



Bodet

SYNCHRONISED CLOCK SYSTEMS

The European Leader in
Time Management Solutions



Bodet

Microquartz Sigma

Bodet

SYNCHRONISATION & TIME DISTRIBUTION

Time synchronisation

Synchronisation is the first phase in time distribution where the master clock receives a very accurate time signal through a GPS antenna.

With its satellite network the GPS system ensures time synchronisation anywhere in the world.

The GPS antenna receives a UTC (*Universal Time Coordinated*) time message and, if necessary, the master clock performs a time shift to match the time zone of its location. The same process is followed for the summer/winter time changeover.

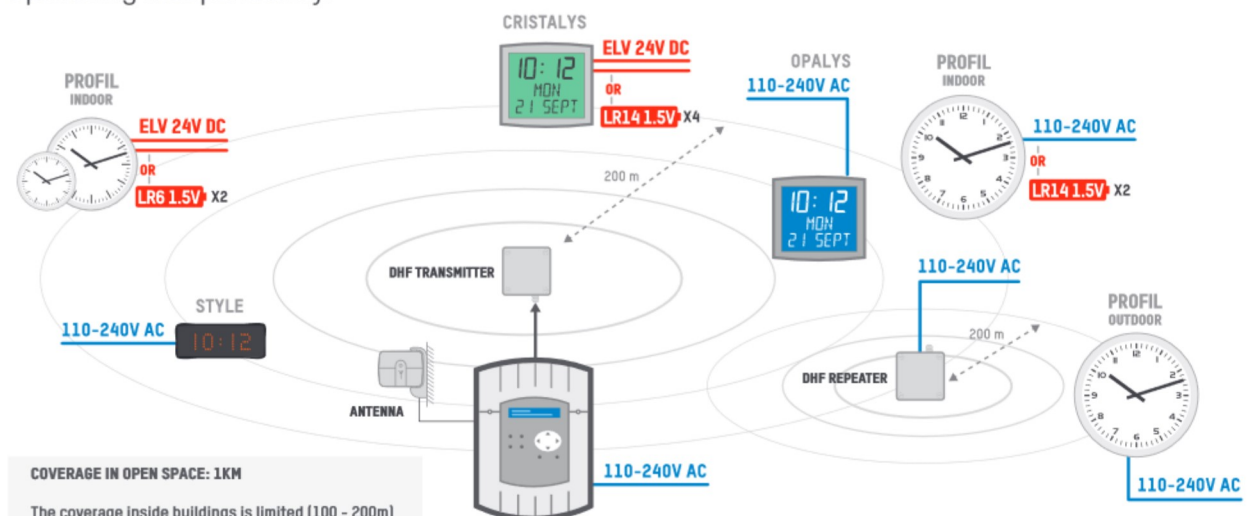
Time distribution

Time distribution consists of synchronising a network of clocks in one or more buildings using a master clock.



DHF wireless time distribution

The master clock synchronises all the slave clocks automatically with a standardised 869 MHz radio time message. Where there is a loss of the radio signal or radio interference, the clocks revert to operating independently.



COVERAGE IN OPEN SPACE: 1KM

The coverage inside buildings is limited (100 - 200m) by the structure of the building itself (number and structure of floors, walls, ...). The coverage can be extended by using repeaters.

