AQUA IONIC
USER'S AND MAINTENANCE MANUAL

EC DECLARATION OF CONFORMITY

Manufacturer	**S.I.A.T.A. S.r.l.**
Address	Via Virginio 370/372 50025 Montespertoli-Florence (ITALY)

Herewith declares that:

PN	**AJ7-02/05**
Description	**AQUA JONIC CONTROLLER WITH PROBE**

is in *conformity* with the provision of the following EEC directives:

- **Elettromagnetic Compatibilty 89/336/EEC, 93/68/EEC**
- **Low Voltage 73/23/EEC,93/68/EEC**

and that the following harmonized standards have been applied:

EN 50081-1 Generic Emission Standard-Part 1:residential,commercial and light industrial premises.
EN 50082-1 Generic Immunity Standard-Part 1:residential,commercial and light industrial premises.
EN 60742 Directions concerning isolation and security trasformers.

S.I.A.T.A. S.r.l. has a quality system in accordance with the requirements of **ISO 9001/ UNI EN ISO 9001-ed.1994** (Certificate n° 95.022 SGS ICS)

Date

18.09.1998

Managing Director
LUIGI FERRALI

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1 – GENERAL CHARACTERISTICS

Aqua Ionic manages SIATA multi-way valves for the creation of water treatment devices.

The regenerative cycle, which is completely programmable, can be activated in either of the following ways:

- after a programmable time during which the probe detects that the water is not good;
- immediately when the treatable volume is exhausted;
- manually, using the **Manual Regen** key;
- immediately by means of the Remote Start external signal.

Aqua Ionic is provided with an **eeprom** memory where the programming is stored, and of a **buffer battery** allowing to keep the working parameters in the memory in the event of a supply voltage failure.

Aqua Ionic, as well as all the other SIATA controllers, is compliant with the EEC Directives and is built in the SIATA factory in Montespertoli, Florence (Italy) working with the Quality System certified according to the following standard

ISO 9001 / UNI EN ISO 9001.

2 – TECHNICAL DATA

Supply voltage	230 Vac ± 10% (*)
Mains frequency	50 Hz ± 3% (*)
Absorbed power	4.6 VA
Working temperature	4° C – 40° C
Case size	165 mm x 127 mm x 70 mm
Total weight	from 1 to 1.7 Kg

(*) Special versions available upon request.

3 – MEANING OF LEDs AND KEYS

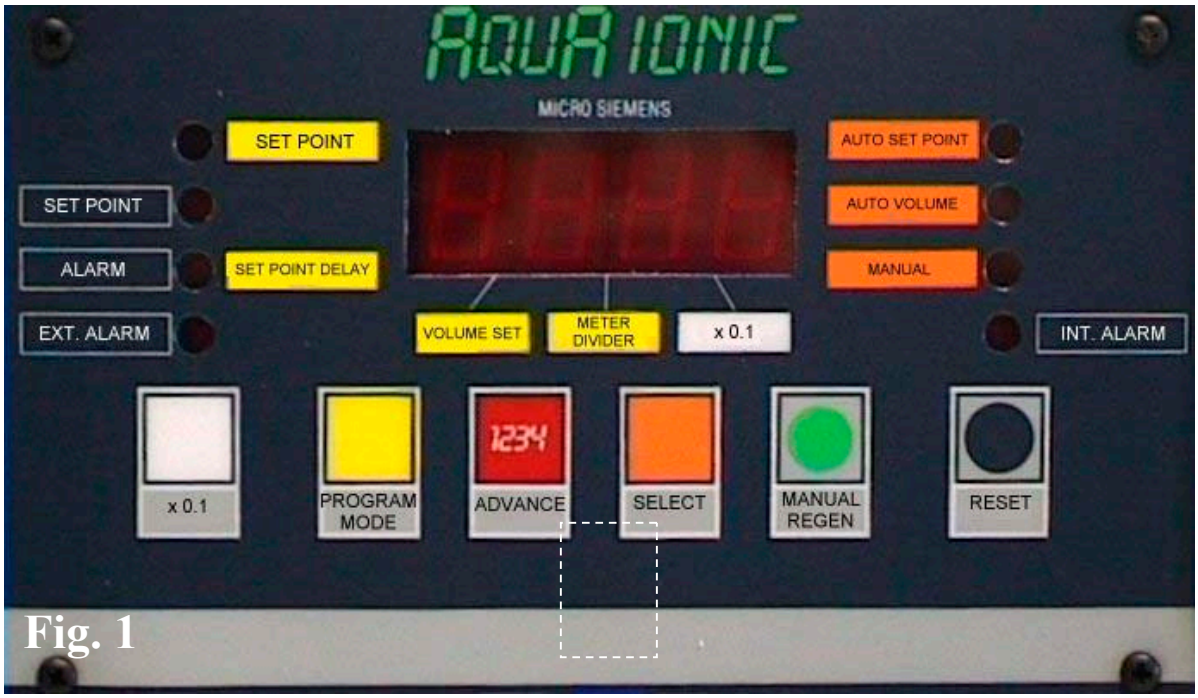


Fig. 1

LED functionality (Tab. 1)

SET POINT (yellow case)	It is on during the set point value setting.
SET POINT (blue case)	It is on when the conductivity value surpasses the set point value.
ALARM (blue case) SET POINT DELAY (yellow case)	It goes on during programming when setting the set point intervention time. During operation, it illuminates to indicate an alarm condition.
EXT. ALARM	It is on when the inhibition signal is present.
AUTO SET POINT	It is on when the regeneration must start because water is not good.
AUTO VOLUME	It is on when the regeneration must start because of exhausted volume.
MANUAL	It is on when the regeneration must not start automatically.
INT. ALARM	It is on when regeneration is not successful.

