




AirBox K

AirBox K is a pneumatic module of the AS-Interface family.

- 4 digital inputs (M12 screw connectors) for sensor inputs
- 2 integrated change-over 4/2 way valves with 550 NI/min each at 6 bar
- Possible valve functions
3/2, 4/2, 5/2, 5/3 way valve (no or nc)
- Monostable or electrically bistable
- Operating pressure 3 - 8 bar or 90 % vacuum up to 8 bar when using an external pilot supply at 4 to 8 bar
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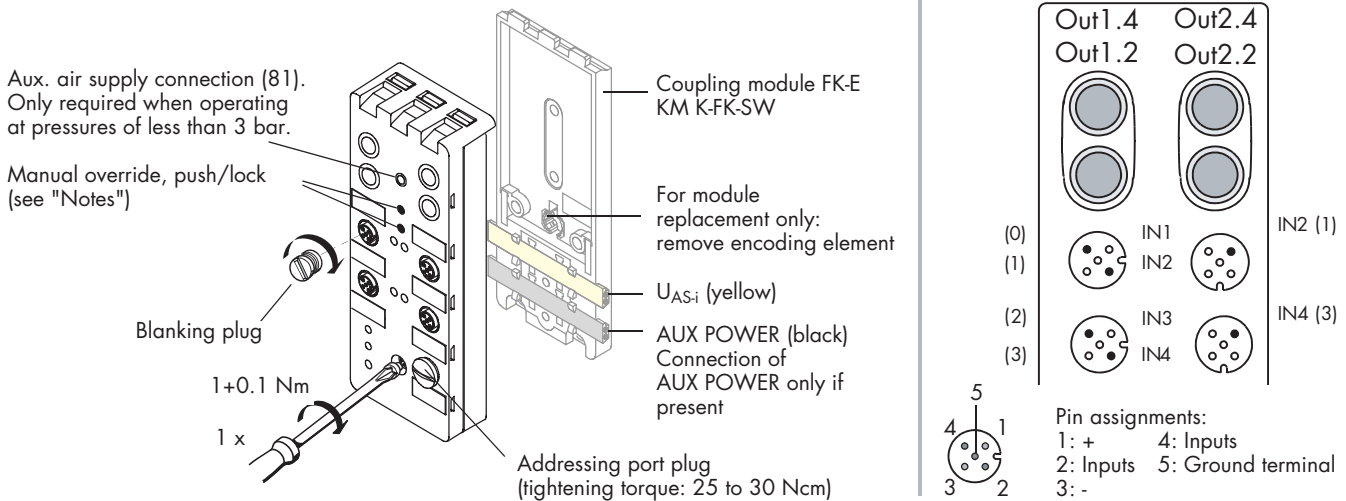
Application

The pneumatic module **AirBox K** has 4 inputs and 4 pneumatic outputs. You can connect the input terminals directly to sensors (PNP, via M12 plug) with 2- and 3-wire lines. The sensors are supplied with power from the pneumatic module. The integrated pneumatic outputs take the form

of two pre-controlled 4/2 way valves (0.1 bar vacuum to 8 bar; 550 NI/min) with a common compressed-air supply and separate air outlets. These outlets can be operated by hand by means of separate overrides. Two double-acting cylinders, for example, can be

connected to a module of this series. Standard 8 mm tube connectors are used for the connections to the outputs and the compressed-air supply. Use outside diameter tubing only.

Installation / wiring



Putting into service

For putting the user module into service, the steps are as follows:

1. Insert the AS-i in the guide in the coupling module. Insert the yellow AS-i cable and the black AS-i power cable into the cable guides on the coupling module if necessary.
2. Pay attention to the colour coding!
3. Screw the pneumatic module tightly onto the coupling module.
4. Connect up the pneumatic outputs (8 mm). Connect up the compressed air supply (8 mm) and the auxiliary air supply (4 mm) if necessary. Connect up the exhaust extraction (8 mm) if necessary.
5. Set the address. To do this, use an addressing unit or a programming and service unit. Valid addresses are 1 to 31. Default address is 0. Use each address once per bus segment only.

