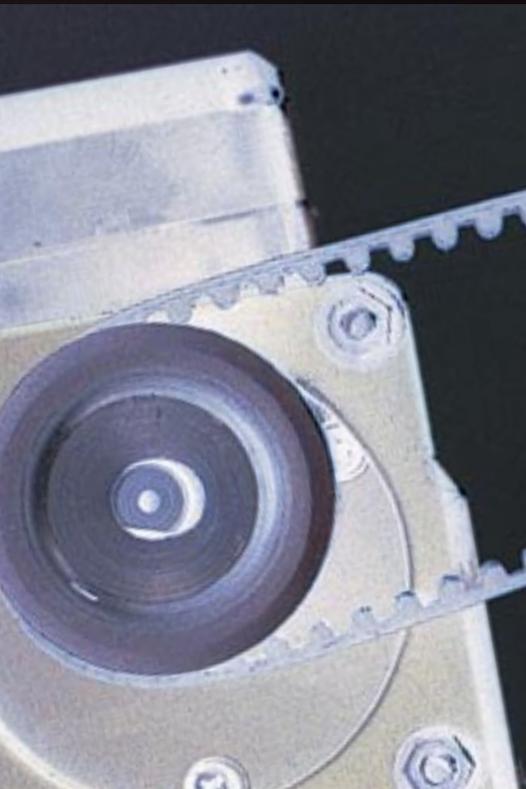
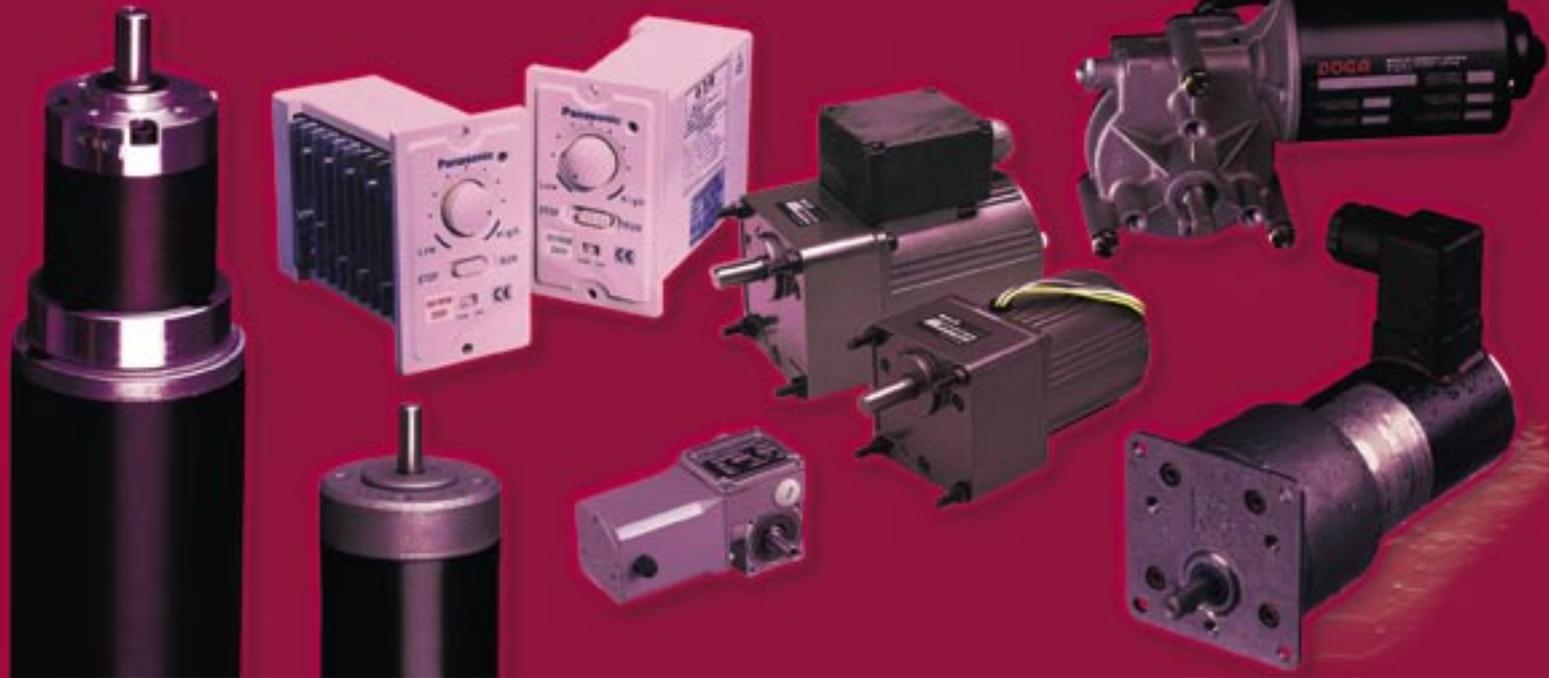


**Panasonic**



small motors



## “Extensive range of sub 300 watt AC & DC motors and drives”

The small motors division offers motors with or without gears as well as PWM and inverter drive solutions.

We offer possibly the UK’s most extensive range of sub 300 watt AC & DC motors and drives from world leading suppliers. This enables us to provide our customers cost effective solutions that meet their exact requirements without the need to compromise on specification or performance.

Applications for our motors are diverse ranging from portable hand-held equipment to conveyor systems and special purpose machines for industrial and medical markets.

**Alternating-Current Motor. (AC) –**  
Asynchronous, Synchronous and Induction motors.

**Direct-Current Motors. (DC) –**  
Permanent Magnet, Brushless and Ironless Rotor Motors.

**Drives. (AC & DC) –**  
PWM DC Drives, AC Inverters, AC & DC Servo Drives.

**Panasonic**



**DOGA**



**Mellor**  
ELECTRICS LIMITED



Nik Page DIVISIONAL MANAGER

Panasonic, one of the worlds largest manufacturers in the world, have designed and developed the market leading G-Series capacitor start single phase, 3 x 230v and 400v three phase motors from 6 to 90W to be combined with all ball bearing gearboxes.

Additionally, Panasonic have introduced the NEW B-Series brushless motors. Both the B1 and B3 have integrated drives with IP65 insulation rating with powers from 30 to 130W. A full range of accessories for both the G-Series and the B1/B3 series are available.

## G-Series Programme



## B-Series Programme



6W



### Induction motors with spur gears

- Wide stock programme
- All ball bearings gearbox as standard
- Lead wire or terminal box
- Silent running
- Impedance protected



#### Technical data, motor

	Supply voltage V AC/Hz	Output power (P <sub>2</sub> )W	Speed r/min.	Torque Ncm	Current A	Capacitor uF	Weight with gearbox kg
Induction motor M61A6G4GE	1-Phase 230/50	6	1225	4,4	0,09	0,6 (430V)	1
M61A6GT4GE (T-Box)	1-Phase 230/50	6	1225	4,4	0,09	0,6 (430V)	1
Reversible motor M6RA6G4GE	1-Phase 230/50	6	1225	4,4	0,1	0,6 (430V)	1
Brake motor M6RA6GB4GE	1-Phase 230/50	6	1225	4,0	0,1	0,6 (430V)	1,2
Variable speed motor (with tacho) M61A6GV4GE	1-Phase 230/50	6	90-1200	2,4-3,2	0,1	0,6 (430V)	1,1

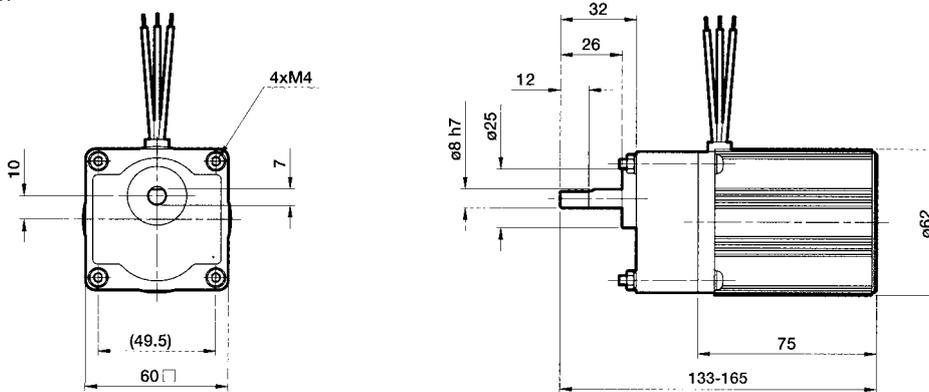
#### Technical data, gearbox

Nominal speed r/min.	500	200	120	100	75	60	50	30	20	15	8	
Ratio	3	7,5	12,5	15	20	25	30	50	75	100	180	Max. gearbox output torque 245Ncm
Nominal torque, Ncm	10	25	40	49	66	79	95	157	245*	245*	245*	

Output speed based on synchronous motor speed (1500 r/min). Actual speed depends on load resulting in 2-20% slower.

#### Dimensions (Inc. Gearbox)

Motor fitted to gearbox



Part No.	Description	Part No.	Description
M61A6G4GE	Induction motor with lead wire	M6GA3B	Ratio 3:1
M61A6GT4GE	Induction motor with terminal box	M6GA6B	Ratio 6:1
M6RA6G4GE	Reversible motor with lead wire	M6GA12.5B	Ratio 12.5:1
M61A6GV4GE	Variable speed motor with tacho	M6GA15B	Ratio 15:1
M6RA6GB4GE	Reversible motor with brake	M6GA20B	Ratio 20:1
Also available in 110v AC		M6GA25B	Ratio 25:1
Foot mount		M6GA30B	Ratio 30:1
Part No.	Description	M6GA50B	Ratio 50:1
M6B2	Foot mount	M6GA60B	Ratio 60:1
		M6GA75B	Ratio 75:1
		M6GA100B	Ratio 100:1
		M6GA150B	Ratio 150:1
		M6GA180B	Ratio 180:1
		M6GA10XM	Inter decimal gearbox 10:1
		Other gearbox ratios on request	

## 15W



## Induction motors with spur gears

- Wide stock programme
- All ball bearings gearbox as standard
- Silent running
- Externally wired temperature switch 120°C



### Technical data, motor

	Supply voltage V AC/Hz	Output power (P <sub>2</sub> )W	Speed r/min.	Torque Ncm	Current A	Capacitor uF	Weight with gearbox kg
Induction motor M71A15G4GE	1-Phase 230/50	15	1225	11	0,15	1,0(430V)	1,55
Reversible motor M7RA15G4GE	1-Phase 230/50	15	1225	11	0,17	1,2(430V)	1,55
Brake motor M7RA15GB4GE	1-Phase 230/50	15	1225	11	0,17	1,2(430V)	1,8
Variable speed motor (with tacho) M71A15GV4GE	1-Phase 230/50	15	90-1200	2,9-8,9	0,23	1,0(430V)	1,6

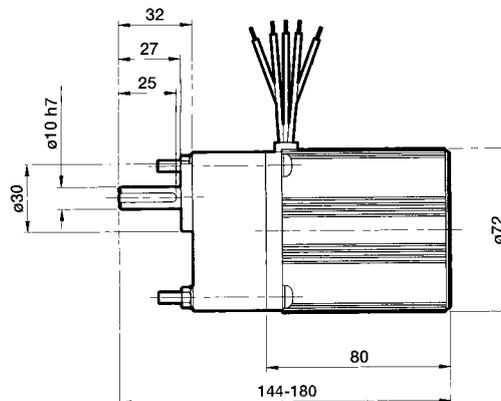
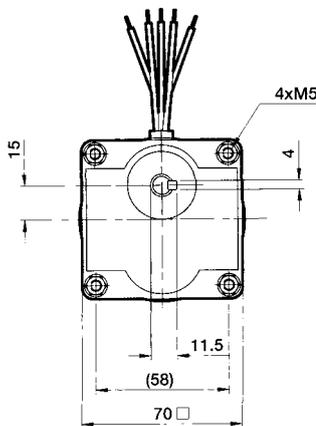
### Technical data, gearbox

Nominal speed r/min.	500	200	120	100	75	60	50	30	20	15	8	
Ratio	3	7,5	12,5	15	20	25	30	50	75	100	180	Max. gearbox output torque 490 Ncm
Nominal torque, Ncm	24	59	98	118	157	186	225	382	490*	490*	490*	

Output speed based on synchronous motor speed (1500 r/min). Actual speed depends on load resulting in 2-20% slower.

