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AEO

NEW

ES-522 ETHERNET TO SERIAL DEVICE SERVER
Ethernet Industrial 2xRS232/422/485

CONNECT, CONFIGURE, CONTROL YOUR SERIAL DEVICES

- 2 Serial port Selectable as RS232/422/485
- Max baud rate 1 MegaBaud, any Custom Baud Rate
- 10/100Base TX Ethernet port
- -30ºC to +80ºC Temperature range

Features

- 2 Serial port Software Selectable as RS232, RS422/485 Full Duplex, or RS485 Half Duplex
- Integrated DIN rail mount and Slim Case
- Brainboxes' Easy Wire: Removable, colour coded, Screw Terminal blocks with individually numbered pins makes wiring fast, simple and error proof
- Extended Temperature Range: -30ºC to +80ºC
- IP-30 rated non-conducting polyamide enclosure
- LED status indication
- Wide Range Input Power Supply: +5VDC to +30VDC
- Redundant Dual Power Input
- Grounds on every 5th pin. Functional Earth via integral DIN rail mount
- Brainboxes state of the art Autogating for trouble free RS485 Half Duplex flow control
- Max baud rate 1,000,000 (1 MegaBaud), Custom Baud Rates
- 10/100Base TX Ethernet port
- Smart Ethernet: recognises straight and crossover Ethernet cables and works with either
- Serial Port Tunneling allows serial cable replacement over any distance, no software required

- User friendly interface, simple to use, powerful in operation
- Web configuration and RFC2217 compliant interface for non-Windows users
- Simple operation for each and every operating system!
- Life time Support and Lifetime warranty with sign up

LIFETIME SUPPORT

LIFETIME WARRANTY

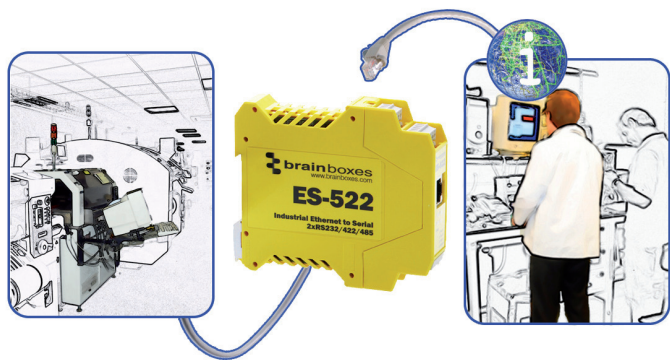# ES-522 Ethernet Industrial 2xRS232/422/485

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Description

Ethernet to Serial Device with 2 Port software selectable as RS232, RS422/485 Full duplex or RS422 Half duplex. ES-522 has removable Screw Terminals Blocks for easy wiring, a slim 'end on' case and integral DIN rail mount. Our Industrial Ethernet to Serial has an operating temperature range of -30 to +80 degrees Celsius and with +5VDC to +30VDC Dual input reverse polarity protected power supply making it perfect for industrial applications. Data transfer rates up to 1,000,000 baud, coupled with 1Mbit/s line drivers deliver uncompromising performance. Our Industrial ES range provides simple instant networked serial ports in demanding environments. Serial Port Tunneling allows serial cable replacement over any distance, no software required. Suitable to be wired into existing power and network infrastructure or can be used with our PW-600 power supply.

Windows Users - Our software drivers give you local COM ports, allowing you to retain your existing software applications and connect to your devices over the network. COM Port can be assigned from COM 1 to COM 255 and the Brainboxes Ethernet to serial device remembers your COM Port assignment on reboots.

Web Interface Users (Linux/Apple OS/Android) - A web interface allows secure configuration and control of the serial ports over a local network or the internet using any browser. You can access the device via TCP/IP sockets from any networked device like an Android tablet, PC or phone.

Extend your reach! Remote serial devices with local control. With Brainboxes industry renowned Lifetime Warranty and Lifetime Support!

Example Application

ES-522 Factory Floor Application

Factory floors can be harsh environments. Extreme temperatures can be generated in the manufacturing process, machinery can be noisy and dangerous and space is a premium. But engineers still need to be able to access and maintain equipment safely and without downtime. As factories expand and modernise older equipment and remote devices need to be networked, but cabling can be expensive and impractical, especially over larger areas.

