

**SWISS<sup>+</sup>**  
TECHNOLOGY

# **NACM SERIES** **STANDARD DAMPER ACTUATOR**











**Modulating Control**  
**20 Nm**

**NENUTE<sup>®</sup>EC**

INNOVATIVE MEMBER OF SWIS<sup>+</sup>TEC

[www.nenutec.info](http://www.nenutec.info)

## DAMPER ACTUATOR MODEL CHART

| MODEL                        |  NACA |  NACM |  NECA |  NECM |  NASA |  NASM |  NAFA |  SAFA |  SASA |  NSVA |
|------------------------------|--|--|--|--|--|--|--|--|--|--|
| VOLTAGE<br>230VAC ~ 24VAC/DC | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | 24 VAC   |
| TORQUE (NM)                  | 2 ; 5 ; 10 ;<br>20 ; 40  | 2 ; 5 ; 10 ;<br>20 ; 40  | 5 ; 10 ; 20  | 5 ; 10 ; 20  | 10 ; 20  | 10 ; 20  | 3 ; 5 ;<br>8 ; 20  | 3 ; 5 ;<br>8 ; 20  | 10 ; 15  | 5  |
| CONTROL                      | 2/3 pts  | Modulating   | 2 pts  | Modulating   | 2/3 pts  | Modulating   | 2 pts SR   | 2 pts SR   | 3 pts  | Modulating   |
| <b>SPECIAL TYPE</b>          |  |  |  |  |  |  |  |  |  |  |
| ELECTRONIC RETURN            |  |  | ●  | ●  |  |  |  |  |  |  |
| FAST RUNNING                 |  |  |  |  | ●  | ●  |  |  | ●  |  |
| SPRING RETURN                |  |  |  |  |  |  | ●  |  |  |  |
| FIRE & SMOKE SPRING RETURN   |  |  |  |  |  |  |  | ●  |  |  |
| SMOKE SAFETY                 |  |  |  |  |  |  |  | ●  | ●  |  |
| NETWORKING                   |  |  |  |  |  |  |  |  |  | ●  |

## TYPE DESIGNATION

| TYPE | ACTUATOR | DESIGNATION | CONTROL | VOLTAGE | DOT | INPUT SIGNAL | HYPHENATED | TOQUE | AUXILIARY SWITCH |
|------|----------|-------------|---------|---------|-----|--------------|------------|-------|------------------|
| N    | A        | C           | M       | 1       | .   | 1            | -          | 1 0   | S1               |

|                    |  |
|--------------------|--|
| <b>TYPE</b>        | N = Standard Actuator<br>S = Fire & Smoke                                      |
| <b>ACTUATOR</b>    | A = Standard Actuator<br>E = Electronic Return                                 |
| <b>DESIGNATION</b> | C = Standard Actuator<br>S = Fast Running Actuator<br>F = Spring Back Actuator |
| <b>CONTROL</b>     | A = 2/3 Points<br>M = Modulating   |
| <b>VOLTAGE</b>     | 1 = 24 VAC/VDC<br>2 = 230 VAC<br>3 = 110/120 VAC<br>4 = 48 VAC                 |

|   |  |
|---|--|
| <b>INPUT SIGNAL<br/>(NOT APPLICABLE FOR<br/>2/3 POINTS)</b> | 1 = 0(2)...10 VDC and<br>0(4)...20 mA<br>2 = 0(2)...10 VDC only<br>3 = 0...135 Ω only<br>4 = 4...20 mA only  |
| <b>TORQUE</b>   | 02 = 2 Nm    03 = 3 Nm<br>05 = 5 Nm    08 = 8 Nm<br>10 = 10 Nm    15 = 15 Nm<br>20 = 20 Nm    40 = 40 Nm   |
| <b>AUXILIARY SWITCH<br/>/ FEEDBACK<br/>POTENTIOMETER</b>    | None = No Auxiliary or<br>Feedback Potentiometers<br>S1 = 1 x Auxiliary Switch<br>S = 2 x Auxiliary Switches<br>P1 = 1000Ω<br>P2 = 10000Ω<br>P3 = 140Ω |

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## NACM...20 (S) SERIES

NACM standard damper actuators are specially designed and produced for applications in the HVAC Systems. Our wide range of Nenuotec standard damper actuators has been developed to operate and position air dampers of different sizes.