Key functionality (Tab. 2)

X 0.1	When pressed during operation, it changes the setting of the X 1 or X 10 probes. When pressed at the end of the programming phase, it allows to access the programming of the regeneration cycle phases.
PROGRAM MODE	It allows to access the programming functions of the working parameters.
ADVANCE	When pressed during programming or time setting, it allows to increase the digit blinking on the display. When pressed during operation, it allows to display the residual volume.
SELECT	It allows to change the regeneration start mode.
MAN. REGEN	It allows to activate the regeneration manually.
RESET	During programming, it allows to quit without saving the parameter being modified when the key is pressed. During regeneration it ends it.
HIDDEN KEY	Placed below the 6 keys, in the middle between Advance and Volume/Clock, it allows to start a test regeneration. When pressed during some programming phases, it zeroes the digit blinking on the display.

4 – CODE MEANING

Fig. 2

On the case rear panel a label as in Fig. 2 indicates:

AI7-02/05	the controller code
12705	the order number (which is the same as the lot number)
SN 110/98	the serial number with reference to the code

In particular, the controller code is composed as follows:

AI 7 – 02 / 05

- 05 — Controller version, assigned by the Technical Office for customizations (05 = standard).
- 02 — Typology of the electric connections (02 = DIN sockets).
- 7 — Number of drivers (7 = 7 drivers).
- AI — Family to which the controller belongs (AI = Aqua Ionic).

5 - GENERAL INFORMATION

Please find herewith below some instructions to be followed during the controller usage and maintenance in order to ensure its long-term operativity.

5.1 – Packaging and storage

The package consists in a box with a product identification label.
The device must be stored in environments compliant with the following characteristics:

- temperature within +4°C e +40°C;
- relative humidity within 30 % and 95 %.

5.2 – Installation

The *controller* installation must be performed by qualified technical staff; the installation procedures must be performed when the device is off power.
The device consists in an ABS case closed on front by a cover blocked with 4 screws. As an optional, a transparent cover is available that can be used as a keyboard protection.
The controller is supplied by a 230 / 12 Vac transformer. Upon request, other types of transformer are available (Es. 115 / 12 Vac – 60 Hz).
The right hand side of the case is opened where the DIN sockets are placed (Fig. 9).

Fig. 3

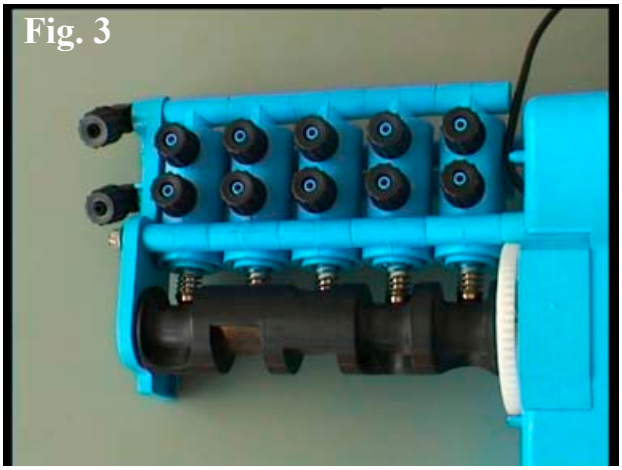
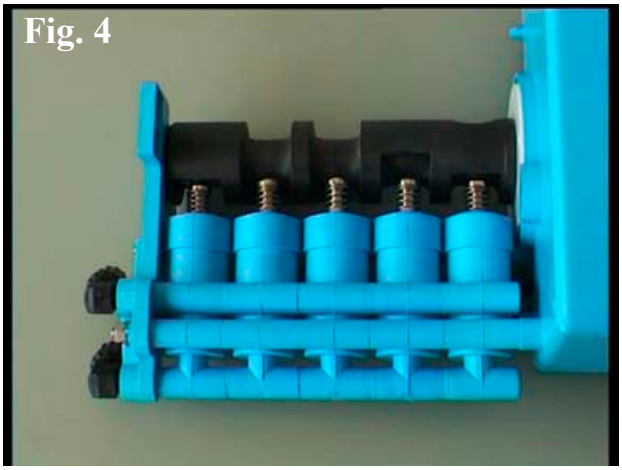


Fig. 4



In the event you would like to supply the *controller* external drivers (see Fig. 3 and 4) with compressed air, please make sure that:

- The air pressure be within 1 and 6 bar, and however not higher than the input water pressure;
- an air humidification system (with water or proper silicone lubricant) is mounted on the air line, in order to prevent the driver internal seals from getting dry;

SIATA always recommends to supply the drivers with water. In this case it is necessary to use an input filter to avoid impurities.

Please be particularly careful when installing the controller in environments that are not compliant with the EN 50082-1 standard (electromagnetic compatibility).

5.3 – Maintenance

Mind to check the battery efficiency about every 12 months as follows:

- Switch off the timer for at least 15 minutes.
- The timer disconnected from the supply voltage, check the battery voltage using a multimeter. If the measured voltage is less than 3,2 Vdc, replace the battery with the spare part code 867.

The following servicing operations **must always be performed when the controller is off power**.
In case of replacement of the electronic board only and each time you operate on the open case, please avoid as much as possible touching the components and the welded parts with your hands, above all in the microprocessor area, since possible electrostatic discharges could seriously damage the controller.
Furthermore, we recommend not to place the electronic board on a metal surface, unless it is properly isolated (a couple of paper sheets will be sufficient).
To store the electronic boards, please always use the anti-static envelopes that come with the replacement kits.

Avoid the electronic board to come in contact with liquids. In case it happens, please dry it with an air jet.

