TECHNICAL MANUAL

CONTROL UNIT
FOR COVEO POOL COVER MOTORISATIONS
4000 series - 20 A

Change history

Index	Description of the change	Date
00	Creation	10/01/22
01		
02		
03		

Safety instructions

Installation and commissioning must only be carried out by approved specialist electricians.
Comply with all current standards for the electrical installation: NF EN60335-1, NF P90-308, NFC 15100.
The unit must be connected to:

- a residual current differential device (30mA)
- an all-pole circuit breaker with a point gap of 3 mm.

This appliance is not designed for use by persons (including children over 8 years old) whose physical, sensory or mental capacities are diminished, or by persons with no experience or knowledge, unless they are supervised by the person responsible for their safety or have previously received instruction in the use of the appliance. Children should be supervised to ensure that they do not play with the appliance.

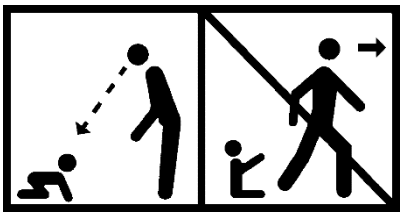
The person performing the manoeuvre must ensure that no one is in the pool and always keep the pool in sight during opening or closing operations.

It is essential to open or close the cover completely, and never leave it in the intermediate position.

Always check that the pool's water level remains constant and in compliance with the manufacturer's recommendations.

WARNINGS

A swimming pool can be a serious danger for your children. A drowning can happen very quickly. Children near a swimming pool require your constant vigilance and active monitoring, even if they know how to swim.



The physical presence of a responsible adult is essential when the pool cover is open.

1 CONTENTS

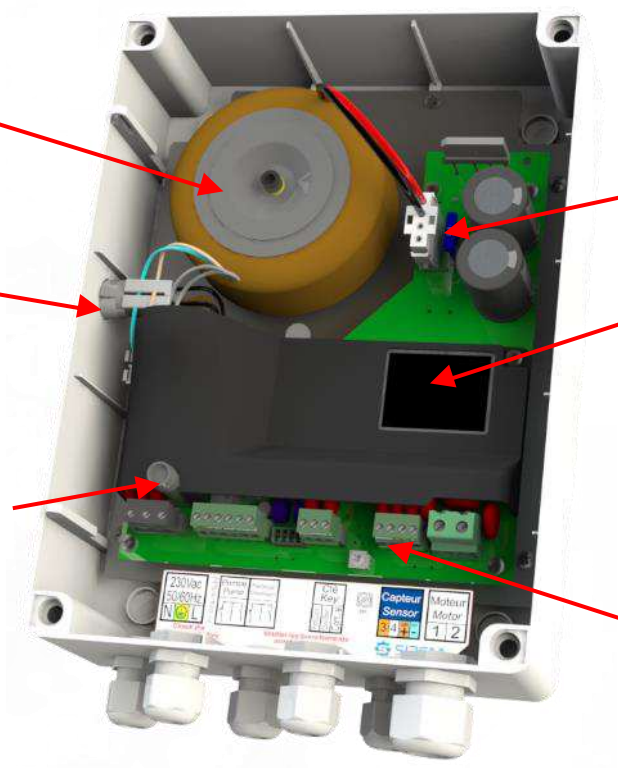
2 TECHNICAL DATA

2.1 UNIT SPECIFICATIONS

Certification	CE
Compliance (of the motor and unit assembly) with European directives	Low voltage directive 2014/35/EU Machinery directive 2006/42/EC EMC Directive 2014/30/EU RED directive 2014/53/EU (radio equipment) RoHS Directive 2011/65/EU and 2015/863/EU
Resistance to environmental phenomena	
Immunity to electrical fast transients	EN 61000-4-4 Level 3 tests
Immunity to shock-waves	EN 61000-4-5 Level 3 tests
Power supply	
Input supply voltages	230Vac
Tolerance on input voltage	±10%. Min.: 207Vac, Max.: 253 Vac.
Power consumption in standby mode	8W, 80mA@230Vac.
Maximum power consumption	720W, 3.8A@230Vac. (20A motor), 360W, 1.6A@230Vac (10A motor)
Fuse	ø5x20, T5H250V (5A time lag fuse)
Connection	Unpluggable terminals, 2.5mm² max. cross-section, tightening torque 0.6Nm, 3.5x0.6mm screwdriver
Earthing	Mandatory for the safety of persons and equipment
Display	2.5" TFT LCD 320x240 colour (resistive) touch screen display
Motor supply	
Motor voltage	15 Vdc min., 30 Vdc max.
Maximum current	10A (401X unit) or 20A (402X unit)
Fuse	ATO 15A (401X unit) and ATO 25A (402X unit)
Connection	Maximum cross-section 16mm², tightening torque 1.5 Nm.
Control type	Via an H-bridge to manage speed and braking. Current control.
Inputs	
Key switch	2 inputs (opening and closing). Common: 24Vdc. (Imax available: 100mA, protected by thermal fuse)
Key switch contact type	Dry contact
Voltage	24Vdc– 26Vdc
Current consumed by the electronics	8mA per input
Outputs: 2 information relay switches	
NO/NC relay switch: "pool closed" dry contacts for controlling the electrolyser	Breaking capacity 1A@250Vac, 1A@50Vdc
NO/NC relay switch: "motor running" dry contacts for controlling the pump	Breaking capacity 3A@250Vac, 3A@30Vdc
Connection	Unpluggable terminal, 2.5mm² max. cross-section, tightening torque 0.6Nm, 3.5x0.6mm screwdriver
RS485/Modbus :	
Type	Slave
Power supply voltage	12Vdc (short circuit protected by thermal fuse)
Protocol	Modbus, see SIREM NT-5114-2 document
Connection	Unpluggable terminal, 1.3mm² max. cross-section, tightening torque 0.2Nm max., 2.5x0.4mm screwdriver
Level of protection (according to EN 60529)	IP54 Installed in a room, protected from the weather (no sun, no rain)
The unit's impact resistance	IK08
Environment	
Storage/running temperature	-5°C → +40°C | -10°C --> +60°C
Humidity	95% max., no condensation
Cleaning	Use only alcohol solutions

