CLRA20-10

PRODUCT DATA

CENTRA LINE by Honeywell

GENERAL

The CLRA 20-10 rotary valve actuator is designed to provide modulating 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/ZR/DRU, it is possible to control very exact heating and cooling water temperatures. The mechanical interface between actuator and valve is designed for reliable operation. With a torque 20 Nm, it is suitable for a wide range of rotary mixing valves (DN 15...80).

Specification per Actuator

torque (Nm)	run time (min/90°)	valve dimensions	OS no.
20	~3.0	DN15 to DN80	CLRA20-10

FEATURES

- **Protected against overload and blocking.**
- **Maintenance-free electrical actuator for rotary valves.**
- **Clear position indicator.**
- **Direct mounting on rotary valves.**
- **Manual operation.**
- **Large wiring cabinet.**
- **Long lifetime.**

SPECIFICATIONS

Temperature Limits

Ambient operating limits	0...+45 °C at 5...95% r.h.
Ambient storage limits	-40...+70 °C at 5...95% r.h.
Medium valve temperature	2...+110 °C

Safety

Protection class	I as per EN60730-1
Protection standard	IP54 as per EN60529
Flame retardant housing	class HB as per UL94

Electrical specifications

Power supply	24 Vac, 50 Hz / 24 Vdc
Power consumption	4 VA / 2 W
Control signal	power supply at terminal
Run time	~3.0 minutes
Nominal torque	20 Nm
Angle of rotation	90°
Weight	1.5 kg
Material	
Cover	ABS (flame class HB)
Base	ABS-GF (glass fiber-reinforced plastic, flame class HB)
Adapter	aluminum die-cast
Noise level	**≤40dB(A)**

Suitable Valves

DRxxxGMLA; DRxxxGFLA; ZRxxxMA; ZRxxxFA, DRU.

Mounting on the Valve

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

CE

OPERATION

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

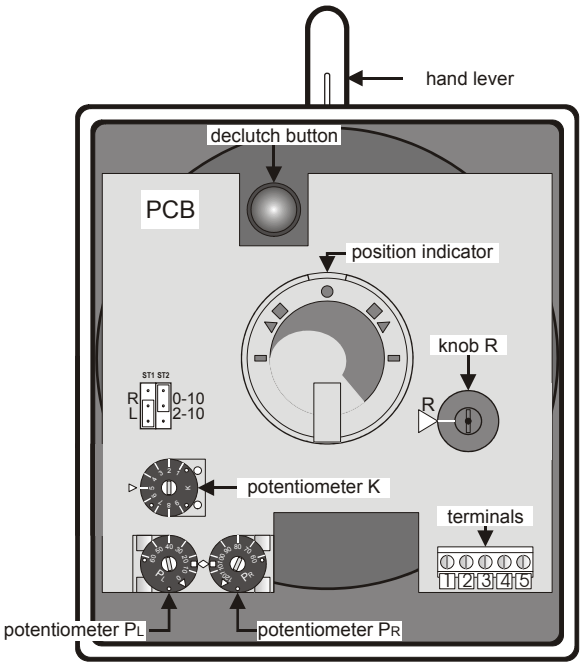

Fig. 1. Main features

The angle of rotation is electronically limited and can be adjusted (see section "Angle of Rotation"). The spindle can also be rotated manually by using the declutch button (see Fig. 1) to disengage the gear and then turning the hand lever. 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 and Service

Direction of Motor Rotation

The direction of rotation can be defined using jumper **ST1** (see Fig. 1).

- ST1 in "L" (left) position (factory setting): clockwise rotation 0 → 100% (i.e. when Y = 0 Vdc, the hand lever is at the left end)
- ST1 in "R" (right) position: counterclockwise rotation 100% ← 0 (i.e. when Y = 0 Vdc, the hand lever is at the right end).

Input Signal Y

The input signal Y can be set using jumper **ST2** (see Fig. 1):

- ST2 in the upper position (factory setting): Y = 0...10 Vdc
- ST2 in lower position: Y = 2...10 Vdc

Adjusting Spindle to Feedback Potentiometer

The position of the spindle can be adjusted to match the signal from the feedback potentiometer using **knob R** (see Fig. 1). With the motor in the center position (the mark on the hand lever must line up with the mark on the motor housing), the graduation on knob R must point to the triangle on the PCB (factory setting). Adjustment is required only if the printed circuit board is changed for servicing.