The ES-522 has 2 serial ports that are software selectable as either RS232, RS422 or RS485 and 1 Ethernet port. The 'Easy Wire' removable colour coded Screw Terminals Blocks are individually numbered for simple fast, error free wiring. The slim 'end on' case with integral mount clips straight on to a DIN Rail. The ES-522 has an operating temperature range of -30ºC to +80ºC and +5VDC to +30VDC Dual input reverse polarity protected power supply. Brainboxes proven technology supports legacy applications, whilst our Ethernet to Serial software ensures fast data transmission and a super easy installation whatever your operating system.

Once your Serial equipment is connected to a Brainboxes Ethernet to Serial device you have the option of accessing it over a local network or connecting it to the internet. The devices can be fitted in areas where it would be dangerous for workers to monitor whilst the factory line is in operation. Manufacturing process and performance across a large site can be monitored and potential faults detected before they cause serious downtime costs. Use two devices back to back for serial tunnelling over Ethernet, for when you need to extend the reach of your serial cables.

ES-522 Ethernet Industrial 2xRS232/422/485

Feature Profile

Slim Shape:
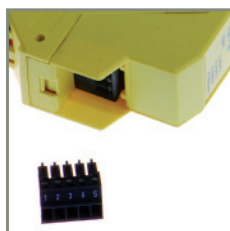Small foot print for when DIN rail space is a premium
Only 22.5mm wide

Extended Temperature Range:
-30ºC to +80ºC operating range copes with changing temperatures for harsh environments
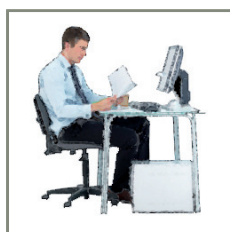
Brainboxes' Easy Wire Feature:
- Removable screw terminal blocks make installation easier and quicker
- Colour coded blocks and ports prevents incorrect connection
- Individually numbered Pins simplifies wiring and removes confusion

Redundant Dual Power Input:
A second power supply can be fitted as a back-up to prevent down time should one power source fail.

Wide Range Input Power Supply:
+5VDC to +30VDC accommodates variation in the +24VDC factory floor and allows alternative power sources. Can use 5 Volt power from any computer USB port.

Remote Monitoring:
Sensors inside the device allow you to monitor the temperature of the device remotely.

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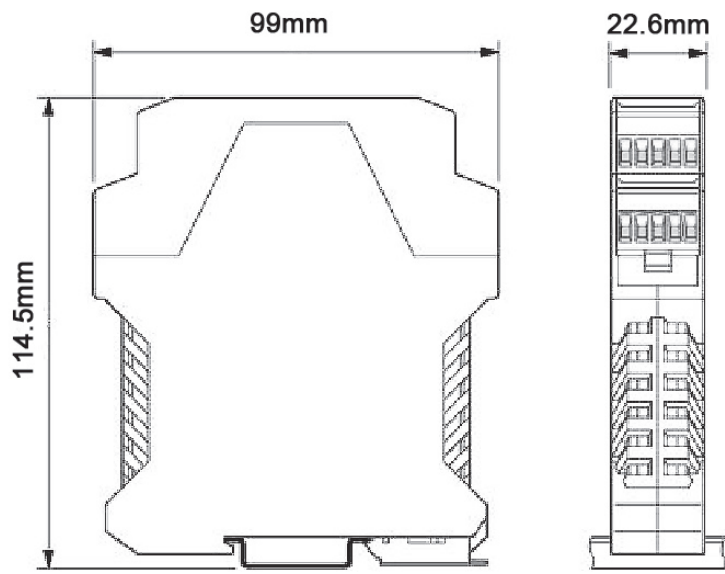Functional Earth connection to the DIN rail

Smart Ethernet:
Recognises and works with both straight and crossover Ethernet cables (Auto MDI/MDIX)
Mag Jacks provide 1500 Volts magnetic isolation offsetting any difference in grounds between Ethernet nodes

NEW

Enclosure Specification

99mm · 22.6mm · 114.5mm

Port 1 - Yellow	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5
RS232	Sig GND	CTS	RxD	RTS	TxD
RS485 FD	Sig GND	RxD-	RxD+	TxD+	TxD-
RS485 HD	Sig GND			Data+	Data-
Power Input - Black	Power GND	+Vin A	+Vin B	Power GND	Func GND
Input	+5V to +30V DC 60mA@24V 1.4W Typical		120mA@24V 2.9W Max		

