# **Options**







	าts

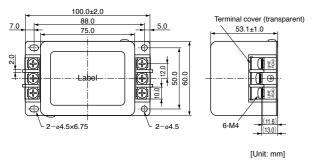
Options – Details	67
List of peripheral equipments	75

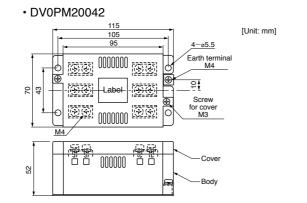
### Noise filter/ Surge absorber/ MCCB

Part name	Optional parts number (option)	Manufacturer's parts number	Qty.	Manufacturer	
Noise filter (single phase 100 V, 200 V)	DV0P4170	SUP-EK5-ER-6	1		
Noise filter (3-phase)	DV0PM20042	3SUP-HU10-ER-6	1	OKAYA ELECTRIC	
Surge absorber (single phase 100 V, 200 V)	DV0P4190	R·A·V-781BWZ-4	1	IND. CO., LTD.	
Surge absorber (3-phase)	DV0P1450	R·A·V-781BXZ-4	1		
Noise filter for control signals	DV0P1460	ZCAT3035-1330	4	TDK Corporation	

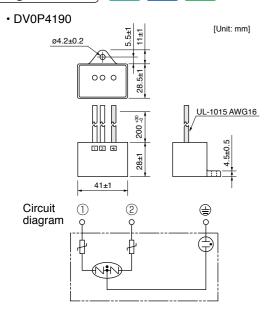
### Noise filter GV KV GP

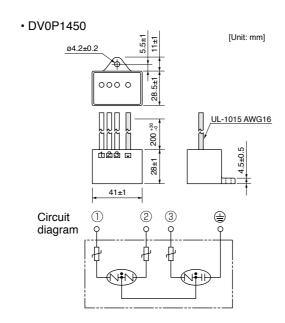
• DV0P4170





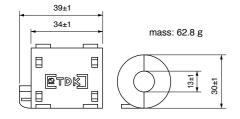
#### GV KV GP Surge absorber





### Noise filter for control signals GV KV GP

• DV0P1460



#### Recommended circuit breaker (MCCB)

Made by Sensata Technologies Japan Limited: Type IELH-1-11-63-5A-M (single phase) Type IELH-1-111-63-5A-M (3-phase) (Rated current 5A, cutoff characteristics DELAY63)

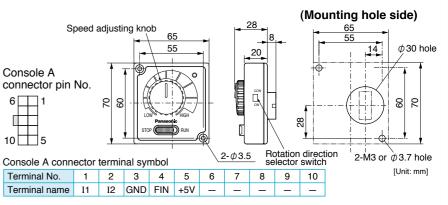
· Recommended cutoff characteristics: DELAY61-63

#### Settings

### Console A GV KV

#### Optional part number DV0P3500

- Speed adjusting knob
- RUN/STOP switch
- · Rotation direction selector switch

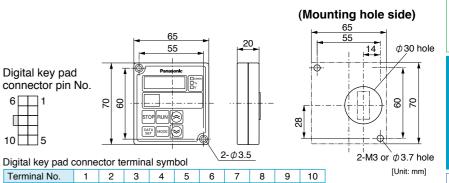


### Digital key pad GV KV GP

### Optional part number

DV0P3510

- RUN/STOP key
- · Digital monitor [Rotation speed, Commanded speed, Internal DC voltage, Load factor, Torque, Trip history, (Display of the trip occurs, confirmation of the trip history) Overload warning (flashing)]
- Set/change parameters
- · Storage of the parameters (read, write)



#### Cable

#### GV KV Console A connection cable

Console A side connector pin No. 1 2 —

Digital key pad side connector pin No.  $\phantom{-}$  5 9 8  $\phantom{-}$  3 7

Optional parts number	Length (L)
DV0PM2006910	1 m
DV0PM2006930	3 m
DV0PM2006950	5 m



