



## Items

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## ◆ Outline of system

- The current sensor feed back control system "GKL" is the torque control type nut runner system that enables the various tightening methods to many types of tightening objects.

## ◆ ANM(R) Nut runner

- Torque sensor is not equipped due to the current sensor control system.
- Rotation number can be freely set in a range from low-speed to high-speed rotation.
- Wide torque range from low torque to high torque with a variety range of types.
- It is a low cost product line compared to GSK.
- Suitable for screw loosening equipment.

## ◆ Interface unit (Common to series)

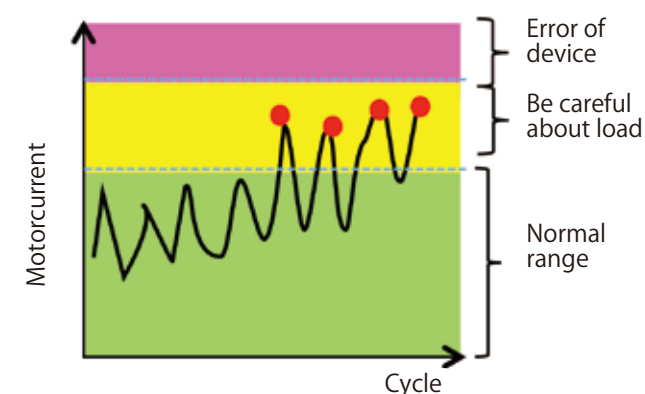
- The interface unit is a device communicating with an external unit such as sequencer, display, setting PC, and printer.
- GSK system can display the information related to tightening control such as setting data and tightening result by connecting PC to IF unit.
- ANYBUS supports various fieldbuses.
- The interface unit is equipped with communication function supporting single axis and multi-axis controller 1-axis to 30-axis and 1 unit is attached to 1 set. (in case of 31-axis or more, 2 units are required.)
- Confirmation result data can be confirmed without connection with PC by connecting the dedicated printer.

## ◆ Controller unit

- Tightening torque accuracy ( $3\sigma/X$ ) Target torque  $\pm 10\% \sim \pm 12\%$
- It is possible with the stall control, which is suitable for keeping torque and soft-joint tightening.
- High reliability makes it always possible to check the current sensor and gear re-duction part every time. (Because of setting required.)
- Tightening program sets the rotation number and torque control, facilitating various tightening patterns.
- Two setup methods are provided to set up the tightening program: The input method from the set up personal computer and that from the controller front panel.

※ "GKL" There is no angle judgment control from snug torque.

## ■ Predictive maintenance function is mounted on the nut runner for the first time



Prediction is output before stop by alarm of device error utilizing the status monitoring.

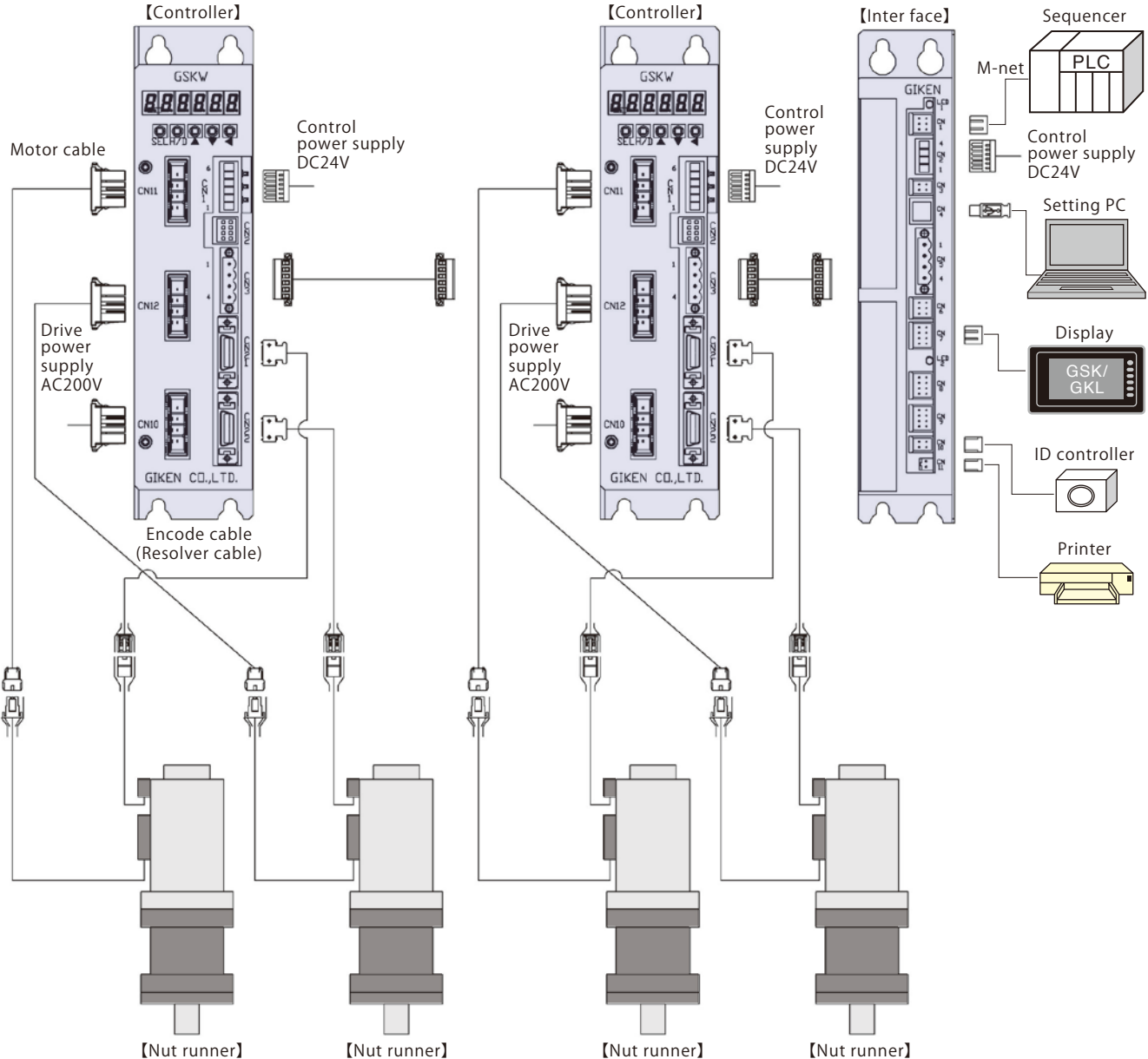
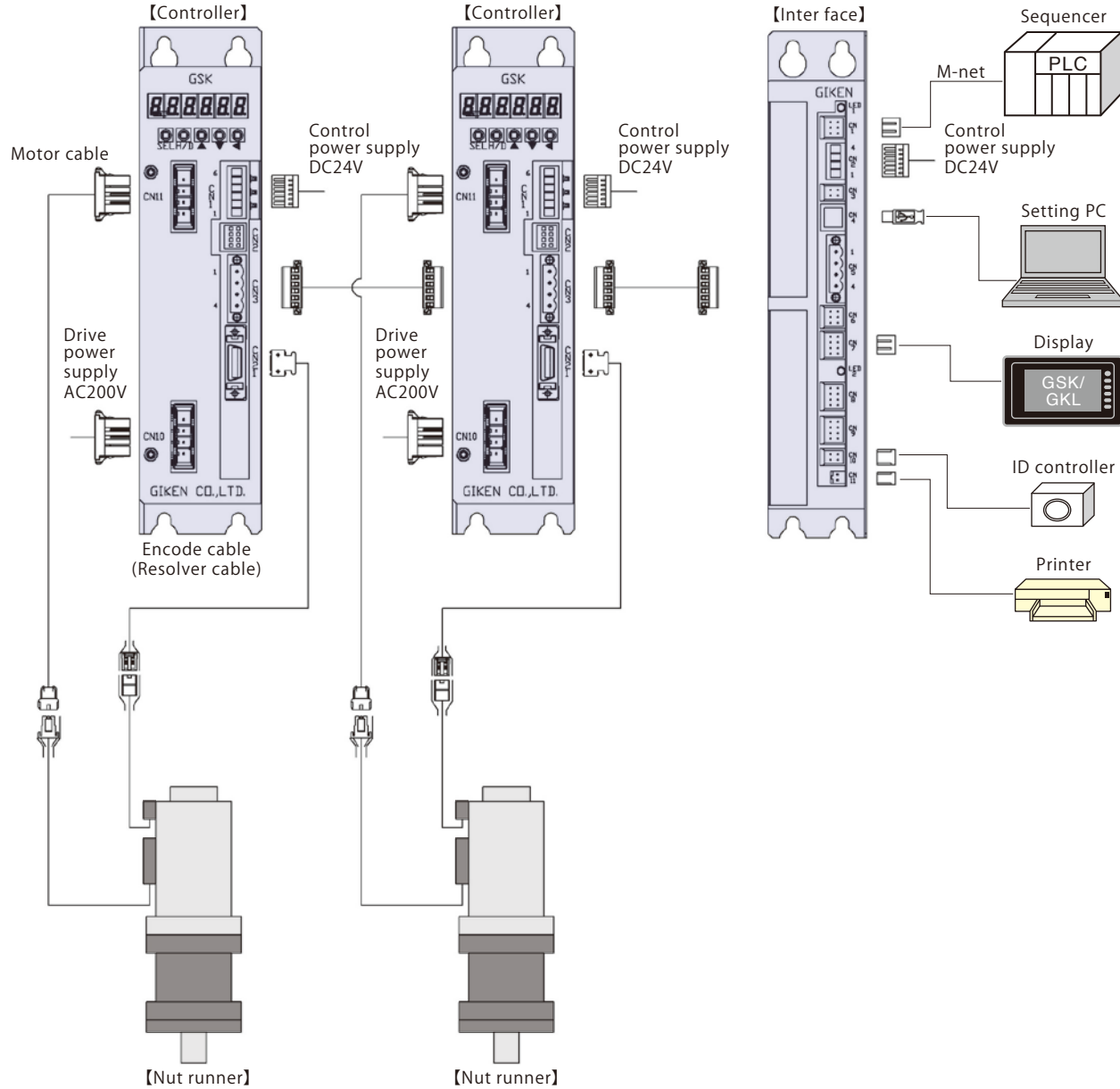
Stop of equipment due to failure can be prevented by forecasting heat generation of motor, degradation of bearing, damage of reduction gear etc. and outputting protection warning and outputting the life alarm of consumable parts mounted on controller such as capacitor, relay, EEPROM.

## ■ Globalization of communication is supported

- |                 |                                |
|-----------------|--------------------------------|
| • M-NET         | • PROFI-NET-IRT                |
| • CC-LINK       | • FL-NET                       |
| • Device-NET    | • Ether-NET                    |
| • PROFI-NET-I/O | communication can be supported |

## ■GKL system configuration

## ■GKLW system configuration



## ◆Nut runner model composition

AN **M** - **400**

①                      ②                      ③

### ①Angle sensor type

<b>M</b> : Encoder
<b>R</b> : Resolver

※Resolver specification is semi-ordered.

