Valve Controller

AMTRONIC

R1300/R1301

Type Series Booklet

KSB

Legal information/Copyright

Type Series Booklet AMTRONIC

Contents

Automation

Control Unit for Valves

AMTRONIC

Main applications

- Water
- Waste water
- Energy
- Industry
- Shipbuilding
- Oil and gas

Operating data

Table 1: Characteristic

Ambient characteristics	Value
Min. permissible temperature [°C]	≥ -20
Max. permissible temperature [°C]	≤ +80
Enclosure	IP67 to EN 60529
Electromagnetic compatibility	To European Electromagnetic Compatibility Directive 2014/30/EU
Design ATEX (R1301) Ex ia	To ATEX Directive 2014/34/EU
Vibrations	IEC 68-2-6 Test Fc
Compressed air purity class	ISO 8573-1 Class 5

Design details

Design

- AMTRONIC is an open/close control unit for valves.
- For automation of:
  - Pneumatic quarter-turn actuators of the ACTAIR NG and DYNACTAIR NG type series
  - Quarter-turn actuators with standardised VDI/VDE 3845 interface
  - Linear actuators to NAMUR
- Position indicator under sight glass for remote indication
- AMTRONIC features a LEXAN housing (polycarbonate with 20 % glass fibre) accommodating the following 3 components:
  - Electrical connection
  - Control and signalling PCB
  - Compressed air supply
- The compressed air supply is connected via the base:
  - Direct (without piping) for the ACTAIR NG and DYNACTAIR NG type series
  - Via external piping for quarter-turn actuators with standardised VDI/VDE 3845 interface and for linear actuators to NAMUR
- All design variants of AMTRONIC meet the following electric and pneumatic functions:
  - "Open/closed" position indicator via microswitch or proximity sensor, actual-position feedback by 4 - 20 mA signal (optional)
  - Control air controlled by a fitted solenoid valve (4/2 monostable, 4/2 bistable or 4/3 closed in centre position)
- AMTRONIC is designed with a control air filter, ensuring a long service life of the pneumatic control valves.
- The actuating times for open/close operations are set via the easily accessible air flow reducer.
- AMTRONIC is designed with adjustable bosses that can be used to easily set the tripping point of the limit switches.
- During commissioning and maintenance work, the actuator can be operated via the pilot valves' manual override without opening the cover.

Variants

- AMTRONIC can be equipped with a wide variety of limit switches and proximity sensors.
- Different supply voltages for the solenoid valves
- Actual-position feedback via 4 - 20 mA signal
- AS-i variant
- Profibus DP variant
- Ex ia variant

Product benefits

- Mounted directly on pneumatic actuators without installation kits and with direct compressed air supply (without piping)
- With its modular design AMTRONIC can be adjusted to customer requirements (limit switches, proximity sensors, field bus, heating resistor, actual-position feedback, etc.)
- The fitted solenoid valve is protected from blows, corrosion and dust.
- Fully enclosed design avoids protruding, moving components

Related documents

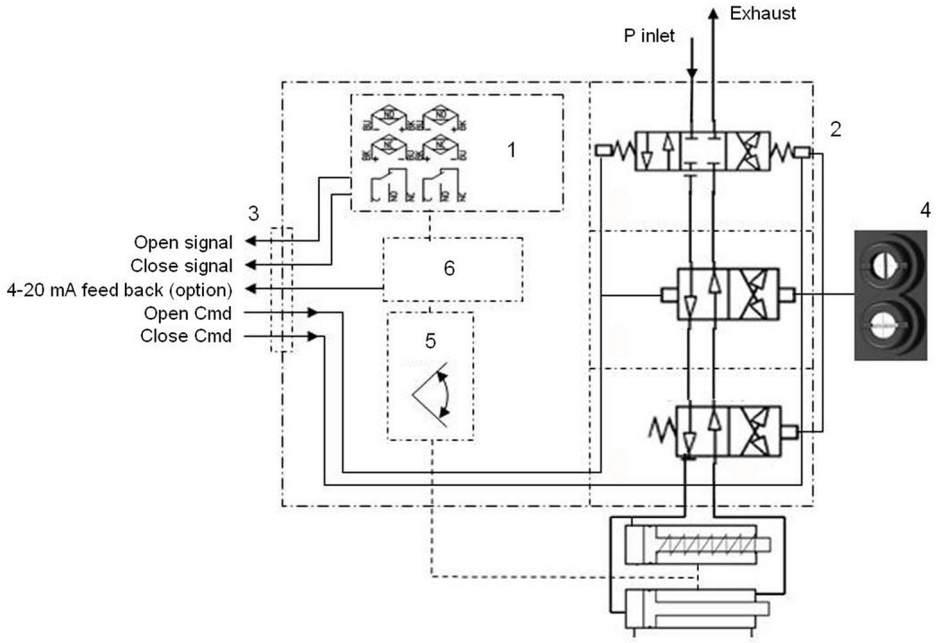
Table 2: Information/documents

Document	Reference number
AMTRONIC R1300 operating manual	8514.8371
AMTRONIC R1301 operating manual	8514.8381