Actuator Characteristic

The actuator characteristic, i.e. the relation between motor rotation and the input signal Y, can be altered to suit the given valve using **potentiometer K** (see Fig. 1). The curve of the characteristic between its start and end points can be adjusted infinitely between convex, linear and concave (see Fig. 2). Potentiometer K is marked with the numerals 1 through 9. The linear characteristic K = 5 is the factory setting.

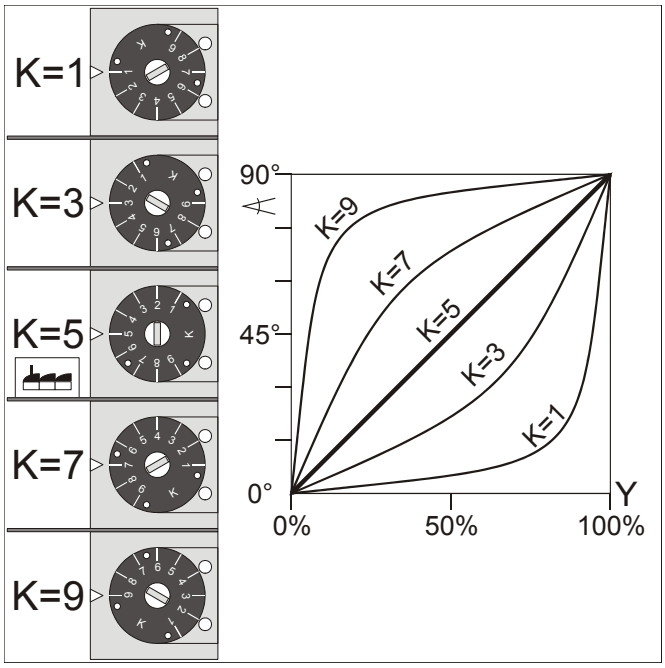

Fig. 2. Characteristic curve

Examples

When mounting the proportional actuator onto a valve with a linear characteristic, an equal percentage characteristic on the controlled unit can be achieved by setting a concave curve (K ≈ 3).
An actuator used together with an oversized mixing valve is a further application requiring a concave curve (K ≈ 3).

Angle of Rotation

The angle of rotation is adjustable via the **potentiometers P_L and P_R** (see Fig. 1). Start and end points can be adjusted independently.
The nominal angle is 90 ° (105° – 15° = 90°); the potentiometers are factory set as follows: P_L = 15 and P_R = 105. These settings are marked by a square ■.
The desired angle can be adjusted by changing the start and end points; within the total range, all angles are possible.
The start point can be adjusted between 0 and 60° using potentiometer P_L, while the end point is adjustable between 60° and 120° using potentiometer P_R.
Fig. 3 shows an example setting of the angle rotation in which the start point has been set to 15° and the end point to 105°, and Fig. 4 shows the corresponding relation between the input signal Y and the angle of rotation.

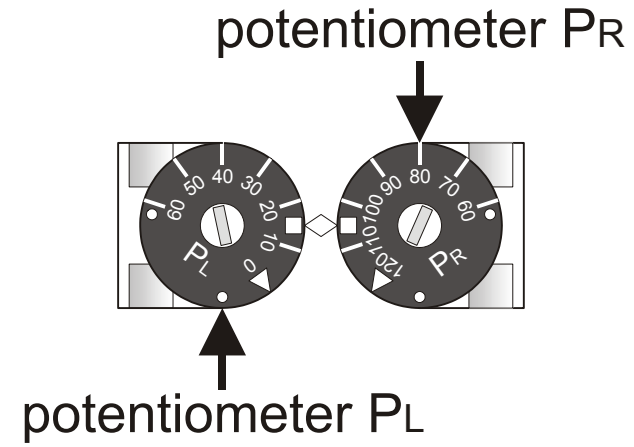

Fig. 3. Example setting of angle of rotation (P_L and P_R)

