RADIO TIMING® 4000

Modular Time Centre allowing a redundancy on all the outputs for a high security level.

Modular rack mount system

- Equipped with an inter-modules bus, a backplane with connectors and terminals. Guiding system of modules. Connection system and switch between racks
- From 1 to 4 racks stackable

Time base

- **High accuracy oscillator TCXO or OCXO**
- **Holdover stability between 0° and 60°C:**
  - TCXO 1.10^{-6}/ day
  - OCXO 1.10^{-8}/ day

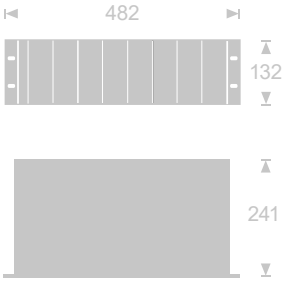
Security

- **Automatic or manual modules redundancy**
- **Power reserve in case of main power supply cutting of**
- Battery and power supply alarm Led indicators
- Key control lock

Specifications

Power supply	230VAC or 115VAC or 24VDC or 48VDC or 85-264VAC - 100-375VDC
Power Cable *(for alternative power supply)*	IEC 60320 defined C13 / MALE SCHUKO 2 (EUROPE) & (Type F)*
Certifications	CE, EN 62368 (safety), EN 55032 (CEM émission), EN 55035 (CEM immunité), ROHS
IP	20
MTBF	100 000 h
MTTR	5 min per module
Weight	Empty rack: 2.2 Kg Average weight of 1 module1/8: 0.3 Kg
Dimensions	Rack 19'' 3U 482 x 132 x 241mm (LxHxD) Module: 1/8th of rack
Operating temperature	0 to 60° C
Storage temperature	- 20 to 80° C

**For other types of power cables, refer to the power cable reference table*



Key features

- **Allows a specific composition** and perfectly adapted to each use
- **Remote supervision over Ethernet** (SNMP, HTTP), support NTP/SNTP
- **Protection filter,** against over voltage and industrial noise
- **Changing of module "hot plug",** without cutting off sector
- **Full redundancy** of synchronization inputs and outputs
- **Inputs and outputs modularity**
- **Independence of modules by means of break protocol**
- **Module priority**

Supervision

- Automatic selection of time zone and daylight saving time
- Supervision via HTTP, SNMP

Synchronization inputs

Standalone synchronized on one or several sources:

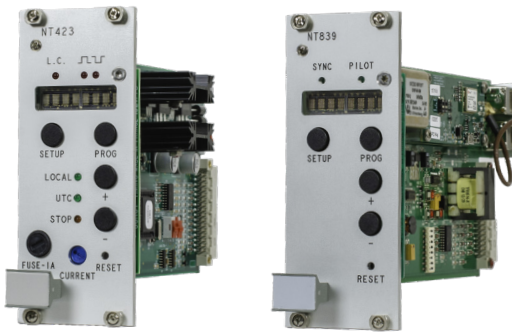
- DCF 77kHz (Europe)
- GNSS (BEIDOU, GLONASS, GPS, GALILEO): 50ns
- AFNOR NFS 87-500/IRIG B/ IEEE1344 and DCLS
- NTP 10/100BaseT (RJ45 port)

Synchronization outputs

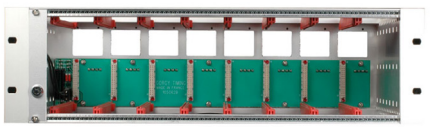
- Multiples outputs (see RT4000 reference table)

