

C O M M E T A

**ELECTRONIC WATER TIMER
ELEKTRONISCHES PROGRAMMIERGERÄT
PROGRAMADOR ELECTRONICO**

ENG

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INSTRUCTIONS MANUAL

claber®

1 Introduction

2 Installation

3 Timer Use

4 General Description

5 Diagnostics





Congratulations on your excellent choice. The electronic timer that you have purchased has been designed according to world-class standards, especially in terms of performance controlled by a five key panel.

Please read this manual before installing your COMETA timer - it has been specifically prepared to allow you to maximise performance, right from the very start. It will help you to save time. Just like COMETA, this manual is simple, thorough, and sticks to the essentials.

1 INTRODUCTION

1.1 COMETA 4, 6

1.2 General safety information

1.1 COMETA 4,6

COMETA, as part of the **CLABER** line of domestic timers, is designed with operating simplicity in mind, while offering high-standard results, thanks to CLABER's long years of experience in the fields of both domestic and professional watering systems.

Available in the 4 and 6 zone versions, **COMETA** allows you to select programs (2) to satisfy all your application requirements. With just five keys.

The COMETA external transformer is designed so that there is no need to connect the unit directly to mains power.



1.2 General safety information

COMETA is intrinsically and therefore absolutely safe. Its special construction, materials and CE marking make it suitable for even heavy duty use, while ensuring the highest degree of user safety.

WARNING!

Repair operations (with the exception of those listed in section 5 "Diagnostics" to be carried out by the user) are prohibited. If the unit requires attention, contact your CLABER salesman.

The manufacturer declines all responsibility for damage by defective products in the event that **COMETA** has been used in operating conditions different from those specified in this instruction manual, or in the case of tampering, modifications or replacement of parts (EEC directive 85/374).

The guarantee will also be declared null and void in the above cases.

2 INSTALLATION

2.1 Inserting and replacing the battery

2.2 Wall mounting COMETA

2.3 Electrical connections

2.1 Inserting and replacing the battery

Open the cover.



Extract the lead (together with the battery in the case of replacement).



Connect (or replace) the battery.



Reposition the lead and battery inside, then re-close the cover.



2.2 Wall mounting COMETA

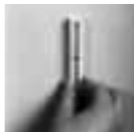
When installing your **COMETA** timer, choose a covered location that is protected against atmospheric agents and splashing water. The temperature inside the room where the timer is installed should be between 0 and 50°C, with the timer in operating conditions.

When choosing an installation site, account for the positioning of leads between **COMETA** and the valves, in order to limit installation and cost of wire raceways. A 230 VAC socket should also be in the vicinity.

For best results, install a junction box with terminal board near the timer (see fig. 2.3). In this way all terminals common to the valves will be together and separate from the timer, thereby facilitating inspections.

COMETA is supplied with a separate transformer together with a 1.5 m length of cable. The selected installation site of the timer should therefore account for this limit.

Once the junction box has been installed, position the 20x15 mm cable raceway where the bracket (supplied) is to be fitted.



Position the bracket with its inner side making contact with the beginning of the raceway, then mark the drill holes.



Drill holes in the wall with a 6 mm bit in the two points indicated.



Insert a 6 mm anchor plug in each hole.



Position the bracket vertically, then secure in place with two flat taper-head self-tapping screws (4 x 30 mm).



2.3 Electrical connections

After fitting the valve cable raceways (between the valves and the junction box), proceed with the installation of all cables. Bear in mind that:

- the terminals common to all valves (including the Master Valve) are located together in the junction box. **COMETA** can therefore be connected by a single common cable (see diagram in fig. 1);
- the recommended section size for all cables is 1.5 mm² over lengths less than 350 mm; section size must be increased for longer lengths;
- the solenoid valves and relays operate at 24 VAC;
- if present, the pump must be connected exclusively by a relay which will activate a contactor (see fig. 1).

CONNECTION DIAGRAM

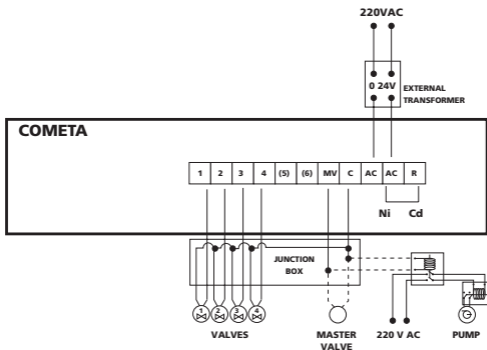


FIG. 1

Remove the cable protective cover by unscrewing the two 2.9x13 self-tapping screws.



