

# Master clocks



## Time distribution

# The time distribution

3 types of time distribution are available :

- wired time distribution through AFNOR signal,
- wired time distribution through impulse signal,
- wireless time distribution (DHF).

## AFNOR CODED TIME

The AFNOR $\Sigma$  signal time distribution provides a high accuracy and a secured time transmission. This distribution is mainly used in significant installations (airports, railway stations...).

Permanent time distribution and automatic setting on time of clocks.

### AFNOR AMPLIFIER



IRIG-B / AFNOR line amplifier ensures the connection between clocks on several kilometres. It amplifies the signal to control clocks by readjusting low signals.  
Power supply 230V AC. IP 54 casing.

## MINUTE 24V PARALLEL IMPULSES

Minute 24V parallel time distribution system is easy to put into service. This system is used for small and medium companies. Impulses are emitted every minute.



Amplifies the impulses outputs until 2A in order to increase the number of slave clocks on a line.  
Wall mounted version or rack version are available.  
Power supply 230V AC.

## DHF RADIO WIRELESS

Wireless clock system can synchronise a clock network inside 1 or several buildings without cable.

Slave clocks pick up time message and synchronise automatically. In case of interference, they continue to work on their own time base.

869 MHz radio waves cross the building walls. Transmission range is about 100 to 200 meters. It depends of number, structure and wall thickness.

### DHF RADIO REPEATER

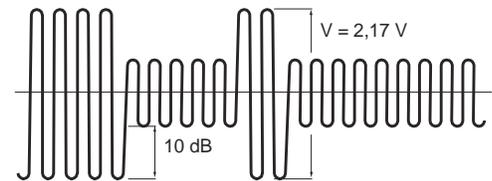


The DHF transmitter associated to a master clock, emits a radio message to DHF slave clocks.  
It can be associated to a DHF radio repeater to increase the reception area.

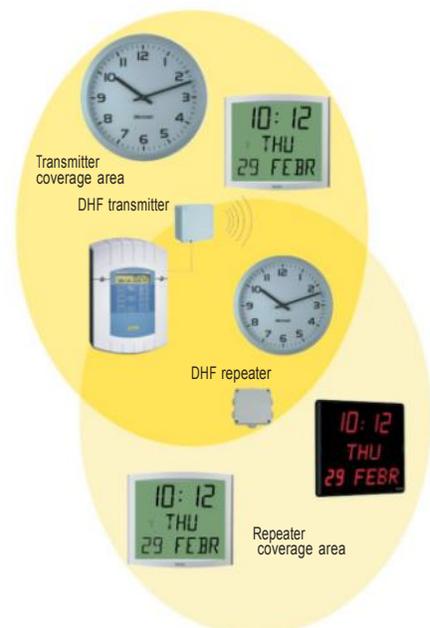
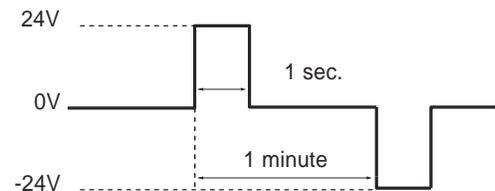
### Wired time distribution



### AFNOR signal



### 24V minute signal

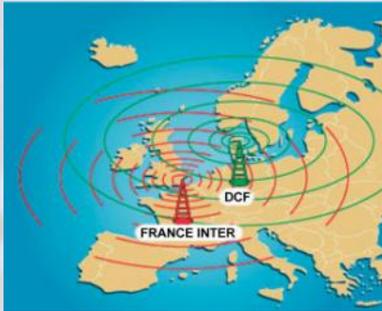


# synchronise a slave clocks network.

France Inter and DCF antennas

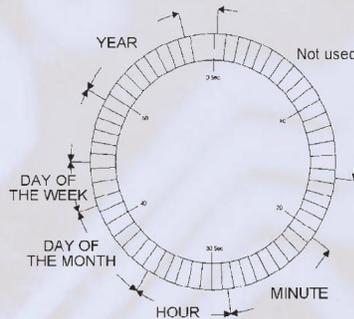


GPS antenna



Ensure perfect time synchronisation for clocks. France Inter emitter is located in Allouin in France. DCF emitter is located in Germany. Time signals are received all over Europe and North Africa. The time code contains minute, hour, day and top synchronisation information. It ensures automatically the summer / winter time changeover.

All around the world, time synchronisation is possible thanks to the GPS system satellite network. 24 satellites send the time signal to the Earth. GPS antenna receives every second a message (hour and date) and decodes it for the master clock. Master clock receives UTC message (GMT time) and transmits local time : time difference and country summer / winter changeovers introduction if necessary. Slave clocks setting on time is automatic.



