

40  
Years  
Anniversary Edition



industrial connectivity devices for the automation market

MASTER CATALOGUE

2024



# CONTENTS

## 01 ABOUT US

### Products

- 02 Pure Embedded Ethernet Switch
- 03 SFP Gigabit Ethernet Switch
- 05 Industrial Edge Controller: BB-400
- 10 Industrial Fast Ethernet Switch
- 11 Industrial Gigabit Ethernet Switch
- 12 Industrial PoE Ethernet Switch
- 15 Power over Ethernet to Serial
- 16 Ethernet to Serial DB9 Connector
- 17 Industrial Ethernet to Serial
- 21 Remote IO: Analogue
- 22 Remote IO: Digital
- 23 Remote IO: Temperature
- 27 USB to Serial
- 28 USB to Serial: USB-C to Serial

### Case Studies

- 04 SFP & Sustainable Energy Management
- 06 Sustaining Smiles with Smart Energy Monitoring
- 07 Improve your Bottom Line Without Costing the Earth
- 08 Industrial Waste to Clean Energy
- 09 Unattended Condition Monitoring on Trains
- 13 Capturing Continuous Video from the Ocean Bed
- 14 Accurately Analysing Traffic Scenes
- 18 Harnessing the Power of the Sun
- 19 Securing data with Serial Devices
- 20 Under the Galactic Telescope
- 24 Remote Temperature Monitoring in Breweries
- 25 Transform to Industry 4.0 & Automated Data Capture
- 26 Automation in the Antarctic

## 29

### FACTORY MONITORING PLAYBOOK



# ABOUT US

Since 1984, Brainboxes have developed, manufactured & supported our own core technologies. Today we are one of the leading communication device developers & manufacturers in the world.

Our smart hardware enables machine monitoring, connects industrial IoT projects, innovates factory automation & makes the remote feel right on site.



Lifetime  
Guarantee



Innovative  
Industrial  
Automation



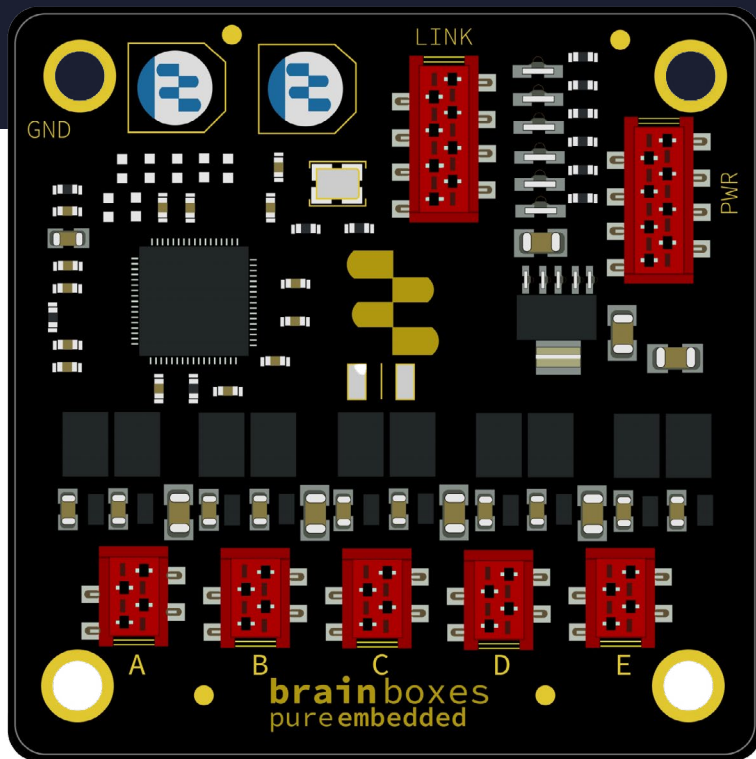
Free Product  
Evaluation  
Programme



Open-source  
Options



# PURE EMBEDDED ETHERNET SWITCH



The perfect fit for any stable, future-proof system, even where space is limited

Board to board & board to cable connection

Seamless integration with design software - logical placements

LEDs visible in all orientations - can be directed to outer casing via fibre optics or light pipes