2.2 DESCRIPTION

2.2.1 COMPOSITION

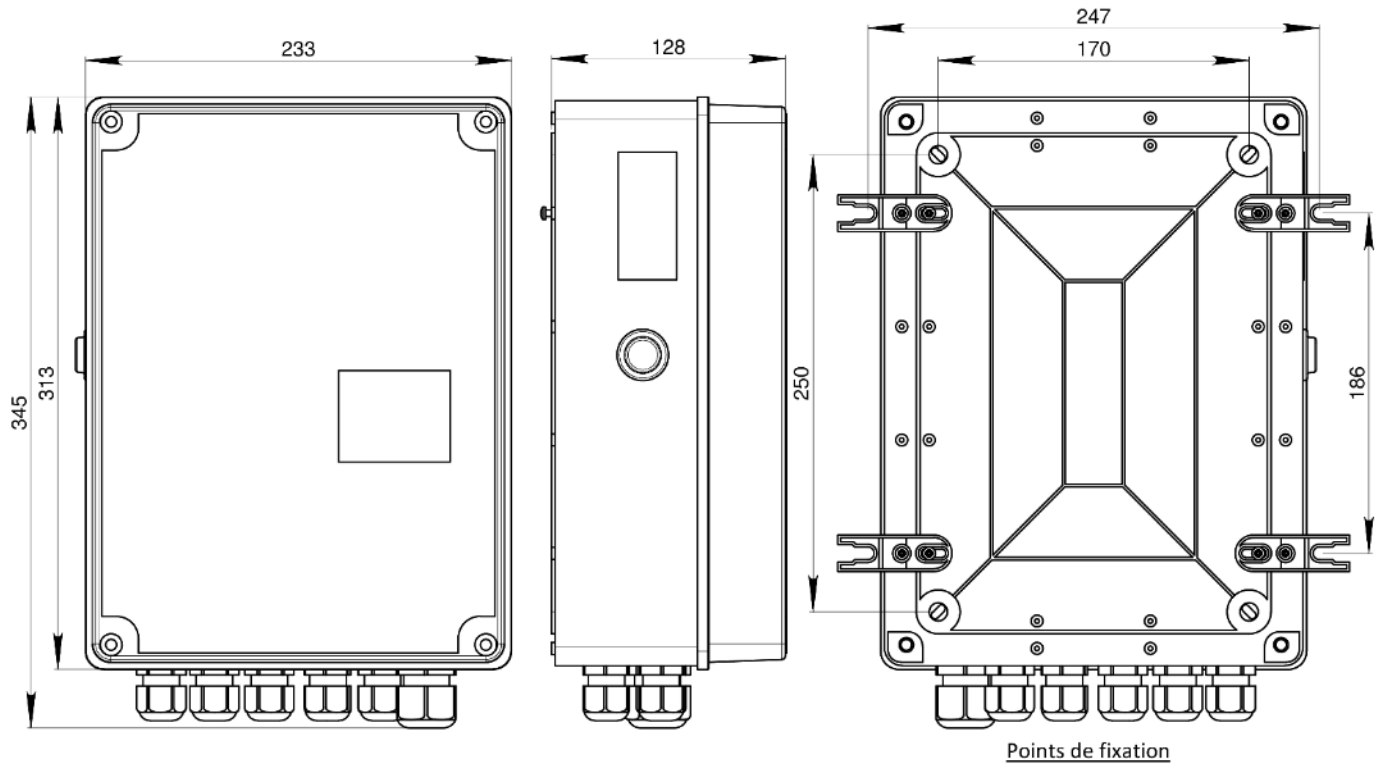


2.2.2 COMPATIBLE MOTORS

Type of motor	4000-20A
MIS	yes
Coveo 120Nm	yes
Coveo 200Nm	yes
Coveo 300Nm	yes
Coveo 300+Nm	yes
Coveo 600Nm	yes

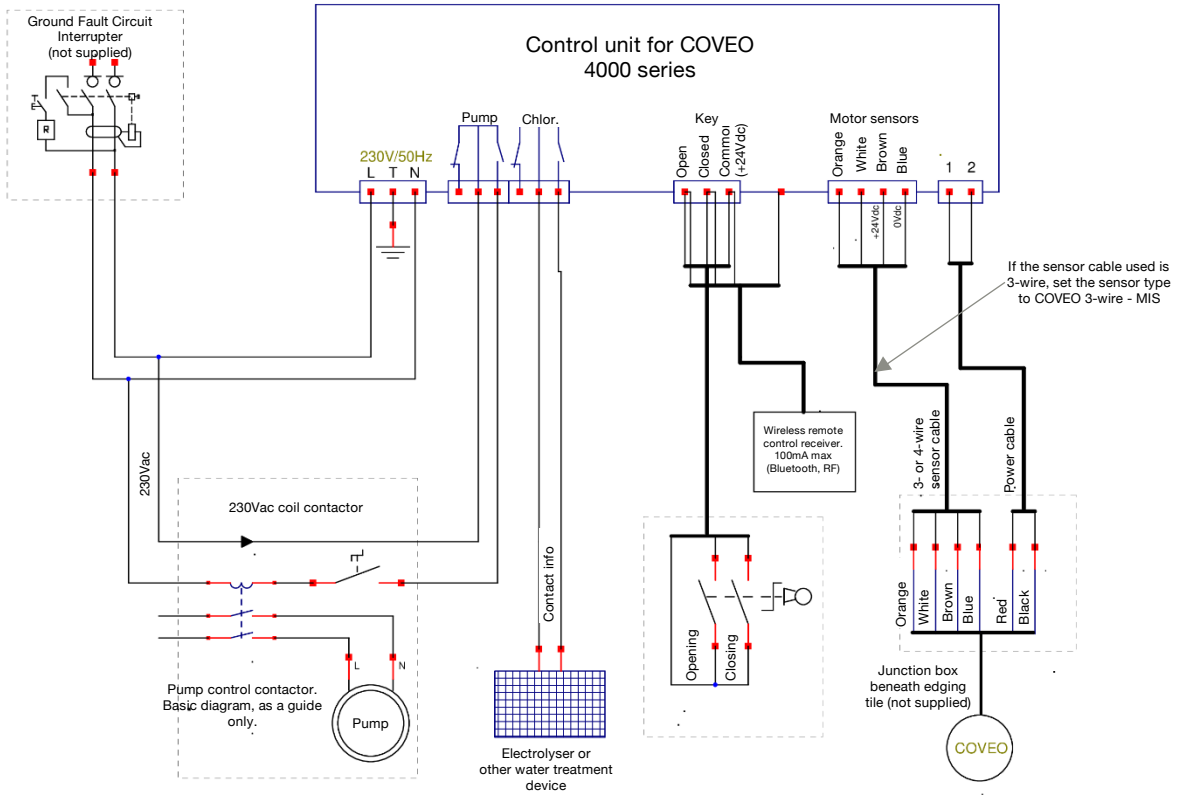
The motor type settings can be accessed from the unit's interface and: Settings > Motorisation type

