**ccTalk**

ccTalk is an open standard, serial communication protocol designed to provide the secure transfer of credit and status information for a range of applications in the automated money transaction business. A BACTA-approved industry standard, ccTalk is the ideal protocol to maintain the integrity of management, support and security information for both standalone and network-managed systems. The specification encompasses coin acceptors, bill/note acceptors and coin hoppers, and can be easily expanded into card readers, printers, e-commerce and any new future peripherals. It also enables a range of Money Controls’ customer support tools — including ccProgrammer, ccTeach and ccEuroTeach — to allow complete control of the functionality and programming of Money Controls’ products (see Support Tools data sheet, ST001).

The design of ccTalk has achieved simplicity without compromising security. Its simplicity allows driver programs to be written quickly on any platform, ranging from 8-bit micro-controllers (with small amounts of RAM and ROM) through to Microsoft® Windows® applications, using C or Visual Basic programming languages. Its security encapsulates all aspects of design, including an optional sophisticated encryption layer with 16-bit CRC checksums on all packet transfers.

Using only a 3-wire daisy-chain link (power, data and ground) at 9600 baud, the flexible addressing system allows a host controller to communicate with, and supply power to, a family of different peripheral types. A fourth wire can be used to deliver additional power where required. Family members of our ccTalk secure transaction system include SR Series of coin acceptors, Lumina note acceptor, Universal Hopper, Compact Hopper, Condor Plus coin acceptor (gaming) and C120P coin acceptor (telecoms).

**Key Benefits**
- Low cost and easy to implement
- Provides high security against fraud
- Reduces cost-of-ownership of associated products
- Minimises harnessing costs
- Allows proactive analysis of peripheral performance
- Improves servicing times and reduces service costs
- Introduces remote download capability to peripherals
- Enables ccProgrammer, ccTeach and ccEuroTeach for customer programming
- Future proof.

**Key Features**
- BACTA-approved open standard – no licence
- High security, enhanced with encryption option
- Diagnostics – provide error and status reports
- Serial interface, RS232-based, single connector, 3-wire daisy-chain link
- Remote programming and download capability
- Easily expandable to add new peripherals
- Block reserved for customisation by user
- Technical support and documentation.

**Systems and products**
Based around this industry-approved open standard can benefit from low-cost hardware, increased security, superior fault-code reporting, real-time monitoring of cash transactions, and the download of coin and note specifications via ccProgrammer, ccTeach and ccEuroTeach, or remotely via the host machine.
**Technical Data Summary**

### Communications Interface

- Based on RS232 serial, open-collector NPN transistor data line (recommended)

### Data Format

- 9600 baud, 8 data bits, 1 start bit, 1 stop bit, no parity bits (4800 baud option for products where power budget is critical)

### Serial Protocol Voltage Levels

- A level-shifted version of RS232 is used for cost reduction and convenience, eliminating the need for negative voltages:
  - Idle state = +Vs nominal
  - Active state = 0V nominal
- +Vs may be +5Vdc, +12Vdc or +24Vdc depending on product power supply. Where required, dual power supply (12Vdc and 24Vdc) can be achieved with a fourth wire.

### Operation Mode

- Single-master, multi-drop using a 3-wire daisy-chain link

### Message Structure

- Byte-orientated, variable message lengths supported

### Peripherals

- Up to 16 different peripherals can be electrically connected to the system using a 3-wire daisy-chain link of up to 15m (50ft). For distances greater than this, or in noisy environments, the use of an RS485 driver is recommended and will increase the number of peripherals up to 32.

### Screening Requirements

- No special screening requirements are necessary for interconnection distances less than 10m (33ft), unless in a noisy environment.

### Security

- The system is high-security, and allows certain commands to be PIN code protected. The encryption layer option offers even higher security.

For full technical details please refer to the appropriate Technical Manual.

**Support Tools**

**ccProgrammer, ccTeach and ccEuroTeach**

Developed for use mainly in conjunction with a PC or laptop, this range of customer support tools allows the customer complete control of the functionality and programming of Money Controls' SR Series coin acceptors, Condor Plus coin acceptor and Lumina note acceptor via the ccTalk serial interface. Programming is simply achieved without the use of coins or notes by downloading factory-quality specification data for the target currency, including the Euro, directly into the acceptor, and can be actioned either in the field or on the production line.

Further details are available in the Support Tools data sheet (ST001).

For further information please contact your nearest Money Controls office either by telephone, e-mail or fax. Alternatively, you can visit our website where you will find a wide range of information on our company and products:

[www.moneycontrols.com](http://www.moneycontrols.com)