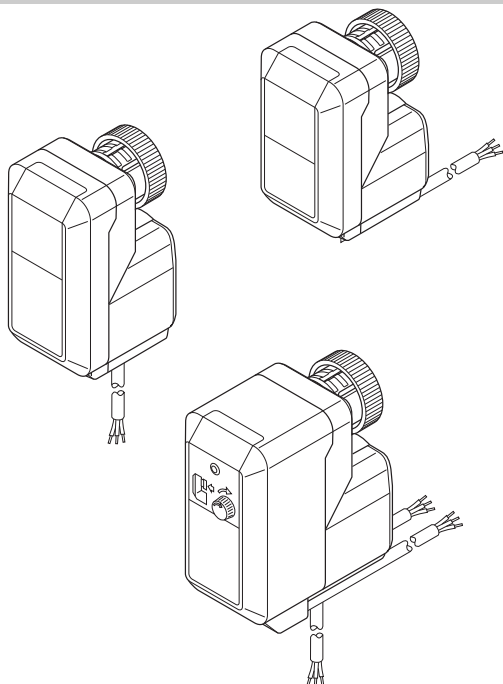


# M6410C/L, M7410C

## Small 3-Position Linear Valve Actuators

### PRODUCT DATA



## GENERAL

The Honeywell M6410C/L and M7410C actuators are specifically designed to provide floating control together with the V5822/23, V5832/33, V5825B, and VSMF series of small linear valves.

These actuators are used in fan-coil-units, induction units, small reheaters and recoolers, and for zone control applications. They are employed in electronic temperature control systems using hot and/or cold water as the controlled medium.

The M6410C/L and M7410C actuators are suitable for Honeywell Excel series controllers as well as for Honeywell individual room temperature controllers. These controllers track the precise valve position by counting the number of individual control pulses which move the valve from one position to another. For this reason, the actuators do not need end switches or a feedback potentiometer. The absence of these mechanical components ensures long-term reliability.

The actuators are also compatible with any controller providing intelligent position control and having a built-in shut-off function.

These actuators are well suited for applications where space is limited and minimum power consumption is required. The actuators are both attractive and robust in design.

## FEATURES

- Small size allows installation where space is limited
- Low power consumption
- Reliable long-term operation because mechanical feedback potentiometers and mechanical end switches are not required
- Magnetic coupling for stem force limitation and self-adjustment of the close-off-point
- Reversible synchronous AC motor
- Suitable for three-position modulating control without proportional feedback
- Supplied with pre-wired connection cable
- Simple, standardized valve/actuator coupling; no tools required for mounting
- Visual valve position indicator furnished with actuators
- Manual operation provided by the valve adjustment cap, extra knob, or with a hexagon key
- Auxiliary switch

## SPECIFICATIONS

### Motor

|   |  |
|---|--|
| Input voltage   | 24 Vac +10%/-20%; 50/60 Hz<br>230 Vac +10%/-15%; 50/60 Hz                            |
| Power consumption   | 0.7 VA (24-V models)<br>7.0 VA (230-V models)*                                       |
| Control mode  | floating   |
| Stroke  | 6.5 mm   |
| Running time  | 150 s at 50 Hz, 125 s at 60 Hz   |
| Stem force  | version-dependent (see Table 1)  |
| Protection standard   | IP 43 as per EN60529   |
| Insulation class  | II/III, depending on type (as per EN 60730)  |
| Connection cables   | 1.5 m (standard; 3 m, 5 m, and 10 m available for 24-V models, upon special request) |
| Actuator cable (24 V)   | 3 x 0.3 mm <sup>2</sup> , copper, according to VDE 0295                              |
| Actuator cable (230 V) and aux. switch cable  | (N)YLHYW 3 x 0.75 mm <sup>2</sup> , according to VDE 0281                            |
| Ambient operating limits  | 0...60 °C  |
| Medium valve temp.  | max. 120 °C  |
| Weight  | 0.4 kg   |
| Suitable valves   | Select in accordance with stem force; see Table 1                                    |
| Manual operation  | see Table 1  |
| *The controller output stage of 230-V models must be suitable for voltage peaks of up to 800 volts. |  |
| <b>Auxiliary Switches</b>   |  |
| Ratings   | 5...24 V, max. 100 mA<br>24...230 Vac, max 3 (1) A                                   |
| Switch position (factory-supplied)  | S1 (fixed): 17.8 ± 0.2 mm<br>S2 (adjustable): 11.7 ± 0.2 mm                          |

## OPERATION

The actuator is moved by a screw spindle driven in both directions, through a set of gears, by a synchronous motor. A magnetic clutch limits the torque of the gear assembly and the driving force of the actuator.

