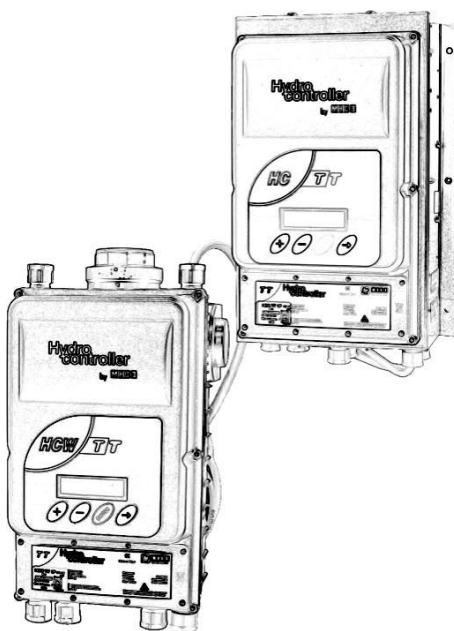
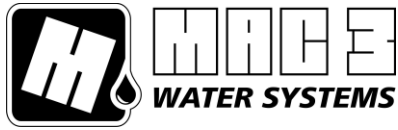


Manual utilizare
convertizor de frecventa
profesional
HydroController (HC)
HCW-HCA MM/MT/TT/
Standard/Advanced



Manual utilizare

User Manual



made in Italy
Cod. /620100004 Rev.1

CE

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Atentionari**Warning**

	<p>PERICOL Risc de vatamare personala si a bunurilor daca nu se respecta instructiunile PERICOL DE CURENTARE Risc de soc electric daca nu se respecta instructiunile</p>	<p>DANGER Risk of personal injury and property if not complied with the requirements ELECTRIC SHOCK Risk of electrical shock if not complied with the requirements</p>
	<p>AVERTIZARE Risc de distrugere a proprietatii sau a mediului daca nu se respecta instructiunile.</p>	<p>WARNING Risk of damage to property or the environment if not complied with the requirements.</p>
	<p>AVERTIZARE Inainte de a instala si a folosi produsul, cititi cu atentie manualul de utilizare. Instalarea, mentenanta si depanarea trebuie facuta de catre personal calificat, in deplin acord cu legislatia. Producatorul, MAC3 si importatorul, Expert Instal Group SRL nu sunt raspunzatori pentru nici o dauna provocata de utilizare, instalare sau depanare defectuoasa (gresita). Folosirea de piese de schimb altele decat cele originale, manipularea sau utilizarea defectuoasa duc la pierderea garantiei.</p>	<p>WARNING Before installing and using the product read this book in all its parts. Installation and maintenance must be performed by qualified personnel in accordance with current regulations. MAC3 will not be held responsible for any damage caused by improper or prohibited use and is not responsible for any damages caused by a not correct installation or maintenance. The use of non-original spare parts, tempering or improper use, make the product warranty null.</p>
	<p>AVERTIZARE HydroController trebuie instalat conform descrierii din paragraful "Instalare si utilizare (detaliat)" Instalatia hidraulica trebuie configurata si dimensionata corect pentru a evita socurile de presiune (lovitura de berbec). Amortizorul de socuri, instalat pentru a evita socurile de presiune trebuie sa beneficieze de intretinere regulata. Avand in vedere ca HydroController este un dispozitiv electric, in cazul in care este deteriorat din cauza socurilor de presiune, infiltrarea apei in aparat este periculoasa. Contactul apei cu circuitele electrice pot cauza distrugerii.</p>	<p>WARNING HC must be installed as described in the paragraph "Functioning and Use" You must project correctly the hydraulic connection of HC to avoid pressure shocks. The shock absorber, installed to avoid pressure shocks, must be kept under a correct maintenance. Hydrocontroller is an electric device, if the case will be damage by pressure shocks a possible water infiltration could be dangerous due to the contact between electric components and the water flow.</p>
	<p>PERICOL HydroController este etichetat CE (conform normelor europene), dar in cazul instalarii incorecte poate cauza interferente electromagnetice. Verificati functionarea corecta a celorlalte dispozitive electrice detinute in timp ce HydroController este pornit. Functionarea defectuoasa a echipamentelor electrice poate fi daunatoare persoanelor si proprietatii. In cazul unor interferente electromagnetice inchideti reseaua electrica si contactati tehnicieni specializati. Inainte de orice interventie asupra produsului, asigurati-va ca HydroController este deconectat de la reseaua electrica. Nu incercati nici o interventie asupra HydroController in timp ce este pornit. Conectarea HydroController la panoul electric trebuie facuta de catre personalizat specializat conform normelor in vigoare. EPOWER trebuie protejat cu un comutator/siguranta termic(a). HydroController trebuie conectat la o instalatie cu impamantare functionala si eficienta.</p>	<p>DANGER HC is CE labelled but in the case of wrong installation can cause electromagnetic interference. Verify the correct operation of other electronic devices with HC on and running. Malfunction of equipment can be harmful to people and property. In the case of electromagnetic interference contact technical support and stop the plant. Before any intervention ensure that the HC is disconnected from the electricity supply Do not attempt operations with the HC open The connection of the HC to the electric panel must be carried out by qualified personnel in accordance with current norms HC must be protected by a thermal switch. HC must be connected to an efficient earthing system</p>

Ghid de cumparare

RO Va multumim pentru increderea acordata si achizitionarea HydroController! Incercam sa va oferim informatii folositoare pentru a utiliza corect HC impreuna cu celelalte componente ale instalatiei de apa.

1. Cum sa alegem pompa: pentru a profita de caracteristicile performante ale HC este esential sa alegeti pompa corecta.

Un inverter (convertizor de frecventa), prin insasi natura sa, comanda motorul pompei la turatia optima in functie de variatia fluxului de apa (cerere).

Pentru a avea un comportament optim este esential sa alegeti o pompa ce are diagrama (curba caracteristica) cat mai larga/accentuata – de obicei pompele multietajate; acest tip de pompe permit HydroController sa controleze turatia la viteze variabile avand o plaja mai mare de functionare.

Pompa trebuie aleasa in functie de presiunea si debitul necesar instalatiei dvs.

Guide to purchase

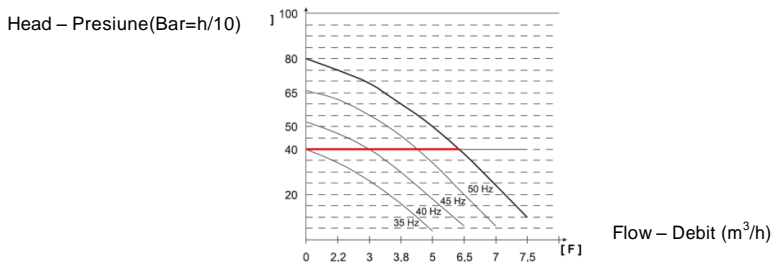
EN Thanks to have bought HydroController! We would like to notice some useful information to correctly use and install HydroController and the available accessories.

1. How to choose pump: to take advantage of performance of HC it is essential to choose the correct pump.

The inverter pilots the pump on several frequencies depending on the variation of flow. This is why it is possible to save energy and to increase life time of the pump.

For having correct behaviours it is essential to choose a pump with slope characteristic curve (see fig.), usually multiimpeller pumps; this kind of pump permits the HydroController to pilots pump at variables speed.

The head and capacity of the pump must correct for request of the plant.



2. Adaptor pentru conexiuni lungi (ACL): Daca cablul de conectare dintre pompa si Epower este foarte lung, acesta inmagazineaza energie statica asemenea unui condensator, ducand la anomalii de functionare. Pentru a inlatura aceasta interferenta se poate achizitiona un adaptor pentru conexiuni lungi (ACL) de pana la 80 m. Mac3 produce si acest adaptor pentru solutii complete in caz de necesitate.

3. Filtrul IEM (interferenta electromagnetica): Toate Inverterele Mac3 au aprobari IEM pentru uzul casnic. Daca Epower urmeaza a fi instalat intr-un mediu deosebit de sensibil la interferente electromagnetice, Mac3 produce si pune la dispozitie filtre IEM pentru a neutraliza problema.

4. Multipress: In cadrul unui sistem de irigatii este nevoie de presiuni variate in functie de tipul de irigatie necesara diferitelor sectoare ce trebuie udate. Asta inseamna ca un singur panou de presurizare trebuie sa asigure aprovizionarea adecvata pentru a sustine sistemul la cea mai inalta presiune. Acest tip de sistem **nu optimizeaza** economisirea de energie, pompand mereu la cele mai inalte cote.

MAC3 va ofera o unitate de control a presiunii cu viteza variabila ce poate fi conectata la cea mai difuza centralina de irigatie programabila.

Fiecare electro-valva trebuie conectata la Multipress si la centralina. Cand o valva de sector se inchide sau deschide, Multipress ajusteaza presiunea in functie de cerere Multumita Multipress si a tehnologiei inverter, puteti avea un control fin al presiunii ce foloseste energie doar la nevoie, in functie de cererea de apa. Astfel, veti avea economii importante.

2. Long Connection Adapter (LCA) The connection cable creates, between Epower and pump, a capacitive effect. For removing the disturbance Mac3 produces an adapter for long connection L>15mt (50 feet), up to 80 mt (260feet) of cable.

This device is normally used with submersible pumps in well applications.

3. EMC filter: Mac3 inverters have domestic use EMC approval.

If inverter is installed in environments particularly sensitive to electromagnetic interference Mac3 makes available additional EMI filters, to be installed between the supply and inverter, so as to eliminate

4. Multipress: An irrigation system needs different pressure settings according to the type of irrigation required for managing different type of irrigation sector.

This implies that an unique water pressurization unit must be designed to ensure an adequate supply to support the highest pressure. This kind of system DOES NOT optimize an energy savings policy.

MAC3 gives you a pressurization unit with a variable speed driver that can be connected to the most diffuse programmable irrigation units.

Each electro valve must be connected to Multipress and Irrigation unit. When a solenoid valve closes the contact the speed driver controller set the pressure desired.

Thanks to Multipress4 and to our inverter technology you can have a pressurization unit that supplies the correct pressure with an energy use, adequate to the amount of water requested.

Continutul Pachetului

RO HydroController este precablat. In Versiunea Avansata este de asemenea dotat cu un cablu de comunicare pentru formarea de grupuri. Modelul HCA (Versiunea Avansata), cu racirea prin aer, este prevazut de asemenea cu un traductor (senzor) de presiune echipat cu cablu de 1.5 m

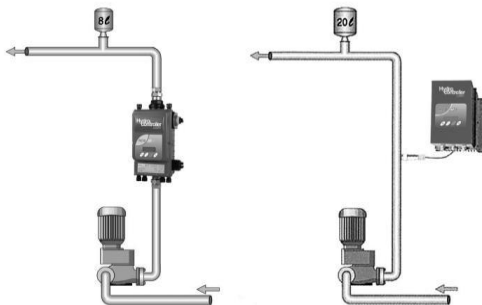
Package contents

EN Hydrocontroller is supplied cabled. In the advanced version is also supplied the communication cable to create groups. The HCA model, air-cooled, is supplied the pressure transducer wired with a cable of 1.5 meters.

Scurta descriere – Instalare rapida

Instalatia hidraulica

RO Mai jos gasiti o schema de exemplu, pentru mai multe detalii vedeti sectiunea "Instalare si Utilizare (detaliat)"



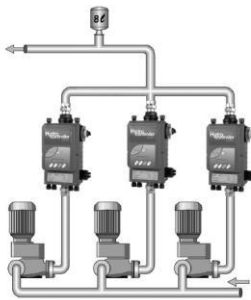
HCW

HCA

Start Up procedure

Hydraulic Installation

EN Hereafter a scheme, as example, for more details and warnings see the section "Functioning and Use"



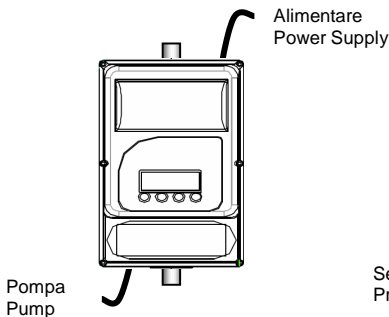
HC Multipump.

Instalatia electrica

RO Mai jos gasiti o schema de exemplu, pentru mai multe detalii vedeti sectiunea "Instalare si Utilizare (detaliat)"

Electrical Installation

EN Hereafter a scheme, as example, for more details and warnings see the section "Functioning and Use"

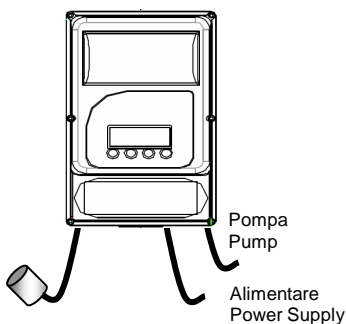


Pompa
Pump

Alimentare
Power Supply

Senzor de presiune
Pressure Sensor

X _____
1.5m

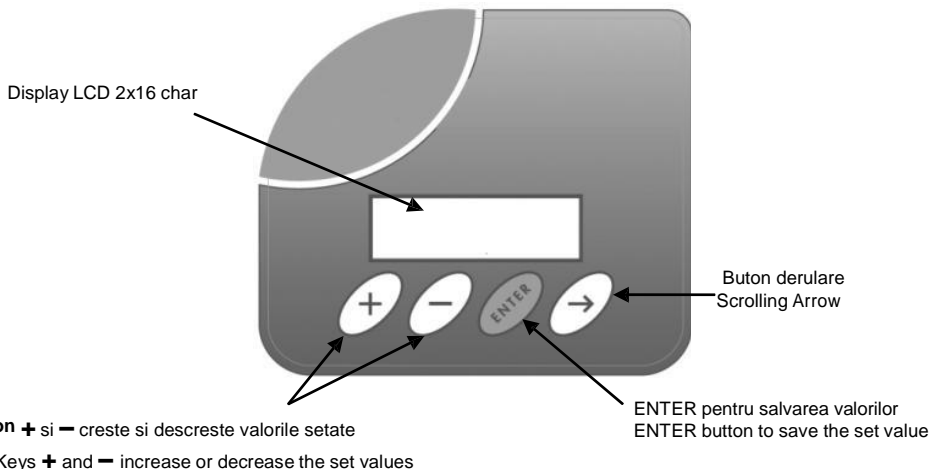


Pompa
Pump

Alimentare
Power Supply

Meniu Software

Software Installation



Buton PRESS KEY	Efectul apasarii	OBTAINED EFFECT
+	Crestere	Increase
+ →	Crestere rapida	Fast increase
+ ENTER	Crestere foarte rapida	Very fast increase
-	Descrestere	Decrease
- →	Descrestere rapida	Fast decrease
- ENTER	Descrestere foarte rapida	Very fast decrease
ENTER (2 seconds)	Salvare in memorie (numai cu parola)	Save in memory (only with password entered)
→	Afiseaza parametrul urmator	Show next parameter
ENTER →	Afiseaza parametrul anterior	Show previous parameter
+ -	Iesire rapida din meniu sau meniu extins	Fast exit from the menu
In afisajul principal – BY the main display		
→	Vizualizeaza starea fiecarui inverter (Mod Multipompa)	Displays the parameters of each drive (mode multipump)
+ (5 seconds)	Intra in meniul de intretinere	Go to maintenance menu
→ ENTER	Intra in Meniul Extins	Go to extended menu
ENTER	Vizualizeaza Curentul de varf, amperajul si puterea absorbita a pompei	Displays peak current, current and Power absorbed by the pump
- (3 seconds)	ON/OFF (Inchis/Deschis) pompe	ON/OFF Pumps

HC Standard (1 pompa – single pump)

RO Alimentati aparatul si dupa 2 secunde se aprinde afisajul

EN Power the HC and in 2 seconds it will be displayed.

HC..... 19/09/09

By MAC3 SpA

RO Apasati + pentru inceperea instalarii rapide.

Apasati **ENTER** pentru a porni sistemul fara instalare rapida

EN Press + to start the procedure of installation.

Press **ENTER** to start the system without doing installation.

Instalare (+)
Start (Enter)

Installation (+)
Start (Enter)

Alegeti cu + si -
Salvati cu ENTER

Choose with + & -
Save with ENTER

RO Alegeti limba afisajului (nu are limba romana)

a. Apasati tastele + si- pentru alegerea limbii dorite.

b. Apasati **ENTER**, pentru salvare. Tineti apasat pana apare mesajul "Done....."

EN Displayed **Language**

a. Press + or – to change the language.

b. Pressing **ENTER**, the value is saved in memory. Keep pressed ENTER till it will be displayed "Done....."

Limba
Engleza

Language
English

RO Apare pe afisaj "MAX.Motor Current" (in limba aleasa)

a. Cu ajutorul tastelor + si – introduceti valoarea Amperajului pompei. (din datele tehnice ale pompei sau mai indicat prin masurarea reala a amperajului)

b. Apasati **ENTER** si tineti apasat pana cand apare "Done....."

EN Displayed MAX.Motor Current

a. Press + or – to insert current value as indicated on the electro-pump plate.(it is advisable to check the real max. current of the pump)

b. Press ENTER, and keep pressed till it will be displayed "Done....."

Amperaj Maxim Pompa
7,5 Ampere

Max.Motor Current
7,5 Ampere

RO Apare pe afisaj "Presiunea in sistem" (in limba aleasa)

a. Apasati + si – pentru a introduce valoarea pentru presiunea dorita in sistem.(intre 1 si 7.5 bar)

b. Apasati **ENTER** si tineti apasat pana cand apare "Done....."

EN Displayed System Pressure

a. Press + or – to insert the value for desired pressure of the system. (set value from 1.00 to 7.50).

b. Press ENTER, and keep pressed till it will be displayed "Done....."

