



7700 VALVE



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1 - VALVE SPECIFICATION

Installation N°	<input type="text"/>	System capacity	<input type="text"/>	m ³ tH
Valve serial N°	<input type="text"/>	Inlet water hardness	<input type="text"/>	°tH
Tank size	<input type="text"/>	Water hardness after mixing valve	<input type="text"/>	°tH
Resin type	<input type="text"/>	Brine tank size	<input type="text"/>	L
Resin volume	<input type="text"/>	Quantity of salt per regeneration	<input type="text"/>	Kg

VALVE TECHNICAL CHARACTERISTICS

INITIATION

Time clock	<input type="checkbox"/>	<input type="text"/>	Days/	<input type="text"/>	litres
Meter delayed	<input type="checkbox"/>	REGENERATION TIME			
Meter immediate	<input type="checkbox"/>	2 A.M.	<input type="text"/>		

REGENERATION REGLEE

REGENERATION TIME

or

REGENERATION CYCLE SETTINGS

Cycle 1 (Filtr) (dF) (dFFF)	<input type="text"/>	Min.
Cycle 2 (Filtr) (dF) (dFFF)	<input type="text"/>	Min.
Cycle 3 (dF) (dFFF)	<input type="text"/>	Min.
Cycle 4 (df) (dFFF)	<input type="text"/>	Min.
Cycle 5 (df) (dFFF)	<input type="text"/>	Min.
Cycle 6 (dFFF)	<input type="text"/>	Min.

HYDRAULIC SETTINGS

Injector size	<input type="text"/>	
Drain line flow control (DLFC)	<input type="text"/>	GPM
Brine line flow control (BLFC)	<input type="text"/>	GPM

VOLTAGE

24V/50Hz	<input type="checkbox"/>
24V/60Hz without transformer	<input type="checkbox"/>

NOTES

2 - VALVE INSTALLATION

2.1 Water pressure

A minimum of 1,4 bar of water pressure is required for the regeneration valve to operate effectively. Do not exceed 8,5 bar ; if you face this case, you should install a pressure regulator upstream the system.

2.2 Electrical connection

An uninterrupted current supply is required. Please make sure that your voltage supply is compatible with your unit before installation. If the electrical cable is damaged, it must imperatively be replaced by a qualified personal.

2.3 Existing plumbing

Existing plumbing should be in a good shape and free from limescale. The installation of a pre filter is always advised.

2.4 By-pass

Always provide a by pass valve for the installation, if the unit is not equipped with one.

2.5 Water temperature

Water temperature is not to exceed 43°C, and the unit cannot be subjected to freezing conditions.

2.6 Presentation

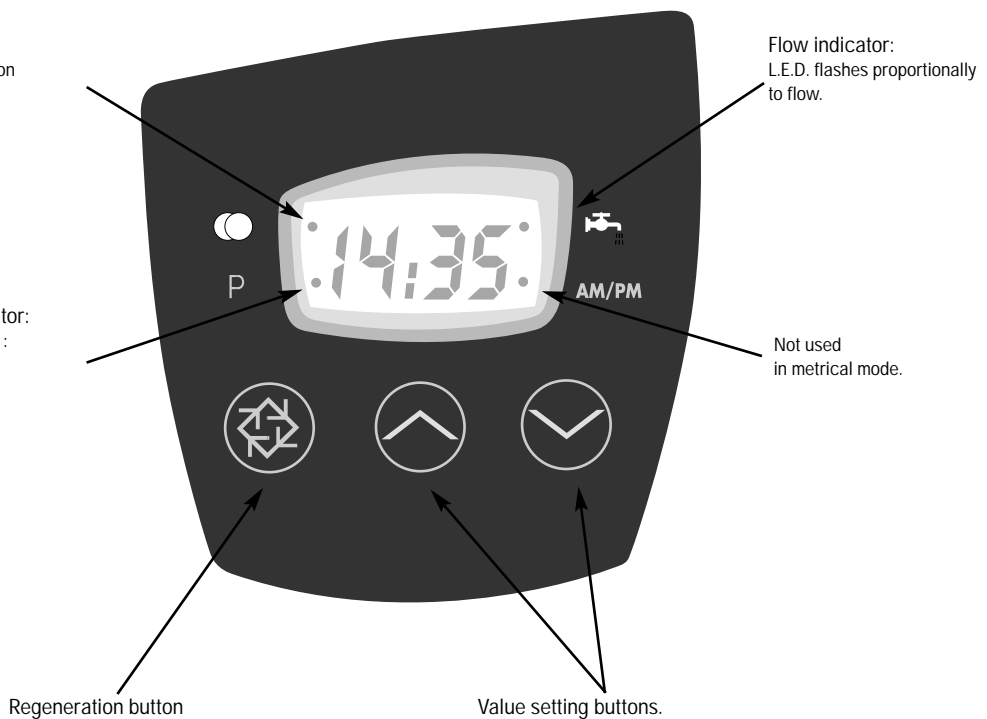
Service indicator:

