Options

Cable part No. designation

Encoder cable

1	2	3	4	5	6	7	8	9	10	11	12
M	F	E	C	A	0	0	5	0	E	A	M

Cable end (Driver side)

D	Molex Inc. connector (MINAS A4,A4P series, incremental)
E	Molex Inc. connector (MINAS A4,A4P series, absolute)
M	Molex Inc. connector (MINAS A4,A4P series, E series)

Cable end (Encoder side)

S	S-type cannon plug
A	Tyco Electronics, AMP connector

Cable type

E	PVC cable with shield by Oki Electric Cable Co., 0.20mm^2 x 8P, 3P

Cable length

0030	3m
0050	5m
0100	10m
0200	20m

Type classification

MFECA : Encoder cable

Motor cable, Brake cable

1	2	3	4	5	6	7	8	9	10	11	12
M	F	E	C	A	0	0	5	2	F	C	T

Cable end at driver side

D	Plus clamp terminal for MINAS A4,A4P by Phoenix contact
T	Clamp terminal

Cable end at motor side

E	Tyco Electronics, AMP connector
C	S type cannon plug

Cable type

E	ROBOTOP 4-wire by Daiden Co., Ltd.
F	ROBOTOP 6-wire by Daiden Co., Ltd.
G	ROBOTOP 2-wire by Daiden Co., Ltd.

Cross section of cable core

0	0.75mm^2
1	1.25mm^2
2	2.0mm^2
3	3.5mm^2

Cable length

003	3m
005	5m
010	10m
020	20m

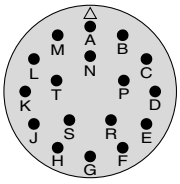
Type classification

A	Standard
B	Special
⋮	Design order

AC servo motor cable

• Pin configuration for encoder connector

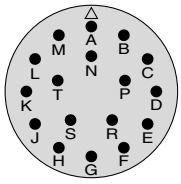
MSMA
MDMA
MFMA
MHMA
MGMA



N/MS3102A20-29P
• Specifications of 2500P/r incremental encoder

PIN No.	Content	PIN No.	Content
A	NC	K	PS
B	NC	L	$\overline{PS}$
C	NC	M	NC
D	NC	N	NC
E	NC	P	NC
F	NC	R	NC
G	E0V	S	NC
H	E5V	T	NC
J	Frame GND		

MSMA
MDMA
MFMA
MHMA
MGMA



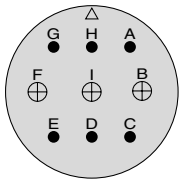
N/MS3102A20-29P
• Specifications of 17bit absolute/incremental encoder

PIN No.	Content	PIN No.	Content
A	NC	K	PS
B	NC	L	$\overline{PS}$
C	NC	M	NC
D	NC	N	NC
E	NC	P	NC
F	NC	R	NC
G	E0V	S	BAT–*
H	E5V	T	BAT+*
J	Frame GND		

*Connection to Pin-S and T are not required when used in incremental.

• Pin configuration for motor/brake connector (with brake)

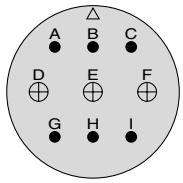
MSMA 1kW, 1.5kW, 2kW
MDMA 1kW, 1.5kW, 2kW
MFMA 400W, 1.5kW
MHMA 500W, 1kW, 1.5kW
MGMA 900W



JL04V-2E20-18PE-B-R
(by Japan Aviation Electronics or equivalent)

PIN No.	Content
G	Brake
H	Brake
A	NC
F	U-phase
I	V-phase
B	W-phase
E	Ground
D	Ground
C	NC

MSMA 3kW, 4kW, 5kW
MDMA 3kW, 4kW, 5kW
MFMA 2.5kW, 4.5kW
MHMA 2kW,3kW,4kW,5kW
MGMA 2kW, 3kW, 4.5kW

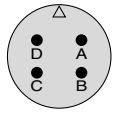


JL04V-2E24-11PE-B-R
(by Japan Aviation Electronics or equivalent)

PIN No.	Content
A	Brake
B	Brake
C	NC
D	U-phase
E	V-phase
F	W-phase
G	Ground
H	Ground
I	NC

MDMA 7.5kW
MGMA 6kW
MHMA 7.5kW

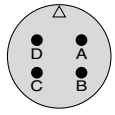
Motor Cable



JL04V-2E32-17PE-B-R
(by Japan Aviation Electronics or equivalent)

PIN No.	Content
A	U-phase
B	V-phase
C	W-phase
D	Ground

Brake Cable

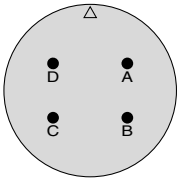


N/MS3102A 14S-2P
(by Japan Aviation Electronics or equivalent)

PIN No.	Content
A	Brake
B	Brake
C	NC
D	NC

• Pin configuration for motor/brake connector (without brake)

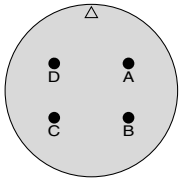
MSMA 1kW, 1.5kW, 2kW
MDMA 1kW, 1.5kW, 2kW
MHMA 500W, 1kW, 1.5kW
MGMA 900W



JL04V-2E20-4PE-B-R
(by Japan Aviation Electronics or equivalent)

PIN No.	Content
A	U-phase
B	V-phase
C	W-phase
D	Ground

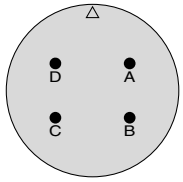
MSMA 3kW, 4kW, 5kW
MDMA 3kW, 4kW, 5kW
MHMA 2kW,3kW,4kW,5kW
MGMA 2kW, 3kW, 4.5kW



JL04V-2E22-22PE-B-R
(by Japan Aviation Electronics or equivalent)

PIN No.	Content
A	U-phase
B	V-phase
C	W-phase
D	Ground

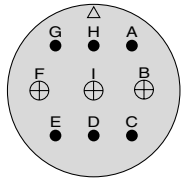
MDMA 7.5kW
MGMA 6kW
MHMA 7.5kW



JL04V-2E32-17PE-B-R
(by Japan Aviation Electronics or equivalent)

PIN No.	Content
A	U-phase
B	V-phase
C	W-phase
D	Ground

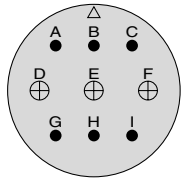
MFMA 400W, 1.5kW



JL04V-2E20-18PE-B-R
(by Japan Aviation Electronics or equivalent)

PIN No.	Content
G	NC
H	NC
A	NC
F	U-phase
I	V-phase
B	W-phase
E	Ground
D	Ground
C	NC

MFMA 2.5kW, 4.5kW



JL04V-2E24-11PE-B-R
(by Japan Aviation Electronics or equivalent)

PIN No.	Content
A	NC
B	NC
C	NC
D	U-phase
E	V-phase
F	W-phase
G	Ground
H	Ground
I	NC

Do not connect anything to NC pins.