2.2.3 SPACE REQUIREMENTS

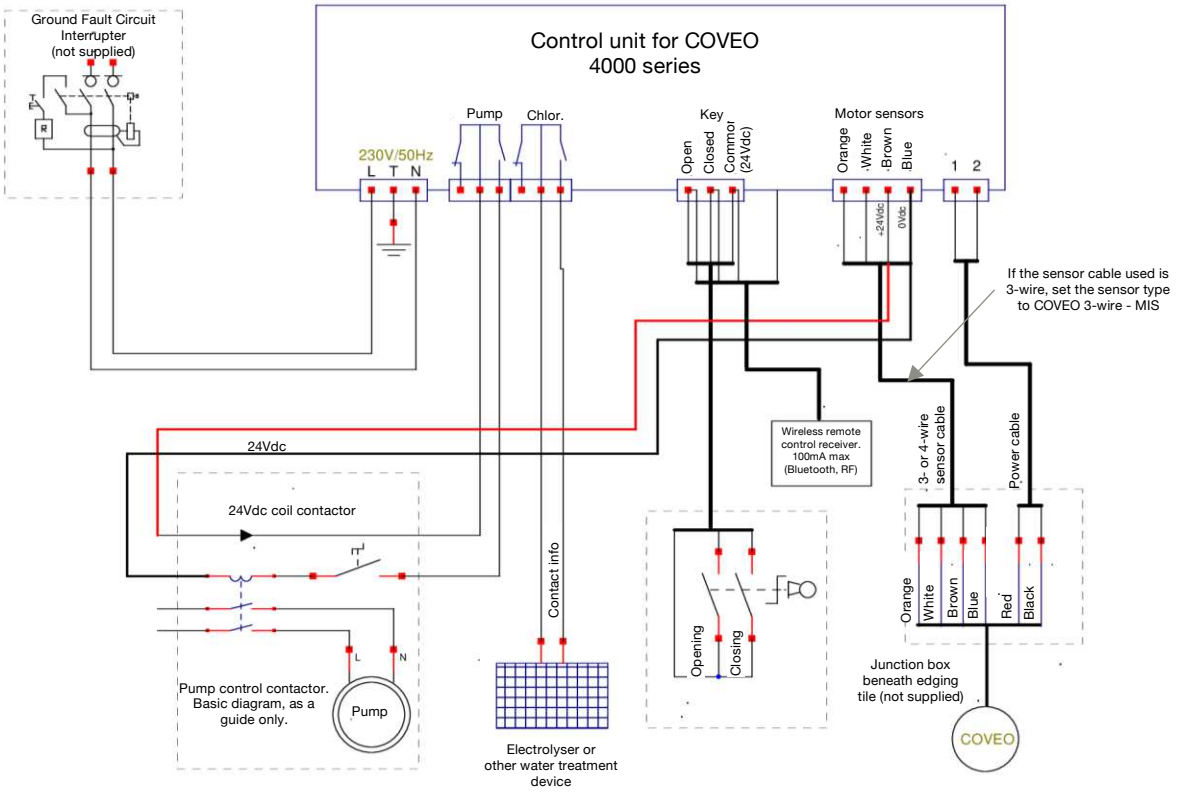


2.3 INSTALLATION WIRING DIAGRAMS

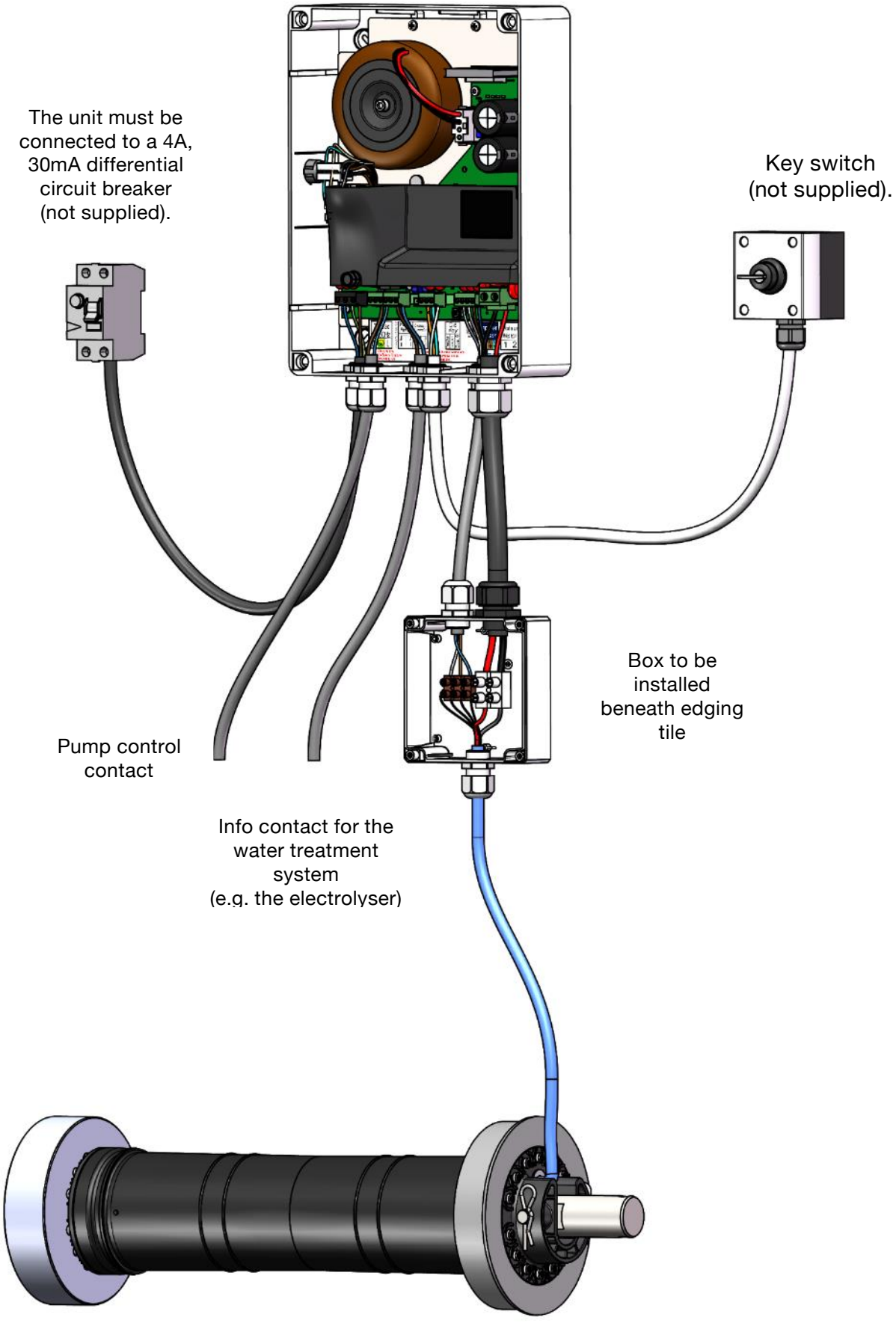
2.3.1 WIRING A 230VAC PUMP CONTACTOR



2.3.2 WIRING A 24VDC PUMP CONTACTOR



Only personnel with adequate electrical clearance are permitted to work on an electrical installation.


The unit must be connected to a 4A, 30mA differential circuit breaker (not supplied).
Key switch (not supplied).
Box to be installed beneath edging tile
Pump control contact
Info contact for the water treatment system (e.g. the electrolyser)

107821

3.1 WIRING THE MOTOR

The unit is usually connected to the motor by two cables: a motor cable and a cable for sensor signals.
The connection between these cables and the motor cable is made in a connection box installed beneath the edging tile. The seal will be made by filling the connection box with gel (gel not supplied).