- Valve in service : L.E.D on
- Night regeneration: flashing L.E.D.

Programming indicator:
- valve in programmation : L.E.D on.

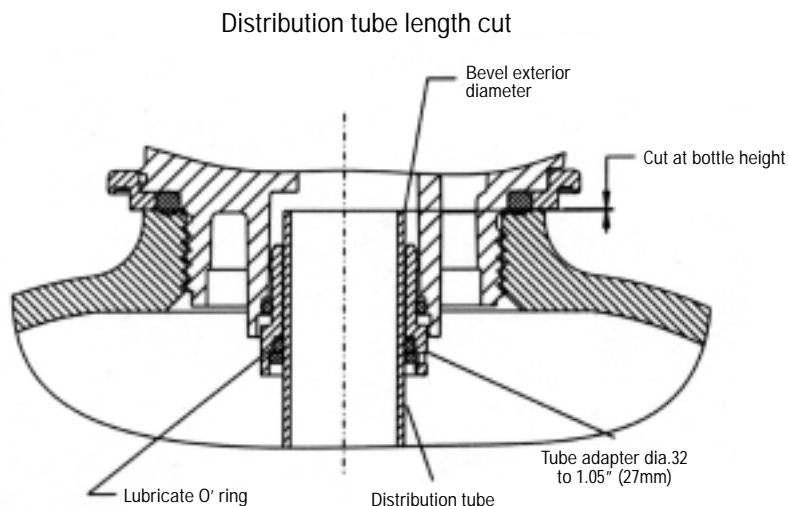
Flow indicator:

L.E.D. flashes proportionally to flow.



3 - INSTALLATION INSTRUCTIONS

- 3.1 Install the unit in a chosen place on a flat firm surface.
- 3.2 During cold weather, it is recommended to bring the valve back to room temperature before operating.
- 3.3 All plumbing for water inlet, distribution and drain lines should be done correctly in accordance with legislation in force at the time of installation.
- 3.4 The distribution tube should be cut flush with the top of the tank. Slightly bevel the ridge in order to avoid deterioration of the seal whilst fitting the valve (View sketch below).
- 3.5 Lubricate the distribution tube joint and the joint with a 100% Silicon lubricant. Never use other types of greases that may damage the valve.
- 3.6 All soldering on main plumbing and to the drain line should be done before fitting the valve. Failing to do so can generate irreversible damages.
- 3.7 Use Teflon® tape if necessary in order to seal between the drain fitting and the outlet flow control.
- 3.8 On units with by-pass, place in by-pass position. Turn on the main water supply. Open a cold soft water tap nearby and let run a few minutes or until the system is free from foreign material (usually solder) that may have resulted from the installation. Once clean, close the water tap.
- 3.9 Place the by-pass in service position and let water flow into the mineral tank. When water flow stops, slowly open a cold water tap nearby and let run until the air is purged from the unit.
- 3.10 Plug the valve to a power source. Once plugged the valve may do a cycle on its own in order to go to service position.
- 3.11 Fill approximately 25mm of water above the grid plate, (if used). Otherwise, fill to the top of the air check in the brine tank. Do not add salt to the brine tank at this time.
- 3.12 Initiate a manual regeneration, bring the valve into « brine draw and slow rinse position » in order to draw water from the until the blockage of the anti air valve ; the water level will be approximatively in the middle of the air check.
- 3.13 Open a cold water tap and let the water run in order to drain the air out of the circuit.
- 3.14 Bring the valve in brine refill position and let it get back to service position automatically.
- 3.15 Now you can add salt to the brine tank, the valve will operate automatically.



4 - VALVE OPERATION

Timeclock regeneration

The number of days between each regeneration cycle is preset. Once reached, regeneration is triggered at the programmed time.

