# Vacuum handling components

- > Sur le principe du Venturi
- > Facilement raccordable

Part numbers Vacuum generators

Also available in ATEX version for use in poten-(Ex) tially explosive atmospheres in accordance with 94/9/EC Directive



Plug-in

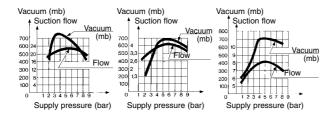
Plug-in



Characteristics				
Push-in connectors for	Male/Female/Female (MFF)	_	Ø 4 mm	
semi-rigid tubing (NFE 49100)	Female/Female/ Female (FFF)	—	—	Ø 6 mm
Operating pressure	bar	2 → 8	2 → 8	2 → 8
Vacuum pad material		—	_	_
Weight	g	80	13	25

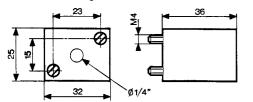
Sub-base mounting

Detection of the pressure decrease can be achieved by the use of manostats (see pages 38/39)

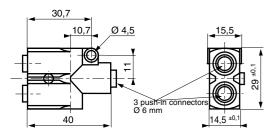


Dimensions 81 535 301

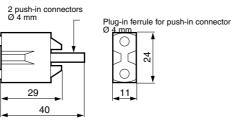
Sub-base mounting 81 531... and 81 532...



81 545 005



## 81 545 001



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# **PNEUMATIC LOGIC COMPONENTS**

# **General characteristics**

# Operating fluid

# - Compressed air or inert gas.

### Conditions of use

- Operating pressure 2 at 8 bars (except for special conditions).
- Fluid: Filtered air to 50 microns non lubricated.
- Operating temperature from  $5^\circ$  C to +  $50^\circ$  C (under +  $5^\circ$  C the
- dew point must be below 10° C for the application). For optimum performance, the elements should be inter-connected by air supply tubing with an internal diameter  $\geq$  at 2.5 mm.

#### Mounting recommendations

- The elements should be mounted and piped in a clean atmosphere in order to prevent any form of pollution entering the system.
- Minimum torque for element fixing screws:
- 5 cm/ka
- maximum torque for element fixing screws: 10 cm/kg.

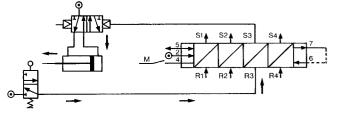
#### Characteristics common to all elements in the modular system

- The characteristics have been obtained with a supply pressure at 6 bars.
- The flow in NI/min is the number of litres of air at normal atmospheric pressure obtained with the output open to atmophere and the supply pressure at 4 bars
- The consumption in NI/min is the number of litres of free air necessary for the unit to function.
- kV = the flow coefficient of the equipment.
- Mechanical life > 107 operations.

#### Sequencer modules

Operation results from the combination of a sequential cycle. A system comprises individual modules which are joined together by means of a sub-base. Each module has a memory which delivers an output signal and receives an input signal.

An indicator on each module allows the operator to monitor the progress of the cycle and identity quickly and easily any fault which may occur.

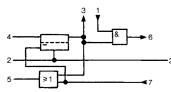


Operation results from the combination of three functions (memory, AND and OR) which constitute each module.

The memory activates the output and gives priority to the reset signal. The AND element ensures the transition to the next module but only if an input signal is present.

The OR element ensures the resetting of all previously operated modules

### Function diagram

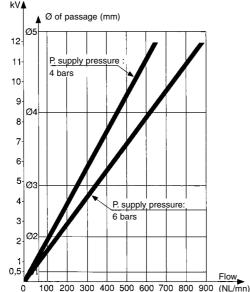


## sequencer module with maintained reset

#### Brake

This maintains the memory spool in position only when the supply is lost.

# flow graphs kV▲



#### Module with auto reset



#### Brake

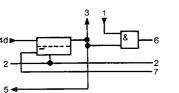
This returns the memory spool to the reset condition only when the supply is lost

## Shift register

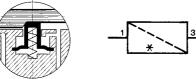
The general principle is to advance the sequencer step by command impulses to the inputs of the even steps, alternating with the command impulses to the inputs of the odd steps.

Used for example on a transfer machine to shift the information "bad component" collected at a test-test "n" steps further along the machine to a reject station.

