

DAMPER / VALVE MOTORS 4NM 2 & 3 POINT

EK4..

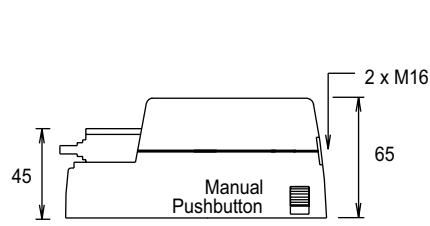
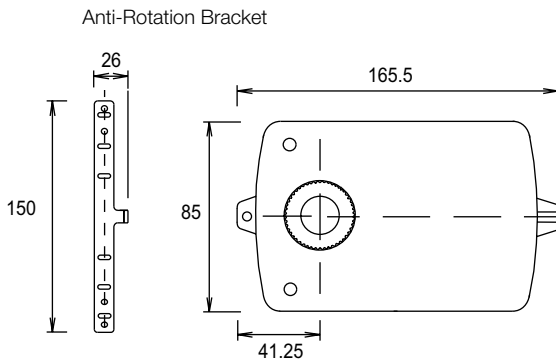
These small motors can be fitted directly onto air damper shafts as used in HVAC systems. They are also suitable for use on control valves. The rotary action can be used to open & close dampers, valves etc.



The motor stops automatically when the end positions are reached.
 Up to 5 motors can be wired in parallel.
 Max. ambient -20/+50°C
 Max angle of rotation 90°
 Adj. angle of rotation limiter 0-30° & 90-60°
 Reversible position indication 0-10, 10-0
 Noise level 40dB Manual Override
 Supply : 24VAC±15% 230VAC±10%
 Enclosure Flammability = UL94-V0

Type	Supply 50/60Hz	Operation	Aux Switch 230VAC SPDT	Run Time Approx	Torque	Damper Area Approx	Consumption VA	Enclosure
EK4-24	24VAC/DC	2 & 3 Point	--	35s	4Nm	1m ²	4.1	IP44
EK4-24S	24VAC/DC	2 & 3 Point	2 x 3(1.5)A	35s	4Nm	1m ²	4.1	IP44
EK4-230	230VAC	3 Point ONLY	--	35s	4Nm	1m ²	5	IP44
EK4-230S	230VAC	3 Point ONLY	2 x 3(1.5)A	35s	4Nm	1m ²	5	IP44

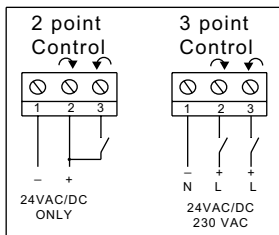
DIMENSIONS



1 off M16 male to M20 female conduit adapter included.
 2 off with Aux switch models.

WIRING:

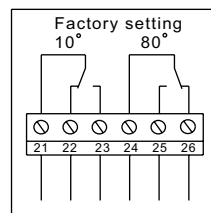
24VAC/DC - 2 & 3 Point Control
 230VAC - 3 Point Control ONLY



2 POINT CONTROL
 Clockwise 1 Neutral 2 Live
 Anti-clockwise 1 Neutral 2 + 3 Live

FLOATING / 3 POINT CONTROL
 Clockwise 1 Neutral 2 Live 3 open
 Anti-clockwise 1 Neutral 2 open 3 Live

Auxiliary Switches

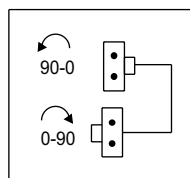
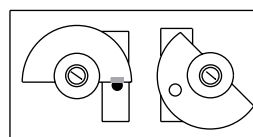
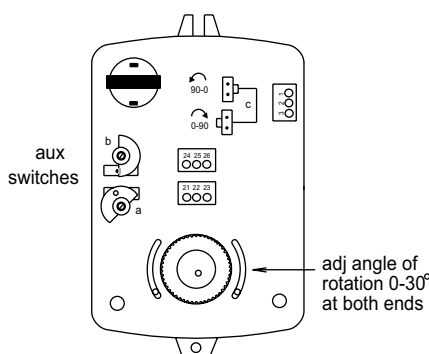


Example:
 Motor anti-clockwise
 21-22 closed at 10° and below.
 Motor clockwise
 24-25 closed at 80° and above.

