Clock
Profil TGV 950
Profil TGV 970

Receiver minute, ½ minute impulses

IRIG B/AFNOR time signal reception

ALS radio synchronisation

INSTALLATION AND OPERATING INSTRUCTIONS

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Upon receipt, always check the product for damage during shipment. If any is found, you may file a damage claim with the carrier

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I - INITIAL VERIFICATION

Thank you for choosing a BODET clock. This product has been carefully designed for your satisfaction based on ISO9001 quality requirements. We advise you to read this manual thoroughly before attempting to manipulate the clock.

Keep this booklet during all the life of your clock, so that you can refer to it each time it is necessary

Bodet accepts no responsibility for accidents resulting from any use not conforming with the above provisions.
Any modification to the product will invalidate the warantee.

1.1 Unpacking the clock

Unpack with caution and check the contents of the packaging. It must contain :

- the TGV clock,
- for radio synchronised models : the antenna,
- a key to open the casing,
- a cleaning kit,
- this booklet.

Versions : a label inside the clock specifies what model the clock is :

AFNOR/ALS HMS or **AF/ALS HMS** = the clock is a receiver driven by : a master clock that sends AFNOR NFS-87500A coded time messages or a radio ALS receiver antenna, and supplied in 240 VAC, with a servo second hand.

AFNOR HM = the clock is a receiver driven by a master clock that sends AFNOR NFS-87500A time coded messages ; it is supplied in 240 VAC.

AF/ALS HM = the clock is a receiver driven by : a master clock that sends AFNOR NFS-87500A coded time messages or a radio ALS receiver antenna, and supplied in 240 VAC.

MN 24V // HM = the clock is a receiver driven by a master clock that sends minute impulses on a parallel line.

MN 24V // HMS = the clock is a receiver driven by a master clock that sends minute impulses on a parallel ligne ; it is supplied in 240 VAC, with a servo second hand.

1/2MN SER HM = the clock is a receiver driven by a master clock that sends ½ minute impulses on a serial line.

1/2MN SER HMS = the clock is a receiver driven by a master clock that sends ½ minute impulses on a serial ligne ; it is supplied in 240 VAC, with a servo second hand.

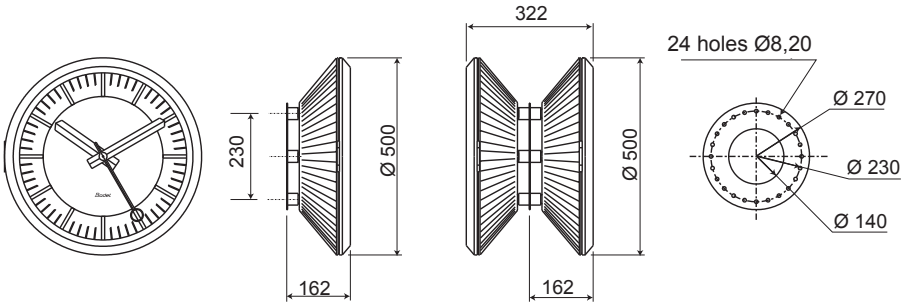
1.2 Cleaning

Use an antistatic product of similar type to the one shipped in the original packaging. Never use alcohol, acetone or any other solvent liable to damage the casing and filter on your clock.

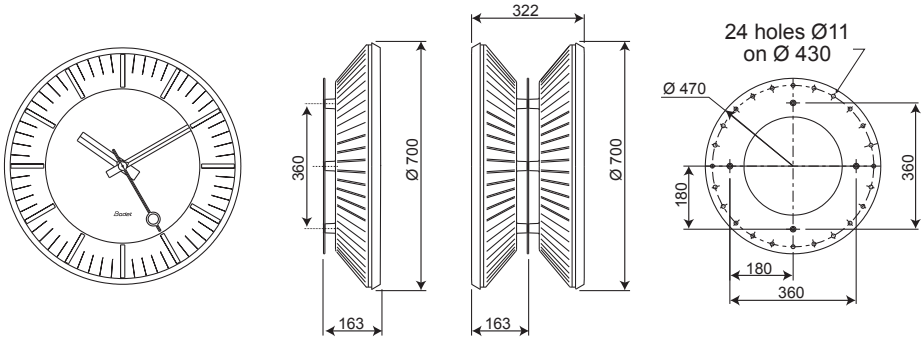
II - INSTALLATION

Select the place where the clock will be installed while making sure that radio reception is correct for radio synchronisation models.

