



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

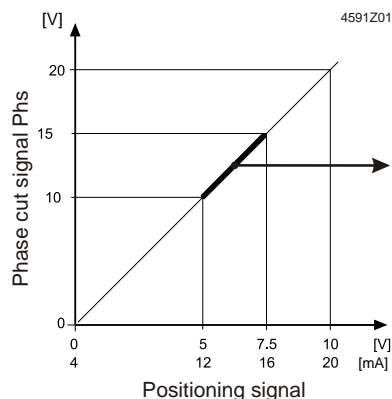
Terminal housing for the control of Siemens control valves and pilot valves with magnetic actuator.

## 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
<b>ZM100/A</b>	AC 24 V	DC 0...10 V	DC 5...7.5 V	IP31
	-	DC 0...20 V Phs <sup>1)</sup>	DC 10...15 V Phs	
<b>ZM101/A</b>	AC 24 V	DC 0...10 V	DC 5...7.5 V	IP54
	-	DC 0...20 V Phs <sup>1)</sup>	DC 10...15 V Phs	
<b>ZM200/A</b>	AC 24 V	DC 0...10 V	DC 5...7.5 V	IP31
	-	DC 0...20 V Phs <sup>1)</sup>	DC 10...15 V Phs	
<b>ZM120/A</b>	AC 24 V	DC 4...20 mA	DC 12...16 mA	
	-	DC 0...20 V Phs <sup>1)</sup>	DC 10...15 V Phs	
<b>ZM121/A</b>	AC 24 V	DC 4...20 mA	DC 12...16 mA	IP54
	-	DC 0...20 V Phs <sup>1)</sup>	DC 10...15 V Phs	
<b>ZM220/A</b>	AC 24 V	DC 4...20 mA	DC 12...16 mA	IP31
	-	DC 0...20 V Phs <sup>1)</sup>	DC 10...15 V Phs	
<b>ZM110</b> <sup>2)</sup>	-	DC 0...20 V Phs	DC 10...15 V Phs	IP31
<b>ZM111</b> <sup>2)</sup>	-			IP54
<b>ZM210</b> <sup>2)</sup>	-			IP31

<sup>1)</sup> DC 0...20 V Phs "straight-through" terminal housing do not connect operating voltage AC 24 V!

<sup>2)</sup> While stocks last

## Ordering

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

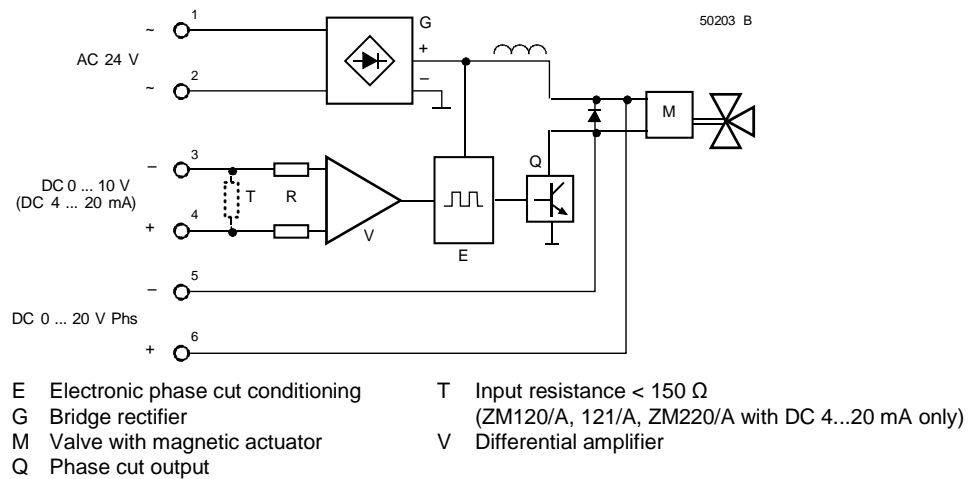
Example:

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].