Insert all the cables running from the raceway through the opening in the timer.



Fit the power pack to the bracket.



Make the following connections by inserting at least 15 mm of the relative stripped terminal: the terminal common to each valve and the Master Valve, running from the junction box, to terminal C (fig. 1); the second terminal of each valve to automatic terminals 1 to 4 (6) (fig. 1); the second terminal of the Master Valve and the pump control relay to terminal MV (fig. 1).



Insert the stripped terminals (at least 15 mm) of the transformer cable in terminals "AC" and "AC".



Fit the cover, then secure it with the screws.



Insert the transformer plug in the socket.



3 TIMER USE

3.1 The front panel

3.2 Clock and calendar settings

3.3 Program A and B settings

3.4 Watering cycles

3.5 Semiautomatic watering mode

3.6 Manual watering mode

3.7 TEST function

3.8 % (BUDGET) function

3.9 STOP function

3.10 Saving customised data in internal safety memory

3.11 Safety program and RESET function

3.12 Monitoring output status

3.13 Short-circuit detection function

3.14 Master Valve control

3.15 EVEN/ODD day watering control

3.1 The front panel





KEY FUNCTIONS

The following functions are activated by keys:





Selection of one program and access to relative functions; press the key repeatedly to cycle scroll WATERING DURATION, START TIMES, WATERING DAY functions.



Press the   (B) key for at least 5 seconds to access the SET functions; (SET) press it repeatedly to scroll the timer programming function parameters: TIME SETTING, YEAR SETTING, DAY AND MONTH, EVEN/ODD DAY WATERING SELECTION.

"MANUAL"

Press the two   keys to access all manual, semiautomatic and test functions; press them repeatedly to scroll the SEMIAUTOMATIC PROGRAM A, SEMIAUTOMATIC PROGRAM B, MANUAL and TEST functions.

"ENTER"

Press to access parameter programming or to confirm entered data.



Press to select options or to modify parameter setting.


"EXIT"

To exit the current function, press keys A and B at the same time is displayed, in which case press ENTER).

"%" (BUDGET)

To select the BUDGET function, press  and ENTER at the same time.



To activate the STOP function, press  and ENTER at the same time.

Display



The display symbols have the following meanings:

	Cursor / indicator
	Valve watering duration control
	Watering time start control
	Week day watering control
	Cyclic watering control
	Manual, Semiautomatic and Test functions.
	Budget function
	Short circuit
	Program A or B
	Setting function (appears when ENTER is pressed once for parameter setting. Remains visible during setting, until ENTER is pressed again to confirm setting)
	Numerical information
	Watering stop function
	Time setting
	Year, month and day setting
	Even/odd day setting



NOTE: in the present manual, a flashing display element is indicated in the relative photo by the symbol.

SETTING THE TIME

3.2 Clock and calendar settings

Once the battery has been inserted and the timer installed (see section 2), the time, year, month and day must be set. Note that the COMETA timer features an internal calendar valid through to the year 2057. When the current date has been set, the timer will display the day of the week: for example, with the setting 27/1/1998, COMETA will display the number 3, indicating Tuesday (day 1 indicates Sunday).




- 1 Press  (B) for at least 5 seconds to activate the SET-TIME function  .



- 2 Press **ENTER** to enable the setting function.









- 3 Press  to adjust the time.

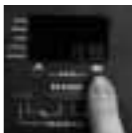


- 4 Press **ENTER** to confirm and exit the SET function.




SETTING THE YEAR, DAY AND MONTH

- 1 Press  (B) for at least 5 seconds to activate the SET-TIME function  .
- 2 Press B  repeatedly until the year, day and month settings appear  .
- 3 Press **ENTER** to enable the setting function.
- 4 Press   to select the year.



- 5 Press **ENTER** to confirm the year and to activate day and month setting (OK will remain on display; the cursor on the current month will flash.).



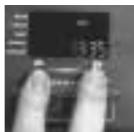
- 6 Press  to select the day and month.



- 7 Press **ENTER** to confirm.



- 8 Press **EXIT** or select other functions to exit the SET function.









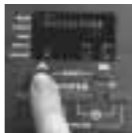
3.3 Program A and B settings

The three A and B programs are completely independent from one another. Setting the programs is simple and direct with the two relative buttons.








WATERING DURATION

- 1 Press A (or B) once: the  symbol will appear, the cursor will flash on the first of the 4 (or 6) valves available. The current duration setting will also be displayed.
- 2 Press **ENTER** to enable setting of duration for line 1.
- 3 Press   to set the duration.
- 4 Press **ENTER** to confirm the setting.
- 5 Press  to select the next valve. Repeat procedure steps 2-5 for all valves. To skip a valve, set time to the **OFF** position.
NOTE: Settings of each valve can be accessed at any time. Press **A (or B)**, then move the cursor to the valve by means of   . Repeat procedure steps **2-3-4**.








