

DPR alt

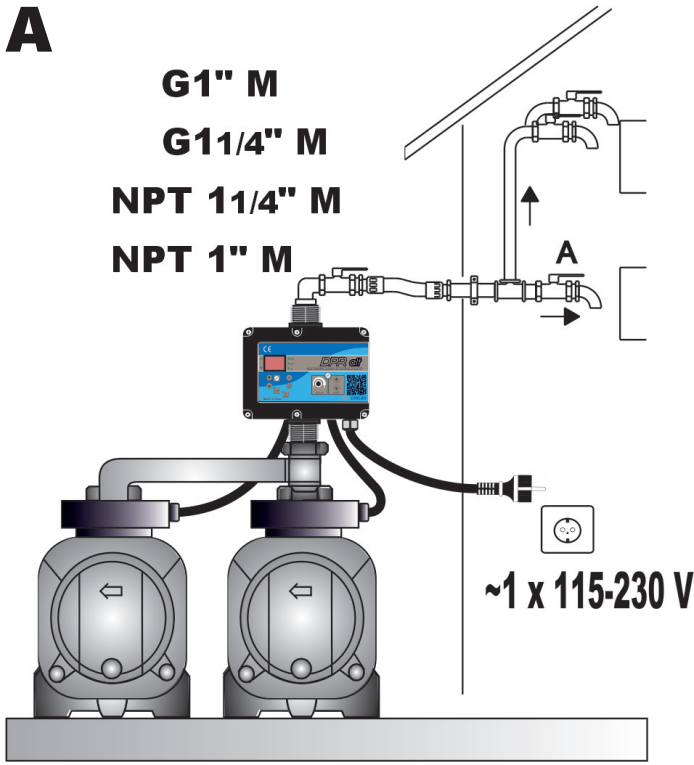
Duty-standby system with adjustable outlet pressure

