

AC Nut runner series Setup software for GSK/GSKW <u>Instruction manual</u>

GIKEN INDUSTRIAL CO., LTD.

Before beginning operation



Note

- ①Please read this instruction manual carefully in order to ensure that you use this product correctly.
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- ③Regarding the handling process and operation that aren't listed in this instruction manual, please think that they cannot be operated, and don't attempt to operate them. Any defect that would occur when the handling process or the operation that is not listed in this instruction manual is executed should be excluded in the scope of the warranty.
- ④Matters listed in this instruction manual are subject to change for the improvement without notice.
- (5)For the product with special specifications, please consult us because it may not be pertinent to the use of this instruction manual.
- (6) The personal computer for set up operation is an option. Please contact us if it is required.



■ Measures in case of an emergency

If this product is in a dangerous condition, immediately turn OFF all power switches of the main unit or the connected equipment, or pull out all power cords from the plug outlets.

(^[Dangerous condition] means the condition when the fire break out or the danger to personal injury can be expected due to the excessive heat generation, smoking or ignition.)

Outline

This product is the set up soft ware for the GSK/GSKW controller.

GSK • GSK controller can be done manually input of setting data by the controller front, but we will use this software to the input of the configuration data in order to allow easier to understand in a simple.

We can improve simplification of the initial setting input and the maintenance, by the batch transmission function that we use setup software.

You can see the display of torque waveform. Also others will be able to perform reading of history tightening, etc.

Operating environment

OS : Windows XP(32bit, 64bit) Windows Vista (32bit, 64bit) Windows 7 (32bit, 64bit) Windows 8 (32bit, 64bit) RAM: Windows XP, Vista: 2GB or more Windows 7, 8: 4GB or more Installation directory: C:¥GIKEN¥GSK Setting Starting method: GSK.exe

Password to write to the controller is [2014].

Before set up software start

 $\boldsymbol{\cdot}$ In the USB driver folder $\boldsymbol{\downarrow}$

Readme.txt
 VCP_V1.3.1_Setup.exe
 VCP_V1.3.1_Setup_x64.exe

Please open USB Driver folder on the set up software disc. Please install the corresponding USB driver at the time of the following. $32bit OS \Rightarrow [VCP_V1.3.1_Setup.exe]$ $64bit OS \Rightarrow [VCP_V1.3.1_Setup_x64.exe]$

You need to install the USB driver of the above is to use this set up software.

Port setting

Folder of [GSK setting] will be created when the installation of the setup software is completed. ([GSK setting] is default folder name. You can change this name when this software installed.) Please open this folder. (This folder address is [C:¥GIKEN¥GSK setting].)

Folder Address					x
C:¥GIKEN¥GSK Setting		•	4 ∲ GSK Sei	ttingの検索	٩
整理 ▼ ライブラリに追加 ▼ 共有 ▼	書き込む 新し	」いフォルダー			?
名前	更新日時	種類	サイズ		
AutoMeasurement Log	2016/03/09 10:49 2016/03/24 21:33	ファイル フォル… ファイル フォル…			
MasterFile	2016/03/09 10:49	ファイル フォル			
📔 Plugins	2016/03/09 10:51	ファイル フォル…			
🐌 Sampling	2016/03/09 10:49	ファイル フォル…			
🔑 UserFile	2016/03/24 9:52	ファイル フォル…			
Scomm.dll	2016/03/08 18:26	アプリケーショ	12 KB		
S FarPoint.CalcEngine.dll	2016/03/08 18:26	アプリケーショ	320 KB		
S FarPoint.Excel.dll	2016/03/08 18:26	アプリケーショ	5,972 KB		
S FarPoint.PDF.dll	2016/03/08 18:26	アプリケーショ	564 KB		
S FarPoint.PluginCalendar.WinForms.dll	2016/03/08 18:26	アブリケーショ	132 KB		
S FarPoint.Win.Chart.dll	2016/03/08 18:26	アプリケーショ	3,426 KB		
S FarPoint.Win.dll	2016/03/08 18:26	アプリケーショ	896 KB		
Service State Stat	2016/03/08 18:26	アプリケーショ	4,700 KB		
SK.INI Please open th	is file before	setup softw	vare star	t.	
Microsoft.VisualBasic.PowerPacks.Vs	2012/07/26 19:41	アプリケーショ	264 KB		
18 個の項目					





Fig (2) INI faille

If you connected USB to GSK interface the setup PC, the port such as Fig (3) will appear on Device Manager.

It has a COM Port number like Fig (3).

Please write the COM Port number to GSS_Com in GSS.INI file like Fig (2).

Please save the INI file if you finish writing.

The preparation to start setup software is the end.

This work enables communication with GSK in the setup software.

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SOCKET ADJUSTING	
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TIGHTENING OUTPUT SETTING	
TIGHTENING SUMPLING ACTION	
SMOOTHING TIGHTENING	
AREA CULCULATING	
END SAME YEAR	
NOBI CORRUGATION	

<u>1. Main menu</u>



Fig (1-1) Main menu

 Setting read (F1) 	The setting data is read from file , controller , and SD card.
 Setting write (F2) 	The setting data is written to file , controller or SD card.
Setting(F3)	The setting menu is displayed.
Auto measurement (F4)	The auto measurement menu is displayed.
Quality control (F5)	The quality control screen is displayed.
 Print/Excel output(F6) 	The print and excel output menu is displayed.
I/O Monitor(F7)	The I/O monitor menu is displayed.
· Exit(F12)	Exit the program.

1-1. Screen structure

Screen configuration is as follows.



Fig (1-1): Hierarchy diagram

-9-

1-2.Main menu initial screen

Inquiry "Do you want to communicate?" is coming when the program is started. In this time if you select "Yes", version and communication check will be started. If you select "No", you enter the main menu without communication.

GSK Setting	×
Do you want t	o communicate?
[[[]]) いいえ(<u>N</u>)

Fig (1-2): "Do you want to communicate?"

1-3. Communication check, version check function

If you select "Yes" in the above "1-2 Main menu initial screen", automatically GSK controller does communication

check, and the version check.



Check the connection with the GSK controller.

GSK Setting

Fig (1-3): Initial communication check error



The error occurred in reading of the unit setting.

Fig (1-4): Unit setting acquisition error(%)

X



Fig (1-5): Controller version check error

(%) Unit setting of a GSK controller is acquired automatically at the time of program initiation.

2. Setting read

You will select "Setting read" from "Main menu". You read the GSK configuration file, from the controller or SD card, some folder.

FILE (F1)
CONTROLLER (F2)
SD CARD (F3)
RETURN (F12)

Fig (2-1): Setting read screen

2-1. File

監理 ▼ 新しいフォルダー				800 -	
▲ OneDrive ▲ 名积 个	更新日時	權項	サイズ		
 ⇒ 54ブラリ ■ ドキュメント ■ ビクチャ ■ ビデオ ▲ ミュージック 	模束条件に一致す	る項目はありません			
■ コンピューター # Area (C)					
DATA (D:)					
Xperia Z5 Comj +					

Fig (2-2): Selection of the read files

You select the GSK configuration file to read in the file selection dialog.

Setting read		
	FILE (F1)	
	CONTROLLER (F2)	
	SD CARD (F3)	
	Y rate. Set	
	RETURN (F12)	

 Progress of the reading GSK configuration file is displayed.

 The GSK configuration file has the following settings.

 Unit setting
 Screw number setting

 Nut runner setting
 Position setting

 Program setting
 *GSK configuration file will not be saved the following setting

 Tightening output setting
 Calendar setting

 Option setting
 Auto setting

When you select a file, reading will start.

Fig (2-3): Reading files from the folder

When the reading GSK configuration file is complete, the following message is displayed.

After the reading GSK configuration file, it goes to the "Main menu".



·File[F1]

It reads the GSK configuration file from some folder. ·Controller[F2]

It reads the GSK configuration file from the controller.

If you read the configuration file from the GSK controller, the controller and computer must be connected by a USB cable.

·SD card[F3]

You can save the settings of GSK controller to the SD card as a file. You can read the GSK settings from the SD card by the configuration PC.

In the selection of the read files, please select a file that file extension is GSK.

-11 -

Fig (2-4): Finish reading configuration file

2-2. Controller

It reads from the set value stored in the internal GSK controller.

If you read the configuration file from the GSK controller, the controller and computer must be connected by a USB cable.

FILE (F1)	
CONTROLLER (F2)	
SD CARD (F3)	
COMMUNICATING	
Reverse rotation setting	
RETURN (E12)	

Fig (2-5): Reading files from the controller

GSK Settir	g	X
i	Setting of the co	ntroller was read.
		ОК

Fig (2-6): Finish reading configuration file

When the reading from the controller is finished, you will see a message in the Fig (2-6).

After the reading GSK configuration file from the controller, it goes to the "Main menu".

2-3. SD card

It reads a configuration file on the SD card by the GSK controller. (Extension: SD)

*Setting values stored in the SD card is the extension SD.

%If you read the settings from the SD card, you will need an SD card is inserted into a personal computer.

extension is SD

שעב 🛛 📕 🔾	ユーター • Acer(C:) • GIM	(EN + GSK Setting + UserFile	•	4 UserFile			م
哩▼ 新しいフォル	19-)II •		0
ConeDrive 1	名兩	更新日時	種類	サイズ			
	SETTING.SD	2016/03/28 15:28	SD ファイル	2,938 KB			
97799	SETTING2.SD	2016/03/28 15:32	SD ファイル	2,938 KB			
N#1X2F							
R CTA							
• ~~~ <i>></i>							
コンピューター							
🏭 Acer (C:)							
DATA (D:)							
📸 SD Card (F:) 📼							
77	イル名(N): SETTING2.SD			 SD FILE(* 	.SD)		•
				884 (0)		an training	_
				IN (0)		·v20	~
Fig Setting r	(2-7): Se	election of the	ne rea	ad file	es		
Setting r	(2-7): Se	election of the	ne rea	id file	es		
Fig GSK VMC 0.0.89 Setting r	(2-7): Se	FILE (F1)	ne rea	ad file	es		
Fig sx ve:00.89 Setting r	(2-7): Se	FILE (F1)	ne rea	id file	es		
Fig Setting r	(2-7): Se	FILE (F1)	ne rea	id file	es		
Fig Setting r	(2-7): Se	FILE (F1)	ne rea	id file	es		
Fig Setting r	(2-7): Se	FILE (F1) CONTROLLER (F2)		id file	es		
Fig Setting r	(2-7): Se	FILE (F1) CONTROLLER (F2) SD CARD (F3)		id file	es		
Get vec 0.599 Setting r	(2-7): Se	FILE (F1) CONTROLLER (F2) SD CARD (F3)		id file	es		
Gox Vec 0.939 Setting r	(2-7): Se	FILE (F1) CONTROLLER (F2) SD CARD (F3)		ad file	es		
Fig Setting r	(2-7): Se	FILE (F1) CONTROLLER (F2) SD CARD (F3)		ad file	es		
Fig OK Vet 0.289 Setting r	(2-7): Se	FILE (F1) CONTROLLER (F2) SD CARD (F3)	ne rea	ad file	es		
Fig Extraction Setting r	(2-7): Se	FILE (F1) CONTROLLER (F2) SD CARD (F3)		ad file	es		
Fig Extended Setting r	(2-7): Se	FILE (F1) CONTROLLER (F2) SD CARD (F3)		ad file	es		
Fig Setting r	(2-7): Se	FILE (F1) CONTROLLER (F2) SD CARD (F3)		ad file	es		
Fig Setting r	(2-7): Se	FILE (F1) CONTROLLER (F2) SD CARD (F3) Program satting RETURN (F12)		ad file	èS		
Fig Setting r	(2-7): Se	FILE (F1) CONTROLLER (F2) SD CARD (F3) Program setting RETURN (F12)		ad file	ès		



In the selection of the read files, please select a file that file

Fig (2-8): Reading files from the SD card

Fig (2-9): Finish reading configuration file

When the reading from the SD card is finished, you will see a message in the Fig (2-8).

After the reading GSK configuration file from the SD card, it goes to the "Main menu".

3. Setting write

You will select "Setting write" from "Main menu". You write the GSK configuration file to the controller or SD card, some folder.

·Controller[F2]

·SD card[F3]

It writes the GSK configuration file to some folder.

It reads the GSK configuration file to the controller.

computer must be connected by a USB cable.

If you write the configuration file to the GSK controller, the controller and

You can save the settings of GSK controller to the SD card as a file. You can write the GSK settings to the SD card by the configuration PC.

·File[F1]

GSK Ver.0.0.89		A COLUMN TWO IS NOT
Setting write		
	FILE (F1)	
	CONTROLLER (F2)	
	SD CARD (F3)	
	RETURN (F12)	

Fig (3-1): Setting write screen

3-1. File

In the file writing process, It writes the GSK setting to a hard disk or other accessible media,.

The file t to retain the settings of GSK is saved in the file extension of [.GSK].

🖳 Write the file									~
00-1	レビューター	Acer (C:)	GIKEN , GSK	Setting 🖡 Use	rFile	÷ 4	UserFileの検索		P
整理 ▼ 新しい	フォルダー							10 ·	0
	*	名前	^		更新日時	種類	サイズ		
⇒ ライブラリ ドキュメント				検索条	件に一致する項目	はありません。			
📓 ビクチャ									
🚼 ビデオ									
🎝 ミュージック									
🎼 コンピューター									
🚢 Acer (C:)									
DATA (D:)									
	_								
ファイル名(N):	*.GSK								•
ファイルの種類(工):	GSK FILE(*.G	SK)							•
🍝 フォルダーの非著	表示						保存(<u>5</u>)	キャンセル	

Fig (3-2): Writing files naming

It names and saves the settings by the file selection dialog.

Setting write					
	FILE (F1)				
	CONTROLLER (F2)		r	GSK Setting	X
	SD CARD (F3)]			
		-		GSK s	etting file was written.
	XY point setting				
	RETURN (F12)]			ОК
				L	

Fig (3-3): Progress of writing

Fig (3-4): complete the writing

When you press the Save button in the dialog, it will start the file writing.

When the writing of GSK configuration file is complete, the message of Fig (3-4) will be displayed.

(※) Please see the "2-1. File" about the GSK configuration file.

3-2. Controller

You write the configuration file to GSK controller.

If you write the configuration file to the GSK controller, the controller and computer must be connected by a USB cable.

The password to write to the controller is required. (Initial Password: 2014)

If the password is unknown, the configuration file cannot be written to the controller.

PASSWORD	X
Do you want to write	to the controller?
Password	
ок	Cancel



Fig(3-5): Password confirmation

If you push "OK", it moves to Fig (3-6).

AL	
FILE (F1)	
CONTROLLER (F2)	
SD CARD (F3)	
XY point setting	
RETURN (F12)	
	FILE (F1) CONTROLLER (F2) SD CARD (F3) XY point setting RETURN (F12)

Fig(3-7):Progress of writing to the controller

Fig(3-6): Operation preparation OFF confirmation

Please OFF the operation preparation.

It cannot be written the configuration file when you don't turn OFF the operation ready.

GSK Setting	×
GSK setting file	was written.
	ОК

Fig (3-8): complete the writing

When the writing of GSK configuration file to controller is complete, the message of Fig (3-8) will be displayed.

3-3. SD card

In the file writing process, it writes a file that can be read by GSK controller to the SD card.

File extension of the configuration file to be saved to the SD card is ".SD".

🖳 Write the file	-					×
	ンピューター ・	UserFileの検索				
整理 ▼ 新しい	フォルダー					i= • 🕡
	^	名前	更新日時	種類	サイズ	
⇒イブラリ ○ ライブラリ ○ ドキュメント		SETTING.SD	2016/03/28 15:28	SD ファイル	2,938 KB	
📓 ピクチャ						
🛃 ビデオ						
ミュージック	E					
1 コンピューター	·					
Acer (C:)						
DATA (D:)	*					
ファイル名(<u>N</u>):	SETTING2 SD					•
ファイルの種類(<u>工</u>):	SD FILE(*.SD)					
フォルダーの非認	表示				保存(<u>5</u>)	キャンセル

Fig (3-8): Writing files naming

It names and saves the settings by the file selection dialog.

Setting write		
	FILE (F1)	GSK Setting
	CONTROLLER (F2)	
	SD CARD (F3)	GSS setting file for the sd card was written.
	Program setting	
	RETURN (F12)	
		T i (0, (0) i (, (1) i (1)

Fig(3-9):Progress of writing to the SD card

Fig(3-10): complete the writing

When you press the Save button in the dialog, it will start the file writing.

The progress of writing to the SD card will be displayed.

When the writing of GSK configuration file is complete, the message of Fig (3-10) will be displayed.

4. Setting

You will select "Setting" from "Main menu".



