

# TA-MC253 SE



## Actuators

High performance proportional actuator with fail-safe function – 561 lbf (2500 N)

# TA-MC253 SE

High performance proportional actuators with fail-safe extending and automatic stroke adaptation which provide accurate modulating or 3-point control when used together with combined control and balancing valves – both with or without integrated  $\Delta p$  controller – as well as 2-way and 3-way control valves from IMI Hydronic Engineering.

## Key features

### > Easy commissioning

Automatic measurement and adaptation to the valve lift as well as load-dependent end position switch-off which helps to reduce commissioning time and protect the valve and actuator from overloading.

### > Easy troubleshooting

Protected hand drive for a safe manual operation which enables easy troubleshooting.

### > Ease of service

The actuator housing cover is easy to remove (without screws). Parameters can be easily changed on site.



## Technical description

### Functions:

Modulating or 3-point control.

### Fail-safe function:

Actuator's stem extended on power failure.

### Supply voltage:

24 VAC  $\pm 10\%$   
115 VAC  $+6\%/-10\%$   
Frequency 50-60 Hz  $\pm 5\%$

### Power consumption:

24 V: 50 VA  
115 V: 80 VA

### Input signal:

0(2)-10 VDC,  $R_i \sim 77 \text{ k}\Omega$   
0(4)-20 mA,  $R_i \sim 510 \Omega$ .  
Signal direction and starting point adjustable by micro switches.  
3-point control.

### Output signal:

0-10 VDC, max. 8 mA, min. 1,2 k $\Omega$ .

### Hysteresis:

0,05 V / 0,15 V / 0,3 V / 0,5 V

### Resolution:

Electric: 0,04 VDC  
Mechanical: 0,002 in (0.04 mm)

### Control speed:

88.9 s/in

### Fail-safe speed:

2.54 s/in

### Adjusting force:

562 lbf

### Operation mode:

S3-50% ED c/h 1200, EN 60034-1

### End position switch-off:

Load-dependent

### Temperature:

Max. ambient temperature: 140°F  
Min. ambient temperature: 32°F

### Ingress protection:

IP54

### Protection class:

(according to EN 60730)  
24 V: III  
115 V: II

### Stroke:

Max. 1.58 in  
Automatic detection of the valve lift (stroke detection).

### Electrical connection:

Actuator with screwed terminals.

### Connection to valve:

Simple attachment to the valve by means of M8 screws.  
For some valve types an adapter may be needed. Information on adapters included in valve datasheets.

### Color:

Black body and red cover.

### Marking:

IMI TA, CE, Article No, product name and technical specification.

### Weight:

27.6 lb

### Actuator variants:

- Position switch unit:  
2 switches (WE1/WE2), potential free, infinitely adjustable.  
Rated load: 8 A / 250 VAC, 8 A / 30 VDC.  
Switching voltage: max. 400 VAC, max. 125 VDC.
- Ingress protection: IP65
- Output signal: X=0(4)...20 mA
- Adapter with coupling for external product

For variants and accessories please contact your local sales office.

## Function

### Manual override

Handwheel with automatic switch off of the actuator (only possible if actuator is not closed by the safety spring!).

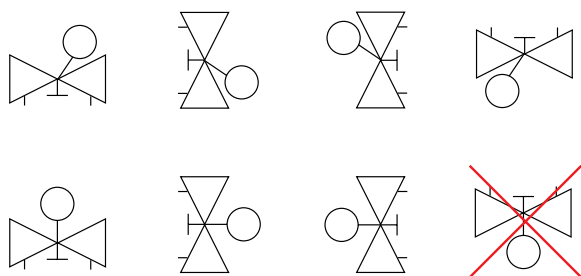
### Calibration/self-stroking

Initialized by pressing the INIT button.

## Installation

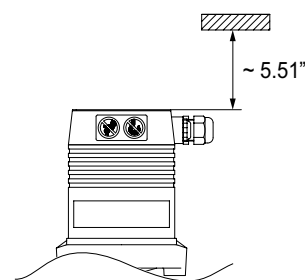
**Note:** Carefully read the installation instruction of the actuator. Intended for indoor installation applications.

For outdoor installation applications please contact IMI Hydronic Engineering. In cooling systems, the pipe and valve must be insulated.



### Note!

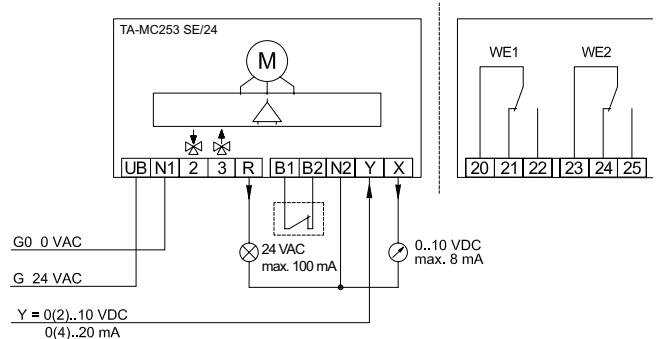
Space above actuator >5.5 in.