NO BACK VOLTAGE FROM SUPPLY TERMINALS.

MOTOR STARTS AUTOMATICALLY AFTER MANUAL ADJUSTMENT.

SETTING:



2 x Auxiliary switches Adjustable 0-90°

Manually set the motor to the required switching point & rotate the cam wheel just over the microswitch button. Set the second switching point by repeating this using the second cam wheel.

Direction of Rotation

The direction of rotation is changed by reversing the plug.

DAMPER ACTUATORS / VALVE MOTORS

DAMPER / VALVE MOTORS 4NM MODULATING

EK4-24M

These small motors can be fitted directly onto air damper shafts as used in HVAC systems. They are also suitable for use on control valves. The rotary operation modulates according to the 0-10vdc signal in order to open and close dampers, valves etc.



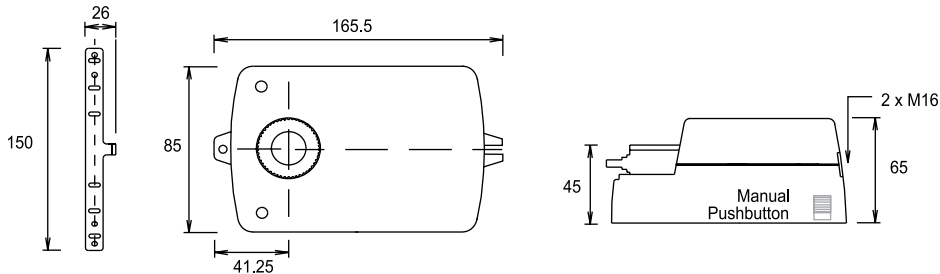
The motor stops automatically when the end positions are reached.
 Up to 5 motors can be wired in parallel.
 Max. ambient -20/+50°C
 Max angle of rotation 90°
 Adjustable angle of rotation limiter 0-30° & 90-60°
 Reversible position indication 0-10, 10-0
 Noise level 40dB Manual Override
 Supply : 24VAC/DC±15%
 Enclosure Flammability = UL94-V0

Type	Supply 50/60Hz	Input	Run Time Approx	Torque	Damper Area Approx	Consumption VA	Enclosure
EK4-24M	24VAC/DC	0-10vdc	35s	4Nm	1m ²	3.5	IP44

DIMENSIONS

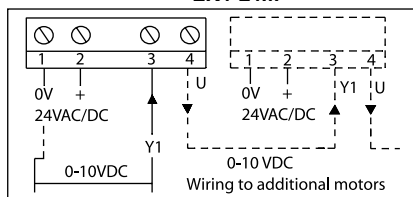
Anti-Rotation Bracket

DIRECT MOUNTING : Shaft size - Round 6 -16mm

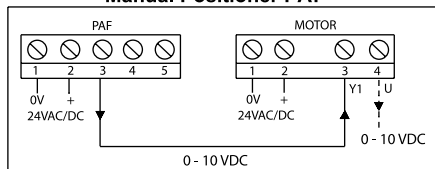


WIRING:

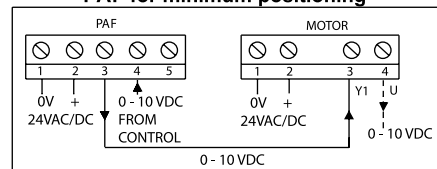
EK4-24M



Manual Positioner PAF



PAF for minimum positioning



INPUT RESISTANCE Y1 > 100KΩ

LOAD RESISTANCE U > 50KΩ

ON POWER CUT THE MOTOR STOPS. IF THE INPUT SIGNAL IS CUT, THE MOTOR RETURNS TO 0VDC POSITION

Terminals 0.5-2.5mm² Min sensor cable size 7/0.2mm

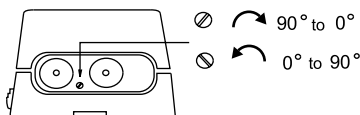
Max length 100m.

Screened cable is recommended.

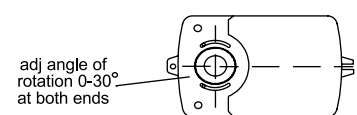
The screen should be earthed at controller end only Keep sensor wires away from power cables/units which may cause interference.