Fig (4-1): Setting Menu

- Common setting (F1)
- Position setting (F2)
- Nut runner setting (F3)
- Program setting (F4)
- Return (F12)

- Common setting menu is displayed.
- Position setting menu is displayed.
- Nut runner setting menu is displayed.
 - Program setting menu is displayed.
 - It will return to Main Menu.

4-1.Common setting

You will select "Common setting" from "Setting menu".

🥺 GSK Ver.0	.0.89	
Com	mon setting	
	Calendar and basic unit setting (F1)	Screw number setting (F2)
		Return to the setting menu (F12)

Fig (4-2): Common setting menu

- Calendar and basic unit setting (F1)
- Screw number setting (F2)
- Return to the setting menu (F12)

It displays the "Calendar and basic unit setting menu". It displays the "Screw number setting".

To return to the setting menu.

4-1-1. Calendar and basic unit setting

You will select "Calendar and basic unit setting" from "Common setting menu".

Vension information DRIVER Ver. 1851–1.85 IF Ver. 1721–1.90
Tightening data output setting (F3)
Option setting (F4)
Return to the common setting (F12)

Fig (4-3): Calendar and basic unit setting menu

· Calendar setting (F1)	It displays the "Calendar setting"
・Unit setting (F2)	It displays the "Unit setting".
 Tightening data output setting (F3) 	It displays the "Tightening data output setting"
Option setting(F4)	It displays the "Option setting".
Version information	It displays the version of the controller and interface
Return to the common setting menu (F12)	To return to the "Common setting menu".

4-1-1-1. Calendar setting

You will select "Calendar setting" from "Calendar and basic unit setting menu".

This displays the calendar information on the controller, also it sets the calendar information of the PC to the controller.

Gek Verio.0.89			
Calender			
	Date 16/03/29	Time 14:35:23	
	Set	ting	
			Return

Fig (4-4): Calendar setting

- It displays the current date of the controller. Data
- Time It displays the current time of the controller.
- Setting It sets the calendar information of the PC to the controller.
- Return To return to the "Calendar and basic unit setting".

4-1-1-2. Unit setting

You will select "Unit setting" from "Calendar and basic unit setting menu".

It displays the affiliated unit of each axis, and set.

Unit	S	eti	tin	g													-								-						¢
No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
Kind	1 N •	1 x -	1 v -	1 z •	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	
N:1 X:3 Y:2 Z:2	Nutr Xax Yax	unn is is	er																						1						
F	Read	ł			Wri	ite																C	ĸ				Ca	and	el		

Fig (4-5): Unit setting

- Unit No. It has to display the affiliation unit of the axis.
- Kind It displays the type of axis. N: Nut runner, X: x-axis, Y: y-axis, Z: z-axis It displays the loading screen of the unit configuration.
- Read
- Write
- OK
- It is to accept the changes and return to the calendar basic unit setting menu.
- · Cancel It erases the changes and return to the calendar basic unit setting menu.

It displays the writing screen of the unit configuration.

4-1-1-3. Tightening data output setting

You will select "Tightening data output setting" from "Calendar and basic unit setting menu".

Here you set the tightening data to output from the controller.

GSK Ver.0.0.89		a second s					
3							
Tightening data output	:						
Axis determination transmi	acion Vac/N	Transmission No.	-				
Axis determination transmi	SSION Tes/ N	o Transmission No	-				
Screw number transmission	n Yes/No	Transmission No	•				
Engine No. digit setting		0	•				
Output timing setting	Data transmissi	ion after the tightening total d	etermination output	• <u>•</u>			
Transmission digit setting	No transmi	tope Time Remarks		-			
Tanoninooiofi digit setting	No transmi	551011		_			
Unit number transmission Yes/No Transmission No *							
Program number transmiss	ion Yes/No	Transmission No	•				
Deserves asserbase to serve inc		Terror in the No.	-1				
Program number transmission Yes/No Iransmission No 📩							
Printer/data output QC personal computer switching setting							
Operation as a printer board							
Poad Write		Print	OK	Cancel			
- White		- Tinc	UK	Gancer			

Fig (4-6): Tightening data output setting

*Please refer to the controller's instruction manual for setting the contents of the tightening data output settings.

- Read It displays the loading screen of tightening data output settings.
- Write It displays the writing screen of tightening data output settings.
- Print It runs the printing of tightening data output settings.
- OK It is to accept the changes and return to the calendar basic unit setting menu.
- Cancel It erases the changes and return to the calendar basic unit setting menu.

4-1-1-4. Option setting

You will select "Option setting" from "Calendar and basic unit setting menu".

e GSK Ver.0.0.89			
Option setting			
M-NET start address setting	1.		
M-NET I/O monitor unit selection (Selection of 7 SEG display section indication	unit numbe		
External display indication setting	Japanese description	• •	
Read Write	Print	ок	Cancel
Eig (4 7): C	Dation cotting		

Fig (4-7): Option setting

*Please refer to the controller's instruction manual for setting the contents of the option settings.

- Read It displays the loading screen of option setting.
- Write It displays the writing screen of option setting.
- Print It runs the printing of option setting.
- OK It is to accept the changes and return to the calendar basic unit setting menu.
- Cancel It erases the changes and return to the calendar basic unit setting menu.

4-1-2. Screw number setting

You will select "Screw number setting" from "Setting menu".



Fig (4-8): Screw number setting screen

- PROGRAM No. It set the program number you want to set.
- Screw No. Select You select the screw number you want to plot.
- Axis array setting form It will set the axis arrangement with the left click of the mouse to this place.
- SCREW No. The number of screw to be set
- DISP No . The number to display
- Big marker It displays the marker of the screw number to be plotted on the axis array form in big size.
- Small marker It displays the marker of the screw number to be plotted on the axis array form in small size.
- Read It displays the loading screen of option setting.
- Write It displays the writing screen of option setting.
- Print the screen It runs the printing of option setting.
- Clear All the array data on the configuration form to delete.
- Delete one It will remove the marker of the screw number that has been selected on the configuration
- form.
- OK It is to accept the changes and return to the setting menu.
- Cancel It erases the changes and return to the setting menu.

4-2. Position setting

You will select "Position setting" from "Setting menu".

- GSK Ver.0.0.89	
Position setting	
Cylinder name setting (F1)	Timer setting (F5)
X rate. Set (F2)	
Y rate. Set (F3)	
XY point setting(Teaching) (F4)	Return to the setting menu (F12)

Fig (4-9): Position setting

- Cylinder name setting (F1)
- X rate. Set (F2)
- Y rate. Set (F3)
- · XY point setting (Teaching) (F4)
- · Timer setting (F5)
- Return to the setting menu (F12)
- It displays the cylinder name setting screen.
- It displays the "X rate. Set" screen.
 - It displays the "Y rate. Set" screen.
 - It displays the XY point setting screen.
 - It displays the monitoring timer setting screen.
 - To return to the setting menu.

4-2-1. Cylinder name setting

You will select "Cylinder name setting" from "Position setting menu".

<u>Cvlinder name</u>		Es	tablish			
Cylinder use numbe	2 pieces	٠				
Cylinder1 advance	socket1	×	down	•	Unit1 cy	linder
Cylinder2 advance	socket2	۲	down	•	Unit2 cy	/linder
Cylinder2 return			up	•		
Cylinder3 advance	no setting3	v	no setting	×	Unit3 cy	/linder
Cylinder3 return			no setting	÷		
Cylinder4 advance	no setting4	v	no setting	v	Unit4 cy	/linder
Cylinder4 return			no setting	v		
Read W	frite		Print	(ок	Cance

Fig (4-10): Cylinder name setting

If you set the cylinder name, the character of name on the IO monitor is changed to it.

(example) Cylinder1 advance \Rightarrow N/R 1 descent

- Cylinder use number You select the number of cylinders to be used.
- Cylinder name setting Cylinder1 advance, Cylinder1 return, Cylinder2 advance, Cylinder2 return Cylinder3 advance, Cylinder3 return, Cylinder4 advance, Cylinder4 return It sets the above name.
- Read It displays the loading screen of Cylinder name setting.
- Write It displays the writing screen of Cylinder name setting.
- Print It runs the printing of Cylinder name setting.
- OK It is to accept the changes and return to the position setting menu.
- Cancel It erases the changes and return to the position setting menu.

4-2-2. X rate. Set

You will select "X rate. Set" from "Position setting menu". Here, it will set the rating of the X-axis positioning motor.

X rate.	Setting No.	1 Establish D	Delete		
Accele	ration	32767 10rpm/sec max	500	10rpm/sec	
Decele	ration	32767 10rpm/sec max	500	10rpm/sec	
Move s	peed	750mm/sec max	300	mm/sec	
Point o	oordinates	100 mm max	5	mm	
Extent	output1 down limit	3276.7 mm max	3.0	mm	
Extent	output1 up limit	3276.7 mm max	8.0	mm	
Extent	output2 down limit	3276.7 mm max	3.0	mm	
Extent	output2 up limit	3276.7 mm max	8.0	mm	
Motor	rotate move	32.767 mm/rev max	10.000	mm/rev	
Motor	nodel		TS4607	•]
Rotate	direction		CW -	Motor 0 hom	e position
Paad	Weite	Print		OK	Cance

Fig (4-11): X rate setting

· Setting No.

It selects the setting number to be set.

Acceleration(Input range: 0 to 32767)

It sets the acceleration constant to reach the moving speed from the motor operation start.

• Deceleration (Input range: 0 to 32767)

It sets the deceleration constant that the motor reaches the operation stop from moving speed.

• Move speed(Input range: ["Motor 1 rotate move" * 75])

It sets the movement speed. "Motor 1 rotate move" is set under.

Point coordinates(Input range: 0 to 100)

It sets the range to be detected as the point when you point output in the external communication output signal.

• Extent output 1 down limit(Input range: 0 to 3276.7), Extent output 1 up limit (Input range: 0 to 3276.7)

They specify a range of external communication output signal "X range output ".

• Extent output 2down limit (Input range: 0 to 3276.7), Extent output 2 up limit (Input range: 0 to 3276.7)

They specify a range of external communication output signal "X range output ".

Motor 1 rotate move(Input range: 0 to 32.767)

It sets the distance that the positioning motor to move in one revolution.

The distance will change by those you want to use. So you set according to it

- Rotate direction It sets the direction in which to work mechanically the positive side from the original position.
- Establish It establish the change contents.
- Delete It will return the value of the current set number to default.
- Read It displays the loading screen of X rate. Set.
- Write It displays the writing screen of X rate. Set
- Print It runs the printing of X rate. Set
- OK It is to accept the changes and return to the position setting menu.
- Cancel It erases the changes and return to the position setting menu.

4-2-3. Y rate. Set

You will select "Y rate. Set" from "Position setting menu".

Here, it will set the rating of the Y-axis positioning motor.

Acceleration	32767 10rpm/sec max	500	10rpm/sec	
Deceleration	32767 10rpm/sec max	500	10rpm/sec	
Move speed	750mm/sec max	300	mm/sec	
Point coordinates	100 mm max	5	mm	
Extent output1 down lin	nit 3276.7 mm max	2.0	mm	
Extent output1 up limit	3276.7 mm max	8.0	mm	
Extent output2 down lin	nit 3276.7 mm max	2.0	mm	
Extent output2 up limit	3276.7 mm max	8.0	mm	
Motor 1 rotate move	32.767 mm/rev max	10.000	mm/rev	
Motor model		TS4607	•	
Rotate direction		CW ·	Motor 0 home	position

Fig (4-12): Y rate setting

· Setting No.

It selects the setting number to be set.

Acceleration(Input range: 0 to 32767)

It sets the acceleration constant to reach the moving speed from the motor operation start.

Deceleration (Input range: 0 to 32767)

It sets the deceleration constant that the motor reaches the operation stop from moving speed.

• Move speed(Input range: ["Motor 1 rotate move" * 75])

It sets the movement speed. "Motor 1 rotate move" is set under.

Point coordinates(Input range: 0 to 100)

It sets the range to be detected as the point when you point output in the external communication output signal.

• Extent output 1 down limit(Input range: 0 to 3276.7), Extent output 1 up limit (Input range: 0 to 3276.7)

They specify a range of external communication output signal "Y range output ".

• Extent output 2down limit (Input range: 0 to 3276.7), Extent output 2 up limit (Input range: 0 to 3276.7)

They specify a range of external communication output signal "Y range output ".

Motor 1 rotate move(Input range: 0 to 32.767)

It sets the distance that the positioning motor to move in one revolution.

The distance will change by those you want to use. So you set according to it

- Rotate direction It sets the direction in which to work mechanically the positive side from the original position.
- Establish It establish the change contents.
- Delete It will return the value of the current set number to default.
- Read It displays the loading screen of Y rate. Set.
- Write It displays the writing screen of Y rate. Set
- Print It runs the printing of Y rate. Set
- OK It is to accept the changes and return to the position setting menu.
- Cancel It erases the changes and return to the position setting menu.

4-2-4. XY point setting (Teaching)

Here, it is the coordinate setting of the tightening point.

XY point(teaching) XY	(No. 1 · Esta	blish Delet	te
Y Avis			
X home position Home position PB	Teaching exec	tion Z Axi	is : Non-Exists
Home position OK Home position N	G Goordinates se	tting	
	o	ordinates coordinates	Goordinates
Y home position Home position PB	Home position(255)	0.0 0.0	
Home position OK Home position N	Return position 1(252)	0.0 0.0	Coordinates
none portant org home postdon re	Return position 2(253)	0.0 0.0	entry
X sarvo condition Sarvo on Sarvo off	Return position 3(254)	0.0 0.0	Coordinates
Sarve condition Sarve on Sarve on	POINT 1	0.0 0.0	clear
V	POINT 2	0.0 0.0	0 1 1
sarvo condition Sarvo on Sarvo off	POINT 3	0.0 0.0	Coordinates
	POINT 4	0.0 0.0	3276.7mm ma
X jog move speed 0 mm/sec	POINT 5	0.0 0.0	Interference
	POINT 6	0.0 0.0	setting
Y jog move speed 0 mm/sec	POINT 7	0.0 0.0	
Constantion attackation (Continuention)	POINT 8	00 00	Coordinates
rotation direction + direction	POINT S	00 00	shirt
rotation direction + direction	POINT 10	0.0 0.0	X coordinates
rotation direction -	POINT 10	0.0 0.0	0m
	POINT 12	0.0 0.0	Y coordinate
Manual jog XY execution	POINT 13	0.0 0.0	00
	POINT 14	0.0 0.0	01
X execution Y execution	POINT 16	0.0 0.0	
	DOINT 17	0.0 0.0	T
*ok by judgment offand manual mode * teaching execution and coordinates clear this	Print	ок	Cancel

Fig (4-13): XY point setting (Teaching)

The following screen appears when you select "XY point setting (Teaching)" from "Position setting menu". Please select the "Yes", if you set point.

GSK Ver.0.0.89	Barton and						
Do you want to communicate?							
C Settins point try € All the time communication							
YES NO							

Fig (4-14): Communication confirmation

· XY No.

It will select the XY number to be set.

XXY number is the same as the unit number.

XY Tab

- \cdot X home position, Y home position:(Home position PB)
- \cdot X servo condition, Y servo condition
- · X JOG move speed, Y JOG move speed
- \cdot X rotation direction, Y rotation direction
- It will make the home return of the unit of XY number. It displays the servo state of the X-axis and Y-axis.
- It sets the speed at which move in the manual JOG operation. It sets the direction of rotation at which move in the manual JOG operation.

Manual jog

It will move only while pressing the buttons of a "XY- execution " and "X- execution ", "Y- execution".

If you specify a point, it will move at a speed that you specify up to the point.

If the point is multiple choices, most young point number is enabled.

If you do not specify a point, it will move to a specified direction by the specified speed.

· Teaching execution

It sets the current coordinates to the coordinate's cell of the specified point in the table.

- coordinates read It reads the coordinate values that are currently registered from the controller
- · coordinates entry

It registers the coordinate values that are displayed on the screen to the controller.

- \cdot coordinates clear It is the cell of the specified point to 0.
- Interference setting It goes to the interference setting screen.
- coordinates shift The coordinates are displayed on the screen can be shifted in the following screen.

%If the coordinate value of 0 will not be shifted.

Coordinates shift	
X shift	0.0 mm
Y shift	0.0 mm
Exe	ecutio

Fig (4-15): coordinates shift

• X coordinates, Y coordinates, Z coordinates It displays the current coordinate value of the unit number.

4-2-4-1 Interference setting

You will select "Interference setting" from "XY point setting (Teaching)".

Password is required for this mode.

