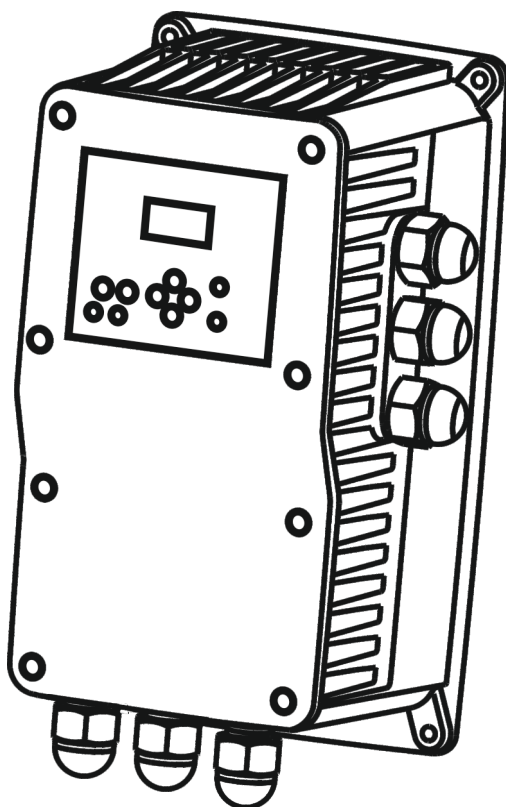


EN	INSTALLATION AND OPERATING INSTRUCTIONS
ES	INSTRUCCIONES PARA LA INSTALACIÓN Y UTILIZACIÓN
IT	ISTRUZIONI D'INSTALLAZIONE E USO
FR	INSTRUCTIONS POUR L'INSTALLATION ET L'EMPLOI



SPEEDBOX DUO





GARANZIA, RACCOMANDAZIONI E GENERALITÀ

IT

Il prodotto ha una garanzia di 2 anni dalla data di fabbricazione del prodotto.

Il fabbricante non si responsabilizza della garanzia del prodotto nel caso d'una installazione o manipolazione incorretta.

Leggere attentamente questo manuale per fare l'installazione del prodotto.

Non gettare il manuale dopo avere realizzato le operazioni di installazione, può essere utili per qualsiasi modifica nell'installazione, anche per risolvere qualche posteriore problema come allarme di sicurezza, allarme per mancanza d'acqua, ecc.

L'installazione sia idraulica sia elettrica deve essere fatta per personale qualificato rispettando le prescrizioni di sicurezza e perfino le normative vigenti per ogni paese.

Per l'installazione elettrica è raccomandabile usare un interruttore differenziale di alta sensibilità: $I_{\Delta n} = 30 \text{ mA}$ (clase A o AC). È raccomandato usare un magnetotermico di 20 A. È raccomandato usare una linea elettrica indipendente, con la finalità di evitare possibili interferenze elettromagnetiche che possano creare alterazioni non desiderate su apparecchi elettrodomestici dell'installazione.

ATTENZIONE, in caso che si deva effettuare qualche manipolazione interna nel circuito elettronico, posteriore al funzionamento di questo, si dovrà mettere fuori dalla rete elettrica ed attendere un minimo di 2 minuti per evitare qualsiasi scarica elettrica.

WARRANTY AND RECOMMENDATIONS

EN

The product is guaranteed the first 2 years after its production date.

This guarantee does not include damages in case of an inadequate installation or manipulation.

Read carefully this instructions manual before installation.

Do not throw away this manual after installation, it can be usefull for later modifications or for solving the different types of alarms.

Hydraulic and electrical installations must be set up by qualified personnel according to the safety prescriptions as well as the standards and legislation of every country. When carrying out the electrical connection it is recommended to use a differential switch of high sensitivity: $I_{\Delta n} = 30 \text{ mA}$ (clase A o AC). It is recommended to use a 20 A magnetothermic switch. It is recommended to use an independent electrical line, with the purpose of avoiding electromagnetic interferences that could create nonwished alterations in household electronic devices.

WARNING, before doing any maintenance inside the device, it must be unplugged from the electric supply and wait a minimum of 2 minutes after the disconnection to avoid electrical discharges.

GARANTIE RECOMMANDATIONS

FR

Le produit a une garantie de 2 années depuis de la date de fabrication du produit.

Le fabricant ne se fera pas responsable de la garantie du produit en cas d'une installation ou d'une manipulation inadéquate.

Lisez avec attention ce manuel pour effectuer l'installation du produit.

Ne rejetez pas le manuel après avoir effectué les opérations d'installation, il peut être utile pour toute modification de cette installation, ainsi que pour résoudre quelque problème postérieur comme alarmes de sécurité.

Les installations hydraulique comme électrique doivent être effectuée par personnel qualifié, il faut suivre les prescriptions de sécurité ainsi que les réglementations en vigueur de chaque pays.

Pour l'installation électrique on recommande d'utiliser un interrupteur différentiel de haute sensibilité: $I_{\Delta n} = 30 \text{ mA}$ (classe A ou AC). On recommande d'utiliser un magnetothermique de 20 A. On recommande, aussi, d'utiliser une ligne électrique indépendante, afin d'éviter de possibles interférences électromagnétiques qui peuvent créer des modifications non souhaitées dans des appareils électroménagers de l'installation.

ATTENTION, avant d'effectuer toute manipulation dans l'appareil, il devra être déconnecté du réseau électrique et on attendra un minimum de 2 minutes après le débranchement pour éviter de possibles décharges électriques.

GARANTÍA, RECOMENDACIONES Y GENERALIDADES

ES

El producto tiene una garantía de 2 años a partir de la fecha de fabricación del producto.

El fabricante no se hará responsable de la garantía del producto en caso de una instalación o manipulación inadecuada.

Lea atentamente este manual para realizar la instalación del producto.

No deseches el manual después de haber realizado las operaciones de instalación, puede ser útil para cualquier modificación de dicha instalación, así como para solucionar cualquier problema posterior como alarmas de seguridad, alarmas por falta de agua, etc.

La instalación tanto hidráulica como eléctrica tiene que ser realizada por personal cualificado respetando las prescripciones de seguridad así como las normativas vigentes de cada país.

Para la instalación eléctrica se recomienda utilizar un interruptor diferencial de alta sensibilidad: $I_{\Delta n} = 30 \text{ mA}$ (clase A o AC). Se recomienda utilizar un magnetotérmico de 20 A. Se recomienda utilizar una línea eléctrica independiente, con la finalidad de evitar posibles interferencias electromagnéticas que puedan crear alteraciones no deseadas en aparatos electrodomésticos de la instalación.

ATENCIÓN, antes de realizar cualquier manipulación en el interior del aparato, deberá ser desconectado de la red eléctrica y se esperará un mínimo de 2 minutos después de la desconexión para evitar posibles descargas eléctricas.



GARANTIE, EMPFEHLUNGEN UND ALLGEMEINES

DE

Das Gerät steht ab seinem Herstellungsdatum für 2 Jahre unter Garantie.

Aus der vom Hersteller gewährten Garantie ausgeschlossen bleiben jedoch Schäden, die infolge einer fehlerhaften Montage oder eines unsachgemäßen Gebrauchs des Geräts entstanden sind.