### ②Torque division

Notation unit    kgf·cm
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### ③Special symbol A

<b>Blank</b> : Straight type
<b>L</b> : External offset type

## ◆Series list

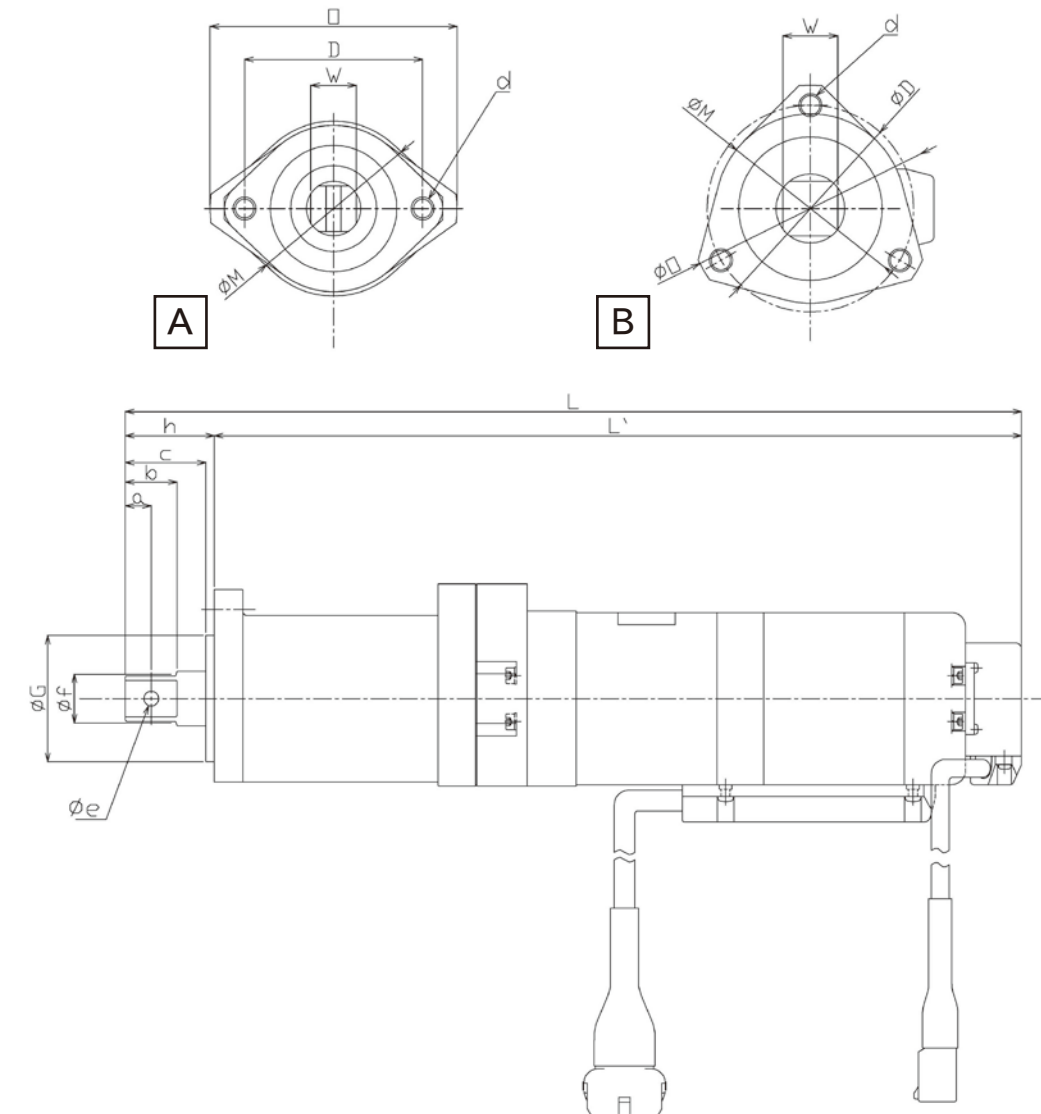
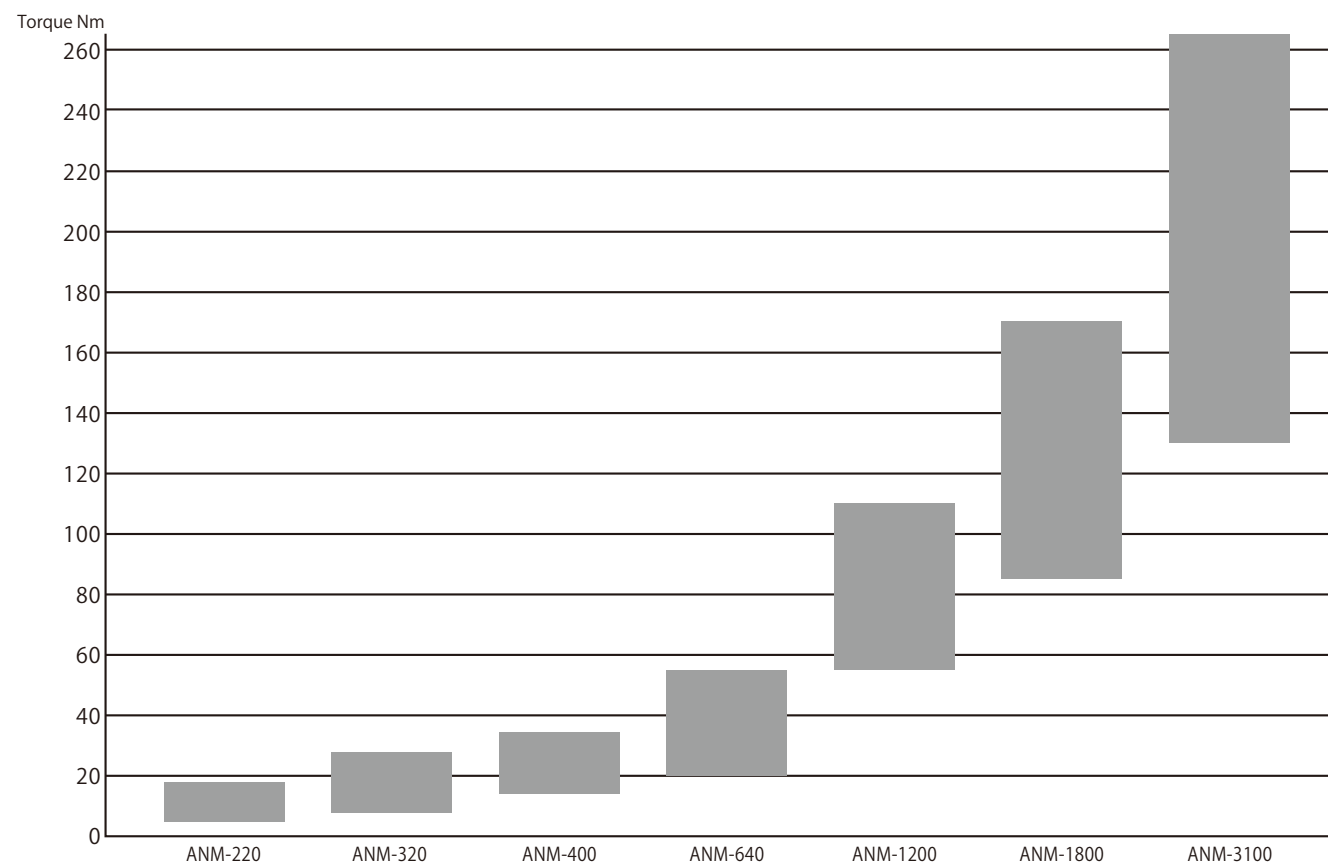
Series	Angle sensor type	Features
ANM	Encoder	Straight type
ANM-L		External offset type
ANR	Resolver	Straight type
ANR-L		External offset type

※Resolver specification is a custom item.

## Specification/Dimension Table

### ■ Straight type

Model	Max torque [N·m]	Maximum rotational speed [rpm]	Weight [kg]	Drive power supply (AC200V) Supply current capacity Rated value [A rms]	Crosspounding controller
ANM-220	18	310	1.3	0.6	GKL-14(T4)-E-N2 GKLW-14(T4)-E-N2
ANM-320	28	430	1.6	1.2	
ANM-400	35	310	1.6	1.2	
ANM-640	55	420	3.4	2.3	
ANM-1200	110	420	4.2	4.5	GKL-15(T5)-E-N2 GKLW-15(T5)-E-N2
ANM-1800	170	285	5.2	4.5	
ANM-3100	265	235	8.5	8.5	

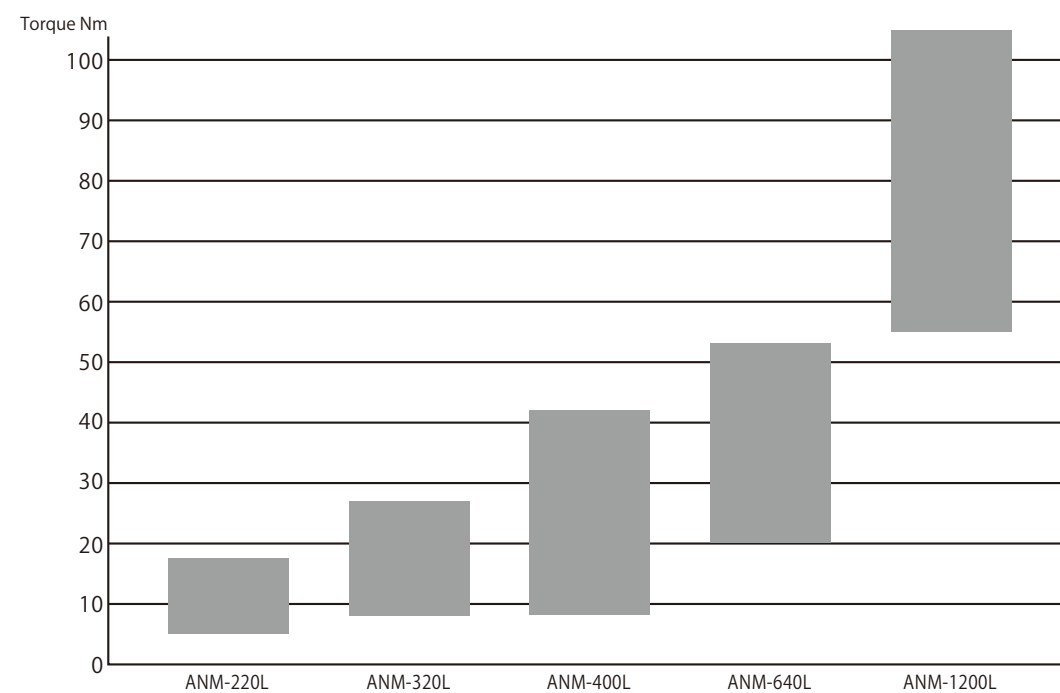
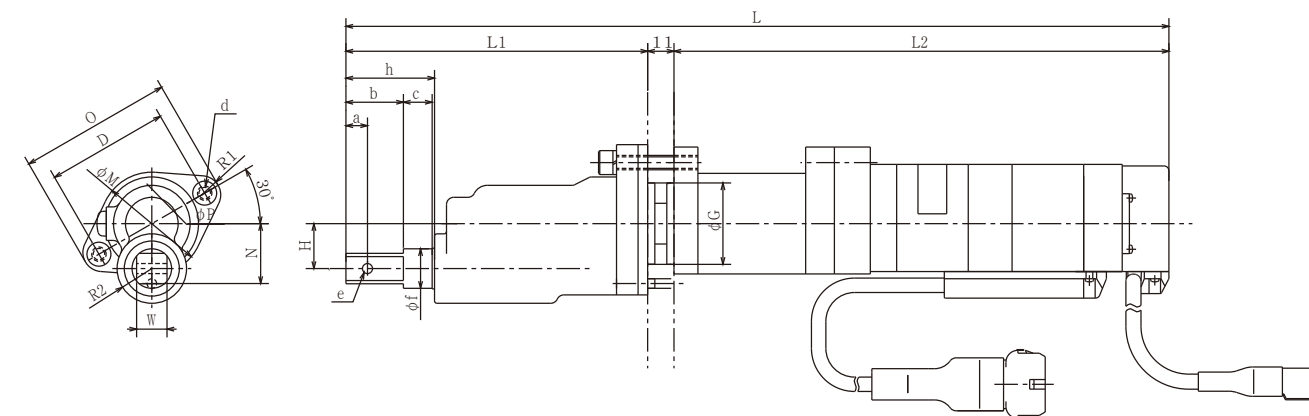


Nut runner model	Shape	a	b	c	D	d	e	f	G		L	L'	h	M	O	W
									Reference dimension	Tolerance						
ANM-220	A	5	11	18	51	2-M6	3.2	12	34	-0.025 -0.050	179.5	158.5	21	42	64	9.52
ANM-320	A	8	16	23	51	2-M6	4.2	17	34	-0.025 -0.050	232.7	206.7	26	42	64	12.7
ANM-400	A	8	16	23	51	2-M8	4.2	17	34	-0.025 -0.050	232.7	206.7	26	42	64	12.7
ANM-640	A	9	18	28	62	2-M8	5.2	19	44	-0.025 -0.050	246.9	215.9	31	61	80	15.87
ANM-1200	A	9	18	28	62	2-M8	5.2	19	44	-0.025 -0.050	312.2	281.2	31	61	80	15.87
ANM-1800	B	13	25	36	68	3-M8	5.2	24	50	-0.03 -0.05	357.2	318.2	39	61	82	19.05
ANM-3100	B	13	25	36	72	3-M8	5.2	24	50	-0.03 -0.05	362.2	323.2	39	66	86	19.05

## Specification/Dimension Table

### External offset type

Model	Max torque [N·m]	Maximum rotational speed [rpm]	Weight [kg]	Drive power supply (AC200V) Supply current capacity Rated value [A rms]	Crosspounding controller
ANM-220L	17.5	305	1.5	0.6	GKL-14(T4)-E-N2 GKLW-14(T4)-E-N2
ANM-320L	27	420	2.9	1.2	
ANM-400L	41	310	2.9	1.2	
ANM-640L	53	410	4.2	2.3	
ANM-1200L	105	420	5.0	4.5	GKL-15(T5)-E-N2 GKLW-15(T5)-E-N2



