



BA2005.80.01



#### Advantages

- ✓ normally closed (NC)
- ✓ low power consumption: 1,8W
- ✓ universal valve adapter
- ✓ cable with connector
- ✓ with *First-Open* function
- ✓ 360° position indicator
- ✓ long life time
- ✓ absolutely quiet operation
- ✓ lowest TCO

#### Thermoelectric actuators, type BA2005 (BA2105)

- Power supply Uv : AC 230 Volt
- Control signal Y : On/Off or PWM
- Force / stroke : 100N, 4mm
- Electrical wiring: removable cable (with connector)
- With '*First-Open*' function
- Mounting : with universal valve adapter VA..
- Quite operation (0dbA)
- Minimal power consumption: 1,8W
- Position indicator 360°
- Normally closed (NC) / optionally normally version (NO)

#### AC 230 Volt



On/Off, PWM

#### Description

The thermoelectric actuators, series BA2005.., have been developed for automated valve operation of zone valves in HVAC applications like zone control, heating and cooling applications, IRC individual room control, etc.

The actuator uses a PTC resistor heated wax element and a spring loaded piston. The wax element is heated up by applying the power supply, and is then moving the internal piston. The force generated by this movement is transferred to the stem of the valve, thus opening or closing the valve.

The actuator offers a positioning force of 100N for a traveling stroke of 4mm.

#### Valve adapter for easy mounting

The actuator is fitted to the valve body through a unique 'click-on' valve adapter which allows an efficient mounting on the valve body.

#### Control signal

The BA2005.. series actuators are operated by an external two-point AC 230 Volt control signal ( On/Off ) or a PWM pulse width modulation signal.

#### Electrical wiring

The BA2005.. series are delivered with a removable cable ( 2x 0,75mm<sup>2</sup> ) with connector for electrical wiring. This cable concept facilitates assembly and the eventual replacement thereof. Furthermore it allows to perform the electrical installation without the need for actuators on site.

Standard cable length is 1m. Other cable lengths can be delivered on request (volume dependent).

#### Position indication

The mechanical position indication offers a clear 360° angle view on the open or closed position of the valve.

#### With '*First-Open*' function ( NC version only, type BA2005.. )

At factory mounting the BA2005.. actuator ( NC ) is delivered with the '*First-Open*' function. Thanks to this function the valve will be kept in opened position through an internal mechanical stop.

This function allows 'flushing' the valve even without electrical wiring and/or power supply on the valve side.

The '*First-Open*' function will automatically be disabled when the first AC 230 Volt power supply is connected for at least 6 minutes. The mechanical '*First-Open*' function will be disengaged permanently, and the actuator is set to normal operation.

Once the '*First-Open*' function is disengaged it cannot be armed again on site.

#### Behavior without power supply

- Series **BA2005..** normally closed ( NC )
- Series **BA2105..** normally open ( NO )

TCO : Total Cost of Ownership

**Nomenclature**

|           |          |          |          |          |           |           |                                                   |
|-----------|----------|----------|----------|----------|-----------|-----------|---------------------------------------------------|
| <b>BA</b> | <b>2</b> | <b>0</b> | <b>0</b> | <b>5</b> | <b>00</b> | <b>01</b> |                                                   |
| <b>BA</b> |          |          |          |          |           |           | <b>Type of actuator</b>                           |
|           |          |          |          |          |           |           | <b>BA</b> Belparts Actuator for terminal controls |
|           |          |          |          |          |           |           | <b>Power supply</b>                               |
|           | <b>2</b> |          |          |          |           |           | <b>2</b> AC 230 Volt                              |
|           | <b>4</b> |          |          |          |           |           | <b>4</b> AC/DC 24 Volt                            |
|           |          |          |          |          |           |           | <b>Stroke, behavior at power off</b>              |
|           |          | <b>0</b> |          |          |           |           | <b>0</b> 4,0mm, normally closed (NC)              |
|           |          | <b>1</b> |          |          |           |           | <b>1</b> 4,0mm, normally open (NO)                |
|           |          |          |          |          |           |           | <b>Options</b>                                    |
|           |          |          | <b>0</b> |          |           |           | <b>0</b> with no special options                  |
|           |          |          |          |          |           |           | <b>Electrical wiring</b>                          |
|           |          |          |          | <b>4</b> |           |           | <b>4</b> fixed cable                              |
|           |          |          |          | <b>5</b> |           |           | <b>5</b> removable cable (with connector)         |
|           |          |          |          |          |           |           | <b>Valve adapter<sup>1)</sup></b>                 |
|           |          |          |          |          | <b>00</b> |           | <b>00</b> delivery without valve adapter          |
|           |          |          |          |          | <b>50</b> |           | <b>50</b> with valve adapter, type VA50           |
|           |          |          |          |          | <b>80</b> |           | <b>80</b> with valve adapter, type VA80           |
|           |          |          |          |          |           |           | <b>Cable length<sup>2)</sup></b>                  |
|           |          |          |          |          | <b>01</b> | <b>01</b> | <b>01</b> cable 1m (standard)                     |
|           |          |          |          |          | <b>02</b> | <b>02</b> | <b>02</b> cable 2m                                |

