Bodet

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Time Management Solutions

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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.
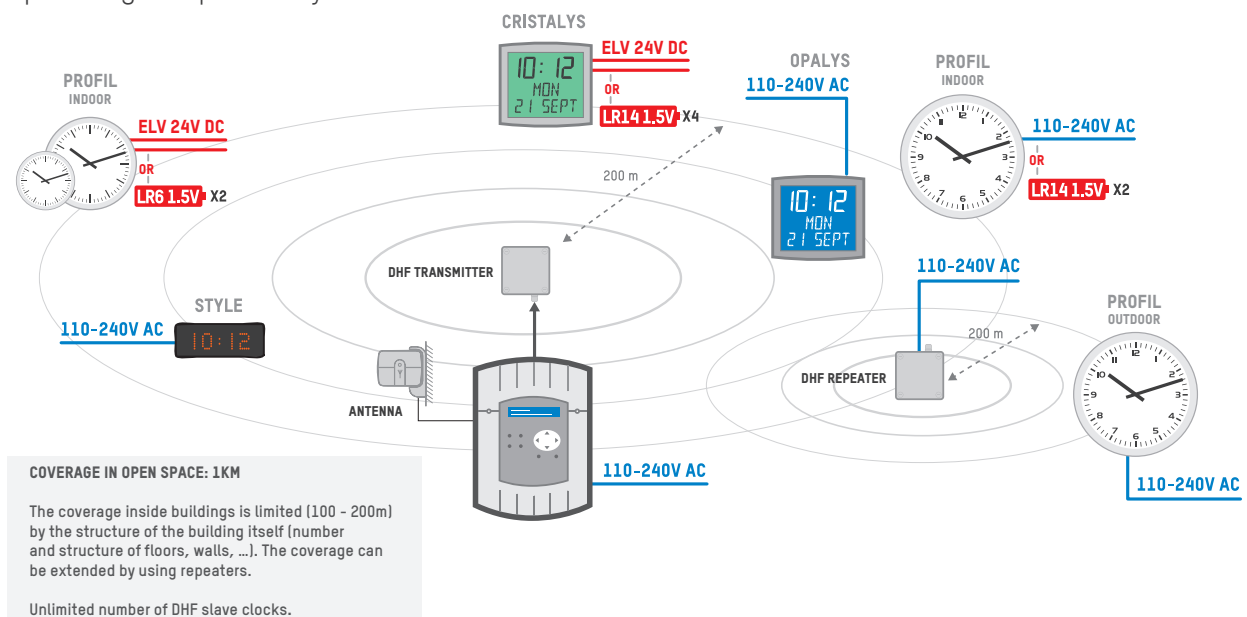
Time distribution

Time distribution consists in synchronizing a network of clocks in one or more buildings by 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.
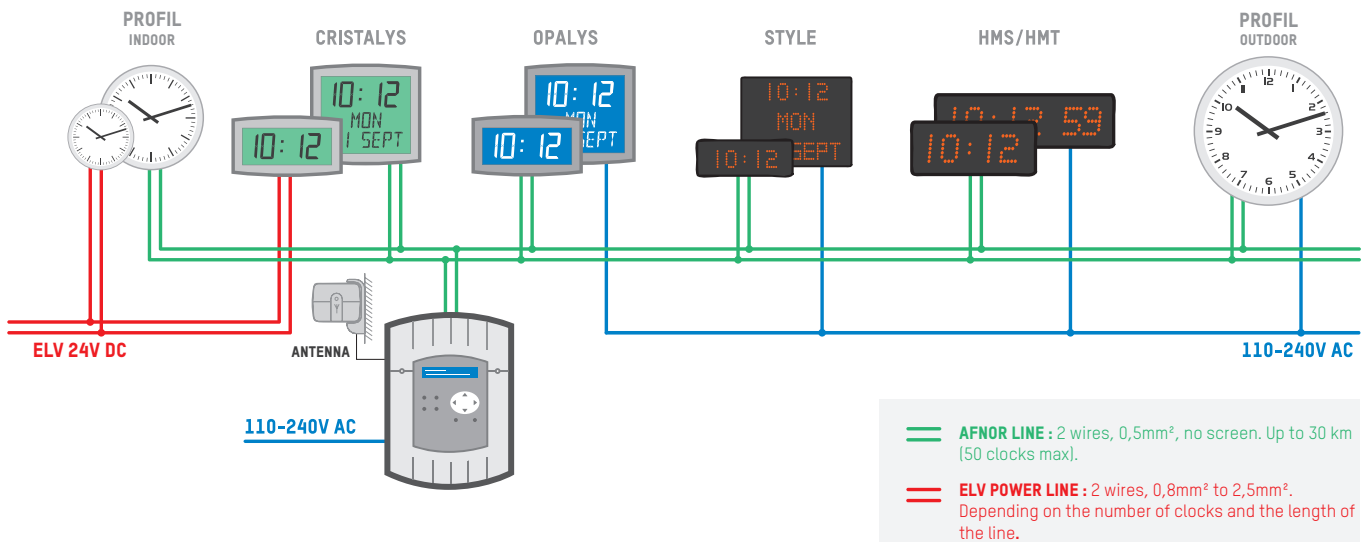