SETTING:

Direction of Rotation



Angle of Rotation

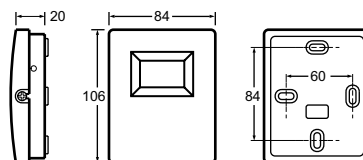


ACCESSORIES:

PAF Digital Positioner
 0-100%
 Wall Mounting



Dimensions (mm)



Output 0-10vdc or 2-10vdc selectable

Supply 24VAC/DC
 Output 0-10VDC
 (0-100%)
 Steps 1%

DAMPER / VALVE MOTORS 2 & 3 POINT

E08.. E16.. E24.. E32..

These motors can be fitted directly on to air damper shafts or remotely using linkage accessories in HVAC systems. They are also suitable for use on control valves. The rotary operation can be used to open and close dampers, valves etc.



E08.. E16.. E24.. E32..

Up to 10 motors can be wired in parallel.
 Max. ambient -20/+50°C
 The motor stops automatically when the end positions are reached.
 Angle of rotation 0-90° adjustable
 Reversible position indication 0-10, 10-0
 Noise level 45dB Manual Override
 Supply : 24VAC ±20% 24VDC ±10% 230VAC ±10%
 24V=6.5VA 230V=6VA
 Enclosure Flammability = UL94-V0
***FOR WEATHERPROOF ENCLOSURES SEE SEPARATE DATA SHEET.**

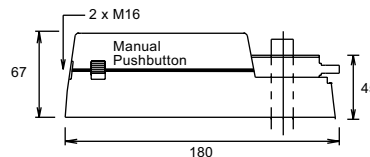
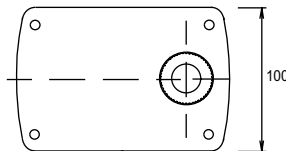
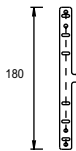
Type	Supply 50/60Hz	Operation	Aux Switch 230VAC	Run Time Approx	Torque	Damper Area Approx	Enclosure
E08-24	24VAC/DC	2 & 3 Point	-	30s	8Nm	2m	IP44
E08-24S	24VAC/DC	2 & 3 Point	2 x 3(1.5)A	30s	8Nm	2m	IP44
E08-230	230VAC	2 & 3 Point	-	30s	8Nm	2m	IP44
E08-230S	230VAC	2 & 3 Point	2 x 3(1.5)A	30s	8Nm	2m	IP44
E16-24	24VAC/DC	2 & 3 Point	-	80s	16Nm	4m	IP44
E16-24S	24VAC/DC	2 & 3 Point	2 x 3(1.5)A	80s	16Nm	4m	IP44
E16-230	230VAC	2 & 3 Point	-	80s	16Nm	4m	IP44
E16-230S	230VAC	2 & 3 Point	2 x 3(1.5)A	80s	16Nm	4m	IP44
E24-24	24VAC/DC	2 & 3 Point	-	125s	24Nm	6m	IP44
E24-24S	24VAC/DC	2 & 3 Point	2 x 3(1.5)A	125s	24Nm	6m	IP44
E24-230	230VAC	2 & 3 Point	-	125s	24Nm	6m	IP44
E24-230S	230VAC	2 & 3 Point	2 x 3(1.5)A	125s	24Nm	6m	IP44
E32-24	24VAC/DC	2 & 3 Point	-	140s	32Nm	8m	IP44
E32-24S	24VAC/DC	2 & 3 Point	2 x 3(1.5)A	140s	32Nm	8m	IP44
E32-230	230VAC	2 & 3 Point	-	140s	32Nm	8m	IP44
E32-230S	230VAC	2 & 3 Point	2 x 3(1.5)A	140s	32Nm	8m	IP44

SPECIAL ORDER ONLY

DIMENSIONS

Anti-Rotation Bracket

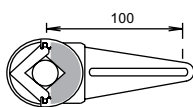
DIRECT MOUNTING : Shaft size - Round 10-20mm Square 10-16mm



1 off M16 male to M20 female conduit adapter included.
 2 off with Aux switch models.