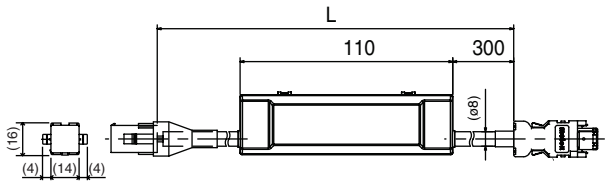
Options

Encoder cable

[unit: mm]

MFECA0**0EAE

MSMD50W - 750W,MQMA100W - 400W,MAMA100W - 750W
17-bit absolute encoder, with battery holder



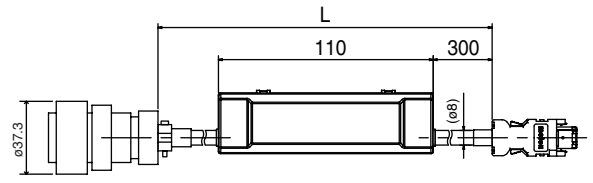
Title	Part No. (Manufacturer's)	Manufacturer
Connector	55100-0600 or 55100-0670	Molex Inc.
Connector	172161-1	Tyco Electronics, AMP
Connector pin	170365-1	
Cable	0.20mm^2 x 4P	Oki Electric Cable Co.

L(m)	Part No.
3	MFECA0030EAE
5	MFECA0050EAE
10	MFECA0100EAE
20	MFECA0200EAE

Note) Battery for absolute encoder (DV0P2990) is an option.

MFECA0**0ESE

MSMA,MDMA,MHMA,MGMA,MFMA
17-bit absolute encoder, with battery holder



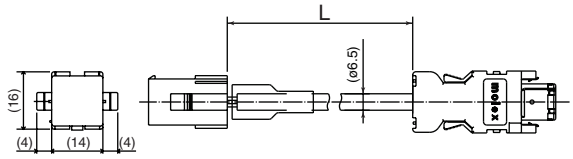
Title	Part No. (Manufacturer's)	Manufacturer
Connector	55100-0600 or 55100-0670	Molex Inc.
Straight plug	N/MS3106B20-29S	Japan Aviation Electronics Industry Ltd.
Cable clamp	N/MS3057-12A	
Cable	0.20mm^2 x 4P	Oki Electric Cable Co.

L(m)	Part No.
3	MFECA0030ESE
5	MFECA0050ESE
10	MFECA0100ESE
20	MFECA0200ESE

Note) Battery for absolute encoder (DV0P2990) is an option.

MFECA0**0EAD

MSMD50W - 750W,MQMA100W - 400W,MAMA100W - 750W
17-bit incremental encoder, without battery holder

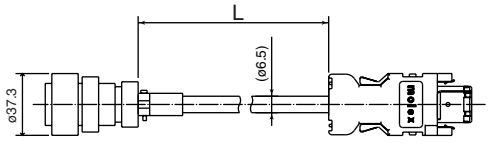


Title	Part No. (Manufacturer's)	Manufacturer
Connector	55100-0600 or 55100-0670	Molex Inc.
Connector	172161-1	Tyco Electronics, AMP
Connector pin	170365-1	
Cable	0.20mm^2 x 3P	Oki Electric Cable Co.

L(m)	Part No.
3	MFECA0030EAD
5	MFECA0050EAD
10	MFECA0100EAD
20	MFECA0200EAD

MFECA0**0ESD

MSMA,MDMA,MHMA,MGMA,MFMA
17-bit incremental/2500P/r encoder, without battery holder

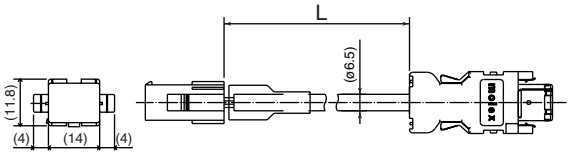


Title	Part No. (Manufacturer's)	Manufacturer
Connector	55100-0600 or 55100-0670	Molex Inc.
Straight plug	N/MS3106B20-29S	Japan Aviation Electronics Industry Ltd.
Cable clamp	N/MS3057-12A	
Cable	0.20mm^2 x 3P	Oki Electric Cable Co.

L(m)	Part No.
3	MFECA0030ESD
5	MFECA0050ESD
10	MFECA0100ESD
20	MFECA0200ESD

MFECA0**0EAM

MSMD50W - 750W,MQMA100W - 400W,MAMA100W - 750W
2500P/r encoder, without battery holder



Title	Part No. (Manufacturer's)	Manufacturer
Connector	55100-0600 or 55100-0670	Molex Inc.
Connector	172160-1	Tyco Electronics, AMP
Connector pin	170365-1	
Cable	0.20mm^2 x 3P	Oki Electric Cable Co.

L(m)	Part No.
3	MFECA0030EAM
5	MFECA0050EAM
10	MFECA0100EAM
20	MFECA0200EAM

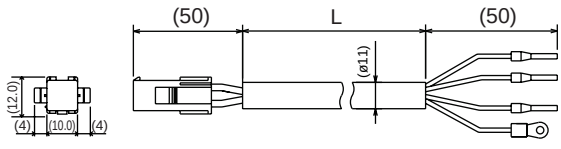
Motor cable (ROBO TOP® 105˚C,600V, DP)

[unit: mm]

ROBO TOP® is a trade mark of Daiden Co., Ltd.

MFMCA0**0EED

MSMD50W - 750W,MQMA100W - 400W,MAMA100W - 750W

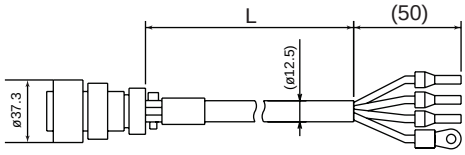


Title	Part No. (Manufacturer's)	Manufacturer
Connector	172159-1	Tyco Electronics, AMP
Connector pin	170366-1	
Rod terminal	AI0.75-8GY	Phoenix
Nylon insulated roundterminal	N1.25-M4	J.S.T. Mfg. Co., Ltd.
Cable	ROBO-TOP 600V 0.75mm²	Daiden Co., Ltd.