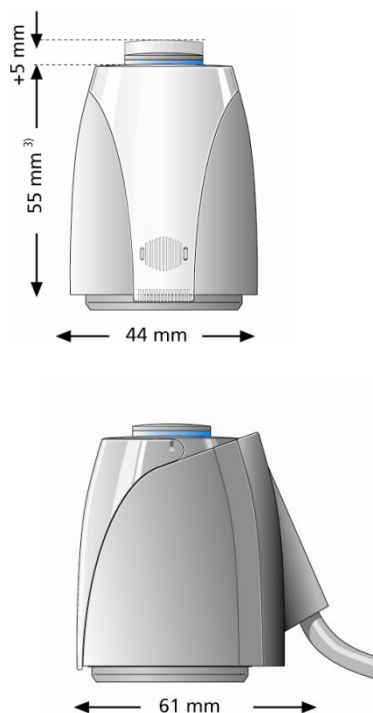
<sup>1)</sup> a complete list with valve adapters available on request

<sup>2)</sup> other cable length on request

**Mounting with the valve adapter**


The actuator is fitted to the valve body through a unique 'click-on' valve adapter concept which allows :

- an efficient mounting on the Belparts standard valve bodies
- to adapt the mounting to nearly every third party valve available on the market. The valve adapter type ( VA.. ) is determined depending on the manufacturer of the valve, series and manufacturing period.



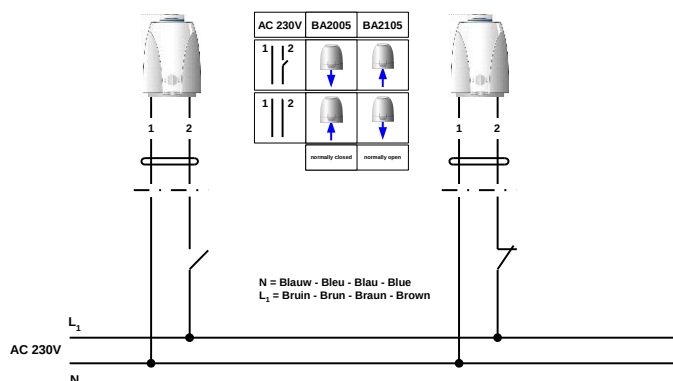
| Technical data       | BA2005.00.01                                           | BA2105.00.01            |
|----------------------|--------------------------------------------------------|-------------------------|
| Version              | normally closed                                        | normally open           |
| Power supply Uv      | AC 230 Volt ±10%, 50/60 Hz                             |                         |
| Protection           | II                                                     |                         |
| Operating current    | 8mA                                                    |                         |
| Start up current     | 300mA during 200ms maximum                             |                         |
| Power consumption    | 1,8W                                                   |                         |
| Force                | 100N +/- 5%                                            |                         |
| Stroke               | 4mm                                                    |                         |
| Running time         | approx. 3min. (opening and closing)                    |                         |
| Degree of protection | IP54                                                   |                         |
| CE conformity        | EN60730                                                |                         |
| Housing              | polyamide                                              |                         |
| Electrical wiring    | cable 2x 0,75mm <sup>2</sup> PVC gray 1m <sup>1)</sup> |                         |
| Temperature          | stock keeping                                          | -25..+60°C              |
|                      | ambient                                                | 0..+60°C                |
|                      | medium                                                 | 0..+100°C <sup>2)</sup> |
| Test EN60730-1       | min. 2,5kVolt                                          |                         |
| Valve adapter        | to be ordered separately                               |                         |
| Maintenance          | no maintenance required                                |                         |
| Weight               | 100g                                                   |                         |

