



Panasonic

Motors



A long term partner to improve your competitive advantage

OEM Automatic markets components for industrial automation. For more than 30 years it has collaborated with market leading manufacturers from all over the world and performs the sales and marketing function for the countries where we operate. We offer a product range which is one of the widest and deepest on the market. The products are continually being developed and refined in order to offer just what the customer needs.

Supported by an efficient organisation we can offer our customers quick and effective service. We can help to select the best products for each application and by reducing the number of suppliers lower the total cost of purchasing.

OEM Automatic aims to build long lasting relationships with both our customers and suppliers.

A valuable link between manufacturers and customers

OEM Automatic Ltd acts as the manufacturers sales and marketing organisation for the UK market. Through our market presence, customer focus and high level of service we add real value to the supply chain. By working closely with the manufacturer and the customer we can provide the most cost-effective solution.

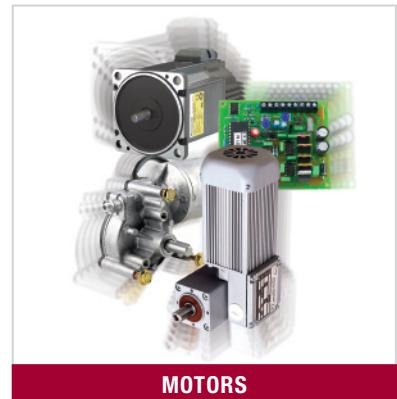
Close to the customer for best service

Our UK head office and warehouse is located centrally, close to Leicester, which provides excellent communication links with the rest of the country. Our team of travelling sales engineers are also located there so are never far away if a personal visit is required.

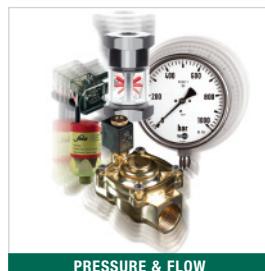


There are other OEM Automatic companies in Sweden, Finland, Norway, Denmark, Poland, Czech Republic, Slovakia and Estonia. Together we are a leading company in the field of industrial automation components for northern Europe.

To offer the best service and support we are organised into four specialised business areas, based on products and markets.



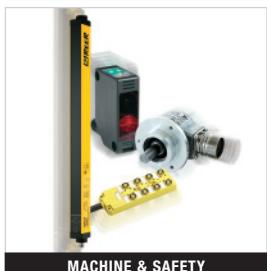
MOTORS



PRESSURE & FLOW



PANEL



MACHINE & SAFETY

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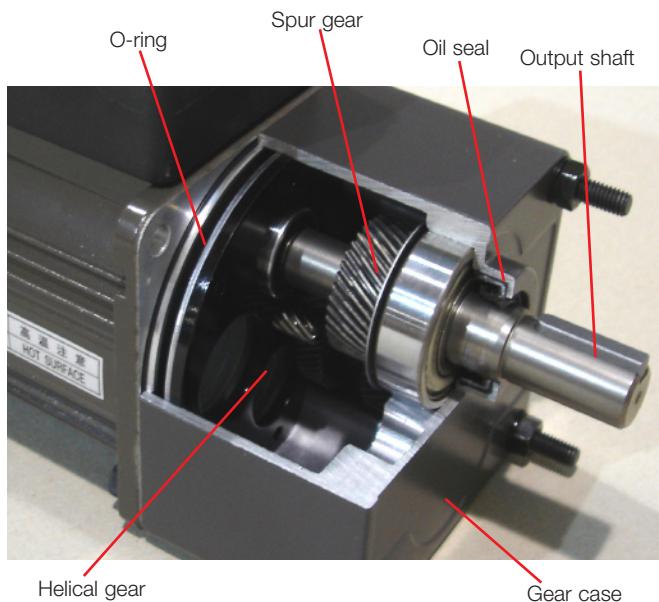


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Panasonic 3-Series Geared Motors

Panasonic, one of the largest motor manufacturers in the world, have designed and developed a new range of globally approved geared motors. Covering powers from 6 to 90W these units replace the established G-Series range with improved efficiency and longer life, continuing the reputation for quality, value and reliability.



Features:

- All ball bearing gearboxes as standard, rated to 10,000 hrs lifetime
- Globally approved CE/ UL/ cUL/ CCC
- Speed range from 1375r/min down to 0.7r/min
- Fixed speed and variable speed models available
- IP 65 available on request
- RoHS compliant
- Proven quality and reliability

Range Overview of the 3-Series

1 Phase

Geared motors suitable for running at fixed or variable speed in a power range of 6 to 90W.

Quick Reversing

Single phase geared motors with a built in constant friction brake that reduces overrun.

3 Phase

Geared motors ranging from 25-90W. The 230V versions suit variable speed running with an inverter. The 400V versions are designed to be connected directly to 3 phase supplies.

Brake Motor

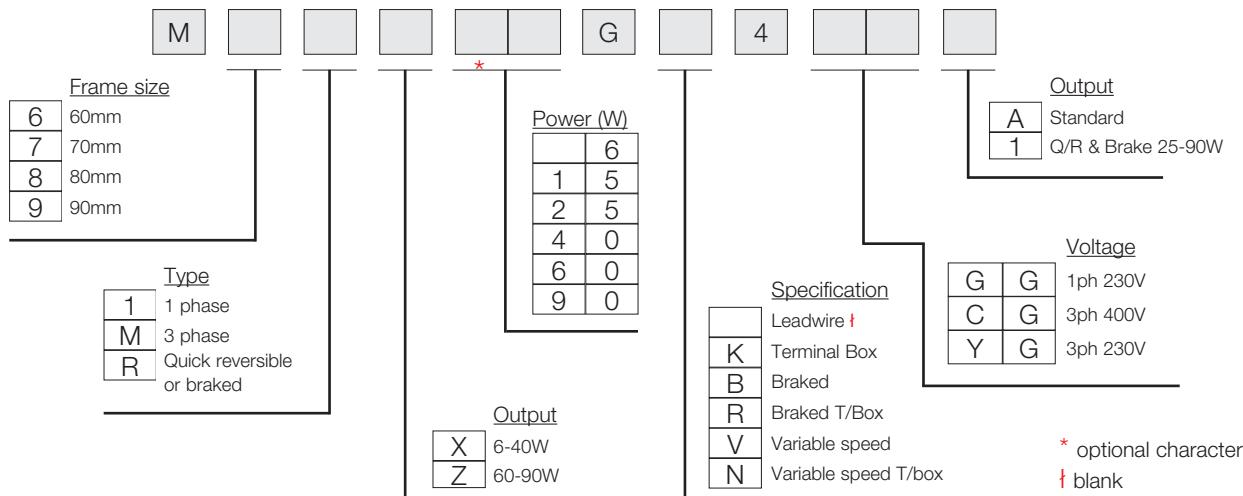
Geared motors with an integrated electro magnetic spring applied brake for 1 or 3 phase 230V supply.

WARNING!

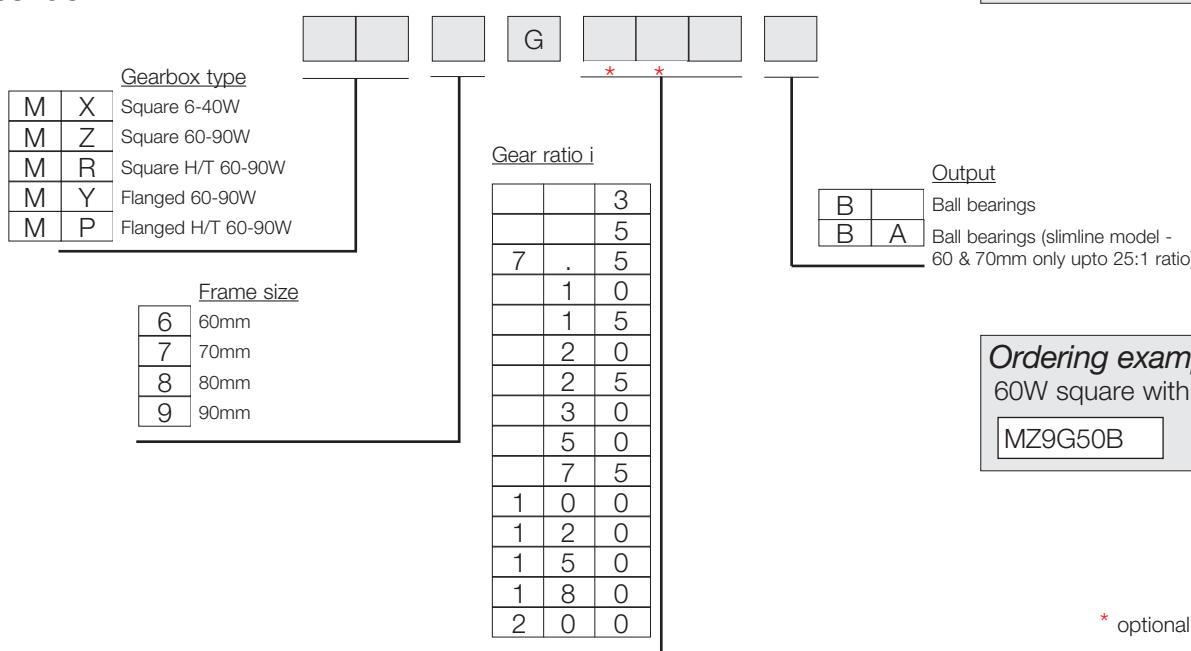
Please note that the new 3-Series gearboxes are not interchangeable with old G-Series motors and likewise G-Series gearboxes are not interchangeable with 3-Series motors.