PROFIL
INDOOR

ELV 24V DC
OR
LR6 1.5V x2

STYLE
110-240V AC
10:12

CRISTALYS
10:12 MON 21 SEPT
ELV 24V DC
OR
LR14 1.5V x4

200 m

DHF TRANSMITTER

ANTENNA

110-240V AC

OPALYS
110-240V AC
10:12 MON 21 SEPT

PROFIL
INDOOR
110-240V AC
OR
LR14 1.5V x2

110-240V AC

DHF REPEATER
200 m

PROFIL
OUTDOOR

110-240V AC

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.
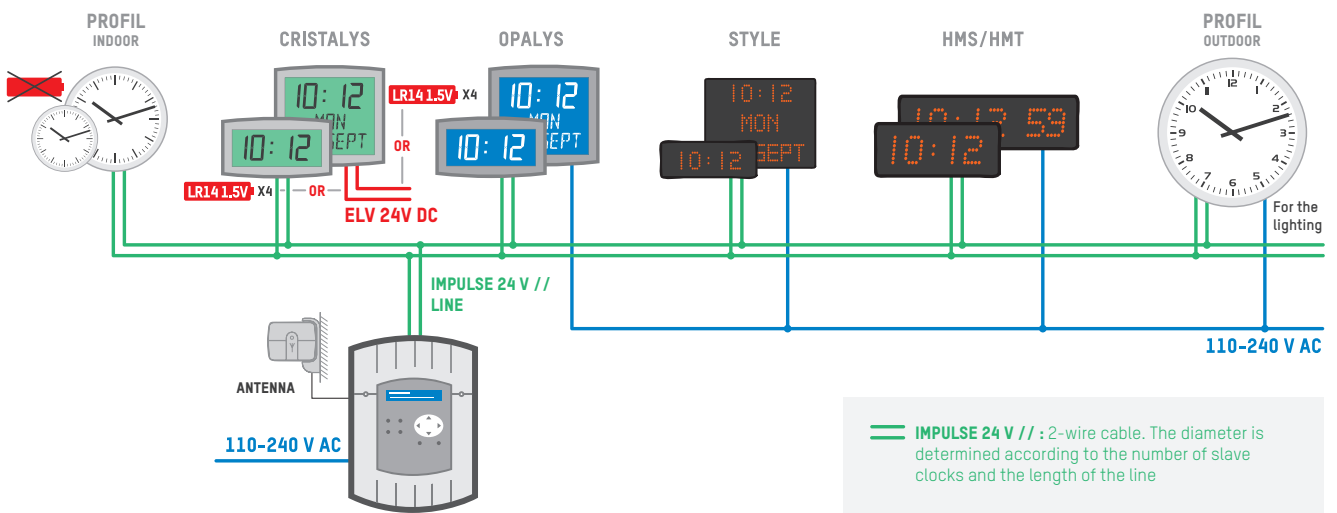
WIRED TIME DISTRIBUTION

AFNOR

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.

PROFIL INDOOR	CRISTALYS	OPALYS	STYLE	HMS/HMT	PROFIL OUTDOOR

ELV 24V DC

ANTENNA

110-240V AC

110-240V AC

— **AFNOR LINE :** 2 wires, 0,5mm², no screen. Up to 30 km (50 clocks max).

— **ELV POWER LINE :** 2 wires, 0,8mm² to 2,5mm². Depending on the number of clocks and the length of the line.