8514.837/02-EN

Technical data

Functional schematic



Wiring principle

1 - Limit switches or limit position sensor

2 - Control air supply: via directional control valve, either 4/2 bistable, 4/2 monostable, or 4/3 centre closed

3 - Terminal strip

4 - Manual override

5 - Angle sensor (optional)

6 - Actual-position feedback via 4-20 mA signal (optional)

Technical specification

Housing	
Material	LEXAN (PC with 20 % glass fibre)
Position indicator	Visual position indicator on the cover
Compressed air port	2 x 1/4" gas
Electrical connection	2 M20 ports for cable gland Plug-type connection to terminal strip (electric cable 1.5 mm² max.)
Weight	1.5 kg

Compressed air supply	
Compressed air supply	1/4" gas port, marked "P", with filter fitted in the base
Exhaust	1/4" gas port, marked "E", with silencer or exhaust system connection
Operating pressure	3 to 8 bar (44 to 115 psi)
Filtration level	ISO 8573-1 Class 7 (< 40 µm)
Dew point	ISO 8573-1 Class 5 (< 7 °C, and if temperature is 5 °C below ambient temperature)
Lubrication	ISO 8573-1 Class 5 (< 25 mg/m³)
Maximum flow	400 Nl/min (at 25 °C)
Consumption in "at rest" position	Zero

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Compressed air supply function

The AMTRONIC control unit uses spool-type directional control valves equipped with ceramic switching elements.
They are suitable for dry or lubricated control air and operated by either one or two pilot valves.

Possible configurations:

For double-acting actuators
- 4/2 directional control valve, monostable
- 4/2 directional control valve, bistable
- 4/3 directional control valve, closed under pressure

where:
Fail-safe position: 'Fail closed' in the event of a power failure
Fail-safe position: 'Fail open' in the event of a power failure
'Fail-in-last' position when de-energised (4/3 directional control valve)

For single-acting actuators
- 4/2 directional control valve, monostable
- 4/3 directional control valve, closed under pressure

where:
Fail-safe position: 'Fail closed' in the event of a power failure
Fail-safe position: 'Fail open' in the event of a power failure
'Fail-in-last' position (4/3 directional control valve), fail-safe position being 'Fail open' or 'Fail closed' in the event of compressed air supply failure (single-acting actuator)

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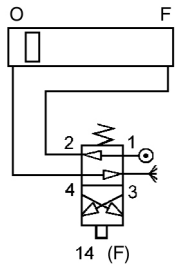
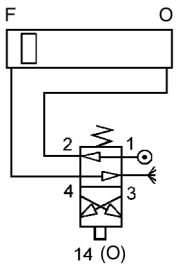
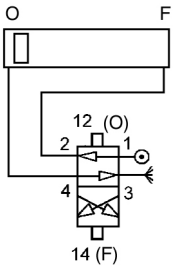
Table 3: Schematic for ACTAIR NG double-acting actuators



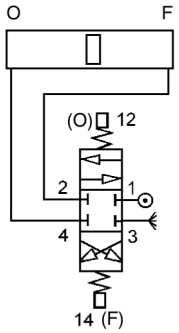
Case 1a



Case 1b



Case 2



Cases 3a, 3b and 3c

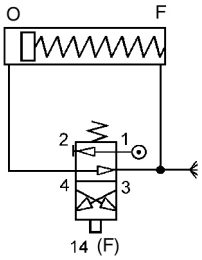
Table 4: Tables for ACTAIR NG double-acting actuators (cases 1a / 1b / 2)

Configuration	Case 1a	Case 1b	Case 2
Fail-safe position in the event of a power failure	Fail open	Fail closed	Fail open or closed
Directional control valve	4/2 monostable	4/2 monostable	4/2 bistable
Solenoid valve	1 x 3/2 NC	1 x 3/2 NC	2 x 3/2 NC

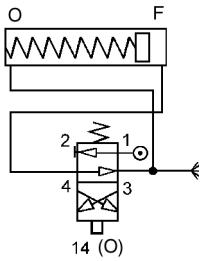
Table 5: Tables for ACTAIR NG double-acting actuators (cases 3a / 3b / 3c)

Configuration	Case 3a	Case 3b	Case 3c
Fail-safe position in the event of a power failure	Position	Fail open	Fail closed
Directional control valve	4/3, centre closed under pressure	4/3, centre closed under pressure	4/3, centre closed under pressure
Solenoid valve	2 x 3/2 NC	1 x 3/2 NO	1 x 3/2 NO
		1 x 3/2 NC	1 x 3/2 NC

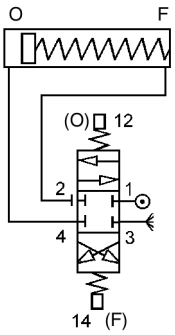
Table 6: Schematic for DYNACTAIR NG single-acting actuators



