



# SMARTbox S1

Pre-installed with SMARTset industrial IoT energy management software the SMARTbox is a PLC (Programmable Logic Controller) designed for industrial applications and automation systems. It provides local and remote control and monitoring of connected systems and devices over standard Input / Output and other interfaces.

## Analytics for HVAC, energy management, data centres, manufacturing and industry.

An intelligent appliance designed to collect, aggregate and push data to a central SMARTset server hosted locally or in the Cloud. SMARTbox bridges both legacy systems and IoT devices to the internet as part of a Digital Transformation strategy that delivers business insights by analysing the real-time, data in your machines and equipment.

SMARTset provides SCADA type logic control through each SMARTbox to enable AI and Machine Learning innovation and automation of connected HVAC units

## Visibility, Control and Analytics with integrated GPRS

The I/O and Relay architecture of the S1 provides connectivity for collecting data and for automation tasks requiring the control and regulation of external devices such as Cooling units, pumps and chillers

It can reliably run 24x7 with long life at extended temperatures with connectivity via Wi-Fi, Bluetooth LE, 10/100 Ethernet, and an integrated GSM/GPRS module with removable antenna and a slot for standard SIM card

With 24 digital/analogue I/O ports, 4 relays, 4 serial and 2 USB ports the SMARTbox is designed to connect to legacy as well as IoT targets.

## Inputs and Outputs

**Digital inputs** read 5-40V DC voltage pulses generated by various binary devices such as digital lighting switches, motion sensors, digital measuring devices (energy meters, flow meters, pressure meters) etc. Digital outputs of the S103-G model also feature an in-built pulse counter.

**Digital outputs** provide 5-50V DC voltage pulses at 750mA max. current for switching various two-state devices such as door locks, shutter controls, automatic doors, heat pumps, lights etc. Digital outputs of Neuron controllers also feature the PWM (Power Width Modulation) function, allowing the output to transmit analog signal via binary modulated signal.

## Communication Interfaces

A **single RS485 serial line** for communication with external devices or connection of extension modules using the Modbus RTU protocol. A single RS485 can communicate with **up to 256 devices**.

## Other Features

With 1GB RAM and a 1.2GHz quad-core CPU the S1 has very low latency and a delay between input signal reception and output response of approximately 0.5 ms.

**Analog input** read 0-10V DC voltage signal or 0-20mA current signal. On the S103-G model, analog input can be used for precise current or voltage measurement based on current AI register settings.

**Analog output** provides control of various devices (three-way valves, heat exchangers, circulation pumps etc.) by 0-10V voltage or 0-20mA current signal. Analog output on the S1 model allows the user to set output voltage or current through corresponding AO register settings.

A single **10/100MBit Ethernet port** for network communication and a single **1-Wire bus** for connection of various 1-Wire sensors. A single 1-Wire channel can communicate with up to **15 sensors** at once.

All components are encased within a durable anodised aluminium case providing **IP20 cover**. The unit's size is **4 DIN modules**, DIN rail holder is included in the package.