<sup>1)</sup> other cable lengths available on request

<sup>2)</sup> by using a modified valve adapter higher temperature applications can be realized (option)

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### Electrical wiring



For AC 230 Volt installations it is recommended to use one of the following cables:

NYM : 1,5 mm<sup>2</sup>, or  
 NYIF : 1,5 mm<sup>2</sup>

### Cable for electrical wiring

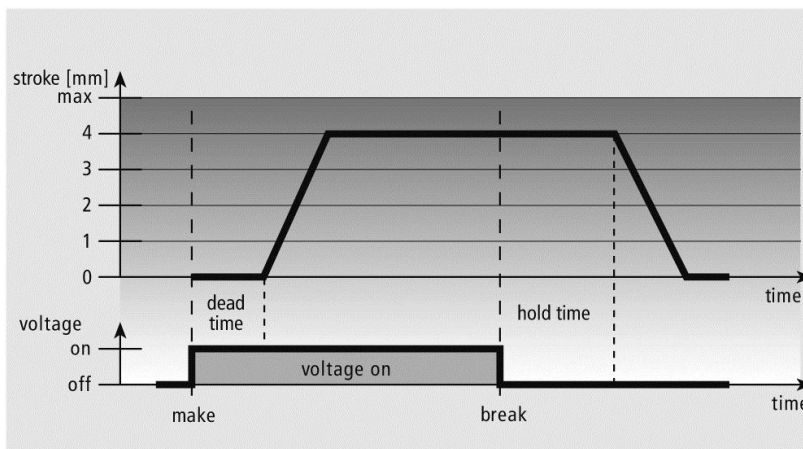
The thermic actuators series BA2005.. and BA2105.. are provided with a connecting cable with plug. Standard cable length is 1m (2x 0,75mm<sup>2</sup>). Other cable lengths are available upon request (volume dependent).

This system offers a flexible choice of cable length depending on the application, and easy to install, even without the actuators being on-site.

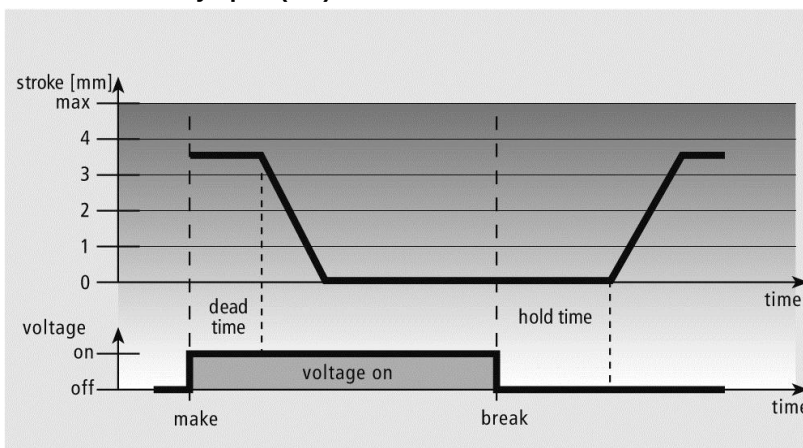


## Functional diagrams

### BA2005 normally closed (NC)

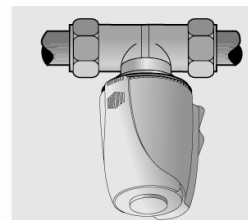
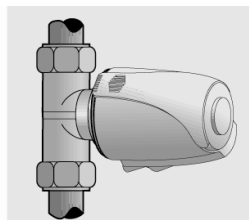
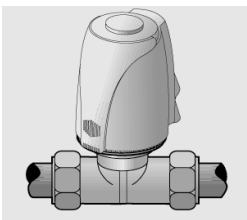


### BA2105 normally open (NO)



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## Mounting



When isolation material is used on installation parts in the direct environment of the valve + actuator combination (for example Armaflex on pipes, etc.) it is recommended to use ammonia-free isolation material. By using ammonia-free material irreparable damage by corrosion (like stress corrosion, etc.) can be avoided.