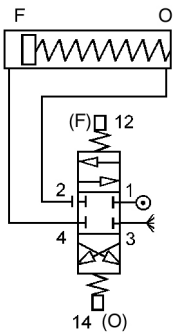
Case 4a



Case 4b



Cases 5a and 5b

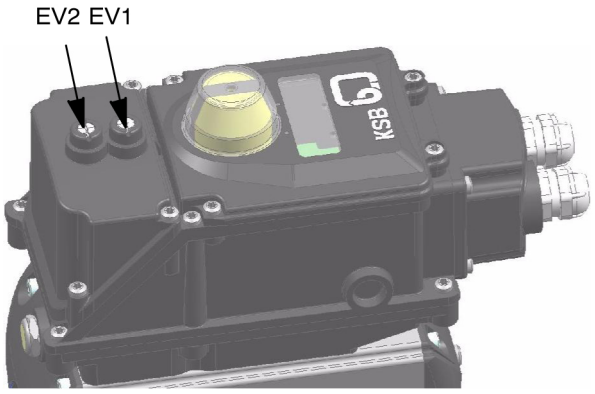


Cases 5c and 5d

Table 7: Table for DYNACTAIR NG single-acting actuators (cases 4a / 4b / 5a / 5b / 5c / 5d)

Configuration	Case 4a	Case 4b	Case 5a	Case 5b	Case 5c	Case 5d
Fail-safe position in the event of a power failure	Fail open	Fail closed	Position	Fail closed	Position	Fail open
Directional control valve	4/2 monostable	4/2 monostable	4/3, centre closed under pressure	4/3, centre closed under pressure	4/3, centre closed under pressure	4/3, centre closed under pressure
Solenoid valve	1 x 3/2 NC	1 x 3/2 NC	2 x 3/2 NC	1 x 3/2 NO	2 x 3/2 NC	1 x 3/2 NO
				1 x 3/2 NC		1 x 3/2 NC

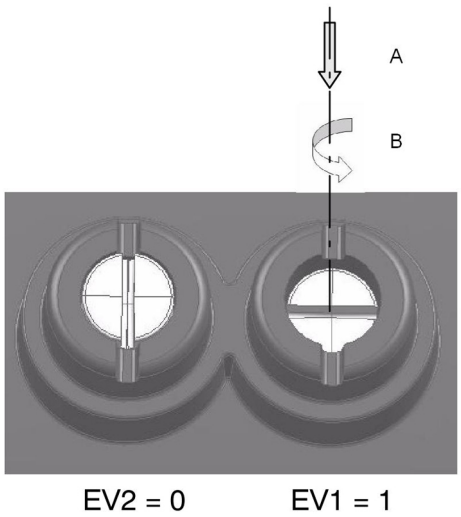
Table 8: Manual override of directional control valve



Manual override provided on AMTRONIC

Manual override buttons are provided on the outside of the housing for manual actuation of the pilot valves.

To avoid any interference with the pilot valves' electrical commands, the manual override should only be used when the control unit is not energised.



Manual override

The manual override buttons can be locked.
How to activate the manual override:
A - Press the manual override button.
B - Lock it in this position by turning it 90°.

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Position signalling function

Two position signalling options are available for AMTRONIC as standard:

- mechanical switches, make: Crouzet
- proximity sensors, make: IFM

A special feature of AMTRONIC is that it can be fitted with switches or sensors from other manufacturers according to the customer's specification

Thanks to 20 years of experience in valve automation, a wide range of partner products is available from IFM, P&F, Télémécanique, etc.

Should customer processes require different switches or sensors, please consult us.

Table 9: Technical data of mechanical switches, R1300 (non-ATEX) and R1301 (Ex ia)

Mechanical switches, make: Crouzet			
Manufacturer:	Crouzet		
Material	Housing	Polyester UL94V0	
	Button	Polyester	
	Switching contact	Ag/Ni, gold-plated	
	Membrane	Silicone	
Switching capacity:	Breaking capacity 6 A at 24 V DC and 250 V AC		
Durability, service life:	Electrical	At I = 5 A	7×10^4 operating cycles
		At I = 1 A	3×10^5 operating cycles
		At I = 0.2 A	10^6 operating cycles
	Mechanical	2×10^6 operating cycles	
Vibration fatigue limit:	IEC 60068-2-6 / 3 axes / 50 g from 10 to 500 Hz		
EMC:	EN 50081-2, EN 50082-2		
Electrical connection:	Soldered to PCB		
Enclosure:	IP 67		

Table 10: Technical data of position sensors, R1300 (non-ATEX)

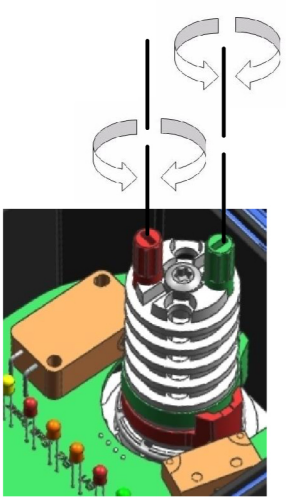
Inductive sensors IFM XC0035	
Manufacturer:	IFM
Housing material:	IEC 60068-2-6 / 3 axes / 50 g from 10 to 500 Hz
Max. output current:	
- Trigger current:	200 mA
- Maximum:	200 mA
Min. output current:	4 mA
Max. voltage drop:	<= 4.6 V
Leakage current:	<= 0.8 mA
Max. switching frequency:	2 kHz
Operating status indication:	Yellow LED