#### Function diagram

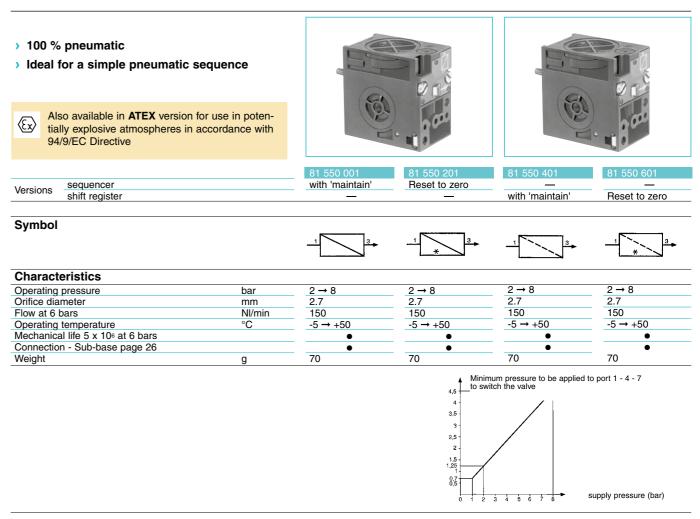


Auto reset sequencer module



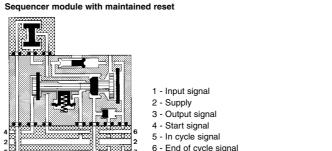


# Sequencer modules

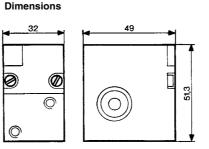


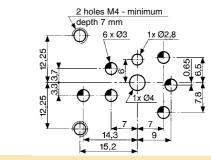
#### Principle of operation

(supplied without logic element. For choice of units see pages 46/47)



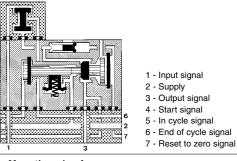
7 - Reset to zero signal





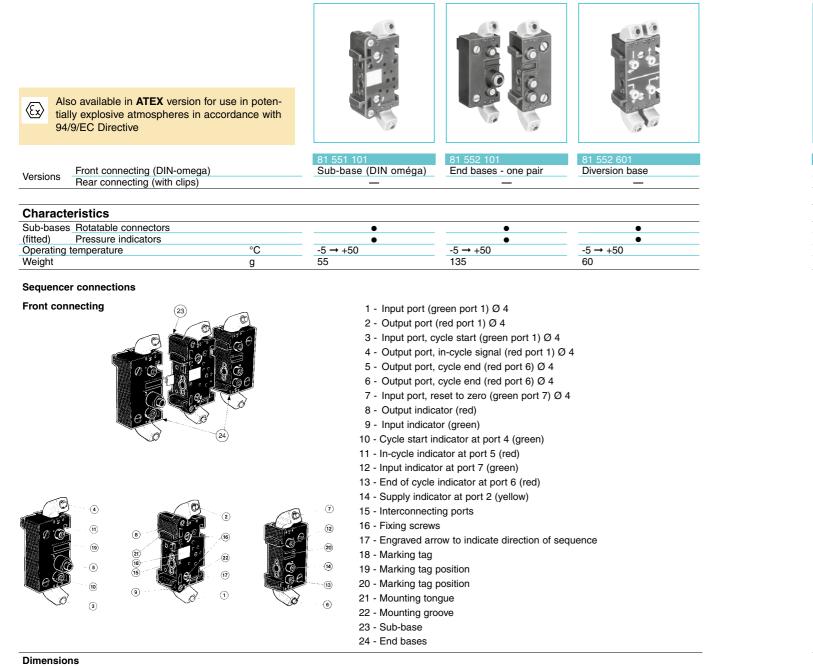
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#### Shif register with maintained reset

