

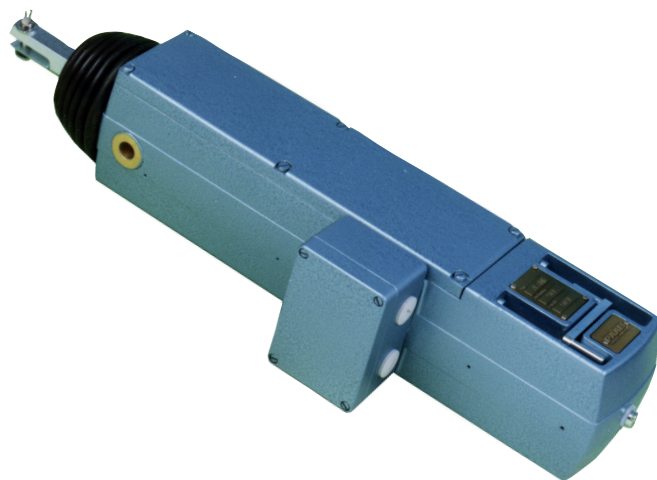


PI-EI type WV-109 & WV-110

Electric actuators

PI-EI WV-109 / WV-110

- ▶ Low weight in combination with high operating force with easy mounting
- ▶ Minimum maintenance
- ▶ High control accuracy
- ▶ Reliable & robust construction
- ▶ Withstands continuous operation in high ambient temperature



Application

The WV-109 and WV-110 are used for operation of valves, dampers and gates. The actuators are designed for continuous operation in high ambient temperature.

Design

The actuators are designed to meet low weight in combination with high operating thrust and simple installation.

The actuators are practically maintenance free. As standard they are equipped with a crank for manual operation.

To control the actuators with input signal 4-20 mA we recommend using the frequency inverter type 650V for WV-110 and servo amplifier EX-137 for WV-109. For wall mounting we recommend using PAAB bracket type WV-601 or bracket WV-112. To mount on a valve we recommend PAAB bracket type WV-646 or WV-650. The rod end connection can be equipped with fork or ball coupling.

If there is a risk of condensation, the bottom fitted draining screws should be removed. For outdoor use, equip the actuator with a protective cover. When operating the actuator manually, remove the enclosure lid to observe that the limit positioned are not exceeded.

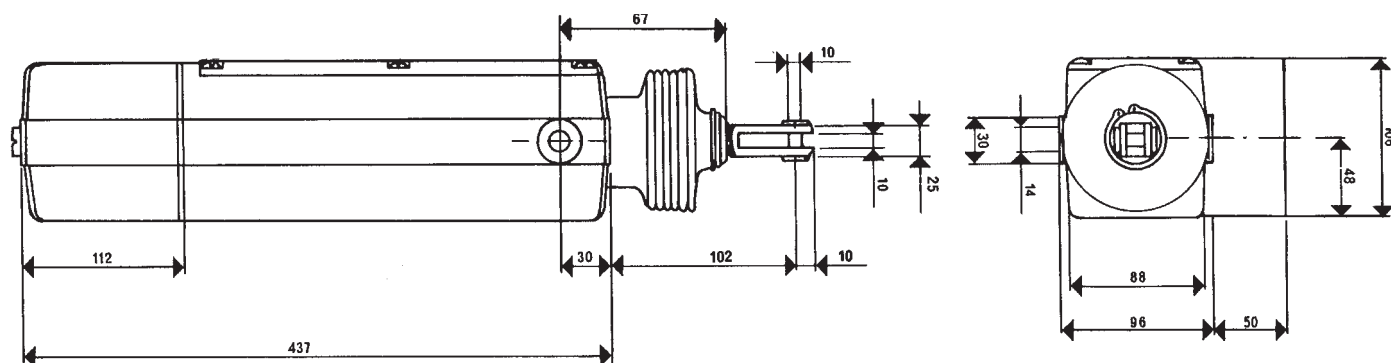
NOTE! Cut the power to the motor before the crank is fitted.