L (m)	Part No.
3	MFMCA0030EED
5	MFMCA0050EED
10	MFMCA0100EED
20	MFMCA0200EED

MFMCDO**2ECD

MSMA1.0kW - 1.5kW,MDMA1.0kW - 1.5kW
MHMA500W - 1.5kW,MGMA900W

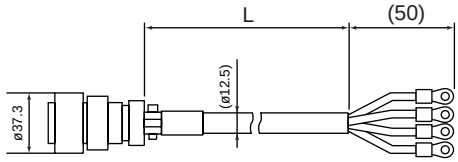


Title	Part No. (Manufacturer's)	Manufacturer
Straight plug	JL04V-6A20-4SE-EB-R	Japan Aviation Electronics Industry Ltd.
Cable clamp	JL04-2022CK(14)-R	
Rod terminal	NTUB-2	J.S.T. Mfg. Co., Ltd.
Nylon insulated roundterminall	N2-M4	
Cable	ROBO-TOP 600V 2.0mm²	Daiden Co., Ltd.

L (m)	Part No.
3	MFMCD0032ECD
5	MFMCD0052ECD
10	MFMCD0102ECD
20	MFMCD0202ECD

MFMCDO**2ECT

MSMA2.0kW,MDMA2.0kW

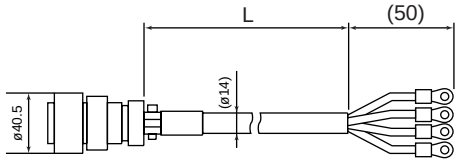


Title	Part No. (Manufacturer's)	Manufacturer
Straight plug	JL04V-6A20-4SE-EB-R	Japan Aviation Electronics Industry Ltd.
Cable clamp	JL04-2022CK(14)-R	
Nylon insulated roundterminall	N2-5	J.S.T. Mfg. Co., Ltd.
Cable	ROBO-TOP 600V 2.0mm²	Daiden Co., Ltd.

L (m)	Part No.
3	MFMCD0032ECT
5	MFMCD0052ECT
10	MFMCD0102ECT
20	MFMCD0202ECT

MFMCAO**3ECT

MSMA3.0kW - 5.0kW,MDMA3.0kW - 5.0kW
MHMA2.0kW - 5.0kW,MGMA2.0kW - 4.5kW

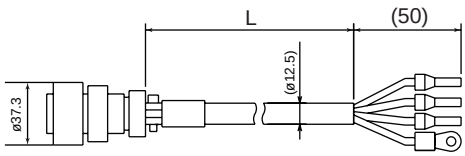


Title	Part No. (Manufacturer's)	Manufacturer
Straight plug	JL04V-6A22-22SE-EB-R	Japan Aviation Electronics Industry Ltd.
Cable clamp	JL04-2022CK(14)-R	
Nylon insulated roundterminal	N5.5-5	J.S.T. Mfg. Co., Ltd.
Cable	ROBO-TOP 600V 3.5mm²	Daiden Co., Ltd.

L (m)	Part No.
3	MFMCA0033ECT
5	MFMCA0053ECT
10	MFMCA0103ECT
20	MFMCA0203ECT

MFMCAO**

MFMA400W - 1.5kW

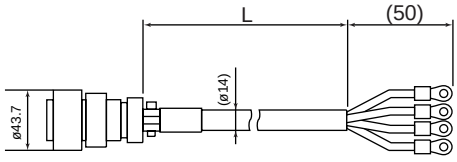


Title	Part No. (Manufacturer's)	Manufacturer
Straight plug	JL04V-6A20-18SE-EB-R	Japan Aviation Electronics Industry Ltd.
Cable clamp	JL04-2022CK(14)-R	
Rod terminal	NTUB-2	J.S.T. Mfg. Co., Ltd.
Nylon insulated roundterminal	N2-M4	
Cable	ROBO-TOP 600V 2.0mm²	Daiden Co., Ltd.

L (m)	Part No.
3	MFMCA0032ECD
5	MFMCA0052ECD
10	MFMCA0102ECD
20	MFMCA0202ECD

MFMCDO**3ECT

MFMA2.5kW - 4.5kW



Title	Part No. (Manufacturer's)	Manufacturer
Straight plug	JL04V-6A24-11SE-EB-R	Japan Aviation Electronics Industry Ltd.
Cable clamp	JL04-2428CK(17)-R	
Nylon insulated roundterminal	N5.5-5	J.S.T. Mfg. Co., Ltd.
Cable	ROBO-TOP 600V 3.5mm²	Daiden Co., Ltd.

L (m)	Part No.
3	MFMCD0033ECT
5	MFMCD0053ECT
10	MFMCD0103ECT
20	MFMCD0203ECT

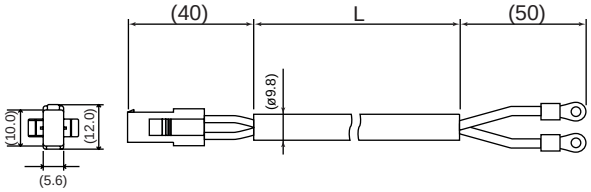
Options

Brake cable (ROBO-TOP® 105˚C 600V · DP)

[unit: mm]

MFMCB00GET**

MSMD 50W - 750W
MQMA100W - 400W
MAMA 100W - 750W



Title	Part No. (Manufacturer's)	Manufacturer
Connector	172157-1	Japan Aviation Electronics Industry Ltd.
Connector pin	170366-1,170362-1	
Nylon insulated roundterminal	N1.25-M4	J.S.T. Mfg. Co., Ltd.
Cable	ROBO-TOP 600V 0.75mm²	Daiden Co., Ltd.

L(m)	Part No.
3	MFMCB0030GET
5	MFMCB0050GET
10	MFMCB0100GET
20	MFMCB0200GET

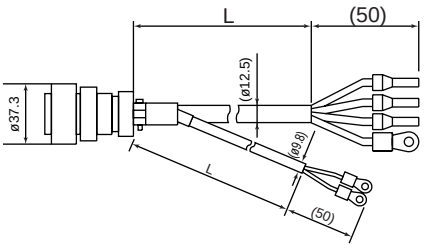
Motor cable (with brake) (ROBO-TOP® 105˚C 600V · DP)

[unit: mm]

ROBO TOP® is a trade mark of Daiden Co., Ltd.