Presiune sistem
3,5 Bar

System Pressure
3,5 Bar

RO Apare pe afisaj "Pornire sistem" (in limba aleasa)

a. Cu tastele + si – alegeti valoarea (ON/OFF):

ON pentru activarea sistemului si pompei

OFF inca nu activati pompa

b. Apasati **ENTER** si tineti apasat pana cand apare "Done....."

EN Displayed System Start

a. Press + or – to change the value (ON/OFF):

ON to active the pump

OFF not to active the pump

b. Press ENTER, and keep pressed till it will be displayed "Done....."

Pornire sistem
OFF

System Start
OFF

RO Apare pe afisaj “Salvare si iesire” cu ENTER

a. Apasati ENTER si tineti apasat pana cand apare “Done.....”.

Salvare si iesire
cu ENTER

RO Apare pe afisaj “Se salveaza setarile” (in limba aleasa). Toate setarile au fost salvate permanent in memorie.

Atentionare: Daca setarea “Pornire sistem” = ON, HydroController porneste imediat pompa!

HC afiseaza pe display ¹

3,50 Bar.....0,00 hz
Activ.....

RO Sensul de rotatie

Verificati ca sensul de rotatie(motorul pompei) este cel corect. In caz contrari:

- Apasati tasta + pentru aprox. 5 secunde
- Parcurgeti cu tasta sageata -> parametrii, pana dati de setarea: “Rotation Sense”(sensul de rotatie)

Cu butoanele + si – alegeti rotatia corecta (0 sau 1)

- Apasati ENTER si tineti apasat pana cand apare “Done.....”.

Sensul de rotatie
1

RO Derulati cu tasta -> parametrii pana ajungeti la “System Start” (Pornire sistem)

a. Cu tastele + si – alegeti valoarea (ON/OFF):

ON pentru activarea sistemului si pompei

OFF inca nu activati pompa

b. Apasati ENTER si tineti apasat pana cand apare “Done.....”.

Pornire sistem
OFF

RO Apare pe afisaj “Salvare si iesire” cu ENTER

a. Apasati ENTER si tineti apasat pana cand apare “Done.....”.

Salvare si iesire
cu ENTER

EN Displayed Save & Exit With ENTER

a. Press ENTER, and keep pressed till it will be displayed “Done.....”.

Save & Exit
With ENTER

EN Displayed Saving Parameter and the DONE All the parameters are saved in permanent memory.

Warnings: IF System Start = ON, HydroController immediately powers the electro-pump!

HC displays ²

3,50 Bar 0,00hz
Active

EN Rotation sense

Check that the direction of rotation is correct.

Otherwise:

- Press the + button for about 5 seconds
- Scroll, by button ->, the parameters until you see the parameter Rotation Sense.

With the + or - to choose the direction of rotation (0 or 1)

- Press ENTER, and keep pressed till it will be displayed “Done.....”.

Rotation sense
1

EN Scroll, by button ->, the parameters until you see System Start

a. Press + or – to change the value (ON/OFF):

ON to active the pump

OFF not to active the pump

b. Press ENTER, and keep pressed till it will be displayed “Done.....”.

System Start
OFF

EN Displayed Save & Exit With ENTER

a. Press ENTER, and keep pressed till it will be displayed “Done.....”.

Save & Exit
With ENTER

¹ Diferite mesaje ce indica anomalii (vezi paragraful “Depanare si Intretinere)

² Different messages indicates (see troubleshooting paragraph)

HC Avansat / Advanced (multi pompa – multi pumps)

RO Conectati cablul de comunicare si alimentati toate inverterele din grup. Dupa 2 secunde va porni afisajul

EN Connect the communication cable and power all the HCs of the group and in 2 seconds it will be displayed.

HCW/TT 19/09/09

By MAC3 SpA

RO Apasati **+** pentru inceperea instalarii rapide.

Apasati **ENTER** pentru a porni sistemul fara instalare rapida

EN Press **+** to start the procedure of installation.

Press **ENTER** to start the system without doing installation.

Instalare (+)
Start (Enter)

Installation (+)
Start (Enter)

Alegeti cu **+** si **-**
Salvati cu **ENTER**

Choose with **+** & **-**
Save with **ENTER**

RO Incepeti cu instalarea unui singur inverter, ce va deveni Master (Principal).

Apare pe afisaj: **Language (limba – nu are lb. romana)**

a. Apasati tastele **+** si **-** pentru alegerea limbii dorite.

b. Apasati **ENTER**, pentru salvarea. Tineti apasat pana apare mesajul "Done....."

EN Proceed with the installation of a single device, which becomes the group master

Displayed **Language**

a. Press **+** or **-** to change the language.

b. Pressing **ENTER**, the value is saved in memory. Keep pressed **ENTER** till it will be displayed "Done....."

Limba
Engleza

Language
English

RO Apare pe afisaj: Net Config ID (configurare retea)

a. Cu tastele **+** si **-** selectati un ID (numar de identificare) pentru HydroController:

0=MASTER (Principal).

1-7=SLAVE (Secundar)

b. Apasati **ENTER** si tineti apasat pana cand apare "Done....."

EN Displayed Net Config ID

a. Press **+** or **-** to select the ID for Hydrocontroller:0=MASTER(default), 1-7=Slave.

b. Press **ENTER**, and keep pressed till it will be displayed "Done....."

Net Config ID
0

Net Config ID
0

RO Apare pe afisaj: "Motor Power" (Putere motor absorbita)

a. cu butoanele **+** si **-** setati valoarea puterii electrice (P1) citita in cartea/eticheta pompei.

b. Apasati **ENTER** si tineti apasat pana cand apare "Done....."

EN Displayed Motor Power

a. Press **+** or **-** set the value of electric power written on pumps label (P1)

c. Press **ENTER**, and keep pressed till it will be displayed "Done....."

Putere motor
1500 Watt

Motor Power
1500 Watt

RO Apare pe afisaj "MAX.Motor Current" (Amperajul maxim - in limba aleasa)

a. Cu ajutorul tastelor **+** si **-** introduceti valoarea Amperajului pompei. (luata din datele tehnice ale pompei sau mai indicat prin masurarea reala a amperajului)

b. Apasati **ENTER** si tineti apasat pana cand apare "Done....."

EN Displayed MAX.Motor Current

a. Press **+** or **-** to Insert current value as indicated on the electro-pump plate.(it is advisable to check the real max. current of the pump)

b. Press **ENTER**, and keep pressed till it will be displayed "Done....."

Max.Motor Current
7,5 Ampere

RO Apare pe afisaj "Presiunea in sistem" (in limba aleasa)

- Apasati + si – pentru a introduce valoarea pentru presiunea dorita in sistem.(intre 1 si 7.5 bar)
- Apasati ENTER si tineti apasat pana cand apare "Done.....".

Presiune sistem
3,5 Bar

RO Apare pe afisaj "Pornire sistem" (in limba aleasa)

- Cu tastele + si – alegeti valoarea (ON/OFF):
ON pentru activarea sistemului si pompei
OFF inca nu activati pompa
- Apasati ENTER si tineti apasat pana cand apare "Done.....".

Pornire sistem
OFF

RO Apare pe afisaj "Salvare si iesire" cu ENTER

- Apasati ENTER si tineti apasat pana cand apare "Done.....".

Salvare si iesire
cu ENTER

RO Apare pe afisaj "Se salveaza setarile" (in limba aleasa). Toate setarile au fost salvate permanent in memorie.

Atentionare: Daca setarea "Pornire sistem" = ON, HydroController porneste imediat pompa!

Pana acum a fost configurat doar inverterul Master!

Urmeaza setarile SLAVE. Derulati in meniu pana cand pe afisaj apare:

RO Se afiseaza: Net Config ID (configurare retea)

- Cu tastele + si – selectati un ID (1-7=Slave)
- Apasati ENTER si tineti apasat pana cand apare "Done.....".

Net Config ID
1

RO pentru a finaliza setarea ID-ului, derulati cu tasta -> pana apare "Save & Exit" (salvare si iesire)

Salvare si iesire
cu ENTER

Max.Motor Current
7,5 Ampere

EN Displayed System Pressure

- Press + or – to insert the value for desired pressure of the system. (set value from 1.00 to 7.50).
- Press ENTER, and keep pressed till it will be displayed "Done.....".

System Pressure
3,5 Bar

EN Displayed System Start

- Press + or – to change the value (ON/OFF):
ON to active the pump
OFF not to active the pump
- Press ENTER, and keep pressed till it will be displayed "Done.....".

System Start
OFF

EN Displayed Save & Exit With ENTER

- Press ENTER, and keep pressed till it will be displayed "Done.....".

Save & Exit
With ENTER

EN Displayed Saving Parameter and the DONE All the parameters are saved in permanent memory.

Warnings: IF System Start = ON, HydroController immediately powers the electro-pump!

At the end of installation, the HC Master, displays the status of the group and the status of the single pumps. (different messages indicate errors as described in paragraph 5.1)

Hereafter an example of a 3 pumps group with 2 pumps ON.

EN Displayed Net Config ID

- Press + or – to select inverter ID (1-7=Slave)
- Press ENTER, and keep pressed till it will be displayed "Done.....".

Net Config ID
1

EN to set ID of inverter scroll con button -> till

Save & Exit
With ENTER

RO Apare pe afisaj "Se salveaza setarile" (in limba aleasa). Setarile au fost salvate permanent in memorie. Attentionare: Daca setarea "Pornire sistem" = ON, HydroController porneste imediat pompa!

RO La sfarsitul instalarii, inverterul HC Master (principal), afiseaza starea grupului de pompe si starea fiecarei pompe (diferite mesaje ce indica erori daca exista.Vezi paragraful "Depanare si intretinere")
Mai jos aveti un exemplu cu grup de 3 pompe dintre care 2 functioneaza (ON).

3,5 Bar Hydroc U:2/3 1200 Watt

Stare grup: 3 pompe, 2 ON (2/3)
Group Status: 3 pumps, 2 ON (2/3)

3,5 Bar MASTER0 ON F=1 35.00 Hz

Stare MASTER: pompa activa, cu flux
MASTER Status: pump ON with flow

3,5 Bar SLAVE1 ON F=1 35.00 Hz

Stare SLAVE1: pompa activa, cu flux.
SLAVE1 Status pump ON with flow.

SLAVE2 OFF

Stare SLAVE2: pompa oprita, fara flux
SLAVE2 Status pump OFF, no flow.

RO Sensul de rotatie

Verificati ca sensul de rotatie(motorul pompei) este cel corect. In caz contrariu:

- Apasati tasta + pentru aprox. 5 secunde
- Parcurgeti cu tasta sageata -> parametrii, pana dati de setarea: "Rotation Sense"(sensul de rotatie)

Cu butoanele + si - alegeti rotatia corecta (0 sau 1)

- Apasati ENTER si tineti apasat pana cand apare "Done.....".

Sensul de rotatie 1

EN Rotation sense

Check that the direction of rotation is correct. Otherwise:

- Press the + button for about 5 seconds
- Scroll, by button ->, the parameters until you see the parameter Rotation Sense.

With the + or - to choose the direction of rotation (0 or 1)

- Press ENTER, and keep pressed till it will be displayed "Done.....".

Rotation Sense 1.

RO Apare pe afisaj "System Start" (Pornire sistem -in limba aleasa)

- a. Cu tastele + si - alegeti valoarea (ON/OFF):

ON pentru activarea sistemului si pompei

OFF inca nu activati pompa

- b. Apasati ENTER si tineti apasat pana cand apare "Done.....".

Pornire Sistem OFF

EN Scroll, by button ->, the parameters until you see System Start

- a. Press + or - to change the value (ON/OFF):

ON to active the pump

OFF not to active the pump

- b. Press ENTER, and keep pressed till it will be displayed "Done.....".

System Start OFF

RO Apare pe afisaj "Salvare si iesire" cu ENTER

- a. Apasati ENTER si tineti apasat pana cand apare "Done.....".

Salvare si iesire cu ENTER

EN Displayed Save & Exit With ENTER

- a. Press ENTER, and keep pressed till it will be displayed "Done.....".

Save & Exit With ENTER

RO Daca este nevoie sa schimbati sensul de rotatie al unei pompe controlate de un inverter Slave, va rugam urmati procedura descrisa numai dupa ce inlaturati cablurile de comunicare. La sfarsitul operatiei reconectati cablurile si inverterul se va reconfigura automat.

Nota: Cel mai indicat este sa verificati fiecare pompa in parte inainte de a reconecta inverterul in cauza.

EN If you must change rotation sense of a Slave please do the procedure cited, after unplugging the connecting cables. At the end of the procedure reconnect the cables and the unit will automatically reconfigure.

Note. It would be a good procedure to test every single pump of the group before reconnecting the inverter

Informatii generale

RO Acest manual are scopul de a va furniza informatii esentiale cu privire la instalarea, folosirea si intretinerea HydroController.

Este foarte important ca instalatorul si/sau utilizatorul sa citeasca cu atentie manualul inainte de instalarea / folosirea produsului.

Instalarea / Folosirea incorecta poate determina erori sau daune, avand ca rezultat anularea Garantieii.

Specificati intotdeauna exact numarul modelului in cazul in care contactati departamentul de asistenta clienti.

In cazul unor instructiuni, situatii sau evenimente neacoperite de acest manual, va rugam contactati departamentul de suport tehnic.

General Remarks

EN This manual intends to provide essential information for the installation, use and maintenance of the HydroController.

It is important that the user and/or installer carefully reads the manual before installing and using the product. Incorrect use may cause faults and result in the annulment of the guarantee terms.

Always cite the exact model number should technical details or sparse by required from our sales and assistance service.

In the event of instructions, situations and events not contemplated in the present manual, please contact technical customer support..

Descrierea produsului

RO HydroController este un convertizor de turatie cu frecventa variabila (inverter) ce ajuta la ridicarea si mentinerea unei presiuni constante.

HydroController, in functie de cererea de apa, regleaza automat numarul de turatii al pompei in timp ce mentine o presiune constanta in instalatie.

HCW = model racire in apa (conectare direct pe teava)

HCA = model racire cu aer (conectare langa instalatie)

Hydrocontroller este disponibil in urmatoarele versiuni:

HCW-MM: inverter cu racirea in apa, monofazat, pentru pompe monofazate.

HCA-MM: inverter racit cu aer, monofazat, pentru pompe monofazate.

HCW-MT: inverter cu racirea in apa, monofazat, pentru pompe trifazate.

HCA-MT: inverter racit cu aer, monofazat, pentru pompe trifazate.

HCW-TT: inverter cu racirea in apa, trifazat, pentru pompe trifazate.

HCA-TT: inverter racit cu aer, trifazat, pentru pompe trifazate.

- In configurare MultiPompa (numai modelul AVANSAT - HCA) se pot configura pana la 8 pompe. Versiunea AVANSATA se foloseste in configuratie cu un Master (Principal) ce controleaza 7 Slave (Secundar)

IMPORTANT: Hydrocontrollerele in configuratie MultiPompa se folosesc numai cu pompe identice.

- Modelele HC Standard sau Avansat pot fi folosite la controlul unei pompe secundare in sistem ON/OFF, la frecventa fixa (pompa de presiune). Pentru o instalare corecta folositi diagrama de cablaj si instructiunile "HC MM/MT Standard". Mac3 ofera in catalogul sau un panou de comanda special pentru aceasta aplicatie.

N.B: Instalarea trebuie facuta numai de catre personal calificat.

IMPORTANT: Pompele folosite trebuie sa aiba exact aceleasi caracteristici: putere motor (hp-kw), presiune (Hmax).

Mod de folosire

RO Temperatura de operare: 0°C ÷ +40°C

Umiditate maxima: 50% la 40°C (fara condens)

Temperatura lichidului: +1°C +40°C

Tipul de lichid: apa curata, fara chimicale (ph 5÷9) si fara impuritati.

AVERTIZARE

HC trebuie montat ferit de intemperii (ex. ploaie, umiditate) si inghet.

Instalatia hidraulica trebuie configurata si dimensionata corect pentru a evita socurile de presiune (lovitura de berbec).

Amortizorul de socuri, instalat pentru a evita socurile de presiune trebuie sa beneficieze de intretinere regulata.

HC nu poate fi folosit pe tevi ce contin lichid abraziv, substante solide, lichide vascoase, inflamabile sau explozive.

Product Description

EN The HydroController is a variable frequency speed controller (inverter) for lifting units under constant pressure.

HydroController, according to the actual water requirements undertakes the automatic regulations of the number of revs of the electro-pump whilst maintaining the system pressure constant.

The Hydrocontroller is available in the following versions:

HCW-MM: inverter on the water conduit with single-phase feed for single-phase pump.

HCA-MM: air cooled inverter with single-phase powering for single stage pump.

HCW-MT: inverter on the water conduit with single-phase feed for three-stage pump.

HCA-MT: air cooled inverter with single phase powering for three-stage pump.

HCW-TT: inverter on the water conduit with three-phase powering for three-stage pump.

HCA-TT: air cooled inverter with three-phase powering for three-stage pump.

- Moreover a multipump configuration (**ADVANCED model**) is available for running till 8 pumps. The ADVANCED version is composed by a Master that pilots till 7 Slaves. The inverter Master determines the function of the system.

IMPORTANT: The Hydrocontroller in Multi Pumps configuration requires the use of identical pumps

- The models HC Standard/Advanced allow to drive a second pump ON / OFF at a fixed frequency (booster pump). For correct installation, follow the wiring diagram and instructions refer to "HC MM/MT Standard". Mac3 has in the catalog a control panel specifically design for this application.

NB: Installation must be performed by qualified personnel

IMPORTANT: The pumps used must be of the same characteristics: power engine (hp), head (Hmax).

Usage Condition

EN Operational temperature: 5°C ÷ +40°C

Max.humidity: 50% at 40°C (no condensate)

Temperature of fluid: +1°C +40°C

Nature of fluid: water with no chemical add (ph 5÷9) and no debris.