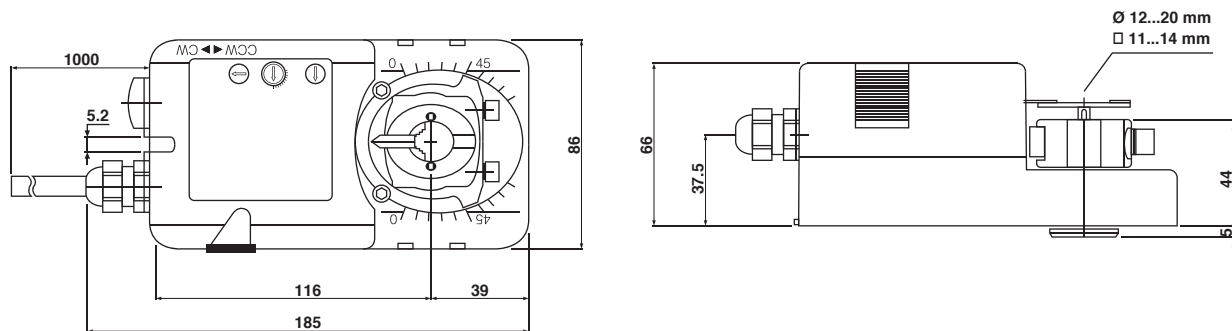
## PRODUCT FEATURE

- Torque 20 Nm
- Damper size 4.0 m<sup>2</sup>
- Power supply AC/DC 24V and AC 230 V
- Control Modulating DC 0(2)...10 V & 0(4)...20 mA
- Shaft dimensions - Ø 12...20 mm / □ 11...14 mm
- Minimum Shaft Length 40 mm
- Adjustable angle of rotation
- Selectable direction of rotation of reversing actuator
- Actuator with 1 m cable connection
- Optional 2 Adjustable SPDT auxiliary switches
- Manual Over-ride push button when required

## MODEL SELECTION TABLE

| MODEL / TYPE | TORQUE | POWER SUPPLY     | RUNNING TIME  | AUXILIARY SWITCHES    |
|--------------|--------|------------------|---------------|-----------------------|
| NACM 1.1-20  | 20 Nm  | AC/DC 24 V ± 10% | 100...150 sec | -                     |
| NACM 1.1-20S | 20 Nm  | AC/DC 24 V ± 10% | 100...150 sec | 2 x SPDT (Adjustable) |
| NACM 2.2-20  | 20 Nm  | AC 230 V ± 10%   | 100...150 sec | -                     |
| NACM 2.2-20S | 20 Nm  | AC 230 V ± 10%   | 100...150 sec | 2 x SPDT (Adjustable) |