Table 11: Technical data of position sensors, R1301 (ATEX Ex ia)

Inductive sensors		
Manufacturer:	IFM Effector	Pepperl & Fuchs
Type	NS-5002	NJ2-V3-N
EC Declaration of Conformity:	Standard PTB 01 ATEX 2191	Standard PTB 00 ATEX 2032 X
Nominal voltage Vo:	8.2 V DC	8.2 V DC
Supply voltage:	7.5 to 30 V DC	-
Current requirement in make condition:	> 2.1 mA	> 3 mA
Current requirement in break condition:	< 1 mA	< 1 mA
Internal capacitance Ci:	< 80 ηF	< 40 ηF
Internal inductance Li:	< 110 µH	< 50 µH
Switching frequency:	800 Hz	1000 Hz
Impact resistance:	< 30g (11 ms)	-
Vibration fatigue limit:	10-55Hz (1mm)	-
Enclosure:	IP 67	IP 67
Attainable switching distance:	2 mm	1.62 mm
Output:	NF	NF
Connection:	PVC cable: 2 x 0.14 $mm2^2$	PVC cable: 2 x 0.14 $mm2^2$

Two additional switches or sensors can be added for intermediate position signalling.

Setting the cams for position signalling



Setting the switching cams

The limit switch or sensor settings can be made via the cams, independently of one another and along the entire stroke. (See operating manual 8514.8371).

These settings can be adjusted, particularly if the mechanical limit switches of the actuator are changed.

The cams are pre-set in the factory.

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Option: actual-position feedback

Table 12: Electrical characteristics of passive actual-position feedback via 4-20 mA signal (2-core) - R1300 (non-ATEX)

Parameter	Minimum	Nominal	Maximum	Unit
Power supply	7,5	21,5	36	V DC
Output signal	3,6	/	28	mA
Loop resistance [(V_{Supply} - 7.5 V) / 0.02 A]	0	700	1425	Ohm
Zero point calibration (4 mA)	2	4	11	mA
Gain adjustment (20 mA)	16	20	26	mA
Temperature range	-20	/	+70	°C

Table 13: Electrical characteristics of actual-position feedback XT42 SI NIV - R1301 (ATEX Ex ia)

Parameter	Minimum	Nominal	Maximum	Unit
Power supply	10	/	30	V CC
Output signal	4	/	20	mA
Zero point calibration (4 mA)	3.8 mA	/	4,2	mA
Gain adjustment (20 mA)	15	/	20	mA
Temperature range	-20	/	+65	°C

ATEX-compliant version of AMTRONIC R1301

AMTRONIC R1301 has been certified by the notified body LCIE for use in the “Gas” ATEX zone.

The EU type test certificate LCIE 15 ATEX 3011 X has been issued.

AMTRONIC R1301 can be used in a temperature range of -10 °C to +50 °C.

The applicable marking of AMTRONIC R1301 depends on the type of switch, inductive sensor or actual-position feedback device fitted.

II 1 G Ex ia IIC T6 Ga

II 1 G Ex ia IIB T6 Ga

II 2 G Ex ia IIC T6 Gb

For more details refer to the AMTRONIC R1301 operating manual, reference number 8514.8381.

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Field bus communication version

Field bus communication is ensured by simply integrating a suitable electronic printed circuit board.

A field bus system makes the wiring of control units for on/off applications straightforward and helps to reduce installation costs.

AMTRONIC is compatible with Profibus DP and AS-i field bus systems.

AMTRONIC AS-i

The AS-i (Actuator Sensor Interface) field bus is primarily used for sensors and actuators in on/off applications. The field bus is a master/slave network: The master receives the monitoring and control information from the slaves, i.e. from the AMTRONIC. This network is of a simple and robust design and can be easily installed. A two-core cable is all that is required for power supply and transmission of digitalised information. 62 AS-i slaves can be connected in an AS-i network over a distance of 100 metres. Extensions are possible using repeaters. AMTRONIC has an AS-i interface with 2 inputs and 2 outputs. S-B.A.E and S-3.O profiles are available. The commands from the electro-pneumatic pilot valves are transmitted via the two outputs while the limit switch status (1 for Open and 1 for Closed) is provided via the two inputs. KSB recommends using the SMARTRONIC AS-i digital positioner for positioning applications with a AS-i field bus.

AMTRONIC Profibus DP

A slave interface is integrated in the AMTRONIC for Profibus DP (Decentralized Periphery) which allows the transmission of control information to the master (PLC) via a twisted-pair shielded electric cable. This interface ensures that up to 126 slaves can be connected over a distance of 1200 metres (up to 10 km when using repeaters with a speed of 1.5 Mbit/s). AMTRONIC Profibus DP has two outputs for pilot valve control and two inputs for the limit switches' signals. The slaves are connected by a shielded electric cable (twisted pair) which transmits the Profibus DP field bus control information and supplies the electrical voltage (24 V DC). KSB recommends using the SMARTRONIC PC Profibus DP intelligent positioner for positioning applications with an Profibus DP field bus.