### Dimensions (Inc. Gearbox)

Motor fitted to gearbox  
Cable 300mm



Part No.	Description
M71A15G4GE	Induction motor with lead wire
M7RA15G4GE	Reversible motor with lead wire
M7RA15GB4GE	Brake motor with lead wire
M71A15GV4GE	Variable speed motor with tacho

Also available in 110v AC

### Foot mount

Part No.	Description
M7B2	Foot mount

Part No.	Description
M7GA3B	Ratio 3:1
M7GA6B	Ratio 6:1
M7GA12.5B	Ratio 12.5:1
M7GA15B	Ratio 15:1
M7GA20B	Ratio 20:1
M7GA25B	Ratio 25:1
M7GA30B	Ratio 30:1
M7GA50B	Ratio 50:1
M7GA60B	Ratio 60:1
M7GA75B	Ratio 75:1
M7GA100B	Ratio 100:1
M7GA150B	Ratio 150:1
M7GA180B	Ratio 180:1
M7GA10XM	Inter decimal gearbox 10:1

Other gearbox ratios on request

15W



Induction motors with spur gears

- Wide stock programme
- Lead wire or terminal box
- All ball bearings gearbox as standard
- Silent running
- Externally wired temperature switch 120°C



Technical data, motor

	Supply voltage V AC/Hz	Output power (P2)W	Speed r/min.	Torque Ncm	Current A	Capacitor uF	Weight with gearbox kg
Induction motor M81A15G4GE	1-Phase 230/50	15	1275	11	0,18	1,0 (430V)	1,65
M81A15GK4GE (T-box)	1-Phase 230/50	15	1275	11	0,18	1,0 (430V)	1,85

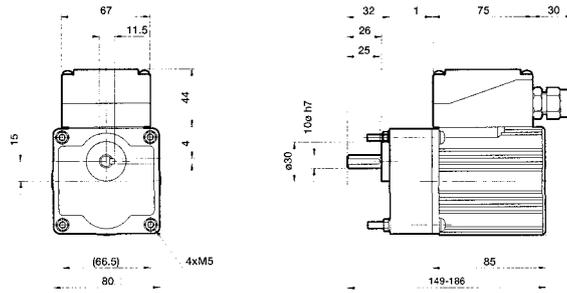
Technical data, gearbox

Nominal speed r/min.	500	200	120	100	75	60	50	30	20	15	8	
Ratio	3	7,5	12,5	15	20	25	30	50	75	100	180	Max. gearbox output torque 784 Ncm
Nominal torque, Ncm	33	83	139	166	199	251	301	430	678	784*	784*	

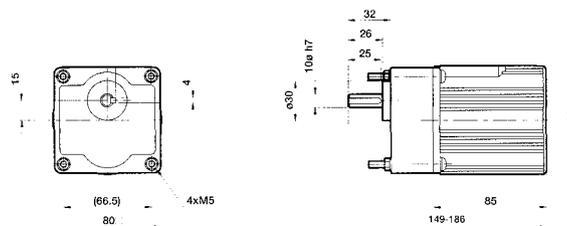
Output speed based on synchronous motor speed (1500 r/min). Actual speed depends on load resulting in 2-20% slower.

Dimensions (Inc. Gearbox)

Motor with terminal box



Motor with cable 300mm



Part No.	Description	Part No.	Description
M81A25G4GE	Induction motor with lead wire	M8GA3B	Ratio 3:1
M81A25GK4GE	Induction motor with terminal box	M8GA6B	Ratio 6:1
		M8GA12.5B	Ratio 12.5:1
		M8GA15B	Ratio 15:1
		M8GA20B	Ratio 20:1
		M8GA25B	Ratio 25:1
		M8GA30B	Ratio 30:1
		M8GA50B	Ratio 50:1
		M8GA60B	Ratio 60:1
		M8GA75B	Ratio 75:1
		M8GA100B	Ratio 100:1
		M8GA150B	Ratio 150:1
		M8GA180B	Ratio 180:1
		M8GA10XM	Inter decimal gearbox 10:1
			Other gearbox ratios on request

**25W**



## Induction motors with spur gears

- Wide stock programme
- Lead wire or terminal box
- All ball bearings gearbox as standard
- Externally wired temperature switch 120°C



### Technical data, motor

	Supply voltage V AC/Hz	Output power (P <sub>2</sub> )W	Speed r/min.	Torque Ncm	Current A	Capacitor uF	Weight with gearbox kg
Induction motor							
M81A25G4GE / M81A25GK4GE (T-box)	1-Phase 230/50	25	1225	18	0,23	1,5(430V)	2,1
M8MA25G4GU (3x230v, 3-Phs, Lead wire)	3-Phase 230/50	25	1375	17	0,26	-	2,1
M8MA25GKP4W1 (3x230v, 3-Phs, T-box)	3-Phase 230/50	25	1375	17	0,26	-	2,1
M8MA25GK4CE1 (400v, 3-Phs, T-box)	3-Phase 400	25	1350	17	0,12	-	2,1
Reversible motor							
M8RA25GK4GE	1-Phase 230/50	25	1250	19	0,25	1,8(430V)	2,1
Brake motor							
M8RA25GBK4GE	1-Phase 230/50	25	1250	19	0,25	1,8(430V)	2,4
Variable speed motor (with tacho)							
M81A25GVK4GE	1-Phase 230/50	25	90-1200	4,4-14	0,35	1,5(430V)	2,1

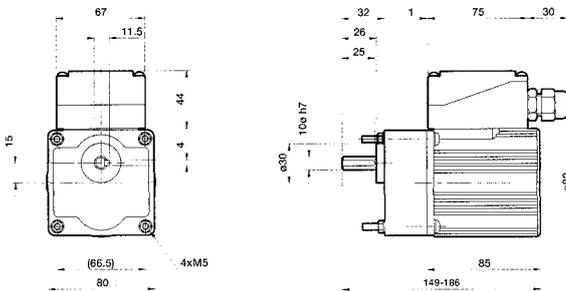
### Technical data, gearbox

Nominal speed r/min.	500	200	120	100	75	60	50	30	20	15	8	
Ratio	3	7,5	12,5	15	20	25	30	50	75	100	180	Max. gearbox output torque 784 Ncm
Nominal torque, Ncm	39	98	157	196	255	314	382	637	784*	784*	784*	

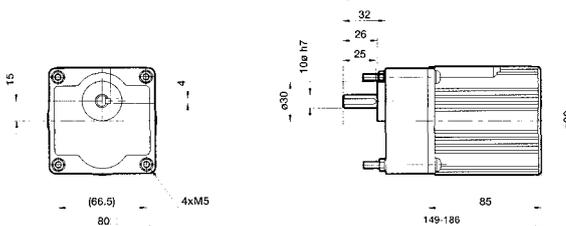
Output speed based on synchronous motor speed (1500 r/min). Actual speed depends on load resulting in 2-20% slower.

### Dimensions (Inc. Gearbox)

Motor with terminal box



Motor with cable 300mm



Part No.	Description	Part No.	Description
M81A25G4GE	Induction motor with lead wire	M8GA3B	Ratio 3:1
M81A25GK4GE	Induction motor with terminal box	M8GA6B	Ratio 6:1
M8MA25G4GU	3 x 230v 3-phase lead wire motor	M8GA12.5B	Ratio 12.5:1
M8MA25GKP4W1	3 x 230v 3-phase motor with terminal box	M8GA15B	Ratio 15:1
M8MA25GK4CE1	400v 3-phase motor with terminal box	M8GA20B	Ratio 20:1
M8RA25GK4GE	Reversible motor with terminal box	M8GA25B	Ratio 25:1
M8RA25GBK4GE	Brake motor with terminal box	M8GA30B	Ratio 30:1
M81A25GVK4GE	Variable speed motor with tacho	M8GA60B	Ratio 60:1
Also available in 110v AC		M8GA75B	Ratio 75:1
Foot mount		M8GA100B	Ratio 100:1
Part No.	Description	M8GA150B	Ratio 150:1
M8B2	Foot mount (forward feet)	M8GA180B	Ratio 180:1
M8B3	Foot mount (reverse feet)	M8GA10XM	Inter decimal gearbox 10:1
			Other gearbox ratios on request

40W



Induction motors with spur gears

- Wide stock programme
- Lead wire or terminal box
- All ball bearings gearbox as standard
- Externally wired temperature switch 120°C



Technical data, motor

	Supply voltage V AC/Hz	Output power (P2)W	Speed r/min.	Torque Ncm	Current A	Capacitor uF	Weight with gearbox kg
Induction motor M91A40G4GE / M91A40GK4GE (T-box)	1-Phase 230/50	40	1200	31	0,36	2,5(430V)	3,2
M9MA40G4GU (3x230v, 3-Phs, lead wire)	3-Phase 230/50	40	1375	27	0,33	-	3,2
M9MA40GKP4W1 (3x230v, 3-Phs, T-box)	3-Phase 230/50	40	1375	27	0,33	-	3,2
M9MA40GK4CE1 (400v, 3-Phs, T-box)	3-Phase 400	40	1375	26	0,15	-	3,2
Reversible motor M9RA40GK4GE	1-Phase 230/50	40	1175	33	0,41	3,0(430V)	3,2
Brake motor M9RA40GBK4GE	1-Phase 230/50	40	1175	33	0,41	3,0(430V)	3,6
Variable speed motor (with tacho) M91A40GVK4GE	1-Phase 230/50	40	90-1200	5,8-30	0,7	2,5(430V)	3,2

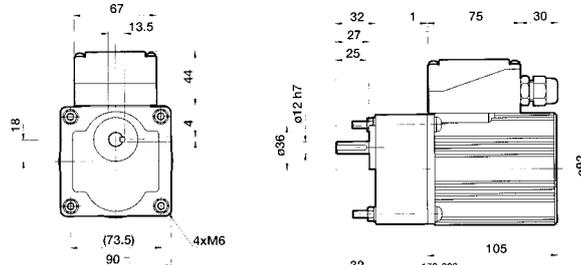
Technical data, gearbox

Nominal speed r/min.	500	200	120	100	75	60	50	30	20	15	8	Max. gearbox output torque 980 Ncm
Ratio	3	7,5	12,5	15	20	25	30	50	75	100	180	
Nominal torque, Ncm	66	157	274	323	441	529	637	980*	980*	980*	980*	

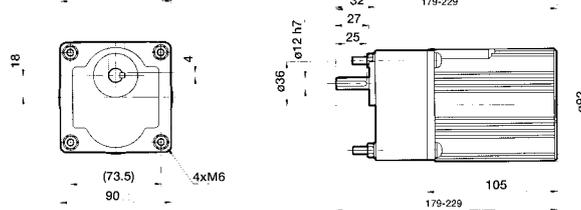
Output speed based on synchronous motor speed (1500 r/min). Actual speed depends on load resulting in 2-20% slower.

