

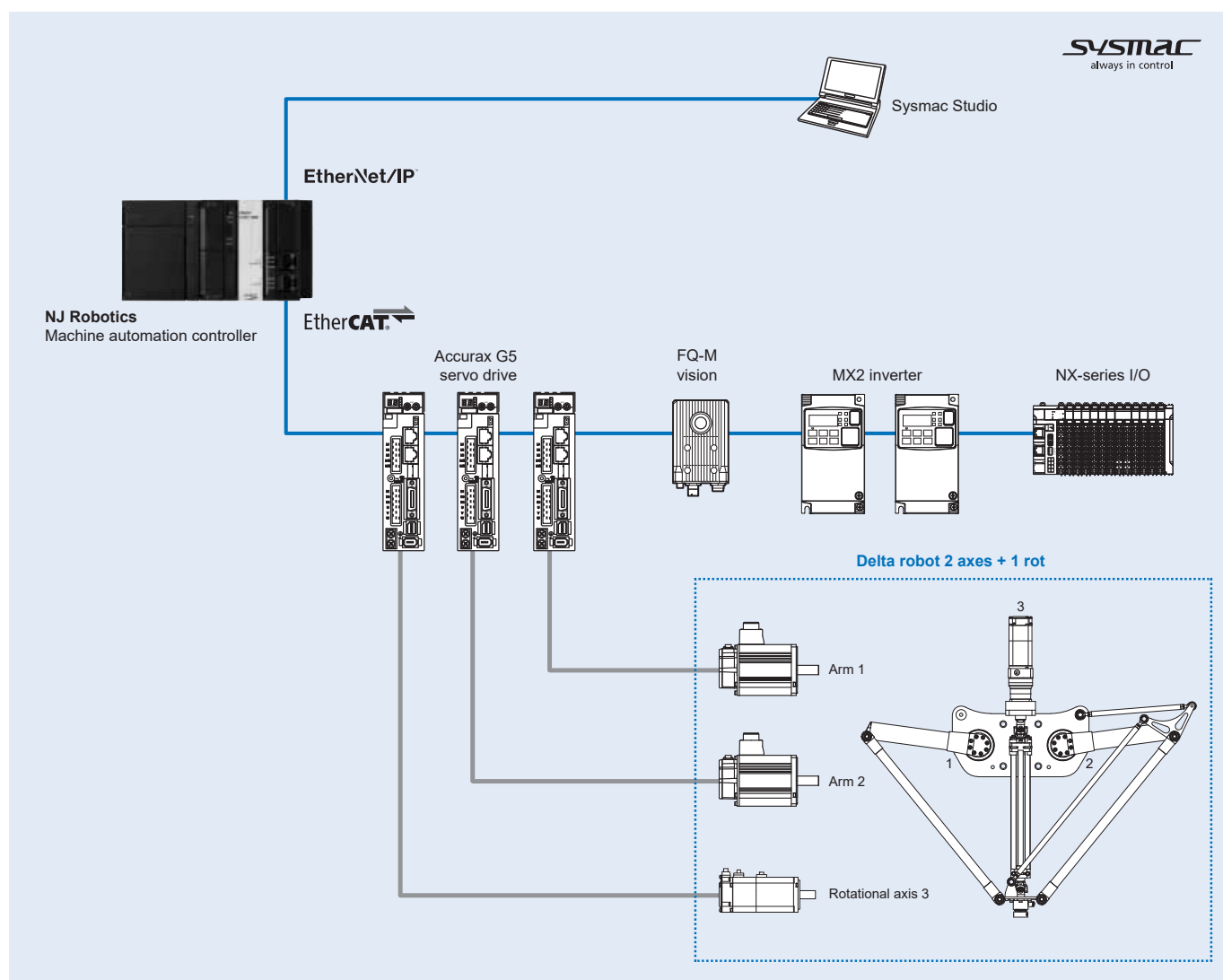
Delta robot 2 axes + 1 rot

The design concept with a minimum of mechanical components results in a high quality robot

- Robot control integrated in the NJ robotics controller
- Control of up to 8 robots by one controller
- Degrees of freedom: 2 + 1 (rotational axis optional)
- Up to 200 cycle per minute
- Models from 800 to 1,500 mm working range
- Payload range: 3 to 35 kg
- TWIN model for applications that a long gripper is required
- IP65 protection class
- ISO mount gripper interface
- Low maintenance, easy access to components



System configuration



Note: Servo motors included in the Delta robot.