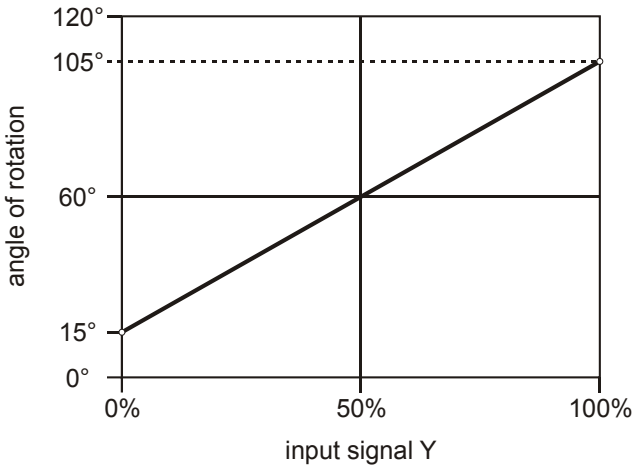

Fig. 4. Input signal Y and angle of rotation

Electrical Connection

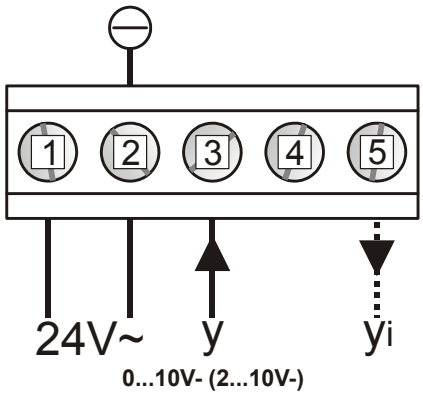

Fig. 5. Wiring

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

- for a signal variable of 100%, connect terminal 3 to terminal 4
- for a signal variable of 0%, connect terminal 3 to terminal 2 (system ground or ground wire).

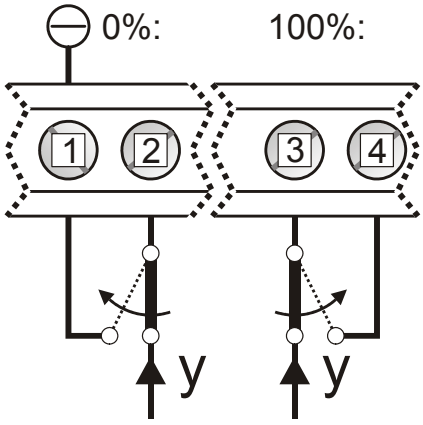

Fig. 6. Overriding the input signal

Dimensions (mm)

Table 1. DRxxxGMLA, dimensions (in mm)

type	DN	a	c	SW	h	i
DR15GMLA	15	110	179	41	55	R1/2“
DR20GMLA	20	110	179	46	55	R3/4“
DR25GMLA	25	115	179	50	58	R1“
DR32GMLA	32	140	188	60	70	R1 1/4“
DR40GMLA	40	150	188	65	75	R1 1/2“