Metered regeneration

The valve calculates the amount of water it can soften between 2 regenerations based on the exchange capacity (m³°tH) and inlet water hardness that are preset.

Immediate or meter delayed regeneration valves

As softened water is used, the remaining volume display will decrease until reaching its reserve capacity (meter delayed regeneration) or until zero (immediate metered regeneration). When this happens, regeneration is automatically triggered either straight away or at a preset time.

4.1

Service

4.1.1

Service display

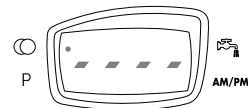
In operation, the time of the day and the volume remaining will alternatively be displayed (except for the time clock version: only the time of day will be viewed).



Time of day



Remaining Volume: 765 l



If the remaining volume is higher than 9999 litres, the letter « t » will appear to indicate that the indicated number must be multiplied by 1000. I.E. t 15 = 15 * 1000 = 15 000 litres capacity.

In delayed metered regeneration, this display indicates that the remaining capacity is exhausted. The service position L.E.D will flash and a regeneration cycle will start at the programmed time.

4.1.2

Time of day setting

Set the time of day minute by minute by pressing the \wedge or \vee button. Press and hold the button to set quickly the time of day.

4.2

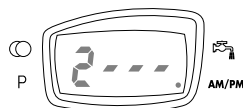
Regeneration

4.2.1

Regeneration displays

During the regeneration cycle, the valve will show the current cycle number the valve is advancing to (flashing display) or has reached as well as the time remaining in that cycle (fixed display). Once all the regeneration cycle steps have been completed the valve will return to the service position.

For example:



The valve is advancing to its 2nd cycle. The number 2 and the L.E.D. are flashing.




The valve is in its 2nd cycle; there are 65 minutes left.

4 - VALVE OPERATION


4.2.2 Start a manual regeneration

There are 2 options to initiate regeneration.

A) Press and release the  button.


If an immediate regeneration is programmed, the valve will immediately start regeneration.

With a delayed regeneration, the service L.E.D. will begin to flash immediately and the regeneration will occur at the preset regeneration time.

B) Press and hold for 5 seconds the  button.

In any case the valve will go into regeneration immediately.

4.2.3 Advance to the next regeneration cycle



To advance to the next regeneration cycle, press the  button.

This will have no effect if the valve is already advancing to the next cycle.

4.3 PROGRAMMING

CAUTION: The programming has to be done only by the installer for the setting of the valve parameters. The modification of one of these parameters could prevent the good functioning of the device.

To enter the program mode, the valve has to be in service. While in program mode, the valve will continue to operate normally monitoring all information. The programming is stored in permanent memory with or without line or battery backup power.

To enter programming mode, press simultaneously the  and  for 5 seconds.

Press on the  button in order to jump to the next stage.

Use the  and  buttons in order to modify the displayed values.

Note: You must pass through all the programming steps and come back in service position to save the modifications that have been done during the programming mode.



Water hardness °tH
For example: 25 °tH
(Not viewed in time clock version)



Regeneration time
For example: 2 A.M.
(only visualised in delayed metered and timeclock mode)



Day override (maximum days between 2 regenerations)
For Example : regeneration every 4 days
(only visualised in timeclock mode, setting is imperative.)

4.4 VALVE OPERATION DURING A POWER FAILURE

During a power failure, all the data will be saved and restored once the line power is restored. The data can be saved for many years with no loss. The electronics will be inoperative and all regeneration will be delayed. The electronics will restore all the information to the time where the power failure occurred. The valve does not record the amount of water used during a power cut.

If the valve is in delayed metered regeneration, the reserve capacity will be set to a third of the full capacity.



