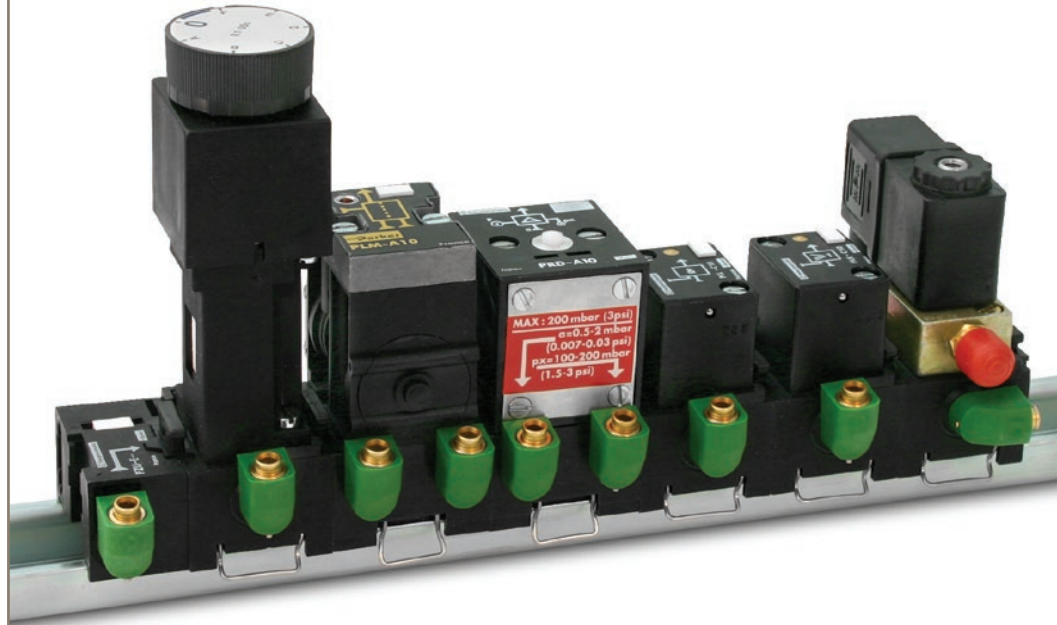
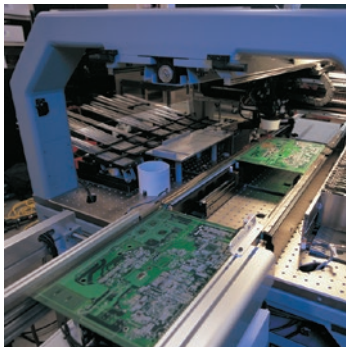




aerospace
climate control
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pneumatics
process control
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Logic processing

Catalogue PDE2619TCUK 10/2021



ENGINEERING YOUR SUCCESS.



Important !

Before carrying out any service work, ensure that the valve and manifold have been vented. Remove the primary supply air hose to ensure total disconnection of the air supply before dismantling valves or blank connection blocks.



NB !

All technical data in this catalogue is typical only. The air quality is decisive for the valve life: see ISO 8573.



WARNING

FAILURE OR IMPROPER SELECTION OR IMPROPER USE OF THE PRODUCTS AND/OR SYSTEMS DESCRIBED HEREIN OR RELATED ITEMS CAN CAUSE DEATH, PERSONAL INJURY AND PROPERTY DAMAGE.

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Line mounted logic elements

These can either be mounted along the length of the line or located in an enclosure.

Two logic functions are available with this model : AND and OR.