START TIMES

- 1 Press A (or B) again: the  symbol will appear, and the cursor will flash on the first start time of the 4 valves available.
- 2 Press **ENTER** to enable the setting function.
- 3 Press   to set the start time.
- 4 Press **ENTER** to confirm the setting.
- 5 Select another start time by means of   .
- 6 Repeat procedure steps 7 - 9 for all 4 starts. To skip a start, set the time to OFF.



WATERING DAYS

- 1 Press A (or B) again: the  symbol will appear, and the cursor will flash on the first day of the week (number "1" indicates Sunday).
- 2 Press **ENTER** to enable the setting function.
- 3 Press   to set watering ON or OFF.
- 4 Press **ENTER** to confirm the setting.
- 5 Select another day by means of  .



Watering days

- Repeat procedure steps **2-4** for each day of the week.



- Press **EXIT** to exit programming, or **B (A)** to set other programs.





NOTE 1:

Programs A or B or both can be set.

NOTE.2:

if the **B (or A)** button is pressed during setting of **B (or A)**; **COMETA** will switch to the same function in **B (or A)**; in this way the user can switch from one program to another to make settings or to read corresponding settings in the other program.

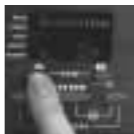
NOTE.3:




a setting can be modified at any time. Select the setting by pressing A (or B) repeatedly, then use the **ENTER** and   (see above procedure).

3.4 Watering cycles

The Watering Cycle function is used to configure A or B programs as cyclical. In this case the program will be carried out at regular intervals (number of days), from a minimum of 1 day (i.e. cycle repeated every day) to a maximum of 12.

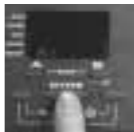
- 1 Press **A (or B)** repeatedly until the watering day setting function is selected.





- 2 Press   until the watering cycle symbol  is displayed after week day 7.



- 3 Press **ENTER** to enable the day number interval setting function.



- 4 Press   to set the day number interval (**1 - 12**).



- 5 Press **ENTER** to confirm the setting; the first watering operation will be performed on the same day that this setting is made.





- 6 Press **EXIT** to exit programming.



NOTE 1:

the user can at any time check the number of days left before the next watering operation. Access the watering cycle function (step 1). The cursor will point to the number of days.

NOTE 2:

to cancel the Watering Cycle function, repeat steps 1 to 3, then set interval duration to zero by means of   complete operation by performing step 5.

3.5 Semiautomatic watering mode

The semiautomatic watering mode is used to start up a single watering cycle on the basis of A or B program settings. This mode is particularly useful when extra watering is required.

- 1 Press **MANUAL** once or twice, according to which program (**A or B**) is to be used for the semiautomatic cycle.
- 2 Press **ENTER** to activate the selected program, or to suspend it if previously activated.
- 3 Press **EXIT** to exit the function.



NOTE:

in semiautomatic mode, the display will show all numbers of valves on (the cursor will flash above the activated valve); if the cursor flashes, the valve has been activated by program A; if the cursor is steady, the valve has been activated by program B, or activated in Manual or Test mode.




3.6 Manual watering mode

This mode is used for immediate or timed opening of a single solenoid valve.

- 1 Press **MANUAL** repeatedly until the valve numbers only appear.




- 2 Press  to move the flashing cursor to the selected valve.



- 3 Press **ENTER** to confirm and to proceed to watering duration setting.



- 4 Press  to set the duration in hours and minutes (up to 4 hours and 15 minutes).



- 5 Press **ENTER** to confirm the setting; watering will commence immediately.



- 6 Press **EXIT** to exit the function (but not watering).



NOTE 1:

to stop watering, repeat steps 1 and 2, then press ENTER.

NOTE 2:

other activated valves will be indicated by a steady cursor.

3.7 TEST function


The test function is especially useful during installation and maintenance. This function activates all valves in sequence for the period of time selected; in this way the user can conveniently check operating efficiency of all system components.

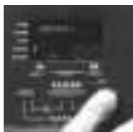
- 1 Press **MANUAL** until the TEST has been selected (the valve numbers are scrolled cyclically).



- 2 Press **ENTER** to enable the setting function of opening duration.



- 3 Press  to set the duration.



- 4 Press **ENTER** to confirm the setting; watering will start immediately.