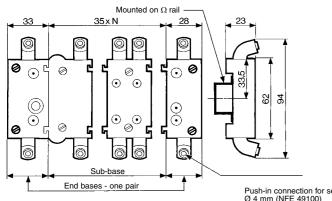


Mounting plan for sequencer

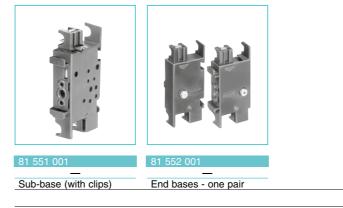
# Sequencer sub-bases

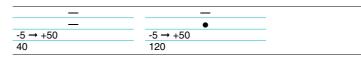


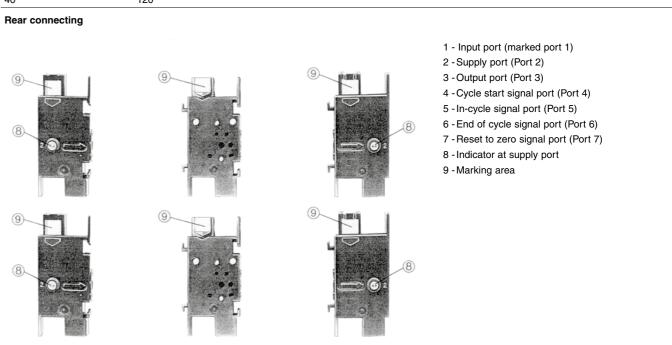
# Front connecting



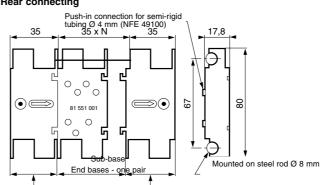
Push-in connection for semi-rigid tube Ø 4 mm (NFE 49100)



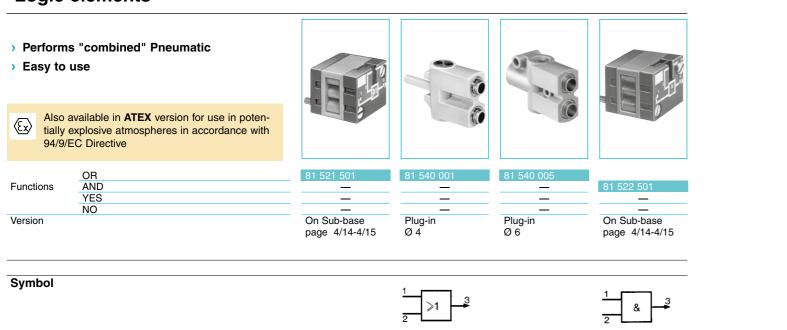




Rear connecting



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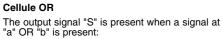
Characteristics					
Push-in connection for semi-rigid	Male/Female/Female	_	Ø 4 mm	_	_
tubing (NFE 49100)	Female/Female/Female	_	_	Ø6mm	_
Colour		Blue	Blue	Blue	Green
Operating pressure	bar	2 <del>→</del> 8	2 <del>→</del> 8	2 → 8	2 <del>→</del> 8
Orifice diameter	mm	2.7	2.7	4	2.7
Flow at 6 bars	NI/min	170	170	200	170
Pressure indicator		•	_	_	•
Switching time	ms	_	_	_	_
Operating temperature	°C	-5 <b>→</b> +50	-5 <b>→</b> +50	-5 → +50	-5 → +50
Mechanical life	operations	>107	>107	>107	>107
Weight	g	25	12	25	25
Weight	g	25	12	25	2

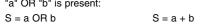
Pilot/pressure curves

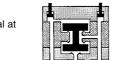
#### P.p : Pilot pressure P.a : Supply pressure

Principle of operation









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# Cellule AND

The output signal "S" is present only when signals "a" AND "b" are present simultaneously: S = a AND b S = a . b