Nut runner model	a	b	c	D	d	e	f	G		L	L1	L2	h	M	N	O	P	R1	R2	H	W
								Reference dimension	Tolerance												Reference dimension
ANM-220L	7.5	21	11	51	2-M6	3.2	11.5	34	-0.025 -0.050	286.5	117	158.5	33	43	25	64	4	8	14.5	18.75	9.52
ANM-320L	9	24	12	51	2-M6	4.2	16.5	34	-0.025 -0.050	343.7	126	206.7	37	43	25	64	4	8	14.5	18.75	12.7
ANM-400L	9	24	12	51	2-M8	4.2	16.5	34	-0.025 -0.050	343.7	126	206.7	37	43	25	64	4	8	14.5	18.75	12.7
ANM-640L	9.5	26	13.5	62	2-M8	5.2	19.5	44	-0.025 -0.050	344.9	118	215.9	40	61	30	76	5	9	20	30	15.87
ANM-1200L	9.5	26	13.5	62	2-M8	5.2	19.5	44	-0.025 -0.050	410.2	118	281.2	40	61	30	76	5	9	20	30	15.87

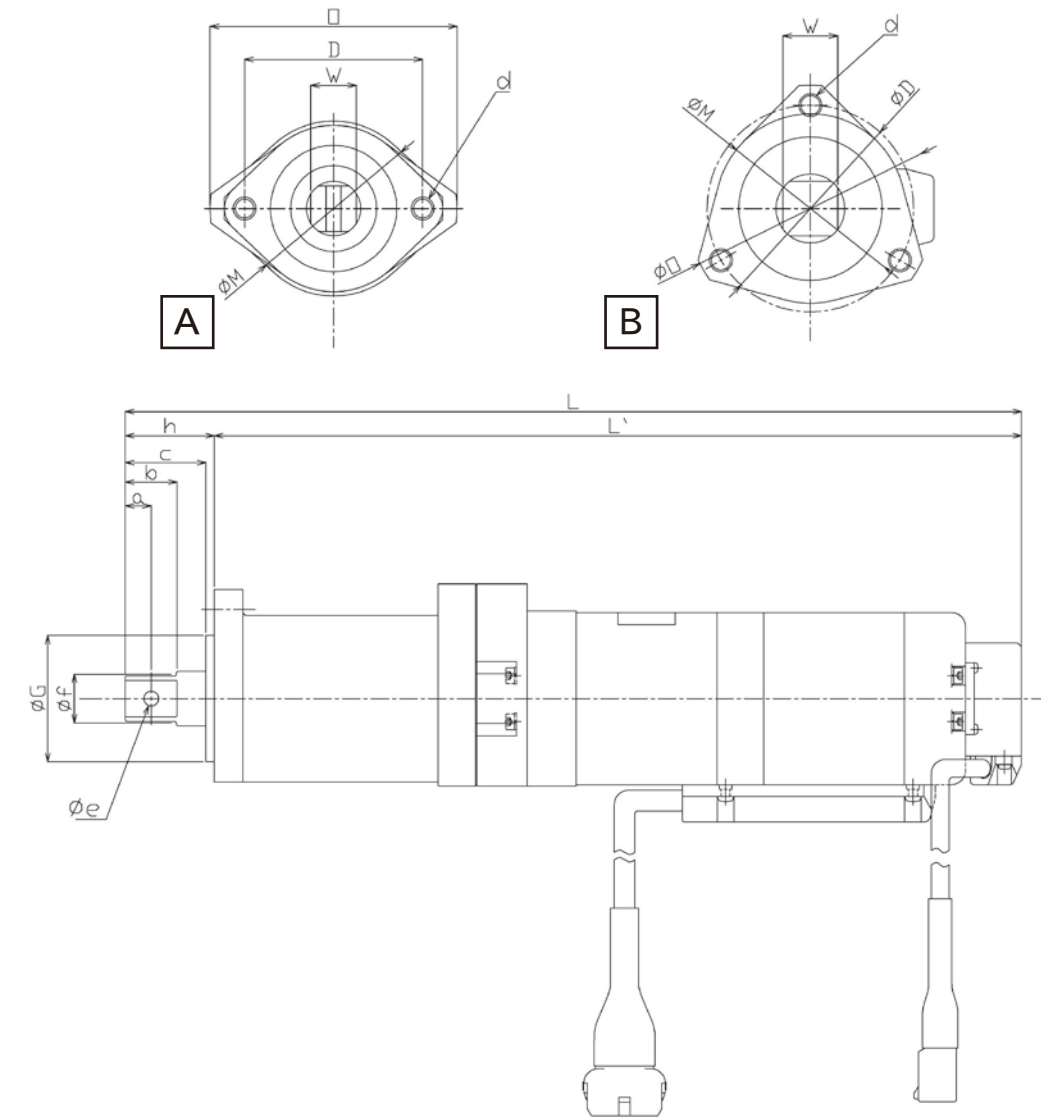
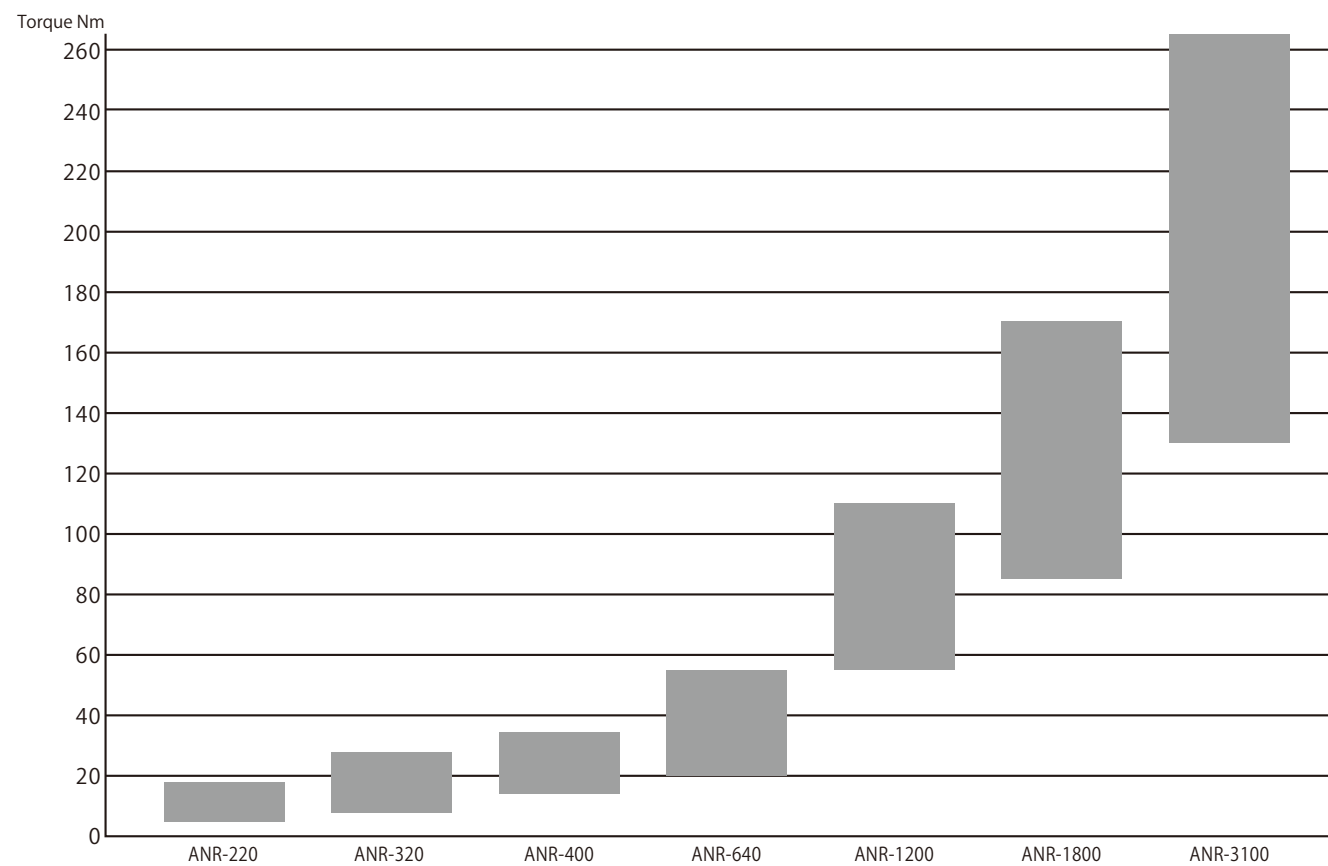
※Resolver specification is a custom item.

## Specification/Dimension Table

### ■Straight type

Model	Max torque [N·m]	Maximum rotational speed [rpm]	Weight [kg]	Drive power supply (AC200V) Supply current capacity Rated value [A rms]	Crosspounding controller
ANR-220	18	310	1.3	0.6	GKL-14(T4)-R-N2 GKLW-14(T4)-R-N2
ANR-320	28	430	1.6	1.2	
ANR-400	35	310	1.6	1.2	
ANR-640	55	420	3.4	2.3	
ANR-1200	110	420	4.2	4.5	GKL-15(T5)-R-N2 GKLW-15(T5)-R-N2
ANR-1800	170	285	5.2	4.5	
ANR-3100	265	235	8.5	8.5	

※Resolver specification is a custom item.



Nut runner model	Shape	a	b	c	D	d	e	f	G		L	L'	h	M	O	W
									Reference dimension	Tolerance						Reference dimension
ANR-220	A	5	11	18	51	2-M6	3.2	12	34	-0.025 -0.050	179.5	158.5	21	42	64	9.52
ANR-320	A	8	16	23	51	2-M6	4.2	17	34	-0.025 -0.050	232.7	206.7	26	42	64	12.7
ANR-400	A	8	16	23	51	2-M8	4.2	17	34	-0.025 -0.050	232.7	206.7	26	42	64	12.7
ANR-640	A	9	18	28	62	2-M8	5.2	19	44	-0.025 -0.050	246.9	215.9	31	61	80	15.87
ANR-1200	A	9	18	28	62	2-M8	5.2	19	44	-0.025 -0.050	312.2	281.2	31	61	80	15.87
ANR-1800	B	13	25	36	68	3-M8	5.2	24	50	-0.03 -0.05	357.2	318.2	39	61	82	19.05
ANR-3100	B	13	25	36	72	3-M8	5.2	24	50	-0.03 -0.05	362.2	323.2	39	66	86	19.05