Specifications

Delta robot 2 axes + 1 rot series

Standard models

Model			CR_UGD21500		CR_UGD21000	
			With rotational axis	Without rotational axis	With rotational axis	Without rotational axis
Working volume	X axis (stroke)		1,500 mm		1,000 mm	
	Z axis (stroke) ¹		347 mm (maximum 1,500 mm)		342 mm (maximum 1,000 mm)	
	θ axis (rotation angle)		±180 deg (default setting, it can be changed)	-	±180 deg (default setting, it can be changed)	-
Servo motor	Arm 1, 2	Model	R88M-K3K030C-BS2		R88M-K2K030C-BS2	
		Capacity	3000 W		2000 W	
	Rotational axis 3	Model	R88M-K40030T-BS2	-	R88M-K40030T-BS2	-
		Capacity	400 W	-	400 W	-
Repeatability ²	X, Z axis		±0.4 mm		±0.2 deg	
	θ axis		±0.2 deg	-	±0.2 deg	-
Maximum payload			35 kg		30 kg	
Maximum through-put ³			45 CPM ⁴		50 CPM ⁴	
Gear box ratio	X, Z axis		1:35			
	θ axis		1:25	-	1:25	-
θ axis torque limitation			22 Nm	-	22 Nm	-
Travel limit			1. Soft limit, 2. Mechanical stopper (X, Y, Z axis)			
Noise level			< 70 dB (A)			
Ambient temperature			Operating: 5°C to 45°C / Storage: -15°C to 60°C			
Relative humidity			Max. 90%			
Protection class			IP65			
Weight (kg)			80 kg		75 kg	

¹ For further details please check the dimensional drawing in the next section.

² This is the value at a constant ambient temperature.

³ With 5 kg payload. When reciprocating 500 mm in vertical, 300 mm in horizontal and 100 mm in vertical directions.

⁴ CPM: Cycle per minutes. Check the note 3 for the cycle definition.

Model			CR_UGD2800	
			With rotational axis	Without rotational axis
Working volume	X axis (stroke)		800 mm	
	Z axis (stroke) ¹		209 mm (maximum 800 mm)	265 mm (maximum 800 mm)
	θ axis (rotation angle)		±180 deg (default setting, it can be changed)	-
Servo motor	Arm 1, 2	Model	R88M-K1K030T-BS2	
		Capacity	1000 W	
	Rotational axis 3	Model	R88M-K40030T-BS2	-
		Capacity	400 W	-
Repeatability ²	X, Z axis		±0.3 mm	
	θ axis		±0.2 deg	-
Maximum payload			3 kg	
Maximum through-put ³			200 CPM ⁴	
Gear box ratio	X, Z axis		1:31	
	θ axis		1:10	-
θ axis torque limitation			16 Nm	-
Travel limit			1. Soft limit, 2. Mechanical stopper (X, Y, Z axis)	
Noise level			< 70 dB (A)	
Ambient temperature			Operating: 5°C to 45°C / Storage: -15°C to 60°C	
Relative humidity			Max. 90%	
Protection class			IP65	
Weight (kg)			40 kg	

¹ For further details please check the dimensional drawing in the next section.

² This is the value at a constant ambient temperature.

³ With 0.1 kg payload. When reciprocating 305 mm in horizontal and 25 mm in vertical directions.

⁴ CPM: Cycle per minutes. Check the note 3 for the cycle definition.

TWIN model

Model		CR_UGD21000T_NR
Working volume	X axis (stroke)	1,000 mm
	Z axis (stroke)^{*1}	342 mm (maximum 1,000 mm)
Servo motor	Arm 1, 2	Model
		R88M-K2K030C-BS2
		Capacity
		2000 W
Repeatability^{*2}	X, Z axis	±0.4 mm
Maximum payload		30 kg
Maximum through-put^{*3}		50 CPM ^{*4}
Gear box ratio	X, Z axis	1:35
Travel limit		1. Soft limit, 2. Mechanical stopper (X, Y, Z axis)
Noise level		< 70 dB (A)
Ambient temperature		Operating: 5°C to 45°C / Storage: -15°C to 60°C
Relative humidity		Max. 90%
Protection class		IP65
Weight (kg)		220 kg

^{*1} For further details please check the dimensional drawing in the next section.