The actuator is fixed to the valve body by means of a coupling ring requiring no tools for mounting. The actuator is maintenance-free and supplied complete with a ready-to-wire connecting cable.

Table 1. Versions

| version                                 | power supply | manual operation           | stem force | aux. switch S1 | aux. switch S2 | housing type                          | OS number  |
|---|--------------|----------------------------|------------|----------------|----------------|---------------------------------------|------------|
| standard                                | 24 Vac       | provided by valve adj. cap | 180 N      | --             | --             | A                                     | M7410C1007 |
|   | 24 Vac       |                            | 300 N      | --             | --             | B                                     | M7410C1015 |
| with manual operation                   | 24 Vac       | integrated                 | 180 N      | --             | --             | C                                     | M6410C2023 |
|   | 24 Vac       |                            | 300 N      | --             | --             | C                                     | M6410C2031 |
|   | 230 Vac      |                            | 180 N      | --             | --             | C                                     | M6410L2023 |
|   | 230 Vac      |                            | 300 N      | --             | --             | C                                     | M6410L2031 |
| with manual operation and aux. switches | 24 Vac       | integrated                 | 180 N      | X              | X              | C                                     | M6410C4029 |
|   | 24 Vac       |                            | 300 N      | X              | X              | C                                     | M6410C4037 |
|   | 230 Vac      |                            | 180 N      | X              | X              | C                                     | M6410L4029 |
|   | 230 Vac      |                            | 300 N      | X              | X              | C                                     | M6410L4037 |
| Special cable lengths: 3 m / 5 m / 10 m | --           | --                         | --         | --             | --             | For 24-V models, upon special request |            |

## MOUNTING

The actuator may be mounted only beside or above the valve. Adjust the valve to the correct position before mounting.

The actuator must be mounted by hand. Do not use tools or additional force as this may damaged actuator and valve.

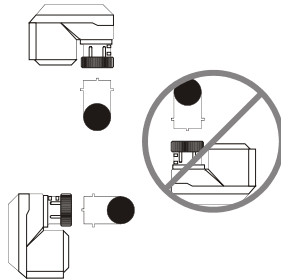


Fig. 1. Mounting positions

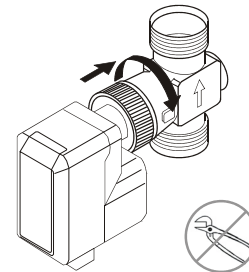


Fig. 3. Mounting the actuator

Before the actuator is fixed to the valve, remove the adjustment cap (Fig. 2). Ensure that the actuator is in the retract (factory-supplied) position before fixing the actuator to the valve body.

## ELECTRIC WIRING OF MOTOR

A fuse with a contact gap of at least 3 mm for each pole must be fitted with the fixed installation. The fuse rate is max. 2 A. The electrical installation must comply with Fig. 4.