Dimensions (Inc. Gearbox)

Motor with terminal box



Motor with cable 300mm



Part No.	Description	Part No.	Description
M91A40G4GE	Induction motor with lead wire	M9GA3B	Ratio 3:1
M91A40GK4GE	Induction motor with terminal box	M9GA6B	Ratio 6:1
M9MA40G4GU	3x230v 3-phase lead wire motor	M9GA12.5B	Ratio 12.5:1
M9MA40GKP4W1	3x230v 3-phase motor with terminal box	M9GA15B	Ratio 15:1
M9MA40GK4CE1	400v 3-phase motor with terminal box	M9GA20B	Ratio 20:1
M9RA40GK4GE	Reversible motor with terminal box	M9GA25B	Ratio 25:1
M9RA40GBK4GE	Brake motor with terminal box	M9GA30B	Ratio 30:1
M91A40GVK4GE	Variable speed motor with tacho	M9GA50B	Ratio 50:1
Also available in 110v AC		M9GA60B	Ratio 60:1
Foot mount		M9GA75B	Ratio 75:1
Part No.	Description	M9GA100B	Ratio 100:1
M9B2	Foot mount (forward feet)	M9GA150B	Ratio 150:1
M9B3	Foot mount (reverse feet)	M9GA180B	Ratio 180:1
		M9GA10XM	Inter decimal gearbox 10:1

Other gearbox ratios on request

60W



## Induction motors with spur gears

- Wide stock programme
- Lead wire or terminal box
- All ball bearings gearbox as standard
- Externally wired temperature switch 120°C



### Technical data, motor

	Supply voltage V AC/Hz	Output power (P2)W	Speed r/min.	Torque Ncm	Current A	Capacitor uF	Weight with gearbox kg
Induction motor							
M91C60G4GE / M91C60GK4GE (T-box)	1-Phase 230/50	60	1225	47	0,51	4,0 (430V)	4,1
M9MC60G4GU (3x230v, 3-Phs, leadwire)	3-Phase 230/50	60	1375	41	0,46	-	4,1
M9MC60GK4W1 (3x230v, 3-Phs, T-box)	3-Phase 230/50	60	1375	41	0,46	-	4,1
M9MC60GK4CE1 (400v, 3-Phs, T-box)	3-Phase 400	60	1375	41	0,21	-	4,1
Reversible motor							
M9RC60GK4GE	1-Phase 230/50	60	1300	44	0,57	5,0 (430V)	4,1
Brake motor							
M9RC60GBK4GE	1-Phase 230/50	60	1300	44	0,57	5,0 (430V)	4,5
Variable speed motor (with tacho)							
M91C60GVK4GE	1-Phase 230/50	60	90-1200	11-43	1,1	4,0 (430V)	4,1

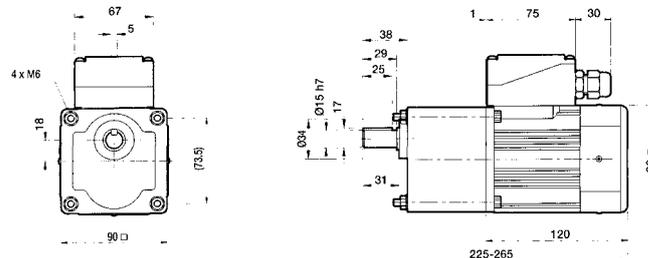
### Technical data, gearbox

Nominal speed r/min.	500	200	120	100	75	60	50	30	20	15	8	
Ratio	3	7,5	12,5	15	20	25	30	50	75	100	180	Max. gearbox output torque 1960 Ncm
Nominal torque, Ncm	98	235	392	470	627	755	911	1520	1960*	1960*	1960*	

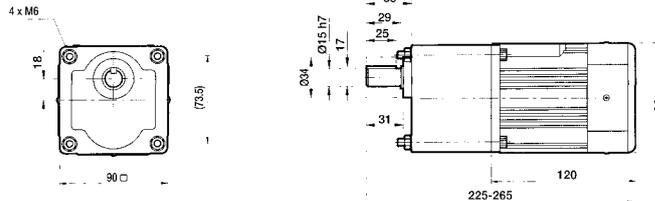
Output speed based on synchronous motor speed (1500 r/min). Actual speed depends on load resulting in 2-20% slower.

### Dimensions (Inc. Gearbox)

Motor with terminal box



Motor with cable 300mm



Part No.	Description	Part No.	Description
M91C60G4GE	Induction motor with lead wire	M9GD3B	Ratio 3:1
M91C60GK4GE	Induction motor with terminal box	M9GD6B	Ratio 6:1
M9MC60G4GU	3x230v 3-Phase lead wire motor	M9GD12,5B	Ratio 12,5:1
M9MC60GK4W1	3x230v 3-Phase motor with terminal box	M9GD15B	Ratio 15:1
M9MC60GK4CE1	400v 3-Phase motor with terminal box	M9GD20B	Ratio 20:1
M9RC60GK4GE	Reversible motor with terminal box	M9GD25B	Ratio 25:1
M9RC60GBK4GE	Brake motor with terminal box	M9GD30B	Ratio 30:1
M91C60GVK4GE	Variable speed motor with tacho	M9GD50B	Ratio 50:1
		M9GD60B	Ratio 60:1
		M9GD75B	Ratio 75:1
		M9GD100B	Ratio 100:1
		M9GD150B	Ratio 150:1
		M9GD180B	Ratio 180:1
		M9GD10XB	Inter decimal gearbox 10:1

Also available in 110v AC

Other gearbox ratios on request

### Foot mount

Part No.	Description
M9B2	Foot mount (forward feet)
M9B3	Foot mount (reverse feet)

90W



Induction motors with spur gears

- Wide stock programme
- Lead wire or terminal box
- All ball bearings gearbox as standard
- Externally wired temperature switch 120°C



Technical data, motor

	Supply voltage V AC/Hz	Output power (P2)W	Speed r/min.	Torque Ncm	Current A	Capacitor uF	Weight with gearbox kg
Induction motor M91C90G4GE / M91C90GK4GE (T-box)	1-Phase 230/50	90	1325	63	0,67	4,5 (430V)	4,6
M9MC90G4GU (3x230v, 3 Phs, leadwire)	3-Phase 230/50	90	1375	51	0,59	-	4,6
M9MC90GKP4W1 (3x230v, 3 Phs, T-box)	3-Phase 230/50	90	1375	51	0,59	-	4,6
M9MC90GK4CE1 (400v, 3 Phs, T-box)	3-Phase 400	90	1375	58	0,3	-	4,6
Reversible motor M9RC90GK4GE	1-Phase 230/50	90	1050	76	0,84	5,5 (430V)	4,6
Brake motor M9RC90GBK4GE	1-Phase 230/50	90	1050	76	0,84	5,5 (430V)	5,1
Variable speed motor (with tacho) M91C90GVK4GE	1-Phase 230/50	90	90-1200	24-58	1,3	4,5 (430V)	4,6

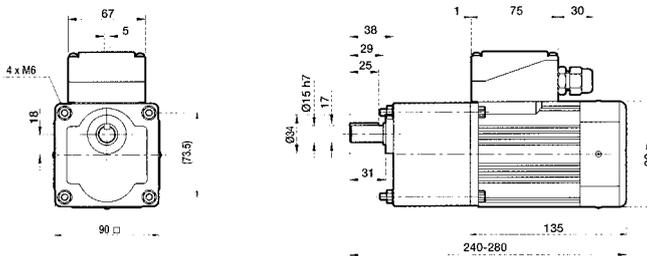
Technical data, gearbox

Nominal speed r/min.	500	200	120	100	75	60	50	30	20	15	8	
Nominal speed r/min.	3	7,5	12,5	15	20	25	30	50	75	100	180	Max. gearbox output torque 1960 Ncm
Nominal torque, Ncm	137	343	568	676	902	1090	1300	1960*	1960*	1960*	1960	

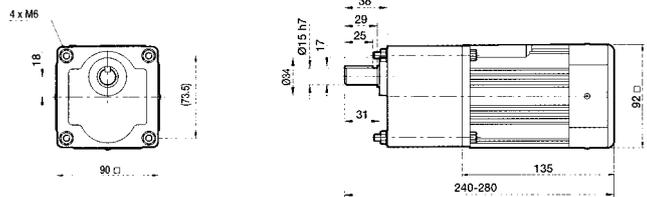
Output speed based on synchronous motor speed (1500 r/min). Actual speed depends on load resulting in 2-20% slower.

Dimensions (Inc. Gearbox)

Motor with terminal box



Motor with cable 300mm



Part No.	Description
M91C90G4GE	Induction motor with lead wire
M91C90GK4GE	Induction motor with terminal box
M9MC90G4GU	3x230v 3-phase lead wire motor
M9MC90GKP4W1	3x230v 3-phase motor with terminal box
M9MC90GK4CE1	400v 3-phase motor with terminal box
M9RC90GK4GE	Reversible motor with terminal box
M9RC90GBK4GE	Brake motor with terminal box
M91C90GVK4GE	Variable speed motor with tacho

Also available in 110v AC

Foot mount

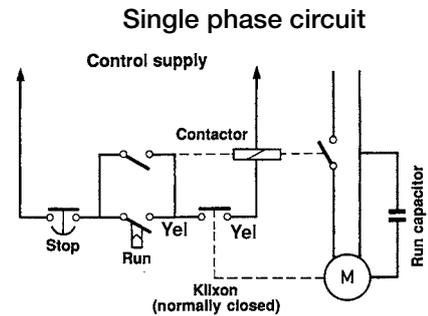
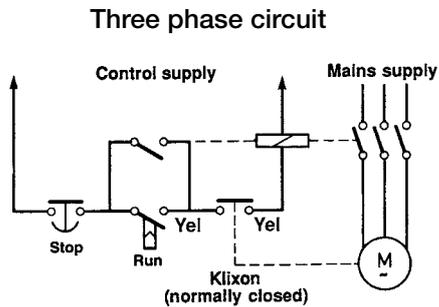
Part No.	Description
M9B2	Foot mount (forward feet)
M9B3	Foot mount (reverse feet)

Part No.	Description
M9GD3B	Ratio 3:1
M9GD6B	Ratio 6:1
M9GD12,5B	Ratio 12,5:1
M9GD15B	Ratio 15:1
M9GD20B	Ratio 20:1
M9GD25B	Ratio 25:1
M9GD30B	Ratio 30:1
M9GD50B	Ratio 50:1
M9GD60B	Ratio 60:1
M9GD75B	Ratio 75:1
M9GD100B	Ratio 100:1
M9GD150B	Ratio 150:1
M9GD180B	Ratio 180:1
M9GD10XB	Inter decimal gearbox 10:1

Other gearbox ratios on request

60 mm<sup>2</sup> motors are impedance protected.

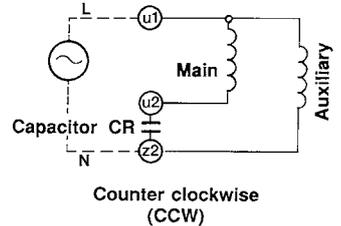
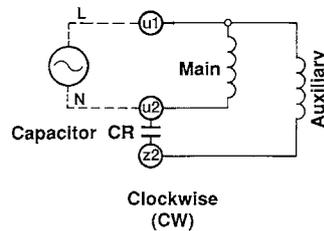
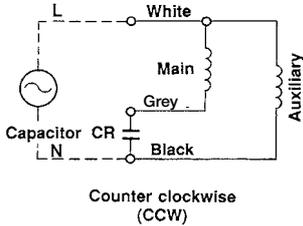
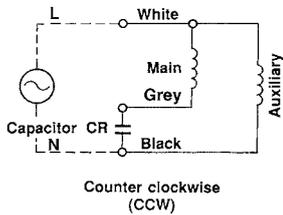
**IMPORTANT:** For 70/80/90mm motors the thermal switch is no longer in series with motor windings. Please ensure that thermal switch is wired as in our recommendations (see diagram below).



## Panasonic single phase geared motors 230V/1ph/50Hz or 110V/1ph/50-60Hz

Lead wire type 60 – 70 mm<sup>2</sup>

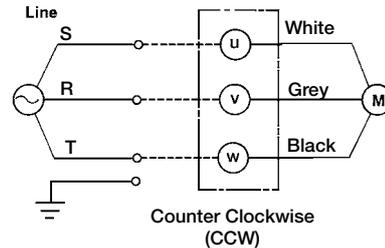
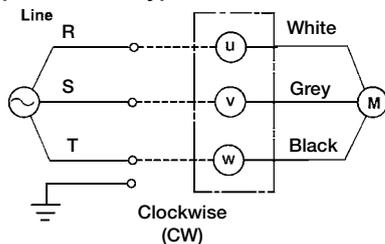
Terminal box type 80 – 90 mm<sup>2</sup>



## Panasonic three phase geared motors 230V or 400V/3ph/50-60Hz

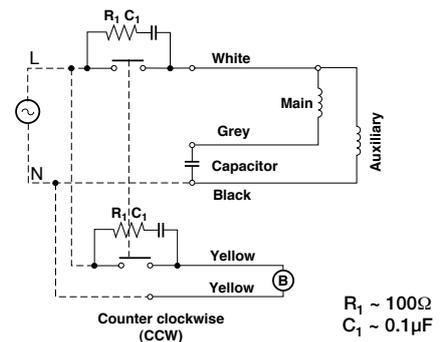
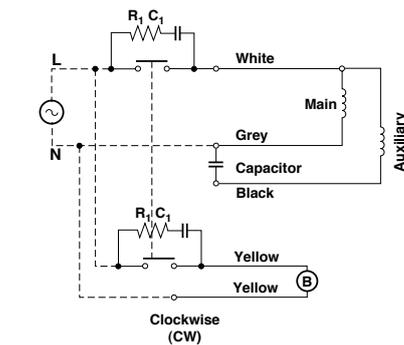
Terminal box type/leadwire type

