SIEMENS

4591

ACVATIX™

Electronic connection for valves with magnetic actuator

ZM..
ZM../A

- **Terminal housing for control of valves with magnetic actuator**
- **Control with choice of positioning signals or direct control**

AC 24 V
DC 0…10 V
DC 4…20 mA
DC 0…20 V Phs

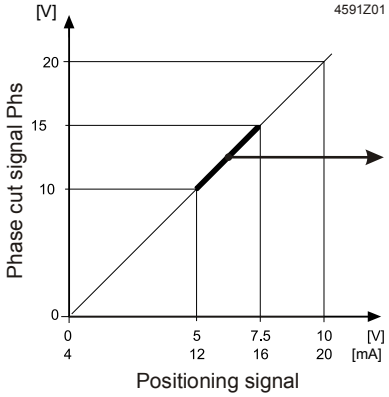
Use

Terminal housing for the control of Siemens control valves and pilot valves with magnetic actuator.

Functions

ZM../A
ZM100/A, ZM101/A, ZM120/A, ZM121/A, ZM200/A, ZM220/A

The electronic connections in terminal housings ZM../A are signal transducers respectively power amplifiers. They convert a DC 0...10 V or DC 4...20 mA positioning signal into a DC 0...20 V phase cut signal. The operating voltage of these electronic connections is AC 24 V.



Typical operating range of valves with magnetic actuators (0...100 % stroke).

The operating range is subject to coil temperature rise and valve size.

It is also possible to use the electronic connection ZM../A terminal housing as a "straight-through" terminal housing, supplied directly with a DC 0...20 V phase cut signal. In this case, the AC 24 V operating voltage must NOT be connected.

ZM110, ZM111, ZM210

The ZM110, ZM111 and ZM210 terminal housings are "straight-through" housings only.

The control properties of the valves with magnetic actuators are not affected by the type of electronic connection housing or the type of positioning signal.

Type summary

Type reference	Operating voltage	Positioning signal	Operating range	Housing protection
ZM100/A	AC 24 V -	DC 0…10 V DC 0…20 V Phs [1)]	DC 5…7.5 V DC 10…15 V Phs	IP31
ZM101/A	AC 24 V -	DC 0…10 V DC 0…20 V Phs [1)]	DC 5…7.5 V DC 10…15 V Phs	IP54
ZM200/A	AC 24 V -	DC 0…10 V DC 0…20 V Phs [1)]	DC 5…7.5 V DC 10…15 V Phs	IP31
ZM120/A	AC 24 V -	DC 4…20 mA DC 0…20 V Phs [1)]	DC 12…16 mA DC 10…15 V Phs	
ZM121/A	AC 24 V -	DC 4…20 mA DC 0…20 V Phs [1)]	DC 12…16 mA DC 10…15 V Phs	IP54
ZM220/A	AC 24 V -	DC 4…20 mA DC 0…20 V Phs [1)]	DC 12…16 mA DC 10…15 V Phs	IP31
ZM110	-	DC 0…20 V Phs	DC 10…15 V Phs	IP31
ZM111	-			IP54
ZM210	-			IP31

[1)] DC 0…20 V Phs "straight-through" terminal housing do not connect operating voltage AC 24 V!

Ordering

When placing an order, please specify type reference, stock number, description and quantity.

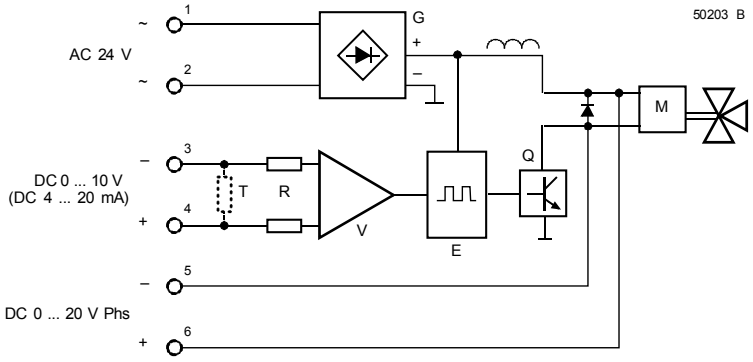
Example:

Type reference	Stock number	Description	Quantity
ZM100/A	ZM100/A	Electronic connection	1

Technical design

The differential amplifier with signal inputs [3] and [4] is isolated from the AC supply by a high resistance.