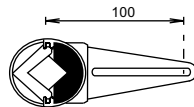
ACCESSORIES:

ZKH



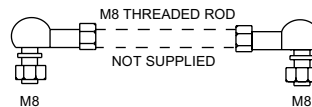
Motor Crank Arm

ZKA



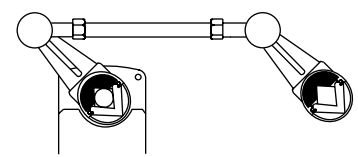
Damper Crank Arm

ZKG



Ball Joint

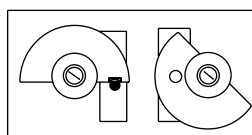
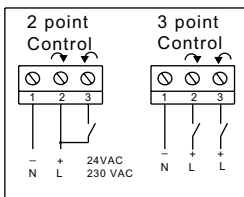
REMOTE MOUNTING



REQUIRES : 2 x ZKG 1 x ZKH 1 x ZKA

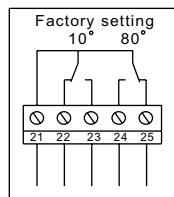
WIRING:

24 / 230 V



2 x Auxiliary switches
Adjustable 0-90°

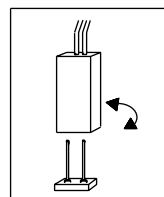
Auxiliary Switches



Example:
 Motor anti-clockwise
 21-22 closed at 10° and below
 Motor clockwise
 21-24 closed at 80° and above

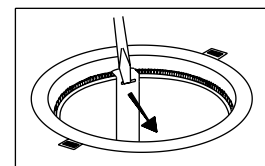
Manually set the motor to the required switching point & rotate the cam wheel just over the microswitch button. To set the second switching point repeat this using the second cam wheel.

Direction of Rotation



The direction of rotation is changed by reversing the polarity of the motor plug.

Adj angle of rotation between 0-90°



Rotation angle is adjusted by repositioning the adapter in 5 steps. The adaptor is released by pressing the locking clip on the underside of the actuator.

Latchable manual override.
No back voltage from supply terminals.
Auto re-start (230V motors) after manual adj.

DAMPER ACTUATORS / VALVE MOTORS

DAMPER / VALVE MOTORS 0-10VDC / 4-20MA

E08..M, E16..M, E24..M, E32..M

■ These motors can be fitted directly onto air damper shafts or remotely using linkage accessories in HVAC systems. They are also suitable for use on control valves. The rotary operation modulates according to the 0-10vdc / 4-20mA signal in order to open and close dampers, valves etc.



E08..M E16..M E24..M E32..M

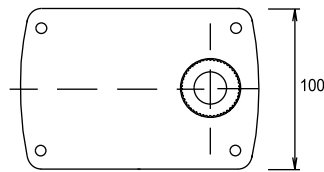
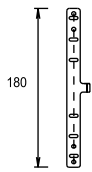
Motor stops automatically when in the end position.
 Up to 5 motors can be wired in parallel.
 Max. ambient -20/+50°C
 Adjustable angle of rotation limiter 0-90°
 Reversible position indication 0-10, 10-0
 Noise level 45dB Latchable Manual Override
 Supply : 24VAC ±20% 24VDC ±10% 230VAC ±10%
 24V=7.5VA 230V=6VA
 Enclosure Flammability = UL94-V0
***FOR WEATHERPROOF ENCLOSURES SEE SEPERATE DATA SHEET.**

Type	Supply 50/60Hz	Selectable Input	Aux Switch 230VAC	Run Time Approx	Torque	Damper Area Approx	Enclosure
E08-24M	24VAC/DC	0-10vdc/4-20mA	-	30s	8Nm	2m ²	IP44
E08-24MS	24VAC/DC	0-10vdc/4-20mA	2 x 3(1.5)A	30s	8Nm	2m ²	IP44
E16-24M	24VAC/DC	0-10vdc/4-20mA	-	80s	16Nm	4m ²	IP44
E16-24MS	24VAC/DC	0-10vdc/4-20mA	2 x 3(1.5)A	80s	16Nm	4m ²	IP44
E16-230M	230VAC	0-10vdc/	-	80s	16Nm	4m ²	IP44
E16-230MS	230VAC	0-10vdc/	-	80s	16Nm	4m ²	IP44
E24-24M	24VAC/DC	0-10vdc/4-20mA	-	125s	24Nm	6m ²	IP44
E24-24MS	24VAC/DC	0-10vdc/4-20mA	2 x 3(1.5)A	125s	24Nm	6m ²	IP44
E32-24M	24VAC/DC	0-10vdc/4-20mA	-	140s	32Nm	8m ²	IP44