INSTRUCTION MANUAL

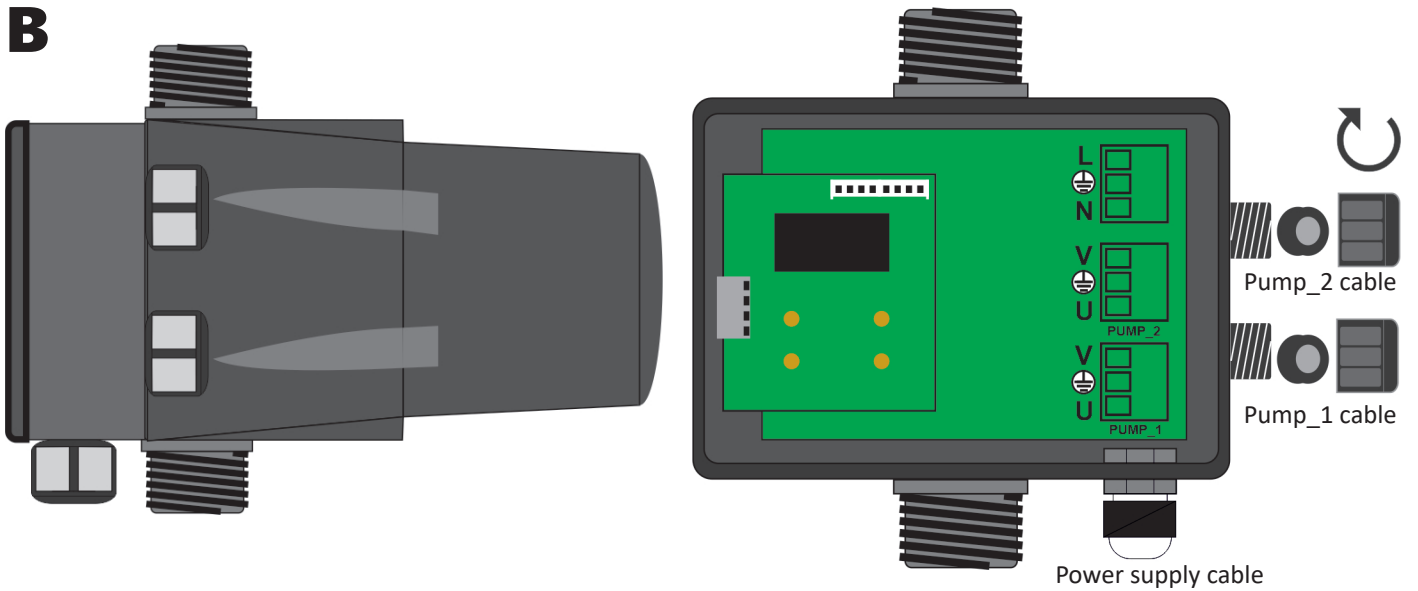


A

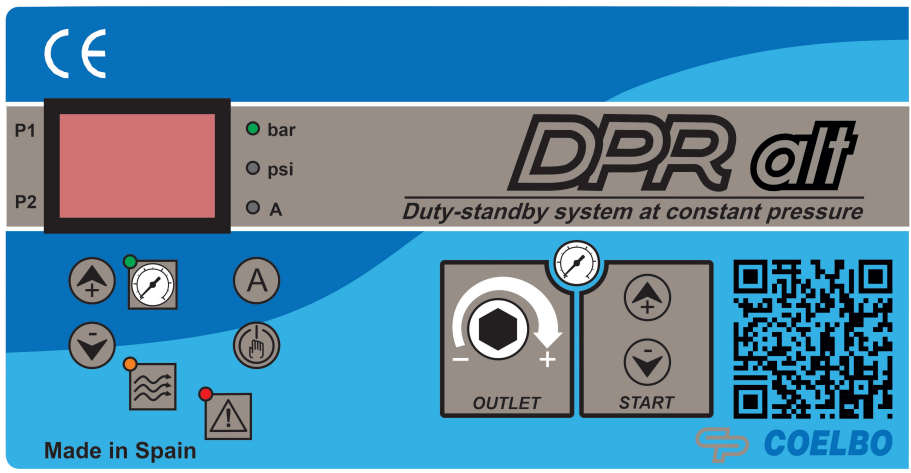
G1" M
G1 1/4" M
NPT 1 1/4" M
NPT 1" M



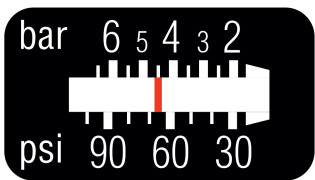
B



C



D



ENGLISH

GENERAL

Read carefully the instructions before installing this unit. Verify the technical characteristics of the motor in order to assure the compatibility with the device.

DESCRIPTION

DPR ALT

-Duty-standby system with adjustable outlet pressure-

A duty-standby system of 2 pumps can be easily set with our device, managing 2 singlephase pumps in alternation - they never will operate simultaneously - and steady pressure. This system guarantees the flow supply in case of failure of one of the electric pumps and also increase their durability.

The DPR ALT includes a digital display with instantaneous indication of current consumption and outlet pressure since it houses current and pressure transducer inside. This device allows disassociating the regulation of the outlet pressure from the cut-in pressure to improve the elasticity of the system's hydraulic reserve, favoring the prolongation of inactive pauses and, consequently, reducing the number of starts of the electric pump. This independence from pressure regulation also allows operation with a minimum differential between the cut-in pressure (ON) and the outlet pressure (OUT). It also integrates alarm and function registers, as well as the possibility of adjusting multiple operating parameters such as automatic reset system, anti-flood function, start and stop delays, etc.

OPERATING CHARACTERISTICS

DPR ALT	
Starting pressure	Adjustable from 0,5bar to 5,5bar. Table 2.
Outlet pressure	Adjustable from 2,5 bar to 6 bar by the rear allen screw. Figure 1 and 2.
Outlet pressure reading	Digital
Dry-running protection	Yes
Overcurrent protection	Yes
ART* Fuction	Yes
Manual start push-button	Yes
Control panel	3-digit display, LED indicator lights and 4 push buttons (up and down arrows, amps and enter)
APR function*	Yes
Anti-flooding configuration.	Yes
Stand-by mode	Yes

***ART FUNCTION (Automatic Reset Test)**

When the device has stopped the pump by the intervention of the dry-running protection system the ART tries, after 5 minutes, to re-start the pump in order to restore the water supply. After this first attempt are performed consecutive attempts every 30 minutes.

In the DPR ALT, this function can be activated in the ADVANCED MENU. It can also be set the number of attempts (1-48) and the span of the attempt (10-40 seconds).

***APR FUNCTION (Anti-blocking Periodic Routine)**


After 72 hours without operation the pump is automatically started for 10 seconds in order to avoid rotor locking. In the DPR ALT the display will show the message "APr" while the pump is operating. In the EPR the pump LED will be on during this operation.