Amp.I/O side connector (J.S.T Mfg.Co.,Ltd.) Connector : PAP-10V-S Connector pin: SPHD-002T-P0.5

Console A side connector (Molex Inc.) Connector : 39-01-2105 (5557-10R-210) Connector pin: 39-00-0046 (5556T2)

Amp.I/O side connector pin No. 1 2 3 4 5 6 7 8 Brown Red Orange Yellow Green

3 4 5

Terminal name - - GND - +5V - SCK SIN SOT -

	Of
10	39-00-0047 (5556T2L)
	00 00 00 (0000.22)

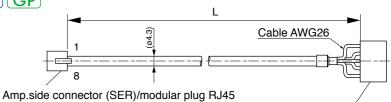
#### Digital key pad connection cable GV KV GP

Optional parts number	Length (L)
DV0P38310	1 m
DV0P38330	3 m
DV0P38350	5 m

Amp.side connector pin No.(SER)

Terminal name

Lead color of a cable



Digital key pad side connector (Molex Inc.)

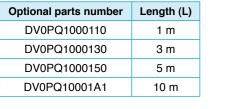
: 39-01-2105 (5557-10R-210) 1 2 3 4 5 6 7 8 Connector pin: 39-00-0046 (5556T2) - +5V SOT SIN -– GND SCK

39-00-0047 (5556T2L)

67

#### Motor extension cable GV GP

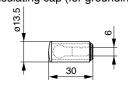
Optional parts number	Length (L)
DV0PQ1000110	1 m
DV0PQ1000130	3 m
DV0PQ1000150	5 m
DV0D040004A4	40



#### Accessories

- Insulating cap (for grounding wire insulation) 1
- M4 × 6 pan head screw with spring washer 1
- M4 hex. nut

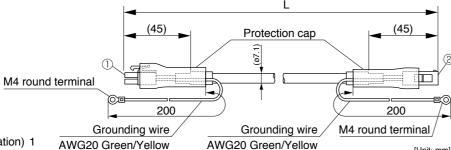
Insulating cap (for grounding wire insulation)



earth terminal of the brushless amplifier.

■ When using motor extension cable, be sure to connect its grounding wire to the grounding wire of the motor, and connect the other end of grounding wire of the extension cable to the

For connecting grounding wire of motor and motor extension cable, use M4 screw and insulating cap supplied as accessories.



①Brushless amplifier side connector (Molex Inc.)

: 39-01-2085 (5557-08R-210) Connector pin: 39-00-0039 (5556TL) [for AWG 20] 39-00-0047 (5556T2L) [for AWG 26]

②Motor side connector (Molex Inc.)

Connector : 39-01-2086 (5559-08P-210) Connector pin: 39-00-0041 (5558TL) [for AWG 20]

39-00-0049 (5558T2L) [ for AWG 26]

#### <Connector wiring>

· Brushless amplifier side

· Motor side

Pin No.	Signal	Wire color	Wire size	Pin No.
1	U	Red	AWG20	1
2	V	White	AWG20	2
3	W	Black	AWG20	3
4	Vcc	White	AWG26	4
5	CS1	Red	AWG26	5
6	CS2	Blue	AWG26	6
7	CS3	Yellow	AWG26	7
8	0V	Black	AWG26	8
M4				M4
round terminal	E	Green/Yellow	AWG20	round terminal

#### Motor extension cable | KV



Length (L)
1 m
3 m
5 m
10 m

#### <Wiring of motor side connector>

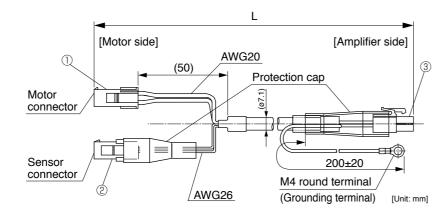
#### Motor connector

Pin No.	Signal	Wire color
1	U	Red
2	V	White
3	W	Black
4	Е	Green/Yellow

#### Sensor connector

• Sensor connector			
Pin No.	Signal	Wire color	
1	CS1	Red	
2	CS2	Blue	
3	CS3	Yellow	
4	Vcc	White	
5	0V	Black	
6	NC	_	

Do not connect anything on (NC).