50K 10-0-0-0					
5					
nterference	se	Establish			
X/Y No.1					
X + soft limit	0.0 mm	Interference setting1	0.0 mm	Interfe	erence setting
Y + soft limit	0.0 mm	Interference setting2	0.0 mm		VeEd -
X – soft limit	0.0 mm	Interference setting3	0.0 mm		Valid •
Y – soft limit	0.0 mm	Interference setting4	0.0 mm		
X/Y No.2		Interference setting5	0.0 mm		
X + soft limit	0.0 mm	Interference settings	0.0		
Y + soft limit	0.0 mm	Interference settingo	0.0 mm		
X - soft limit	0.0 mm	Interference setting/	0.0 mm		
Y - soft limit	0.0 mm	Interference setting8	0.0 mm		
X/Y No.3		Interference setting9	0.0 mm		
X + soft limit	0.0 mm	Interference setting10	0.0 mm		
Y + soft limit	0.0 mm	Interference setting11	0.0 mm		
X = soft limit	0.0 mm	Interference setting12	0.0 mm		
1 SOIL MILL	1 0.0 mm	Interference setting13	0.0 mm		
X/Y No.4 X ± soft limit	0.0 mm	Interference setting14	0.0 mm		
Y + soft limit	0.0 mm	Interference setting 15	0.0 mm		
X - soft limit	0.0 mm	Interference setting16	0.0 mm		
Y – soft limit	0.0 mm	interference actuigre	0.0 1111		
	Write	Print	0	к	Cancel
_				· ·	

PASSWORD	
Interference setting?	
Password	
OK Cancel	

Fig (4-16): Interference setting

· X-axis coordinate + soft limit, X-axis coordinate - soft limit,

Y-axis coordinate + soft limit, Y-axis coordinate - soft limit

(Input range: -3276.7~3276.7)

X-axis in the operation other than JOG operation of teaching, all of the operations relating to the Y-axis will not work in a position that exceeds the software limit.

Towards the point where the coordinate value exceeds the above range, when trying to move it performs as a target position a soft limit position. Abnormality is not output after the operation.

It determines that finished work, go to the next step.

• Adjacent interference distance value ①-⁽¹⁾ (input range: 0 to 32767), adjacent interference distance effective X-axis that contains the specified adjacent interference distance, stops the Y-axis. Entered the adjacent interference distance, and outputs the "interference waiting abnormal" to the PLC exceeds the interference waiting abnormality of monitoring timer screen.

%Please refer to the controller of the specification about the contents of the adjacent interference distance.

4-2-4-2 Z axis

🤗 GSK Ver.0.0.94		# GSK Ver.0.0.94	
🗇 🔊 🖻 🐍		3 9	
XY point(teaching) XY N	No. 1 • Establish Delete	<u>Z rate.</u> Unit : 1	Establish
XY Axis Z Axis	the second second second	A 1 1	20202 10 /
Z home position Home position PB	Coordinates setting	Acceleration	32767 10rpm/sec max 10rpm/sec
Home position UK Home position NG	X Y Z A Coordinates		
Z sarvo condition Sarvo on Sarvo off	Home position(255) 0.0 0.0 0.0 00 Return position 1(252) 0.0 0.0 0.0 00	Move speed	0mm/sec max 0 mm/sec
Manual jog Up Down	Return position 2(253) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	Point coordinates	100 mm max 0 mm
The IOC aread at the 7 avia is set the 7 avia mating	POINT 1 00 00 00 Clear	Return position(Up limit)	3276.7 mm max 0.0 mm
Please perform operation after writing Z axis rating.	POINT 2 0.0 0.0 0.0 Coordinates	Down limit	3276 7 mm max
	POINT 4 0.0 0.0 0.0 Setting 3276.7mm max	Dominine	deret in that
	POINT 5 00 00 00 Interference	Motor 1 rotate move	32 767 mm/rev max 0 000 mm/rev
	POINT 7 00 00 00 setting		
	POINT 8 0.0 0.0 0.0 Coordinates	Rotate direction	CW -
	POINT 9 0.0 0.0 0.0 shift		
	POINT 10 0.0 0.0 0.0 X coordinates	Jog move speed	9999 mm/sec max 0 mm/sec
	POINT 12 00 00 00 0mm		
	POINT 13 0.0 0.0 0.0 Y coordinates	Home position move spee	ed 9999 mm/sec max 0 mm/sec
	POINT 14 0.0 0.0 0.0 Omn	During the sec	OCK Delaware
Z rate. Set	POINT 15 0.0 0.0 0.0 Z coordinates	Driver type	GSK Driver
	POINT 16 0.0 0.0 0.0 00 00 00 00 00 00 00 00 00	Motor model	T\$4603
		Wotor Woder	134003
 ok by judgment offand manual mode teaching execution and coordinates clear pb is ok by master 	Print OK Cancel	Write	Print OK Cancel

Z axis

· Z home position:(Home position PB)

It will make the home position of the unit of XY number.

- \cdot Z servo condition
- Manual jog

It displays the servo state of the X-axis and Y-axis. It moves upwards with "Up" button, and downwards with "Down" button. Activate while pressing the button, stop when you release the button.

Z rate

Acceleration(Input range: 0 to 32767)

It sets the acceleration constant to reach the moving speed from the motor operation start.

Deceleration (Input range: 0 to 32767)

It sets the deceleration constant that the motor reaches the operation stop from moving speed.

Move speed(Input range: ["Motor 1 rotate move" * 75])

It sets the movement speed. "Motor 1 rotate move" is set under.

Point coordinates(Input range: 0 to 100)

It sets the range to be detected as the point when you point output in the external communication output signal.

Return position

It sets the Z axis home position. This setting means the rising limit point.

Down limit

It sets the lower limit point.

Motor 1 rotate move(Input range: 0 to 32.767)

It sets the distance that the positioning motor to move in one revolution. The distance will change by those you want to use. So you set according to it

Rotate direction	It sets the direction in which to work mechanically the positive side from the original position.
· Jog move speed	It sets the speed at which move in the manual JOG operation.
Home position move	speed It sets the speed when you press the home position PB.
Driver type	Please select the GSK driver.
Motor model	Please select the motor type to use.
• Write	It displays the writing screen of Z rate. Set
•OK	It is to accept the changes and return to the XY point setting screen.
• Cancel	It erases the changes and return to the XY point setting screen.

4-2-5. Timer setting

You will select "Timer setting" from "Position setting menu".

GSK Ver.0.0.89				
<i>∎ •</i> Fault timer		Establish		
	Interference1 fault	(1 - 65000ms) 65000) msec	
	Interference2 fault	(1 - 65000 ms) 65000	msec	
	Interference3 fault	(1 - 65000 ms) 6500) msec	
	Interference4 fault	(1 – 65000ms) 65000) msec	
	Position locator1 f	ault (1 – 65000ms) 10000) msec	
	Position locator2 f	ault (1 – 65000ms) 10000) msec	
	Position locator3 f	ault (1 – 65000ms) 10000) msec	
	Position locator4 f	ault (1 – 65000ms) 10000) msec	
Read	Write	Print	ОК	Cancel



Interference fault ⇒ Set a time limit for the interference wait with other units. If even after this time during the automatic operation of the program operation is followed by interference waiting to ON outputs "interference waiting abnormal" to the PLC through an external communication such as M-net.
 Positioning locator fault ⇒ In the program operation and JOG operation, X-axis even after the lapse of that time, if the position movement of the Y-axis is not complete, ON output "positioning

abnormal" to the PLC through an external communication such as M-net.

- Interference 1 fault Set the interference waiting abnormality of the abnormal unit 1.
- Interference 2 fault Set the interference waiting abnormality of the abnormal unit 2.
- Interference 3 fault Set the interference waiting abnormality of the abnormal unit 3.
- Interference 4 fault Set the interference waiting abnormality of the abnormal unit 4.
- Positioning locator 1 fault Set the positioning abnormality of the abnormal unit1.
- Positioning locator 2 fault Set the positioning abnormality of the abnormal unit 2.
- Positioning locator 3 fault Set the positioning abnormality of the abnormal unit 3.
- Positioning locator 4 fault Set the positioning abnormality of the abnormal unit 4.
- Establish It establish the change contents.
- Read It displays the loading screen of Timer setting
- Write It displays the writing screen of Timer setting
- Print It runs the printing of Timer setting
- OK It is to accept the changes and return to the position setting menu.
- Cancel It erases the changes and return to the position setting menu.

4-3. nut runner setting

You will select "nut runner setting" from "setting menu"

Nutrunner setting	
RATE. SET (F1)	Auto setting (F4)
Block control (F2)	Return to the main menu (F5)
Manual setting (Parametor) (F3)	Return to the setting menu (F12)

Fig (4-18): nut runner setting

- rate setting (F1)
- block control (F2)
- manual setting (tightening parameter setting) (F3)
- auto setting (F4)
- back to main menu(F5)
- back to setting menu(F12)

Rated setting screen is indicated. Block control screen indicated Manual setting screen indicated. Auto setting screen indicated. Back to main menu screen. Back to setting menu screen.

4-3-1 rate setting

You will select "rate setting" from "nut runner setting".

TOTIL.OLI		Change of data	
lut runner type Sensor type Aotor model	ANZM-2000 • 2500 • TS4618N1920E203 •	Torque sensor rating Rating limit	245.0 N.m 4.9 N.m
Fightening direction	Right •	Zero point preset value Magnification preset value	0.0 N.m 122.5 N.m
		Gain correction Reduction ratio	122.5 N.m 43.3

Fig (4-19): Rate setting

Nut runner type: You will select nut runner type.

When the nut runner type is chosen, the sensor type and the motor type are shown to details to the right screen. Sensor type: You will select torque sensor type.

When the sensor type is chosen, it is shown to details to the right screen.

Motor type: you will select motor type.

- details
 - Torque sensor rate (Input area : $0 \sim 6550$) \Rightarrow The rated value of the torque sensor is established.
 - Limit over (Input area : 0 to 3276.7) \Rightarrow The value of the limit over is established.
 - Set over (Input area : 0 to 3276.7) \Rightarrow The value of the set over is established.
 - Zero preset value (Input area : 0 to 3276.7) \Rightarrow Zero preset value is established.
 - Magnification preset value (Input area : 0 to 3276.7) \Rightarrow The magnification preset value is established.
 - Gain collection (Input area : 0 to 3276.7) \Rightarrow The value of the gain collection is established.
 - Gear ratio (Input area : 0 to 9999) \Rightarrow The gear ratio of NR is established.
- Note 1) It's only when the sensor type is OTHER, that the torque sensor rated value can be changed.

Note 2) It can't be established contrary to the following input regulation.

- limit over < torque sensor rate set over < torque sensor rate
- zero preset value < torque sensor rate
 magnification preset value < torque sensor rate

• gain collection < torque sensor rate

Button

- fixation button \Rightarrow Change is fixed.
- $\boldsymbol{\cdot}$ setting read button $\ \Rightarrow\$ A rated reading screen is indicated.
- setting write button \Rightarrow A rated writing screen is indicated.
- print button \Rightarrow print of rate setting is executed.
- OK button \Rightarrow Change is fixed and back to nut runner setting.
- cancel button \Rightarrow Change is canceled and back to nut runner setting.

4-3-2. block control

You will select "block control" from "nut runner setting".

It's necessary to make a block and allot to an axis to set tightening movement as a program.

	Axis No.1	Axis No.2	Axis No.3	Axis No.4	Axis No.5	Axis No.6	Axis No.7	Axis No.8	Axis No.9	Axis No.10	Axis No.11	Axis No.12	Axis No.13	Axis No.14	A)
1	Block 1			Block 1											
2	Block2			Block2											
3	Block3			Block3											
4	Block4			Block4											
5															
6															
7															
8															
9															
															÷.
Li	st of b	lock c	onten	Deleat	block	De	əleat t	lock la	ayout	Blo	ck lay	out	Edit	of blo	c
۲ Li	st of b	lock c	content	Deleat	block	De	eleat b	lock la	ayout	Blo	ck lay	out	Edit	of blo	-C
۲ Li	st of b		content Block2	Deleat	block	De liock4	ələat b _{Block} s	lock le	ayout	Block7	ck lay	out	Edit Block 9	of blo Bloc	c
1 2	st of b Block SOC.T PRE.T		content Block 2 SOC.T2 PRE.T2	Deleat ts Block3 SOC.T1 END	E block	lock4 DC.T1 EA.T3	əleat b Block 5	lock la	ayout	Blo Block7	ck lay	out	Edit Block9	of blo Bloc	c
1 2 3	st of b Block SOC.T PRE.T REA.T		content Block 2 SOC.T2 PRE.T2 REA.T2	Deleat ts Block3 SOC.T1 END	E block	lock 4 DC.T1 EA.T3 END	Block 5	lock la	ayout	Blo Block7	ck lay	out	Edit Block9	of blo Bloc	ю ж1
1 2 3 4	St of b Block SOC.T PRE.T REA.T END	lock c 1 5 1 1	Content Block 2 SOC.T2 PRE.T2 REA.T2 END	Deleat ts Block3 SOC.T1 END	E block	Nock4 DC.T1 EA.T3 END	Block 5	lock la	ayout	Blo Block7	ck lay	out	Edit Block9	of blo Bloc	c
1 2 3 4 5	st of b Block SOC.T PRE.T REA.T END	lock c	content Block2 50C.T2 PRE.T2 REA.T2 END	Deleat ts Block3 SOC.T1 END	E block	Nock4 DCT1 EA.T3 END	Block 5	lock la	ock6	Block7	ck lay	out	Edit Block9	of blo Bloc	*k1
Li 1 2 3 4 5 6	St of b Block SOC.T PRE.T REAT END	lock c 1 5 1 8	content Block2 SOC.T2 PRE.T2 REA.T2 END	Deleat	E block	Nock4 DC.T1 EA.T3 END	Block 5	B	ock6	Block7	Ck lay	out	Edit Block9	of blo Bloc	cl
Li 1 2 3 4 5 6 7	St of b Block SOCT PRET REAT END		Content Block2 SOC.T2 PRE.T2 REA.T2 END	Deleat	E block	Nock4 DC.T1 EA.T3 END	Blocks	B	ayout	Block7	Ck lay	put	Edit Block9	of blo Bloc	×1
Li 1 2 3 4 5 6 7 8	St of b Block SOC.T PRE.T REA.T END		Content Block2 SOC.T2 PRE.T2 REA.T2 END	Deleat	E block	Nock4 EA.T3 END	Block 6	B	ayout	Block7	B	but seck8	Edit Block9	Bloc	:cl
Li 1 2 3 4 5 6 7 8 9	St of b Block SOC.T PRE.T REA.T END		Conteni Block2 SOC.T2 PRE.T2 REA.T2 END	Block3 SOC.TI END	E block	Nock4 DC.T1 EA.T3 END	eleat t	B	ayout	Block7	BI	but	Edit Block9	Bloc	k1

Fig (4-20): Block control

- Block allocation list \Rightarrow The block assigned to axis number is indicated.
- Block contents list \Rightarrow The block contents is indicated.

Button

 setting read button 	\Rightarrow	A block control reading screen is indicated.
 setting write button 	\Rightarrow	A block control writing screen is indicated.
• A corrugated image butto	$n \Rightarrow$	A corrugated image screen is indicated.
 program setting button 	\Rightarrow	Program setting screen is indicated.
・OK button	\Rightarrow	Change is fixed and back to nut runner setting.
 cancel button 	\Rightarrow	Change is canceled and back to nut runner setting.
 block elimination button 	\Rightarrow	When the block where I'd like to eliminate a block list of the contents is
		designated, and a block elimination button is pressed, a block can
		be eliminated.
Block allocation eliminati	on button	\Rightarrow When an axis of a block allocation list is designated and a block
		allocation elimination button is pressed, the block assigned to the axis
		is eliminated.

• Block allocation button \Rightarrow The block number can be allocated to an axis by "block allocation" button. %It's possible to judge the present allocation by "block allocation list" of the screen upper part.

When a number is input to the cell a block allocation list chose, the block number of the number is input. When I'd like to put out the block number of the chosen cell, the block number of the axis to which even a "DEL" key and a "BACK SPACE" key are relevant can be eliminated.

block edit button

 \Rightarrow The movement contents of the block number can be set as an axis by a block edit button.