WARNING

HC must be installed in environments that are protected from freezing and weather-proof.

You must project correctly the hydraulic connection of HC to avoid pressure shocks. The shock absorber, installed to avoid pressure shocks, must be kept under a correct maintenance.

HC cannot be used on pipes containing abrasive liquids, fibrous solid substances or inflammable liquids or explosives.

Caratteristiche Tehnice/Technical Features – TT Standard/Advanced

Alimentare (trifazica)	400 Vac 50/60 Hz (de la 300 la 450 Vac)	Three phase power	400 Vac 50/60 Hz (from 300 to 450 Vac)
Puterea absorbita (P1)	Vers. HC 3hp = 3,3 KW Max	Absorbed power (P1)	Vers.HC 3hp = 3,3 KW Max
	Vers. HC 5,5hp = 6 KW Max		Vers.HC 5,5hp = 6 KW Max
	Vers. HC 7,5hp = 8,2 KW Max		Vers.HC 7,5hp = 8,2 KW Max
Puterea nominala Pompa (P2) (400 Vac trifazat) 	Vers. HC 3hp = 2,2 kW	Electro-pump max. Power (400Vac three Phase) (P2) 	Vers.HC 3hp = 2,2 KW Max
	Vers. HC 5,5hp = 4 KW		Vers.HC 5,5hp = 4 KW Max
	Vers.HC 7,5hp= 5,5 KW		Vers.HC 7,5hp = 5,5 KW Max
Amperaj maxim	Vers.HC 3hp = 6A	Max. Phase current	Vers.HC 3hp = 6A
	Vers.HC 5,5hp = 11A		Vers.HC 5,5hp = 11A
	Vers.HC 7,5hp= 15A		Vers.HC 7,5hp = 15A
Frecventa de iesire	10 ÷ 60 Hz (~ 0,01 Hz)	Output frequency	10 ÷ 60 Hz (resolution 0,01 Hz)
Timpu de accelerare	0,7 ÷ 5 sec	Acceleration time	0,7 ÷ 5 sec
Timpu de decelerare	0,7 ÷ 5 sec	Deceleration time.	0,7 ÷ 5 sec
Siguranta Electrica Compatibilitate Electromagnetica	EN60730 EN61000-6-3 EN61000-6-4	Electrical safety Electromagnetic compatibility	EN60730 EN61000-6-3 EN61000-6-4
Display/Afisaj	LCD 2 linii x 16 caractere	Display	LCD 2 lines x 16 characters
Pozitie montaj HCW Pozitie montaj HCA	Oricare – pe teava Vertical – in spatiu liber	HCW assembly pos. HCA assembly pos.	Any on piping Vertical - in free air
Marja setare presiune	0,3 ÷ 7,5 Bar ±0,2 Bar	Pressure to be set	0,3 ÷ 7,5 Bar ±0,2 Bar
Suprapresiune Maxima model HCW (standard)	12 Bar	Max overpressure For HCW models	12 Bar
Temperatura ambientala de functionare	5°C ÷ +40 °C	Operating ambient Temperature	5°C ÷ +40 °C
Gradul de protectie	Vezi eticheta produsului	Protection category	In Label product
Racorduri teava pt. model HCW (standard)	1" ¼ filet interior-interior	Input/output for HCW models	1" ¼ female
Dimens.HCW (3-5.5hp) h/l/p	170/190/360 mm.	Dimens.HCW(3-5.5hp) h/l/p	170/190/360 mm.
Dimens.HCA (3-5.5hp) h/l/p	170/243/350 mm.	Dimens.HCA (3-5.5hp) h/l/p	170/243/350 mm.
Dimens.HCA (7.5hp) h/l/p	185/243/390 mm.	Dimens.HCA (7.5hp) h/l/p	185/243/390 mm.
Greutate HCW (3-5.5hp)	4 Kg.	Weight HCW (3-5.5hp)	4 Kg.
Greutate HCA (3-5.5hp)	5,6 Kg.	Weight HCA (3-5.5hp)	5,6 Kg.
Greutate HCA (7.5hp)	8 Kg.	Weight HCA (7.5hp)	8 Kg.

Caracteristici tehnice/Technical Features – MT Standard/Advanced

Alimentare (monofaza)	230 Vca 50/60 Hz (de la 170 la 270 Vca)	Monophase power supply	230 Vca 50/60 Hz (from 170 to 270 Vca)
Putere absorbita (P1)	Vers.HC 2hp=2,2 KW Max Vers.HC 3hp=3,3 KW Max	Absorbed power (P1)	Vers.HC 2hp=2,2 KW Max Vers.HC 3hp=3,3 KW Max
Puterea nominala Pompa (P2)	Vers.HC 2hp=1,5kW 230 Vac trifazat Δ Vers.HC 3hp=2,2kW 230 Vac trifazat Δ	Electro-pump max. Power (P2)	Vers.HC 2hp=1,5kW 230 Vac ThreePhase Δ Vers.HC 3hp=2,2kW 230 Vac ThreePhase Δ
Amperaj maxim	Vers.HC 2hp = 8 A Vers.HC 3hp = 10 A	Max. Phase current	Vers.HC 2hp = 8 A Vers.HC 3hp = 10 A
Frecventa iesire	10 ÷ 60 Hz (~ 0,01 Hz)	Output frequency	10 ÷ 60 Hz (resolution 0,01 Hz)
Timpul de accelerare	0,7 ÷ 5 sec	Acceleration time	0,7 ÷ 5 sec
Timpul de decelerare	0,7 ÷ 5 sec	Deceleration time.	0,7 ÷ 5 sec
Siguranta electrica	EN60730	Electrical safety	EN60730
Compatibilitate Electromagnetica	EN61000-6-3 EN61000-6-4	Electromagnetic compatibility	EN61000-6-3 EN61000-6-4
Display/Afisaj	LCD 2 linii x 16 caractere	Display	LCD 2 lines x 16 characters
Pozitie montaj HCW	Oricare – pe teava	HCW assembly pos.	Any on piping
Pozitie montaj HCA	Vertical – in spatiu liber	HCA assembly pos.	Vertical - in free air
Marja setare presiune	0,3 ÷ 7,5 Bar ±0,2 Bar	Pressure to be set	0,3 ÷ 7,5 Bar ±0,2 Bar
Suprapresiune Maxima model HCW (standard)	12 Bar	Max overpressure For HCW models	12 Bar
Temperatura ambientala de functionare	5°C ÷ +40 °C	Operating ambient Temperature	5°C ÷ +40 °C
Gradul de protectie	(Vezi eticheta produsului)	Protection category	In label product
Racorduri teava pt. model HCW (standard)	1" ¼ filet interior-interior	Input/output for HCW models	1" ¼ female
Dimens. HCW h/l/p	170/190/360 mm.	Dimens. HCW h/l/p	170/190/360 mm.
Dimens. HCA h/l/p	180/245/390 mm.	Dimens. HCA h/l/p	180/245/390 mm.
Greutate HCW	2,5 Kg.	Weight HCW	2,5 Kg.
Greutate HCA	5,6 Kg.	Weight HCA	5,6 Kg.

Caratteristiche Tecniche/ Technical Features – MM Standard/Advanced

Alimentare (monofaza)	230 Vca 50/60 Hz (de la 170 la 270 Vca)	Monophase power supply	230 Vca 50/60 Hz (from 170 to 270 Vca)
Putere absorbita (P1) 230 Vac monofaza	Vers.HC 1,5hp=1,6 KW Max Vers.HC 2,2hp= 2,3KW Max	Absorbed power (P1) 230 Vac single phase	Vers.HC 1,5hp=1,6 KW Max Vers.HC 2,2hp= 2,3KW Max
Puterea nominala Pompa (P2) 230 Vac monofaza	Vers.HC 1,5 HP=1,1 kW Vers.HC 2,2 HP= 1,6 kW	Pump max. Power (P2) 230 Vac monoPhase	Vers.HC 1,5 HP=1,1 kW Vers.HC 2,2 HP= 1,6 kW
Amperaj maxim	Vers.HC 1,5 HP=8A Vers.HC 2,2 HP= 12A	Max. Phase current	Vers.HC 1,5 HP=8A Vers.HC 2,2 HP= 12A
Frecventa iesire	10 ÷ 60 Hz (± 0,01 Hz)	Output frequency	10 ÷ 60 Hz (resolution 0,01 Hz)
Timpul de accelerare	0,7 ÷ 5 sec 0,7 ÷ 5 sec	Acceleration time Deceleration time.	0,7 ÷ 5 sec 0,7 ÷ 5 sec
Siguranta electrica Compatibilitate Electromagnetica	EN60730 EN61000-6-3 EN61000-6-4	Electrical safety Electromagnetic compatibility	EN60730 EN61000-6-3 EN61000-6-4
Display/Afisaj	LCD 2 linii x 16 caractere	Display	LCD 2 lines x 16 characters
Pozitie montaj HCW Pozitie montaj HCA	Oricare – pe teava Vertical – in spatiu liber	HCW assembly pos. HCA assembly pos.	Any on piping Vertical - in free air
Marja setare presiune	0,3 ÷ 7,5 Bar ±0,2 Bar	Pressure to be set	0,3 ÷ 7,5 Bar ±0,2 Bar
Suprapresiune Maxima model HCW (standard)	12 Bar	Max overpressure For HCW models	12 Bar
Temperatura ambientala de functionare	5°C ÷ +40 °C	Operating ambient Temperature	5°C ÷ +40 °C
Gradul de protectie	(Vezi eticheta produsului)	Protection category	In label product
Racorduri teava pt. model HCW (standard)	1" ¼ filet interior-interior	Input/output for HCW models	1" ¼ female
Dimens. HCW h/l/p Dimens. HCA h/l/p	170/190/360 mm. 180/245/390 mm.	Dimens. HCW h/l/p Dimens. HCA h/l/p	170/190/360 mm. 180/245/390 mm.
Greutate HCW Greutate HCA	2,5 Kg. 5,6 Kg.	Weight HCW Weight HCA	2,5 Kg. 5,6 Kg.

Tipuri de protectie

RO In cazul sesizarii unor anomalii de functionare, HydroController protejeaza instalatia prin oprirea sistemului. Totusi, pentru a asigura alimentarea cu apa HC va incerca repornirea/resetarea automata sau programata..

Tip de protectie	Resetare/Repornire
Tensiune electrica prea scazuta	Automata, de indata ce voltajul masurat revine la valorile normale de functionare
Tensiune electrica prea ridicata	Automata, de indata ce voltajul masurat revine la valorile normale de functionare
Scurt circuit	n° Incercari Repornire Automata (nr. de reporniri programabile –setare fabrica - 5); la epuizarea resetarilor trebuie repornit manual*
Curentul de iesire peste limita admisa mai mult de 1 minut..	n° Incercari Repornire Automata (nr. de reporniri programabile –setare fabrica - 5); la epuizarea resetarilor trebuie repornit manual*
Temperatura apei peste 75 °C	Automata, de indata ce temperatura masurata revine la valorile normale de functionare.
Presiune insuficienta	n° Incercari Repornire Automata (nr. de reporniri programabile –setare fabrica - 5); la epuizarea resetarilor trebuie repornit manual*
Lipsa apa sau prezenta aer in pompa	n° Incercari Repornire Automata (nr. de reporniri programabile –setare fabrica - 5); la epuizarea resetarilor trebuie repornit manual*
Eroare la senzorul de presiune	
Lovitura de berbec (soc de presiune)	n° Incercari Repornire Automata (nr. de reporniri programabile –setare fabrica - 5); la epuizarea resetarilor trebuie repornit manual*
Antiblocare/ Antigripare (numai la vers.MM) Activeaza/Dezactiveaza functia din Meniul Extins paragraful 25	Daca pompa a fost oprita mai mult de 24 ore, HydroController o porneste ridicand presiunea cu 0,5 bari

* pentru repornire manuala:

1. Deconectati alimentarea
2. Asteptati inchiderea afisajului
3. Re-conectati alimentarea

Optiunea de configuratie paralela permite mentinerea fluxului de apa in cazul aparitiei erorilor. Cum grupul de presiune este format din mai multe pompe, in cazul in care una dintre ele nu functioneaza, fluxul de apa este asigurat de cele ramase. De ex:

- Defectiune pompa Slave2 => ramane activ Master si Slave1
- Defectiune Slave1 si Slave 2 => ramane activ Master
- Defectiune Master => grupul este reconfigurat automat in Master si Slave1 din cele 2 Slave

Protections

EN In the event of anomaly conditions HydroController protects the autoclave by switching off, but to ensure water, attempts automatic or programmed reset operations.

Type of protection	Reset
Power voltage too low	Automatically as soon as the measured voltage returns within the correct values of operation.
Power voltage too high	Automatically as soon as the measured voltage returns within the correct values of operation.
Short circuit	n..attempts to reset automatic programmable (default factory 5). Exhausted attempts automatic, manual reset is required*.
Output voltage above the threshold for over 1 min.	n..attempts to reset automatic programmable (default factory 5). Exhausted attempts automatic, manual reset is required*.
Water temperature above 75 °C	Automatically as soon as the temperature returns within the correct values of operation.
Insufficient pressure in the system	n..attempts to reset automatic programmable (default factory 5). Exhausted attempts automatic, manual reset is required*.
Lack of water or air in the pump	n..attempts to reset automatic programmable (default factory 5). Exhausted attempts automatic, manual reset is required*.
Pressure sensor fault	---
Pressure shock	n..attempts to reset automatic programmable (default factory 5). Exhausted attempts automatic, manual reset is required*.
Anti-lock (only vers MM). Enable/Disable function in the extended menu par.25	If the pump is stopped for more than 24 hours, raising the pressure of 0.5 bar.

* for manual reset:

1. disconnect power
2. wait for display to switch off
3. re-power

The parallel configuration option permits the protection of the water supply. As the pressurization unit consists of several pumps in the event of the breakage of one of the same the water supply is guaranteed from the other pumps. IE:

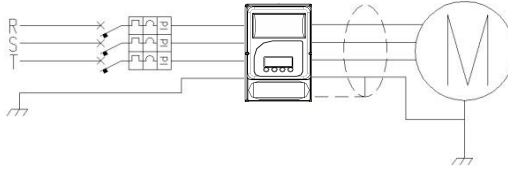
- Slave 2 breakage => Master and Slave1 remain active
- Slave 1 and Slave 2 breakage => Master remains
- Master breakage => the group will be automatically reconfigured in Master and Slave1.

Instalare si Utilizare (detaliat)

Legatura electrica

(vers. TT)

RO Modelul Standard vine echipat cu cabluri de conectare. Conectati cablul de iesire (impamantare- trifaza-ecranare) la electropompa trifazica configurata in stea. Conectati cablul de intrare cu 4 fire (trifaza R,S,T - impamantare) la alimentare printr-o siguranta trifazata configurata in functie de amperajul pompei. Mai jos aveti o schita drept exemplu:

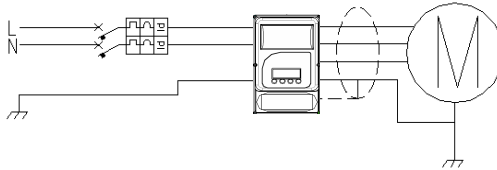


EN The standard model is supplied with cables for connections.

Connect the output cable (ground, triple-phase, screen) to the three-phase pump with star configuration. Connect the input cable with four wires (triple-phase R, S, T, ground) to the power supply through a three-phase 400Vac circuit breaker sized in function of the pump rating. Hereafter a schema just for example.

(vers. MT)

RO Modelul Standard vine echipat cu cabluri de conectare. Conectati cablul de iesire (impamantare- trifaza-ecranare) la electropompa trifazica configurata in triunghi (Δ) 230Vac. Conectati cablul de intrare (faza, nul, impamantare) la alimentare printr-o siguranta configurata in functie de amperajul pompei. Mai jos aveti o schita drept exemplu:



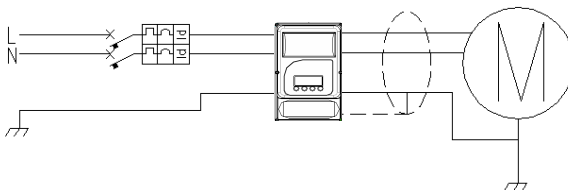
EN The standard model is supplied with cables for connections.

Connect the output cable (ground, triple-phase, screen) to the three-phase pump with (Δ) triangle configuration 230 Vac.

Connect the input cable with three wires (phase, neutral and ground) to the power supply through a single-phase 230Vac circuit breaker sized in function of the pump rating. Hereafter a schema just for example.

(vers. MM)

RO Modelul Standard vine echipat cu cabluri de conectare. Conectati cablul de iesire (impamantare- faza) la electropompa monofazata 230Vac. Conectati cablul de intrare (faza, nul, impamantare) la alimentare printr-o siguranta configurata in functie de amperajul pompei. Mai jos aveti o schita drept exemplu:



EN The standard model is supplied with cables for connections.

Connect the output cable (ground, single-phase line) to the single-phase pump 230 Vac.

Connect the input cable with three wires (phase, neutral and ground) to the power supply through a single-phase 230Vac circuit breaker sized in function of the pump rating. Hereafter a schema just for example.

RO HCW si HCA sunt certificate:
EN60730 siguranta
EN61000-6-4 emisii electromagnetice industriale
EN61000-6-3 emisii electromagnetice rezidentiale

EN HCW and HCA are certified:
EN60730 safety
EN61000-6-4 EMC industrial environment.
EN61000-6-3 EMC residential environment.

RO Dimensiune sectiune cablu in functie de lungime

EN Section cable linked to cable length.