IMPULSIONNEL
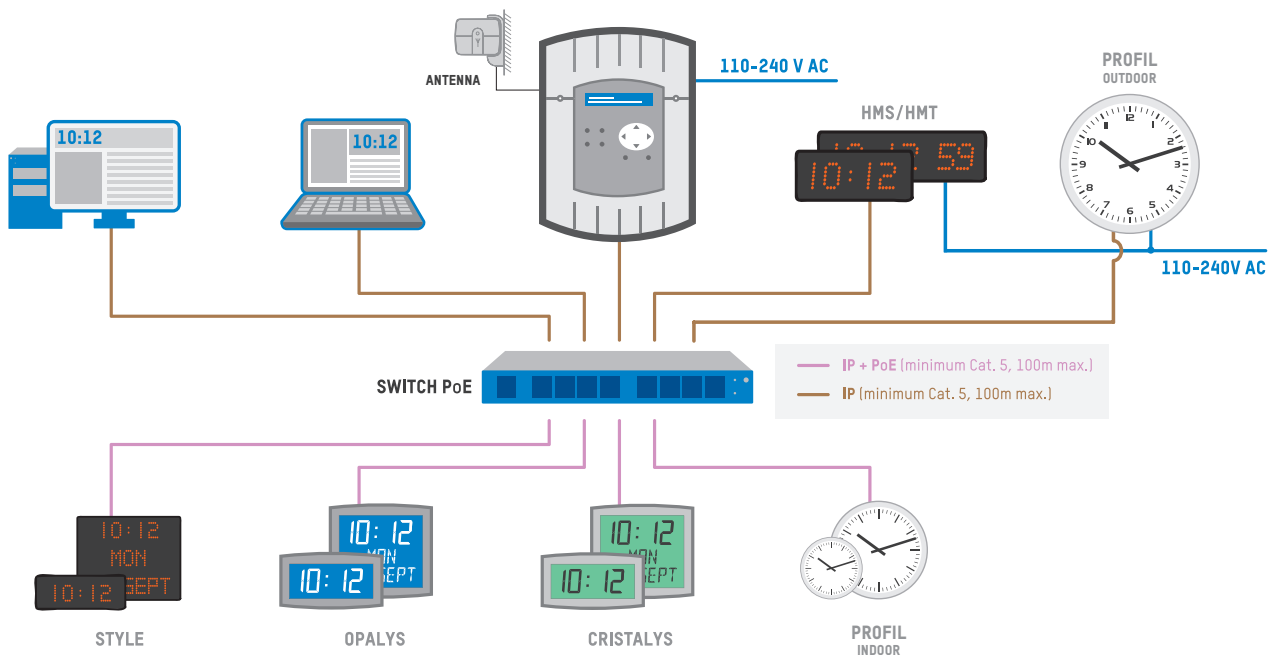
Impulse time distribution

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.

PROFIL INDOOR	CRISTALYS	OPALYS	STYLE	HMS/HMT	PROFIL OUTDOOR

LR14 1.5V X4

OR

LR14 1.5V X4 — OR —

ELV 24V DC

For the lighting

IMPULSE 24 V //LINE

110-240 V AC

ANTENNA

110-240 V AC

— **IMPULSE 24 V // :** 2-wire cable. The diameter is determined according to the number of slave clocks and the length of the line

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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).

ANTENNA

110-240 V AC

PROFIL
OUTDOOR

HMS/HMT

110-240V AC

SWITCH PoE

—— IP + PoE (minimum Cat. 5, 100m max.)
—— IP (minimum Cat. 5, 100m max.)

STYLE

OPALYS

CRISTALYS

PROFIL
INDOOR

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.

*C*RISTALYS / *O*PALYS

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

DCF | IMPULSIONNEL | AFNOR | DHF | NTP

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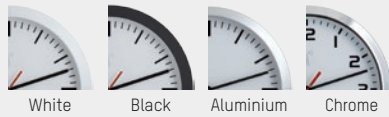
PROFIL 900 | PROFIL TGV

The analogue classic

PROFIL 900 RANGE

3 diameters
- *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

White   Black   Aluminium   Chrome

3 models of dial

Profil 930   Profil 940   Profil 960

AVAILABLE TIME DISTRIBUTION SYSTEMS

DCF   IMPULSIONNEL   AFNOR   DHF   NTP

PROFIL TGV RANGE

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

DCF   IMPULSIONNEL   AFNOR   NTP

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

DCF   IMPULSIONNEL   AFNOR   DHF   NTP

WORLD STYLE

WORLD STYLE RANGE

4 indoor models
- *3 cities*, 4 cities, 5 cities, 6 cities*

Display
- *5 cm*

Available LED colours:

*available in red and green only

AVAILABLE TIME DISTRIBUTION SYSTEMS

IMPULSIONNEL   AFNOR   DHF   NTP

HMS / HMT LED

Perfect outdoor readability

6 outdoor models

HMT LED

4 display sizes:
- *15 cm, 20 cm, 25 cm and 45 cm*

HMS LED

2 display sizes:
- *15 cm and 25 cm*

Available LED colours:

TYPES OF SYNCHRONISATION

DCF   GPS

AVAILABLE TIME DISTRIBUTION SYSTEMS

DHF   AFNOR   NTP

HMS LED

HMT LED

MASTER CLOCK

Reliable and accurate time ditribution

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.
  Contrils 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

DCF   GPS

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*	$1*10^{-9}$	$2*10^{-12}$
Medium Term Stability *with GPS after 2 weeks* *of GPS lock*	$1*10^{-7}$/day	$5*10^{-10}$/day
Holdover *constant temp after 2* *weeks of GPS lock* *at constant temperature*	After 24 hours: 5ms	After 24 hours: 0.5µs

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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 - Kuweit
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
Citroën
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

TIME
Time distribution
LED display
Audio system

CAMPANAIRE
Bell renovation
Frontage dials
Bell electrification

SPORT
Timing
Scoreboards
Video display

SOFTWARE
Time management
Access control
HR management

Ref. 653A91G – 12.2016

afaq
ISO 9001
ISO 14001
Quality
Environment
AFNOR CERTIFICATION
Trementines plant
Certified Management
System