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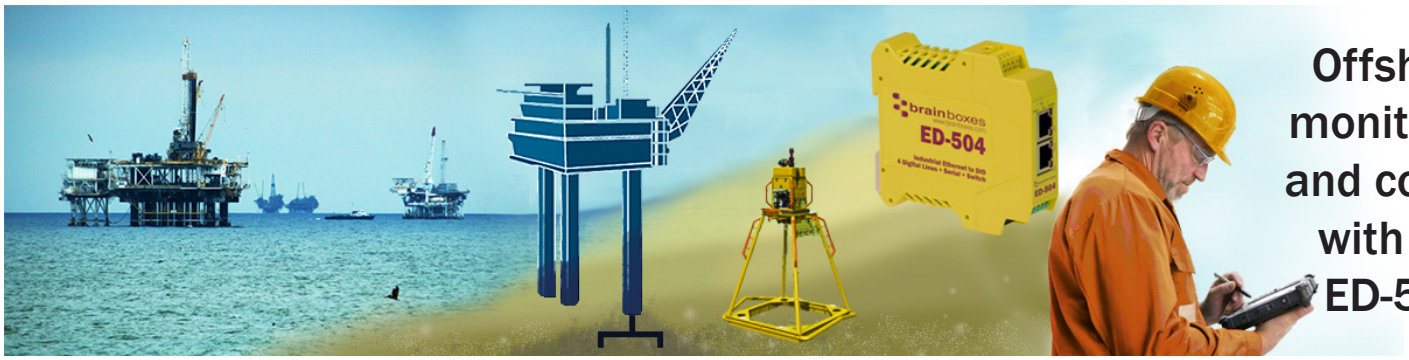
Ethernet to Digital In/Out
ED-504

ED-504 Ethernet To Digital IO + Serial + Switch

ED-504

- 4 Digital ports either Input or Output
- 1 x RS232/422/485 Serial Port
- Ethernet Switch for 'daisy-chaining'

- Factory floor process control and automation
- -30ºC to +80ºC Temperature range
- +5V to +30V DC Input Power



Offshore monitoring and control with the ED-504

Digital Channels

Inputs	**NPN/PNP**	Each DIO line is individually configurable for NPN or PNP inputs: NPN, active low, type sensors or pull down for PNP, active high, type sensors
	Logic Level 0:	-30V to +1V
	Logic Level 1:	+2.0V to +30V
	Latched Inputs:	Triggered by user programmable positive or negative edges, stays true until acknowledged
	Counter Inputs:	User programmable- The counter has both a16 bit count 0-65335 and a 32 bit count 0 through 4,294,967,295
Outputs	**Maximum output current**	Sinks up to 1 Amp per pin, 40V max load Max combined load 4.0 Amps per ED device
	Characteristic:	Open drain output, protected MosFET intelligent short circuit protection up to 36V Over temperature shutdown :175ºC typical 150ºC min
	Maximum output load Voltage	40V
	ESD Protection	16kV

Connect, Configure, Control

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Easy to use Interface: Great features for remote monitoring

RS232/422/485 Serial port

Ethernet ports

LED Status Indication

Integral DIN rail mount

4 Digital Inputs/Outputs

+5V to +30V Power Supply

Ethernet to DIO Device Server:
The Ethernet to DIO device is implemented using a Windows COM port driver that is completely compatible with all popular PC packages such as LabView, MATLAB and Agilent VEE and support a range of popular APIs. Continue to get value from your existing development and process control system.

Slim Shape:
Small foot print for when DIN rail space is a premium
Only 22.6mm wide

Extended Temperature Range:
-30°C to +80°C operating range copes with changing temperatures for harsh environments.
Monitor CPU temperature via the web interface or programmatically using ASCII commands.

Brainboxes' Easy Wire Feature:
Removable screw terminal blocks make installation easier and quicker
Colour coded blocks and ports prevents incorrect connection
Numbered Pins simplifies wiring and removes confusion

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Grounding:
Correctly wired grounds help cut down on electromagnetic interference
5 pin terminals allow a ground on the 5th pin of each block
Functional earth connection to the DIN rail

RS232/422/485 Serial Port:
Network Serial devices, with up to 1 Mega Baud data transfer rate. Low latency and legacy compatibility. Software selectable as either RS232/422/485.

Wide Range Redundant Dual Power Input:
+5VDC to +30VDC accommodates variation in the +24VDC factory floor and allows alternative power sources. A second power supply can be fitted as a back-up to prevent down time should one power source fail.