Component part number coding

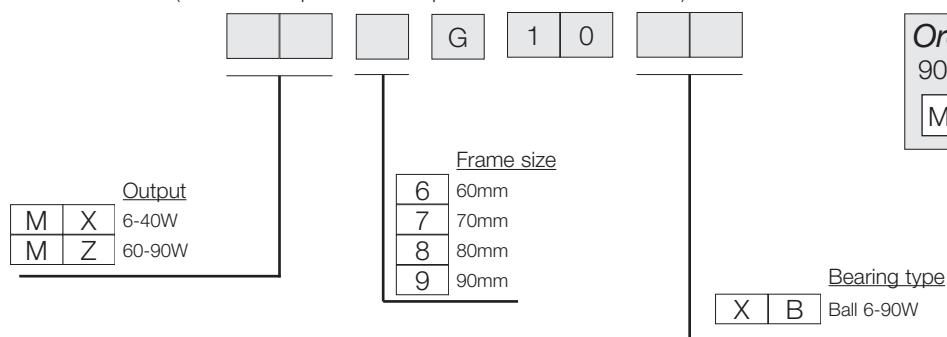
Motor



Gearbox



Decimal Gearbox (additional requirement for speeds 7.5 r/min and below)



Ordering example

6W



Induction motors with spur gears

- All ball bearing gearbox as standard, rated to 10,000 hrs lifetime
- Continuous duty S1/reversible S2
- IP22 for leadwire and IP54 for terminal box
- Virtually silent running
- Impedance protected
- Globally approved CE/ UL/ cUL/CCC
- Supplied with run capacitor

Technical data, motor

Article No	Motor type	Supply voltage VAC/Hz	Output power	Speed r/min	Torque Ncm	Current A	Capacitor μ F	Weight with gearbox Kg
M61X6G4GGA	Lead wire	1-Phase 230/50	6	1250	4,6	0,11	0,6 (450 V)	1
M61X6GT4GM1	T – Box	1-Phase 230/50	6	1250	4,6	0,11	0,6 (450 V)	1
M6RXG4GGA	Reversible	1-Phase 230/50	6	1300	4,4	0,12	0,8 (450 V)	1
M6RX6GB4GGA	Brake	1-Phase 230/50	6	1300	4,4	0,12	0,8 (450 V)	1,2
M61X6GV4GGA	Variable speed (with tacho)	1-Phase 230/50	6	90-1200	3,4-4,4	0,12	0,6 (450 V)	1,1

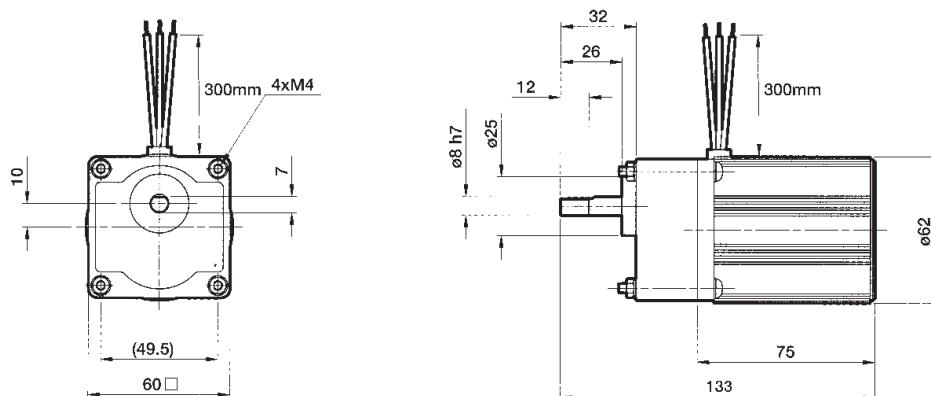
Technical data, gearbox

Nominal speed r/min	500	300	150	100	75	50	30	20	15	12.5	10	8.3	
Ratio	3	5	10	15	20	30	50	75	100	120	150	180	
Nominal torque Nm	0.10	0.16	0.33	0.49	0.66	0.95	1.57	2.25	2.45	2.45	2.45	2.45	Max gearbox output torque 2.45Nm

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

Dimensions (inc. gearbox)

Leadwire motor



Add 7mm to length for 30:1 gear ratio and above.

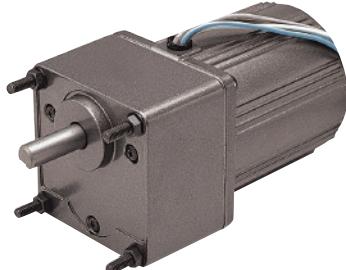
Add 24.5mm to length for decimal gearbox.

Add 42.5mm to length for brake motor.

Ordering information

Part number	Description	Part number	Description	
M6B2	Foot mount	MX6G50B	Ratio 50:1	
Part number			MX6G75B	
MX6G3BA	Ratio 3:1	MX6G100B	Ratio 100:1	
MX6G5BA	Ratio 5:1	MX6G120B	Ratio 120:1	
MX6G10BA	Ratio 10:1	MX6G150B	Ratio 150:1	
MX6G15BA	Ratio 15:1	MX6G180B	Ratio 180:1	
MX6G20BA	Ratio 20:1	MX6G10XB	Inter decimal gearbox 10:1	
MX6G30B	Ratio 30:1	Other gearbox ratios are available on request		

15W



Induction motors with spur gears

- All ball bearing gearbox as standard, rated to 10,000 hrs lifetime
- Continuous duty S1/reversible S2
- IP22 for leadwire and IP54 for terminal box
- Virtually silent running
- Globally approved CE/ UL/ cUL/CCC
- Supplied with run capacitor

Technical data, motor

Article No	Motor type	Supply voltage VAC/Hz	Output power	Speed r/min	Torque Ncm	Current A	Capacitor μ F	Weight with gearbox Kg
M71X15G4GGA	Lead wire	1-Phase 230/50	15	1300	11,0	0,16	1,2 (450 V)	1,64
M7RX15G4GGA	Reversible	1-Phase 230/50	15	1275	11,0	0,18	1,3 (450 V)	1,64
M7RX15GB4GGA	Brake	1-Phase 230/50	15	1300	11,0	0,17	1,3 (450 V)	1,64
M71X15GV4GGA	Variable speed (with tacho)	1-Phase 230/50	15	90-1200	4,9-11,0	0,28	1,2 (450 V)	1,64

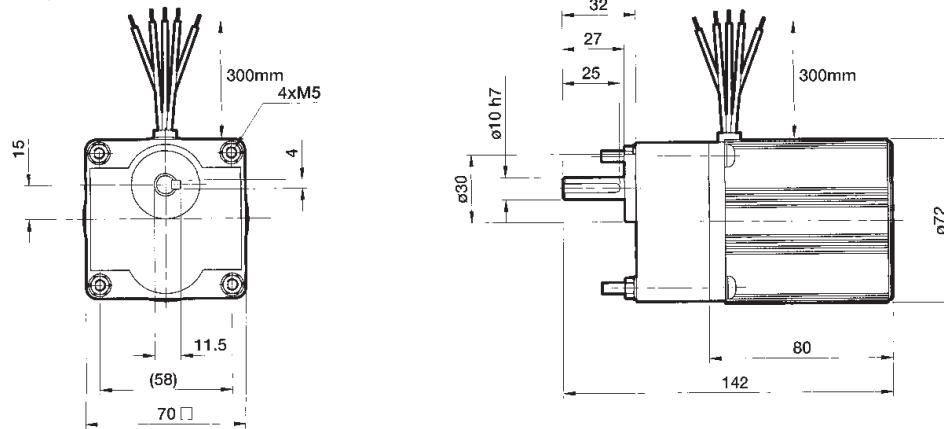
Technical data, gearbox

Nominal speed r/min	500	300	150	100	75	50	30	20	15	12.5	10	8.3	
Ratio	3	5	10	15	20	30	50	75	100	120	150	180	
Nominal torque Nm	0.24	0.39	0.80	1.18	1.57	2.25	3.82	4.90	4.90	4.90	4.90	4.90	Max gearbox output torque 4.90Nm

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

Dimensions (inc. gearbox)

Leadwire motor



Add 6mm to length for 30:1 gear ratio and above.

Add 28mm to length for decimal gearbox.

Add 42.5mm to length for brake motor.