TGV 950 clock



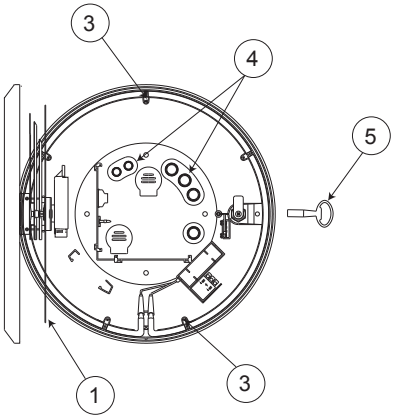
TGV 970 clock



2.1 Clock setting up

- Open the clock by giving the lock a quarter turn with the key (5).

- On the TGV950 clock, remove the 2 locking srews (3) (provided for the transit).
- Pull the whole dial (1) towards you.
The hinge arm opening system ensures a fast and secure maintenance of the lighting without having to put the front part of the clock on the ground.



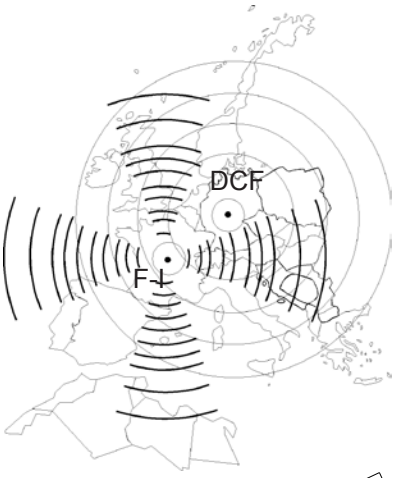
- Hang the clock and fix it, without locking it, after you have put the wires (between Ø7 and Ø10) through the waterproof pressure joints (4).

- Carry out the various connections (external supply : see page 8 and connection to time distribution network : see page 9).

- Lock the clock.
- Power it.
- Reset the time if necessary.
- Close the clock.

2.2 Setting the antenna

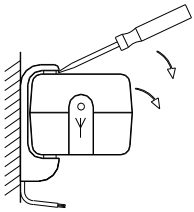
For radio synchronised clocks :
The best reception conditions are outside buildings or near windows.



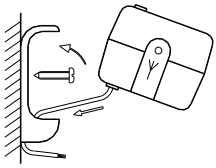
Positioning the antenna (perpendicular to the direction of the transmitter) improves reception.

The antenna must not be placed on a metal support.

As for any radio system, a building with metal structures can cause interference in the reception of the signal. Computers, television sets and electrical appliances can also cause interference that disrupt the reception of the radio message.



- Unlock the antenna from its support.



- Fix the support with the screw supplied and lock the antenna again.

Beware : in a double face system. So as not to cause interference between the 2 antennas, the latter must be fixed at least one metre away from each other**.**

III - SETTING IN OPERATION

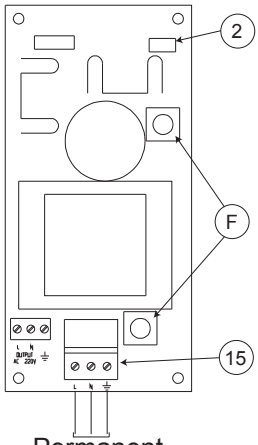
3.1 External supply connection

Installation and maintenance of this equipment must be carried out by qualified personnel only.
Electrical installation must comply with current standard CEI 364. (NF C15-100 in France for example).
The mains supply for the clocks must include a neutral phase circuit breaker 10A C curb, rapidly accessible. This circuit breaker must be switched off during maintenance operations..
Note : the power supply wires must be linked near their fixing point.