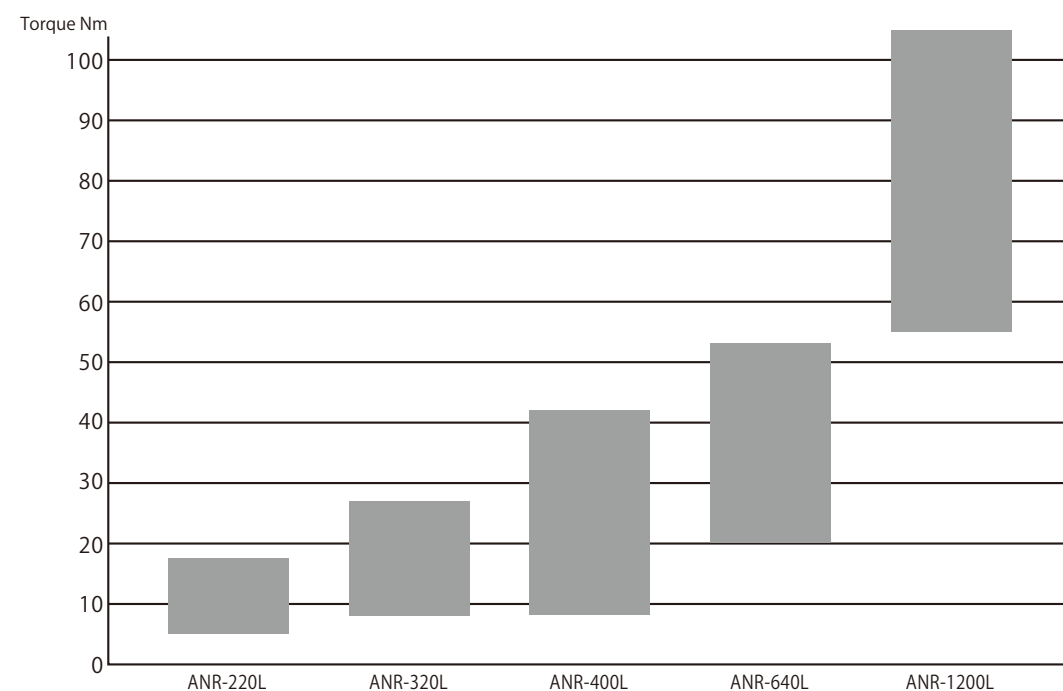
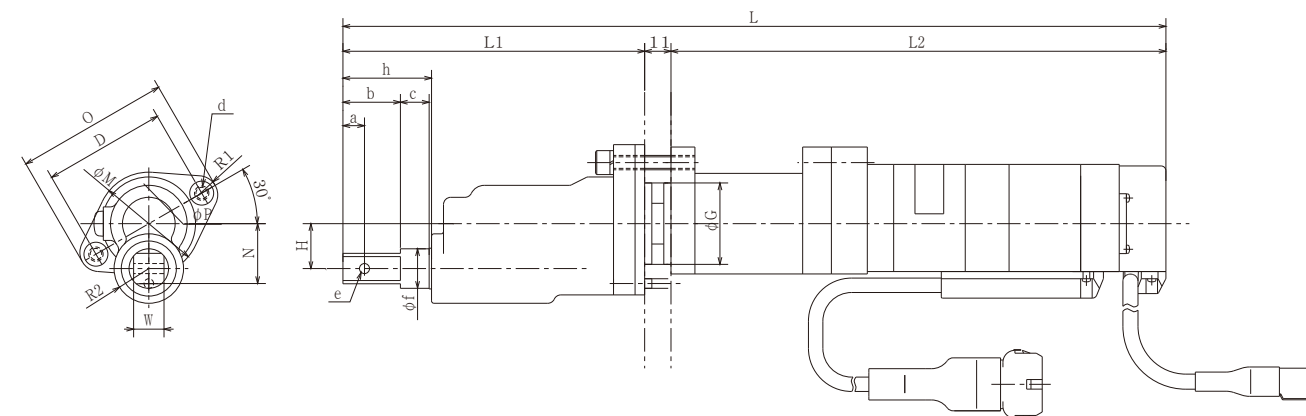
※Resolver specification is a custom item.

## Specification/Dimension Table

### External offset type

Model	Max torque [N·m]	Maximum rotational speed [rpm]	Weight [kg]	Drive power supply (AC200V) Supply current capacity Rated value [A rms]	Crosspounding controller
ANR-220L	17.5	305	1.5	0.6	GKL-14(T4)-R-N2 GKLW-14(T4)-R-N2
ANR-320L	27	420	2.9	1.2	
ANR-400L	41	310	2.9	1.2	
ANR-640L	53	410	4.2	2.3	
ANR-1200L	105	420	5.0	4.5	GKL-15(T5)-R-N2 GKLW-15(T5)-R-N2

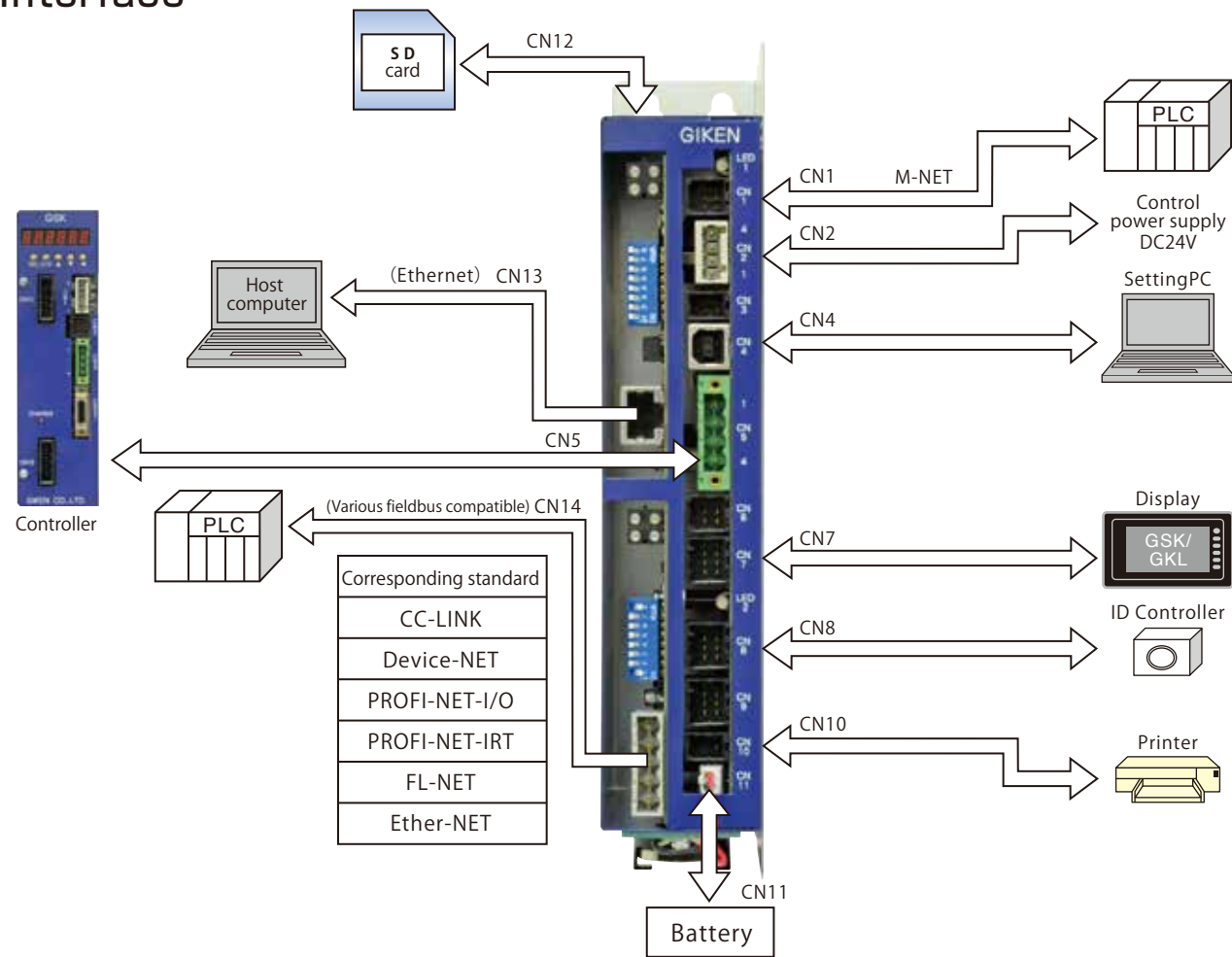
※Resolver specification is a custom item.



Nut runner model	a	b	c	D	d	e	f	G		L	L1	L2	h	M	N	O	P	R1	R2	H	W
								Reference dimension	Tolerance												
ANR-220L	7.5	21	11	51	2-M6	3.2	11.5	34	-0.025 -0.050	286.5	117	158.5	33	43	25	64	4	8	14.5	18.75	9.52
ANR-320L	9	24	12	51	2-M6	4.2	16.5	34	-0.025 -0.050	343.7	126	206.7	37	43	25	64	4	8	14.5	18.75	12.7
ANR-400L	9	24	12	51	2-M8	4.2	16.5	34	-0.025 -0.050	343.7	126	206.7	37	43	25	64	4	8	14.5	18.75	12.7
ANR-640L	9.5	26	13.5	62	2-M8	5.2	19.5	44	-0.025 -0.050	344.9	118	215.9	40	61	30	76	5	9	20	30	15.87
ANR-1200L	9.5	26	13.5	62	2-M8	5.2	19.5	44	-0.025 -0.050	410.2	118	281.2	40	61	30	76	5	9	20	30	15.87

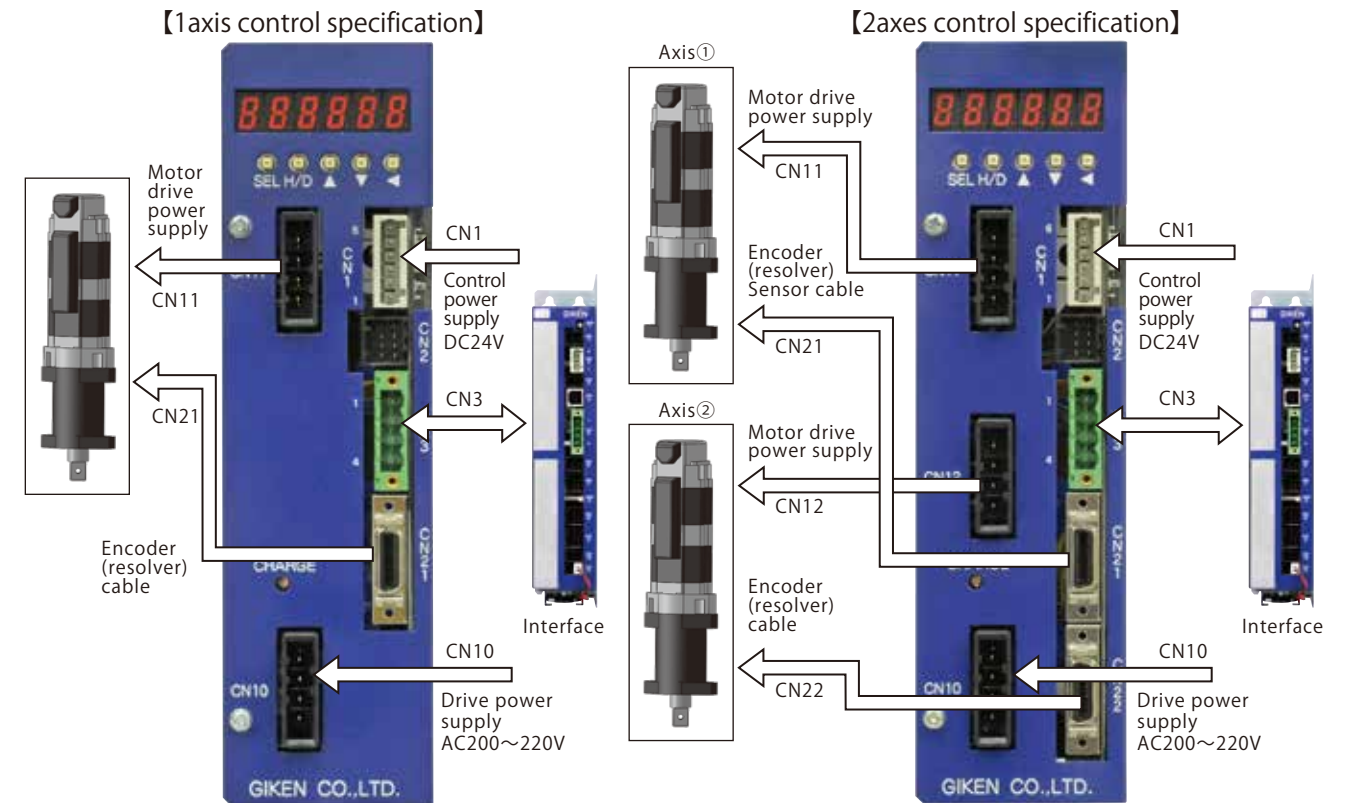


## Interface



Port NO.	Name	Connector model	Opponent's connector housing	Opponent's connector pin	Opponent's connector Accessories	Communication method	Remarks
CN1	Communication port with PLC	1-1827876-3 (TE Connectivity)	1-1827864-3 (TE Connectivity)	1827570-2 (TE Connectivity)	-	M-NET	
CN2	Control power supply input port	734-144 (WAGO)	734-104 (WAGO)	-	○	DC24V	
CN4	Communication port with setting PC	UBB-4R-D14T-4D (JST)	USB Type B	-	-	USB	Cable model: GK-SET-1.8M
CN5	Port for connecting to controller	MSTB2.5/4-GF-5.08 (PHOENIX CONTACT)	MSTB2.5/4-STF-5.08 (PHOENIX CONTACT)	-	○	ARC-NET	
CN7	Communication port for display	1-1827876-4 (TE Connectivity)	1-1827864-4 (TE Connectivity)	1827570-2 (TE Connectivity)	-	RS422	Cable model: GSK-DIS-10M :GSK-DIS-15M
CN8	Communication port for ID controller	1-1827876-4 (TE Connectivity)	1-1827864-4 (TE Connectivity)	1827570-2 (TE Connectivity)	-	RS422	
CN10	Communication port for printer	1-1827876-2 (TE Connectivity)	1-1827864-2 (TE Connectivity)	1827570-2 (TE Connectivity)	-	RS232C	Cable model: GK-PRN-1.5M :GK-PRN-3.0M
CN11	Battery	-	-	-	○	-	Battery type: CR2450/Panasonic Battery is included
CN12	SD card slot	-	-	-	-	-	It corresponds to SD and SDHC SD card model: GK-SD-32G
CN13	Communication port for anybus	-	-	-	-	Compatible with various communication methods	
CN14	Communication port for anybus	-	-	-	-	Compatible with various communication methods	