Technical specification

Model	WV-109	WV-110
Power supply	230 V, 50-60 Hz	3x380 V alt. 3x 230 V
Power consumption	appr 220-230 W	appr 250 W
Ambient temperature	+5...+60° C At lower temp.(+5...-25° C) supply the actuator with a built-in heater	+5...+90° C
Protection class	IP 54	IP 54
Isolation class	F (155° C)	F (155° C)
Thermal fuse	140°	140°
Stroke length	max 220 mm	max 220 mm
Piston speed	8 mm/s	Standard 8 mm/s without 650 V Variable 2-12 mm/sec via 650 V
Thrust	Start 2700N(275kp) Work 4410N(450kp)	4200N(430kp)
Weight	12 kg	12 kg
Control unit	Servo amplifier EX-137	Frequency inverter 650 V

Dimensions





Options

- A. Potentiometer for feedback or position indication. Standard values 0-100 Ohms or 0-1000 Ohms.
- B. Speed reduction gear box to 1 mm/s. Overall length increases with 75 mm.
- C. Frequency inverter type 650V for use of WV-110 via analogue input signal 4-20 mA
- D. Servo amplifier type EX-137 for use of WV-109 via analogue input signal 4-20 mA
- E. Built-in heater (25 W) for ambient temperature below +5° C or where risk of high air humidity exists.
- F. U-bracket WV-601
- G. Cardanic suspended wall bracket WV-112
- H. Valve bracket (rotating movement) WV-646
- I. Rod end connection, Fork or Ball coupling



Servo amplifier EX-137 - for control of WV-109

Application

The Servo amplifier is meant to be used to control electrical actuator WV-109 with an analog electrical signal

Construction

The Servo amplifier is built up entirely of electrical components. The outputs consist of Triac elements and thus have no movable parts that can be worn out. The Servo amplifier works by an incoming analogue signal is compared with a feedback signal from the electrical actuator. When the incoming signal changes, the servo amplifier sends an output voltage in the current direction until the feedback potentiometer from the actuator reach a value where balance between set point and feedback signal is attained.



Technical specification

Input signal	4-20 mA
Feed back input	Potentiometer min 0-100 ohm, max 0-2 kohm
Feed back output	4-20 mA
Power supply	110 alt 230 V ac
Output voltage	2 x 110 alt 2 x 230 V ac
VAC Max load	700 VA
Adaptable range	0-100%, 20-100%, 0-50%, 15-85%
Hystereses	0-10%
Ambient temperature	0-70 °C
Mounting	Locally mounted, powder painted aluminium
Protection class	IP 65
Dimensions	140 x 140 x 70 mm

Adapting

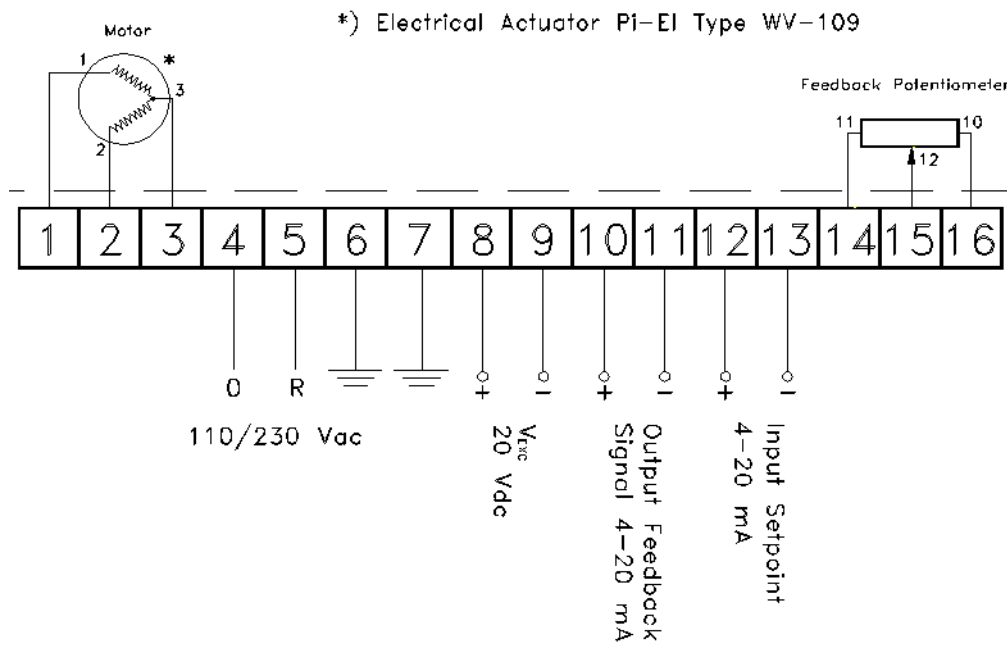
The actuator working range can be adjusted with the potentiometers marked Z (inner position) and S (outer position). Check the actuator working range after adjustment of the potentiometers.