Lesen Sie sich dieses Handbuch vor der Montage des Geräts aufmerksam durch.

Werfen Sie dieses Handbuch nach Abschluss der Montagearbeiten nicht weg, da es bei Abänderungen an dieser Installation und zur Lösung eventuell später auftretender Vorfälle, wie etwa Sicherheitswarnmeldungen, Warnmeldungen wegen Wassermangels, usw., nützlich sein könnte.

Sowohl die hydraulische als auch die elektrische Montage darf nur von gebührend qualifiziertem Personal und unter Beachtung der Sicherheitsvorschriften und der im jeweiligen Land geltenden einschlägigen Regelungen durchgeführt werden.

Es wird empfohlen, für die elektrische Installation einen Fehlerschutzschalter mit hoher Empfindlichkeit zu verwenden: $I_{\Delta n} = 30 \text{ mA}$ (Klasse A oder AC). Ebenso wird empfohlen, einen thermomagnetischen Schutzschalter für 20 A. zu benutzen.

Es wird außerdem empfohlen, eine unabhängige elektrische Leitung zu benutzen, um mögliche elektromagnetische Interferenzen, die ungewünschte Störungen der Haushaltsgeräte der Installation verursachen könnten, zu vermeiden.

ACHTUNG: Vor dem Hantieren im Inneren des Geräts muss dieses immer vom Stromnetz abgeschlossen werden. Nach dem Abschalten muss noch 2 Minuten zugewartet werden, um den Empfang möglicher Stromstöße zu vermeiden.

GARANTIES EN AANBEVELINGEN

NL

Het product heeft een garantie van 2 jaar vanaf de datum van fabricatie van het product.

De fabrikant verleent geen garantie in geval van een inadequate installatie of handling.

Lees aandachtig deze handleiding alvorens de installatie aan te vatten.

Gooi deze handleiding niet weg na installatie, daar zij van nut kan zijn voor latere wijzigingen of om voor verschillende soorten alarmen op te lossen.

Hydraulische en elektrische installaties dienen door gekwalificeerd personeel te gebeuren volgens de veiligheidsvoorschriften alsook de geldende wetgeving in betreffend land.

Voor de elektrische installatie wordt een hoog gevoelige differentieelschakelaar aanbevolen: $I_{\Delta n} = 30 \text{ mA}$ (klasse A of AC).

Het wordt aanbevolen een magneto-thermische schakelaar van 20 A te gebruiken . Het

wordt eveneens aanbevelen een aparte elektrische leiding te plaatsen, om mogelijk elektromagnetische interferenties te vermijden die ongewenste wijzigingen in elektro-huishoudapparaten kunnen creëren.

OPGEPAST, alvorens enig onderhoud aan het toestel uit te voeren, dient het afgekoppeld van de stroomnet en na de afkoppeling dient minimum 2 minuten gewacht om mogelijke elektrische ontladingen te vermijden.

GWARANCJA I REKOMENDACJE

PL

Produkt posiada 2 letnią gwarancję od daty produkcji.

Gwarancja nie obejmuje uszkodzeń w przypadku nieodpowiedniej instalacji, nieodpowiedniego podłączenia lub uszkodzeń mechanicznych. Przeczytaj uważnie tę instrukcję przed zainstalowaniem urządzenia.

Nie wyrzucaj tej instrukcji po instalacji, może być przydatna przy późniejszych modyfikacjach lub do rozwiązania problemów w przypadku alarmów

Instalacje hydrauliczne i elektryczne muszą być instalowane przez wykwalifikowany personel zgodnie z wymaganiami bezpieczeństwa i normami każdego kraju. Podczas wykonania połączenia elektrycznego, zaleca się zastosowania przełącznika różnicowego o wysokiej czułości : $I = 30 \text{ mA}$ (klasa A lub AC). Zaleca się użycie zabezpieczenia różnicowo prądowego 20 A. Zaleca się zastosowanie niezależnej linii elektrycznej w celu uniknięcia

zakłóceń różnicowoprądowych, które mogłyby powodować nieplanowane zmiany w elektronicznych urządzeniach domowych.

UWAGA, przed przystąpieniem do jakichkolwiek czynności konserwacyjnych wewnątrz urządzenia, należy odłączyć zasilanie elektryczne od gniazda sieciowego i odczekać co najmniej 2 minuty po odłączeniu, aby uniknąć wyładowań elektrycznych.

Warning symbols contained in this service manual - Simboli di avvertenze contenute in queste istruzioni

Symboles d'avertissement contenus dans le présent chapitre - Símbolos de advertencia contenidos en este manual

Symbole ostrzegawcze zawarte w tej instrukcji



Only applies to type MASTER.
Si applica soltanto al tipo MASTER.
Il applique seulement au type MASTER.
Sólo aplica al tipo MASTER
Dotyczy tylko typu MASTER.



Risk by electric shock.
Rischio di scosse elettriche.
Risque de choc électrique.
Riesgo por energía eléctrica.
Ryzyko porażenia prądem.



Rischio per le persone e/o per gli oggetti.
Risk for people and/or objects.
Risque pour les objets et/ou de gens.
Riesgo para personas y/o objetos.
Ryzyko dla ludzi i/lub obiektów.

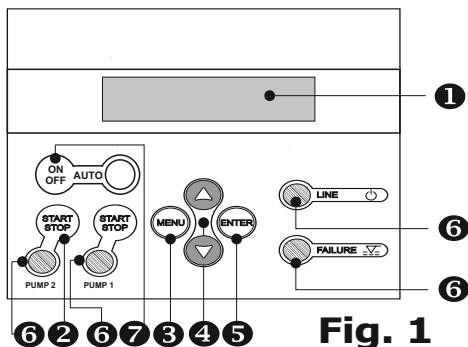


Fig. 1

- 1 - Ecran LCD multifonction.
En situation de travail il indique la pression.
- 2 - Poussoirs **MANUEL START-STOP**.
- 3 - Poussoir pour entrer ou sortir de **MENU**.
- 4 - Poussoirs pour augmenter ou diminuer les valeurs de programmation qui se montrent sur l'écran (1).
- 5 - **ENTER** pour entrer en mémoire les valeurs sélectionnées. A chaque frappe d'entrée, il suit la présentation d'un nouveau élément du **MENU DE PROGRAMMATION**. Pour sortir éventuellement, pousser **MENU** (3) en validant des modifications.
- 6 - Témoins lumineux d'indication:
 - **LINE** vert: alimentation électrique.
 - **FAILURE** rouge: allumé en état permanent ou clignotant selon l'erreur détecté.
 - **PUMP** jaune: Allumé il indique pompe en marche. Éteint avec la pompe arrêtée ou bien sans tension de ligne.
 - **AUTOMATIC** vert: Allumé dans mode **AUTOMATIC**. Dans le mode de fonctionnement "**MASTER** et **SLAVE**", clignotant nous indique que cet appareil sera le secondaire dans le cycle suivant
- 7 - **ON/OFF**: Pour passer du mode **AUTOMATIC** à **MANUEL** et vice versa.

