

DIN module ZELIO

for STARWAY valve control

1. Safety instructions

Read this user manual before installation and unit activation. Should you need any explanation or should you have any doubts, do not hesitate to contact the device supplier. The unit shall be installed by a trained professional only. Always disconnect the main power supply before performing repairs or maintenance, or before connecting any external devices.

2. General information and compatibility

The package contains a DIN ZELIO module for independent STARWAY valve control or for integration into a Vario Pool Control System. When connected to the Vario system, DIN ZELIO communicates with Vario analogically to the OMNITRONIC or AQUASTAR automatic 6-way valves.

The ZELIO module is compatible with Vario PUMP od SWITCH modules of version **1.3** or higher.

3. DIN ZELIO module functions

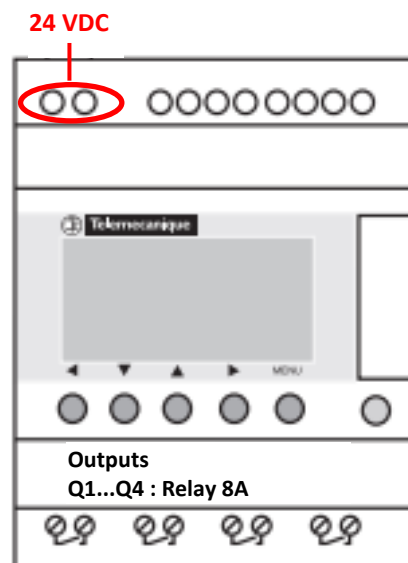
The ZELIO module serves as an independent control unit for STARWAY piston valves, with adjustable backwash frequency (period) and backwash process phase times, including a simple filtration manager. When connected to the Vario Pool Control, the system receives a filter backwash signal from the ZELIO module and adjusts the pump operation accordingly, while indicating the backwash process on the Vario main controls screen in the same way, as when an OMNITRONIC or AQUASTAR 6-way valve is used.

4. Technical information

Dimensions (W – H – D)	71 x 57,7 x 90,2 mm
Material	ABS nylon, self-extinguishing
Protection	IP20
Power supply	24 VDC
Inputs	8x discrete input 24 VDC
Outputs	4x relay, 5–30 VDC / 100–240 VAC, 8 A

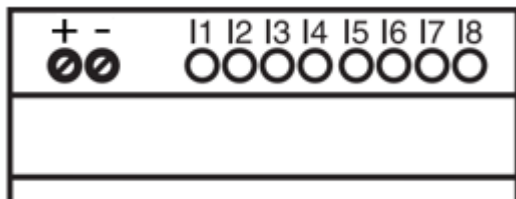
5. Power connection

The DIN ZELIO module is to be connected to a SELV-type 24 VDC power source.



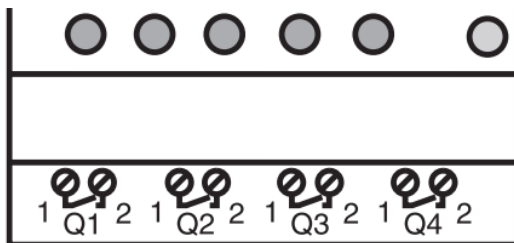
6. Inputs and outputs

- A. On the **top side** of the ZELIO module there are **24 VDC inputs** for receiving the signal from filter pump and also from pressure switch (when installed). A separating relay is required (230V->24V):



- **Input I1** = input for filter pump operation time counter
- **Input I2** = input for pressure switch signal = backwash start

- B. On the **bottom side** of the ZELIO module there are **5–30 VDC / 24–250 VAC outputs** for filter pump, compressor and STARWAY valve control:



- **Output Q1** = backwash process start signal
- **Output Q2** = filter pump operation control (VArio input)
- **Output Q3** = STARWAY valve operation control
- **Output Q4** = filter pump control (when used without the VArio system)

7. ZELIO module – functions

The ZELIO module may be used either separately as an independent STARWAY control unit, or can be connected to the VArio Pool Control system. STARWAY valves are controlled electrically, no pressure water or a compressor are required.

The diagrams for each connection option are included at the end of this manual.

8. User settings – MENU

The ZELIO module enables the user to set the filter backwash frequency (interval) together with the duration of the backwash itself.