80 – 90 mm<sup>2</sup>

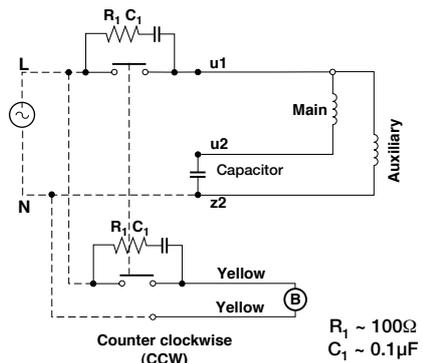
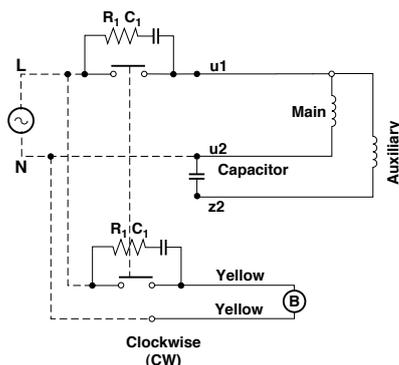


## Panasonic single phase geared brake motors 230/1/50 or 115/1/50-60Hz

60 – 70 mm<sup>2</sup>



80 – 90 mm<sup>2</sup>  
Terminal box type





## Frequency inverter for 3 – Phase motors

- Compact and aesthetic design
- Simple operation
- Quick and easy to install



### Function

The Panasonic Micro-Inverter can be used with any 3 phase, 230v motor up to 90W and is capable of delivering a starting torque of 200% full load torque achievable. The standard XE version has a built in potentiometer for simple speed control. Also incorporated are a

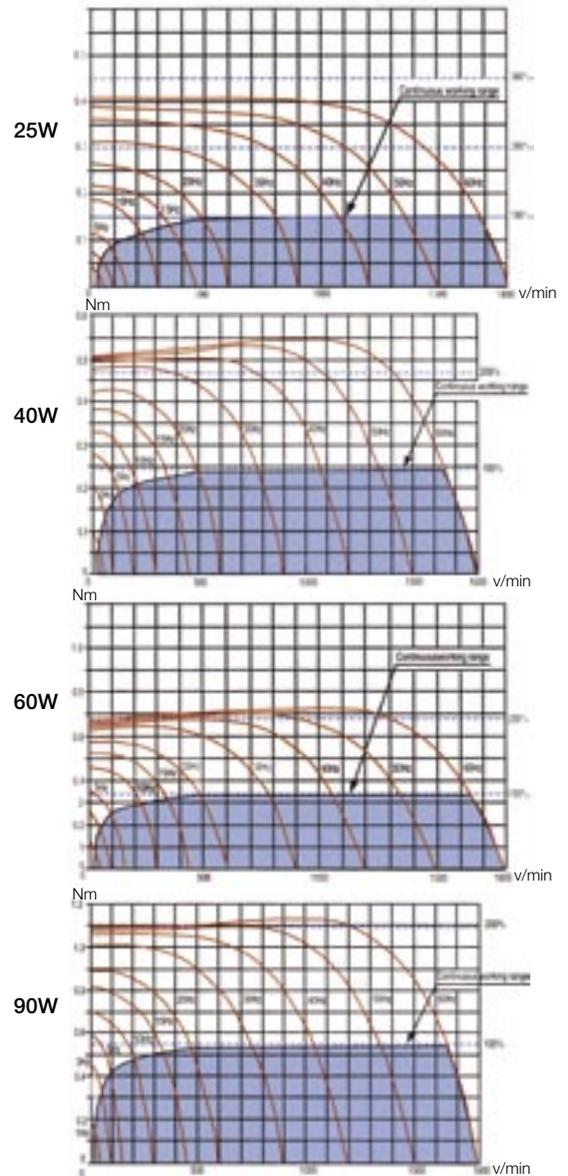
standard range of control functions. To allow greater flexibility, the XEA version will accept either an external speed potentiometer or an 0-5v analogue signal.

### Technical data

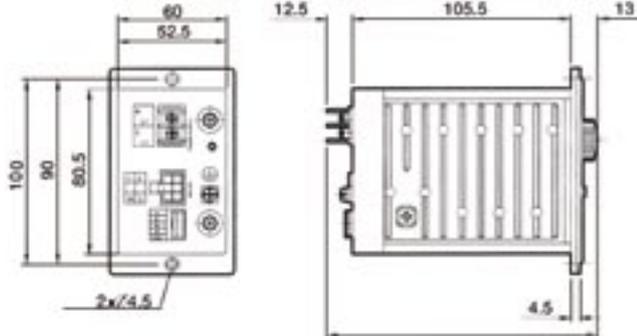
Rated motor power (W)	25/40W	60/90W
Output capacity (VA) *1	112/159	195/279
Rated output current (A)	0.28/0.40	0.49/0.70
Rated output voltage *2	Three phase: 200/230v Single phase: 200/250v	
Supply voltage *3	+/- 10%	
Voltage tolerance	50/60 Hz +/-5%	
Supply frequency	PWM: 12kHz switching frequency	
Control Method	1.0 to 120Hz (factory pre-set to 60Hz)	
Output frequency range *4	0.05 to 30 sec	
Acceleration/deceleration time	150% Cont. 200% for 90sec	
Overload current rating	100% deceleration torque – short term	
Regenerative brake torque *5	Braking start frequency: 3Hz Braking time 0.5 sec	
DC brake	In built potentiometer (XE) or external control (XEA)	
Frequency setting	Start/Stop switch, CW/CCW switch, frequency range, motor thermal overload (inputs) – Start/Stop, CW/CCW, Coast stop (Output): Trip signal	
In-built controls		
External control		
Protective functions	Under-voltage, Overcurrent, Overvoltage, Overload, Power failure, Stall prevention, Motor thermal overload	
Motor thermal overload setting	25/40W	60/90W
Ambient temperature	-10°C to + 40°C	
Ambient humidity	Relative humidity 90% Max. (No condensation)	
Atmosphere	Free from corrosive gas, mist, dust, etc.	
Enclosure	IP20	

\*1 The rated output capacity is based on a rated output voltage of 230v  
 \*2 The rated output voltage will never exceed the mains supply voltage  
 \*3 The mains supply voltage should not exceed the rated voltage of the motor  
 \*4 When used with Panasonic G-Series geared motors, never exceed 60Hz operation  
 \*5 The regenerative brake torque is not rated for continuous operation. No braking resistor is used.

### Performance data



### Dimensions



Part No.	Description
M1G4A2V1XE	Frequency inverter for 25/40W 3 Phase motors
M1G9A2V1XE	Frequency inverter for 60/90W 3 Phase motors
M1G4A2V1XEA	Frequency inverter for 25/40W 3 Phase motors with external speed reference
M1G9A2V1XEA	Frequency inverter for 60/90W 3 Phase motors with external speed reference



DVUS



DVSD

## Analogue speed controllers

- Suitable for 6-90W variable speed G-Series motors
- Single phase analogue control
- Panel mount



### Description (DVUS)

Front panel mounting analogue speed controller for single phase Panasonic speed regulator motors with integrated tacho-generator (see pages 4, 5, 7, 8, 9, 10) For EMC compliance we recommend M9-779987 (see page 14)

### (DVSD)

Din rail/surface mountable analogue speed controllers for single phase Panasonic speed regulator motors with integrated tacho-generator. (see pages 4, 5, 7, 8, 9, 10) Speed control can be achieved by simple adjustment of the front mounted speed knob, alternatively an external speed potentiometer can be used for remote speed control. Fine speed adjustment is achieved by a small trim potentiometer located on the front of the controller.

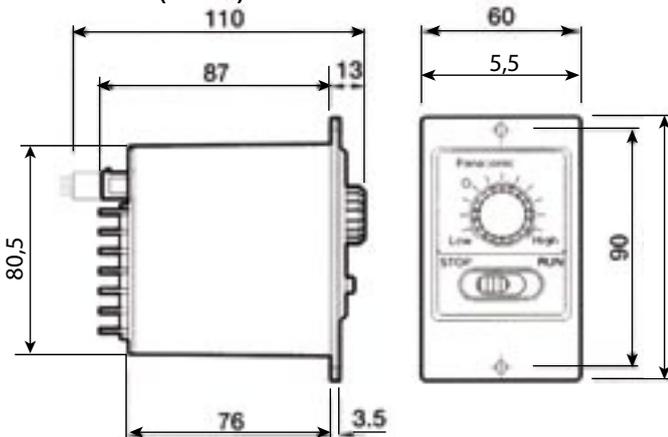
### Technical data (DVUS)

Motor	6-90W
Supply voltage	220/240v 50/60Hz 1 Phase
Speed range	50-1400rpm @ 50Hz 90-1700rpm @ 60Hz

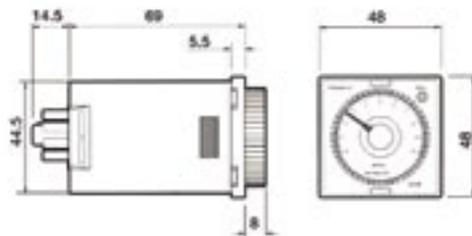
### (DVSD)

Motor	6-6-15W, 25-40W, 60-90W
Supply voltage	220/240v 50/60Hz 1 Phase
Speed range	90-1400rpm @ 50Hz 90-1700rpm @ 60Hz

### Dimensions (DVUS)



### (DVSD)



Part No.	Type	Description
DVUS990GE	DVUS	Panel mount analogue controller for 6-90W variable speed motors
DVSD48AY	DVSD	Din rail/surface mount analogue controller for 6-15W variable speed motors
DVSD48BY	DVSD	Din rail/surface mount analogue controller for 25-40W variable speed motors
DVSD48CY	DVSD	Din rail/surface mount analogue controller for 60-90W variable speed motors

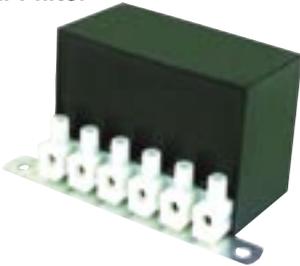
### Tokin MR-2043 EMC Noise Filter

For EMC compliance a noise filter is recommended when using Panasonic DVUS or DVSD speed controllers.



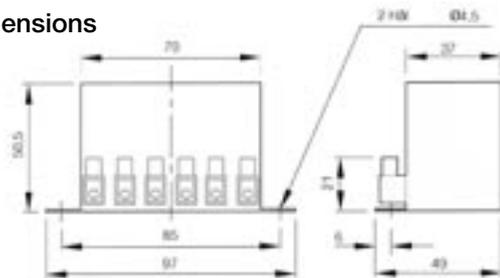
Part No.	Description
P9-665463	EMC noise filter

### RFI filter



RFI filter designed for Panasonic frequency inverters to achieve EMC compliance.

### Dimensions



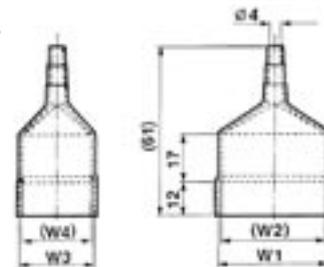
Part No.	Rating	Weight
M9-779987	2A	0.2Kg

### Capacitor caps



Part No.	Capacitor size uF
P9-86366	0.6, 1.0, 1.2, 1.5, 1.8
P9-86382	2.5
P9-86410	3.0, 4.0, 4.5, 5.0, 5.5

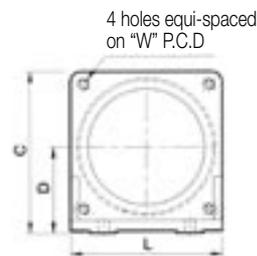
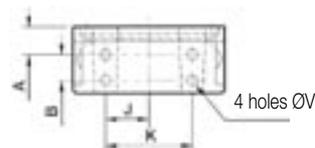
### Dimensions



W1	W2	W3	W4
39.5	37.5	17	15
39.5	37.5	22	20
50	48	26	22

### Standard foot mount A

### Dimensions



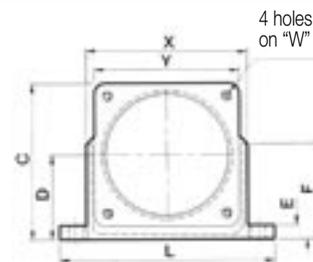
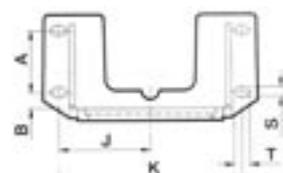
Motor	A	B	C	D	H	J	K	L	M	N	P	R	V	W	X
6W	12	8	65	35	6	17	34	60	25	3	5.5	6	Ø4.8	Ø70	M4
15W	13	12	75	40	6	20	40	70	31	3.5	5.5	7	Ø4.8	Ø82	M5
25W	15	14	85	45	6	23	46	80	35	3.5	-	7	Ø5.5	Ø94	M5
40-90W	20	20	95	50	6	28	56	90	46	3.5	-	8	Ø7	Ø104	M6

Part No.	Description
M6B2	Standard foot mount A for 6W motor
M7B2	Standard foot mount A for 15W motor

Part No.	Description
M8B2	Standard foot mount A for 25W motor
M9B2	Standard foot mount A for 40-90W motor

### Side fixing foot mount B

### Dimensions



Motor	A	B	C	D	H	J	K	L	M	N	R	S	T	U	W	X	Y	Z
25W	35	9	89	48	8	51	102	128	60	3.5	7	5.4	8.4	54	Ø94	90	81	M5
40-90W	40	9	98.5	53	10	56	112	130	67	3.5	10	5.4	8.4	60	Ø104	100	91	M6

Part No.	Description
M8B3	Side fixing foot mount B for 25W motor
M9B3	Side fixing foot mount B for 40-90W motor

Panasonic, one of the largest motor manufacturers in the world, have designed and developed the new B-series of motors and geared motors with integrated drives.