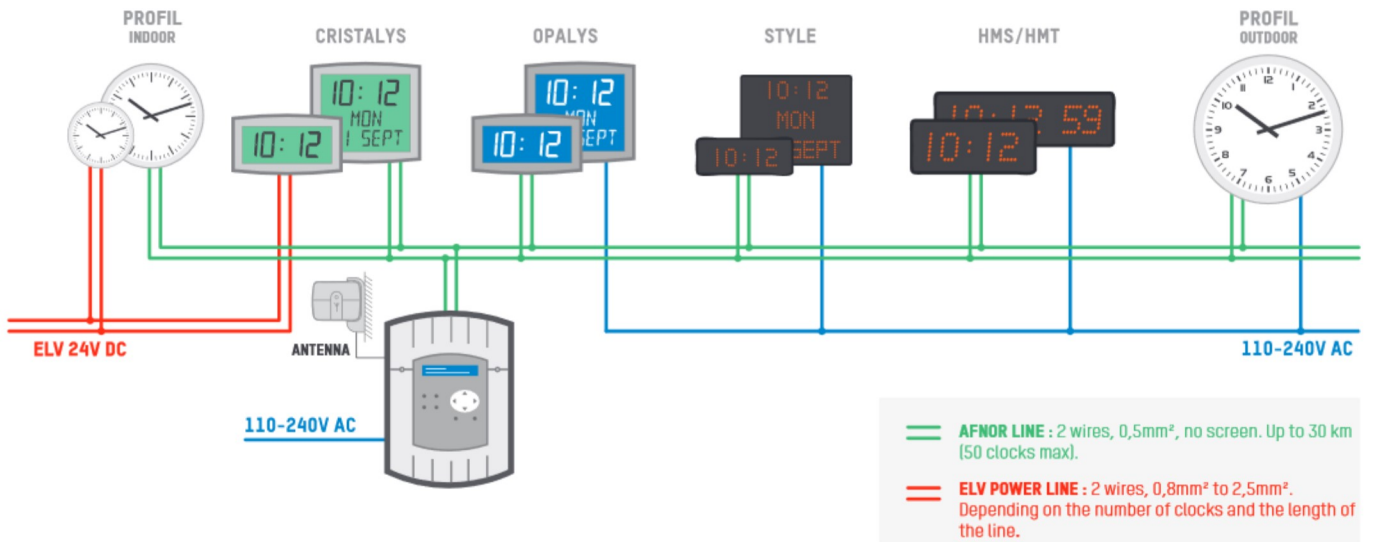
Unlimited number of DHF slave clocks.

WIRED TIME DISTRIBUTION



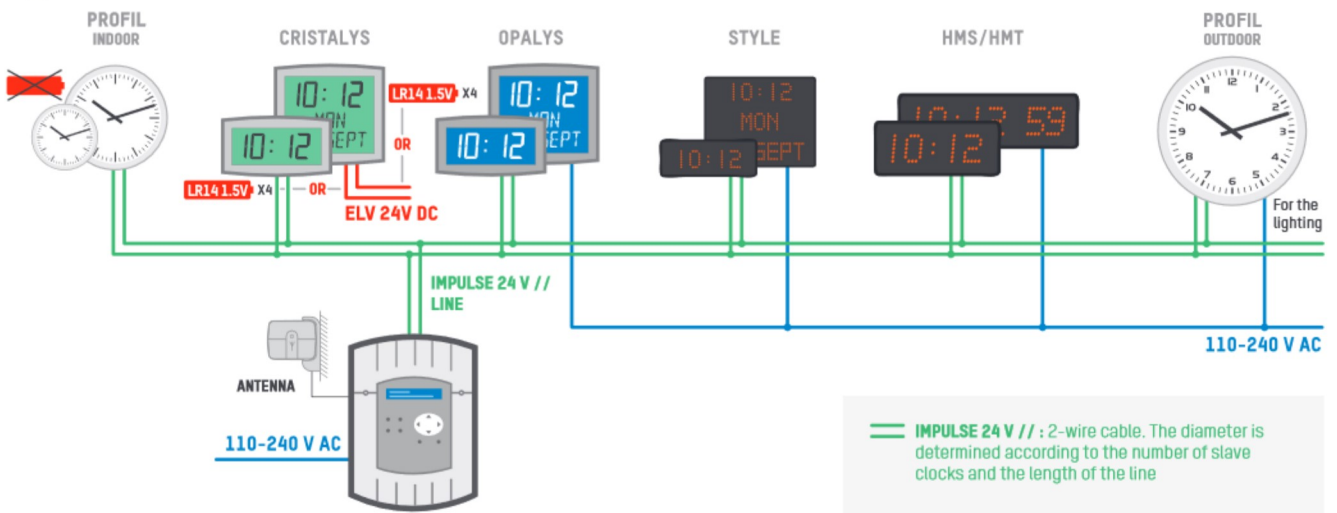
Coded time distribution

The coded time distribution, which is also known as AFNOR code, broadcasts a complete time message on a two-wire line. This method of time distribution is widely used in installations with a great number of clocks – for example at railway stations and airports – and where long cables are required.