## Microquartz DELTA

- Radio-synchronisable master clock :
- Drives slave clocks through :
    - minute 24V impulses
    - AFNOR signal
    - Wireless radio signal (optional)
  - ASCII, RS 232 / 422 outputs,
  - 4 annual programming circuits enabling to set up functions as heating, lighting, access control...



## Microquartz S

- Radio-synchronisable slave clock :
- Drives slave clocks through :
    - minute 24V impulses
    - AFNOR signal
    - Wireless radio signal (optional)
  - 4 annual programming circuits enabling to set up functions as heating, lighting, access control...
  - ASCII, RS 232 (optional), for clock synchronisation



## Master clocks

# The master clocks drive and

## Radio options

### Microquartz ALFA

Radio synchronizable master clock :  
Drives slave clocks through :  
- minute 24 V impulse  
- AFNOR signal  
- Wireless radio signal (optional).



### Mic GPS

Mic GPS Master clock :  
• synchronisation of clock networks by means of the GPS satellite system.  
• drives slave clocks through :  
- AFNOR signal  
- Wireless radio signal (optional).



### Mic 2 TB

Automatic commutating and monitoring module MIC 2 TB.

In case of the main master clock failure, the MIC 2 TB module ensures the automatic commutating of all outputs towards the secondary master clock.

- 19" rack,
- power supply 230V AC or 24V DC,
- 4 coded time outputs signals or RS 232 / 422 commutating.



### Style 7 Date Master clock

Style 7 Date is a luminous master clock hour and calendar multifunction.

- France inter or DCF radio synchronisation,
- AFNOR coded time output,
- Accuracy : 0.2 second / day at 20 - 25°C,
- Synchronises up to 50 AFNOR slave clocks,
- Power supply 230V.

# Technical feature

Power supply 230VAC 50Hz. Master clocks accuracy : 0.1sec / day (between 20 and 25°C).

Operating temperature : from 0 to 50°C.

Fast synchronisation of slave clocks following power supply failure. Preset summer/winter changeover.

Integrated clocks protection against short circuits and overcharges.

Permanent programming back up.

Type	Inputs			Outputs					Casing		Time backup	
	Radio	24 V impulses	Afnor	24 V impulses	Afnor	ASCII	DCF	D1D2	DHF	Wall		Rack
MIC Alfa 1	▶			▶						shock-proof ABS weight 1,5 kg IP41	Aluminium weight 1,6 kg IP30	3 years
MIC Alfa 2	▶			▶	▶							
MIC Alfa 3			▶	▶								
MIC Alfa 4	▶			TBT 24 V	▶				▶			
MIC Delta 1	▶			▶				▶		shock-proof ABS weight 2,4 kg IP41	Aluminium weight 2,8 kg IP30	3 years
MIC Delta 2	▶			▶		▶		▶				
MIC Delta 3	▶			24 V min impulses + sec				▶				
MIC Delta 4			▶	▶				▶		Steal 7,1 kg IP41	Aluminium 7,7 kg IP30	4 to 5 years
MIC Delta 5	▶			▶	▶			▶	▶			
MIC S	▶	▶	▶	▶	▶	▶		▶	▶	Aluminium 20,6 kg IP30	Aluminium 20,6 kg IP30	4 to 5 years
Time center with redundant timebase	▶	▶	▶		▶	▶						
MIC GPS	GPS				▶			▶		ABS Anti-shock 1,2 kg IP41	Aluminium 1,6 kg IP30	3 years

able master clock :  
ocks through :  
mpulses  
al  
io signal (optional)  
amming circuits enabling  
ns as heating, lighting,  
/ 422 outputs  
omputer network