MFMCAO2FCD**

MSMA1.0kW -1.5kW,MDMA1.0kW - 1.5kW
MHMA 500W -1.5kW,MFMA 400W - 1.5kW
MGMA 900W

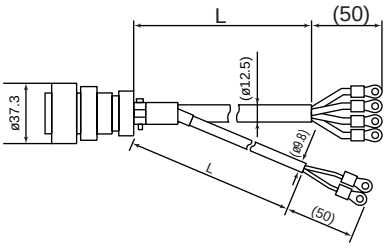


Title	Part No. (Manufacturer's)	Manufacturer
Straight plug	JL04V-6A20-18SE-EB-R	Japan Aviation Electronics Industry Ltd.
Cable clamp	JL04-2022CK(14)-R	
Rod terminal	NTUB-2	J.S.T. Mfg. Co., Ltd.
Nylon insulated roundterminal	N2-M4	
	N1.25-M4	
Cable	ROBO-TOP 600V 2.0mm² or ROBO-TOP 600V 0.75mm²	Daiden Co., Ltd.

L(m)	Part No.
3	MFMCA0032FCD
5	MFMCA0052FCD
10	MFMCA0102FCD
20	MFMCA0202FCD

MFMCAO2FCT**

MSMA2.0kW,MDMA2.0kW

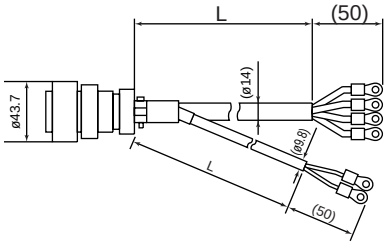


Title	Part No. (Manufacturer's)	Manufacturer
Straight plug	JL04V-6A20-18SE-EB-R	Japan Aviation Electronics Industry Ltd.
Cable clamp	JL04-2022CK(14)-R	
Nylon insulated roundterminal	N2-5	J.S.T. Mfg. Co., Ltd.
	N1.25-M4	
Cable	ROBO-TOP 600V 2.0mm² or ROBO-TOP 600V 0.75mm²	Daiden Co., Ltd.

L(m)	Part No.
3	MFMCA0032FCT
5	MFMCA0052FCT
10	MFMCA0102FCT
20	MFMCA0202FCT

MFMCA03FCT**

MSMA 3.0kW - 5.0kW ,MDMA 3.0kW - 5.0kW
MHMA 2.0kW - 5.0kW ,MFMA 2.5kW - 4.5kW
MGMA 2.0kW - 4.5kW



Title	Part No. (Manufacturer's)	Manufacturer
Straight plug	JL04V-6A24-11SE-EB-R	Japan Aviation Electronics Industry Ltd.
Cable clamp	JL04-2428CK(17)-R	
Nylon insulated roundterminal	N5.5-5	J.S.T. Mfg. Co., Ltd.
	N1.25-M4	
Cable	ROBO-TOP 600V 3.5mm² or ROBO-TOP 600V 0.75mm²	Daiden Co., Ltd.

L(m)	Part No.
3	MFMCA0033FCT
5	MFMCA0053FCT
10	MFMCA0103FCT
20	MFMCA0203FCT

Connector kit for external peripheral equipments

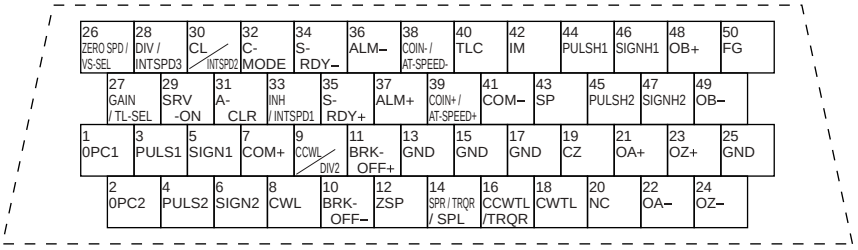
● MINAS A4, A4F

1) Par No. **DV0P4350**

2) Components

Title	Part No.	Quantity	Manufacturer	Note
Connector	54306-5011 or 54306-5019 (lead-free)	1	Molex Inc.	For CN X5 (50-pins)
Connector cover	54331-0501	1		

3) Pin disposition (50 pins) (viewed from the soldering side)



<Cautions>

1) Check the stamped pin-No. on the connector body while making a wiring.
2) For the function of each signal title or its symbol, refer to the wiring example of the connector CN I/F.
3) Check the stamped pin-No. on the connector body while making a wiring.

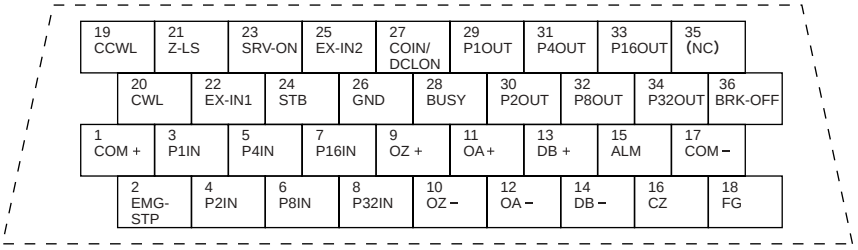
● MINAS A4P

1) Par No. **DV0P4500**

2) Components

Title	Part No.	Quantity	Manufacturer	Note
Connector	54306-3611 or 54306-3619 (lead-free)	1	Molex Inc.	For CN X5 (36-pins)
Connector cover	54331-0361	1		

3) Pin disposition (36 pins) (viewed from the soldering side)



<Cautions>

1) Check the stamped pin-No. on the connector body while making a wiring.
2) For the function of each signal title or its symbol, refer to the wiring example of the connector CN I/F.
3) Check the stamped pin-No. on the connector body while making a wiring.

Connector kit for power supply input

● For A frame, B frame

1) Par No. **DV0PM20093**

2) Components

Title	Part No.	Quantity	Manufacturer	Note
Connector	04JFAT-SAXGF	1	J.S.T Mfg. Co., Ltd.	For CN X1
Handle lever	J-FAT-OT	2		

● For C frame, D frame

1) Par No. **DV0PM20032**

2) Components

Title	Part No.	Quantity	Manufacturer	Note
Connector	05JFAT-SAXGF	1	J.S.T Mfg. Co., Ltd.	For CN X1
Handle lever	J-FAT-OT	2		

Connector kit for motor connection (driver side)

● For A frame to D frame

1) Par No. **DV0PM20034**

2) Components

Title	Part No.	Quantity	Manufacturer	Note
Connector	06JFAT-SAXGF	1	J.S.T Mfg. Co., Ltd.	For CN X2 * Jumper wire is included.
Handle lever	J-FAT-OT	2		

Options

Interface cable

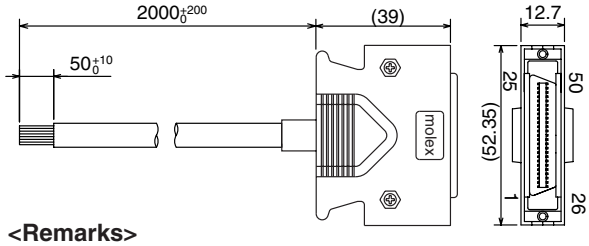
[unit: mm]

Cable of 2m is connected.

