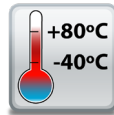


# ED-588 Ethernet to Digital I/O

8 Digital Inputs and 8 Digital Outputs

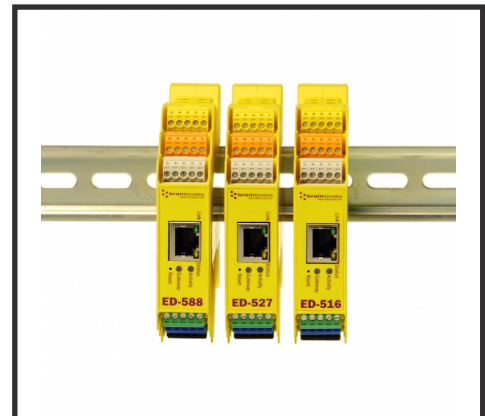
- 8 Digital Inputs and 8 Digital Outputs
- Supports simple ASCII or industry standard Modbus TCP
- 1 Ethernet Port
- -40°C to +80°C / -40°F to +176°F Temperature range
- Software APIs for VB, C# and more



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-588

## Ethernet to Digital I/O

Integrate with popular software packages or use with our free APIs

Easy Wire Removable screw terminal blocks

Supports Modbus TCP or ASCII commands

8 Digital Output Lines

Serial Expansion Port suitable for ADAM modules

Integral DIN rail clip with earth



Ethernet Port

View from webpage - no software required

-40°C to +80°C / -40°F to +176°F temperature range

IP20 Non-conducting polyamide case with vents

8 Digital Input Lines

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     | -40°C to +80°C / -40°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

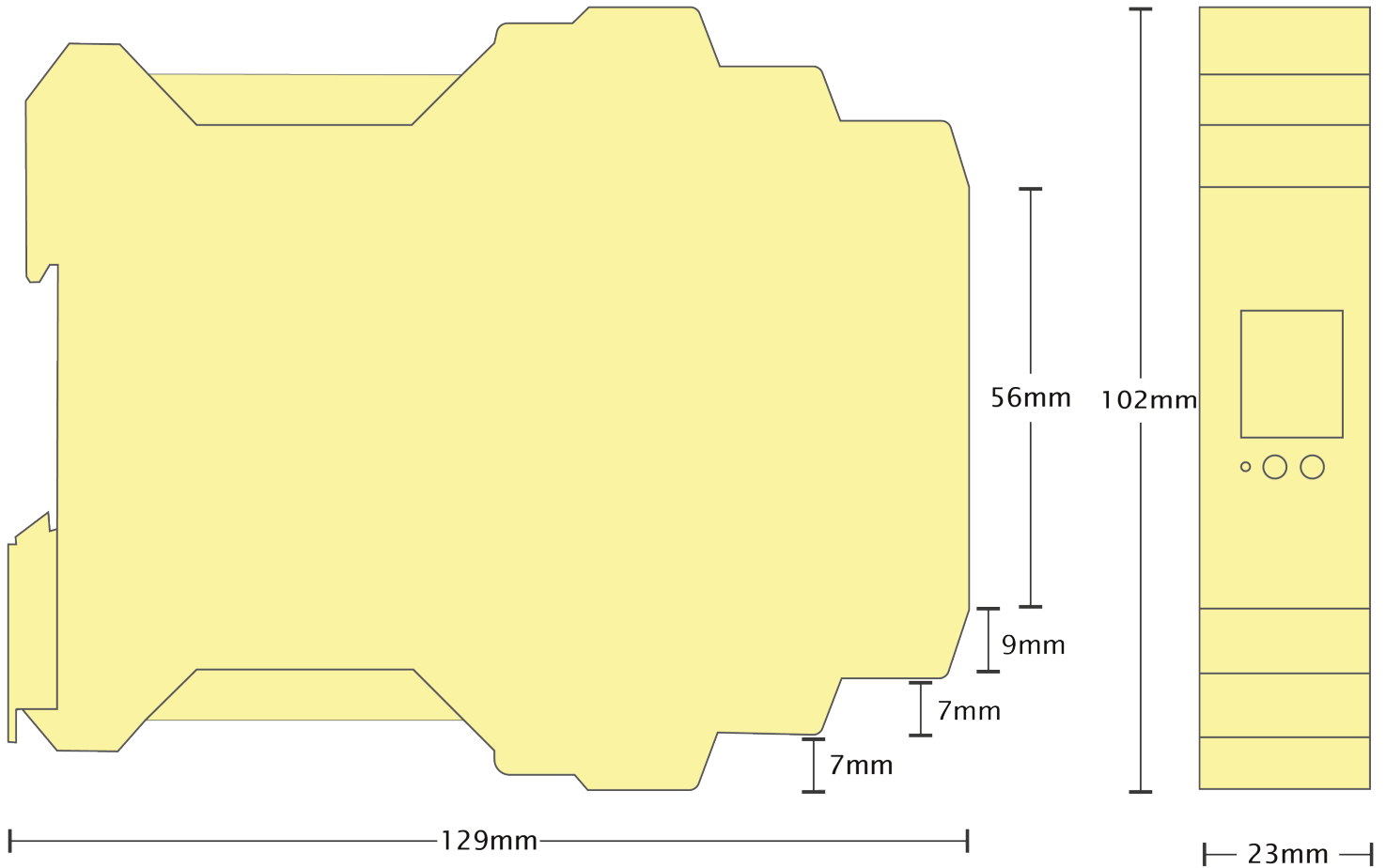
|                   |                |                        |
|-------------------|----------------|------------------------|
| Link/Activity LED | Solid green    | Connection established |
|                   | Flashing Green | Data communication     |
| Speed LED         | Green          | 100Base-Tx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