Ordering information

Part number	Description	Part number	Description
M7B2	Foot mount	MX7G50B	Ratio 50:1
MX7G3BA	Ratio 3:1	MX7G75B	Ratio 75:1
MX7G5BA	Ratio 5:1	MX7G100B	Ratio 100:1
MX7G10BA	Ratio 10:1	MX7G120B	Ratio 120:1
MX7G15BA	Ratio 15:1	MX7G150B	Ratio 150:1
MX7G20BA	Ratio 20:1	MX7G180B	Ratio 180:1
MX7G30B	Ratio 30:1	MX7G10XB	Inter decimal gearbox 10:1
			Other gearbox ratios are available on request

AC Geared Motors

Panasonic

25W



Induction motors with spur gears

- All ball bearing gearbox as standard, rated to 10,000 hrs lifetime
- Continuous duty S1/reversible S2
- IP22 for leadwire and IP54 for terminal box
- Virtually silent running
- Globally approved CE/ UL/ cUL/CCC
- Supplied with run capacitor

Technical data, motor

Article No	Motor type	Supply voltage VAC/Hz	Output power	Speed r/min	Torque Ncm	Current A	Capacitor μ F	Weight with gearbox Kg
M81X25G4GGA	Lead wire	1-Phase 230/50	25	1250	19	0,28	1,5 (450V)	2,48/2,18
M81X25GK4GGA	T-box	1-Phase 230/50	25	1250	19	0,28	1,5 (450V)	2,48/2,18
M8MX25G4YGA	3x230v, Lead wire	3-Phase 230/50	25	1320	16	0,23	1,5 (450V)	2,48/2,18
M8MX25GK4YGA	3x230v, T-box	3-Phase 230/50	25	1320	16	0,23	1,5 (450V)	2,48/2,18
M8MX25GK4CGA	400v, T-box	3-Phase 400	25	1325	18	0,12	1,5 (450V)	2,48
M8RX25GK4GG1	Reversible	1-Phase 230/50	25	1250	19	0,28	2,0 (450V)	2,48
M8RX25GR4GG1	Brake	1-Phase 230/50	25	1275	19	0,27	2,0 (450V)	2,8
M81X25GN4GG1	Variable speed (with tacho)	1-Phase 230/50	25	90-1200	4,9-19	0,48	1,5 (450V)	2,48

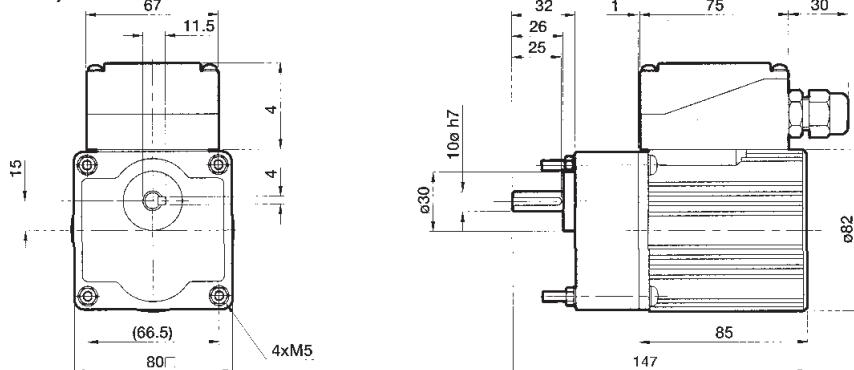
Technical data, gearbox

Nominal speed r/min	500	300	150	100	75	50	30	20	15	12.5	10	8.3	
Ratio	3	5	10	15	20	30	50	75	100	120	150	180	
Nominal torque Nm	0.39	0.66	1.27	1.96	2.55	3.82	6.35	7.84	7.84	7.84	7.84	7.84	Max gearbox output torque 7.84Nm

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



Add 30mm to length for decimal gearbox.

Add 42.5mm to length for brake motor.

Ordering information

Part number	Description	Part number	Description
M8B2	Foot mount (forward feet)	MX8G30B	Ratio 30:1
M8B3	Foot mount (reverse feet)	MX8G50B	Ratio 50:1
Part number	Description	MX8G75B	Ratio 75:1
MX8G3B	Ratio 3:1	MX8G100B	Ratio 100:1
MX8G5B	Ratio 5:1	MX8G120B	Ratio 120:1
MX8G10B	Ratio 10:1	MX8G150B	Ratio 150:1
MX8G15B	Ratio 15:1	MX8G180B	Ratio 180:1
MX8G20B	Ratio 20:1	MX8G10XB	Inter decimal gearbox 10:1
			Other gearbox ratios are available on request

40W



Induction motors with spur gears

- All ball bearing gearbox as standard, rated to 10,000 hrs lifetime
- Continuous duty S1/reversible S2
- IP22 for leadwire and IP54 for terminal box
- Virtually silent running
- Globally approved CE/ UL/ cUL/CCC
- Supplied with run capacitor

Technical data, motor

Article No	Motor type	Supply voltage VAC/Hz	Output power	Speed r/min	Torque Ncm	Current A	Capacitor μ F	Weight with gearbox Kg
M91X40G4GGA	Lead wire	1-Phase 230/50	40	1275	30	0,37	2,5 (450V)	3,6/4,0
M91X40GK4GGA	T-box	1-Phase 230/50	40	1275	30	0,37	2,5 (450V)	3,6/4,0
M9MX40G4YGA	3x230v, Lead wire	3-Phase 230/50	40	1340	27	0,28	2,5 (450V)	3,6/4,0
M9MX40GK4YGA	3x230v, T-box	3-Phase 230/50	40	1340	27	0,28	2,5 (450V)	3,6/4,0
M9MX40GK4CGA	400v, T-box	3-Phase 400	40	1350	28	0,15	2,5 (450V)	4,0
M9RX40GK4GG1	Reversible	1-Phase 230/50	40	1300	33	0,40	3,5 (450V)	4,0
M9RX40GR4GG1	Brake	1-Phase 230/50	40	1350	28	0,36	3,5 (450V)	4,6
M91X40GN4GG1	Variable speed (with tacho)	1-Phase 230/50	40	90-1200	7,8-30	0,72	2,5 (450V)	4,0

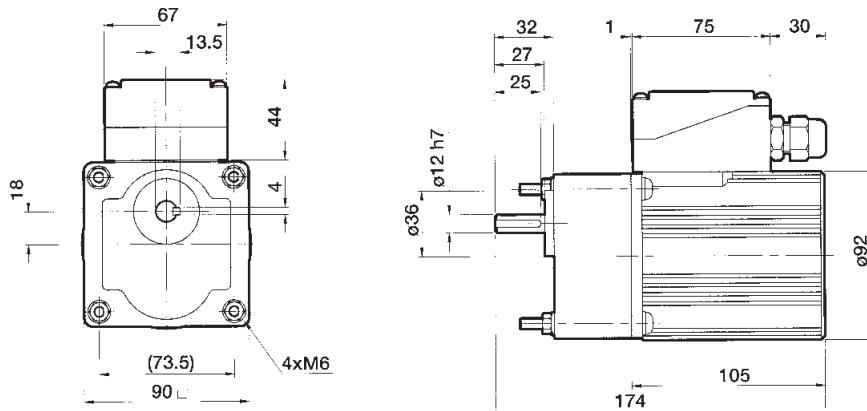
Technical data, gearbox

Nominal speed r/min	500	300	150	100	75	50	30	20	15	12.5	10	8.3
Ratio	3	5	10	15	20	30	50	75	100	120	150	180
Nominal torque Nm	0.66	1.08	2.25	3.23	4.41	6.37	9.80	9.80	9.80	9.80	9.80	9.80

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



Add 35mm to length for decimal gearbox.

Add 46mm to length for brake motor.

Ordering information

Part number	Description	Part number	Description
M9B2	Foot mount (forward feet)	MX9G30B	Ratio 30:1
M9B3	Foot mount (reverse feet)	MX9G50B	Ratio 50:1
Part number	Description	MX9G75B	Ratio 75:1
MX9G3B	Ratio 3:1	MX9G100B	Ratio 100:1
MX9G5B	Ratio 5:1	MX9G120B	Ratio 120:1
MX9G10B	Ratio 10:1	MX9G150B	Ratio 150:1
MX9G15B	Ratio 15:1	MX9G180B	Ratio 180:1
MX9G20B	Ratio 20:1	MX9G10XB	Inter decimal gearbox 10:1
		Other gearbox ratios are available on request	

AC Geared Motors

Panasonic

60W



Induction motors with spur gears

- All ball bearing gearbox as standard, rated to 10,000 hrs lifetime
 - Continuous duty S1/reversible S2
 - IP22 for leadwire and IP54 for terminal box
 - Virtually silent running
 - Globally approved CE/ UL/ cUL/CCC
 - Supplied with run capacitor