Display / LED caracteristics

Some modules are equipped with an alphanumerical Led display



Front



Rear

RADIO TIMING® 4000

		ITEM CODE
RACK 19'' 3U		
Equipped with an inter-modules bus, a backplane circuit with connectors and terminals. Guiding system of modules. Connection system and switch between racks. Key control lock		
Simple rack	■	**NTRK01**
Simple rack without lock	■	**NTRK01-1**
Double rack	✖	**NTRK02**
Double rack without lock	✖	**NTRK02-2**
Triple rack	■	**NTRK03**
Triple rack without lock k	■	**NTRK03-3**
Quadruple rack	✖	**NTRK04**
Quadruple rack without lock	✖	**NTRK04-4**
MODULE POWER SUPPLY		
Battery and power supply alarm leds.1/8th rack		
230VAC input. Ni-mh 2.1AH Batteries	■	**NT102**
115VAC input. Ni-mh 2.1AH Batteries	■	**NT112**
24VDC input. Ni-mh 2.1AH Batteries	■	**NT124**
48VDC input. Ni-mh 1.8AH Batteries or 48 VDC "telecom"	■	**NT148**
85-264 VAC 100-375VDC input Ni-mh 2.1AH Batteries	■	**NT127**
Power supply alarm leds.1/8th rack		
230VAC input	■	**NT302**
115VAC input.	■	**NT312**
24VDC input.	■	**NT324**
48VDC input. Ni-mh 1.8AH Batteries or 48 VDC "telecom"	■	**NT348**
85-264 VAC / 100-375VDC	■	**NT327**
TCXO TIME BASE MODULE		
TCXO high accuracy oscillator. Frequency stability 1.10^{-8}/day (0° to 60°C). Temperature range –30° to 75°C. Ageing 5.10^{-9}/day; Redundancy up to 8 time base modules Alphanuméric HMS LED display, 4 programming keys AFNOR NFS87-500/IRIG-B 1000Hz output - 1/8th rack		
DCF Radiosynchronization. Consumption 1W	■	**NT812**
AFNOR NFS 87-500 / IRIG-B 1000Hz IEEE1344 code and DCLS synchronization input (antenna supplied with 4m cable). Consumption 1W	■	**NT818**
NTPv4 Ethernet 10/100BaseT (RJ45 connector) synchronization input. Consumption 3,5W	■	**NT825**
OCXO TIME BASE MODULE		
OCXO high accuracy oscillator - Frequency stability 1.10^{-8}/day (0° to 60°C) Temperature range –20° to 70°C - Ageing 2.10^{-10}/day Redundancy up to 8 time base modules. Alphanuméric HMS LED display, 4 programming keys AFNOR NFS 87-500/IRIG-B 1000 Hz output, 10 MHz output (sinewave), PPS (TTL) output - 1/8th rack		
GPS synchronization input (Antenna not provided, refer to GPS ANTENNA Option). Consumption 4W Protection against unexpected time jumps of more than one second.	■	**NT829**
GNSS (BEIDOU, GLONASS, GPS, GALILEO) synchronization input (Antenna not provided, refer to GPS ANTENNA Option). Consumption 4W	■	**NT839**
SNMP SUPERVISION MODULE		
SNMP V1/ V2/V3, alarm management on 5 different SNMP supervisors. Configuration via web browser (http et http(s)) and/or Telnet by Ethernet 10/100 Base T. Supporting IP V4/V6. One dry contact alarm, LED indicator on front panel. Consumption 2W. 1/8th rack	■	**NT022**
NTP/SNTP SYNCHRONISATION SERVER MODULE		
Network Time Protocol V4 output (RFC-1305 & RFC-1769). Remote Supervision and configuration via a WEB browser (http et http(s)). LED indicator on front panel. Compatible with GT NTP Client software CDG 021 (to be ordered separately). Ethernet 10/100 base T interface. Supporting IP V4/V6 Consumption 2.1W. Accuracy of 50µs to millisecond depending on network configuration. 1/8th rack. Compatible with GT NTP CDG021 software (to be ordered separately).	■	**NT023**
ASCII CODE MODULE		
Keypad configuration of speed, format, parity and number of stop bits. Operating in unidirectional or bi-directional.(GT standard protocol) 1/8th rack		
4 ASCII outputs module RS232 unidirectional or one bi-directional output + one configurable Pulse output (TTL, DTTL, Relay) including DCF pulse on static relay - Consumption 1W to 3,5W depending on the load lines	■	**NT709**
4 ASCII outputs module RS422-RS485 unidirectional or one bi-directional output + one configurable Pulse output(TTL, DTTL, Relay) including DCF pulse on static relay - Consumption 1W to 3,5W depending on the load lines	■	**NT729**