## Controller



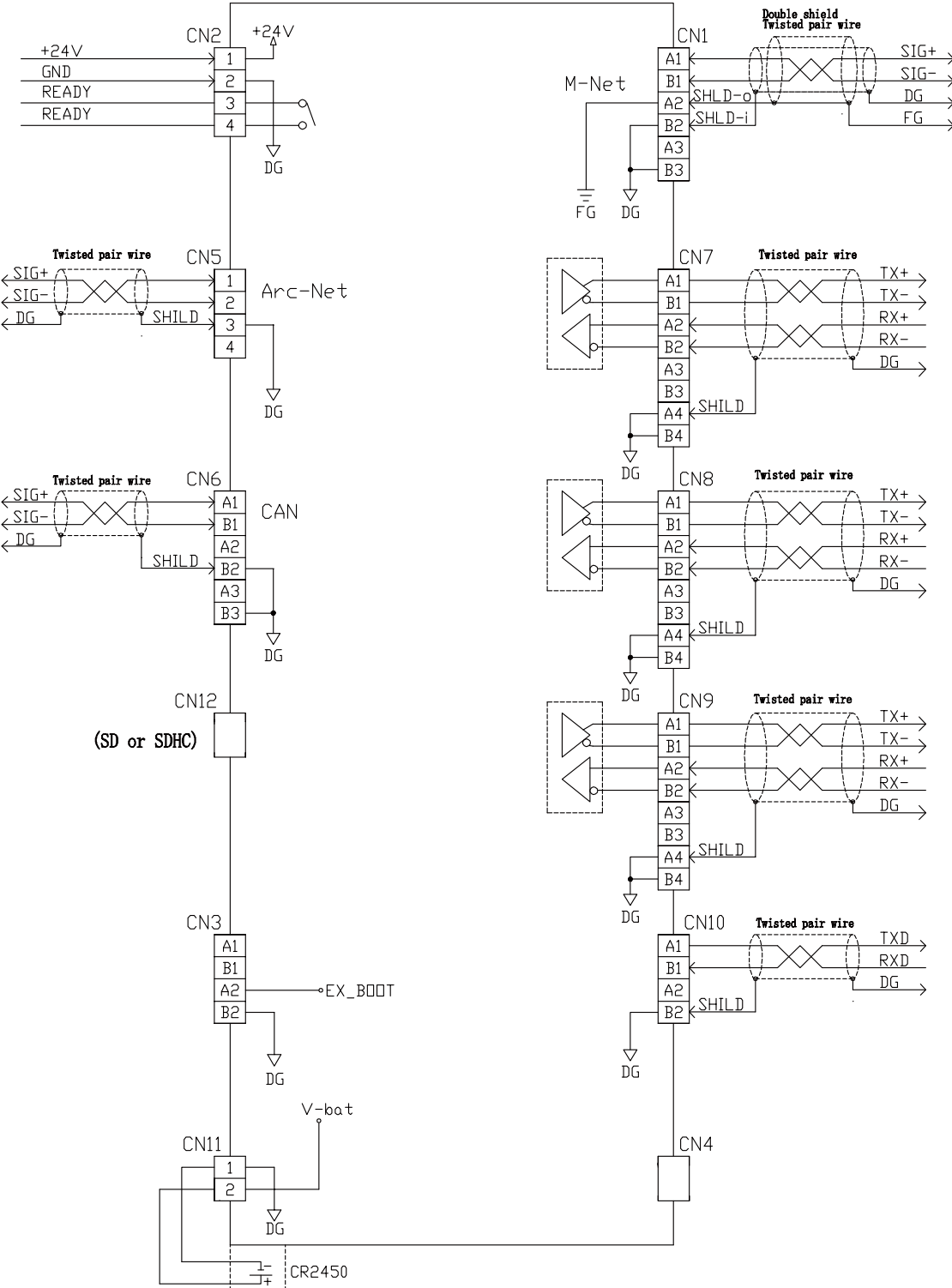
### GKL-14-□□-N□

Port NO.	Name	Connector model	Opponent's connector housing	Opponent's connector pin	Opponent's connector Accessories	Remarks
CN1	Control power supply input port	734-166 (WAGO)	734-106 (WAGO)	-	○	DC24V
CN3	Interfaces and controller communication ports	MSTB2.5/4-GF-5.08 (PHOENIX CONTACT)	MSTB2.5/4-STF-5.08 (PHOENIX CONTACT)	-	○	ARC-NET
CN10	Input port for drive power supply	1-179277-2 (TE Connectivity)	1-178128-4 (TE Connectivity)	1-175218-2 (TE Connectivity)	○	AC200~220V
CN11	Ports that supply power to the first axis motor	2-179277-2 (TE Connectivity)	2-178128-4 (TE Connectivity)	1-353717-2 (TE Connectivity)	-	
CN12	Ports that supply power to the second axis motor	2-179277-2 (TE Connectivity)	2-178128-4 (TE Connectivity)	1-353717-2 (TE Connectivity)	-	
CN21	Port for connecting axis 1 sensor	10220-52-A2PL (Sumitomo 3M)	10320-5 A 0-008 (Sumitomo 3M)	10120-3000VE (Sumitomo 3M)	-	
CN22	Port for connecting axis 2 sensor	10220-52-A2PL (Sumitomo 3M)	10320-5 A 0-008 (Sumitomo 3M)	10120-3000VE (Sumitomo 3M)	-	

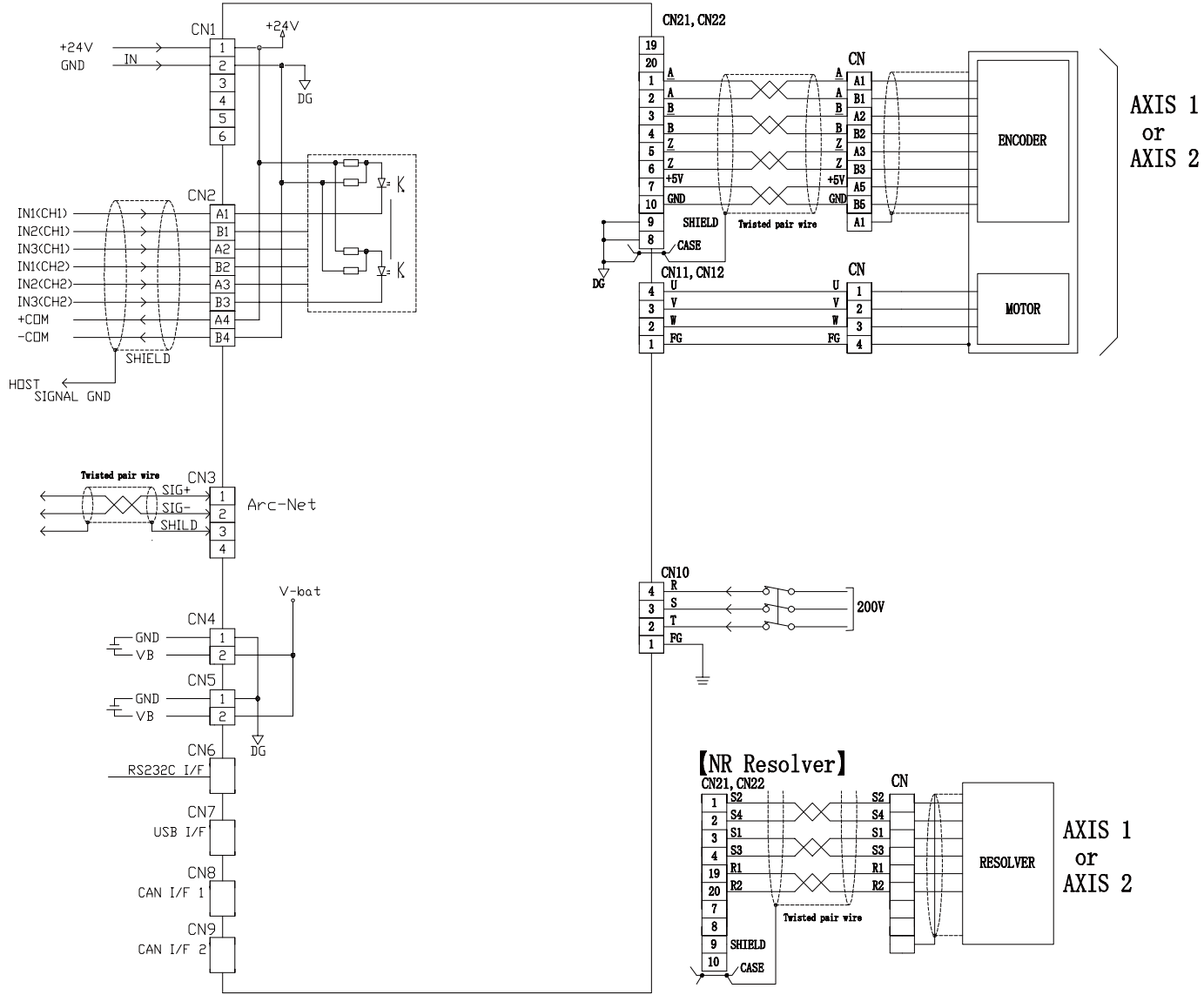
### GKL-15(17)-□□-N□

CN10	Input port for drive power supply	2-917541-2 (TE Connectivity)	2-179958-4 (TE Connectivity)	316040-2 (TE Connectivity)	-	AC200~220V
CN11	Ports that supply power to the first axis motor	1-917541-2 (TE Connectivity)	1-179958-4 (TE Connectivity)	316040-2 (TE Connectivity)	-	
CN12	Ports that supply power to the second axis motor	1-917541-2 (TE Connectivity)	1-179958-4 (TE Connectivity)	316040-2 (TE Connectivity)	-	

## Interface (Common to GSK/positioning GSK)



## Controller



- G S K
- Controller
- Positioning GSK
- System GSK
- Peripheral device/option

## Interface(Common to GSK)

Model	GSK-IF-N1
Weight [kg]	0.54
Input of control power supply	DC24V±10% 1.0Amax
Start-up inrush current	5.0A
Control power supply rated current	0.2A
Number of nut runner controllable axes	Up to 30 axes
Supported SD card	SD and SDHC type
SD card record contents	Setting / Maximum 8000 items, Clamp history / Maximum 2 million items, Tightening waveform / Maximum 2 million items
Main body preserved content	Alarm history / 16 for each axis, Tightening history / 5000 for each axis, Tightening waveform / 1 for each axis
Available temperature and humidity	0~50°C 90% RH or less (no condensation)
Fieldbus	Anybus
Battery	CR2450/Panasonic (lifespan is 5 years)

## Corresponding fieldbus

Interface model	Corresponding standard
GSK-IF-N1	M-NET
GSK-IFCC-N1	CC-LINK
GSK-IFDN-N1	Device-NET
GSK-IFPNIO-N1	PROFI-NET-I/O
GSK-IFPNIRT-N1	PROFI-NET-IRT
GSK-IFFL-N1	FL-NET
GSK-IFET-N1	Ether-NET
GSK-IFSG-N1	SYSTEM GSK
GSK-IFDN(ET)-N1	Device-NET+ Ether-NET
GSK-IFCC(ET)-N1	CC-LINK+Ether-NET

## Tightening result output by field bus

Corresponding standard	Output contents
Ether-NET	Tightening waveform All contents of the "online" item in the setting software

## Controller

Input of control power supply	DC24V±10% 1.0Amax
Input of drive power supply	3-phase AC160~264V 50/60Hz
Screen	6 digit 7 segment LED
Drive motor	AC Servo Motor
Drive power supply inrush current prevention mechanism	Inrush current prevention circuit
Analog monitor output	2 points ± 8 V (It Outputs the torque, speed and current to the check terminal on panel surface.) (set by parameter)
Available temperature and humidity	0~50°C 90% RH or less (no condensation)
Positioning battery	GSK-BATT(lifespan is 2 years)

Specification	Model	Weight[kg]	Heat sink mounting position
Standard type	GSK-14	1.3	No mounting
	GSK-15	2.4	Side mounting
	GSK-17	2.7	
Standard 2-axis type	GSKW-14	1.27	No mounting
	GSKW-15	4.0	Side mounting
T type	GSK-T4	1.3	No mounting
	GSK-T5	2.4	Rear mounting
	GSK-T7	2.4	
T 2-axis type	GSKW-T4	1.3	No mounting
	GSKW-T5	3.7	Rear mounting

