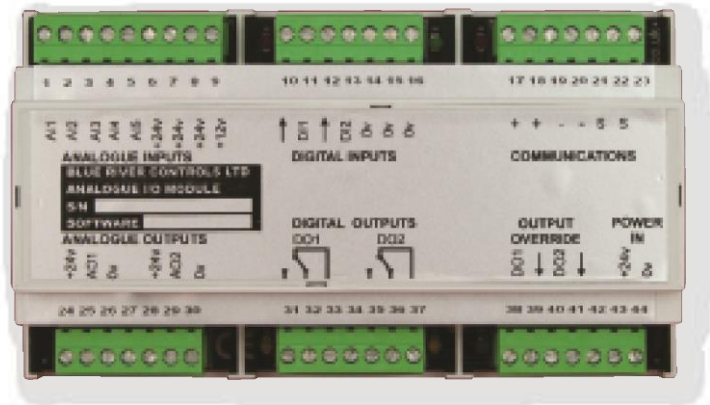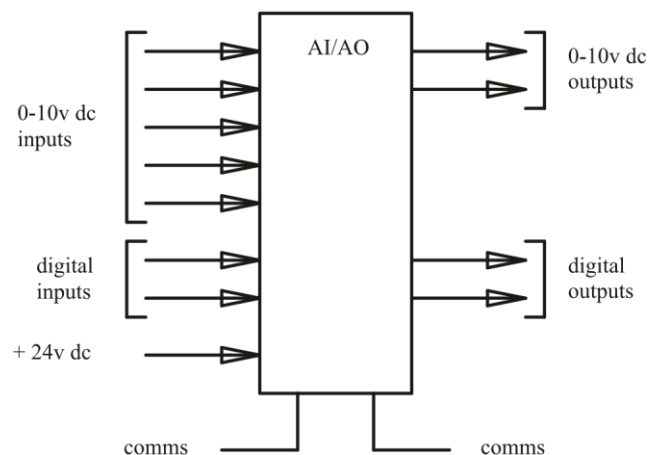## 5AI/2AO Analogue Module

This unit is a general purpose input / output module for use with the Blue River S90C control network. It provides a remote digital and analogue I/O interface for the central controller. It has no local control functions.

Typically the module would provide an interface to a wide range of inputs (e.g. temperature sensors, CO_2 sensors) and outputs (e.g. motorised dampers fitted with 0–10v dc modulating motors). These inputs and outputs are monitored and controlled from a central PLC controller.

All modules on the S90C network need a unique address to communicate with the controller. This address is set on DILswitch S1 in the range 1 to 100, *please see separate data sheet for details of setting the address*.

SCHEMATIC

0-10v dc inputs

0-10v dc outputs

digital inputs

digital outputs

+ 24v dc

comms   comms

Blue River Controls

Technical Data

5 x Analogue inputs	0-10v dc 8 bit resolution, used for measuring temperature, CO2, humidity, pressure, etc. via suitable sensors.
2 x Analogue outputs	0-10v dc 8 bit resolution, used for positioning valves, dampers, controlling motors via variable speed drives, etc.
2 x Digital Inputs	24v dc, used for monitoring switches, pushbuttons, fire alarms, timeswitches, rain sensors, etc.
2 x Digital Outputs	volt free contacts rated at 230v 1A, used for switching fans, pumps, on / off valves, motorised windows, etc.

Analogue inputs can be used as digital inputs if sourced from the 12v supply (terminal 9). Analogue inputs can be used as monitored inputs if used with suitable external resistors.

Operating temperature	-20 to + 55°C
Operating humidity	30 to 95% RH
Power requirements	24v dc +/- 10% 300mA max
Electrical Connection	Pluggable screw terminals max 2.5mm2 (14AWG)
Housing material	UL 94V-0 flame retardant polycarbonate
Protection class	IP20
Colour of housing	Light grey
Dimensions	159mm (w) x 90 mm (h) x 58 mm (d)

Software Selection

The I/O module is available in different software versions, selectable by DIL switch S2. It can act as a 1, 2, 3, 4 or 5 address unit on the Blue River network depending on the I/O requirements as follows –

	Inputs and outputs				Switch setting		
	DI	DO	AI	AO	S2.1	S2.2	S2.3
1 address	2	2	1	1	OFF	ON	ON
2 address	2	2	2	2	ON	OFF	ON
3 Address	2	2	3	2	OFF	OFF	ON
4 address	2	2	4	2	ON	ON	OFF
5 address	2	2	5	2	OFF	ON	OFF

The limitation is that only one AI and AO is available per address. To use all of the available analogue inputs five addresses are needed.

If an I/O module with 5 address software is set to address 1 then it responds to all addresses 1 to 5. The next module would be set to address 6. If this was also a 5 address module it would respond to addresses 6 to 10, and so on.

WIRING DIAGRAM

COMMS IN

COMMS OUT

+

—

ANALOGUE INPUTS

DIGITAL INPUTS

AI 1
AI 2
AI 3
AI 4
AI 5
+24v DC
+24v DC
+24v DC
+12v DC

DI 1
DI 2

0v
0v
0v

1 2 3 4 5 6 7 8 9

10 11 12 13 14 15 16

17 18 19 20 21 22 23

DI 1 STATUS LED

DI 2 STATUS LED

COMMS ACTIVE LED

DO 1 STATUS LED

DO 2 STATUS LED

POWER ON LED

24 25 26 27 28 29 30

31 32 33 34 35 36 37

38 39 40 41 42 43 44

+ Y —   + Y —

AO 1   AO 2

ANALOGUE OUTPUTS

NO NC COM   NO NC COM

DO 1   DO 2

DIGITAL OUTPUTS

DO 1   DO 2

DIGITAL
OUTPUT
OVERRIDES

+ —

24v DC
POWER
SUPPLY