5 - TROUBLESHOOTING

PROBLEM	CAUSE	CORRECTION
1. Softener fails to regenerate	<ul style="list-style-type: none"> A. Electrical service to unit has been interrupted. B. Timer is not operating properly C. Meter cable disconnected. D. Jammed meter. E. Defective valve drive motor. F. Improper programming. 	<ul style="list-style-type: none"> A. Assure permanent electrical service (check fuse, pull chain or switch). B. Replace the timer. C. Check the meter connection to the timer and the meter cover. D. Clean or replace the meter. E. Replace the drive motor. F. Check the programming and reset as needed.
2. Softener delivers hard water	<ul style="list-style-type: none"> A. By-pass is opened. B. No salt in the brine tank. C. Injector or screen is blocked D. Insufficient water into the brine tank E. Hardness from the hot water tank. F. Leak at the distributor tube. G. Internal valve leak. H. Flow meter jammed. I. Flow meter disconnected. J. Improper programming. 	<ul style="list-style-type: none"> A. Close the by-pass valve. B. Add salt to the brine tank and maintain the salt level above the water level. C. Replace or clean the injector and screen. D. Check the brine tank fill time and clean the brine flow control if it's blocked. E. Repeated flushing of the hot water tank is required. F. Make sure the distributor tube is not cracked. Check the O' ring and tube pilot. G. Replace seals and spacers and/or piston. H. Remove the obstruction from meter. I. Check the meter connection to the timer and the meter cap. J. Check the programming and reset as needed.
3. Unit uses too much salt	<ul style="list-style-type: none"> A. Improper brine refill setting B. Excessive water in the brine tank. C. Improper programming. 	<ul style="list-style-type: none"> A. Check salt usage and salt setting. B. See problem n°7. C. Check the programming and reset as needed.
4. Loss of water pressure	<ul style="list-style-type: none"> A. Iron build up in line to softener. B. Iron build up in the softener. C. Inlet of the valve plugged due to foreign material. 	<ul style="list-style-type: none"> A. Clean the line to the softener. B. Clean the valve and resin bed. C. Remove the piston and clean the valve.
5. Loss of resin through drain line	<ul style="list-style-type: none"> A. Top distributor missing or broken. B. Air in water system. C. Drain line flow control is the wrong size. 	<ul style="list-style-type: none"> A. Add or replace the top distributor. B. Ensure the presence of air check system in the brine tank. C. Ensure the drain line flow control is sized correctly.