5.4 – Safety devices

The *controller* is provided with the following safety devices :

- Safety and isolation transformer.
- Safety electronic circuit against voltage peaks and disturbances.

6 – INSTRUCTIONS FOR USE

6.1 – Powering on

Aqua Ionic is not provided with power switches. Powering on is obtained by connecting the power transformer to the outlet.

6.2 – Working

After powering on, the display placed on the front panel will display the conductivity value read by the probe.

The regeneration starting modalities are the following:

Auto Set Point	The regeneration starts at the expiration of the programmed delay time that begins to be counted when the conductivity value read by the probe exceeds the programmed threshold limit.
Auto Volume	Immediate start when the available volume is exhausted.
Auto Set Point + Auto Volume	The timer performs both the above mentioned checks and will activate the regeneration as soon as either of the two checks will indicate that the foreseen conditions have been reached.
Manual	The regeneration starts only when pressing the proper key.
Auto Set Point + Manual	The timer performs the checks requested by the Auto Set point mode, but it is not able to perform the regeneration in the automatic mode.
Auto Volume + Manual	The timer performs the checks requested by the Auto Volume mode, but it is not able to perform the regeneration in the automatic mode.

Event	What happens	Display
Powering on	The display shows the conductivity value read by the probe.	0 0 5 0
Start of operation	At the end of a regeneration, or pressing the reset key, the working parameters are restored with the programmed values. The display shows the conductivity.	0 0 5 0
Exhausting volume	The impulses issued by the counter allow to decrease the treatable volume. The display is still showing the conductivity.	0 0 5 0
	The regeneration will start when the volume reaches value 0 and the timer is programmed in the Auto Volume mode.	1 C 2 6

Exhausting volume	When the volume reaches value 0 and the timer is programmed in the Manual or in the Auto Set Point mode, the volume value remains 0. The display is still showing the conductivity.	0 0 5 0
Conductivity beyond the set point value.	The conductivity value read by the probe exceeds the set point value which has been set. The Set Point LED placed on the left hand side of the panel will illuminate. The set programmed delay time begins to elapse.	0 1 0 0
The set point delay time has elapsed.	When the programmed delay time for the set point value has elapsed and the controller is programmed to be working in the Auto Set Point mode, the regeneration will start.	1 C 2 6
	When the programmed delay time for the set point value has elapsed and the controller is not programmed to be working in the Auto Set Point mode, the Alarm LED placed on the left hand side of the panel will illuminate indicating an alarm condition.	0 1 0 0
The inhibit indication appears on the DIN 180° socket (fig. 16).	The Ext. Alarm LED placed on the panel left-hand side illuminates. The display is still indicating the conductivity.	0 0 5 0
Pressure of the **Manual Regen** key during operation.	The regeneration cycle starts even if the controller is inhibited (see previous point).	1 C 2 6

6.2.1 – Auto Set Point

When **Aqua Ionic** is programmed in the Auto Set Point mode (this condition must be confirmed by the illumination of the corresponding LED on the panel), there is a comparison between the conductivity value and the programmed set point value (**steps 1 and 2 in tab. 3**). When the conductivity exceeds the set point value, the device begins counting the set delay time (**step 6 tab. 3**). If the conductivity value does not decrease before expiration of the delay time, the regeneration will start.
If the inhibition signal is present on pin 4 of the DIN 180° socket when the delay time exhausts (the **Ext. Alarm** LED is on), **Aqua Ionic** will not start regeneration and will activate the alarm (**Alarm** LED on the panel and output signal on the DIN 360° socket). At the same moment when the inhibition signal is deactivated, the alarm will also be deactivated (**Alarm** LED on the panel and output signal on the DIN 360° socket) and the regeneration will start. The Ext. Alarm LED will remain on to indicate the situation that has occurred until the end of the regenerative cycle.

6.2.2 – Auto Volume

When **Aqua Ionic** is programmed in the Auto Volume mode (this condition must be confirmed by the illumination of the corresponding LED on the panel), the regeneration will be performed when the set volume exhausts. No reserve calculation or programming functions are available. If the inhibition signal is present on the proper pin of the DIN 180° socket when the volume exhausts (**Ext. Alarm** LED on), **Aqua Ionic** will not start regeneration. The Alarm output on the DIN 360° socket is NOT activated. At the same moment when the inhibition signal is deactivated, the **Ext. Alarm** LED will be deactivated and the regeneration will start.
During operation, the controller always performs a comparison between the conductivity and the set point values, even though it cannot start regeneration. If the value read by the probe exceeds the programmed set point value and remains above that threshold for the whole set time, the alarm will activate (**Alarm** LED on the panel and proper output on the DIN 360° socket).

6.2.3 – Auto Set Point + Auto Volume

When **Aqua Ionic** is programmed in the Auto Set Point + Auto Volume mode (both LEDs on the panel are on), both checks indicated in par. 6.2.1 and 6.2.2 are carried out. The regeneration is activated by the check which as first satisfies the conditions required for the cycle to be started.

6.2.4 – Manual

When **Aqua Ionic** is programmed in the Manual mode (this condition must be confirmed by the corresponding LED on the panel), the regeneration can be activated only using the **Manual Regen** key placed on the panel.
In this operation mode, too, the checks concerning the volume and the conductivity are performed according to what described in the previous paragraphs. Only the check on conductivity activates the alarm both on the panel and on the proper output placed in the DIN 360° socket.

6.2.5 – Auto Set point + Manual

When **Aqua Ionic** is programmed in the Auto Set Point + Manual mode (this condition must be confirmed by the illumination of both LEDs on the panel), the regeneration can be activated only using the **Manual Regen** key placed on the panel. At the same moment when the conductivity value read by the probe exceeds the programmed set point value and remains above that threshold for the whole time that has been set, the alarm will be activated (**Alarm** LED on the panel and output signal on the DIN 360° socket).
Any volume exhausting will be ignored.

