

OpenAir™

Configured air damper actuators for railway vehicles

6FU1416-xDxxx-xxxx



Electronic motor driven actuators for modulating control

- Nominal torque 5 Nm
- Runtime 30 s / 90 s
- Rotary angle 0...90°
- Connection cables railway specific
- Degree of protection IP54
- Printed circuit board, coated

Features

Air damper actuators in difficult operational conditions; they meet the main requirements for:



- EN 50155 (Railway applications - Electronic equipment used on rolling stock)
- EN 45545 (Railway applications - Fire protection on railway vehicles)
- EN 61373 (Railway applications - Rolling stock equipment - Shock and vibration tests).

Use

The damper actuators are expressly suitable for air conditioning units and air distribution systems for railway vehicles.

- For damper areas up to 0.8 m²
- Suitable for use with modulating controllers (DC 0/2...10 V).

Functions

Function	Description
Control type	Modulating control (DC 0/2...10 V)
Rotary direction	Clockwise / counter-clockwise, selectable with switch. With no power applied, the actuator remains in the respective position. <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <p>CW</p>  </div> <div style="text-align: center;"> <p>CCW</p>  </div> </div>
Position indication: Mechanical	Rotary angle position indication by using a position indicator.
Position indication: Electrical	Position indicator: Output voltage U = DC 0/2...10 V is generated proportional to the rotary angle. U depends on the rotary direction of the DIL switch setting.
Manual adjustment	The actuator can be manually adjusted by pressing the gear train disengagement button.
Rotary angle limitation	The rotary angle of the shaft adapter can be limited mechanically with a set screw.

Technical design

Housing

The housing consists essentially of flame retardant, non brominated, non chlorinated glass fibre reinforced plastic.

Actuator motor / Gears

Brushless, robust DC motors ensure reliable operation regardless of load. The damper actuators do not require an end position switch, are overload proof, and remain in place up on reaching the end stop.

The gears are maintenance free and low noise.

Type summary

Accessories

Type	Description	Use
ASK78.6	Centering insert, square profile 8 mm	To center a shaft with square profile 8 x 8 mm in the coupling bushing of the actuator.
ASK78.7	Centering insert, square profile 10 mm	To center a shaft with square profile 10 x 10 mm in the coupling bushing of the actuator.
ASK78.9	Centering insert, round 10 mm	To center a shaft with round dia. 10 mm in the coupling bushing of the actuator.
ASK78.10	Centering insert, round 12 mm	To center a shaft with dia. 12 mm in the coupling bushing of the actuator.

Product documentation


Topic	Title	Document ID
Data sheet	Configured air damper actuators for railway vehicles	A6V11369557_en--_a
Technical basics	Rotary damper actuators without spring return GD..E	A6V10636139_en--_a
Mounting instructions	GD..1E/RW, GD..1G/RW, GL..1E/RW	A6V10636275_----_a

Related documents such as environmental declarations, CE declarations, etc., can be downloaded at the following Internet address:


<http://siemens.com/bt/download>

Notes

Safety

	⚠ Caution
	National safety regulations Failure to comply with national safety regulations may result in personal injury and property damage. <ul style="list-style-type: none">• Observe national provisions and comply with the appropriate safety regulations.• Use only properly trained technicians for mounting, commissioning, and servicing.

Installation

	⚠ WARNING
	No internal line protection for supply lines to external consumers Risk of fire and injury due to short-circuits <ul style="list-style-type: none">• Adapt the line diameters as per local regulations to the rated value of the installed fuse.

Maintenance

The actuators are maintenance-free.



The device is considered electrical and electronic equipment for disposal in terms of the applicable European Directive and may not be disposed of as domestic garbage.

- Dispose of the device through channels provided for this purpose.
- Comply with all local and currently applicable laws and regulations.

Technical data

Power supply		6FU1416-xDDxx-xxxx	6FU1416-xDAxx-xxxx
Operating voltage		DC 24...45 V = +25 % / -30 % (16.8...56.3 V =) ¹⁾	
Power consumption	Running	1.5 W	1.3 W
	Holding	0.5 W	0.5 W
Functional data		6FU1416-xDDxx-xxxx	6FU1416-xDAxx-xxxx
Nominal torque		5 Nm	
Maximum torque (blocked)		7 Nm	
Nominal rotary angle		90°	
Max. rotary angle		95° ± 2°	
Runtime for 90° rotary angle		30 s	90 s
Actuator sound power level		28 dB(A)	
Wiring connections (specific for railway vehicles)			
Cable length		Standard 0.9m / depending on selection	
Cross-section		0.75 mm ²	
Degree of protection			
Insulation class		III as per EN 60730	
Housing protection		IP 54 as per EN 60529	
Environmental conditions			
Temperature		-40...+70 °C	
Overtemperature (max.10 min / 15 °C)		...+85 °C	
Humidity		<95 % r.F.	
Condensation		permitted	
Standards, directives and approvals			
Product standard		EN60730-2-14 Part 2-14 / Particular requirements for electric actuators	
Railway applications		EN 50155 Railway applications - Electronic equipment used on rolling stock EN 61373 Shock and vibration EN 45545-2 Fire prevention in railway vehicles	
Electromagnetic compatibility (Application area)		For railway applications Residential, commercial, light-industrial and industrial environments	
EU Conformity (CE) 6FU1416-xDDxx-xxxx 6FU1416-xDAxx-xxxx		A5W00026942 ²⁾ A5W00026943 ²⁾	

Standards, directives and approvals	
RCM Conformity 6FU1416-xDDxx-xxxx 6FU1416-xDAxx-xxxx	A5W00026946 ²⁾ A5W00026947 ²⁾
EAC Conformity	Eurasian conformity
UL	UL as per UL 60730 http://ul.com/database cUL as per CSA-C22.2 No. 24-93

Environmental compatibility
The product environmental declaration A5W00026066 ²⁾ contains data on environmentally compatible product design and assessments (RoHS compliance, materials composition, packaging, environmental benefit, disposal).

