LED Kit H/T

Time and Temperature Display Kit

Installation and Operating Manual

BP1
49340 TRÉMENTINES FRANCE
Tel. +33 2 41 71 72 00
Fax +33 2 41 71 72 02
www.bodet.com

Ref. 606252 L

On receipt, check carefully that the product has not been damaged during transport and, if necessary, submit reservations to the carrier.

Table of contents

CAUTION : *Installation and maintenance of this equipment should only be carried out by qualified personnel. Since the HT LED is connected to a mains supply or 115V, it must be installed in compliance with standard IEC 364. The mains supply for the clock must include a neutral phase circuit breaker (16A maxi), rapidly accessible upstream from the supply. This circuit breaker must be switched off during maintenance operations. This material must be installed before switching on. Any modification to the product will invalidate the guarantee.*

I - General description

The LED kit H/T is a diode display unit showing the time, date and temperature as a fixed or alternating display.

Four sizes are available with red or yellow LED : 30, 25, 20 and 15 cm.

This equipment can be fitted in single-side or double-side mode.

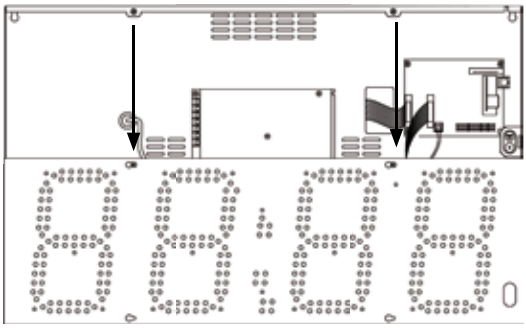
- The single-sided box includes the CPU board and the power unit. (This box is thicker than the double-sided box).
- The double-sided box is supplied with the display unit only and with a flat cable to be connected directly to the single-sided box.

Rear view of the 2 boxes

Single-sided box (the thicker box)

Double-sided box (the slimmer box)

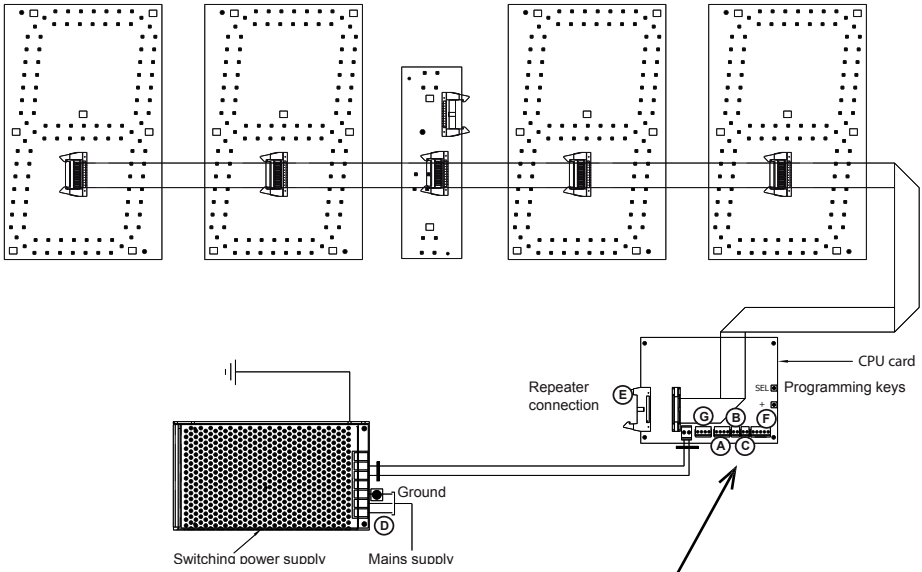
The display kit must be integrated in a sign with a protective pane on the front.

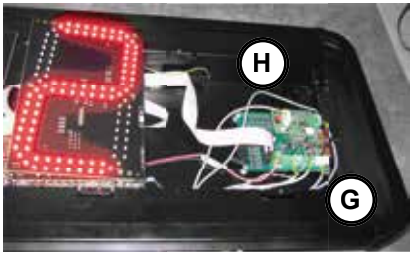


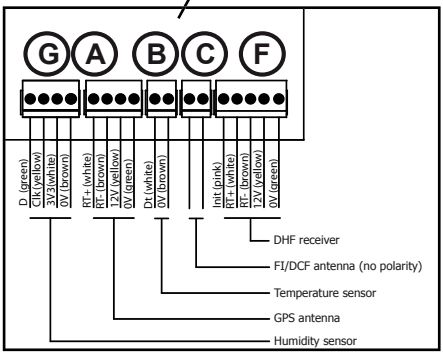
Tip to open the box : release the screws of the facade and put it on the 2 screws at the bottom

II - Electrical installation

Advice : to prevent the cable from moving, it is recommended to use cable ties near each cable entry inside the clock.







All the cables must be held flat against the casing: use a cable tie at the bottom of the spacers or another system.

- The cables to be connected on the terminal strips on the lower part of the board (temperature sensor, radio, GPS and DHF antenna, etc.) must always be placed on the lower part of the board (see G).
- The connection cables for master-slave communication must be placed on the upper part of the board (see H).

II.1 Power supply

The switching power supply works normally with 230V 50/60Hz but it can works also with 115V.