6.2.6 – Auto Volume + Manual

When **Aqua Ionic** is programmed in the Auto Volume + Manual mode (this condition must be confirmed by the illumination of both LEDs on the panel), the regeneration can be activated only using the **Manual Regen** key on the panel. When the volume exhausts, the **Alarm** output on the DIN 360° socket activates (but the corresponding LED on the panel does not illuminate). In this mode, too, the timer performs its checks on the probe reading. At the same moment when the conductivity value read by the probe exceeds the programmed set point value and remains above that threshold for the whole time which has been set, the alarm will activate (**Alarm** LED on the panel and output signal on the DIN 360° socket).

6.3 – Checking the regeneration efficiency

Pin 3 of the DIN 270° socket, if connected to the ground, enables the regeneration quality check which is performed during the last cycle phase.
Whichever the operating mode and the cause for the regeneration starting, during the last cycle phase a comparison between the conductivity value read by the probe and the programmed set point value occurs; when such a check begins, the **Int. Alarm** LED illuminates on the panel.
If the value read by the probe is lower than the set point value, the last cycle phase is terminated before the expiration of the set time, in order not to waste water. The **Int. Alarm** LED goes out and the controller will immediately start working.
If, on the contrary, the value read by the probe remains above the set point value for the whole duration of the last phase of the regeneration cycle, the **Int. Alarm** LED remains on and blocks the automatic performance of the successive regeneration cycles, since it is evident that there are problems preventing a correct regeneration performance. Only at this moment the **Alarm** output on the DIN 360° socket is also activated.
It is possible to press the **Reset** or the **Manual Regen** keys to reset the alarm.
The Reset key allows to restore the correct performance of the regeneration cycles with automatic start (which will stop again if the cause preventing the performance of a correct regeneration is not identified and removed in the meantime), while the Manual Regen key allows to immediately perform a new regeneration (which will end again with an alarm if, as just mentioned, the cause of the previous alarm is not removed).

NOTE: In order for this check to be carried out, a duration of at least 1 minute must be compulsorily programmed for the last phase of the regeneration cycle, **step 15, tab. 3**.

6.4 – Programming

Aqua Ionic is programmed using the **Program Mode** key, and the values can be modified using the Advance key. Proceed as follows to perform programming:

Programming table (Tab. 3)

Step	☞	Display	Meaning
1	**PROG. MODE**	0 1 0 0	Set point value. The digits on the right-hand side blink.
2	**PROG. MODE**	0 1 0 0	Set point value. The digits on the left-hand side blink.
3	**PROG. MODE**	0.1 0 0	Volume value. The digits on the right-hand side blink.
4	**PROG. MODE**	0.1 0 0	Volume value. The digits on the left-hand side blink.
5	**PROG. MODE**	A A.0 1	The counter divider.
6	**PROG. MODE**	A A 0 8	The delay time for the activation of the set point alarm..
7	**PROG. MODE**	A A 0 8	End of programming. Pressing again quits.
8	**X 0.1**	1 C 0 0	The stop of the regenerative cycle first phase.
9	**PROG. MODE**	2 C 0 0	The stop of the regenerative cycle second phase.
10	**PROG. MODE**	3 C 0 0	The stop of the regenerative cycle third phase.
11	**PROG. MODE**	4 C 0 0	The stop of the regenerative cycle fourth phase.
12	**PROG. MODE**	5 C 0 0	The stop of the regenerative cycle fifth phase.
13	**PROG. MODE**	6 C 0 0	The stop of the regenerative cycle sixth phase.
14	**PROG. MODE**	7 C 0 0	The stop of the regenerative cycle seventh phase.
15	**PROG. MODE**	8 C 0 0	The stop of the regenerative cycle eighth phase.
15	**PROG. MODE**	8 d 0 0	End of programming. It quits after 3 seconds.
16		0 0 3 0	The display shows the conductivity again.

Pressing the **Program Mode** key instead of the **X 0.1** key at **step 8** of **tab. 3**, will quit programming without accessing the regenerative cycle phases. The latter is the recommended procedure
It is possible to press the **Reset** key at any time to quit programming without storing any changes made to the value flashing on the display.
At **step 15** of **tab. 3** the programmed parameters are written in the eeprom.

IMPORTANT !!
The programming which is set according to the tab. 3 steps becomes operational only when the user presses the Reset key or performs a regeneration using the Manual Regen key.
Neglecting this simple procedure will result in a behavior compliant with the previous programming, not with the new one.

6.5 – Starting operations

Aqua Ionic, as well as all SIATA controllers, is considered as operational when able to perform resins regeneration. This is possible **ONLY** when the controller "senses" that the cam is correctly positioned at the stop.
In order to perform a few tests before installation, it is necessary to connect **Aqua Ionic** to its case in order that the limit switch input be correctly closed.
Aqua Ionic does not allow to perform any operations until the limit switch input is closed.
With reference to what already stated in par. 6.3, once the **Aqua Ionic** programming has been modified, it is necessary to press the Reset key or to perform a regeneration in order to load the new parameters into the memory.

6.6 – Managing the volume

Steps 3 and **4** of **tab. 3** describe how to program the treatable volume.
Using the SIATA Hall effect liter counter, the value of the divider (**AA14, step 5 tab. 3**) must be set to 14, which means that the available volume is reduced in a not adjustable way by one liter every 14 impulses issued by the sensor. In this way the maximum treatable volume that can be programmed is **10.000** liters. If you need to use a larger volume, it is possible to do a simple arithmetical operation, that is to multiply by two, by three, by four, etc. the divider and at the same time divide by two, by three, by four, etc. the treatable volume. Examples:

You have to treat **15.000** liters water.