Mega compact form - smaller than a standard business card (55x55x10mm)



# SFP GIGABIT ETHERNET SWITCH



Fast, low cost, future-proof way to deploy long network segments

Connect to a wide variety of fibre optic & copper cable types for high-speed data connection over long distances

Reduce susceptibility to electromagnetic interference

SFP Port Power Overcurrent protection





As digital transformation continues to drive efficiency and productivity across industry, fibre optic technology has emerged as a crucial component in industrial networking infrastructure

Brainboxes' SFP Industrial Gigabit switches offer the high-speed data transmission associated with fibre, versatile connectivity options across long distances & network security. This contributes to the seamless integration of renewable energy sources: ensuring a stable & environmentally friendly power supply.



# INDUSTRIAL EDGE CONTROLLER: BB-400



-25°C to +80°C op temp range, 5-30VDC dual power input with built in mini UPS, DIN rail mountable

Powered by an industrialised Raspberry Pi & Arduino

Process data locally & send to the cloud with open-source tools

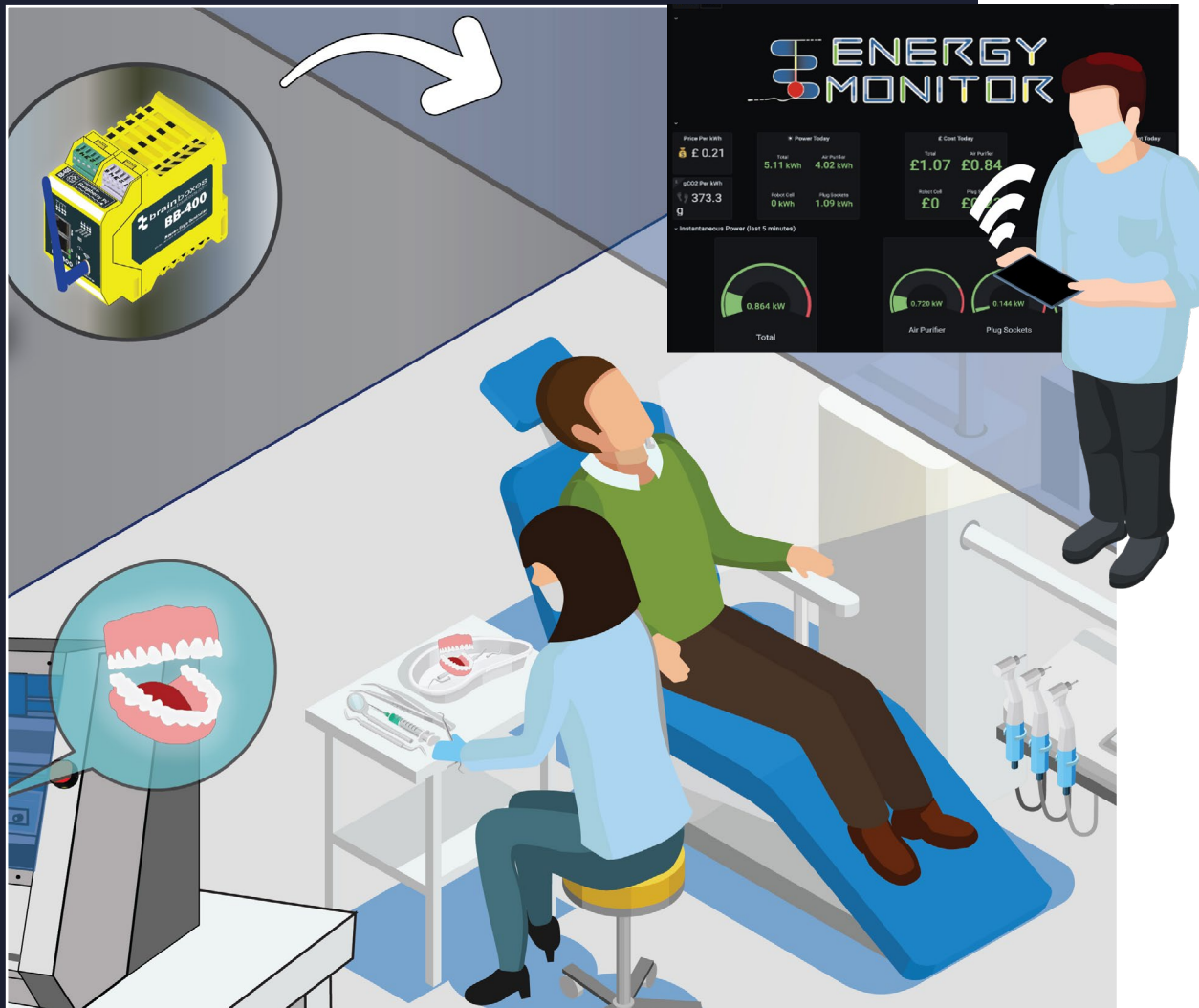
Multiple connections, built in UPS for power management

