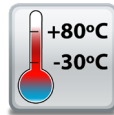


## ED-560 Ethernet to Analogue I/O

4 Analogue Outputs

- 4 Analogue Outputs - Selectable as either current or Voltage
- Supports simple ASCII or industry standard Modbus TCP
- 1 Ethernet Port
- -30°C to +80°C / -22°F to +176°F Temperature range



Non conducting polyamide casing with removable numbered terminal blocks for easy wiring



+5 to +30 Volt Power Input enables the device to be run from USB, a vehicle battery or the factory floor



Integral DIN mount and slim design takes up minimal cabinet space



## ED-560

## Ethernet to Analogue Output

Integrate with popular software packages or use with our free APIs

Easy Wire Removable screw terminal blocks

Supports Modbus TCP or ASCII commands

4 Analogue Output Lines: 12 bit

Serial Expansion Port suitable for ADAM modules

Integral DIN rail clip with earth

Ethernet Port

View from webpage - no software required

-30°C to +80°C / -22°F to +176°F temperature range

IP20 Non-conducting polyamide case with vents



Wide Range Input Power: +5VDC to +30VDC

### Connectors

Screw Terminals	3.5mm pitch
Wire Thickness	#22 - #14, 0.5mm <sup>2</sup> -2.5mm <sup>2</sup>

### Power Supply

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
Storage Temperature	-40°C to +85°C / -40°F to +185°F
Ambient Relative Humidity	5 to 95% (non-condensing)

### Magjack LED Information

Link/Activity LED	Solid green	Connection established
	Flashing Green	Data communication
Speed LED	Green	100Base-Tx
	Unlit	10Base-T

### Ethernet

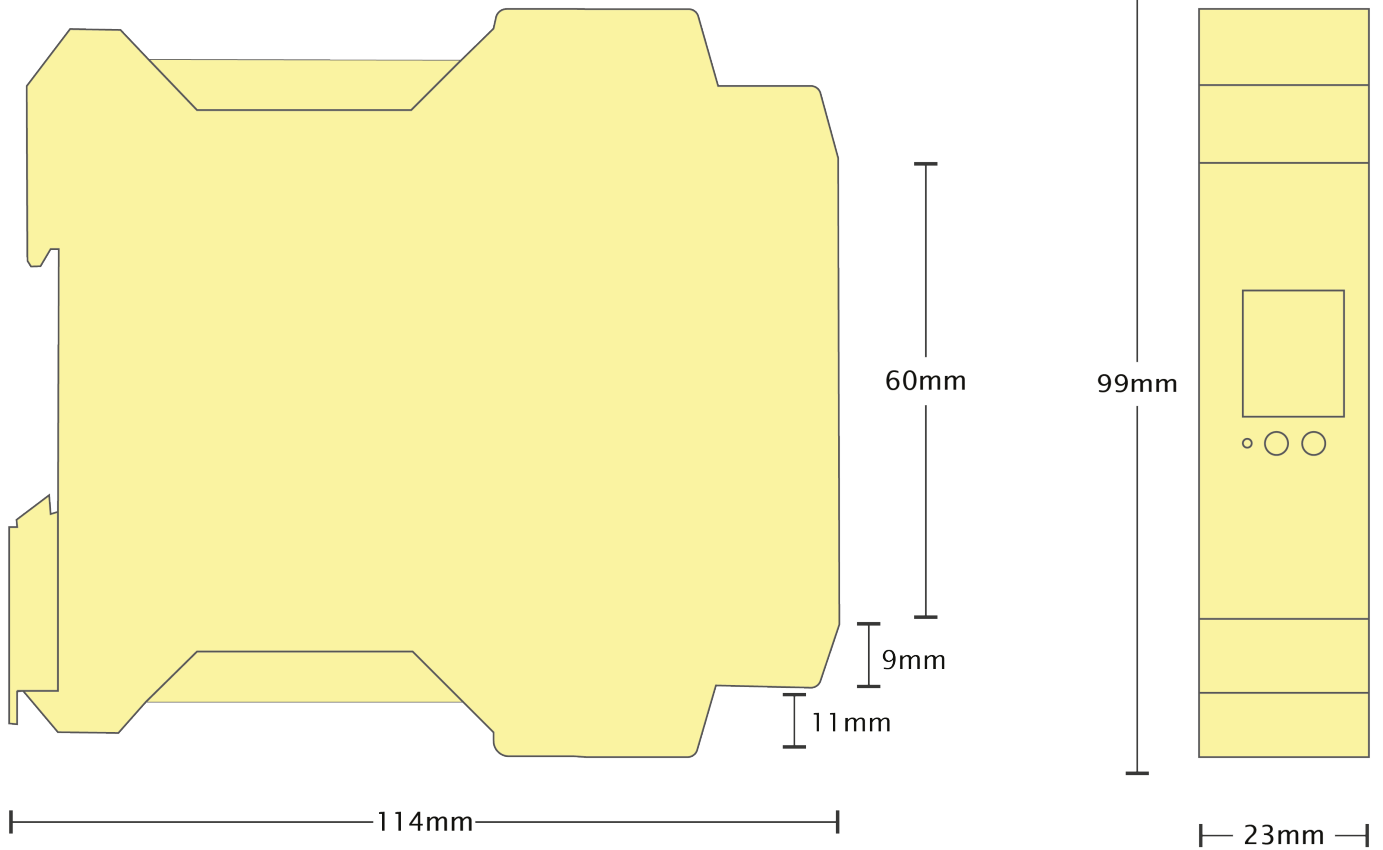
Ethernet Port	RJ45 jack, 10/100Mhz autosensing, crossover auto sensing (Auto MDIX)
Protection	1,500 Volts magnetic isolation between ports

