

USB-to-RS232 cabling solution uses ICs to maximise performance

ECN Europe

[FTDI](#) [1] has expanded its portfolio of converter cabling solutions with the introduction of Chipi-X. Measuring 10cm long, this is a USB-to-RS232 level full-handshake UART cable with a male DB9 connector. The DB9 provides the connectivity for RS232 communications and a USB-A plug deals with USB



communications.

[2]

Supporting USB 2.0 Full Speed operation, this cable can cope with data transfer rates from 300 bits/s to 250 kbits/s at RS232 voltage levels. A 512 byte receive buffer and a 512 byte transmit buffer, which each utilise buffer smoothing technology, allow for high data throughput to be maintained.

An integrated FTDI FT231XS USB-to-UART interface IC (part of the recently announced X-Chip series) handles the entire USB protocol, while the company's FT3243S transceiver IC deals with the RS232 level voltage conversion. The 2048 byte internal MTP memory in the FT231XS chip contains the USB descriptors e.g. vendor ID (VID), product ID (PID), serial number, and product description strings allowing OEMs to customise the cable's appearance when connected to a PC. Additional user space on the MTP can also be programmed over the USB interface to enable increased versatility.

Safeguarding against electrostatic discharge (ESD) is an important consideration, especially in the uncompromising industrial environments which this cable can be employed. Protection on the Chipi-X's RS232 I/Os exceeds ± 15 kV IEC1000-4-2 air gap discharge, ± 15 kV for human body mode (HBM) and ± 8 kV IEC1000-4-2 contact discharge.

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Protection on the USB lines exceeds ± 2 kV for HBM, ± 200 V for machine mode (MM) and ± 500 V for charged device mode (CDM). A wide operating temperature range, spanning from -40 °C to 85 °C, is also supported.

All components used in their construction are fully RoHS compliant. Royalty-free VCP and D2XX drivers, which can be downloaded from the FTDI website, eliminate the need for engineers to develop their own USB drivers.

[SOURCE](#) [3]

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