Impulse time distribution

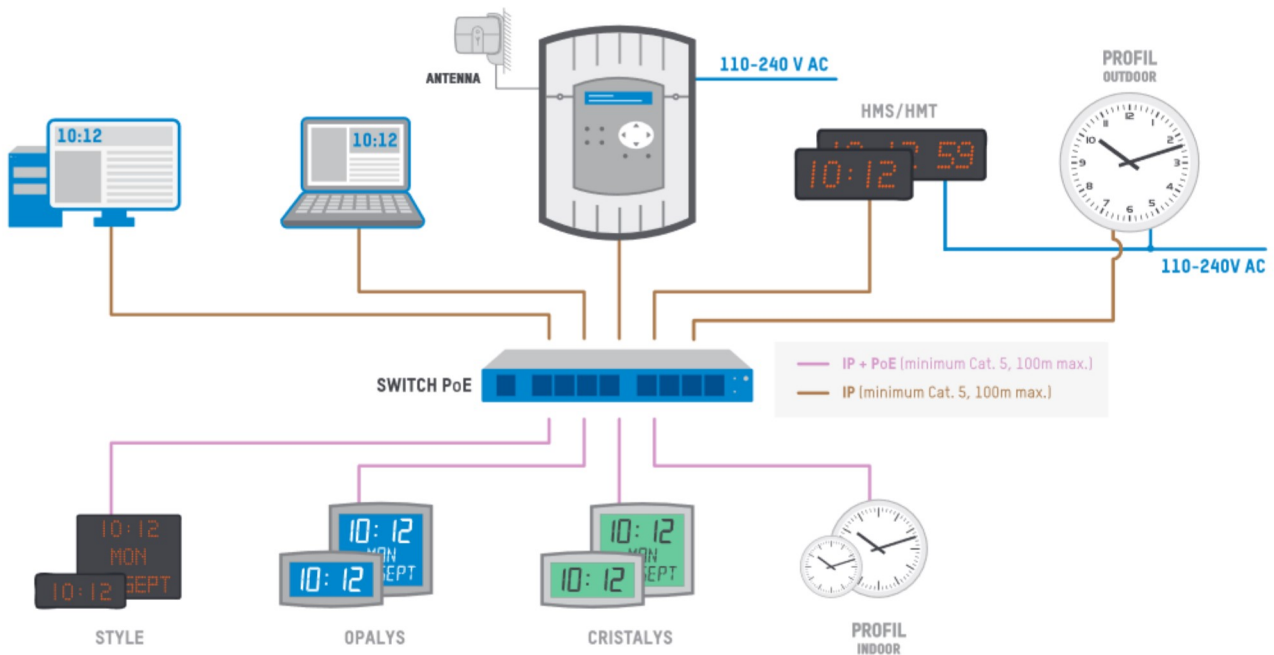
The master clock sends electrical impulses every minute to all the clocks on the distribution line. This type of distribution is used in small and medium installations.





Computer network time distribution

Connected to a computer network, the slave clocks receive an NTP time message from the master clock which is also connected to the network. The time message is sent either periodically (Multicast) or on demand (Unicast).



MONITORED TIME DISTRIBUTION

As well as ensuring synchronisation, **monitored time distribution** enables a set of slave clocks to be controlled remotely. The clocks send alerts via the ethernet network. The alerts can be reviewed and the associated parameters can be set.

The monitored time distribution operates with any SNMP compatible software which receives the messages sent by the monitored clocks such as battery failure and shocks.

CRISTALYS / OPALYS

Combining clear display and modern design



Cristalys 7



Cristalys 14



Cristalys Date



Cristalys Ellipse



Opalys 7



Opalys 14



Opalys Date



Opalys Ellipse

Backlit clocks

CRISTALYS RANGE

4 indoor models

- **Cristalys 7**
Time or date display.
Display: 7 cm.
- **Cristalys 14**
Time, date or temperature display.
Display: 14 cm.
- **Cristalys Date**
Time and date display.
Display: 7 cm.
- **Cristalys Ellipse**
Multi-function display: time, date, temperature, week number, message.
Display: 6 cm.

OPALYS

4 indoor models

- **Opalys 7**
Time or date display.
Display: 7 cm.
- **Opalys 14**
Time, date or temperature display.
Display: 14 cm.
- **Opalys Date**
Time and date display. Display: 7 cm.
- **Opalys Ellipse**
Multi-function display: time, date, temperature, week number, message.
Display: 6 cm.