### Housing

Housing	IP-20 rated non-conducting polyamide case
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# ED-560

## Ethernet to Analogue Output



Terminal Block Pin Outs

Terminal Block	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5
Yellow	AGND	Vout 0	Vout 1	lout 0	lout 1
Grey	SIG GND	RS-485 D-	RS-485 D+	RS-485 D+	RS-485 D-
Green	AGND	Vout 2	Vout 3	lout 2	lout 3
Black	-V	+VA	+VB	-V	Func GND
Power Input +5V to +30V DC					

Ethernet Port Pin Outs

PIN	FUNCTION
1	RD+ / TD+
2	RD- / TD-
3	TD+ / RD+
4	NC
5	NC
6	TD- / RD-
7	NC
8	NC

### Lifetime Warranty and Support:

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

## ED-560

## Ethernet to Analogue Output

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### Analogue Channels - 4 Outputs

IO Protocols	DCON ASCII over TCP or COM Port; Modbus TCP
Description	4 Analogue Outputs
Output Isolation	Yes, Outputs Isolated from Power, Network and Gateway Port
Voltage Output Range	0-10V
Current Output Ranges	0-20mA or 4-20mA
Current Output Type	Sink (requires external power source)
Output Resolution	12 bit
Watchdog	Sets outputs to predefined values on timeout
Max Output Load Current (Voltage Mode)	±5mA
Max Output Load Voltage (Current Mode)	30V
Dropout Voltage (Current Mode)	2.8V
Output Accuracy	0.1% of FSR @ 25 °C (77 °F)
Output Drift (Voltage Mode)	Zero drift less than 30µV/°C, span drift less than 25ppm/°C
Output Drift (Current Mode)	Zero drift less than 0.2µA/°C, span drift less than 25ppm/°C
Output Slew Rate	Voltage Mode: 170 kV/s, Current Mode: 4.3A/s
Output Settling Time	Voltage Mode: 350µs, Current Mode: 4 µs

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### Serial Expansion Port - RS485

Half Duplex RS485 port allows connection and control of industry standard NuDAM, eDAM and ADAM modules using ASCII protocols.

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### Power Supply

Power Supply input	Unregulated +5V to +30Volts DC, reverse polarity protection
Isolation	1500VRMS Magnetic isolation from Ethernet

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## Software

### OS Compatibility

Brainboxes' software provides a TCP or Serial COM port interface. All software versions and updates available to download from our website.