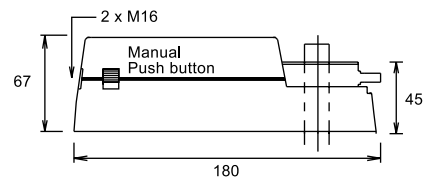
SPECIAL ORDER ONLY

DIMENSIONS

Anti-Rotation Bracket

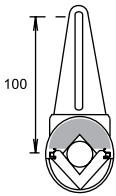


DIRECT MOUNTING :
 Shaft size - Round 10-20mm Square 10-16mm



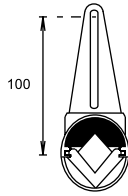
ACCESSORIES:

ZKH



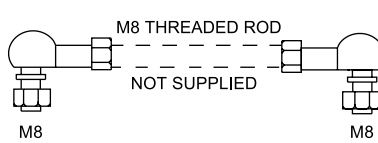
Motor Crank Arm

ZKA



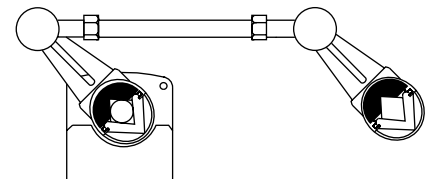
Damper Crank Arm

ZKG



Ball Joint

REMOTE MOUNTING



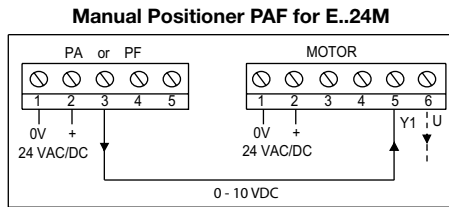
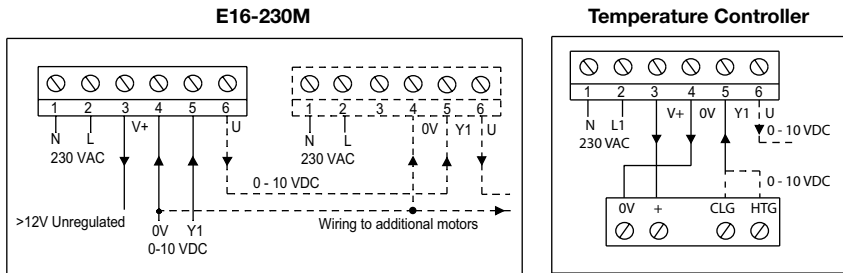
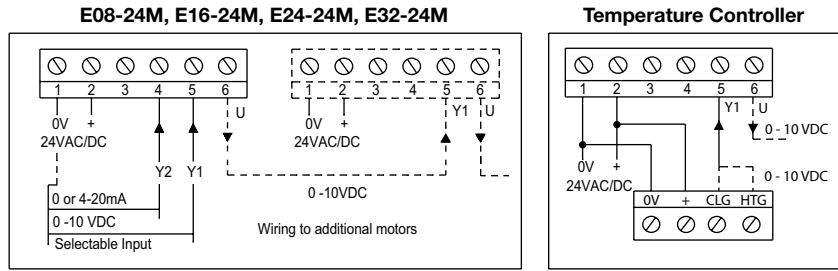
REQUIRES : 2 x ZKG 1 x ZKH 1 x ZKA

PAF Digital Positioner 0-100% Wall Mounting

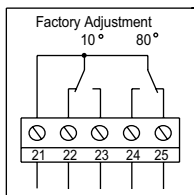


DAMPER / VALVE MOTORS 0-10VDC / 4-20mA

WIRING:



Aux Switches - all ..MS Models



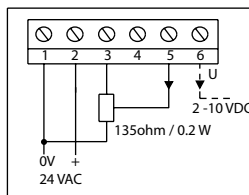
Example

Motor anti-clockwise 21-22 closed at 10° and below
Motor clockwise 21-24 closed at 80° and above

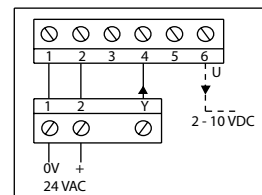
INPUT RESISTANCE ON POWER CUT THE MOTOR STOPS.