3.1.1 LENGTH OF CABLES

3.1.1.1 MOTOR CABLE

To guarantee sufficient speed for the motor, the voltage drop at full charge between the power supply box and the motor will not exceed 2 Volts. The motor power supply cable conductor cross-section will respect the cross-section recommendations according to the distance between the control box and the motor:

Coveo 120 Nm: (7A max)

Motor control box distance	2m<L<=10 m	10m<L<= 20 m	20m<L<= 30 m	30m<L<= 50 m
Recommended cross-section	2.5 mm²	2.5 mm²	4 mm²	6 mm²

MIS (old generation), Coveo 200Nm and 300 Nm: (10A max)

Motor control box distance	2m<L<=10 m	10m<L<= 20 m	20m<L<= 30 m	30m<L<= 50 m
Recommended cross-section	2.5 mm²	4 mm²	6 mm²	10 mm²

Coveo 300+/ 60 Nm: (20A max)

Motor control box distance	2m<L<=10 m	10m<L<= 20 m	20m<L<= 30 m	30m<L<= 50 m
Recommended cross-section	4 mm²	6 mm²	10 mm²	16 mm²

Class 5 copper linear resistance at 20°C: around 19 ohm.mm²/km

These cross-sections are indicated in the case of maximum product consumption. They may be reduced if the consumption is lower (consult SIREM).

3.1.1.2 COVEO SENSOR CABLE

Cable used to connect COVEO motor sensors (brown/blue/white/orange wires) to the unit.

It is preferable to use a shielded cable in order to protect the motorisation from atmospheric surges. This protection will only be effective if the shielding is connected to the corresponding terminal (Type LiYY).

The cross-section of this cable's wires will be at least 0.75mm².

Max. length: 50m.

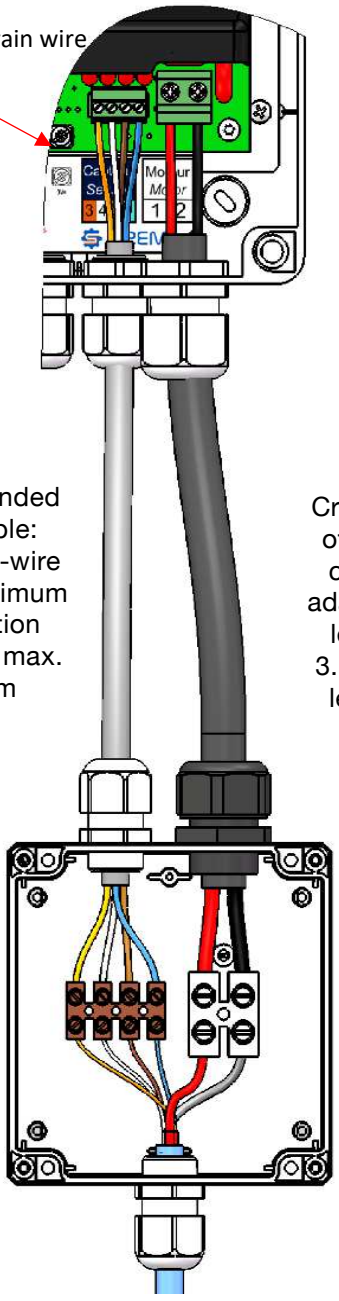
Installing a 4-wire cable is recommended.
Because the analysis of the two signals by the unit provides greater counting accuracy.

3.1.2 COVEO MOTOR CONNECTION

The sensor cable consists of 4 wires:
Set the sensor type in the Menu
"BASIC SETTINGS"
"SENSOR TYPE"
"COVEO with 4 wires"

Do not reverse the connection of the orange and white wires after initialisation.

Terminal to connect possible shielding or a shielding continuity drain wire (0Vdc)



Recommended sensor cable: shielded 4-wire cable. Minimum cross-section 0.75 mm², max. length 50 m

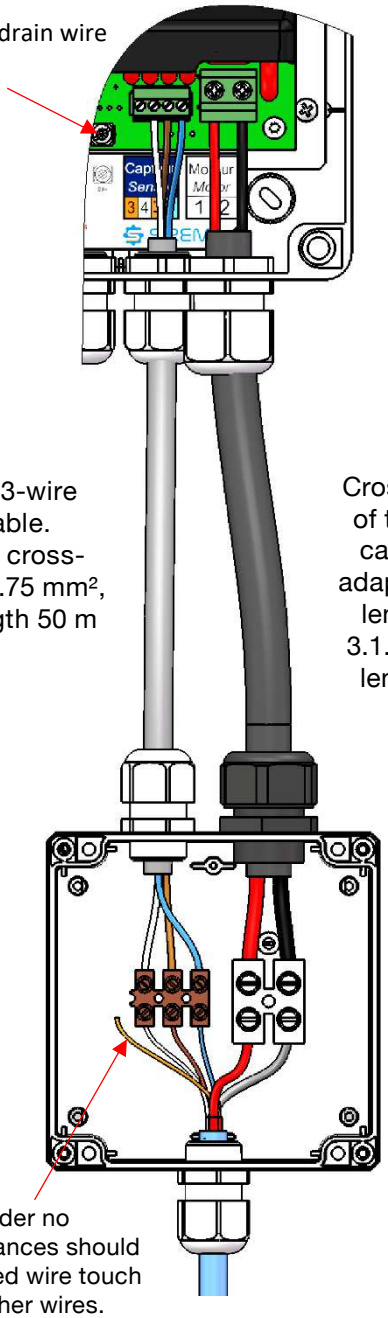
Cross-section of the motor cable to be adapted to the length (see 3.1.1.1). Max. length 50m

Junction box to be installed beneath edging tile (not supplied).

The sensor cable consists of 3 wires:
Set the sensor type in the Menu
"BASIC SETTINGS"
"SENSOR TYPE"
"COVEO with 3 wires or MIS"

In the "COVEO with 3 wires or MIS" position, only terminal 4 is connected to the orange or white wire.

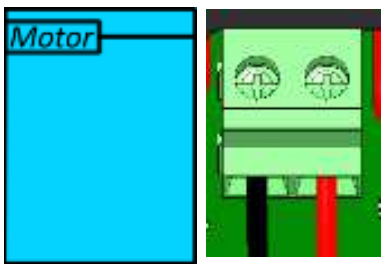
Terminal to connect possible shielding or a shielding continuity drain wire (0Vdc)



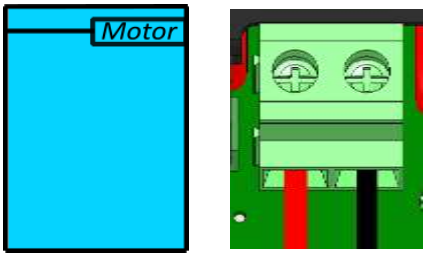
Shielded 3-wire sensor cable. Minimum cross-section 0.75 mm², max. length 50 m

Cross-section of the motor cable to be adapted to the length (see 3.1.1.1). Max. length 50m

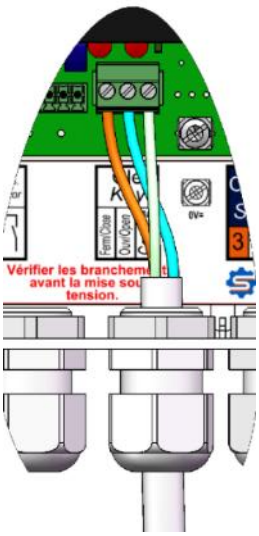
Under no circumstances should the unused wire touch the other wires.