Power from any USB Port:
Can use 5 Volt power from any computer USB port via optional accessory cable PW-650 - Useful for configuring the device from a laptop in the field.

Watchdog feature:
Allows independent known good states to be set for power up, comms link watchdog and hardware watchdog. Programmable time range allows full control.

Signed Drivers and Rigorous testing:
We use continuous automated testing of our in-house drivers and software to ensure when you install one of our devices 'it just works'. Our software allows hassle free installation, configuration and monitoring via our easy to use webpage. The software gives local COM ports that are backwards compatible enabling legacy applications and the device to work with a myriad of different 3rd party software. We make all our software versions available to download from our website.

Lifetime Warranty and Support:
We can help with every aspect of your project, from getting you up and running to custom application.

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Browser Interface

Webserver Interface	Configure IP address, monitor state of i/o lines, set the Watchdog Timers Output Reset Value, Set Power on digital output value
Programming Interface	No device driver needed, just open a TCP connection and send simple ASCII commands. Software drivers give local COM Port interface for configuration
Utility Programs	Find device, configure IP address

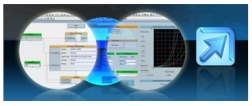
Software Development

COM Port on Windows

On a PC running the Microsoft Windows family of OS's the ED Boost.IO Manager provides a standard COM port interface so enabling thousands of proven legacy applications to work straight out of the box. COM port compatibility allows you to continue to get value from your existing application software investment. Moreover your engineers don't need to retrain to use the Brainboxes ED range of I/O devices.

Industry Standard Packages

The COM port based driver means that ED-xxx devices are completely compatible with all popular packages such as: LabView, MATLAB, Agilent VEE. You can continue to get value from your existing development and process control system. Hundreds of thousands program with these packages every day.



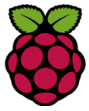

Software Platforms

The future is mobile, with data available everywhere on demand; Brainboxes has designed a software suite which allows you to design your new systems with mobile in mind with most popular platforms and development environments supported. With APIs and sample program code for: Microsoft .NET, C#, Visual Basic, C++, JavaScript, PHP, Java, Objective-C

Devices Supported

The ED sample codes running on Operating Systems such as Windows XP, Server 2008, Server 2012, Windows 7, Windows 8, and Linux based systems such as Android and Raspberry Pi allow you to run your applications on Servers, Desktops, Laptops, Tablets, Phones or low cost embedded devices, almost any device you wish.





Configuration Options

Windows Utility, Web Interface: Boost.IO driver provides familiar Serial COM port interface

OS Compatibility

Legacy COM port drivers for: Microsoft Windows 10 32 bit & 64 bit Editions / Microsoft Windows 8 32 bit & 64 bit Editions / Microsoft Windows 7 32 bit & 64 bit Editions / Windows Server 2008 32 bit & 64 bit Editions / Server 2012 / Windows Server 2008 & Windows Server 2000 / Windows Vista 32 bit & 64 bit Editions / Windows Server 2003 32 bit & 64 bit Editions. TCP and web browser interface for other OS's & Linux, e.g. Android, Raspberry Pi

Ethernet

Ethernet Port	2 x RJ45 jack, 10/100Mhz autosensing, crossover auto sensing (Auto MDIX)
Protection	1,500Volts magnetic isolation between I/O ports and network
Network Protocols	ICMP, IP, TCP, DHCP, Telnet, HTTP
Connection to Network	Ethernet 10BaseT / 100BaseTX