Nota : the 230V/115V input voltage switch is located under the switching power supply. To access the switch, dismantle the digit in front of the switching power supply, unscrew the HM8 screw and remove the fixing plate. Push the switch to 115VAC and fit everything together again.

Connect the mains supply to the switching power supply (D) located behind the protection glass of the clock.

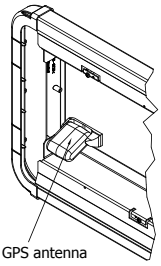
II.2 France Inter / DCF antenna

When connected to a FI or DCF antenna, the clock is set automatically to the right time. However, it is still possible to set the clock manually following the instructions given page 18.

In case of difficult reception, the signal acquisition can last many hours (The signal is usually well received during the night).

Connect the antenna on the terminal (C) of the electronic card. There is no polarity to be respected. **For a better reception, put the antenna outside the clock.**

II.3 GPS antenna



To get high precision worldwide, it is possible to connect a GPS antenna to the clock.

The clock is delivered with the GPS antenna fixed inside.

Ensure that the GPS antenna is properly connected to the terminal (A) of the electronic card. There is no polarity to be respected.

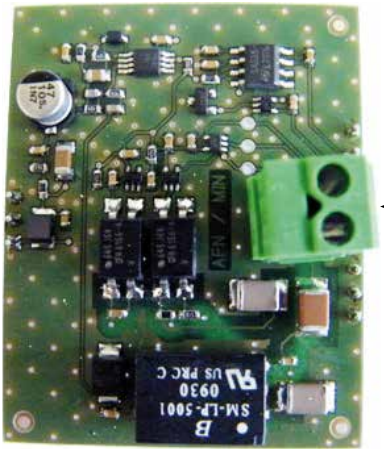
Note: synchronisation of the GPS antenna can only be carried out with a clock installed outdoors. Otherwise, the antenna will have to be placed outside the building in an unobstructed area.

II.4 Installation on an AFNOR network

Connect the cable as shown in the diagram below (non-polarised inputs).

The clock sets itself to the right time after receiving several coherent time messages. Between successive synchronisations, the time base changes normally in accordance with the internal base.

If the clock is in COD mode (see page 23), the time displayed is the time received. If the clock is in LOC mode (see page 23), the time displayed takes into account the time differences chosen in the time menu (time difference and summer/winter.



AFNOR input or Parallel or series minute / 1/2 minute impulse input

II.5 Installation on a minute or 1/2 minute network

A “Minute” or “½ minute” distribution network only transmits impulses. It is therefore necessary to set the receiver clocks to the time of this network.

It is not necessary to stop the distribution to add the clock. Simply set it to the right time and it will increment by one minute on reception of the next impulse from the master clock.

If in spite of the time setting you still have a time difference of 30 seconds (1/2 minute) or 1 minute (minute), reverse the connection of the line.

Connect the cable as shown in the diagram below.

Then move on to the programming in the technician menu (page 22).

Note: to avoid cutting off the network when a receiver clock is disconnected, also connect a 33-Ohm resistor (supplied) at the terminal strip input.

II.6 Installation on a DHF network

The first time you switch it on, you must set the clock to INIT mode (see page 22) in the technician menu.

INIT mode enables matching with a master clock which is itself in INIT mode.

It switches to normal mode automatically on reception of the time from the master clock, memorising the address of the transmitter.

In the event of interference or absence of reception, it continues to function with its time base.

If need be (transmitter channel change, new installation, etc.), it is possible to reset the clock to “Initialisation” mode in the technician menu.

The receiver is supplied installed inside the clock. Check that the receiver is correctly connected on the terminal strip of the electronics board.

DHF antenna

II.7 Installation on an NTP network

An SNTP server periodically transmits the UTC time on the Ethernet network.

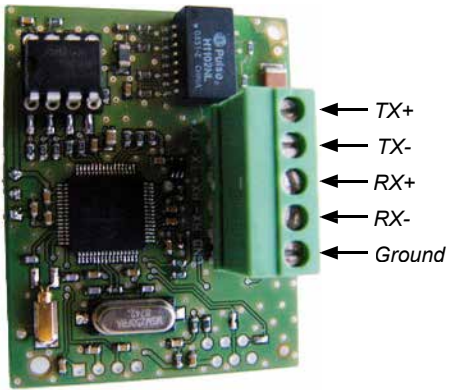
The clock automatically sets itself to the right time after receiving several coherent time messages and applying the time zone configuration.

The NTP server must have a transmission (Poll) period of less than 128 seconds.

Make the connections directly on the terminal strip as shown in the diagram below or use the adapter supplied enabling connection on an RJ45 connector.

Note: the adapter is a cable equipped with a 5-point terminal strip at one end for connection to the board and an RJ45 connector at the other end for connection to the network. This adapter must imperatively remain inside the clock to benefit from the sealing of the product.

Then move on to programming of the multicast address in the technician menu (page 22).