FR

- 1 - Mehrzweck-LCD-Bildschirm.
Er zeigt während des Betriebs den Druck an.
- 2 - Drucktaste **MANUELLER START-STOP**.
- 3 - Drucktaste für den Zugang zum oder das Verlassen des **MENÜS**.
- 4 - Drucktasten zur Erhöhung oder Verminderung der programmierten Werte, die auf dem Bildschirm angezeigt werden (1).
- 5 - **ENTER** für den Zugang zum Arbeitsspeicher, der die gewählten Werte enthält. Auf jedes Drücken der Enter-Taste folgt die Anzeige eines neuen **PROGRAMM-MENÜ-Datenfeldes**. Dieses kann jederzeit verlassen werden, indem auf **MENÜ** gedrückt wird (3).
- 6 - Led-Anzeigen:
 - **LINE** grün: Stromspeisung. Diese Anzeige leuchtet auf, wenn das Gerät an die Stromspeisung angeschlossen wird.
 - **FAILURE** rot: Je nach dem aufgetretenen Fehler blinkt diese Anzeige oder leuchtet kontinuierlich
 - **PUMP** gelb: Diese Anzeige leuchtet, wenn die Pumpe in Betrieb ist und schaltet sich bei Stillstand derselben oder bei fehlender Spannung in der Leitung aus.
 - **AUTOMATIC** grün: Diese Anzeige schaltet sich im automatischen Betriebsmodus ein. Im **MASTER&SLAVE** Modus zeigt die blinkende Anzeige an, dass dieses Gerät im folgenden Arbeitszyklus als Hilfsgerät zum Einsatz kommt.
- 7 - **ON/OFF**: Mit dieser Taste kann vom **AUTOMATISCHEN** zum **MANUELLEN** Modus übergewechselt werden oder umgekehrt.

DE

- 1 - Multifunctioneel LCD scherm.
In werkmodus wordt de druk weergegeven.
- 2 - Druktoets **MANUAL START-STOP**.
- 3 - Druktoets om in of uit het **MENU** te gaan.
- 4 - Met deze druktoetsen kan men de te programmeren waarden in het scherm wijzigen (1).
- 5 - **ENTER** om de geprogrammeerde waarden te bewaren. Elke puls wordt gevolgd door een nieuw veld van het **PROGRAMMATIEMENU**. Om op elk moment de configuratie te verlaten druk **MENU** (3) door de wijzigingen te valideren.
- 6 - Led controlelampjes:
 - **LINE** groen: elektrische voeding, brandt indien verbonden.
 - **FAILURE** rood: knippert of brandt permanent al naargelang de gevonden fout.
 - **PUMP** geel: indien aan werkt de pomp. Uit indien de pomp uit staat of zonder spanning op de lijn.
 - **AUTOMATIC** groen: aan in automatische modus. In de **MASTER&SLAVE** modus duidt een knipperend lampje dat dit apparaat secundair zal zijn in de volgende cyclus.
- 7 - **ON/OFF**: Om van **AUTOMATISCHE** naar **MANUELE** modus over te gaan en vice versa.

NL

- 1- **LCD** screen. Shows the pressure in working mode.
- 2 - **MANUAL START-STOP** pushbuttons.
- 3 - Pushbutton for **ENTER** or **EXIT** menu.
- 4 - With these pushbuttons we can change programming values showed in the **LCD** screen (1).
- 5 - **ENTER** for saving programmed values. Every pulsation is succeeded by a new field of the **CONFIGURATION MENU**. Whenever we want to quit the configuration sequence press **MENU** (3) accepting the changes.
- 6 - Led lights:
 - **LINE** green: Electric supply. ON when it is connected.
 - **FAILURE** red: Bright or intermittent depending on type of failure.
 - **PUMP** yellow: When it is bright means pump working. It is lit with the pump stopped or when the device is not connected.
 - **AUTOMATIC** green: it is bright in **AUTOMATIC** mode. When it is intermittent in **MASTER&SLAVE** mode it means that this device will be auxiliary in the following cycle.
- 7 - **ON/OFF**: It allows to change from **AUTOMATIC** to **MANUAL** mode or vice versa.

EN

- 1- Schermo **LCD** multifunzione.
In situazione di lavoro mostra la pressione.
- 2 - Pulsante **MANUALE START-STOP**.
- 3 - Pulsante per entrare oppure uscire del **MENU**.
- 4 - Pulsanti per aumentare o diminuire valori di programmazione che si mostrano nello schermo (1).
- 5 - **ENTER** per entrare nella memoria dei valori selezionati. Ad ogni pulsazione di entrata gli segue la presentazione di un nuovo campo del **MENU DI PROGRAMMAZIONE**. Per uscire in qualsiasi momento pulsare **MENU** (3) accettando i cambiamenti.
- 6 - Leds di indicazione:
 - **LINE** verde: Alimentazione elettrica, si accende se è collegato.
 - **FAILURE** rosso: Si accende intermittente o permanentemente.
 - **PUMP** giallo: Accesso indica lavorando nella pompa. Spento se ci siamo con la pompa arrestata oppure senza tensione da linea.
 - **AUTOMATIC** verde: Si accende in modo automatico. In modo **MASTER & SLAVE** l'intermittenza indica che questo dispositivo sarà l'ausiliare nel seguente ciclo.
- 7 - **ON/OFF**: Permite passare dal modo **AUTOMATICO** a **MANUALE** e viceversa.

IT

- 1 - Pantalla **LCD** multifunción.
En situación de trabajo indica la presión.
- 2 - Pulsadores **MANUAL START-STOP**.
- 3 - Pulsador para entrar o salir de **MENU**.
- 4 - Pulsadores para aumentar o disminuir valores de programación que aparecen en pantalla (1).
- 5 - **ENTER** para entrar en memoria los valores seleccionados. A cada pulsación de entrada le sucede la presentación de un nuevo campo de **MENÚ DE PROGRAMACIÓN**. Para salir en cualquier momento pulsar **MENU** (3) validando los cambios.
- 6 - Leds de indicación:
 - **LINE** verde: Alimentación eléctrica, se enciende si está conectado.
 - **FAILURE** rojo: Se enciende intermitente o permanente según tipo de fallo.
 - **PUMP** amarillo: Encendido indica trabajando bomba. Apagado con la bomba parada o bien sin tensión de línea.
 - **AUTOMATIC** verde: Se enciende en modo automático. En modo **MASTER&SLAVE** la intermitencia indica que este dispositivo será el auxiliar en el siguiente ciclo.
- 7 - **ON/OFF**: Permite pasar modo **AUTOMATICO** a modo **MANUAL** y viceversa.