To avoid that the actuator are working at small aberrations between set point and feedback value, the potentiometer marked HYST. can be adjusted until suitable dead band is reached.

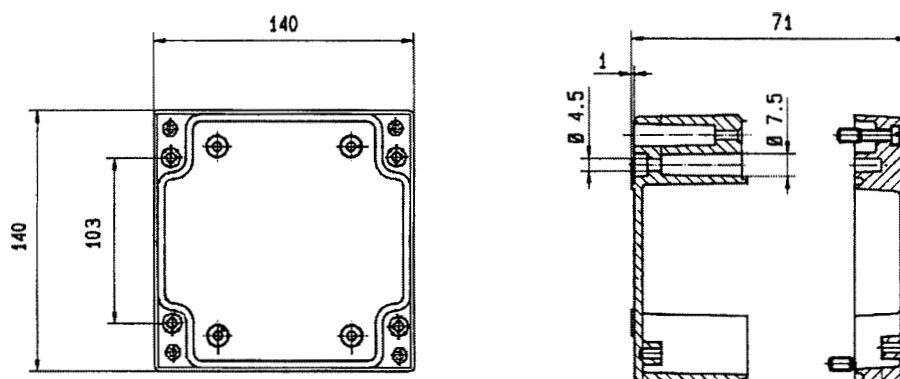


Servo amplifier EX-137 - for control of WV-109

Connections



Dimensions





Frequency inverter 650 V - for control of WV-110

Application

The Frequency inverter is used for operation of actuators Pi-EI, type WV-110.

Construction

The Frequency inverter is designed to adjust actuator Pi-EI type WV-110 via an analogue input signal. The Frequency inverter's analogue input compares with the actuator's feedback potentiometer and adjusts the actuator so that balance is attained. The Frequency inverter can adjust the piston speed and torque. Alarm for internal error in the frequency inverter and error in the actuator is indicated via the digital outlets.

The Frequency inverter is adjusted with the actuator but it could be reprogrammed via the display module or via a PC (option).



