

# M-211



## Network Time Server

THE M-211 TIMING SYSTEM IS A HIGH CAPACITY MODULAR MASTER CLOCK DESIGNED FOR USE IN APPLICATIONS WHERE PRECISE, RELIABLE TIME INFORMATION ARE A MUST WITH A LARGE NUMBER OF ENTRIES AND EXITS. SUCH APPLICATIONS MAY INVOLVE:

- SYNCHRONIZING COMPUTER AND TELECOMMUNICATIONS NETWORKS, BROADCASTING STUDIOS, SOUND-RECORDING STUDIOS, TELEVISION STUDIOS, ETC.
- SYNCHRONIZING COMPUTERIZED POWER GENERATION PLANTS, WATER PLANTS, GAS AND OIL REFINERIES AND SCIENTIFIC EXPERIMENTATION.

THE M-211 CAN INCORPORATE 9 MODULE SLOTS AS WELL AS DIFFERENT KINDS OF PRECISION OSCILLATORS, PROVIDING A SOLUTION TO YOUR SPECIFIC NEEDS WITH ITS COMPACT 3U HEIGHT MADE FOR A 19" RACK.



TIME RECORDERS, TIME CONTROL AND TIME MEASUREMENT

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**THE M211 HAS** A CENTRALIZED CPU THAT CONTAINS ITS OWN OSCILLATOR TO MAINTAIN THE UNIT'S BASE TIMES, AN ALPHANUMERIC SCREEN, AND A KEYBOARD LOCATED ON THE FRONT PANNEL IN ORDER TO CONTROL AND CONFIGURE THE UNIT AND ITS MODULES. ALL CONTROLLING AND CONFIGURATION OF THE UNIT AND ITS INCORPORATED MODULES IS DONE USING THE KEYBOARD AND THE SCREEN BY MEANS OF A MENU SYSTEM. THE SCREEN ALSO INDICATES THE HOUR, THE DATE AND INFORMATION CONCERNING THE UNIT'S STATUS. **THE M211 ALLOWS FOR** THE SYNCHRONOZATION OF NATIONAL AND INTERNATIONAL TIME SIGNALS WHENEVER THEY ARE AVAILABLE AS WELL AS THE OUTPUT OF TIME DATA IN A WIDE VARIETY OF FORMATS. DURING PERIODS IN WHICH EXTERNAL SIGNAL RECEPTION IS AVAILABLE (GPS, RADIO LF, TIME CODE, ETC.), OPERATION OF THE INTERNAL OSCILLATOR IS CONTROLLED CONTINUOUSLY, AND ITS DERIVATION AND AGING ARE CHARACTERIZED AND CORRECTED. THIS ENSURES THAT THE UNIT MAINTAINS ITS SPECIFICATIONS FOR THE DURATION OF ITS OPERATIVE LIFE WITHOUT THE NECESSITY OF EXTERNAL INTERVENTIONS, PERMITTING BETTER OSCILLATOR SERVICES THAN THE INITIAL PROGRAMMED ONES. **THE M211 ACCEPTS** A WIDE VARIETY OF OPTIONAL CARDS. ASK US FOR AN UPDATED LIST BECAUSE IT MAY BE THAT THE SOLUTION TO YOUR PROBLEM OF TIME AND/OR FREQUENCY GENERATION, SYNCHRONIZATION, CONVERSION OR COMMUNICATION HAS RECENTLY APPEARED.

### Options:

The M211 Time System has over 50 different card options. These options include series outputs (RS232, RS422, power loop 20mA, etc.), parallel outputs (BCD, Centronics, opto-isolated, etc.), time code outputs (AFNOR, IRIG, XR3, NASA, VELA, SMPTE/EBU, etc.), 24V impulse outputs, TCP/IP Ethernet 10/100BaseT, audio output, video insertion, synthesized frequencies, etc. The input options include: GPS, radio (DCF, MSF, HBG, WWWB) and various time codes and ASCII messages. The optional oscillators come in various TXCO models and OCXO models with very low output noise and de Rubidium atomic oscillators.

### Specifications:

Time accuracy:

Standard quartz oscillator maintains autonomous accuracy level of 20 milliseconds per 4 hours at 20°C.

Optional Oscillator		Stability per °C	Average Time						Autonomous Stability per Day
Option	Description		1s	10s	100s	1000s	10000s	1dia	
04	TCXO	$1.7 \times 10^{-9}$	$2 \times 10^{-9}$	$5 \times 10^{-10}$	$5 \times 10^{-10}$	$5 \times 10^{-10}$	$6 \times 10^{-11}$	$1 \times 10^{-12}$	30ms
22A	OCXO	$2.5 \times 10^{-9}$	$3 \times 10^{-10}$	$3 \times 10^{-10}$	$4 \times 10^{-10}$	$4 \times 10^{-10}$	$5 \times 10^{-11}$	$1 \times 10^{-12}$	30µs
22B	OCXO Precision	$5 \times 10^{-11}$	$2 \times 10^{-12}$	$3 \times 10^{-12}$	$1 \times 10^{-11}$	$1 \times 10^{-11}$	$5 \times 10^{-12}$	$1 \times 10^{-12}$	8µs
22C	Rubidium	$7 \times 10^{-12}$	$3 \times 10^{-11}$	$8 \times 10^{-12}$	$3 \times 10^{-12}$	$3 \times 10^{-12}$	$2 \times 10^{-12}$	$8 \times 10^{-13}$	3µs
22D	Rubidium Precision	$3 \times 10^{-12}$	$2 \times 10^{-11}$	$3 \times 10^{-12}$	$1 \times 10^{-12}$	$1 \times 10^{-12}$	$1 \times 10^{-12}$	$8 \times 10^{-13}$	1µs

**Screen:** 2 rows, each with 24 LCD characters. Character height: 5mm.

**Keyboard:** 5 buttons for configuring and controlling the unit.

The configuration is stored in a non-volatile memory system.

**Power:** 115/230V AC  $\pm$  10% 48-62Hz, 50W (typical) – subject to variation according to the type of oscillator and the incorporated modules. Connection via 3 pin IEC.

**Mechanism:** 19-inch rack, height 3U, depth 305mm. The chassis has the capacity to insert 9 modules.

**Temperature:** From 0°C to +40°C (Operation and storage)

**Humidity:** Up to 95% RH (without condensation)

**EMC:** Conforms to CE.



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