

Intelligent Valve Island

Stand Alone Electronic Controller

Intelligent Valve Island with ASi Fieldbus Networking

Orgeneualpha Electronic Controller

PneuAlpha - Extensive Functions in Compact Dimensions

Do you have a process requiring cost-efficient automation? Do you have a new series of safety features to implement? In fact, do you need another pair of hands in order to solve that troublesome domestic project? SMC Pneumatics has the answer...

The PneuAlpha Series Controller has been designed to provide comprehensive supervisory control. Because of its flexibility, simplicity and low cost, PneuAlpha is appropriate for use in factories, offices – even in the

These include a Real Time Clock, High Current Switching Relays, Analog Inputs, Security Code Clearance and 100-Hour Memory Backup. This superb unit is also available in a range of sizes, to meet a variety of needs.

However, what truly separates PneuAlpha from all its competitors is its incredible ease of use.

There is no programming software available that is Windows based Visual Logic Software (VLS). Function Block programming invites users to select from a pre-set selection of Inputs, Outputs and Functions Blocks. Even novices have no problems dragging, droppin pointing and clicking their way through a complete program. Desp being perfect for the newcomer, VLS is powerful enough for the m advanced requirements. On-device programming allows fingertip upda or data entry directly from the fascia control panel.

PneuAlpha also has the greatest level of functionality of any controller in its cla The sophisticated user will find that t diverse range of options satisfies even the tion function even allows the user to view program operations without the use of any hardware.

The combination of amazingly compared dimensions and DIN-rail or screw-ty mounting capability means PneuAlpha c be easily installed wherever you need it

PneuAlpha – it's powerful, it's user-friendly, it's inexpensive and it puts you in complete control.

How To Order

ECC-PNAL-6MR-A (AC100-240V)

ECC-PNAL-10MR-A ECC-PNAL-10MR-D (AC100-240V) (DC24V) ECC-PNAL-10MT-D

(DC24V TRANSISTOR OUTPUTS)

ECC-PNAL-20MR-A ECC-PNAL-20MR-D ECC-PNAL-20MT-D

(AC100-240V) (DC24V) (DC24V TRANSISTOR OUTPUTS)

ECC-PNAL-CDROM (supplied with each controller)

ECC-PNAL-EEPROM

ECC-PNAL 232CAB

ECC-PNAL-6MR-A-KIT ECC-PNAL-10MR-D-KIT ECC-PNAL-20MR-D-KIT (6 1/0 STARTER KIT) (10 1/0 STARTER KIT) (20 1/0 STARTER KIT)

		55.0			Plea 1) 2) 3) 4)	All Pneu 4/2 : 6/4 Stand alc All Pneu together If you ha	: Alpha's 12/8 sione cont Alpha c with H ve any c
			J.		inocif	SMC Rec	jional C
	- Y				speci		I/O
				E	ECC-PNA	AL-6MR-A	6(4/2)
$\overline{}$				E	ECC-PNA	AL-10MR-A	
				E	ECC-PNA	AL-10MR-D	10(6/4
				E	ECC-PNA	AL-10MT-D	
				E	ECC-PNA	AL-20MR-A	
<u> </u>				E	ECC-PNA	AL-20MR-D	20(12/
				E	ECC-PNA	AL-20MT-D	



αPneuAlpha[®] page 2

ECC-PNAL-6MR-A ECC-PNAL-CDROM

ECC-PNAL-EEPROM ECC-PNAL-232CAB

(INSTRUCTION MANUAL SOFTWARE) (MEMORY MODULE) (RS232 CONNECTING CABLE)

ECC-PNAL-10MR-D ECC-PNAL-CDROM

ECC-PNAL-EEPROM

ECC-PNAL-20MR-D ECC-PNAL-CDROM

ECC-PNAL-EEPROM ECC-PNAL-232CAB

(10 1/0 DC24V) (INSTRUCTION MANUAL . Software) (MEMORY MODULE)

(20 1/0 DC24V) (INSTRUCTIONS MANUALS SOFTWARE) (MEMORY MODULE) (RS232 CONNECTING CABLE)

need to be connected to a power supply. uitable to their rated voltage specifications. trollers can be programmed from the 8 front panel function keys. controllers have a CD-ROM supplied giving full instructions lardware, Software & Programming manuals. questions regarding the CD-ROM please contact your nearest centre.