Volume / 2	15.000 / 2	**7500** in **steps 4** and **5** of **tab. 3**
Divider x 2	AA14 x 2	**AA28** in **step 8** of **tab. 3**

When starting operations the treatable volume will be **7500 liters**.

You have to treat **50.000** liters water.

Volume / 5	50.000 / 5	**0000** in **steps 4** and **5** of **tab. 3**
Divider x 5	AA14 x 5	**AA70** in **step 8** of **tab. 3**

When starting operations the treatable volume will be **0000 liters** (10000).

Please note that programming the volume by setting the **0000** value, means programming **10.000**, while setting the **AA00** value for the divider means programming the divider as **100**.

You can treat maximum **70.000** liters water with the SIATA Hall effect liter counter by programming **10.000** liters for the treatable volume and **AA98** for the divider.

If you use a counter issuing one impulse every liter (or cubic meter), the maximum treatable volume will be 1.000.000 liters (or cubic meters) if you set to **10.000** liters the treatable volume and to **AA00** the divider (corresponding to 100 impulses every liter or cubic meter). Please note that,

because of the Reed counters characteristics, we recommend not to use 1imp./1m3 or similar counters.

6.7 – Installing the probe.

The conductivity probe is the most important element of **Aqua Ionic** and its installation must be performed with the highest care. A screened cable is always the best choice to connect the controller to the probe. This choice is compulsory when the distance between the controller and the probe is over 2 meters and/or when the environment where the controller is being installed is subject to strong electromagnetic interferences.
Nonetheless, it is possible to use normal cables if the distance between the controller and the probe is short or if there are not great electric interference sources in the immediate neighborhoods.
In any case, it is advisable not to wire the probe cable near power cables.

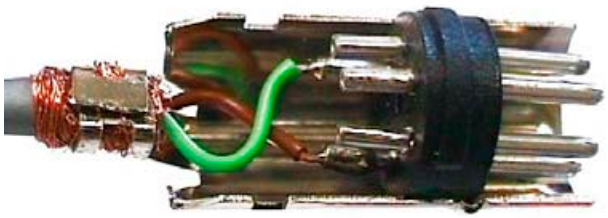


Fig. 5

6.8 – Connections

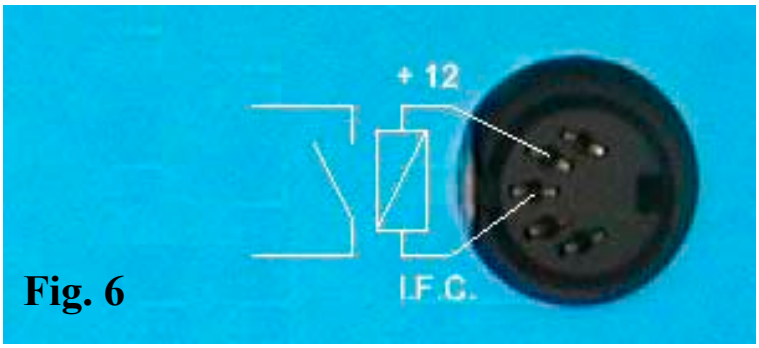


Fig. 6

Fig. 6 shows the correct usage of the signals issued by **Aqua Ionic** in the Open Collector mode. The relay indicated in the figure must be connected between the terminal of the +12 Vdc and the terminal of the signal concerned (in the example it is the cycle-end impulse).
Please refer to the table of par. 6.8.1 to learn which signals are issued by the controller in the Open Collector mode.
The maximum relay absorbency for the trip coil excitation must be **20mA**.
Here below follow the codes of a few relays that can be used to this purpose, all of them with a trip coil to be supplied with 12 Vcd.

Manufacturer	**Model**
OMRON	G5V-1 12Vdc
TAKAMISAWA	MZ-12HS-U
MATSUSHITA	JQ1-12V or JQ1a-12V or HD1-M-DC12V