- 5 Press **EXIT** to exit the function (but not watering)



NOTE 1:

to stop watering after pressing EXIT, repeat steps 1 and 2, then press ENTER.

NOTE 2:

priority between AUTOMATIC, SEMIAUTOMATIC, MANUAL and TEST modes. The TEST mode will override all other modes. The MANUAL mode will interrupt current AUTOMATIC and SEMIAUTOMATIC cycles, though will not be possible if the TEST mode has been activated. AUTOMATIC and SEMIAUTOMATIC modes will not be possible if valves in MANUAL or TEST mode have been activated.

3.8 % (BUDGET) function

The BUDGET function is used for immediate adjustment of program duration to changing weather conditions. Times can be reduced to 0 (this is the quickest way to deactivate a program) or increased by 200 %, without any modification to the watering duration settings made for the program A setting of 100% corresponds to the value set for watering duration time.

The function is operated separately for each program.

- 1 Press **%**; the symbols **%** and **A** will appear. Press **%** again to set the budget function on program B.
- 2 Press **ENTER** to enable the setting function of the percentage of the selected program.
- 3 Press **◀▶** to change the percentage (by steps of 25%).
- 4 Press **ENTER** to confirm the setting.



5 Press **EXIT** to exit the function.



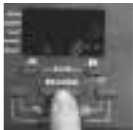
3.9 STOP function


This **COMETA** function is used to cancel or suspend watering, for example in the event of rain. Suspension will not modify the normal advancing of programs, but only the control of solenoid valves.

- 1 Press **STOP**.



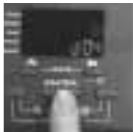
- 2 Press **ENTER** to enable the setting function.



- 3 Press  to set the number of days that watering is to be suspended. The number is counted down at midnight. If no day is set, STOP duration is permanent.




- 4 Press **ENTER** to confirm.



5 Press **EXIT**.



NOTE:

to resume normal programming, press STOP when the  symbol appears.

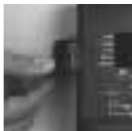
3.10 Saving customised data in internal safety memory

COMETA is equipped with an internal memory, in which a safety program has been stored by the manufacturer. The safety program activates each line for ten minutes a day, every day. Watering commences when the time shown by the display corresponds to 7:00. The Master Valve remains active. This program can be modified at any time by the user; to do so, simply press the two EXIT buttons for at least 10 seconds.

3.11 RESET function and safety program

The safety program is activated in the event that user settings have been erased due to power failure and the battery has run down or been removed. When power is returned, the current time, day, month and year are set. It is advisable to modify the safety program to your own requirements (see 3.10). The RESET function erases all previously set programs, and resets the unit to the safety program setting.

1 Wait for 5 seconds.



2 Remove the battery.



3 Reconnect the battery.





4 Reconnect 24 V power to the terminals.




3.12 Monitoring output status

COMETA is capable of displaying which valves are active at any given time; with the current time displayed, the days of the week are substituted by the valves. Those activated are indicated by a cursor.

For further information on the program settings made for each valve and the remaining duration, scroll the single valves with   .

3.13 Short-circuit detection function

In the event of short circuit on a line while a program is being carried out, the  symbol will immediately appear on the display, and will remain (even after the fault has been rectified) until the valve is reactivated. The faulty line/s will be indicated by a flashing number.





3.14 Master Valve control

The Master Valve or a supply pump (by means of the control relay of the relative contactor) ensures that water is delivered to the system only when required by watering cycles. Master Valve: an additional valve installed down-line of the valves in a particular watering area. The valve is opened by COMETA only during watering. Supply pump: when water is supplied from a well, tank or cistern, the pump ensures sufficient water pressure to the system. COMETA is therefore able to control start-up during watering cycles only.

1 Press **A** or **B** once.





2 Press   to move the cursor to MV.



3 Press **ENTER** to enable setting of the Master Valve.



4 Press   to activate (or deactivate) the Master Valve.



5 Press **ENTER** to confirm.





6 Press **EXIT** to exit the function.



3.15 EVEN/ODD day watering control

This function is indispensable when mains water is supplied according to a criteria of odd and even days.

- 1 Press ... (B) for at least 5 seconds to activate the SET-TIME  function.





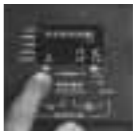
- 2 Press B repeatedly until the **EVEN / ODD** function is selected.



- 3 Press **ENTER** to enable the setting function.



- 4 Press   to select even (**2222**), odd (**1111**) or OFF.



- 5 Press **ENTER** to confirm the setting.



NOTE:

activation of this mode will disable programming of week days and cycle programs. The mode applies to both A and B programs.