Table 14: Technical data of the field buses

	AS-i	Profibus DP		
Topology	Bus, tree or ring	Bus, tree with repeater option		
Medium	2-core cable / power supply AS-i	Shielded 4-core electric cable: twisted-pair, power supply 24 V DC		
Bus speed and length	Cycle time of 10 msec Length of 100 to 300 m with repeater	Speed (kbits/s)	Length (without repeater)	Length (with repeater)
		9,6	1200 m	10 km
		19,2	1200 m	10 km
		45,45	1200 m	10 km
		93,75	1200 m	10 km
		187,5	1000 m	6 km
		500	400 m	1 km
		1500	200 m	600 m
Profile/Version	- S-B.A.E (AS-i V2.11 and higher) - S-3.0 (all As-i versions)			
Max. number of stations	- S-B.A.E: 62 slaves - S-3.0: 31 slaves	32 per segment - max. 126		
Bus access	Polling	Master/slave polling: token between masters		
Addressing	EEPROM	Encoders		
Power input	3 W (max.)	3 W (max.)		
Power supply	26.5 to 31.5 V DC	24 V DC + 15%		

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Materials

Materials of AMTRONIC R1300/1301

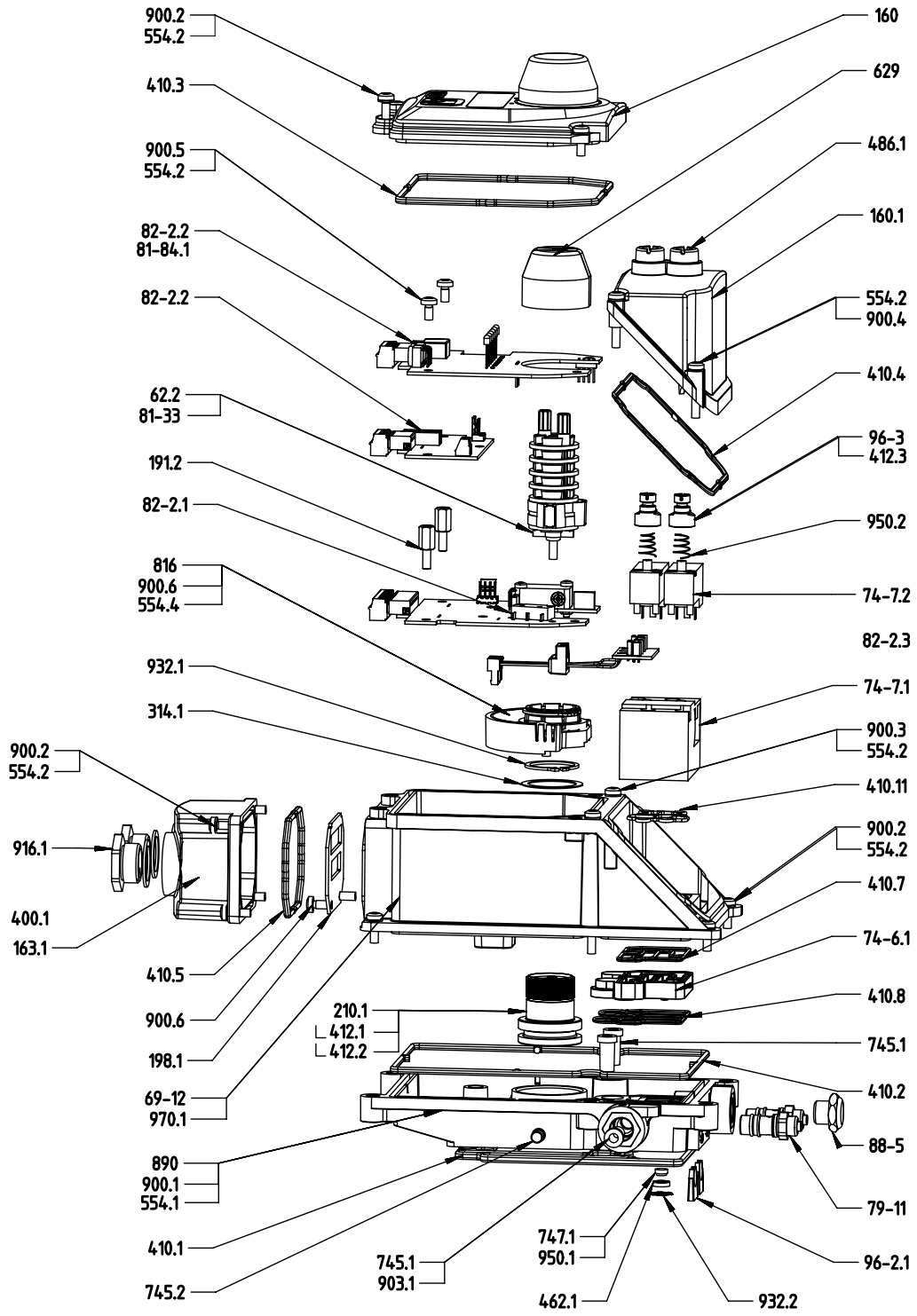

Fig. 1: Exploded view of type R13000/R1301

Table 15: List of components

Part No.	Description	Materials
69-12	Housing	Polycarbonate SM60/0
160	Cover	Polycarbonate SM60/0
160.1	Cover (directional control valve)	Polycarbonate SM60/0
163.1	Cover	Polycarbonate SM60/0
191.2	Support	Nickel-plated brass
198.1	Connection plate	
210.1	Actuating shaft	Polycarbonate SM60/0
314.1	Friction washer	Stainless steel 304L
410.1	Profile seal	NBR70
410.2	Profile seal	NBR70
410.3	Profile seal	NBR70
410.4	Profile seal	NBR70
410.5	Profile seal	NBR70