## Sizing

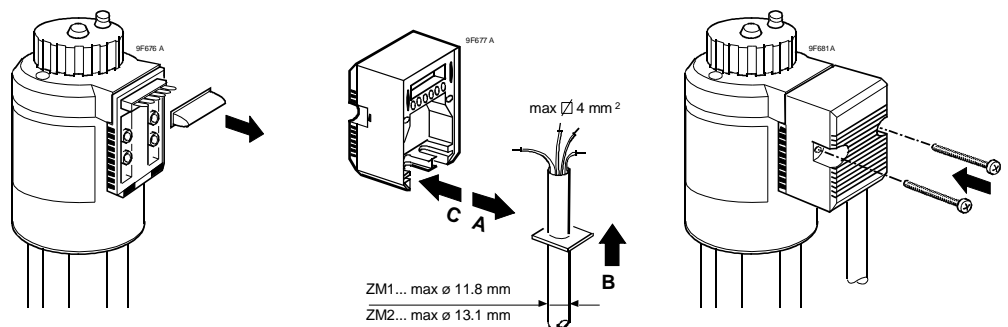
### Transformer sizing

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

## 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 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.

## 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 <sup>1)</sup>
Power supply	Extra low-voltage only (SELV, PELV)	
	Operating voltage <sup>2)</sup>	AC 24 V + 15 % / -10 %
	Frequency	50...60 Hz
	Max. apparent power S <sub>NA</sub> 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
Electrical connections	Input resistance DC 4...20 mA	< 150 Ω
	Cable entry point	2 x PG11
	Connecting terminal	screwing terminal for 4 mm <sup>2</sup> wire
	Min. wire cross-section	0,75 mm <sup>2</sup>
Norms and directives	Electromagnetic compatibility (Application)	For residential, commercial and industrial environments
	Product standard	EN 60730-x
	EU Conformity (CE)	CA1T4591xx <sup>3)</sup>
	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)

<sup>1)</sup> While stocks last

<sup>2)</sup> Electronic connection ZM../A used with DC 0...20 V phase cut signals: Do not connect AC 24 V.

<sup>3)</sup> The documents can be downloaded from <http://siemens.com/bt/download>

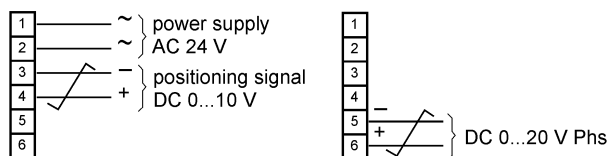
## Connection terminals

### 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.

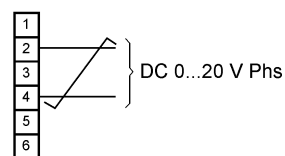
#### ZM100/A, ZM101/A, ZM200/A

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



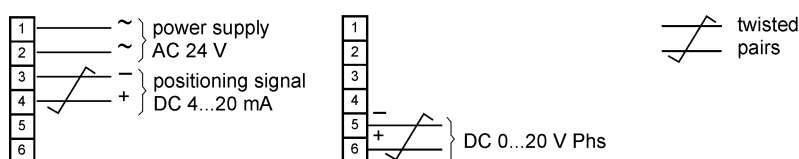
#### ZM110, ZM111, ZM210

DC 0...20 V Phs



#### ZM120/A, ZM121/A, ZM220/A

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



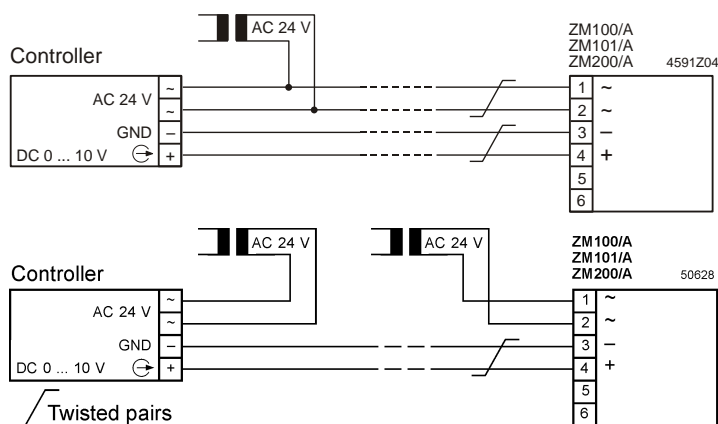
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## Connection diagrams