#### Microsoft

Legacy COM port drivers for Microsoft OS up to latest Windows 10

#### Other

TCP and web browser interface for other OSs & Linux, e.g. Android, Raspberry Pi



### Boost.IO Manager

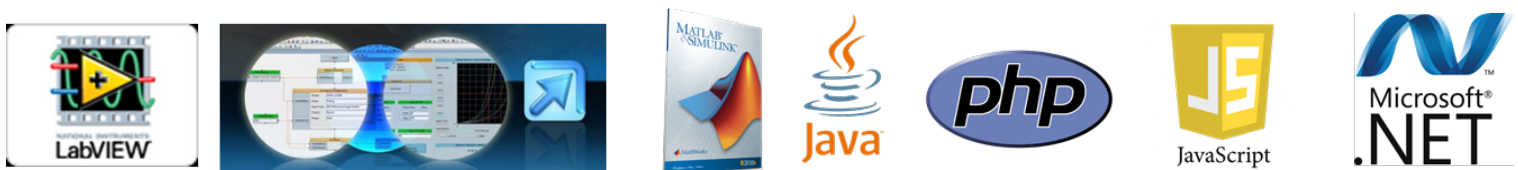
Lets you find, install and upgrade devices

### Industry Standard Packages

The COM port based driver means devices are compatible with popular packages such as: LabVIEW, MATLAB, Agilent VEE. So you can continue to get value from your existing development and process control system.

### Software Platforms

APIs and sample program code for: Microsoft .NET, C#, Visual Basic, C++, JavaScript, PHP, Java, Objective-C, Python and more - [www.brainboxes.com](http://www.brainboxes.com)



## Modbus

Device works as a Modbus TCP server. Modbus TCP can be used on the input and output lines.

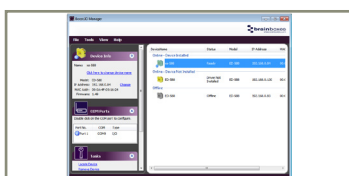
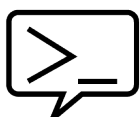
Examples from Modbus Tables	Modbus access type	Supported Modbus function codes	Logical address	984 style address	IEC 61131 address
Read DI counter values	Holding register	3	0x0000...	40001...	%MW0...
Clear DI counters	Coil	5, 15	0x0200...	00513	%M512...
Set/read digital outputs	Coil	1, 5, 15	0x0000...	00001...	%M0...

## ASCII

The ED device's webpage has an interactive ASCII console where any command can be entered and it is immediately executed showing the device's response.

\$01M	read the name of device address 01
!01ED-588	device 01 replies that its name is ED-588
\$01F	read firmware version number of device address 01
!012.54	firmware version of device 01 is 2.54

Full command tables can be found in the device manual



## ED-560

## Ethernet to Analogue Output

### Packaging Information

Packaging	Installation CD including manual, Microsoft signed drivers & utilities, Quick Start Guide
Packaged Weight	0.197 kg, 6.95 ounces
Packaged Dims	160x135x49 mm, 6.3x5.3x1.9 inches
GTIN Universal Code	837324003505

### Approvals

Industry Approvals	Microsoft Certified Gold Partner, WEEE, RoHS, AEO (C-TPAT), CE
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### Product Support

Warranty	Lifetime - online registration required
Support	Lifetime Web, Email and Phone Support from fully qualified, friendly staff who work in and alongside the Product Development Team

### Additional Information

OEM option	Available for bulk buy OEM
Made In	Manufactured in the UK by Brainboxes Winner 2005 European Electronics Industry Awards 'Manufacturer of the Year'
Customisable	Brainboxes operate a 'Perfect Fit Custom Design' policy for volume users. More info:sales@brainboxes.com



### ED Range

Remote I/O products available in a range of formats and specifications

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



### PW-600

Power supply with connectors for UK, USA, EU and AUS mains socket. 'Tails' are suitable for connecting to screw terminal blocks.



### PW-650

Power supply with USB connector and pre-wired screw terminal block. Suitable for use with 5V USB ports.



### MK-588

6 coloured PCB connectors. Individually numbered pins; 5 x 3.5mm pitch screw connections with tension sleeve.