410.7	Profile seal	NBR70
410.8	Profile seal	NBR70
410.11	Profile seal	NBR70
412.1	O-ring	NBR70
412.2	O-ring	NBR70
412.3	O-ring	NBR70
462.1	Spring washer	
554.1	Washer	Stainless steel
554.2	Washer	Stainless steel
554.4	Serrated lock washer	Steel
629	Visual indicator assembly	
62-2	Adjustable cams assembly	
629	Visual indicator assembly	
745.1	Sintered filter	
745.2	Sintered filter	Bronze
74-6.1	Distribution plate	
74-7.1	Directional control valve	
74-7.2	Pilot valve	
747.1	Profile seal (valve)	
79-11	Flow reducer	
816	Angle sensor assembly	
817.1	Cable gland	
81-33	Detection plate	Steel
81-84.1	Circuit diagram	
82-2.1	Printed circuit board	
82-2.2	Printed circuit board	
82-2.3	Actual-position feedback	
88-5	Silencer	Bronze
890	Base	Polycarbonate SM60/0
900.1	Screw	A2-70
900.2	Screw	A2-70
900.3	Screw	A2-70
900.4	Screw	A2-70
900.5	Screw	A2-70
900.6	Self-tapping screw	A2-80
903.1	Plug	
916.1	Plug	
916.2	Protecting plug	Rubber
916.4	Elastomer string	NBR HT 70
932.1	Circlip	Steel
932.2	Reinforced circlip	Steel
950.1	Spring	
96-2.1	Locking plate	Polycarbonate SM60/0
96-3	Manual override	Polycarbonate SM60/0
970.1	Sticker	Adhesive polyester

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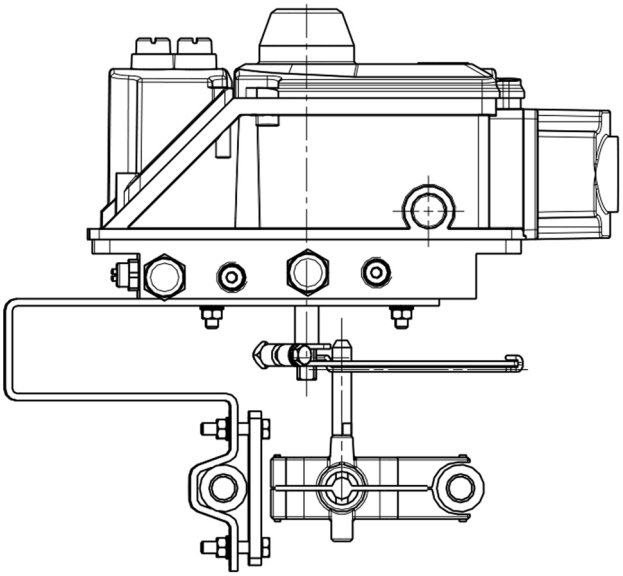
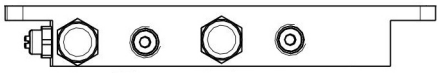
Variants

Adaptation for mounting on linear actuators to NAMUR

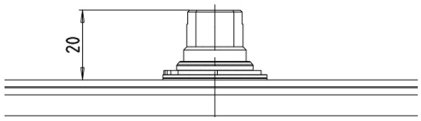


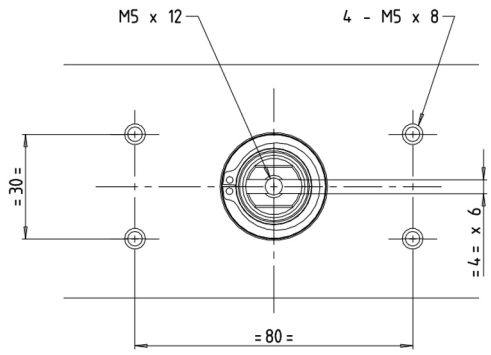
Front view

Mounting flange for actuators with VDI/VDE 3845 interface, not applicable to ACTAIR and DYNACTAIR