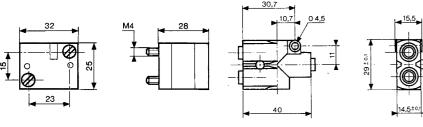
Dimensions

81 521 501 - 81 522 501

81 540 005 - 81 541 005

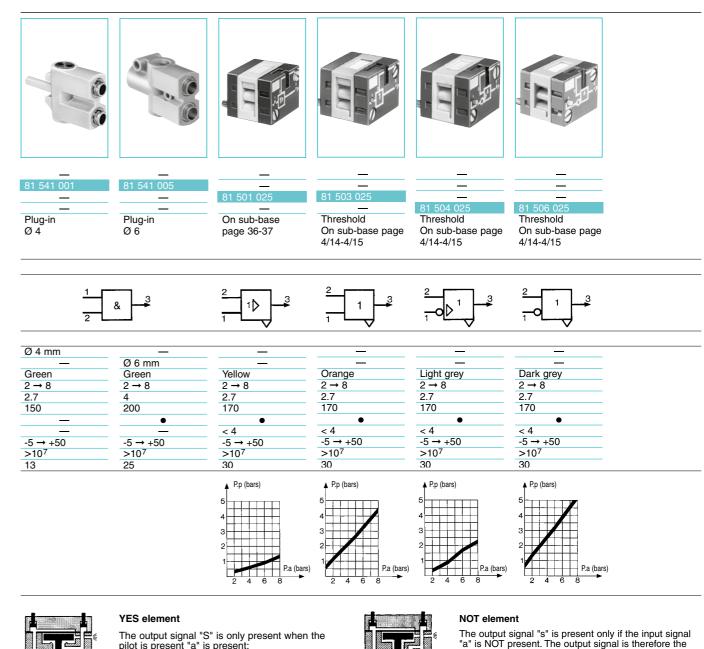
81 540 001 - 81 541 001

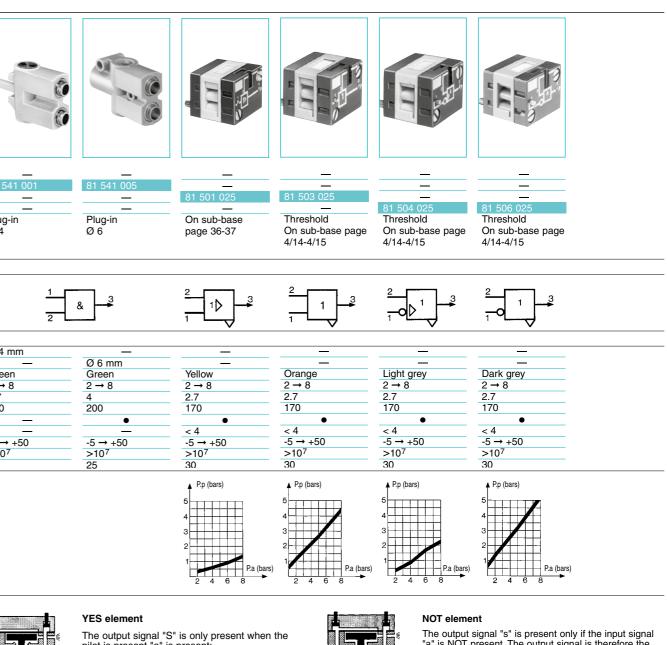
0

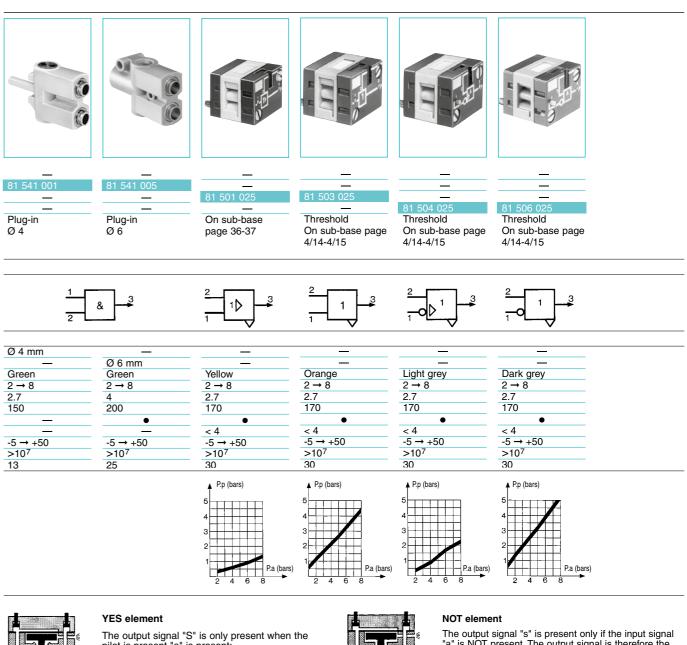


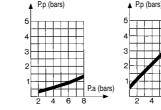
# Other information

See pages 54/55 for mounting plan for logic elements.





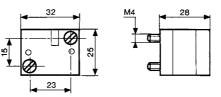




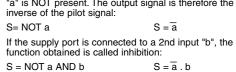


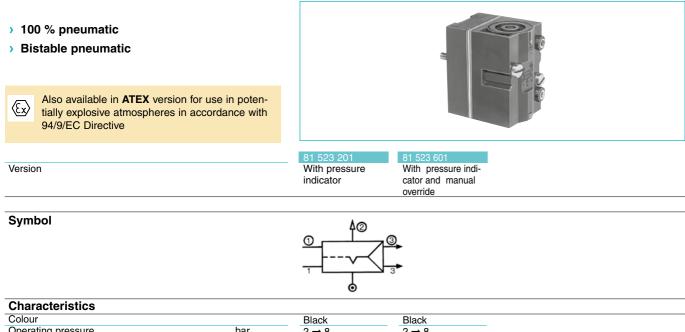
The output signal "S" is only present when the pilot is present "a" is present: S = a YES b S = a