## Connection diagram

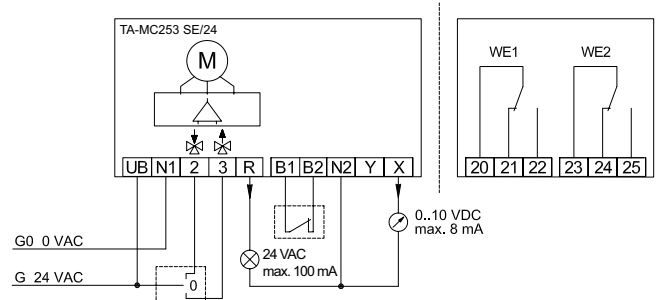
### 24 VAC

**Modulating** 0(2)-10V, 0(4)-20 mA  
Standard design



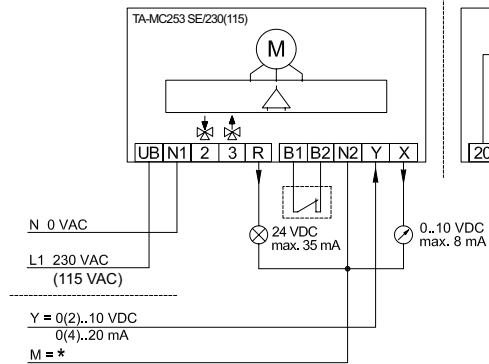
### 3-point

Standard design

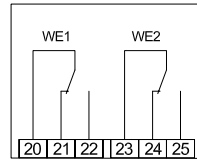


**115 VAC****Modulating** 0(2)-10V, 0(4)-20 mA

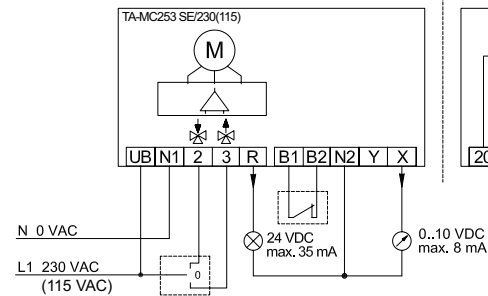
Standard design



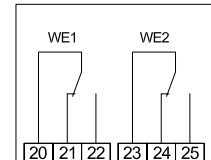
Special accessories

**3-point**

Standard design



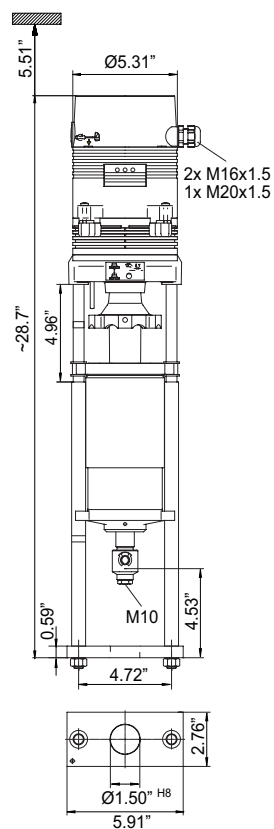
Special accessories



\*) M = ground

Terminal	Description
<b>UB, N1</b>	Supply voltage
<b>2</b>	Control signal for extending the actuator spindle
<b>3</b>	Control signal for retracting the actuator spindle
<b>R</b>	Response signal during "manual" mode - R= 24 VDC max. 35 mA. 24 VAC max. 100 mA for actuators in 24 VAC design. 24 VDC max. 35 mA for actuators in 115 VAC design.
<b>B1, B2</b>	Connection of a potential free contact (e.g. for frost protection) - bridged if not used
<b>Y</b>	Input signal continuous mode
<b>X</b>	Output signal continuous mode
<b>N2</b>	Zero potential of signals X, Y and R - When the zero potentials of signals X, Y and R are identical to the zero potential of the supply voltage it is possible to bridge terminals N1 and N2. - If you run the actuator in continuous mode at 115 V, you will have to connect N2. - If you run the actuator in three-point mode at 115 V, you will have to connect N2 if you wish to use X or/and R at the same time.
<b>WE1, WE2</b>	Position switch units - see "Actuator variants"
<b>20, 21, 22</b>	Terminals of switching unit PS1
<b>23, 24, 25</b>	Terminals of switching unit PS2

## Articles



### TA-MC253 SE

Actuator's stem extended on power failure.

Supply voltage	Input signal	Article No
24 VAC	0(2)-10 VDC, 0(4)-20 mA, 3-point	61 253-101
115 VAC	0(2)-10 VDC, 0(4)-20 mA, 3-point	61 253-402

For some valve types an adapter may be needed. Information about adapters are included in the valve datasheets.

**For IP65 version:** Add "IP" after the Article No., example 61 253-101**IP**

## Accessories

### General actuator accessories

		Article No
<b>ACA 71</b>	Position Switch Unit (2 switches)	67 071-250
<b>ACA 76</b>	Output signal: 0(4)-20mA	67 076-250