Model TT 3hp Model MT 2hp Model MM 1.5hp	
S mm2	L max mt
1.5	20
2.5	50
4	100

Model TT 5.5hp	
S mm2	L max mt
1.5	20
2.5	50
4	100

Model TT 7.5hp Model MT 3hp Model MM 2hp	
S mm2	L max mt
2.5	20
4	50
8	100



Toate componentele interne ale HC sunt sub tensiune electrica. In caz de atingere exista pericol de moarte.



Toata munca ce implica instalarea si intretinerea aparatului trebuie efectuata de catre personal calificat, folosind unelte adecvate si echipament de protectie. In cazul unei erori, deconectati alimentarea electrica.



Inainte de a efectua reparatii la inverter, asteptati cel putin 5 minute dupa deconectarea electrica, pentru a permite descarcarea condensatorului. Pericol de electrocutare, arsuri sau moarte daca nu se respecta aceasta avertizare.

Dispozitive de protectie

Contactati furnizorul de energie electrica pentru informatii despre dispozitivele de protectie.

De exemplu:

- impamantare de siguranta;
- dispozitive de siguranta (sigurante) folosite pentru reziduurile de curent continuu sau curent alternativ (RCD);
- sisteme TN

Impamantare de siguranta

- Data fiind prezenta curentului static si al condensatorului, se poate descarca curent la impamantare/masa.
- Alegeți un tip de protectie care sa fie in acord cu legislatia locala.

Siguranta pentru curent rezidual / static (RCD/RCCB)

- Cand folositi o siguranta pentru curent rezidual (RCD), asigurati-va ca aceasta sare si cand apare un scurt-circuit in partea de descarcare (DC) a impamantarii => utilizati siguranta RCD sensibil la curent de impuls.
- Instalati siguranta numai in acord cu legile in vigoare

Interruptor automat

- Folositi un interruptor automat cu o curba caracteristica de tip-C.
- Pentru dimensionarea protectiei electrice principale, consultati paragraful "Caracteristici Tehnice".



All internal parts of the drive are under power supply. In case of contact may exist risk of death.



All installation and maintenance work must be performed by qualified staff using suitable instruments! Staff must use suitable protective equipment. In the event of a fault, disconnect or switch off the power supply.



Before performing repairs on the drive wait at least 5 minutes to allow the capacitor to discharge. Danger of electrocution, burning or death if this precaution is not observed.

Safety devices

Contact the electricity provider for information concerning safety devices.

Applicable:

- safety earthing;
- safety devices operating with residue alternating and direct current (RCD);
- TN systems.

Safety earthing

- Given the presence of condensers in the inlet filter, current to mass may occur.
- Choose a suitable safety device according to local regulations.

Residual current circuit breaker (RCD/RCCB)

- When a residual current circuit breaker (RCD) is used, make sure it trips even if a short circuit occurs in the DC part of the earth connection of drive!
- use RCD's that are sensitive to pulse currents.
- Install the residue current circuit breaker according to local bylaws!

Automatic switch

- Use an automatic circuit switch with a type-C characteristic curve.
- Consult the Technical Specifications for the size of the mains protection system.

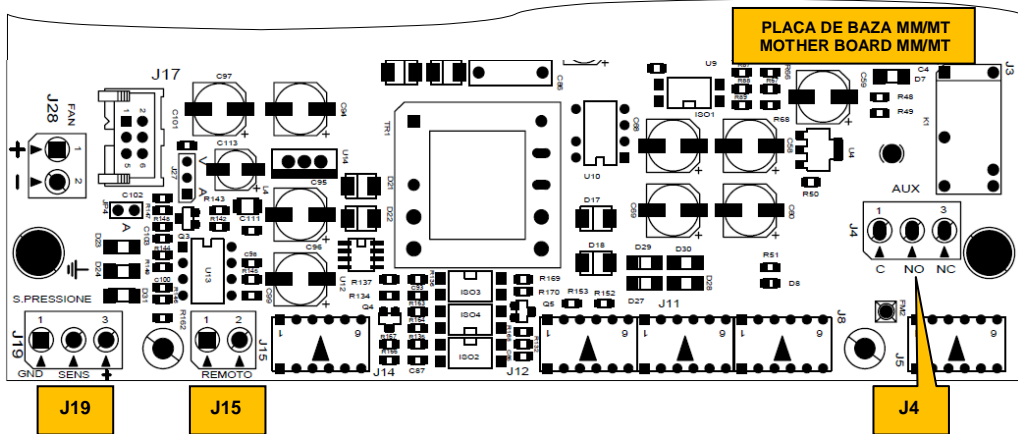
HC MM/MT Standard

RO Versiunea standard a modelelor MM / MT vine echipata astfel:



- Conexiune pentru senzor de presiune extern
- Intrare pentru flotor electric extern
- Releu configurabil ce poate fi folosit ca semnalizator de alerta, pornire pompa sau legarea unei pompe secundare de ridicare a presiunii.


EN The standard version of HC models MM / MT is equipped with:

- Connection for an external pressure sensor
- Input for external floatswitch
- Configurable relay that can be used as warning signal, run pump, or to build boosting system with a second pump at fixed frequency.



J19	
GND	Senzor GND GND Sensor
SENS	Senzor iesire 4÷20mA Output sensor 4÷20mA
+	Senzor alimentare 4÷20mA (12Vdc) Power supply sensor 4÷20mA (12Vdc)

J15		
REMOTO	Flotor electric Floatswitch.	
REMOTO	Flotor electric Floatswitch.	

J4		
Max 2A 250Vac - Max 2A 30 Vdc		
NO	Config. Releu NO Config. Relay NO	
NC	Config. Releu NC Config. Relay NC	
C	Config. Releu C Config. Relay C	

RO Configurare flotor electric lipsa apa:

Este posibila folosirea unui flotor electric extern pentru activarea inverterului.

Pentru a folosi aceasta functie:

- Conectati flotorul electric intre pinii 1 si 2 la pozitia J15 (vezi schema placa de baza pentru versiunea Standard)
- sau Conectati flotorul electric intre pinii 5 si 6 la pozitia J6 (vezi schema placa de baza versiunea Avansata)
- Activati functia "remote control" (comanda externa) din Meniul Extins (functia 55)

NB. Este posibila folosirea unui singur flotor electric pentru a comanda mai multe pompe in modul MultiPompa:

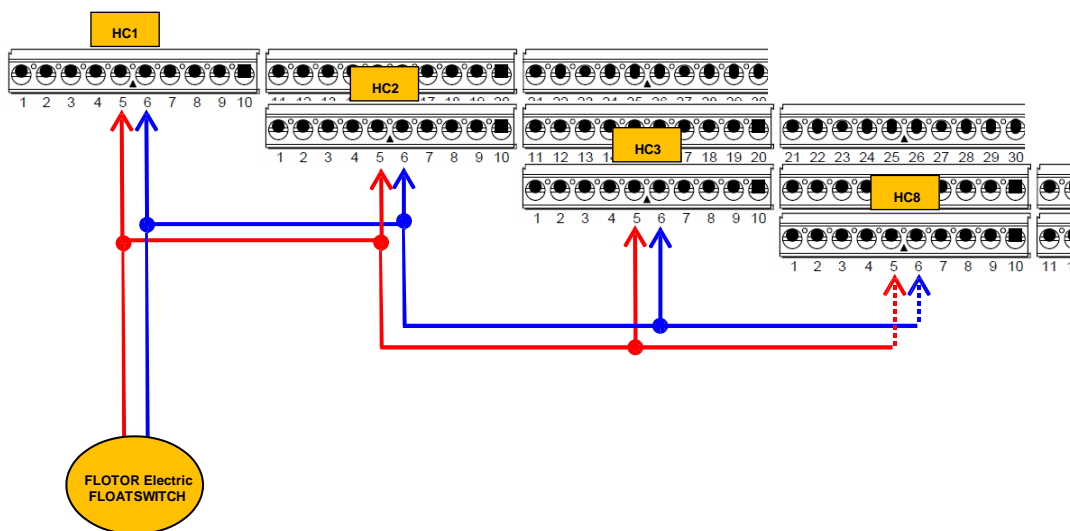
EN Configuration for dry running floatswitch:

It's possible to use a floatswitch for activation of the inverter

To use this function:

- Connect the floatswitch between 1 and 2 on J15 (mother board for STD version)
- Or connect the floatswitch between 5 and 6 on J6 (expansion board for ADV version)
- Enable "remote control" function on extended menu (par.55)

NB. It's possible to use one floatswitch to control the multipump group:



Configurazione Relè:**RO Configurare releu:**

Este posibila folosirea releului (J4) ca semnalizator de alerta, pornire pompa sau legarea unei pompe secundare de ridicare a presiunii. Aceste functii pot fi activate si configurate din Meniul Extins (functia 50).

RO Configurare Modul Booster (Pompa secundara Ridicare Presiune ON / OFF):

- Conectati comanda pompei secundare intre C-NO in sectiunea J14 a placii de baza (Standard) sau intre 24-26 in sectiunea J8 a placii de baza (Avansat)
- Setati la functia 50: "Relay Configur." valoarea: "R1:Booster" pentru vers. Standard sau la valoarea: or "R1:A R2:R R3:B1" pentru vers. Avansat
- Setati la functia 51 "Inc Pres Booster" valoarea de ridicare a presiunii (implicit = 0,2bar). Aceasta valoare determina cu cat va creste presiunea in sistem dupa pornirea pompei secundare ON/OFF.

Cum functioneaza Modul Booster:Cum porneste pompa secundara ON/OFF:

Daca pompa principala nu poate atinge presiunea necesara in sistem si functioneaza deja la frecventa maxima (de ex. 50/60 Hz), inverterul da comanda pornirii pompei secundare. Aceasta pompa secundara va ajuta prima pompa si va ridica presiunea in sistem cu valoarea setata la functia 51 "Inc Pres Booster" (setare implicita 0.2 bar). Acest parametru determina cresterea presiunii in sistem astfel inca sa se evite oscilatiile de presiune. La nevoie se poate ridica presiunea cu ajutorul pompei secundare pana la maxim 1.5 bar.

Cum se opreste pompa secundara ON/OFF:

Funcția care opreste pompa secundare este:

-functia 64 "MinTresholdPar" (setare implicita 50%)

Cand procentajul puterii este mai mic decat pragul setat si presiunea masurata este egala sau mai mare decat presiunea setata a sistemului, inverterul opreste pompa secundara.

Ex.

Funcția 47 "Motor Power" = 1000 watt

Funcția 64 "MinTresholdPar" = 50%

Funcția 72 "System Pressure" = 2.5 bar

Valoarea pragului puterii pentru inchiderea pompei este 50% din 1000 W deci: 500 W.

Daca presiunea masurata este mai mare sau egala cu 2.5 bar si puterea este mai mica de 500W, HydroController va inchide pompa secundara, pentru ca nu mai este nevoie de ea.

EN Relay Configuration:

It's possible to use the relay (J4) on the mother board as an alarm relay, run pump, or to build boosting system with a second pump at fixed frequency. The functions can be enabled by the extended menu (par.50).

EN Configuration Booster mode (ON/OFF pump):

- Connect the control of booster between C-NO on J4 (mother board vers.STD) or between 24-26 on J8 (expansion board vers.ADV)
- Set parameter 50 : "Relay Configur." on "R1:Booster" for STD version or "R1:A R2:R R3:B1" for ADV version.
- Set the parameter 51 "Inc Pres Booster" the value of pressure rise (default = 0.2 bar). This value determines the increase of the system pressure required after the starting of the pump ON / OFF.

Booster Operation:How to start second pump ON / OFF:

If the first pump cannot reach pressure system and the frequency is at the maximum working value (es.50Hz/60Hz), the drive switch on the command to start the second pump ON / OFF.

As soon the second pump is started, the drive increase the system pressure value by an amount equal to the parameter 51 "Inc Pres Booster" (default 0.2bar [2.9psi]). This parameter determines the increase of the system pressure to avoid oscillation. In case of need can be increased up to a maximum of 1.5 bar [11.75 psi] (default = 0.2 bar [2.9psi]).

How to stop the second pump ON / OFF:

The parameter that switches off the control for the second pump is:

-parameter 64 "MinTresholdPar". (Default = 50%)

When the percentage of power is lower than the threshold and the measured pressure is higher than the system pressure, then the drive switches off the second pump.

Eg.

Parameter 47 "Motor Power" = 1000 watts

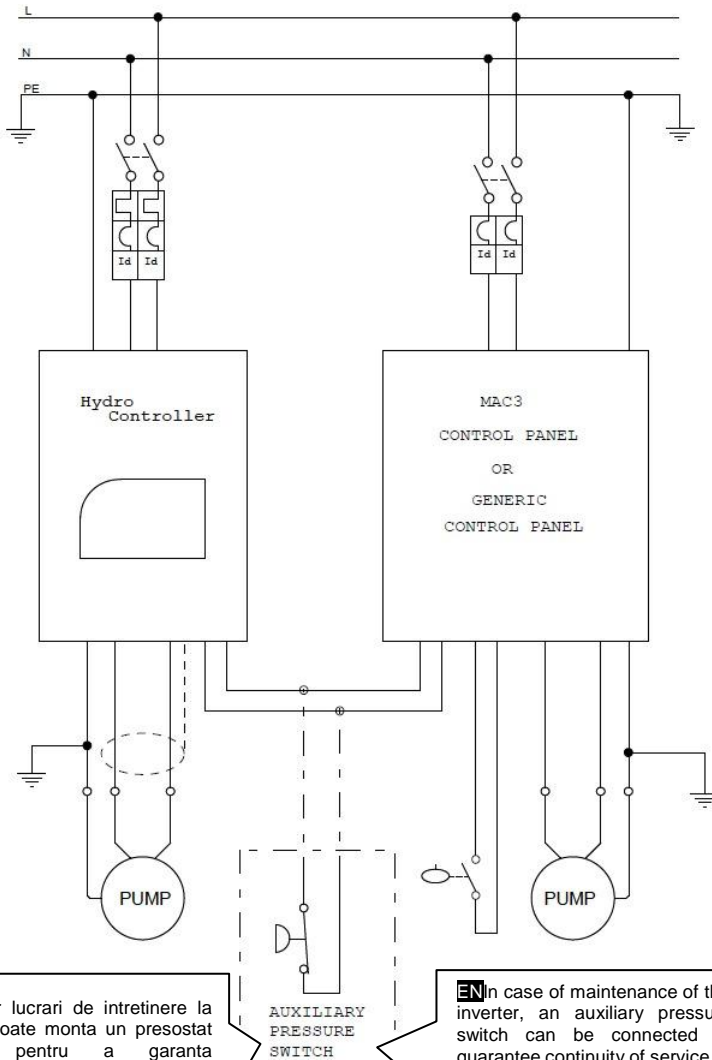
parameter 64 "MinTresholdPar" = 50%

parameter 72 "System Pressure" = 2.5 bar [36.26 psi]

The power value to switch off the second pump is equal to 50% of 1000 watts then: 500 watts. So that if pressure is greater or equal to 2.5 bar [36.26 psi] and power is less than 500 watt the drive switch off the second pump

RO Exemplu de conectare Modul Booster (vers. MM/MT)

EN Connection example for Mode Booster (pump ON / OFF - MM/MT version)



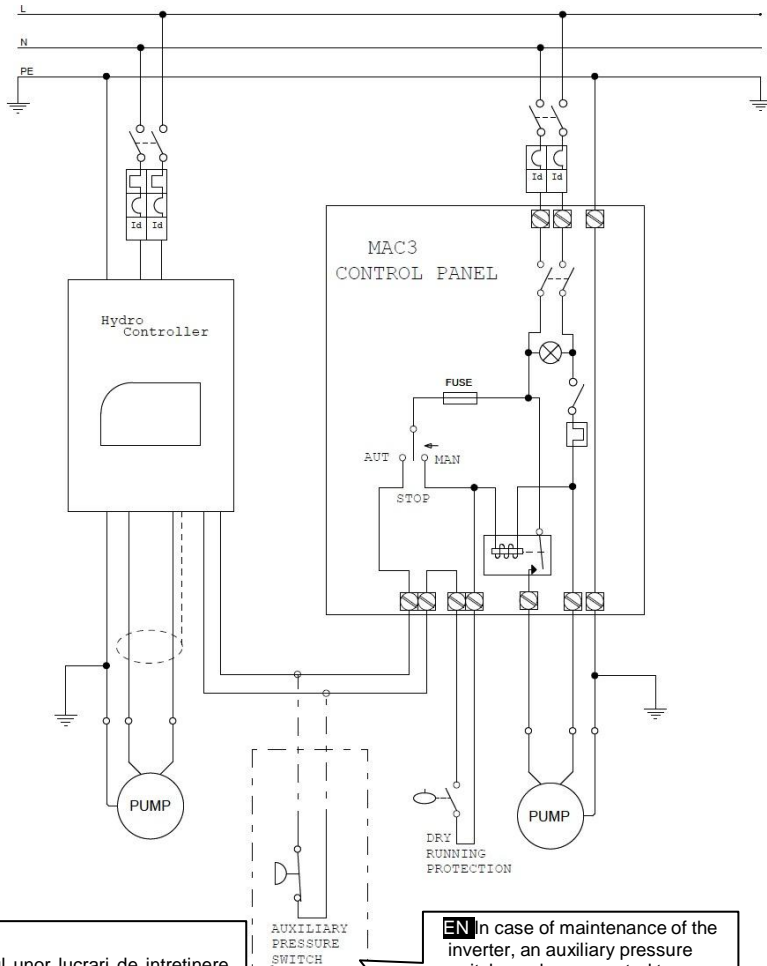
RO

În cazul unor lucrări de întreținere la inverter, se poate monta un presostat suplimentar pentru a garanta continuitatea funcționării sistemului cu pompa secundară. În caz că este necesară și folosirea unui vas de expansiune dimensionat corect.

Atenție! Presostatul suplimentar trebuie scos din funcțiune când HC este repus în funcțiune.