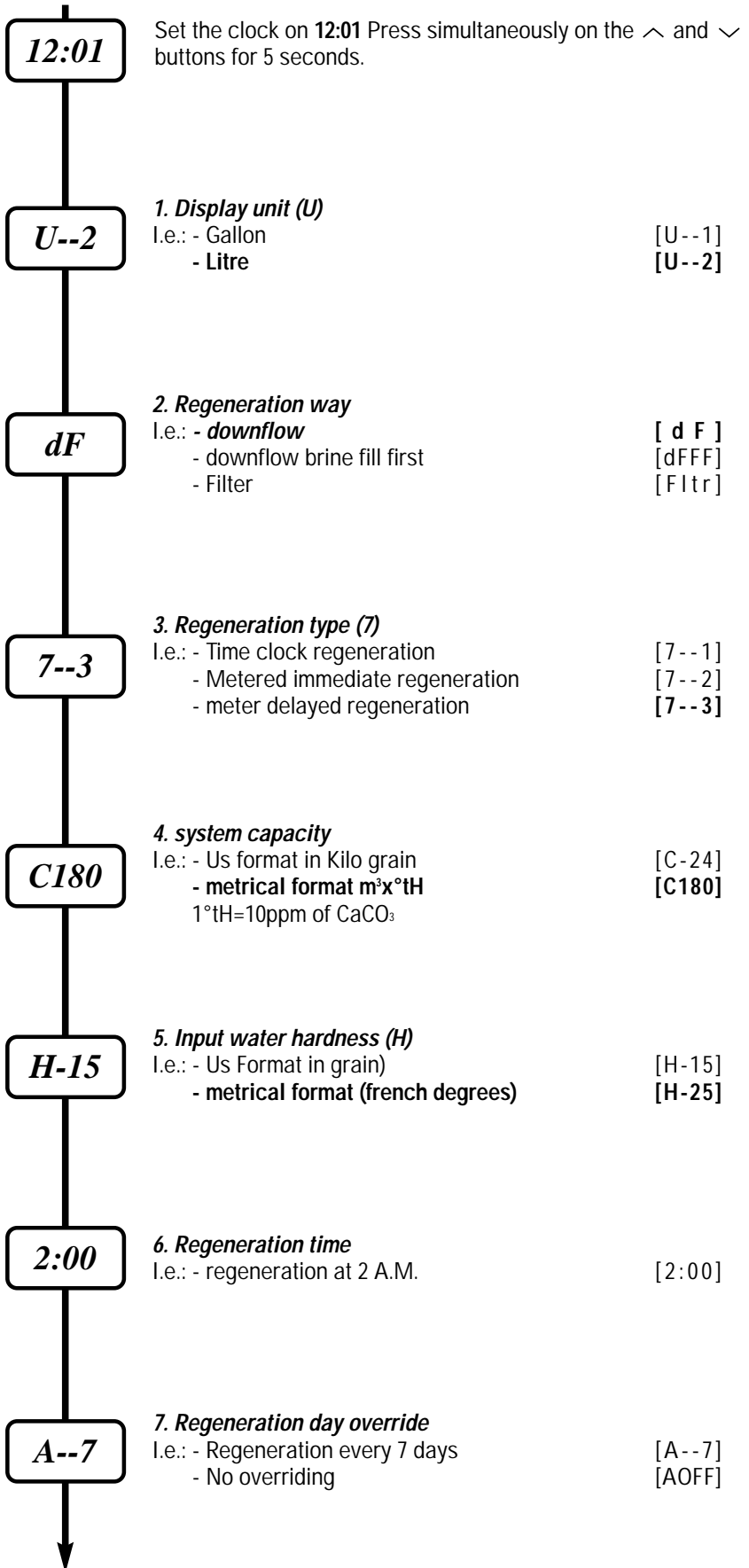
5 - TROUBLESHOOTING

PROBLEM	CAUSE	CORRECTION
6. Iron in softened water.	A. Fouled resin bed. B. Iron exceeds the recommended parameters.	A. Check backwash, brine draw and brine tank refill ; increase frequency of regeneration; increase backwash time B. Contact the dealer.
7. Excessive water in brine tank	A. Plugged drain line flow control. B. Brine valve failure. C. Improper programming	A. Clean the drain line flow control (DLFC). B. Replace the brine valve. C. Check the programming and reset as needed.
8. Salted water in service line	A. Blocked injector or screen. B. Timer not operating correctly. C. Foreign material in brine valve. D. Foreign material in brine line flow control (BLFC). E. Low water pressure. F. Improper programming.	A. Clean injector and replace screen. B. Replace timer. C. Clean or replace brine valve. D. Clean brine line flow control. E. Raise water pressure to 1,4 bar at least. F. Check the programming and reset as needed.
9. Softener fails to draw brine	A. Plugged drain line flow control. B. Plugged injector. C. Injector filter blocked. D. Low water pressure. E. Internal valve leak. F. Improper programming. G. Timer not operating properly	A. Clean drain line flow control (DLFC). B. Clean injector and replace screen. C. Clean filter. D. Increase water pressure to 1,4 bar at least. E. Change seals and spacers and/or piston assembly. F. Check the programming and reset as needed. G. Replace timer.
10. The valve cycles continuously	A. Timer not operating properly. B. Faulty optical sensor. C. Faulty cycle cam operation.	A. Replace timer. B. Replace the circuit board. C. Replace cycle cam or reinstall.
11. Drain flows continuously	A. Foreign material in the valve. B. Internal valve leak. C. Valve jammed in brine or backwash position. D. Timer motor stopped or jammed E. Timer not operating properly.	A. Remove piston assembly and inspect bore, remove foreign material and check the valve in various regeneration positions. B. Replace seals spacers and or piston assembly. C. Replace piston assembly and seals and spacers. D. Replace timer motor and check all gears for missing teeth. E. Replace timer.



7700 VALVE PROGRAMMING

1. Press once the  button to go from one display mode to another.
2. Set parameters values by using the ^ and v buttons.
3. Depending on the programmation, some displays will not appear and some will not be variable.
4. Bold characters default setting.



A

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LEVEL DESCRIPTION

Enter master programming mode

Set time date on to **12:01** and press simultaneously on the \vee and \wedge for 5 seconds.

A L.E.D. will display to show that the valve is in programming mode. Each programming step can be modified.

- Use the \vee and \wedge in order to adjust setting values.
- Press the  button to advance to the next programming stage.

1. Display unit

Notice: if this setting has just been changed, the valve will go around fully and come back to service mode.

Default setting: [U--1]

This setting is identified by the letter U. There are two types:

- [U - - 1] US type: the measure unit is in gallons, time display is 2x12 hours, hardness in grain.
- [U - - 2] metric type: the measure unit is litre, time display is 24 hours, hardness in $m^3 \times tH$.