Housing	IP-30 rated non-conducting polyamide case with integrated DIN rail mount

Environmental

Operating Temperature	-30°C to +80°C
Storage Temperature	-40°C to +85°C
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
Serial Port LEDs	Green light on	Port Open
	Flashing Green	Data RX/TX
Network LED	Green light on	Link Established
	Flashing Green	Data RX/TX

Port - Serial

Ports	2 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	1.4 Watt typical 60mA@24V - 2.9 Watt Max
Conductor Wire	28 to 16 AWG, 0.14mm to 1.5mm Max

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

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	XON/XOFF Software handshake or RTS/CTS hardware handshake
Tx/Rx Modes	*RS232 Standard:* RS232 allows point to point communication between 2 devices.
	RS422 Standard: RS422 allows one transmitter and up to 10 receivers with data transmitter rates up to 10 megabits per second for distances up to 40 feet and up to 100 Kilobits per second for distances up to 4,000 feet (1219 metres). To achieve good long distance noise immunity, 2 wires are used to carry each signal, configured as a twisted pair of cables. The TXD pair and RXD pair are used to carry the data whilst the RTS pair and CTS pair lines are used for handshaking. Thus 2 twisted pairs are used without handshaking and 4 twisted pair cable is used with handshaking both these schemes allow full duplex data communications.
	RS485 Standard: RS485, based on the RS422 standard allows up to 32 driver/receivers pairs on a standard load or 128 low load devices per port can be connected. Whilst only one of these should be transmitting data at any time, the rest can all simultaneously listen to the data. Handshaking is performed by software protocol. Two twisted pairs form a full duplex system. Often only one twisted pair cable is used as the TXD and RXD lines are tied together; this is known as half duplex mode. Brainboxes RS422/485 products implement a state of the art hardware autogating circuit ensuring error free communications in half duplex configurations.
	Industrial Ethernet to Serial RS485: recievers are 1/8th load allowing upto 256 nodes on the bus. Fail safe open circuit and short circuit protection, protects the Industrial Ethernet to Serial against wiring faults.
	Line Terminating Resistor: On board RS485 line termination resistor can be enabled by a user selectable jumper. The RS422/485 line terminating resister prevents signal reflections when the ES device is at the end of transmission line.
	Bias Resistors: On board RS485 Half Duplex fail safe bias resistors enabled by user selectable jumpers. The fail safe biasing resistors pull the line to a known good state during idle times preventing phantom character detection.

Port Settings - Ethernet

Data Rate	10/100 Mega bits/second
Cabling	Normal / Crossover auto-sensing (Auto-MDIX)

Software

Network Protocols	ICMP, IP, TCP, UDP, DHCP, BOOTP, Telnet, HTTP, RFC2217
Connection to Network	Ethernet 10BaseT / 100BaseTX
Configuration Options	Windows Utility, Web Interface

Performance

	Industry leading Performance
	Throughput guaranteed minimum of 95% of theoretical bi-direction full duplex band width at 1 MBaud
Input	CTS False to Transmitter stop: 3 characters max, 1.5 typical
	XOFF recieved to Transmitter stop: 3 characters max, 1.5 typical
	RS485 Autogating Turn around time: <1 bit time

Approvals

Industry Approvals	AEO (C-TPAT), WEEE, RoHS, METL, FCC Compliant, EMC: CE
Microsoft Approvals	Microsoft Certified Gold Partner
Microsoft Signed Drivers	Windows 8 32 bit & 64 bit Editions
	Windows 7 32 bit & 64 bit Editions
	Windows Server 2003 32 bit & 64 bit Editions
	Windows XP 32 bit & 64 bit editions

Packing Information

Packaging	Installation CD including manual, Microsoft signed drivers & utilities
Device	Ethernet Industrial 2xRS232/422/485
Packaged Weight	0.0209 kg, 0.05 pounds
Packaged Dims	114.5(l) x 22.6(w) x 99(h) mm
GTIN Universal Code	837324002614

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

Optional Accessory

ORDER CODE - Global Power Supply - PW-600	**ORDER CODE - USB Power Supply- PW-650**