The red and black wires of the motor are connected to the terminal blocks according to the position of the motor in the pool



3.2 KEY SWITCH CONNECTION



Connect the opening and closing contacts to the corresponding terminals.
Common = 24VDC. 0Vdc terminal available if required to connect a wireless control system

Check this connection during the first programming step.

3.3 WIRING THE ELECTROLYSER OR WATER TREATMENT DEVICE

If the water treatment unit has an input to inform it of the status of the swimming pool (closed or open), it is possible to connect a contact from the electrolyser terminal to it.
This connection will be via two wires, one of which will be the common wire from the treatment device, and the other will be the signal.

3.4 WIRING THE PUMP

The unit has a contact that changes status when the COVEO motorisation is in motion. This information can be used to turn off the filter pump.
Under no circumstances can the contact switch off the pump directly. It can only be used to control the pump's contactor, in series with the On/Off switch if this is present.
See wiring diagram 2.3

4 ACCESSORIES

The unit comes with:

- Two bags of accessories including:
  - 4 ø8x40 dowels
  - 4 ø5.5x50 screws
  - 4 mounting tabs with mounting screws on the unit
  - 7 unpluggable terminals for the unit's various terminals
  - 1 ATO fuse
  - A fast-blow fuse
- A drilling template
- A quick start guide in a cover

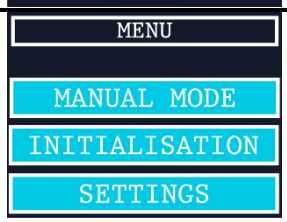
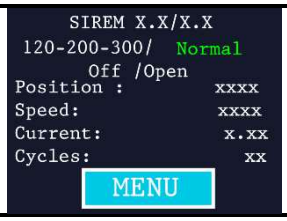
5 PROGRAMMING

In general, it is not necessary to change the settings. If this is necessary, the touch screen allows access to all functional settings.

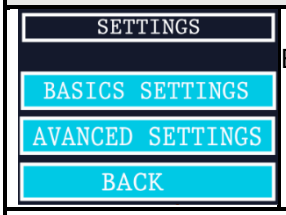
Default: 300+/600 motor and 4-wire sensor.

The screen goes into standby after 10 minutes. To get out of standby, press it or operate the key.

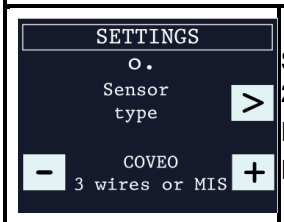
Information: The screens shown in this document may differ from reality and may not take software updates into account.

	Start-up screen that appears when the power is turned on. Self-test for the unit's main functions. 10 A indicates the max. current of the unit. If the Self-test is negative, then a warning screen appears.
	After the start-up screen, the unit shows the status of the system. Partial: neither open/closed or position unknown when the system is not initialised. Not initialised: the limit switches are not set. The initialisation needs to be done. Not calibrated: the calibration requires 5 complete opening/closing cycles. After a few seconds, the following screen appears.
	To change the language. 7 languages available: French (default), English, Spanish, German, Italian, Dutch, Portuguese. This screen disappears after 4s.
	Warning screen. Only appears if the cover has not been initialised.
	Manual mode: to manipulate the cover at low speed Initialisation: allows the adjustment of the limit switches Settings: settings for the cover. This screen is displayed for 4s before switching to the next screen if initialisation is done. This screen does not appear after power up if the initialisation has been done. This screen remains displayed if the initialisation needs to be done.
	Normal screen. Standby after 10 min.: the screen turns off if the initialisation has been done.

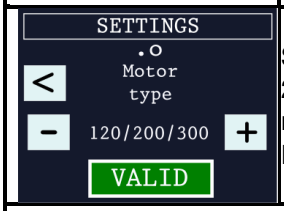
5.1 SETTINGS MENU: CONFIGURING THE SYSTEM WITH THE UNIT

	Basic settings: • The sensor type • The motor type	Advanced settings: • Start/end speed, see. ch. 5.6 • AUTOFIX mode, see ch. • Pump delay • Control type • Language.

5.1.1 BASIC SETTINGS: SENSOR AND MOTOR TYPE

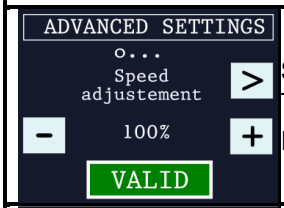


Setting the sensor type:
2 choices: 3-wire sensor or 4-wire sensor (see 3.1), default position.
Press > to go to the next menu
Press - or + to change the value

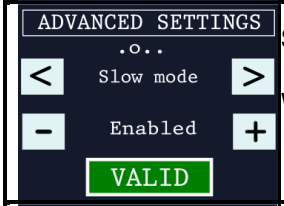


Setting the type of motor installed:
2 choices: 120/200/300 (10A max. motors) or 300+/600 (default position for 16A max. motors).
Press VALIDER to return to the menu

5.1.2 ADVANCE SETTINGS: SPEED, CONTROL, LANGUAGE

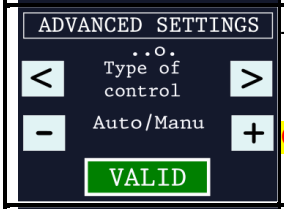


Speed adjustment:
The speed can be reduced between 70% (default) and 100%
Press - or + to change the value.



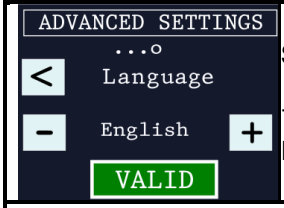
Slow mode: Enable/disable

When the Slow mode is on, the speed slows down at the end of opening, see ch. 5.7



Type of control of opening and closing movements:
- Auto/Manu; Manu/Manu; Auto/Auto; Man start of Closing then Auto/Auto
-

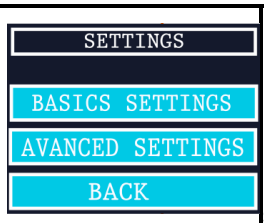
Only auto/manu and manu/manu movements are allowed in France.



Screen like the start screen, to change the language:

7 languages available: Français (default), English, Español, Deutsch, Italiano, Nederlands, Portugues.

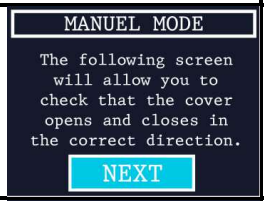
5.2 MANUAL MODE



Manual mode allows you to:

- Bring the cover to the closed position, prior to initialisation.
  - Check the correct wiring: Of the key: Activating “open” opens the pool cover, activating “close” action closes the pool cover.
  - No sensor error.