	Power	Input	Output	Dimensions	
	AC100-240V	AC100-240V	Relay	71.2×90×55	
	DC24V	DC24V			
	DC24V	(PNP/NPN)	Transistor		
	AC100-240V	AC100-240V	Dalau	124.6×90×55	
)	DC241/	DC24V	Relay		
	DC24V	(PNP/NPN)	Transistor		



1

Characteristics

	6	10		10	20		20	
Power supply	100-240 VAC	100-240 VAC		24 VDC	100-240 V	AC	24 VDC	
	+ 10% - 15 %	+ 10% -	15%	+ 20% - 15%	+ 10% - 1	5%	+ 20% - 15%	
	50/60 Hz	50/60 Hz			50/60 Hz			
Maximum micro power cut	10ms	10ms	0	5ms	10ms		5ms	
Maximum inrush current	0.7A - 1.5A	0.7A - 1.	5A	7A	0.7A - 1.5	A	7A	
Maximum power consumption	3W 4W		3W 8W			6W		
AC INPUT CHARACTERISTICS	s	-	ANALO	GUE INPUT C	HARACTE	RISTICS		
Input voltage	100-240 VAC + 10% - 15%,		10			6 inputs from 101 to 106		
10 mm	50-60 Hz		20			8 inputs from IO1 to IO8		
Input impedance	>or = 800 kOhms		Measurement range			0-255		
Pull-in votage at logic state 1	1 80V		Resolution			8 bits - 10 000/256mV		
Drop-out volt. at logic state 0	40V C		Conversion time			10ms		
Response time	50ms at 120VAC		Input Voltage			0-10VDC		
Status indicator	Yes on LCD screen		Input impedance			150 kOhms min.		
100 m			Precision			+/- 5% (0.5 VDC)		
ELECTRICAL SPECIFICATION			Offset/gain			Offset value: 0 to 0 VDC		
Insulation	7 MOhms at 500 VE		0		1	Gain value: 0-10	0 = 0.255	
	between connectors	acc to				These default values can be		
	EN 60730 - 1					changed in		
Safety class		<u>a</u> 4	-61		1	the Offset FB		
Earthing	None		Temp. dependent derating		ing	=/- 3 LSB		
Protection	IP20							
Certifications	CE, UL/cUL							
Conforming to	UL 508		DC INPUT CHARACTERISTICS					
-	EN 60730-1 EN 61010-1 EN 50081-1 EN 50082-1		Input voltage Input current			24 VDC +		
						20% - 15% 5mA		
			Pull-in v	oltage at logic s	18V			
	EN 50082-2	Jalia	Drop-ou	it voltage at log	ic state 0	4V		
Programming method	Function blocks		Response time		15ms			
Program size	bgram size 64 function blocks or 1,500		Status indicator			YES on LCD sc	reen	
	bytes		RELAY OUTPUT CHARACTERISTICS					
Program memory	EEPROM built-in as		Voltage breaking capacity		ity	250 VAC - 30 V	'DC	
	standard		Min. bre	aking current		8A (10A for 11	0 VAC	
Removable memory	YES - EEMPROM cas	ssette				outputs)		
	as option		Service	life	1	100,000 operat	ions at	
Operating temperature	0-55 °C					8A/240 VAC or 24VDC		
Storage temperature	-30 to =70 °C					30,000operations at		
Humidity	34 - 85% relative hu	midity				10A/110VAC		
	without condensation	on	Min load	t	!	50mW (10 mA	at 5 V <mark>DC)</mark>	
Dimensions (I x h x d)	6-10: 71.2 x 90 x55	mm	Response time			10ms		
	20: 124.6 x 90 x 55mm		Status indicator			YES on LCD screen		

-



Watch Your Program Grow with VLS

Visual Logic Software (VLS)

What makes our Visual Logic Software (VLS) so easy to use? The secret is a specific, yet very simple, method of programming called Function Block. Function Blocks are small, pre-programmed building blocks of software that process input data and then turn outputs 'ON' and 'OFF', providing all the control you need. Pre-constructed icons (Inputs, Outputs, Function Blocks and Logic Blocks) can be placed on screen and connected with the click of a mouse button. Thus you have a complete program.



