DS110x

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Introduction

The DS110x is a family of compact BASIC-programmable controllers designed for serial-over-IP and serial control applications.

The DS110x family currently includes:

- The DS1100 serial controller with a single-channel RS232 port, this model targets cost-sensitive applications;
- The DS1101 serial controller with the 3.5-channel RS232 port;
- The DS1102 serial controller with the universal RS232 (3-channel)/422/485 port.

The family is fully supported by TIDE software.

DS110x devices ship preloaded with a fully functional serial-over-IP application. Written in Tibbo BASIC, the application is compatible with Tibbo Device Server Toolkit software, comes with full source codes, and can be modified by the user.

Differentiating features

	DS1100	**DS1101**	**DS1102**
Device color			
Serial port	RS232 port on DB9M connector	RS232 port on DB9M connector	RS232/422/485 port on DB9M conn.
No of serial port channels	1 channel	3.5 channels	3 channels (RS232), 1 ch.(RS422/485)
Serial port lines	TX, RX, RTS, CTS, DTR, DSR	TX, RX, RTS, CTS, DTR, DSR, DCD	TX, RX, RTS, CTS, DTR, DSR (RS232) TX, RX, RTS, CTS (RS422) TX, RX half-duplex (RS485)
Maximum baudrate	Up to 115200bps	Up to 921600bps	
Flow and direction control	Optional RTS/CTS flow control		Opt. RTS/CTS flow control (232/422) Direction control (RS485)
Parity modes	None/even/odd/mark/space parity		
Bits/character	7/8 bits/character		
Power input/output on DB9	"12V" power input on pin 9 of DB9	"12V" power input and output on pin 9 of DB9 (software-controllable)	not provided
Flash memory	512KB for firmware and application storage. No flash disk functionality.	1024KB for firmware, application and data (flash disk)	
EEPROM	200 bytes	2048 bytes	

LEDs	Red and green status LEDs Yellow Ethernet link LED	Red and green status LEDs Yellow Ethernet link LED Five blue LEDs (can be used for Wi-Fi signal strength indication)	
Wi-Fi	no	optional 802.11b/g interface (GA1000)*	
Display	no	optional 96x32 monochrome OLED	
PoE	optional	optional*	
Buzzer	no	yes	
Processor	T2000	T1000	
Operating frequency and PLL	80Mhz, no PLL	88MHz, software-controlled PLL	
Superior upgrade to...	DS203	DS1206	DS1206, DS100B
Firmware upgrades	Through the serial port or network (including cold upgrades through the network).	Through the serial port or network (no cold upgrades through the network).	

* *Wi-Fi and PoE options are mutually exclusive and cannot be installed together*

Common hardware features of the DS110x family

- 10/100BaseT auto-MDIX Ethernet port.
- Power: 12VDC nominal (min. 9V, max. 18V).
- Dimensions: 90x48x25mm.
- Operating temperature range: -5 ~ 70 C.
- CE- and FCC-certified.

Programming features

- Variable Types: Byte, char, integer (word), short, dword, long, real, string, plus user-defined arrays and structures.
- Function Groups: string functions (27 in total!), date/time conversion functions (8), encryption/hash calculation functions (AES128*, RC4, MD5, SHA-1), and more.
- Platform objects:

- Sock — socket communications (up to 16 UDP, TCP, and HTTP sessions);
- Net — controls the Ethernet port;
- Wln — handles the Wi-Fi interface (when the GA1000 is installed, DS1101 and DS1102 only);
- Lcd — controls the OLED display (when the display is installed, DS1101 and DS1102 only).
- Ser — in charge of serial channels;
- Io — handles I/O lines, ports, and interrupts;
- Fd — manages flash memory file system and direct sector access;
- Stor — provides access to the EEPROM;
- Romfile — facilitates access to resource files (fixed data);
- Pppoe — provides access to the Internet over an ADSL modem;
- Ppp — provides access to the Internet over a serial modem (GPRS, POTS, etc.);
- Pat — "plays" patterns on green and red status LEDs;

- Beep — generates buzzer patterns (DS1101 and DS1102 only);
- Button — monitors the setup button;
- Sys — in charge of general device functionality.

* *The DS1100 does not support AES functions (aes128enc and aes128dec).*