- **Backwash frequency (interval) with countdown:**
 - Week counter – with selectable day of week and time of backwash
 - Hour counter – filter pump operation time / total elapsed time
- **Backwash cycle parameters – cycle phase duration:**
 - Pump-stop / water calm-down before backwash (BW Delay – fixed parameter=10s)
 - Valve repositioning time (Servo Time – fixed parameter=35 s)
 - Filter backwash time (BW Time – adjustable parameter)
 - Calm-down / sand setting time before valve repositioning (BW Delay – fixed 10s)

8.1. System time and date setting

Before the first use and prior to programming the filter backwash cycle parameters, **the system time and date must be set**. Follow the steps below:

A. Connect the ZELIO module to a power source – the main screen with default settings will appear:

17/03/2022 14:52	- Actual system date and time
Weekly Program	- Weekly counter – interval between backwashes in weeks
Weeks C3 P=00002	- Default backwash frequency (P= backwash every 2 weeks)
Remain C3 A=00002	- Time remaining to the next backwash (A= 2 weeks to the next BW)

B. Press the **Menu/Ok** button – the main menu screen will be displayed:

MONITORING PARAMETER RUN / STOP VERSION	- Manufacturer settings (press Menu + white button to leave the submenu) - Backwash cycle parameter setting (see Chapter 8.3) - Manual Stop / Start of the ZELIO program – <i>do not touch</i> - Firmware version
LANGUAGE FAULT CHANGE D / H CHANGE SUMM/WINT	- Language settings (only ENG available) - Error messages - Date and time settings - Summer / Winter time – <i>do not touch</i>

Press ◀ anytime to exit the main menu.

C. Press ▼ to select **CHANGE D / H** and press **Menu/Ok**. The date and time settings submenu will appear:


LANGUAGE FAULT CHANGE D/H (flashes) CHANGE SUMM/WINT	→	CHANGE D / H THU 17 MAR 2022 15:25 48s CAL +00secs /WK	- Press ▲▼ to set the day - Press ◀▶ to set the date, year, hours and minutes (seconds)
----------------------------------------------------------------------	---	--------------------------------------------------------------------------------------	--------------------------------------------------------------------------------------------

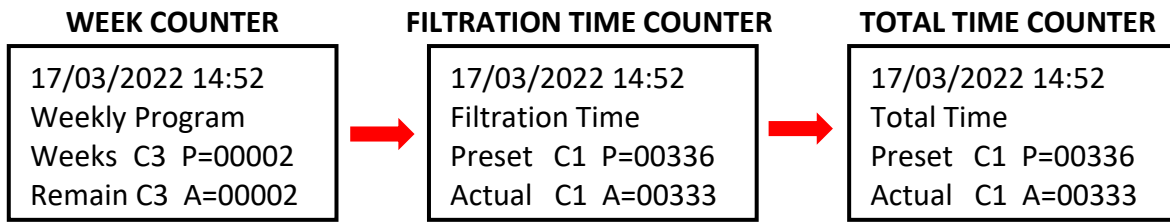
- CAL = time calibration (haste/delay in a week).
The manufacturer indicates a possible time divergence of 6 seconds per week by 25 °C device temperature.

D. Press **Menu / Ok** to save the settings and return to the main menu.

IMPORTANT – The ZELIO module is equipped with a battery-powered memory backup. The producer-stated battery life is 10 years (at 25 °C.)

8.2. Counter modes – setting the type of interval between backwashes


Press  on the main screen to select the preferred interval countdown mode:

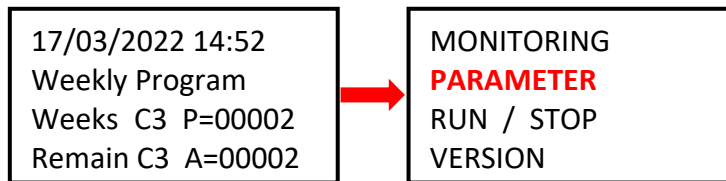


- Week Counter: The interval between backwashes defined by number of weeks
- Filtration Time: The interval between backwashes defined by filtration operating hours
- Total Time: The interval between backwashes defined by common time hours

The displayed counter type will be used for time countdown until the next filter backwash.


8.3. Counter modes – setting the backwash frequency

Press **Menu / Ok** to open the main menu, then press  to select **PARAMETER** and confirm with **Menu / Ok**. The submenu for backwash cycle parameter setting will be displayed:



8.3.1 Backwash frequency – total time / filtration time counter (parameter CC1)


A. In order to use the filter pump / total operation time counter, **the backwash interval time in hours** must be defined first. Proceed as follows:

CC1 COUNTER	<ul style="list-style-type: none"> - Press  to move to P=00xxx and set the interval value in hours (default 336 hours = 2 weeks) - !! CAUTION – never modify the T:FROM parameter !!
RC1 C1 V=00336	
C1	
DC T:FROM P=00336	

B. To confirm the operation hours counter settings, press **Menu / Ok** and confirm with **YES + Menu/Ok**:

CONFIRM CHANGES ?
YES
NO

NOTE: Any change to the C1 parameter will take effect only after the running countdown will finish. The hour countdown on the main screen (Actual C3 A=xxxxx) will remain unchanged until the next backwash.

