Modular master clock

Modular master clock — Sigma Mod

Rack version

Wall-mounted version

Wire or wireless time distribution and relay programming.

Master clock with programmable circuits, control of clock network, relays and bells, NTP time reference.
PC software programming and USB key transfer.

Description:

- ▶ Synchronisable via GPS, FI or DCF antenna or NTP.
- ▶ 3 programming circuits with week mode, holiday or special day mode for the activation of bells and other systems such as heater, air conditioning, lighting, alarms access control, etc.
- ▶ Automatic resetting of time distribution after power shortage.
- ▶ Clock synchronisation with wired or DHF wireless coded time signals.
- ▶ Programming though PC software and data transferring tough USB key.
- ▶ Automatic summer/winter changeover.
- ▶ Time distribution and relay/bell activation through radio DHF signal.

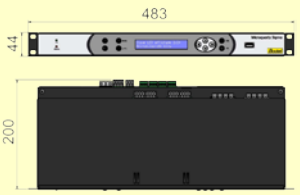
Technical features:

- ▶ ABS casing for wall-mounted or aluminum casing for 19 ″ rack (1U height).
- ▶ Power and alarm led indicators.
- ▶ Keyboard with sensitive keys.
- ▶ Quartz: TCXO (Temperature compensated crystal oscillator).
- ▶ Accuracy: ± 0.1 s/day typical (adjustable drift compensation).
- ▶ Absolute accuracy with GPS or radio antenna.
- ▶ Operating temperature: 0 to +50°C.
- ▶ Retro illuminated display with 2 lines of 24 characters each readable at one meter.
- ▶ LCD display: hour - minute - second - date.
- ▶ Permanent saving of programming and time.
- ▶ Programming protected by access code.
- ▶ Circuits with 3 relays, power cut: 1A / 240V.
- ▶ Clock output protected against short-circuits and overloads.
- ▶ Protection level: IP41.
- ▶ Drilling indications: →

Norms:

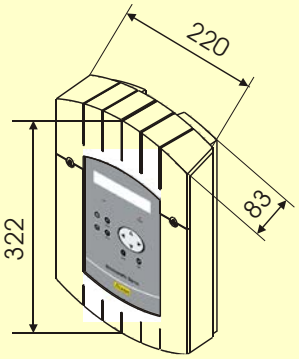
- ▶ Applicable norms: EN 60950 - EN 55022 - EN 55024 – EN 301-489-3 – EN 300 -220-3.
- ▶ FI/DCF signal norm: NFC 90002.
- ▶ IRIG.B / AFNOR norm: NFS 87500A.
- ▶ AFNOR/DHF norm: NF S 87-500 C (fixed channel, 869.525 MHz at 500 mW).

1U rack version



Weight : 2.8 Kg

Wall mounted version



Weight: 2.4 Kg
Wall mount through 2 screws

References:

	wall	rack
▶ Sigma Mod 120/240V	907 451	907 453
▶ Sigma Mod 24VDC	907 452	907 454
▶ Sigma Mod 36/72VDC	--	907 456
▶ DCF radio antenna	907 026	
▶ GPS antenna	907 037	
▶ DHF transmitter	907 511	

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Electrical connections:

▶ Power: 24V DC or 240V ±10% 50/60Hz, 35W.

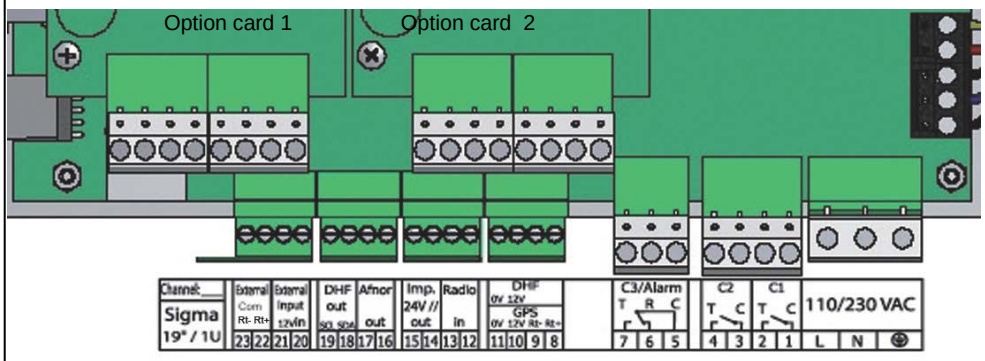
▶ Inputs/Output s on Sigma Mod:

- 1 polarised impulse output (24V // minute / ½ minute / second, 0.5A) or TBT 24V,
- 1 DHF output for DHF transmitter,
- 1 AFNOR coded time output,
- 1 external contact input,
- 1 USB slot,
- 1 NTP client/server on RJ45 plug,
- 3 relays for D1D2 impulses (tower clock control) and alarm or for circuit programming.