①Motor side motor connector (Tyco Electronics.)

Connector : 172159-1

Connector pin: 170366-1 [for AWG 20]

②Motor side sensor connector (Molex Inc.) Connector : 39-01-2066 (5559-06P-210)

Connector pin: 39-00-0049 (5558T2L) [for AWG 26]

③Brushless amplifier side connector (Molex Inc.)

Connector : 39-01-2085 (5557-08R-210) Connector pin: 39-00-0039 (5556TL) (for AWG 20)

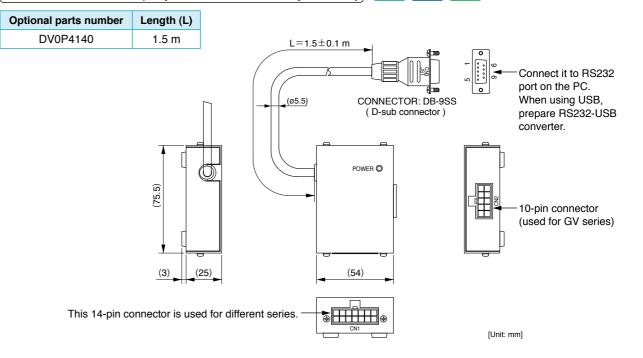
39-00-0047 (5556T2L) [for AWG 26]

69

#### <Connector wiring of amplifier side>

to o i i i o o o o o o o o o o o o o o o					
Pin No.	Signal	Wire color	Wire size		
1	U	Red	AWG20		
2	V	White	AWG20		
3	W	Black	AWG20		
4	Vcc	White	AWG26		
5	CS1	Red	AWG26		
6	CS2	Blue	AWG26		
7	CS3	Yellow	AWG26		
8	0V	Black	AWG26		
M4 round terminal	E	Green/Yellow	AWG20		

#### PC connection cable (10-pin D-sub connector pin 1.5 m) GV KV GP



#### Communication software GV KV GP

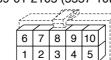
Model No.	
DANIATEDM for DI	Can be downloaded from our web site, free of charge.
PANATERM for BL	http://industrial.panasonic.com/ww/products/motors-compressors/fa-motors

#### Connector Kit/ Cable/ External speed setter

Power supply connector kit GV KV (50 W, 100 W) GP

Optional part number	Name	Manufacturer's parts No.	Qty.	Manufacturer	Note
DV0P2870	Connector	39-01-2105 (5557-10R-210)	1	Molex Inc	Fits to power supply
DV0F2670	Connector pin	39-00-0060 (5556PBTL)	6	Molex Inc	connector (POWER)

· 39-01-2105 (5557-10R-210)





#### Control signal cable (Cable with an I/O connector) GV KV GP

Length (L)
2 m

Pin No.		1	2	3	4	5	6	7	8	9	10
Terminal	GV, KV series	l1	12	13	14	15	GNG	FIN	+5 V	01	02
name	GP series	l1	12	13	NC	14	GND	NC	+5 V	01	02
Wire colo	r	Brown	Red	Orange	Yellow	Green	Blue	Puaple (Pink)	Gray	White	Black

<sup>\*</sup> Do not connect anything to the pin no.4 and pin no.7 in case of use the GP series.

#### [Unit: mm] 2000±200 Heat 30±10 20±5 shrinkable tube Cable AWG26 10-wire type BANDO DENSEN Co., ltd UL2517 Connector (J.S.T Mfg. Co., Ltd.)

#### Connector : PAP-10V-S Connector pin: SPHD-001T-P0.5

#### <For your reference>

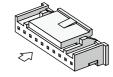
For tools such as crimp tools necessary to assemble the cable, access the connector manufacturer's web site or consult the manufacturer: refer to p. 75 "List of peripheral equipment manufacturers".