ES

- 1 - Ekran **LCD**. Pokazuje ciśnienie w trybie roboczym.
- 2 - Przycisk **RĘCZNY START-STOP**.
- 3 - Przycisk do **OTWARCIA** lub **ZAMKNIĘCIA MENU**.
- 4 - Przyciski do zmieniania wartości wyświetlanych na ekranie(1).
- 5 - **ENTER** w celu zapisania ustawionych wartości. Kiedy chcemy zakończyć sekwencję konfiguracji, nacisnąć **MENU** (3) aby zaakceptować zmiany.
- 6 - Diody **LED**:
 - **CIĄGŁE** zielone: falownik dostarcza energie elektryczną.
 - **ALARMY** czerwone: Jasne lub przerywane w zależności od alarmu.
 - **POMPA** żółte: świeci się gdy pompa pracuje.
 - **AUTOMATYCZNY** zielony: świeci się w trybie **AUTOMATYCZNYM**. Gdy jest w trybie **MASTER&SLAVE** świeci światłem przerywanym..
- 7 - **ON/OFF**: Umożliwia zmianę z trybu **AUTOMATICO** na **MANUALNY** i odwrotnie..

PL

INSTALLATION SCHEME - SCHEMA IMPIANTO - SCHÉMA INSTALLATION - ESQUEMA MONTAJE - MONTAGEPLAN - INSTALLATIESCHERM - SCHEMAT INSTALACJI

OBSERVATIONS / OSSERVAZIONI / OBSERVATIONS / OBSERVACIONES / ANMERKUNGEN / VASTSTELLINGEN:

- A) Accessories ⑤, ④ and ③ are recommendable but non essential.
Gli accessori ⑤, ④ e ③ sono raccomandabili ma non indispensabili.
Les accessoires ⑤, ④ et ③ sont recommandables mais non indispensables.
Los accesorios ⑤, ④ y ③ son recomendables pero no imprescindibles.
Die Zubehörteile ⑤, ④ und ③ werden empfohlen, sind jedoch nicht unbedingt notwendig.
De accessoires ⑤, ④ y ③ zijn aanbevolen maar niet noodzakelijk.
Akcesoria ⑤, ④ i ③ są zalecane ale nie konieczne
- B) In the case of the hydropneumatic tank ⑦, minimum capacity should be 5 l.
Nel caso del serbatoio idropneumatico ⑦, si raccomanda la sua utilizzazione nelle installazioni dove si pretenda evitare i colpi d'ariete.
Dans le cas de réservoir hydropneumatique ⑦, on recommande son utilisation dans des installations où on prétend éviter le coup d'ariete.
En el caso del tanque de acumulación ⑦, se recomienda su utilización en instalaciones donde se pretenda evitar el golpe de ariete.
Die Verwendung eines Druckausgleichbehälters ⑦ wird in Anlagen empfohlen, in denen Druckstöße vermieden
Het gebruik van een hydrotank ⑦ in een installatie wordt aanbevolen met het oog op het vermijden van waterslag.
W przypadku zbiornika hydroforowego ⑦, minimalna pojemność powinna wynosić 5L
- C) It must be installed a pressure transmitter ⑤, output 4-20 mA, with pressure range either 0-10 bar or 0-16 bar, 0-25 bar.
Installare un trasmettitore di pressione ⑤ uscita 4-20 mA e intervallo di pressione 0-10 bar o 0-16 bar.
installer un transmetteur de pression ⑤ avec 4-20 mA et la gamme de pression 0-10 bar ou 0-16 bar.
Se instalará un transmisor de presión ⑤ con salida 4-20 mA y rango de presión de 0-10 bar o 0-16 bar.
Ein Druckgeber muss installiert werden ⑤, Ausgang 4-20 mA, mit einem Druckbereich von 0-10 bar oder 0-16 bar
Een druksensor ⑤ dient geïnstalleerd met uitgang 4-20 mA en een drukbereik van 0-10 bar of 0-16 bar.
Należy zamontować czujnik ciśnienia ⑤ wydajność 4-20 mA z zakresem ciśnienia 0-10 bar i 0-16 bar.

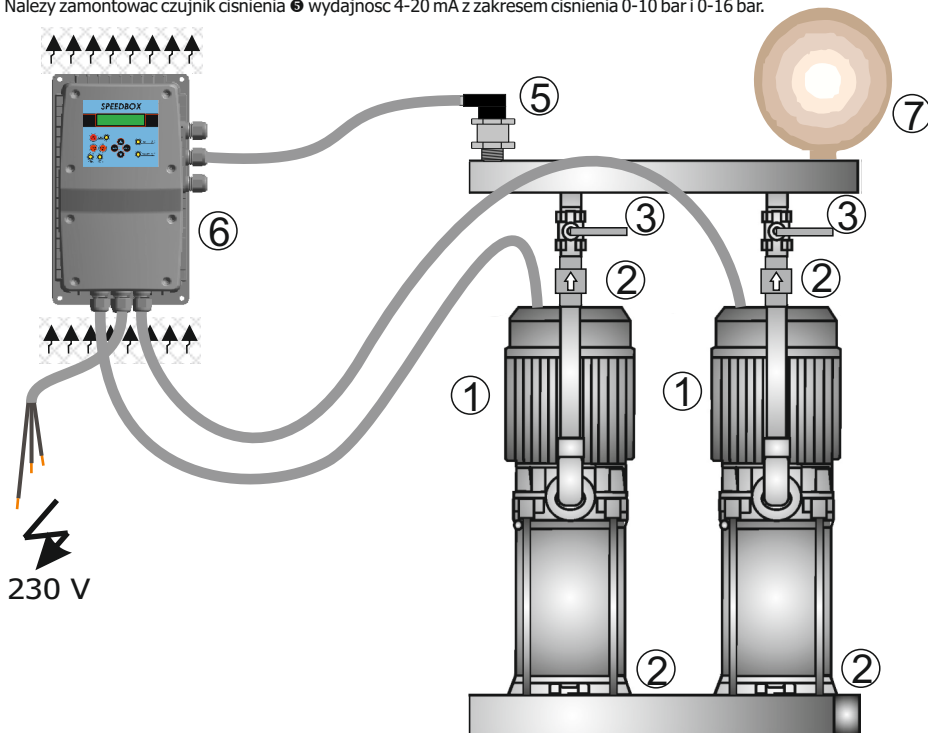
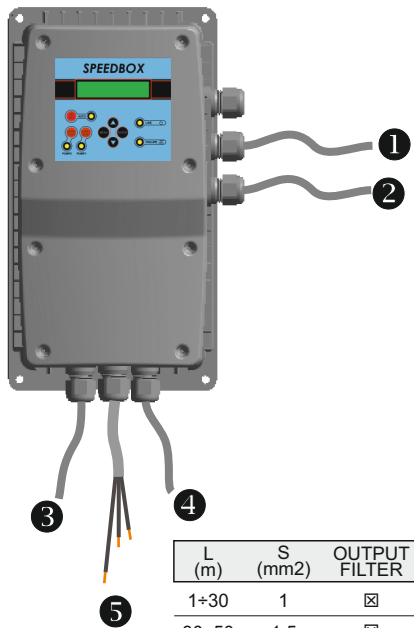


Fig. 2

- ①.- Pump / Pompa / Pompe / Bomba / Pumpe / Pomp / Pompa.
②.- Check valve / Valvola di non ritorno / Clapet antiretour / Válvula de retención / Rückschlagventil / Terugslagklep. / Zawór zwrotny.
③.- Ball valve / Valvole a sfera / Robinet à tournant sphérique / Válvula de esfera. / Kugelhahn / Kogelkraan / Zawór kulowy.
④.- Filter / Filtro / Filtre / Filtro / Filter / Filter / Filtre.
⑤.- Pressure transmitter / Transmetteur de pression / trasmettitore di pressione / transmisor de presión / drucksensor / druksensor / Czujnik ciśnienia.
⑥.- Device / Dispositivo / Dispositif / Dispositivo / Gerät / Apparaat / Urządzenie
⑦.- Hydropneumatic tank / Serbatoio idropneumatico / Réservoir hydropneumatique / Tanque hidroneumático / Ausdehnungsgefäß / Druckausgleichsbehälter / Zbiornik hydroforowy.

