

## » MC500

HIGH ACCURACY TIMING FOR IP NETWORKS AND CCTV SYSTEMS



### KEY BENEFITS

Accurate synchronised timing across your network

High bandwidth NTP port (handles 5000 NTP requests per second)

Flexible synchronisation options to combat GPS jamming

Synchronise non-IP equipment using the multi-format RS-232 output

High accuracy PPS output

The MC500 is the ideal master clock solution for time synchronisation of IP networks and CCTV systems.

Available with a range of GPS and radio antennas, the MC500 provides synchronised timing for even the largest corporate networks.

#### NETWORK TIME SYNCHRONISATION

With its integral ethernet port, the MC500 synchronises the devices on your network via NTP/SNTP protocols. Utilising a proprietary TCP/IP stack and purpose designed hardware, the MC500 can respond with class leading accuracy to many thousands of NTP/SNTP requests per second.

#### RS-232 TIME & DATE OUTPUT

The RS-232 serial port enables synchronisation of third-party equipment. With 20+ serial data formats, the MC500 is the solution for the synchronisation of CCTV and access control systems or legacy equipment.

#### PPS OUTPUT

High accuracy timing of third-party equipment can be achieved using the user-programmable PPS (pulse per second) output. Class leading performance provides a PPS accuracy of 1 µsec and jitter of 100 nsec.

#### A RANGE OF SYNC OPTIONS

The MC500 is available with a range of antenna synchronisation options (including systems operating via GPS, GLONASS, WWVB, MSF and DCF). The common communication protocol used by all antennas gives you maximum flexibility. You can connect, disconnect and upgrade antennas – all whilst the MC500 is powered up and serving time on your network.

#### COMBAT GPS JAMMING

The MC500 helps you combat GPS jamming. You can use the flexible synchronisation system to reduce the effects of GPS jamming by installing a secondary low-frequency antenna. With two antennas connected, the MC500 continually monitors the status of both antennas selecting the most accurate as its primary reference. The second antenna is used as a live backup.

**Typical Performance Specifications:**

|   |   |
|---|---|
| <b>Synchronised internal timing accuracy:</b> | Dependent on synchronisation source accuracy, time elapsed from first lock and cable lengths. Typically within 100nsec of source after 30 mins.   |
| <b>NTP timestamp accuracy:</b>                | Typically within 30 µsec of internal time base.   |
| <b>NTP client accuracy:</b>                   | Dependent on network architecture, utilisation, delays and jitter. Clients typically synchronised to within 200 µsec to 2 msec of MC500 on a LAN. |
| <b>NTP performance:</b>                       | 5000 NTP requests per second  |
| <b>RS-232 output accuracy:</b>                | 50 µsec   |
| <b>PPS output accuracy:</b>                   | 1 µsec  |
| <b>PPS output jitter:</b>                     | 100 nsec  |

**Supported Protocols:**

|                   |   |
|-------------------|---|
| <b>Protocols:</b> | NTP v2 (RFC 1119), NTP v3 (RFC 1305), NTP v4 (RFC 5905), SNTP v3 (RFC 1769), SNTP v4 (RFC 4330), DHCP |
|-------------------|---|

**I/O Connections:**

|                                |  |
|--------------------------------|--|
| <b>Ethernet connection:</b>    | 10BASE-T / 100BASE-TX auto-sensing                       |
| <b>RS-232 / PPS:</b>           | DB-9 (DE-9) female D-Sub (DCE)                           |
| <b>Software update:</b>        | USB Specification 2.0 compliant full-speed (12 Mbit/s)   |
| <b>Synchronisation inputs:</b> | 2 x dual-redundant 1000 series antenna connection ports  |
| <b>Power input:</b>            | 24 VDC power input, supplied with external power adapter |

**Mechanical, Electrical and Environmental Specifications:**

|                               |   |
|-------------------------------|---|
| <b>Enclosure dimensions:</b>  | 1U high 19" rack mounting - 483 x 44 x 120 mm (19.0" x 1.73" x 4.72") |
| <b>Weight:</b>                | 2 kg  |
| <b>Power consumption:</b>     | 0.5 AMPS (@ 24 VDC)   |
| <b>Operating temperature:</b> | 0 to 50 °C  |
| <b>Relative humidity:</b>     | 0% - 95%, noncondensing   |

**Warranty & Support:**

|                  |   |
|------------------|---|
| <b>Warranty:</b> | 5 years                                   |
| <b>Support:</b>  | Free-of-charge lifetime technical support |

**Standards Compliance:**

|                                  |                            |
|----------------------------------|----------------------------|
| <b>Electrical safety:</b>        | BS EN 60950-1:2006         |
| <b>Radio disturbance:</b>        | BS EN 55022:2006 (class B) |
| <b>Immunity characteristics:</b> | BS EN 55024:2003           |
| <b>RoHS:</b>                     | RoHS-Compliant             |



Front view



Rear view