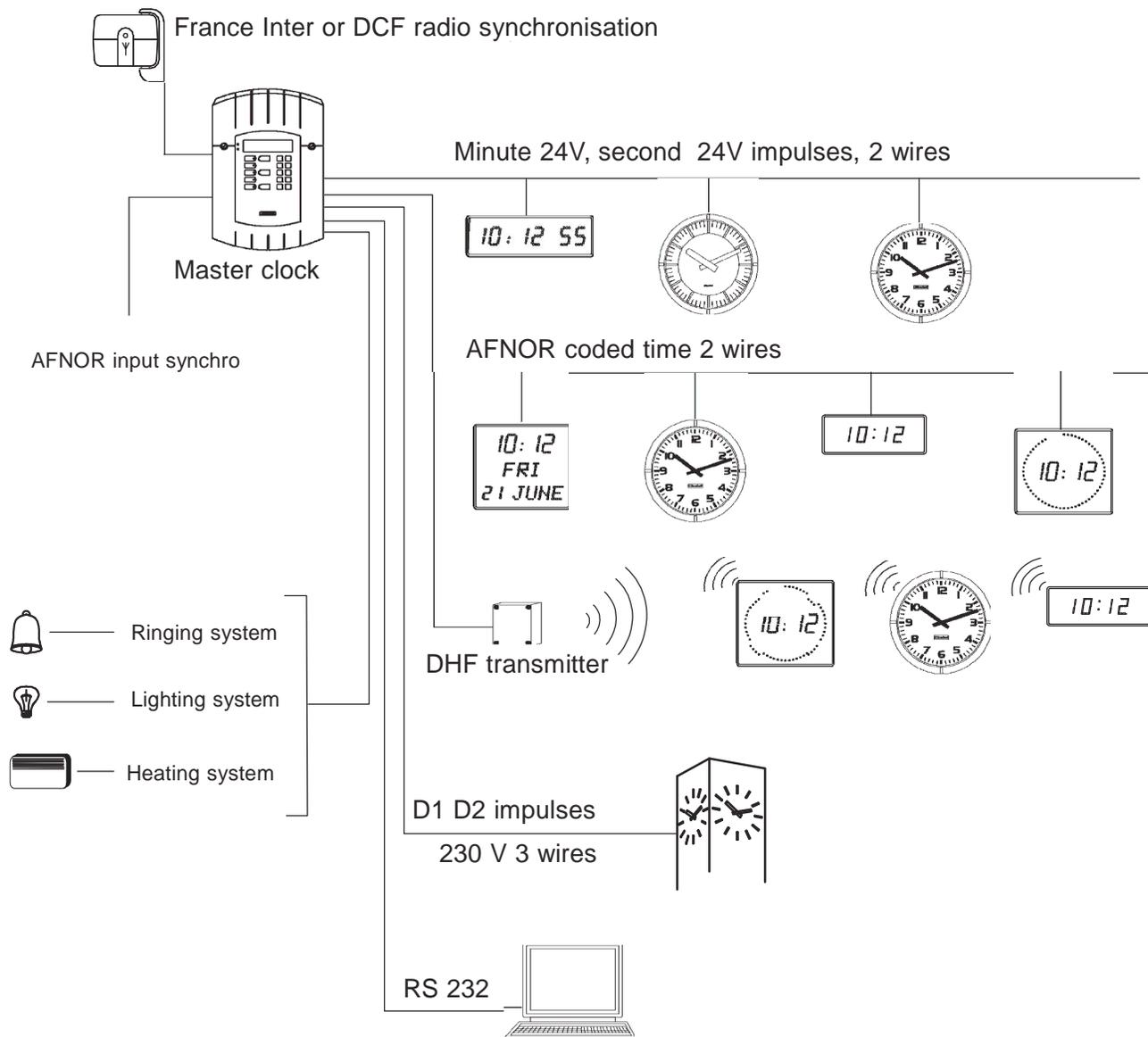


Time center

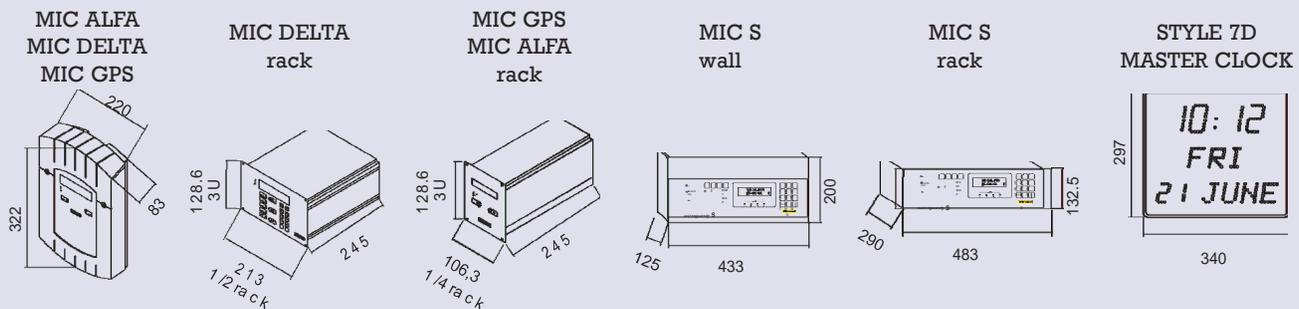
Flexible assembly of master clocks synchronised through GPS system :

- Drives slave clocks through :
  - AFNOR signal
  - Wireless radio signal (optional)
- ASCII, RS 232 / 422 outputs for computer network synchronisation
- MIC 2 TB module ensures the automatic commuting of the outputs in case of master clock failure.

# Time distribution diagram



## Dimensions (mm)



**Gricom Engineering**  
 "Sv. Sv. Kiril I Metodi" Str. 186,  
 Tel. (+359 2) 988 74 70(1)  
 Fax. (+359 2) 988 74 72  
 -mail: [info@gricomgroup.com](mailto:info@gricomgroup.com)  
[www.GricomEng.com](http://www.GricomEng.com)