(MT) & (MM)

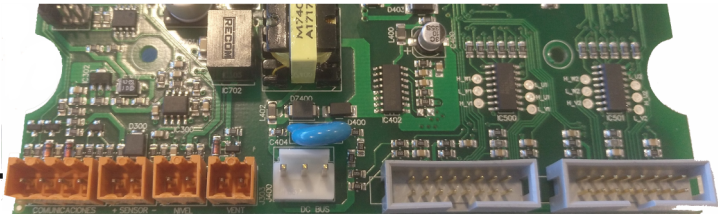


L (m)	S (mm2)	OUTPUT FILTER
1+30	1	☒
30+50	1,5	☒
50+85	2,5	dV/dt
85+140	4	sinusoidal

1	Pressure transmitter Trasduttore di pressione Capteur de pression Transductor de presión Druksensor Druksensor Przetwornik ciśnienia
2	Minimal level (optional) Livello minimo (facoltativo) Niveau minimal (optionnel) Sensor de nivel mínimo (opcional) Externer Schwimmerschalter (optional) Minimum niveausensor (optioneel) Minimalny poziom (opcjonalnie)
3	Pump 1 connection Collegamento pompa 1. Connection pompe 1. Conexión de la bomba 1. Verbindung zur Pumpe 1. Pompaansluiting 1. Podłączenie pompy 1.
4	Pump 2 connection Collegamento pompa 2. Connection pompe 2. Conexión de la bomba 2. Verbindung zur Pumpe 2. Pompaansluiting 2. Podłączenie pompy 2.
5	Power supply Alimentation générale Alimentazione elettrica Alimentación general Netzanschluss Voeding Zasilanie

Connection master&slave communication
Collegamento comunicazione master&slave
Connexion communication master&slave
Conexión comunicación master&slave
Anschluss Master & Slave Kommunikation
Aansluiting master&slave voeding
Połączenie komunikacyjne master&slave

Fig.3



Pressure transmitter - Trasduttore di pressione
Capteur de pression - Transductor de presión
Drucksensor - Przetwornik ciśnienia

External level probe
Sonda di livello esterno
Capteur de niveau externe
Entrada digital externa programable
Externer Schwimmerschalter
Externe niveausensor
Sonda poziomu zewnętrznego

Fan
Fan
Ventilateur
Ventilador
Ventilator
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DUO M-T / M-M

CONNECTIONS - COLLEGAMENTO - CÔNNEXIONS - CONEXIONES - ANSCHLÜSSE - AANSLUITINGEN - POŁĄCZENIE

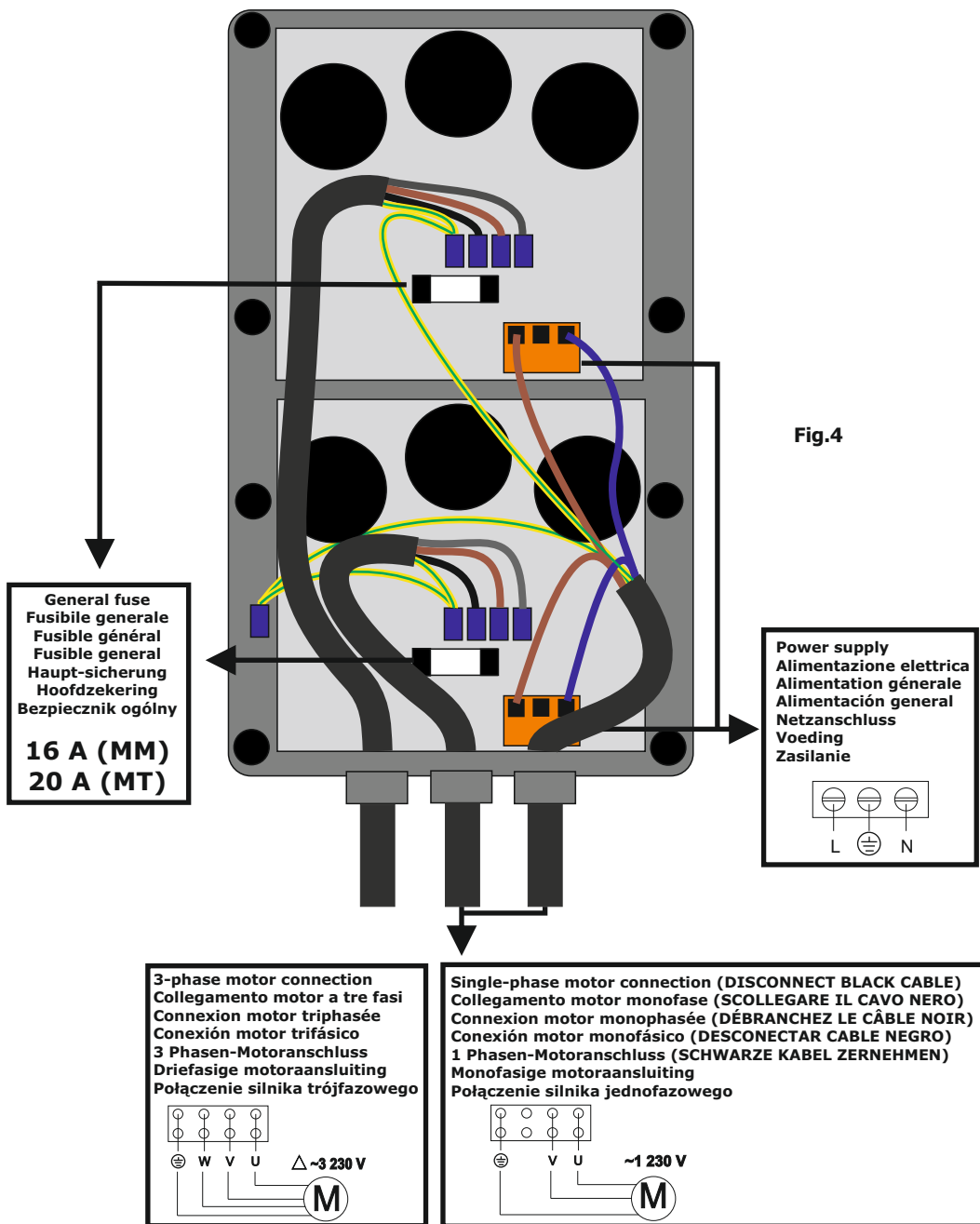


Fig.4

BEFORE INSTALLATION AND USE READ THE FOLLOWING INSTRUCTIONS CAREFULLY. THE MANUFACTURER DECLINES ALL RESPONSABILITY IN THE EVENT OF ACCIDENT OR DAMAGE DUE TO NEGLIGENCE OR FAILURE TO OBSERVE THE INSTRUCTIONS DESCRIBED IN THIS MANUAL OR IN CONDITIONS THAT DIFFER FROM THOSE INDICATED ON THE DEVICE.