Easy to use secure web interface



# SUSTAINING SMILES WITH

# SMART ENERGY MONITORING



With Brainboxes smart energy monitoring system, you can proactively monitor your energy usage to identify potential flaws.

Rose Lane Dental Practice provides custom-made teeth, installing specialist machines on-site to expedite the process and minimize patient wait times.

An energy monitoring system using Brainboxes BB-400 Edge controller allows the practice to capture and store live and historical energy use data, which can then be visualised on a bespoke dashboard.

# IMPROVE YOUR BOTTOM LINE WITHOUT COSTING THE EARTH



The first step in understanding energy costs is to monitor power consumption, simply achieved by retrofitting energy monitoring devices into the existing production environment.

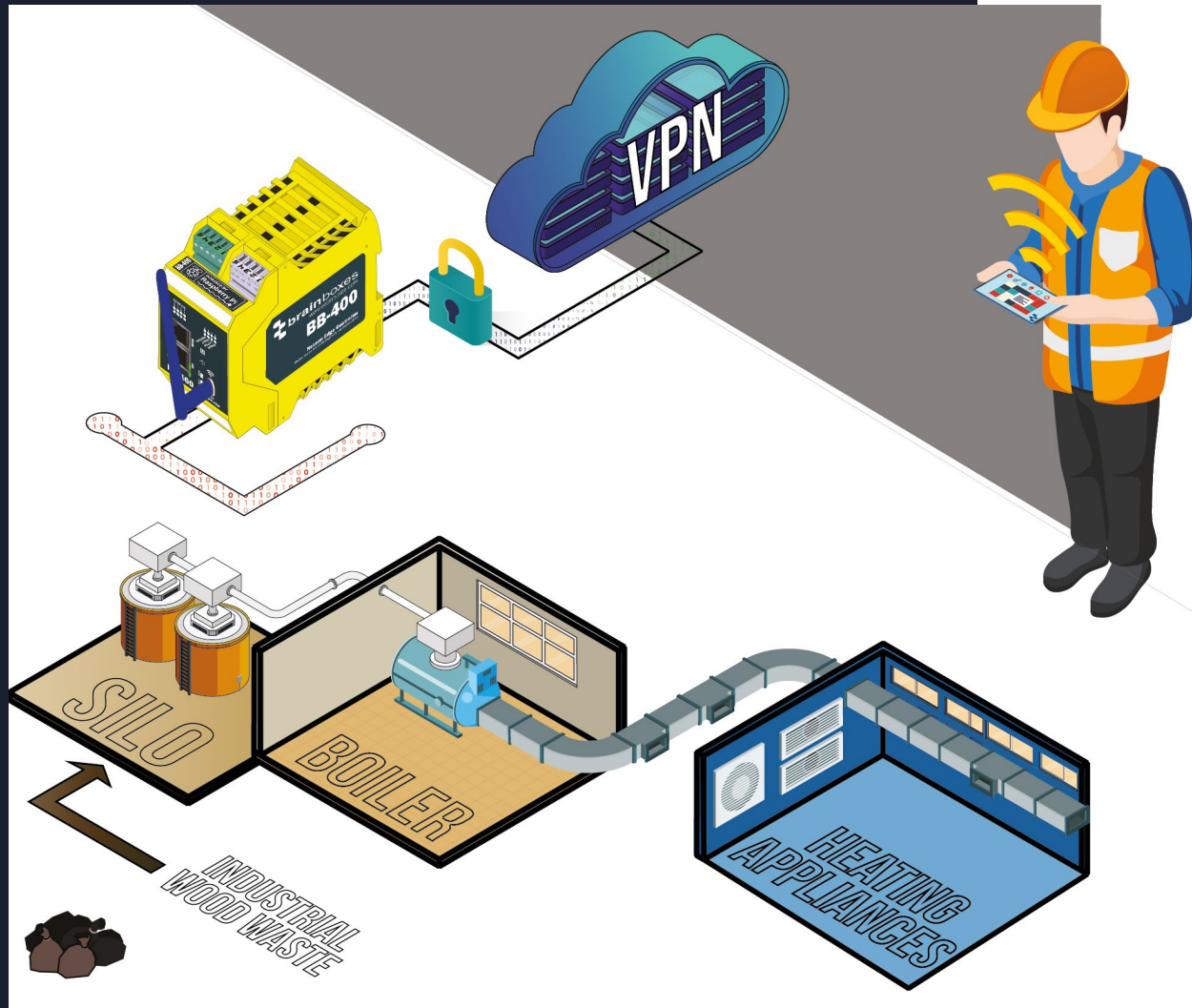
The BB-400 allows you to monitor power consumption across your facility, capture timestamps & record historical usage data.

