

# TA-MC160



## Actuators

High performance proportional actuator –  
359.7 lbf (1600 N)

# TA-MC160

High performance proportional actuators with automatic stroke adaptation which provide accurate modulating or 3-point control when used together with 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.

### Supply voltage:

24 VAC  $\pm 10\%$   
 24 VDC\*  $\pm 10\%$   
 115 VAC  $+6\%/-10\%$   
 Frequency 50-60 Hz  $\pm 5\%$   
 \*) DC – Direct current flat voltage.

### Power consumption:

24 V: 6 VA  
 115 V: 12 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

### Control speed:

0.39 or 0.59 in/min

### Adjusting force:

359.7 lbf  
 24 VDC: 247.3 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. 1.18 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:

7.06 lb

### Actuator variants:

- Position switch unit <sup>1)</sup>:  
 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 <sup>1)</sup>: X=0(4)...20 mA
- Adapter with coupling for external product

For variants and accessories please contact your local sales office.

1) Position switch unit and output signal 0(4)...20 mA not in combination.

## Function

### Manual operation

Handwheel with automatic switch-off of the actuator.

### Position indication

Indicators on the mounting rig.

### Error detection

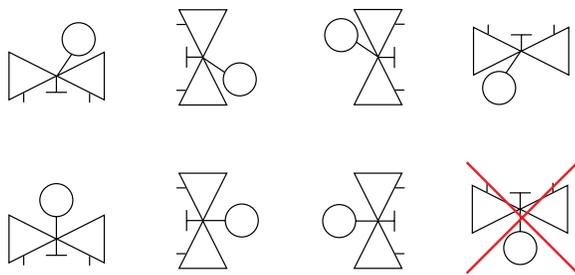
Automatic detection of broken control wire (for 2-10 V / 4-20 mA only).

Automatic detection of blocked valve.

## Installation

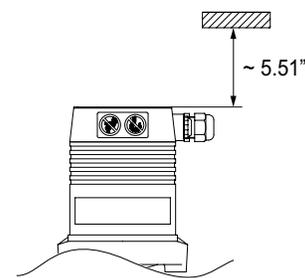
**Note:** Carefully read the installation instruction of the actuator. Intended for indoor installation applications.

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.



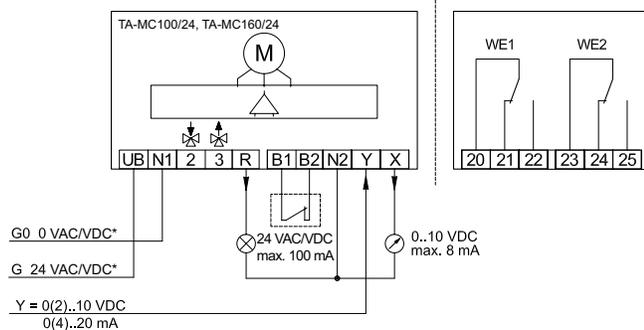
## Connection diagram

### 24 VAC

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

Standard design

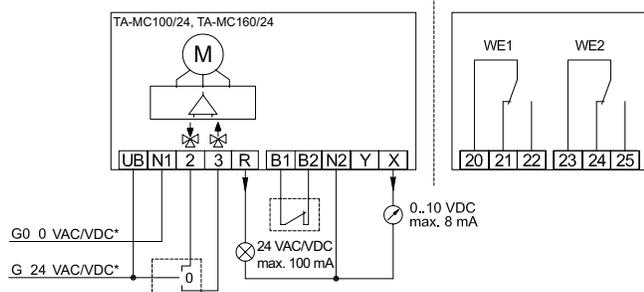
Special accessories



### 3-point

Standard design

Special accessories



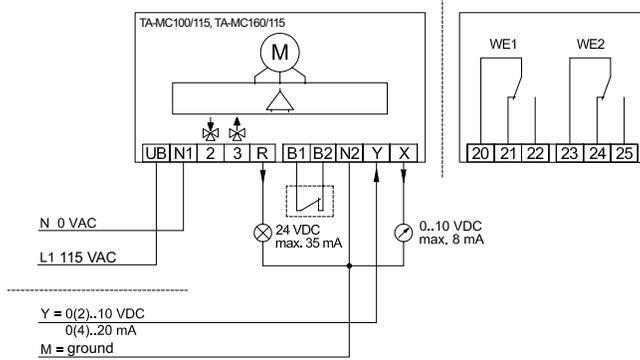
\*) DC – Direct current flat voltage.

## 115 VAC

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

Standard design

Special accessories

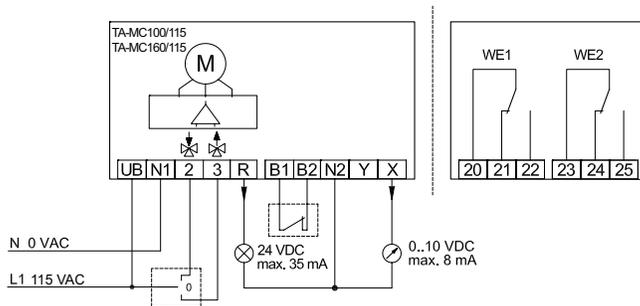


\*) M = ground

## 3-point

Standard design

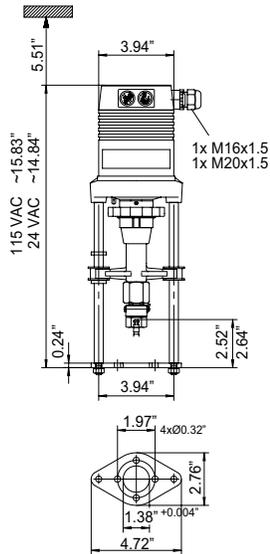
Special accessories



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 depending on the supply voltage: supply 24 VAC: R = 24 VAC max. 100 mA supply 115 VAC: R = 24 VDC max. 35 mA
<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 230 V (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

For 24V/115V 3-point control, the actuation direction can be changed by changing the supply lines of terminals 2 and 3 on the actuator.

## Articles



### TA-MC160

Supply voltage	Input signal	Adjusting force [lbf]	Article No
24 VAC	0(2)-10 VDC, 0(4)-20 mA, 3-point	359.7	61 160-001
24 VDC*	0(2)-10 VDC, 0(4)-20 mA, 3-point	247.3	61 160-402
115 VAC	0(2)-10 VDC, 0(4)-20 mA, 3-point	359.7	61 160-302

\*) DC – Direct current flat voltage.

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 61 160-001**IP**

## Accessories

### General actuator accessories

Type	Description	Article No
<b>ACA 71</b>	Position Switch Unit (2 switches)	67 071-100
<b>ACA 76</b>	Output signal: 0(4)-20mA	67 076-100

**Note:** Position switch unit and output signal 0(4)-20 mA not in combination.

### Stem heaters

TA-MC55, TA-MC55Y, TA-MC100, TA-MC160

	Supply voltage	Article No
<b>ACV 13</b>	24 VAC	68 013-015