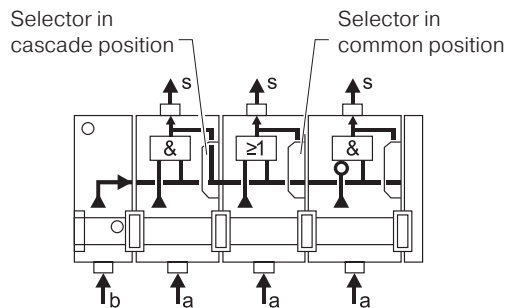
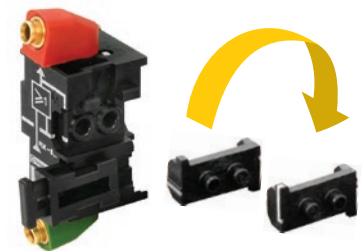
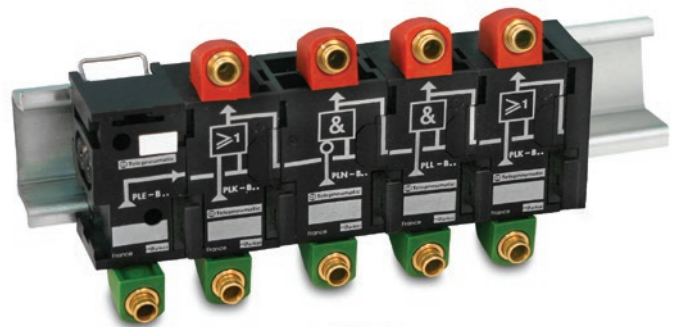
Combinable logic elements

These elements can be combined with each other enabling the assembly of compact logic blocks. Three logic functions are provided : AND - OR and inhibition NOT.

In addition to the combination assembly by integral key, each logic element includes a mode selector which enables, simply by pivoting the selector, a choice between cascade mode or common, input mode :

- cascade mode means that the element output corresponds to the input of the following element ;
- common input mode sends one of the element's inputs to an input of the following element.

The logic block obtained in this way for each applications are mounted in an enclosure on standard Omega rail, are connected by instant connections and carry, on the front, their internal diagram to facilitate any intervention.

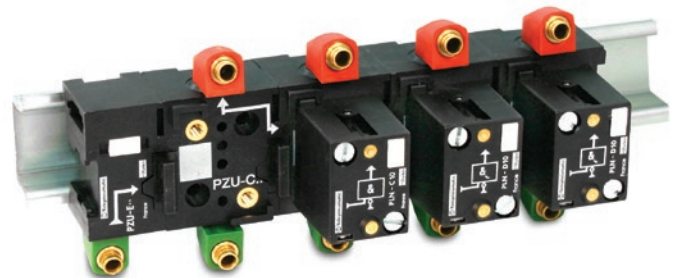


Sub-base mounting logic elements

As an alternative, it is possible to use logic element suitable for mounting on 3-port sub-bases, the interconnections being made by the sub-bases.

The following can be used :

- 3-port sub-bases with common pressure, with common used as "input common" ;
- 3-port "cascade" sub-bases.



The specialized relays mounted on stacking sub-bases are complementary to the sequencers and logic elements.

According to the relay, it can be used a 3-port or a 4-port sub-base.



3-port sub-bases

These are designed for the mounting of :

- timers,
- relays for bleed sensors,
- pressure operated electrical contacts.

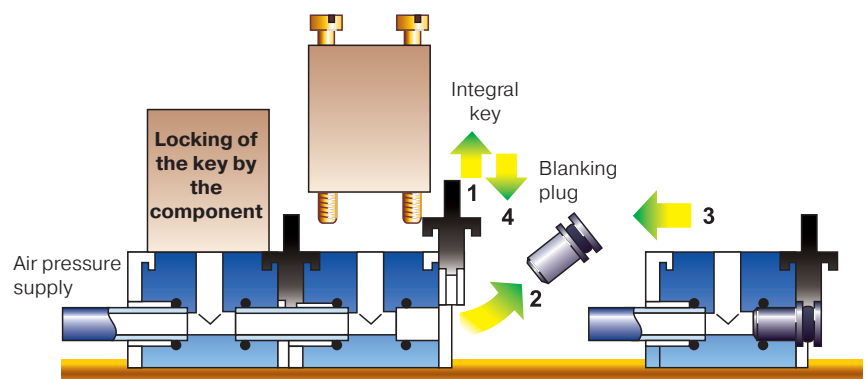


4-ports sub-bases

These are designed for the mounting of :

- memory relays,
- amplifier relays for fluidic proximity sensors.