AFNOR/ALS clock :
- Connect mains supply 230 Volt 50 Hz (lighting + time base supply) to the supply card terminal : max.1,5 mm² wire and bare on 5 mm.
The earth wire must be longer than the other ones.

- Lock the wires with collars.

This card is protected by 2 fuses (F) 2A 250V.
- Connect the terminal (2) of the battery, on this main card.



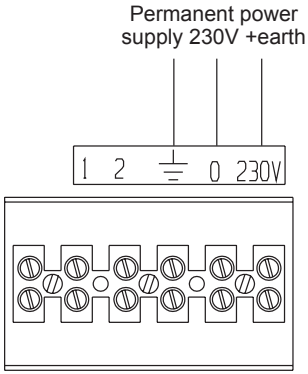
Permanent power supply 230V

Minute, ½ minute, with synchronous second hand clock receiver

- The second hand is driven by an independent motor. This motor must be permanently supply.
- Connect permanent power supply 230V +earth (lighting + time base supply) on the terminal (4).

  The earth wire must be longer than the other ones.

  Nota : the power supply wires should be assembled together near their connecting terminal.

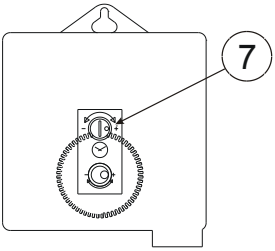


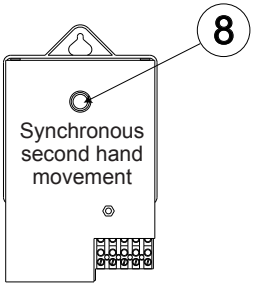
3.2 Clock connections and time setting

NOTA : to respect the security rules, the time distribution network must be be SELV-type.
- The impulses wires should be assembled together near their connecting terminal.

3.2.1. Impulses slave clock

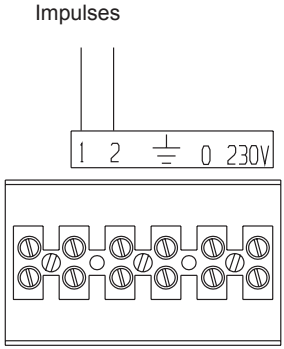
A time distribution network emits only impulses, so that it is necessary to set the clock at the time of this network.
To add a clock on a network, it is necessary to stop this network and to set on time the clock.
To set on time the clock, turn the control knob (7 or 8).





Minute 24V // receiver,

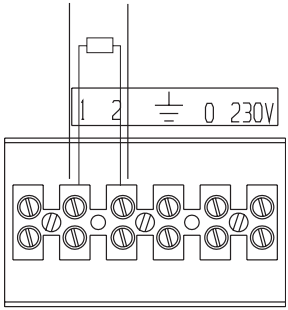
- Connect the time distribution network to terminals 1 and 2 on the terminal strip.



Leave works 2 minutes.
- If the clock, or one of the clocks in case of a double side mounting, is one minute late : stop the emitter, reverse the connection on terminal (3) and put the clock forward 2 minutes, then restart the emitter.
In fact, the same impulse is either positive or negative according to the way to connect and the initial position of the movement, it will take or not the first impulse.

½ minute serial receiver,

Impulses



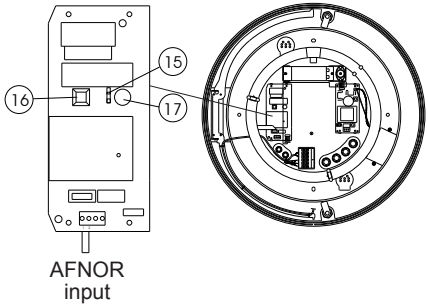
- Connect the time distribution network to terminals 1 and 2 on the terminal strip.
- The terminal 3 of the terminal strip is available. You can use it to connect a double side clock.

