

Centra VRM-N

Rotary Actuator, 0-10 V or 3-Point Control

Application

The Resideo Centra VRM-N actuators are designed to provide proportional 0(2)-10 V, 3-Point (floating) or 2-Point control in heating and air conditioning systems. High control performance and a robust design are standard for this actuator.

In combination with the valves, DR/DRG/ZR/DRU/DRR and ZRK, it is possible to control very exactly heating and cooling water temperatures.

The actuators can be combined also with V6001 butterfly valves.

The mechanical interface between actuator and valve is designed for reliable operation.

The actuator is available as:

- VRM10N, VRM20N, VRM30N, VRM40N

Approvals

- CE

Special Features

- Maintenance-free electrical actuator for rotary valves
- Direct mounting on Centra rotary valves
- High torque for reliable operation
- Protected against overload and blocking which results in long lifetime
- Clear position indicator
- Manual operation possible
- Pluggable terminal for easy electrical installation
- LED status indication
- Control signal selector protected by cover



Technical Data

| Specifications | | | |
|------------------------------------|--------------------------------------------------------------|-------------------------------|--------------------------------|
| Power supply: | 24 V DC ($\pm 10\%$) 24 V AC (+15 % / -20%) 50/60 Hz | | |
| Power consumption: in operation | 10 Nm 20 Nm 30 Nm 40 Nm | W 1.0 1.5 2.0 2.5 | VA 2.4 3.3 4.3 5.2 |
| In idle mode | All models | 0.25 | 0.7 |
| Connection: | Terminals under cover | | |
| Control signal: | 0(2)...10 V, 3-Point, 2-Point | | |
| Protection standard: | IP 54 per EN 60529 | | |
| Angle of rotation: | 90 ° | | |
| Running time: | 120 s | | |
| Insulation class: | III per EN 60730 | | |
| Ambient operating temperature: | 0 to 60 °C | | |
| Water temperature in valve: | 1 to 120 °C | | |
| Max. relative air humidity: | 5 % to 95 % R.H. non-condensing | | |
| Weight: | 1.35 kg | | |

Transportation and Storage

Keep parts in their original packaging and unpack them shortly before use.

The following parameters apply during transportation and storage:

| Parameter | Value |
|---------------------------------|--------------------------|
| Environment: | clean, dry and dust free |
| Min. ambient temperature: | -35 °C |
| Max. ambient temperature: | 70 °C |
| Min. ambient relative humidity: | 5 % * |
| Max. ambient relative humidity: | 95 % * |

*non condensing

Method of Operation

The actuator is powered by a DC-motor. The spindle of the actuator rotates 90°. The position is controlled by internal electronics.

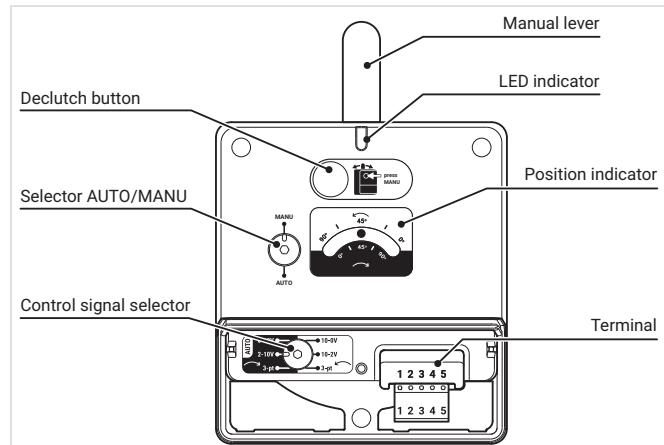


Fig. 1 Main features

The spindle can also be rotated manually. The MANU position at the Selector AUTO/MANU has to be chosen, and by pressing the MANU declutch button the gear is disengaged. In this configuration the manual lever can be used.

As soon the actuator is powered, the valve is driven by the actuator again.

An electrical overload circuit protects the actuator. If the rated torque is exceeded, the actuator is switched OFF automatically.

The actuator is maintenance-free.

Commissioning

The type of the control signal and the direction of rotation has to be chosen by the round control signal selector.