Globally, businesses are committed to steep decarbonisation targets & reducing power consumption is a critical factor in achieving cost-saving solutions.



# INDUSTRIAL WASTE

# TO CLEAN ENERGY



Fuelling smart heating systems with Brainboxes Edge control technology.

The costs associated with industrial heating and the disposal of industrial biomass can be significant; both to businesses and to the environment.

Ranheat, a leading provider of biomass energy management equipment, design and manufacture wood waste boilers and warm air heaters that generate heat from the by-products of industrial processes rather than sending the waste to costly landfill sites.



Condition monitoring allows engineers to understand the health of key assets; machines in a factory, or for one of the UK's largest railway franchises delivering 24% of all passenger rail journeys, the trains that make up their fleet.

Brainboxes' Industrial Edge Controller (BB-400) has on-the-go software updates & the robust hardware able to meet the challenging specifications for rail.

The BB-400 can also gather & send accurate data points on comfort score & GPS location to the cloud every second.



# INDUSTRIAL FAST ETHERNET SWITCH



Remote functionality for automation & monitoring

Available in a range of formats & specifications to provide the perfect solution for your application

Wide power input range enables devices to be run from a variety of sources

Compact design enables them to fit into cabinets with limited space

Simple, reliable network expansion

# INDUSTRIAL GIGABIT ETHERNET SWITCH



Designed for network intensive applications where data transmission is key

Connect to devices that are 10Mbps, Fast Ethernet (100Mbps) or Gigabit

Supports high-speed data transfer between devices

The perfect fit where more network throughput is key

Increased speed, efficiency and performance



# INDUSTRIAL POE ETHERNET SWITCH



Offer flexibility to deploy powered devices at almost any location

Simple to install, fully conform to IEEE 802.3af/at Ethernet standards for reliable performance

Less cost, less cabling, less maintenance

Allows power & data to be combined on the same Ethernet cable

Designed for demanding environments

# CAPTURING CONTINUOUS

# VIDEO FROM THE OCEAN BED



Subsea cables are crucial for inter-connectivity, carrying signals, including 99% of the world's internet traffic, across the globe. Therefore, it's vital that they're accurately mapped to carry the data.

Brainboxes' Ethernet switches support the successful operation of mission-critical equipment. The switches reliably receive Ethernet data from video cameras & sensors. In more murky conditions, they receive data from sonar, allowing operators to monitor altitude, depth & live video.





In the US, it's estimated that 400 people a year are killed as a result of head-on collisions from wrong-way drivers. Govcomm's wrong way vehicle detection systems are life safety devices that perform time sensitive video analytics at high frame rates.

Brainboxes' Ethernet switches reliably maintain safety critical systems. If the switch fails, traffic managers will not be provided with any data, causing the whole operation to stop. This could lead to missed wrong-way detections which can have deadly consequences.