▶ Optional Input/Output (2 possible option cards for wall version, 4 for rack version):

- Option card with 3 AFNOR outputs,
- Option card with 2 RS232/RS422/RS485 serial outputs,
- Option card with 1 polarised impulse output (24V // minute / ½ minute / second, 0.5A),
- Option card with 3 relays,
- Option card melody,
- Option card with AFNOR input,
- Option card with 2 serial impulse output ½ minute,
- 1 x 3 external inputs card.

Wiring :



▶ The C1 and C2 circuits (SPNO relays) control the D1D2 impulses or heater, air conditioning…
▶ The C3 circuit (SPDT relay) is assigned to alarm output or controls heater, air conditioning…
▶ Terminals 8 to 11: GPS antenna.
▶ Terminals 12 and 13: FI antenna or DCF77 antenna.
▶ The settable time output (14-15) allow time distribution in minute, ½ minute or second 24 V // (0,5A) or a TBT power generator 24V.
▶ The AFNOR output (16-17) allows the synchronisation of approximately 50 clocks over 30km.
▶ The DHF output (18-19) when connected to a DHF transmitter can control the wireless relay controllers for lighting, air conditioning, etc, the wireless chimes and the wireless clocks.
▶ The contact input (20-21) allows remote control of the C1, C2 or C3 circuit from an external contact.
▶ The NTP output allows control of slave clocks and is a NTP time reference (time server) for computers connected to the LAN network.
▶ Optional outputs can increase the area of applications by controlling different types of slave clocks or to connect the Sigma to a computer.
▶ Alarm notification by SNMP trap.
▶ Alarm notification by Email.

DHF transmitter

Melodys sounder DHF

Wireless relay controller DHF

Reference:

1-relay indoor controller	907523
1-relay outdoor controller	907524
1-relay embedded controller	907525

Option cards :

▶ // Impulse output card	907 531
▶ AFNOR output card	907 533
▶ Serial output card	907 534
▶ Relay card (1 SPDT and 2 SPNO relays)	907 535
▶ Carte entrée synchronisation Afnor	907 536
▶ Melody card	907 537
▶ Serial impulse output card 20-50V	907 539
▶ Serial impulse output card 24V	907 541
▶ 3 external inputs card	907 542

