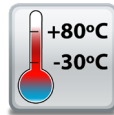


ED-588 Ethernet to Digital I/O

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
- -30°C to +80°C / -22°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 Input Lines

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

8 Digital Output Lines

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

Connectors

| | |
|-----------------|---------------------------------------------------|
| Screw Terminals | 3.5mm pitch |
| Wire Thickness | #22 - #14, 0.5mm ² -2.5mm ² |

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

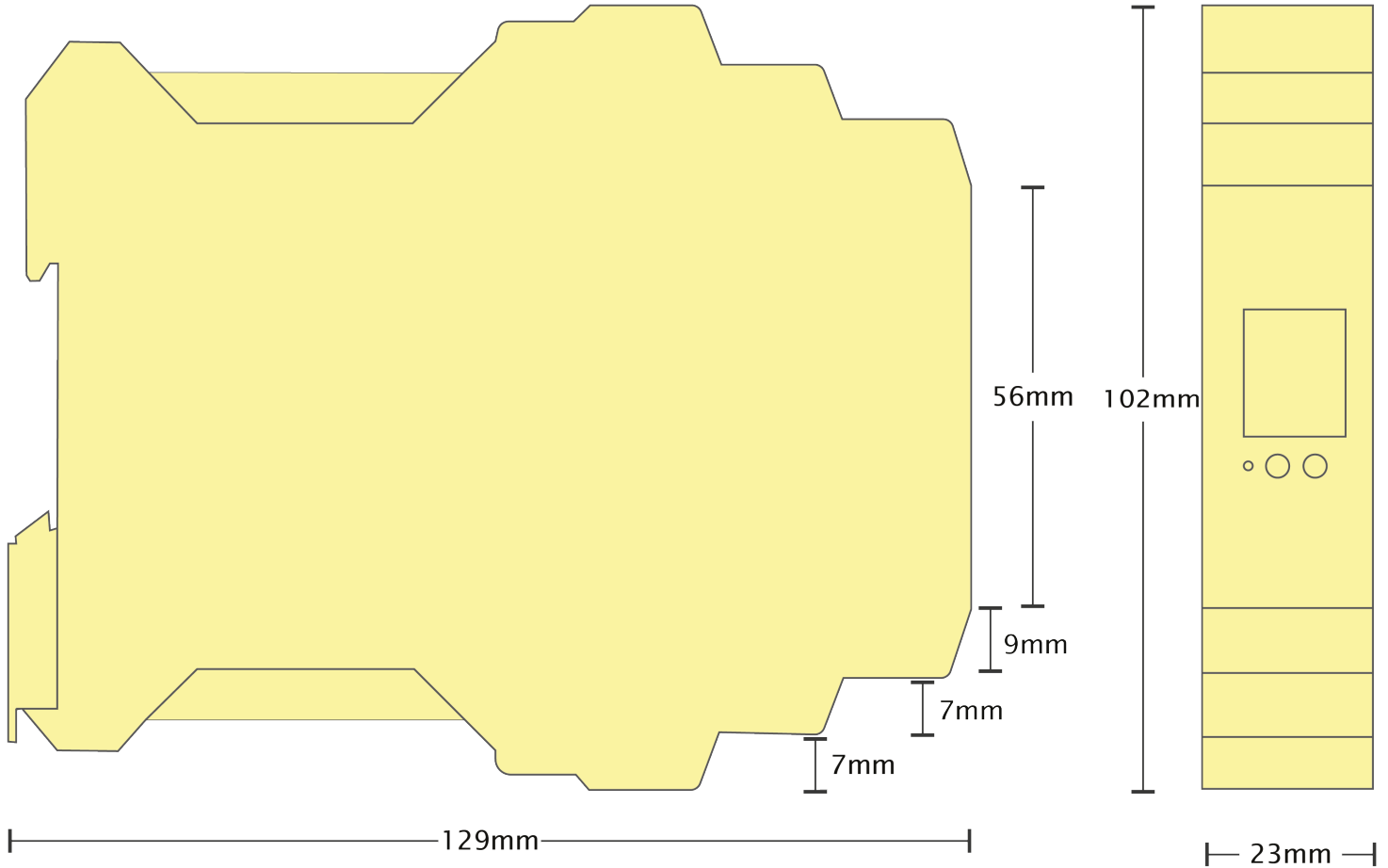
| | |
|---------------|----------------------------------------------------------------------|
| Ethernet Port | RJ45 jack, 10/100Mhz autosensing, crossover auto sensing (Auto MDIX) |
| Protection | 1,500 Volts magnetic isolation between ports |

Housing

| | |
|---------|-------------------------------------------|
| Housing | IP-20 rated non-conducting polyamide case |
|---------|-------------------------------------------|

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

Digital Channels - 8 Inputs and 8 Outputs

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 Up to 250Hz count rate 16-bit (65335 count) or 32-bit (4.2 billion count) counters 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 |

Outputs

| | |
|-----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Maximum output current | 0.85A on all outputs simultaneously (ambient temperature $\leq 70^{\circ}\text{C}$, 1m/s airflow) 0.5A on all outputs simultaneously ambient temperature $70\text{-}80^{\circ}\text{C}$, 1m/s airflow 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 Over-temperature shutdown 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 |

Serial Expansion Port - RS485

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

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 |

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



Modbus

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

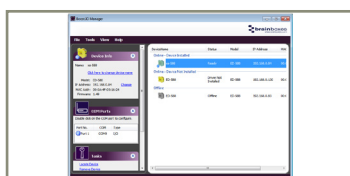
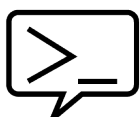
| Examples from Modbus Tables | Modbus access type | Supported Modbus function codes | Logical address | 984 style address | IEC 61131 address |
|-----------------------------|--------------------|---------------------------------|-----------------|-------------------|-------------------|
| Read DI counter 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 | Installation CD including manual, Microsoft signed drivers & utilities, Quick Start Guide |
| 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 |
|--------------------|----------------------------------------------------------------|

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 |



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 prewired screw terminal block. Suitable for use with 5V USB ports.



ED Range

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

www.brainboxes.com