6.8.1 – Connection of this version to 3 DIN sockets

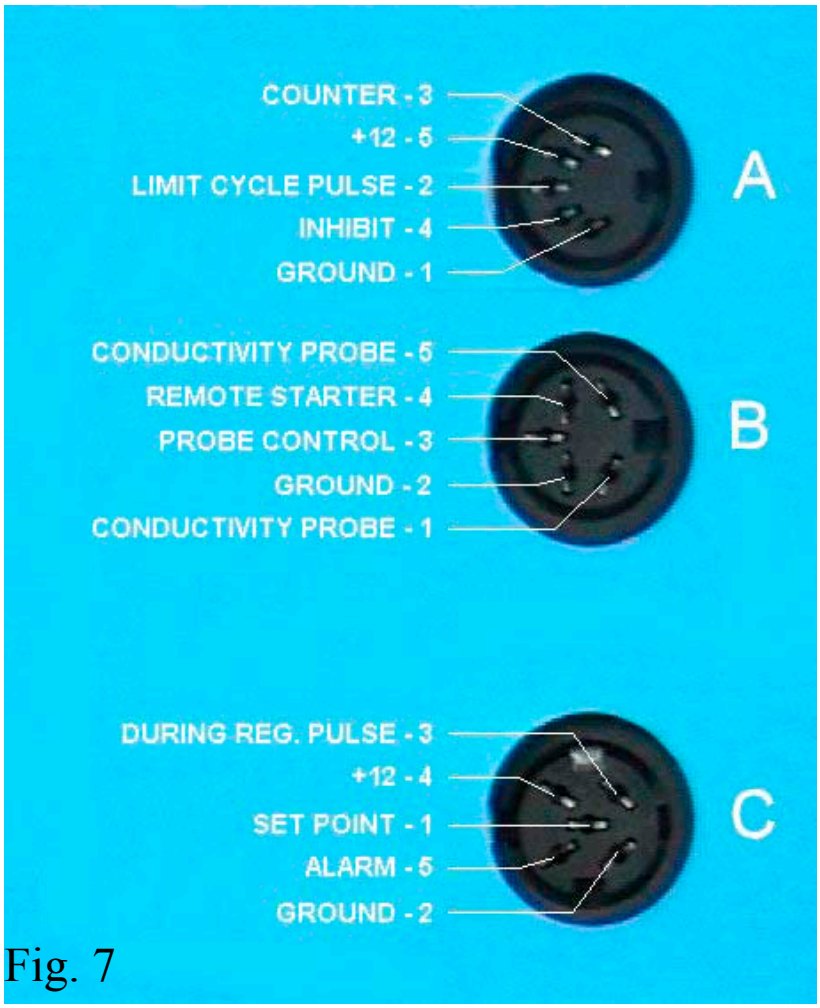


Fig. 7

Fig. 7 shows the connections of the 3 DIN sockets, to be used as follows:

Contacts	Function
DIN A, 1 – 3	Volume, Reed counter or with make, not supplied.
DIN A, 1 – 3 – 5	Volume, Hall effect magnetic counter supplied by a +12 Vdc voltage.
DIN A, 1 – 4	Inhibition signal input (when closed).
DIN A, 2 – 5	Output of the Cycle End Impulse in the Open Collector mode.
DIN B, 4 – 2	Input of the Remote start signal (when closed).
DIN B, 3 – 2	Input of the regeneration quality control activation signal.
DIN C, 1 – 4	Output of the Set Point signal in the Open Collector mode.
DIN C, 3 – 4	Output of the Impulse During Regeneration signal in the Open Collector mode.
DIN C, 5 – 4	Output of the Alarm signal in the Open Collector mode.

7 – TROUBLESHOOTING

Here follow some basic operations that will help solving those little problems that could arise when using the **Aqua Ionic**.
As a general rule, if the suggested remedies do not give any results and independently from the type of controller, we suggest to check the anomaly by replacing only the electronic board with a new one or anyway with one that is certainly in a good state (obviously to the extent of your possibilities). It is important to be able to identify whether the cause of the malfunction is to be found in electronics, mechanic part, or the harness wiring. Replacing the electronic board may be already a precious help to identify the real cause of the defect. If our suggestions are not sufficient to solve your problems, please contact the SIATA assistance service.

DEFECT	POSSIBLE CAUSE	REMEDY
The *controller* does not power on.	Failure of the supply outlet. Failure of the transformer plug. Failure of the transformer.	Connect any other kind of device to the same outlet and the controller to another outlet.
	Problem in the cable connection.	Open the case and check that the wires be properly inserted in the 7-pole connector.
	The controller is blocked.	If you use the side DIN socket, check for any short-circuited terminals in the connector cap. Follow instructions given in par. 6.8.
The motor does not stop at the limit stop.	Damages in the plastic components.	Open the case and check whether the plastic components supporting the micro switch are integer (Fig. 10).
	The micro switch is damaged.	Open the case and check whether (Fig. 10): the micro switch is integer; it is placed correctly; the terminals are placed correctly; the connection wires are integer; the micro switch starting lever is integer.
	The cam is out of place.	Open the case (Fig. 10) and check that the metal seeger holding the cam be integer and correctly placed in its casing. Turn the cam with your hand to check whether it activates the micro switch lever.
The *controller* does not perform regeneration.	The controller is not correctly programmed.	Check that the programming has been performed correctly and that the regeneration start corresponds to the really necessary one.
	The controller is inhibited.	If you are using the DIN socket (Fig. 9), check for any short-circuited terminals in the connector cap.
Wrong parameters are displayed.	The controller is out of program.	Reset the controller following instructions given in par. 6.8.

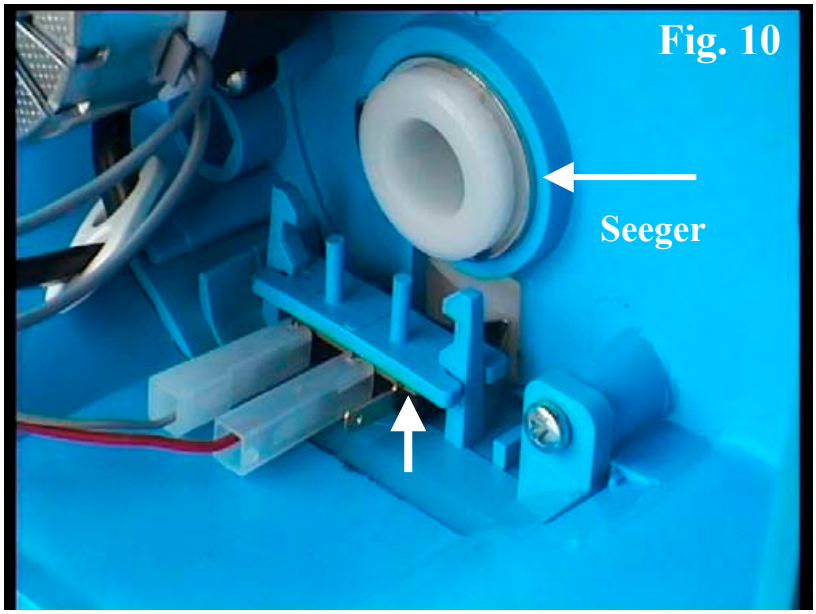


Fig. 10 clearly shows the micro switch, its block and command mechanical details, and the terminals for connection to the *controller*.