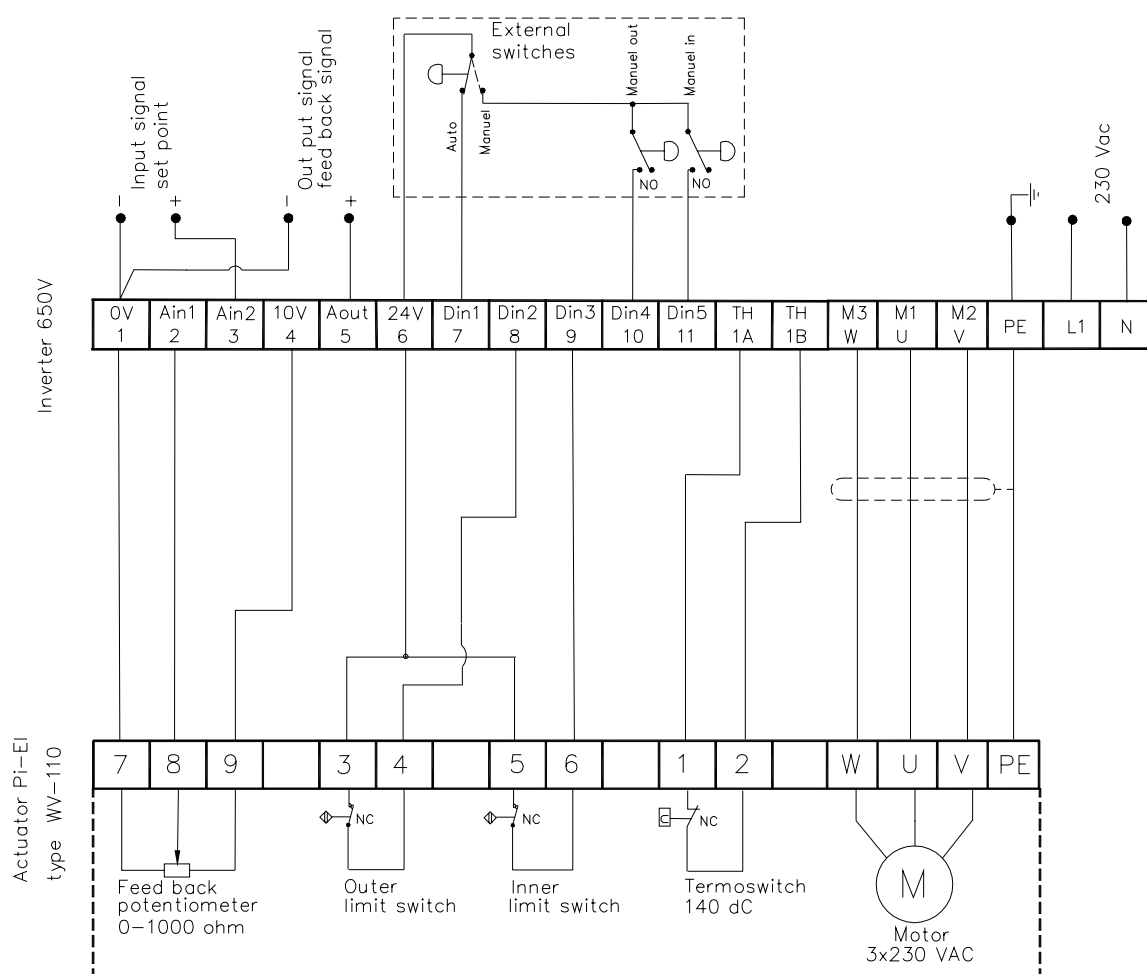
Technical specification

Power supply	220 - 240 VAC
Output voltage	3 x 240 VAC, 750V
Analogue input	Setpoint 0/4-20 mA, 0-10 VDC, Pot min 0-1 kOhm, Feed-back potentiometer 0-2 kOhm
Digital inputs	The actuator outer limit switch 24 VDC The actuator inner limit switch 24 VDC The actuator thermo protection 24 VDC Run/Reset 24 VDC
Analogue output	Position indicator 0-10 VDC
Settings	Speed adjustable between 20-150%
Hysteresis	0,3% at max load
Protection class	IP 21
Dimensions	142 x 73 x 132 mm (d x w x h)
Ambient temperature	0-45° C
Cabling	Max length 30 m. Afterwards mounting of chokes for the motor current is required.



Frequency inverter 650 V - for control of WV-110

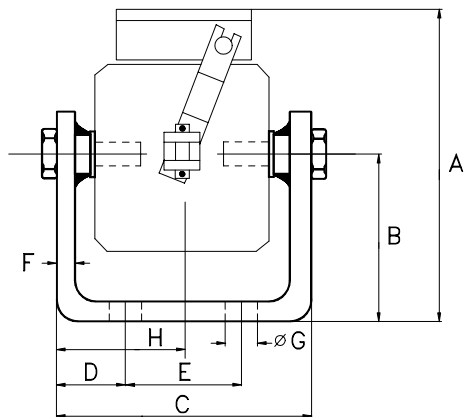
Wiring





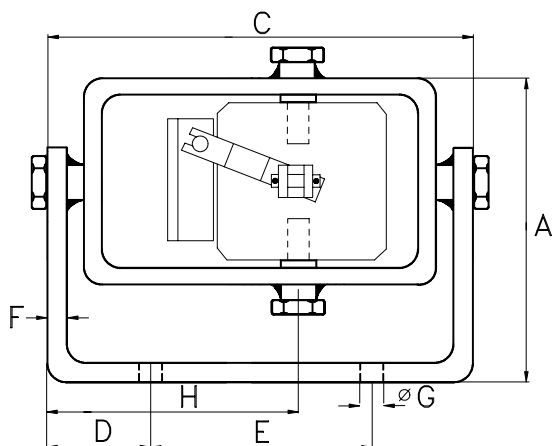
Wall brackets for WV-109 & WV-110

TYP WV-601



A	B	C	D	E	F	G	H
172	80	130	28,5	73	10	18	65,5

TYP WV-112



A	B	C	D	E	F	G	H
168	105	235	53	130	10	18	151