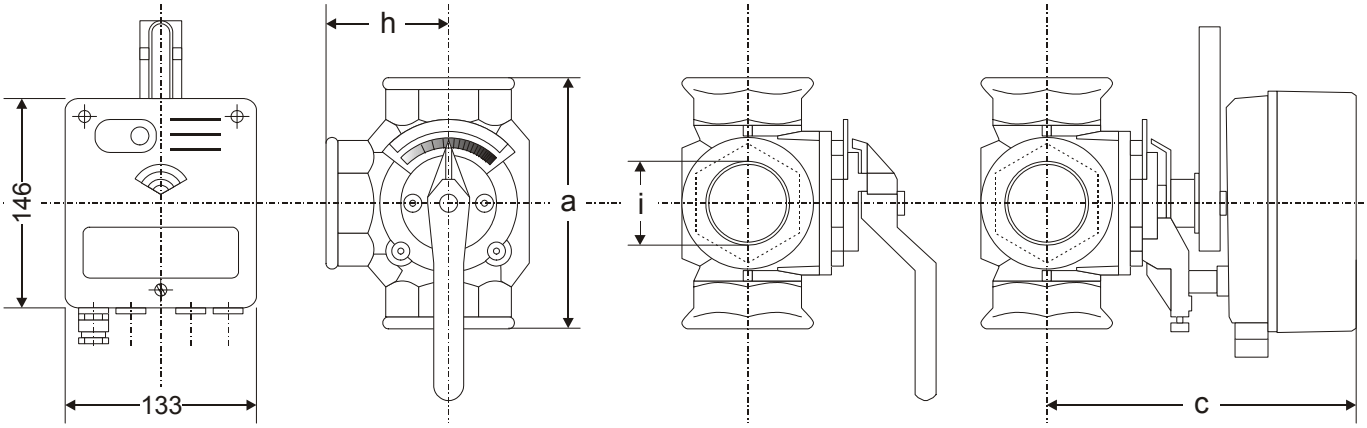

Fig. 7.CLRA and DRxxxGMLA, dimensions (in mm)

Table 2. DRxxxGFLA, dimensions (in mm)

type	DN	a	b	c	d	e	f	g	h
DR20GFLA	20	140	15	179	65	90	50	4x11	70
DR25GFLA	25	150	15	179	75	100	60	4x11	75
DR32GFLA	32	160	17	188	90	120	70	4x14	80
DR40GFLA	40	170	16	188	100	130	80	4x14	85
DR50GFLA	50	190	16	202	110	140	90	4x14	95
DR65GFLA	65	210	16	219	130	160	110	4x14	105
DR80GFLA	80	250	18	219	150	190	128	4x18	125

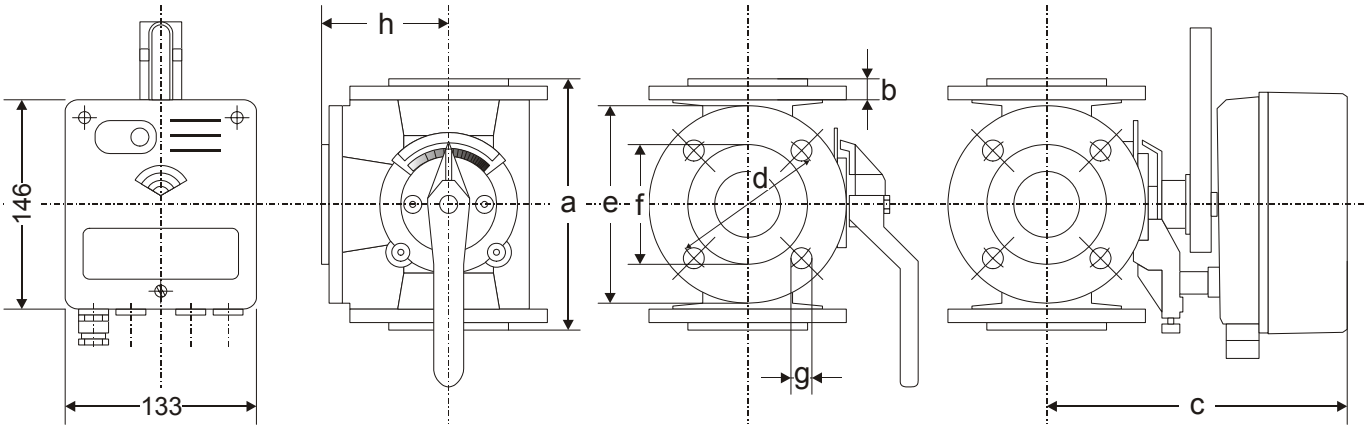

Fig. 8.CLRA and DRxxxGFLA, dimensions (in mm)

Table 3. ZR...MA, dimensions (in mm)

type	DN	a	c	SW	h	i	net wt. (kg)
ZR15MA	15	110	179	41	55	R1/2“	2.4
ZR20MA	20	110	179	46	55	R3/4“	2.5
ZR25MA	25	115	179	50	58	R1“	2.6
ZR32MA	32	140	188	60	70	R1 1/4“	4.3
ZR40MA	40	150	188	65	75	R1 1/2“	4.5