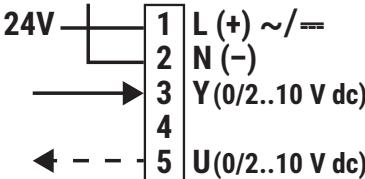
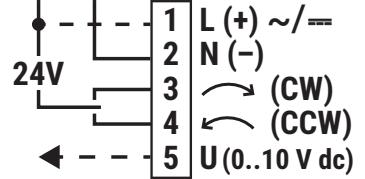
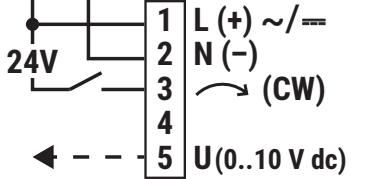
A 4 mm hexagon key has to be used with the round control signal selector.

| Application | Position of the control signal selector | Action of the actuator |
|--------------------------------|-----------------------------------------|------------------------|
| DR/DRG/DRU/DRR/ZR/ZRK V6001 | | |
| DR/DRG/DRU/DRR/ZR/ZRK V6001 | | |

Installation Guidelines

Before mounting the actuator, position the rotary valve according to its installation instruction.

Electrical connection

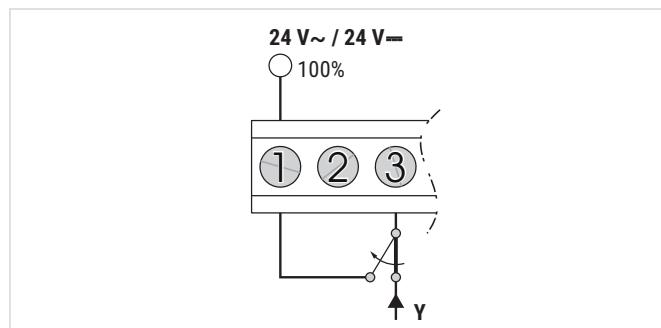
| Modulating 0(2)-10 V | Floating (3-Point) | 2-Position |
|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|  |  |  |

Note: In case of 3-Point electrical connection a combination of VRM40N rotary actuator with V6001 butterfly valve will not provide a full floating control performance.

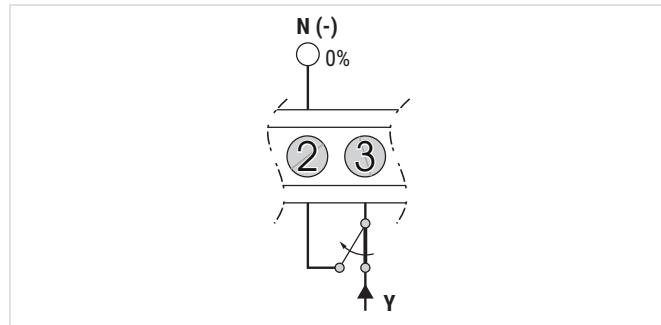
Overriding the input signal

To override the input signal Y, i.e. in order to control the position from an external source, connect to the actuator terminals as follows

- for a signal variable of 100 %, connect terminal 3 to terminal 1

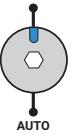
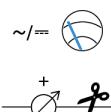


- for a signal variable of 0 %, connect terminal 3 to terminal 2 (system ground or ground wire)



LED indicator

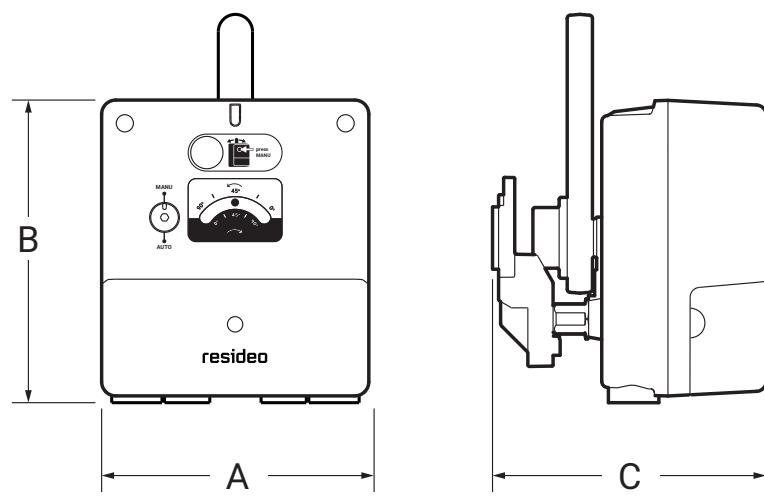
The movement and status of the actuator can be monitored by the LED indicator.