8 – SPARE PARTS

Attachments DA0189 and DA0191 describe the assembling schemes of the spare parts of a timer provided with external drivers (the scheme shows 2 drivers, but there can be up to 9), and of a timer without external drivers (this model is usually named **132**). The items indicated in the schemes refer to **tab. 4, Table of items**, among which there are explicit and implicit variants.

Among implicit variants we have:

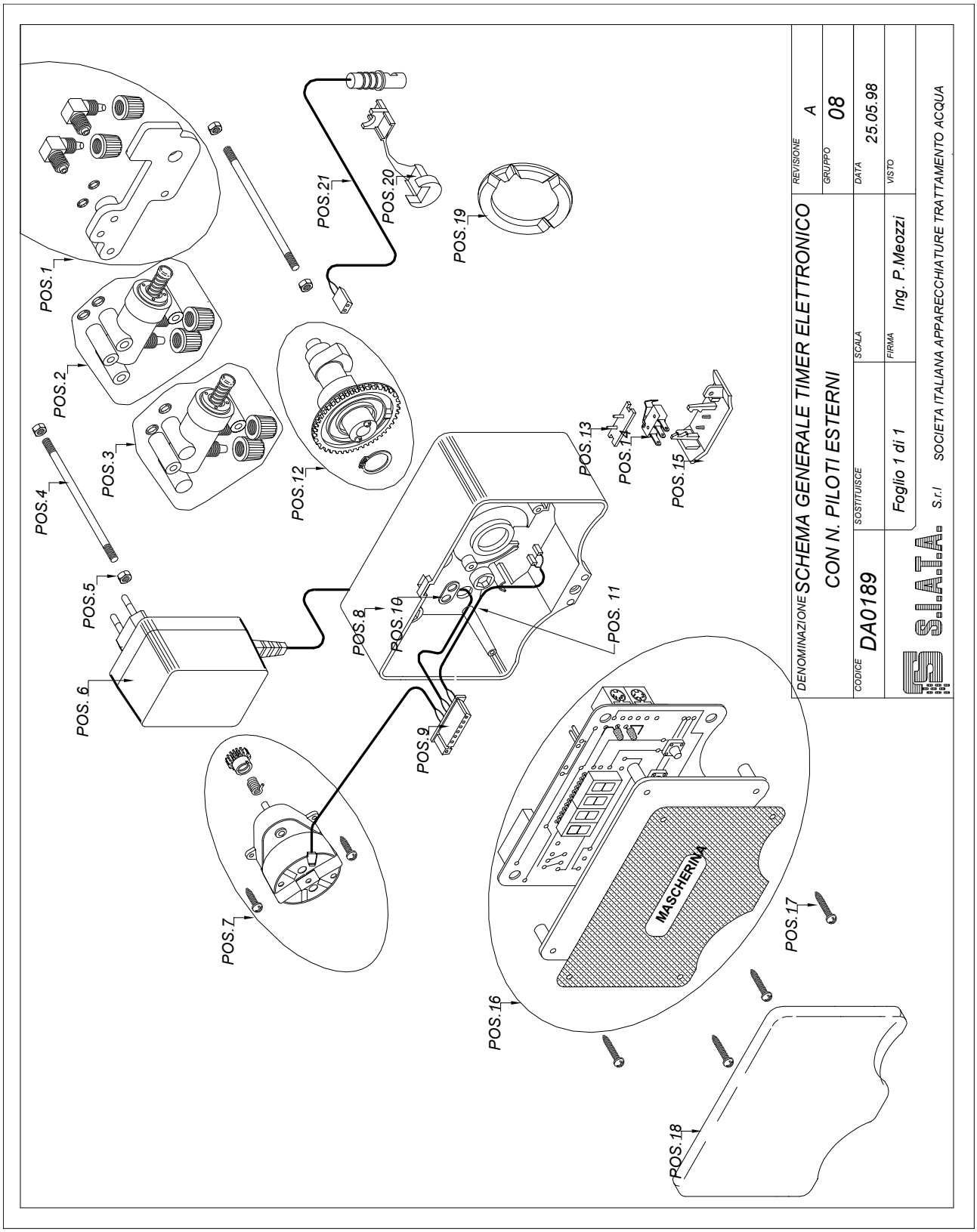
1. **The cam group**. Items from 1 to 5 and item 12 (external drivers group) shown in attachment DA0189 are replaced only by item 22 (132 cam group) in attachment DA0191.
2. **The turbine sensor cable**. Items 20 and 21 indicated in both attachments are present in the **volumetric** type timers only, independently from the presence of any external driver.
3. **Second microswitch**. Item 19 in both attachments shows the ring controlling a second microswitch during the cam rotation. Please contact the SIATA sales department for further information about the performances that can be obtained with such a modification.
4. The plug-shaped transformer (item 6) can be provided in two ways: **chlorine timer**, transformer code 95-STC1, and **non chlorine timer**, transformer code 95-STD.

The explicit variants concern only the timers with external drivers (attachment DA0189), which in the table are marked with an asterisk (*).

1. **The number of pass-through drivers** (item 2). Their quantity varies according to the number of drivers mounted on the timer. Therefore, if a timer is provided with 4 external drivers, 3 out of them will be pass-through drivers (item 2) and one driver only will be closed (item 3).
2. **The coupling bars** (item 4), the length of which varies according to the number of drivers mounted on the timer. The bar code is obtained by associating the number of drivers to the base code (468-), therefore, for a 2-driver timer the code will be 468-2, for a 5-driver timer it will be 468-5, and so on.
3. **Programming cam** (item 12) for external drivers. It changes according to the device type.