TIP: In order to change the running countdown to the modified C1 value immediately, from the main screen press and hold for at  least 3 seconds.

8.3.2 Backwash interval – week counter (parameter CC3)

- A. In order to use the week counter, **the backwash interval time in weeks** must be defined first. Press ▲ to move to the **CC3** settings screen and proceed as follows:

```

CC3   COUNTER
RC3   C3 V=00002
C3
DC   T:FROM P=0002
    
```

- Press ◀ to move to **P=00xxx** and set the interval value **in weeks** (default = 2 weeks)
- **!! CAUTION – never modify the T:FROM parameter !!**

- B. To confirm the week counter settings, press **Menu / Ok** and confirm with **YES + Menu/Ok**:

```

CONFIRM CHANGES ?
YES
NO
    
```

NOTE: Any change to the C3 parameter will take effect only after the running countdown will finish. The week counter on the main screen (Remain C3 A=xxxx) will remain unchanged until the next backwash.

TIP: In order to set the running countdown to the modified C3 value immediately, from the main screen press and hold ▼ for at least 3 seconds.

- C. Furthermore, the **H1 parameter must be set** – the day and time of filter backwash – see **Ch. 8.3.3**.

8.3.3 Week counter – setting the day of the week and time (parameter H1)

- A. After setting the weekly interval, the day of the week and backwash time must be defined. Press ◀▶ to return to the CC3 parameter and change it to **H1** using the ▲ button.

On the H1 screen, set the **day + time** of the filter backwash. Follow the steps below:

```

H1   -----4-----
A
H:M ON   10:00
H:M OFF  10:01
    
```

- Press ▶ to go to **day of the week** selection and with ▲ select the backwash day (Mon = 0; default = 4 = Fri.)
 - Press ▶ to select the backwash **starting time**.
 - Press ▶ to select the **HM:OFF** time.
- ! Always set the HM:OFF time to +1 minute from backwash start !**

- B. To confirm the day & time settings, press **Menu / Ok** and confirm with **YES + Menu/Ok**:

```

CONFIRM CHANGES ?
YES
NO
    
```

- C. Now the main backwash duration may be set – parameter TT3 (see **Ch. 8.4**)

8.4. Backwash cycle – setting the backwash duration

8.4.1 Setting the filter backwash duration (parameter TT3)

In the menu, press ▲ to change to **TT3 = backwash duration**. Set the backwashing time as follows:

TT3	TIMER	A
RT3	T3t=	000,0
T3		
t=0090.0		S

- Press ◀ to move to parameter **t=0xx,0** and set the desired backwash time in seconds, using the button. ▲
- Default TT3 setting = 90,0 seconds.
- Confirm changes with **Menu / Ok + YES + Menu / Ok**.
-

FILTER BACKWASH PROCESS		
PHASE:		PUMP
	Filtration	ON
10 sec	Pump off + water stop	OFF
35 sec	Valve change to BW	OFF
TT3	Filter backwash	ON
10 sec	Pump off + water stop	OFF
35 sec	Valve change to BW	OFF
	Filtration	ON

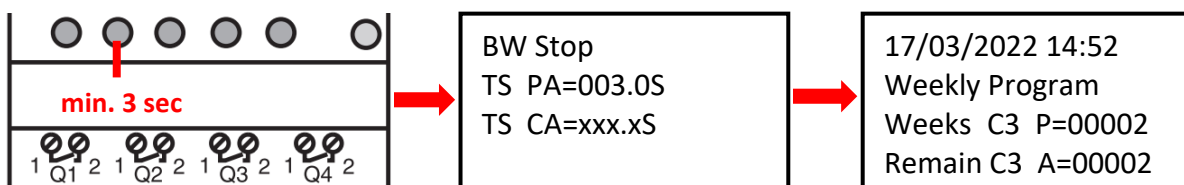
8.5 Manual backwash start / stop + backwash status indication

The filter backwash can always be started or stopped manually:

- To manually **start** the backwash, press and hold ◀ + ▲ for at least 3 seconds.
- To manually **stop** the filter backwash cycle, press and hold ▼ for at least 3 seconds.