EN In case of maintenance of the inverter, an auxiliary pressure switch can be connected to guarantee continuity of service to the system with the on-off pump. It is advisable to provide in this case the use of an expansion tank correctly dimensioned.

Beware the auxiliary switch should not be connected when the inverter.



RO

In cazul unor lucrari de intretinere la inverter, se poate monta un presostat suplimentar pentru a garanta continuitatea functionarii sistemului cu pompa secundara. In caset caz este necesara si folosirea unui vas de expansiune dimensionat corect.

Atentie! Presostatul suplimentar trebuie scos din functiune cand HC este repus in functiune

EN In case of maintenance of the inverter, an auxiliary pressure switch can be connected to guarantee continuity of service to the system with the on-off pump. It is advisable to provide in this case the use of an expansion tank correctly dimensioned.

Beware the auxiliary switch should not be connected when the inverter.

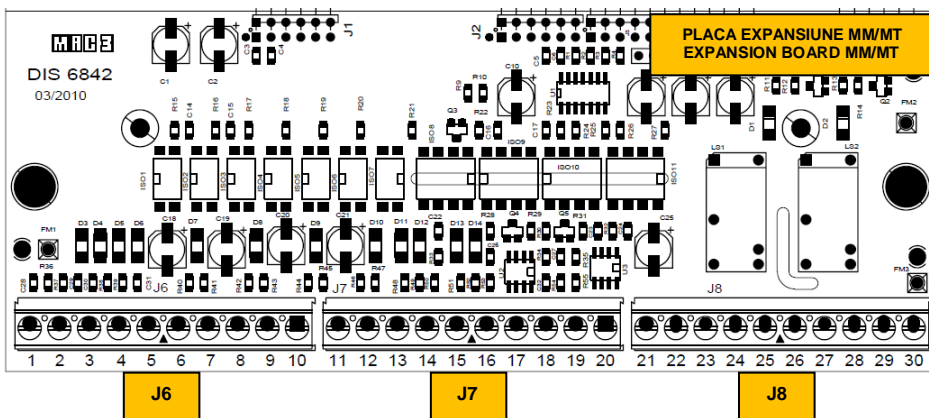
HydroController MM/MT Avansat / Advanced

RO Versiunea Avansata a HC MM/MT contine o Placa de Expansiune pentru:

- Releu Alarma
- Releu de functionare
- Intrare control de la distanta pentru folosirea unui flotor la Oprire / Pornire pompa
- Intrare pentru termic motor
- Intrare flotor electric ce semnalizeaza nivelul minim de apa (lipsa apa)
- Control zone de irigare (prin dispozitivul MULTIPRESS achizitionat separat)
- Comunicare cu alte HydroController (mod MultiPompa)
- Comanda unei pompe suplimentare de ridicare a presiunii (mod Booster)

EN The advanced version for models HC MM/MT is supplied with an expansion board for:

- Alarm relay
- Running relay
- Remote input to turn ON or OFF the pump with floatswitch
- Input for motor thermal
- Input for floatswitch for indicating low water level
- Irrigation zones control (by device MULTIPRESS)
- Connection with other Hydrocontrollers (multipump mode)
- Command for second fixed speed pump (booster mode).



J6		
1	Termic motor Thermal pump	
2	12Vis	
3	Nivel apa scazuta Low water level	
4	12Vis	
5	Flotor electric Floatswitch.	
6	12Vis	
7	Gnd Irig.	
8	Zona Irig. 1 Zone Irrig. 1	24 Vac~
9	Zona Irig. 2 Zone Irrig. 2	24 Vac~
10	Zona Irig. 3 Zone Irrig. 3	24 Vac~

J7		
11	Zona Irig. 4 Zone Irrig. 4	24 Vac~
12	Gnd Irig.	
13	Neutilizat	(Neutilizat not used)
14	Neutilizat	
15	Neutilizat	
16	Neutilizat	
17	Neutilizat	
18	Gnd CAN	Config. MultiPompa Multipump connection
19	CAN H	
20	CAN L	

J8		
21	CAN H	Config. Multipompa
22	CAN L	
23	NC	
Max 2A 250Vac - Max 2A 30 Vdc		
24	Config. Releu NO Config. Relay1 NO	
25	Config. Releu1 NC Config. Relay1 NC	
26	Config. Releu1 COM Config. Relay1 COM	
27	Neutilizat	
Max 2A 250Vac - Max 2A 30 Vdc		
28	Config. Releu2 NO Config. Relay2 NO	
29	Config. Releu2 NC Config. Relay2 NC	
30	Config. Releu2 COM Config. Rel.2 COM	

RO Configurarea flotorului electric lipsa apa:

Vezi paragraful identic de la versiunea Standard

EN Configuration for dry running floatswitch:

See section "Configuration for dry running floatswitch" in the "HC MM / MT Standard".

RO Configurare releu:

Vezi paragraful identic de la versiunea Standard

EN Relay Configuration:

See section "Relay Configuration" in the "HC MM / MT Standard".

RO Configurare Modul Booster (Pompa secundara Ridicare Presiune ON / OFF):

Vezi paragraful identic de la versiunea Standard

EN Booster mode Configuration (ON/OFF pump):

See section "Configuration for Booster mode" in the "HC MM / MT Standard".

RO Configurare mod MultiPompa:

Este posibila folosirea HydroController (numai vers. Avansata) intr-un grup de pompare (mod MultiPompa), compus din un inverter Master (Principal) ce comanda pana la 7 invertere Slave (Secundar)

EN Multipump Configuration

It's possible to connect hydrocontroller in multipumps configuration (**Advanced model**) composed from an inverter Master that can drive 7 inverter Slave.

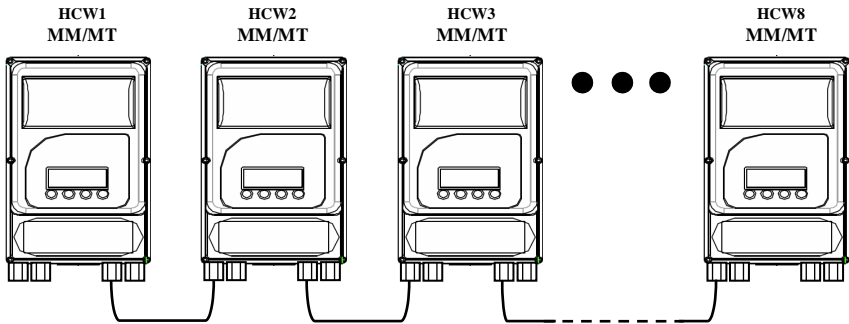
HydroController (vers. Avansata) vine echipat cu cablu de date pentru conexiunea intre Master si Slave

The inverter is supplied with connection cable for data exchange between master and slave.

RO Conexiunea dintre mai multe invertere poate fi realizata si folosind intrarile de pe Placa de Expansiune: 18-19-20 in zona J7 ("gnd CAN", "CANH" e "CANL") la HCA MM/MT

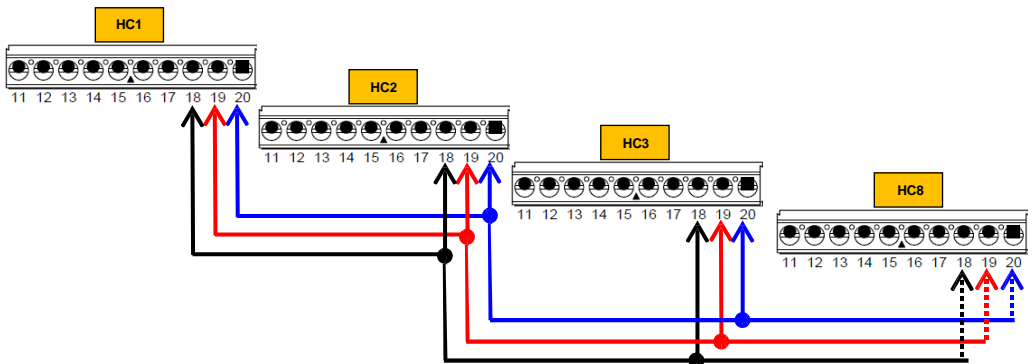
EN The connection between the various units can also be done using the expansion board input 18-19-20 on J7 ("gnd CAN", "CANH" e "CANL") on HCA MM/MT.

Exemplu de conexiune cu cablu de date la HCW MM/MT: | Connection example with cable (HCW MM/MT):



Exemplu de conexiune prin placa de expansiune la HCW si HCA MM/MT:

Connection example on expansion board for HCW and HCA MM/MT:



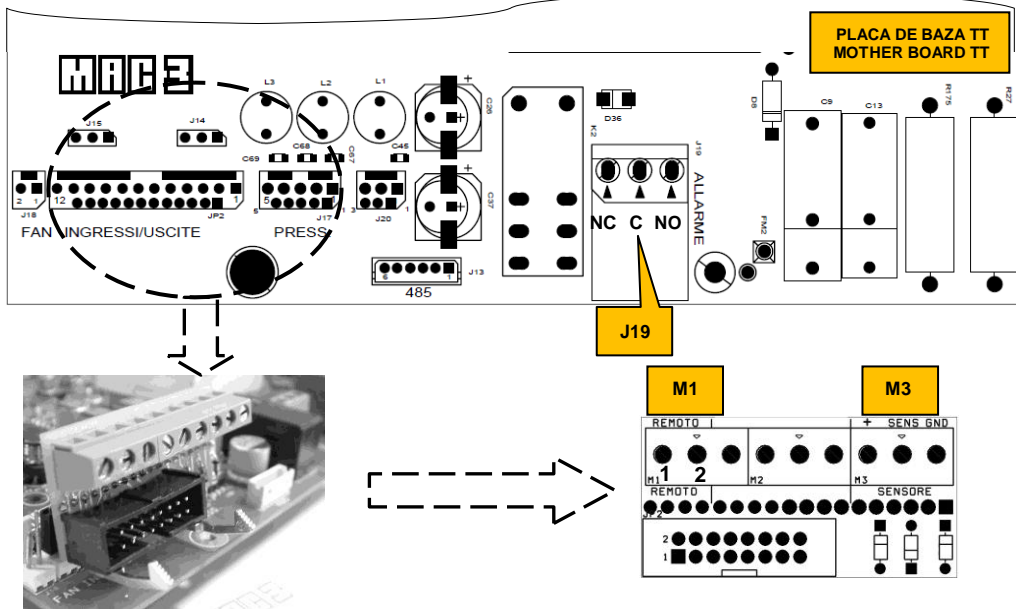
HC TT Standard

RO Versiunea standard HC TT este echipata cu:

- Conexiune pentru senzor de presiune extern
- Intrare pentru flotor electric extern
- Releu configurabil ce poate fi folosit ca semnalizator de alerta, pornire pompa sau legarea unei pompe secundare de ridicare a presiunii.

EN The standard version of HC models TT is equipped with:

- Connection for an external pressure sensor
- Input for external floatswitch
- Configurable relay that can be used as warning signal, run pump, or to build boosting system with a second pump at fixed frequency.



M1	
REMOTO	Flotor electric Floatswitch.
REMOTO	Flotor electric Floatswitch.

M3	
+	Senzor alimentare 4÷20mA (12Vdc) Power supply sensor 4÷20mA (12Vdc)
SENS	Senzor iesire 4÷20mA output sensor 4÷20mA
GND	GND Senzor GND Sensor

J19	
Max 0.5A 250Vac - Max 0.5A 24 Vdc	
NC	Config. ReleuNC Config. Relay NC
C	Config. Releu COM Config. Relay COM
NO	Config. Releu NO Config. Relay NO

RO Configurare flotor electric lipsa apa:

Este posibila folosirea unui flotor electric extern pentru activarea inverterului.

Pentru a folosi aceasta functie:

- Conectati flotorul electric intre pinii 1 si 2 la pozitia M1 (placa de baza, terminalele "REMOTO")
- sau Conectati flotorul electric intre pinii 5 si 6 la pozitia M5 (placa de expansiune 7032, terminalele "REMOTO") sau intre pinii 8 si 9 (placa de expansiune 6640)
- Activati functia "remote control" (comanda externa) din Meniul Extins (functia 55)

NB. Este posibila folosirea unui singur flotor electric pentru a comanda mai multe pompe in modul MultiPompa:

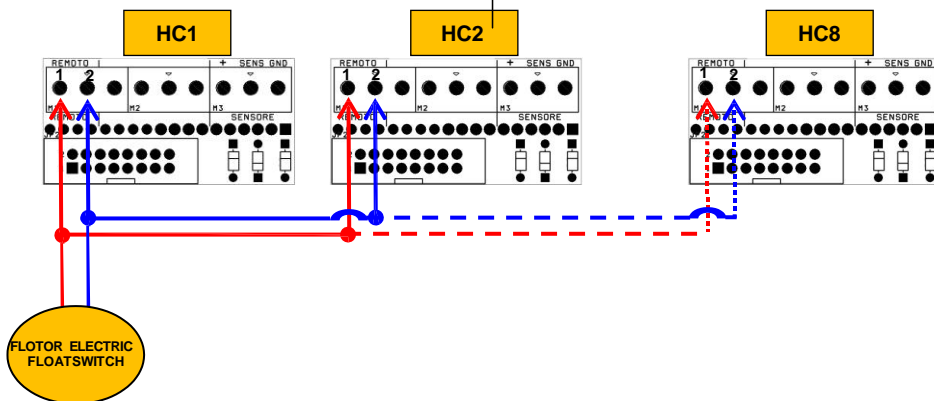
EN Configuration for dry running floatswitch:

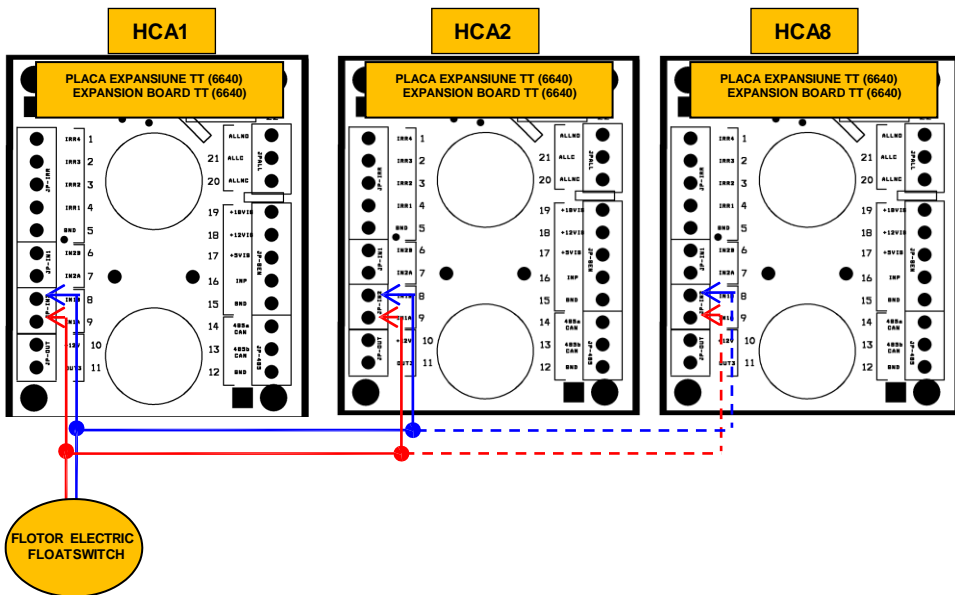
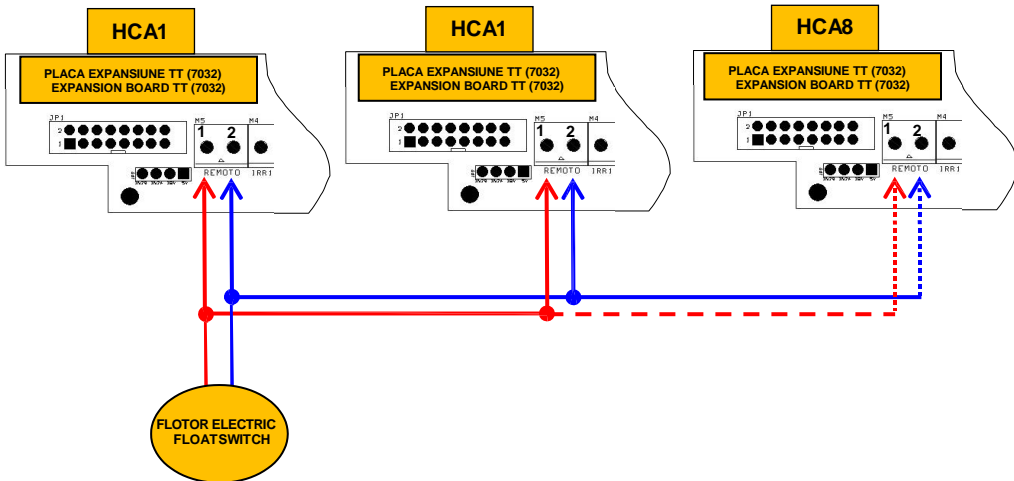
It's possible to use a floatswitch for activation of the inverter.

To use this function:

- Connect the floatswitch between 1 and 2 on M1 (main board, "REMOTO" terminals)
- Or connect the floatswitch between 1 and 2 on M5 (expansion board 7032, terminals "REMOTO") or between 8 and 9 (on expansion board 6640)
- Enable "remote control" function on extended menu (par.55)

NB. It's possible to use one floatswitch to control the multipump group:





RO Configurare releu:

Este posibila folosirea releului (J19) ca semnalizator de alerta, pornire pompa sau legarea unei pompe secundare de ridicare a presiunii. Aceste functii pot fi activate si configurate din Meniul Extins (functia 50).