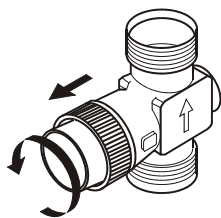


Fig. 2. Remove protection cap

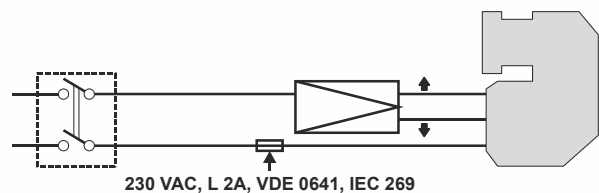


Fig. 4. Electric wiring of motor



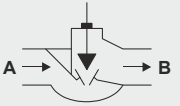
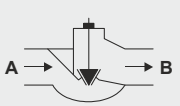
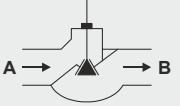
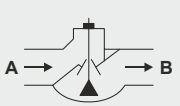
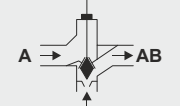
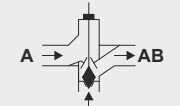
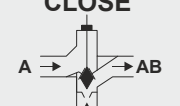
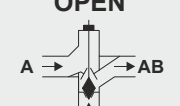
|   |   |  |
|---|---|--|
| COM   |                    |                   |
| <b>24-V MODELS: M6410C, M7410C</b>              |   |  |
| WHITE   | GREEN   | BROWN  |
| <b>230-V MODELS: M6410L</b>                     |   |  |
| BLUE  | BLACK   | BROWN  |
| <b>WORKING PORT A</b>                           |   |  |
| <b>V58x2A<br/>(DN15, DN20)</b>                  | <b>OPEN</b><br>    | <b>CLOSE</b><br>  |
| <b>V5832B<br/>(DN25-DN40),<br/>VSMF, V5825B</b> | <b>CLOSE</b><br>   | <b>OPEN</b><br>   |
| <b>DN15-DN40</b>                                | <b>CLOSE</b><br>  | <b>OPEN</b><br>  |
| <b>DN15, DN20</b>                               | <b>CLOSE</b><br> | <b>OPEN</b><br> |

Fig. 5. Cable colors, valve action

## MANUAL OPERATION

The actuators with integrated manual operation (see Table 1) feature a hexagonal key hole for manual operation. For more comfort, an additional knob for manual adjustment is packed separately. To avoid damaging the valve, separate the actuator from the power supply before adjusting manually.

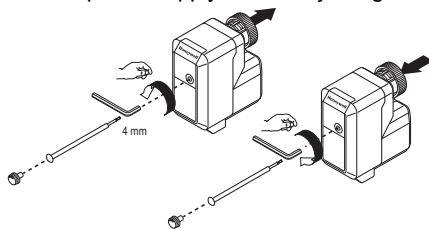


Fig. 6. Manual operation

## COMMISSIONING

A functional check of the valve actuator can be carried out by changing the controller setpoint by 5 °C or more. The resultant movement of the actuator stem (Fig. 7) indicates whether the valve is opening or closing.

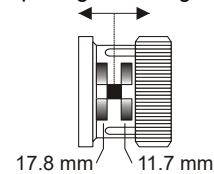


Fig. 7. Movement of the actuator stem

## AUXILIARY SWITCHES

The actuators with the OS-number M\*\*\*\*40\*\* feature two auxiliary switches, each with its own cable. Auxiliary switch S1 switches when the stem reaches its fixed switchpoint. Auxiliary switch S2 switches when the stem reaches its adjustable switchpoint.

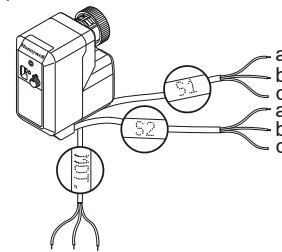


Fig. 8. Auxiliary switch cables

## Adjustment of Auxiliary Switch 2

Auxiliary switch 2 should be adjusted by skilled personnel, only.

Move the actuator to the position where the switch is to be tripped. Cut the plastic skin with a sharp knife. The adjustment screw is accessible below the skin. First turn the screw clockwise until the end stop is reached. Then turn the screw counterclockwise until the switch point is achieved. To check that the required position has been set, move the actuator. Finally, seal the adjustment hole with a piece of tape.

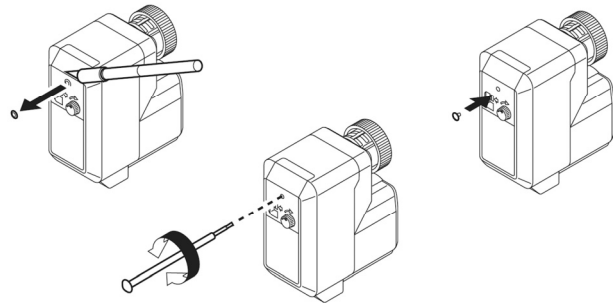


Fig. 9. Adjustment of auxiliary switch S2

### Electric Wiring of Auxiliary Switches

The electrical installation must comply with Fig. 10. If the auxiliary switch is connected to 230 Vac, a switch with a contact gap of at least 3 mm for each pole must be fitted with the installation.

