

# brandywine communications

## **M210 Modular Time System** **Model 210**



The M210 Modular Time System from Brandywine Communications is designed for use in applications where reliable time and frequency information is required. Such applications may involve the display of time of day, the synchronization of computers, telemetry systems, scientific experiments or communications networks.

The M210 Modular Time System provides a Master Clock that is based upon a central microprocessor and a precision oscillator time base. The Master Clock provides all the time keeping functions of the M210. A front panel keypad is used in conjunction with an alphanumeric display for control and configuration of the unit. The keypad and display are used to program key features such as time entry and parameter setting as well as option configuration. The easy to read display also indicates time, date and status information. The modular construction of the M210 Modular Time System allows easy installation of up to three of the nearly fifty available option modules. These options allow the output of time data in a wide range various formats and the capability to automatically synchronize the Master Clock to the various national and international time transmissions that are currently available. The inclusion of an optional Precision Oscillator ensures a high long-term stability for the Modular Time System.

The M210 Modular Time System offers the system designer the flexibility of a true COTS solution and the confidence of a proven design. The three module-slot construction offers a high degree of flexibility to the M210 while maintaining the compact 1U, 19-inch rack mount form factor.

A large variety of option cards are available, see the separately supplied sheet for an up to date list of option availability.

The M211 High Capacity Modular Time System supports applications that require more than three option slots. The M211 chassis easily supports up to nine option modules. A separate data sheet is available for the M211 model from our web site or your local Sales Office.

## Specifications

### **Performance Specification at +20°C**

Time Accuracy: Standard crystal oscillator maintains free-run accuracy of 20 milliseconds over four hours at +20°C.  
Display: Two row by 24 character LCD.  
Character height: 5mm.  
Keyboard: 5 button keypad for equipment configuration and control.  
Power: 115/230V AC  $\pm$  10% 48-62Hz  
Load: 40W (typical) subject to options and installed oscillator.  
Connector: 3 pin IEC plug.  
Mechanical: 19 inch rack mounting 1U high 305mm deep. The chassis has provisions for up to three option modules to be installed within the unit.

### **Environment** (Operation and Storage)

Temperature: 0°C to +40°C  
Humidity: Up to 95% RH (non-condensing)  
EMC: CE Compliant  
MTBF: 121,654 Hours

### **Options**

A wide range of options is available for the M210 Modular Time System. These options include serial data outputs (RS-232, RS-422, 20mA Current Loop), parallel BCD output, time code outputs (IRIG, etc) and analog clock impulse drivers. GPS and time code synchronization as well as precision oscillator options are also available. New options are continually becoming available. Consult your Local Sales office for additional information.

### **Partial List of Available Options**

|            |   |           |   |
|------------|---|-----------|---|
| Option 01  | LF Receiver Module                        | Option 24 | Speaking Clock Module                                   |
| Option 04  | Precision Oscillator Module               | Option 25 | Video Annotator Module                                  |
| Option 05  | Active LF Antenna Option                  | Option 26 | AC Measurement Module                                   |
| Option 06  | Quad Serial Interface Module              | Option 27 | NTP Time Server Module                                  |
| Option 07A | Time Code Generator Module                | Option 28 | Passive GPS Antenna Option                              |
| Option 07B | Time Code Reader Module                   | Option 29 | Passive LF Antenna Option                               |
| Option 08  | Combined Time Code & Serial Output Module | Option 30 | Quad Time Code Module                                   |
| Option 09  | Parallel Output Module                    | Option 31 | Combined Time Code & Analog Clock Driver Module         |
| Option 10  | Standard Frequency Output Module          | Option 32 | Octal Serial Interface with Precision Time Input Module |
| Option 13  | Omni-directions LF Antenna Option         | Option 33 | Disciplined Oscillator for Telecom Module               |
| Option 14  | Quad 20ma Module                          | Option 34 | T1/E1 Interface Module                                  |
| Option 15  | GPS Receiver Module                       | Option 35 | High Gain GPS Antenna Option                            |
| Option 16  | LF Simulator Module                       |           |   |
| Option 17  | Octal Serial Module                       |           |   |
| Option 18  | Analog Clock Driver Module                |           |   |
| Option 20  | Four Channel Analog Clock Driver Module   |           |   |
| Option 21  | Active GPS Antenna                        |           |   |
| Option 22  | Disciplined OCXO Module                   |           |   |
| Option 23  | SMPTE-EBU Time Code Module                |           |   |

July 27, 2002