

Features

-  **DS1004:** 10/100BaseT Ethernet port
DS1014: Ethernet, GPRS*, Wi-Fi*
-  8 A/D inputs (24 bits)
-  4 D/A outputs (14 bits, voltage/curr.)
-  2 low-power (1A/24VDC) relays
-  1 RS232/485 port (on a terminal block)
-  IP68-compliant, -30C to +80C range
-  Free remote I/O application available

*optional

About

Featuring high-precision A/D and D/A channels, the DS1004 and DS1014 are ideally suited for measurement and control applications in the fields of building automation (think HVAC), process automation, lab work, etc.

The DS1004 offers the Ethernet interface only. The DS1014 features Ethernet, as well as optional Wi-Fi and GPRS.

Unlike many “remote I/O” products, the capabilities of the DS1004 and DS1014 are not limited to just relaying I/O data to a central server. Programmability in Tibbo BASIC means you can create systems where intelligent decisions are taken in real-time by the device itself.

The capabilities of the DS1004 and DS1014 are further expanded by two low-power relays and one simple RS232/485 port. This port can be used for connecting an auxiliary serial device, card reader, etc.

The devices come preloaded with an open-source application for remote control/monitoring of the A/D, D/A, and relays through a web-browser or Tibbo’s AggreGate device management system. This application can easily be customized for any functionality desired.

Specifications

- Network side — NB1000 (DS1004) or NB1010 (DS1014) board:
 - Based on the EM1000 module (DS1004) or compatible with it (DS1014);
 - Optional GA1000 Wi-Fi add-on (DS1014 only);
 - Optional Telit GC864 GPRS modem (DS1014);
 - 10/100BaseT, auto-MDIX Ethernet port;
 - 1024KB flash for firmware, application, and data;
 - 2KB EEPROM for data storage;
 - RTC with backup supercapacitor;
 - Built-in buzzer;
 - 11 status LEDs;
 - Power: 10-18V;
 - Firmware is upgradeable through the serial port or network;
- Interface side — IB1004 board:
 - 8 A/D inputs (24-bit resolution);
 - 4 D/A outputs (14-bit resolution, voltage/current outputs);
 - 2 low-power (1A/24VDC) relays;
 - 1 RS232/485 port;
 - 8 status LEDs.
- Dimensions: 91x104x99mm (excluding secondary cover).
- Extruded-profile aluminum body.
- IP68 compliant (when used with secondary cover).
- Operating temperature -30 to +80 degrees C.
- CE- and FCC-certified.

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Specifications (continued)

- Included accessories:
 - Wi-Fi antenna (with DS1014G only)
 - GPRS antenna (with DS1014C and DS1014GC only)
 - DS1000 waterproof kit with secondary cover, cable glands, screws
 - DMK1000 DIN rail mounting kit
- TB1004 test board
- WAS-P0004 serial cable for firmware upgrades
- Optional Accessories:
 - 12V/1A adaptor: APR-P0008 (US), APR-P0009 (EU), APR-P0010 (UK)
 - WAS-1499 straight Ethernet cable (for this device can be used as crossover cable too)

Programming

Platform Objects

- Sock — socket comms (up to 16 UDP, TCP, and HTTP sessions).
- Net — controls Ethernet port.
- Ser — in charge of serial channels.
- Ssi — up to 4 serial synchronous interface channels (for SPI, I2C...).
- Io — handles I/O lines, ports, and interrupts.
- Rtc — keeps track of date and time.
- 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 — accesses the Internet over an ADSL modem.
- Ppp — accesses the Internet over a serial modem (GPRS, etc.).
- Pat — “plays” patterns on five status LED pairs.
- Beep — generates buzzer patterns.
- Button — monitors the setup button.
- Sys — in charge of general device functionality.

Function Groups:

String functions (27 in total!), date/time conversion functions (8), encryption/hash calculation functions (AES128, RC4, MD5, SHA-1), and more.

Variable Types:

Byte, char, integer (word), short, dword, long, real, string, plus user-defined arrays and structures.

Tibbo Integrated Development Environment (TIDE)

All BASIC-programmable Tibbo devices are provided with free TIDE software.

Code in Comfort

Enjoy a modern code editor supporting syntax highlighting, context help, code hinting, and auto-completion.

Debug with Ease

Set breakpoints, watch variables, inspect the stack, step through your code... the built-in debugger in Tibbo IDE provides all the tools for fast and convenient debugging.

Our debugger does not rely on any special hardware like an ICE machine or a JTAG board. Simply connect your Tibbo device to the Ethernet, select it in the IDE, and you are all set!

For more information on TIDE, see <http://basic.tibbo.com/product/tide.html>