I/O connector kit | GV KV GP

Optional part number	Name	Manufacturer's parts No.	Qty.	Manufacturer	Note	
DV0PM20070	Connector	PAP-10V-S	1	LC T Mfa Co. Ltd	Fits to I/O connector	
DV0FW20070	Connector pin	SPHD-002T-P0.5	10	J.S.T Mfg.Co.,Ltd.	Fils to I/O confiector	

#### • PAP-10V-S





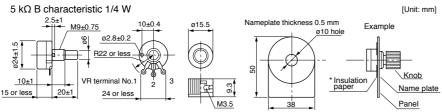
Pin No.		1	2	3	4	5	6	7	8	9	10
Terminal	GV, KV series	l1	12	13	14	15	GNG	FIN	+5 V	01	02
name	GP series	l1	12	13	NC	14	GND	NC	+5 V	01	02

Do not connect anything to the pin no.4 and pin no.7 in case of use the GP series.

#### External speed setter GV KV

#### Optional part number DV0PM20078





\* Insert the insulation paper to positively isolate the terminals and chassis

#### Panel connector kit (Fits to Console A) GV KV

Optional part number	Name	Manufacturer's parts No.	Qty.	Manufacturer	Note	
DV0P3610	Connector	nector 39-01-2105 (5557-10R-210)		Molex Inc	Fits to Console A	
D 40L3010	Connector pin	39-00-0047 (5556T2L)	10	IVIOLEX ITIC	FILS TO CONSOILE A	

• 39-01-2105 (5557-10R-210)

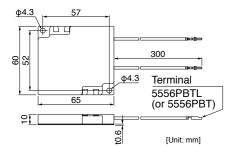




### External regenerative resistor GV KV GP

Optional	Manufacturer's		Specific	ations	Note	
parts number		Resistance	Rated power	Activation temperature of built-in fuse	(Input Power of drive)	Manufacturer
DV0P2890	45M03	50 Ω	10 W	137 <sup>+3</sup> ℃	100 V	Iwaki Musen Kenkyusho
DV0PM20068	45M03	200 Ω	10 W	137 <sup>+3</sup> ℃	200 V	Co., Ltd

#### DV0P2890, DV0PM20068



#### GV GP

\* Connect terminals to pins No. 3 and No. 5 of the power supply connector, respectively.

#### **KV**

\* When using amplifiers of 50 W or 100 W. Connect terminals to pins No. 3 and No. 5 of the power supply connector, respectively.

When using amplifiers of 200 W, 400 W or 750 W. Connect terminals to pins No.4 (P) and No.5 (B1) of the power supply terminals block with using pin terminals.

#### <Caution of when using external regeneration resistor>

Since it becomes high temperature, external regeneration resistor must be installed according to the contents shown below.

- · Attach to incombustibles, such as metal.
- · Install in the place which cannot touch directly by covering with incombustibles etc.
- · Do not install near the combustibles.

Although the thermal cutoff is built in external regeneration resistor, the skin temperature of regeneration resistor may become high exceeding the operating temperature of thermal cutoff by the time the thermal cutoff operates in amplifier failure.

The thermal cutoff is for preventing ignition of the regeneration resistor in amplifier failure, and is not for controlling the skin temperature of resistor.

#### <Remarks>

Thermal fuse is installed for safety.

71

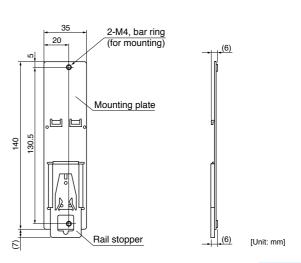
The thermal fuse may blow due to heat dissipating condition, working temperature, supply voltage or load fluctuation.

Make it sure that the surface temperature of the resistor may not exceed 100 °C at the worst running conditions with the machine, which brings large regeneration (such case as high supply voltage, load inertia is large or deceleration time is short) Please carry out air cooling if needed.