81 501 025 - 81 503 025 81 504 025 - 81 506 025



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Colour		Black	Black
Operating pressure	bar	2 <del>→</del> 8	2 <b>→</b> 8
Orifice diameter	mm	2.7	2.7
Minimum memory pilot pressure	bar	2.5	2.5
Operating temperature	°C	-5 <b>→</b> +50	-5 <b>→</b> +50
Flow at 6 bars	NI/min	200	200
Connection - On sub-base page 4/14-4/15		•	•
Weight	g	90	90

## Principle of operation

Dimensions

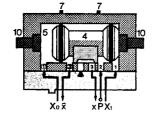
81 523 201 - 81 523 601

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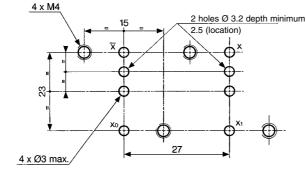
The function is that of a 4/2 valves. The appearence of signal "X1" causes the displacement of the slide valve. The output port "x" is then put under pressure. This state is remembered until the arrival of signal "X0". This signal reverses the slide valve, the output "x" is put under pressure. This state is likewise remembered. The output:

- "x" under pressure indicates that the information in the MEMORY is "X1",
- "x" under pressure indicates that the information in the MEMORY is "X0".

12



Dimensions of logic and memory elements



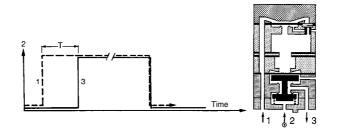
Viewed from above

# **Timers fixed timing**

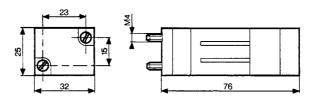
> Fixed (	).4 s		
tially	o available in <b>ATEX</b> version for y explosive atmospheres in acc 9/EC Directive		
			81 503 540
Version			Positive outp
Symbol			
Characte	ristics		
Timing		S	0.4
Operating p		bar	2 <b>→</b> 8
Flow at 6 b	ars	NI/min	170

	0	011
Operating pressure	bar	2 <del>→</del> 8
Flow at 6 bars	NI/min	170
Orifice diameter	mm	2.7
Accuracy	%	± 5
Min. reset time	S	<0.1
Connection - On sub-base page 36-37		•
Operating temperature	°C	-5 → +50
Mechanical life	operations	>107
Weight	g	106
Principle of operation		

with positive output

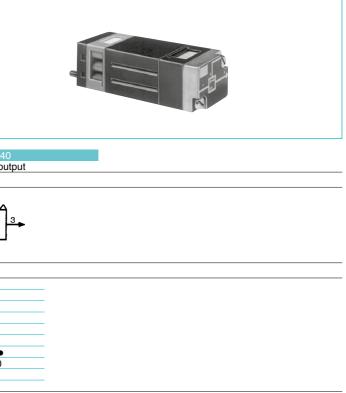


Dimensions 81 503 540



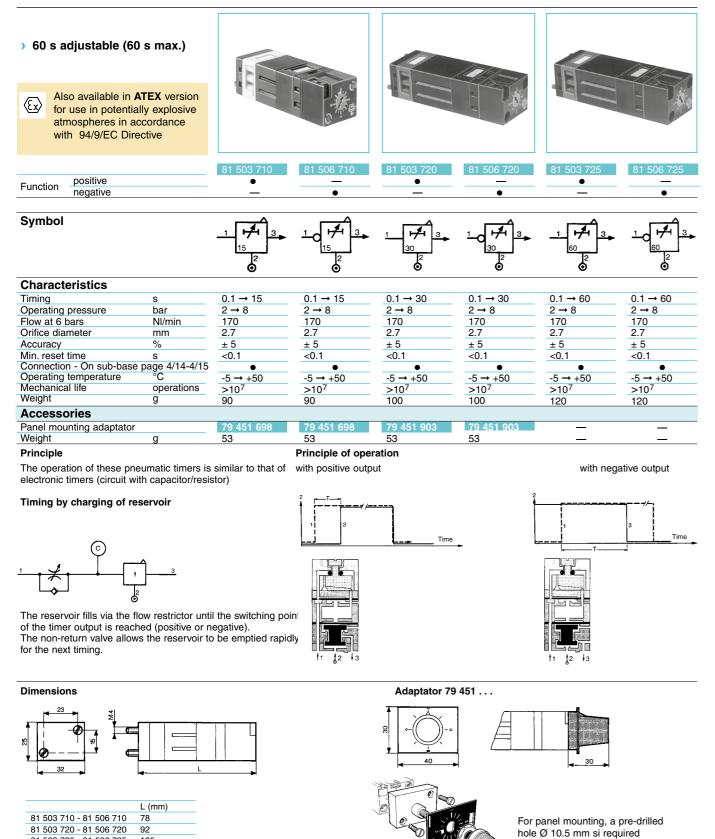
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# Timers (with adjustable timing)