OPERATION

Is a wall-mounted automatic control device designed for the automation of a two single or three-phase pump group, with an electronic system managed by a software responding to the rigorous requirements of efficiency and safety of the most important pump manufacturers. It includes two frequency inverters that regulate the speed of each pump in order to keep constant the pressure independently of the flow given. The system will work with both pumps in alternation and cascade. The system incorporates an LCD screen where the parameters configuration is very easy and intuitive. Once the configuration parameters are set, the device manages the start-up of the pumps and the frequency inverters. It assures a constant pressure and an important costs reduction because at any time the control will feed the system with the right and necessary output, obtaining a maximum energetic efficiency. In order to establish the optimal pressure in the installation is suitable to consider following criteria:

Hm: Max. water column height in m. It depends on the number of floors and it corresponds to the height from the pump to the last floor. Every 10 m of height corresponds approximately to 1 bar (0.98) bar.

Pw: Available minimum pressure in last floor (usually 1.5 bar).

Pc: Pressure drop. It can be considered with a simplified criteria as 0.033 bar/m.

Prmin: Minimum resultant pressure. It is the sum of the previous pressures and it will be the operating pressure of the pump.

Example for a 5 floors building (15 m) with pump placed at level 0:

$Hm = 15 \text{ m} \cong 1.5 \text{ bar}$ $Pw = 1.5 \text{ bar}$ $Pc = 15 \times 0.033 \text{ bar} \cong 0.5 \text{ bar}$ $Prmin = 1.5 + 1.5 + 0.5 = 3.5 \text{ bar}$

MAIN CHARACTERISTICS

- 2 frequency inverters for the pumps control.
- Wall-mounted
- Control and safety system against overload.
- Control and safety system against dry run.
- **ART** function (Automatic Reset Test). If the device has been stopped due to the action of the safety system against over-current, the **ART** tries to connect the pump, with a programmed periodicity because the water supply could have been restored
- Automatic restore system after an interruption of power supply. System is activated in AUTOMATIC mode keeping the configuration parameters (see "CONFIGURATION" chapter).
- **STC** function (Smart Temperature Control). When the temperature of the electronic board reaches 85°C, the spin frequency of the pump decreases automatically, decreasing that way the heat generation but keeping the water supply.
- External pressure transducer (4.20 mA) under demand.
- External programmable input with three options: Level, ON/OFF and Second pressure.
- Control panel (Fig.1):
 - LCD screen, for alarm menu with permanent pressure indication.
 - START/STOP push-buttons to act by hand each one of the pumps
 - ENTER pushbutton to save data in memory.
 - ON/OFF pushbutton to change from AUTOMATIC to MANUAL mode or vice versa.
 - MENU push-button
 - Keyboard for the access to programming menu.
 - Digital gauge.
- Register of operational controls: information about operating hours, counter of starts, counter of connections to the power supply.
- Register of alarms: information about type and number of alarms since the starting up of the device.

CLASSIFICATION AND TYPE

According to EN: 60730-1 and EN:60730-2-6 this unit is a control electronic device for pressure groups, with flexible cable for permanent assembly type Y, action type 1Y (transistor output). Operating value: flow 2.5 l/min. Degree of contamination 2 (clean environment). Software Class A.

Impulse rating voltage: cat II / 2500V. Applied temperature for the ball pressure test: enclosure (75°C) and PCB (125°C).

Control circuit for AC motor with $\cos \phi \geq 0.6$ (single-phase) and $\cos \phi \geq 0.75$ (3-phase).

According to EN 61800-3 this device is C2 class.

TECHNICAL CHARACTERISTICS

TYPE	DUO
Power supply voltage	~1x230 Vca ±10%
Frequency	50/60 Hz
Output	~1x230V (MM) / ~3x230 V (MT)
Nominal current	12A (MM) / 9A (MT)
Max. peak of current.	20% 10 sec.
Range of set pressure	0,5 - 16 bar or 0.5 - 10 bar or 0 - 25 bar (type config.)
Protection degree	IP 65
Max. environ. temp.	5 - 50 °C
Relative humidity	Maximum relative humidity 80% for temperatures up to 31 °C, decreasing linearly to
Cooling method	Forced convection
Net weight	-
Fuses	16 A (MM) / 20 A (MT)

⚠ MECHANICAL INSTALLATION (fig. 2)

- Store in a clean and dry environment, do not remove the unit from its packaging until it must be used.
- The device must be installed in environments pollution grade 2 according to EN-60730-1.
- The protection degree is IP65 depending on the model, therefore must be mounted in places protected from the rain.
- Install the device in an upright wall, leaving at least 200 mm of space on its top and bottom to facilitate heat dissipation.
- The unit will be anchored in the wall using the 4 holes of 7 mm in diameter located on its corners.

⚠ HYDRAULIC INSTALLATION (fig. 2)

Before proceeding with hydraulic connection it is essential to install a non-return valve in the pump's inlet or outlet. It must be mounted a collector for the communication of the devices water outputs. The inlet must proceed from a common origin.

For mounting the pressure sensor can be used any outlet G1/4 "at the pipe after the pump outlet.

- It must be installed an hydropneumatic tank of at least 5 l to avoid problems caused by leakages in the hydraulic net
- The device is provided with an automatic system that stops the pump if there is no demand in the installation. If you are in an installation where the device does not stop the pump when there is no demand, this happens because there are leaks in the installation (tanks, faucet, check valves...). In these cases it can be used the frequency minimum value like a frequency stop. (see CONFIGURATION)
- PROCEDURE: Open a faucet of the installation and set the desired minimum flow. With this flow, visualize in the screen the frequency at which the pump is rotating. Set the minimum frequency to the frequency displayed on the previous screen.

⚠ ELECTRIC CONNECTION (fig. 3, 4) The electrical installation must be performed by qualified personal in compliance with safety regulations and to regulations of each country. Before doing manipulations inside the device, it should be disconnected of the electric supply and after disabling, wait for 2 minutes in order to avoid electrical discharges.