## Interface (Common to GSK)

### ◆Model composition

GSK - IF **CC** ( ) - **N1**  
 ① ①※ ②

#### ①Supported communication standard

<b>Blank</b> : M-NET
<b>CC</b> : CC-LINK
<b>DN</b> : Device-NET
<b>PNIO</b> : PROFI-NET-I/O
<b>PNIRT</b> : PROFI-NET-IRT
<b>FL</b> : FL-NET
<b>ET</b> : Ether-NET
<b>SG</b> : System GSK (I/O)

#### ②Corresponding series symbol

**N1** : Standard item  
 (Common to positioning and nut runner)

※Please fill in the communication standard of channel 13 side when two Anybus are connected.  
 Example: GSK-IFDN (ET) -N 1

### ◆Model list

Model	Communication standard
GSK-IF-N1	M-NET
GSK-IFCC-N1	CC-LINK
GSK-IFDN-N1	Device-NET
GSK-IFPNIO-N1	PROFI-NET-I/O
GSK-IFPNIRT-N1	PROFI-NET-IRT
GSK-IFFL-N1	FL-NET
GSK-IFET-N1	Ether-NET
GSK-IFSG-N1	System GSK specification(I/O)
GSK-IFDN(ET)-N1	Device-NET + Ether-NET
GSK-IFCC(ET)-N1	CC-LINK + Ether-NET

## Controller

### ◆Model composition

GKL **W** - **1** **4** - **E** ( ) - **N2**  
 ① ② ③ ④ ⑤ ⑥

#### ①Number of nut runners to be controlled

<b>Blank</b> : 1 axis type
<b>W</b> : 2 axis type

#### ②Heat sink mounting position

<b>1</b> : Side (Standard type)
<b>T</b> : Back (T type)

#### ③Nut runner rated value

<b>4</b>	This number will vary depending on the nut runner used.
<b>5</b>	Please check the corresponding controller column of Nut runner's Specification / Dimension Table for which number to use.
<b>7</b>	

※ W specification correspond to only 4 and 5.

#### ④Angle sensor type ※1

<b>E</b> : Encoder
<b>R</b> : Resolver

※1 Depending on the nut runner model

#### ⑤Angle sensor spec

<b>Blank</b> : Standard type
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#### ⑥Corresponding series symbol

<b>N2</b> : Standard item
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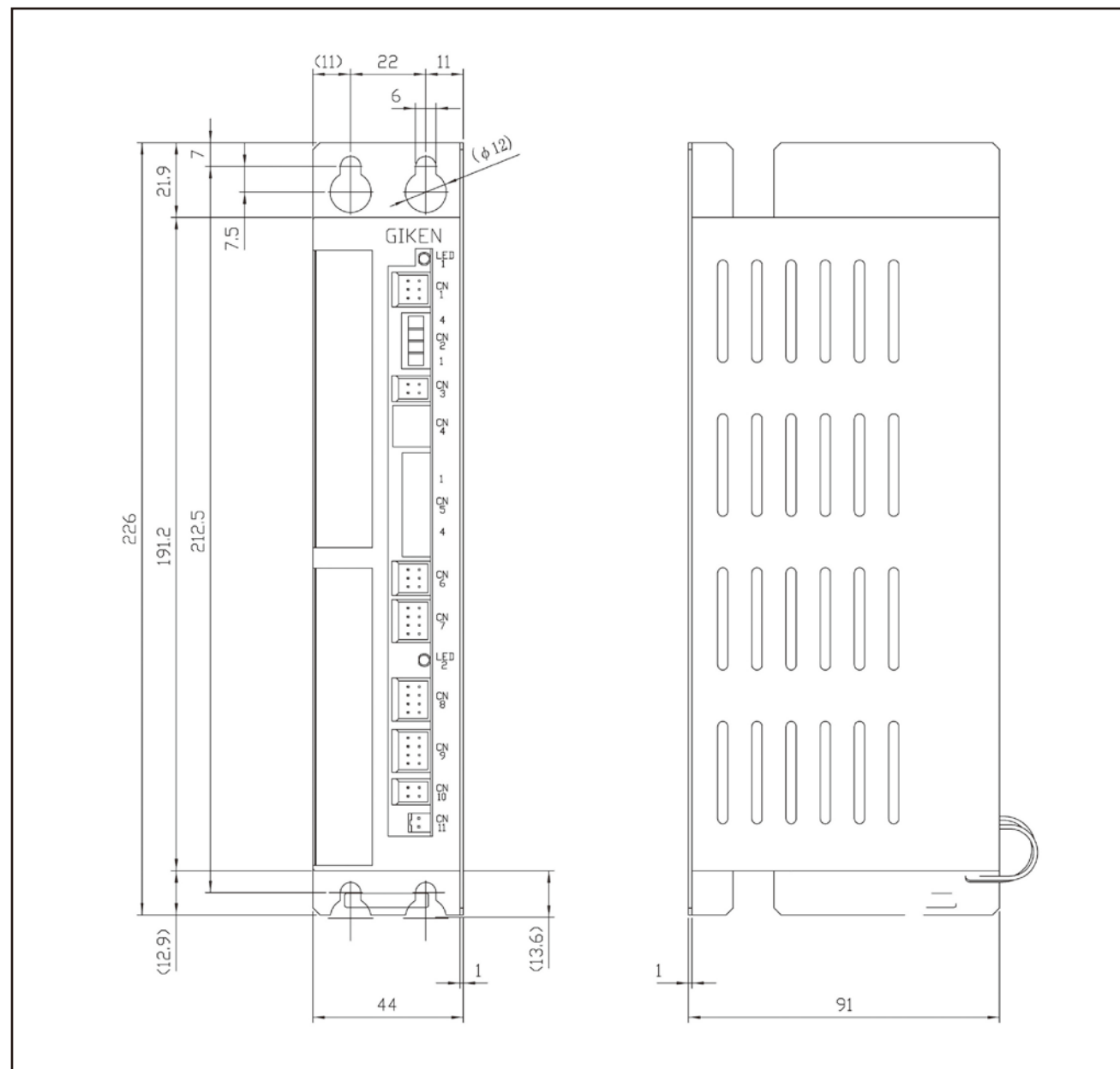
### ◆Model list

Model	Number of nut runners to be controlled	Heat sink mounting position
GKL-14-□□-N2	1 axis type	No mounting
GKL-15-□□-N2		Side mounting
GKL-17-□□-N2		
GKLW-14-□□-N2	2 axis type	No mounting
GKLW-15-□□-N2		Side mounting
GKL-T4-□□-N2	1 axis type	No mounting
GKL-T5-□□-N2		Rear mounting
GKL-T7-□□-N2		
GKLW-T4-□□-N2	2 axis type	No mounting
GKLW-T5-□□-N2		Rear mounting

## Interface (Common to GSK)

Model	Weight(kg)	Model	Weight(kg)
GSK-IF-N1	0.54	GSK-IFFL-N1	0.59
GSK-IFCC-N1	0.59	GSK-IFET-N1	
GSK-IFDN-N1		GSK-IFSG-N1	
GSK-IFPNIO-N1		0.64	GSK-IFDN(ET)-N1
GSK-IFPNIRT-N1	GSK-IFCC(ET)-N1		

※ It is attached only to the top axis.



## Controller

### Standard type 1 axis specification

Model	Weight(kg)
GKL-14 (T4)-□□-N2	1.3

Model	Weight(kg)
GKL-15 (17)-□□-N2	2.4 (2.7)

※15 type does not have a fan

### Controller

#### Standard type 2 axis type

Model	Weight(kg)
GKLW-14 (T4)-□□-N2	1.3

Model	Weight(kg)
GKLW-15-□□-N2	4.0

#### T type 1 axis type

Model	Weight(kg)
GKL-T5 (T7)-□□-N2	2.4

Nutrunner Regarding the rated capacity 4 type, the cooling plate is unnecessary, so the standard and T type are common.

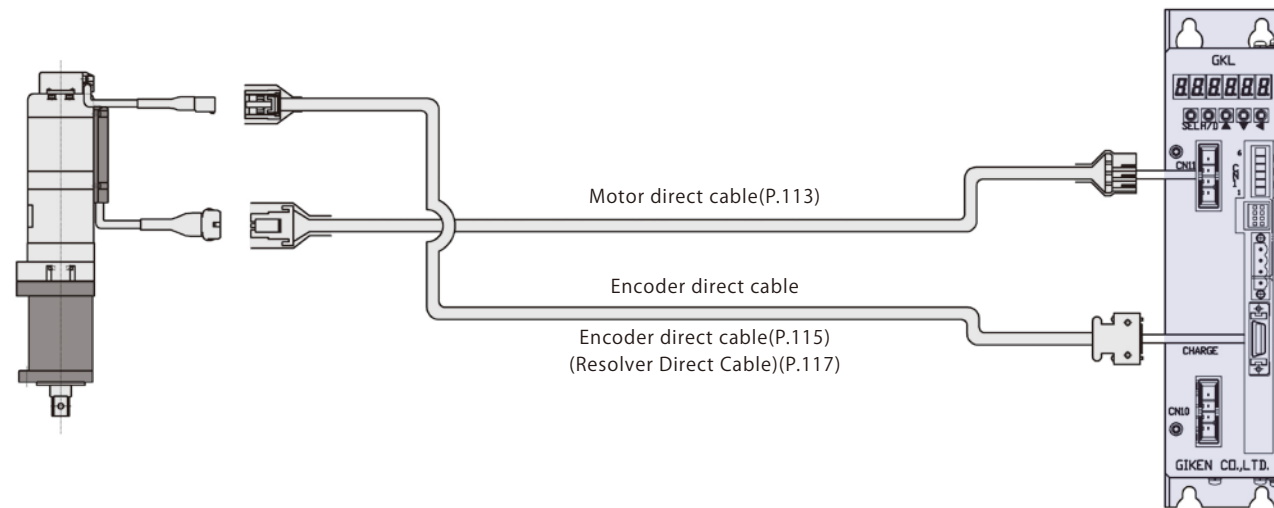
#### T type 2 axis type

Model	Weight(kg)
GKLW-T5-□□-N2	4.0

## ■ Cable configuration

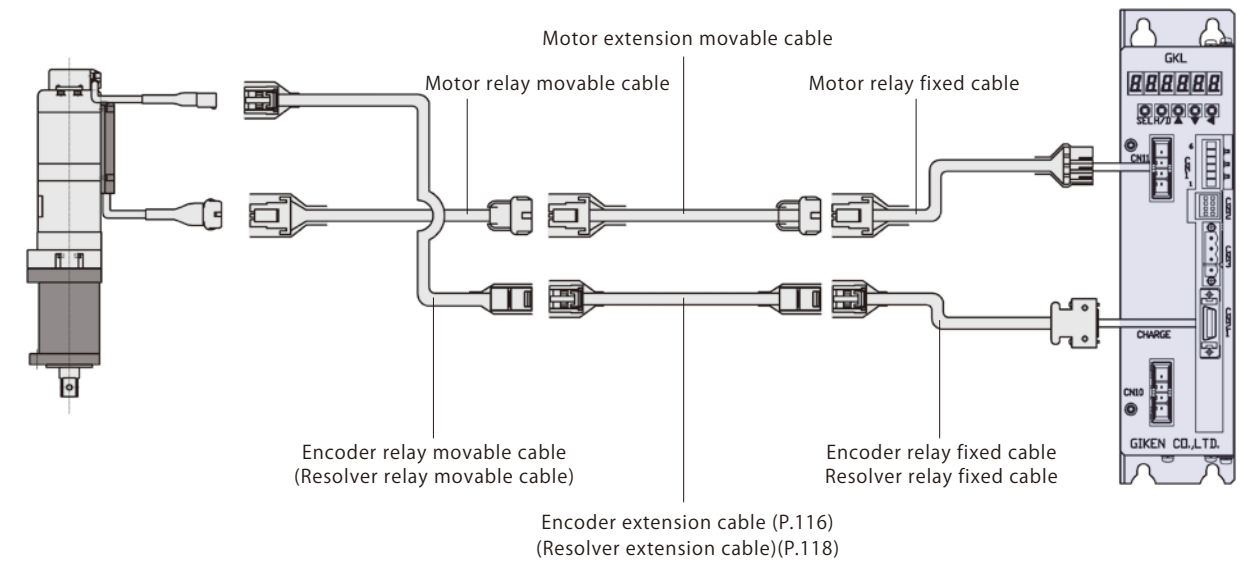
### ◆ Direct cable

Connect from controller to nut runner with one.