AVAILABLE TIME DISTRIBUTION SYSTEMS





PROFIL

The analogue classic

PROFIL 700

2 diameters

- Profil 730 - Ø30 cm - Indoor
- Profil 740 - Ø40 cm - Indoor

Case colour



AVAILABLE TIME DISTRIBUTION SYSTEMS



PROFIL 700 & PROFIL 900

3 models of dial



Profil 730



Profil 740

PROFIL 900

3 diamètres

- Profil 930 - Ø30 cm - Indoor
- Profil 940 - Ø40 cm - Indoor or outdoor
- Profil 960 - Ø60 cm - Indoor or outdoor

Profil 930/940 indoor : 4 casing colours



Profil 940/960 outdoor : white casing only

AVAILABLE TIME DISTRIBUTION SYSTEMS



Profil 930



Profil 940



Profil 960

PROFIL TGV

4 diameters

- TGV 930 - Ø30 cm - Indoor
- TGV 940 - Ø40 cm - Indoor
- TGV 950 - Ø50 cm - Indoor or outdoor
- TGV 970 - Ø70 cm - Indoor or outdoor

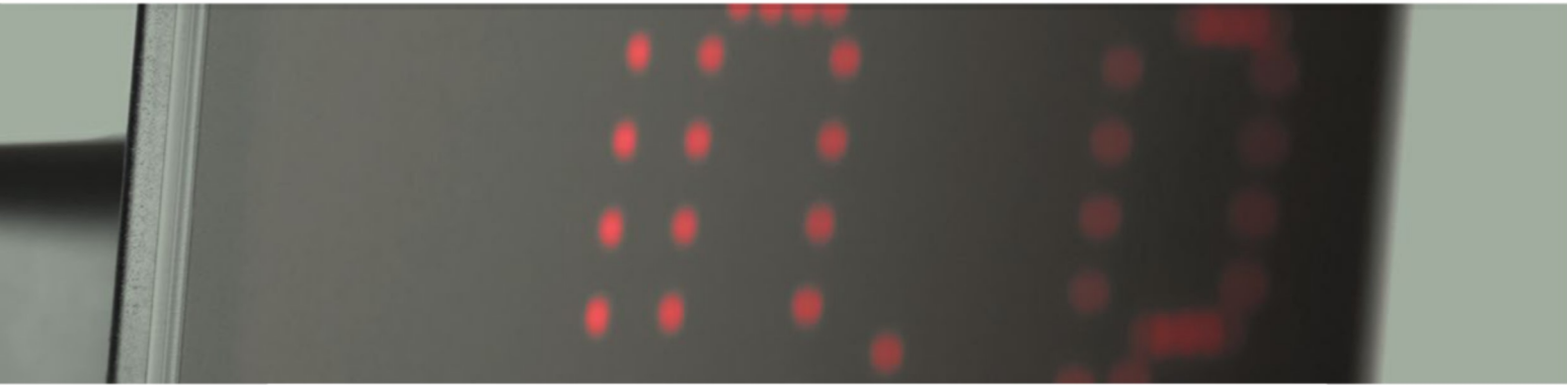
AVAILABLE TIME DISTRIBUTION SYSTEMS



Profil TGV 930



Profil TGV 970



STYLE

The accuracy of LED clocks



Style 5



Style 5 S



Style 7



Style 7 Date



Style 7 Ellipse



Style 10



Style 10 S



Style 10 SD

9 indoor models

- **Style 5**
Time or date display
Display: 5 cm
- **Style 5 S**
Hour, minute and second display
Display: 5 cm
- **Style 7**
Time or date display
Display: 7 cm
- **Style 7 Date**
Time and calendar display
Display: 7 cm
- **Style 7 Ellipse**
Hour and second display
Display: 7 cm
- **Style 10**
Hour - minute display
Display: 10 cm
- **Style 10 S**
Hour - minute - second display
Display: 10 cm
- **Style 10 D**
Hour - minute - date display
Display: 10 cm
- **Style 10 SD**
Hour - minute - seconde - date display
Display: 10 cm

Available LED colours:



AVAILABLE TIME DISTRIBUTION SYSTEMS



WORLD STYLE

WORLD STYLE RANGE

5 indoor models

- 3 cities, 4 cities, 5 cities, 6 cities, 7 cities

Display

- 5 cm

Available LED colours:



AVAILABLE TIME DISTRIBUTION SYSTEMS



HMS / HMT LED

Perfect outdoor readability

9 outdoor models

HMT LED

5 display sizes:

- 10 cm, 15 cm, 20 cm, 25 cm and 45 cm

HMS LED

4 display sizes:

- 10 cm, 15 cm, 25 cm and 45 cm

Available LED colours:



AVAILABLE TIME DISTRIBUTION SYSTEMS



HMS LED



HMT LED

MASTER CLOCK

Reliable and accurate time distribution



Wall Sigma



Rack mounting Sigma

4 Models

- **Sigma - H**

Transmits the time to slave clocks.



