



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

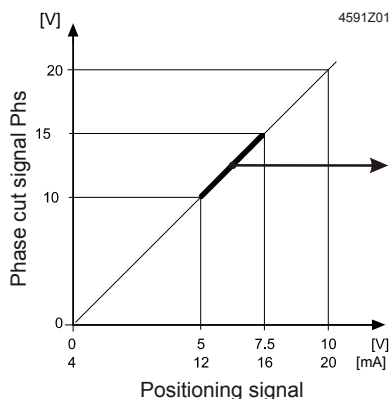
Terminal housing for the control of Siemens control valves and pilot valves with magnetic actuator.

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 5...7.5 V	IP31
	-	DC 0...20 V Phs ¹⁾	DC 10...15 V Phs	
ZM101/A	AC 24 V	DC 0...10 V	DC 5...7.5 V	IP54
	-	DC 0...20 V Phs ¹⁾	DC 10...15 V Phs	
ZM200/A	AC 24 V	DC 0...10 V	DC 5...7.5 V	IP31
	-	DC 0...20 V Phs ¹⁾	DC 10...15 V Phs	
ZM120/A	AC 24 V	DC 4...20 mA	DC 12...16 mA	IP31
	-	DC 0...20 V Phs ¹⁾	DC 10...15 V Phs	
ZM121/A	AC 24 V	DC 4...20 mA	DC 12...16 mA	IP54
	-	DC 0...20 V Phs ¹⁾	DC 10...15 V Phs	
ZM220/A	AC 24 V	DC 4...20 mA	DC 12...16 mA	IP31
	-	DC 0...20 V Phs ¹⁾	DC 10...15 V Phs	
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.

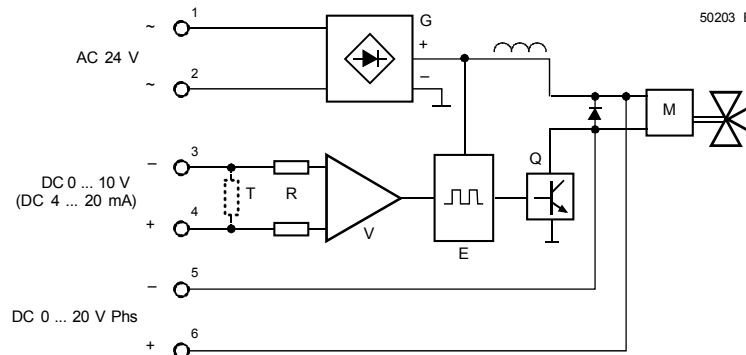
Example:

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].



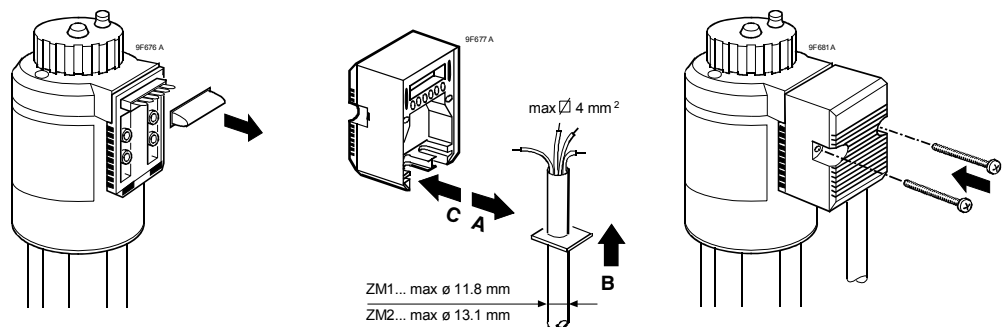
- | | | | |
|---|-----------------------------------|---|--|
| E | Electronic phase cut conditioning | T | Input resistance < 150 Ω
(ZM120/A, 121/A, ZM220/A with DC 4...20 mA only) |
| G | Bridge rectifier | V | Differential amplifier |
| M | Valve with magnetic actuator | | |
| Q | Phase cut output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

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.

The actuator must not be disposed of together with domestic waste. This applies in particular to the PCB.

Legislation may demand special handling of certain components, or it may be sensible from an ecological point of view.

Current local legislation must be observed.

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 (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
	Connecting terminal	screwing terminal for 4 mm ² wire
	Min. wire cross-section	0,75 mm ²
Norms and standards	CE-conformity	
	to EMV Directive	2004/108/EC
	Immunity	EN 61000-6-2:[2005] Industrial ²⁾
	Emission	EN 61000-6-3:[2007] Residential
Electrical safety	EN 60730-1	
Housing protection	refer „Type summary“, page 2	
Environmental compatibility	ISO 14001 (Environment) ISO 9001 (Quality) SN 36350 (Environmentally compatible products) RL 2002/95/EC (RoHS)	

¹⁾ Electronic connection ZM../A used with DC 0...20 V phase cut signals: Do not connect AC 24 V.

²⁾ Transformer 160 VA (e.g. Siemens 4AM 3842-4TN00-0EA0).

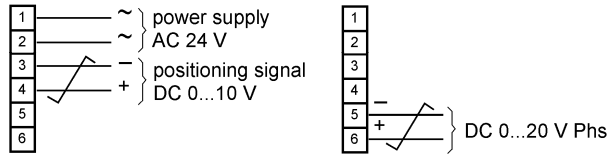
Connection terminals

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.

