

## Product Datasheet - Technical Specifications



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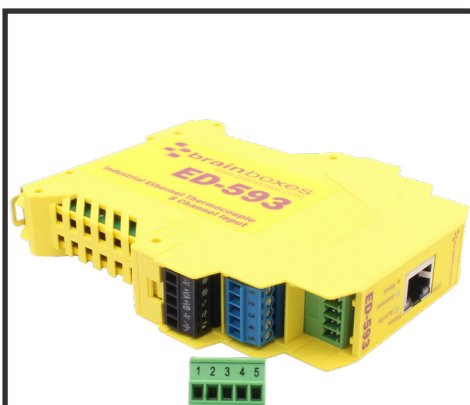
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# ED-593 Ethernet to Thermocouple

8 Channel Thermocouple Input

- Factory floor process control and automation
- 8 Channel Differential Thermocouple Inputs
- Measurements -265°C to +1820°C/-445°F to 3308°F/8.15K to 2093.15K
- 1 Ethernet Port
- -30°C to +80°C/-22°F to +176°F product operating temp. range
- Covers most standard thermocouple types
- Software APIs for VB, C# and more



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



+5VDC to +30VDC 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-593

## Ethernet to Thermocouple

Easy wire removable screw terminal blocks

Integrate with popular software packages or use with our free APIs

8 thermocouple inputs

Integral DIN rail clip with earth

Serial expansion port suitable for ADAM modules

View from webpage - no software required

Add Cold Junction Compensation (CJC)

IP20 non-conducting polyamide case with vents

-30°C to +80°C / -22°F to +176°F operating temp. range

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>

### 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

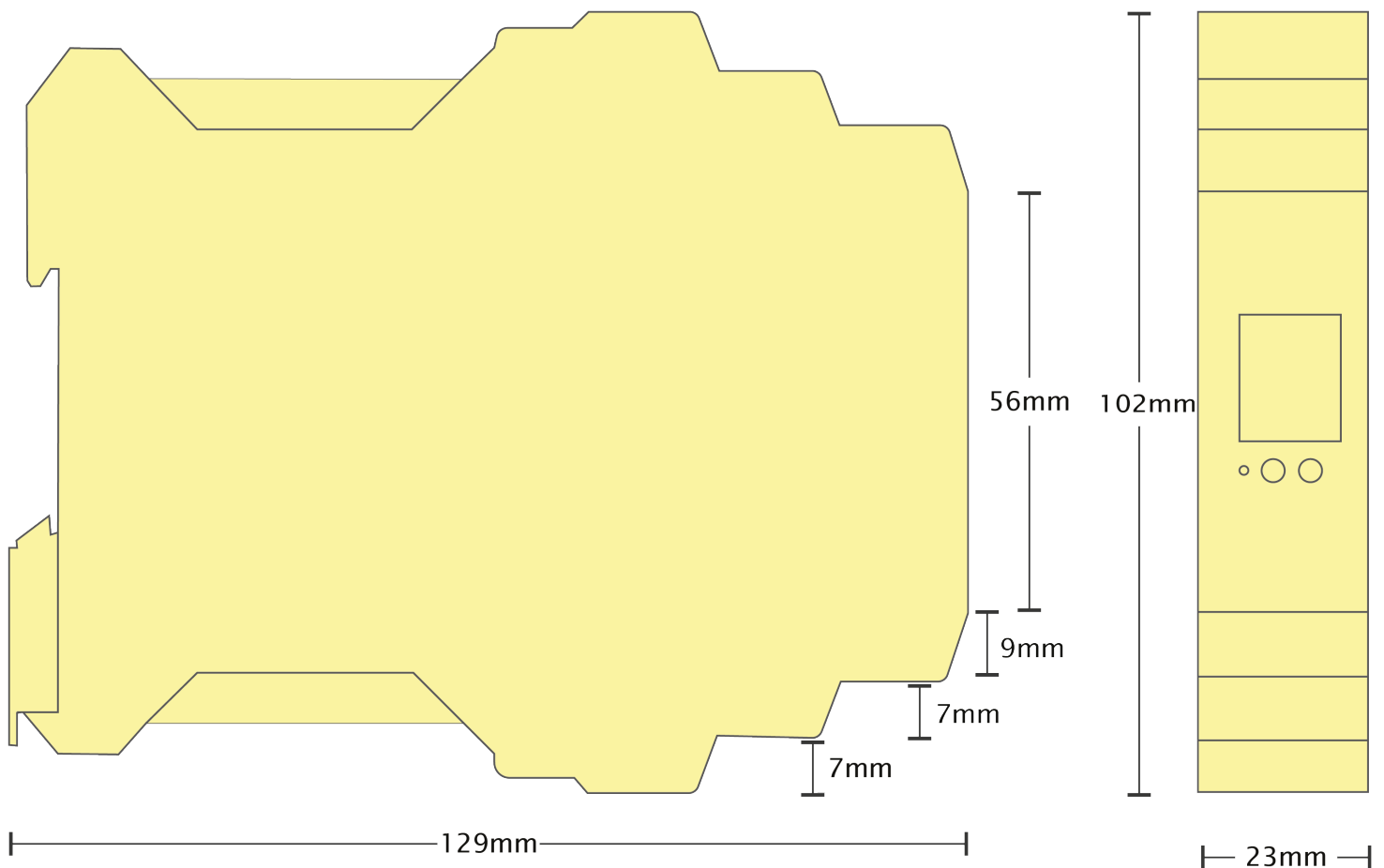
Link/Activity LED	Solid green	Connection established
	Flashing Green	Data communication
Speed LED	Green	100Base-Tx
	Unlit	10Base-T