ALC: NO. OF STREET, ST

のないの

The Function Block Diagram (FBD) Board contains labelled squares, in which to place Inputs and Outputs. The Function Blocks can be applied anywhere on the board. Timer values, 'ON' and 'OFF' patterns, counters, calendar date and elapsed times can all be optimized for specific applications by simply double clicking on the Function Block and entering data in the Option settings. Every part of your program appears on screen with interconnecting lines. The ability to see relationships between the various parts of your system simplifies both programming and troubleshooting. Since the



each of the Function Blocks has a predetermined function, even the most inexperienced user can quickly identify what each segment of the program is doing. For added peace of mind, or personalisation, you can add comments to Function Blocks using the VLS software or by importing text of your own.

Once programming is complete, VLS software allows you to simulate the program in Run mode without any hardware. Create your program as outlined above and then turn on the Simulation mode in the 'Controller' pull-down menu. Click on Inputs to turn them on and off. The wires on the FBD Board light when energised, timer values are displayed on screen and Outputs show their 'ON' and 'OFF' status.

Finally, all program debugging can be simply carried out from your own computer. This concluding benefit ensures that from program initiation right through to final installation, the VLS package provides a powerful and intuitive, yet simple, programming tool that can be effectively used by almost anybody.



I NO AN A CONCE

Features



A Wealth of Capabilities for Sophisticated Programming

Real Time Clock Functions

The PneuAlpha has up to 160 entries for Real Time Clock Functions. Begin operations based on either a calendar date or on a daily, weekly or monthly schedule. The calendar schedule takes precedence over weekly clock functions, enabling you to program special orders without reprogramming other routinely scheduled tasks.

Front Panel Programming

PneuAlpha allows you to program, edit, access data or input data by simply using the keys on the front fascia panel no additional tools or cables are required. This makes PneuAlpha perfect for use in applications where a computer is not available, such as shop floor maintenance operations or temperature control in your dining room at home.

1500 Byte EEPROM Memory

PneuAlpha provides enough memory for the most advanced applications. Up to 64 Function Blocks or 1500B of memory may be programmed into the PneuAlpha. Additional EEPROM memory cassettes can be used to store and run alternate programs.







Special Features

Analog Input: Input your 0–10 volt Analog data into as many as eight of the PneuAlpha Inputs. Wide Range AC or DC power. Supply: PneuAlpha accepts 100-240 VAC or 24 VDC Power Supply for use anywhere in the World. High Current Relay Outputs: Switch currents up to 10 amps with PneuAlpha's heavy duty relays. Transistor Outputs: Fast switching, long life Outputs. 100-Hr Capacitor Backup for memory and RTC: PneuAlpha can retain its memory for 100 hours after a power outage. There is no need to lose your programs or information just because the power goes down. Security Code Enabled: Only authorised personnel can update PneuAlpha programs with the Security Code Enable Feature. **PNP/NPN** Inputs: The PneuAlpha Series can support your requirements for PNP/NPN inputs. LCD Display: Access data with the push of a button or automatically display messages on PneuAlpha's LCD Display. PneuAlpha lets you display up to 10 characters on each of four lines directly on the front fascia panel. NetWork Capability: The PneuAlpha ASI Board Connector is now available, providing simple and immediate connection to the ASi Fieldbus network.



Operations

Function Block Programming: So Powerful Yet So Easy...

Function Block Capabilities

Boolean Logic (And, Or, Not, Nand, Xor, Nor): Set up your Outputs to turn 'ON' or 'OFF' by any logical combination of input signals.

Set /Reset:

Latch outputs 'ON' or 'OFF' from your input data. Give priority to either the Set Function or the Reset Function depending on your programming needs.

One Shot:

(+)

Copy a single pulse or specify your own pulse. Delay times and a reset trigger give this operation maximum flexibility.

Delay:

Delay your output pulse from starting or stopping (or both) with the Delay Function. Keep the light turned on or the gate open for a set length of time after the switch has been turned off.

Pulse:

Configure and send pulses dependent on 'UP' or 'DOWN' triggers or both.

Alternate:

Alternate turning your output device "ON" and "OFF" from the same Input. Real Time Clock (RTC): The Y2K compliant RTC can control up to 160 time/date combinations. Simply set your outputs to function daily, weekly, monthly or set operations by a calendar date.





RELAY OUTPUT

Flicker:

Design a series of 'ON' and 'OFF' Output patterns. Have the horn sound four 10-second blasts while your warning light flashes for 60 seconds.