### ◆ Extension cable (GKL is relay cables can be used.)

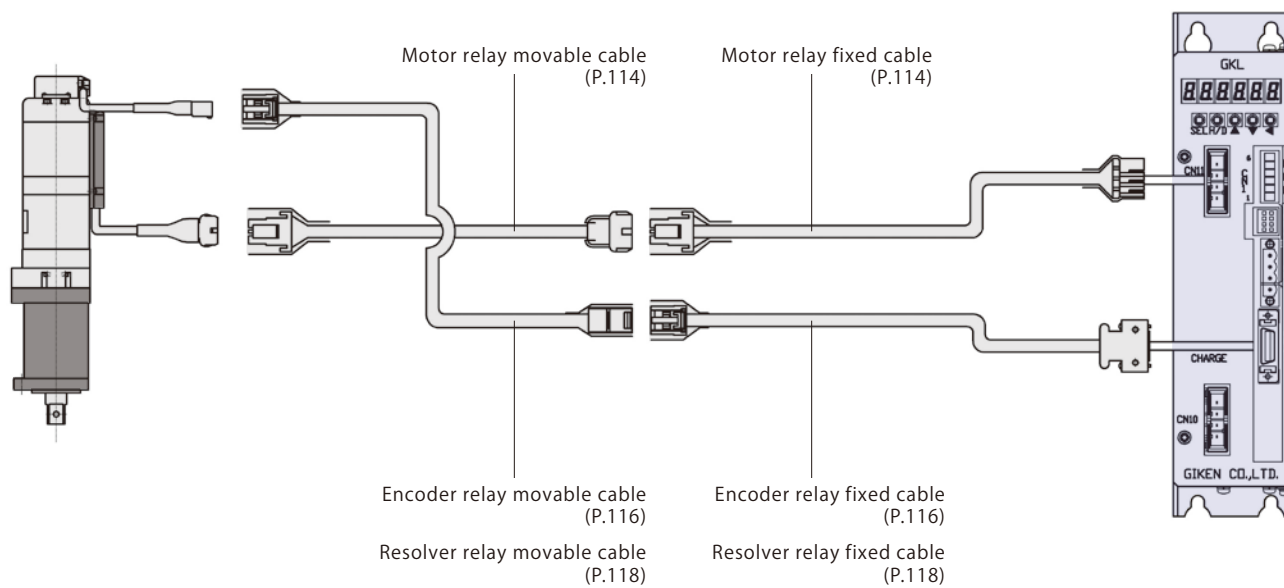
Connect from controller to nut runner with 3 pcs.



※It is equivalent to relay movable cable.

### ◆ Relay cable

Connect from controller to nut runner with 2 pcs.



## Motor cable

### Direct cable



### 【Model】

K8 M **3** D **□** -4 R - **□** M

①                      ②                      ③

### ① Nutrunner rated current

**3** : GKL-14 GKL-T4

**12** : GKL-15 GKL-T5

### ② Connector type

**Blank** : GKL-15(17) GKL-T5(T7)

**W** : GKL-14 GKL-T4

### ③ Cable length

Designation of cable length  
(Specified unit:1m)

- ※1 Maximum guaranteed cable length 20 m (nut runner to inter-controller length)
- ※2 Custom-made cable of 20 m or more is manufacturable, but operation guarantee is not possible. Please check the operation by the customer.
- ※3 All cables are flex cables.

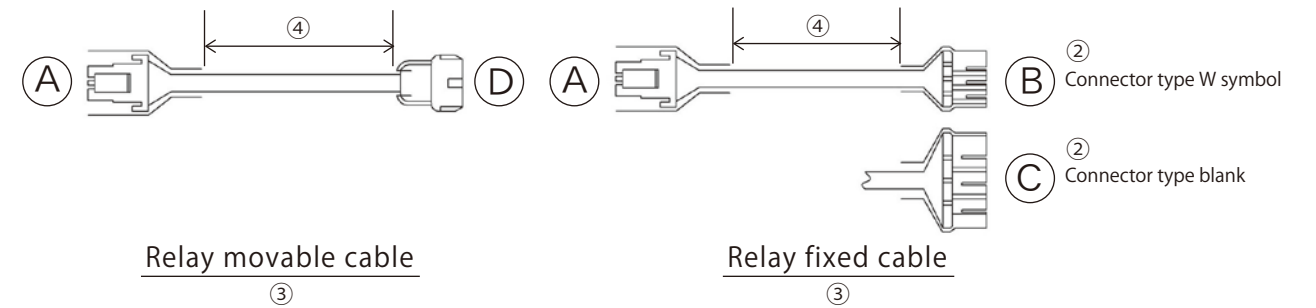
### 【Model list】

Name	Model	Corresponding controller
Direct cable	K8M3DW-4R-□M	GKL-14 GKL-T4
	K8M12D-4R-□M	GKL-15 GKL-T5

### 【Specification】

	Housing model	Contact type	Shape
A	350715-1 (AMP)	350550-1 (AMP)	凹
B	2-178128-4 (AMP)	1-353717-2 (AMP)	
C	2-179958-4 (AMP)	316040-2 (AMP)	

## Relay cable



### 【Model】

K8 M **3** T **□** -4 **A** - **□** M

①                      ②                      ③                      ④

### ① Nutrunner rated current

**3** : GKL-14 GKL-T4

**12** : GKL-15 GKL-T5

### ② Connector type

**Blank**: GKL-15(17) GKL-T5(T7)

**W** : GKL-14 GKL-T4

### ③ Cable segment

**R** : Motor relay movable cable

**A** : Motor relay fixed cable

### ④ Cable length

Designation of cable length  
(Specified unit:1m)

- ※1 Maximum guaranteed cable length 20 m (nut runner to inter-controller length)
- ※2 Custom-made cable of 20 m or more is manufacturable, but operation guarantee is not possible. Please check the operation by the customer.
- ※3 All cables are flex cables.

### 【Model list】

Name	Model	Corresponding controller	Name	Model	Corresponding controller
Relay movable cable	K8M3TW-4R-□M	GKL-14 GKL-T4	Relay fixed cable	K8M3TW-4A-□M	GKL-14 GKL-T4
	K8M12T-4R-□M	GKL-15 GKL-T5		K8M12T-4A-□M	GKL-15 GKL-T5

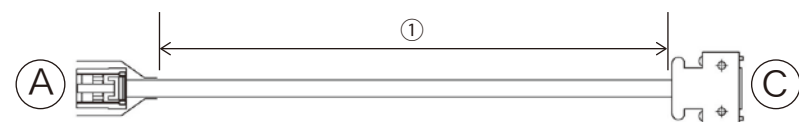
### 【Specification】

	Housing model	Contact type	Shape
A	350715-1 (AMP)	350550-1 (AMP)	凹
B	2-178128-4 (AMP)	1-353717-2 (AMP)	
C	2-179958-4 (AMP)	316040-2 (AMP)	
D	350781-1 (AMP)	350547-3(AMP) (PinNo.1~3) 350669-1(AMP) (PinNo.4)	凸



### Encoder cable

#### ◆ Direct cable



#### 【Model】

8 E D - 8 R -   M  
 ①

#### ① Cable length

Designation of cable length  
 (Specified unit:1m)

- ※1 Maximum guaranteed cable length 20 m (nut runner to inter-controller length)
- ※2 Custom-made cable of 20 m or more is manufacturable, but operation guarantee is not possible.  
Please check the operation by the customer.
- ※3 All cables are flex cables.

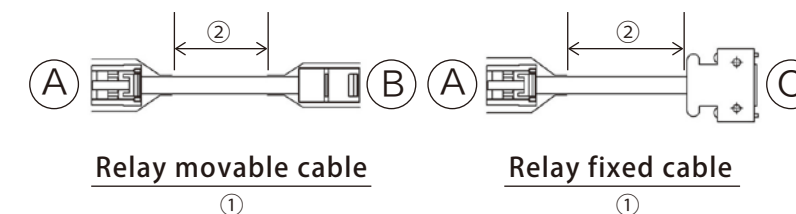
#### 【Model list】

Name	Model
Direct cable	8ED-8R-□M

#### 【Specification】

	Housing/connector model	Contact type	Shape
A	1-1318118-6 (AMP)	1318108-1 (AMP)	凹
C	10120-3000VE (3M)	10320-52A0-008 (3M)	凸

#### ◆ Relay cable



#### 【Model】

8 E T - 8 R -   M  
 ①      ②

#### ① Cable division

- R** : Relay movable cable
- A** : Relay fixed cable

※1 All cables are flex cables.

#### ② Cable length

Designation of cable length  
 (Specified unit:1m)

- ※2 Maximum guaranteed cable length 20 m (nut runner to inter-controller length)
- ※3 Custom-made cable of 20 m or more is manufacturable, but operation guarantee is not possible.  
Please check the operation by the customer.

#### 【Model list】

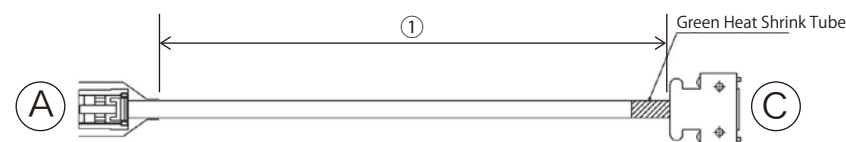
Name	Model
Relay movable cable	8ET-8R-□M
Relay fixed cable	8ET-8A-□M

#### 【Specification】

	Housing/connector model	Contact type	Shape
A	1-1318118-6 (AMP)	1318108-1 (AMP)	凹
B	1-1318115-6 (AMP)	1318112-1 (AMP)	凸
C	10120-3000VE (3M)	10320-52A0-008 (3M)	凸

## ■ Resolver cable

### ◆ Direct cable



### 【Model】

8 R D - 8 R -    M  
①

### ① Cable length

Designation of cable length  
(Specified unit:1m)

- ※1 Maximum guaranteed cable length 20 m (nut runner to inter-controller length)
- ※2 Custom-made cable of 20 m or more is manufacturable, but operation guarantee is not possible.  
Please check the operation by the customer.
- ※3 All cables are flex cables.

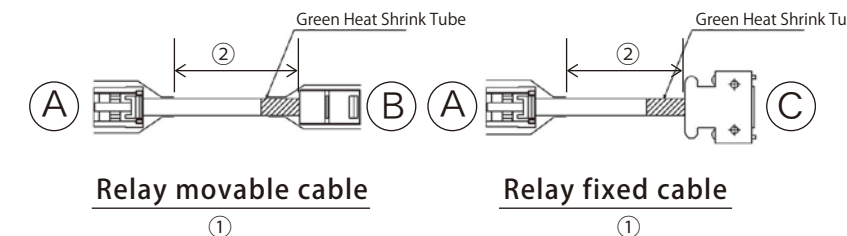
### 【Model list】

Name	Model
Direct cable	8RD-8R-□M

### 【Specification】

	Housing/connector model	Contact type	Shape
A	1-1318118-6 (AMP)	1318108-1 (AMP)	凹
C	10120-3000VE (3M)	10320-52A0-008 (3M)	凸

### ◆ Relay cable



### 【Model】

8 R T - 8    -    M  
①      ②

### ① Cable division

- R** : Relay movable cable
- A** : Relay fixed cable

※1 All cables are flex cables.

### ② Cable length

Designation of cable length  
(Specified unit:1m)

- ※2 Maximum guaranteed cable length 20 m (nut runner to inter-controller length)
- ※3 Custom-made cable of 20 m or more is manufacturable, but operation guarantee is not possible.  
Please check the operation by the customer.

### 【Model list】

Name	Model
Relay movable cable	8RT-8R-□M
Relay fixed cable	8RT-8A-□M

### 【Specification】

	Housing/connector model	Contact type	Shape
A	1-1318118-6 (AMP)	1318108-1 (AMP)	凹
B	1-1318115-6 (AMP)	1318112-1 (AMP)	凸
C	10120-3000VE (3M)	10320-52A0-008 (3M)	凸

## ■ Cable specification list

◆ Motor cable withstand voltage 600V North American specification compliant

Cable type	Type	Corresponding controller	Cable size	Cable outer diameter	Coating color	Cable allowable current	Cable type	
K8M3DW-4R-□M	Direct	GKL(W)-14 GKL(W)-T4	0.5X4 AWG21 600V	8.8mm	Gray	5.2A	Flex cable	
K8M12D-4R-□M		GKL(W)-15 GKL(W)-T5	0.75X4 AWG18 600V	9.5mm		14.4A		
K8M3TW-4A-□M	Relay fixed	GKL(W)-14 GKL(W)-T4	0.5X4 AWG21 600V	8.8mm		5.2A		14.4A
K8M3TW-4R-□M	Relay movable							
K8M12T-4A-□M	Relay fixed	GKL(W)-15 GKL(W)-T5	0.75X4 AWG18 600V	9.5mm		14.4A		
K8M12T-4R-□M	Relay movable							

◆ Encoder/Resolver cable

Cable type	Type	Corresponding controller	Cable size	Cable outer diameter	Coating color	Cable type
8□□-8□-□M	Common to all models		AWG23	8.44mm	Black	Flex cable
8R□-8□-□M						

## Setting software

To carry out various settings of GKL, a PC in which setting software is installed is required. Various settings, communication status with upper device, tightening result, and tightening waveform can be confirmed with setting software.