To insure the continuation of the serial distribution network, (to avoid to cut the serial line when a slave clock is disconnect) connect a resistor according to the intensity of the network.

Network intensity	½ Minute movement shunt	Second movement shunt
65 mA	100 Ohms	150 Ohms
80 mA	47 Ohms	56 Ohms

Leave works 2 minutes.
- If the clock, or one of the clocks in case of a double side mounting, is ½ minute late : stop the emitter, reverse the connection on terminal and put the clock forward 1 minute, then restart the emitter.
In fact, the same impulse is either positive or negative according to the way to connect and the initial position of the movement, it will take or not the first impulse.

3.2.2. AFNOR/IRIG-B time signal reception



- Connect the time signal network to the terminals 1 and 2 of the AFNOR receiver card.

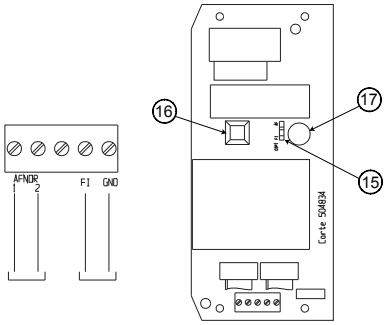
Check that the dip switch (15), is pushed towards top on the PCB (AFNOR reception).

The AFNOR/IRIG-B HMS clocks can be set on time manually :
- At the first press on button “time setting” (17) , the internal clock stats.
- Every press on button “time setting” (17) advances the clock by one minute.
- After this manual time setting, the clock operates in stand alone mode until reception of the signal, or reset function by pressing button (16) or a power supply failure.

Operating principle of AFNOR HMS receiver clock :
During 15 minutes without reception of the time signal the clock operates with its own time basis. If the signal recovery is achieved within this period, the clock will be resynchronised automatically. Beyond, the clock is reset and hands are set on position 12.00.

Operating with battery :
- Without power supply 230V the clock operates with its battery during 1 hour.
- After 1 hour without time signal reception or if the battery voltage drops down, hands are set position 12.00 until power supply recovery.
- The synchronous second hand witch is powered by the main 12V 50Hz, will stop immediately.

3.2.3. ALS radio receiver clock



Antenna connection :
Connect the 2 wires of the antenna on the ALS and GND terminal.
Check that the dip switch (15) is in ALS receiver position, push toward the down of the PCB.
When switching on power supply, hands are set at 12.00 until the correct reception of the time signal is achieved or a manual setting on time is done.
After 3 successive coherent ALS time signals are received, the clock starts and automatically get on time with fast impulses.

Manual time setting :
The clock opened
At the first press on button “time setting” (17) , the internal clock stats.
Every press on button “time setting” (17) advances the clock by one minute.
After this manual time setting, the clock operates in stand alone mode until reception of the signal, or reset function by pressing button (16) or a power supply failure.

Operating principle of ALS receiver :
Once the clock is synchronised, it will operates with its own time basis even if there is no more reception until there is no power failure.

Operating with battery :
Without power supply 230V the clock operates with its battery during 1 hour.
After 1 hour without time signal reception or if the battery voltage drops down, hands are set position 12.00 until power supply recovery.
The synchronous second hand witch is powered by the main 12V 50Hz, will stop immediately.

IV - TECHNICAL FEATURES

Power supply : 230 Volt 50 Hz ±10%

Operating temperatures : -25°C to +70°C

Protection index : IP55

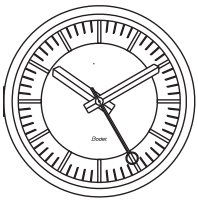
TGV 950

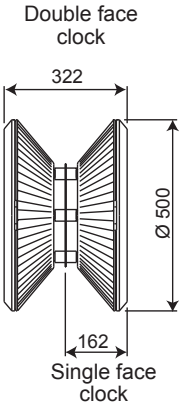
Readability : 40m.