Logical assignments (PLC output bit to function of the pneumatic module)

AirBox K, monostable

Output bit	Meaning	Function
00	Valve 1 (OUT1)	0 = basic position (1.2 open, 1.4 closed) 1 = operated (1.2 closed, 1.4 open)
01	Valve 2 (OUT2)	0 = basic position (2.2 open, 2.4 closed) 1 = operated (2.2 closed, 2.4 open)

AirBox K, electrically bistable

Output bit	Meaning	Function
00	Valve 1	operated by pulse (1.2 closed, 1.4 open)
01	Valve 1	reset by pulse (basic position: 1.2 open, 1.4 closed)
02	Valve 2	operated by pulse (2.2 closed, 2.4 open)
03	Valve 2	reset by pulse (basic position: 2.2 open, 2.4 closed)

Status LEDs (and their operating states)

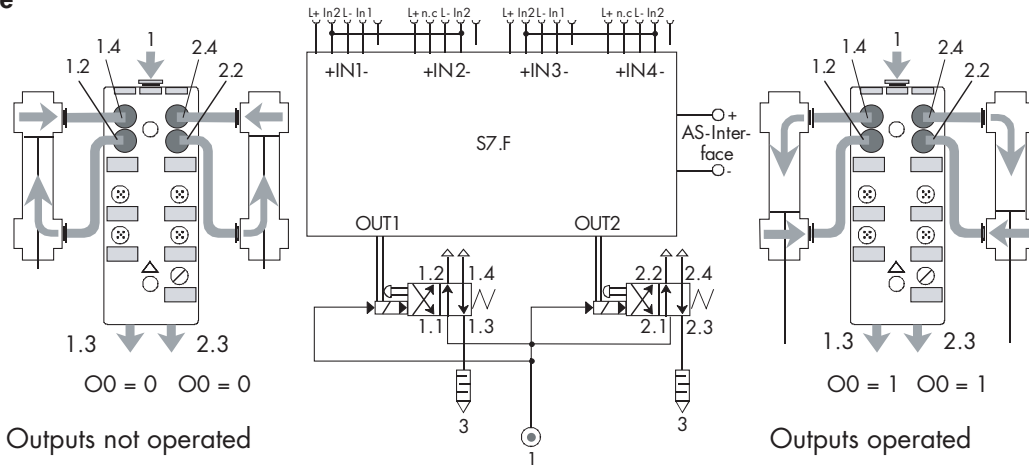
AS-i (green)	FAULT (red)	Operating state	AUX POWER (green)	Operating state
On	Off	Module OK	On	AUX POWER present
Off	Off	No voltage present at AS-Interface chip	Off	AUX POWER missing
Off	On	Communication failed		
Flashing	On	Slave has address 0		
Off	Flashing	Overload of sensor supply		

Note the following:

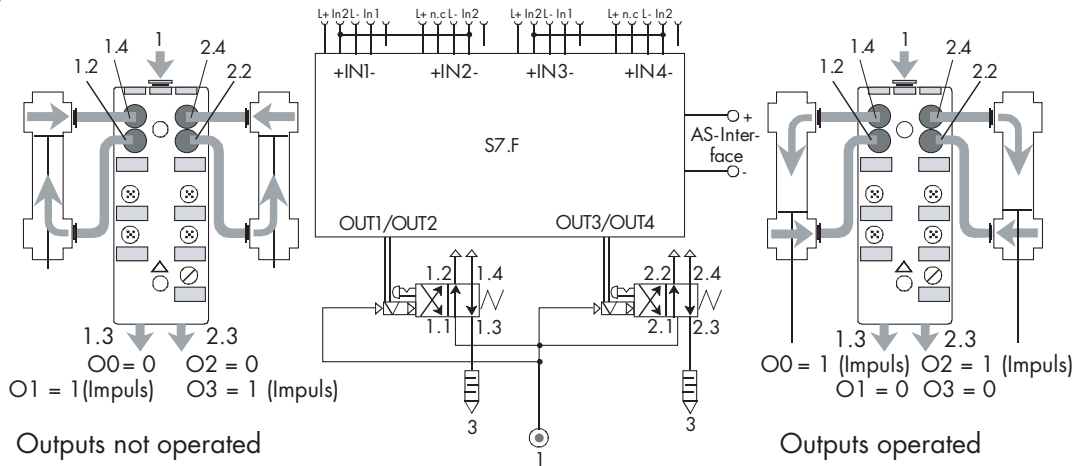
- To attain degree of protection IP 65/ IP 67, insert blanking plugs in the M12 sockets not in use.
- In the event of a short-circuit or overloading of the sensor supply (Pin 1 and Pin 3 of the input) the pneumatic module stops communicating with the master.
- If the auxiliary power is turned off via the black line, the valve stays in its last position (electrically bistable) or reset to basic position (monostable). Manual overrides operate only in the basic position of the valve (output bit "O 1" for valve 1 and output bit "O 3" for valve 2).
- Operation of the output by means of the yellow line must be avoided while the auxiliary power is being switched off; otherwise delayed or unwanted operation may occur.