● MINAS A4, A4F

1) Part No. **DV0P4360**

2) Dimensions



<Remarks>
Color designation of the cable
e.g.) Pin-1 Cable color : Orange
(Red1) : One red dot on the cable

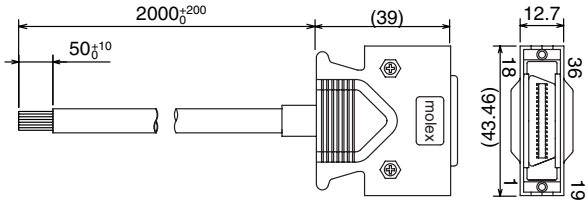
3) Table for wiring

PIN No.	color	PIN No.	color	PIN No.	color	PIN No.	color	PIN No.	color
1	Orange (Red1)	11	Orange (Black2)	21	Orange (Red3)	31	Orange (Red4)	41	Orange (Red5)
2	Orange (Black1)	12	Yellow (Black1)	22	Orange (Black3)	32	Orange (Black4)	42	Orange (Black5)
3	Gray (Red1)	13	Gray (Red2)	23	Gray (Red3)	33	Gray (Red4)	43	Gray (Red5)
4	Gray (Black1)	14	Gray (Black2)	24	Gray (Black3)	34	White (Red4)	44	White (Red5)
5	White (Red1)	15	White (Red2)	25	White (Red3)	35	White (Black4)	45	White (Black5)
6	White (Black1)	16	Yellow (Red2)	26	White (Black3)	36	Yellow (Red4)	46	Yellow (Red5)
7	Yellow (Red1)	17	Yel(Blk2)/ Pink(Blk2)	27	Yellow (Red3)	37	Yellow (Black4)	47	Yellow (Black5)
8	Pink (Red1)	18	Pink (Red2)	28	Yellow (Black3)	38	Pink (Red4)	48	Pink (Red5)
9	Pink (Black1)	19	White (Black2)	29	Pink (Red3)	39	Pink (Black4)	49	Pink (Black5)
10	Orange (Red2)	20	——	30	Pink (Black3)	40	Gray (Black4)	50	Gray (Black5)

● MINAS A4P

1) Part No. **DV0P4510**

2) Dimensions



<Remarks>
Color designation of the cable
e.g.) Pin-1 Cable color : Orange
(Red1) : One red dot on the cable

3) Table for wiring

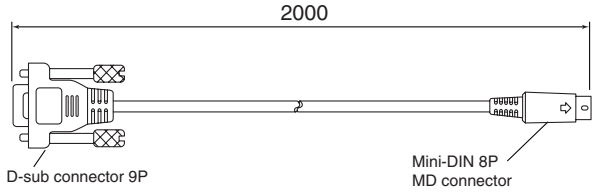
PIN No.	color	PIN No.	color	PIN No.	color
1	Orange(Red1)	13	Gray(Red2)	25	White(Red3)
2	Orange(Black1)	14	Gray(Black2)	26	White(Black3)
3	Gray(Red1)	15	White(Red2)	27	Yellow(Red3)
4	White(Red1)	16	White(Black2)	28	Yellow(Black3)
5	White(Black1)	17	Yellow(Red2)	29	Pink(Red3)
6	Gray(Black1)	18	Yellow(Black2)	30	Pink(Black3)
7	Yellow(Red1)	19	Pink(Red2)	31	Orange(Red4)
8	Yellow(Black1)	20	Pink(Black2)	32	Orange(Black4)
9	Pink(Red1)	21	Orange(Red3)	33	Gray(Red4)
10	Pink(Black1)	22	Orange(Black3)	34	Gray(Black4)
11	Orange(Red2)	23	Gray(Red3)	35	White(Red4)
12	Orange(Black2)	24	Gray(Black3)	36	White(Black4)

Communication cable (for connection with PC)

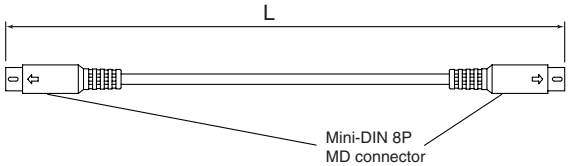
[unit: mm]

1) Part No. **DV0P1960**

2) Dimensions



Communication cable (for RS485) < This cable cannot be used for the A4P series >



Part No.	L[mm]
DV0P1970	200
DV0P1971	500
DV0P1972	1000

Connector kit for motor and encoder

<Notification>
There may be cases where parts equivalent to those indicated by the part Nos. shown follow are used as components such as connectors, connector covers, straight plugs and cable clamps.

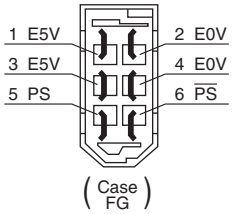
•Applicable motor models : MSMD 50W to 750W
MQMA 100W to 400W
MAMA 100W to 750W
17-bit absolute
For brake, purchase our optional brake cable.

1) Part No. **DV0P4290**

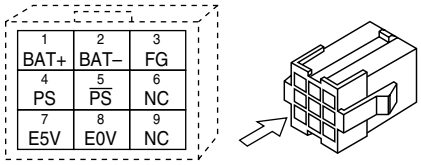
2) Components

Title	Part No.	Number	Manufacturer	Note
Connector	55100-0600 or 55100-0670 (lead-free)	**1**	Molex Inc.	For CN X6 (6-pins)
Connector	172161-1	**1**	Tyco Electronics AMP	For junction cable to encoder (9-pins)
Connector pin	170365-1	**9**		
Connector	172159-1	**1**	Tyco Electronics AMP	For junction cable to motor (4-pins)
Connector pin	170366-1	**4**		

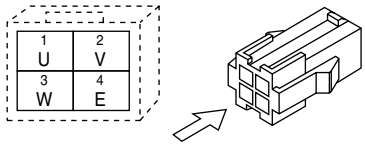
3) Pin configuration of connector, CN X6



4) Pin configuration of junction cable for encoder



5) Pin configuration of junction cable for motor power



*When you connect the battery for absolute encoder, refer to A4-154, "When you make your own cable for 17-bit absolute encoder"

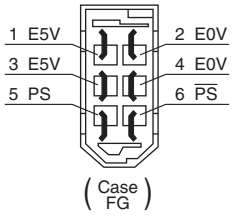
•Applicable motor models : MSMD 50W to 750W
MQMA 100W to 400W
MAMA 100W to 750W
2500P/r incremental encoder
For brake, purchase our optional brake cable.