The standard configuration enables the use of a single pressure supply to all the relays by the centre ports ; this is why the stacking "common pressure" sub-bases, with either 3 or 4 ports, are all designed to be used singly or combined in a bank traversed by a pressure common.



Production machines fitted with pneumatic cylinders generally repeat a defined sequential cycle.

The pneumatic sequencer commands and controls the correct operation of the required cycle.

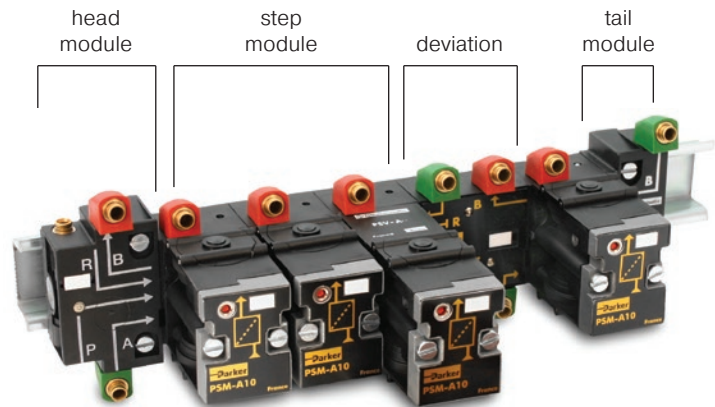
Composition

The pneumatic sequencer comprises :

- the stage modules corresponding to the cycle to be run : a module is used for each stage of the GRAFCET function chart ;

- the two modules, head and tail, interlock the association of the module onto Omega rail and enable the connection of the pressure common, of the reset to zero and the connection loops between the last and the first module.

A deviation module is fitted between the step modules to intercept the inter-module signals when the cycle includes parallel elements, restarts or the skipping of a step.



Dialogue

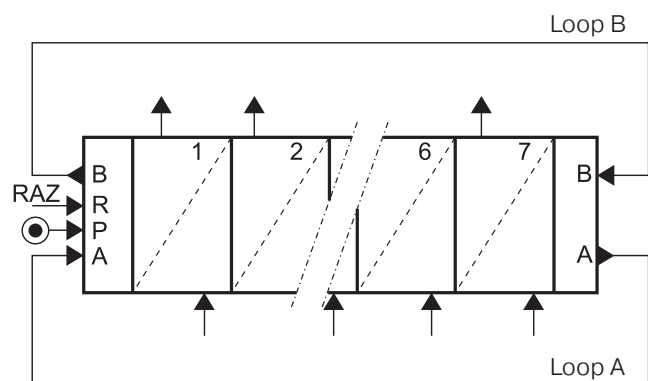
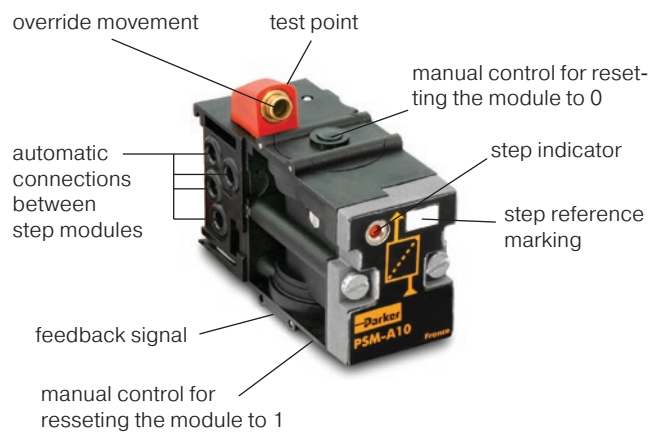
The pneumatic sequencer facilitates the machine adjustment dialogue and the optional dialogue.