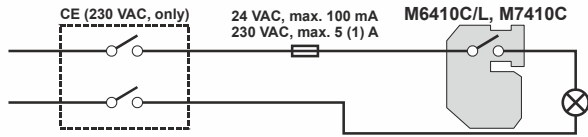


Fig. 10. Electric wiring of auxiliary switch

|                                  |                                |                                |                                |
|----------------------------------|--------------------------------|--------------------------------|--------------------------------|
|                                  |                                |                                |                                |
| V58x2A (DN15, DN20)              | <p>OPEN</p>                    | <p>↑</p>                       | <p>CLOSE</p>                   |
| V5832B (DN25-DN40), VSMF, V5825B | <p>CLOSE</p>                   | <p>↑</p>                       | <p>OPEN</p>                    |
| DN15-DN40                        | <p>CLOSE</p>                   | <p>↑</p>                       | <p>OPEN</p>                    |
| DN15, DN20                       | <p>CLOSE</p>                   | <p>↑</p>                       | <p>OPEN</p>                    |
| S1                               | <p>BROWN</p> <p>BLUE BLACK</p> | <p>BROWN</p> <p>BLUE BLACK</p> | <p>BROWN</p> <p>BLUE BLACK</p> |
| S2                               | <p>BROWN</p> <p>BLUE BLACK</p> | <p>BROWN</p> <p>BLUE BLACK</p> | <p>BROWN</p> <p>BLUE BLACK</p> |

Fig. 11. Cable colors, valve action

### Application Example: Switching Off an Electrical Appliance 2-Way-Valve (N.O.), S2

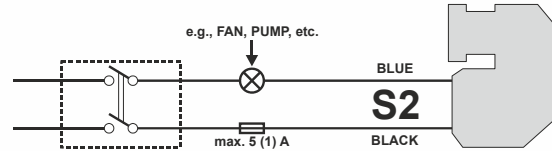
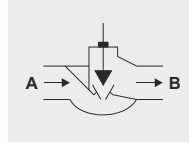


Fig. 12. Application example of auxiliary switch

### All Other Valves (N.C.), S1

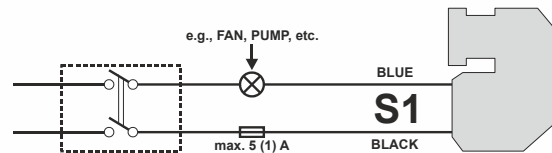
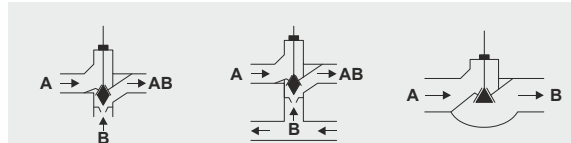


Fig. 13. Application example of auxiliary switch

### DIMENSIONS (mm)

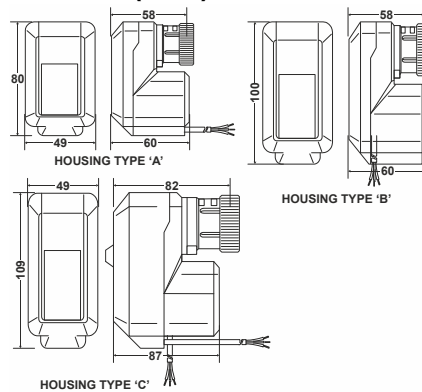


Fig. 14. Housing types



Manufactured for and on behalf of the Connected Building Division of Honeywell Products and Solutions Sàrl, Z.A. La Pièce 16, 1180 Rolle, Switzerland by its Authorized Representative:

#### Home and Building Technologies

Honeywell GmbH  
 Böblinger Strasse 17  
 71101 Schönaich, Germany  
 Phone +49 (0) 7031 637 01  
 Fax +49 (0) 7031 637 740  
 http://ecc.emea.honeywell.com