The B1 model suits general applications with a wide speed range, accurate speed holding and IP65 protection.

It is available from 30 to 130W as motors with round shafts, or geared motors using high efficiency helical gearboxes.

The B3 model has the additional feature of positioning control for up to four discrete positions with a step angle of 1.25°. It is available as motors or geared motors in the same power range 30 to 130W.



### Integrated drive

- no panel space required, faster installation & commissioning

### Compact

- space saving and IP65 enclosed

### High performance

- Panasonic Hyper technology for accurate speed holding & smooth running

### B1 Models

- optional gearboxes and analogue or digital keypads

### B3 Models

- simple 4 point position control

### Hyper technology

Panasonic Hyper technology is based around hall-effect sensors in the motor giving feedback to the drive via a sinusoidal wave for speed holding and positioning.

### Gearboxes

Accurately machined spur gears achieve low noise and high efficiency. B3 models are fitted with an integer gearbox with exact ratios for precise positioning.

### Motors only

Both B1 and B3 models can be supplied without gearboxes for controllable output speeds between 30 and 3000r/min.

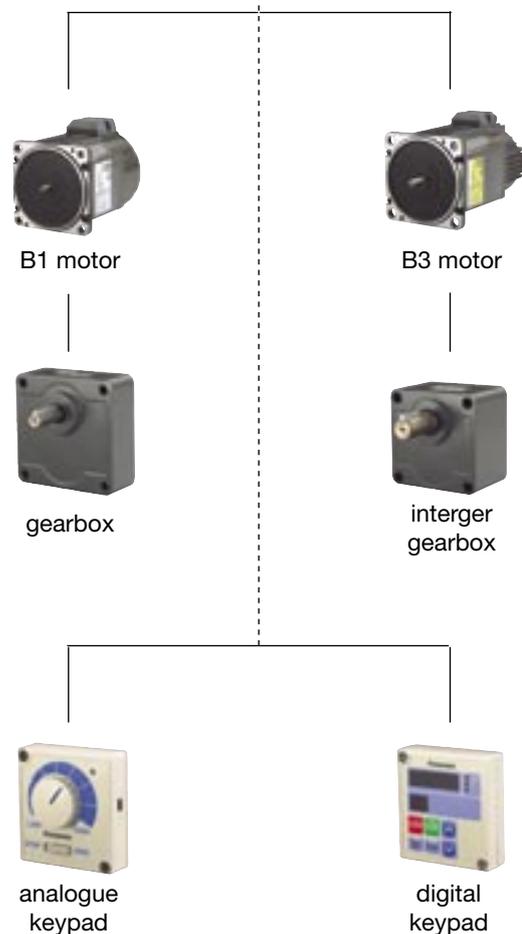
### Cables

A full range of pre-assembled power and control cables are available. These are available with IP20 plastic or IP65 metal connectors.

Supply 200-240V, 1 ~, 50-60Hz  
(On request 100V-60Hz)



Optional filter



**B1**  
**30-130 W**



Brushless motors with integrated drives

- Space saving with integrated drive
- Full torque from 0-3000rpm
- Speed range 100:1
- CE/UL approved. IP65
- 5000 hours life with gearbox

**Function**

The Panasonic B1 range of motors and geared motors breaks new ground with the drive integrated inside the motor frame. Available from 30 to 130W, the B1 range combines the benefits of DC performance with the robustness of AC motors.

Using high efficiency brushless Panasonic Hyper technology based around hall-effect sensors in the motor giving feedback via sinusoidal waveform for speed holding and positioning. These compact motors remove the need for a panel mounted drive.

**Technical data, motor**

Motor type Shaft for gearbox "D" cut shaft	Output Power (P2) W	Voltage (V)	Frequency (Hz)	Current (A)	Torque (Nm)	Starting torque (Nm)	Speed (r/min.)
MBMC3A1AXA MBMC3A1ASA	30	1-phase 100-120	50/60	1,0	0,095	0,14	3000
MBMC3A2AXA MBMC3A2ASA	30	1-phase 200-240	50/60	0,6	0,095	0,14	3000
MBMC5A1AXA MBMC5A1ASA	50	1-phase 100-120	50/60	1,5	0,16	0,24	3000
MBMC5A2AXA MBMC5A2ASA	50	1-phase 200-240	50/60	0,7	0,16	0,24	3000
MBMC9A1AZA MBMC9A1ASA	90	1-phase 100-120	50/60	2,0	0,29	0,43	3000
MBMC9A2AZA MBMC9A2ASA	90	1-phase 200-240	50/60	1,1	0,29	0,43	3000
MBMC1E2AZA MBMC1E2ASA	130	1-phase 200-240	50/60	1,5	0,41	0,62	3000

**General data**

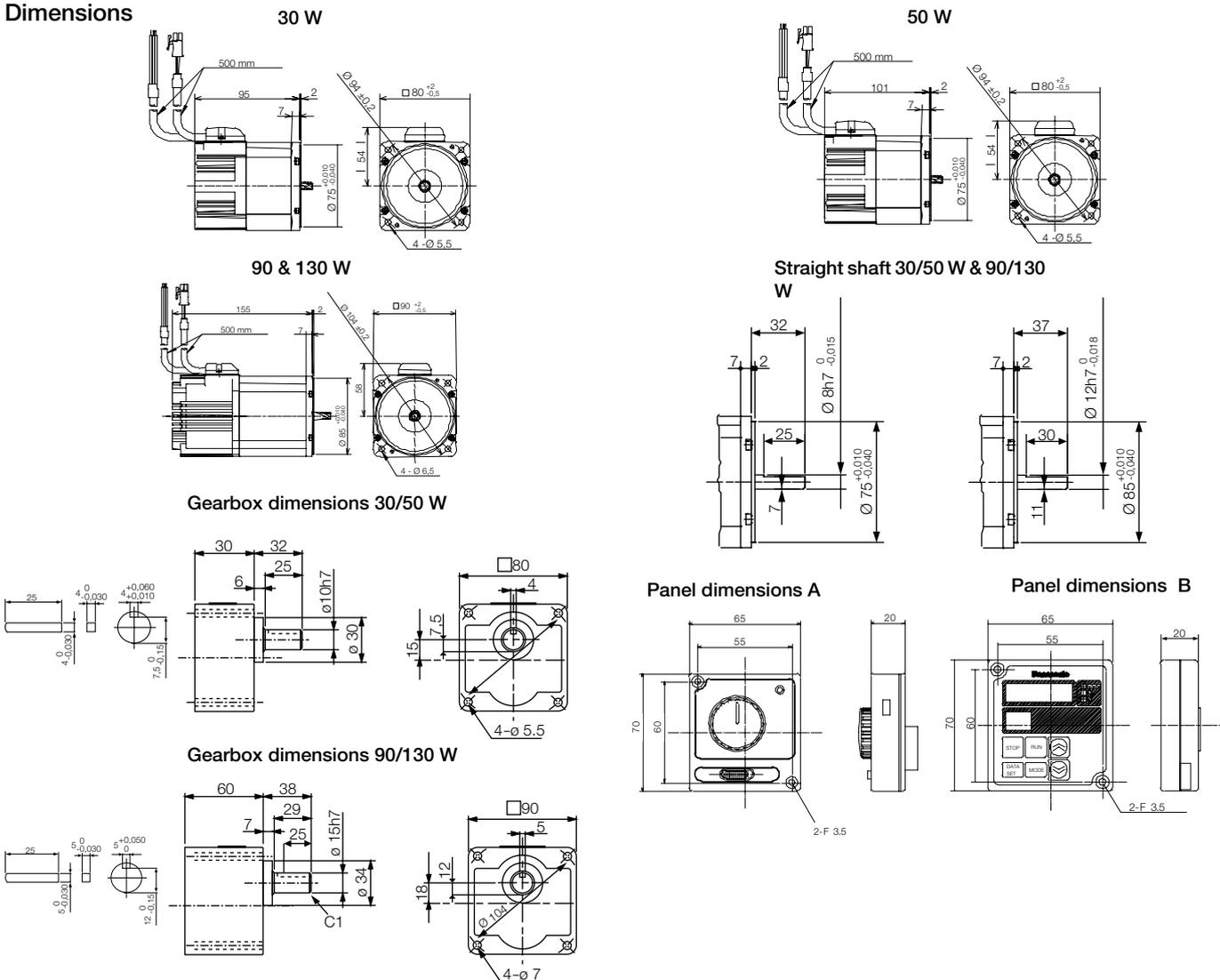
Motor type	MBMC3A****	MBMC5A****	MBMC9A****	MBMC1E****
Power (W)	30	50	90	130
Speed range	30-3000r/min (Speed 1:100)			
Speed fluctuation	Rated +/- 1%			
Acc/Dec. Time	0.3 seconds (Time from 0 to 1000 r/min)*			
Stop method	Free run & Stop*			
Speed accuracy	Analogue: +/-5% of upper speed limit, Digital: 1% or less of upper speed limit			
Protective functions	Under-voltage warning , (Under-voltage protection *), Over-load, Over-current, Regenerative over-voltage, Parameter error, CPU error, Over-speed, Sensor error, Over-heat			
Insulation class	E (120 °C) (UL certified A 105°C)			
Duty cycle	Continuous			30min or Cont at 80% load
Overload warning level	100 %			80 %
Time limit for overload	60 sec at 150% loading			
IP Rating	IP65 motor, excluding foot of shaft and end of lead wires. Panel controllers IP20			
Weight (kg)	1,1	1,3	2,3	2,3

\* Can be set by Panel B

Torque with gear (Nm)	3	7,5	12,5	15	20	25	30	50	75	100	180	200
Model / Ratio												
30 W, MX8G_B	0,23	0,58	0,96	1,15	1,55	1,93	2,16	3,55	5,43	6,99	7,84	
50 W, MX8G_B	0,39	0,96	1,61	1,92	2,59	3,23	3,61	5,93	7,84	7,84	7,84	
90 W, MX9G_B	0,67	1,69	2,54	3,06	4,11	5,27	6,22	9,81	14,7	19	19,6	19,6
130 W, MX9G_B	1,01	2,54	3,82	4,59	6,17	7,91	9,34	14,7	19,6	19,6	19,6	19,6

Grey area indicates gearbox runs in the same direction as the motor shaft

## Dimensions



### Motor for gearbox

Part No.	Description
MBMC3A1AXA	30 W, 110 V for gearbox
MBMC3A2AXA	30 W, 230 V for gearbox
MBMC5A1AXA	50 W, 110 V for gearbox
MBMC5A2AXA	50 W, 230 V for gearbox
MBMC9A1AZA	90 W, 110 V for gearbox
MBMC9A2AZA	90 W, 230 V for gearbox
MBMC1E2AZA	130 W, 230 V for gearbox

### Motor with straight shaft

Part No.	Description
MBMC3A1ASA	30 W, 110 V straight shaft
MBMC3A2ASA	30 W, 230 V straight shaft
MBMC5A1ASA	50 W, 110 V straight shaft
MBMC5A2ASA	50 W, 230 V straight shaft
MBMC9A1ASA	90 W, 110 V straight shaft
MBMC9A2ASA	90 W, 230 V straight shaft
MBMC1E2ASA	130 W, 230 V straight shaft

### Motors from 30 to 50 W

Part No.	Description
MX8G3B	Gearbox 3:1
MX8G7,5B	Gearbox 7,5:1
MX8G12,5B	Gearbox 12,5:1
MX8G15B	Gearbox 15:1
MX8G20B	Gearbox 20:1
MX8G25B	Gearbox 25:1
MX8G30B	Gearbox 30:1
MX8G50B	Gearbox 50:1
MX8G75B	Gearbox 75:1
MX8G100B	Gearbox 100:1
MX8G180B	Gearbox 180:1

### Motors from 90 to 130 W

Part No.	Description
MZ9G3B	Gearbox 3:1
MZ9G7,5B	Gearbox 7,5:1
MZ9G12,5B	Gearbox 12,5:1
MZ9G15B	Gearbox 15:1
MZ9G20B	Gearbox 20:1
MZ9G25B	Gearbox 25:1
MZ9G30B	Gearbox 30:1
MZ9G50B	Gearbox 50:1
MZ9G75B	Gearbox 75:1
MZ9G100B	Gearbox 100:1
MZ9G180B	Gearbox 180:1
MZ9G200B	Gearbox 200:1

**B3**  
**30-130 W**



## Brushless motor with integrated drive & encoder

- Positioning with integrated encoder
- Full torque available from 0 to 3000 rpm
- Maximum gear reduction 100:1
- 5000Hr life with gearbox
- CE/UL approval/IP65



### Function

Panasonic B3 motor features integrated drive and encoder offers simple servo type performance. With full torque from zero speed up to 3000rpm, it can be used for positioning applications.