## DIMENSION (mm)



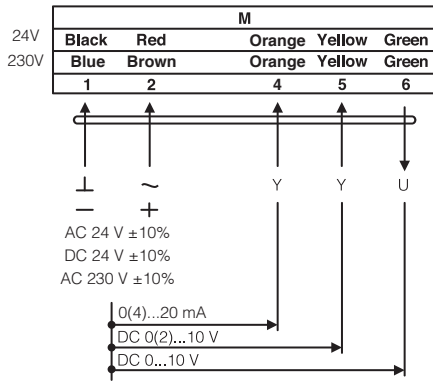
## TECHNICAL SPECIFICATION

| MODEL NUMBER              | NACM 1.1-20 (S)                 | NACM 2.2-20 (S)                 |
|---------------------------|---------------------------------|---------------------------------|
| TORQUE                    | 20 Nm                           | 20 Nm                           |
| DAMPER SIZE               | 4.0 m <sup>2</sup>              | 4.0 m <sup>2</sup>              |
| SHAFT DIMENSION           | Ø 12...20 mm / □ 11...14 mm     | Ø 12...20 mm / □ 11...14 mm     |
| POWER SUPPLY              | AC/DC 24 V ± 10%                | AC 230 V ± 10%                  |
| FREQUENCY                 | 50...60 Hz                      | 50...60 Hz                      |
| CONTROL SIGNAL (INPUT)    | DC 0(2)...10 V / 0(4)...20 mA   | DC 0(2)...10 V                  |
| POSITION SIGNAL (OUTPUT)  | DC 0...10 V                     | DC 0...10 V                     |
| POWER CONSUMPTION         |                                 |                                 |
| ● OPERATING               | 8.0 W                           | 8.0 W                           |
| ● END POSITION            | 2.0 W                           | 2.0 W                           |
| FOR WIRE SIZING           | 14.0 VA                         | 14.0 VA                         |
| ELECTRICAL CONNECTION     | 1 m Cable                       | 1 m Cable                       |
| AUXILIARY SWITCHES RATING | 3 (1.5) A, AC 250 V             | 3 (1.5) A, AC 250 V             |
| PROTECTION CLASS          | Class III ⚡                     | Class II ⚡                      |
| ANGLE OF ROTATION         | 90° (95° mechanical)            | 90° (95° mechanical)            |
| WEIGHT                    | 1.2 Kg                          | 1.2 Kg                          |
| LIFE CYCLE                | 60,000 Rotation                 | 60,000 Rotation                 |
| SOUND LEVEL               | 45 dB                           | 45 dB                           |
| IP PROTECTION             | IP54                            | IP54                            |
| OPERATING TEMPERATURE     | -20°...50° as per IEC 721-3-3   | -20°...50° as per IEC 721-3-3   |
| NON-OPERATING TEMPERATURE | -30°...+60° C / IEC 721-3-2     | -30°...+60° C / IEC 721-3-2     |
| AMBIENT HUMIDITY          | 5%...95% rH non condensing / EN | 5%...95% rH non condensing / EN |
| MAINTENANCE               | Maintenance Free                | Maintenance Free                |
| MODE OF OPERATION         | Type I / EN 60730-1             | Type I / EN 60730-1             |
| EMC                       | CE & ISO 9000 EN / EEC          | CE & ISO 9000 EN / EEC          |

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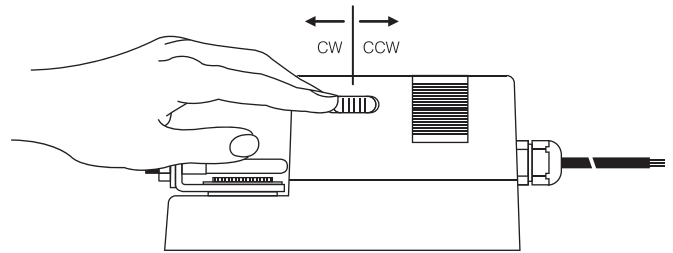
## WIRING DIAGRAM NACM...20 (S) POWER SUPPLY AC/DC 24V / AC 230V



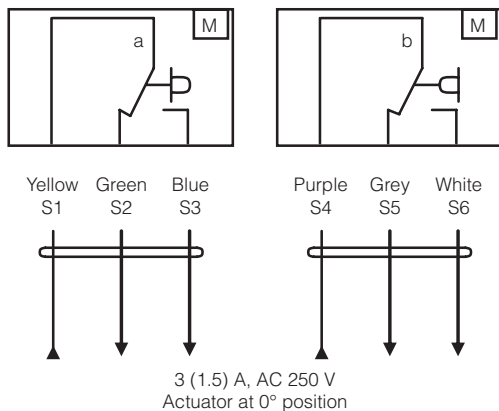
## DIRECTION OF ROTATION NACM...20 (S)

Default factory setting: CW.

Direction of rotation can be change by toggling between CW/CCW switch on the actuator's housing.



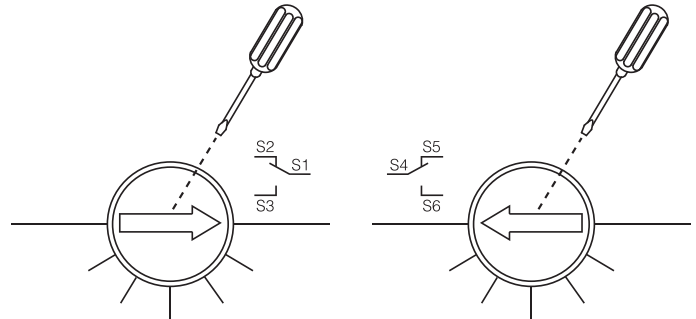
## WIRING DIAGRAM NACM...20 (S) AUXILIARY SWITCHES