**Overview**

| Type         | AC 230 V | NF | NO | On/Off | PWM | cable         | L  | VA            |
|--------------|----------|----|----|--------|-----|---------------|----|---------------|
| BA2005.00.00 | ●        | ●  |    | ●      | ●   | <sup>1)</sup> | -  | <sup>1)</sup> |
| BA2005.00.01 | ●        | ●  |    | ●      | ●   | ●             | 1m | <sup>1)</sup> |
| BA2005.00.02 | ●        | ●  |    | ●      | ●   | ●             | 2m | <sup>1)</sup> |
| BA2005.80.00 | ●        | ●  |    | ●      | ●   | <sup>1)</sup> | -  | VA80          |
| BA2005.80.01 | ●        | ●  |    | ●      | ●   | ●             | 1m | VA80          |
| BA2005.80.02 | ●        | ●  |    | ●      | ●   | ●             | 2m | VA80          |
| BA2105.00.00 | ●        |    | ●  | ●      | ●   | <sup>1)</sup> | -  | <sup>1)</sup> |
| BA2105.00.01 | ●        |    | ●  | ●      | ●   | ●             | 1m | <sup>1)</sup> |
| BA2105.00.02 | ●        |    | ●  | ●      | ●   | ●             | 2m | <sup>1)</sup> |
| BA2105.80.00 | ●        |    | ●  | ●      | ●   | <sup>1)</sup> | -  | VA80          |
| BA2105.80.01 | ●        |    | ●  | ●      | ●   | ●             | 1m | VA80          |
| BA2105.80.02 | ●        |    | ●  | ●      | ●   | ●             | 2m | VA80          |

- <sup>1)</sup> : to be ordered separately  
 NC : normally closed  
 NO : normally open  
 PWM : pulse width modulation  
 L : cable length for electrical wiring  
 VA : valve adapter

**Accessories**
**Valve adapters <sup>1)</sup>**

|             |                                                                                |
|-------------|--------------------------------------------------------------------------------|
| <b>VA10</b> | valve adapter, type VA10 (BELPARTS, TA TBV-CM, TBV-CMP, ...)                   |
| <b>VA50</b> | valve adapter, type VA50 (Honeywell, MNG, TA Coil, Cazzaniga, Reich, L+S, ...) |
| <b>VA80</b> | valve adapter, type VA80 (BELPARTS, Oventrop, TA TBV-C, ...)                   |

<sup>1)</sup> complete list with valve adapters available on request

**Cable for electrical wiring**

|                     |                                                        |
|---------------------|--------------------------------------------------------|
| <b>ALL5.2.01000</b> | cable for thermoelectric actuators On/Off, PWM, L : 1m |
| <b>ALL5.2.02000</b> | cable for thermoelectric actuators On/Off, PWM, L : 2m |
| <b>ALL5.2.05000</b> | cable for thermoelectric actuators On/Off, PWM, L : 5m |

**Ordering example**


| Qty  | Type                | Description                                                                                                    |
|------|---------------------|----------------------------------------------------------------------------------------------------------------|
| 1 pc | <b>BA2005.80.01</b> | thermoelectric actuator 100N, AC 230 Volt, On/Off, PWM, with removable cable 1m and a valve adapter, type VA80 |


**Scope of delivery**

| Qty | Reference           |                                                    |
|-----|---------------------|----------------------------------------------------|
| 1pc | <b>BA2005.00.01</b> | thermoelectric actuator AC 230 Volt, with cable 1m |
| 1pc | <b>VA80</b>         | valve adapter                                      |

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