

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 off.
Battery and power supply alarm Led indicators.
Key control lock.

Specification

Power supply	230VAC 115VAC 24VDC 48VDC 85-264VAC
Certifications	CE, EN 60950 (safety), EN 55022 (EMC transmission), EN 55024 (EMC immunity), ROHS
IP	20
MTBF	100 000 h.
MTTR	5 min. per module
Weight	Empty rack : 2.2 kg Average weight of 1 module 1/8 : 0.3 kg
Dimension	Rack 19" 3U 482x132x241 mm Module : 1/8th of rack
Operating temperature	0° to 60°C
Storage temperature	-20° to 80°C



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.

Supervision

Automatic choice of time zone and daylight saving time.
Supervision via HTTP, SNMP, Telnet. "GT Network Manager", "GT Ethernet Supervision" operating on Windows® NT/XP/2000/2003/ Vista (32 bits)/Windows 7.

Synchronization inputs

- **Standalone synchronized on one or several sources:**
 - DCF (Europe).
 - GNSS (BEIDOU, GLONASS, GPS, GALILEO): 50ns.
 - AFNOR NFS 87500/IRIG B and DCLS.
 - NTP on Ethernet 10/100T Base (RJ45 connector).

Synchronization outputs

- Multiples outputs (shown overleaf).

Display / LED characteristics

Some modules are equipped with an alphanumerical Led display.



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	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	
Double rack	■ NTRK02	
Triple rack	* NTRK03	
Quadruple rack	* NTRK04	
POWER SUPPLY MODULE		
Battery and power supply alarm leds. 1/8 th 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. 1/8 th rack		
230VAC input. Ni-mh 2.1AH Batteries	■ NT302	
115VAC input. Ni-mh 2.1AH Batteries	■ NT312	
24VDC input. Ni-mh 2.1AH Batteries	■ NT324	
48VDC input. Ni-mh 1.8AH Batteries or 48 VDC « telecom »	■ NT348	
85-264 VAC 100-375VDC input Ni-mh 2.1AH Batteries	■ NT327	
TCXO TIME BASE MODULE		
TCXO high accuracy oscillator. Frequency stability 1.10 ⁻⁶ /jour (0° to 60°C). Temperature range -30° to 75°C. Ageing 5.10 ⁻⁹ /jour. Redundancy up to 8 time base modules. Alphanumeric HMS LED display, 4 programming keys. AFNOR NFS87500/IRIG-b 1000Hz output - 1/8 th rack		
DCF Radiosynchronization. Consumption 1W	■ NT812	
AFNOR NFS 87500 / IRIG-B 1000Hz IEEE1344 code and DCLS synchronization input. consumption 1W	■ NT818	
GPS synchronization input (Antenna not provided). Consumption 1,2W	■ NT819	
NTPv4 Ethernet 10/100BaseT (RJ45 connector) synchronization input. consumption 3,5W	■ NT825	
GLONASS synchronization input (Antenna not provided). Consumption 2W	■ NT814	
OCXO TIME BASE MODULE		
OCXO high accuracy oscillator - Frequency stability 1.10 ⁻⁸ /jour (0° to 60°C) Temperature range -20° to 70°C - Ageing 2.10 ⁻¹⁰ /day. Redundancy up to 8 time base modules. Alphanumeric HMS LED display, 4 programming keys. AFNOR NFS87500/IRIG-b 1000 Hz output, 10 MHz output (sinewave), PPS (TTL)output - 1/8 th 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		
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.		
ASCII CODE MODULE		
Keypad configuration of speed, format, parity and number of stop bits. Operating in unidirectional or bi-directional.(Gorgy Timing standard protocol) 1/8 th 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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AFNOR NFS 87500 TIME CODE AMPLIFIER OUTPUT		
Modulated code frequency 1000Hz and DCLS 2 AFNOR NFS 87500/IRIG B outputs or IEEE 1344. Consumption 0.5W. 1/8 th rack	■ NT600	
SMPTE / EBU OUTPUTS MODULE		
Generates a SMPTE LTC12M –1999 and EBU / UER LTC 3097 time codes Blackburst /Glenlock synchronisation input. Consumption 2W. 1/8 th 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. 1/8 th 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). 1/8 th rack.		
Minute 1A/24V parallel reversed pulses output	■ NT423	
Second 24V/200mA parallel reversed pulses output	■ NT426	
1/2 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 (sur 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"		
Case in 3 parts. Protective glass and Bâti rotating lock , allowing the access by the rear racks. Dimension : width 600mm – Depth : 400mm		
1 rack 19"3U NTRK01 – Height 233mm	■ B04U	
2 racks 19" 3U (19"6U) – Height 366 mm	■ B07U	
3 racks 19"3U (19" 9U) – Height 500 mm	■ B10U	
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	