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		ITEM CODE
AFNOR NFS 87-500 TIME CODE AMPLIFIER OUTPUT		
Modulated code frequency 1000Hz and DCLS. 2 AFNOR NFS 87500/IRIG B outputs or IEEE 1344. Consumption 0.5W. 1/8th rack.	■	**NT600**
SMPTE / EBU OUTPUTS MODULE		
Generates a SMPTE LTC12M –1999 and EBU / UER LTC 3097 time codes Blackburst /Glenlock synchronisation input. Consumption 2W. 1/8th rack.	■	**NT650**
FTM MODULE		
Measures the time & frequency drifts of the electrical network. Input test 115VAC or 230VAC (+/- 10%, 15%) 50-60Hz. Frequency drift accuracy: +/- 1MHz. Time drift accuracy +/- 1ms. 16 digits display, 4 key-pad. Measure data outputs on RS232. Consumption 1,6W. 1/8th rack.	✖	**NT509**
PULSES DRIVER MODULE		
7 segment LED display. Electronically automatic reset protection in case of short circuit. Permanent analyse of the line with alphanumerical display in case of event of faults: power supply, voltage, fuse failure and non sync. of slave clocks. Visual indicator in case of over voltage, short-circuit or power supply failure. Dry contact output. Automatic time setting of the time distribution. Voltage and current measurement display. Consumption 1W (on NT1XX). 1/8th rack.		
Minute 1A/24V parallel reversed pulses output	■	**NT423**
DCF-24v output + 1A/24v pulse	■	**NT424**
Second 24V/200mA parallel reversed pulses output	■	**NT426**
½ minute 48V series reversed pulses output	■	**NT445**
Second 200mA/48V parallel reversed pulses output	■	**NT446**
minute 48V/0.5A parallel reversed pulses output	■	**NT443**
CHARGER BATTERY FOR PULSES OUTPUT MODULE		
Consumption 0,5W (on NT1XX)		
230 VAC power supply, 24VDC output - 24 VDC battery - Size 1/8th of rack	■	**NT202**
115 VAC power supply, 24VDC output - 24 VDC battery – Size 1/8th of rack	✖	**NT212**
24 VDC power supply, 24VDC output - 24 VDC battery – Size 1/8th of rack	✖	**NT222**
230 VAC power supply, 48VDC output - 48 VDC battery - Size 2/8th of rack	✖	**NT204**
115 VAC power supply, 48VDC output - 48 VDC battery - Size 2/8th of rack	✖	**NT214**
24 VDC power supply, 48VDC output - 48 VDC battery - Size 2/8th of rack	✖	**NT224**
OPTIONS		
Blank front size 1/8th	■	**NT019**
Spare: Fuse, Fuse carrier, Keys, blank front	■	**92110**
ANTENNA OPTION		
See GNSS Elements table	▣	**92225/xxxx**
IP55 WATERTIGHT CABINET FOR RACK 19"		
Glass door with safety glass and security lock Cable entry top/bottom access		
19" 4U - 600 x 450 x 280mm (LxDxH)	■	**NTB04U**
19" 6U - 600 x 600 x 368mm (LxDxH)	■	**NTB06U**
19" 9U - 600 x 600 x 500mm (LxDxH)	■	**NTB09U**
19" 12U - 600 x 600 x 635mm (LxDxH)	■	**NTB12U**
Tropicalization of the electronic circuits of the product		
Upon the completion of the offer, add a line "TROPICALIZATION" for product. On the form for order, add a comment "BE/production" for each line of product RT4000 the word "TROPICALIZATION".	■	TROPICALIZATION