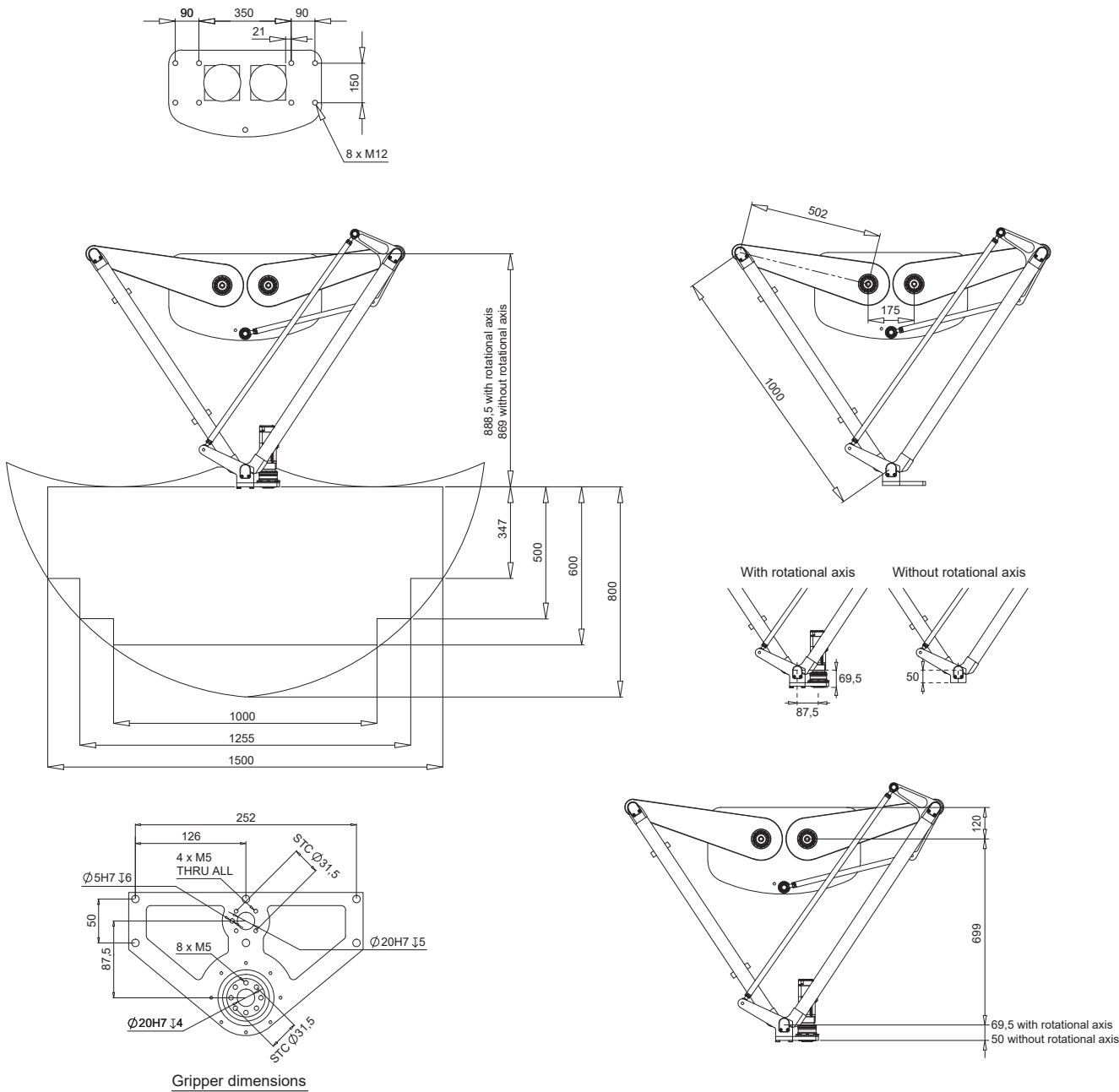
^{*2} This is the value at a constant ambient temperature.

^{*3} With 5 kg payload. When reciprocating 500 mm in vertical, 300 mm in horizontal and 100 mm in vertical directions.