Programming is carried out simply using the digital keypad or by using the RS232 connection together with Panasonic's Panaterm software.

### Technical data

Motor type Shaft for gearbox "D" cut shaft	Output power (P2) W	Voltage (V)	Frequency (Hz)	Current (A)	Torque (Nm)	Starting torque (Nm)	Speed (r/min.)
MBMP3A1EBC MBMP3A1ESC	30	1-phase 100-120	50/60	1,0	0,095	0,14	3000
MBMP3A2EBC MBMP3A2ESC	30	1-phase 200-240	50/60	0,6	0,095	0,14	3000
MBMP5A1EBC MBMP5A1ESC	50	1-phase 100-120	50/60	1,5	0,16	0,24	3000
MBMP5A2EBC MBMP5A2ESC	50	1-phase 200-240	50/60	0,7	0,16	0,24	3000
MBMP9A1EBC MBMP9A1ESC	90	1-phase 100-120	50/60	2,0	0,29	0,43	3000
MBMP9A2EBC MBMP9A2ESC	90	1-phase 200-240	50/60	1,1	0,29	0,43	3000
MBMP1E2EBC MBMP1E2ESC	130	1-phase 200-240	50/60	1,5	0,41	0,62	3000

### General data

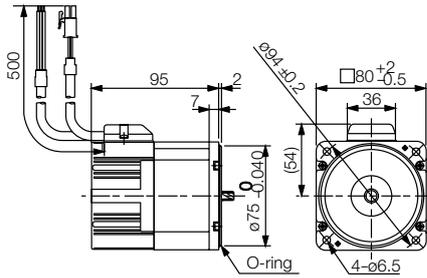
Motor type	MBMP3A****	MBMP5A****	MBMP9A****	MBMP1E****
Power (W)	30	50	90	130
Speed range	30-3000 r/min (Speed 1:100)			
Speed control method	PWM			
Points to position	Set distance, speed, acceleration, absolute/relative for each point			
Positioning	288 pulses/rev (±5 % or less at 20°)			
Input signals	4 signals			
Output signals	2 outputs (open collector)			
Protective function	Overload, over-current, over-voltage, under-voltage, system error, over-speed, sensor error, over-heat, position error, externally enforced trip, overflow of error counter, RS485 error, motion execution error, homing error, hardware limit error, operation panel B error, user parameter error.			
RS232C communication	Set parameters or monitor status with panel B or PC			
RS485 communication	Set parameters or monitor status with controller			
Insulation level	E (120°) (UL Approved A (105°))			
Duty cycle	Continuous			30 min or cont. at 80% loading
Over load warning level	100 %			80%
Time limit at over load	60 seconds at 150% loading			
Start torque	150%			
IP rating	IP65, excluding shaft and lead wires to EN standards			
Mass (kg)	1,1	1,3	2,3	2,3

Torque with gear (Nm)	5	10	15	20	30	50
Model/ratio						
30 W, MB8G_BV	0,43	0,86	1,3	1,8	2,5	4,1
50 W, MB8G_BV	0,71	1,4	2,2	2,8	4,0	6,8
90 W, MB9G_BV	1,2	2,5	3,6	4,9	7,0	11,6
130 W, MB9G_BV	1,9	3,7	5,6	7,4	10,7	17,7

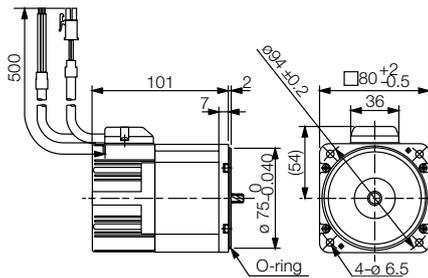
Grey area indicates gearbox runs in same direction as the motor shaft.

## Dimensions

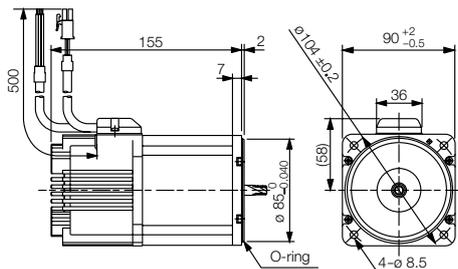
30 W



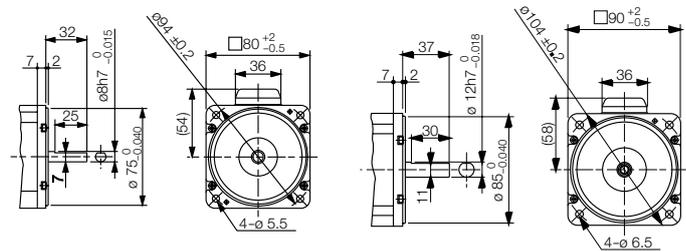
50 W



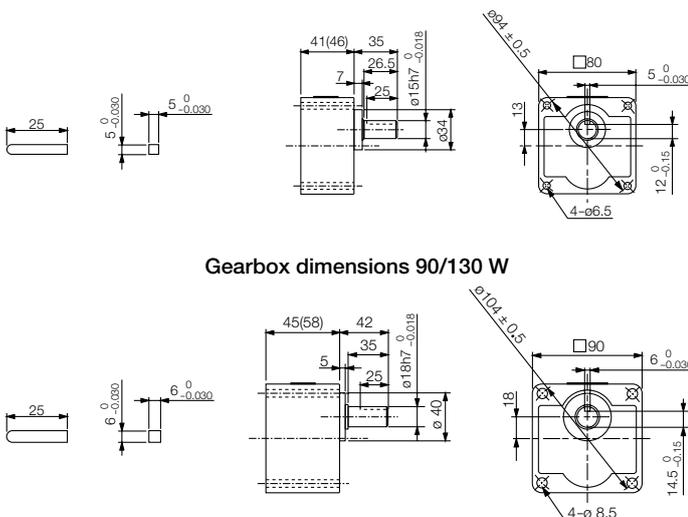
90 & 130 W



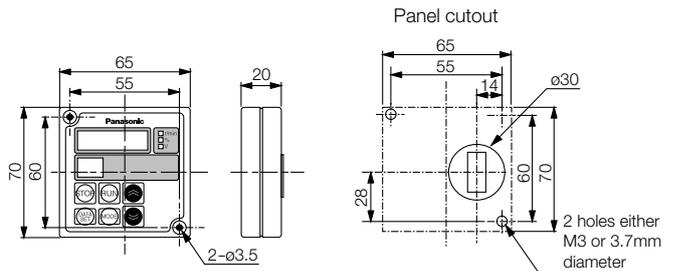
Straight shaft 30/50 W & 90/130 W



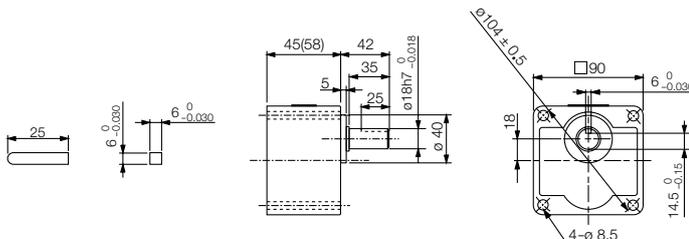
Gearbox dimensions 30/50 W



Panel dimensions B



Gearbox dimensions 90/130 W



## Motor for gearbox

Part No.	Description
MBMP3A1EBC	30 W, 110 V for gearbox
MBMP3A2EBC	30 W, 230 V for gearbox
MBMP5A1EBC	50 W, 110 V for gearbox
MBMP5A2EBC	50 W, 230 V for gearbox
MBMP9A1EBC	90 W, 110 V for gearbox
MBMP9A2EBC	90 W, 230 V for gearbox
MBMP1E2EBC	130 W, 230 V for gearbox

## Motor with straight shaft

Part No.	Description
MBMP3A1ESC	30 W, 110 V straight shaft
MBMP3A2ESC	30 W, 230 V straight shaft
MBMP5A1ESC	50 W, 110 V straight shaft
MBMP5A2ESC	50 W, 230 V straight shaft
MBMP9A1ESC	90 W, 110 V straight shaft
MBMP9A2ESC	90 W, 230 V straight shaft
MBMP1E2ESC	130 W, 230 V straight shaft

## Motors from 30 to 50 W

Part No.	Description
MB8G5BV	Gearbox 5:1
MB8G10BV	Gearbox 10:1
MB8G15BV	Gearbox 15:1
MB8G20BV	Gearbox 20:1
MB8G30BV	Gearbox 30:1
MB8G50BV	Gearbox 50:1

## Motors from 90 to 130 W

Part No.	Description
MB9G5BV	Gearbox 5:1
MB9G10BV	Gearbox 10:1
MB9G15BV	Gearbox 15:1
MB9G20BV	Gearbox 20:1
MB9G30BV	Gearbox 30:1
MB9G50BV	Gearbox 50:1

**Keypads**



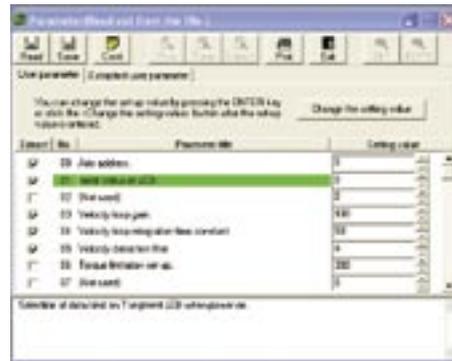
**Analogue**  
For run/stop, direction, control and speed setting. Suits B1-series Type No PANB1DVOP350



**Digital**  
For run/stop, direction, speed control plus parameter setting. Suits B1 and B3-series Type No PANB3DVOP3510

**B3-series Panaterm software**

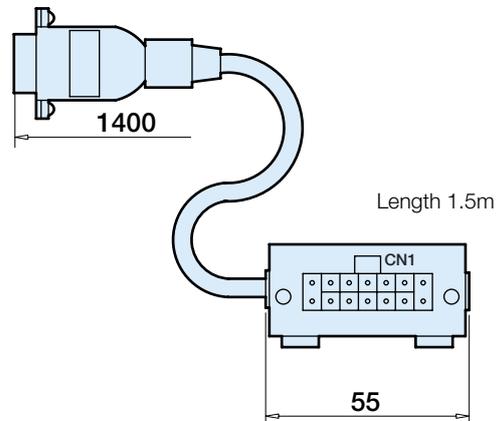
Panasonic Panaterm software makes programming of the B3 drive an almost effortless task. Using RS232 communications with a PC, drive parameters can be easily accessed, saved and downloaded.