Dimensions	
Actuator W x H x D	see „Dimensions“, p. 7
Damper shaft:	
– square	6...12.8 mm
Min. shaft length	20 mm
Shaft hardness	300 HV
– round	8...16 mm
Min. shaft length	30 mm
Shaft hardness	300 HV

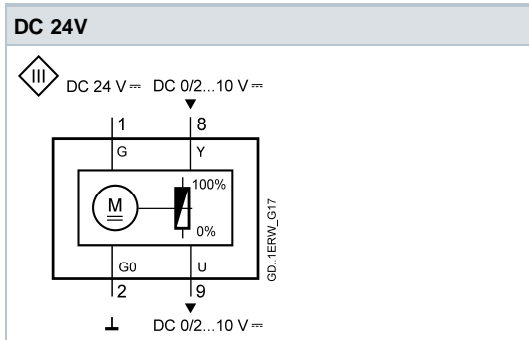
Weight	
Without packaging	465 g

¹⁾ C-UL: Permitted only to DC 30 V =

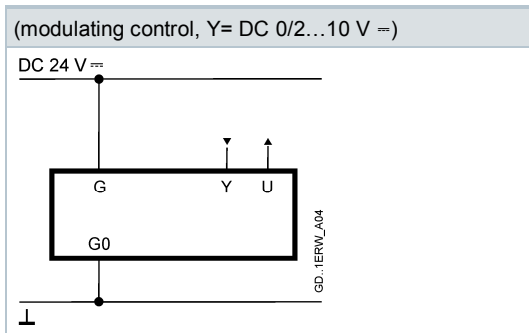
²⁾ The documents can be downloaded from <http://siemens.com/bt/download>.

Internal Diagram

6FU1416-xxxxx-xxxx
 (modulating control, Y= DC 0/2...10 V =)



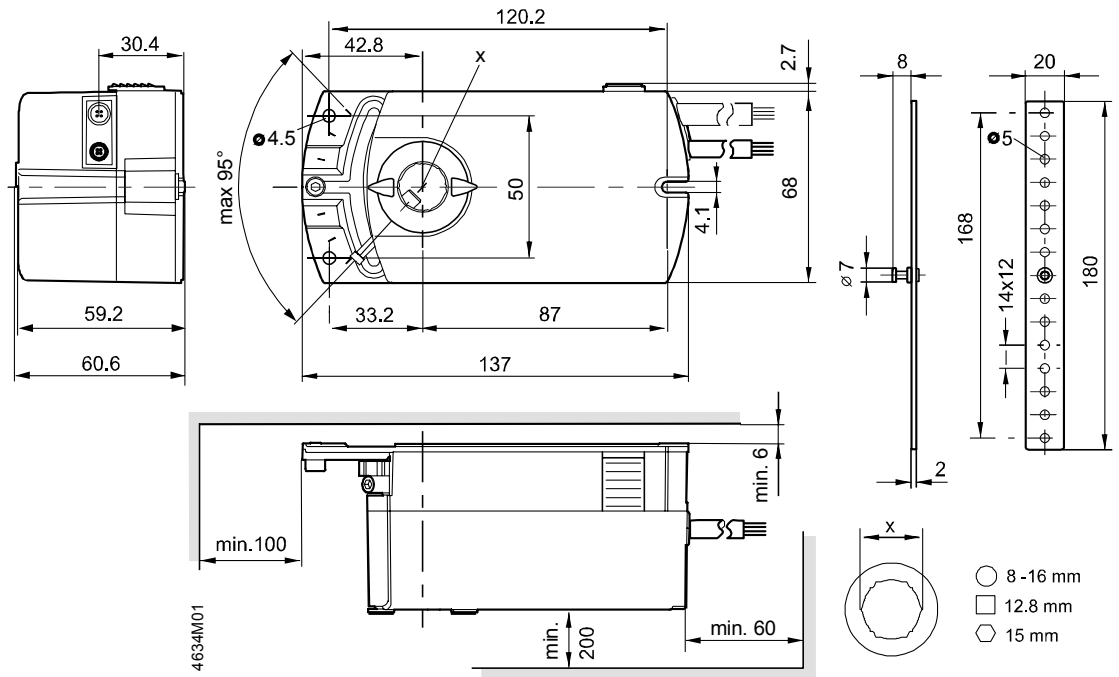
Connection diagram



Cable labeling

Connection	Code	No	Color	Abbreviation	Meaning
DC 24 V =	G	1	red	RD	System potential DC 24 V =
Actuators	G0	2	black	BK	System neutral
	Y	8	grey	GY	Signal in
	U	9	pink	PK	Signal out

Dimensions



Dimensions in mm

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