Front view





Dimensions to VDI/VDE 3845

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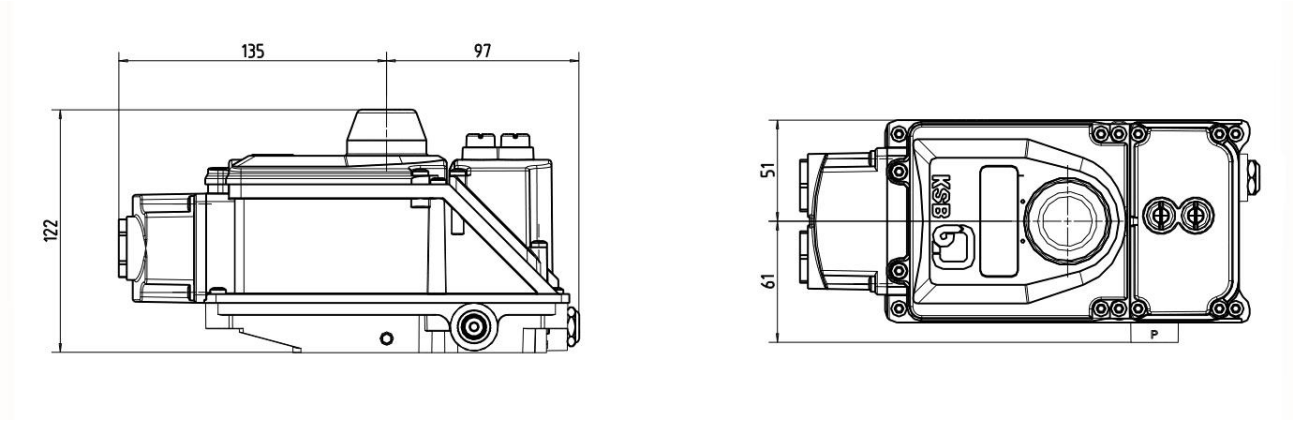
Dimensions

AMTRONIC dimensions



Types R1300 and R1301

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Purchase order specifications

Code AMTRONIC R1300

AMTRONIC	R001300	.	.	.	.	.	.	.	.	.	.	.	0	.	.	6	0	0
Sensors																		
Contact on printed circuit board		**1**	**0**	**0**	**0**													
Sensor on printed circuit board		**2**	**0**	**0**	**0**													
Contact V3 with cores		**B**	**1**	**1**										0				
Contact V3 with electric cable		**B**	**2**	**1**										0				
Contact V3 with cable terminal 4.8		**B**	**3**	**1**										0				
Contact V3 with cable terminal 6.3		**B**	**4**	**1**										0				
Contact V3 welding clamp		**B**	**6**	**1**										0				
Sensor V3 PNP with 3-core cable		**H**	**2**	**1**										0				
Sensor V3 NPN with 3-core cable		**H**	**2**	**2**										0				
Sensor V3 AC/DC with 2-core cable		**H**	**A**	**3**										0				
Sensor V3 NAMUR with 2-core cable		**H**	**A**	**4**										0				
Sensor V3 PNP with 3 cable terminals 4.8		**H**	**3**	**1**										0				
Sensor V3 AC/DC with 2 cable terminals 4.8		**H**	**B**	**3**										0				
Sensor V3 NAMUR with 2 cable terminals 4.8		**H**	**B**	**4**										0				
Sensor V3 PNP with 3 cable terminals 6.3		**H**	**4**	**1**										0				
Sensor 40x26x12 PNP with 3-core cable		**J**	**2**	**1**			0							0				
Sensor 40x26x12 AC/DC with 2-core cable		**J**	**A**	**3**			0							0				
Sensor diameter 6.5 PNP with 3-core cable		**K**	**2**	**1**			0							0				
Sensor M8 PNP with 3-core cable		**L**	**2**	**1**			0							0				
Sensor M12 PNP with 3-core cable		**M**	**2**	**1**			0							0				
Sensor M12 AC/DC with 2-core cable		**M**	**A**	**3**			0							0				
Sensor M12 NAMUR with 2-core cable		**M**	**A**	**4**			0							0				
Sensor M14 NAMUR with 2-core cable		**N**	**A**	**4**			0							0				
Sensor M18 PNP with 3-core cable		**P**	**2**	**1**			0							0				
Sensor M18 NPN with 3-core cable		**P**	**2**	**2**			0							0				
Sensor M18 AC/DC with 2-core cable		**P**	**A**	**3**			0							0				
Sensor M18 NAMUR with 2-core cable		**P**	**A**	**4**			0							0				
Position indicator																		
1/Open and 1/Closed						**1**												
1/Open						**3**												
1/Closed						**4**												
1/Open and 1/Closed and 1/intermediate position			0	0	0	**6**	0							0	0			
Actual-position feedback																		
None							**0**							.	.			
With angle sensor 5 kOhm							**1**							0	0			
Actual-position feedback via passive 4-20 mA signal (2-wire system)							**4**							0	0			
Actual-position feedback via passive 20-4 mA signal (2-wire system)							**5**							0	0			
Electrical connection																		
2 plugs, plastic, M20, IP67								**0**										
2 cable glands, plastic, M20, IP67 (diameter: 6 to 12 mm)								**1**										
2 cable glands, metal, M20, IP67 (diameter: 6 to 12 mm)								**2**										
1 connector M12 + 1 plug								**M**										
1 straight connector with 12 contact pins + 1 plug M20								**@**										
1 straight connector with 12 contact pins + 1 straight connector with 7 contact pins								**&**										
Directional control valve																		
4/2 monostable - Open/closed									**P**									
4/2 bistable - Open/closed									**Q**									
4/3 centre closed - Position									**R**									