#### DIN rail mounting unit GV KV (50 W, 100 W) GP

### Optional part number

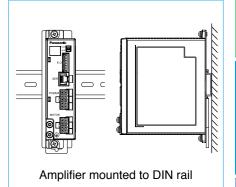
DV0P3811



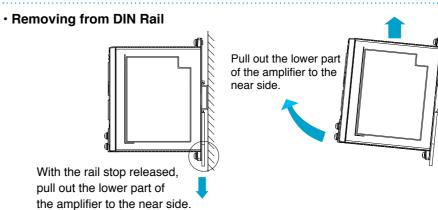
### · How to Install Part where DIN rail is mounted Press lightly With rail stop Ensure that the rail stop pushed in has been pushed in. Hook the upper side of DIN rail

Press lightly the lower part of the main body of amplifier.

72



mounting part on the DIN rail.

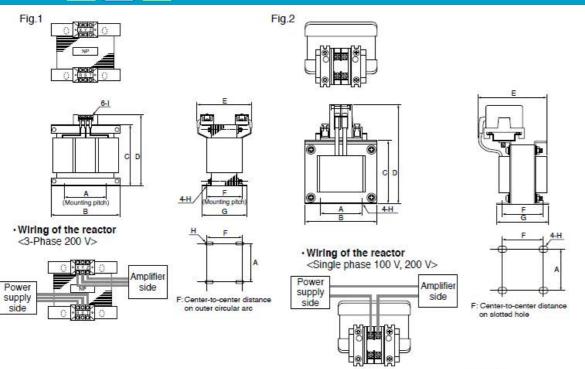


By lifting the amplifier, you can remove it from the DIN rail.

2 mounting screws (M4 X L8, Pan head) are attached. Rail stopper can be extended to max. 10 mm.

Please read carefully operation manual before using this product. In addition, please do not apply excessive stress to the product.

#### Reactor GV KV GP



	Optional parts number	A	В	С	D (Max)	E(Max)	F	G	н	1	Inductance (mH)	Rated current (A)
F:- 4	DV0P220	65±1	125±1	(93)	136	155	70+3/-0	85±2	4-φ7×12	M4	6.81	3
Fig.1	DV0P221	60±1	150±1	(113)	155	130	60+3/-0	75±2	4-φ7×12	M4	4.02	5
Fig.2	DV0P227	55±0.7	80±1	66.5±1	110	90	41±2	55±2	4-φ5×10	M4	4.02	5

\* For applicability of reactor, refer to the corresponding table on p. 95.

#### Harmonic restraint

Harmonic restraint measures are not common to all countries. Therefore, prepare the measures that meet the requirements of the destination country.

With products for Japan, on September, 1994, "Guidelines for harmonic restraint on heavy consumers who receive power through high voltage system or extra high voltage system" and "Guidelines for harmonic restraint on household electrical appliances and general-purpose articles" established by the Agency for Natural Resources and Energy of the Ministry of Economy, Trade and Industry (the ex-Ministry of International Trade and Industry). According to those guidelines, the Japan Electrical Manufacturers' Association (JEMA) have prepared technical documents (procedure to execute harmonic restraint:

JEM-TR 198, JEM-TR 199 and JEM-TR 201) and have been requesting the users to understand the restraint and to cooperate with us. On January, 2004, it has been decided to exclude the general-purpose inverter and servo driver from the "Guidelines for harmonic restraint on household electrical appliances and general-purpose articles". After that, the "Guidelines for harmonic restraint on household electrical appliances and general-purpose articles" was abolished on September 6, 2004.

We are pleased to inform you that the procedure to execute the harmonic restraint on general-purpose inverter and servo driver was modified as follows.

- 1. All types of the general-purpose inverters and servo drivers used by specific users are under the control of the "Guidelines for harmonic restraint on heavy consumers who receive power through high voltage system or extra high voltage system". The users who are required to apply the guidelines must calculate the equivalent capacity and harmonic current according to the guidelines and must take appropriate countermeasures if the harmonic current exceeds a limit value specified in a contract demand. (Refer to JEM-TR 210 and JEM-TR 225.)
- 2. The "Guidelines for harmonic restraint on household electrical appliances and general-purpose articles" was abolished on September 6, 2004. However, based on conventional guidelines, JEMA applies the technical documents JEM-TR 226 and JEM-TR 227 to any users who do not fit into the "Guidelines for harmonic restraint on heavy consumers who receive power through high voltage system or extra high voltage system" from a perspective on enlightenment on general harmonic restraint. The purpose of these guidelines is the execution of harmonic restraint at every device by a user as usual to the utmost extent.