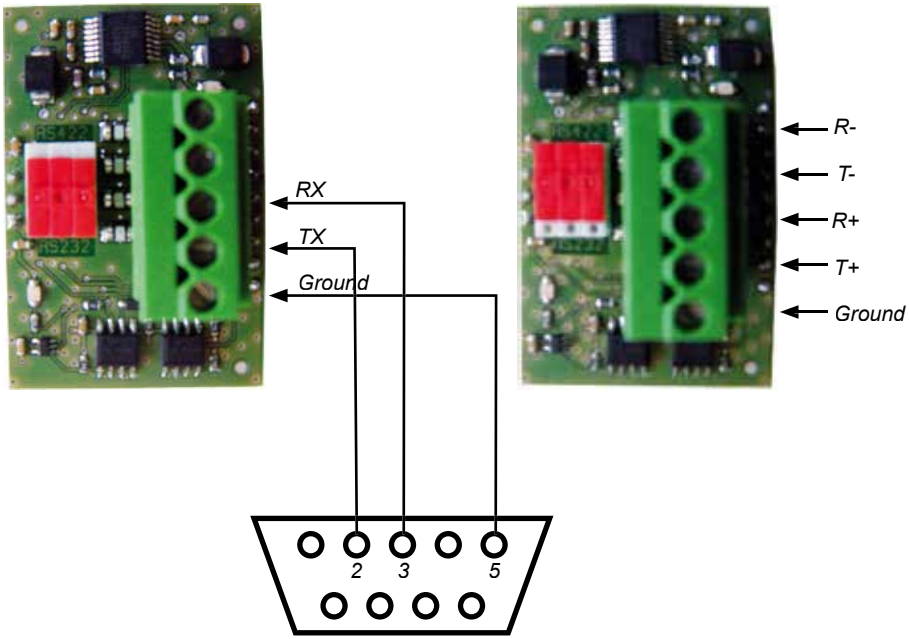
II.8 Installation on an RS232/RS422 ASCII network

For an ASCII network, there are two possible choices: RS232 and RS422.

For RS232, all the DIP switches are down.

For RS422, all the DIP switches are up.

Connect the cable as shown in the diagram below.



Nota : do not forget to select F into the prog/alternate menu in order to validate and display datas received from the card.

Nota : When several probes are installed, the priority becomes as follow: HF probe then wired temperature probe and wired temperature/humidity probe.

II.9 Installation of the temperature/humidity probe

The probe must be installed indoor and away from possible sources of electrical interferences

Fix the probe with its support in a place that is not under sun exposure. Avoid building outside walls, power sources, metallic structures and windy places

According to the place, it might be necessary to adjust the measured values. If necessary use an accurate thermometer/hygrometer to adjust the offset from the TECH menu (page 26).

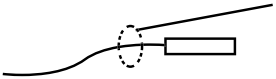
Humidity probe over support

Humidity probe connector

II.10 Installation of hard-wired temperature sensor

Attach the temperature sensor in a well-ventilated place sheltered from sunlight and rain (for outdoor installation). The position of the sensor must be carefully chosen to ensure correct temperature reading.

Avoid external walls, heat sources, metal parts and draughts (for further information, refer to the meteorological standards).



Air temperature sensor attachment point. If possible, avoid placing the resin part in contact to prevent thermal conduction.

The sensor is set in the factory to 20°C. It may be necessary to adjust this setting in accordance with the length of the cable (30 metres maximum):

- Place an accurate thermometer near the sensor.
- Adjust the temperature if necessary using the correction in the PROG menu (page 26).

Connect the sensor to the terminal strip (B) of the electronics board.

II.11 Installation of HF temperature sensor

The HF temperature sensor should be installed in a place which is free from electrical interference and as high as possible. In no case must the HF temperature sensor be attached directly against a metal wall or reinforced concrete. Positions near computers or fluorescent tubes should preferably be avoided.

The temperature measurement must be made in a well-ventilated place away from direct sunlight. The range of the signal is approximately 150 metres (in a free field). The sensor must be slightly out of the box (see photograph opposite).

It is recommended to test the HF link before attaching the temperature sensor. Position the plug and the stud before engaging it in the casing. The sensor must imperatively be pointing downwards for obvious waterproofing reasons.

By default, the HT LED clock and the transmitting sensor are configured on channel 1. If necessary change channels by adjusting the position of the DIP switches on the sensor, in accordance with the channel selected on the clock, complying with the following table:

Dip 3	Dip 2	Dip 1	Dip 0	Chanel HT LED
off	off	off	on	1
off	off	on	off	2
off	off	on	on	3
off	on	off	off	4
off	on	off	on	5
off	on	on	off	6
off	on	on	on	7
on	off	off	off	8

The channel of the receiver clock is configured in the TECH menu (see page 26).

1. Insert the 3 batteries (type LR6), making sure they are the right way round, or for the mains version plug the jack plug in under the central battery.

Caution: do not use the mains version of the HF temperature sensor outdoors.

2. Check that the LED inside the HF sensor flashes on each transmission, on average every 15 seconds.

If the receiver is correctly configured, the temperature should be displayed.

II.12 Repeater for double sided clock

Remove a cable gland M20 on the master unit, pass the connector of the repeater through the hole and put the cable gland back. Plug the connector of the repeater in the socket (E) of the master unit card (see page 4).

II.13 Configuration of DIP switches

The DIP switches are set in the factory, but it may be useful when installing several HT clocks in series to configure DIP switches 3 to 5.

Clock		Dip 1	Dip 2	Dip 3	Dip 4	Dip 5
MASTER	HMT LED	0	0	0	0	0
SLAVE	Slave 1	0	0	0	0	1
	Slave 2	0	0	0	1	0
	Slave 3	0	0	0	1	1
	Slave 4	0	0	1	0	0
	Slave 5	0	0	1	0	1
	Slave 6	0	0	1	1	0
	Slave 7	0	0	1	1	1

II.14 Clocks in series

It is possible to connect up to 8 clocks in a serial link.

