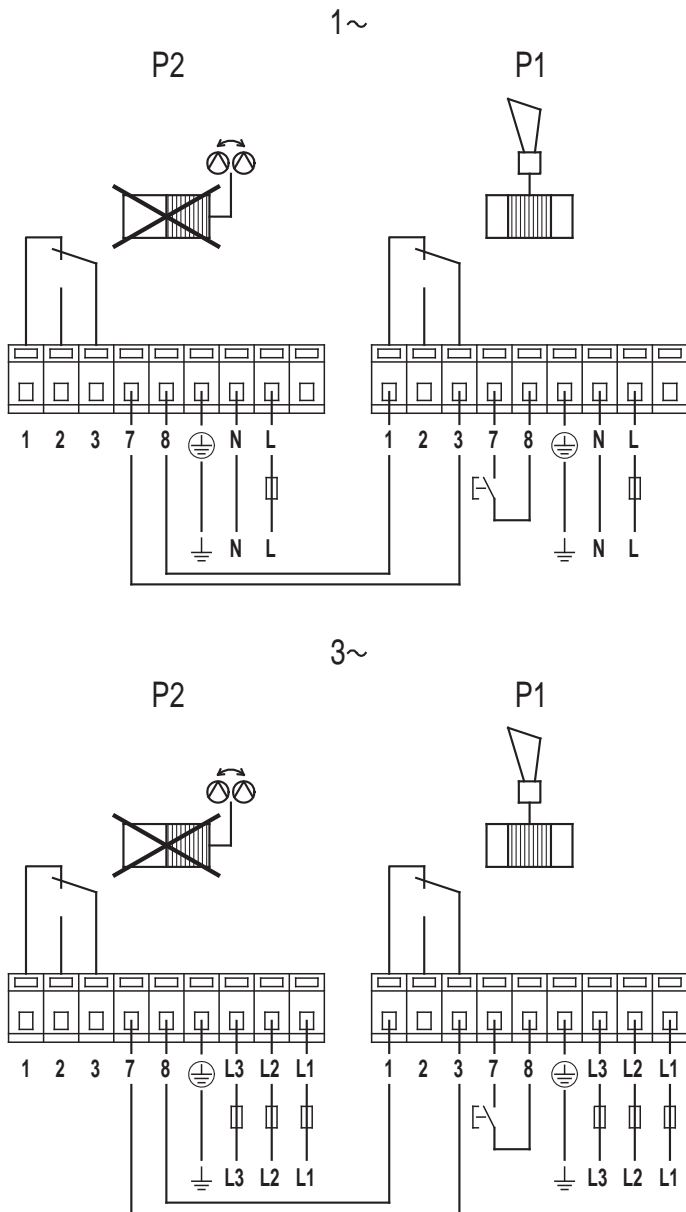


Fig. 16

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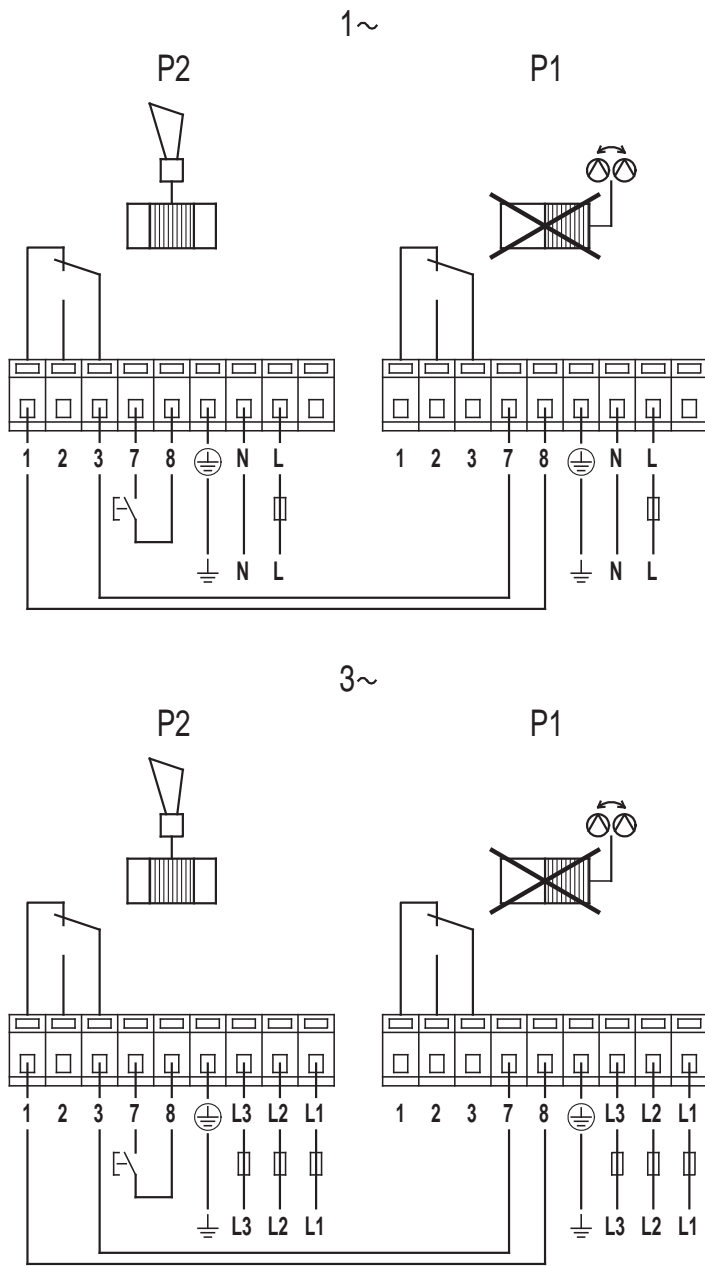