Technical data, motor

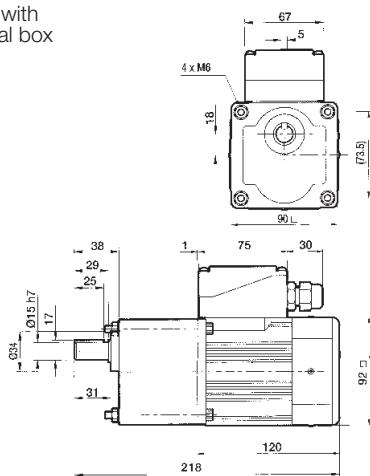
Article No	Motor type	Supply voltage VAC/Hz	Output power	Speed r/min	Torque Ncm	Current A	Capacitor µF	Weight with gearbox Kg
M91Z60G4GGA	Lead wire	1-Phase 230/50	60	1300	44	0,61	4,5 (450V)	4,2/4,5
M91Z60GK4GGA	T-box	1-Phase 230/50	60	1300	44	0,61	4,5 (450V)	4,2/4,5
M9MZ60G4YGA	3x230v, Lead wire	3-Phase 230/50	60	1320	41	0,40	4,5 (450V)	4,2
M9MZ60GK4YGA	3x230v, T-box	3-Phase 230/50	60	1320	41	0,40	4,5 (450V)	4,2
M9MZ60GK4CGA	400v, T-box	3-Phase 400	60	1325	43	0,22	4,5 (450V)	4,5
M9RZ60GK4GG1	Reversible	1-Phase 230/50	60	1275	45	0,66	5,0 (450V)	4,5
M9RZ60GR4GG1	Brake	1-Phase 230/50	60	1300	44	0,62	5,0 (450V)	4,8
M91Z60GN4GG1	Variable speed (with tacho)	1-Phase 230/50	60	90-1200	10-44	1,50	5,0 (450V)	4,5

Technical data, gearbox

Output speed based on synchronous motor speed (1500 r/min). Actual speed depends on load resulting in 2-20% slower. For high torque gearboxes, see page 9.

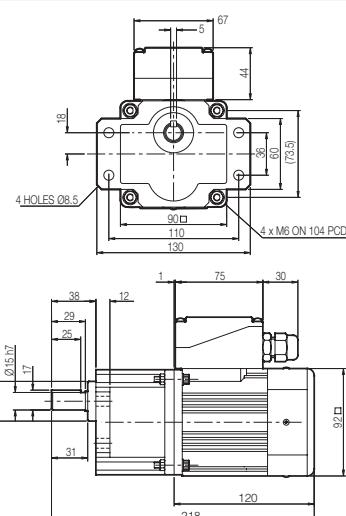
Dimensions (inc. gearbox)

Motor with
terminal box



Add 43mm to length

Add 48.5mm to length
for brake motor.



Ordering information

Part number	Description
M9B2	Foot mount (forward feet)
M9B3	Foot mount (reverse feet)

Square	Flanged	
Part number	Part number	Description
MZ9G3B	MY9G3B	Ratio 3:1
MZ9G5B	MY9G5B	Ratio 5:1
MZ9G10B	MY9G10B	Ratio 10:1
MZ9G15B	MY9G15B	Ratio 15:1

Part number	Flanged	Description
MZ9G20B	MY9G20B	Ratio 20:1
MZ9G30B	MY9G30B	Ratio 30:1
MZ9G50B	MY9G50B	Ratio 50:1
MZ9G75B	MY9G75B	Ratio 75:1
MZ9G100B	MY9G100B	Ratio 100:1
MZ9G120B	MY9G120B	Ratio 120:1
MZ9G150B	MY9G150B	Ratio 150:1
MZ9G180B	MY9G180B	Ratio 180:1
MZ9G200B	MY9G200B	Ratio 200:1
MZ9G10XB	Inter decimal gearbox 10:1	

Other gearbox ratios are available on request

90W



Induction motors with spur gears

- All ball bearing gearbox as standard, rated to 10,000 hrs lifetime
 - Continuous duty S1/reversible S2
 - IP22 for leadwire and IP54 for terminal box
 - Virtually silent running
 - Globally approved CE/ UL/ cUL/CCC
 - Supplied with run capacitor

Technical data, motor

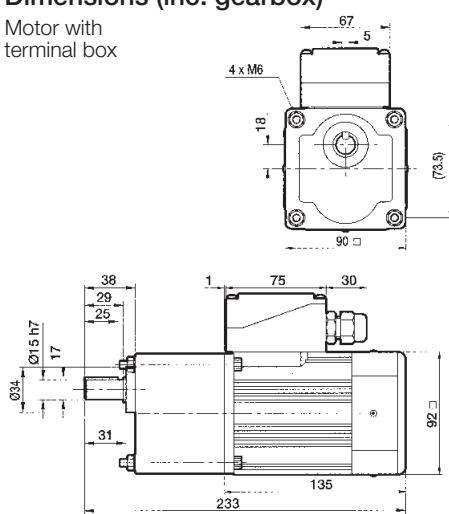
Article No	Motor type	Supply voltage VAC/Hz	Output power	Speed r/min	Torque Ncm	Current A	Capacitor µF	Weight with gearbox Kg
M91Z90G4GGA	Lead wire	1-Phase 230/50	90	1250	69	0,89	6,0 (450V)	4,7/4,8
M91Z90GK4GGA	T-box	1-Phase 230/50	90	1250	69	0,89	6,0 (450V)	4,7/4,8
M9MZ90G4YGA	3x230v, Lead wire	3-Phase 230/50	90	1320	61	0,56	6,0 (450V)	4,7/4,8
M9MZ90GK4YGA	3x230v, T-box	3-Phase 230/50	90	1320	61	0,56	6,0 (450V)	4,7/4,8
M9MZ90GK4CGA	400v, T-box	3-Phase 400	90	1350	64	0,31	6,0 (450V)	4,8
M9RZ90GK4GG1	Reversible	1-Phase 230/50	90	1250	69	0,92	7,0 (450V)	4,8
M9RZ90GR4GG1	Brake	1-Phase 230/50	90	1275	67	0,89	7,0 (450V)	5,2
M91Z90GN4GG1	Variable speed (with tacho)	1-Phase 230/50	90	90-1200	29-54	1,50	6,0 (450V)	4,0

Technical data, gearbox

Output speed based on synchronous motor speed (1500 r/min). Actual speed depends on load resulting in 2-20% slower. For high torque gearboxes, see page 9.

Dimensions (inc. gearbox)

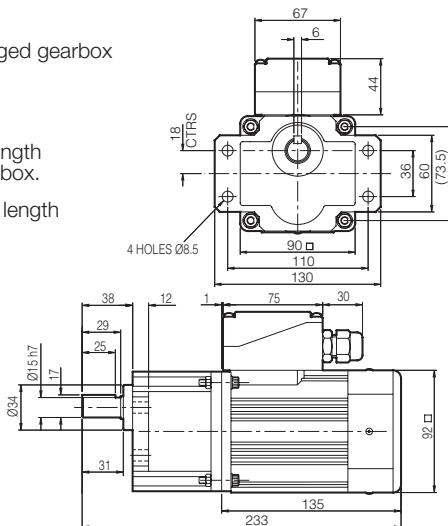
Motor with
terminal box



Flanged gearbox

Add 43mm to length for decimal gearbox.

Add 48.5mm to length
for brake motor.



Ordering information

Part number	Description	
M9B2	Foot mount (forward feet)	
M9B3	Foot mount (reverse feet)	
Square	Flanged	
Part number	Part number	Description
MZ9G3B	MY9G3B	Ratio 3:1
MZ9G5B	MY9G5B	Ratio 5:1
MZ9G10B	MY9G10B	Ratio 10:1
MZ9C15P	MY9C15P	Ratio 15:1

Part number	Part number	Description
MZ9G20B	MY9G20B	Ratio 20:1
MZ9G30B	MY9G30B	Ratio 30:1
MZ9G50B	MY9G50B	Ratio 50:1
MZ9G75B	MY9G75B	Ratio 75:1
MZ9G100B	MY9G100B	Ratio 100:1
MZ9G120B	MY9G120B	Ratio 120:1
MZ9G150B	MY9G150B	Ratio 150:1
MZ9G180B	MY9G180B	Ratio 180:1
MZ9G200B	MY9G200B	Ratio 200:1
MZ9G10XB	Inter decimal gearbox 10:1	

Other gearbox ratios are available on request

High torque 60W and 90W gearboxes

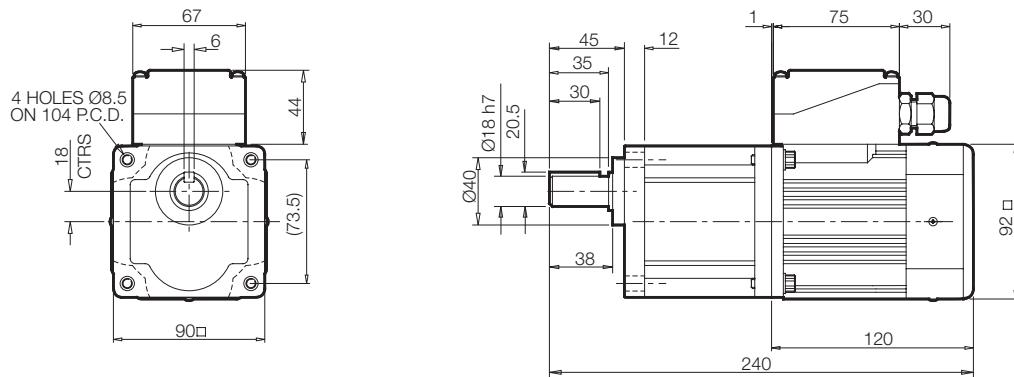
Technical data, gearbox

Nominal speed r/min	30	20	15	12.5	10	8.3	7.5	
Ratio	50	75	100	120	150	180	200	
60w	15.20	22.10	29.40	29.40	29.40	29.40	29.40	
90w	21.20	29.40	29.40	29.40	29.40	29.40	29.40	