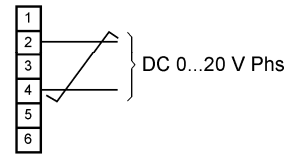
ZM100/A, ZM101/A, ZM200/A

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



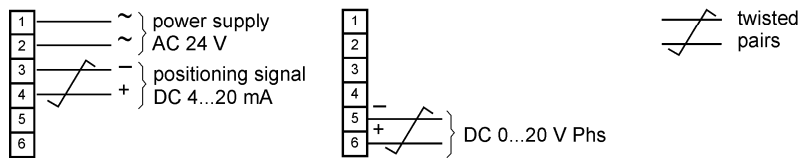
ZM110, ZM111, ZM210

DC 0...20 V Phs



ZM120/A, ZM121/A, ZM220/A

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



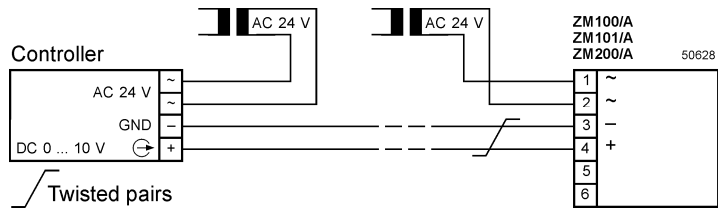
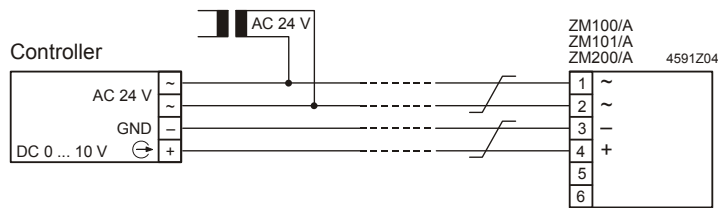
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Connection diagrams

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

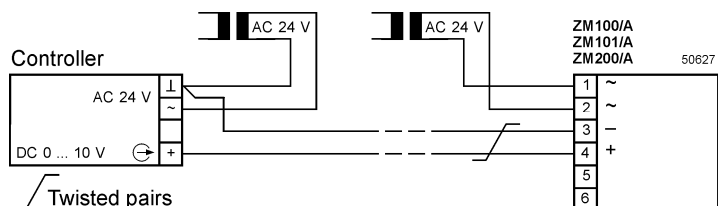
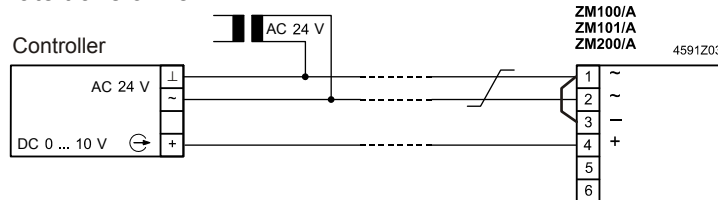
Controller with 4-wire connection

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



Controller with 3-wire connection

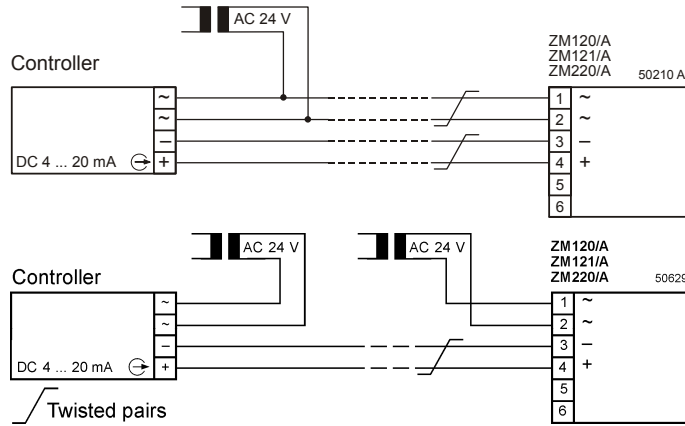
ZM../A supplied from controller transformer or (over longer distances) from a separate transformer.



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.

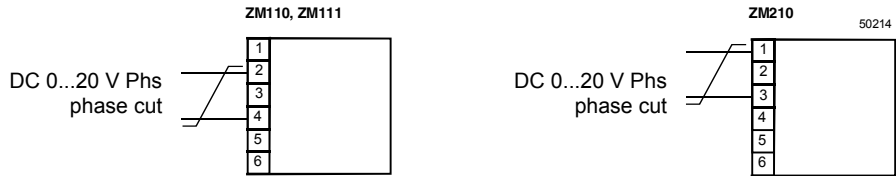
ZM../A, DC 4...20 mA

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

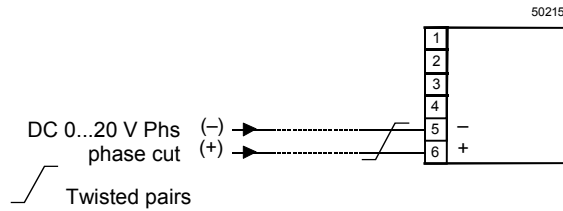


Note: Several DC 4 ... 20 mA receivers can be driven by the same control signal (series connection – check input impedance!).

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