81 503 725 - 81 506 725 125



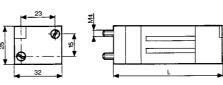
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Symbol Characteristics Timing 0.4 s Hz Frequency Operating pressure 2 → 8 bar 170 Flow at 6 bars NI/min Orifice diameter mm 2.7 Accuracy ± 5 Min. reset time <0.1 s Connection - On sub-base page 4/14-4/15 °C -5 **→** +50 Operating temperature >107 Mechanical life operations Weight 106 g Accessories Panel mounting adaptators Weight (g) Principle of operation Single impulse generator Adjustable impulse generator 2 3 \_\_\_\_ Time h-T-Ь- Т\_p E

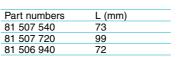
Also available in ATEX version for use in poten-

tially explosive atmospheres in accordance with

Dimensions



12 3



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Fixed

Adjustable

# Timers

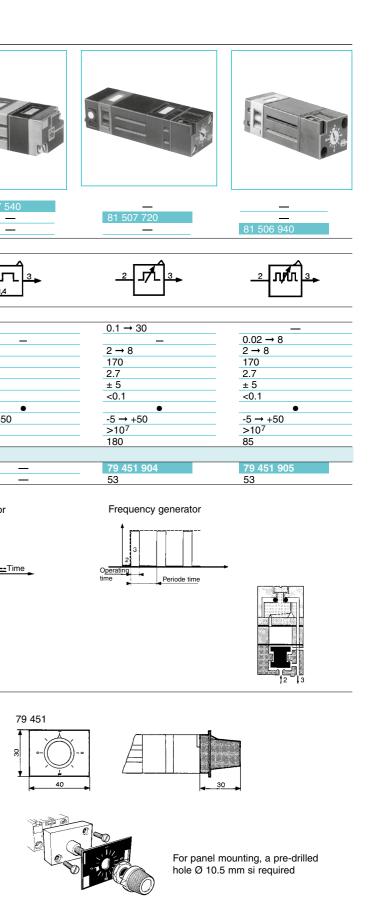
(Ex

> Fixed and adjustable

94/9/EC Directive

Single impulse generator

Adjustable frequency generator



# **Timing Accessories**

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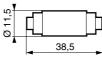
Timing Access	sories				
	X version for use in poten-				
One-way in-line fixed flow restritors One-way adjustable flow restri Capacity for timing	Flow at 4 bars         Ø orifice (mm)           Nm <sup>3</sup> /h         0.18 → 0.30         0.3 white           0.35 → 0.50         0.4         yellow           0.58 → 0.77         0.5         red           0.80 → 1.06         0.6         green           1.10 → 1.39         0.7         blue           1.45 → 1.65         0.8         grey           2.30 → 2.80         1         black           0.08 → 0.12         0.25         white           itor         10 • 60 s         s	81 529 004 81 529 005 81 529 006 81 529 007 81 529 008 81 529 010			
Symbol		1 3	1 3	1 3	
Push-in con	NI/min mm bars s cm <sup>3</sup> age 4/14-4/15 nection for semi- (NUEF 40400) mm	Depending on orifice Depending on orifice $1 \rightarrow 8$ — — — — — — — — — — — — — — — — — — —	$30$ $0 \rightarrow 0.5$ $1 \rightarrow 8$ $-$ $-$	$200$ $0 \rightarrow 1.7$ $2 \rightarrow 8$ $-$ $-$ $-$	$ \begin{array}{c} - \\ - \\ - \\ 10 \rightarrow 60 \\ 30 \\ - \\ 0 4 \end{array} $
rigid tubing ( Operating temperature Weight Connections For timing circuit	(NFE 49100) °C 9	$\frac{-5 \rightarrow +50}{8}$	$\begin{array}{c} -5 \rightarrow +50 \\ \hline 60 \end{array}$	-5 → +50 70	$\begin{array}{c} -5 \rightarrow +50 \\ 40 \end{array}$
- One-way flow restrictor 81 52 - Reservoir 79 458 018 (2) - Relay element 81 503 0 - 81 Sub-base page 4/14-4/15				3	
Principle of operation	One-way with fixed flow	v		One-way with adjustable flow	
Dimensions 81 529 81 5	525 101	81 526 ( 북	001 7	9 452 808	