# POWER OVER ETHERNET TO SERIAL



Convert your RS232 or RS422/485 port into a network PoE Ethernet port

Serial port tunnelling allows serial cable replacement over any distance, no software required

User friendly interface, simple to use, power in operation

Connect to power & a network through a single cable

Avoid cost of installing additional power sockets



# ETHERNET TO SERIAL DB9 CONNECTOR



Install Virtual Com ports, communicate over TCP or telnet or use the software APIs for Visual Basics, C# & more

Serial port tunnelling allows serial cable replacement over any distance, no software required

Send RS232 or RS422/485 serial data over the network

Connect to remote devices as if they were attached locally

# INDUSTRIAL ETHERNET TO SERIAL



Send RS232 or RS422/485 serial data over the network

Securely communicate serial data anywhere in the world

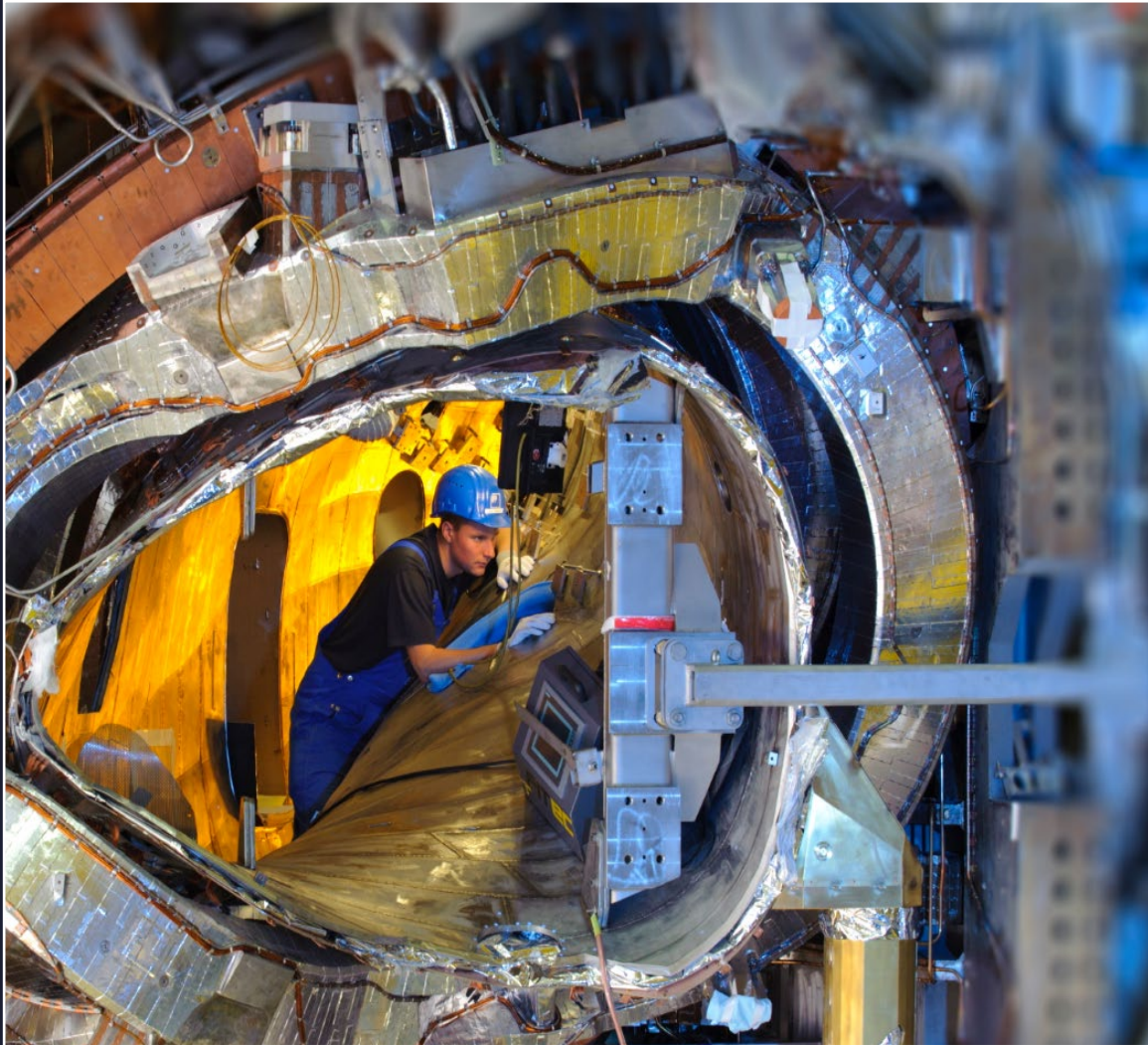
Quick & easy installation with removeable screw terminal blocks