### Setting software model

Setting software model	Language	Controller type
GKL-SET-SOFT-J	Japanese	GKL
GKL-SET-SOFT-E	English	GKLW

Supported OS win7/8/8.1/10

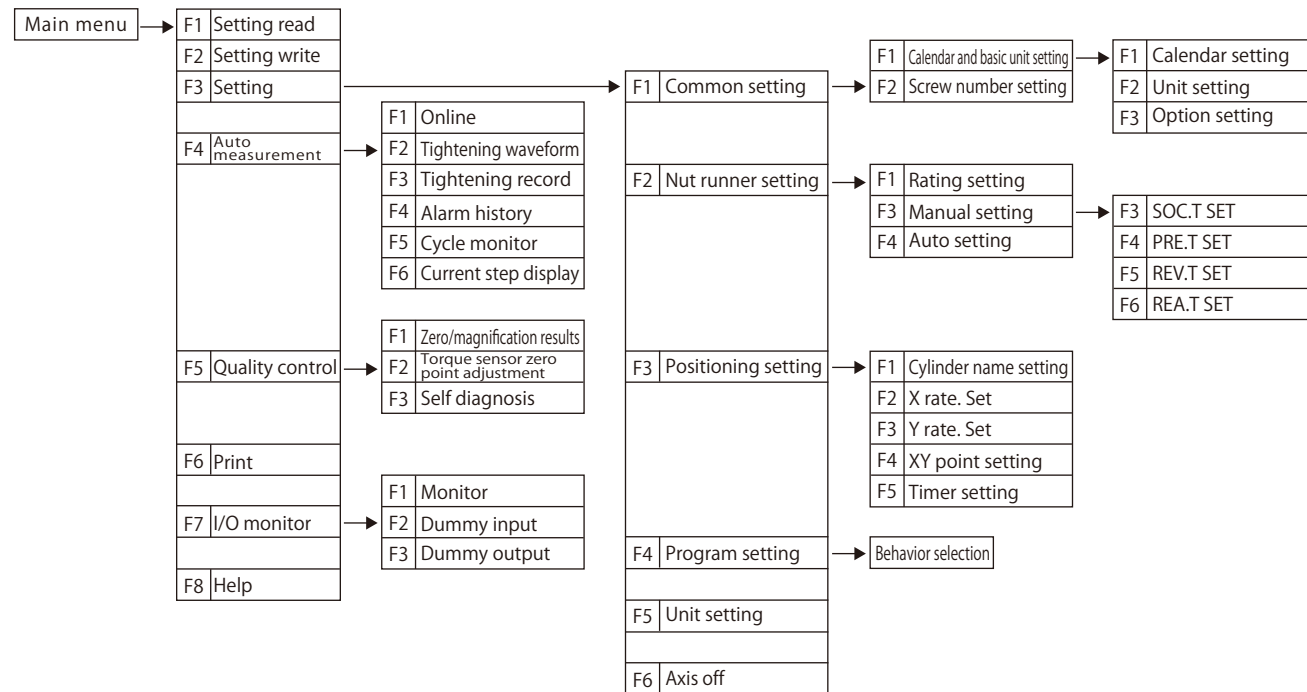
### Setting cable model

Cable for connecting PC in which setting software of GSK is installed and interface.

Model	Cable length [m]
GK-SET-1.8M	1.8m

The setting cable is common to all setting software.

## Hierarchy of setting software



## Setting screen

【Main menu】



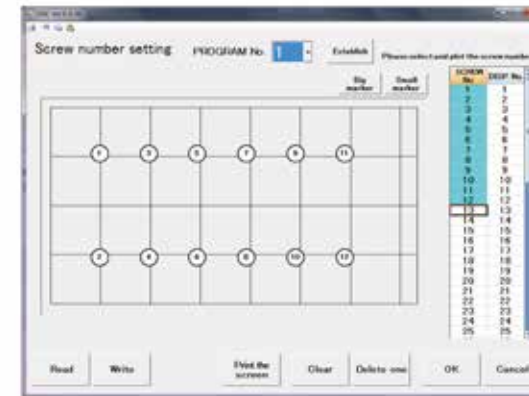
Initial screen that is displayed when the setting software is activated

【Setting menu】



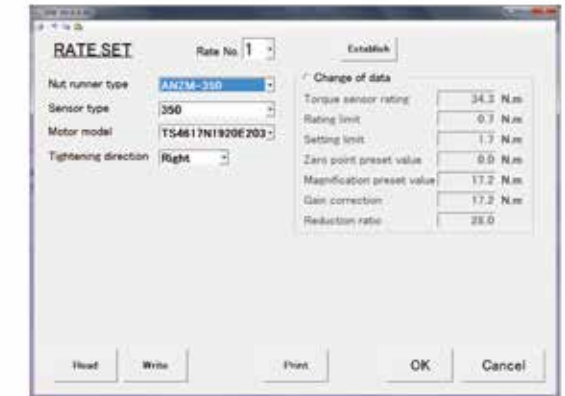
Screen for carrying out various settings

【Screw number Setting】



Screen for setting the screw No. array to be displayed on the display (GSK-D1/ GK-D1 series)

【Rate Setting】



Screen for setting the details of used nut runner

【SOC.T Setting】



Screen for setting the rotation for matching a bolt with a socket

【PRE.T Setting】



Screen for setting bolt setting status to seating (temporary tightening)

【REV.T Setting】



Screen for setting seizure judgment after temporary tightening of bolt

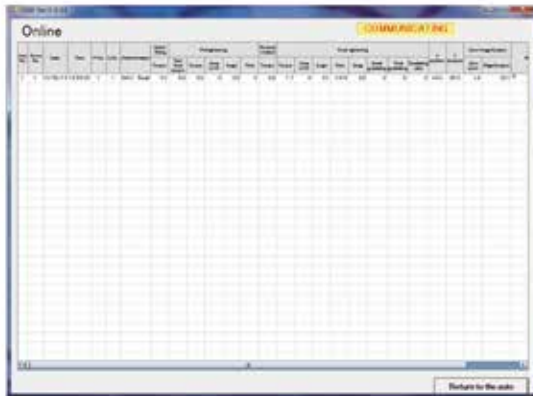
【REA.T Setting】



Screen for setting the final tightening For the type of final tightening, two types; torque method and angle method are available

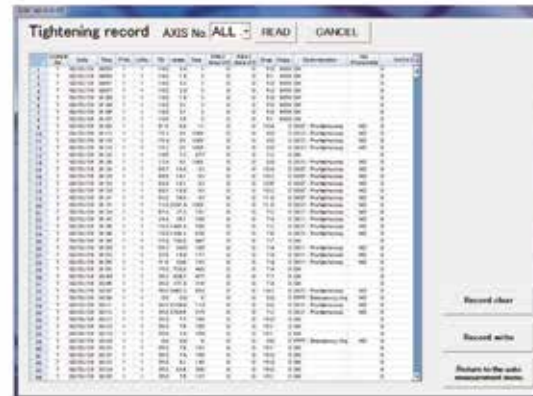
※For the final tightening setting, up to No. 50 can be set.

### 【Online】



Screen for saving the tightening result in PC by making a connection to controller.

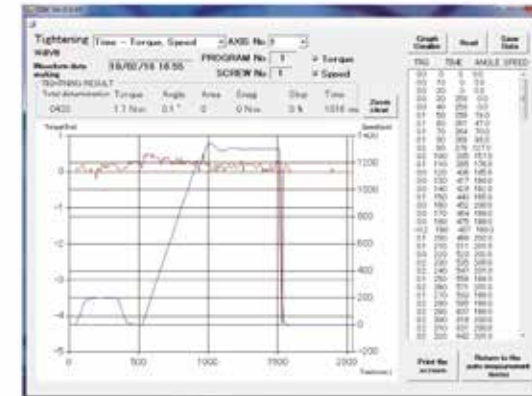
### 【Tightening history】



Screen for importing the saved in the controller in PC.

※Maximum number of saved in tightening history per axis:5,000 item

### 【Tightening waveform】



Screen for importing the tightening waveform in PC.

### 【Program setting】

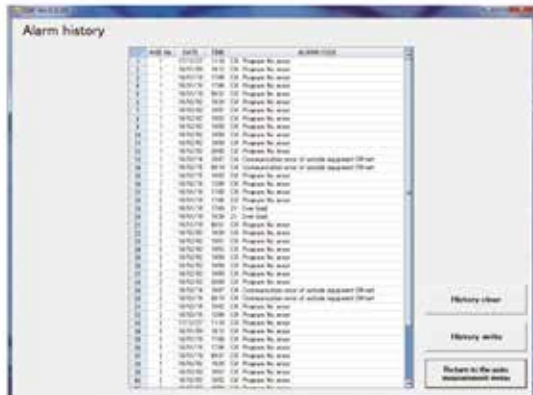


Screen for setting the combination of behaviors related to tightening(socket matching,temporary inversion,final tightening)for each axis tightening, final tightening) for each axis.

※Maximum number of programs

Max.number of axes	Number of programs	Number of steps
30	16	220
30	50	70
8	50	220

### 【Alarm history】



Screen for importing the alarm data saved in the controller in PC.

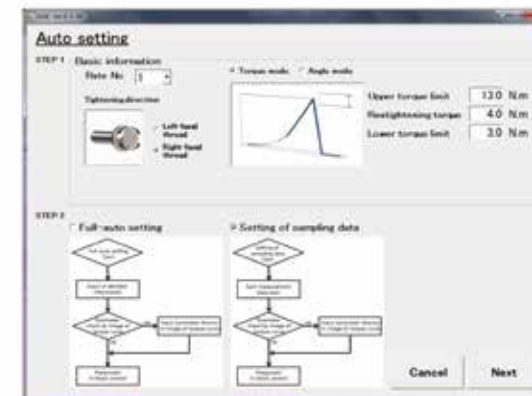
※Maximum number of saved items in alarm history per axis:16 items

### 【 I/O monitor】

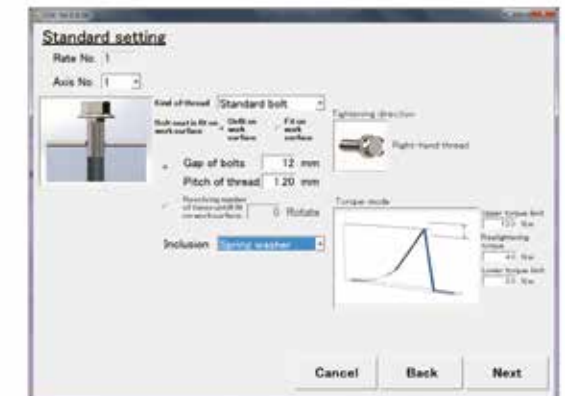


Screen for checking the I/O status with upper link.

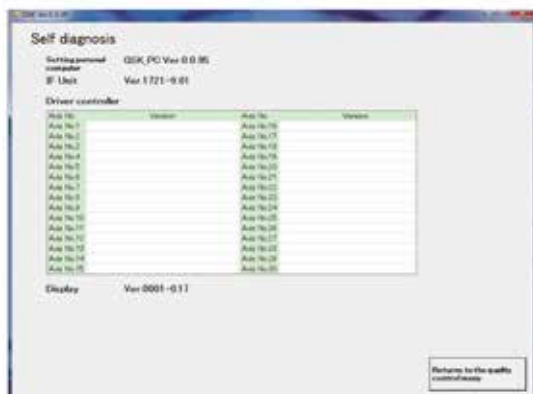
### 【Auto setting】



- In the full auto setting, it is a setting screen that creates tightening setting automatically when you enter necessary items.
- In the sampling setting, you can actually tighten the work and make detailed settings.



### 【Self diagnosis】



Screen for checking each version of currently configured parts.