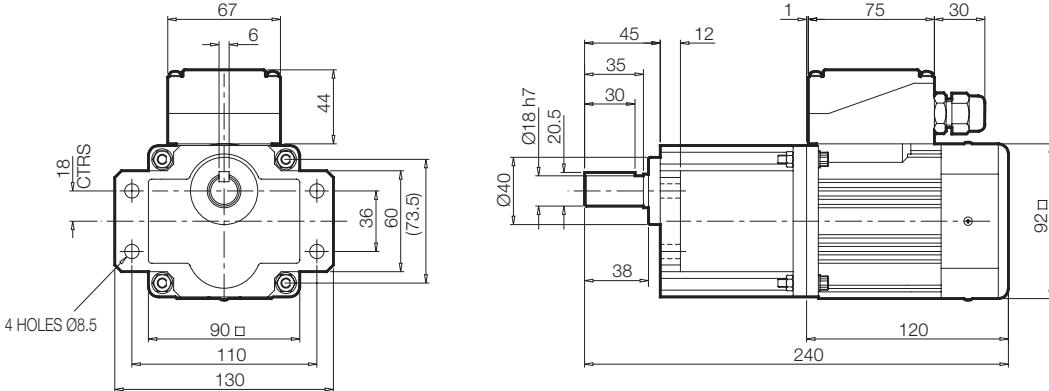
Output speed based on synchronous motor speed (1500 r/min). Actual speed depends on load resulting in 2-20% slower.

Dimensions

Square gearbox



Flanged gearbox



The above dimensions are for a 60W motor, for a 90W motor add 15mm to length.

Ordering information

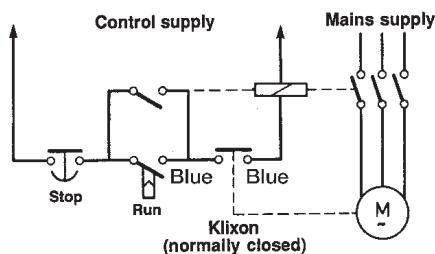
Square	Flanged	Description
Part number	Part number	
MR9G50B	MP9G50B	Ratio 50:1
MR9G75B	MP9G75B	Ratio 75:1
MR9G100B	MP9G100B	Ratio 100:1
MR9G120B	MP9G120B	Ratio 120:1
MR9G150B	MP9G150B	Ratio 150:1
MR9G180B	MP9G180B	Ratio 180:1
MR9G200B	MR9G200B	Ratio 200:1
MZ9G10XB		Inter decimal gearbox 10:1

Other gearbox ratios are available on request

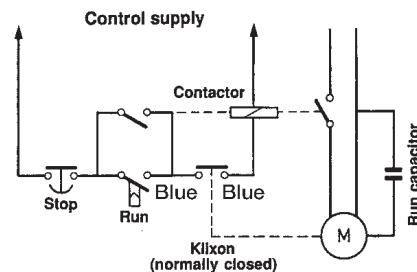
60 mm² motors are impedance protected.

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).

Three phase circuit

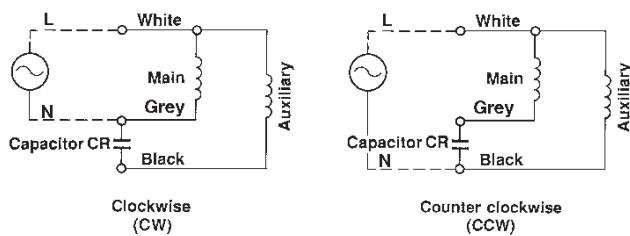


Single phase circuit



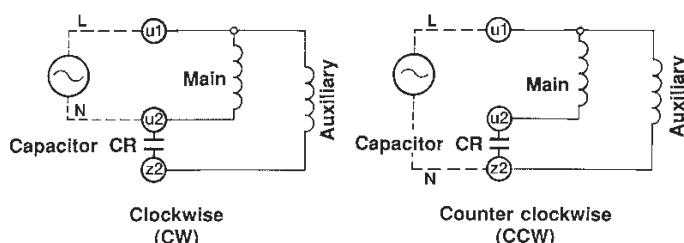
Panasonic single phase geared motors 230V/1ph/50Hz or 110V/1ph/50-60Hz

Lead wire type 60 – 70 mm²



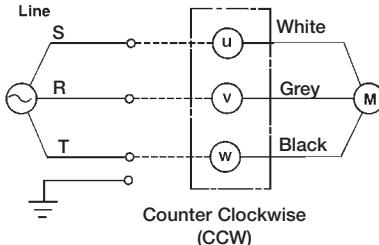
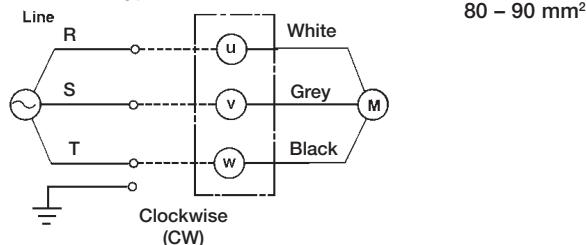
Terminal box type

80 – 90 mm²

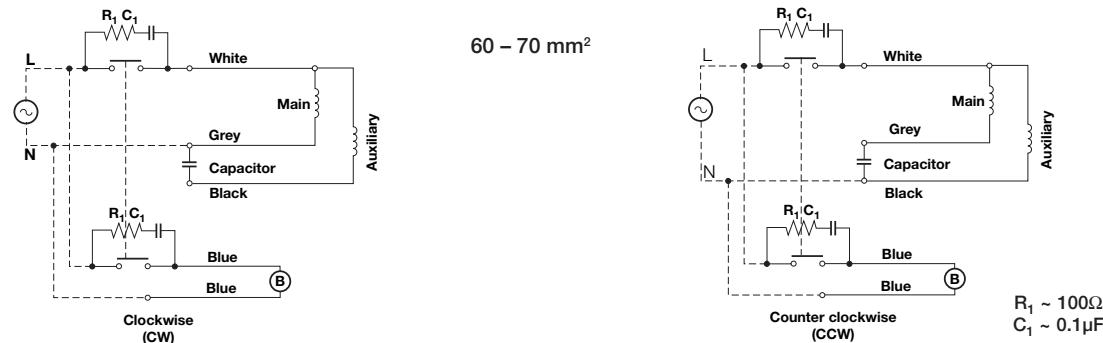


Panasonic three phase geared motors 230V or 400V/3ph/50-60Hz

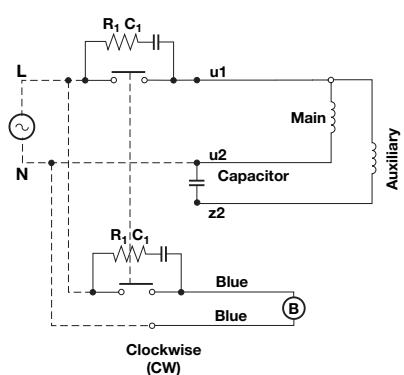
Terminal box type/leadwire type



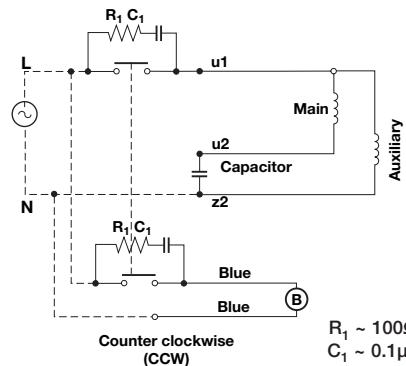
Panasonic single phase geared brake motors 230V/1/50 or 115V/1/50-60Hz



$R_1 \sim 100\Omega$
 $C_1 \sim 0.1\mu F$



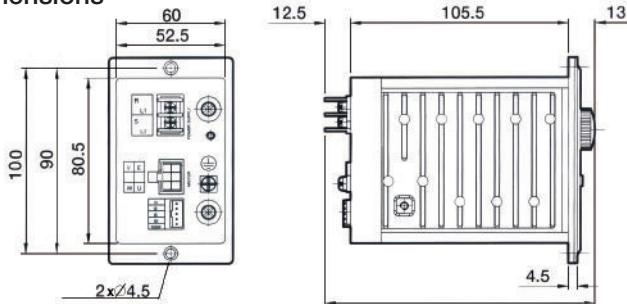
80 – 90 mm²
Terminal box type



$R_1 \sim 100\Omega$
 $C_1 \sim 0.1\mu F$



Dimensions



Ordering information

Part number	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

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.