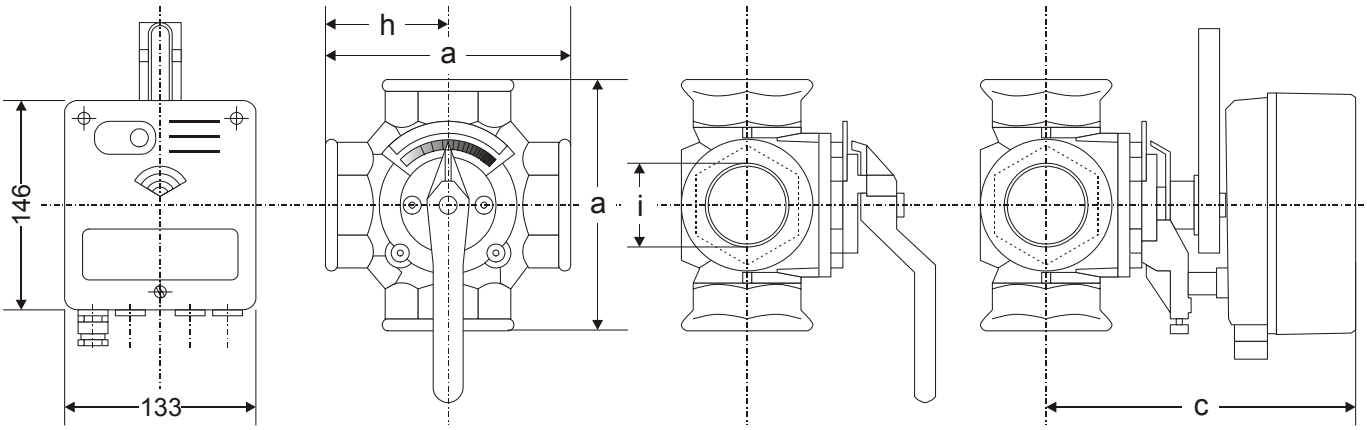

Fig. 9.CLRA and ZRxxxMA, dimensions (in mm)

Table 4. ZRxxxFA, dimensions (in mm)

type	DN	a	b	c	d	e	f	g	net wt. (kg)
ZR25FA	25	150	15	179	75	100	60	4x11	4.8
ZR32FA	32	160	16	188	90	120	70	4x14	7.6
ZR40FA	40	170	16	188	100	130	80	4x14	8.5
ZR50FA	50	190	16	202	110	140	90	4x14	11.0
ZR65FA	65	210	16	219	130	160	110	4x14	14.4
ZR80FA	80	250	18	219	150	190	128	4x18	24.3

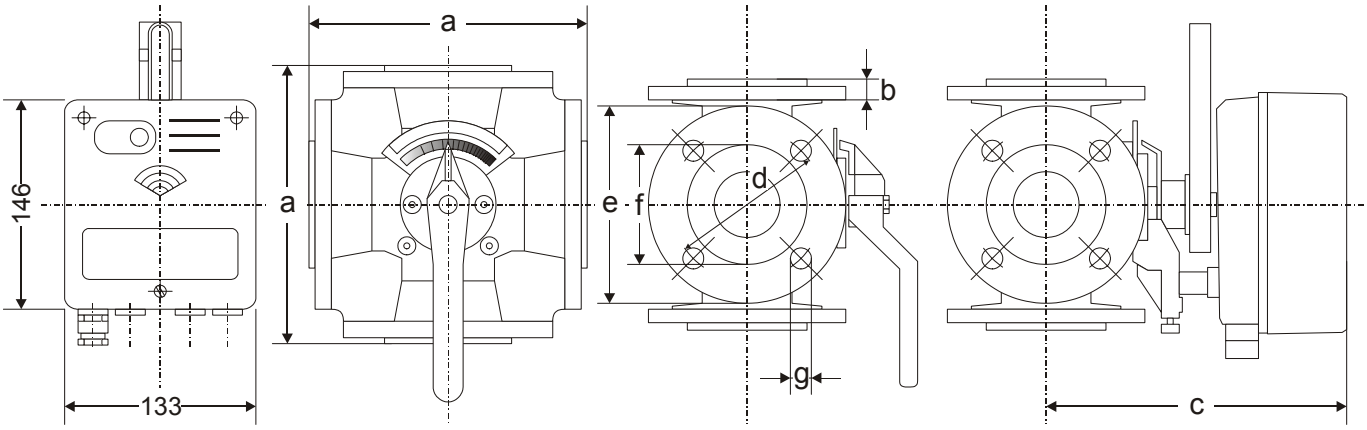

Fig. 10. CLRA and ZRxxxFA, dimensions (in mm)