Wide range input power supply +5VDC to +30VDC



# HARNESSING THE POWER

# OF THE SUN



Research into nuclear fusion aims to develop power plants that can generate vast amounts of climate friendly energy: 1g of fusion fuel generates 90,000 kWh, the equivalent combustion heat of 11 tonnes of coal.

Extreme conditions – fusion fuel is heated up to 100 million°C – call for special measuring methods.

Brainboxes' Ethernet to Serial devices send critical data from sensors installed in the diagnostic ports over the network to be remotely monitored on the control PC stationed a safe distance away.

# SECURING DATA

# WITH SERIAL DEVICES



In the medical sector, information technology has advanced to drive a positive change concerning how doctors & nurses take care of their patients.

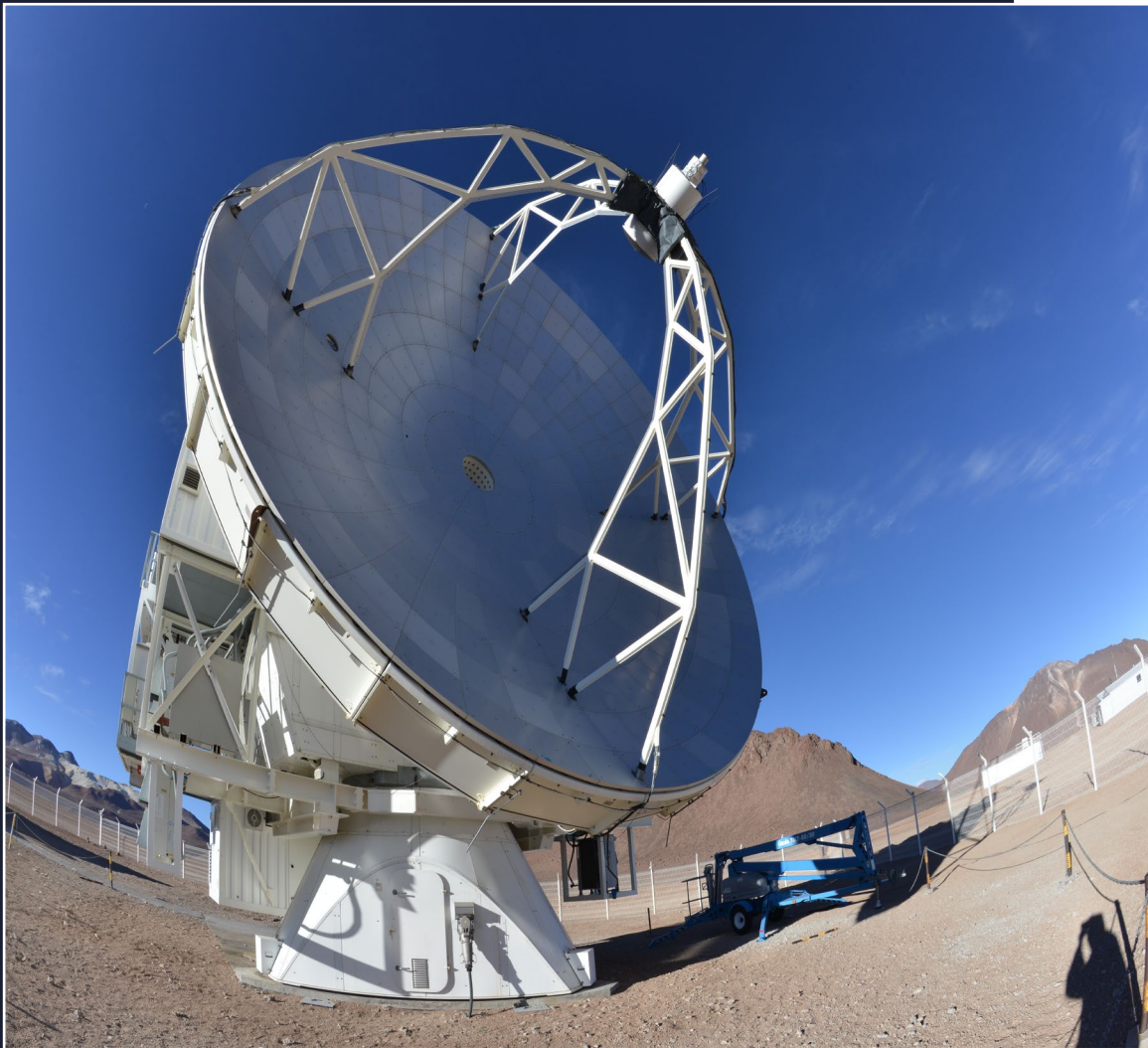
Brainboxes' Ethernet to Serial devices ensure that medical professionals no longer have to manually enter data. Instead, accurate data readings can be taken from anywhere on the network.