Y1 > 100KΩ Y2 500Ω LOAD RESISTANCE U > 50KΩ
IF THE INPUT SIGNAL IS CUT, THE MOTOR RETURNS TO 0VDC POSITION.

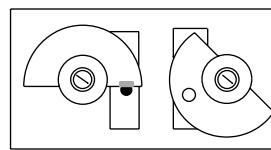
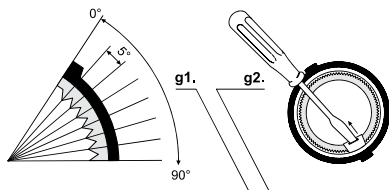
Honeywell 90 E16-20M



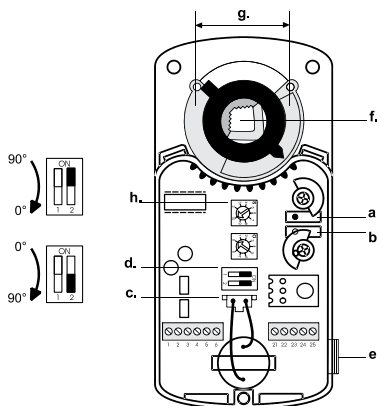
Staefa 0-20v Phase cut E16-20M



ADJUSTMENT:

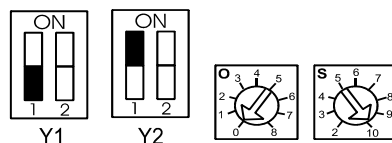


2 x Aux switches Adjustable 0-90°
Manually set the motor to the required switching point & rotate the cam wheel to just over the microswitch button.
To set the second switching point repeat this using the second cam wheel.



- (1) Signal Y1 = DC 0...10 V → O = 0 / S = 10
- Y1 = DC 2...10 V → O = 2 / S = 8
- Y2 = 0...20 mA → O = 0 / S = 10
- Y2 = 4...20 mA → O = 2 / S = 8

(3) Adapting



FOR FUNCTIONAL REASONS THE MOTOR PLUG ON MODULATING MOTORS MUST NOT BE REVERSED

INSTALLATION: Min cable size 7/0.2mm or Screened cable is recommended.

Max length 100m.

The screen should be earthed at controller end only. Keep away from power cables/units which may cause interference.

DAMPER ACTUATORS / VALVE MOTORS

SPRING RETURN DAMPER/VALVE MOTORS ON-OFF/0-10VDC

ER08../ER20..

These actuators can be used to control ventilation dampers or valves on applications where safety in the event of loss of power is critical. The motor can be mounted directly to a damper shaft or to a valve using a linkage kit. When the power is on the motor drives or modulates in one direction and when power is removed the motor springs back to the safe position.

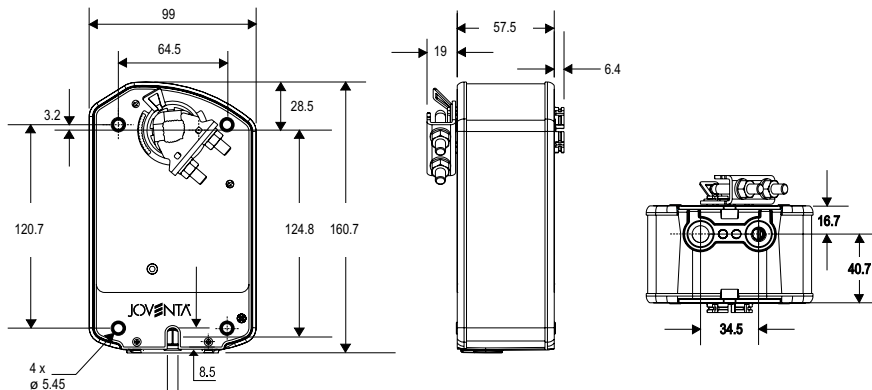


The motor stops automatically when the end positions are reached. Up to 10 motors can be wired in parallel.