DVUS

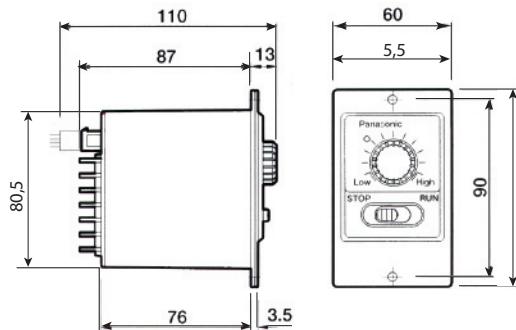


DVSD

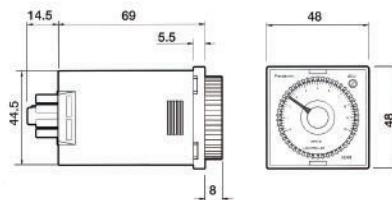
Analogue speed controllers

- DVUS front panel mounted
- DVSD din rail mounted
- Suitable for 6-90W single phase variable speed 3-Series motors
- EMC noise filter recommended

Dimensions (DVUS)



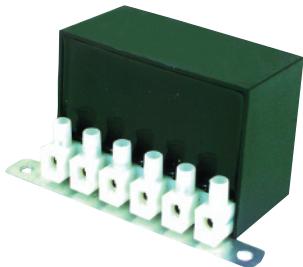
(DVSD)



Ordering information

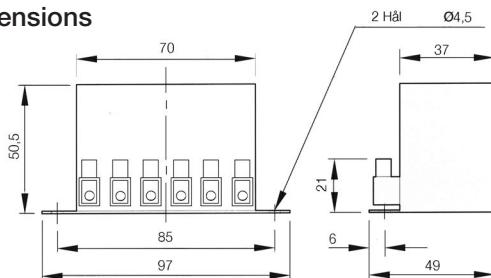
Part number	Type	Description	Speed range
DVUS990GE	DVUS	Panel mount analogue controller for 6-90W variable speed motors	50 - 1400 rpm
DVSD48AY	DVSD	Din rail/surface mount analogue controller for 6-15W variable speed motors	90 - 1400 rpm
DVSD48BY	DVSD	Din rail/surface mount analogue controller for 25-40W variable speed motors	90 - 1400 rpm
DVSD48CY	DVSD	Din rail/surface mount analogue controller for 60-90W variable speed motors	90 - 1400 rpm

RFI filter



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

Dimensions

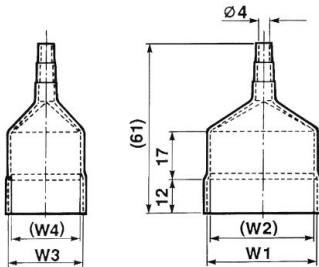


Capacitor caps



Part number	Rating	Weight
M9-7779987	2A	0.2Kg

Dimensions

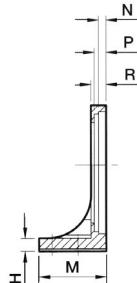
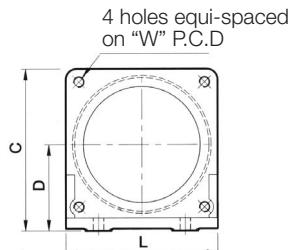
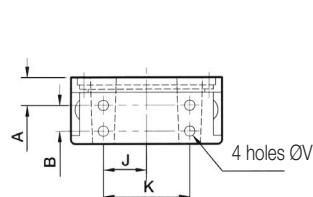


Part number	Capacitor size μ F	W1	W2	W3	W4
P9-86366	0.6, 1.0, 1.2, 1.5, 1.8	39.5	37.5	17	15
P9-86382	2.5	39.5	37.5	22	20
P9-86410	3.0, 4.0, 4.5, 5.0, 5.5	50	48	26	22

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 number

Part number	Description
M6B2	Standard foot mount A for 6W motor
M7B2	Standard foot mount A for 15W motor

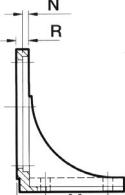
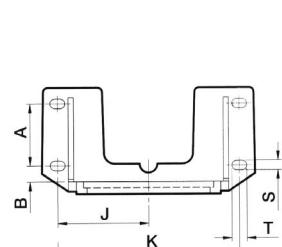
Part No.

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 number

Part number	Description
M8B3	Standard foot mount B for 25W motor

Part No.

Part No.	Description
M9B3	Standard foot mount B for 40-90W motor

Brushless Motors

Panasonic

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, full torque from 0rpm, 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

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



Optional filter



B1 motor
RS485



B1 motor
2 speed



B1 motor
1 speed



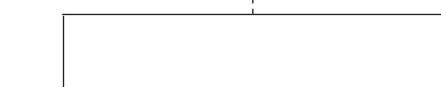
B3 motor



gearbox



integer
gearbox



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.



analogue
keypad



digital
keypad

B1
30-130W



Brushless motors with integrated drives

- Space saving with integrated drive
- Full torque from 0-3000rpm
- Speed range 100:1
- 5000 hours life with gearbox
- RS 485 option
- 1 or 2 configurable motor speed presets
- IP65, CE/UL approved



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	Output Power	Voltage	Frequency	Current	Torque	Starting torque	Speed
Shaft for gearbox	(P2) W	(V)	(Hz)	(A)	(Nm)	(Nm)	(r/min.)
MBMC3A1AXB	MBMC3A1ASB	30	1-phase 100-120	50/60	1,0	0,095	0,14
MBMC3A2AXB	MBMC3A2ASB	30	1-phase 200-240	50/60	0,6	0,095	0,14
MBMC5A1AXB	MBMC5A1ASB	50	1-phase 100-120	50/60	1,5	0,16	0,24
MBMC5A2AXB	MBMC5A2ASB	50	1-phase 200-240	50/60	0,7	0,16	0,24
MBMC9A1AZB	MBMC9A1ASB	90	1-phase 100-120	50/60	2,0	0,29	0,43
MBMC9A2AZB	MBMC9A2ASB	90	1-phase 200-240	50/60	1,1	0,29	0,43
MBMC1E2AZB	MBMC1E2ASB	130	1-phase 200-240	50/60	1,5	0,41	0,62

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: +/-3% 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)

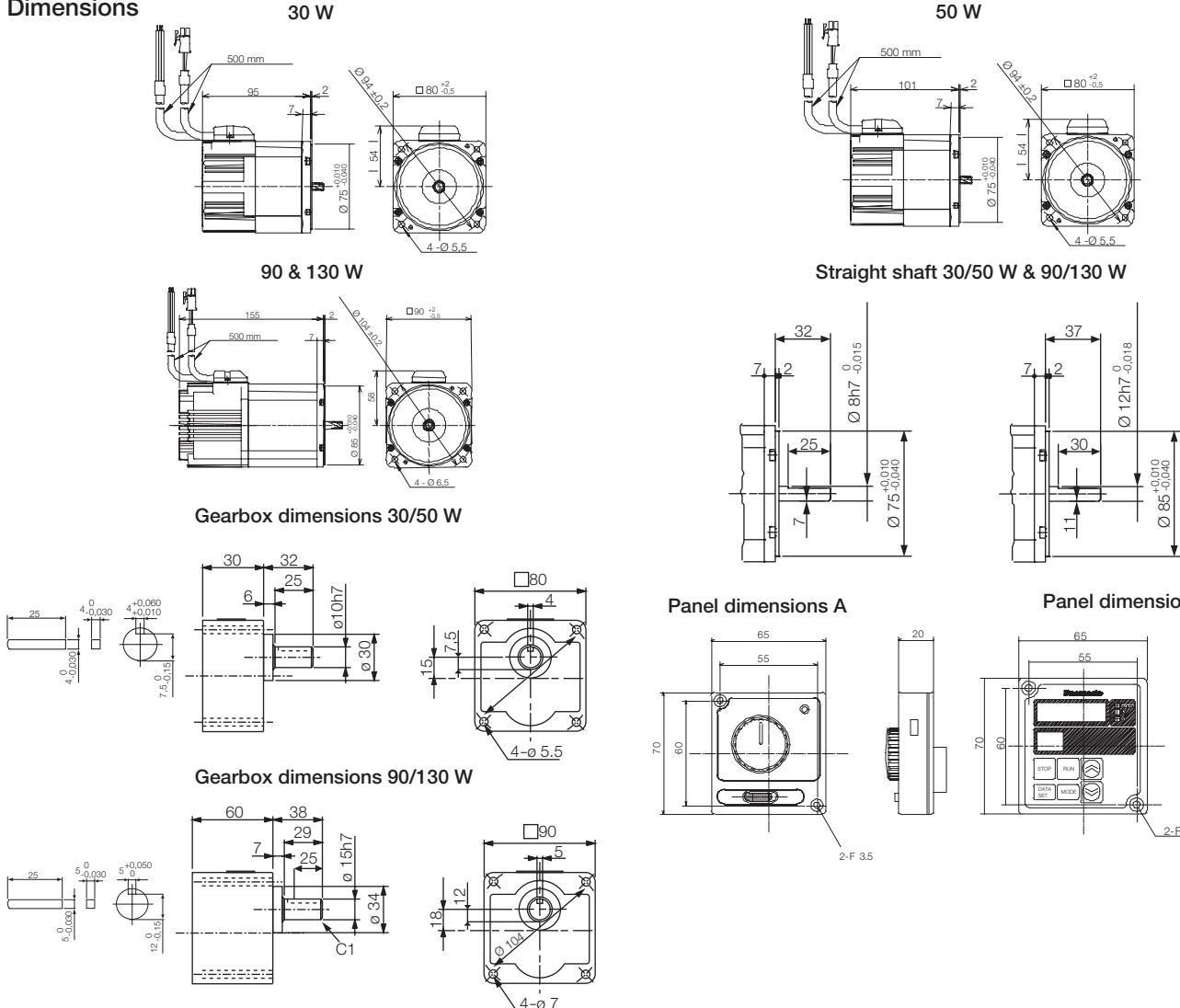
Model / Ratio	3	7,5	12,5	15	20	25	30	50	75	100	180	200
30 W, MX8G_B	0,23	0,58	0,96	1,15	1,55	1,93	2,16	3,55	5,43	6,99	7,84	
50 W, MX8G_B	0,39	0,96	1,61	1,92	2,59	3,23	3,61	5,93	7,84	7,84	7,84	
90 W, MZ9G_B	0,67	1,69	2,54	3,06	4,11	5,27	6,22	9,81	14,7	19	19,6	19,6
130 W, MZ9G_B	1,01	2,54	3,82	4,59	6,17	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.