# **Regulator accessories**

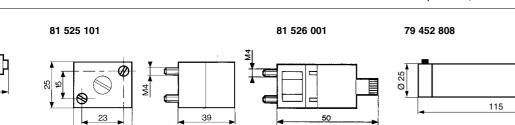
(Ex)	tially exp	ailable in <b>ATEX</b> version for use plosive atmospheres in accorda Directive		
Part n	umber	s		
	tenteur			81 527 0
	ement			
Plug ele In-line r	non-retur	n		
Plug ele In-line r	non-retur	n		
Plug ele In-line r Symb	non-retur Ol			
Plug ele In-line r Symb	ol oterist	ics		
Plug ele In-line r Symb	ol octerist	ics	bars	2 → 8 200
Plug ele In-line r Symb Chara Operati Flow at	ol cterist	i <b>cs</b> ure	NI/min	200
Plug ele In-line r Symb Symb Chara Operati Flow at Adjusta	ol acteristi ng press 6 bars ble output	i <b>cs</b> ure ut pressure		
Plug ele In-line r Symb Chara Operati Flow at	ol acteristi ng press 6 bars ble output	i <b>cs</b> ure	NI/min	200



04

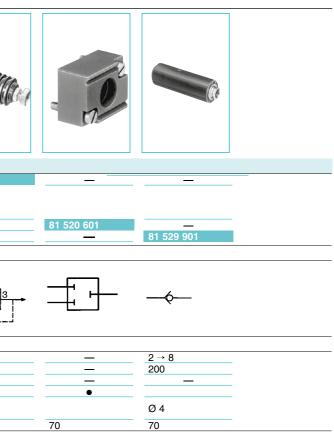


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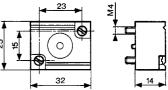


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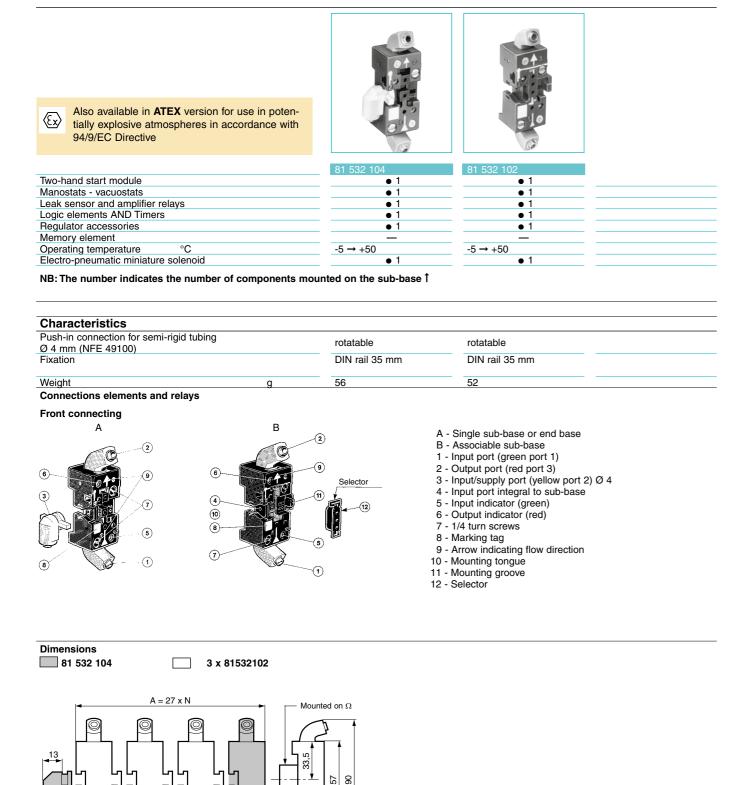
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81 520 601