2. Regenerating way

Notice: if this setting has just been changed, the valve will go around fully and come back to service mode.

Default setting: [dF]

This display is used in order to tell the card the piston type used on the valve.

- dF : down flow
- dFFF : down flow with brine fill first
- Fltr : Filter

3. Regeneration type

Default setting: [7--3]

This setting is identified by the number 7. This function allows the setting of the valve regeneration type. There are 3 possibilities:

- **Time clock:** The electronics establish that a regeneration is requested when the number of days between two regenerations has been reached; the new cycle beginning at the preset time. The setting of the day override establishes the number of days between two regenerations. [7--1]

- **Metered immediate regeneration:** The electronics establish that a regeneration is required when the softened water volume has reached zero. The regeneration starts immediately. [7--2]

- **Meter delayed regeneration:** The electronics establish that a regeneration is requested when the volume of softened water used has reached the reserve capacity of the unit. Regeneration will begin at a preset time; the system will automatically establish a reserve capacity. [7--3]

4. System capacity

Not visualized in time clock mode: [7--1]

This setting is identified by the letter C. It contains an extended mode Ct, the letter t meaning a multiplication by 1000.

It enables the regulation of the system capacity in $m^3 \times tH$.

The system calculates the water volume that needs to be treated before a regeneration request.

In meter delayed mode, the system will establish a reserve capacity.

I.e. : $35 m^3 \times tH$

[C-35]

5. Feed water hardness (H)

Not visualized in time clock mode: [7--1].

Default setting: [H-15]

This setting is identified by the letter H. It enables the regulation of the feed water hardness.

The system uses this setting and the previous one to establish softened water capacity.

I.e. : $25 tH$

[H-25]

6. Regeneration time

Not visualized in immediate metered mode: [7--2]

It allows setting of the regeneration time. The two dots between hour and minute display do not flash in order to differentiate with the current time display.

I.e. : regeneration at 2 :00 A.M.

[2:00]

7. Day override

This setting is identified by the letter A. It allows to set the maximum amount of days that the system can stay in service mode without a regeneration. This stage is compulsory for a valve in time clock mode and optional for a valve in metered mode.

I.e. regeneration every 7 days

- Cancelled stage

[A--7]




[AOFF]