For 3-wire applications the signal negative [3] must be connected to AC supply terminal [1].



E Electronic phase cut conditioning
G Bridge rectifier
M Valve with magnetic actuator
Q Phase cut output
T Input resistance < 150 Ω (ZM120/A, 121/A, ZM220/A with DC 4...20 mA only)
V Differential amplifier

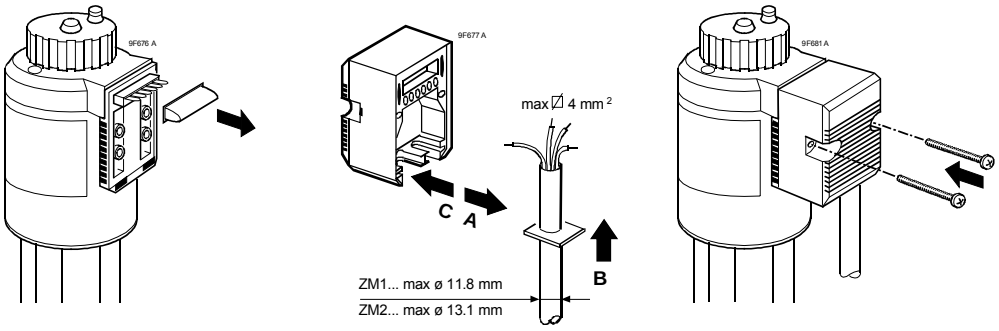
Sizing

Transformer sizing

The transformer is sized by applying the following formula:
Transformer power P_{Tra} = 1.4 · Sum of the individual loads

Mounting notes

⚠ **Always switch off the power supply before connecting or disconnecting the electronic connection ZM.. or ZM../A terminal housing. Never remove or fit electronic connections with switched on operating voltage!**



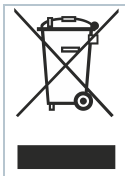
Caution!

It is important to use the cable cross-sections appropriate to the various cable lengths used.

Maintenance notes

Electronic connections require no maintenance.

Disposal



The device is considered an electronics device for disposal in terms of European Directive 2012/19/EU 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.

Warranty

Application-specific technical data must be observed.
If specified limits are not observed, Siemens Switzerland Ltd will not assume any responsibility.

Technical data

		ZM../A	ZM110, ZM111, ZM210
Power supply	Extra low-voltage only (SELV, PELV)		
	Operating voltage [1]	AC 24 V + 15 % / -10 %	
	Frequency	50…60 Hz	
	Max. apparent power S_{NA} ZM1..	≤ 40 VA	
	ZM2..	≤ 120 VA	
Signal inputs	Positioning signal		
	ZM100/A, ZM101/A, ZM200/A	DC 0…10 V or DC 0…20 V Phs	
	ZM120/A, ZM121/A, ZM220/A	DC 4…20 mA or DC 0…20 V Phs	
	ZM110, ZM111, ZM210		DC 0…20 V Phs
	Input resistance DC 0…10 V	> 90 kΩ	
	Input resistance DC 4…20 mA	< 150 Ω	
Electrical connections	Cable entry point	2 x PG11	PG11
	Connecting terminal	screwing terminal for 4 mm^2 wire	
	Min. wire cross-section	0,75 mm^2	
Norms and directives	Electromagnetic compatibility (Application)	For residential, commercial and industrial environments	
	Product standard	EN 60730-x	
	EU Conformity (CE)	CA1T4591xx [2]	
	Electrical safety	EN 60730-1	
	Housing protection	refer „Type summary“, page 2	
	Environmental compatibility	Environmental declaration contains data on environmental-compatible product design and assessment (RoHS compliance, compositions, packaging, environmental benefits and disposal)	