If a sensor error occurs during the movement, a message is displayed, but movement is still possible. Correct the fault and restart.



If the initialisation has not been done:
Manual mode can be used to check that the wiring is correct.

To check the correct wiring of:

- The key switch: activating “open” opens the pool cover, activating “close” action closes the pool cover. If the reverse is the case, reverse the connection of the motor power supply wires connected to terminals 1 and 2.
- Sensor: the sensor error should not appear

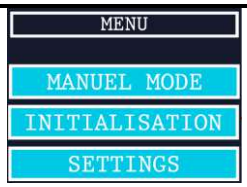
If the initialisation has been done, this mode allows the cover to be moved beyond the limit switches.
From the closed position, do not unroll more than two full turn of the shaft. There is a risk of losing the limit switches and having to re-initialise.

To exit this mode, click OK. It will not be necessary to perform an initialisation

From the closed position, do not unroll more than two full turn of the shaft. There is a risk of losing the limit switches and having to re-initialise.

5.3 INITIALISATION

Prerequisite: the swimming pool cover has been closed using the manual mode, no sensor error appears. An “open” command opens the pool cover.

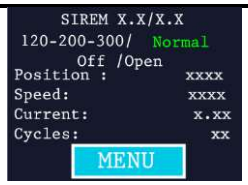


Press Initialisation to return to the initialisation mode.

Bring the cover to the open position by turning the key to the open position.
Until the open position has been validated by pressing "yes", the cover can be moved in either direction without being able to go beyond the closed position.

If the pool cover is not closed, you are prompted to enter manual mode to close the pool cover.

Bring the cover to the open position by turning the key to the open position.
Until the open position has been validated by pressing "confirm", the cover can be moved in either direction without being able to go beyond the closed position.

	Confirmation of initialisation
	Normal screen at the end of initialisation.

The speed of the "MANUAL" and "INITIALISATION" modes is reduced by 50% and is not the opening or closing speed after initialisation.

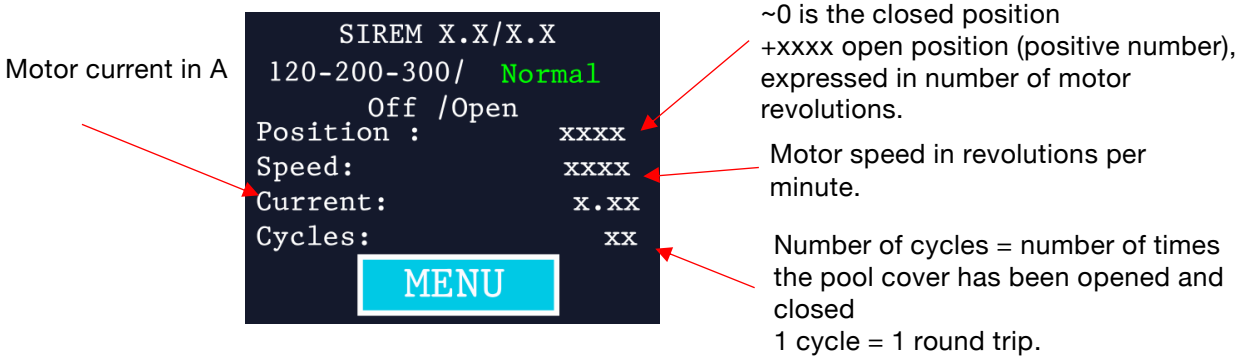
The "speed settings" setting also affects the "MANUAL" and "INITIALISATION" mode speeds. They are decreased by the same ratio.

5.4 -FAULTS

SENSOR ERROR Scan the QR code for online help Restart the control box	Sensor signals are not reaching the unit: → Check the wiring between the motor and the unit → Check the continuity of the motor output cable
NO MOTOR VOLTAGE Scan the QR Code for online help Restart the control box	No motor voltage: → Check the ATO fuse and the transformer
DEFAULT ELECTRONICS Scan the QR Code for online help Restart the control box	Faulty circuit board: → The unit needs to be replaced
OVERCURRENT Scan the QR Code for online help Restart the control box	Motor overload causing current consumption above the maximum allowed: → Remove the overload and restart the unit
POWER FAILURE Scan the QR Code for online help Restart the control box	Mains error. Disturbance present in the power supply grid (230Vac): The unit cannot operate with such disturbances. → Check the mains power supply
NO MOTOR VOLTAGE Scan the QR Code for online help Restart the control box	The unit cannot start the motor, the motor is correctly supplied with power but no current can flow into the motor: → It is likely that the motor is not connected: check the wiring (power cable)
POWER FAILURE Scan the QR Code for online help Restart the control box	If a power failure occurs when the cover is closing, this warning message indicates that an initialisation must be performed.

The QR code refers to https://www.sirem.fr/control-box-4000/ which contains installation help and troubleshooting.

5.5 NORMAL SCREEN



5.6 NOMINAL VALUES FOR SLOW SPEEDS, TIME AND MAXIMUM PERMISSIBLE CURRENT TO BE REVIEWED

Tolerance: ±15%.

120Nm – Slow speed during init./manual: 3000 rpm. IMAX 10A.			For manual mode without clearing stops	
N=885.8	Slow speed (motor)	Slow speed (shaft)	Min. No. Revs	Max. No. Revs
100%	3000 rpm	3.4 rpm	2.5 revs	32 revs
70%	2100 rpm	2.4 rpm		

200Nm- Speed during init./manual: 3000 rpm. IMAX 10A.			For manual mode without clearing stops	
N=630.3	Slow speed (motor)	Slow speed (shaft)	Min. No. Revs	Max. No. Revs
100%	3000 rpm	4.8 rpm	3.5 revs	32 revs
70%	2100 rpm	3.3 rpm		