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AMTRONIC	R001300	.	.	.	.	.	.	.	.	.	.	.	0	.	.	6	0	0
Voltage, directional control valve																		
230 V AC 50/60 Hz									**2**									
110 V AC, 50/60 Hz									**3**									
48 V AC 50/60 Hz									**4**									
24 V AC 50/60 Hz									**5**									
24 V DC									**7**									
Actuator																		
ACTAIR 3 to 200 with closed-position travel stop										**2**								
ACTAIR 3 to 200 with open-position travel stop										**3**								
ACTAIR 400 to 1600										**4**								
DYNACTAIR 1.5 to 25, Fail Closed in the event of control air failure										**6**								
										7								
DYNACTAIR 1.5 to 25, Fail Open in the event of control air failure										**8**								
DYNACTAIR 50 to 100, Fail Closed in the event of control air failure										**9**								
										J								
DYNACTAIR 50 to 100, Fail Open in the event of control air failure										**K**								
										L								
DYNACTAIR 200 to 800, Fail Closed in the event of control air failure										**M**								
										N								
DYNACTAIR 200 to 800, Fail Open in the event of control air failure										**W**								
ACTAIR NG 2 to NG 700										**X**								
DYNACTAIR NG 1 to NG 350, Fail Closed in the event of control air failure										**Y**								
										Z								
DYNACTAIR NG 1 to NG 350, Fail Open in the event of control air failure																		
Pneumatic quarter-turn actuator, double-acting																		
Pneumatic quarter-turn actuator, single-acting																		
Pneumatic linear actuator, double-acting																		
Pneumatic linear actuator, single-acting																		
Fail-safe position																		
Fail Closed in the event of power failure											**A**							
Fail Open in the event of power failure											**B**							
Fail-in-last-position in the event of power failure								R			**C**							
Undefined position in the event of power failure								Q			**D**							
Field bus																		
None													**0**					
Profibus DP						1	0		7				**2**	0				
AS-i Profil S-B.A.E (62 Slaves)						1	0		7				**7**	0				
AS-i S-3.0 (31 Slaves)						1	0		7				**8**	0				
Heating resistor																		
None														**0**				
With heating resistor 12 to 24 V DC			0	0	0	1	0							**1**				
With heating resistor 100 to 240 V AC			0	0	0	1	0							**2**				
Indicator																		
3D sight glass															**6**			
Configuration																		
None																**0**		
Diagnosis																		
None																		**0**

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Type code AMTRONIC R1301

AMTRONIC	R001301	.	.	.	.	.	.	.	.	7	.	.	0	0	0	6	0	0
Sensors																		
Contact on printed circuit board		1	0	0	0													
Sensor V3 NAMUR IFM		H	A	4	1													
Sensor V3 NAMUR Pepperl &Fuchs		H	A	4	2													
Position indicator																		
1/Open and 1/Closed						1												
1/Open						3												
1/Closed						4												
Actual-position feedback																		
None							0											
Actual-position feedback via passive 4-20 mA signal (2-wire system)							4											
Electrical connection																		
2 plugs, plastic, M20, IP67								0										
2 cable glands, plastic, EEx ia ISO M20 (diameter 8 to 13)								W										
2 cable glands, metal, EEx ia ISO M20 (diameter 8 to 13)								X										
2 cable glands, metal, EEx dIIC ISO M20 (diameter 8.5 to 16)								€										
Directional control valve																		
4/2 monostable - Open/closed									P									
4/2 bistable - Open/closed									Q									
4/3 centre closed - Position									R									
Voltage, directional control valve																		
24 V DC										7								
Actuator																		
ACTAIR 3 to 200 with closed-position travel stop											2							
ACTAIR 3 to 200 with open-position travel stop											3							
ACTAIR 400 to 1600											4							
DYNACTAIR 1.5 to 25, Fail Closed in the event of control air failure											6							
DYNACTAIR 1.5 to 25, Fail Open in the event of control air failure											7							
DYNACTAIR 50 to 100, Fail Closed in the event of control air failure											8							
DYNACTAIR 50 to 100, Fail Open in the event of control air failure											9							
DYNACTAIR 200 to 800, Fail Closed in the event of control air failure											J							
DYNACTAIR 200 to 800, Fail Open in the event of control air failure											K							
ACTAIR NG 2 to NG 700											L							
DYNACTAIR NG 1 to NG 350, Fail Closed in the event of control air failure											M							
DYNACTAIR NG 1 to NG 350, Fail Open in the event of control air failure											N							
Pneumatic quarter-turn actuator, double-acting											W							
Pneumatic quarter-turn actuator, single-acting											X							
Pneumatic linear actuator, double-acting											Y							
Pneumatic linear actuator, single-acting											Z							
Fail-safe position																		
Fail Closed in the event of power failure												A						
Fail Open in the event of power failure												B						
Fail-in-last-position in the event of power failure									R			C						
Undefined position in the event of power failure									Q			D						
Field bus																		
None														0				
Heating resistor																		
None															0			

AMTRONIC	R001301	.	.	.	.	.	.	.	.	7	.	.	0	0	0	6	0	0
Indicator																		
3D sight glass																**6**		
Configuration																		
None																	**0**	
Diagnosis																		
None																		**0**

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