[1] Electronic connection ZM../A used with DC 0…20 V phase cut signals: Do not connect AC 24 V.
[2] The documents can be downloaded from http://siemens.com/bt/download

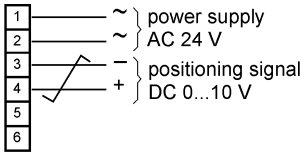
Connection terminals

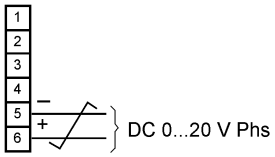
Warning

If a ZM../A terminal housing is used with DC 0...20 V Phs (phase cut), AC 24 V must not be connected!
Always switch off the power supply before connecting or disconnecting the ZM.. or ZM../A terminal housing.

ZM100/A, ZM101/A, ZM200/A

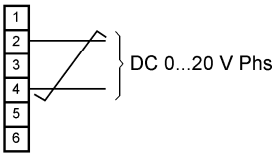
DC 0...10 V or DC 0...20 V Phs





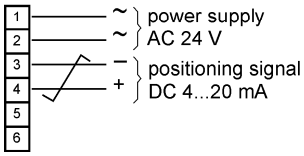
ZM110, ZM111, ZM210

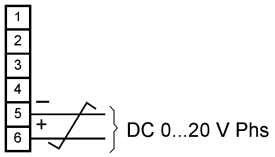
DC 0...20 V Phs

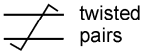


ZM120/A, ZM121/A, ZM220/A

DC 4...20 mA or DC 0...20 V Phs







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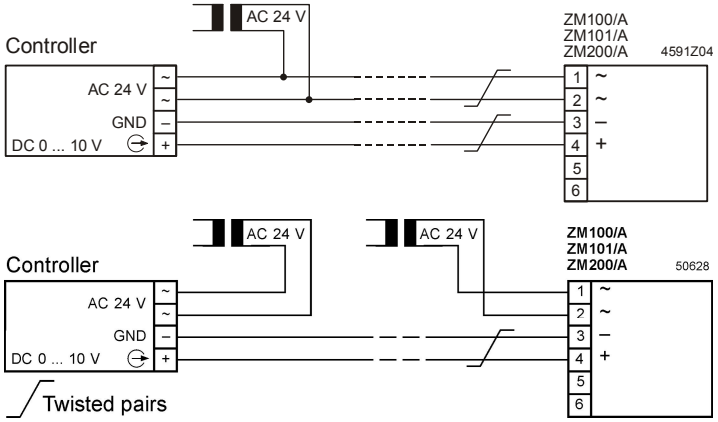
Connection diagrams

ZM../A, DC 0…10 V

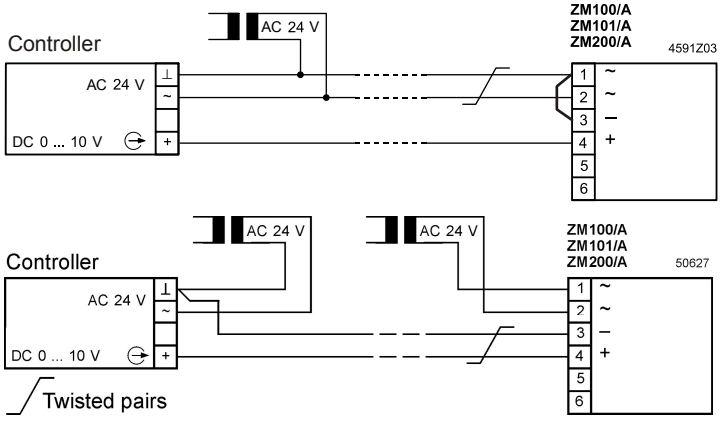
Controller with 4-wire connection

ZM../A supplied from controller transformer or (over longer distances) from a separate transformer.