| | Status | Indication |
|-------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|-----------------------------------------|
|  | Moving | Green light blinking 1 s ON, 1 s OFF |
|  | Position per control signal reached | Solid green |
|  | Manual mode, AUTO/MANU selector in MANU position | Solid orange |
|  | No power supply | LED off |
|  | Error (actual alert or fault) - loss of signal or supply voltage out of range | Red light blinking 1 s ON, 1 s OFF |
|  | Error (actual alert or fault) - valve clogging detection | Solid red |

Tab. 1 LED indicator

Dimensions

Overview



| A | B | C | Type |
|-----|-----|-----|-------|
| 133 | 146 | 136 | VRM-N |

Note: All dimensions in mm unless stated otherwise.

Ordering Information

The following tables contain all the information you need to make an order of an item of your choice. When ordering, please always state the type, the ordering or the part number.

Naming of rotary actuators

| VR | M | 20 | N |
|------------------|---------------------------|--------|--------------------------------|
| Type of actuator | Type of control signal | Torque | Revision |
| Rotary | M = modulating 0(2) -10 V | 20 Nm | N = produced in 2025 and later |

Options

| Voltage | Nominal torque (Nm) | Description | Item number |
|------------|---------------------|-----------------------|-------------|
| 24 V AC/DC | 10 | ROTARY ACTUATOR 10 Nm | VRM10N |
| 24 V AC/DC | 20 | ROTARY ACTUATOR 20 Nm | VRM20N |
| 24 V AC/DC | 30 | ROTARY ACTUATOR 30 Nm | VRM30N |
| 24 V AC/DC | 40 | ROTARY ACTUATOR 40 Nm | VRM40N |

Suitable valves

| Valve type | DN | Nominal torque (Nm) | Item number |
|------------|----------|---------------------|-------------|
| DR | 15 - 32 | 10 | VRM10N |
| ZRK* | 20 - 40 | 10 | VRM10N |
| DR | 40 - 65 | 20 | VRM20N |
| DRR | 25 | 20 | VRM20N |
| DRU | 25 - 32 | 20 | VRM20N |
| ZR | 15 - 65 | 20 | VRM20N |
| DR | 80 - 150 | 30 | VRM30N |
| ZR | 80 - 150 | 30 | VRM30N |
| DR | 200 | 40 | VRM40N |
| ZR | 200 | 40 | VRM40N |
| V6001** | 40 - 100 | 40 | VRM40N |

* clutch and manual lever for installation have to be ordered separately (chapter Accessories)

** adapter for installation has to be ordered separately (chapter Accessories)

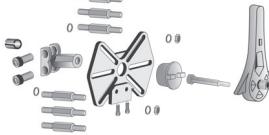
Accessories**Accessories for installation of VRM10N actuator on ZRK valves**

| | Description | Dimension | Item No. |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------|-----------|-----------|
|  | 030000525 Clutch with ZRK valves | | 030000525 |
|   90° VMK | 030000517 Manual lever with ZRK valves | | 030000517 |

Accessories for installation of VRM40N actuator on V6001 butterfly valves

| | Description | Dimension | Item No. |
|-----------------------------------------------------------------------------------|-------------------------------------------|--------------|----------|
|  | V6001A Actuator connection adapter | | |
| | | DN40 - DN65 | V6001A01 |
| | | DN80 - DN100 | V6001A02 |

Universal attachment kit for almost all third-party makes

| | Description | Dimension | Item No. |
|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|-----------|----------|
|  | In some cases rework at the construction site must be accepted, only for actuators VMM and VRM-N. | | ATU2040A |