# Sub-bases for logic elements

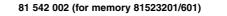




	81 542 002	81 532 001	81 531 001
Two-hand start module		• 1	• 2
Manostats - vacuostats		• 1	• 2
Leak sensor and amplifier relays		• 1	• 2
Logic elements AND Timers		• 1	• 2
Regulator accessories		• 1	• 2
Memory element	• 1	—	• 1
Operating temperature °C	-5 <b>→</b> +50	-5 <b>→</b> +50	-5 <b>→</b> +50
Electro-pneumatic miniature solenoid		• 1	• 2

Push-in connection for semi-rigid Ø 4 mm (NFE 49100)	tubing	rotatable	rear		rear
Fixation		DIN rail 35 mm	2 M4 scre	ews	Clips for rails Ø 8 mm
Weight	g	95	10		35
Memory element sub-base, from	nt and rear connecting	Rear	connection		
	<ol> <li>Input port X1 (green po</li> <li>Input port X0 (green po</li> <li>Output port X (red port</li> <li>Output port X (red port</li> <li>Supply port (brass port</li> <li>Supply port (brass port</li> <li>1/4 turn screws</li> <li>Input indicator</li> </ol>	ort 1) 3) 3)		two screws on the A locating device vents incorrect a The logic eleme sub-base. This s	e on each logic element pre-

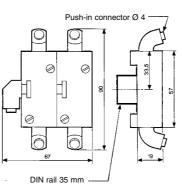
(8) 11 - Arrow indicating the flow direction

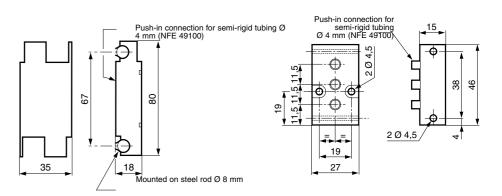


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81 531 001





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Associable sub-bases

Sub-base supply with inlet connection

81532104

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19

Push-in connection for semi-rigid tubing Ø 4 mm (NFE 49100)

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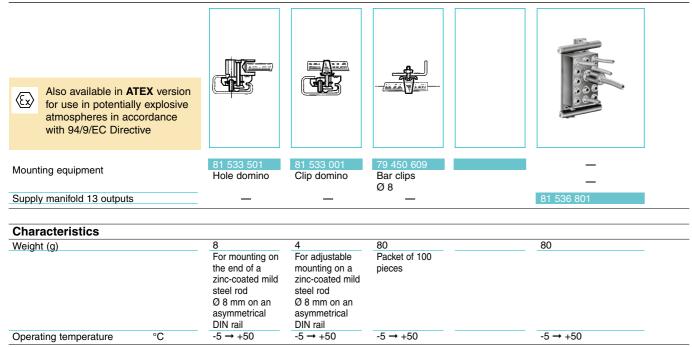
 $\bigcirc$ 



- 1 Input signal
- 2 Signal port for passive logic elements, air supply for active logic elements.
- 3 Output signal

## 81 532 001

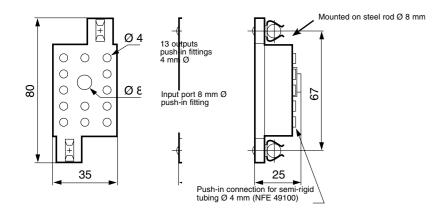
# Mounting accessories



# ELECTRO-PNEUMATIC CONTROL VALVES



81 536 804



Other information

Use Weidmuller plastic labels for marking components part number FW 4734-6.

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 THR2U-110A
 81506944

 88225029
 H5S-YB4-X
 H7AN-2D DC12-24
 H5CN-XANS DC12-48
 H7AN-W4DM DC12-24
 H7AN-4DM DC12-24
 H7AN-4D DC12-24

 H7AN-RT6M AC100-240
 600DT-CU
 ISVR508020R0000
 ISVR508100R0000
 ISVR550127R4100
 ISVR550212R4100

 ISVR730020R3300
 ISVR730120R3100
 ISVR730180R3100
 ISVR730211R2300
 PCU-5111UNI
 H3C-R
 H3CR-A8E 24-48AC/DC
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 100-240AC/100-125DC
 H3CR-FN 100-240AC/100-125DC
 H3DK-G 24-230AC/DC
 H3DK-HBL AC/DC24-48
 H3DK-M1A DC12
 LT4H 

 AC24V
 LT4HW8-AC240V
 LT4HW-AC240VS
 LT4HW-AC24VS
 31L48AP
 31L48TPM240
 RC302
 RC312
 REV-201M

 RG
 AT78041
 AT78051
 ATC180041
 TMM1
 TMP
 TMST
 TR4N-230AC-11-M