

SMARTbox S2

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 in a single box.

The I/O and Relay architecture of the S2 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, optional 3G LTE , or Gbit Ethernet,

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 lightning switches, motion sensors, digital measuring devices (energy meters, flow meters, pressure meters) etc. Digital outputs of the S2 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 the S2 controllers also feature the PWM (Power Width Modulation) function, allowing the output to transmit analogue signal via binary modulated signal.

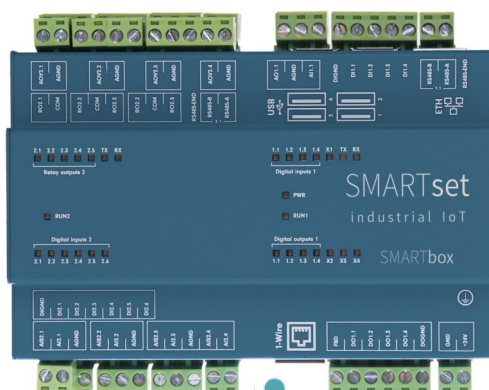
Relay outputs provide AC/DC voltage or current for switching two-state devices such as boilers, water heaters, electric motors or larger external relays. S2 line relays are rated for max. 250V DC/30V AC voltage or max. 5A switchable current.

Analog inputs read either 0-10V voltage or 0-20mA current signal for receiving data from corresponding sensors (such as resistance thermometers). The S2 is provided with two types of analogue inputs. Group 1 analogue input (AI1.1)

does not feature the option to read data from resistance sensors, it can be however used for voltage or current measurement based on AI registers settings. Group 2 analogue inputs (AI2.1-AI2.4) then allow the user to perform a precise measurements of voltage, current or resistance based on current output register settings.

- ✓ voltage measurement 0-10 V (16bit resolution)
- ✓ voltage measurement 0-2.5 V (24bit resolution)
- ✓ current measurement 0-20 mA (16bit resolution)
- ✓ resistance measurement (from PT100, PT1000 or NTC sensors) using three-wire (three conductors, 0-100 Ω , 24bit resolution) or two-wire (two conductors, 0-1960 Ω , 24bit resolution) wiring method.

Analog outputs serves for regulating and controlling of various devices (three-way valves, heat exchangers, circulation pumps etc.) by 0-10V voltage. Group 1 analogue output of the S2 (AO1.1) allows the user to set output voltage.



Features

- ✓ 10× Digital inputs 5-24 V DC
- ✓ 4× Digital outputs max. 750 mA at 50V DC
- ✓ 5× Relay output max. 5A at 250V AC / 30V DC
- ✓ 5× Analog output 0-10 V
- ✓ 5× Analog input 0-10 V/4-20 mA
- ✓ 3× RS485 line
- ✓ 1× RS232 line
- ✓ 1× isolated 1-Wire bus (up to 20 sensors)
- ✓ 1GB RAM
- ✓ Allwinner H5 quad-core 1.2GHz CPU
- ✓ onboard 8GB eMMC memory
- ✓ 2× USB 2.0
- ✓ 1× 1Gbit Ethernet
- ✓ Wi-Fi, Bluetooth
- ✓ DIN rail mounting
- ✓ anodized aluminium case (IP20)
- ✓ 24V DC power supply required

Communication Interfaces

The unit features **three RS485 serial lines** for communication with up to **256 external devices per line**, or for connection of extension modules.

A **single RS232 serial line** for asynchronous short-range communication with various older devices, gateways for other technologies or with touch screens. For network communication, a **single 1Gbit Ethernet** is provided along with a **single 1-Wire bus** for connecting of up to 15 1-Wire sensors (such as digital temperature sensors).

Other Features

The S2 has very low latency due to a 1.2GHz quad-core CPU and 1GB RAM. **8GB eMMC onboard memory** then provides a high degree of reliability during repeated rewrites compared to systems using memory cards.

All components are protected by a durable anodized aluminium case providing **IP20 protection**. The unit's size is **8 DIN modules**, DIN rail holder is included in the package.