RO Configurare Modul Booster (Pompa secundara Ridicare Presiune ON / OFF):

- Conectati comanda pompei secundare intre C-NO in sectiunea J19 a placii de baza sau intre C-NO in sectiunea R2 (placa de expansiune 7032) sau intre pinii 21-22 (placa de expansiune 6640)
- Setati la functia 50: "Relay Configur." valoarea: "R1:Booster" pentru vers. Standard sau la valoarea: or "R1:A R2:Boost." pentru vers. Avansat
- Setati la functia 51 "Inc Pres Booster" valoarea de ridicare a presiunii (implicit = 0,2bar). Aceasta valoare determina cu cat va creste presiunea in sistem dupa pornirea pompei secundare ON/OFF.

Cum functioneaza Modul Booster:

Cititi paragraful "**Cum functioneaza Modul Booster**" de la versiunea "HC MM/MT Standard".

EN Relay Configuration:

It's possible to use the relay (J19) on the mother board as a warning signal, run pump, or to build boosting system with a second pump at fixed rate. The functions can be enabled by the extended menu (par.50).

EN Booster mode Configuration (ON/OFF pump):

- Connect the control of booster between C-NO on J19 (mother board) or between C-NO on R2 (on expansion board 7032) or between 21-22 (on expansion board 6640)
- Set parameter 50 : "Relay Configur." As "R1:Booster" for STD version or set "R1:A R2:Boost." on ADV version.
- Set the parameter 51 "Inc Pres Booster" the value of pressure rise (default = 0.2 bar). This value determines the increase of the system pressure required after the starting of the pump ON / OFF.

Booster Operation:

See section "Operation Booster" in the "HC MM / MT Standard".

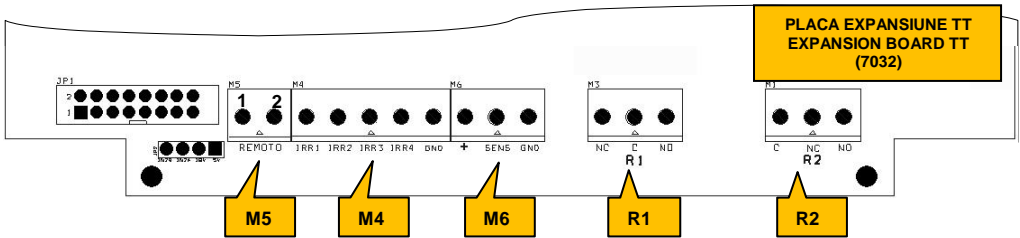
HC TT Avansat / Advanced

RO Versiunea Avansata a HC MM/MT contine o Placa de Expansiune pentru:

- Releu Alarma
- Releu de functionare
- Intrare control de la distanta pentru folosirea unui flotor la Oprire / Pornire pompa
- Control zone de irigare (prin dispozitivul MULTIPRESS achizitionat separat)
- Comunicare cu alte HydroController (mod MultiPompa)
- Comanda unei pompe suplimentare de ridicare a presiunii (mod Booster)

EN The advanced version for models HC TT is supplied with an expansion board for:

- Alarm relay
- Running relay
- Remote input to turn on or off the pump with floatswitch
- Irrigation zones control (by device MULTIPRESS)
- Connection with other Hydrocontrollers (multipump mode)
- Command for second fixed speed pump (booster mode).



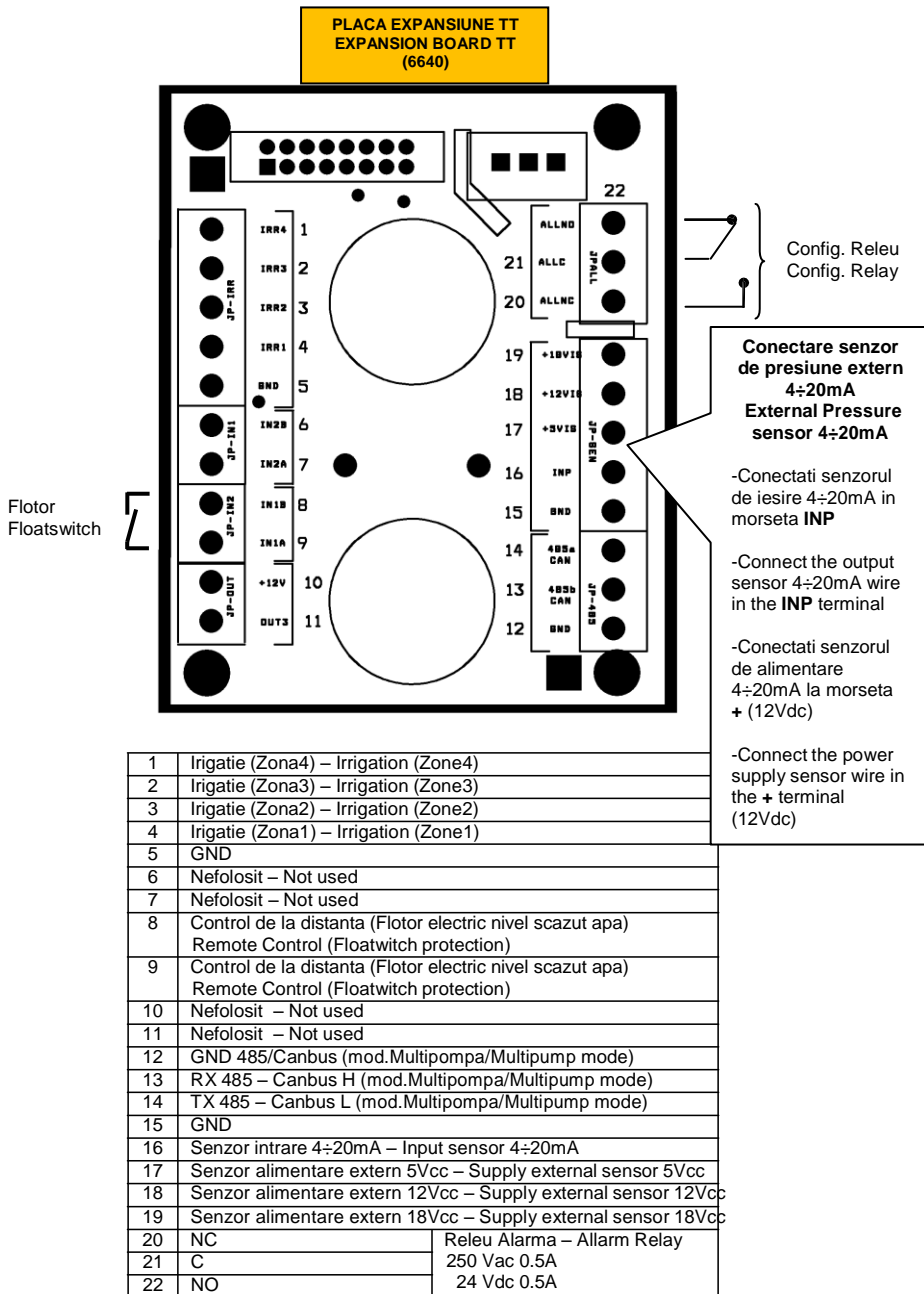
M5	
REMOTO	Flotor electric Floatswitch
REMOTO	Flotor electric Floatswitch

M4	
IRR1	Zona Irig. 1 Zone Irrig. 1
IRR2	Zona Irig. 2 Zone Irrig. 2
IRR3	Zona Irig. 3 Zone Irrig. 3
IRR4	Zona Irig. 4 Zone Irrig. 4
GND	Gnd Irig.

M6	
+	Senzor alimentare 4÷20mA (12Vdc) Power supply sensor 4÷20mA (12Vdc)
SENS	Senzor iesire 4÷20mA Output sensor 4÷20mA
GND	GND Senzore GND Sensor

R1	
NC	Config. Releu NC Config. Relay NC
C	Config. ReleuCom Config. Relay Com
NO	Config. Releu NO Config. Relay NO

R2	
C	Config. Releu Com Config. Relay Com
NC	Config. Releu NC Config. Relay NC
NO	Config. Releu NO Config. Relay NO



RO Configurare flotor electric lipsa apa:

Vezi paragraful **Configurare flotor electric lipsa apa** la versiunea "HC TT Standard"

RO Configurare Releu:

Este posibila folosirea releului (J19) ca semnalizator de alerta, pornire pompa sau legarea unei pompe secundare de ridicare a presiunii.

La versiunea HCA ADV se poate folosi placa de expansiune 7032 astfel:

- Releele R1 si R2 ca semnalizator de alerta, pornire pompa sau legarea unei pompe secundare de ridicare a presiunii ON/OFF.

La versiunea HCA ADV se poate folosi placa de expansiune 6640 astfel:

- Releul R1 la pinii 21-22 sau releul R2 la pinii 5-11 ca semnalizator de alerta, pornire pompa sau legarea unei pompe secundare de ridicare a presiunii ON/OFF.

Aceste functii pot fi activate si configurate din Meniul Extins (functia 50).

RO Configurare Modul Booster (Pompa secundara Ridicare Presiune ON / OFF):

Vezi paragraful identic la versiunea "HC TT Standard"

R Configurare mod MultiPompa:

Este posibila folosirea HydroController (numai vers. Avansata) intr-un grup de pompare (mod MultiPompa), compus din un inverter Master (Principal) ce comanda pana la 7 invertere Slave (Secundar)

HydroController HCW si HCA vine echipat cu cablu de date pentru conexiunea intre Master si Slave

RO Conexiunea dintre mai multe invertere poate fi realizata si folosind intrarile de pe Placa de Expansiune 6640: Pinii 12-13-14 ("Gnd", "485A-CAN" si "485B-CAN")

EN Configuration for dry running floatswitch:

See section "Configuration for dry running floatswitch" in the "HC TT Standard".

EN Relay Configuration:

In HCW models is possible to use the relay (J19) on the mother board as a warning signal, run pump, or to build boosting system with a second pump at fixed rate.

In HCA ADV models is possible to use with expansion board 7032:

- the relays R1 and R2 as a warning signal, run pump, or to build boosting system with a second pump at fixed rate.

In HCA ADV models is possible to use with expansion board 6640:

- the relay R1 at the terminals 21-22 and the added relay R2 at the terminals 5-11 as a warning signal, run pump, or to build boosting system with a second pump at fixed rate.

The functions can be enabled by the extended menu (par.50).

EN Booster mode Configuration (ON/OFF pump):

See section "Configuration for Booster mode" in the "HC TT Standard".

EN Multipump Configuration

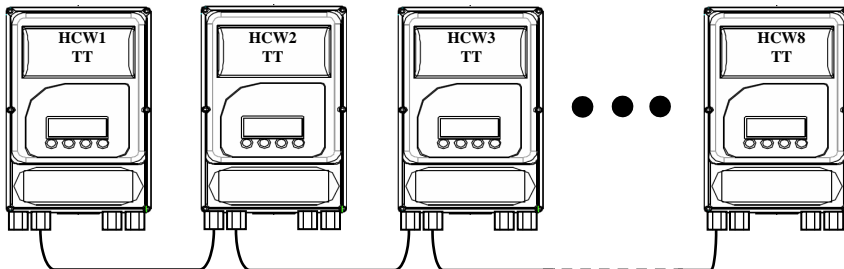
It's possible to connect hydrocontroller in multipumps configuration (**Advanced model**) composed from an inverter Master that can drive 7 inverter Slave.

The HCW and HCA model are supplied with connection cable for data exchange between master and slave.

EN The connection between the various units can also be done using the input 12-13-14 ("Gnd", "485A-CAN" e "485B-CAN") on expansion board 6640.

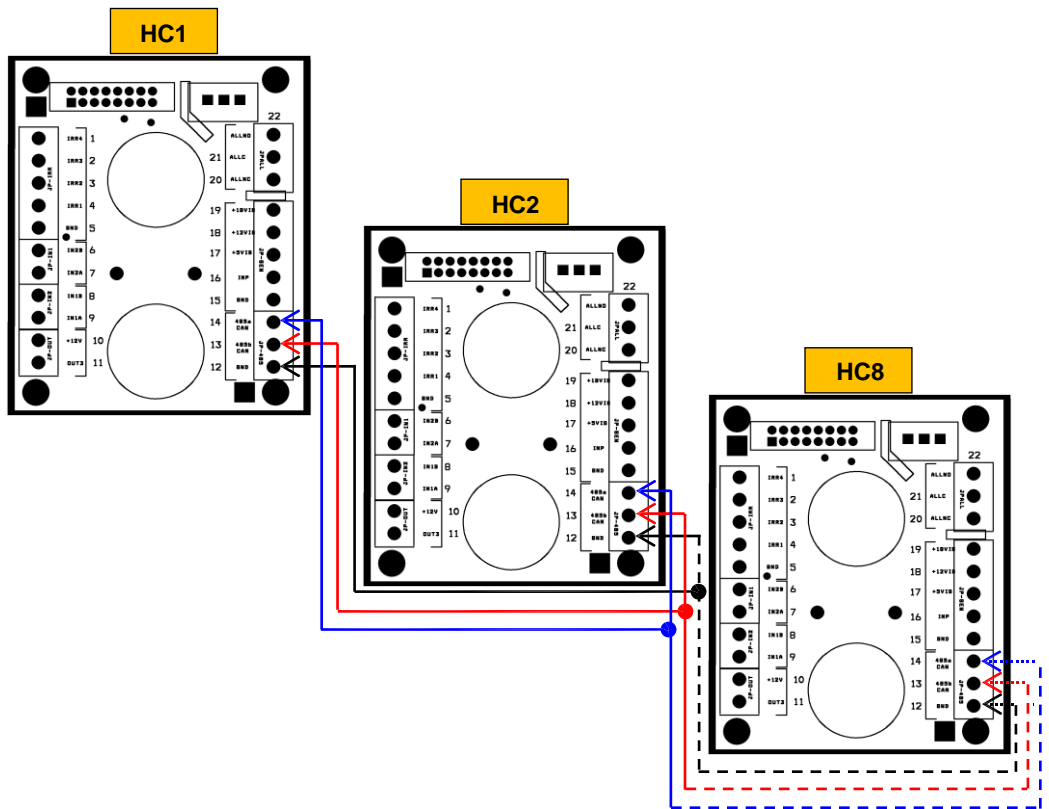
Exemplu de conexiune a unui grup HCW TT AVANSAT prin cablu de date:

Connection example with cable of HCW TT ADVANCED:



RO Exemplu de conexiune a unui grup HCA TT AVANSAT prin placa de expansiune 6640:

EN Connection example of HCA TT ADV group with expansion board 6640 (HCA TT):



Conectarea hidraulica

RO Modelul cu racire prin apa (HCW) se poate instala in orice pozitie. Modelul cu racire prin aer (HCA) trebuie instalat in pozitie verticala.

Avertizari:

- Asigurati-va ca pompa este bine amorsata inainte de a instala HydroController.
- Instalati HydroController. in apropierea pompei; daca montarea se face chiar pe pompa, aveti grija sa nu existe vibratii nocive.
- Nu folositi tevi si fittinguri de dimensiuni mai mici decat conexiunile HydroController.
- Evitati montarea in locuri predispuase la condens si umiditate.
- **Instalati un vas de expansiune** pentru a proteja produsul de socurile de presiune (lovitura de berbec) si pentru a evita resetarea continua in prezenta unor pierderi mici de apa.

Ex. dimensionare in functie de debitul pompei:

Pompa de 100lt/min → vas de expansiune de la 10lt/min (10% din debitul maxim al pompei)

Ex. dimensionare in functie de presiunea de lucru:

Pompa de 6 bar → vas expansiune de 10bar

Presiunea de pre-incarcare (cu aer) in vasul de expansiune ar trebuie sa fie 0.8 x presiunea in sistem.

Ex. Presiunea sistemului = 3bar

Presiunea de resetare = 2,6bar

→ presiunea pre-incarcare vas = $(0,8 \times 3) = 2,4\text{bar}$

Daca presiunea de resetare este cu cel putin 1 bar mai scazuta decat presiunea sistemului, atunci valoarea de pre-incarcare a vasului ar trebui sa fie 0.8 x presiunea de resetare

Ex. Presiunea sistemului = 3bar

Presiunea de resetare = 2bar

→ presiunea pre-incarcare vas = $(0,8 \times 2) = 1,6\text{bar}$

Indicatii de instalare

- E recomandata montarea unui robinet de purjare.
- Montati un cartus de filtre pentru a proteja atat instalatia cat si inverterul de impuritatile prezente in apa (Nota1)
- Nu este obligatorie montarea unei supape de sens, dar aceasta poate ajuta la mentinerea apei in sistem.
- Pentru o intretinere usoara, montati dispozitivul cu racord olandez
- Montati un robinet in apropierea HydroController, pentru a usura verificarile si controlul.
- Montati un robinet langa vasul de expansiune pentru a usura mentenanta.

Nota1: Apa contine intotdeauna particule de nisip, fier, sparturi; aceste impuritati nu ar trebui sa intre in sistemul hidraulic deoarece deterioreaza tevile si aparatele conectate.

Instalarea unui filtru nu este optionala ci obligatorie!

Hydraulic Connection

EN The water cooled model can be installed in any position, the cooled air should be installed vertically.

Warnings:

- Make sure pump is perfectly primed, before installing HC.
- Install HC near the pump; if installed directly on the pump, verify that there are no harmful vibrations.
- Use tube diameter not less than those of HC attacks.
- Avoid places where is possible precence of condensation
- **Install an expansion tank** to protect the product against water hammer and to avoid continuous restarting in presence of small losses.

Eg. Size, in liters per minute according to the pump:

Pump 100lt/min → expansion tank from 10lt/min (10% of the maximum flow of the pump)

Preload value of the expansion tank should be about 0.8 x value of system pressure.

Eg.

System pressure = 3 bar

Restart pressure = 2.6 bar

→ value of precharge = $(0.8 \times 3) = 2.4$ bar

If the restart pressure is at least 1 bar lower than the system pressure, then the precharge value of the expansion tank should be about 0.8 x pressure value of restart pressure.

Eg.

System pressure = 3 bar

Restart pressure = 2 bar

→ value of precharge = $(0.8 \times 2) = 1.6$ bar

Installation Notes

- Recommended to install a tap sampling.
- Insert a cartridge filter to protect both the system that the device from impurities, always present in the water (Note 1)
- The inclusion of an external check valve is not necessary. However, if it is mounted, this helps seal the system.
- For easy maintenance, mount the drive using a 3-piece union fittings
- Install a tap near the drive to facilitate the control of the drive
- Install a gate valve in series with the expansion tank for easy maintenance

Note 1: The water always contains sand, iron, debris; such impurities should not enter the hydraulic system because they cause corrosion of pipes, damaging the equipment connected to plumbing.

Water filtration for domestic use is required under the UNI-CTI 8065 and by decree of the Ministry of Health of 12.21.1990.

Installing a filter is not an option but a provision.

Alegerea unui senzor de presiune extern:

Modelul HCA (cu racire in aer) vine echipat cu un senzor de presiune extern, potrivit montarii intr-un mediu uscat, fara umiditate crescuta.

Daca este necesara montarea in mediu cu umiditate pronuntata sau susceptibil la inundare, se recomanda montarea unui senzor de presiune submersibil (disponibil ca accesoriu in catalogul Mac3)

Avertizare: Evitati montarea senzorului in zone unde temperatura poate scadea sub 0°C

Notes to the choice of the sensor:

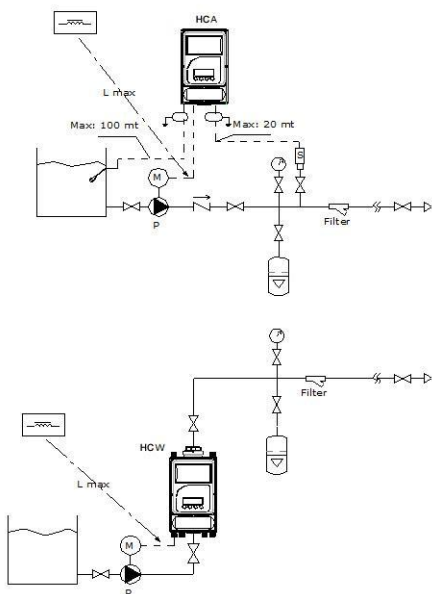
The air-cooled model is supplied with external pressure sensor suitable for installation in technical environments, with low humidity.

For demanding applications where flooding is possible (eg wells), and in environments with a high degree of humidity we recommend to use submersible pressure sensors, that are available as accessories in the catalog Mac3.

Warning:
Avoid placing sensors in areas where the temperature may fall below zero degrees.

Mai jos aveti o schema cu sistemul folosit pentru o pompa de suprafata (pompa de hidrofor)

Hereafter a typical system diagram with surface pump suction head



Valvola di intercettazione		Shut of valve
Vaso di espansione		Expansion Vessel
Motore elettrico		Electric Motor
Pompa		Pump
Valvola di ritegno		Non return valve
Filtro		Hydraulic filter
Manometro		Pressure gauge
Sensore pressione		Pressure transmitter
Induttanza di compensazione		Impedance coil
Galggiante		Float switch

Meniu Programare Software

RO Pentru a accesa Meniul de Programare, apasati butonul + timp de 5 secunde si vizualizati parametrii din tabelul urmator.

Dupa 10 minute de inactivitate, inverterul se intoarce la meniul principal.

Va rugam consultati si paragraful urmator pentru depanare.

Avertizare: Pentru schimbarea anumitor setari este nevoie de oprirea pompei.

Important: HydroController nu are meniu in Limba Romana. Setarile vor fi in limba italiana, engleza sau puteti alege alta limba pe care o cunoasteti din cele disponibile.

Maintenance Menu

EN To access the maintenance menu, press the + button for 5 seconds and display the parameters showed hereafter in the table.

After 10 minutes of inactivity the inverter goes back to the main menu.

Please consult also the following paragraph for troubleshooting.

Please contact the manufacturer for further question.

Warning. For some parameters the changes must be don with motor not running.

Nume	Descriere	Name	Description
Start system / Pornire Sistem	Porneste sau opreste pompa	Start system	Switches the pump on or off
Save & Exit /Salvare si lesire	Butonul ENTER: salveaza permanent modificarile efectuate	Save & Exit	ENTER key: permanently saves the modified parameters.
Language / Limba	Alegere limba (nu exista limba romana)	Language	Set language
Config. Network ID Config. ID Retea	Seteaza gradul Master sau Slave pentru inverter (numai daca modul de operare: OpMode=Multipompa)	Config. Network ID	Sets the master or slave configuration of the device (only if OpMode=Multipumps)
Perturb. Length Durata erorii	Intervalul de timp de cand este prezenta eroarea (numai la versiunea HCA).	Perturb. Length	Time length for perturbation (HCA Only)
DeltaBarTime	Timpul delta cand presiunea si frecventa sunt constante (numai la modelul HCA)	DeltaBarTime	Disturbance delta time when pressure and frequency are constant (HCA only)
Motor Power	Puterea nominala a motorului (numai OpMode=Multipompa versiunea HCA)	Motor Power	Nominal power motor (only multipumps mode)
Maxmot current	Amperajul maxim al pompei	Maxmot current	Maximum rms value of the phase current
Remote Enable Comanda externa	Daca valoarea este ON, inverterul intra in Standby si asteapta comanda externa (de ex. de la flotor)	Remote Enable	If set to ON, the drive is in STANDBY and wait for an external command to start
Tot.short- circuits Total Scurt-Circuit	Numarul de scurt circuite detectate (faza-faza sau faza-impamantare)	Tot.short-circuits	Counter of phase-phase or phase-earth short circuits.
System pressure Presiunea sistemului	Seteaza presiunea dorita in sistem	System pressure	Sets the required system pressure
Restart pressure Presiunea de Repornire	Seteaza presiunea de resetare / repornire	Restart pressure	Sets the required restart pressure
Rotation sense Sensul de rotatie	Seteaza sensul de rotatie al pompei	Rotation sense	To set the rotation sense of the electro-pump.
Software version Versiunea Software	Afiseaza modelul HydroController si versiunea software folosita	Software version	Displays the Hydrocontroller model and the software version in use.
Factory config. Reset Revenire Setari Fabrica	Daca este setata valoarea 1, se revine la setarile din fabrica.	Factory config. Reset	If equivalent to 1, permits the reset of the factory settings
MaxPot No Flux	Puterea maxima absorbita fara flux de apa (numai la vers. HCA)	MaxPot No Flux	(HCA only) Max power absorbed without flow

Depanare si Intretinere

RO HydroController ofera pompei mai multe tipuri de protectie pentru probleme uzuale, iar pentru a asigura alimentarea cu apa, dupa intrarea in protectie incearca mai multe resetari automate.

Afisajul arata mesaje si coduri de eroare, pentru a va ajuta sa identificati sursa problemei.

Avertizare: Pentru schimbarea anumitor setari este nevoie de oprirea pompei.

IMPORTANT: Mesajele sunt afisate doar in limba engleza sau in alta limba configurata.

HydroController nu are meniu in limba romana!

Troubleshooting & Maintenance

EN The HydroController provides pump protection from any type of common problems and to safeguard the water supply the drive attempts automatic restarts.

The display shows a message to identify the type of fault .

Warning. For some parameters the changes must be done with motor not running..

Mesaj Message	Semnificatia Mesajului	Ce trebuie facut	Message meaning	Action required
Sistem Oprit System Off	HC este alimentat dar setat sa nu porneasca pompa	Repetati procedura de pornire si setati : "System start" =ON.	HC is powered but is set not to power the pump.	-Repeat the procedure for the startup, setting "System start" = ON.
Sistem Pornit System On	HC controleaza presiunea. Sistemul este presurizat		HC is controlling the pressure. The system is pressurized	
Sistem Pornit (pierdere apa) Sys.On(LEAKAGE)	Pompa nu a fost oprita de mai mult de 24 ore (timpul setat la functia 58). Acest lucru indica o posibila pierdere de apa in sistem.	Eliminati pierderile de apa pentru a evita reporniri dese ale pompei sau schimbati valoarea functiei 58. -Resetati numaratoarea pierderilor de apa din Meniul Extins (functia 60)	The pump over 24 hours has not been turned off for the time specified in parameter 58 and indicates the possible presence of leakage.	-Eliminate the leaks to avoid continuous electro-pump restarts or change the time in parameter 58. -Reset the leaks from extended menu par.60.
Booster:	Comanda pompei secundare (booster). activata		Booster command pump activated	
Protectie pompa Pump Protection	Pompa a functionat neinterupt perioada de timp setata la functia 40	-Verificati functionarea corecta a supapei de sens. -Verificati eventuale scurgeri de apa in sistem	The pump has been in operation continuously for the time set in parameter 40	-Check the correct operation of flow valve -Check the leaks of the system
Voltaj scazut Low Voltage	Voltajul masurat este prea mic (mai mic de 300Vac – vers.TT, sau 170Vac – vers. MM/MT). Repornirea este automata cand voltajul intra in limitele normale de functionare.	-Verificati instalatia electrica sa corespunda valorilor recomandate HydroController	Power voltage measured is too low (less than 300 Vac vers TT and 170 Vac vers MM/MT). The reset is automatic when the voltage returns to the correct values	-Check the electric system and reset the values to within the range prescribed for the HC
Voltaj ridicat High voltage...	Voltajul masurat este prea mare (mai mult de 500Vac- vers.TT sau 270Vac vers.MM/MT). Repornirea este automata cand voltajul intra in limitele normale de functionare.	-Verificati instalatia electrica sa corespunda valorilor recomandate HydroController	Power voltage measured is too high (over 500 Vac and 270 Vac vers. MM/MT). The reset is automatic when the voltage returns to the correct value	-Check the wiring system and set the values in the range prescribed for the HC.

Scurt circuit f-f-gnd ShortC. f-f-gnd	Scurt Circuit faza-faza sau faza-impamantare detectat. HC incearca repornirea automata de 5 ori. Daca incercarile de repornire esueaza, sistemul se blocheaza permanent.	-Inlaturati cauza scurt-circuitului -Verificati puterea absorbita a motorului sa nu depaseasca limitele. -Taiati alimentarea HC, asteptati inchiderea afisajului si apoi restaurati alimentarea.	Phase-Phase or Phase-Ground short circuit found. Automatic for 5 times; if unsuccessful the system remains in a permanent locked status	-Remove the cause of short circuit. -Check the correct motor absorption. -Disconnect the power supply and wait for the display to switch off and restore the power supply.
Blocare – Scurt circuit Short Circ.Block	Inverterul este blocat, dupa ce a epuizat tentativele de repornire automata in urma scurt-circuitului.	-Pentru a inlatura Blocajul, setati la 0 numaratoarea scurt-circuitelor din functia 65 "Tot.ShortC.Done " Daca problema persista, incercati sa resetati HC inlaturand pompa. Daca nu se obtine nici un rezultat, va trebui sa inlocuiti inverterul.	The drive is in lock status after 10 reset attempts made following short circuit between phase and phase and phase-earth on the electro-pump.	-To remove lock status set to zero the number of shortcircuit parameter "Tot.ShortC.Done " If the problem persists try to reset the drive unplugging the pump otherwise you have to replace the drive.
Protectie I2t I2t protected	Inverterul masoara consum de energie electrica foarte mare.	-Verificati ca pompa sa fie folosita in parametrii recomandati de producator. -Asigurati-va ca nu exista frecare sau blocare in rotorul pompei. -Schimbati valoarea amperajului maxim la functia 54	The drive has measured excessive power consumption.	-Verify that the pump is used under the conditions prescribed by its manufacturer. -Make sure that there are no conditions of friction or locking of the impeller. -Change the pick current value on parameter 54.
Motor deconectat Motor Unconnected	Pompa nu este conectata la inverter	-Verificat conectarea corecta a cablului de alimentare dintre inverter si pompa.	The pump isn't connected to the inverter	-Check that the power output cable from the inverter is connected to the pump

-STANDBY RemOFF	- "System Start" este ON si contactul flotorului electric este deschis: inverterul nu alimenteaza pompa	-Inverterul este setat sa porneasca la comanda externa de la un flotor electric (protectie impotriva lipsei apa)	- "System Start" is ON and contact of float switch is open: the inverter doesn't power the pump	-The drive is set to be enabled by a float switch for dry running protection
-Sys.OFF Rem.ON	- "System Start" este OFF si contactul flotorului electric este inchis: inverterul nu alimenteaza pompa		- "System Start" is OFF and contact of float switch is closed: the inverter doesn't power the pump	
-Sys.OFF Rem.OFF	- "System Start" este OFF si contactul flotorului electric este deschis: inverterul nu alimenteaza pompa		- "System Start" is OFF and contact of float switch is open: the inverter doesn't power the pump	
-Sys.ON Rem.ON	- "System Start" este ON si contactul flotorului electric este inchis: inverterul alimenteaza pompa		- "System Start" is ON and contact of float switch is closed: the inverter powers the pump	
Lovitura de Berbec Water Hammer	HC a detectat o presiune de peste 2 ori mai mare decat presiunea setata. Repomirea este automata. Inverterul se blocheaza daca exista mai mult de 5 incercari de repornire automata.	-Verificati functionarea corecta a vasului de expansiune.	The system detected an overrun of more than 2 times the pressure set. The reset is automatic. The drive is blocked if the number of automatic restarts is over 5.	-Verify the correct functioning of expansion tank.
Deconectat Disconnected	Mesajul apare la Inverterele configurate Slave(Secundar). Repomirea este automata cand unitatea Slave comunica din nou cu unitatea Master.	-Verificati conexiunea cablului de date intre invertere.	The message appears in the drives configured as SLAVE. The reset is automatic when the SLAVE back in communication with the MASTER.	-Check the correct connection of communication cables.
Lipsa Serviciu Out of Service	Mesajul este afisat numai in modul MultiPompa. Aparatul dintr-un grup ce afiseaza mesajul, a epuizat incercarile de repomiri automate in urma erorilor.	-Gasiti cauza erorii ce a determinat repomirile automate.	The message is displayed in multi pump mode. The drive of the group that is in this state is out of the automatic resetting of anomalies	-Find out the cause of the fault.

Temperatura ridicata High temperature	Temperatura apei mai mare de 75 °C. Repornire automata cand temperatura scade sub 60 °C.	-Verificati ca temperatura apei din fantana, vas, etc. sa nu fie prea ridicata. -La modelul HCA (cu racirea prin aer), verificati functionarea corecta a ventilatorului. -Verificati amorsarea corecta a pompei	Water temperature above 75 °C. Automatic reset when the temperature descends to under 60 °C:	-Check that the in going water temperature comes within the values indicated in the product specifications. -In HCA model verify the correct functioning of cooling fan. -Check and restore the correct pump priming action.
Presiune insuficienta Insuff. Press...	Presiunea masurata in sistem este mai mica decat minimul setat (implicat = 0.8bar). Se incearca repornirea automata de 5 ori la fiecare 5 minute. Daca esueaza, se incearca 24 reporniri la fiecare 50 minute. Daca si acestea esueaza, sistemul este blocat permanent.	-Verificati ca nu exista pierderi majore de apa in instalatie. -Verificati ca specificatiile pompei sa fie in concordanta cu cerintele instalatiei. -In timp ce incercati eliminarea problemelor, deconectati alimentarea si asteptati inchiderea afisajului. -Restaurati alimentarea electrica.	The pressure measured is under the minum set value (default 0,8 bar). Automatic reset set in the factory for 5 reset attempt every 5 minutes if unsuccessful the reset operation is attempted again every 50 minutes for 24 times. After which the system is permanently blocked	-Check that there is no major leakage on the system. -Check the correct dimensions of the electro-pump. -On eliminating the causes disconnect the power supply and wait for the display to switch off. -Restore power supply.
Lipsa apa No water	S-a detectat lipsa apei. Inverterul va incerca repornirea automata de 5 ori la fiecare 5 minute. Daca esueaza, se incearca 24 reporniri la fiecare 50 minute. Daca si acestea esueaza, sistemul este blocat permanent	-Verificati prezenta apei in fantana, vas, instalatie, etc. - La modelul HCW verificati supapa de sens. La modelul HCA, verificati valoarea functiei "MaxPower No Flux" -Amorsati corect pompa. -Verificati daca filtrul este blocat cu impuritati. -Deconectati alimentarea si asteptati inchiderea afisajului. -Reconectati alimentarea cu energie electrica.	Lack of water found Automatic reset set in factory for 5 reset attempts every 5 minutes; if unsuccessful the reset is again attempted every 50 minutes for 24 times. After which the system remains in a state of permanent blockage.	-Check for water presence. -In HCW model verify check valve. -In HCA model verify the value of "MaxPower No Flux". -Reset the correct pump priming function. -Check that the filter is not blocked. -Disconnect the power supply and wait for the display to switch off. -Re-connect power supply.

Eroare Senzor Presiune Prs Sensor Fault	S-a detectat o eroare la senzorul de presiune	-Verificati conectarea corecta a senzorului de presiune. - Verificati ca valoarea functiei 31 "PrsSensor Freq" sa fie mai mare de 400 - Daca problema persista, inlocuiti senzorul de presiune	Detected a fault in the pressure sensor	-Verify that the pressure sensor is connected correctly. -Verify that the value of the parameter "PrsSensor Freq" is greater than 400 value. -If the problem persists, replace the pressure sensor
Imax Fault.....	S-a detectat o valoare excesiva a intensitatii curentului masurat in pompa (amperaj)	-Verificati curentul masurat la functia 36 "LoadCurrent" si introduceti valoarea corecta la functia 49 "Max.MotorCurrent". - Verificati ca pompa functioneaza in parametrii recomandati de catre producator si asigurati-va ca nu exista frecare sau blocare in rotorul pompei.	Over current detected in the pump	-Check current measurement output parameter to "LoadCurrent " and set the proper parameter "Max.MotorCurrent " -Verify that the pump is used under the conditions prescribed by its manufacturer and make sure that there are no conditions of friction or locking of the impeller

Meniul Extins

RO Meniul extins permite vizualizarea tuturor funcțiilor inverterului. Acesta poate fi accesat numai după ce introduceți parola corectă.