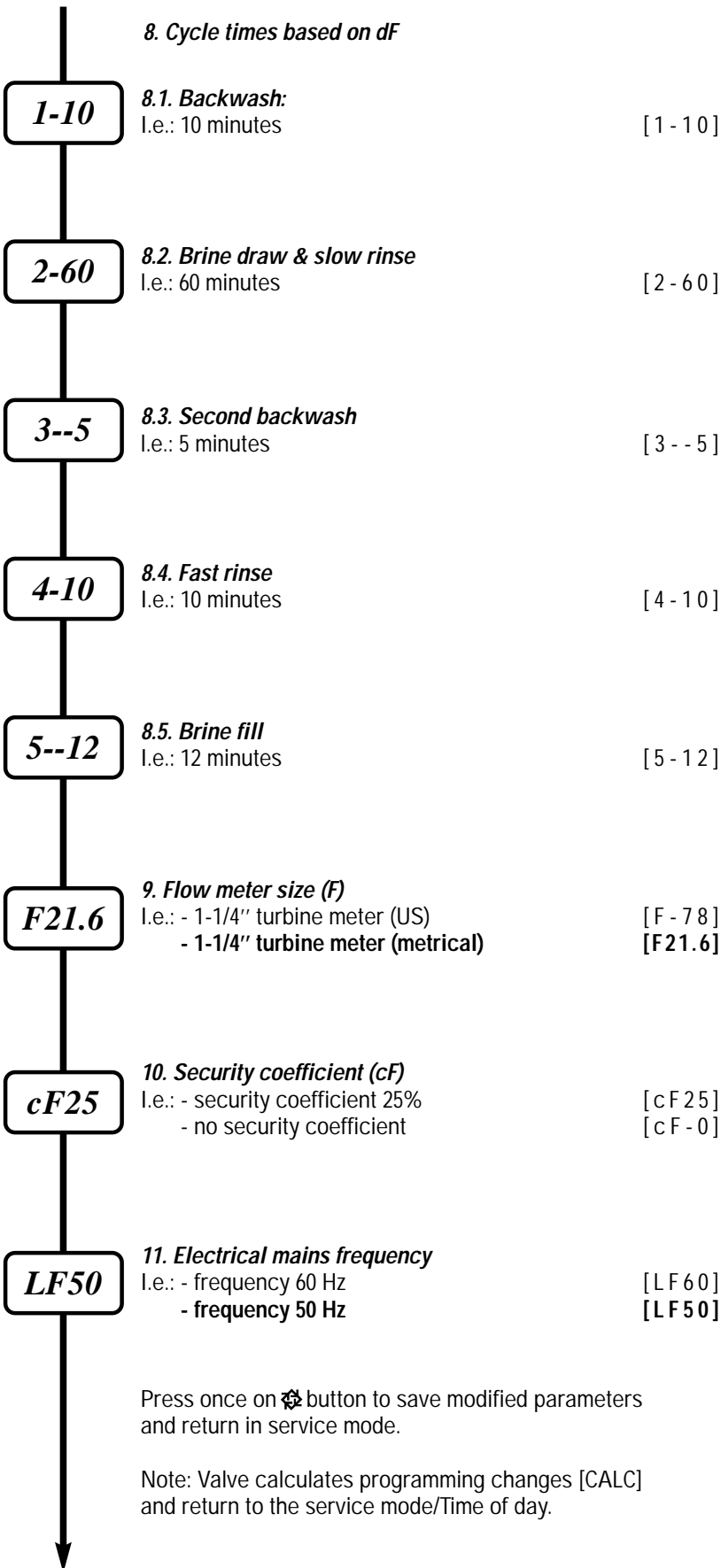
B

7700 VALVE



7700 VALVE PROGRAMMING

1. Press once the  button to go from one display mode to another.
2. Set parameters values by using the  and  buttons.
3. Depending on the programming, some displays will not appear and some will not be variable.
4. Bold characters default setting.



C

7700 VALVE

LEVEL DESCRIPTION

8. Regeneration cycles

The settings 8-1 to 8-6 enable the regulation of the regeneration cycle times.
The amount of cycles is established by the piston type. (View stage 2).

I.e.:

Cycle 1-8 mn

[1--8]

Cycle 2-65 mn

[2-65]

Cycle 3-4 mn

[3--4]

DF

- 1) Backwash
- 2) Brine draw/Slow rinse
- 3) 2nd backwash
- 4) Fast rinse
- 5) Brine refill

dFFF

- 1) Brine refill
- 2) Pause (salt saturation)
- 3) Backwash
- 4) Brine draw/Slow rinse
- 5) 2nd backwash
- 6) Fast rinse

FLtr

- 1) Backwash
- 2) Fast rinse

9. Meter size

Not visualized in time clock mode: [7--1]

This setting is identified by the letter F. It allows to regulate the amount of pulses generated by the meter per litre.
The meter used with this valve is a 1-1/4"

[F21.6]

10. Security factor

Not visualized in time clock mode: [7--1]

This setting is identified by the letters cF. It allows a security margin by lowering the available capacity.
The setting is a percentage.

I.e. :

- No security factor
- Security factor 35%: the available capacity is reduced by 35%

[cF 0]

[cF35]

11. Mains frequency

This setting is identified by the letters LF. It allows regulating the mains frequency.

If the frequency is set correctly, the timer display will remain accurate.

- 60 Hz (default setting with the following display U- - 1)
- 50 Hz (default setting with the following display U- - 2)

[LF60]

[LF50]

Notice:

If the regeneration way setting changes during the programming, the valve will go round fully in order to reinitialize.

If the system capacity, hardness or security factor settings have just been modified during the programming, the card will recalculate the system capacity and take one third of the total capacity as a new value for the reserve capacity.

Error display

The codes only appear in service mode.

There are 3 possibles errors:

Error code	Cause	Remedy
Err0	The motor is blocked	Unplug the unit from the mains, Once plugged back, the error code disappears. If the error cause isn't solved, the code will reappear. Do not attempt to solve the problem. Change the card or motor.
Err1	The motor runs continuously	
Err2	The valve hasn't regenerated for 99 days.	A regeneration has to be done for the valve to run normally.

Reset

Press simultaneously the buttons \wedge and \vee for 25 seconds or until the day time displayed is 12 :00. The program will then take its default settings.

The valve will have to be fully reprogrammed following the indications in the previous chapters.

Notice: if a reset has occurred, the valve will turn round fully to recover its initial position.