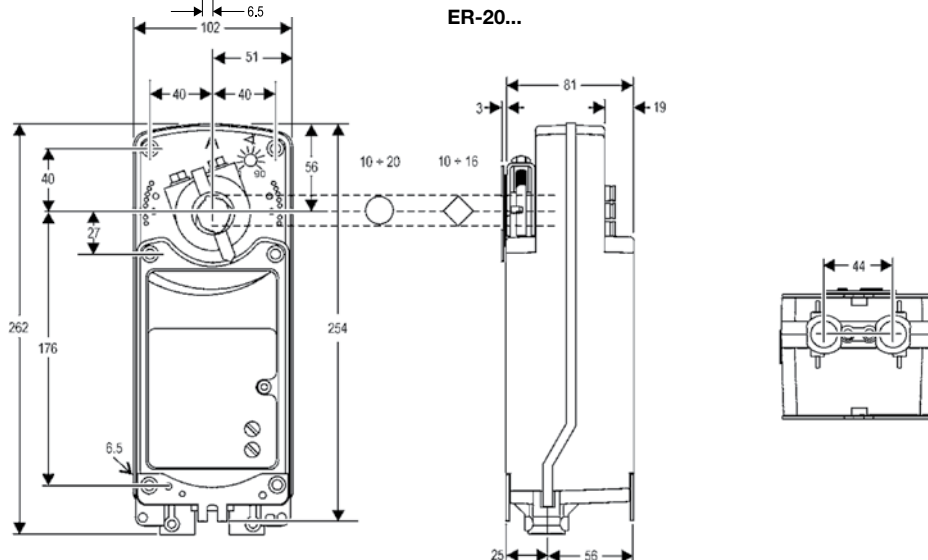
Type	Supply 50/60Hz	Operation	Aux switch 230VAC SPDT	Motor Open (sec)	Spring Close (sec)	Torque	Damper Area approx	Enclosure IP rating
ER08-230-2	230VAC	2 wire open/close		60	21	8Nm	2m ²	IP54
ER08-230-2S	230VAC	2 wire open/close	2 x 5(1.5)A	60	21	8Nm	2m ²	IP54
ER08-24-2	24VAC/DC	2 wire open/close		150	22	8Nm	2m ²	IP54
ER08-24-2S	24VAC/DC	2 wire open/close	2 x 5(1.5)A	150	22	8Nm	2m ²	IP54
ER08-24M	24VAC/DC	0-10VDC/4-20mA		150	22	8Nm	2m ²	IP54
ER08-24MS	24VAC/DC	0-10VDC/4-20mA	2 x 5(1.5)A	150	22	8Nm	2m ²	IP54
ER20-230-2	230VAC	2 wire open/close		57	15	20Nm	4m ²	IP54
ER20-230-2S	230VAC	2 wire open/close	2x5(1.5)A	57	15	20Nm	4m ²	IP54
ER20-24-2	24VAC/DC	2 wire open/close		57	15	20Nm	4m ²	IP54
ER20-24-2S	24VAC/DC	2 wire open/close	2x5(1.5)A	57	15	20Nm	4m ²	IP54
ER20-24M	24VAC/DC	0-10VDC/4-20mA		150	26	20Nm	4m ²	IP54
ER20-24MS	24VAC/DC	0-10VDC/4-20mA	2x5(1.5)A	150	26	20Nm	4m ²	IP54

DIMENSIONS

ER-08...

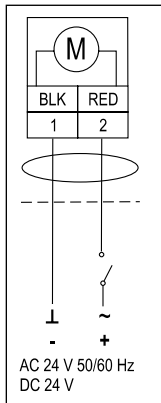


ER-20...

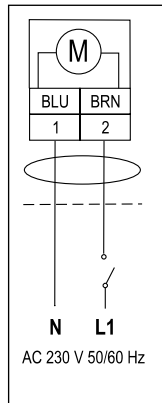


WIRING: Electrical Connections- 1.2m flying lead.