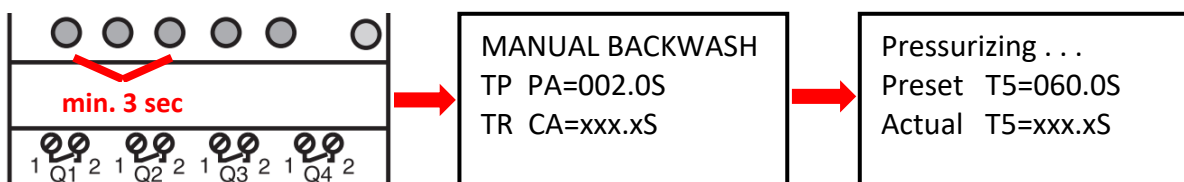
8.5.1 Manual backwash STOP

During the backwash cycle, **press and hold ▼**. A screen with 3-second countdown will appear – after the 3 seconds the backwash cycle will be stopped and you may release the button:



8.5.2 Manual backwash START

While on the main screen, **press and hold ◀ + ▲**. A screen with 3-second countdown will appear – after 3 seconds the compressor pressurizing (TT5) will start and you may release the button:



8.5.3 Displaying the current status during and after filter backwash

A. During the backwashing, a cycle progress screen is always displayed:

Backwashing . . .	
BW Delay =010.0S	- Water calm-down time (fixed = 10 sec)
Servo Time =035.0S	- Valve repositioning time (fixed = 35 sec)
BW Time =030.0S	- Filter backwash countdown (TT3 = adjustable)
BW Delay =010.0S	- Water calm-down time (fixed = 10 sec)
Servo Time =035.0S	- Valve repositioning time (fixed = 35 sec)

B. When a backwash cycle is completed, the main screen will be displayed:

17/03/2022 14:52 Weekly Program Weeks C3 P=00002 Remain C3 A=00002	OR	17/03/2022 14:52 Filtration Time Preset C1 P=00336 Actual C1 A=00333	OR	17/03/2022 14:52 Total Time Preset C1 P=00336 Actual C1 A=00333
-----------------------------------------------------------------------------	----	-------------------------------------------------------------------------------	----	--------------------------------------------------------------------------

8.5.4 Other displayed messages

A. Start Delay – information about start delay countdown

Start Delay	
Act. Time 020.2S	Elapsed time
Set. Time 035.0S	Preset delay

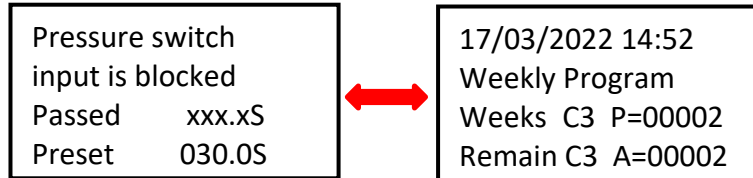
This message will always be displayed when the ZELIO module is connected to electricity. The start delay serves as valve protection in unexpected situation – the filter pump will not be started immediately, but after only the preset delay time. This provides for a safe valve return into the default position (filtration).

B. BW Counter – finished backwash cycles counter

BW Counter	
Reset Counter 00008	Backwash cycles after last reset
Total Counter 00009	Total backwash cycles

C. Pressure switch – input is blocked

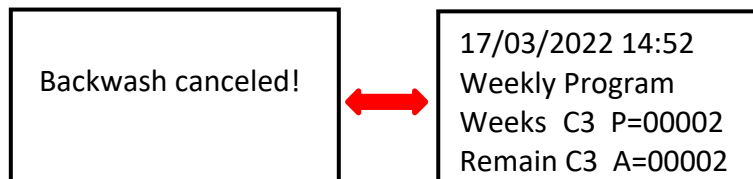
A warning after a repeated backwash was attempted based on the signal from a pressure switch (**Input 2**). A repeated backwash based on pressure is not allowed immediately; a 30 min safety period is activated in order to prevent unnecessary repeated backwashing (e.g. due to a fault pressure switch etc.) The warning will be displayed until the pressure switch opens or the 30 min safety period elapses. The information will be displayed on the main screen, alternatively to the ZELIO module status:



All pre-programmed backwashes (counter / calendar) will be executed as usual.

D. Backwash canceled

In case of a power failure during a backwash cycle (unfinished backwash) a **Backwash canceled!** warning will appear on the display, alternated by module status screen. The message will disappear after the next successful backwash (manual or preset).



8.6 Filter manager for autonomous filtration control (parameter H2)

When no VArio system is installed, the DIN ZELIO module may serve as a simple filtration manager. In the **PARAMETER** (see Ch. 8.3) section of the menu, press to ▲ move to the **H2** parameter. Set the required daily operation interval for the filter pump:

H2 0 1 2 3 4 --

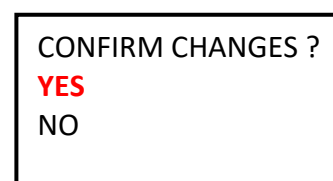
A

H:M ON 08:00

H:M OFF 18:00

- Press ► to select the week days; then press ▲ to select the operation days (0=Mon, 1=Tue etc., here Mon-Fri)
- Press ► to select the starting time – H:M ON
- Press ► to select the finish time – H:M OFF

Press **Menu/OK** and confirm with **YES**





Inteligentní ovládání bazénu Ultimate Pool Control



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