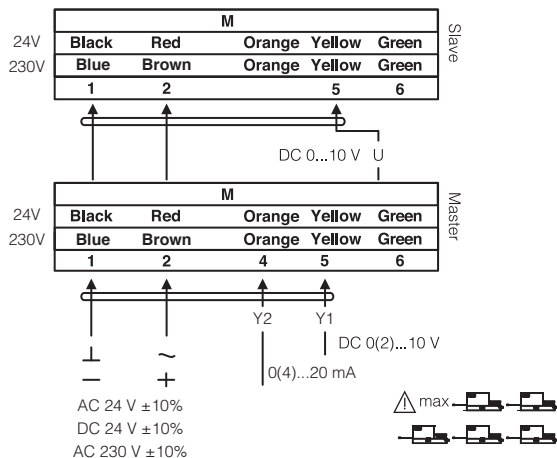
## AUXILIARY SWITCH NACM...20 (S)

Switch **a** factory-set at 5° and 85°.

The auxiliary switch can be optimally adjusted between 0°...90°.



## WIRING DIAGRAM NACM...20 (S) PARALLEL CONNECTION



## REMARK

During parallel operation, the output signal (terminal 6, DC 0...10 V) of the master actuator must be connected to terminal 5 of the next slave actuator.

## ADJUSTING CONTROL SIGNALS NACM...20 (S)

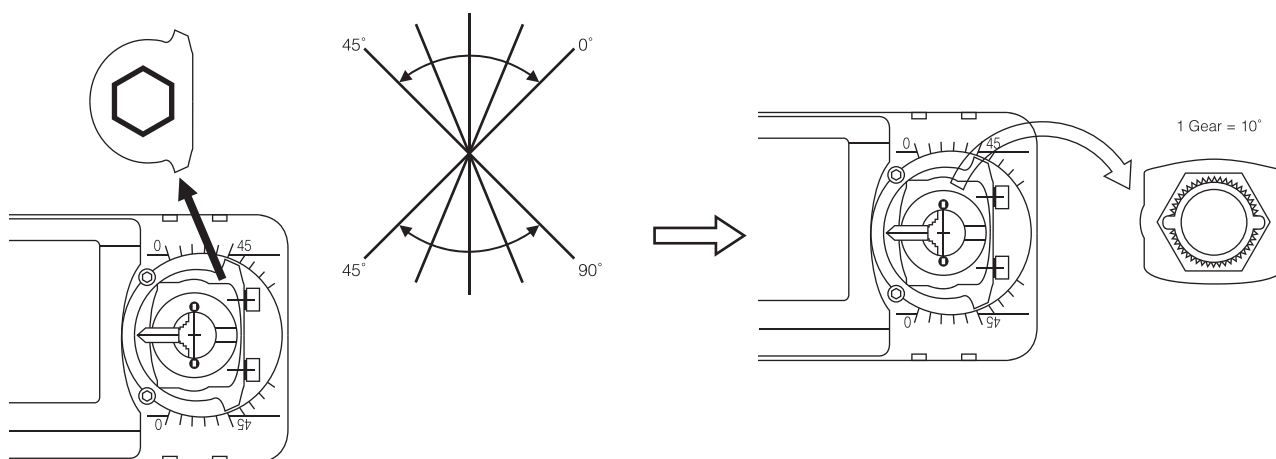
Control Signal 5                    DC 0...10V  
Input Resistance                  Ri100k Ohm

### Factory Default Setting

Control Signal 5                    DC 2...10V  
Input Resistance                  Ri500k Ohm



### On Request

## ANGLE OF ROTATION LIMITING



## IMPORTANT REMARK

For special requirement, consult your local Nenutec's representative.

  This actuator includes electrical and electronic components and may not be disposed as household garbage. Please consider the local valid legislation.

 AC / DC 24 V:    Connect via safety isolating transformer.  
AC 230 V:        To isolate from the main power supply, the system must incorporate a device which disconnects the phase conductor (with at least a 3mm contact gap.)

The performance specifications are nominal and conform to acceptable industry standards. Nenutec shall not be liable for damages resulting from misapplication or misuse of its products.