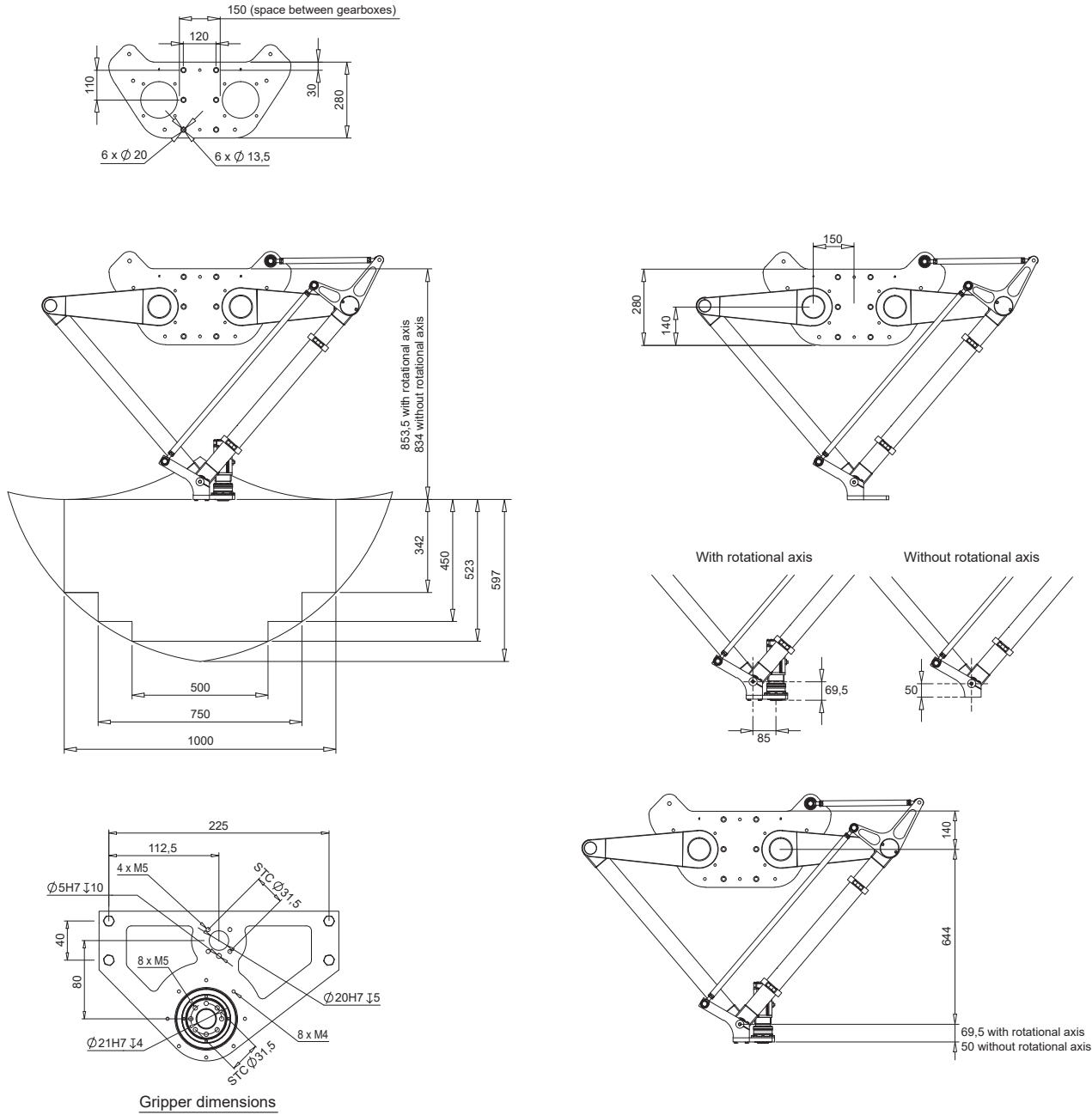
^{*4} CPM: Cycle per minutes. Check the note 3 for the cycle definition.