1) Part No. **DV0P4380**

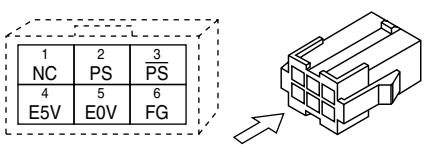
2) Components

Title	Part No.	Number	Manufacturer	Note
Connector	55100-0600 or 55100-0670 (lead-free)	**1**	Molex Inc.	For CN X6 (6-pins)
Connector	172160-1	**1**	Tyco Electronics AMP	For junction cable to encoder (6-pins)
Connector pin	170365-1	**6**		
Connector	172159-1	**1**	Tyco Electronics AMP	For junction cable to encoder (4-pins)
Connector pin	170366-1	**4**		

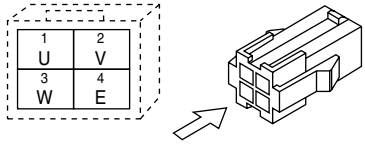
3) Pin configuration of connector, CN X6



4) Pin configuration of junction cable for encoder



5) Pin configuration of junction cable for motor power



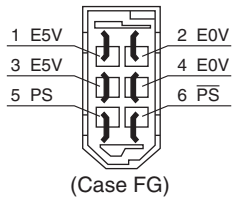
• For DV0P2490, DV0P4380, recommended manual crimp tool
(to be prepared by customer)

Title	Part No.	Manufacturer
For junction cable to encoder	755330 - 1	Tyco Electronics AMP
For junction cable to motor	755331 - 1	

Options

Pin configuration of connector CN X6 plug

1. Shown in the figure at right is the pin configuration as seen from the soldering side of the connector. Also check the pin No. inscribed on the case main body and take care to carry out wiring properly.
2. Be sure to connect to the case (FG) the shield of the shielded wire to be used.
3. For wiring and connecting, refer to pages A4-19, 45 and 71.



•Applicable motor models : MSMA 1.0kW to 2.0kW
MDMA 1.0kW to 2.0kW
MHMA 500W to 1.5kW
MGMA 900W

17-bit absolute incremental encoder, 2500P/r incremental encoder — Without brake

1) Part No. **DV0P4310**

2) Components

Title	Part No.	Number	Manufacturer	Note
Connector	55100-0600 or 55100-0670	1	Molex Inc.	For CN X6 (6-pins)
Straight plug	N/MS3106B20-29S	1	Japan Aviation Electronics Industry Ltd.	For junction cable to encoder
Cable clamp	N/MS3057-12A	1		
Straight plug	N/MS3106B20-4S	1	Japan Aviation Electronics Industry Ltd.	For junction cable to motor power
Cable clamp	N/MS3057-12A	1		

•Applicable motor models : MSMA 3.0kW to 5.0kW
MDMA 3.0kW to 5.0kW
MHMA 2.0kW to 5.0kW
MGMA 2.0kW to 4.5kW

17-bit absolute incremental encoder, 2500P/r incremental encoder — Without brake

1) Part No. **DV0P4320**

2) Components

Title	Part No.	Number	Manufacturer	Note
Connector	55100-0600 or 55100-0670	1	Molex Inc.	For CN X6 (6-pins)
Straight plug	N/MS3106B-20-29S	1	Japan Aviation Electronics Industry Ltd.	For junction cable to encoder
Cable clamp	N/MS3057-12A	1		
Straight plug	N/MS3106B22-22S	1	Japan Aviation Electronics Industry Ltd.	For junction cable to motor power
Cable clamp	N/MS3057-12A	1		

•Applicable motor models : MSMA 1.0kW to 2.0kW
MDMA 1.0kW to 2.0kW
MHMA 0.5kW to 1.5kW
MGMA 900W

17-bit absolute incremental encoder, 2500P/r incremental encoder — With brake

MFMA 0.4kW to 1.5kW

17-bit absolute incremental encoder, 2500P/r incremental encoder — Without brake / With brake

1) Part No. **DV0P4330**

2) Components

Title	Part No.	Number	Manufacturer	Note
Connector	55100-0600 or 55100-0670	1	Molex Inc.	For CN X6 (6-pins)
Straight plug	N/MS3106B20-29S	1	Japan Aviation Electronics Industry Ltd.	For junction cable to encoder
Cable clamp	N/MS3057-12A	1		
Straight plug	N/MS3106B20-18S	1	Japan Aviation Electronics Industry Ltd.	For junction cable to motor power
Cable clamp	N/MS3057-12A	1		

•Applicable motor models : MSMA 3.0kW to 5.0kW
MDMA 3.0kW to 5.0kW [**17-bit absolute incremental encoder, 2500P/r incremental encoder**] With brake
MHMA 2.0kW to 5.0kW
MGMA 2.0kW to 4.5kW

MFMA 2.5kW to 4.5kW [**17-bit absolute incremental encoder, 2500P/r incremental encoder**] Without brake / With brake

1) Part No. **DV0P4340**

2) Components

Title	Part No.	Number	Manufacturer	Note
Connector	55100-0600 or 55100-0670	1	Molex Inc.	For CN X6 (6-pins)
Straight plug	N/MS3106B20-29S	1	Japan Aviation Electronics Industry Ltd.	For junction cable to encoder
Cable clamp	N/MS3057-12A	1		
Straight plug	N/MS3106B24-11S	1	Japan Aviation Electronics Industry Ltd.	For junction cable to motor power
Cable clamp	N/MS3057-16A	1		

•Applicable motor models : MDMA 7.5kW
MGMA 6.0kW [**17-bit absolute incremental encoder, 2500P/r incremental encoder**] Without brake
MHMA 7.5kW

1) Part No. **DV0PM20005**

2) Components

Title	Part No.	Number	Manufacturer	Note
Connector	55100-0600 or 55100-0670 (lead-free)	1	Molex Inc.	For CN X6 (6-pins)
Straight plug	N/MS3106B20-29S	1	Japan Aviation Electronics Industry Ltd.	For junction cable to encoder
Cable clamp	N/MS3057-12A	1		
Straight plug	N/MS3106B32-17S	1	Japan Aviation Electronics Industry Ltd.	For junction cable to motor power
Cable clamp	N/MS3057-20A	1		

•Applicable motor models : MDMA 7.5kW
MGMA 6.0kW [**17-bit absolute incremental encoder, 2500P/r incremental encoder**] With brake
MHMA 7.5kW