Controller with 3-wire connection

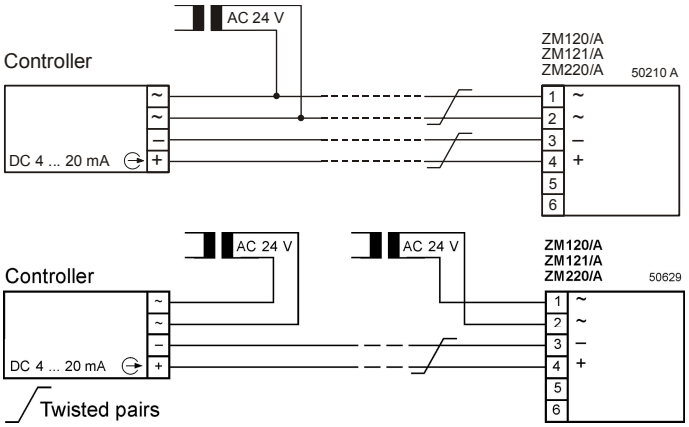
ZM../A supplied from controller transformer or (over longer distances) from a separate transformer.



Note: If, for reasons of cross-section, the AC 24 V and DC 0 ...10 V (or DC 4 ... 20 mA) cables are routed separately, the AC 24 V cable need not be twisted.

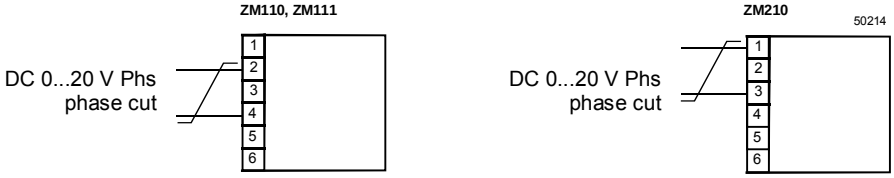
ZM../A, DC 4…20 mA

ZM../A supplied from controller transformer or (over longer distances) from a separate transformer.

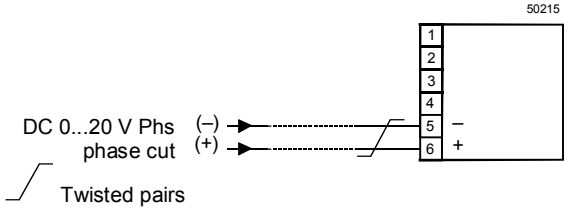


Note: Several DC 4 ... 20 mA receivers can be driven by the same control signal (series connection – check input impedance!).

DC 0...20 V Phs
ZM110, ZM111, ZM210



DC 0…20 V Phs
ZM100/A, ZM101/A,
ZM200/A, ZM120/A,
ZM121/A, ZM220/A



Caution!
Do not connect AC 24 V operating voltage!
Pay attention to polarity of phase cut signal DC 0…20 V Phs!

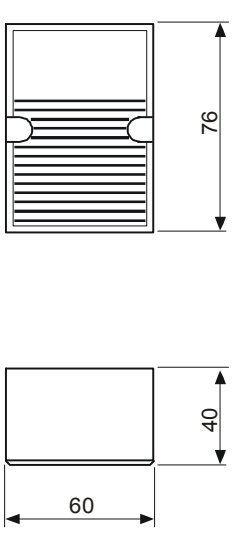
Transformer sizing

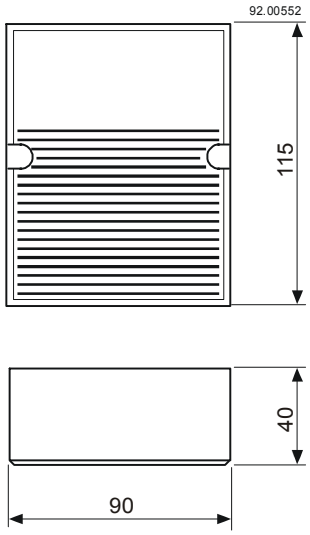
The transformer is sized by applying the following formula:
Transformer power P_{Tra} = 1.4 • Sum of the individual loads

Dimensions

Dimensions in mm

ZM100/A
ZM101/A
ZM110
ZM111
ZM120/A
ZM121/A





ZM200/A
ZM210
ZM220/A

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