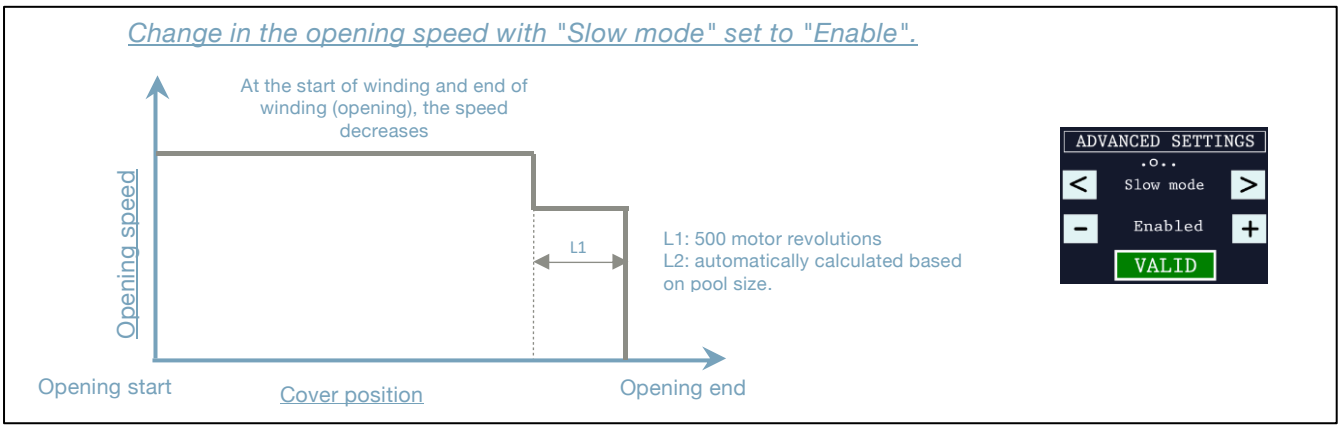
300Nm- Speed during init./manual: 3000 rpm. IMAX 10A.			For manual mode without clearing stops	
N=1002.8	Slow speed (motor)	Slow speed (shaft)	Min. No. Revs	Max. No. Revs
100%	3000 rpm	3.0 rpm	2 revs	32 revs
70%	2100 rpm	2.1 rpm		

300+ - Speed during init./manual: 2400 rpm. IMAX 20A.			For manual mode without clearing stops	
N=516.4	Slow speed (motor)	Slow speed (shaft)	Min. No. Revs	Max. No. Revs
100%	2400 rpm	4.6 rpm	4.5 revs	32 revs
70%	1680 rpm	3.3 rpm		

600Nm- Speed during init./manual: 2400 rpm|3 rpm. IMAX 20A.			For manual mode without clearing stops	
N=1002.8	Slow speed (motor)	Slow speed (shaft)	Min. No. Revs	Max. No. Revs
100%	2400 rpm	2.4 rpm	2 revs	32 revs
70%	1680 rpm	1.7 rpm		

5.7 "AUTOFIX" MODE

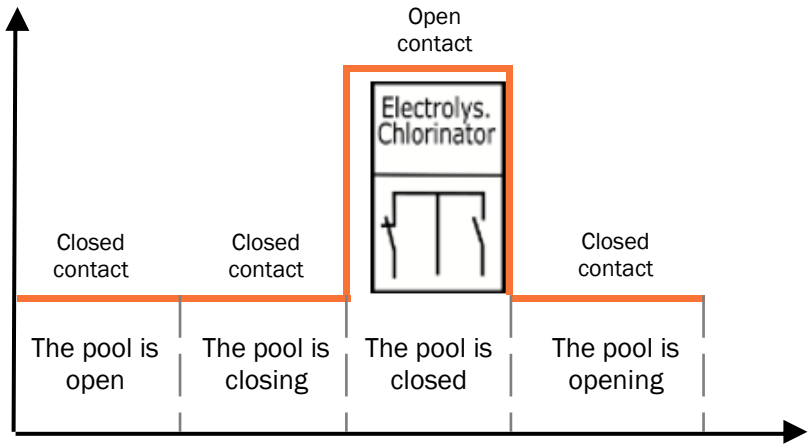
Select: MENU -> UNIT -> SETTINGS→ ADVANCED SETTINGS -> AUTOFIX Mode > On.



5.8 ELECTROLYSER CONTACTS

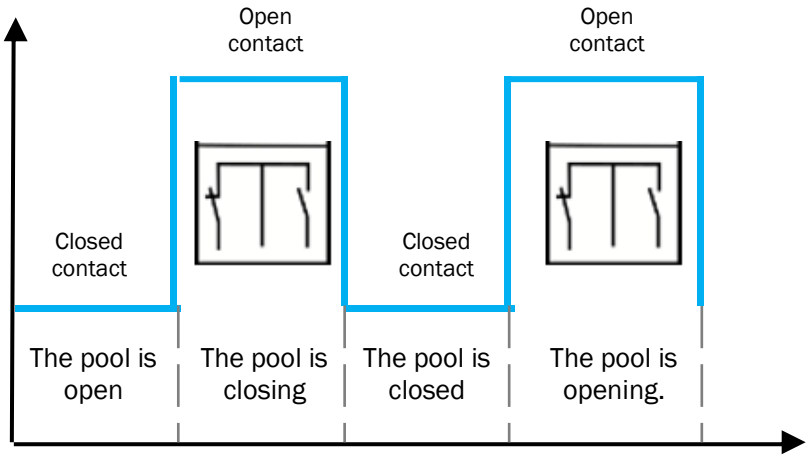
Position of the status changes of the electrolyser control contacts.

When manual mode is engaged, the contacts take the pool cover closed position (reduction of chlorine production)