1) Part No. **DV0PM20006**

2) Components

Title	Part No.	Number	Manufacturer	Note
Connector	55100-0600 or 55100-0670 (lead-free)	1	Molex Inc.	For CN X6 (6-pins)
Straight plug	N/MS3106B20-29S	1	Japan Aviation Electronics Industry Ltd.	For junction cable to encoder
Cable clamp	N/MS3057-12A	1		
Straight plug	N/MS3106B32-17S	1	Japan Aviation Electronics Industry Ltd.	For junction cable to motor power
Cable clamp	N/MS3057-20A	1		
Straight plug	N/MS3106B14S-2S	1	Japan Aviation Electronics Industry Ltd.	For junction cable to brake cable
Cable clamp	N/MS3057-6A	1		

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1) Part No. **DV0PM20010**

2) Components

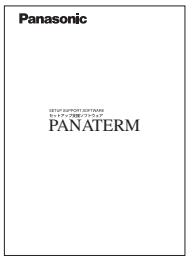
Title	Part No.	Number	Manufacturer	Note
Connector	55100-0600 or 55100-0670 (lead-free)	1	Molex Inc.	For CN X6 or CN X7 (6-pins)

Options

Setup support software "PANATERM"

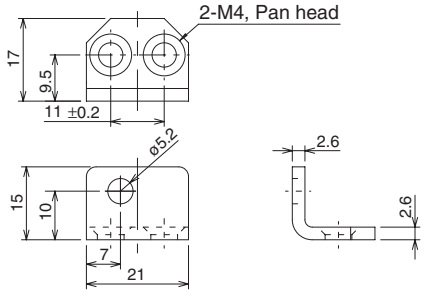
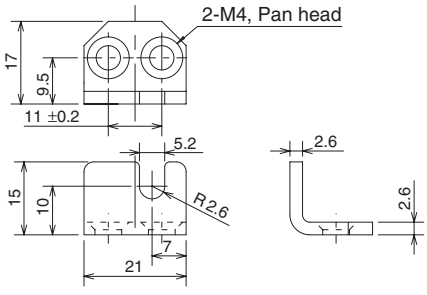
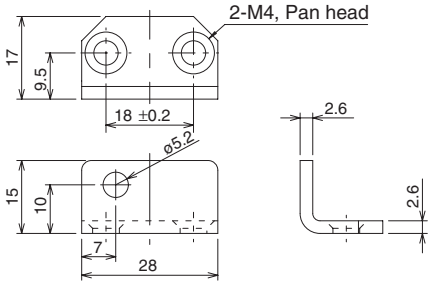
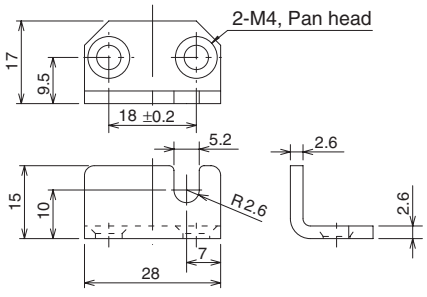
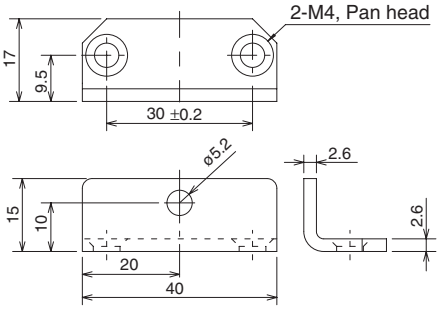
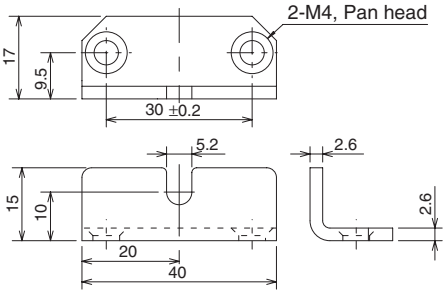
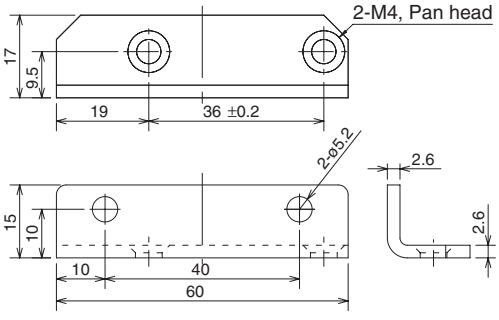
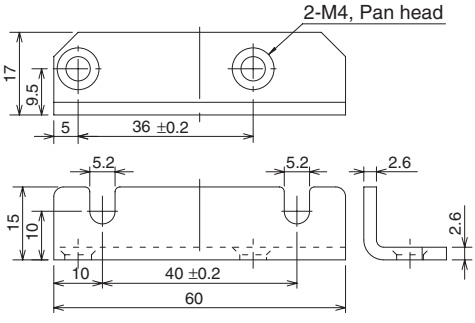
1) Part No. **DV0P4460** (Japanese/English version)

2) Supply media : CD-ROM



<Caution>
For information on the software and operating environment, refer to p.F2 of this document or [PANATERM] instruction manual.

Mounting bracket

Frame symbol of applicable driver	part No.	Mounting screw	Dimensions [unit: mm]	
			Upper side	Bottom side
Frame A	**DV0P 4271**	M4 x L6 Pan head 4pcs		
Frame B	**DV0P 4272**	M4 x L6 Pan head 4pcs		
Frame C	**DV0P 4273**	M4 x L6 Pan head 4pcs		
Frame D	**DV0P 4274**	M4 x L6 Pan head 4pcs		

<Caution> For Frame E, F you can make a front end and back end mounting by changing the mounting direction of L-shape bracket (attachment).

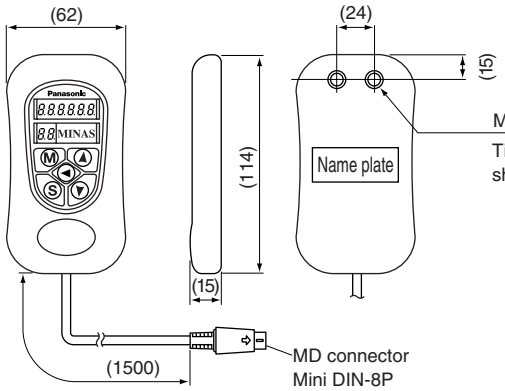
Console

[unit: mm]

1) Part No. **DV0P4420**

Caution) An existing console(DV0P3690) cannot be used for the A4P series.