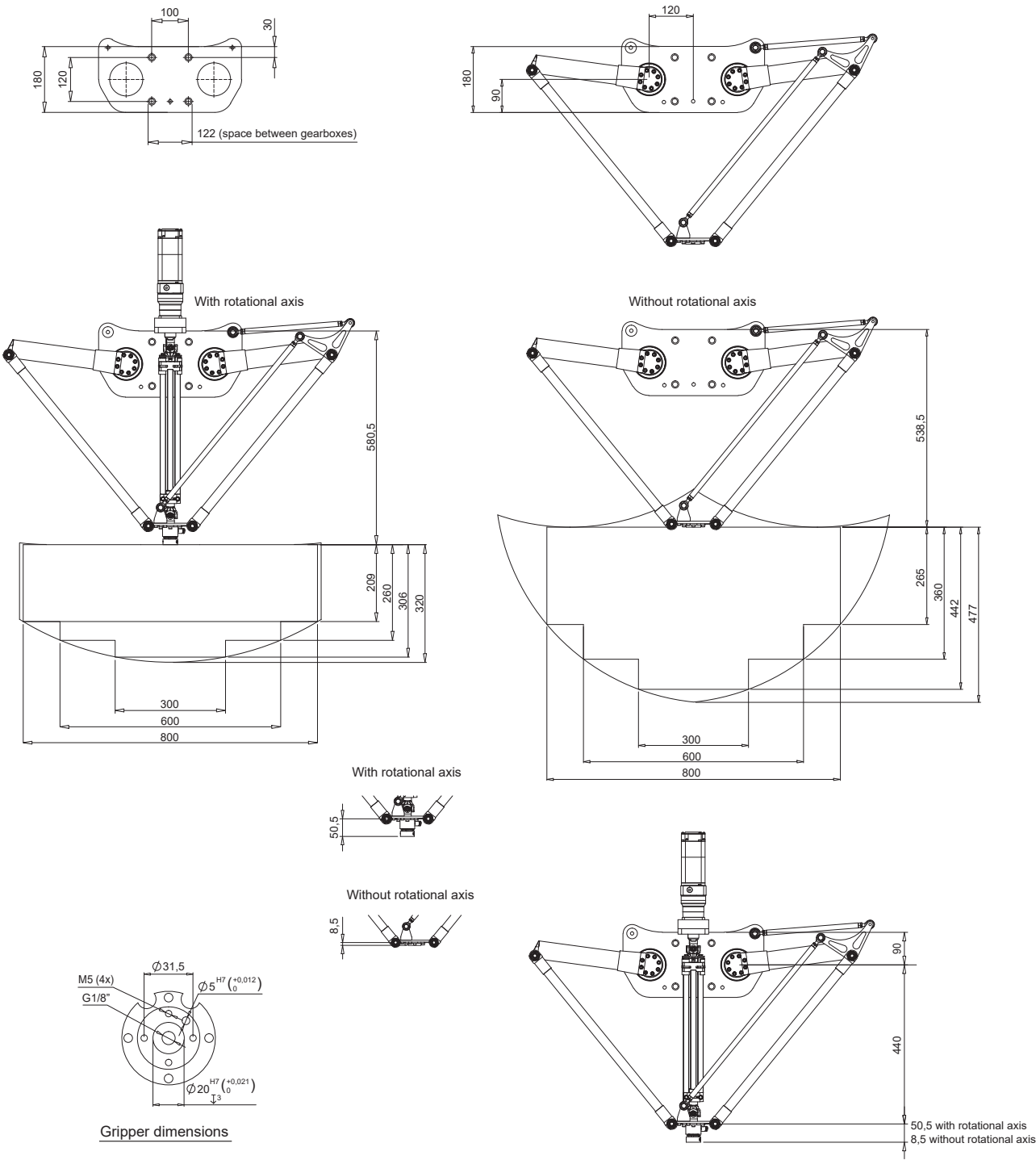
Dimensions

Standard models
CR_UGD21500_□R

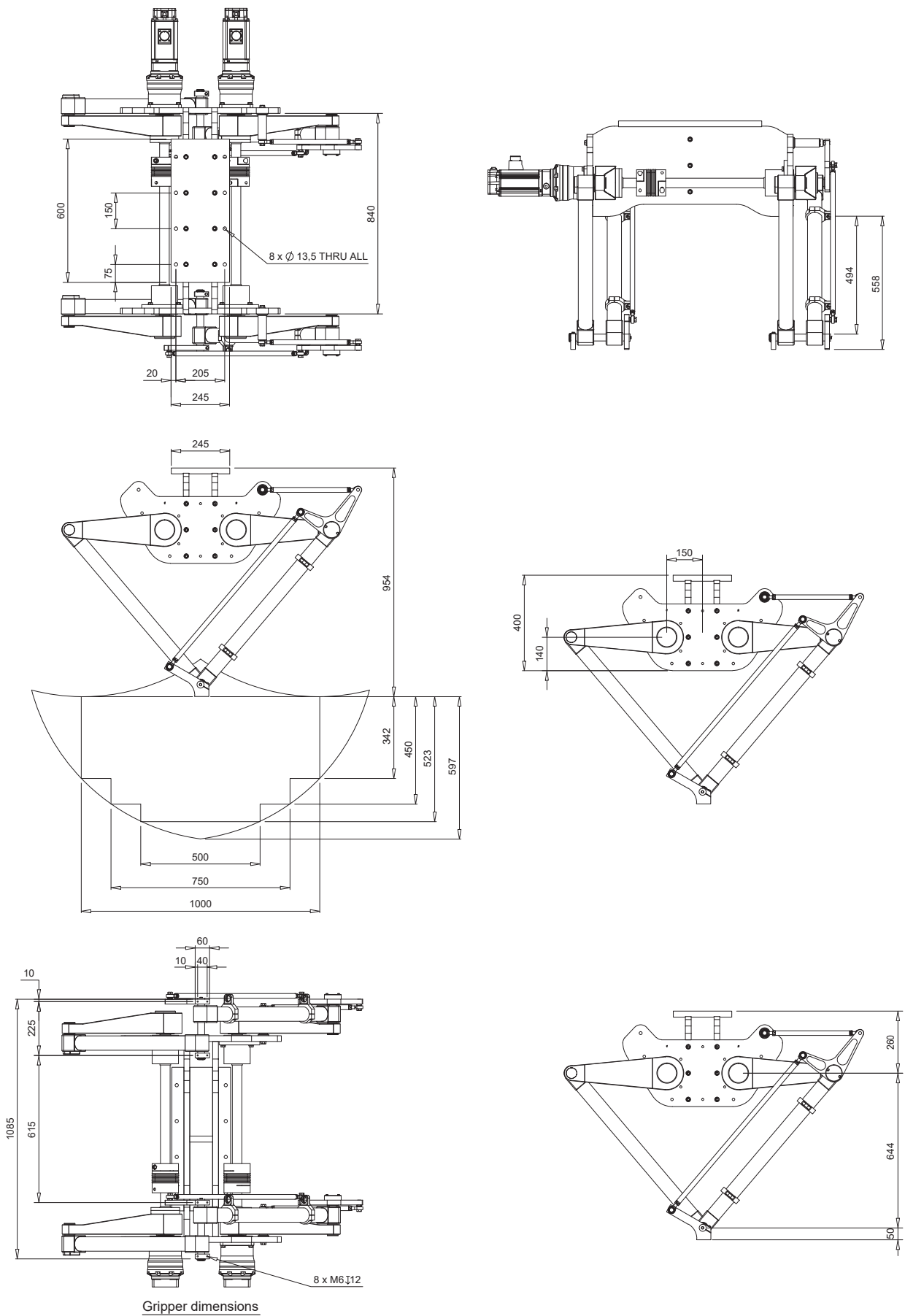


CR_UGD21000_□R

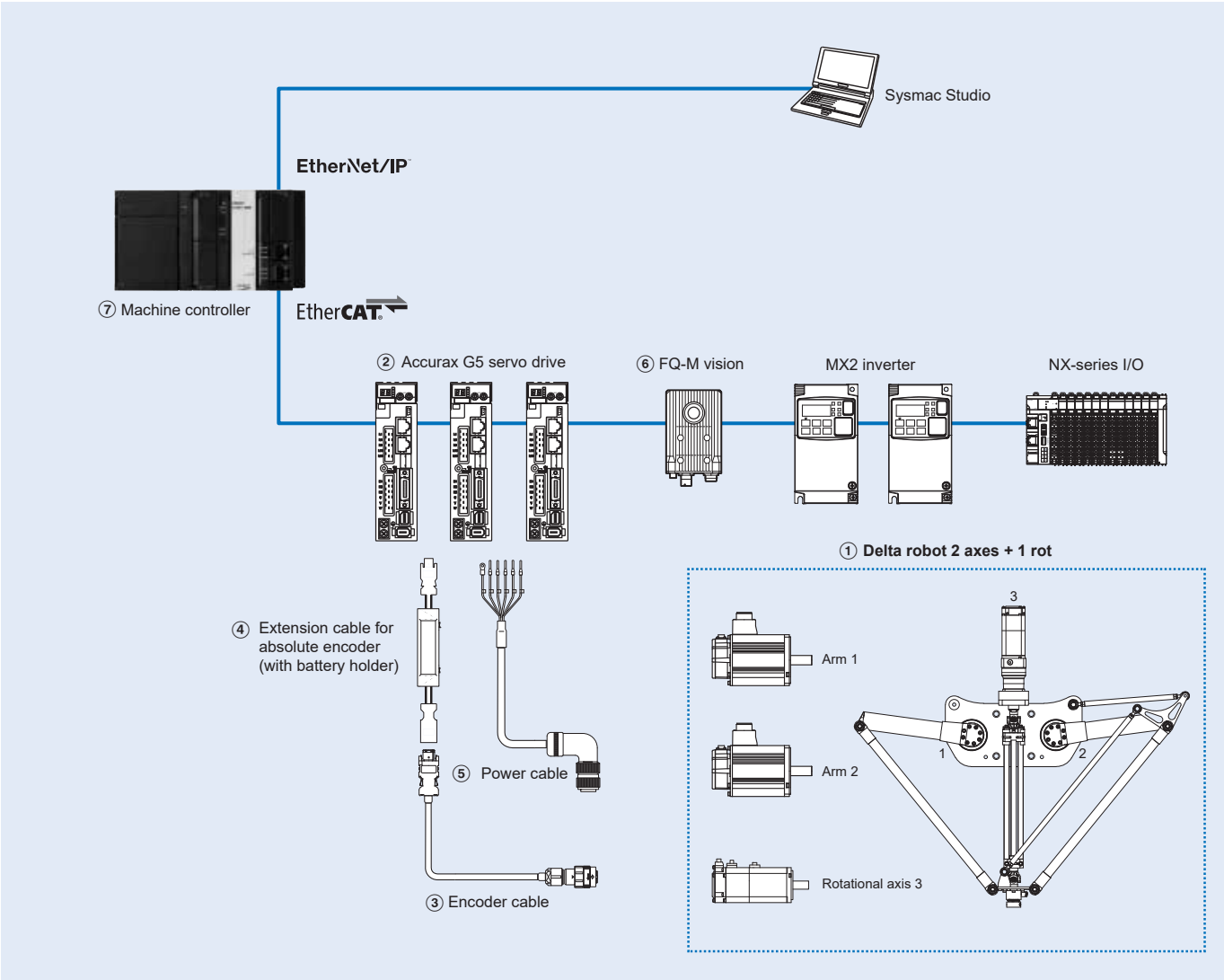




TWIN model
CR_UGD21000T_NR



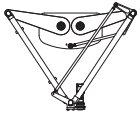
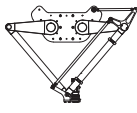
Ordering information



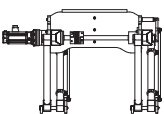
Note: Servo motors included in the Delta robot.

Delta robot 2 axes + 1 rot series

Standard models

Symbol	Model	Max. payload	Working range	Description	Axis	Applicable servo drive ②
	CR_UGD21500_R	35 kg	1,500 × 347 mm (Max. 800)	2 + 1 axes	Arm 1	R88D-KN30F-ECT
					Arm 2	R88D-KN30F-ECT
					Rotational 3	R88D-KN04H-ECT
	CR_UGD21500_NR			2 axes	Arm 1	R88D-KN30F-ECT
					Arm 2	R88D-KN30F-ECT