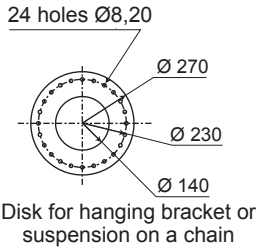
Weight : 9 kg.

Consumption : 60 VA.

Sizes :







Lighting : long life néon tube, 30mA 1500V.
Spare part : neon tube : 404562

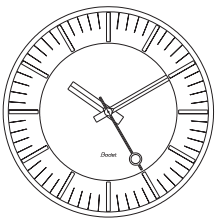
TGV 970

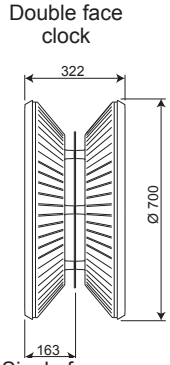
Readability : 50m.

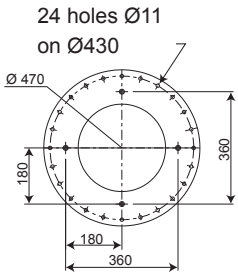
Weight : 16 kg

Consumption : 100 VA.

Sizes :







Lighting : long life néon tube, 50mA 1500V.
Spare part : neon tube : 404561

ALS radio receiver clock with synchronous second hand :
Permanent power supply : 230V; 70mA.
Schéma d'alimentation secteur : TT ou TN.
Accuracy : absolute with automatic summer/winter changeover.
The electronic of the clock is protected by 2 fuses 2A/250V.

Receiver impulses Minute 24V // HM :
Reversed polarised minutes impulses 9,6 mA.
Accuracy of the master clock.

Receiver impulses Minute 24V // with synchronous second hand :
Reversed polarised minutes impulses 9,6 mA.
Permanent power supply : 230V; 15mA.
Accuracy of the master clock.

Receiver impulses ½ minute serial HM :
Reversed polarised ½ minutes impulses 0,9V/65 mA.
Accuracy of the master clock.

Receiver impulses ½ minute serial with synchronous second hand :
Reversed polarised ½ minutes impulses 0,9V/65 mA.
Permanent power supply : 230V; 15mA.
Accuracy of the master clock.

AFNOR/IRIG-B time signal reception HM :
Permanent power supply : 230V; 15mA.
Schéma d'alimentation secteur : TT ou TN.
Accuracy of the master clock.
The electronic of the clock is protected by 2 fuses 2A/250V.

AFNOR/IRIG-B time signal reception with synchronous second hand :
Permanent power supply : 230V; 70mA
Schéma d'alimentation secteur : TT ou TN.
Accuracy of the master clock.
The electronic of the clock is protected by a fuse 0,2AT/250V.

V - WHAT TO DO IF...? ...CHECK.

What to do if...?	… Check.
■ No synchronisation after the installation.	■ Check that the type of signal send by the master clock (min, ½ min, AFNOR/ Irig-B) is in accordance with the type programmed in the clock.
■ A receiver clock on a ½ minute network is 30s late after the installation.	■ It is impossible for a slave clock to discern between two 1/2 minute impulses which one is the master clock minute stroke, the reversal of the two wires is needed to correct the time.
■ Minute or ½ minute parallel receiver stopped.	■ Lack of impulse, check the master clock and the network.
■ AFNOR / Irig-B receiver stopped at 12h00.	■ Lack of impulse since more than 1 hour, check the master clock and the network.
■ The synchronous second hand is stopped on a receiver clock.	■ The permanent supply powering second hand is cut-off. Check this power supply.