- Use the DIP switches to program one clock as the master then all the others as slaves (with a different slave number for each clock). See table above.
- Connect the serial cable on the serial connector of each clock. See photograph above.

II.15 Matching of an HF remote control

For the HF remote control to function with the HT Led clock, matching must be carried out. This operation is carried out in the factory.

Matching is carried out on switching on of the clock for a limited period of 30 seconds, by pressing the [T] button for at least 3 seconds. The “88” display appears.

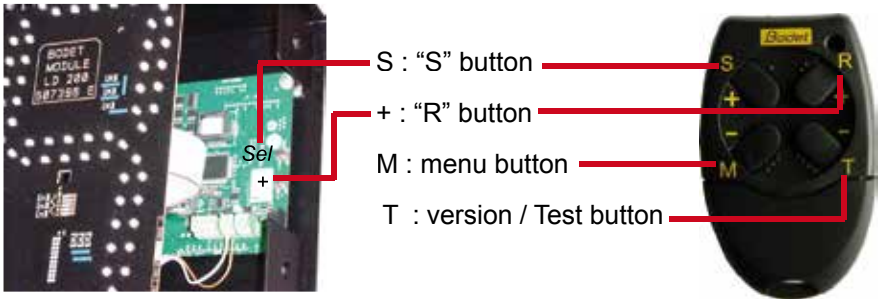
Unmatching of a remote control is carried out in the same way as matching.

Note: each time the clock is switched on, an already matched remote control is inactive for 30 seconds.

III - Settings menu

To define the HT LED settings, use the two buttons on the front panel of the single sided HT LED or the HF radio control console. Access to the programming keys by removing the right side of the master unit.

Caution : do not introduce metallic object in the clock to avoid short-circuit on the electronic card.



Programming buttons *HF radio control panel*

[Sel] pushbutton (inside clock only)

- Long press (3 seconds) to access the programming menu (Time/Prog/Tech/Test).
- When in a menu, long press (3 seconds) to exit from the menu.
- Short press to validate the previously selected menu or parameter.

[S] pushbutton (HF remote control only)

- In a menu, press briefly to exit from the menu.
- Press briefly to validate either the menu or the previously selected parameter.
- In timing mode, press to start the chronometer and press again to stop it.

[R] pushbutton

- Short press to select the next menu or parameter.
- In timing mode, press to reset the chronometer when it is stopped.
- Hold down (for 3 s) to access a value programming menu.

[M] pushbutton

- Hold down (for 3 s) to access the programming menu (chrono / time / info/ prog / tech / test).

[T] pushbutton

- Hold down (for 3 s) to perform a display test and display the EPROM version number.

General information on console and board buttons

- If no button is pressed for 30 seconds when entering data, the menu is exited automatically without validating any modified parameter. A parameter is not validated until the [S] button is pressed.

III.1 Main menu

The main menu allows you to access all the HT Led readout adjustment functions. It contains 6 menus (the CHRO and INFO menus exist only with the HF remote control) :

CHRO : used to program the timing functions.

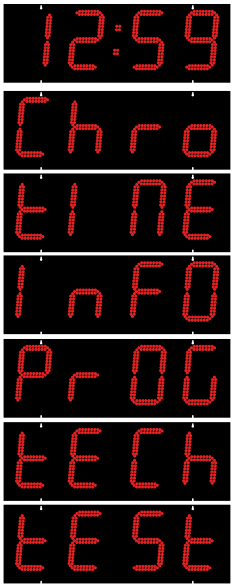
TIME : to set the time and date.

INFO : used to enter the chlorine and Ph values directly.

PROG : to adjust the LED brightness level on the display unit, or specify the information to be alternated on the display unit.

TECH : used to select 12 or 24-hour display mode, select the order of display of the month and day (31.12 or 12.31), program the time synchronisation mode, set the time difference and summer/winter time change options, modify the time base, select the temperature unit (Celsius or Fahrenheit), select the temperature display mode, add an offset value to the temperature and humidity and, lastly, select the HF transmitter channel. ***Caution : This menu is intended to be used by technicians only.***

TEST : to test the display unit to check that each LED operates correctly and to display the EPROM version number.



1. The display unit is in rest mode, displaying the time, temperature or date. Press the [M] on the console (or press [Sel] button for 3 seconds).
2. The first menu to appear is the CHRO menu. To go to the next menu, press the [R] button.
3. Press [S] to validate the choice of menu. Otherwise, press [M] to exit from the programming menu (or press [Sel] button for 3 seconds).

III.2 CHRO menu: count-up and count-down setting

1. Enter the CHRO menu (see page 15).

2. A message flashes (“up”, “down”, “day up” or “day down”). Modify with the [R] button.
   “Up” starts timing in count-up mode,
   “down” starts timing in count-down mode and “day” starts a countdown in days.
   day down starts timing in count-down mode in days,
   day up starts timing in count-up mode in days, (the counting will stop on the last day at midnight).

3. Press the [S] button to validate the selection.

4. If you select Up or Down: choose between HM (count-up or count-down in Hours and Minutes: 99 h 59 m maximum) or MS (count-up or count-down in Minutes and Seconds: 59 m 59 s maximum) with the [R] button. Press the [S] button to validate the selection.

   a. If HM: enter the hours with the [R] button. Press the [S] button to validate. Then enter the minutes with the [R] button.