Counter:

Keep track of the number of times an operation takes place for information or to control your outputs. Reset the counter with a predetermined signal.

Compare:

Compare data, current elapsed time, analog values or direct input values for >, <, =, >=, < = or 'not equal to' and manipulate outputs according to the results. The Compare function can be turned 'ON' and 'OFF' with an input.

Zone Compare:

Check the same data as the Compare function but this time check your data to a range of values.

Offset Gain:

Adjust the slope and offset of Analog values with the Offset Gain Function. Includes both a High and Low clamp if desired.

Schmitt Trigger:

Turn Outputs 'ON' and 'OFF' based upon a range of values. Turn the oven 'ON' when the temperature reaches 110 degrees C and 'OFF' when the temperature reaches 125 degrees C.

Display:

Present analog or digital data, counter values, function block values or messages on your LED display. The display is enabled via an input signal.

᠂ᠲ





Intelligent Valve Island Connectability

The PneuAlpha can be easily integrated into an existing pneumatic valve system, as an 'intelligent' valve island controller.

This new module is supplied pre-wired and fully assembled, ready for immediate installation and programming. Once programmed, its possible to provide interrogation of component quality and improved planned maintenance systems.

In addition to controlling valves, PneuAlpha also allows the user to monitor variables, such as pressure levels and the number of valve cycles. These levels of functionality and simplicity, coupled with a range of options that can satisfy even the most advanced requirements, ensure that PneuAlpha delivers the practical benefits you need – proven effectiveness, reduced costs and minimal set-up and maintenance input.

> In summary, the PneuAlpha Intelligent Valve Island Controller module provides not only low cost maintenance, but also planned maintenance. This in turn ensures improved production efficiency. Reduction of downtime increased output and therefore increasing profitability, whilst saving on resources and reducing costs.

Choose Your Application - Or Make Your Own!

- Flexible Supervisory Control You program the module and you maintain operational control, so future updates and further modifications are significantly simplified.
- Reduced Wiring
 The module is supplied completely pre-wired, thus saving time and reducing costs.
 Pro assembled & Inspected
- Pre-assembled & Inspected
 Once the software is loaded, the module is fully functional at the very first time of asking, set-up time is minimal.
- Improved Process Reliability Pre-wiring and, if required, pre-programming reduces the likelihood of set-up errors.
- **Programmable Logic Functions** The incorporation of 'Program in Process' interlocks significantly reduces the risk of unwanted downtime.
- *Two-way Communications* Information is fed from the module and returned, saving time and resources.
- **Component Interrogation** Valve life and Actuator Seal life can be programmed in, as are the timings for scheduled changes, as part of the integrated planned maintenance system.
- Increased System Integrity The capacity to introduce programmable maintenance procedures results in a reduction of unscheduled maintenance downtime.
- System Feedback
 Program awareness of maintenance increases system productivity.
- Pressure Worthy System Establishes ongoing awareness of machine pressure, reducing inferior output.
- **Control Counting System** Establishes continuous Product Batch Count Control records, and daily total production counts, significantly reducing costs through highly efficient Control Counting.



Intelligent Valve Islands





Intelligent Valve Island with ASi Fieldbus Connectability

The PneuAlpha Intelligent Valve Island can connect to an ASi Fieldbus network. This ASi Fieldbus connection affords users the potential to simplify installations, increase functionality and reduce overall expenditure. New components can be selected without proprietary constraints, and linked simply into any existing systems.

The ASi Fieldbus network controls specific processes locally and feeds management and operational information to the point of centralised, seamless, distributed control.

The ultimate aim of such networking is optimum flexibility, diverse product coverage and ease of integration. Effective control procedures are now essential with open network systems devolving responsibility for system maintenance away from vendors, and towards users.

To maximise the available benefits of the ASi Fieldbus network, all one has to do is remove the top cover of your PneuAlpha and replace it with this new Board Connector. This process is simplicity itself, and minimal installation expertise is required. Full access to this twoway databus is as simple as wiring into 2 terminals and snapping onto the yellow ASi Data Cabling.

Control and output is further increased by transforming the Intelligent Valve Island into an Intelligent Node System, working within the ASi Network Domain.