Functional principle (with double acting cylinders)

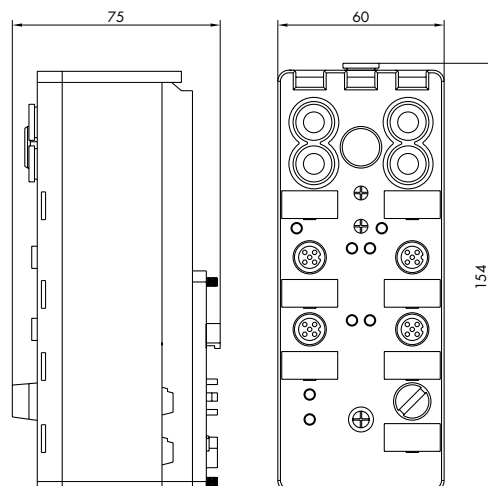
Monostable



Electrically bistable



Dimensions



Technical data (as per AS-i specification)

AS-i certificate number	ZU no.	44901
Electrical data	I/O code / ID code (hex)	7 / F / F / F
U_{AS-i} (yellow cable)	Operational voltage	26.5 ... 31.6 V
	Total current input I	≤ 270 mA
	Own current requirements	≤ 45 mA
	Polarity reversal protection	integrated
Inputs	For signal "0", I _{in}	≤ 1.5 mA
	For signal "1", U _{in} / I _{in}	≥ 10 V / ≥ 6 mA
Sensor power supply	Voltage range U _{out}	20 ... 30 V DC
	Current carrying capacity I _{out}	100 mA (short-circuit-proof)
	(with AUX POWER) I _{out}	200 mA (short-circuit-proof)
AUX POWER (black cable)	Rated operational voltage U _e	24 V DC
	Operation voltage range U _B	20 ... 30 V DC
	Current strength I _{pulse} , I _{hold}	115 mA, 40 mA
	Polarity reversal protection	yes
	Power supply unit	PELV in accordance with IEC 364-4-61
Outputs	Pneumatic outputs	2 pcs. pre-contr.- 4/2 way valves
	Max. operating frequency	5 Hz, max. 60 operations per minute permissible
Compressed air	Air flow rate	550 NI/min (standard litre/minute) at 6 bar
	Compressed air	filtered 5 µm; lubricated or non lubricated
	Pressure range	3 to 8 bar (90 % vacuum to 8 bar, at control air > 4 bar)
Auxiliary air supply*	Pressure	> 3 bar
	Connection	by plug-in tube connector 4 mm
Mechanical data	Degree of protection	IP 65 (with sintered filter)
	(with coupling module)	IP 67 (with tube connector)
	Weight	approx. 400 g
	Dimensions (h x w x d) [mm]	152 x 60 x 45
Temperature range	Rated temperature T _v	25 °C
	Ambient temperature T _a	0 ... 55 °C
	Storage temperature T _s	-5 ... 70 °C

* Note: Connection to port 81 automatically engages auxiliary air supply (active by push)

Order data

Part number	Description
AirBox K-F-GE-MO	AirBox K filter ¹ , AS-i cable yellow/yellow, monostable
AirBox K-F-SW-MO	AirBox K filter ¹ , AS-i cable yellow/black, monostable
AirBox K-S-GE-MO	AirBox K tube ² , AS-i cable yellow/yellow, monostable
AirBox K-S-SW-MO	AirBox K tube ² , AS-i cable yellow/black, monostable
AirBox K-F-GE-BI	AirBox K filter ¹ , AS-i cable yellow/yellow, electrically bistable
AirBox K-F-SW-BI	AirBox K filter ¹ , AS-i cable yellow/black, electrically bistable
AirBox K-S-GE-BI	AirBox K tube ² , AS-i cable yellow/yellow, electrically bistable
AirBox K-S-SW-BI	AirBox K tube ² , AS-i cable yellow/black, electrically bistable
KM K-FK-SW	Coupling module FK-E for AirBox K; surface mounting
KM K-HS	Rail adapter for coupling module KM K-FK-SW

¹ Exhaust filtered

² Common exhaust; 8 mm plug-in tube connector