Part No.	Description
PANB3DVOP4150	B3-series Panaterm set-up software

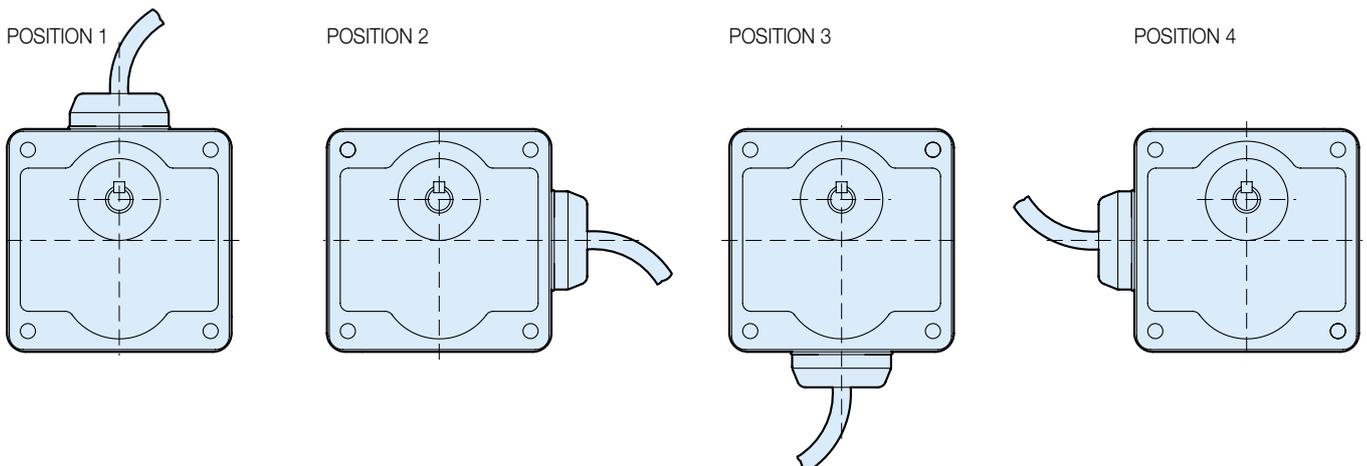
**B3-series Programming module**

The programming cable is for use with the B3 model and allows a direct programming link between a PC and the B3-drive using RS232.



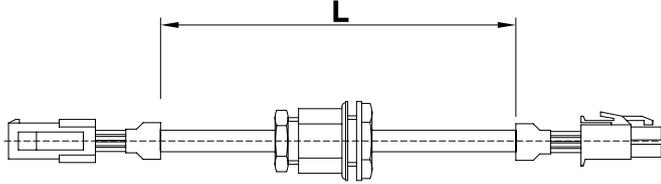
Part No.	Description
PANB3DVOP4140	B3-series RS232 programming cable

Specify Mounting position (shaft with relation to cable)



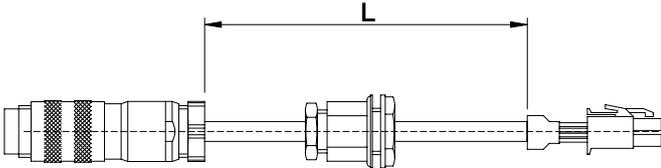
## B1-series

### IP20 keypad extension cable



Part No.	Description (L)
PANB1AC1PP	1 metre
PANB1AC2PP	2 metre
PANB1AC3PP	3 metre
PANB1AC4PP	4 metre
PANB1AC5PP	5 metre

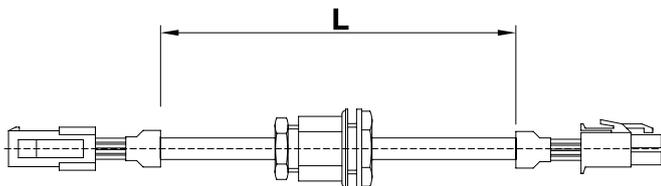
### IP65 keypad extension cable



Part No.	Description (L)
PANB1AC1MP	1 metre
PANB1AC2MP	2 metre
PANB1AC3MP	3 metre
PANB1AC4MP	4 metre
PANB1AC5MP	5 metre

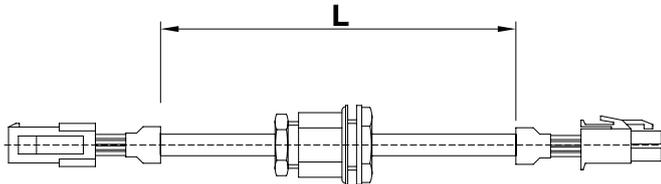
## B3-series

### IP20 extension cable



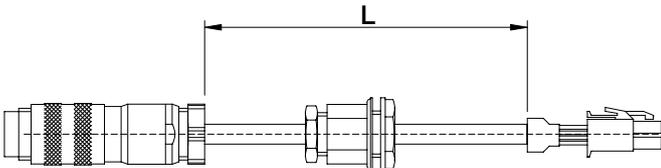
Part No.	Description (L)
PANB3EC1PP	1 metre
PANB3EC2PP	2 metre
PANB3EC3PP	3 metre
PANB3EC4PP	4 metre
PANB3EC5PP	5 metre

### IP20 keypad extension cable



Part No.	Description (L)
PANB3EK1PP	1 metre
PANB3EK2PP	2 metre
PANB3EK3PP	3 metre
PANB3EK4PP	4 metre
PANB3EK5PP	5 metre

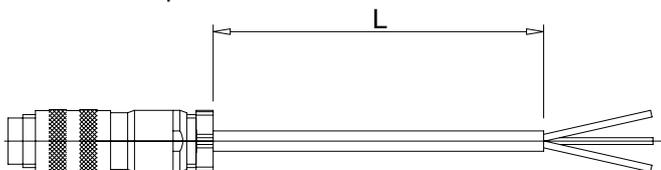
### IP65 keypad extension cable



Part No.	Description (L)
PANB3EC1MP	1 metre
PANB3EC2MP	2 metre
PANB3EC3MP	3 metre
PANB3EC4MP	4 metre
PANB3EC5MP	5 metre

## B1 & B3-series

### IP65 mains input extension cable



Part No.	Description (L)
PANB3EM1M	1 metre
PANB3EM2M	2 metre
PANB3EM3M	3 metre
PANB3EM4M	4 metre
PANB3EM5M	5 metre

[www.oem.co.uk](http://www.oem.co.uk)

## Electrical

Freephone

**0800 731 3186**



TAKEX	photoelectric sensors
BACO	pushbuttons and camswitches
CROUZET	timers, counters, control relays
BRAD HARRISON	connection systems
KÜBLER	rotary encoders
RELECO	industrial relays
DELCON	solid state interface relays
J AUER	signal towers/beacons/sounders
WALTHER	industrial connectors
REER	photoelectric safety barriers
DUELCO	safety relays
GELBAU	safe edges
BERNSTEIN	safety, limit and proximity switches
MECHAN	non contact safety switches
CASTELL	trapped key interlocks
PULS	power supplies
STM	photoelectric sensors
SIE	capacitive sensors

## Pressure and Flow

Freephone

**0800 731 3187**



TECSIS	pressure & vacuum transmitters
TECSIS	pressure & vacuum gauges
TECSIS	temperature gauges & transmitters
SUCO	pressure & vacuum switches
HONSBERG	flow switches & transmitters
ERA-SIB	solenoid valves
mPm	DIN connection systems

## Small Motors

Freephone

**0800 731 3189**



MINIMOTOR	AC and DC motors from 9W to 270W
PANASONIC	standard AC induction motors from 6W to 90W & brushless motors 30 - 130W
DOGA	permanent magnet DC motors from 16W to 235W
GEFEG-NECKAR	precision AC, DC and brushless DC motors from 3W to 500W
ROTEK	AC synchronous motors and gears from 8W to 29W
MELLOR	AC shaded pole and DC powered high quality spur geared motors
ELECTROMEN	drives, power controllers for DC motors

# general conditions of sale

## OEM-AUTOMATIC LIMITED (‘the Conditions’)

### 1. DEFINITIONS

In these Conditions:

- "Buyer" means the party with whom OEM contracts;
- "Contract" means the contract made between OEM and the Buyer for supply of the Goods which are subject to these Conditions;
- "Goods" means all or any of the goods works and materials to be supplied by OEM;
- "Act of Insolvency" means any one or more of the following namely the passing of a resolution or the presentation of a petition for winding-up, bankruptcy or for the appointment of an administrator, the appointment of a receiver and/or manager or administrative receiver over the whole or any part of the Buyer's undertaking and assets, the making of a proposal for a voluntary arrangement within the Insolvency Act 1986 or of a proposal for any other composition scheme or arrangement with or the calling by the Buyer of any meeting of its creditors generally, the levying of execution or distress or diligence on any of its assets, the failure to pay its proper debts as and when due and anything analogous to any of the foregoing under the law of the jurisdiction where the Buyer is established.

### 2. CONSTRUCTION OF CONTRACT

- (1) These Conditions shall apply to all contracts of sale between OEM and the Buyer.
- (2) The terms of the Contract shall consist of the particulars set out in OEM's Order Acknowledgement and these Conditions. Any term in OEM's Order Acknowledgement which is at variance with these Conditions shall prevail over these Conditions, which shall be construed accordingly, except with regard to price in respect of which condition 5 (2) shall prevail.
- (3) No other terms (whether contained in any document issued by the Buyer or in any written or oral communication between the parties) shall apply to the Contract nor shall these Conditions or the particulars contained in OEM's Order Acknowledgement be modified without OEM's written agreement. OEM shall be entitled to amend technical specifications of the Goods without notice.
- (4) In order that these Conditions and the particulars in OEM's Order Acknowledgement shall be a complete record of the agreement between the parties with regard to the sale of the Goods, the Buyer must ensure that any pre-contractual representation on which the Buyer wishes to rely has been specified in those particulars. In entering into the Contract, the Buyer does not rely upon any such representation made by or on behalf of OEM which has not been so specified.

### 3. QUOTATIONS AND ORDERS

- (1) Unless accepted before lapse or withdrawal, or renewed in writing by OEM, quotations shall lapse automatically after 30 days, but maybe withdrawn earlier.
- (2) Quotations are information only and are not firm offers. There shall be no binding contract until OEM has accepted the Buyer's order by dispatching OEM's official Acknowledgement of Order or invoice

### 4. DELIVERY

- (1) Although OEM will endeavour to deliver Goods within any delivery time specified in OEM's Acknowledgement of Order, that time is an estimate only and not a term of the Contract and as such, time shall not be of the essence. OEM shall not be liable for any failure to meet any such estimate, nor for any loss, of whatsoever nature resulting directly or indirectly therefrom.
- (2) Any such time specified shall be extended by any period during which the manufacture or delivery of the Goods or other work by OEM in connection with the Contract is delayed due to fire, explosion, flood, storm, tempest, sabotage, strikes (official and unofficial), riot, invasion, acts of war, shortage of labour, power or materials, civil commotion, accidents, plant breakdowns, compliance with an order of an apparently competent authority, and any other event beyond OEM's control.
- (3) If any such delivery time is so extended by more than 90 days the Buyer shall be entitled to give written notice to OEM requiring the Goods to be delivered within 30 days of the date of such notice failing which the Buyer shall have the right to give further written notice terminating the contract forthwith.
- (4) OEM shall be entitled to deliver the Goods by installments and/or in advance of the estimated date. Each delivery shall constitute a separate contract to which these Conditions shall apply. Failure by OEM to deliver any one or more of the installments or any claim by the Buyer in respect of any one or more installments shall not entitle the Buyer to treat the Contract as a whole as repudiated.
- (5) In the case of United Kingdom and Overseas customers, unless otherwise stated, OEM will deliver to the Buyer's premises and will charge separately for packing, carriage and handling.
- (6) The delivery by OEM of a greater or lesser quantity provided for in the Contract, the delivery of other goods not provided for in the Contract, or the delivery of Goods only some of which are defective, shall not entitle the Buyer to reject all of the Goods delivered. In order that OEM can comply with its carrier's conditions, a claim in respect of error in quantity or type of Goods in respect of the condition of the Goods delivered must be made in writing to OEM within 3 days or to the carrier and OEM within 5 days of receipt. Failure to make such claim shall constitute unqualified acceptance of the Goods and waiver by the Buyer of all claims relating to error in quantity or type of Goods delivered or relating to the condition of Goods delivered. Similarly, if any Goods invoiced by OEM are not received by the Buyer, the Buyer must notify OEM within 25 days or the carrier and OEM within 28 days of the date of invoice, failing which the Buyer will be liable to pay for the Goods in full.
- (7) OEM shall at its option make good any non-delivery short delivery or damage of Goods notified in accordance with Condition 4(6) by repair or replacement of such Goods and save as provided in this Condition shall not be liable for any such non-delivery short delivery or damage in transit nor for any loss, financial or otherwise resulting directly or indirectly therefrom. In no event shall OEM be liable to the Buyer in connection with any damage or loss in transit where delivery takes place at OEM's premises.
- (8) If the Buyer fails to take delivery of or collect the Goods or fails to give OEM adequate delivery instructions after notification by OEM that the Goods are ready OEM may (without prejudice to its other rights and remedies): store the Goods (on its own or any third party's premises) and charge the Buyer for its reasonable costs (including without limitation VAT costs of storage, carriage and insurance); and/or sell the Goods at any time and after deducting all costs and expenses account to the Buyer for any excess over the price already paid under the Contract or charge the Buyer for any shortfall between the Contract price and such costs and expenses.
- (9) All returnable containers and packing materials will be charged for, but credit will be given if these are returned in condition satisfactory to OEM, to OEM's works carriage paid within thirty days following delivery of the relevant Goods.