There are three core objectives, which apply to each model within the PneuAlpha Controller range –

- to increase levels of control
- to reduce human input
- to reduce user costs

These objectives are achieved through a commitment to simplicity and versatility, qualities that are no better illustrated than by the Intelligent Valve Island Controller and ASi Fieldbus Board Connector.



Applications



Wide Range Applications: Anything is Possible...



Regional Centres

BELFAST

Tel: 02890 778414 Fax: 02890 778422 SMC Pneumatics (UK) Ltd Northern Ireland Reg. Centre Suite 3, Shaftesbury House, Edgewater Road Belfast BT3 9JQ

BIRMINGHAM Tel: 01675 467177 Fax: 01675 465073 SMC Pneumatics (UK) Ltd Birmingham Regional Cent 24 The Courtyard, Gorsey Lane, Coleshill

Warwickshire B46 1JA

BRISTOL

Tel: 01179 522155 Fax: 01179 522186 SMC Pneumatics (UK) Ltd Bristol Regional Centre 5 East Gate Office Centre East Gate Road, Eastville, Bristol BS5 6XX

CRAWLEY

Tel: 01293 614094 Fax: 01293 614135 SMC Pneumatics (UK) Ltd Crawley Regional Centre 9 Pelham Court, Pelham Place, Broadfield Crawley RH11 9AZ

CUMBERNAULD

Tel: 01236 781133 Fax: 01236 780611 SMC Pneumatics (UK) Ltd Scottish Regional Centre 1 Carradale Crescent, Broadwood Business Park, Cumbernauld Glasgow G69 9LE

DROITWICH Tel: 01905 774544 Fax: 01905 797343 SMC Pneumatics (UK) Ltd Droitwich Regional Centre Hampton Park, Hampton Lovett Droitwich Worcestershire WR9 ONX

IPSWICH Tel: 01473 240040 Fax: 01473 747707 SMC Pneumatics (UK) Ltd Ipswich Regional Centre Unit 6 & 7, Alpha Business Park, 16 - 18 Whitehouse Road, Ipswich, Suffolk IP1 5LT

MANCHESTER Tel: 0161 876 7371 Fax: 0161 876 7372 SMC Pneumatics (UK) Ltd Manchester Regional Centre 3 Modwen Road, Waters Edge Business Park, Ordsall Lane, Salford, Manchester M5 3EZ MILTON KEYNES Tel: 01908 265247 Fax: 01908 262705 SMC Pneumatics (UK) Ltd Vincent Avenue, Crownhill, Milton Keynes MK8 OAN

NEWCASTLE Tel: 0191 487 2040 Fax: 0191 487 2041 SMC Pneumatics (UK) Ltd Newcastle Regional Centre Unit B6, Marquis Court, Marquis Way Team Valley Trading Estate, Gateshead, Tyne & Wear NE11 ORU

POOLE Tel: 01202 732233 Fax: 01202 737743 SMC Pneumatics (UK) Ltd Poole Regional Centre Unit 4, Acorn Business Centre, Ling Road Poole, Dorset BH12 4NZ

SHEFFIELD Tel: 01909 565504 Fax: 01909 569717 SMC Pneumatics (UK) Ltd Sheffield Regional Centre Unit 4, North Anston Business Park Houghton Road, North Anston, Sheffield S25 4JJ

Sales Partners

Blackburn BLACKBURN PNEUMATIC SYSTEM LTD Tel: 01254 682232 Fax: 01254 682224

Bristol APPLIED AUTOMATION Tel: 0117 9827769 Fax: 0117 9235522

Birmingham JAMES LISTER Tel: 0121 5803800 Fax: 0121 5535951

Bury St Edmunds PNEUMATIC LINES Tel: 01284 706239 Fax: 01284 761218

Cardiff WALES FLUID POWER Tel: 01222 494551 Fax: 01222 481955

Plymouth

APPLIED AUTOMATION Tel: 01752 343300 Fax: 01752 341161

Please send me further information on	Name
the PneuAlpha	Job Title
I would like a Sales Engineer to call	Company Name
r would like a sales Engineer to sail	Address
Post to:	
SMC Pneumatics (UK)Ltd	
FREEPOST	
Milton Keynes	Post Code
Bucks	Tel. No.
MK8 0EP	Fax No.

Or call FREE on 0800 0262006 quoting reference ECC-PNAL-Brochure-2 or Fax on 01908 263888

E-mail Address: