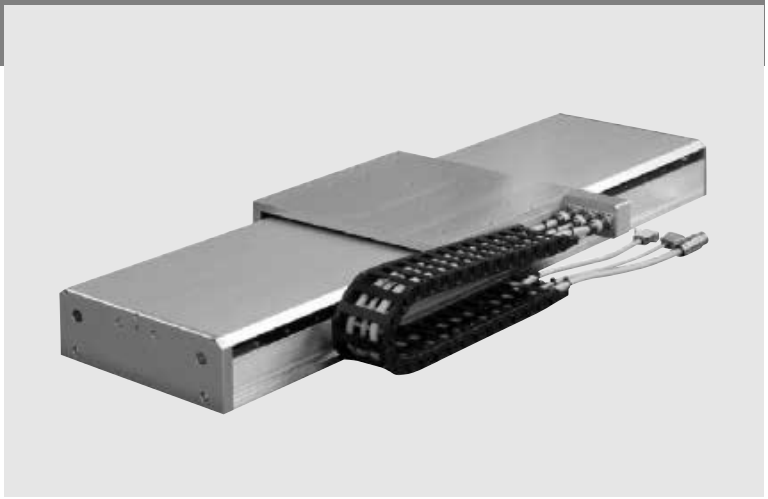
R88L-EA-AF-□

Accurax linear motor axis



Advanced linear motor axis

High-efficiency iron-core linear motors and magnet tracks in a wide range of over 100 standard linear motor axis.

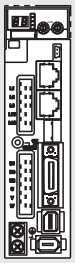
- Low moving mass to ensure a high degree of dynamism
- Optimized stroke/product length ratio
- Up to 5 m/s maximum speed with 1 µm repeatability
- Compact and efficiency oriented design
- Highly versatile and ready-to-use

Ratings

- 230/400 VAC 48 to 760 N (2000 N peak force)

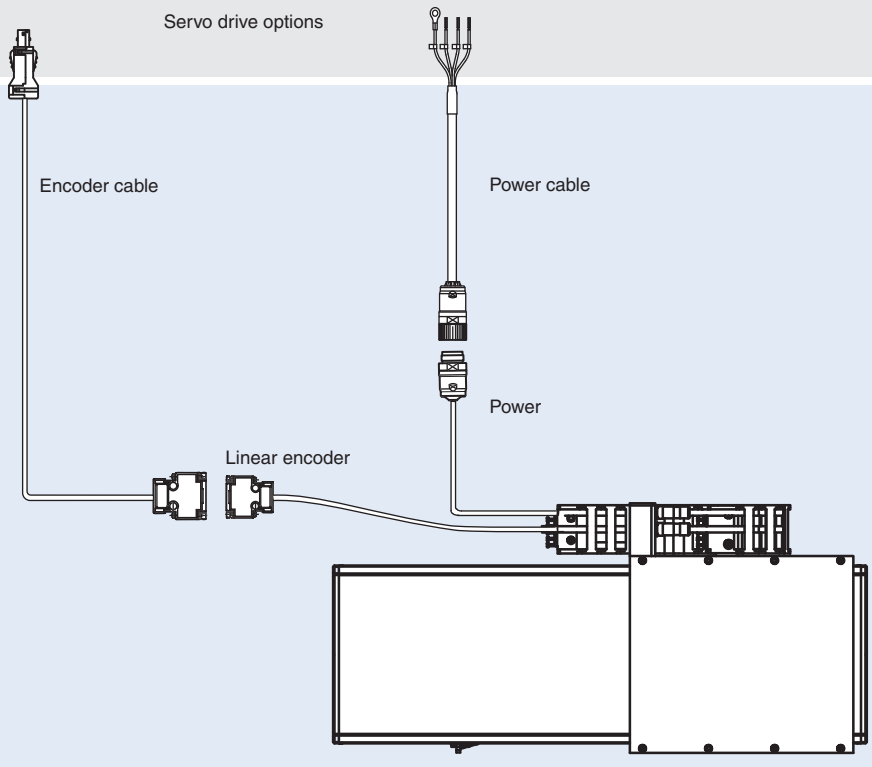
System configuration

(Refer to servo drive chapter)



Accurax G5 servo drive
EtherCAT model

Servo drive options



Accurax linear motor axis

Linear motor/servo drive combination

Linear axis					Linear servo drive Accurax G5 EtherCAT	
Type	Voltage	Rated force	Peak force	Model	230 V	400 V
R88L-EA-AF-□ Linear motor axis 	230/ 400 V	48 N	105 N	R88L-EA-AF-0303-□	R88D-KN02H-ECT-L	R88D-KN06F-ECT-L
		96 N	210 N	R88L-EA-AF-0306-□	R88D-KN04H-ECT-L	R88D-KN10F-ECT-L
		160 N	400 N	R88L-EA-AF-0606-□	R88D-KN08H-ECT-L	R88D-KN15F-ECT-L
		240 N	600 N	R88L-EA-AF-0609-□	R88D-KN10H-ECT-L	R88D-KN20F-ECT-L
		320 N	800 N	R88L-EA-AF-0612-□	R88D-KN15H-ECT-L	R88D-KN30F-ECT-L
		608 N	1600 N	R88L-EA-AF-1112-□	R88D-KN15H-ECT-L	R88D-KN30F-ECT-L
		760 N	2000 N	R88L-EA-AF-1115-□	R88D-KN15H-ECT-L	R88D-KN30F-ECT-L

Type designation

Linear motor axis

R88L - EA - AF - 0303 - 0110 - 0005

Accurax linear motor axis

Iron-core linear motor model	
Code	Specifications
0303	30 mm active magnet width, 3 coil
0306	30 mm active magnet width, 6 coil
0606	60 mm active magnet width, 6 coil
0609	60 mm active magnet width, 9 coil
0612	60 mm active magnet width, 12 coil
1112	110 mm active magnet width, 12 coil
1115	110 mm active magnet width, 15 coil

Stroke lenght (for effective stroke distances available see dimensions section)

Standard encoder	
Code	Specifications
0005	Optical, absolute, Panasonic protocol, 50 nm resolution

Optional encoders	
Code	Specifications
none	Optical, incremental, 1V ptp, 50 nm resolution
0001	Optical, incremental, TTL/line driver, 1 µm resolution
0002	Optical, incremental, TTL/line driver, 5 µm resolution
0003	Magnetical, incremental, 1V ptp, 2.5 µm resolution
0004	Optical, incremental, TTL/line driver, 0.5 µm resolution

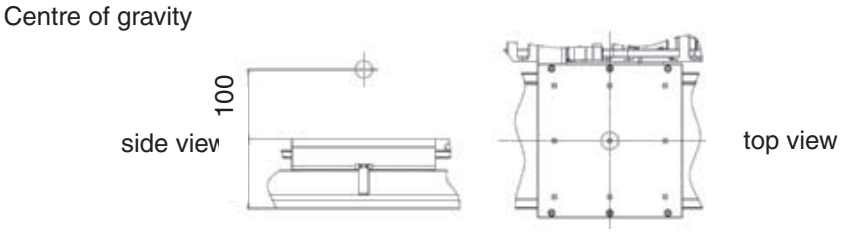
Linear servomotor specifications

Linear motor axis R88L-EA-AF-□ (230/400 VAC)

Voltage			230/400 VAC						
Linear axis model		R88L-EA-AF-□	0303-□	0306-□	0606-□	0609-□	0612-□	1112-□	1115-□
Motor specifications	Linear servo motor coil used	R88L-EC-FW-	0303	0306	0606	0609	0612	1112	1115
	Peak force[*1]	N	105	210	400	600	800	1600	2000
	Peak current[*1]	A_{rms}	3.1	6.1	10	15	20	20	25
	Continuous force[*2]	N	48	96	160	240	320	608	760
	Continuous current[*2]	A_{rms}	1.2	2.5	3.4	5.2	6.9	6.5	8.2
	Motor force constant	N/A_{rms}	39.7		46.5			93.0	
	BEMF	V/m/s	32		38			76	
	Motor constant	$N/\sqrt{W}$	9.75	13.78	19.49	23.87	27.57	41.47	46.37
	Phase resistance	Ω	5.34	2.68	1.83	1.23	0.92	1.6	1.29
	Phase Inductance	mH	34.7	17.4	13.7	9.2	6.9	12.8	10.3
	Electrical time constant	ms	6.5		7.5			8	
	Pole pitch	mm	24						
Mechanics	Weight of moving part	kg	3.1	3.9	5.4	6.7	7.9	13.7	15.9
	Uni-directional repeatability	µm	±1						
	Max. allowable speed	m/s	5						
	Min./max. standard stroke	mm	110/2126	158/2078	110/2126	158/2078	110/2030	110/2126	158/2174
	Stroke increment	mm	96						
Feedback	Encoder type		Panasonic protocol, optical, absolute						
	Encoder resolution		50 nm						
	Accuracy class		±5 µm/m						
	Hall sensor		Digital, TTL signals						
Other specifications	Protection methods[*3]		Temperature sensors (KTY-83/121 & PTC 110C), self cooling						
	Hall-Sensor supply		5 to 24 VDC, 25 mA						
	Encoder reading head supply		5 VDC, max. 250 mA						
	Insulation class		Class B						
	Max. bus voltage		560 VDC						
	Insulation resistance		500 VDC, min. 10 MΩ						
	Ambient humidity		20 to 80% (non-condensing)						
	Altitude		1000 m						
	Max. allowable magnet temperature		70°C						

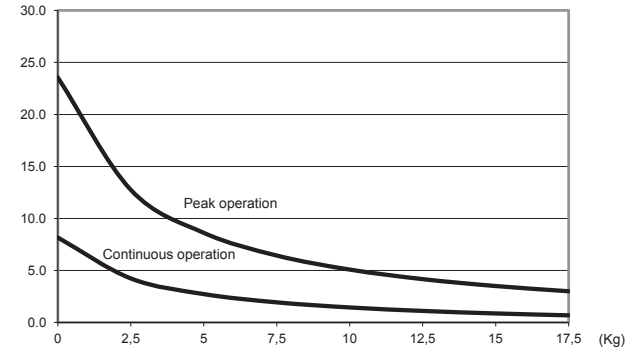
[*1] Coil temperature rising by 6K/s.
[*2] Values at 100°C coil temperature and magnets at 25°C. An airstream of 2.5 m/s (25°C) has to be applied.
[*3] I^2t has to be set properly for high current applications.

All other values at 25°C (±10%).

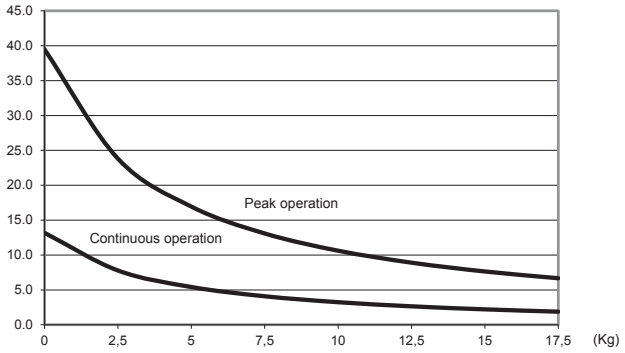


Acceleration-payload characteristics

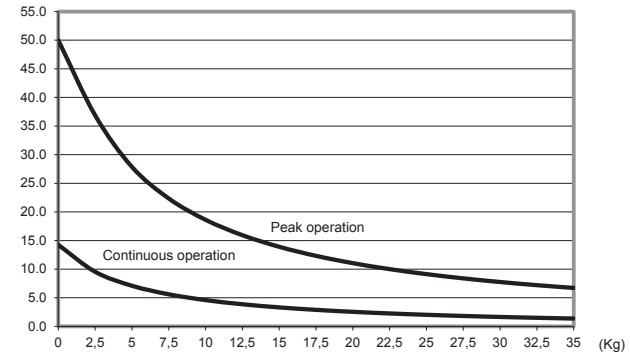
R88L-EA-AF-0303-□



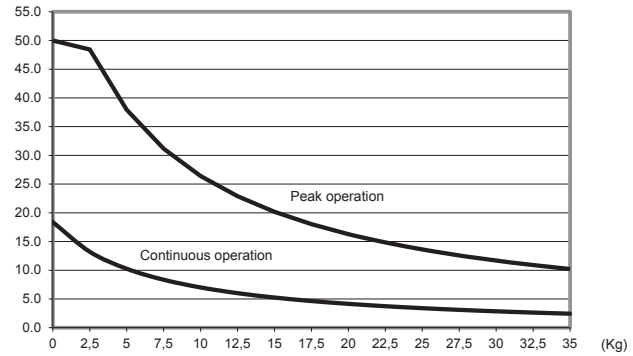
R88L-EA-AF-0306-□



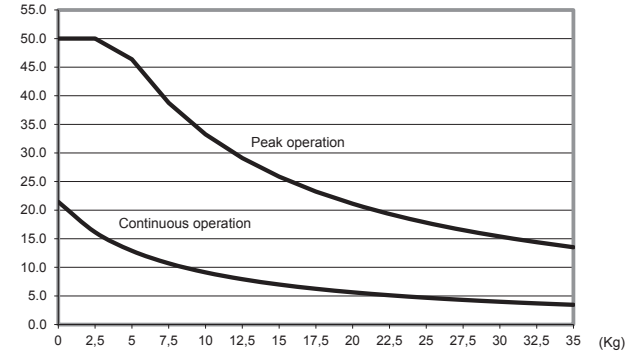
R88L-EA-AF-0606-□



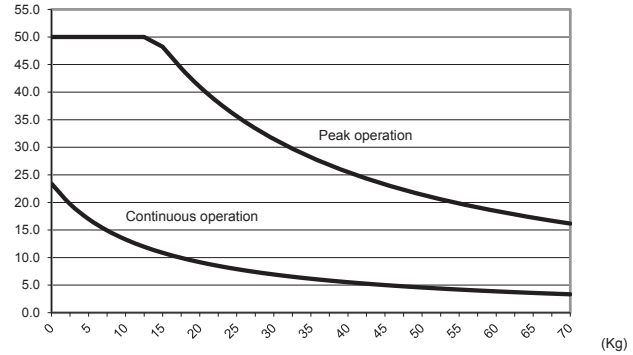
R88L-EA-AF-0609-□



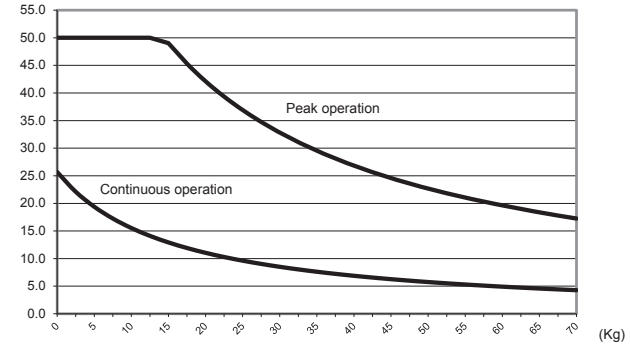
R88L-EA-AF-0612-□



R88L-EA-AF-1112-□



R88L-EA-AF-1115-□



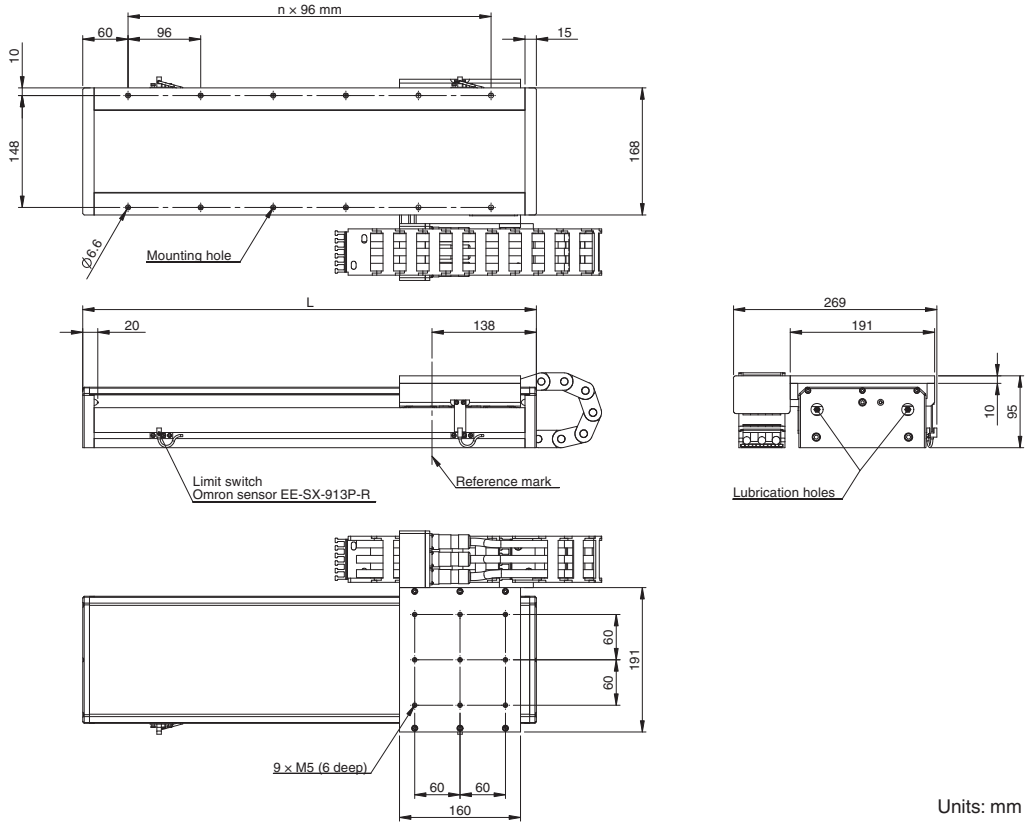
Note: The values on the above curves are calculated based on the below formula and with horizontal orientation:

$$Acceleration = (Force – Force_{Friction}) / Weigth_{Total}$$

Dimensions

R88L-EA-AF-0303-□ (230/400 VAC)

Linear axis model	Effective stroke in mm	L in mm	n	Nº of mounting holes	Weight of moving table including motor coil (kg)	Weight of the complete axis (kg)
R88L-EA-AF-0303-0110-0005	110	312	2	6	3.1	9.5
R88L-EA-AF-0303-0206-0005	206	408	3	8	3.1	10.9
R88L-EA-AF-0303-0302-0005	302	504	4	10	3.1	12.4
R88L-EA-AF-0303-0398-0005	398	600	5	12	3.1	13.8
R88L-EA-AF-0303-0494-0005	494	696	6	14	3.1	15.2
R88L-EA-AF-0303-0590-0005	590	792	7	16	3.1	16.7
R88L-EA-AF-0303-0686-0005	686	888	8	18	3.1	18.1
R88L-EA-AF-0303-0782-0005	782	984	9	20	3.1	19.6
R88L-EA-AF-0303-0878-0005	878	1080	10	22	3.1	21.0
R88L-EA-AF-0303-0974-0005	974	1176	11	24	3.1	22.5
R88L-EA-AF-0303-1070-0005	1070	1272	12	26	3.1	23.9
R88L-EA-AF-0303-1166-0005	1166	1368	13	28	3.1	25.4
R88L-EA-AF-0303-1262-0005	1262	1464	14	30	3.1	26.8
R88L-EA-AF-0303-1358-0005	1358	1560	15	32	3.1	28.2
R88L-EA-AF-0303-1454-0005	1454	1656	16	34	3.1	29.7
R88L-EA-AF-0303-1550-0005	1550	1752	17	36	3.1	31.1
R88L-EA-AF-0303-1646-0005	1646	1848	18	38	3.1	32.6
R88L-EA-AF-0303-1742-0005	1742	1944	19	40	3.1	34.0
R88L-EA-AF-0303-1838-0005	1838	2040	20	42	3.1	35.5
R88L-EA-AF-0303-1934-0005	1934	2136	21	44	3.1	36.9
R88L-EA-AF-0303-2030-0005	2030	2232	22	46	3.1	38.3
R88L-EA-AF-0303-2126-0005	2126	2328	23	48	3.1	39.8



Units: mm

Encoder cable

Cable length 500 mm approx.
Connector D-Sub 15 pins (male)



Pin No.	Signal
1	PS, not used
2	/PS, not used
3	Not used
4	Wired, not used
5	Wired, not used
6	Wired, not used
7	Not used
8	+UB
9	0 V
10	Not used
11	Not used
12	Wired, not used
13	Wired, not used
14	Wired, not used
15	Inner shield (IS)
Case	Shield

Power cable

Cable length 500 mm approx.
Connector Hypertac
LRRA06AMRPN182 (male)
Pin article code: 021.279.1020

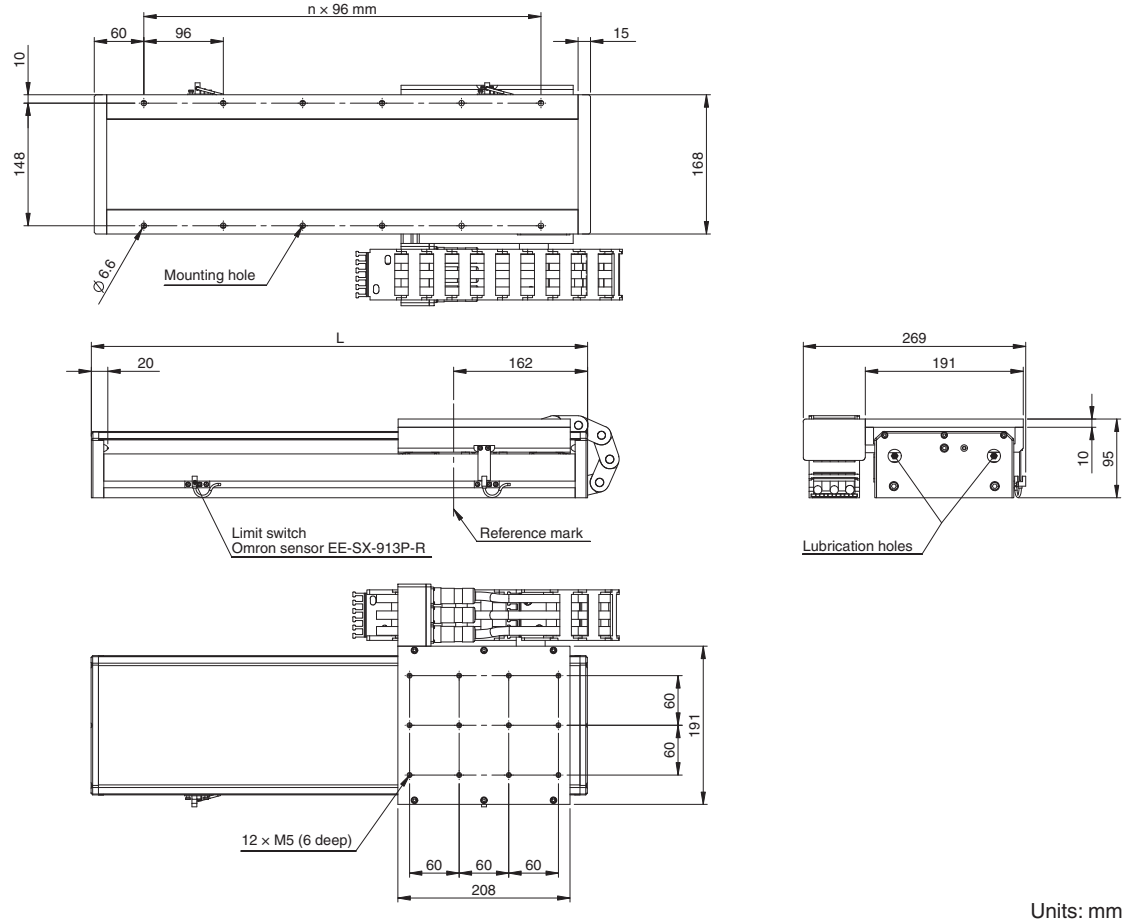


Mating connector:
Plug type: LPRA06BFRBN170

Pin No.	Name
1	Phase U
2	Phase V
3	Ground
4	Phase W
5	Not used
6	Not used

R88L-EA-AF-0306-□ (230/400 VAC)

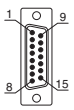
Linear axis model	Effective stroke in mm	L in mm	n	Nº of mounting holes	Weight of moving table including motor coil (kg)	Weight of the complete axis (kg)
R88L-EA-AF-0306-0158-0005	158	408	3	8	3.9	11.6
R88L-EA-AF-0306-0254-0005	254	504	4	10	3.9	13.1
R88L-EA-AF-0306-0350-0005	350	600	5	12	3.9	14.5
R88L-EA-AF-0306-0446-0005	446	696	6	14	3.9	15.9
R88L-EA-AF-0306-0542-0005	542	792	7	16	3.9	17.4
R88L-EA-AF-0306-0638-0005	638	888	8	18	3.9	18.8
R88L-EA-AF-0306-0734-0005	734	984	9	20	3.9	20.3
R88L-EA-AF-0306-0830-0005	830	1080	10	22	3.9	21.7
R88L-EA-AF-0306-0926-0005	926	1176	11	24	3.9	23.2
R88L-EA-AF-0306-1022-0005	1022	1272	12	26	3.9	24.6
R88L-EA-AF-0306-1118-0005	1118	1368	13	28	3.9	26.1
R88L-EA-AF-0306-1214-0005	1214	1464	14	30	3.9	27.5
R88L-EA-AF-0306-1310-0005	1310	1560	15	32	3.9	28.9
R88L-EA-AF-0306-1406-0005	1406	1656	16	34	3.9	30.4
R88L-EA-AF-0306-1502-0005	1502	1752	17	36	3.9	31.8
R88L-EA-AF-0306-1598-0005	1598	1848	18	38	3.9	33.3
R88L-EA-AF-0306-1694-0005	1694	1944	19	40	3.9	34.7
R88L-EA-AF-0306-1790-0005	1790	2040	20	42	3.9	36.2
R88L-EA-AF-0306-1886-0005	1886	2136	21	44	3.9	37.6
R88L-EA-AF-0306-1982-0005	1982	2232	22	46	3.9	39.0
R88L-EA-AF-0306-2078-0005	2078	2328	23	48	3.9	40.5



Units: mm

Encoder cable

Cable length 500 mm approx.
Connector D-Sub 15 pins (male)



Pin No.	Signal
1	PS, not used
2	/PS, not used
3	Not used
4	Wired, not used
5	Wired, not used
6	Wired, not used
7	Not used
8	+UB
9	0 V
10	Not used
11	Not used
12	Wired, not used
13	Wired, not used
14	Wired, not used
15	Inner shield (IS)
Case	Shield

Power cable

Cable length 500 mm approx.
Connector Hypertac
LRRA06AMRPN182 (male)
Pin article code: 021.279.1020

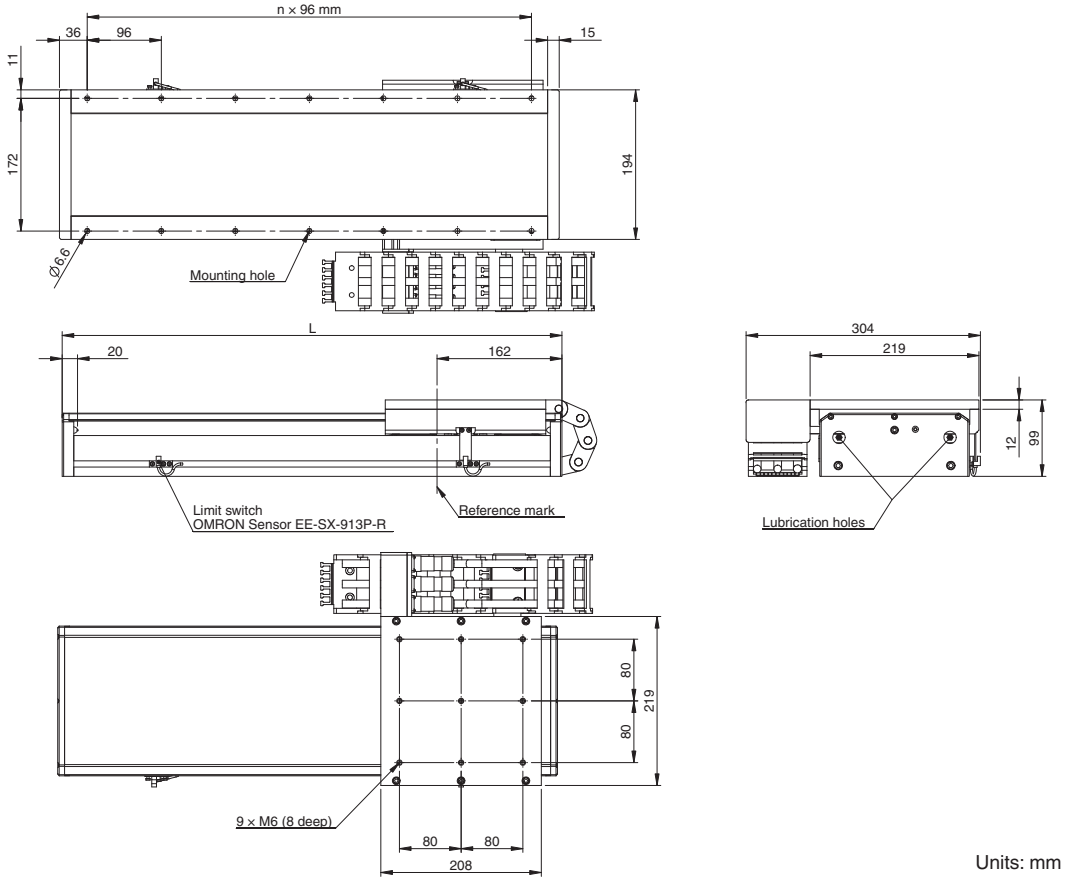


Mating connector:
Plug type: LPRA06BFRBN170

Pin No.	Name
1	Phase U
2	Phase V
3	Ground
4	Phase W
5	Not used
6	Not used

R88L-EA-AF-0606-□ (230/400 VAC)

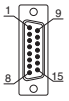
Linear axis model	Effective stroke in mm	L in mm	n	Nº of mounting holes	Weight of moving table including motor coil (kg)	Weight of the complete axis (kg)
R88L-EA-AF-0606-0110-0005	110	360	3	8	5.4	14.1
R88L-EA-AF-0606-0206-0005	206	456	4	10	5.4	15.9
R88L-EA-AF-0606-0302-0005	302	552	5	12	5.4	17.6
R88L-EA-AF-0606-0398-0005	398	648	6	14	5.4	19.3
R88L-EA-AF-0606-0494-0005	494	744	7	16	5.4	21.0
R88L-EA-AF-0606-0590-0005	590	840	8	18	5.4	22.8
R88L-EA-AF-0606-0686-0005	686	936	9	20	5.4	24.5
R88L-EA-AF-0606-0782-0005	782	1032	10	22	5.4	26.2
R88L-EA-AF-0606-0878-0005	878	1128	11	24	5.4	28.0
R88L-EA-AF-0606-0974-0005	974	1224	12	26	5.4	29.7
R88L-EA-AF-0606-1070-0005	1070	1320	13	28	5.4	31.4
R88L-EA-AF-0606-1166-0005	1166	1416	14	30	5.4	33.2
R88L-EA-AF-0606-1262-0005	1262	1512	15	32	5.4	34.9
R88L-EA-AF-0606-1358-0005	1358	1608	16	34	5.4	36.6
R88L-EA-AF-0606-1454-0005	1454	1704	17	36	5.4	38.4
R88L-EA-AF-0606-1550-0005	1550	1800	18	38	5.4	40.1
R88L-EA-AF-0606-1646-0005	1646	1896	19	40	5.4	41.8
R88L-EA-AF-0606-1742-0005	1742	1992	20	42	5.4	43.6
R88L-EA-AF-0606-1838-0005	1838	2088	21	44	5.4	45.3
R88L-EA-AF-0606-1934-0005	1934	2184	22	46	5.4	47.0
R88L-EA-AF-0606-2030-0005	2030	2280	23	48	5.4	48.8
R88L-EA-AF-0606-2126-0005	2126	2376	24	50	5.4	50.5



Units: mm

Encoder cable

Cable length 500 mm approx.
Connector D-Sub 15 pins (male)



Pin No.	Signal
1	PS, not used
2	/PS, not used
3	Not used
4	Wired, not used
5	Wired, not used
6	Wired, not used
7	Not used
8	+UB
9	0 V
10	Not used
11	Not used
12	Wired, not used
13	Wired, not used
14	Wired, not used
15	Inner shield (IS)
Case	Shield

Power cable

Cable length 500 mm approx.
Connector Hypertac
LRRA06AMRPN182 (male)
Pin article code: 021.279.1020

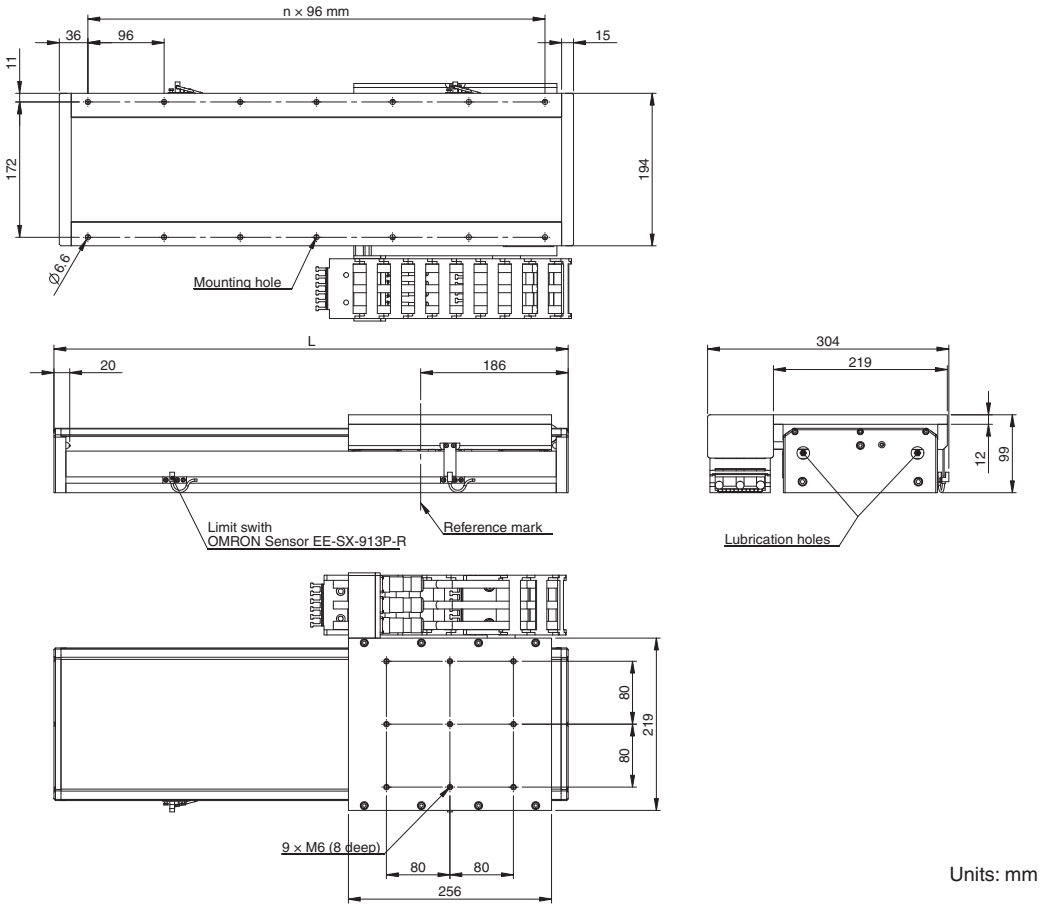


Mating connector:
Plug type: LPRA06BFRBN170

Pin No.	Name
1	Phase U
2	Phase V
3	Ground
4	Phase W
5	Not used
6	Not used

R88L-EA-AF-0609-□ (230/400 VAC)

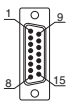
Linear axis model	Effective stroke in mm	L in mm	n	Nº of mounting holes	Weight of moving table including motor coil (kg)	Weight of the complete axis (kg)
R88L-EA-AF-0609-0158-0005	158	456	4	10	6.7	17.2
R88L-EA-AF-0609-0254-0005	254	552	5	12	6.7	18.9
R88L-EA-AF-0609-0350-0005	350	648	6	14	6.7	20.6
R88L-EA-AF-0609-0446-0005	446	744	7	16	6.7	22.3
R88L-EA-AF-0609-0542-0005	542	840	8	18	6.7	24.1
R88L-EA-AF-0609-0638-0005	638	936	9	20	6.7	25.8
R88L-EA-AF-0609-0734-0005	734	1032	10	22	6.7	27.5
R88L-EA-AF-0609-0830-0005	830	1128	11	24	6.7	29.3
R88L-EA-AF-0609-0926-0005	926	1224	12	26	6.7	31.0
R88L-EA-AF-0609-1022-0005	1022	1320	13	28	6.7	32.7
R88L-EA-AF-0609-1118-0005	1118	1416	14	30	6.7	34.5
R88L-EA-AF-0609-1214-0005	1214	1512	15	32	6.7	36.2
R88L-EA-AF-0609-1310-0005	1310	1608	16	34	6.7	37.9
R88L-EA-AF-0609-1406-0005	1406	1704	17	36	6.7	39.7
R88L-EA-AF-0609-1502-0005	1502	1800	18	38	6.7	41.4
R88L-EA-AF-0609-1598-0005	1598	1896	19	40	6.7	43.1
R88L-EA-AF-0609-1694-0005	1694	1992	20	42	6.7	44.9
R88L-EA-AF-0609-1790-0005	1790	2088	21	44	6.7	46.6
R88L-EA-AF-0609-1886-0005	1886	2184	22	46	6.7	48.3
R88L-EA-AF-0609-1982-0005	1982	2280	23	48	6.7	50.1
R88L-EA-AF-0609-2078-0005	2078	2376	24	50	6.7	51.8



Units: mm

Encoder cable

Cable length 500 mm approx.
Connector D-Sub 15 pins (male)



Pin No.	Signal
1	PS, not used
2	/PS, not used
3	Not used
4	Wired, not used
5	Wired, not used
6	Wired, not used
7	Not used
8	+UB
9	0 V
10	Not used
11	Not used
12	Wired, not used
13	Wired, not used
14	Wired, not used
15	Inner shield (IS)
Case	Shield

Power cable

Cable length 500 mm approx.
Connector Hypertac
LRRA06AMRPN182 (male)
Pin article code: 021.279.1020

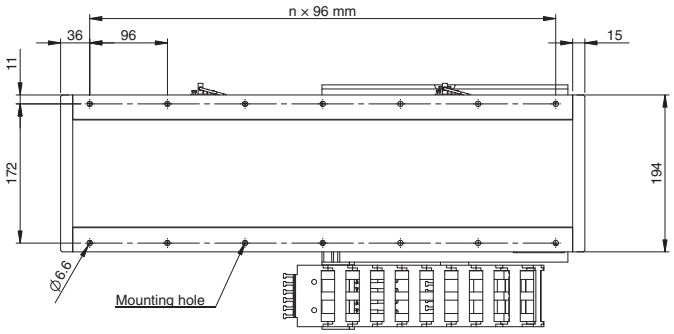


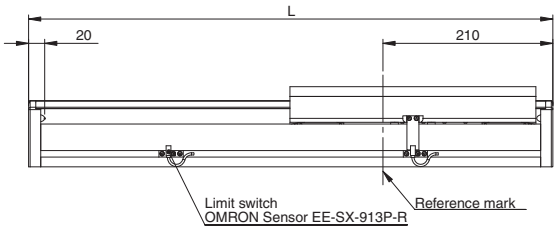
Mating connector:
Plug type: LPRA06BFRBN170

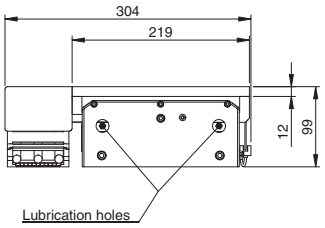
Pin No.	Name
1	Phase U
2	Phase V
3	Ground
4	Phase W
5	Not used
6	Not used

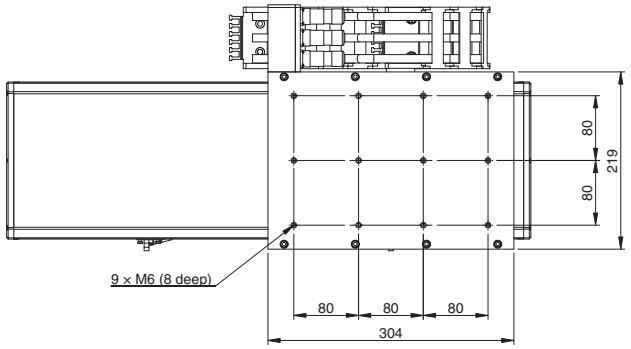
R88L-EA-AF-06012-□ (230/400 VAC)

Linear axis model	Effective stroke in mm	L in mm	n	Nº of mounting holes	Weight of moving table including motor coil (kg)	Weight of the complete axis (kg)
R88L-EA-AF-0612-0110-0005	110	456	4	10	7.9	18.3
R88L-EA-AF-0612-0206-0005	206	552	5	12	7.9	20.0
R88L-EA-AF-0612-0302-0005	302	648	6	14	7.9	21.7
R88L-EA-AF-0612-0398-0005	398	744	7	16	7.9	23.4
R88L-EA-AF-0612-0494-0005	494	840	8	18	7.9	25.2
R88L-EA-AF-0612-0590-0005	590	936	9	20	7.9	26.9
R88L-EA-AF-0612-0686-0005	686	1032	10	22	7.9	28.6
R88L-EA-AF-0612-0782-0005	782	1128	11	24	7.9	30.4
R88L-EA-AF-0612-0878-0005	878	1224	12	26	7.9	32.1
R88L-EA-AF-0612-0974-0005	974	1320	13	28	7.9	33.8
R88L-EA-AF-0612-1070-0005	1070	1416	14	30	7.9	35.6
R88L-EA-AF-0612-1166-0005	1166	1512	15	32	7.9	37.3
R88L-EA-AF-0612-1262-0005	1262	1608	16	34	7.9	39.0
R88L-EA-AF-0612-1358-0005	1358	1704	17	36	7.9	40.8
R88L-EA-AF-0612-1454-0005	1454	1800	18	38	7.9	42.5
R88L-EA-AF-0612-1550-0005	1550	1896	19	40	7.9	44.2
R88L-EA-AF-0612-1646-0005	1646	1992	20	42	7.9	46.0
R88L-EA-AF-0612-1742-0005	1742	2088	21	44	7.9	47.7
R88L-EA-AF-0612-1838-0005	1838	2184	22	46	7.9	49.4
R88L-EA-AF-0612-1934-0005	1934	2280	23	48	7.9	50.2
R88L-EA-AF-0612-2030-0005	2030	2376	24	50	7.9	52.9





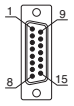




Units: mm

Encoder cable

Cable length 500 mm approx.
Connector D-Sub 15 pins (male)



Pin No.	Signal
1	PS, not used
2	/PS, not used
3	Not used
4	Wired, not used
5	Wired, not used
6	Wired, not used
7	Not used
8	+UB
9	0 V
10	Not used
11	Not used
12	Wired, not used
13	Wired, not used
14	Wired, not used
15	Inner shield (IS)
Case	Shield

Power cable

Cable length 500 mm approx.
Connector Hypertac
LRRA06AMRPN182 (male)
Pin article code: 021.279.1020

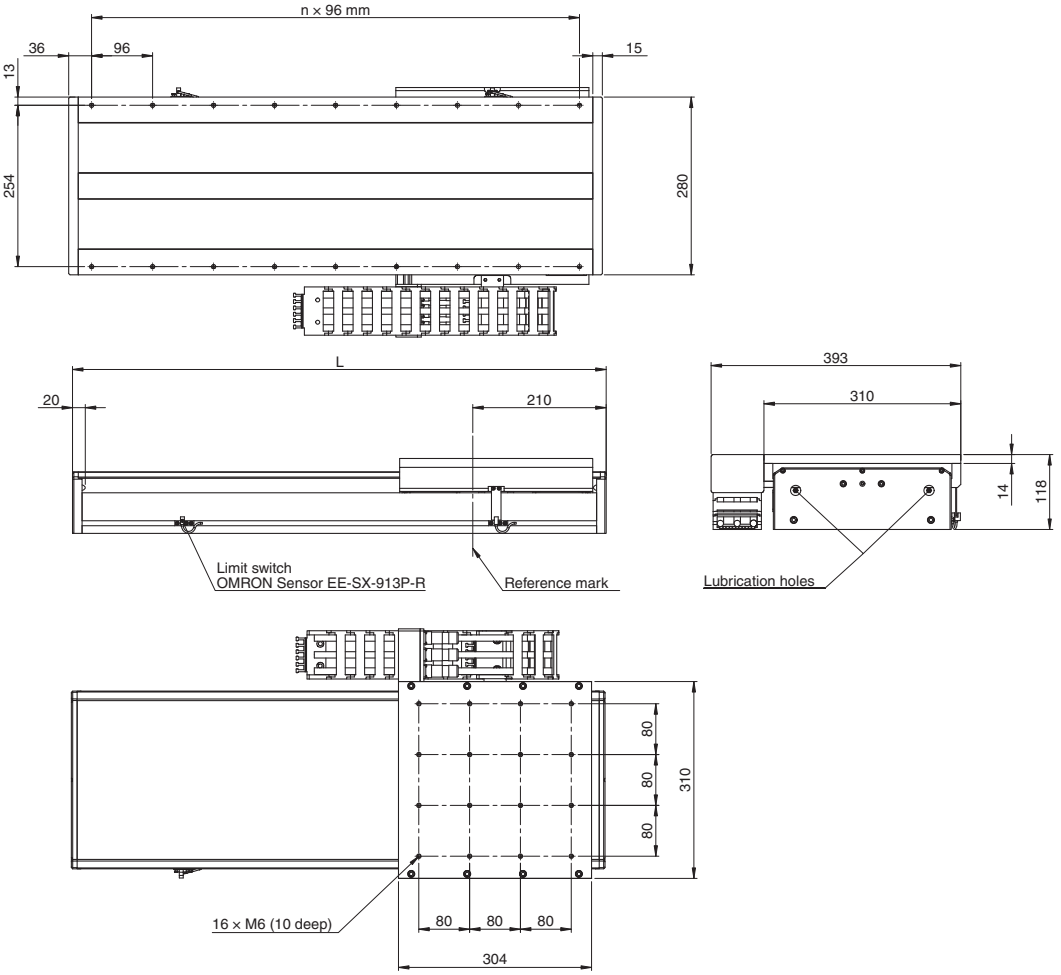


Mating connector:
Plug type: LPRA06BFRBN170

Pin No.	Name
1	Phase U
2	Phase V
3	Ground
4	Phase W
5	Not used
6	Not used

R88L-EA-AF-1112-□ (230/400 VAC)

Linear axis model	Effective stroke in mm	L in mm	n	Nº of mounting holes	Weight of moving table including motor coil (kg)	Weight of the complete axis (kg)
R88L-EA-AF-1112-0110-0005	110	456	4	10	13.7	31.9
R88L-EA-AF-1112-0206-0005	206	552	5	12	13.7	35.2
R88L-EA-AF-1112-0302-0005	302	648	6	14	13.7	38.5
R88L-EA-AF-1112-0398-0005	398	744	7	16	13.7	41.7
R88L-EA-AF-1112-0494-0005	494	840	8	18	13.7	45.0
R88L-EA-AF-1112-0590-0005	590	936	9	20	13.7	48.3
R88L-EA-AF-1112-0686-0005	686	1032	10	22	13.7	51.5
R88L-EA-AF-1112-0782-0005	782	1128	11	24	13.7	54.8
R88L-EA-AF-1112-0878-0005	878	1224	12	26	13.7	58.1
R88L-EA-AF-1112-0974-0005	974	1320	13	28	13.7	61.3
R88L-EA-AF-1112-1070-0005	1070	1416	14	30	13.7	64.6
R88L-EA-AF-1112-1166-0005	1166	1512	15	32	13.7	67.9
R88L-EA-AF-1112-1262-0005	1262	1608	16	34	13.7	71.1
R88L-EA-AF-1112-1358-0005	1358	1704	17	36	13.7	74.4
R88L-EA-AF-1112-1454-0005	1454	1800	18	38	13.7	77.7
R88L-EA-AF-1112-1550-0005	1550	1896	19	40	13.7	80.9
R88L-EA-AF-1112-1646-0005	1646	1992	20	42	13.7	84.2
R88L-EA-AF-1112-1742-0005	1742	2088	21	44	13.7	87.5
R88L-EA-AF-1112-1838-0005	1838	2184	22	46	13.7	90.8
R88L-EA-AF-1112-1934-0005	1934	2280	23	48	13.7	94.0
R88L-EA-AF-1112-2030-0005	2030	2376	24	50	13.7	97.3
R88L-EA-AF-1112-2126-0005	2126	2472	25	52	13.7	100.6



Units: mm

Encoder cable

Cable length 500 mm approx.
Connector D-Sub 15 pins (male)



Pin No.	Signal
1	PS, not used
2	/PS, not used
3	Not used
4	Wired, not used
5	Wired, not used
6	Wired, not used
7	Not used
8	+UB
9	0 V
10	Not used
11	Not used
12	Wired, not used
13	Wired, not used
14	Wired, not used
15	Inner shield (IS)
Case	Shield

Power cable

Cable length 500 mm approx.
Connector Hypertac
LRRA06AMRPN182 (male)
Pin article code: 021.279.1020

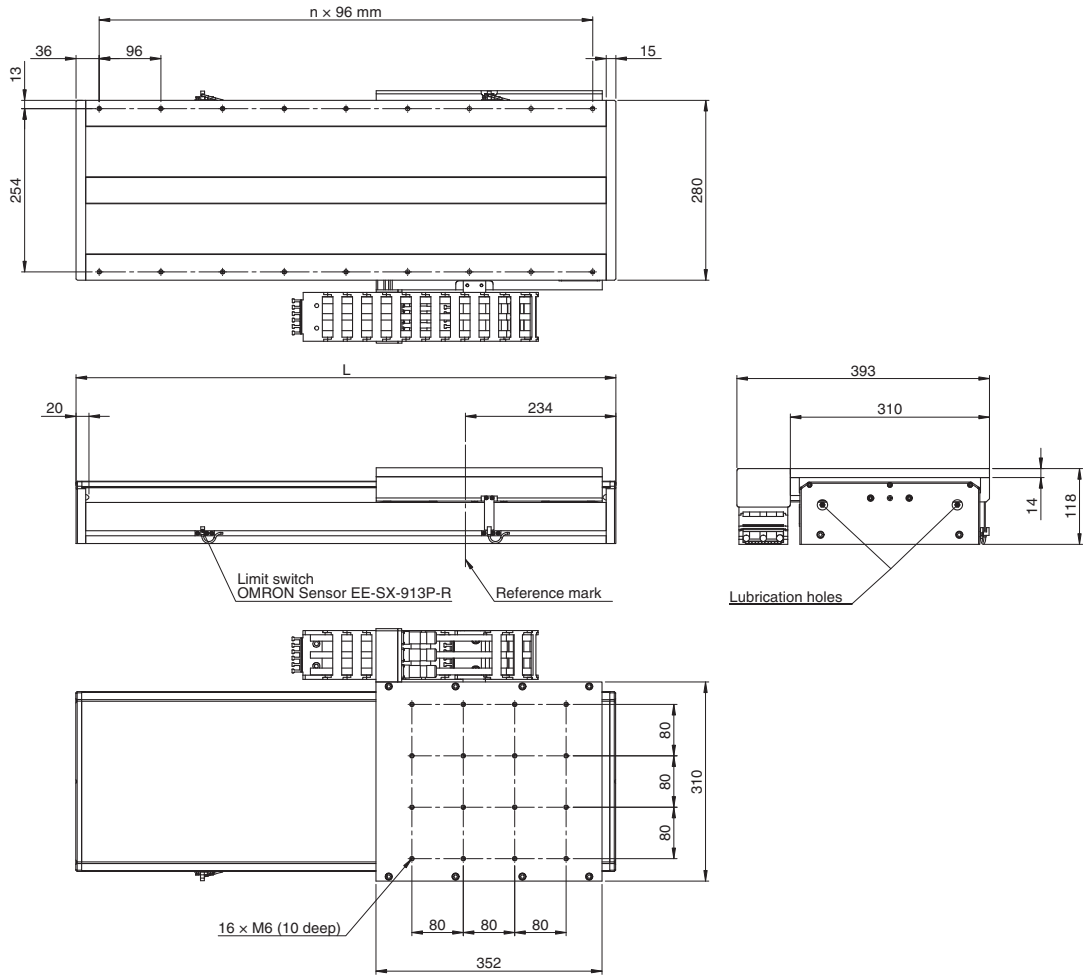


Mating connector:
Plug type: LPRA06BFRBN170

Pin No.	Name
1	Phase U
2	Phase V
3	Ground
4	Phase W
5	Not used
6	Not used

R88L-EA-AF-1115-□ (230/400 VAC)

Linear axis model	Effective stroke in mm	L in mm	n	Nº of mounting holes	Weight of moving table including motor coil (kg)	Weight of the complete axis (kg)
R88L-EA-AF-1115-0158-0005	158	552	5	12	15.9	37.4
R88L-EA-AF-1115-0254-0005	254	648	6	14	15.9	40.6
R88L-EA-AF-1115-0350-0005	350	744	7	16	15.9	43.9
R88L-EA-AF-1115-0446-0005	446	840	8	18	15.9	47.2
R88L-EA-AF-1115-0542-0005	542	936	9	20	15.9	50.4
R88L-EA-AF-1115-0638-0005	638	1032	10	22	15.9	53.7
R88L-EA-AF-1115-0734-0005	734	1128	11	24	15.9	57.0
R88L-EA-AF-1115-0830-0005	830	1224	12	26	15.9	60.2
R88L-EA-AF-1115-0926-0005	926	1320	13	28	15.9	63.5
R88L-EA-AF-1115-1022-0005	1022	1416	14	30	15.9	66.8
R88L-EA-AF-1115-1118-0005	1118	1512	15	32	15.9	70.0
R88L-EA-AF-1115-1214-0005	1214	1608	16	34	15.9	73.3
R88L-EA-AF-1115-1310-0005	1310	1704	17	36	15.9	76.6
R88L-EA-AF-1115-1406-0005	1406	1800	18	38	15.9	79.8
R88L-EA-AF-1115-1502-0005	1502	1896	19	40	15.9	83.1
R88L-EA-AF-1115-1598-0005	1598	1992	20	42	15.9	86.4
R88L-EA-AF-1115-1694-0005	1694	2088	21	44	15.9	89.6
R88L-EA-AF-1115-1790-0005	1790	2184	22	46	15.9	92.9
R88L-EA-AF-1115-1886-0005	1886	2280	23	48	15.9	96.2
R88L-EA-AF-1115-1982-0005	1982	2376	24	50	15.9	99.4
R88L-EA-AF-1115-2078-0005	2078	2472	25	52	15.9	102.7
R88L-EA-AF-1115-2174-0005	2174	2568	26	54	15.9	106.0



Encoder cable

Cable length 500 mm approx.
Connector D-Sub 15 pins (male)



Pin No.	Signal
1	PS, not used
2	/PS, not used
3	Not used
4	Wired, not used
5	Wired, not used
6	Wired, not used
7	Not used
8	+UB
9	0 V
10	Not used
11	Not used
12	Wired, not used
13	Wired, not used
14	Wired, not used
15	Inner shield (IS)
Case	Shield

Power cable

Cable length 500 mm approx.
Connector Hypertac
LRRA06AMRPN182 (male)
Pin article code: 021.279.1020



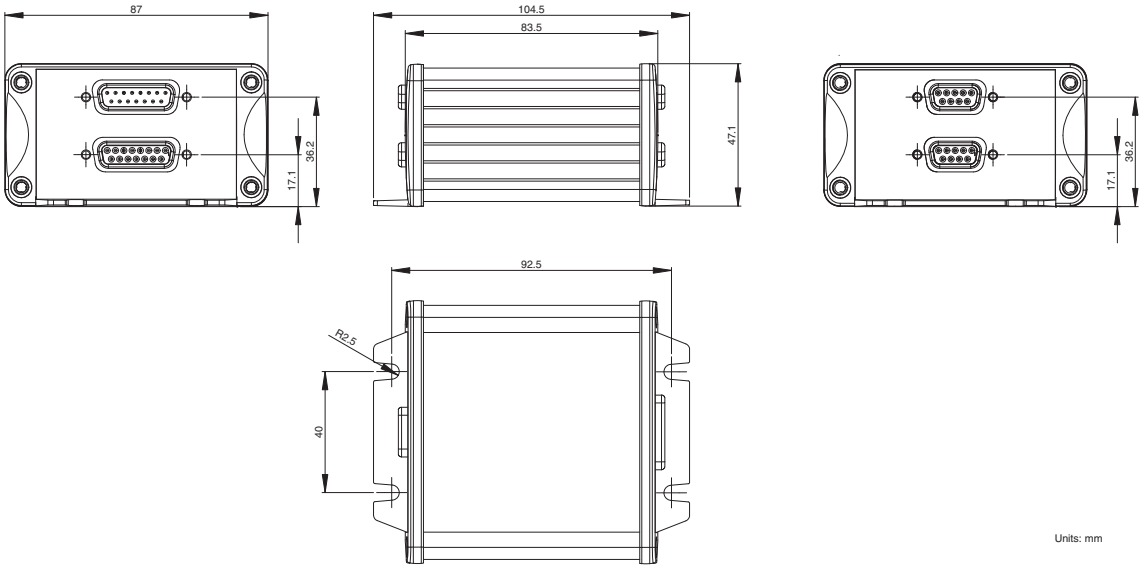
Pin No.	Name
1	Phase U
2	Phase V
3	Ground
4	Phase W
5	Not used
6	Not used

Mating connector:
Plug type: LPRA06BFRBN170

Optional serial converter unit

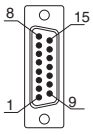
Specifications

Serial converter model R88A-		SC01K-E	SC02K-E
Description		Serial converter from 1 Vpp to G5 serial data transmission and with hall sensor input	
Temperature sensor		KTY sensor detection of iron-core motor coil	NTC sensor detection of ironless motor coil
Electrical characteristics	Power supply voltage	5 VDC, max. 250 mA supplied by the drive	
	Standard resolution	Interpolation factor 100 plus quadrature count	
	Max. input frequency	400 kHz 1 Vpp	
	Analog input signals (cos, sin, Ref)	Differential input amplitude: 0.4 V to 1.2 V Input signal level: 1.5 V to 3.5 V	
	Output signals	Position data, hall & temperature sensor information, and alarms	
	Output method	Serial data transmission	
	Transmission cycle	<42 µs	
Mechanical characteristics	Vibration resistance	98 m/s^2 max. (1 to 2500 Hz) in three directions	
	Shock resistance	980 m/s^2, (11 ms) two times in three directions	
Environmental conditions	Operating temperature	0 to 55°C	
	Storage temperature	–20 to 80°C	
	Humidity	20% to 90% relative humidity (without condensation)	



CN4

Serial data output to linear servo drive

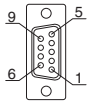


Connector D-Sub 15-pin (male)

Pin No.	Signal
1	PS
2	/PS
3	Not used
4	Not used
5	Not used
6	Not used
7	Not used
8	5 V
9	0 V
10	Not used
11	Not used
12	Not used
13	Not used
14	Not used
15	Inner shield
Case	Shield

CN3

Temperature sensor interface without h all sensor

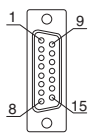


Connector D-Sub 9-pin (female)

Pin No.	Signal
1	Not used
2	Not used
3	Not used
4	Not used
5	Not used
6	PTC
7	PTC
8	KTY/ NTC
9	KTY/NTC
Case	Shield

CN1

Encoder input 1Vpp with programmable lines NUMERIK JENA standard



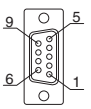
Connector D-Sub 15-pin (female)

Pin No.	Signal
1	SDA*
2	SCL*
3	Not used
4	/Ref signal (U_{0-})
5	/Cos signal (U_{2-})
6	/Sin signal (U_{1-})
7	Not used
8	5 V
9	0 V
10	Not used
11	Not used
12	Ref signal (U_0)
13	Cos signal (U_2)
14	Sin signal (U_1)
15	Inner shield (IS)
Case	Shield

*Reserved. Please do not use

CN2

Hall & temperature sensors interface

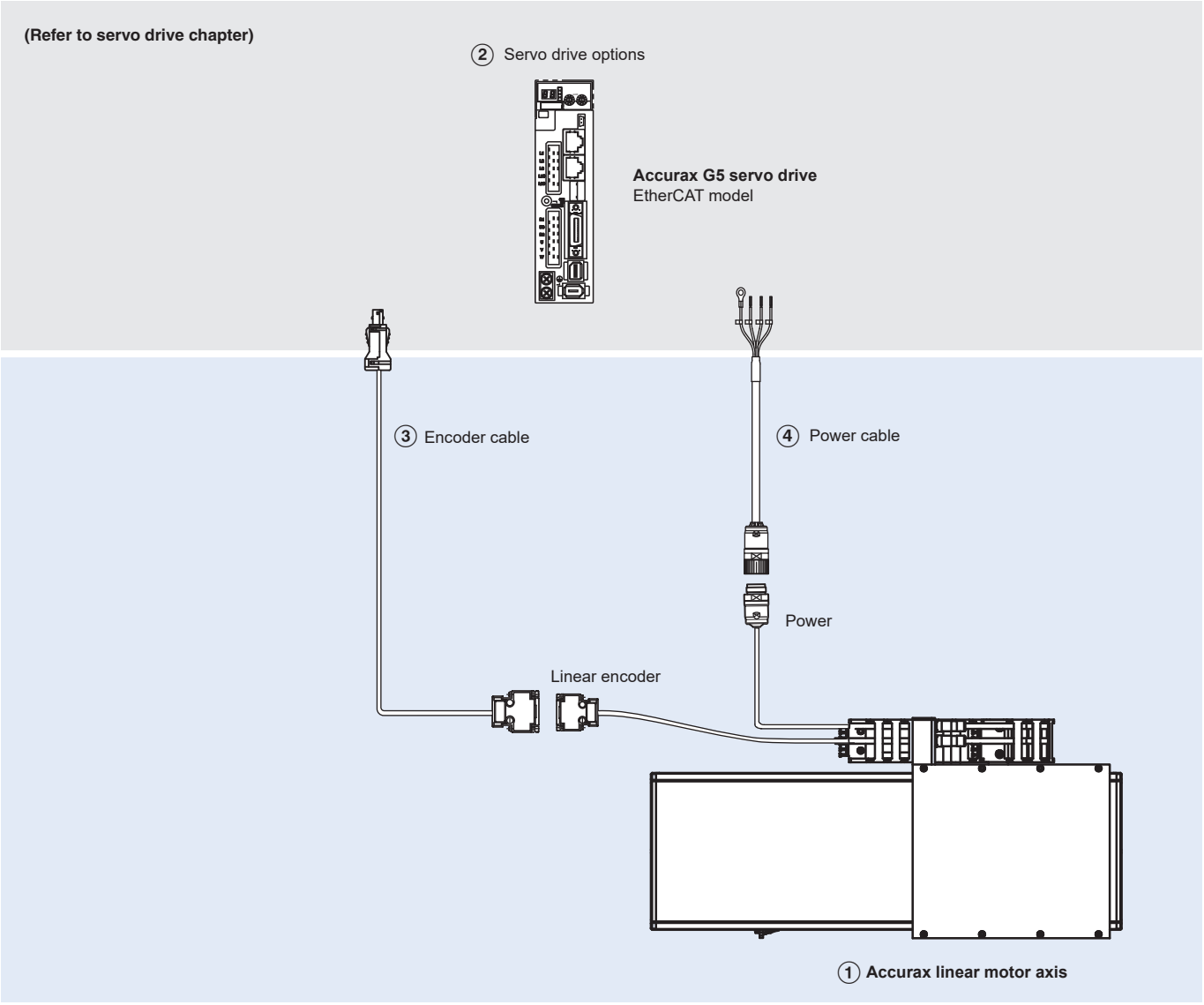


Connector D-Sub 9-pin (female)

Pin No.	Signal
1	5 V
2	Hall U
3	Hall V
4	Hall W
5	GND
6	PTC
7	PTC
8	KTY/ NTC
9	KTY/ NTC
Case	Shield

Note: As the 6, 7, 8, 9 pins in the CN2 and CN3 connectors are internally wired, the temperature sensor can be connected to both connectors. When the hall sensor is also required, use the same cable for hall & temperature signals and the CN2 connector.

Ordering information



Note: The symbols ①②③... show the recommended sequence to select the servomotor, cables and serial converter for a linear motors system.

Linear motor axis

R88L-EA-AF-□

230 VAC single phase/400 VAC three phase

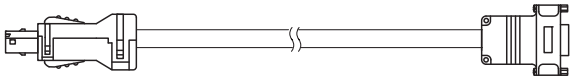
Symbol	Specifications		① Linear motor axis model	② Linear servo drive	
	Rated force	Peak force		Accurax G5 EtherCAT	
				230 V	400 V
①②	48 N	120 N	R88L-EA-AF-0303-□□□□-0005	R88D-KN02H-ECT-L	R88D-KN06F-ECT-L
	96 N	240 N	R88L-EA-AF-0306-□□□□-0005	R88D-KN04H-ECT-L	R88D-KN10F-ECT-L
	160 N	450 N	R88L-EA-AF-0606-□□□□-0005	R88D-KN08H-ECT-L	R88D-KN15F-ECT-L
	240 N	675 N	R88L-EA-AF-0609-□□□□-0005	R88D-KN10H-ECT-L	R88D-KN20F-ECT-L
	320 N	900 N	R88L-EA-AF-0612-□□□□-0005	R88D-KN15H-ECT-L	R88D-KN30F-ECT-L
	608 N	1800 N	R88L-EA-AF-1112-□□□□-0005	R88D-KN15H-ECT-L	R88D-KN30F-ECT-L
	760 N	2250 N	R88L-EA-AF-1115-□□□□-0005	R88D-KN15H-ECT-L	R88D-KN30F-ECT-L

Note: For effective stroke distances available see dimensions section.

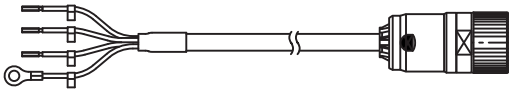
Servo drive

② Refer to Accurax G5 servo drive chapter for detailed drive specifications and selection of drive accessories.

Encoder cable

Symbol	Specifications		Model	Appearance
③	Encoder cable for linear motor axis (Connectors R88A-CNK41L and DB-15)	1.5 m	R88A-CRKN001-5CR-E	
		3 m	R88A-CRKN003CR-E	
		5 m	R88A-CRKN005CR-E	
		10 m	R88A-CRKN010CR-E	
		15 m	R88A-CRKN015CR-E	
		20 m	R88A-CRKN020CR-E	

Power cable

Symbol	Specifications		Model	Appearance
④	For linear motor axis R88L-EA-AF-0303-□ R88L-EA-AF-0306-□	1.5 m	R88A-CAWK001-5S-DE	
		3 m	R88A-CAWK003S-DE	
		5 m	R88A-CAWK005S-DE	
		10 m	R88A-CAWK010S-DE	
		15 m	R88A-CAWK015S-DE	
		20 m	R88A-CAWK020S-DE	
	For linear motor axis R88L-EA-AF-0606-□ R88L-EA-AF-0609-□ R88L-EA-AF-0612-□ R88L-EA-AF-1112-□ R88L-EA-AF-1115-□	1.5 m	R88A-CAWL001-5S-DE	
		3 m	R88A-CAWL003S-DE	
		5 m	R88A-CAWL005S-DE	
		10 m	R88A-CAWL010S-DE	
		15 m	R88A-CAWL015S-DE	
		20 m	R88A-CAWL020S-DE	

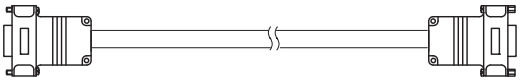
Accessories for linear motor models with optional encoders (non-standard encoder)

Serial converter unit

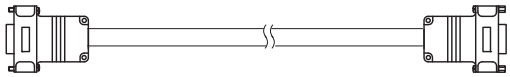
Specifications	Model
Serial converter unit from 1 Vpp to G5 serial data transmission (with KTY sensor detection of iron-core motor coil)	R88A-SC01K-E
Serial converter unit from 1 Vpp to G5 serial data transmission (with NTC sensor detection of ironless motor coil)	R88A-SC02K-E

Note: If no temperature sensor is needed, then it does not matter which converter you use.

Linear encoder cable to serial converter

Specifications		Model	Appearance
Extension cable from linear encoder to serial converter. (Connector DB-15) (This extension cable is optional)	1.5 m	R88A-CFKA001-5CR-E	
	3 m	R88A-CFKA003CR-E	
	5 m	R88A-CFKA005CR-E	
	10 m	R88A-CFKA010CR-E	
	15 m	R88A-CFKA015CR-E	

Hall and temperature sensors cable to serial converter

Specifications		Model	Appearance
Extension cable from hall and temperature sensors to serial converter. (Connector DB-9) (This extension cable is optional)	1.5 m	R88A-CFKB001-5CR-E	
	3 m	R88A-CFKB003CR-E	
	5 m	R88A-CFKB005CR-E	
	10 m	R88A-CFKB010CR-E	
	15 m	R88A-CFKB015CR-E	

Connectors

Specification	Model
Accurax G5 servo drive encoder connector (for CN4)	R88A-CNK41L
Hypertac power cable connector IP67	LPRA-06B-FRBN170

ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.
To convert millimeters into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.

Cat. No. SysCat_I161E-EN-05A In the interest of product improvement, specifications are subject to change without notice.