	CR_UGD21000_R	30 kg	1,000 × 342 mm (Max. 597)	2 + 1 axes	Arm 1	R88D-KN20F-ECT
					Arm 2	R88D-KN20F-ECT
					Rotational 3	R88D-KN04H-ECT
	CR_UGD21000_NR			2 axes	Arm 1	R88D-KN20F-ECT
					Arm 2	R88D-KN20F-ECT
	CR_UGD2800_R	3 kg	800 × 209 mm (Max. 320)	2 + 1 axes	Arm 1	R88D-KN15H-ECT
					Arm 2	R88D-KN15H-ECT
					Rotational 3	R88D-KN04H-ECT
	CR_UGD2800_NR		800 × 265 mm (Max. 477)	2 axes	Arm 1	R88D-KN15H-ECT
					Arm 2	R88D-KN15H-ECT

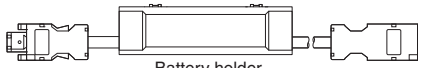
TWIN model

Symbol	Model	Max. payload	Working range	Description	Axis	Applicable servo drive ②
① 	CR_UGD21000T_NR	30 kg	1,000 × 342 mm (Max. 597)	2 axes	Arm 1	R88D-KN20F-ECT
					Arm 2	R88D-KN20F-ECT

Encoder cables

Symbol	Applicable Delta robots	Model	Appearance
③	CR_UGD21500 (Arm 1, 2) CR_UGD21000 (Arm 1, 2) CR_UGD2800 (Arm 1, 2) CR_UGD21000T	1.5 m R88A-CRKC001-5NR-E	
		3 m R88A-CRKC003NR-E	
		5 m R88A-CRKC005NR-E	
		10 m R88A-CRKC010NR-E	
		15 m R88A-CRKC015NR-E	
		20 m R88A-CRKC020NR-E	
	CR_UGD21500 (Rotational axis 3) CR_UGD21000 (Rotational axis 3) CR_UGD2800 (Rotational axis 3)	1.5 m R88A-CRKA001-5CR-E	
		3 m R88A-CRKA003CR-E	
		5 m R88A-CRKA005CR-E	
		10 m R88A-CRKA010CR-E	
		15 m R88A-CRKA015CR-E	
		20 m R88A-CRKA020CR-E	

Absolute encoder battery cable (encoder extension cable only)

Symbol	Specifications	Model	Appearance
④	Absolute encoder battery cable	Battery not included 0.3 m R88A-CRGD0R3C-E	 Battery holder
		Battery included 0.3 m R88A-CRGD0R3C-BS-E	
	Absolute encoder backup battery	2.000 mA.h, 3.6 V — R88A-BAT01G	

Power and brake cables

Symbol	Applicable Delta robots			Model		Appearance
(5)	CR_UGD21500	Arm 1, 2	Power cable with brake	1.5 m	R88A-CAGD001-5BR-E	
				3 m	R88A-CAGD003BR-E	
				5 m	R88A-CAGD005BR-E	
				10 m	R88A-CAGD010BR-E	
				15 m	R88A-CAGD015BR-E	
				20 m	R88A-CAGD020BR-E	
		Rotational axis 3	Power cable without brake	1.5 m	R88A-CAKA001-5SR-E	
				3 m	R88A-CAKA003SR-E	
				5 m	R88A-CAKA005SR-E	
				10 m	R88A-CAKA010SR-E	
				15 m	R88A-CAKA015SR-E	
				20 m	R88A-CAKA020SR-E	
		Brake cable	Brake cable	1.5 m	R88A-CAKA001-5BR-E	
				3 m	R88A-CAKA003BR-E	
				5 m	R88A-CAKA005BR-E	
				10 m	R88A-CAKA010BR-E	
				15 m	R88A-CAKA015BR-E	
				20 m	R88A-CAKA020BR-E	
	CR_UGD21000	Arm 1, 2	Power cable with brake	1.5 m	R88A-CAKF001-5BR-E	
				3 m	R88A-CAKF003BR-E	
				5 m	R88A-CAKF005BR-E	
				10 m	R88A-CAKF010BR-E	
				15 m	R88A-CAKF015BR-E	
				20 m	R88A-CAKF020BR-E	
		Rotational axis 3	Power cable without brake	1.5 m	R88A-CAKA001-5SR-E	
				3 m	R88A-CAKA003SR-E	
				5 m	R88A-CAKA005SR-E	
				10 m	R88A-CAKA010SR-E	
				15 m	R88A-CAKA015SR-E	
				20 m	R88A-CAKA020SR-E	
		Brake cable	Brake cable	1.5 m	R88A-CAKA001-5BR-E	
				3 m	R88A-CAKA003BR-E	
				5 m	R88A-CAKA005BR-E	
				10 m	R88A-CAKA010BR-E	
				15 m	R88A-CAKA015BR-E	
				20 m	R88A-CAKA020BR-E	
	CR_UGD2800	Arm 1, 2	Power cable with brake	1.5 m	R88A-CAGB001-5BR-E	
				3 m	R88A-CAGB003BR-E	
				5 m	R88A-CAGB005BR-E	
				10 m	R88A-CAGB010BR-E	
				15 m	R88A-CAGB015BR-E	
				20 m	R88A-CAGB020BR-E	
		Rotational axis 3	Power cable without brake	1.5 m	R88A-CAKA001-5SR-E	
				3 m	R88A-CAKA003SR-E	
				5 m	R88A-CAKA005SR-E	
				10 m	R88A-CAKA010SR-E	
				15 m	R88A-CAKA015SR-E	
				20 m	R88A-CAKA020SR-E	
		Brake cable	Brake cable	1.5 m	R88A-CAKA001-5BR-E	
				3 m	R88A-CAKA003BR-E	
				5 m	R88A-CAKA005BR-E	
				10 m	R88A-CAKA010BR-E	
				15 m	R88A-CAKA015BR-E	
				20 m	R88A-CAKA020BR-E	
	CR_UGD21000T	Arm 1, 2	Power cable with brake	1.5 m	R88A-CAKF001-5BR-E	
				3 m	R88A-CAKF003BR-E	
				5 m	R88A-CAKF005BR-E	
				10 m	R88A-CAKF010BR-E	
				15 m	R88A-CAKF015BR-E	
				20 m	R88A-CAKF020BR-E	

Vision

Name	Type		Model
⑥ FQ-M series	Color	NPN	FQ-MS120-ECT
		PNP	FQ-MS125-ECT
	Monochrome	NPN	FQ-MS120-M-ECT
		PNP	FQ-MS125-M-ECT

Machine controller

Name		Functions	Delta robot control	Axes	Model
⑦ NJ Robotics	CPU unit	Logic sequence, motion, robotics and database connection	Control of up to 8 Delta robot depending on the number of axes supported by the CPU	16	NJ501-4320
		Logic sequence, motion and robotics		64	NJ501-4500
				32	NJ501-4400
				16	NJ501-4300
				Control of one Delta robot	16
	Power supply unit				NJ-PA3001 (220 VAC)
					NJ-PD3001 (24 VDC)

Computer software

Specifications	Model
Sysmac Studio version 1.03 or higher	SYSMAC-SE2□□□□

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_I202E-EN-03D In the interest of product improvement, specifications are subject to change without notice.