- **Sigma - P**

Transmits the time to slave clocks.



Controls the network of relays and bell systems.

- **Sigma - C**

Transmits the time to slave clocks.



Controls the network of relays, bell systems and microphones.

- **Sigma - MOD**

Transmits the time to slave clocks.



Controls the network of relays, bell systems and microphones.

Synchronises the computer network (NTP time server).

2 formats: wall or rack mounting

Programming and parameter setting through software

TYPES OF SYNCHRONISATION



NETSILON

Time Server: to transmit a very accurate time information



NETSILON 7
Bodet



SECURESYNC
Bodet/Spectracom

Internal oscillator

Quartz TCXO

Quartz OCXO

Accuracy

*average over 24 hours
when GPS locked*

$1 \cdot 10^{-9}$

$2 \cdot 10^{-12}$

Medium Term Stability

*with GPS after 2 weeks
of GPS lock*

$1 \cdot 10^{-7}$ /day

$5 \cdot 10^{-10}$ /day

Holdover

*constant temp after 2
weeks of GPS lock
at constant temperature*

After 24 hours: 5ms

After 24 hours: 0.5µs

WORLDWIDE CUSTOMER REFERENCES

Public Sector

Music academy - Hungary
National Assembly
Poste office - Serbia
EDF
INSEE
Ministry of Defense
Ministry of Industry
Ministry of Economy - Cameroon
Opera house of Lyon
Courthouse - Abu Dhabi
Palace of Culture - Poland
European Parliament
SNCF

Airports

Algiers
Bangkok
Bordeaux
Brussels
Budapest
Esenboga
Lamaca
Cairo
Madrid
Marseille
Martinique
Orly
Pointe à Pitre
Roissy
Rome
Seville
Sofia
Stuttgart

Banks

Banque de France
Banque Populaire
Barclays
Berliner Bank
BNP Paribas
BTN Jakarta
Citibank
Commerzbank
Crédit Agricole
Crédit Mutuel

Deutsche Bank
HSBC
LCL
Natexis
National Bank of Abu Dhabi
National Bank of Serbia
Bank of Norway
Société Générale

Schools

ESEO
ESSCA
King Saud University - Saudi Arabia
Lycée Français de Barcelone - Spain
Lycée Français de Londres - United Kingdom
National University - Malaysia
Secondly International School - Hong Kong
School at Daiya - Kuwait
Tobb University Ankara - Turkey
University of Brighton - United Kingdom
Université de Batna - Algeria
Université de la Sorbonne - Abu Dhabi
Université Javeriana - Colombia
Vienna International School - Austria

Businesses

Carrefour
Citröen
Danone
France 2 et France 3
Glaces Miko
JC Decaux
La Redoute
Lilly Pharmaceuticals
Michelin
Motorola
Nestlé
Pirelli
Stanley
Total
Tesco
Veuve Clicquot
Volkswagen

Hospitals and Labs

Bosch & Lomb
CHU Charleroi - Belgium
CHU Cholet - France
Clinique Universitaire du cancer - Toulouse
University College - London
Ahus hospital- Norway
Cajamarca hospital - Peru
Princess Haya hospital - Jordan
Queen Mary hospital - Hong Kong
Queensland hospital - Australia
Saint Louis hospital - Paris
Hôpitaux civils - Colmar, France
Hôpitaux de Lyon

Subways

Algiers
Athens
Brussels
Bucharest
Istanbul
Cairo
Mexico City
Panama City
Paris
Seville
Shiraz Iran
Tehran Iran
Tunis

Transport

Autoroutes du Sud de la France
Eurotunnel
JERNBANEVERKT - Norway
ONCF - Morocco
RATP - France
RENFE - Spain
SNCB - Brussels
SNCF - France
SNTF - Algeria
TRANSMILENIO - Bogota, Colombia
VNR - Vietnam

Bodet

The Bodet Group

WE GIVE YOU TIME



Campanaire

Bell renovation
Frontage dials
Bell electrification



Software

Time management
Access control
HRIS



Sport

Timing
Scoreboards
Video display



Time

Time distribution
Display signage
LED display
Audio system



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