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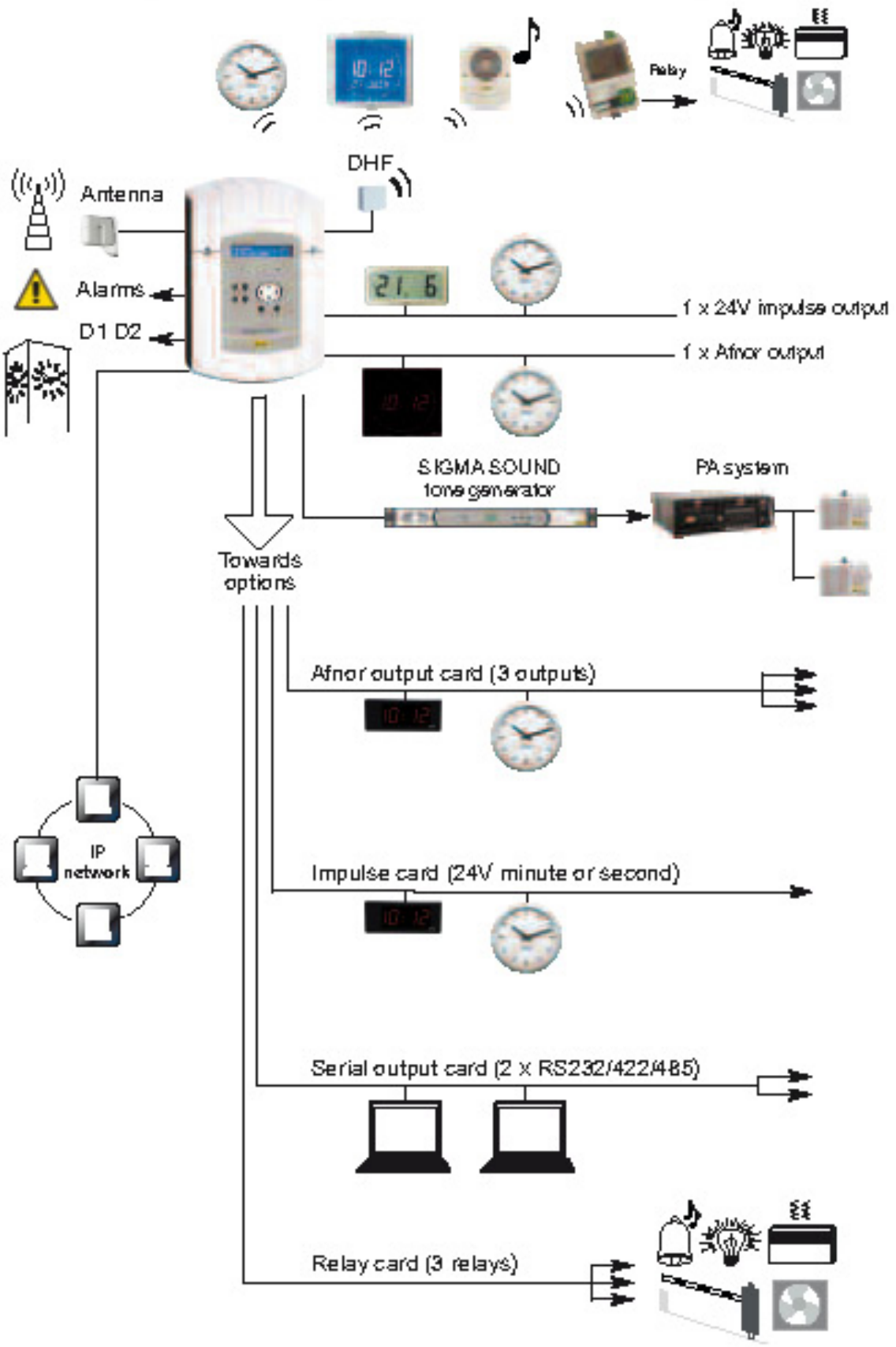
Principle drawing of a time distribution system



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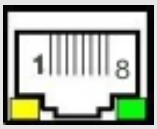
IP configuration and network protocols:

▶ Ethernet 10/100 BASE-T network via RJ45 with 10/100 automatic switching.
▶ NTP V2, V3 and V4.
- NTP in unicast mode,
- NTP in broadcast mode,
- NTP in multicast mode,
- Possible protection by symmetric keys,
- Up to 500 connections per second.

▶ SNTP (Simple Network Time Protocol).
▶ DHCP client.
▶ SMTP client (alarm message via e-mail).
▶ SNMP trap V2c (alarm message via SNMP).



RJ45 connector with two LEDs.

- Green LED: network activity,

- Yellow LED: 10 Mbps (off) or 100 Mbps (on).

Extension module:

The SIGMA MOD can be associated to the extension module Sigma Extens for 4 additional option cards (Only one Sigma Extens per Sigma Mod),
4 option cards for **SIGMA MOD,**
4 option cards for the extension module.

References:
Extens Rack 110/230V 907480
Extens Rack TBT 24VDC 907481

Switching module:

The switching module Sigma Switch allows to supervise two redundant master clocks and to switch from the main one to the stand-by one in case of failure.

References:
Switch Rack 110/230V 907482
Switch Rack TBT 24VDC 907483

Power module:

The power module allows to power the master clocks with 24 VDC.
For impulse option cards, it allows to have 1A per line.

Sigma Power
230V power,
200W, no battery backup.

Sigma UPS
230V power,
Battery backup 5 Ah.

References:
Power Rack 230V-24VDC 907492
UPS Rack 230V- 24VDC 907491
UPS mural 230V-24VDC 907490

NOTE :

MICROSOFT does not guarantee any compatibility with the NTP protocol.
A Windows 2000 server does not allow you to synchronise an NTP client (in this case, use the NTP MONITOR Bodet software).
A Windows 2003 server can synchronise an NTP client.
Linux servers, on the other hand, are entirely compatible.

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