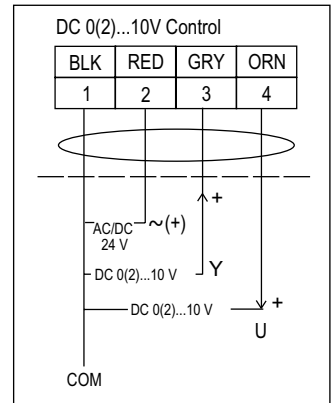
ER-08/ER20-24



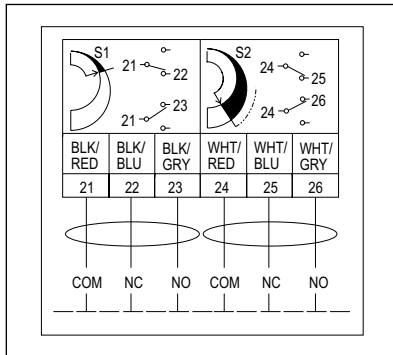
ER08/ER20-230



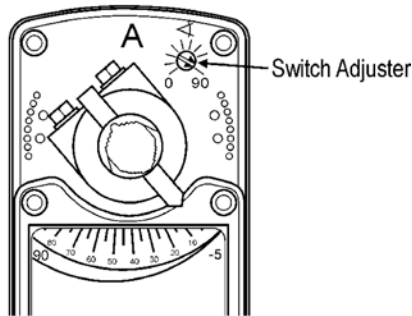
ER08..M/ER20-.../M



Auxiliary switch wiring (if Fitted)

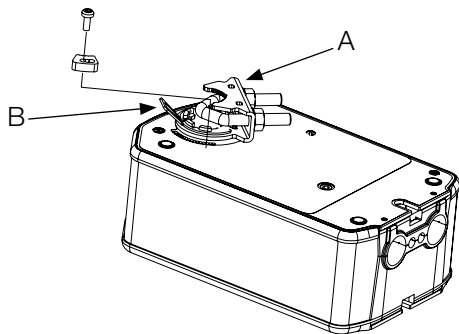


ADJUSTMENTS:



Setting the auxiliary switches

The 10S and 20S models include two integral auxiliary switches with a switch adjuster accessible on either face of the actuator. The nominal factory setting for auxiliary switch S1 is 11° closing, and the nominal factory setting for auxiliary switch S2 is 81° opening. The switch point of auxiliary switch S1 is fixed. The switch point of auxiliary switch S2 is independently and continuously adjustable from 25° to 95°. The switching position can be manually changed to any required position by turning the ratchet



Direction of rotation

Side A Spring return counter clockwise direction
Side B Clockwise direction

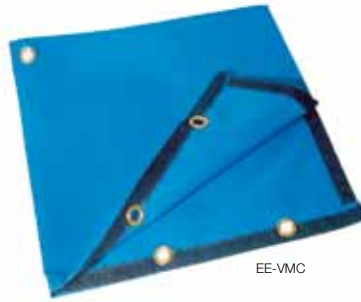
PLEASE NOTE The ER08 and ER20 spring return actuators cannot be fitted to the ER16 linkages. Call Sales for equivalents.

DAMPER ACTUATORS / VALVE MOTORS

WEATHERPROOF VALVE MOTOR COVER

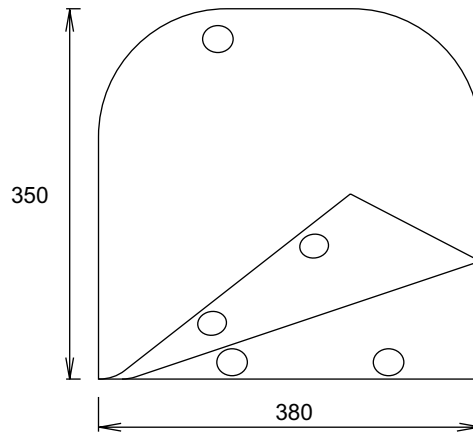
EE-VMC

■ Weatherproof cover to protect valve motors against weather conditions.



Type	Size	Material
EE-VMC	WEATHERPROOF VALVE MOTOR COVER:	350mm x 380mm
		PVC Nylon

DIMENSIONS



INSTALLATION:

Fit the cover over the valve motor. Care must be taken to ensure that the cover is adequately sealed to protect from weather conditions. Due to the nature of the fitting and to allow for electrical cables the bottom part of the cover cannot be fully sealed. Therefore the best protection will be provided with the cover opening facing downwards. Use cable ties and sealing tape if necessary.



EE-VMC on damper motor