Brushless Motors

Panasonic

Dimensions



Ordering information

Motor for gearbox		Motor with straight shaft	
Part number	Description	Part number	Description
MBMC3A1AXB	30 W, 110 V for gearbox	MBMC3A1ASB	30 W, 110 V straight shaft
MBMC3A2AXB	30 W, 230 V for gearbox	MBMC3A2ASB	30 W, 230 V straight shaft
MBMC5A1AXB	50 W, 110 V for gearbox	MBMC5A1ASB	50 W, 110 V straight shaft
MBMC5A2AXB	50 W, 230 V for gearbox	MBMC5A2ASB	50 W, 230 V straight shaft
MBMC9A1AZB	90 W, 110 V for gearbox	MBMC9A1ASB	90 W, 110 V straight shaft
MBMC9A2AZB	90 W, 230 V for gearbox	MBMC9A2ASB	90 W, 230 V straight shaft
MBMC1E2AZB	130 W, 230 V for gearbox	MBMC1E2ASB	130 W, 230 V straight shaft

Motors from 30 to 50 W

Part number	Description	Part number	Description
MX8G3B	Gearbox 3:1	MZ9G3B	Gearbox 3:1
MX8G7,5B	Gearbox 7,5:1	MZ9G7,5B	Gearbox 7,5:1
MX8G12,5B	Gearbox 12,5:1	MZ9G12,5B	Gearbox 12,5:1
MX8G15B	Gearbox 15:1	MZ9G15B	Gearbox 15:1
MX8G20B	Gearbox 20:1	MZ9G20B	Gearbox 20:1
MX8G25B	Gearbox 25:1	MZ9G25B	Gearbox 25:1
MX8G30B	Gearbox 30:1	MZ9G30B	Gearbox 30:1
MX8G50B	Gearbox 50:1	MZ9G50B	Gearbox 50:1
MX8G75B	Gearbox 75:1	MZ9G75B	Gearbox 75:1
MX8G100B	Gearbox 100:1	MZ9G100B	Gearbox 100:1
MX8G180B	Gearbox 180:1	MZ9G180B	Gearbox 180:1
		MZ9G200B	Gearbox 200:1

**B3
30-130W**



Brushless motor with integrated drive & encoder

- Positioning with integrated encoder
- Full torque available from 0 to 3000 rpm
- Maximum gear reduction 100:1
- 5000 hours life with gearbox
- CE/UL approval
- 4 discreet repeatable positions
- 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 Panasonics Panaterm software.

Technical data

Motor type	Output power (P2) W	Voltage (V)	Frequency (Hz)	Current (A)	Torque (Nm)	Starting torque (Nm)	Speed (r/min.)
Shaft for gearbox "D" cut shaft							
MBMP3A1EBC	MBMP3A1ESC	30	1-phase 100-120	50/60	1,0	0,095	0,14
MBMP3A2EBC	MBMP3A2ESC	30	1-phase 200-240	50/60	0,6	0,095	0,14
MBMP5A1EBC	MBMP5A1ESC	50	1-phase 100-120	50/60	1,5	0,16	0,24
MBMP5A2EBC	MBMP5A2ESC	50	1-phase 200-240	50/60	0,7	0,16	0,24
MBMP9A1EBC	MBMP9A1ESC	90	1-phase 100-120	50/60	2,0	0,29	0,43
MBMP9A2EBC	MBMP9A2ESC	90	1-phase 200-240	50/60	1,1	0,29	0,43
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 ($\pm 5\%$ 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) Model/ratio	5	10	15	20	30	50
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

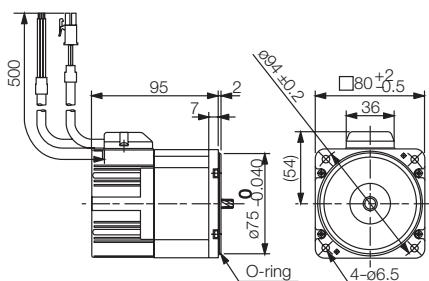
Grey area indicates gearbox runs in same direction as the motor shaft.

Brushless Motors

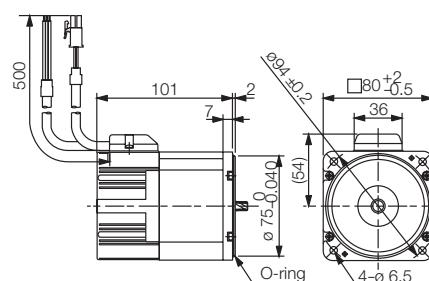
Panasonic

Dimensions

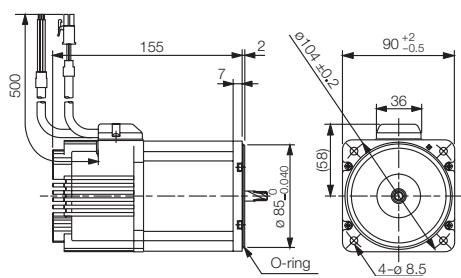
30 W



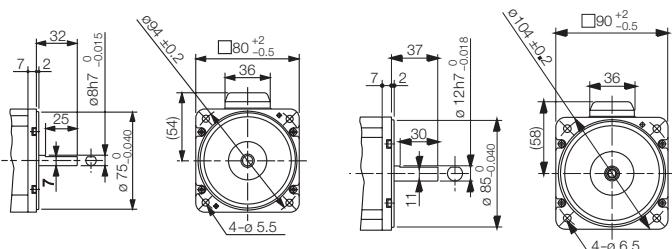
50 W



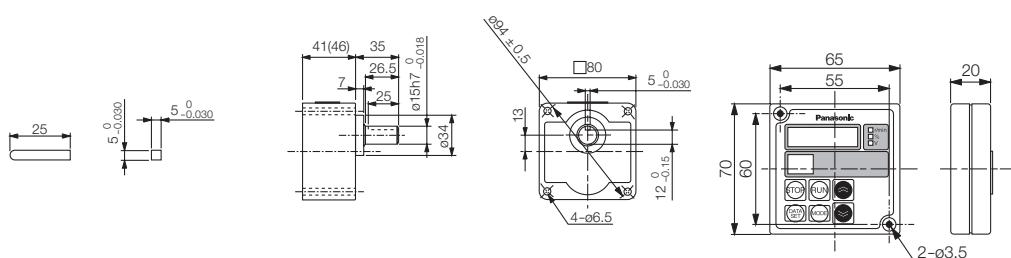
90 & 130 W



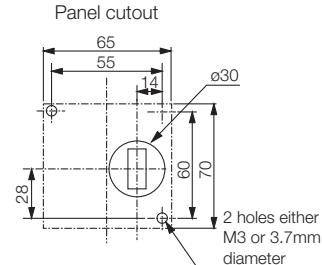
Straight shaft 30/50 W & 90/130 W



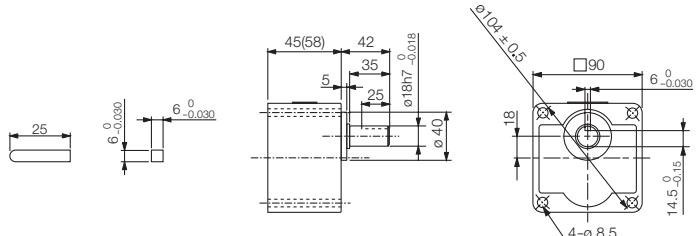
Gearbox dimensions 30/50 W



Panel dimensions B



Gearbox dimensions 90/130 W



Ordering information

Motor for gearbox

Part number	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 number	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 number	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 number	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 DVOP3500