At the step module level, dialogue items include :

- a step indicator which signals the step activated ;
- step reference marking ;
- manual overrides for resetting the module to 0 or to 1 ;
- test point, enabling knowledge of the input and output state of each module.

At the closure module level, the reference markings enable :

- connection of loops A and B necessary for cycle repetition ;
- switching on of the sequencer ;
- fitting of a reset (RESET) if the application requires this.

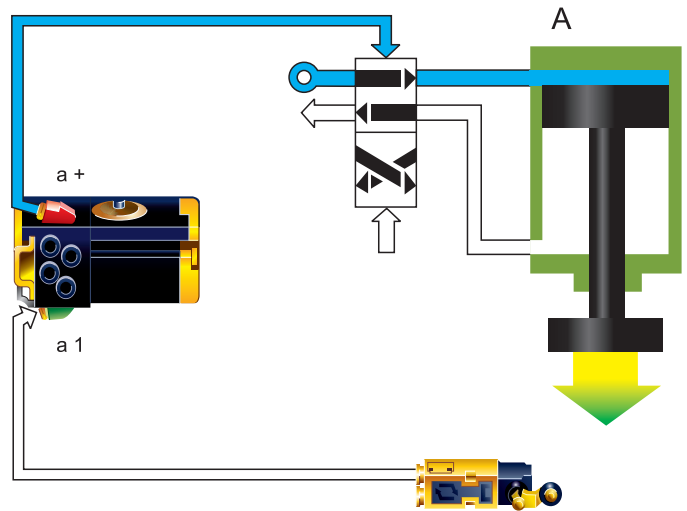


Setting up

The sequencer reproduces the GRAFCET function diagram configuration which defines the operating cycle : a sequencer stage module corresponds to each stage in the cycle.

The activated stage module sends the control signal to the pressure valve controlling the action intended for the stage, then waits for the feedback signal at the end of this action before activating the next stage module in the sequencer.

The all pneumatic loop shown in the diagram revolves in this way around the stage module, the sequencer activating stage by stage each of the actions to be carried out in the cycle order.



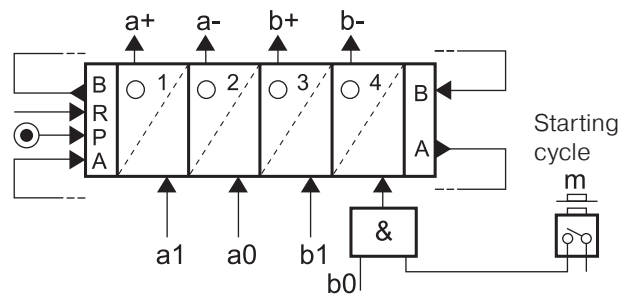
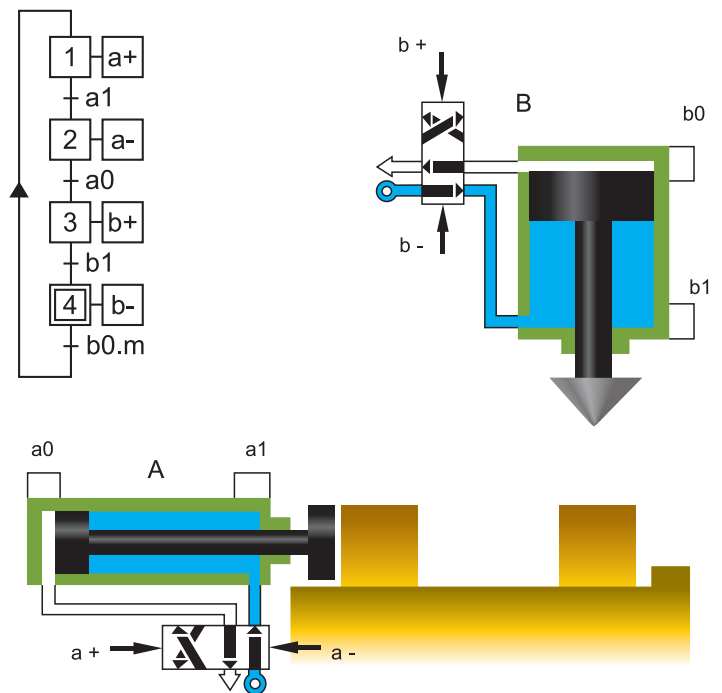
Example

This very simple example shows a pneumatic press fitted with a part supply cylinder.