Fig. 17

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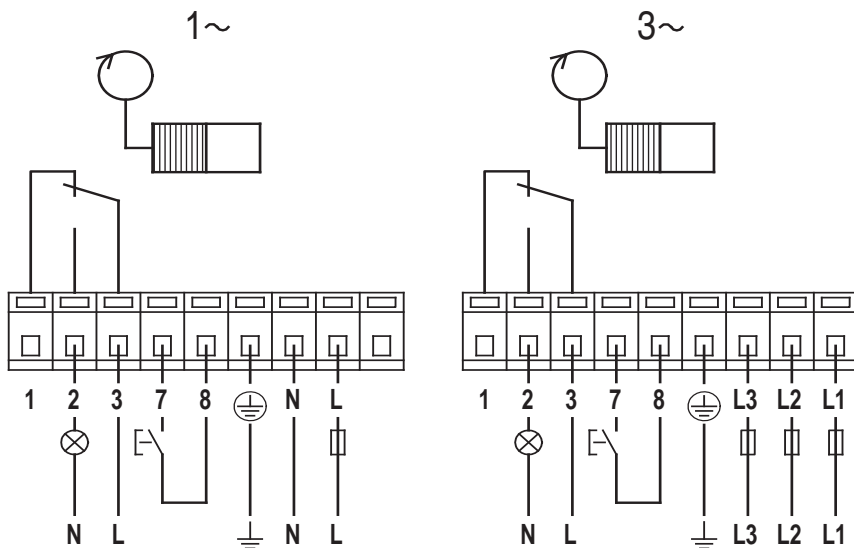


