

RN with actuator



EN (Generation 2) with actuator

# Constant volume flow control CAV terminal units

## B70



### For motorised setpoint value adjustment on CAV terminal units and flow adjustment dampers, e.g. switching between $q_{vmin}$ and $q_{vmax}$

Actuators for mechanically automatic CAV terminal units RN and the older EN version (Generation 2)

- Motorised, variable setpoint value adjustment on the CAV terminal unit
- 24 V AC/DC supply voltage
- Control input signal: Voltage signal 2 – 10 V DC
- Specification of setpoint value range by mechanical stops
- Positive lock connection with CAV terminal unit
- Retrofit possible

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## General information

### Application

- Variable setpoint adjustment for mechanically automatic CAV control units RN
- Variable setpoint adjustment for mechanically automatic KVS control units EN in generation 2 (with setpoint adjustment on angular scale)
- Variable control: Setpoint signal 2 - 10 V DC, corresponds to the total angle of rotation (0 - 95°)
- Min-max switching (2-point operation) with alternative wiring possible
- Working range min/max mechanically adjustable

### Variants

Alternatively:  
B72 variable actuator with additional auxiliary switch; separate product data sheet

### Parts and characteristics

- Overload-proof drive LM24A-SR-F TR
- Release button to allow for manual operation
- Positive lock connection with the scale adjustment
- Mechanical stops for setting the volume flow rate setpoints
- Switch for reversing the direction of the actuator
- 24 V AC/DC supply voltage
- Setpoint and position signal 2 - 10 V DC (based on 0 - 95°)

### Commissioning

- Set the mechanical stops according to the minimum and maximum volume flow rates
- For further information on setting and control, see installation instructions, e.g. CAV control unit RN

## Functional description

Actuators for CAV control units make it possible to motorise the setpoint adjustment, which would otherwise have to be carried out manually on the setting scale. The actuator B70, B72 moves the scale adjustment variably between a minimum and a maximum position.

The setpoint adjustment on the scale is controlled by a 2 - 10 V DC voltage signal. In the B70/B72 actuator, this voltage signal is mapped to the entire angle of rotation 0 - 95° of the actuator.

The scale range to be used for the setpoint specification must be set during commissioning of the CAV control unit using mechanical stops. This limits the scale range that can actually be used. The value of the setpoint signal must be adjusted to the mechanically selected angle range.

The 2 - 10 V DC output signal of the CAV actuator is merely a position feedback and not an actual volume flow rate value. The output signal is mapped to the entire rotation angle 0 - 95° of the actuator.

### Actuator LM24A-SR-F TR



- 1 Positive lock connection for scale adjustment
- 2 Mechanical stops for rotation stop
- 3 Direction of rotation switch
- 4 Gear release
- 5 Connecting cable

## Technical data

### Actuators for volume flow controllers type RN and EN (Generation 2)

Order code detail	Actuator			Auxiliary switch	
	Part number	Type	Supply voltage	Part number	Type
B70	M466DT6	LM24A-SR-F TR	24 V AC/DC	–	–

#### Actuator LM24A-SR-F

Supply voltage (AC voltage)	24 V AC $\pm$ 20%, 50/60 Hz
Supply voltage (DC voltage)	24 V DC $\pm$ 20 %
Power consumption operation	1 W
Power consumption idle position	0.4 W
Power rating for cable sizing	2 VA
Control signal	2 – 10 V DC, $R_a > 100 \text{ k}\Omega$
Position feedback	2 – 10 V DC, 1 mA
Torque	5 Nm
Runtime for 90°	150 s
Connecting cable	4 $\times$ 0.75 mm <sup>2</sup> , approx. 1 m long
IEC protection class	III (Protective extra-low voltage)
Protection level	IP 54
EC conformity	EMC according to 2014/30/EU, RoHS according to 2011/65/EU
Operating temperature (depends on the operating range of the control unit)	10 to 50 °C
Weight	0.5 kg

## Specification text

This specification text describes the general properties of the product. Texts for variants can be generated with our Easy Product Finder design programme.

### Category

- Constant actuator

### Application

- Variable setpoint specification for constant volume flow controllers

### Supply voltage

- 24 V AC/DC

### Interface/signalling

- 2 – 10 V DC for setpoint position

- 1-wire control for min/max position

- 2-wire control for min/max position

### Connection

- Connection cable 4-wire

### Interface information

- Min / Max setpoint position can be set on site with mechanical stops

### Factory condition

- Actuator factory-mounted on CAV controller

## Order code

NR-VAV – RN-B70

|        |  
1        2

### 1 Type

**NR-VAV** Retrofit kit

**RN-B70** modulating actuator 24 V AC/DC for CAV terminal unit  
RN

### 2 Variant

**EN-B70** modulating actuator 24 V AC/DC for CAV terminal unit  
EN Generation 2 (setpoint value adjustment with angle scale)

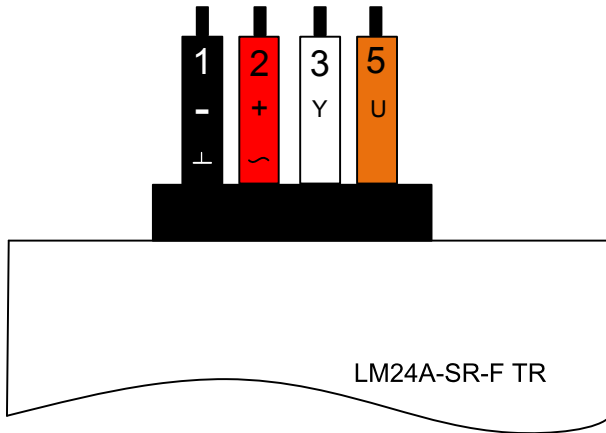
### Note:

This is the order code for retrofitting the actuator for a CAV terminal unit.