Tab. 4 – Table of items shown in attachments DA0189 and DA0191

Item	Description	Code
1	Complete driver shoulder	433-KIT
2	Complete driver (terminal)	2253-A
3	Complete pass-through driver	2253-B*
4	Coupling bar for external drivers	468-*
5	M5 nut for threaded bar	468-D
6	Plug-shaped transformer 230V – 12 V	95-STD
	Plug-shaped transformer 230V – 12 V / 6 V (CHLORINE)	95-STC1
7	Ratiomotor	94-R7
8	Timer case kit	81-KIT
9	7-pole connector	93-7
10	Timer supply cable lock	90
11	Micro-switch wire	97
12	External cam kit	2221-2*
13	Micro-switch blocking plate	88-A
14	Microswitch	92-F
15	Microswitch holder	88
16	Aqua Ionic electronic board kit	892-K
17	Cover blocking screw	120
18	Timer case transparent cover	82
19	Stop ring on power takeoff	84-AS
20	Black cable lock	90-XP
21	Turbine sensor cable, 50 cm length	2223-50
22	New driver timer programming cam kit	2229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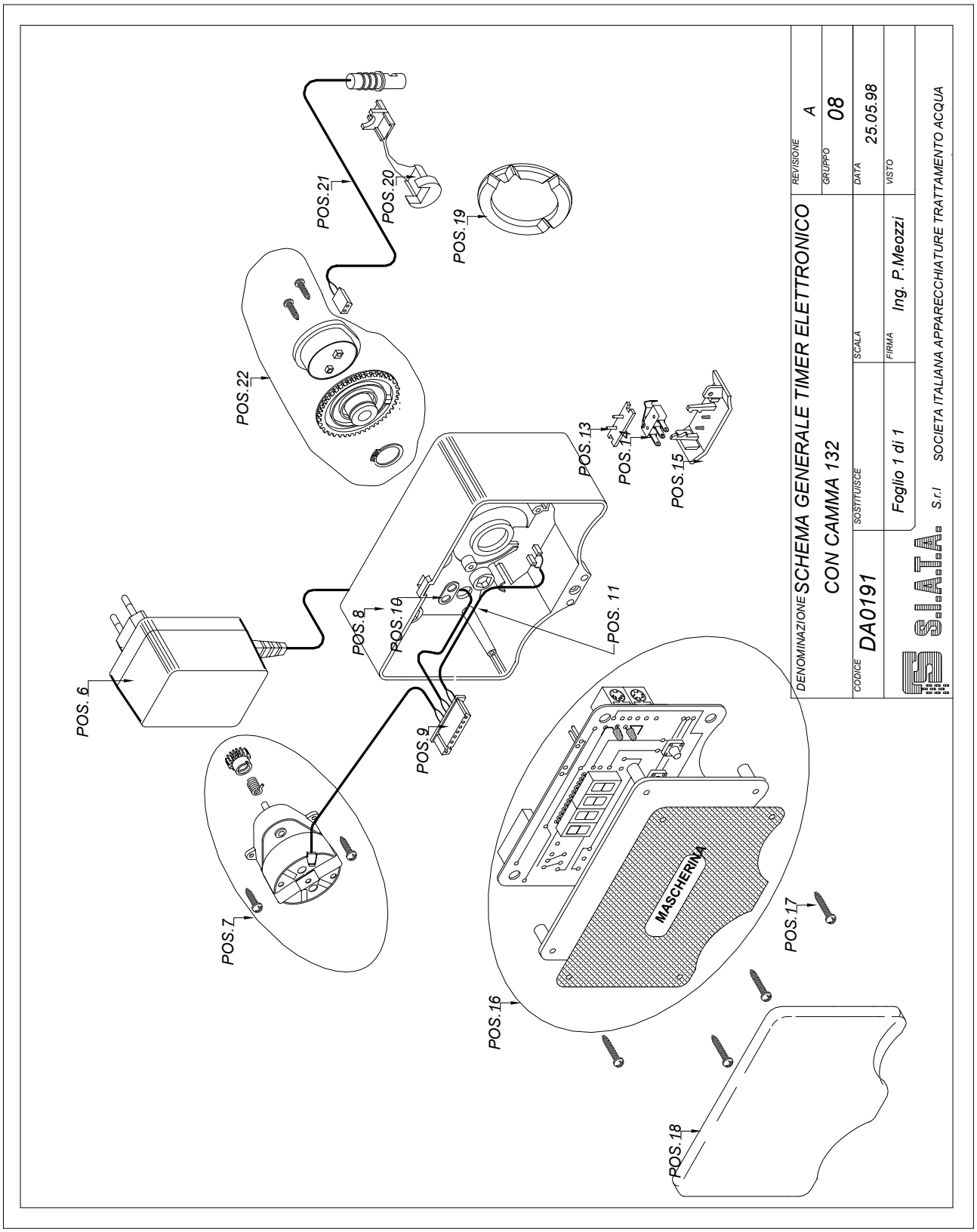
MASCHERINA
DENOMINAZIONE SCHEMA GENERALE TIMER ELETTRONICO
CON N. PILOTI ESTERNI
REVISIONE A
GRUPPO 08
CODICE DA0189
SOSTITUISCE
SCALA
DATA 25.05.98
Foglio 1 di 1
FIRMA Ing. P.Meozzi
VISTO
SIATA S.r.l SOCIETA ITALIANA APPARECCHIATURE TRATTAMENTO ACQUA


POS.21
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POS.18
DENOMINAZIONE SCHEMA GENERALE TIMER ELETTRONICO
CON CAMMA 132
CODICE DA0191
SOSTITUISCE
SCALA
Foglio 1 di 1
FIRMA Ing. P.Meozzi
REVISIONE A
GRUPPO 08
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SIATA S.r.l SOCIETA ITALIANA APPARECCHIATURE TRATTAMENTO ACQUA