Table 5. DRU, dimensions (in mm)

type	DN	a	b	c	d	e	g	h	R	net wt. (kg)
DRU25-2.5	25	55	32	110	89	55	51	182	1 ½	2.2
DRU25-4.0	25	55	32	110	89	55	51	182	1 ½	2.2
DRU25-6.3	25	55	32	110	89	55	51	182	1 ½	2.2
DRU25-10	25	55	32	110	89	55	51	182	1 ½	2.2
DRU25-16	25	55	32	110	89	55	51	182	1 ½	2.2
DRU32-10	32	70	44	140	99	70	59	200	2	4.1
DRU32-16	32	70	44	140	99	70	59	200	2	4.1
DRU32-25	32	70	44	140	99	70	59	200	2	4.1

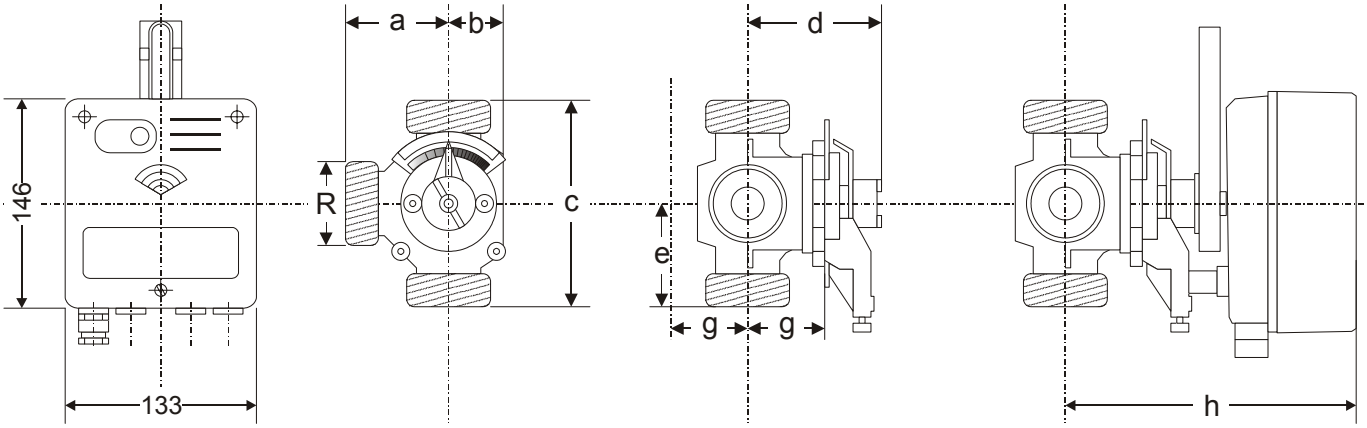

Fig. 11.CLRA and DRU, dimensions (in mm)

Manufactured for and on behalf of the Environmental and Combustion Controls Division of Honeywell Technologies Sàrl, Ecublens, Route du Bois 37, Switzerland by its Authorized Representative:

CentraLine
Honeywell GmbH
Böblinger Straße 17
D-71101 Schönaich
Tel +49 7031 637 845
Fax +49 7031 637 846
info@centraline.com
www.centraline.com

CentraLine
Honeywell Control Systems Ltd.
Arlington Business Park
UK-Bracknell, Berkshire RG12 1EB
Tel +44 13 44 656 565
Fax +44 13 44 656 563
info-uk@centraline.com
www.centraline.com

Printed in Germany.
Subject to change without notice.
EN0Z-0934GE51 R0108

CENTRA LINE by Honeywell