Pentru a intra în Meniul Extins țineți apăsat câteva secunde + , - și ENTER până când vi se cere să introduceți parola.

După 10 minute de inactivitate, HC revine la meniul principal.

Extended Menu

EN The extended menu permits the visualization of all parameters. These can be solely visualized without the proper password.

For access to the visualization function keep the keys: + , - , **ENTER**, pressed simultaneously for a few seconds until is requested the password.

After 10 minutes of inactivity the inverter goes back to the main menu.

Important: HydroController nu are meniul în Limba Română. Setările vor fi în limba italiană, engleză sau puteți alege alta limbă pe care o cunoașteți din cele disponibile.

N.	Nume	Descriere	Name	Description
00	Password	Parola pentru meniul extins (00740). Aceasta nu poate fi modificată	Password	Password for parameter modification
01	Max frequency	Frecvența maximă de ieșire a HC	Max frequency	Maximum frequency of drive output
02	Language	Limba setată	Language	Set language
03	Nominal frequ.	Setează frecvența la care se obține tensiunea maximă Vmax	Nominal frequ.	Sets the applicable frequency on the motor to obtain Vmax
04	Net Config ID	Setează configurația Master sau Slave a inverterului (în modul MultiPompa)	Net Config ID	Sets the master or slave configuration of the device (if OpMode=Multipumps)
05	inputBuffer	Citirea alimentării	inputBuffer	Digital input reading
06	Acceleration	Setează timpul de accelerare de la frecvența minimă aplicată motorului la cea maximă.	Acceleration	Sets the acceleration time to move from null to maximum frequency applied to the motor
07	Deceleration	Setează timpul de decelerare de la frecvența maximă aplicată motorului la cea minimă.	Deceleration	Sets the deceleration time to go from maximum to null frequency applied to the motor
08	Manual speed	Setează frecvența motorului în modul de operare manual (OpMode=manual)	Manual speed	Sets the frequency applied to the motor (OpMode=manual)
09	Drive status	Număr codat pentru citirea unui set de valori ale inverterului	Drive status	Coded number for the reading of a set of drive states
10	Autoclave status	Număr codat pentru citirea unui set de valori ale instalației	Autoclave status	Coded number for the reading of a set of states of the autoclave
11	Unit measure	Setează unitatea de măsură	Unit measure	Set the unit measure
12	Drv Rst Time	Setează intervalul de timp după care se încearcă repornirea inverterului.	Drv Rst Time	Sets the delay time before undertaking drive restart
13	Drive Rst Allow	Setare numărul de încercări de repornire a inverterului.	Drive Rst Allow	Sets restarts for the drive
14	Drive Rst Done	Afișează numărul de reporniri efectuate	Drive Rst Done	Displays restarts number undertaken
15	Shock Pressure	Setează presiunea maximă înainte de apariția protecției "Lovitura de berbec"	Shock Pressure	Sets the maximum pressure to activate the alarm "Shock Pressure"
16	Autoc Rst Time	Setează intervalul de timp după care se încearcă repornirea pompei cauzată de protecția hidraulică (ex. Lipsa Apa)	Autoc Rst Time	Sets the delay of time before motor restart caused by hydraulic alarms (i.e. dry running)
17	Autoc Rst Allow	Setează numărul de reporniri ale pompei oprite de protecția hidraulică	Autoc Rst Allow	Sets the number of restarts to be undertaken on the motor for hydraulic alarms.
18	Autoc Rst Done	Număratoarea încercărilor de repornire pentru protecțiile hidraulice (ex. Presiune insuficientă, Lipsa apă)	Autoc Rst Done	Displays the number of restarts undertaken for hydraulic alarms (i.e. dry running, Insuff. Pressure)
19	Perturb. Length	Durata anomaliei (erorii) sesizate (numai la modelul HCA)	Perturb. Length	Time length for perturbation (HCA Only)
20	Water hammer	Număratoarea erorilor când presiunea măsurată este dubla față de presiunea setată în instalație (Lovitura de Berbec)	Water hammer	Counter events when the measured pressure is found to be double that of the pressure setpoint
21	Water hammer	Frecvența minimă transmisă motorului	Water hammer	Minimal frequency applied to the motor
22	Min Pressure	Presiunea minimă a sistemului sub	Min Pressure	Minimum system pressure, under

		care se activeaza o eroare ("Presiune insuficienta, Lipsa Apa").		which an anomaly state is indicated ("Insufficient pressure" / "No water").
23	Present Pdes	Afiseaza presiunea in instalatie instanta	Present Pdes	Displays the instantaneous pressure system
24	SlowRestartNumb.	Numarul de reporniri lente ale pompei, pentru protectia lipsa apa si antiblocare (1 la 50 minute)	SlowRestartNumb.	Number of slow autoclave restarts, dry running protection (1 each 50 min.)
25	Antilock enable	Opreste/Porneste functia antiblocare (pag. 17)	Antilock enable	Enable/Disable the anti-lock function (pag. 17)
26	PID KP	Coeficientul proportional al regulatorului de frecventa PID	PID KP	Proportional coefficient of the PID regulator
27	PID KI	Coeficientul integral al regulatorului de frecventa PID	PID KI	Integral coefficient of the PID regulator
28	Next OpMode	Seteaza modul de activ de functionare al inverterului la urmatoarea repornire (manual, automat, multipompa)	Next OpMode	Sets the operational mode of the autoclave on the next reset (manual, automatic, multipumps)
29	Present OpMode	Modul actual de functionare al inverterului	Present OpMode	Autoclave operational mode
30	System Response	Parametrul acesta contine 3 presetari (Lent, Normal, Rapid) pentru functiile: PID KP, PID KI, Divisor T.PID, Perturb. Length, in functie de tipul aparatului: In cazul unei schimbari in acesti parametrii va fi afisat simbolul (*) la valoarea urmatoare	System Response	The parameter contains 3 presets (Slow, Normal, Fast) of the parameters: PID KP, KI PID, Divisor T.PID, Perturb. Length, according to the type of plant. In the event of a change in the parameters described above will be displayed next value the symbol (*)
31	PrsSensor Freq.	Frecventa senzorului de presiune	PrsSensor Freq.	Pressure sensor frequency
32	PrsSensor offset	Echilibrarea senzorului de presiune(de setat presiunea ambientala = 0bar)	PrsSensor offset	Offset pressure sensor (to set ambient pressure = 0 bar)
33	PrsSensor Gain	Calibrarea citirii presiunii.	PrsSensor Gain	Calibration of full-scale pressure reading.
34	MeasuredPressure	Presiunea masurata in instalatie	MeasuredPressure	System pressure measured.
35	AcMain	Tensiunea de alimentare (Voltajul) HC	AcMain	HC power voltage
36	LoadCurrent	Amperajul motorului pompei	LoadCurrent	Motor phase current
37	Temp.monitor	Temperatura masurata la alimentarea electrica	Temp.monitor	Temperature measured on the power module
38	Measured Flux	Fluxul de apa masurat (unitate de masura proprie)	Measured Flux	Measured flow (proprietary measurement unit)
39	Threshold Flux	Pragul minim al fluxului (numai la vers. HCW) Setati "Disable" la vers.HCA	Threshold Flux	Minimum flow threshold (only HCW) Set "Disable" for HCA
40	Max Time Pump ON	Seteaza timpul maxim (in minute) de functionare continua a pompei. Dupa epuizarea timpului setat se afiseaza mesajul "Pump Protection" si se opreste pompa. Este posibila dezactivarea protectiei setand "Disable"	Max Time Pump ON	Sets the maximum time (in minutes) of continuous power of the pump. After the time passed will be display the message "Pump Protection". It's possible to disable the protection setting "DISABLE"
41	MaxTimeInsufPres	Durata erorii pana cand se initiaza protectia "Presiune insuficienta"	MaxTimeInsufPres	Time for entry in "insuff.pressure" state
42	NoWater time	Timpul scurs pana cand se activeaza protectia "Lipsa Apa"	NoWater time	Elapsed time for entry into "No water" state
43	MaxNowaterTime	Timpul maxim scurs pana la intrarea in protectia "Lipsa Apa"	MaxNowaterTime	Time for entry into "No water" state
44	DeltaBar Time	Intervalul si frecventa anomaliei cand presiunea este constanta	DeltaBar Time	Period of perturbation when frequency and pressure are constant (HCA only)
45	Divisor T.PID	Inetineste timpul de raspuns al HC la fluctuatiile repetate de presiune: de folosit cand sistemul este instabil (De ex: oscilatii repetate ale presiunii)	Divisor T.PID	It slows down the speed of system response to changes in pressure: to use when the system is unstable (eg, continuous pressure oscillations)
46	Fout (Hz)	Frecventa aplicata motorului	Fout (Hz)	Frequency applied to the motor
47	Motor power	Seteaza Puterea Nominala a motorului (P1)(numai vers. HCA modul Multipompa)	Motor power	Set the Power of the motor P1 (if OpMode=Multipump and HCA

48	Potenza	Afiseaza Puterea absorbita a pompei (P1)	Power	Power absorbed by the pump (P1)
49	MaxCorr.Motore	Valoarea maxima a curentului (amperi)	Max motor current	Maximum rms value of motor phase current
50	Configur. Relays	Determina functia atribuita Releului: Vers. STD : R1: Alarma (releu de semnal) R1: Run (releu de pornire) R1: Booster (releu ce comanda pompa de presiune - Booster) Vers. ADV : R1:Alarma R2:Run (releu semnal, releu pornire) R1:A R2:R R3:B1 (releu semnal, releu pornire, releu pompa Booster) R1:A R2:B1 R3:B2 (releu semnal, releu Booster1, releu Booster2) R1:R R2:B1 R3:B2 (releu pornire, releu Booster1, releu Booster2) R1,R2,R3:Booster (releu pompa Booster 1,2,3)	Relays Configur.	Determines the function to be assigned to Relay: Vers. STD : R1: Alarm (Alarm relay) R1: Run (Run relay) R1: Booster (booster pump command relay) Vers. ADV : R1:Alm R2:Run (Alarm relay , run relay) R1:A R2:R R3:B1 (Alarm, Run, booster pump command relay) R1:A R2:B1 R3:B2 (Alarm, booster1, booster2 pump command relay) R1:R R2:B1 R3:B2 (Run,booster1, booster2 pump command relay) R1,R2,R3:Booster (booster1,2,3 pump command relay)
51	Inc Pres Booster	Cresterea de presiunii in instalatie cand pompa secundara de presiune (Booster) e pornita (implicit +0.2bar)	Inc Pres Booster	Increase the system pressure when the booster is on (default +0.2 bar)
52	Autoc Tempo Vita	Intervalul de timp in care aparatul a fost folosit (min, sec)	Autoc Life Time	Autoclave usage time (min, sec)
53	Autoc Tempo Vita	Intervalul de timp in care aparatul a fost folosit (zile, ore)	Autoc Life Time	Autoclave usage time (day, hour)
54	Corr.di picco	Seteaza varful de curent maxim detectat la pornire, la depasirea acestei limite intrant in Protectia: "I2tprotected". Influxul de curent se afiseaza timp de 5 sec. in meniul principal daca apasati butonul ENTER chiar la pornirea pompei.	Peak Current	Sets the maximum peak current detected at start up, after which the protection snaps: "I2t protected". The inrush current can be displayed for 5 seconds from the main menu pressing ENTER key when the pump starts
55	Abilita Remoto	Controlul extern: daca este setat ON, inverterul intra in starea de asteptare (STANDBY) asteptand comanda externa (ex. de la fitorul electric)	Remote enable	If ON,the inverter is in STANDBY and wait external command to start (float switch)
56	Potenza Totale	Puterea totala absorbita in configuratia Multipompa	Total Power	Total power absorbed in multipump configuration
57	Motori Attivi	Numarul de pompe active in modul Multipompa.	Running motor	Active pumps in mutipump configuration
58	MinMantenimento	Intervalul de timp continuu in care pompa a fost oprita in ultimele 24 ore(implicit= 45 min). Daca pompa nu a stat oprita macar intervalul setat, inverterul considera ca are loc o scurgere si apare eroarea "Leakage"	MinHold	Continuous pump off time within a 24 hour range (default 45min). If the pump is not OFF for the set time, after 24 hours, the display shows "Leakage"
59	TempoNoMinManten	Intervalul de timp in care pompa a fost oprita.	NoMinHTime	Counter of continuous pump off time
60	Perdite	Calculul pierderii de apa.	Leakages	Leak calculation
61	Modo Irrigazione	Activeaza/Dezactiveaza modul Irigare	Irrigation mode	Enables/disable the garden mode
62	Freq. STOP	Frecventa de oprire a pompei	Stop Frequency	Stop frequency of the pump
63	TempoFmaxNoFluss	Intervalul de timp in care pompa a fost pornita la frecventa maxima fara flux de apa	FmaxNoFlux time	Counter of time con pump On at max freq. and no flux
64	SogliaMinima %	Pragul de dezactivare al pompei secundare (daca OpMode=multipompa)	Minim. Threshold Par	Deactivation threshold (%) of the second pump (if OpMode= multipumps)
65	Tot.CortoC.Fatti	Numaratoarea scurt-circuitelor aparute	Tot.shortC done	Short circuit counter of either phase-phase or phase-earth type.
66	S/N1	Numarul de serie	S/N1	Serial number
67	S/N2	Numarul de serie	S/N2	Serial number

68	Press.Settore 1	Poate fi setat numai daca Garden Mode /Modul Irigare = ON	Sector 1 Pressure	Can be set only if Garden Mode = ON
69	Press.Settore 2	Poate fi setat numai daca Garden Mode /Modul Irigare = ON	Sector 2 Pressure	Can be set only if Garden Mode = ON
70	Press.Settore 3	Poate fi setat numai daca Garden Mode /Modul Irigare = ON	Sector 3 Pressure	Can be set only if Garden Mode = ON
71	Press.Settore 4	Poate fi setat numai daca Garden Mode /Modul Irigare = ON	Sector 4 Pressure	Can be set only if Garden Mode = ON
72	Press.Impianto	Seteaza presiunea dorita in instalatie	System pressure	Sets the required system pressure
73	Press.Restart	Seteaza presiunea de repornire a sistemului	Restart Pressure	Sets the system restart pressure
74	Senso Rotazione	Determina sensul de rotire al pompei (numai la vers. MT/TT)	Rotation sense	Determines the rotation sense of the electro-pump (only MT/TT version)
75	Versione Software	Afiseaza versiunea software utilizata	Software release	Displays the software version used
76	ResetConfigFabb.	Revenire la setarile din fabrica	ResetFactoryConf	Restore the factory configuration
77	Tipo SensorePres	Determina tipul senzorului de presiune (implicit = 10 bar)	PrsSensor Type	Pressure sensor type (default 10 bar)
78	MaxPot No Flusso	Puterea maxima absorbita fara flux de apa (numai vers. HCA)	MaxPower No Flux	(HCA only) Max power absorbed without flow
79	Start Impianto	Porneste / Opreste pompa	System start	Switches the pump on or off

DICHIARAZIONE DI CONFORMITÀ- CONFORMITY DECLARATION

Apparato - Appliance: Hydrocontroller HC

Costruttore - Manufacturer: **MAC 3 S.p.A.**
Via Baldanzese, 149
50041 Calenzano (FI) Italia



Il costruttore dichiara sotto la propria responsabilità che il prodotto specificato è conforme alle normative sotto riportate e soddisfa i requisiti essenziali richiesti dalle Direttive:

CEE 2006/95/CE (Materiale elettrico destinato ad essere utilizzato entro certi limiti di tensione)

The manufacturer hereby declares under its own responsibility that the specified product is in compliance with the standards indicated above and that it meets the essential requisites of Directive

CEE 2006/95/CE

Norma Applicata - APPLIED STANDARDS

<i>Safety (General Requirements)</i>	EN 60730 -1 (2003/08)
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CEE 2004/108/CE (Compatibilità elettromagnetica - EMC)

Norme Applicate - APPLIED STANDARDS

<i>Radiated emissions: disturbance power 55014</i>	CEI EN 55014-1 (2001/11) CEI EN 61000-6-3 (2002/10)
<i>Conducted emissions: continuous disturbances</i>	CEI EN 55014-1 (2001/11) CEI EN 61000-6-3 (2002/10)
<i>Conducted emissions: discontinuous disturbances (Clic)</i>	CEI EN 55014-1 (2001/11)
<i>Current Harmonics emissions</i>	CEI EN 61000-3-2 (2002/04)
<i>Flicker emissions</i>	CEI EN 61000-3-3 (1997/06) + A1
<i>Electrostatic discharge (ESD) immunity test</i>	EN 55014-2 (1998/10) CEI EN 61000-4-2 (1996/09)
<i>Radiated radio-frequency field immunity test</i>	EN 55014-2 (1998/10) CEI EN 61000-4-3 (1997/11)
<i>Electrical Fast Transient/Burst immunity test (Eft-Burst)</i>	EN 55014-2 (1998/10) CEI EN 61000-4-4 (1996/09)
<i>Surge immunity test</i>	EN 55014-2 (1998/10) CEI EN 61000-4-5 (1997/06)
<i>Conducted radiofrequency interferences</i>	EN 55014-2 (1998/10) CEI EN 61000-4-06 (1997/11)
<i>Voltage dips and short interruptions</i>	EN 55014-2 (1998/10) CEI EN 61000-4-11 (1997/06)

Calenzano , 20 Gennaio 2010

Responsible party: MIRIAN RONCHI (Chairman):





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