Special set	ting Block	No. 1 •	Establish		
SOC.T	PRE.T	REV.T	REA.T	SETTING LIST	
SOC.T1	PRE.T1	REV.T1	REA.T1	COMMAND	
SOC.T2	PRE.T2	REV.T2	REA.T2	SOC.T1	Socket removal
SOC.T3	PRE.T3	REV.T3	REA.T3	PRE.T1	
SOC.T4	PRE.T4	REV.T4	REA.T4	REA.T1	DETDY
SOC.T5	PRE.T5	REV.T5	REA.T5	END	ncikt
SOC.T6	PRE.T6	REV.T6	REA.T6		
SOC.17 =	PRE.T7 =	REV.T7 =	REA.T7 =		END
SOC.T8	PRE.T8	REV.T8	REA.T8		END
SOC.T9	PRE.T9	REV.T9	REA.T9		
SOC.T10	PRE.T10	REV.T10	REA.T10		
SOC.T11	PRE.T11	REV.T11	REA.T11		
SOC.T12	PRE.T12	REV.T12	REA.T12		
SOC.T13	PRE.T13	REV.T13	REA.T13		
SOC.T14	PRE.T14	REV.T14	REA.T14		
SOC.T15	PRE.T15	REV.T15	REA.T15		
SOC.T16	PRE.T16	REV.T16	REA.T16		
SOC.T17	PRE.T17	REV.T17	REA.T17		
SOC.T18	PRE.T18	REV.T18	REA.T18		
SOC.T19	PRE.T19	REV.T19	REA.T19		
SOC.T20	PRE.T20	REV.T20	REA.T20		
SOC.T21	PRE.T21	REV.T21	REA.T21	One line incertion	
SOC.T22	PRE.T22	REV.T22	REA T22	one me insertion	
SOC.T23	PRE.T23	REV.T23	REA.T23	One line delete	
SOC.T24	PRE.T24	REV.T24	REA.T24	Class	
		Chana	e of tighting	Urear	1
		pa	rametor	ок	Cancel

Fig (4-21): Block edit

When the respective setting numbers of the socket adjustment, the pre-tightening, the reverse rotation and final tightening are left-clicked, setting is reflected by setting information on the screen right side.

When a choice cell of setting information is yellow, setting of the cell is overwritten.

When a choice cell of setting information is white, setting is inserted in front of the cell.

The change in the color can be changed by left-clicking the cell.

- Note 1) The setting which is already input is a white cell. The cell by which setting is non-input becomes purple. Even if a cell of non-input is left-clicked, setting isn't inserted in setting information.
- Note 2) When the setting which is already input (white) is left-clicked, the setting is inserted in setting information. When right-clicking, setting isn't inserted in setting information, and it's chosen. When using a "a tightening parameter change" button under the screen center, please use a right click.
 - ☆"Tightening parameter change" when a button is pressed, it moves to the screen to which the setting chosen at present can be changed.

Button

- fixation button \Rightarrow Change is fixed.
- \cdot socket remove button \Rightarrow The command of the socket removal is inserted in setting information.

*Please refer to a glossary of back of the book for the meaning of the socket removal.

- The action uses setting number 50 of socket adjustment. The torque of the socket removal is based on setting of a controller. Please refer to instruction manual for controller.
- \cdot retry button \Rightarrow The command of the retry is inserted in setting information.

%Please refer to a glossary of back of the book about the meaning of the retry.

- 1 line insertion button
 - \Rightarrow The line of 1 line blank is inserted in front of the cell from which setting information is chosen.
 - 1 line deletion button \Rightarrow The one of the cell from which setting information is chosen is eliminated. The command after that moves to the front.

- all clear button \Rightarrow The command of the setting information, everything is cleared.
- Tightening parameter change button \Rightarrow It move to a chosen setting screen.
- OK button \Rightarrow Change is fixed and back to nut runner setting.
- cancel button \Rightarrow Change is canceled and back to nut runner setting.

4-3-3. Manual setting

You will select "manual setting "tightening parameter setting" from "nut runner setting".

In-depth setting m		
	SOC.T SET (F3)	
	PRE.T SET (F4)	
	REV.T SET (F5)	
	REA T SET (F6)	
	Return to the setting menu (F12)	

Fig (4-22): detail setting

socket adjusting (F3) ⇒ socket adjusting setting screen is indicated.
 pre-tightening (F4) ⇒ pre-tightening setting screen is indicated.

 \Rightarrow

- reverse rotation (F5) \Rightarrow
- final tightening (F6)
- \cdot back to setting menu (F12) \Rightarrow

pre-tightening setting screen is indicated. reverse rotation setting screen is indicated. final tightening setting screen is indicated. back to setting menu

4-3-3-1.socket adjusting

You will select "socket adjusting" from "manual setting "tightening parameter setting".

Speed Rotation directior	100 rpm Loosening direction •	Operation Detection torque Prerotation time	Torque determination OF

Fig (4-23): socket adjusting

* You can move to "pre-tightening", "reverse rotation" and "final tightening" by a button of the upper right.

```
• rotation angle (input area : 0 to 9999) \Rightarrow The degree of rotation angle at socket adjustment is established.
```

```
• speed (input area : 0 to 9999) \Rightarrow The degree of speed at socket adjustment is established.
```

Option setting

Movement

• without torque judgment \Rightarrow It isn't judged by the detection torque value.

• one shot reverse rotation \Rightarrow When monitoring torque reaches the detection torque value, movement is stopped.

• fitting \Rightarrow When monitoring torque doesn't reach the detection torque value, movement is stopped.

 \cdot gear check \Rightarrow When monitoring torque reaches the detection torque value, movement is stopped and NG is indicated

```
• detection torque (input area : 0 to 3276.7) \Rightarrow The detection torque value is established.
```

• before time (input area : 0 to 9999) \Rightarrow Time until a revolution is begun is set.

• over time (input area : 0 to 60)

 \Rightarrow The biggest time of the socket adjustment movement is set.

When movement doesn't end in this time, movement is ended and NG is judged.

Socket adjustment setting is checked the input of by the next condition. Over time >1

When the degree of rotation angle is zero, it's judged not to establish pre-tightening movement.

\cdot fixation button \Rightarrow		Change is fixed.
elimination button =	⇒	The price of the present setting number is returned to defaults.
 setting read button 	\Rightarrow	A socket adjusting reading screen is indicated.
 setting write button 	\Rightarrow	A socket adjusting writing screen is indicated.
 print button 	\Rightarrow	Socket adjustment setting is printed.
OK button	\Rightarrow	Change is fixed and back to nut runner setting.
 cancel button 	\Rightarrow	Change is canceled and back to nut runner setting.
4-3-3-2.pre-tightening

You will select "pre-tightening" from "manual setting "tightening parameter setting".

Fitting thread Turning angle 360 ° Speed 100 rpm	Fast forwarding Angle of fast forwarding 2160 ° Speed 150 rpm Premature tightening 0.0 N.m
Fit on work surface 36.7 N.m Pretightening torque 36.7 N.m Speed 1 finsh torque 10.0 N.m Lower torque limit 49.0 N.m Lower torque limit 24.5 N.m Speed 1 80 rpm Speed 2 80 rpm Over time 10 sec. Sampling start torque 16.3 N.m Judgement of area size 65535 x10	P Change of option set Invalid area for measurement Measurement angle 9999 * Time before pretightening Upper time limit 2100 msec. Lower time limit 10 msec. Upper angle limit 1.0 * Monitoring time for no−torque Pretightening cutting angle 360 *

Fig (4-24): socket adjusting

XYou can move to "socket adjusting", "reverse rotation" and "final tightening" by a button of the upper right.

• screw fitting (movement for screw fitting)

• rotation angle (input area : 0 to 9999)

 \Rightarrow The degree of rotation angle when moving of screw adjustment is established.

speed (input area : 0 to 9999)

 \Rightarrow The degree of speed when moving of screw adjustment is established.

- fast forwarding (movement for fast forwarding)
- fast forwarding angle (input area : 0 to 9999)
 - \Rightarrow The degree of rotation angle when moving of fast forwarding is established.
- speed (input area : 0 to 9999)
 - \Rightarrow The degree of speed when moving of fast forwarding is established.
- premature tightening determination torque (input area : 0 to 3276.7)
 - \Rightarrow The NG judged torque value is input at the fast forwarding.
- fit on work surface (movement for fit on work face)
- pre-tightening torque (input area : 0 to 3276.7)
 - \Rightarrow The torque value when ending movement during pre-tightening movement is established.

 \Rightarrow

- speed1 finish torque (input area : 0 to 3276.7) \Rightarrow
- upper torque limit (input area : 0 to 3276.7) \Rightarrow
- lower torque limit (input area : 0 to 3276.7)
- speed1 (input area : 0 to 500)
- The speed value at speed 1 is established.

The torque value when ending speed 1, is established.

The torque value when torque over is established.

The torque value when torque under is established.

• speed2 (input area : 0 to 200)

The speed value at speed 2 is established.

- over time (input area : 0 to 60)
 - \Rightarrow The longest operating time of pre-tightening is set.

When movement doesn't end by this time, movement is ended and NG is judged.

 \Rightarrow

 \Rightarrow

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• sampling start torque (input area : 0 to 3276.7)

 \Rightarrow The torque value of time and angular measurement starting point is established.

• judgment of area size (input area : 0 to 65535)

 \Rightarrow The area value used for judgment of screw badness is established.

- Option
- invalid area for judgment (input area : 0 to 9999) \Rightarrow The invalid area when measuring the area, is set.

The angle of the area is measured is set.

• measurement angle (input area : 0 \sim 9999) \Rightarrow

- before time (input area : 0 to 65500)
 - \Rightarrow The time lag until a pre-tightening order begins to revolve start is established.
- upper time (input area : 0 to 65500)
- \Rightarrow Time upper limit value used for judgment in time is established after it'll be the measurement starting torque.
- lower time (input area : 0 to 65500)
- \Rightarrow Time lower limit value used for judgment in time is established after it'll be the measurement starting torque.
- upper angle (input area : 0 to 999.9)
- \Rightarrow Angle upper limit value used for judgment in angle is established after it'll be the measurement starting torque.
- lower angle (input area : 0 to 999.9)
- \Rightarrow Angle lower limit value used for judgment in angle is established after it'll be the measurement starting torque.
- monitoring time for no torque (input area : 0 to 65500) \Rightarrow The time which isn't measured torque value is set.
- pre-tightening cutting angle (input area : 0 to 9999)
- \Rightarrow The most movement angle of the pre-tightening is set. When it's this angle, movement is ended.

Pre-tightening setting is checked the input of by the next condition.

When the degree of speed1 speed2 are zero, it's judged not to establish pre-tightening movement.

- So it doesn't check the input.
- over time >1
 fast forwarding angle > rotation angle
 upper torque limit > lower torque limit
- upper time limit > lower time limit upper angle limit > lower tangle limit
- pre-tightening torque > sampling start torque
 upper torque limit > pre-tightening torque > lower torque limit

Button

- fixation button \Rightarrow Change is fixed.
- \cdot elimination button \Rightarrow The price of the present setting number is returned to defaults.
- setting read button \Rightarrow A pre-tightening reading screen is indicated.
- setting write button \Rightarrow A pre-tightening writing screen is indicated.
- print button \Rightarrow Pre-tightening setting is printed.
- OK button \Rightarrow Change is fixed and back to nut runner setting.
- \cdot cancel button \Rightarrow Change is canceled and back to nut runner setting.

4-3-3-3.reverse rotation

You will select "reverse rotation" from "manual setting "tightening parameter setting".

← GSK Ver.0.0.89	Constitute Const	And in case of the other		
REV.T SET Setting	No. <mark>1</mark>	Establish Delete	SOC.T PRE.T	REV.T REA.T
Judgement of torque 0.0	N.m	Change of option s	settin	
Reverse angle 0	•	Speed 1 finish angle	50	•
Speed 1 0	rpm	Speed 2	80	rpm
Measurement angle 0	0	Time before reverse	rotation 0	msec.
Passing torque 0.0	N.m			
Baking torque 0.0	N.m			
Over time 60	sec.			
Read Write		Print	ОК	Cancel

Fig (4-25): reverse rotation

XYou can move to "socket adjusting", "pre-tightening" and "final tightening" by a button of the upper right.

- judgment torque (input area : 0 to 3276.7) \Rightarrow The torque value for judgment of screw badness is established.
- reverse angle (input area : 0 to 9999) \Rightarrow The movement angle when reversing, is established.
- speed1 (input area : 0 to 9999) \Rightarrow The speed value at speed 1 is established.
- measurement angle (input area : 0 to 9999)

 \Rightarrow The measurement angle for judgment of screw badness is established.

- passing torque (input area : 0 to 3276.7)
 - \Rightarrow The passing torque for judgment of socket-in badness is established.
- baking torque (input area : 0 to 3276.7)
 - \Rightarrow The baking torque for judgment of pre-tightening badness is established.
- over time (input area : 0 to 60)
 - \Rightarrow The longest operating time of reverse rotation is set.

When movement doesn't end by this time, movement is ended and NG is judged.

Option

• speed1 finish angle (input area : 0 to 9999)

 \Rightarrow The angle when switching over from the 1st speed to the 2nd speed is set.

- speed2 (input area : 0 to 9999) \Rightarrow The speed value at speed 2 is established.
- before time (input area : 0 to 65500) \Rightarrow Time until the reverse is begun is established.

Reverse rotation setting is checked the input of by the next condition.

When the degree of reverse angle is zero, it's judged not to establish reverse rotation movement.

So it doesn't check the input.

• over time >1 • reverse angle > measurement angle • reverse angle > speed1 finish angle

Button

- fixation button \Rightarrow Change is fixed.
- \cdot elimination button \Rightarrow The price of the present setting number is returned to defaults. \cdot setting read button \Rightarrow Reverse rotation reading screen is indicated. \cdot setting write button \Rightarrow Reverse rotation writing screen is indicated.
- print button \Rightarrow Reverse rotation setting is printed.
- $\label{eq:observation} \bullet \mbox{ OK button } \qquad \Rightarrow \qquad \mbox{Change is fixed and back to nut runner setting.}$
- $\label{eq:cancel} \cdot \mbox{ cancel button } \qquad \Rightarrow \qquad \mbox{Change is canceled and back to nut runner setting.}$

4-3-3-4.final tightening

You will select "final tightening" from "manual setting "tightening parameter setting""

Final tightening-torque control "The setting screen when final tightening mode is torque control"

CSK Ver.0.0.89 SK Ver.0.0.89 REA.T SET	Setti	ng No	. 2 • Establ	ish Delete	SOC.T PRE.T REV.T REA.T
Tightening mod	e Torqu	ie mod	e •		
Reatightening tor	que [78.0	N.m	Over time	5 sec.
Sampling start to	rque	39.0	N.m	Upper torque limit	82.7 N.m
Speed 1		20	rpm	Lower torque limit	73.3 N.m
Speed 1 finish an	gle	0	•	Cutting angle	360 *
Speed 2	[20	rpm		
Change of opt	ion setti	ng	⊢⊓ Change of zone	determination	Smooth tightening
final tightening	0	msec.	Zone monitoring rang	e Watch OFF 🔄	Initial speed 0 rpm
Upper time limit	2100	msec.	Zone starting point	0.0 N.m	Speedatcutting 0 rpm
Lower time limit	10	msec.	Tolerance of the zone starting point	0.0 N.m	torque
Upper angle limit	200.0	•	Zone end point	• 0.0	□ Option mode of speed 3,4
Lower angle limit	1.0	•	Tolerance of the	0.0 *	Speed 3 select angle 0 *
Premature tightening determination angle	0	•	2016 Gild polite		Speed 3 0 rpm
Monitoring time for no-tornue	0	msec.			Speed 4 select torque 0.0 N.m
Judgement of area size	65535	×10			Speed 4 0 rpm
Read	Write		Pr	int	OK Cancel

Fig (4-26): final tightening (torque control)

%You can move to "socket adjusting", "pre-tightening" and "reverse rotation" by a button of the upper right.

• real-tightening torque (input area : 0 to 3276.7)

 \Rightarrow The torque value when ending movement during final tightening movement is established.

sampling start torque (input area : 0 to 3276.7)

 \Rightarrow The torque value of time and angular measurement starting point is established.

• speed1 (input : 0 to 9999) \Rightarrow The speed value at speed 1 is established.

• speed1 finish angle (input area : 0 to 9999)

The angle when switching over from the 1st speed to the 2nd speed is established.

- speed2 (input area : 0 to 999) \Rightarrow The speed value at speed 2 is established.
- over time (input area : 1 to 60) \Rightarrow The longest operating time of final tightening is set.

When movement doesn't end by this time, movement is ended and NG is judged.

- upper torque limit (input area : 0 to 3276.7) \Rightarrow The torque value when torque over is established.
- lower torque limit (input area : 0 to 3276.7) \Rightarrow The torque value when torque under is established.
- cutting angle (input area : 0 to 9999)
- $\Rightarrow \qquad \text{The most movement angle of the final tightening is set.}$ When it's this angle, movement is ended.

Option

• before time (input area : 0 to 65500) The time lag until a real-tightening order begins to revolve start is established.

upper time limit (input area : 0 to 65500)

 \Rightarrow Time upper limit value used for judgment in time is established after it'll be the measurement starting torque.

• lower time limit (input area : 0 to 65500)

⇒Time lower limit value used for judgment in time is established after it'll be the measurement starting torque.
• upper angle limit (input area : 0 to 999.9)

 \Rightarrow Angle upper limit value used for judgment in angle is established after it'll be the measurement starting torque.

lower angle limit (input area : 0 to 999.9)

 \Rightarrow Angle lower limit value used for judgment in angle is established after it'll be the measurement starting torque.

• premature tightening determination angle (input : 0 to 9999)

 \Rightarrow The NG judged angle value is input at the fast forwarding.

