

M2M Control C521

Advanced Telematics and Telemetry Platform

The perfect balance of quality, performance, flexibility and affordability

For Professional Telematics and Telemetry Applications

The M2M Control C521 is a compact, waterproof and ruggedized telematics tracking and control device with 3G UMTS/HSPA, Multi-GNSS and **CAN 2.0B** Bus support.

This device has been designed for the most demanding M2M and Internet of Things applications, which cannot be solved with simpler non-programmable devices.

The C521 rests on the **X32 architecture**, that brings all the necessary tools together to develop, implement and maintain today's sophisticated M2M / IoT applications.

The **development task** is supported by the *M2M Control IDE* development environment (IEC 61131-3) complemented by a large and comprehensive documentation and application example library.

The C521 is fully supported by the *M2M Control GPRS Gateway*. The corner-stone of the **communication infrastructure** ensuring reliable two-way device communication in any network environment. **Deploying and maintaining** new application and firmware versions for devices in the field are handled by the powerful *Upgrade & Deployment Server (FOTA)*.

10 years of experience and know-how in one product!

Experience and Know-how

For more than 10 years Infranet Technologies has been committed to offer the most sophisticated platform for advanced and highly demanding M2M / IoT applications. We supply our products under the brand "**M2M Control**".

The M2M Control C521 is the result of this accumulated experience combined with valuable feedback from hundreds of professional and mission critical applications by major organizations around the world.

M2M Control products are deployed all over the world: underground, stationary, on the road, at sea, on the rail and in the skies! - In any imaginable application and environment.



Device Series Advantages

- **3G - Pentaband UMTS/HSPA engine.**
- **Multi-GNSS** positioning (GPS, GLONASS, QZSS)
- Large memory capacity.
- FAT32 file-system.
- SuperGPS positioning engine.
- Internal SIM reader.
- 3-axis accelerometer.
- CAN 2.0B Bus
- ISM 868 MHz medium range RF.
- Digital and analog I/O.
- Back-up battery.
- Programmable power-management.
- IP66 ruggedized encapsulation.

Platform Advantages

- X32 execution architecture.
- Free RTCU IDE development tool.
- Programmable in VPL. (IEC 61131-3-ST)
- Huge standard API.
- Comprehensive protocol support.
- Full featured Device Simulator.
- Sophisticated deployment tools.
- Fast and free email support.
- Backward and forward compatible.

M2M Control C521 Specifications

Processor and Main-memory

- Powerful 32-bit ST ARM processor.
- 1088 KB fast execution RAM.
- 2304 KB Flash for firmware/application.

Storage

- 3.5 MB persistent data flash.
- 4 MB internal FAT32 flash drive.
- 1 MB circular automatic datalogger.
- 8 KB Virtual FRAM with fast access / unlimited write endurance.

GSM / UMTS

- Pentaband UMTS/HSPA.
GSM: 850/900/1800/1900 MHz
UMTS: 800/850/900/1900/2100 Mhz
- CSD with up to 14.4 Kbps.
- SMS / PDU.
- Micro-SIM 1.8/3 volt.

GNSS / GPS

- Mediatek MT3333 Multi-GNSS chip.
- GPS, GLONASS and QZSS
- 99 acquisition / 33 tracking channels.
- SBAS (WAAS,EGNOS,MSAS,GAGAN).
- Prepared for A-GPS.
- Position update with up to 4 hz.
- Sensitivity.
Tracking: -165 dBm
Reacquisition: -160 dBm
Cold start: -148 dBm.
- Accuracy: < 2.5m CEP.

Accelerometer

- 3-axis digital accelerometer.
- Resolution: 12 bit @ ±16g.
- Low-power mode.

Electrical Specification.

- Operating voltage is 8 to 36 VDC.
- Short and reverse power protected.

Digital/Analog Interface

- 2 x digital solid-state digital output.
Max. 36 volt / 0.75 A per. channel.
Short-circuit, ESD, Inductive kick-back protected up to 20 mH.
- 2 x digital inputs.
Logic high: 8 to 40 VDC.
Logic low: -5 to 3 VDC.
- Digital input #1 can be used as ignition.
- 1 x analog input.
Range is 0..10V.
Resolution: 10 bit
Precision: ±1.5% FSR @ 25°C
- Protected against transients and low-pass filtered.

Communication

- **C520:** RS232 and 1-Wire bus.
- **C521:** Full CAN2.0B with hardware filtering and multi-speed support.
- On-board 868 Mhz ISM RF

Power Management

- 5 execution speeds.
- Wait for Event: Timer, Digital input, RS232, CAN, GSM, Accelerometer and power change state.
- Wait for event, from: 600 uA@12V.
- Supervision of supply voltage / type.

Battery and Charger

- On-board 900mA (nom.) Li-Ion battery.
- Intelligent charger with temperature throttle and sub-zero degrees support.
- On-board temperature sensor.

External Interface

- 2 x bi-color LED indicators.
- Yellow LED for status.
- SMA female connector for GSM antenna.
- SMA female connector for GPS antenna.

Internal Interface

- Mini-USB connector for service port.
- SIM-card slot for micro-SIM.
- Micro SD-CARD slot.
- Reset/recovery switch,

Physical Characteristics

- Encapsulation: Black UL94 plastic.
- Sealing membrane.
- 50 cm open-ended interface cable.
- GSM/GPS antennas pre-mounted.
- Approx. 250 gram without accessories.
- W 92 x H 30 x D 58 mm.

Environmental Specification

- Operating temperature: -30 to 55°C.
- Battery charge temperature: -10 to 45 °C
- Recommended storage temperature: 0 to 45 °C.
- Humidity: 5..90% (non condensing).
- IP-66 ingress protected.

Approvals

- E1 approval: 2004/104/EC UN ECE R10.
- CE mark / Applied R&TTE directive.
- GSM engine: CE/GCF/FCC/PTCRB.

Warranty

- Two-years return to factory parts and labor.
- Optional warranty up to 5 years. (restrictions apply).

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