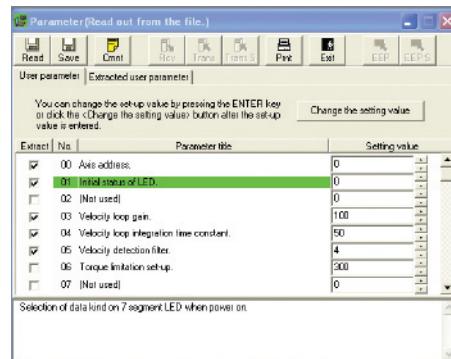


Digital

For run/stop, direction, speed control plus parameter setting.
Suits B1 and B3-series Type No DVOP3510

B3-series Panaterm software

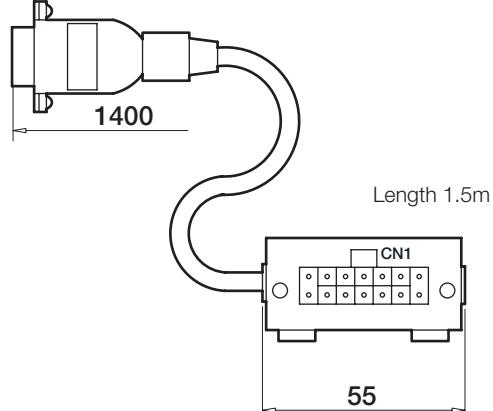
Panasonic Panaterm software makes programming of the B3 drive an almost effortless task. Using RS232 communications with a PC, drive parameters can be easily accessed, saved and downloaded.



Part number	Description
DVOP4150	B3-series Panaterm set-up software

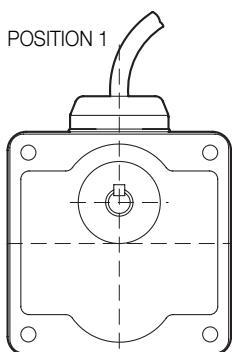
B3-series Programming module

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.

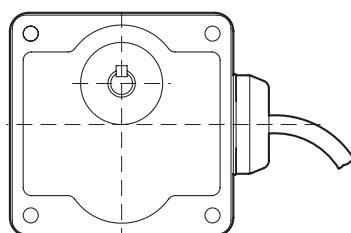


Part number	Description
DVOP4140	B3-series RS232 programming cable

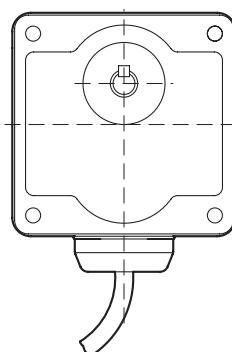
Specify Mounting position (shaft with relation to cable)



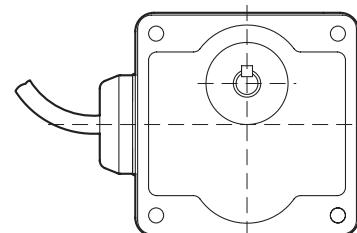
POSITION 2



POSITION 3



POSITION 4

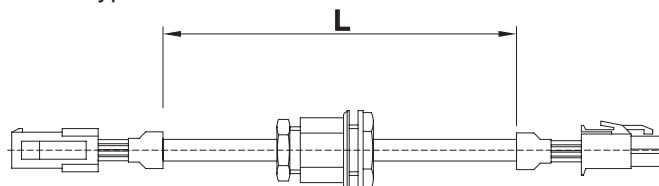


Pre-Assembled Cables

Panasonic

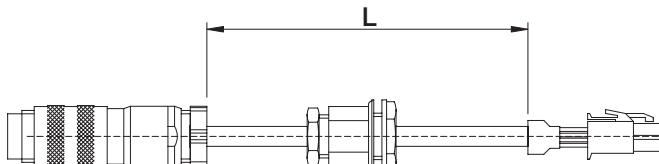
B1-series

IP20 keypad extension cable



Part number	Description (L)
PANB1DVOP35910	1 metre
PANB1DVOP35930	3 metre
PANB1DVOP35950	5 metre

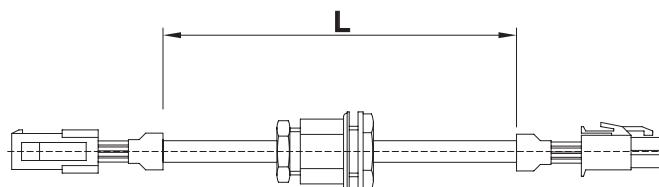
IP65 keypad extension cable



Part number	Description (L)
PANB1DVOP35910I	1 metre
PANB1DVOP35930I	3 metre
PANB1DVOP35950I	5 metre

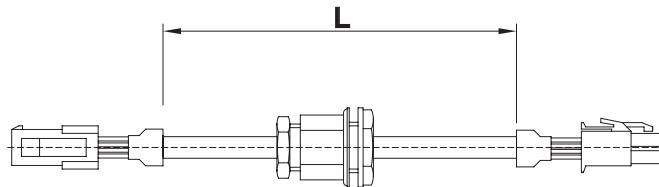
B3-series

IP20 extension cable



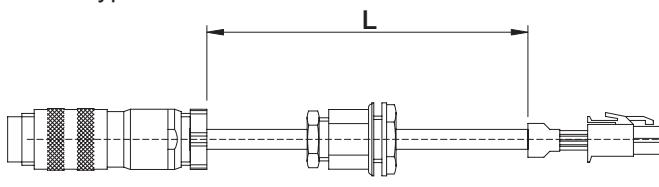
Part number	Description (L)
PANB3DVOP38510	1 metre
PANB3DVOP38530	3 metre
PANB3DVOP38550	5 metre

IP20 keypad extension cable



Part number	Description (L)
PANB3DVOP38605	0.5 metre

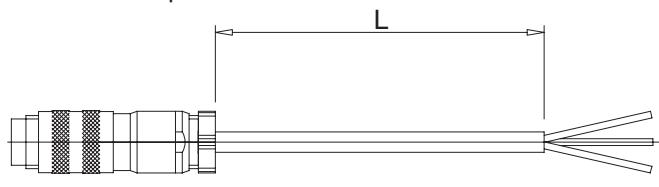
IP65 keypad extension cable



Part number	Description (L)
PANB3DVOP38510I	1 metre
PANB3DVOP38530I	3 metre
PANB3DVOP38550I	5 metre

B1 & B3-series

IP65 mains input extension cable



Part number	Description (L)
PANB3EM1M	1 metre
PANB3EM3M	3 metre
PANB3EM5M	5 metre

Overview

Overview of the OEM Motors Range



- Italian manufacturer of geared motors & servo motors
- IP65 as standard
- 9 - 270W AC, 4 - 150W DC and 32 - 880W servomotor
- Up to 90Nm output torque
- Optional encoders, brakes, tachos & speed control motors



- Spanish manufacturer of 12-24V DC permanent magnet motors and worm drive gearmotors
- 16 - 235W output power
- Start up torque of upto 135Nm
- Optional rear shaft versions available for hand winding, encoders & brake



- German manufacturer of synchronous motors, single phase 24 – 230V and three phase 230 – 690V
- Enclosure to IP55
- Output power of 5 to 60W
- Up to 75Nm output torque
- Available with gearbox options of spur, planetary, worm or a combination for various speed options
- Synchronous motors offer exceptional speed holding characteristics



- German manufacturer of geared motors & brushless DC
- Available from IP00 open frame to IP65 as standard
- 10W to 500W output power
- Upto 80Nm output torque
- Optional spur, planetary, worm and combination gearboxes



- Finnish manufacturer of drives for DC motor control
- Drives for DC motors upto 48VDC, upto 80VDC for stepping motors
- Up to 40A continuous with 90A peak current on DC motor drives
- Drives & controllers for: brushed DC motors, brushless DC motors, stepper motors, servo motors &
- Positioning drivers for linear actuators
- Bespoke designs on request



- These products are available exclusively for OEM machine builders and are all proven suppliers to both us and our customers. We supply products from a very large standard range whilst also offering motors of bespoke designs. We have full technical and commercial control with QA and logistic management both here and in the country of manufacture. Products include AC and DC micro-motors with and without gearboxes, brushless motors with and without integrated drives, DC coreless motors with and without gears and stepping motors.



Since 1968



SHAYANG YE
INDUSTRIAL CO., LTD

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 of 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 arrival, 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 of 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 or 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 OMISSION OR NEGLECT 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 AUTHORITY (RMA) NUMBER THAT HAS BEEN PREVIOUSLY AGREED 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 RELATED 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 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 however, (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 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.

OEM Automatic operates in UK, Sweden, Finland, Norway, Denmark, Poland, Czech Republic, Slovakia, Estonia, Latvia and Lithuania. Together we are the leading player for industrial automation components in northern europe.

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