The basic unit is served with power cabling, motor cabling and pressure transmitter cabling. The power cord can be replaced only by the manufacturer or his accredited representative (Y). Then the cabling is exposed as would be done to address any eventuality:

- Use cables type H07RN-F with section enough to the power installed:
 - Power supply: $s = 4 \text{ mm}^2$
 - Motor supply: $s = 1 \text{ mm}^2$
- If is necessary to increase the cable length, outer joint is performed following the guidelines of the regulations applicable to low voltage installation country and the section of cable will be sized according to the same criteria
- Verify if the power supply is 230V. Dismount the cover of the electronic circuit and carry out the connections according to the indications located on the connection strip base.
- Do the power supply connection (being sure there is a good earth connection): **L1 N ⊕**. Do the connection by mean of magnetothermic switch in OFF mode.
- The earth conductor must be longer than the others. It will be the first one to be mounted during the assembly and the last one. The earth conductor must be longer than the others. It will be the first one to be mounted during the assembly and the last one to disconnect during disassembling.
- Do the pump connection (fig. 4).
- Normally the device is served with the pressure transmitter connected with cable length of 1.5 m. Otherwise, connect the pressure transmitter (fig. 3). H03VV 2x0, 5mm cable is used.
 - If is necessary to increase the cable length, outer joint is performed following the guidelines of the regulations applicable to low voltage installation country - the cable length should not exceed 15 m.
- Min. level control (optional). There is an input for stopping the pump as soon as is disconnected the external switch of minimum level. See fig.3

WARNING! Wrong connections could spoil the electronic circuit. The manufacturer declines all responsibility in damages caused by wrong connection.

 **CONFIGURATION.** Using   we can change the values and press **ENTER** for validation. Whenever we want to quit the configuration sequence press **MENU**. After every **ENTER** it will appear automatically the different screens that constitute the configuration sequence.

M E N U
L A N G U A G E

Hold **MENU** 3 seconds.

By mean of keys   we can choose the languages: "LANGUAGE ENGLISH", "LANGUE FRANÇAISE", "LINGUA ITALIANA" and "IDIOMA ESPAÑOL".

S E T P O I N T
1 . 0 B a r

This will be the system operating pressure. Use keys   for modify the initial value (1 bar). **WARNING !** The input pressure must be at least 1 bar lower than the maximum pressure of the pumps.

N O M . C U R R E N T P 1
5 . 0 A m p

By mean of keys   input the nominal intensity value in A of pump 1 enabling the thermal protection. This value is located over the characteristics plate of the motor. Press **ENTER** for validation.

N O M . C U R R E N T P 2
5 . 0 A m p

By mean of keys   input the nominal intensity value in A of pump 2 enabling the thermal protection. This value is located over the characteristics plate of the motor. Press **ENTER** for validation.

R O T . S E N S E P U M P 1
P U S H ↑ / C H E C K 0

Using the  pushbutton verify the rotation sense of pump 1. By mean of key  (0/1) we can change it. Press **ENTER** for validation.

R O T . S E N S E P U M P 2
P U S H ↑ / C H E C K 0

Using the  pushbutton verify the rotation sense of pump 2. By mean of key  (0/1) we can change it. Press **ENTER** for validation.

M I N . F R E Q U E N C Y
1 8 . 0 H z

Using the keys   we can modify the minimum frequency value.

*The minimum frequency value will be used as a stop frequency in those installations where the automatic detection of stoppage of the device does not act due to leaks in the installation. See hydraulic installation.

D I F . S T A R T P 1
0 . 5 B a r

The default value is 0,5 bar. This value of pressure is the one that the system will subtract to the input pressure, resulting the final pressure to which the system will set in motion when the hydraulic network has a demand. Using keys pq to modify the initial value. It is recommended

D I F . S T A R T P 2
0 . 5 B a r

to maintain this value between 0,3 and 0,6 bar. Example:

- Input pressure: 2 bar.

- Differential start: 0,3 bar.

- Final start pressure: $2 - 0,3 = 1,7$ bar.

The value should be greater as much as smaller be the accumulation and vice versa.

A L T E R N A T I O N T I M E
0 1 H O U R

The switching of the main pump (inverter) occur every cycle. In case of long periods of operation, this value will switch the main pump after the time set.

D I G I T A L I N P U T
N O

Use keys   to select the external input type:

NO: Disabled

LEVEL: Enabled as external level control.

ON/OFF: Closed contact -> System enabled / Opened contact -> System disabled

Second Pressure: Closed contact -> Principal pressure / Opened contact -> Second pressure enabled

S E T P O I N T 2
4 , 5 B a r

When "**Second Pressure**" is selected, the system can work in two different pressures depending on the contact (opened or closed). The principal pressure is configured as **SET POINT** and the second pressure is configured as **SET POINT 2**.

M I N . P R E S S A L A R M
0 . 0 B a r

Configuration of the minimum pressure in the system. With the value 0,0 bar, the control is disabled. If the system detects a pressure below the "**MIN.PRES**" during a time longer than "**t.P.Min**" alarm A13 will appear.

T I M E M I N P R E S S .
X X s e c

Configuration of the time that the system can be working under the minimum pressure before the minimum pressure alarm appears.

P R E S S U R E S E N S O R
0 - 1 0 B a r

The range of lecture of the pressure transmitter installed must be adjusted.

If the range is within 0-10 bar confirm by mean of **ENTER**.

If the range is within 0-16 or 0-25 bar change it by mean of   and then confirm with **ENTER**.

START UP

- Be sure that the pump is correctly primed
- Connect the device to the electric supply with the magnetothermic switch, FAILURE led light will be ON. Wait for 10 seconds while the device is doing the autotest. Once it finishes, led light FAILURE is OFF and led light LINE is ON. The LCD screen will show message "SPEEDBOX DUO" and immediately the language display of the configuration mode.
- The device is ready for being configured.

ALARMS FOR SINGLE ASSEMBLY.

In case of simultaneous alarms, quit the automatic mode and go to manual mode, pressing the pushbutton **AUTOMATIC ON/OFF** (led light PUMP will turn off). Using key **▲▼** will be displayed the successive alarms. Once visualized, for leaving the menu, press **ENTER** returning to **MANUAL** mode.

A1 DRY RUNNING (* Failure verification ● Final failure)

DESCRIPTION: if the system detects dry running during more than 10 seconds, it will stop the pump and the ART (Automatic ResetTest) will be activated.

SYSTEM REACTION: after 5 minutes ART system will start again the pump during 30 seconds, trying to restore the system. In case of persistent lack of water, it will try it again every 30 minutes for 24 hours. If after all these cycles, the system still detects lack of water, pump will remain permanently out of order until the damage will be repaired.

SOLUTION: dry running, it has been activated the safety system: you should verify the feeding of the hydraulic network. The pumps can be primed using the push-button START/STOP (the led light AUTOMATIC should be off, if it is not, press the push-button to disable it).

Special case: if the pump cannot provide the programmed pressure (configuration mistake) the unit reacts as it was dry-running.

Special Case 2: this device manages the dry running control through the nominal current consumption of the pump. It must be verified the introduced current consumption in the setup menu.

A2 OVER-LOAD PUMP 1 - A3 OVER-LOAD PUMP 2 (* Failure verification ● Final failure)

DESCRIPTION: the pump is protected against over currents by mean of the intensity values established in the installation menu. These over currents are produced generally by dysfunctions in the pump or in the electric supply.

SYSTEM REACTION: when detecting the thermal failure, the pump will be automatically stopped. The system will try again to restart the pump when the demand of consumption require it. The control system will carry out 4 attempts in this circumstances. If the system remain locked after the 4th attempt, the pump will remain definitively out of order.

SOLUTION: verify the state of the pump, for example the impeller could be blocked. Verify intensity values introduced in the configuration menu. Once the problem have been solved the operation will be restored going to the "SET UP" menu (see the chapter configuration) and configuring the adequate intensity values.