TECHNICAL CHARACTERISTICS


- Rated motor power: 0,37-2,2KW
- Power supply: ~1 x 110-230Vac
- Frequency: 50/60Hz
- Maximum current:
 - Pump_1: 16A, cos fi ≥ 0.6
 - Pump_2: 16A, cos fi ≥ 0.6
- Protection degree: IP65*
- Maximum water temperature: 50°C
- Maximum environment temperature: 60°C
- Outlet pressure: (±0.5 bar) 2,5-6 bar
- Starting pressure range:
 - DPR ALT: 0,5 - 5,5 bar (factory setting 1,5 bar)
- Maximum operating pressure: 12 bar
- Hydraulic connection (types):
 - G 1" M
 - G 1" ¼ M
 - NPT 1" M
 - NPT 1" ¼ M
- Net weight (without cables): 2 kg

***Plugs and sockets built into the wiring of the device could modify the declared IP rating.**

HIDRAULIC INSTALLATION (diagram A)

 Before proceeding with hydraulic connection it is essential to prime the pump correctly. DPR ALT must be installed in a vertical position (arrows in upward position), thus connecting the inlet opening directly to the pumps outlet; and the outlet to the network. The following accessories are recommended: flexible with a disassembling link for network protection, protecting the set from possible flexion charges and vibrations, ball valve which permits the isolation of the pumps from the net, a tap at the same level of the unit. See diagram A.

ELECTRIC CONNECTION (diagram B)

 The electric connection must be performed by qualified technicians in compliance with regulation of each country. Before doing manipulations inside the device, it must be disconnected from the electric supply.

Wrong connection could spoil the electronic circuit.

The manufacturer declines all responsibility in damages caused by wrong connections.

Check if power supply is between 110-230V.

If you have purchased the unit without cables follow diagram B.

- Use cables type H07RN-F 3G1 or 3G1,5 with section enough to the power installed.
- Do the Pump_1 and the Pump_2 connections U, V and ⊕ Use the two cable glands of the rear part as specified in figure B.
- Do the power supply connection L, N and ⊕. Use the cable gland of the bottom as specified in figure B.
- The earth conductor must be longer than the others. It will be the first one to be mounted during the assembly and the last one to be disconnected during the dismantling.




The earth conductors connections are compulsory!





CONTROL PANEL (diagram C)

The meanings of the different control panel elements are summarized on the following tables, where:


- O means lit LED light.
- ((O)) means LED flashing.




DISPLAY	ACTION
OPERATION MODE	Is showed on screen instantaneous pressure or instantaneous current consumption.
ADJUSTMENT MODE	Is displayed on screen the adjusted start pressure. Is displayed the adjusted rated current.
ALARM MODE	Is displayed the alarm code.
STAND-BY MODE	Are displayed 3 flashing dots.
BASIC CONFIG.	Is displayed the sequence of basic configuration parameters.
ADVANCED CONFIG.	Is displayed the sequence of advanced configuration parameters.

LEDS	DISPLAY	ACTION
O bar	O	Is displayed on screen the instantaneous pressure in bar
	((O))	Pump ON and is displayed on screen the instantaneous pressure in bar
O psi	O	Is displayed on screen the instantaneous pressure in psi
	((O))	Pump ON and is displayed on screen the instantaneous pressure in psi
O A	O	Is displayed on screen the instantaneous current consumption in Ampere units
	((O))	Pump ON and is displayed on screen the instantaneous current consumption in Ampere units
	O	Is displayed the start pressure
	((O))	Adjusting start pressure
	O	It indicates positive flow
	O	Rated dry-running or overload alarms
	O	Rated dry-running or overload alarms
	((O))	Dry-running alarm performing ART or overload alarm performing any of the 4 restore attempts

P-BUTTON	TOUCH	ACTION
	click!	From state ON: any alarm is restored. From state OFF: system changes to STATE ON, the pump starts. From any configuration MENU: the parameter value is accepted.
ENTER	HOLD DOWN	From state ON: unit OFF, relay disconnection. From state OFF: the pump starts and keeps operating until the push-button is released.
	click!	Pstart is displayed on the screen for 3 seconds.
UP ARROW	click!	Increase the programming value.
	3"	Pstart adjustment mode.
	click!	Decrease the programming value.
DOWN ARROW	click!	Is displayed on the screen instantaneous current consumption. If it is already displayed then we switch to instantaneous pressure view.
	3"	Rated current adjustment.
AMPERE	click!	If we are inside the current adjustment, we change from P1 to P2 or viceversa.