2) Dimensions



Reactor

Fig.1

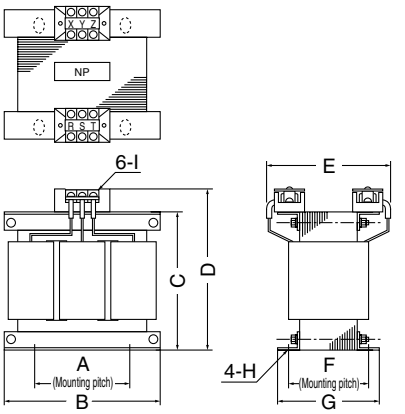
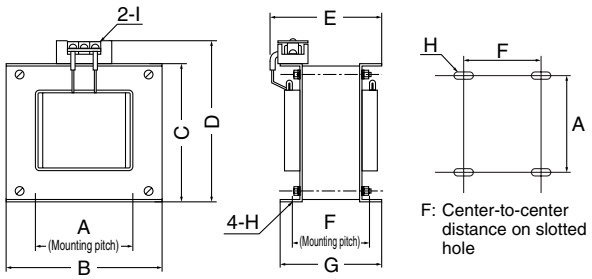


Fig.2



[unit: mm]

	Part No.	A	B	C	D	E (Max)	F	G	H	I	Inductance (mH)	Rated current (A)
Fig. 1	**DV0P220**	65±1	125±1	(93)	136Max	155	70 + 3/–0	85±2	4-7ø x 12	M4	6.81	3
	DV0P221	60±1	150±1	(113)	155Max	130	60 + 3/–0	75±2	4-7ø x 12	M4	4.02	5
	DV0P222	60±1	150±1	(113)	155Max	140	70 + 3/–0	85±2	4-7ø x 12	M4	2	8
	DV0P223	60±1	150±1	(113)	155Max	150	79 + 3/–0	95±2	4-7ø x 12	M4	1.39	11
	DV0P224	60±1	150±1	(113)	160Max	155	84 + 3/–0	100±2	4-7ø x 12	M4	0.848	16
	DV0P225	60±1	150±1	(113)	160Max	170	100 + 3/–0	115±2	4-7ø x 12	M5	0.557	25
Fig. 2	**DV0P227**	55±0.7	80±1	66.5±1	110Max	90	41±2	55±2	4-5ø x 10	M4	4.02	5
	DV0P228	55±0.7	80±1	66.5±1	110Max	95	46±2	60±2	4-5ø x 10	M4	2	8

Harmonic restraint on general-purpose inverter and servo driver

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 will be 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 servo driver.

Options

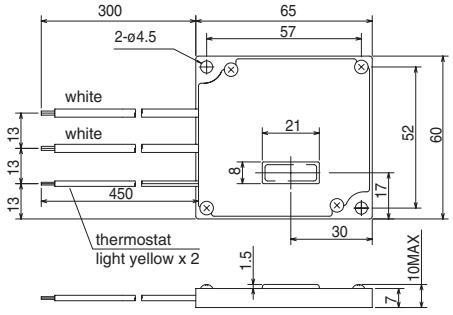
External regenerative resistor

Part No.	Manufacturer's part No.	Specifications					Activation temperature of built-in thermostat
		Resistance	Reted power (reference)*				
			Free air	with fan[W]			
				1m/s	2m/s	3m/s	
DV0P4280	RF70M	50 Ω	10W	25	35	45	140 ±5˚C B-contact Open/Close capacity (resistance load) 4A 125VAC 10000 times 2.5A 250VAC 10000 times
DV0P4281	RF70M	100 Ω	10W	25	35	45	
DV0P4282	RF180B	25 Ω	17W	50	60	75	
DV0P4283	RF180B	50 Ω	17W	50	60	75	
DV0P4284	RF240	30 Ω	40W	100	120	150	
DV0P4285	RH450F	20 Ω	52W	130	160	200	

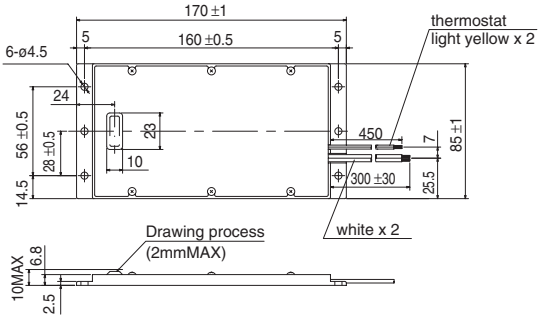
*Power with which the driver can be used without activating the built-in thermostat.
Manufacturer : Iwaki Musen Kenkyusho

[unit: mm]

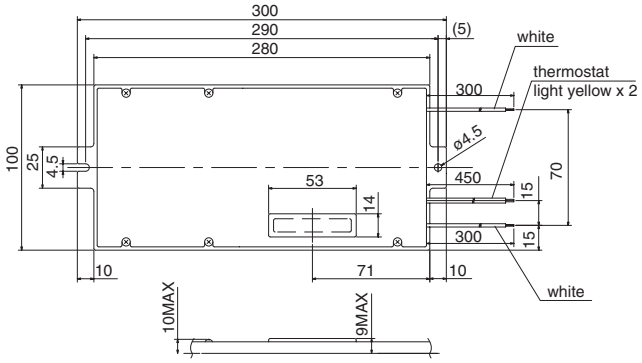
DV0P4280, DV0P4281



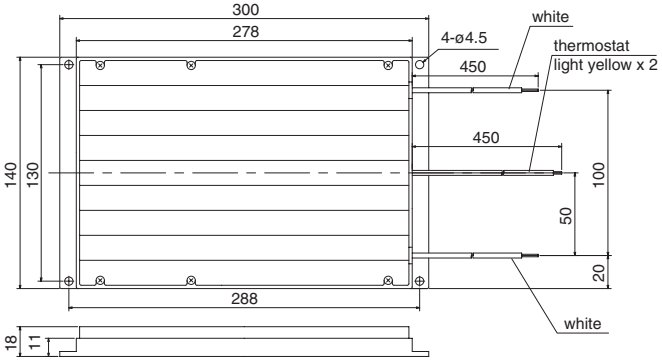
DV0P4282, DV0P4283



DV0P4284



DV0P4285



<Remarks>

Thermal fuse and thermostat are installed for safety. Compose the circuit so that the power will be turned off when the thermostat is activated.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) Install a fan for a forced cooling if necessary.

<Caution>

Regenerative resistor gets very hot.

Take preventive measures for fire and burns. Avoid the installation near inflammable objects, and easily accessible place by hand.