**ED-588**
**Ethernet to Digital I/O**

**Terminal Block Pin Outs**

| Terminal Block                                | Pin 1   | Pin 2     | Pin 3     | Pin 4     | Pin 5     |
|---|---------|-----------|-----------|-----------|-----------|
| Yellow  | -V      | DOut 0    | DOut 1    | DOut 2    | DOut 3    |
| Orange  | -V      | DOut 4    | DOut 5    | DOut 6    | DOut 7    |
| Grey  | SIG GND | RS-485 D- | RS-485 D+ | RS-485 D+ | RS-485 D- |
| Green   | -V      | DIn 0     | DIn 1     | DIn 2     | DIn 3     |
| Blue  | -V      | DIn 4     | DIn 5     | DIn 6     | DIn 7     |
| Black   | -V      | +VA       | +VB       | -V        | Func GND  |
| Power Input +5V to +30V DC 100mA@24V 2.5W Max |         |           |           |           |           |

**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-588****Ethernet to Digital I/O**

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**Digital Channels - 8 Inputs and 8 Outputs**

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**Inputs**

|                |   |
|----------------|---|
| NPN/PNP        | One jumper configures all inputs with either pull-up for NPN (contact closes to 0V) type sensors, or pull-down for PNP (close to V+) type sensors   |
| Logic Level 0: | 0V to +1V   |
| Logic Level 1: | +2.0V to +30V   |
| Input counting | User programmable - counts positive or negative transitions<br>Up to 250Hz count rate<br>16-bit (65335 count) or 32-bit (4.2 billion count) counters<br>Counter values persist over power-off periods |
| Input latching | Triggered by user programmable positive or negative edges, stays true until acknowledged  |
| Debouncing     | User programmable debouncing for noisy contact inputs   |

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**Outputs**

|                             |  |
|-----------------------------|--|
| Maximum output current      | 0.85A on all outputs simultaneously<br>(ambient temperature $\leq 70^{\circ}\text{C}$ , 1 m/s airflow)<br>0.5A on all outputs simultaneously<br>ambient temperature $70\text{-}80^{\circ}\text{C}$ , 1 m/s airflow<br>Outputs can be paralleled for higher current loads |
| Output Type                 | Current sink to 0V (low-side switch, open-drain MOSFET output), allowing loads at multiple voltages  |
| Maximum output load Voltage | 36V  |
| Production                  | Intelligent short circuit protection up to 36V<br>Over-temperature shutdown<br>ESD Protection to 16kV  |
| Quick-Stop function         | When a user programmable input transitions to a preconfigured high or low state then all outputs go to a user programmable known good state  |

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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                   |
| Power Consumption  | 2.5 Watts Max : 220 mAmps@+5VDC/36mAmps@+30VDC              |

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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.

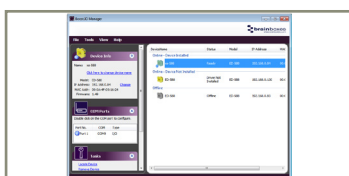
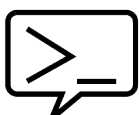
| Examples from Modbus Tables | Modbus access type | Supported Modbus function codes | Logical address | 984 style address | IEC 61131 address |
|-----------------------------|--------------------|---------------------------------|-----------------|-------------------|-------------------|
| Read DI counter 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-588

## Ethernet to Digital I/O

### Packaging Information

|                     |   |
|---------------------|---|
| Packaging           | Microsoft signed drivers & utilities, Quick Start Guide, Device |
| Packaged Weight     | 0.234 kg, 8.25 ounces   |
| Packaged Dims       | 160x135x49 mm, 6.3x5.3x1.9 inches                               |
| GTIN Universal Code | 837324003178  |

### Approvals

|                    |  |
|--------------------|--|
| Industry Approvals | Microsoft Certified Gold Partner, WEEE, RoHS, AEO (C-TPAT), CE, UKCA |
|--------------------|--|

### 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.