### Ethernet

Ethernet Port	RJ45 jack, 10/100Mhz autosensing, crossover auto sensing (Auto MDIX)
Protection	1,500 Volts magnetic isolation between ports
Housing	IP-20 rated non-conducting polyamide case

# ED-593

## Ethernet to Thermocouple



Terminal Block Pin Outs

Terminal Block	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5
Yellow	AGND	TC 0-	TC 0+	TC 1-	TC 1+
Orange	AGND	TC 2-	TC 2+	TC 3-	TC 3+
Grey	GND	RS-485 D-	RS-485 D+	RS-485 D+	RS-485 D-
Green	AGND	TC 4-	TC 4+	TC 5-	TC 5+
Blue	AGND	TC 6-	TC 6+	TC 7-	TC 7+
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-593

## Ethernet to Thermocouple

### Thermocouple Channels - 8 Inputs

#### Inputs

IO Protocols	DCON ASCII over TCP or COM Port; Modbus TCP
Description	8 thermocouple sensor inputs – individually configurable for thermocouple type
Isolation	Yes, analog inputs are isolated from the power, network and RS-485 ports
Thermocouple types	Type J, K, T, E, R, S, B and N
Measurement range	-265°C to +1820°C/-445°F to 3308°F/8.15K to 2093.15K, depending on thermocouple type
Input Resolution	16 bit resolution
Measurement Accuracy	0.16% of primary range
Measurement rate	6 measurements per second, divided between all enabled inputs
Low Noise	CMRR > 120dB
Rejects Mains Hum	NMRR > 75dB at 50Hz and 60Hz

#### 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 +5VDC to +30VDC, reverse polarity protection
Isolation	1 500VRMS Magnetic isolation from Ethernet
Power Consumption	2.5 Watts Max : 220 mAmps@+5VDC/36mAmps@+30VDC

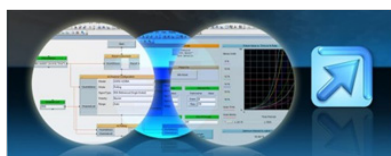


## Software

OS Compatibility	Brainboxes' software provides a TCP or Serial COM port interface. All software versions and updates available to download from our website.
Microsoft	Windows 8, Windows 8.1, Windows 10, Windows 11 Windows Server 2016, 2019, 2022
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 - <a href="http://www.brainboxes.com">www.brainboxes.com</a>



## Modbus

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

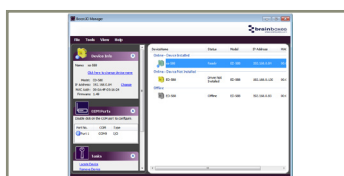
Examples from Modbus Tables	Modbus access type	Supported Modbus function codes	Logical address	984 style address	IEC 61131 address
Read DI counter values	Holding register	3	0x0000...	40001...	%MW0...
Clear DI counters	Coil	5, 15	0x0200...	00513	%M512...
Set/read digital outputs	Coil	1, 5, 15	0x0000...	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-593

## Ethernet to Thermocouple

### Packaging Information

Packaging	Microsoft signed drivers & utilities, Quick Start Guide, Device
Packaged Weight	0.192 kg, 6.77 ounces
Packaged Dims	160x135x49 mm, 6.3x5.3x1.9 inches
GTIN Universal Code	837324004007

### Approvals

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



### ED Range

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



### 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.