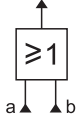
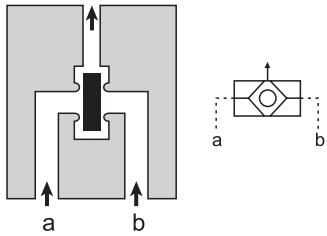
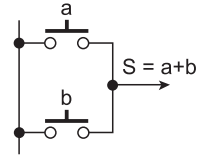
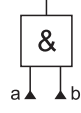
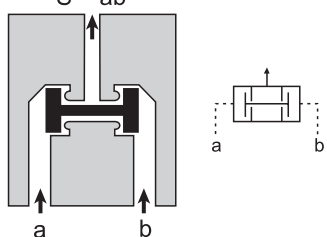
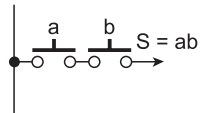
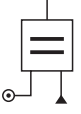
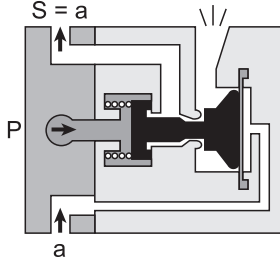
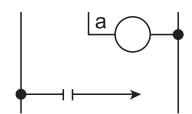
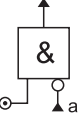
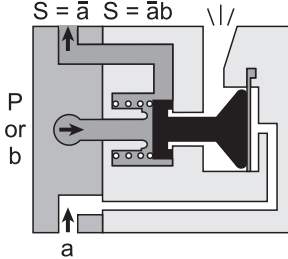
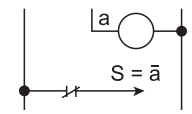
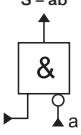
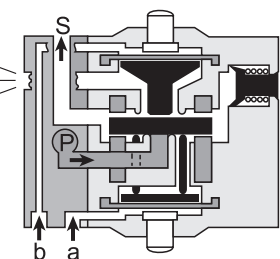
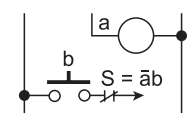
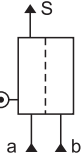
A bistable power valve and end of travel sensors are associated with each cylinder.

The GRAFCET diagram defines the required cycle. The initial stage is placed at the end to facilitate obtaining the cycle via the sequencer.

In the diagram, the sequencer reproduces the GRAFCET diagram, sending step by step control signals (a+, a-, b+, b-) according to the feedback signals (a1, a0, b1, b0).



Basic features

	Logic Function	Logic Symbol	Pneumatic Component	Function Symbol	Electrical Equivalent
PASSIVE FUNCTIONS	OR	$S = a \text{ OR } b \text{ (or both)}$ $S = a + b$ 	Output S is ON if at least one of the inputs "a" OR "b" is ON.	$S = a + b$ 	
	AND	$S = a \text{ and } b$ $S = ab$ 	Output S is ON only if inputs "a" AND "b" are ON.	$S = ab$ 	
ACTIVE FUNCTIONS	YES (Regenerate)	$S = a$ (Regenerated) 	Output S is ON and regenerated if input "a" is ON.	$S = a$ 	
	NOT (Inhibit)	$S = \text{NOT } a$ $S = \bar{a}$ 	Output S is ON if input "a" is OFF (and if supply P is present).	$S = \bar{a} \quad S = \bar{a}b$ 	
		$S = \bar{a}b$ 	"b" is an intermittent signal. "a" inhibits "b". Output S is ON if "b" is ON and "a" is OFF.		
MEMORY		Input "a" generates output S (SET). Output S remains ON until removed by input "b" (RESET).	