   Press the [S] button to validate.

   b. If MS: enter the minutes with the [R] button. Press the [S] button to validate. Then enter the seconds with the [R] button. Press the [S] button to validate.

Note: the value entered corresponds to the maximum value to be reached in count-up mode and to the initial value in count-down mode.

5. If you select Day:

   a. Choose between J (“jour” in French), d (“day” in English) and t (“tage” in German) with the [R] button. Press the [S] button to validate the selection.

   b. Enter the single days to be counted down with the [R] button.

   Press the [S] button to validate.

   c. Enter the tens of days to be counted down with the [R] button. Press the [S] button to validate.

   d. Enter the hundreds of days to be counted down with the [R] button. Press the [S] button to validate.

6. If you chose day countdown (day down):

   You enter the time to stop the count down on the last day

(entering 00:00 will stop the countdown at midnight on the last day).

The hours blink (0 to 23). Select with the [R] key.
Press [S] to validate the hour and move on to select the minutes.
The minutes blink (0 to 59). Select with the [R] key.
Press [S] to validate.

Note : During the last day the countdown changes to Hour/Min countdown. During the last hour, the countdown changes to Min/Sec countdown.

7. The readout returns to normal mode with the chronometer taken into account (*) (see “[Sel] push button (inside clock only)” on page 16 for the functioning of the chronometer).

(*) You must not forget to program the alternation of the timing using the PROG menu (see page 20).

By selecting the “ Chro “ menu and validating the “Up” or “Down” selection all the possible programmed alternating displays will be blocked. Only the timer is active. By selecting “dAy”, the alternating displays operate normally except in the case of “DAYd” when the Day countdown becomes “HMS” countdown then only the countdown is displayed.

In order to exit from the display of the countdown or up, just enter the “TIME” menu.

III.3 TIME menu : setting the time and date

1. Enter the TIME menu (see page 15).
2. The hours blink (0 to 23). Modify with the [R] button.
3. Press the [S] button to validate the hours and to go on to the adjustment of the minutes.
4. The minutes blink (0 to 59). Modify with the [R] button.
5. Press the [S] button to validate the minutes and to go on to the adjustment of the year. The «seconds signal» (seconds at 00) starts when the [S] button is released.
6. The year blinks (2000 to 2099). Modify with the [R] button.
7. Press the [S] button to validate the year and to go on to the adjustment of the number of the day in the month.
8. The number for the day of the month blinks (from 0 to 31). Modify with the [R] button.
9. Press the [S] button to validate the number and to go on to the adjustment of the number for the month.
10. The number for the month blinks (0 to 12). Modify with the [R] button.
11. Press the [S] button to validate the number for the month. The display returns to normal mode with the newly modified time and date.

III.4 INFO menu: setting of chlorine and humidity values

This menu can be accessed only with the HF remote control.

1. Go to the INFO menu (see page 15).

2. The Ph level value flashes (0 to 14). Modify with the [R] button.
3. Press the [S] button to validate.

4. The chlorine level value flashes (01 to 99). Modify with the [R] button.

5. Press the [S] button to validate. The readout returns to normal mode.

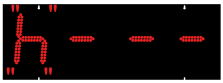
III.5 PROG menu: brightness, temperature and alternation setting

1. 1.Go to the PROG menu (see page 15).

2. The brightness value flashes (A1 to A3 and then M1 to M9). Modify with the [R] button. The values from A1 to A3 are automatic brightness settings (the brightness of the clock varies according to the ambient lighting). The values from M1 to M9 are manual brightness settings (the brightness of the clock is fixed whatever the ambient lighting). ***The brightness of the readout is modified in real time and managed independently per face.***

3. Press the [S] button to validate the brightness and move on to setting of the first alternation parameter.

4. The first alternation parameter flashes (h, t, d, o, u, P, c, F or -)*. Modify with the [R] button.



5. Press the [S] button to validate the parameter and move on to setting of the second alternation parameter.

6. The second alternation parameter flashes (h, t, d, o, u, P, c, F or -)*. Modify with the [R] button.

7. Press the [S] button to validate the parameter and move on to setting of the third alternation parameter.

8. The third alternation parameter flashes (h, t, d, o, u, P, c, F or -)*. Modify with the [R] button.

9. Press the [S] button to validate the parameter and move on to setting of the last alternation parameter.

10. The last parameter flashes (h, t, d, o, u, P, c, F or -)*. Modify with the [R] button.

11. Press the [S] button to validate the parameter and move on to setting of the alternation period.

12. The alternation period between the items of information flashes (2 to 6 seconds). Modify with the [R] button.

13. Press the [S] button to validate the alternation period.

14. If a « Chrono » alternating displayed is programmed in mode “up” or “down, you must now configure the operating mode.

«ru» = run, the timer never stops. At the end of the count “up“ or “down”, the timer restarts with the programmed set value.
«St» = stop, the timer stops at the end of the count up or countdown.

15. Select with [R] key. Press [S] to validate the operating mode of the timer.

16. The program gives you the choice of using an end-of-count relay.
«-» = the relay will not be activated,
«1» to « 9 » = time in sec during which the relay will be activated.

17. Select with the [R] key. Press [S] to validate the operating mode of the relay.

18. The readout returns to normal mode.

(*) h = time display

t = temperature

d = date

o = chlorine display

u = humidity display

c = count-up or count-down display (deactivate all other alternations if selected)

F = numerical value fixed or programmed by PC (serial link)

P = Ph display

- = none.

Example of setting “ h t d _ ”: display of time then temperature then date and return to time. If “ - ” is selected, switching to next item of information (no blank display). Repetition of a letter doubles the display time.

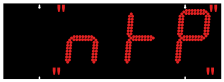
III.6 TECH menu : technician

1. Enter the TECH menu (see page 15).

2. The 24 (or 12) hour clock time display mode blinks. Modify with the [R] button.

3. Press the [S] button to validate the mode and to go on to the adjustment of the day/month order.
4. The day/month or month/day order blinks. Modify with the [R] button.

5. Press the [S] button to validate the order and to go on to the selection of synchronisation mode.
6. 6.The synchronisation mode flashes (Independent “Ind”, Radio “rAd”, GPS “GPS”, AFNOR “AFn”, Minute “Min”, 1/2 minute “1:2M”, DHF “dHF” or NTP “ntP” (see page 30 for further explanations on each type of time distribution). Modify with the [R] button.



7. Press the [S] button to validate the synchronisation mode.
8. If you select ntP, program the end of the multicast address 239.192.xxx.nnn. Select the address between Bodet (49) and other (54). Modify with the [R] button.

a. Press the [S] button to validate.

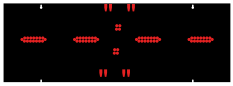
b. Select the end of the multicast address (0 to 15). Modify with the [R] button.

c. Press the [S] button to validate.

9. If you select dHF or AFn, choose between COd (unadjusted time signal) or LOC (time signal + summer/ winter time change + time zone). Modify with the [R] button. Press the [S] button to validate.

10. If you select dHF, choose between “Init” (go to Init on first installation of the clock) (see page 7) or “nor” (mode normal). Modify with the [R] button. Press the [S] button to validate. Validation of INIT mode leads to return to the idle display with alternate display of INIT and 00:00 until DHF reception is obtained.

11. If rAd, GPS, AFn, dFH or ntP is selected, dynamic reception of the time is displayed and constructed. ***If Ind, Min or 1:2M is selected, this menu does not appear.***



12. Press the [S] button to validate dynamic reception and to go on to the adjustment of time differences.

13. Choose a pre-recorded zone for time differences and summer/winter time changes or choose programmable mode (Prog) with the [R] button. ***If Ind, Min or 1:2M is selected, this menu does not appear.***

Central Europe zone “Eur” (France, Germany, etc.) (GMT +01 hour).

Winter to summer time = last Sunday in March at 2 a.m.

Summer to winter time = last Sunday in October at 3 a.m.

Western Europe zone “Eu_1” (Great Britain, Portugal, Republic of Ireland) (GMT +00 hour).

Winter to summer time = last Sunday in March at 1 a.m.

Summer to winter time = last Sunday in October at 2 a.m.

Eastern Europe zone “EASt” (Greece, Finland, etc.) (GMT +02 hours).

Winter to summer time = last Sunday in March at 3 a.m.

Summer to winter time = last Sunday in October at 4 a.m.

USA Eastern zone “USAE” (New York, Toronto, etc.) (GMT -05

hours).
Winter to summer time = second Sunday in March at 2 a.m.
Summer to winter time = first Sunday in November at 2 a.m.

USA Central zone “USAC” (Chicago) (GMT -06 hours).
Winter to summer time = second Sunday in March at 2 a.m.
Summer to winter time = first Sunday in November at 2 a.m.

USA Mountain zone “USAM” (Denver) (GMT -07 hours).
Winter to summer time = second Sunday in March at 2 a.m.
Summer to winter time = first Sunday in November at 2 a.m.

USA Pacific zone “USAP” (Los Angeles) (GMT -08 hours).
Winter to summer time = second Sunday in March at 2 a.m.
Summer to winter time = first Sunday in November at 2 a.m.

Australia zone “AUS” (Sydney) (GMT +10 hours).
Winter to summer time = firsr Sunday in October at 2 a.m.
Summer to winter time = first Sunday in April at 3 a.m.

«GMt» programmable mode : mode to enter the time difference only. No summer/winter time change is possible.

a. If GMT is selected, press the [S] button to validate.
b. The time difference hours blink (from -11 h to +11 h). Modify with the [R] button.

c. Validate the time difference with the [S] button.
d. The minutes for the time difference blink (00 or 30). Modify with the [R] button.

e. Validate the time difference with the [S] button.

«PrG» programmable mode : mode to enter summer/winter and winter/summer time change dates and time difference.

a. If the «PrG» menu is chosen, press the [S] button to validate.
b. The number of the month for the winter/summer time change blinks. Modify with the [R] button.

c. Validate the month with the [S] button.
d. The third figure, corresponding to the day in the month for the winter/summer time change blinks.

If the date is not fixed :

- Modify the third figure, corresponding to the number of the week in the month (from 1 to 5) with the [R] button. Validate with [S].
- Modify the fourth figure, corresponding to the number of the day in the week (from 1 to 7 : 1 Monday and 7

Sunday) with the [R] button. Validate with [S].

If the date is fixed :

- Select F for the third figure with the [R] button. Validate with [S].
- Enter the number of the day in the month (from 1 to 31) with the [R] button. Validate with [S].

e. The number of the month for the summer/winter time change blinks. Modify with the [R] button.

f. Validate the month with the [S] button.

g. The third figure, corresponding to the day in the month for the summer/winter time change, blinks.

If the date is not fixed :

- Modify the third figure, corresponding to the number of the week in the month (from 1 to 5) with the [R] button. Validate with [S].
- Modify the fourth figure, corresponding to the number of the day in the week (from 1 to 7 : 1 Monday and 7 Sunday) with the [R] button. Validate with [S].

If the date is fixed :

- Select F for the third figure with the [R] button. Validate with [S].
- Enter the number of the day in the month (from 1 to 31) with the [R] button. Validate with [S].

h. The hours of time difference blink. Modify with the [R] button (from -11 h to +11 h). Validate with the [S] button.

j. The minutes blink. Modify with the [R] button (00 or 30). Validate with the [S] button.

14. The time base correction value blinks (in steps of 50 ms). Modify with the [R] button. **The time difference is taken into account whatever synchronisation mode is used (including radio).**

15. Press the [S] button to validate the difference and to go on to the choice of synchronisation temperature unit.

16. The temperature unit, either degrees Celsius «C» or Fahrenheit «F», blinks. Modify with the [R] button.
The selection can causes a modification of the display of the digits «6» and «9». If «Fahrenheit», the 6 and 9 will be displayed in the American format.

17. Press the [S] button to validate the temperature unit and select the exactness of the temperature (degrees, tenths of

a degree, 0,2° or 0,5°). Modify with the [R] button.

18. Press the [S] button to validate and move on to setting of the correction to be made to the temperature reading.
19. The t flashes (t or - for a negative correction). Modify with the [R] button.
20. Press the [S] button to validate and move on to setting of the degrees of the temperature correction.
21. The figure flashes (0 to 9). Modify with the [R] button.
22. Press the [S] button to validate and move on to setting of the tenths of a degree of the temperature correction.
23. The figure flashes (0 to 9). Modify with the [R] button.
24. Press the [S] button to validate.
25. Select the channel (1 to 8 or none) of the HF transmitter on which synchronisation is required. Enter the same number as in the HF temperature box. The value – deactivates the HF temperature function. Modify with the [R] button.
26. Press the [S] button to validate the temperature unit and move on to setting of the correction to be made to the humidity reading.
27. The figure flashes (-9 to +9). Modify with the [R] button.
28. Press the [S] button to validate. The display returns to normal mode.

Appendix for time differences

Select the reference country for summer/winter time changes and time difference according to the city whose local time is to be displayed.

CITY	Zone	Reference zone	Time difference / GMT
LOS ANGELES	USAP	United States / Canada	-08
MEXICO	USAC	United States / Canada	-06
CHICAGO	USAC	United States / Canada	-06
NEW YORK, TORONTO	USAE	United States / Canada	-05
BUENOS AIRES	GMT	No change	-03
RIO DE JANEIRO	PRG	Programmable mode	-03
LONDRES	EU_1	Europe	00
PARIS (*)	EUR	Europe	+01
HELSINKI, ATHÈNES	EAST	Europe	+02
JOHANNESBURG	GMT	No change	+02
MOSCOU	EAST	Europe	+03
SINGAPOUR (**)	GMT	No change	+08
TOKYO, SÉOUL	GMT	No change	+09
SYDNEY	AUS	Programmable mode	+10
WELLINGTON	PRG	Programmable mode	+12
PARAGUAY	PRG	Fixed date (each year)	-04
TÉHÉRAN	PRG	Fixed date (each year)	+3.30
BOMBAY	GMT	No change	+5.30

(*) Paris and the following cities: Frankfurt, Madrid, Stockholm, Oslo, Zurich, Milan, Amsterdam ...
(**) SINGAPORE, and the following cities: Taipei, Bangkok, Hong-Kong, Kuala Lumpur, Beijing...

III.7 TEST menu : test and version display

1. Enter the TEST menu (see page 15).

2. All the LEDs should light up.

3. Press the [S] or [T] to go on to the next test.

4. All the LEDs should go out.

5. Press the [S] or [T] button to display the version.

6. Display of addressing number of each module (the “3-dot” module remains unlit). The number normally corresponds to the example on the right.

7. Display the soft version number.

8. Press the [S] or [T] to return to normal mode.

III.8 Displaying a numerical value

A numerical value can be displayed by selecting alternation “F” in manual mode or via a PC serial link.

Note: if both input modes are used (manual and via serial link), the value actually displayed will always be the last value entered.

Note 2: additional instructions are enclosed in the packaging for entering values via a PC serial link.

1. Press the [R] button for 3 seconds to go to the numerical value menu.
2. The first digit flashes; modify with the [R] button.
3. Press the [S] button to validate and move on to the second digit.
4. The second digit flashes; modify with the [R] button.
5. Press [S] again to validate and move on to the center Led module.
6. The module blinks, select « : », « . » or « » with the [R] key.
7. Press the [S] button to validate and move on to the fourth digit.
6. The third digit flashes; modify with the [R] button.
7. Press the [S] button to validate and move on to the fourth digit.
8. The fourth digit flashes; modify with the [R] button.
9. Press the [S] button to validate. The readout returns to normal mode.

IV - Types of time synchronisation

Independent mode “Ind”

- The clock is totally independent; it receives the time information from its own time base.

FI or DCF radio-synchronised mode “rAd”

- The clock is independent; it receives the time information from its time base which is corrected in the event of deviation by comparing it with the signal from the FI or DCF transmitter.
- Radio synchronisation enables the time to be displayed with absolute precision.