STARTUP





 Before starting the device please read the previous sections, especially "Hydraulic Installation" and "Electrical connection".
Follow next steps:

1. Start the device. Connect to the power supply and press ENTER .
2. Set the Pump_1 and Pump_2 rated current value:
 - Press  during 3 seconds.
 - The current value is displayed on screen and LED A is flashing (factory setting 16A).
 - Press  to change from the current setting of Pump_1 to Pump_2 or viceversa. It is displayed in the screen which pump current are you setting.

Pump 1 current setting:

Pump 2 current setting:

P1		O bar	P1		O bar
		O psi			O psi
P2		O A	P2		O A

- By mean of  and  is adjusted the rated current reflected in the data plate of the motor. See Note 1.
- Pump_1 and Pump_2 can be disabled by setting the current value to "oFF" decreasing its value using . If only one pump is deactivated, the other will work autonomously.
- Press  for validation.





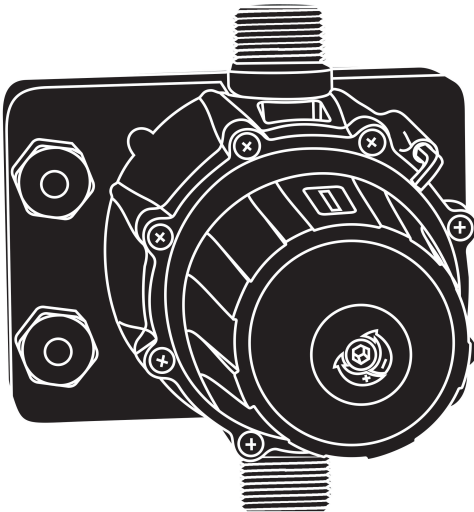
3. Set the cut-in (start) pressure:
 - Press  during 3 seconds.
 - The start pressure value is displayed on screen and LED START is flashing.
 - By mean of  and  is adjusted the start pressure from 0,5 to 5,5 bar.
 - Press  for validation.
4. Set the maximum pressure of the installation:
 - Open a tap.
 - Take the provided allen key.

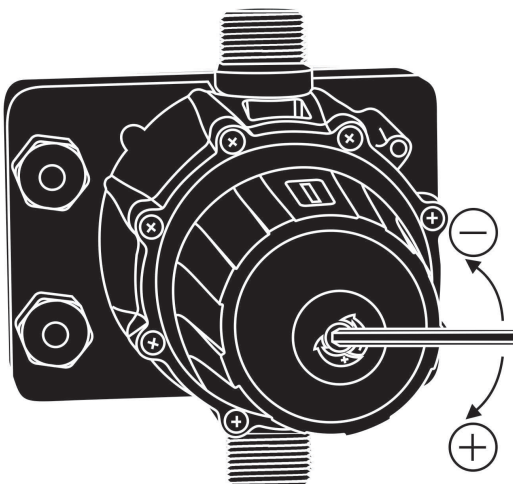
Figure 1



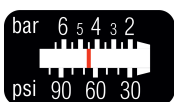
Allen key

- Turn the regulation screw clockwise to increase the outlet pressure and anticlockwise to decrease it (factory setting 3 bar). Look at the working pressure viewer (Fig. D) while turning the screw to have a first approximation of the outlet pressure setting.

Figure 2



Viewer



- Close the tap and do the final adjustment looking at the display.
- The regulated pressure should be at least 1bar less than the maximum pressure of the pump.

DPR ALT pressure diagram

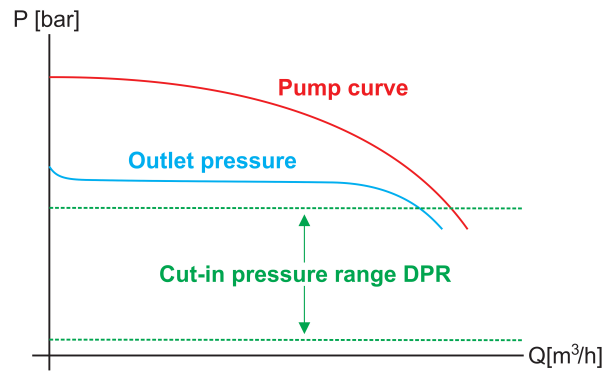


Table 2:

OUTLET PRESSURE	CUT IN PRESSURE	MINIMUM PUMP PRESSURE	MAXIMUM WATER COLUMN
2 bar	0,5-1,5 bar	3 bar	3-8 m
3 bar	0,5-2,5 bar	4 bar	3-15 m
4 bar	0,5-3,5 bar	5 bar	3-20 m
5 bar	0,5-4,5 bar	6 bar	3-30 m
6 bar	0,5-5,5 bar	7 bar	3-40 m

5. The unit is ready to operate but has more optional adjustments that can be set through basic and advanced MENUS. See the next chapter.

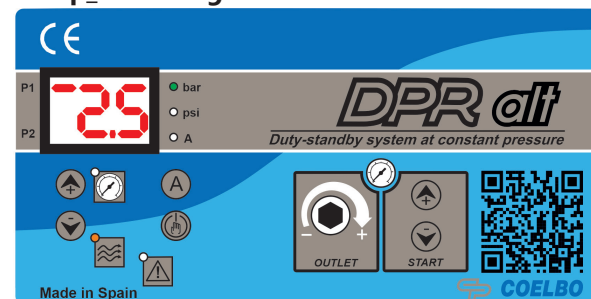
Note 1: it is important to introduce exactly the rated current specified on the nameplate of the pump. If a new pump is installed this process should be repeated.

FUNCTIONALITY

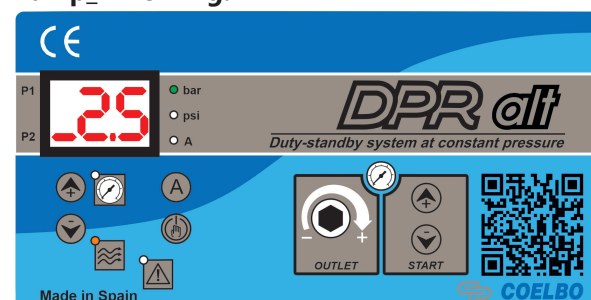
The DPR ALT is a device for a duty-standby system of 2 pumps, which manages 2 singlephase pumps in alternation.

The device indicates which pump is working by mean of a LED line on the display. This LED line changes from P1 to P2 or vice versa in each cycle.






Pump_1 working:



Pump_2 working:









BASIC MENU + (diagram C)

- Press simultaneously  +  during 5 seconds.
- By mean of  or  the values can be changed.
- Press  for validation.
- This is the parameters sequence:





TYPE	SYSTEM REACTION	FACTORY SETTING
bar psi	We can select the pressure units displayed between bar and psi.	bar

ADVANCED MENU + +



- Press simultaneously  +  +  during 5 seconds.
- By mean of  or  the values can be changed.
- Press  for validation.
- The parameters sequence is:

SCREEN	SYSTEM REACTION	FACTORY SETTING
Ar0 Ar1	Activation of the automatic restore system ART (Ar1) o disable (Ar0).	Ar1
n01 n48	In case of enabled ART, it can be set the number of restore attempts, between 1 and 48.	48
t10 t40	It can be set the span of the attempt between 10 and 40 seconds.	15"
Sb0 Sb1	Stand-by disabled (Sb0) or enabled (Sb1)	0
P0.0 PON	With Pxx is activated a minimum operating pressure. Under this pressure is activated an alarm (A11).	0.0
t05 t99	Time, in seconds, under minimal pressure necessary to activate A11.	20
H00 H99	Anti-flooding configuration. If activated, it stops the pump after programmed time (in minutes) of continuous operation. Disabled (H00), 1 minute (H01) ... 99 minutes (H99).	H00
rs0 rs1	Restore factory settings (rs1)	rs0

REGISTER OPERATION DATA AND ALARMS + +

- Press simultaneously  +  +  during 5 seconds.
- Press  to advance in the REGISTER.
- The DATA sequence is:

MESSAGE	DESCRIPTION	SCOPE
rEc		
HF	Controller operating hours	0-65535
HP	Pump operating hours	0-65535
CF	Operating cycles Number of start-stop cycles.	0-999999
Cr	Number of connections to the power supply.	0-65535




A01	Number of A01 alarms.	0-999
A02	Number of A02 alarms.	0-999
A05	Number of A05 alarms.	0-999
A11	Number of A11 alarms.	0-999
APM	Number of times the device has registered higher pressure than 11bar / 160PSI	0-999
rPM	Maximum pressure registered by the device.	
rSt	ENTER -> EXIT.  +  -> All the alarms are restored except the operation data.	

PRESSURE SENSOR CALIBRATION




In case of wrong lecture of the pressure sensor it can be adjusted again.

For the pressure sensor calibration is necessary to have a pressure gauge in the installation. Proceed following next steps:

ZERO REGULATION

1. Open the taps living the hydraulic net without pressure.
2. Press simultaneously the buttons  and  until the display show 0.0 flashing.
3. Press  to validate.

FULL SCALE

1. Set the outlet pressure equal to the maximum pressure of the pump. In case of using a pump with higher pressure than 6 bar, set the outlet pressure to 6 bar. (Go to the point 4 of the STARTUP to remember how to set the outlet pressure)
2. Start the device and wait until it stops the pump.
3. Press simultaneously the buttons  and  till the display flashes with a figure.
4. Adjust the pressure with the arrows push-buttons to get the pressure desired.
5. Press  to validate.

Examples:

MAXIMUM PUMP PRESSURE	OUTLET PRESSURE	ADJUSTED FULL SCALE
4 bar	4 bar	4 bar
8 bar	6 bar	6 bar

Remark: pressure sensor decalibration should not be a normal event. If it is frequently repeated contact the technical service.

WARNINGS AND ALARMS

DPR

COD.	ALARM	DESCRIPTION	SYSTEM REACTION
A01	○ ((○))	DRY RUNNING	<p>When is detected a dry-run operation the pump is automatically stopped. By mean of ENTER the normal operation can be manually restored.</p> <p>After the activation of the dry-running alarm if the Automatic system reset (ART) is enabled, a first attempt at 5 minutes and then an attempt every 30 minutes for 24 hours is performed in order to restore the normal operation. This alarm can also be reset manually with the ENTER push-button. If the alarm persists after 24 h we find a definitive alarm.</p>
A11	○ ((○))	MINIMUM PRESSURE	<p>When is detected a pressure below a pre-set value and for a pre-set period of time in the ADVANCED PROGRAMMING MENU, the pump is automatically stopped. The minimum pressure helps to detect a dry-run operation or pumps running far from its best efficiency point. This alarm is reset automatically as soon as the pressure exceeds the limit value.</p> <p>By mean of ENTER the normal operation can be manually restored.</p> <p>After the activation of the minimum pressure alarm if the Automatic system reset (ART) is enabled, a first attempt at 5 minutes and then an attempt every 30 minutes for 24 hours is performed in order to restore the normal operation. This alarm can also be reset manually with the ENTER push-button. If the alarm persists after 24 h we find a definitive alarm.</p>
A02	○ ((○))	OVERLOAD	<p>Overload alarm is activated when the nominal pump current is exceeded. Normal operation can be restored manually by pressing ENTER.</p> <p>When is detected an overload in just one pump, this pump is automatically stopped and the other pump starts working after 5 seconds. In the next cycle, if the overload persists, the DPR ALT shows again A02 and, after 5 seconds, starts the other pump. If the overload alarm persists for 5 attempts, the pump is definitively stopped and the other pump works autonomously.</p> <p>Once the overload alarm is solved the system will work again with both pumps. Normal operation can also be restored manually by pressing ENTER.</p>
A05	○	DAMAGED PRESSURE TRANSMITTER	CONTACT WITH YOUR SUPPLIER
A30	○	ANTI-FLOODING	FLOOD protection has been activated because the pump has been running continuously for a period of time equal to the limit set in the ADVANCED MENU. It is manually reset by pressing ENTER.
MBr	○	MEMBRANE REPLACEMENT	<p>The membrane should be replaced after 200,000 operating cycles.</p> <p>When the register of operating cycles reaches 200K-400K-600K-800K cycles the device will be blocked showing on the screen "Mbr" to indicate that the number of cycles has been reached and a membrane change must be made.</p> <p>To RESET the normal operation press ENTER.</p>
---	○	OVER-PRESSURE	<p>If the maximum pressure is exceeded the pump is stopped and are displayed 3 hyphens.</p> <p>To RESET the normal operation press ENTER.</p>

CLASSIFICATION AND TYPE

According to IEC 60730-1 and EN 60730-1 this unit is a control sensor device, electronic, independent assembly, with action type 1B (microdisconnection). Operating value: I <20% I learned. Pollution degree 2 (clean environment) or flow >2,5 l/min. Rated impulse voltage: cat II / 2500V. Temperatures for ball test: enclosure (75) and PCB (125).

DECLARACIÓN DE CONFORMIDAD CE

COELBO CONTROL SYSTEM, S.L.

Declaramos, bajo nuestra responsabilidad, que los materiales designados en la presente, están conforme a las disposiciones de las siguientes directivas europeas:

- 2014/35/EU.
- 2014/30/EU.
- 2011/65/EU.

Normas : EN-60730-2-6, EN-60730-1, EN-61000-6-1, EN-61000-6-3, IEC-60730-1, IEC-60730-2-6

F. Roldán Cazorla

Director Técnico

04/05/2016

COELBO CONTROL SYSTEM, S.L.

Ctr de Rubí, 288 - P.I. Can Guitard

08228 Terrassa - BARCELONA (SPAIN)

EC STATEMENT OF COMPLIANCE

COELBO CONTROL SYSTEM, S.L.

States on our own responsibility, that all materials herewith related comply with the following European Directives:

- 2014/35/EU.
- 2014/30/EU.
- 2011/65/EU.

Standards : EN-60730-2-6, EN-60730-1, EN-61000-6-1, EN-61000-6-3, IEC-60730-1, IEC-60730-2-6

F. Roldán Cazorla

Director Técnico

19/12/2016

COELBO CONTROL SYSTEM, S.L.

Ctr de Rubí, 288 - P.I. Can Guitard

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DÉCLARATION DE CONFORMITÉ CE

COELBO CONTROL SYSTEM, S.L.

Nous déclarons sous notre responsabilité que les matériaux concernés par la présente déclaration sont conformes aux spécifications des directives européennes suivantes :

- 2014/35/UE.
- 2014/30/UE.
- 2011/65/UE.

Normes : EN-60730-2-6, EN-60730-1, EN-61000-6-1, EN-61000-6-3, CEI-60730-1, CEI-60730-2-6

F. Roldán Cazorla

Directeur technique

04/05/2016

COELBO CONTROL SYSTEM, S.L.

Ctr de Rubí, 288 - P.I. Can Guitard

08228 Terrassa - BARCELONE (ESPAGNE)

DICHIARAZIONE DI CONFORMITÀ CE

COELBO CONTROL SYSTEM, S.L.

Dichiariamo, sotto la nostra responsabilità, che i materiali designati nella presente sono conformi alle disposizioni delle seguenti direttive europee:

- 2014/35/EU.
- 2014/30/EU.
- 2011/65/EU.

Norme: EN-60730-2-6, EN-60730-1, EN-61000-6-1, EN-61000-6-3, IEC-60730-1, IEC-60730-2-6

F. Roldán Cazorla

Direttore Tecnico

04/05/2016

COELBO CONTROL SYSTEM, S.L.

Ctr de Rubí, 288 - P.I. Can Guitard

08228 Terrassa - BARCELONA (SPAIN)

EG-GEWINN- UND COMPLIANCE

COELBO CONTROL SYSTEM, S.L.

Staaten auf eigene Verantwortung, dass alle Materialien hiermit mit den folgenden europäischen verwandten entsprechen Richtlinien:

- 2014/35/EU.
- 2014/30/EU.
- 2011/65/EU.

Standards : EN-60730-2-6, EN-60730-1, EN-61000-6-1, EN-61000-6-3, IEC-60730-1, IEC-60730-2-6

F. Roldán Cazorla

Director Técnico

19/12/2016

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Risk of damaging the pressure assemblies and/or the plant.

Riesgo de daño al grupo de presión o a la instalación

Risque d'endommagement du groupe de pression ou de l'installation

Rischio di danno al gruppo di pressione o all'installazione

Gefahr der Beschädigung des Steuergerätes und der Druckleitungen und / oder der gesamten Anlage



Risk by electric shock

Riesgo por choque eléctrico.

Risque d'électrocution

Rischio di shock elettrico

Gefahr durch Stromschlag.



Risk for people and/or objects

Riesgo para personas y/o objetos

Risque physiques et/ou matériels

Rischio per persone e/o oggetti

Gefahr für Personen und / oder Objekte



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PUMP DRIVERS