As a rule, the actuator is specified in the initial order via the order code of the basic device under the section Actuator for setpoint adjustment with the order codes B70.

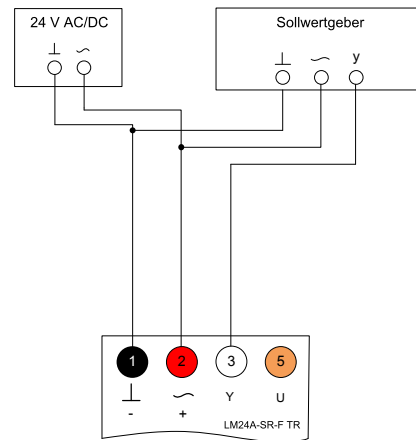
## Variants

### LM2424A-SR-F TR Connecting cable core identification



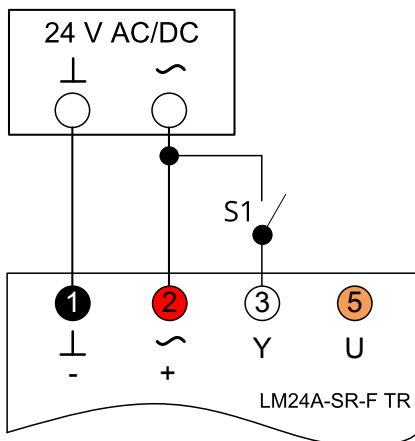
- 1 ⊥, -: Ground, Zero
- 2 ~, +: Supply voltage
- 3 Y: Setpoint value signal
- 5 U: Position feedback

### Variable control initiated by a voltage signal



- 1 ⊥, -: Ground, Zero
- 2 ~, +: Supply voltage
- 3 Y: Setpoint value signal
- 5 U: Position feedback

### 1-wire control of variable actuators (min-max switching)



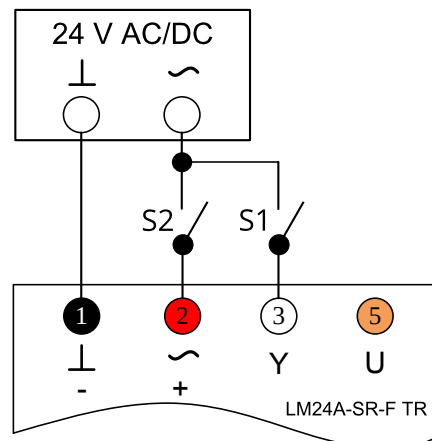
Switch S1 open:

- Actuator moves to scale stop 1
- Rotational direction switch 0 =  $V_{min}$
- Rotational direction switch 1 =  $V_{max}$

Switch S1 closed:

- Actuator moves to scale stop 2
- Rotational direction switch 0 =  $V_{max}$
- Rotational direction switch 1 =  $V_{min}$

### 2-wire control (3-point) for modulating actuators

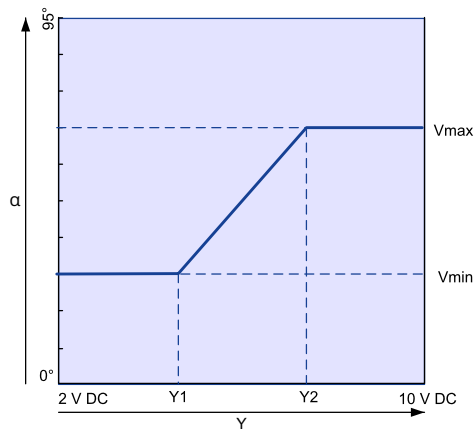
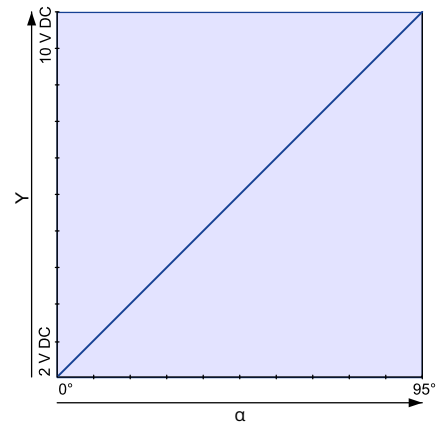


**Note:**

Alternatively, the so-called 2-wire control (3-point operation) can be realised by inserting an additional switch S2.

When switch S2 is closed, the actuator functions the same way as with 1-wire control.

The actuator can also be stopped at any point by opening switch S2.

**Characteristic curve setpoint value signal Y to angle of rotation****Characteristic curve for position feedback U****Note:**

Angle assignment depends on the setting of the rotational direction switch.

$V_{min}$  and  $V_{max}$  refers here to the potentiometer on the actuator.

**Note:**

Angle assignment depends on the setting of the rotational direction switch.