Fig. 18

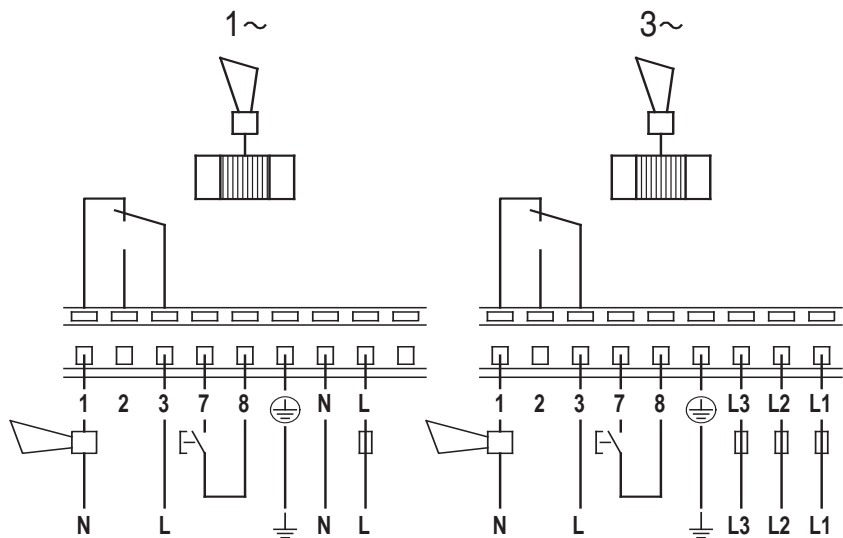


Fig. 19

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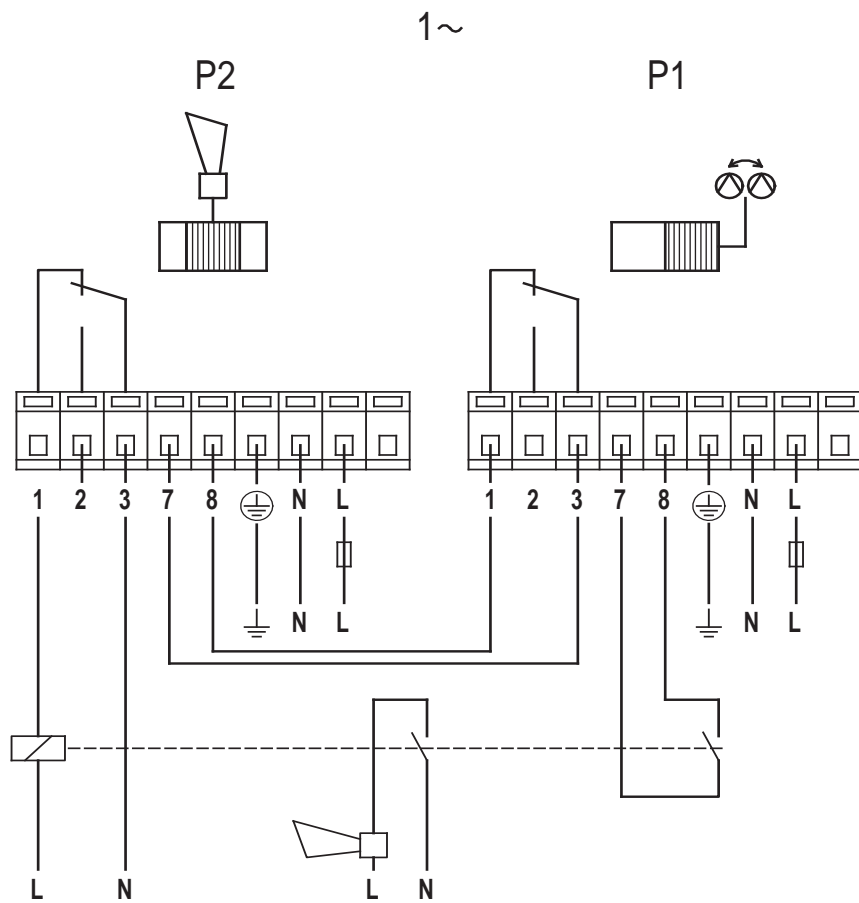


Fig. 20

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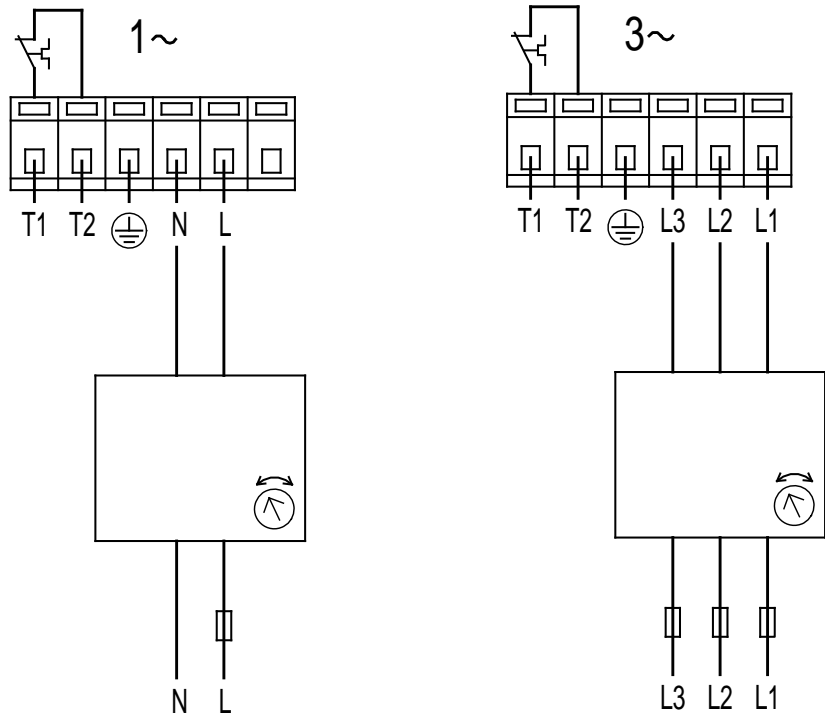


Fig. 21

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50 Hz

Pump type	Liquid temperature		
	75 °C	90 °C	120 °C
UPS / UPSD	[bar]	[bar]	[bar]
32-30	0.05	0.05	1.3
32-60	0.05	0.2	1.5
32-120	0.4	0.7	1.95
40-30	0.05	0.15	1.45
40-60/4	0.05	0.05	1.3
40-60/2	0.15	0.45	1.75
40-120	0.1	0.4	1.7
40-180	0.4	0.7	1.95
40-185	0.55	0.9	1.8
50-30	0.05	0.1	1.4
50-60/4	0.05	0.15	1.45
50-60/2	0.05	0.35	1.65
50-120	0.4	0.7	1.95
50-180	0.35	0.65	1.9
50-185	0.85	1.0	2.15
65-30	0.4	0.7	1.95
65-60/4	0.55	0.85	2.1
65-60/2	0.45	0.75	2.0
65-120	0.9	1.2	2.45
65-180	0.7	1.0	2.25
65-185	0.9	1.3	2.35
80-30	1.15	1.45	2.7
80-60	1.2	1.5	2.75
80-120	1.6	1.9	3.15
100-30	1.05	1.35	2.6

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