### 5. PROPERTY AND RISK

- (1) The risk in the Goods shall pass to the Buyer upon despatch of the Goods from OEM's warehouse.
- (2) Notwithstanding delivery and the passing of risk, property in and title to the Goods shall remain in OEM until OEM has received payment of all sums owing to OEM under the Contract and any other contract with the Buyer whatsoever.
- (3) Until property in and title to the Goods passes to the Buyer: the Buyer shall keep the Goods properly stored, protected and insured and separate from all or any other goods whether belonging to OEM, the Buyer, or any third party, OEM shall be entitled at any time forthwith to revoke the Buyer's power to deal with the Goods; and it shall automatically cease if the Buyer shall commit or be subject to any Act of Insolvency; and the Buyer shall not make any modification to the Goods or their packaging or alter remove or tamper with any marks, numbers or other means of identification used on or in relation to the Goods. Upon termination of the Buyer's power to deal with the Goods, the Buyer shall place the Goods at the disposal of OEM and OEM and its servants and agents are hereby irrevocably authorised without the need for consent of any third party but using only such force as may be necessary, to enter upon any premises of the Buyer or any third party for the purpose of removing the Goods.
- (4) If any of the foregoing provisions of this Condition shall be invalid or unenforceable such invalidity or unenforceability shall not affect the remaining provisions.

### 6. PRICES

Unless otherwise stated in OEM's Order Acknowledgement, prices for the Goods shall be ex-works, and shall be exclusive of VAT, packing, carriage, insurance, and any other costs, all of which shall be the subject of additional charges. VAT shall be charged where appropriate at the rate prevailing at the relevant tax point.

Any price quoted by the Company is based upon costs current as the date of quotation. The price charged to the Customer under the Contract may be changed to take account of costs current at the date of invoice. Such changes may include, but are not limited to, fluctuations in rates of currency where the Goods or any part thereof, are sourced from third countries.

### 7. PAYMENT

- (1) Subject to prior written agreement to the contrary, OEM shall be entitled to invoice the Buyer for the price of the Goods on or at any time after OEM has notified the Buyer that the Goods are ready for collection or OEM has tendered delivery of the Goods.
- (2) If OEM has granted the Buyer monthly account credit facilities, then payment of the price must be made within 30 days of the date of Invoice. Otherwise payment must be in cash prior to delivery. Payment shall be made direct to OEM in the currency invoiced. The Buyer shall not be entitled to exercise any right of set-off against payment due to OEM.

- (3) OEM shall be entitled to charge daily interest on any overdue sum at the rate of 5 per cent annum above the base lending rate for the time being of Lloyds TSB Bank plc from the due date for payment to the actual date of payment (both before and after judgment).

- (4) Where payment is agreed to be made by installments, any delay or default by the Buyer in making payment in respect of any one installment shall render all the remaining installments due forthwith, and interest will be charged in accordance with condition 7(3) with immediate effect until the date of actual payment.

- (5) OEM may appropriate any payment made by the Buyer to such of the Goods (or the goods supplied under any other contract between OEM and the Buyer) as OEM may think fit (notwithstanding any purported appropriation by the Buyer).

### 8. WARRANTIES AND EXEMPTIONS

- (1) IF UNDER PROPER USE THE GOODS DEVELOP ANY DEFECT DURING THE WARRANTY PERIOD DUE TO DEFECTIVE ARTICLES OR MATERIALS SUPPLIED OEM SHALL AT ITS OWN EXPENSE AND OPTION REPLACE OR REPAIR SUCH GOODS AS ARE DEFECTIVE SO AS TO REMEDY THE DEFECTS EXCEPT WHERE SUCH DEFECTS ARE ATTRIBUTABLE TO ACCIDENT, FAIR WEAR AND TEAR, OR ANY ACT OF OMISSION OR NEGLIGENCE OF THE BUYER OR OF ITS AGENTS. THE BUYER MUST GIVE OEM NOTICE OF ANY ALLEGED DEFECTS AS SOON AS IT BECOMES APPARENT, AND SHALL (UNLESS OTHERWISE INSTRUCTED BY OEM) RETAIN THE GOODS AT THE BUYER'S PREMISES FOR INSPECTION BY OEM AND GIVE OEM ADEQUATE FACILITIES TO INVESTIGATE THE COMPLAINT AT THE BUYER'S PREMISES. THE WARRANTY PERIOD SHALL MEAN THE PERIOD SPECIFIED IN OEM'S ORDER ACKNOWLEDGEMENT AS THE WARRANTY PERIOD AND IF NO SUCH PERIOD IS SPECIFIED, THEN A PERIOD OF 12 MONTHS FROM THE DATE OF DELIVERY OF THE GOODS.

- (2) EXCEPT AS EXPRESSLY STATED ABOVE THERE SHALL BE EXCLUDED FROM THE CONTRACT ANY WARRANTY, CONDITION OR STATEMENT, EXPRESS OR IMPLIED, STATUTORY OR OTHERWISE, AS TO SATISFACTORY QUALITY, AND/OR FITNESS OF THE GOODS FOR ANY PARTICULAR PURPOSE.

- (3) OEM shall not be liable to the Buyer in contract tort (including without limitation negligence) and/or breach of statutory duty for any loss or damage which the Buyer may suffer by reason of any act, omission, neglect or default (including negligence) in the performance of the Contract by OEM its servants or agents, (in a sum which is greater than the Contract price).

- (4) OEM shall not be liable to the Buyer in contract tort (including without limitation negligence) and/or breach of statutory duty for any loss of profits loss of goodwill loss of contracts and/or any indirect or consequential (including economic) loss of any kind including loss of profits and/or loss of production which the Buyer may suffer by reason of any act, omission, neglect or default (including negligence) in the performance of the Contract by OEM, its servants or agents.

- (5) Provided that nothing in this Condition shall operate so as to exclude OEM's non-excludable liability in respect of death or personal injury caused by the negligence of OEM its servants or agents; to affect the statutory rights of the Buyer where Goods are sold to a Buyer dealing as a consumer within the meaning of Unfair Contract Terms Act; or to exclude the application of Section 12 of the Sale of Goods Act 1979 or to exclude liability for fraudulent misrepresentation.

- (6) OEM RESERVES THE RIGHT NOT TO ACCEPT GOODS FOR CREDIT OR REPLACEMENT FROM THE BUYER THAT ARE NOT ACCOMPANIED AND CLEARLY MARKED WITH A RETURNED MATERIALS AUTHORISATION (RMA) NUMBER THAT HAS BEEN PREVIOUSLY AGREED WITH AND ISSUED BY OEM. AN RMA NUMBER SHALL REMAIN OPEN AND VALID FOR 30 DAYS FROM DATE OF ISSUE BY OEM. IF OEM HAVE FAILED TO RECEIVE THE GOODS TO WHICH THE RMA NUMBER RELATE WITHIN THIS PERIOD THEN OEM RESERVE THE RIGHT TO CANCEL THE RMA. THE RISK AND THE PROPERTY IN THE GOODS REMAINS WITH THE BUYER UNLESS OTHERWISE NOTIFIED BY OEM. OEM WILL NOT ACCEPT RETURNED GOODS THAT CLEARLY SHOW SIGNS OF PHYSICAL DAMAGE TO EXTERNAL PACKAGING WHERE IT IS POSSIBLE THAT DAMAGE TO THE GOODS MAY HAVE OCCURRED AS A RESULT. THE BUYER SHALL BE RESPONSIBLE FOR THE CARRIAGE COSTS OF THE RETURNED GOODS UNLESS OTHERWISE AGREED IN WRITING BY OEM.

### 9. INSOLVENCY AND DEFAULT

- (1) Without prejudice to any rights and remedies available to it, OEM shall be entitled, forthwith on written notice to the Buyer either to terminate the Contract in whole or in part and/or any other contract with the Buyer or to withhold performance of all or any of its obligations under the Contract and/or any other contract with the Buyer (and on the giving of such notice all monies outstanding from the Buyer to OEM shall become immediately due and payable) if:-

- (i) any sum owing to OEM from the Buyer on any account whatsoever shall be unpaid after the due date for payment (in which event

OEM shall have a general lien for any such sum on all and any property of the Buyer in its possession); or

- (ii) the Buyer shall commit or be subject to any Act of Insolvency; or

- (iii) the Buyer shall commit any breach of any contract (including without limitation the Contract) with OEM.

- (2) In the event of a suspension of performance OEM shall be entitled, as a condition of resuming performance, to require pre-payment, or such security as it may require.

### 10. EXPORT TERMS

- (1) Any term or expression which is defined in the provisions of Incoterms 2000 (or any subsequent revision thereof) shall import the respective obligations of Buyer and Seller into these Conditions, but in the event of conflict these Conditions shall prevail.
- (2) Where the Goods are supplied for export from the United Kingdom, the provisions of this clause 10 shall (subject to any special terms agreed in writing between OEM and the Buyer) apply notwithstanding any other provision of these Conditions.
- (3) Unless otherwise agreed in writing between OEM and the Buyer, the Goods shall be delivered Ex-Works and OEM shall be under no obligation to give notice under section 32(3) of the Sale of Goods Act 1979.
- (4) The Buyer shall be responsible for arranging for testing and inspection of the Goods at OEM's premises before shipment. OEM shall have no liability for any claim in respect of any defect in the Goods which would be apparent on testing or inspection and which is made after shipment, or in respect of any damage during transit.

### 11. CANCELLATION

The Contract may be cancelled in whole or in part by the Buyer only with OEM's written consent and upon the condition that the Buyer shall indemnify OEM in full against all loss, damages, costs expenses and other liabilities awarded against or incurred by OEM as a result of or in connection with the cancellation.

### 12. GENERAL

- (1) It shall be the responsibility of the Buyer to ensure that all requirements applicable to the Contract, whether statutory, regulatory, municipal and/or otherwise howsoever, (including without limitation any relating to the importation or use of the Goods in the country of destination and for the payment of duties thereon) are duly complied with. It shall be a condition precedent to the performance by OEM of its obligations under the Contract that all necessary licences, permits and consents shall have been obtained by the Buyer.
- (2) Neither party shall have any liability for any failure to perform or for any delay in the performance (other than as to payment) of any of its obligations under the Contract caused by any factor beyond its reasonable control.
- (3) No failure or delay on the part of OEM to exercise any of its rights under the Contract shall operate as a waiver of nor shall any waiver by OEM of any breach by the Buyer of any of its obligations under the Contract affect the rights of OEM in the event of any further or continuing breach.
- (4) The Contract is personal to the Buyer, who shall not assign or in any way part with the benefit without OEM's prior written consent.
- (5) Each and every obligation contained in these Conditions shall be treated as a separate obligation and shall be severally enforceable as such notwithstanding the non-enforceability of any other such obligation.
- (6) The Conditions and the Contract shall not create or evidence, or be deemed to create or evidence, any agency or partnership between OEM on the one hand and the Buyer or any third party on the other.
- (7) Any notice required to be given in writing under the Contract shall be given, where possible, by facsimile transmission and otherwise by first class post addressed to the registered office of the party for which it is intended, or to such other address as may be notified in writing in accordance herewith for the purpose, and shall be deemed to have been received, in the case of a facsimile transmission, upon transmission and, in the case of a letter, forty-eight hours after posting. In proving service by letter, it shall be sufficient to show that the envelope containing the notice was properly addressed and stamped and duly posted.
- (8) The Contract shall be governed by English Law.

The parties irrevocably submit to the exclusive jurisdiction of the English Courts, save in the case of a Buyer who has no assets within the jurisdiction of the English Courts and who is established in a country which will not enforce the judgement of the English Courts. In those circumstances OEM may if it chooses refer any disputes arising out of the Contract to arbitration under the Rules of Conciliation and Arbitration of the International Chamber of Commerce, such arbitration to take place in London.

We reserve the right to make modifications and no guarantee of the accuracy of information in this catalogue is given.



## excellence in automation

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### **FREephone**

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Pressure and Flow	0800 731 3187
Small Motors	0800 731 3189

A company within OEM International