A4 LEVEL (* Verification failure)

DESCRIPTION: the device has a extern exit that if it is configured as "LEVEL", will activate this alarm.

SYSTEM RESPONSE: The functioning of the system is interrupted until the state of the level.

SOLUTION: Check connections and/or configuration of the extern exit as function "LEVEL".

A5 TRANSDUCER (● Final failure)

DESCRIPTION: the transducer damages are showed in the LCD screen.

SYSTEM REACTION: the device operation is interrupted.

SOLUTION: check the external pressure transmitter.

A6 EXCESSIVE TEMP. PUMP 1 - A7 EXCESSIVE TEMP. PUMP 2 ● Final failure

DESCRIPTION: the system has a cooling device to keep the INVERTER in optimum working conditions.

SYSTEM REACTION: if an excessive temperature is reached the own system leaves the inverter out of service and as consequence the pump too.

SOLUTION: verify the temperature environment should be under 50 °C. Contact with technical service.

A8 OVERVOLTAGE - A9 UNDERVOLTAGE (* Failure verification)

DESCRIPTION: the device has an electronic safety system against overvoltages and too low supply voltages.

SYSTEM REACTION: in case of overvoltage or undervoltage the system remains stopped until an adequate value of voltage is reached. In this case, the system is automatically restored.

SOLUTION: check the electric supply.

12 MAX PRES (●) Final failure

DESCRIPCIÓN: the device has an electronic system to protect maximum pressures.

RESPONSE OF THE SYSTEM: If the device detects a higher pressure than the configured as "P.MAX" during a longer time than the configured as "t P.MAX" it will happen a final failure stopping the system.

SOLUTION: Check consign pressure and maximum pressure.

A13 P. MIN (●) Final failure

DESCRIPTION: the device has a protection system for low pressures.

SYSTEM RESPONSE: If the device detects a pressure lower than the configured as "P.MIN" during a longer time than the configured as "t P.Min" it will appear a final failure stopping the system.

SOLUTION: Check for leakages on the installation and the value of the minimum pressure configured.

A14 SHORTCIRCUIT PUMP 1 - A15 SHORTCIRCUIT PUMP 2 (● Final failure)

DESCRIPTION: the device has an electronic system for protection against short circuits as well as peaks of current.

SYSTEM REACTION: the pump stops and then it starts again -performing 4 successive attempts. If the problem is not solved, the pump will remain definitively out of order.

SOLUTION: check the pump, if the problem persists, contact the technical service.

A16 PUMP 1 OFF - A17 PUMP 2 OFF (●) Final failure

DESCRIPTION: the device has a protection system for the failure of the power electronic circuit or disconnection of the pump.

SYSTEM RESPONSE: If the device doesn't detect consumption of the electropump, this will be turned off and the system will work only with the other pump and its inverter. On the menu will appear NOM CURRENT P1 OFF (A16) NOM CURRENT P2 OFF (A17).

SOLUTION: Check the pump connections or contact with the tecnic service.

 **EXPERT MENU.** Special configuration, there is no need to adjust these values, they are factory set.

Using **▲▼** we can change the values and press **ENTER** for validation. Whenever we want to quit the configuration sequence press **MENU**. After every **ENTER** it will appear automatically the different screens that constitute the configuration sequence.

M E N U
E X P E R T

To start the configuration sequence press **MENU + ENTER** during 3"

M A X . F R E Q U E N C Y
5 0 . 0 H z

By mean of keys **▲▼** it can be adjusted the maximum working frequency.

P R O P O R T I O N A L
9 2
I N T E G R A L
1 0 0

PI parameter, factory set. For any doubt contact with the manufacturer.

A C C E L E R A T I O N
4 0

Using **▲▼** it can be adjusted the desacceleration. Rank 5-20 (Hz/s). Press **ENTER** to confirm.

D E C E L E R A T I O N
5 0

Using **▲▼** it can be adjusted the desacceleration. Rank 5-20 (Hz/s). Press **ENTER** to confirm.

M O T O R T Y P E
T H R E E P H A S E U V W

By mean of keys **▲▼** it can be adjusted the motor type: Single phase/Three phase. In case of single phase disconnect black cable. (fig.4)

S W I T C H I N G F R E Q .
8 K H z

Using **▲▼** it can be adjusted the commutation frequency 8KHz o 4KHz. Press **ENTER** to confirm. For installations with submersible pumps or where the cable of the device to the pump exceeds 20m, it is advisable to work in a commutation frequency of 4KHz.

REGISTER OF OPERATION DATA AND ALARMS.

By using simultaneously **MENU + ▲** during 3" is acceded to **REGISTER OF OPERATION DATA AND ALARMS**, by mean of **ENTER** we can advance through the sequence, once finished the sequence it returns to the main display. This is all the sequence:

M E N U + ▲
A L A R M R E G I S T E R
ENTER
A 1 D R Y R U N
0
ENTER
A 2 O V E R L O A D P 1
0
ENTER
A 3 O V E R L O A D P 2
0
ENTER
A 4 L E V E L
0
ENTER
A 5 P R E S S U R E S E N S
0
ENTER
A 6 O V E R T E M P P 1
0
ENTER
A 7 O V E R T E M P P 2
0
ENTER
A 8 H I G H V O L T A G E
0
ENTER
A 9 L O W V O L T A G E
0

▼
A 1 3 M I N . P R E S S
0
ENTER
A 1 4 S H O R T C I R C P 1
0
ENTER
A 1 5 S H O R T C I R C P 2
0
ENTER
F U N C T I O N R E G
0
ENTER
S T A R T S C O U N T P 1
0
ENTER
S T A R T S C O U N T P 2
0
ENTER
O N T I M E P 1
0
ENTER
O N T I M E P 2
0
ENTER
T I M E I N V E R T E R
0
ENTER
M A I N S C O U N T E R
1

- DRY RUN. Number of dry-running alarms.
- OVERLOAD P1. Number of overload alarms in pump 1.
- OVERLOAD P2. Number of overload alarms in pump 2.
- LEVEL. Number of level alarms.
- PRESSURE SENSOR. Number of damaged pressure sensor alarms.
- OVERTEMP P1. Number of alarms by excessive temperature in pump 1.
- OVERTEMP P2. Number of alarms by excessive temperature in pump 2.
- HIGH VOLTAGE. Number of alarms by excessive temperature.
- LOW VOLTAGE. Number of alarms by excessive temperature.
- MIN PRESS. Number of minimum pressure alarm.
- SHORTCIRC P1. Number of short circuit alarms in pump 1.
- SHORTCIRC P2. Number of short circuit alarms in pump 2.
- STARTS COUNT P1. Shows the number of starts of pump 1.
- STARTS COUNT P2. Shows the number of starts of pump 2.
- ON TIME P1. Shows the operating time of the pump 1 in hours.
- ON TIME P2. Shows the operating time of the pump 2 in hours.
- TIME INVERTER. Shows the operating time of the inverter in hours.
- MAINS COUNTER. Shows the number of connections to the electric supply.