#### <Remarks>

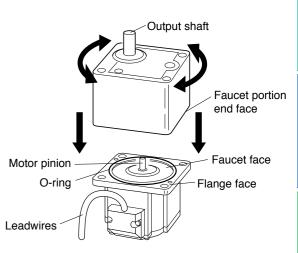
When using a reactor, be sure to install one reactor to one brushless amplifier.

#### O-ring GV GP

Repair parts 10pcs / bag

Optional parts number	Size
DV0PN10008	80 mm sq.
DV0PN10009	90 mm sq.

- · Assemble with motor pinion faced up.
- · Outward direction of motor leadwire can be aligned with any one of
- 4 sides of gear head with an output shaft at a different position.



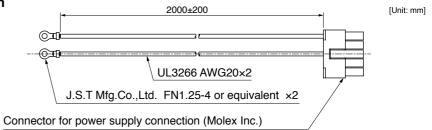
#### Power cable (single phase 100 V, 200 V) with connector GV KV (50 W, 100 W) GP

When the following part number is specified in the order, the power cable is delivered with the product.

		50 W	90 W	100 W	130 W
GV series	100 V	MBEG5A1BCVC	MBEG9A1BCVC		MBEG1E1BCVC
GV Selles	200 V	MBEG5A5BCVC	MBEG9A5BCVC	_	MBEG1E5BCVC
I/V parios	100 V	MBEK5A1BCVC		MBEK011BCVC	
KV series	200 V	MBEK5A5BCVC	_	MBEK015BCVC	_
CD parios	100 V	MBEG5A1BCPC	MBEG9A1BCPC		MBEG1E1BCPC
GP series	200 V	MBEG5A5BCPC	MBEG9A5BCPC	_	MBEG1E5BCPC

- · When supplying 3-phase power source to a 200 V brushless amplifier, use the supplied power cable and connect 2 conductors to L1 and L2.
- When supplying 3-phase power, use a power connection kit and connect three conductors to L1, L2 and L3.
- For location of L1, L2 and L3, refer to the wiring diagram on pages 17, 19 and 21 (GV series), pages 35 and 37 (KV series), pages 57, 59 and 61 (GP series).

#### ■ Cable specification



: 39-01-2105 (5557-10R-210)

Connector pin: 39-00-0038 (5556T) or 39-00-0039 (5556T2)

· Grounding wire 500±50 UL3266 AWG16 (Green/Yellow)

J.S.T Mfg.Co.,Ltd. FN1.25-4 or equivalent

## List of peripheral equipments

Manufacturer	Tel No. / Home page	Peripheral components	
TDK Corporation	+81-3-5201-7229 http://www.tdk.co.jp/	Noise filter for signal lines	
Okaya Electric Industries Co. Ltd.	+81-3-4544-7040 http://www.okayatec.co.jp/	Surge absorber Noise filter	
Sensata Technologies Japan Limited	+81-49-283-7575 www.sensata.com/japan	Circuit breaker (MCCB)	
Japan Molex Inc.	+81-462-65-2313 http://www.molex.co.jp	Connector	
J.S.T. Mfg. Co., Ltd.	+81-45-543-1271 http://www.jst-mfg.com/index_i.html	Commedia	
lwaki Musen Kenkyusho Co., Ltd.	+81-44-833-4311 http://www.iwakimusen.co.jp/	Regenerative resistor	
KK-CORP.CO.JP	+81-184-53-2307 http://www.kk-corp.co.jp/	Reactor core	
NICHIFU Co.,ltd.	+81-6-6911-1455 http://www.nichifu.co.jp/	Pin terminal	

<sup>\*</sup> This list is for reference only and subject to change without notice.

MEMO