A web interface allows secure configuration & control of the serial ports over a local network or the internet using any browser.



# UNDER THE

# GALACTIC TELESCOPE



APEX is a radio telescope situated over 5,000m above sea level in northern Chile's Atacama Desert.

With no engineering support on site, Brainboxes Ethernet to Serial modules afford a reliable Serial data connection, allowing full remote operation.

Whether on the submillimetre radiation of the cold universe, or the manufacturing processes of the production line, Brainboxes Ethernet to Serial modules allow you to access your data remotely from anywhere on Earth.

# REMOTE IO: ANALOG



Wide industrial operating temperature range

Deliver industrial data exactly when & where you need it

Monitor inputs & control outputs instantly from any web browser

Interact with real-world data & applications



# REMOTE IO: DIGITAL



Connect digital sensors & transducers to bring data onto the network

Monitor inputs & control outputs of your factory floor machinery from anywhere

Deliver industrial data exactly when & where you need it

Wide industrial operating temperature range

# REMOTE IO: TEMPERATURE



Temperature measurement range: -200°C to +600°C

Deliver industrial data exactly where you need it; smartphone, tablet or PC

Open/short detection ensures readings are accurate

RTD and Thermocouple options available



Building an effective system for fermenting beer can be challenging, especially when it comes to monitoring & controlling the temperature of fermentation vessels.

Brainboxes Remote IO devices allow users to monitor inputs & control outputs from any location.

The Brainboxes can connect to sensors in different locations within the vessel to ensure data reflects the average temperature across the whole vessel.



# TRANSFORM TO INDUSTRY 4.0 & AUTOMATED DATA CAPTURE



Sensors & transducers capture data from mechanical devices without the need for a PLC unit.

The actions captured are sent to Brainboxes' Remote IO devices & the data is pushed to the cloud server for processing.

The data generated can be used to predict behaviour & provide real-time insights. It then becomes possible to control a machine's parameters: maintaining high production & efficiency levels with the lowest possible energy consumption.

# AUTOMATION IN

# THE ANTARCTIC



Thanks to an innovative autonomous power system using Brainboxes' Remote IO Analog modules, British Antarctic Survey engineers are able, for the first time, to collect measurements from a research station on a floating ice shelf in the Antarctic all year-round.

"We were confident we had a good design, but Antarctic winter conditions are brutal. So far the systems have operated in temperatures as low as  $-55^{\circ}\text{C}$  and withstood wind speeds of up to 70 knots."

—Thomas Barningham, BAS Project Manager at Halley VI



# USB TO SERIAL



Stylish design combined with a spec rugged enough to withstand industrial environments

Send RS232 or RS422/435 serial data over the network

Proven functionality & performance in even the most demanding applications

Robust software for excellent application compatibility

# USB TO SERIAL: USB-C TO SERIAL



Convert your RS232 or RS422/48 port into a network PoE Ethernet port

Transmit both data & power on a single cable

Convenience of multiple power options

Quick, safe & simple to install



# FACTORY MONITORING GAMEPLAN

Create your personal gameplan for  
Digital Transformation

Get your **FREE**  
factory monitoring  
playbook  
here!





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