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Watchdog

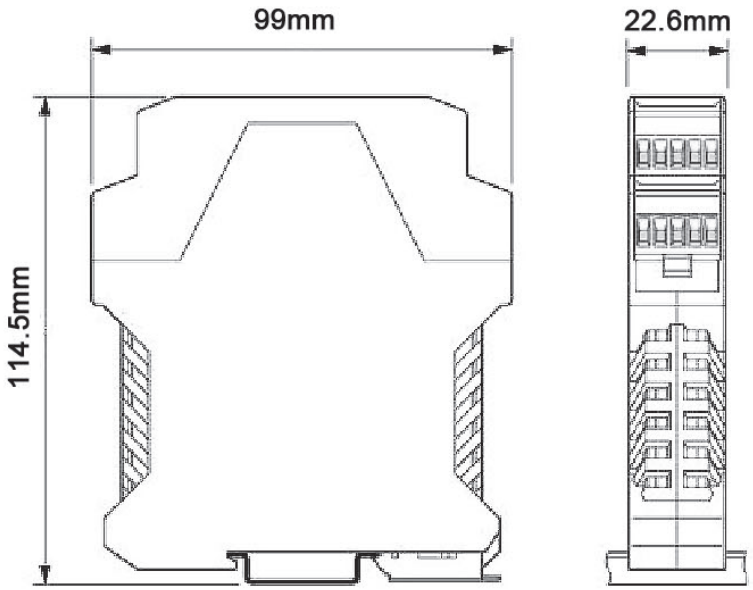
Power up	On power up all outputs go to user programmable power on known good state
Watchdog coms link	On loss of communications link all outputs go to a user programmable watchdog comms known good state.
Watchdog hardware timer	If the firmware does not refresh the watchdog timer within a predetermined interval then all outputs go to a user programmable watchdog hardware good state
Q-Stop function	When a user programmable input transitions to a preconfigured high or low state then all outputs go to a user programmable Q-Stop known good state

Port - Serial Software Selectable as RS232, RS422/485 Full Duplex, or RS485 Half Duplex

Ports	1 port Software Selectable as RS232, RS422/485 Full Duplex, or RS485 Half Duplex
Connector	Removable Screw terminal block connector - 3.5 mm pitch
Power Input	Redundant DC Dual Power Inputs, reverse polarity protected +5 VDC to +30VDC
Power Consumption	1.6 Watt typical 60mA@24V - 2.9 Watt Max
Conductor Wire	28 to 16 AWG, 0.14mm to 1.5mm Max
Baud Rate	Any custom Baud rate between 60 - 1,000,000 (1 MegaBaud) can be selected
Data Bits	5,6,7 or 8
Parity	Odd, Even, None, Mark or Space
Stop Bits	1, 1.5 or 2
Flow Control	RTS/CTS, XON/XOFF

Housing

IP-20 rated non-conducting polyamide case with integrated DIN rail mount



PORT	COLOUR	PIN 1	PIN 2	PIN 3	PIN 4	PIN 5
RS232	YELLOW	GND	CTS	RXD	RTS	TXD
RS422	YELLOW	GND	RXD-	RXD+	TXD+	TXD-
RS485	YELLOW	GND			DATA+	DATA-
DIGITAL IO	GREEN	GND	DIO 0	DIO 1	DIO 2	DIO 3
POWER	BLACK	GND	+VIN A	+VIN B	GND	FUNC GND

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Connectors

Screw Terminals	3.5mm pitch, #22 - #14, 0.5mm²-2.5mm² pin power supply
Wire Thickness	0.150 inch, 3.81mm, 20 pins, 12+8 screw terminals, #26 - #16 AWG, 0.14mm²-1.3mm²

Power Supply

Power Consumption	2.5 Watt Max
Power Supply input	unregulated +5V to +30Volts DC, reverse polarity protection
Isolation	1500VRMS Magnetic isolation from Ethernet

Environmental

Operating Temperature	-30°C to +80°C, -22°F to +176°F
Ambient Relative Humidity	5 to 95% (non-condensing)

LED Information

Status LED	Green	Device Ready
	Flashing Yellow	Changing Settings
	Flashing between Red & Green	Querying IP
	Flashing Green/Red	User performing Hard Reset
	Flashing between Green & Red/Yellow	IP address diagnostic
	Flashing between Green & Yellow	Initialization diagnostic
Port	Green light on	Port open
	Flashing Green	Data RX/TX
Link LED	Green light on	Network Link Established
	Flashing Green	Network Data RX/TX
Activity	Flashing Green	Output set / Input Read
	Flashing Red	Output overload

Approvals

Industry Approvals	C-Tick, AEO (C-TPAT), WEEE, RoHS
Microsoft Approvals	Microsoft Certified Gold Partner
Microsoft Signed Drivers	Windows 10 32 bit & 64 bit Editions Windows 8 32 bit & 64 bit Editions Windows 7 32 bit & 64 bit Editions Windows Server 2008 32 bit & 64 bit Editions Windows Server 2008 & Windows 2000 Windows Vista 32 bit & 64 bit Editions

Microsoft Gold Partner

Windows 8 Compatible · Windows 7 · Certified for Windows Vista · Certified for Windows Server 2008 · CE · RoHS · AEO GB AEOF 00031/11