### ZM../A, DC 0...10 V

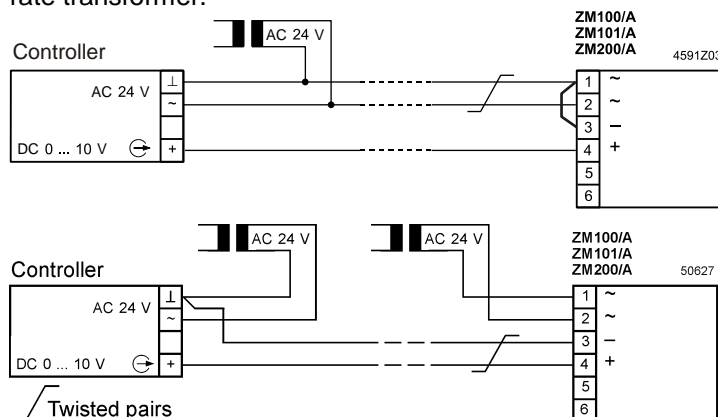
Controller with 4-wire connection

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



Controller with 3-wire connection

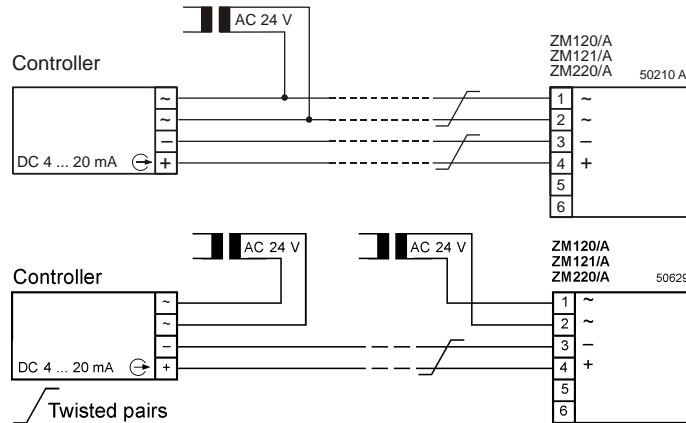
ZM../A supplied from controller transformer or (over longer distances) from a separate transformer.



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.

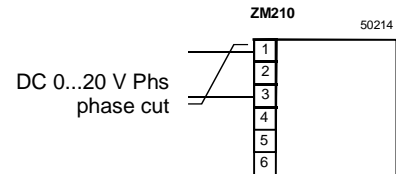
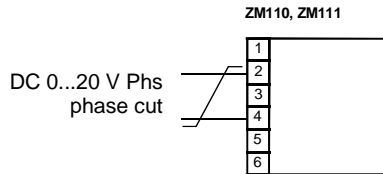
### ZM../A, DC 4...20 mA

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

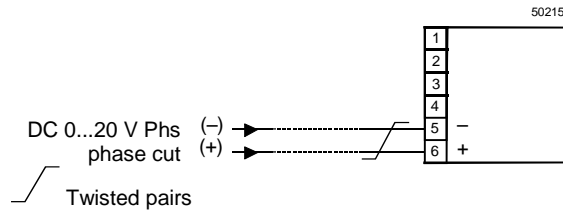


Note: Several DC 4 ... 20 mA receivers can be driven by the same control signal (series connection – check input impedance!).

### 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!

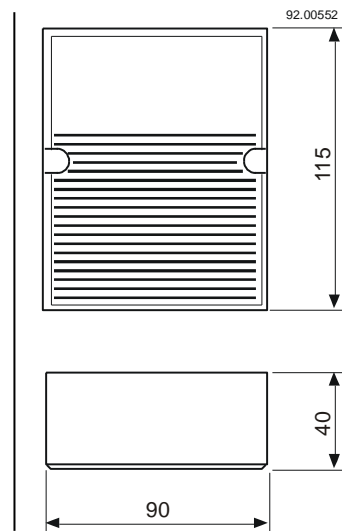
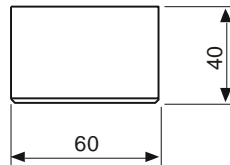
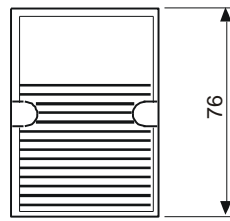
### Transformer sizing

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

## Dimensions

Dimensions in mm

**ZM100/A**  
**ZM101/A**  
**ZM110 <sup>1)</sup>**  
**ZM111 <sup>1)</sup>**  
**ZM120/A**  
**ZM121/A**



**ZM200/A**  
**ZM210 <sup>1)</sup>**  
**ZM220/A**

<sup>1)</sup> While stocks last

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