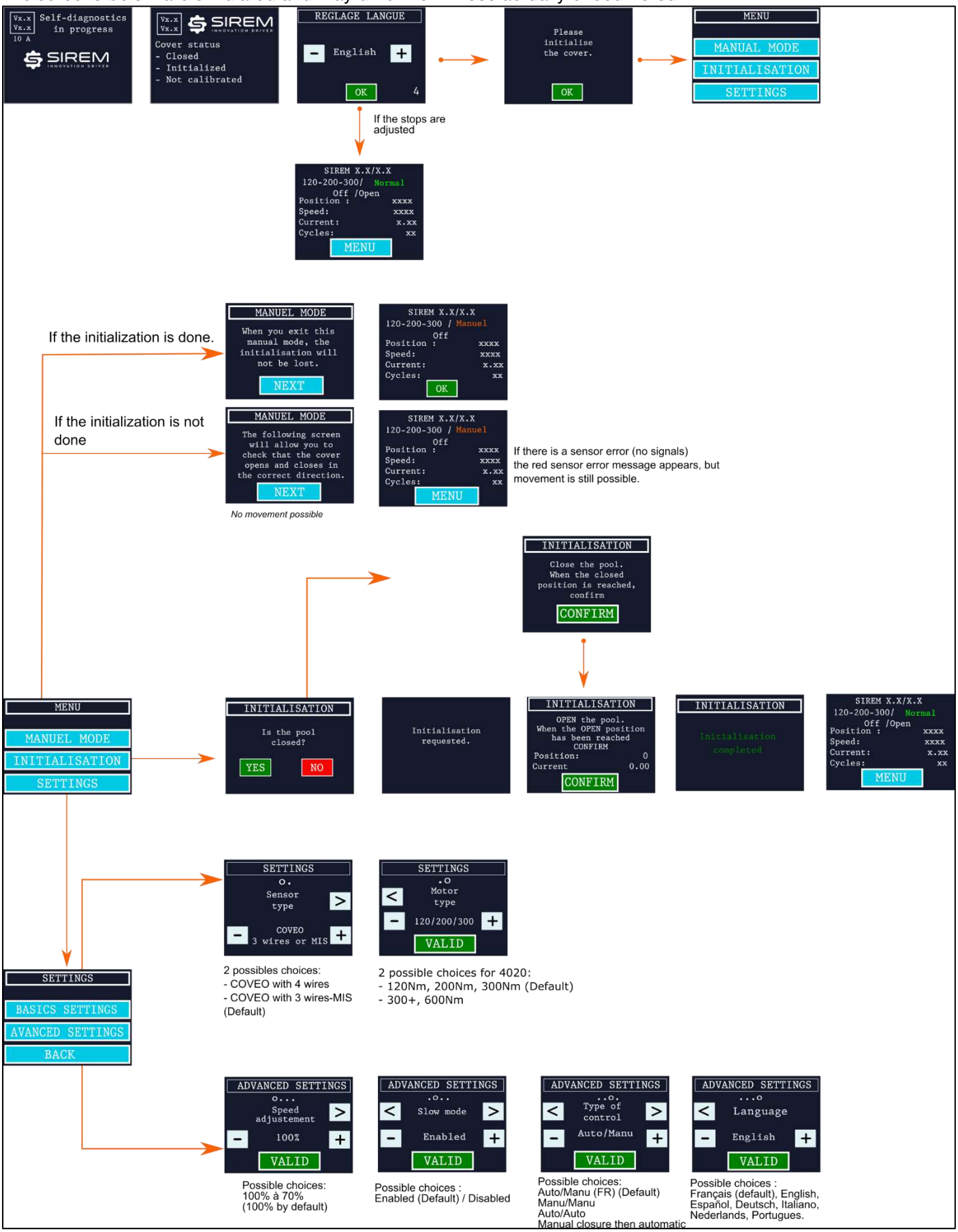
5.9 PUMP CONTACTS

The contacts change status when the motor is running. The contacts diagram on the sticker under the terminal block shows the status of the contacts when the motor is running.

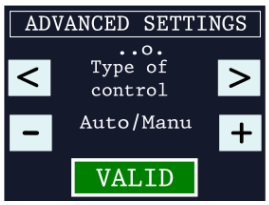


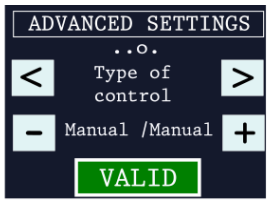
6 MENU STRUCTURE

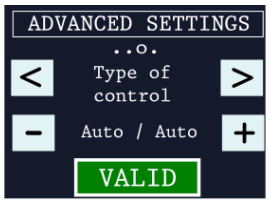
The screens below are simulated and may differ from those actually encountered.

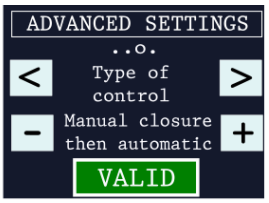


"Control type" menu:

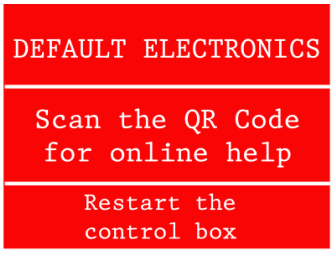


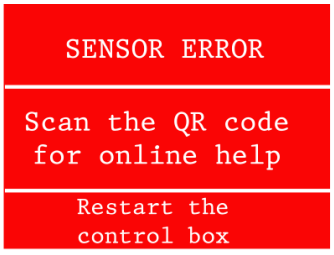


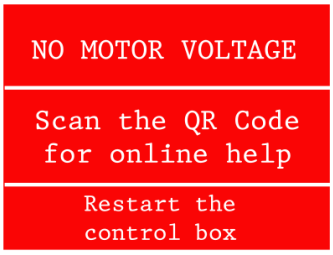


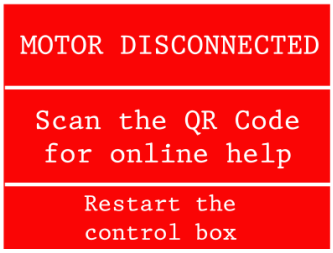


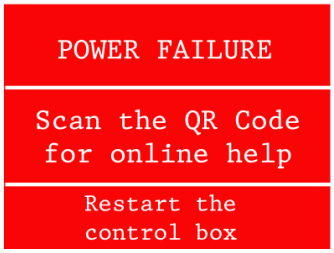
The faults screen:











The QR code refers to the https://www.sirem.fr/control-box-4000/ help page

7 DIMENSIONS & WEIGHT

- Packaging box size: 380mmx130mmx260mm. (Packaging not intended for individual transport)
- Weight of unit 4000-20A: 5.5 kg.

8 PRODUCT MARKING

Product identification label affixed to the box comprising 2 detachable self-adhesive parts with:

- Serial number in bar code form
- Date of manufacture
- OF No. (xxxxxx)

Coffret 4000 - 20A/24V - Control box 4000
Norme (Standard) : EN60335-1 Mai 2013
Tension d'entrée (Input voltage) : 210/250Vac, 50/60Hz
Imax entrée (Imax input) : 2A
Pmax : 720W - Pveille (Pstandby) : 8W; IPX4
OF : ss-aaaa XXXXXX
05.0001.40X0.0001 SIREM www.sirem.fr - Made in France CE UK CA

Coffret 4000
Control box 4000
24V - 20A
OF : ss-aaaa XXXXX
SIREM www.sirem.fr - Made in France CE UK CA
ss-aaaa xxxxx
05.0001.40X0.0001
ss-aaaa xxxxx
05.0001.40X0.0001

The barcodes are in code 128 format, they include the product code (05.0001.4xxx) followed by a unique number.

SIREM
moteur de vos innovations

EC – Declaration of conformity

Of the:

Control Box COVEO

As the manufacturer of the Product, **SIREM**
Localized at,

3 Chemin du Pilon
CS 40303
01700 - Saint-Maurice-de-Beynost
FRANCE

We declare our equipment conform to the following directives:

2014/35/EU Low voltage Directive
2014/30/EU Electromagnetic compatibility Directive
2014/53/EU Radio equipment and repealing Directive
Directive **RoHS 2011/65/UE** et **2015/863/UE**

The CE marking is realized on the traceability label of the product.

Saint-Maurice-de-Beynost, the 24/02/2021.

G. MALPHETTES	G.PEYTAVIN	T.PONSARD
Président	Directeur technique	Responsable Qualité

SIREM
MOTEUR DE VOS INNOVATIONS

UK – Declaration of conformity

We,

SIREM

Localized at,

3 Chemin du Pilon
CS 40303
01700 - Saint-Maurice-de-Beynost
FRANCE

Declare as the product manufacturer, and in our sole responsibility, that the following product,

Control Box COVEO

Part Number,

05000140XXXXX

Is in conformity with the requirement of the following regulations

2014/35/EU Low voltage Directive
2014/30/EU Electromagnetic compatibility Directive
2014/53/EU Radio equipment and repealing Directive
Directive **RoHS 2011/65/UE** et **2015/863/UE**

The UK marking is realized on the traceability label of the product.

Saint-Maurice-de-Beynost, the 24/02/2021.

G. MALPHETTES	G.PEYTAVIN	T.PONSARD
Président	Directeur technique	Responsable Qualité