4 GENERAL DESCRIPTION

4.1 General characteristics

4.2 Technical specifications

4.3 Safety Program

4.4 COMETA components

4.1 General characteristics

Number of controlled outputs: 4 - 6 (depending on model)
+ Master Valve or pump relay

Number of lines which can be activated simultaneously: 2 + Master valve

Line activation duration: 1 minute to 4 hours, 15 min. per line

2 daily programs, 4 start-ups each

Weekly or Cyclical programming, intervals 1 - 12 days

Even/odd day programming on perpetual calendar.

Budget function (0 - 200%)

Easy-to-use control panel with extra-clear display.

Automatic, Semiautomatic, Manual, Test operating modes.

STOP function for watering suspension from 1 to 15 days

Diagnostic function for detection of output short circuits.

Five seconds delay between closing of valve and opening of next (Master Valve remains active during delay, if enabled by program)

Master Valve can be excluded from any program

Output status monitoring function

Automatic terminals for easy connection

Programs stored in internal safety memory



4.2 Technical specifications

Power ratings:	Voltage: 220/240 VAC Frequency: 50 Hz Power: 30 VA
Safety device:	the transformer is protected against excess voltage from mains by a thermal circuit breaker. The board is protected against excess voltage by a varistor.
Max. number of valves controlled:	4 - 6 (depending on model) + Master Valve
Valves:	Voltage: 24 VAC maximum I: 0.25 A
Maximum current available to valves:	0.75 A

Back-up battery specifications

Battery type	Specifications	Approx. durability in event of power failure
Alkaline	9 V, 550 mAh	4 days
Ni-Cd	9 V, 110 mAh, IEC 6F22	1 day

NOTE:

the timer is designed for use with an alkaline battery. For Ni-Cd batteries, fit the lead supplied between terminals R and AC.

Operating temperature:	0-50°C
Construction material:	Heat-moulded plastic resin

Certification: the timer is CE certified in compliance with Englian laws 186/68, 791/77, European directive 73/23/CEE (integrated by 93/68/CEE), and standards EN 500 81-1, EN 500 82-1 and EN 60335-1.

4.3 Safety program

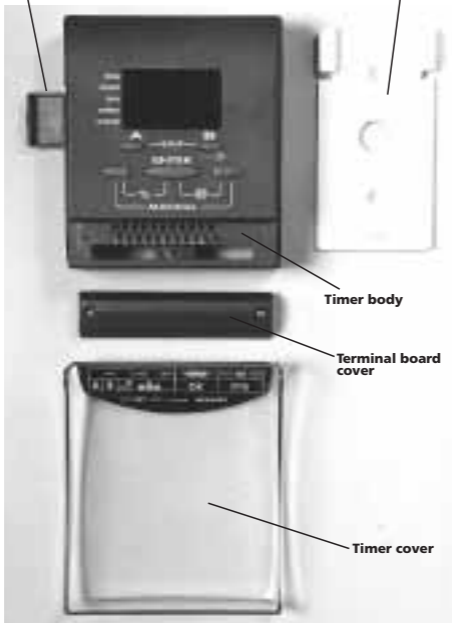
The COMETA timer memory should be fitted with an alkaline or Ni/Cd battery. The memory is used for storing the time and duration values set by the user, and will retain them in the event of mains power failure. See 4.2 for battery duration, and 3.10 on how to customise the safety program.



4.4 COMETA components

Battery compartment


Installation bracket



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5 Diagnostics

The following table supplies information that could be useful for the safe solution of cases of malfunction (rarely caused by COMETA) during water applications. The safety devices fitted on the timer, as well as the quality control tests carried out by the Manufacturer, ensure the highest degree of operating reliability.

FAULT	PROBABLE CAUSE AND REMEDY
COMETA seems to work, but one or more valves do not operate.	Valves are faulty or cables are disconnected. Use a tester to check that valves are powered; as required, replace the valve solenoid valve or connect cables.
COMETA seems to work, but no valves operate.	The common line connecting the junction box to the timer is damaged or disconnected. Check line and connection.
	Water mains is closed. Open water supply.
COMETA has stopped working.	External transformer not powered.
	The external transformer, though operational, does not supply 24V. Contact your CLABER dealer for replacement.
	COMETA is faulty; contact your CLABER dealer for repair.
Short-circuit symbol  together with valve number have appeared.	Short circuit between valve cables or in valve solenoid; replace cable or solenoid as necessary.
Programmed watering cycles not observed.	Power failure has occurred when battery is discharged. Replace battery (see 2.1), then reset start time (see 3.2).