GPS mode “GPS”

- The clock is independent; it receives the time information from its time base which is corrected in the event of deviation by comparing it with the signal from the GPS transmitter.
- Radio synchronisation enables the time to be displayed with absolute precision.

AFNOR mode “AFn”

- Coded time distribution consists in transmitting a complete time message every second: setting of these receivers to the right time is carried out automatically and rapidly on connection on the clock line.
- The AFNOR code does not transmit interference and is not affected by other electrical interference.

24V minute impulse receiver mode “Min”

- The receiver clocks are connected to a distribution line and activated by means of electrical impulses transmitted every minute by the mother clock.

Series ½ minute impulse receiver mode “1:2M”

- The receiver clocks are connected in series to a distribution line and activated by means of electrical impulses transmitted every ½ minute by the mother clock.

DHF mode “dHF”

- The clock is radio-synchronised by a DHF radio transmitter.

NTP mode “ntP”

- An SNTP server periodically transmits the UTC time on the Ethernet network. The receiver clocks automatically set themselves to the right time after receiving several coherent time messages and applying the time zone configuration.
  The NTP server must have a transmission (Poll) period of less than 128 seconds.

V - Technical specifications

Models

Single-sided display line (SS) with control by 2 buttons on the box.

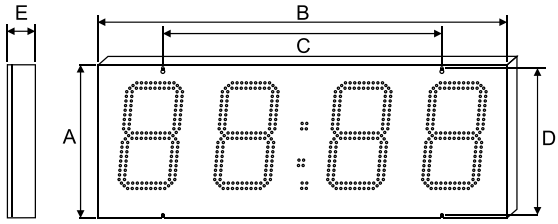
- Secondary display line for double-sided mode (DS).
- Available in 15, 20, 25 or 30 cm sizes, in red or yellow, in SS or DS.
- Optional HF radio control console.

Features

- Fixed or alternating display of time, date or temperature.
- Adjustable alternation period (2 to 6 seconds).
- Automatic brightness adjustment for sun, cloud or night.
- Optional radio synchronisation by France Inter, DCF or GPS antenna (independent time base precision of 0.2 second/day).
- Power supply : 110/240 V 50/60 Hz.
- Black flush-fitting case including LED display units, power unit and control board. The display kit must be fitted in a sign with a protective pane on the front.
- Indoor or outdoor operation in a watertight totem.
- Tropicalised PCBs.
- Operating temperature from -20 to 50°C.
- The keyboard (remote control) is powered by a 3V battery (CR2032).

Settings

- Time display in 12 or 24 hour clock mode.
- Temperature in degrees Celsius (°C) or Fahrenheit (°F).
- Automatic summer/winter time change.
- Display test menu.



Dimensions in mm	A	B	C	D	E (SF / DF)	Visibility in m
Led kit H/T 15 cm	235	560	200	216	75 / 20	60
Led kit H/T 20 cm	235	730	699,5	218	75 / 20	80
Led kit H/T 25 cm	336	969	648	320	75 / 20	100
Led kit H/T 30 cm	428	1145	780	410	75 / 20	120

VI - Installation recommendations

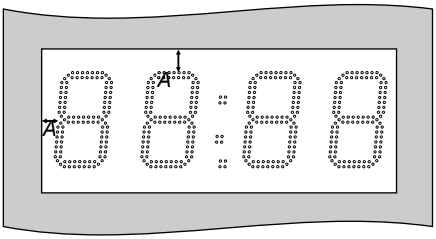
Brightness

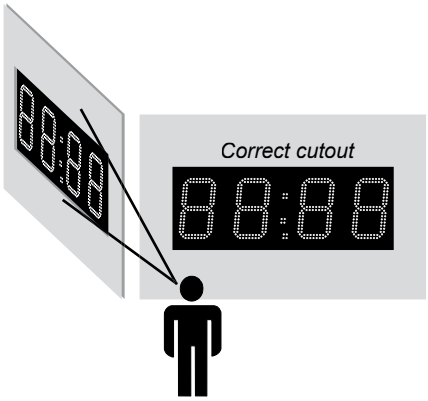
As far as possible, avoid placing the display unit near direct light sources (street lamps, etc.) to avoid interference with the automatic brightness adjustment.

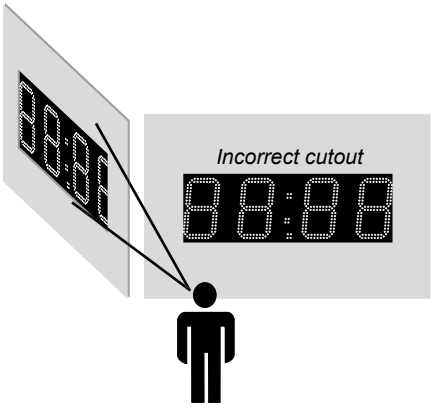
Installation principle

If a non-reflective pane is used in front of the LED kit H/T, it should be placed 2 or 3 cm in front of the figures.

To ensure correct reading of all the figures, allowing for parallax errors, the distance between the LED digits and the external structure must be properly calculated to allow easy lateral and vertical reading. For cutouts, sufficient space must be allowed around the digits (A) (about 2 cm).







Ventilation

As the LED kit H/T must be fitted in a water tight structure, it is important to provide for ventilation in order to avoid condensation.