• monitoring time for no torque (input area : 0 to 65500) \Rightarrow The time which isn't measured torque value is set.

judgment of area size (input area : 0 to 65535)

 \Rightarrow The area value used for judgment of screw badness is established.

zone determination

zone monitoring range

"watch off" \Rightarrow Zone judgment isn't done.

"lower off" \Rightarrow A lower limit isn't judged at the time of a zone judgment.

"upper off" \Rightarrow A upper limit isn't judged at the time of a zone judgment.

"watch on" \Rightarrow A lower limit and a upper limit is judged at the time of a zone judgment.

• zone starting point (input area : 0 to 3276.7) The torque value which begins zone judgement is established.

• tolerance of the zone starting point (input area : 0 to 3276.7)

 \Rightarrow The torque value and the common difference which are at the start of zone judgment are established.

• zone end point (input area : 0 to 999.9)

 \Rightarrow The angle of end point from start point of zone judgment is established.

• tolerance of the zone end point (input area : 0 to 999.9)

 \Rightarrow The angle value and the common difference which are at the end of zone judgment are established.

smooth tightening

• initial speed (input area : 0 to 9999) \Rightarrow The speed which is at the start of smoothing tightening is established.

speed at cutting torque (input area : 0 to 9999) ⇒ The speed when reaching the cut torque of is established.
 Even the last speed will go down gradually from the speed of initials according to the torque change for the speed until the tightening torque reaches the cut torque.

option mode of speed3,4

speed 3 select angle (input area : 0 to 9999)

 \Rightarrow The angle when switching over from the 2nd speed to the 3rd speed is established.

• speed 3 (input area : 0 to 9999) \Rightarrow The speed value at speed 3 is established.

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• speed 4 select torque (input area : 0 to 3276.7)

- \Rightarrow The torque when switching over from the 3rd speed to the 4th speed is established.
- speed 4 (input area : 0 to 9999) \Rightarrow The speed value at speed 4 is established.

Final tightening "torque control mode" setting is checked the input of by the next condition.

When the degree of tightening angle is zero, it's judged not to establish final tightening movement. So it doesn't check the input.

- over time >1
 upper torque limit > lower torque limit
 upper time limit > lower time limit
- upper angle limit > lower tangle limit upper torque limit > real-tightening torque > lower torque limit
- initial speed > speed at cutting torque

Button

OK button

- elimination button \Rightarrow The price of the present setting number is returned to defaults.
- setting read button \Rightarrow
- setting write button \Rightarrow Final tightening writing screen is indicated.
- print button \Rightarrow Final tightening setting is printed.
 - \Rightarrow Change is fixed and back to nut runner setting.

Final tightening reading screen is indicated.

• cancel button \Rightarrow Change is canceled and back to nut runner setting.

Final tightening—angle control "The setting screen when final tightening mode is angle control"

ef GSK Ver.0.0.89	
REA.T SET Setting No. 1 Establish De	Delete SOC.T PRE.T REV.T REA.T
Tightening mode Angle mode 🔹	
Snag torque 49.0 N.m. Upper torque limit 170 Cutting torque 180.0 N.m. Lower torque limit 150 Tightening angle 90 • Upper snag torque limit 54 Over time 5 sec. Upper angle limit 100 Lower snag torque limit 80	00 Nm Speed 1 20 rpm 00 Nm Speed 1 0 * 40 Nm Speed 2 20 rpm 40 Nm Speed 2 20 rpm 00 Nm Paning torque 0.0 Nm 00 * of 0.0 Nm Nm
♥ Change of option setting 1000 Time block 1000 Upper time limit 1200 Lower time limit 1400 Prenature lightening 0 Observation angle 0 Monitoring time 0 Judgement 0 Judgement 65535	see F Smooth tightening 0 TMES initial speed 0 rpm 0 TMES Speed at snag torque 0 rpm 0 % Control of speed 3.4 Speed 3 0 rpm 5 Speed 4 select torque 0.0 N m 5 Speed 4 0 rpm
Read Write Print	OK Cancel

Fig (4-27): final tightening (angle control)

% You can move to "socket adjusting", "pre-tightening" and "reverse rotation" by a button of the upper right.

- snag torque (input area : $0 \sim 3276.7$) \Rightarrow Snag torque value which begins angle control is established.
- cutting torque (input area : 0~3276.7)

 \Rightarrow The torque value when ending movement during final tightening movement is established.

• tightening angle (input area : 0 \sim 9999)

 \Rightarrow The angle value when ending movement during final tightening movement is established. • over time (input area : $0 \sim 60$) \Rightarrow The longest operating time of final tightening is set. When movement doesn't end by this time, movement is ended and NG is judged. • upper torque limit (input area : 0 to 3276.7) \Rightarrow The torque value when torque over is established. • lower torque limit (input area : 0 to 3276.7) \Rightarrow The torque value when torque under is established. • upper snag torque limit (input area : 0 to 3276.7) \Rightarrow The snag torque value when torque over is established. • lower snag torque limit (input area : 0 to 3276.7) \Rightarrow The snag torque value when torque under is established. • upper angle limit (input area : 0 to 999.9) \Rightarrow Angle upper limit value used for judgment in angle is established after it'll be the snag torque. • lower angle limit (input area : 0 to 999.9) \Rightarrow Angle lower limit value used for judgment in angle is established after it'll be the snag torque. • speed1 (input : 0 to 9999) \Rightarrow The speed value at speed 1 is established. • speed1 finish angle (input area : 0 to 9999) \Rightarrow The angle when switching over from the 1st speed to the 2nd speed is established. speed2 (input area : 0 to 999) \Rightarrow The speed value at speed 2 is established. • passing torque of real tightening (input area : 0 to 3276.7) \Rightarrow The torque value when judging socket removal abnormality, is established. Option • before time (input area : 0 to 65500) \Rightarrow The time lag until a real-tightening order begins to revolve start is established. • upper time limit (input area : 0 to 65500) \Rightarrow Time upper limit value used for judgment in time is established after it'll be the snag torque. • lower time limit (input area : 0 to 65500) \Rightarrow Time lower limit value used for judgment in time is established after it'll be the snag torque. • premature tightening determination angle (input : 0 to 9999) \Rightarrow The NG judged angle value is input at the fast forwarding. • monitoring time for no torque (input area : 0 to 65500) \Rightarrow The time which isn't measured torque value is set. • judgment of area size (input area : 0 to 65535) \Rightarrow The area value used for judgment of screw badness is established. gradient determination • gradient sampling number (input area : 0 to 99) The sampled number per the once is established.

• moving average number (input area : 0 to100)

The number which is every 0.5 degree and acquires data is established.

• upper gradient determination limit (input area : 0 to 100)

The upper limit value of gradient determination is established.

• lower gradient determination limit (input area : 0 to 100)

The upper limit value of gradient determination is established.

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smooth tightening

- initial speed (input area : 0 to 9999) ⇒ The speed which is at the start of smoothing tightening is established.
 speed at cutting torque (input area : 0 to 9999) ⇒ The speed when reaching the cut torque of is established. Even the last speed will go down gradually from the speed of initials according to the torque change for the speed until the tightening torque reaches the cut torque.
- option mode of speed3,4
- speed 3 select angle (input area : 0 to 9999)
 - \Rightarrow The angle when switching over from the 2nd speed to the 3rd speed is established.
- speed 3 (input area : 0 to 9999) \Rightarrow The speed value at speed 3 is established.
- speed 4 select torque (input area : 0 to 3276.7)
 - \Rightarrow The torque when switching over from the 3rd speed to the 4th speed is established.
- speed 4 (input area : 0 to 9999) \Rightarrow The speed value at speed 4 is established.

Final tightening "angle control mode" setting is checked the input of by the next condition.

When the degree of tightening angle is zero, it's judged not to establish final tightening movement.

- So it doesn't check the input.
- over time >1
 upper torque limit > lower torque limit
 upper time limit > lower time limit
- upper angle limit > lower tangle limit upper torque limit > real-tightening torque > lower torque limit
- initial speed > speed at cutting torque

4-3-4.auto setting

You will select "auto setting" from "nut runner setting"

Rate No. 1 •		☞ Torque mode		
Tightening direction			Upper torque limit	90.0 N.m
			Reatightening torque	80.0 N.m
- C Le th	ft-hand read jht-hand		Lower torque limit	50.0 N.m
		1		
FEP 2 ⊽ Full−autosetting		⊂ Setting of sampling data		
FEP 2		□ Setting of sampling data		
FEP 2 F Full-auto setting		Setting of sampling data		
FEP 2 F Full-auto sotting Full-auto sotting Jup of dealer advantable		Setting of sampling data		
FF 2 F Full-auto setting Fat an array place of dealer place of dealer	(parameter directly)	Setting of sampling data	(divo)	

Fig (4-28): auto setting

STEP1 :

As basic information, it's necessary to input rated number of NR, choice of control mode(torque control or angle control) upper torque limit, cutting torque and lower torque limit.

STEP2 :

It is established full-auto setting or setting of sampling data is chosen.

• Full-auto setting \Rightarrow Setting parameter is made by data inputting.

(The screw kind, the distance until the taking a seat and inclusion)

• Setting of sampling data \Rightarrow Setting parameter is made by data which actual tightening is performed.

4-3-4-1. full-auto setting

"Full-auto setting" is chosen by "auto setting", and, "next", when it's pushed, it'll be a full-auto setting screen.



Fig (4-29): full-auto setting

%Please refer to "9-3 tightening program" for a flow chart.

Input axis number, the screw kind, the bolt kind and inclusion, and next is developed, "next", it's clicked.

Screen for image of torque curve Block Nm Reverse rotation Nm Addeement of targe Judeement of targe <th>GSK Ve</th> <th>r.0.0.89</th> <th>() and () and () and () and () and () and ()</th> <th></th>	GSK Ve	r.0.0.89	() and () and () and () and () and () and ()	
Nm Reverse rotation Readifythering two to the targe 000 Nm With the targe 0000 Nm Nm Nm Nm 800 Nm With targe 000 Nm Nm Smpth targe 500 Nm With targe 000 Nm Sumpting target targe 300 Nm With target 000 Nm Addrement of targe 2.0 Nm Sumpting target target 000 Nm Particle target 2.0 Nm Sumpting target target 000 Nm Particle target 2.0 Nm Sumpting target target 000 Nm Particle target 100 * Monitorite time to rorse 0000 * Nm Bander target 100 * Monitorite time to rorse 0.0 Attime mate Nm Speed 1 100 * Monitorite time to rorse 0.0 Attime mate Nm Speed 1 00 rpm Speed 1 100 * Speed 1 100 * Nm Speed 1 00 rpm Speed 1 100 * Speed 1 100 * Speed 1 00 rpm Speed 1 100 rpm Speed 1 100 * Speed 1 100 * Nm Speed 1 100 rpm Speed 1 100 rpm Speed 2 0 rpm Nm Speed 1 00 rpm Speed 1 100 rpm Speed 1 100 rpm Nm Speed 1 00 rpm Speed 1 0 rpm Speed 1 100 rpm Nm Speed 1 00 rpm	Scr	reen for image of torque cu	Irve Block 1	
Nin Mode Tension 800 Nm Nm Nm Nin Second 500 Nm Nm Nm Nm Judgement of trage 200 Nm Second 800 Nm Nm Nm Judgement of trage 200 Nm Second 80535 x10 Presset trage 600 Nm 0° Nm 0° Judgement of trage 3/udgement of area size 65535 x10 Presset trage 600 Nm 0° 0° Second 1 floating targe 180 ° Monitor tild formed 3800 ° Second 1 floating targe 180 ° Monitor tild formed 180 ° No Second 1 floating targe 600 rpm Second 2 floating targe 180 ° No Second 1 floating targe 500 rpm Second 2 floating targe 180 ° No Second 1 floating targe 500 rpm Second 2 floating targe 500 rpm No Second 1 floating targe 500 rpm Second 2 floating targe 500 rpm No Second 1 floating targe 500 rpm Second 2 floating targe 500 rpm No Second 1 floating Second 5 floating targe 500 rpm Second 5 floating targe Read Write Graph cheking OK Cancel	Nm	Reverse rotation	Reatightening Upper 90.0 Nm	Upper 65500 ms
Nm Judgement of trage 500 Nm Attem 1990 J Judgement of trage 20 Nm Sampling start targe 400 Nm 200 Nm Judgement of trage 20 Nm Judgement of targe 600 Nm 200 Nm Present targe 00 O' 00 O' 00 O' De 00 O' 00 O' 00 O' Speed 1 Inith rate 100 O' 00 made 00 O' Speed 1 Tool rate 50 or gm 50 or gm 50 or gm Targe barler reverse rate 100 or gm Speed 1 Tool rate 50 or gm Speed 1 Tool rate 50 or gm 50 or gm 50 or gm Targe barler reverse rate 50 or gm 50 or gm 50 or gm Targe barler reverse rate 50 or gm 50 or gm 50 or gm Speed 1 Tool rate 50 or gm 50 or gm 50 or gm Targe barler reverse rate 50 or gm 50 or gm 50 or gm Read Write Graph cheking OK Cancel	Nm		Mode Restationing 80.0 Nm	time limit 0 mS4
Judgement of targe Judgement of targe 400 Nm Image: Second State	Nm		mode Lower foil 50.0 Nm	Lower 0.0 *
Junction Junct	· · ·			angle limit 0.0
Judgement of targae 2 0 Nm Judgement of area size 2 0 Nm Judgement of area size 0 + 0 + 0 + <td< th=""><th></th><th></th><th>Sampling start torque 40.0 Nm</th><th>Zone de te</th></td<>			Sampling start torque 40.0 Nm	Zone de te
Julgement of storage 20 Min Julgement of storage Julgement of storage Particle transport 800 Nm Premise information rightening to the storage 500 Storage No 600 Nm 0° 0° No 600 Nm 0° 0° Second 1 180° Monitories time for or transport Cutter ando No 0° 0° 0° Second 1 180° Second 1 finition role 180° No 50° Second 1 finition role 100° No 50° Second 1 finition role 50° No 0° Second 1 finition role Seco				Smooth t
Particul torge Judgement of arms ike 200 Baking torge		Judgement of torque		O plice mod
Parameter torge Solden torge 0 Nm 0 Nm </th <th></th> <th>2.0 Mil</th> <th>/</th> <th></th>		2.0 Mil	/	
200 Bake torgan Promiser lightnick demonstration sets 3. 60.0 Nm Promiser lightnick demonstration sets 3. 60.0 Nm Promiser lightnick demonstration sets 3. 60.0 Nm 0 * 3. 60.0 Nm 0 * 3. 60.0 Nm 0 * 3. 5. 0 mac 3. 5. 5. 3. 0 mac 5. 3. 5. 0 mac 3. 0 mac 5. 3. 0 mac 5.		Passing torque	Judgement of area size	65535 ×10
0 - Vm / 600 Nm 0 -		20.0 Baking torque	Premature tightening determination angle	
Speed 1 00 rpm Speed 2 20 rpm 7 Texe barler roorse rotation 7 Texe barler roorse rotation 7 9 0 macc 3 3 3 9 0 roor roorse rotation 7 3 3 9 0 roor roorse rotation 7 3 3 9 0 roor roorse rotation 7 3 3 9 0 macc 0 5 5 9 0 macc 0 0 5 9 0 roor roorse rotation 0 0 0 9 0 macc 0 macc 0 5 9 0 macc 0 macc 0 0	ō۰	60.0 Nm	— ⁰ [•] →	
mode Revert 1 mark 190 * 0 made 380 * Severt 1 finish reds Severt 1 finish reds 180 * 380 * Severt 1 mark Severt 1 finish reds 180 * 380 * Severt 1 mark Severt 1 mark 180 * 380 * Teme before: recent and table Severt 1 mark 180 * Teme before: recent and table Severt 1 mark 180 * Teme before: recent and table Severt 1 mark Severt 1 mark Teme before: recent and table Severt 1 mark Severt 1 mark Read Write Graph cheking OK	\rightarrow	←Measurement angle 180 * →	Monitoring time for no-torque	Cutting angle
Speed 1 finish reds Speed 2 80 rpm Speed 1 finish reds 190 * Speed 1 30 rpm Speed 1 80 rpm Speed 1 80 rpm Time before reverse rotation Time before reverse rotation Time before reverse rotation Time before reverse rotation Read Write Graph cheking OK Cancel	nsec			360 *
30 + 30 rpm 30 rpm 30 rpm	msec	Speed 1 finish angle	Speed 1 finish ande 180 *	
Speed 1 30 rpm 30 rpm Time before reserve rotation Time before reserve rotation 0 mode 0	~	50 • Speed 2 80 rpm	\longleftrightarrow	
Speed 1 30 rpm Speed 2 20 rpm These before recents notation Time before final tid/thring Time before final tid/thring These before recents or other 0 mosc 0 mosc 0 mosc r 0 mosc 0 Read Write Graph cheking OK Cancel	\rightarrow		Speed 1 80 rpm	
pm Time barrer course notation 0 masc 0 masc		Speed 1 30 rpm	Samuel	2 20 rnm
Time before invariant Time before final tithining 0 masc 0 0 masc 0 Over time 5 sec Read Write Graph cheking OK	'pm			i j ko ipin
0 msec 0 msec<	\geq	Time before reverse rotation	Time before final tightening	
Read Write Graph cheking OK Cancel	\rightarrow	0 msec	0 msec	
Read Write Graph cheking OK Cancel		Over time 5 sec ->	Over time 3	
Read Write Graph cheking OK Cancel				
		Read Write	Graph cheking	OK Cancel

Fig (4-30): Screen for image of torque curve

Please confirm the setting on the screen for image of torque curve. When you'd like to change the setting, the parameter is changed on the screen, and OK is pushed, it's fixed.

4-3-4-2.setting of sampling data

"Setting of sampling data" is chosen by "auto setting" and "next", when it's pushed, it'll be a sampling setting screen.



Fig (4-31): Setting of sampling data

%Please refer to "9-3 tightening program" for a flow chart.

The angle until the taking a seat is gauged with a low-speed revolving try.

Please choose movement axis number and set it in the state until a bolt is tightened up. Please press a low-speed revolving try button including driving preparations at the tightening starting position.

The angle until the taking a seat of a screw is measured by pressing a low-speed revolving try button. After that it revolves by the speed of the 40RPM, and when I reach "the tightening sampling stop torque", stops. The degree of general rotation angle from a start to the stop of that case is measured.

About 1.5 times more than the degree of rotation angle measured after tightening is reversed and the movement which slackens a screw is performed, and it's a movement end.

During moving, following message goes out.

x

Fig (4-32): processing of low revolution try

Please establish the "tightening sampling stop torque" of the controller before a low-speed revolving try.

It's 0, so if it's just as it is, defaults don't circulate at low speed.

When or the operation time exceeds 60 seconds when not reaching "tightening sampling stop torque" even if it revolves 9999 times during a try, a controller takes out an alarm "E33".

The data for which setting is made with a measurement starting button is acquired. When a step is chosen by movement choice and a measurement starting button is pressed, the setting value and the program originated with the data a low-speed revolving try gave are sent to the controller.

Please carry out the following program number by a PLC after a measurement starting button is pressed.

%The program made with a low-speed revolving try is preserved by the last program number.

The number of program changes with the program Max value choice in the following.

30axis, 16program, 220steps	\Rightarrow	program number : 16
30axis, 50program, 70steps	\Rightarrow	program number : 50
8axis, 50program, 220steps	\Rightarrow	program number : 50

The setting made with a low-speed revolving try starts to be the next.

Socket adjusting is 47-49, pre-tightening is 50 reverse rotation is 50 and final tightening is 50. f

During beginning to measure, following message goes out. Only that it's necessary, please execute a program. If data is acquired, it "now sampling", please press a cancellation button of the window of a message.

Now on sampling	
Cancel	
	Now on sampling

Fig (4-33): now sampling

If I finish acquiring data as much as it's necessary by measurement starting, a cancellation button is pressed.

When making the set value with acquired data, excluded data is chosen by "NG" and the data acquired by a "sampling data, shifting" button after that is preserved in the setting PC.

When you'd like to set setting in a block, a in-depth setting data shift button is pressed.

When you'd like to gauge with the set value which was made with acquired data, a measurement starting button is usually pressed. The screen upper right develops and is corrugated.

Sam	pling			10	-		Second Sec												1
Se	tting o	f	samplir	١g	data	Ор	eration se	ele	ot		³⁰ T			-				_	2
_						Step1 SOC.T -										_	_	_	
Rat	Rate No. 1						p2 PR	Е.	г	-	20					_			
Usi	Ising ANZM-1600						ANZM-1600 Stop2 REV.T												
nu	runner		4	7			-4 DE	A .	r	-	10								1
Mot	ion axis No	۶.		-		ote	104 ILE	м.		4	10								1
_Re	efering of su	mp	ling data his	ton	/	Ste	sp5			-	5								1
Γ					-	Ste	p6			•	0			_					4
										_	0		0.5	1	1.5	2		2	3
	Fas	t fo	Pro	etigh	nten inc Fit o	n wo	rk surface		Reverse rotati	on			Rea	tigh	itening				arbuol
	Angle of fast forwarding	N G	Maximum torque of measurement dara	NG	Pretightening torque	NG	Measurement area	N G	Maximum torque of measurement dara	N G	Tightening torque	NG	Snag torque	N G	Turning angle G	Slope	Ň	All OK	curve indication
1	2415.3		0.1		16.6		881	F 1	0.4		30.4	17	15.0	1	2.9 🔳		0 🗉] 🔽 [V
2																	E		
3																			
4																			
6		m		m		100		m		1		m					17	1 1 1	ì
7																	1		Ē
8																	E		
9								[7]		[]		[]]		1	111		E	1 🔳 [0
10																	E		
Max	2415		0.1		16.6		881		0.4		30.4		15.0		2.9		0		Ē
Min	2415		0.1		16.6	i	881		0.4		30.4		15.0		2.9		0		
Ave	2415		0.1		16.6		881		0.4		30.4		15.0		2.9		0		
σ	0		0.0		0.0	,	0		0.0		0.0		0.0		0.0		Ų		
Tr	y for low- speed		Usu measure	al eme	nt	ç	learof		Clear of	fal	l s	Sh um	ift of pling		Shift of detail setting		Ret	urn	1
Min Ave Ø	2415 2415 0 v for low- speed Fig (4	 1-	0.1 0.1 0.0 Usu measure -34):	al S	ettin	o a	lear of Of sa	n	0.4 0.4 00 Clear of	fal	30.4 30.4 0.0 1 s	Sh un a	ift of poling	, ne	2.9 2.9 0.0 Shift of detail setting	eme	o o Ret	t	turr

It's to press an in-depth setting data shift button, moves to a corrugated image screen and indicates a block of the made set value. Information on the block is preserved by a setting PC by pushing OK.

%The made block number is the first block number which isn't being used.

It's also possible by screen for image of torque to change the set value.

0

4-4. Program setting

You will select "Program setting" from "Setting menu".

When you select a program setting from the Settings menu will come out the screen to select the "program Max value selection". This is because the amount of data that can be stored in the controller is limited, choose how allocate it.

Set_ProgramMax								
Select of maximum program number								
َ 30axis, 16programing, 220steps (default)								
⊂ 30axis, 50programing, 70steps								
○ 8axis, 50programing, 220steps								
*Please check unit programing if you change maximum program number								
OK Cancel								

Fig (4-35): Program Max value selection

Usually, please choose the default of "30 axis, 16 program No, 220-step".

If you change the program Max value selection, the program must be re-created.

PROC	RAM S	SET PR	OGRA	M No.	1 .	Bloc	k in	isert	Open step elimination	Check program
Unit 1		Unit: 1			Unit 2					4
	NR	Axis 1 % Axis 2 Y: Axis	3	NR	Axis 4 X Axis 5 Y: #	kxis 6				
TEP 2 9	PRIM		EN SYNC			ZER	SYNC			-
1	X BATE1	MOV0/	OBE	X RATE?	MOVEY	0	O E			-
2	Y RATE 1	MOVX		Y RATE2	MOVX					
8	POINT:1	socket 1down		POINT:4	socket2down					
4		WAIT1			WAIT1					
5		END			END					
6	RATE : 1	SOC.T1		RATE : 2	SOC.T1					
7	BLOCK : 1	PRE.T1		BLOCK : 1	PRE.T1					
8	SCREW: 1	REA.T1		SCREW: 4	REA.T1					
9		END			END					
10	X RATE1	socket1up		X RATE:2	socket2up					
11	POINT:51	WAIT2		POINT:54	WAIT2					
12		MOVX			MOVX					
13		END			END					
14	X RATE 1	MOVY		X RATE4	MOVY					
15	Y RATE 1	MOVX		Y RATE4	MOVX					
16	POINT:2	socket 1down		POINT:5	socket2down					
17		WAIT1			WAIT1					
18		END			END	_	_			
9	RATE : 1	SOC.T1		RATE : 2	S00.T1					
20	BLOCK : 1	PRE.T1		BLOCK : 1	PRE.T1	- 5				
21	SCREW: 2	REATI		SOREW: 5	REATI	_				
22	VIDATEL	END		VOATEA	END	_				
28	A RATE I	sockét lup		A INFITE2	socket2up					
4		angel 1.2		- er om 1255 -						•
Read	Write	Print	Tighte	ning block ion select	X,Yaxis operation	Blo	ck ce	ontrol	ок	Cancel

Fig (4-36): Program setting

٠IN

"IN" signal to become ON from the PLC will perform the following steps.

 \cdot OUT

It outputs "OUT" signal to the PLC once you have run that step.

"OUT "signal is turned OFF when you come from the next" in "signal PLC.

• PRINT

It will print the contents of which are specified in the printer that is connected to the controller After you run the step.

- Program area It displays the contents of the set with a program.
- ZERO It will show whether the zero-fold check to the step has been set.
- SYNC/S It will show whether the start synchronization with the step has been set.

- SYNC/E It will show whether the synchronization end to that step has been set.
- Block insert It will insert an empty block in front of the cell that has been selected.
- Open step elimination It fills remove the blocks that are vacant axis that is selected.
- · Check program

It is the configuration operation and the block a block of programs that have been selected in the program number is registered to check the same.

- Read It displays the loading screen of program setting.
- Write It displays the writing screen of program setting.
- Print It runs the printing of program setting.
- Block control
 It displays the block management screen.
- OK It is to accept the changes and return to the setting menu.
- Cancel It erases the changes and return to the setting menu.
- <u>Tightening block operation select</u>

The program setting screen, you can select the block to be inserted into the program in the "_Tightening block operation select " button.



Fig (4-37): Tightening block insert

- Rate number It specifies the rated number of NR to be used.
- Screw number It specifies the screws number to tighten.
- Block No. It specifies the block No. to be used.

 $\cdot \rightarrow$ It is registered as a tightening block to insert the block information that is currently selected in the program.

Zero/magnification check

Before block operation is started, you put a zero/magnification check is a check function of the torque sensor.

Start synchronization

It is to synchronize the next to step in between the units. It is effective only when there is a XY to the unit.

Even if XY is not in the unit and put the start synchronization, even if not put to synchronize.

· All axes start synchronization

It place the start synchronization for all axes in the unit_o %You can see that entering the program.

- End synchronization Valid only tighten % steps of the present tightening after this tightening
- All axes end synchronization Put all axes end synchronization for all axes in the unit. X You can see that all axes end synchronization to enter the program.

-50-

• All axes retry It is valid only when the retry in the block has been selected

% If there is NG even one axis when it comes to all axes retry, and all axes retry processing. Please look at the end of a book about the retry details.

· XY axis operation select

The program setting screen to choose from the command of the XY behavior that you want to set in the "XY-axis operation select" button, you can insert into the program.

COMMAND		SETTING LIST			
MOVX	-	COMMAND	-	X rate. No.	2
MOVY		socket2up			
MOVXY		WAIT2	_	Y rate. No.	4
WAIT1		MOVX		Doint No.	54
WAIT2		END	- 1	Point No.	104
SPW					
INX1					
INX2					
INY1					
INY2					
TIME10					
TIME100					
TIME500					
TIME1000					
TIME1500					
TIME3000					
TIME5000					
TIME10000				One li	ne insertion
socket2down			_		
socket2up			- 1	One	line delete
PULSE			_		
	*		-		Glear

Fig (4-38): XY actions insert

%Please refer to the controller instruction manual for XY operation command.

- \cdot X rate number It specify the X rate number of XY operation.
- Y rate number It specify the Y rate number of XY operation.
- Point number It specifies the point number of XY operation (specified number of reaching the coordinates of the XY operation).
- \cdot One line insertion

It inserts a line of empty cell in front of the cell that has been selected in the configuration information.

- One line delete It is filled to remove the cell that has been selected in the configuration information.
- Clear It clears all the contents of the configuration information.
- OK It is to accept the changes and return to the program setting.
- Cancel It erases the changes and return to the program setting.

4-5. Setting reading and setting the writing of each setting screen

We summarized for setting writing and setting reading of each setting screen in the Setting menu.

The following describes based on the reading of the rate setting.

Since there is no such set number for details on the cylinder name and timer setting and the unit and the data output and the option tightening, there is no reading and writing of the specified number.

4-5-1. each setting read

You read the settings from a file or a controller.

Ver.0.0.89	A Design of the Area and Ar	
Read the rating s		
ALL(Rate 1 to Rate 30)		
⊂ Select		
RATE1	FILE (FI)	
RATES		
RATE5	CONTROLLER (E2)	
RATE7	CONTROLLER (F2)	
RATE8 RATE9		
RATE10 = RATE11		
RATE12 RATE13		
RATE14 RATE15		
RATE16 DATE17		
RATE18		
RATE20		
RATE22	RETURN (F12)	
RATE23		

Fig (4-39): Setting read screen

• ALL(Rate 1 to Rate 30) It is set to all of the reading target.

• Select It will select the setting to read.

If you specify a selection option, it allows you to select a list BOX of each setting.

- \cdot File(F1) You read the settings from the file.
- · Controller(F2)

It will read each setting from GSK controller. If you read the configuration file from the GSK controller, the controller and computer must be connected by a USB cable.Communication error occurs when not connected.



Fig (4-40): Communication error

• Return(F12) It will return to the setting screen.

1. File

In the file processing, HD (hard disk) or, over the file on the other accessible media, we read each setting information. Configuration files are saved with the file extension of each setting.

Rate : GSKT、SOC.T : GSKR、PRE.T : GSKK、REV.T : GSKG、REA.T : GSKH、

Screw No. : GSKJ、Block control : GSKB

Cylinder name : GSKCN、X rate : GSKXT、Y rate : GSKYTP、Timer setting : GSKST

Unit : GSKU、Tightening data output : GSKOT、Option : GSKOP

In the selection of reading files, please select the file extension of each setting.

Read the file			
○○○ → コンピューター → Acer (C:) → GIKEN	 GSK Setting UserFile 	▼ 49 UserFileの狭衆	م
整理 ▼ 新しいフォルダー		iii •	
🝊 OneDrive 🔺 名前	更新日時 種類	サイズ	
⇒ オブラリ ドキュメント ビグサヤ ビグオ ジ ミュージック	検索条件に一致する項目はありま	tt λ	
「● コンピューター			
Acer (C:)			
-			
ファイル名(N): 「GSKT			י געזר .

Fig (4-41): Reading file selection

It uses the file selection dialog, select the settings file to be loaded.

When the reading of each configuration file is complete, the following message is displayed.



Fig (4-42): Read complete message

② Controller

It will read each setting from GSK controller.

If you read the configuration file from the GSK controller, the controller and computer must be connected by a USB cable. Communication error occurs when not connected.



Fig (4-43): Communication error

ALL(Rate 1 to Rate 30)		
Select RATE1 A RATE2	FILE (F1)	
RATES RATES RATE5 RATE5 RATE6 RATE7	CONTROLLER (F2)	
AATEB AATE9 AATE10 AATE11 AATE12 AATE13	COMMUNICATING	
VATE15 RATE15 RATE17 RATE18 RATE19 RATE20		
	RETURN (F12)	

Fig (4-44): Reading files from the folder

When the reading from the controller is finished, the following message appears.

GSK Setti	ng 💌
i	Rating setting was read from the controller.
	ОК

Fig (4-42): Read complete message from controller

③ Selection the read file

If you want to read the specification of the set only, choose a selection option. Please select the specified setting because list BOX will be selected. When you press the file button, you read only the specified settings from the file. When you press the controller buttons, you read only the specified settings from GSK controller.

*Since there is no set number for the cylinder name and timer setting and the unit and the data output and the option, you cannot read only the specified settings.

GSK Ver.0.0.89	And in case where I are	
Read the rating s		
⊂ ALL(Rate 1 to Rate 30)		
@ Select		
RATE1 RATE2		
RATE3 RATE4		
RATE5 RATE6	CONTROLLER (F2)	
RATE8 RATE9		
RATE10 = RATE11		
RATE12 RATE13		
RATE15		
RATE17 RATE18		
RATE19 RATE20		
RATE21 RATE22	RETURN (F12)	
RATE23 RATE24 -		

Fig (4-46): Setting select

4-5-2.Each setting write

It will write the settings file, or, to the controller.

ALL(Rate 1 to Rate 30)		
RATE1 * RATE2 RATE3	FILE (F1)	
RATE4 RATE5 RATE6 RATE7	CONTROLLER (F2)	
RATE8 RATE9 RATE10 = RATE11 PATE12		
RATE12 RATE13 RATE14 RATE15 RATE16		
RATE17 RATE18 RATE19 RATE20		
RATE21	RETURN (F12)	

Fig (4-47): Setting write screen

• ALL(Rate 1 to Rate 30) It is set to all of the writing target.

Select It will select the setting to write.

If you specify a selection option, it allows you to select a list BOX of each setting.

 \cdot File(F1) You write the settings from the file.

· Controller(F2)

It will write each setting from GSK controller. If you write the configuration file from the GSK controller, the controller and computer must be connected by a USB cable.Communication error occurs when not connected.

GSK Setting	X
🛞 The commun	ication error occurred.
	ОК

Fig (4-48): Communication error

• Return(F12) It will return to the setting screen.

① File

In the file processing, HD (hard disk) or, to a file on the other accessible media, writes each configuration information. Configuration files are saved with the file extension of each setting.

Please refer to 4-5-1 for the extension.

🛃 Write the file	rating setting				×
○○○○□ → □>	ピューター , Acer(C:) , G	SIKEN + GSK Setting + UserFile	• 4y	UserFileの検索	م
整理 * 新しいフ	オルダー			811	- 0
	* 名前	* 更新日時	種類	サイズ	
⇒ ライブラリ ドキュメント		検索条件に一致す	る項目はありません。		
E ビデオ					
Actar (C)					
DATA (D:)					
ファイル名(N):	GSKT				-
ファイルの種類(王): [SKT FILE(*.GSKT)				-
ラォルダーの非表示	Ē			保存(5) キ	ャンセル

Fig (4-48): Writing file named

-55 -

You will use the file selection dialog, and name to write the configuration file.

When the writing of the configuration file is complete, the following message is displayed.



Fig (4-50): Writing complete message

2 Controller

It will write each setting from GSK controller.

If you write the configuration file from the GSK controller, the controller and computer must be connected by a USB cable.Communication error occurs when not connected.

The password to write to the controller is required. (Initial Password: 2014)

If the password is unknown, the configuration file cannot be written to the controller.

GSK Settin	g The communication error occ	curred.
		ок

Fig (4-51): Communication error



Fig (4-52): Password confirmation

Please OFF the operation preparation.

It cannot be written the configuration file when you don't turn OFF the operation ready.

?	Operation ready will be turned OFF Is this acceptable?	
	(おい(Y) しいいえ	(<u>N</u>)

Fig (4-53): Operation ready OFF confirmation

When writing to the controller is finished, the following message appears.

GSK Setting	×
Rating setting fil	le was written.
	ОК

Fig (4-54): Writing complete message to controller

③ Selection the write file

If you want to write the specification of the set only, choose a selection option. Please select the specified setting because list BOX will be selected. When you press the file button, you write only the specified settings to the file.

When you press the controller buttons, you write only the specified settings to GSK controller.

**Since there is no set number for the cylinder name and timer setting and the unit and the data output and the option, you cannot write only the specified settings.

SK Ver.0.0.89	or a lot of a lot of the lot of t	
Write the rating setting		
⊂ ALL(Rate 1 to Rate 30)		
@ Select	EU E (E1)	
RATE1 *		
RATE3		
RATES	CONTROLLER (E2)	
RATE7		
RATE9		
RATE10 -		
RATE12 RATE13		
RATE14 RATE15		
RATE16 RATE17		
RATE18		
RATE20		
RATE22 RATE22	RETURN (F12)	
RATE24 -		

Fig (4-55): Setting select

5. Auto measurement

You will select "Auto measurement" from "Main menu".

MEASUREMENT	
Online (F1)	Cycle monitor (F5)
Tightening wave (F2)	Display of current step (F6)
Tightening record (F3)	
Alarm history (F4)	Return to the main menu (F12)

Fig (5-1): Auto measurement menu

- Online (F1)
- Tightening wave (F2)
- Tightening record (F3)
- Alarm history(F4)
- Cycle monitor (F5)
- Display of current step (F6)
- Return to the main menu (F12)

It will show the tightening results in real time.

- You can see a tightening waveform.
- You can view the tightening history that is stored in the controller.
- You can view the alarm history that is stored in the controller.
- You can monitor the signal between the PLC and the controller.
- The operation will be able to monitor whether any step of the program.
- To return to the main menu.

5-1. Online

You will select "Online" from "Auto measurement menu".

It displays the online screen. You will receive the tightening results at any time from the controller and displays it.

		_					Schert	-					form	_			-						-			
0.ee	Time	PTis.	un.	Eversinatio	Terme	fast feet	Tarase	Area	ne Andr	Tene	Target	Tavas	Acce.	Ander	Tana	(max)	2014	Find	Gradating	٠Ť	nže	Zero	Magnification	18.00		
5/88/88		35	33			tanger		010					004				*****					para				
4		_	-		_	_		_		_		_		_	_	_	_		_	_		_				
																						R	eturn to	the aut		
	Fi	a	1	5_	2)	•	Δ	цŕ	tn	r	m	22	20		r	rد	n	٦r	t i	m	סו	n				
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					35K	Ve	r.0.0	0.89	,																	
				0																						
						_														0						
						D	0	yo	u	wa	an	t t	0	cc	om	Im	ur	IC	ate)?						
						D	0	yo	u	wa	an	tt	0	cc	om	Im	ur	IC	ate	9?						
						D	0	yo	u v	Wa Onli	an ine d	t t lata	is s	CC	om d at	a f	iur ile.	IC	ate	ə?						
						D	0	yo	u प्र र प्र	Wa Onli Zero	an ine d o/Ga	t t lata sin d	is s lata	CC ave	om d at ave	a f d.	ile.	IC	ate	ə?						
						D	0	yo	u ए र	Wa Onli Zero	an ine d o/Ga	t t lata sin d	is s lata	CC ave	d at ave	af d.	iur ile.	IIC	ate	€?						
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Fig (5-3): Communication confirmation

If you want to save the tightening results automatically, please check the "Online data is saved at a file".

Also, if you want to save the zero-fold data automatically, please check the "Zero/Gain data is saved".

*The file of the tightening result is stored in the "C:¥GIKEN¥GSK Setting¥AutoMeasurement¥OnLine ".

**The file of the Zero / magnification data is stored in the " C:¥GIKEN¥GSK Setting¥AutoMeasurement¥ZeroGain ".

• Axis No.	It displays the axis number.
Screw No.	It displays the screw number.
• Data	It displays the date at the time of tightening is complete.
• Time	It displays the time when the tightening is complete.
• P.No.	It displays the program number.
• U.No.	It displays the Unit number.
 Determination 	It displays the results at the time of the OK and NG as follows: OK: \circ , NG: X.
Socket fitting/ torque	It displays the torque at the time of the socket fitting end. Unit is "Nm".

Pre-tightening/Fast feed torque

When NR is turned until the early tightening angle, it displays the maximum torque value within the interval of fast forward. Unit is "Nm".

When NR isn't turned until the early tightening angle, it displays zero "Nm".

 Pre-tightening/Torque It displays the torque at the time of the pre-tightening end. Unit is "Nm".
 Pre-tightening/Area(X10) Judgment area in the graph of angle and torque, is the integral value of the torque waveform. The display value is 1/10 of the calculation result.

Pre-tightening/Angle

If the pre-tightening torques beyond the measurement start torque, the Angle is the value from the measurement start torque.

If the pre-tightening torque doesn't beyond the measurement start torque, the angle value is 0.1. Unit is "^o".

Pre-tightening/Time

If the pre-tightening torques beyond the measurement start torque, the time is the value from the measurement start torque.

If the pre-tightening torque beyond the measurement torque, the time is the value from the pre-tightening start. Unit is "msec".

• Reverse rotation/Torque It displays the torque at the time of the reverse rotation end. Unit is "Nm".

• Final tightening/ Torque It displays the torque at the time of the final tightening end. Unit is "Nm".

• Final tightening/Area(X10) Judgment area in the graph of angle and torque, is the integral value of

the torque waveform.

The display value is 1/10 of the calculation result.

Final tightening/Angle

If the final tightening torque beyond the measurement torque, the angle is the value from the measurement torque. If the final tightening torque doesn't beyond the measurement torque, the angle value is 0.1.

The measurement torque when the angle method refers to the snug torque, when the torque method refers to the measurement start torque.

Unit is "°".

Final tightening/Time

If the final tightening torque beyond the measurement torque, the time is the value from the measurement torque. If the final tightening torque beyond the measurement torque, the time is the value from the final tightening start. Unit is "msec".

Please see the above about measurement torque

Final tightening/Snag

It displays the snag torque when final tightening step is Angle method. Unit is "Nm".

- Final tightening/ Initial gradienting Initial gradienting of final tightening. Unit is "%".
- Final tightening/ Final gradienting Final gradienting of final tightening. Unit is "%".
- Final tightening/gradient ratio Gradient ratio of final tightening. Unit is "%".
- X-position It displays the coordinate values of the X-axis at the time of tightening. Unit is "mm".
- Y-position It displays the coordinate values of the Y-axis at the time of tightening. Unit is "mm".
- Zero/magnification /Zero point It displays the zero point value. Unit is "Nm".
- Zero/magnification / magnification It displays the magnification value. Unit is "Nm".
- Work No. It displays the work number.

- Return to the Auto measurement menu
- To return to the Auto measurement menu.

5-2. Tightening wave

You will select "Tightening wave" from "Auto measurement menu".

Here, it displays the tightening wave. It saves the waveform data and the zero magnification data automatically

GSK Ver.0.0.89											
Do you want to comr	nunicate?										
₩ave data is saved at a file.											
Waveform type:	g value later)										
C Time-Torque, Speed(The	entire waveform)										
C Angle-Torque, Speed(The	e entire waveform)										
YES	NO										

Fig (5-4): Communication confirmation

Do you want to communicate ?

If you select [Yes]:

It will automatically display the tightening waveform and NOBI waveform.

If you select ${\ensuremath{\mathbb F}} Wave data is saved at a file <math display="inline">{\ensuremath{\mathbb J}}$, the wave data will be saved automatically at the file.**

If you select <code>[Zero/Gain data is saved]</code>, the zero/gain data will be saved automatically at the file.**

If you select [No]:

You read the tightening waveform and elongation waveform from the controller manually.

You can save to a file the waveform data read manually.

Also, read the stored waveform data file, you can view the waveform

.%The file of the tightening result is stored in the "C:¥GIKEN¥GSK Setting¥AutoMeasurement¥Wave ".

%Tightening wave has the 2type wave.(Time-Torque and Speed, Angle- Torque and Speed)

If you select [Yes],

You set the OK range for each program that it is displayed by the waveform.

%The specified area in the OK range is surrounded by a red frame in the graph.

If the OK range setting is end, It operates at auto save mode and it communicate with controller.

PROGRAM No.	Upper torque limit (N.m)	Lower torque limit (N.m)	Upper angle limit (°)	Lower angle limit (*)	Work name	
1	45.0	20,0	0	0		
2	0.0	0.0	0	0		
3	0.0	0.0	0	0		
4	0.0	0.0	0	0		
5	0.0	0.0	0	0		
6	0.0	0.0	0	0		
7	0.0	0.0	0	0		
8	0.0	0.0	0	0		
9	0.0	0.0	0	0		
10	0.0	0.0	0	0		
11	0.0	0.0	0	0		
12	0.0	0.0	0	0		
13	0.0	0.0	0	0		
14	0.0	0.0	0	0		
15	0.0	0.0	0	0		
16	0.0	0.0	0	0		
17						
18						



Torque lower limit

It sets the torque lower limit. It sets the Angle lower limit.

Torque upper limitAngle upper limit

- It sets the Angle upper limit.
- Iorque lower limit
- Angle lower limit

Work name It sets the work name



Fig (5-6): Auto saved

If you specify the range of the graph, range will be expanded.

You cannot read and save the data at the time of auto save the tightening wave and NOBI wave

- Wave mode You cannot select at the time of auto save the NOBI wave.
- Axis No.

Here, you select the axis number to display the waveform.

If you select $[\![\mbox{All axes}]\!]$, graph of all axes is displayed overlapping.

Also, you select the axis number that the graph of axis number is displayed

- Waveform data making It displays the date and time that has acquired the tightening waveform.
- PROGRAM NO. It displays the program number that has acquired the tightening waveform.
- Screw No. It displays the screw number that has acquired the tightening waveform.
- Sampling data list

It is located on the right side of the screen.

It displays the value of the following with respect to the axis number.

- Red axis number represents the NG.
- TRQ It displays final tightening torque.
- snag It displays final tightening snag torque.
- Angle It displays final tightening angle same as the online ones.
- Graph It displays the graph corresponding to each of the axis (the color of the detailed data). Speed waveform = dotted line, Torque waveform = solid line.
- Torque and speed check box Please put a check to the check box of the waveform that you want to display.
- Zoom clear Returns enlarged the waveform graph expansion in front of the graph.
- Print the screen Print the screen you are currently viewing.
- • Return to the Auto measurement menu To return to the Auto measurement menu.

If you select [No],

ave aveform data	16/04/04	12:16	PROG	RAM No.	1	Torque		TRQ	n TIM	E ANGLI	Data E SPEI
aking TIGHTNING RE:	SULT	10.10	SC	REW No.	1 🛛	Speed		43.3 73.1	0	0 0.0 0	
Total determina	ation Torque	Angle	Area	Snag	Slop	Time	Zoom	73.1	20 30	0 0.0	
OK	30.4 N.m	7.2 °	144	10 N.m	0%	69 msec	clear	732	40 50	0 00	
Torque(Nm)							Speed(rpm)	732	60 70	0 00	
⁸⁰							40	73.2	80 90	0 00	
					-		20	732	100	0 00	
60								732	120	0 00	
			_			~-++'	D	732	140	0 00	
40					-H			732	160	0 00	
							-20	732	180	0 00	
20		_			A		-40	14.6	200	0 00	
								0.0	220	0 00	
			_	0.00			-60	00	240	0 00	
^v T								00	260	0 00	
							-80	0.0	280	0 00	
-20	M	_	_				-100	0.0	300	0 00	
								0.0	320	0 0.0	
-40							-120			Roturn	toth
0	500	1000	1500	2000	2500	3000	Testers	Print	t the een	auto mes	sure

Fig (5-7): Tightening wave screen

%The red line on the graph displays the torque and the Blue graph displays the speed.

If you specify the range of the graph, range will be expanded.

Wave mode	You select the tightening wave (Time-Angle, Time-Torque, Angle-Torque) that is
	displayed by the graph.
• Axis No.	You select the axis number to display the waveform.
Waveform data m	naking It displays the date and time that has acquired the tightening waveform.
• PROGRAM No.	It displays the program number that has acquired the tightening waveform.
SCREW No.	It displays the screw number that has acquired the tightening waveform.
• Torque and spee	d check box Please put a check to the check box of the waveform that you want to display.
Tightening result	
 Total determ 	ination Total OK: ○, Total NG: NG cord
• Torque	When the last step is final tightening or pre tightening, it displays the value of last torque.
	Others it displays 0. Unit is "Nm".
• Angle	When the last step is final tightening or pre tightening, it displays the value of last angle.
	Others it displays 0. Unit is "degree".
• Area	When the last step is final tightening or pre tightening, it displays the value of area.
	Others it displays 0.
• Snag	When the last step is angle method of the final tightening, it displays the value of snag
	torque.
	Others it displays 0.
• Slop	When the last step is angle method of the final tightening, it displays the Gradient ratio.
	Others it displays 0.
• Time	When the last step is final tightening or pre tightening, it displays the time to the last. Others
	it displays 0. Unit is "msec".
• Zoom clear	Returns enlarged the waveform graph expansion in front of the graph.
 Graph creation 	You can create the graph with the selected data from the table.
 Save data 	It will save the waveform data being displayed in the file.

• Read	It reads the tightening waveform data from the controller.
	In addition, it reads the waveform data from a saved CSV file.
 Table (right) 	You are viewing the waveform configuration data of the tightening results.
	The order is in ascending order by time.
· Graph (Center)	It displays the graph of tightening wave
Print the screen	Print the screen you are currently viewing.

 \cdot Return to the Auto measurement menu To return to the Auto measurement menu.

5-3. Tightening record

You will select "Cycle monitor" from "Auto measurement menu".

It gets the history tightening from the controller, you can save the history that has been displayed in the file.

I	ghte	nin	g re	ecc	ord	A	XIS	No	AL	L .	RE	AD	C/	NCEL			
	SCREW No.	Date	Time	P No.	U.No.	TQ	Angle	Titte	PRE.T	REAT	Snie	Slope	Determination	NG	DATA.No.	4	
			_														
2																	
3																	
4																	
5																	
6																	
7																_	
8																-	
7																	
12																	
13																	
14																	
15																	
16																	
17																	
18																	
19																	
20																	
21																_	
22																_	
2.4																_	
08																	
26																	
27																	
28																	
23																	
30																	
31																	
32																	
33																-	Record clear
24																	
<u>.</u>																_	
37																	
28																	0.1.1.
39																	Necord write
40																	
41																	
42																	
43																	Return to the auto
44																*	maggingmant manu

Fig (5-8): Cycle monitor

- Screw No . It displays the screw number.
- Data It displays the date at the time of data acquisition.
- Time It displays the date at the time of data acquisition.
- program No. It displays the program number.
- Unit No. It displays the unit number.
- Torque It displays the final torque. The unit is "Nm".
- Angle It is the angle from the beginning to the end on the last step. Unit is "degree".
- Time It is the time from the beginning to the end on the last step. Unit is "msec".
- pre-tightening area It displays the pre-tightening area. (Display value is 10% of the real value.)
- Final tightening area It displays the final tightening area. (Display value is 10% of the real value.)
- snag It displays the snag torque of the final tightening angle method. The unit is "Nm".
- slope It displays the gradient ratio of the final tightening angle method.
- Determination OK: ○, NG: NG cord
- NG processing It displays the presence or absence of the NG processing by QL input.
 - If there is QL processing, it displays "presence ".
 - Others it displays "absence ".
 - %It does not save the tightening history when the positioning mode.
- Data No. It displays the work number.
- AXIS No. It will select the axis number to be read.
 READ It will run the read.
 - CANCEL It stops reading.
 - Record clear
 It clears the tightening history that is stored in the controller.
- Record write It will save the history that has been displayed in the file. The format is
- ".CSV"

• Return to the Auto measurement menu To return to the Auto measurement menu.

5-4. Alarm history

You will select "Alarm history" from "Auto measurement menu"

You get the alarm history information from the controller, you can also save the alarm history that has been displayed in the file.

Alarm history				
	AXIS No. D	ATE TIME	ALARM CODE	2
	1			
	2			-
	3			
	4			
	5			
	6			
	7			
	8			
	9			
	10			
	12			
	12			
	14			
	15			
	16			
	17			
	18			
	19			
	20			
	21			
	22			
	23			
	24			
	25			
	26			
	27			
	28			
	29			
	30			History clear
	31			
	32			
	33			
	34			History write
	35			Thistory write
	36			
	3/			
	20			Return to the auto
	03			measurement menu

Fig (5-9): Alarm history

- Axis No. It displays the axis number that the alarm has occurred.
- Data It displays the date that the alarm has occurred.
- Time It displays the time that the alarm has occurred.
- Alarm code It displays the alarm code of the generated alarm.
- Record clear It clears the tightening alarm history that is stored in the controller.
- Record write It will save the alarm history that has been displayed in the file. The format is
- ".CSV"
- Return to the Auto measurement menu To return to the Auto measurement menu.

5-5. Cycle monitor

You will select "Cycle monitor" from "Auto measurement menu".

It displays the operating status of the input and output signals between the PLC and the controller.

In addition, you can save the displayed data.

*Please refer to the instruction manual of the controller about content of the signal.

K Ver.0.0.89	for the set						- 0 <mark>- ×</mark>
Cycle monitor	Data read	Data write	Setting read	Setting write	Object select Stop	Print	Exit
Unit No.1 Time Passage time(sec) Start Program bit 1	5		15021	2			22

Fig (5-10): Cycle monitor

- Data read You can read the signal waveform from a file.
- Data write It saves the data displayed in the file.
- Setting read You can read the selected signal names from a file.
- Setting write It will save the file the signal name in the selection that is displayed.
- Object select It will select the signal names you want to take the data.
- Collect start It takes the waveform of the signal names that you have selected.
- Print It print the screen.
- Return to the Auto measurement menu To return to the Auto measurement menu.

5-6. Display of current step

You will select "Display of current step" from "Auto measurement menu".

🤤 GSK Ver.0.0.89 Display of current step Unit 3 6 7 1 2 4 5 Program No. 1 Program No. 1 unit:1 NR: Axis 1 X: Axis 2 Y: Axis 3 11 NR: Axis 4 X: Axis 5 Y: Axis 6 NA. B SYNC B S E ZERO IN DUT (RATE:1 (RATE:2 MOVY MOVX socket1down WAIT1 END MOVY MOVX socket2down WAIT1 END Y RATE:1 POINT:1 Y RATE: POINT:4 RATE : 1 RATE : 2 SOC.T1 SOC.T1 PRE.T1 PRE.T1 REA.T1 END socket2up WAIT2 MOVX BLOCK PRE.T1 BLOCK : SCREW : PRE.T1 REA.T1 END socket1up WAIT2 MOVX X RATE:1 POINT:51 X RATE:2 POINT:54 END MOVY MOVX END END MOVY MOVX cket1do WAIT1 END X RATE4 Y RATE4 POINT:5 X BATE:1 Y RATE:1 POINT:2 cket2do WAIT1 END SOC.T1 PRE.T1 REA.T1 END RATE : 1 SOC.T1 PRE.T1 REA.T1 END RATE : 2 BLOCK : 1 SCREW : 5 BLOCK : 1 SOREW : 2 V DATE: / DATE 11 Return

This function will show which step is running in the selected program.

Fig (5-11): Display of current step

- Program No. It displays the program number of currently running.
- Step display The step of running will be displayed in yellow.
- Return to the Auto measurement menu To return to the Auto measurement menu.

6. Quality control

You will select "Quality control" from "Main menu".

P GSK Ver.0.0.89	Contraction of the International Contractional Contracti	- 0 X
QUALITY CON	TROL	
	Zero/magnification results (F1)	
	Torque sensor zero point adjustment (F2)	
	Self diagnosis (F3)	
	RETURN TO MAIN MENU (F12)	

Fig (6-1): Quality control menu

 Zero / magnification results (F1) 	It displays the results of the zero-point display and the magnification display.
 Torque sensor zero point adjustment(F2) 	It will adjust the zero point of the torque sensor.
• Self diagnosis (F3)	It display version of the personal computer and the IF unit and the controller and the display. And, the controller version is checked that everything is same.

 \cdot Return to the main menu (F12) $\,$ To return to the main menu.

6-1.Zero / magnification results

You will select "Zero / magnification results" from "Quality control menu".

Here, we will display the zero point and magnification.

Australia D August D		LOE GETTING VALUE	MEASUREMENT VALUE	SETTING VALUE		REASOREMENT VALUE	SETTING VALUE
Anno Anno Anno Anno Anno Anno Anno Anno	AvisNo.1 8.8	0.0	PocisiNo.11		A005N0.21		
Analis Analis II Analis II Analis II Analis Analis II Analis II Analis Analis II Analis II Analis II Analis II Analis II	Avashio 2		PictoNo.12		Accis No.22		
Analas An	A Call A		A 1 AL 14		min N0.25		
Australis Austra	Aviable E		Actional 18		AUGEN0.26		
Analog An	Avia No 6		Aviable 15		AutoNo.25		
Analagi Anala Anala Analagi Manta Analagi Analagi Analagi Analagi Analagi Analagi	Automatica 2		Aviable 17		Reinkle 22		
Anala Anala Anala Anala Anala 20 Anala 21 Anala 22 Anala 23	Aviable 8		Avinho 18		Accession 20		
andre 19 Audre 29 Audre 29	Avie No. 9		ArinNo 19		Avia No.22		
	iciaNo.10		AciaNa 20		AciaNo.20		

MEASURES Animinia 1 0.8 Animinia 2 Animinia 3 Animinia 4 Animinia 5 Animinia 5 Animinia 5 Animinia 5 Animinia 5 Animinia 5 Animinia 5	RENT VALUE SETTING VALUE	AsiaNo.11 AsiaNo.12 AsiaNo.13 AsiaNo.14 AsiaNo.14	MEASUREMENT VALUE	SETTING VALUE	Acia No.21 Acia No.22 Acia No.22 Acia No.23	IEASUREMENT VALUE	SETTING VALUE
AvinNo 1 0 8 AvinNo 2 AvinNo 3 AvinNo 4 AvinNo 5 AvinNo 5 AvinNo 5 AvinNo 5 AvinNo 5 AvinNo 5 AvinNo 5	0.8	AsisNo.11 AsisNo.12 AsisNo.18 AsisNo.14 AsisNo.14			Acia No.21 Acia No.22 Avia No.22		
AciaNa 2 AciaNa 3 AciaNa 4 AciaNa 5 AciaNa 5 AciaNa 5 AciaNa 7 AciaNa 8 AciaNa 8		AxisNo.12 AxisNo.13 AxisNo.14 AxisNo.14			Accis No.22 Avia No.22		
AxiaNa 2 AxiaNa 4 AxiaNa 5 AxiaNa 5 AxiaNa 7 AxiaNa 8 AxiaNa 8 AxiaNa 8		AsiaNo.18 AsiaNo.14 AsiaNo.15			divisities 22		
Accella 4 Accella 5 Accella 5 Accella 5 Accella 5 Accella 5 Accella 5 Accella 5		AxisNo.14 AvisNo.15					
AvisNo 5 AvisNo 5 AvisNo 7 AvisNo 8 AvisNo 9		manufactory 140			Accel No.24		
AciaNo 7 AciaNo 7 AciaNo 8 AciaNo 9					moos No 25		
AciaNo 8 AciaNo 8 AciaNo 9		AviaNo.10			Aviable 27		
AxiaNa 9		PotelN0.17			Aug N0.27		
PROPERTY A		Asiable 10			Accesso 20		
Aviable 10		Asiable 10			decis bin 10		

Fig (6-2): Zero point display

Fig (6-3): Magnification display

· Zero point display

It displays the set value and zero point measurement value of each axis. The unit is "Nm".

It displays the set value and magnification measurement value of each

Magnification display

axis. The unit is "Nm".

- To zero adjusting of torque sensor It goes to the torque sensor zero point adjustment screen.
- Return to the Quality control menu To return to the Quality control menu.

%Zero point / magnification display shows the result after zero/magnification check.

It doesn't check the zero point and magnification in this screen, so please be careful.

6-2. Torque sensor zero point adjustment

You will select "Torque sensor zero point adjustment" from "Quality control menu".

You are the output value[Nm] of the torque sensor for each axis has been seen in real time, you can zero correction of the torque sensor.





· Zero point adjustment ON

It will run the zero-point correction of the axis number that has been selected on the screen.

 \cdot Return to the Quality control menu

To return to the Quality control menu.

6-3. Self diagnosis

You will select "Self diagnosis" from "Quality control menu".

It display version of the personal computer and the IF unit and the controller and the display.

And, the controller version is checked that everything is same.



Fig (6-5): Self diagnosis

- Setting personal computer
- Interface
- · Driver controller
- · Display
- \cdot Return to the Quality control menu

It shows the version of the setting personal computer.

It shows the version of the Interface.

It shows the version of the driver controller.

It shows the version of the display.

menu To return to the Quality control menu.

7. Print /Excel output

You will select "Print / Excel output" from "Main menu". Print and Excel output screen is displayed.

set online print for controller da	ata	PC	setting print	()
Automatic print OFF	•		Print preview o REV.T	FSOC.T PRE.T REA.T
			Print preview of RATE	Print preview of PROGRAM
			Print preview of BLOCK	Print preview of SCREW NUMBER
			Print preview of C Inter	Vinder name Timer erence
			Print preview of X rate. Y rate.	Print preview of XY point
Setting			All sotti	ngs print
			All settings	XLS output

Fig (7-1): Print and Excel output screen

• Set online print for controller data It make the print settings to the controller.

• Print mode selection It sets the timing of the automatic printing in the print mode selection.

Please select from the following items.

- Automatic print OFF
- · At every tightening end
- \cdot When NG occurred
- First N set + data when NG occurred

%If you select other than "Automatic print OFF" it will select the result data to be printed in the following.
Please select from the following items

- · Socket fitting result print
- · Pre tightening result print
- \cdot Reverse rotation result print
- · Real tightening result print
- Zero magnification result print

%If you select the "First N set + data when NG occurred ", to set the first number.

%If you select "Automatic print OFF", the results print selection, the first number is not displayed.

- · PC setting print
- Print preview of SOC.T, PRE.T, REV.T, REA.T

It displays a print preview of setting data SOC.T and PRE.T and REV.T and REA.T in the deployment on the software.

- Print preview of RATE
- It displays a print preview of setting rate data in the deployment on the software.
- Print preview of PROGRAM
- It displays a print preview of setting program data in the deployment on the software.
- Print preview of BLOCK

-72 -
It displays a print preview of setting block data in the deployment on the software.

- Print preview of SCREW NUMBER
- It displays a print preview of setting screw number data in the deployment on the software.
- Print preview of Cylinder name Timer Interference
- It displays a print preview of setting data Cylinder name and Timer and Interference in the deployment on the software.
- Print preview of X rate Y rate
- It displays a print preview of setting X rate and Y rate data in the deployment on the software.
- Print preview of X Y point
- It displays a print preview of setting X Y point data in the deployment on the software.
- · All settings print
- It prints the all configuration data that are deployed on software.
- All settings XLS output
- All configuration data that are deployed on software is output in XLS format.
- Return to the Main menu
- It returns the main menu.

8. I/O Monitor

You will select "I/O monitor" from "Main menu".

GSK Ver0.0.89	And a second	
I/O MONITOR		
	Monitor (F1)	
	Dummy input (F2)	
	Dummy output (F3)	
	Return to the main menu (F12)	

Fig (8-1): I/O monitor menu

・Monitor (F1)	The monitor screen is displayed.
· Dummy input (F2)	The dummy input screen is displayed.
· Dummy output (F3)	The dummy output screen is displayed.
\cdot Return to the main menu (F12)	To return to the main menu.

8-1. Monitor

You will select "Monitor" from "I/O monitor menu".

Here, you can monitor the signal between the controller and PLC.

%It becomes green when the signal is ON, in the case of OFF will be gray.

Please see the instruction manual of the controller when you want to know the content of the signal.

Unit No.	Operation ready	AUTO / MANU	Start	Inching start	Determination reset	Alarm reset	QL input	QL mode
4	Program bit 1	Program bit 2	Program bit 3	Program bit 4	Program bit 5	Program bit 6	input enabled	GSK repet
1 -	×J0G+	XJ0G-	YJ0G+	YJOG-	3NK 1	INX 2	DVY 1	INY 2
	socket1 uped	socket1 downed	X return signel	Y return signal	WAET 1	WAIT 2	SPW	JOG start
	Position1 signal	Position2 signal	Position4 signal	Position® signal	Position16 signal	Position32 signal	Position64 signal	Position128 signal
	2N							Tightening sampling start
	OUTPUT MO	NITOR GSK =	> PLC					
	Operation ready completed	NR unit OK	Battery OK	Total OK	Total NG	NR running	QL COMP.	Program running
	Program bit 1	Program bit 2	Program bit 3	Program bit 4	Program bit 5	Program bit 6	Output enabled	
	Tightening total OK	Tightening total NG	X 8 home position OK	Y 0 home position	ZERO/GAIN OK	ZERO/GAIN NG	Cycle stop	OUT
							Tightening block OK	Tightening block NG
	Block 1 end	Block 2 end	Block 4 end	Block 8 end	Block 15 end	Block 32 end	Position locator running	
	Position1 output	Position2 output	Position4 output	Position8 output	Position16 output	Position 32 output	Position64 output	Position 128 output
	X extent output1	X extent output2	Y extent output1	Y extent output2	Interference fault	Position locator	socket1	socket1
	Screw 1 OK	Screw 2 OK	Screw 3 OK	Screw 4 OK	Screw 5 OK	Screw 6 OK	Screw 7 OK	Screw 8 OK
	Screw 9 OK	Screw 10 OK	Screw 11 OK	Screw 12 OK	Screw 18 OK	Screw 14 OK	Screw 15 OK	Screw 18 OK
	Screw 17 OK	Screw 18 OK	Screw 19 OK	Screw 28 OK	Screw 21 OK	Screw 22 OK	Screw 23 OK	Screw 24 OK
	Screw 25 OK	Screw 26 OK	Screw 27 OK	Screw 28 OK	Screw 29 OK	Screw 38 OK	Screw 31 OK	Screw 32 OK
	Screw 33 OK	Screw 34 OK	Screw 35 OK	Screw 35 OK	Screw 37 OK	Screw 38 OK	Screw 39 OK	Screw #3 OK
	Screw 41 OK	Screw 42 OK	Screw 43 OK	Screw 44 OK	Screw 45 OK	Screw 46 OK	Screw 47 OK	Screw #8 OK
	Screw 49 OK	Screw \$0 OK	Screw \$1 OK	Screw 52 OK	Screw 53 OK	Screw 54 OK	Screw 55 OK	Screw 58 OK
	Screw 57 OK	Screw 58 OK	Screw 59 OK	Screw 68 OK				



- Unit No. It specifies the unit No. to be monitored.
- Input monitor It will monitor the input signal to the controller.
- Output monitor It will monitor the output signal from the controller.
- Return to I/O monitor To return to the I/O monitor menu.

8-2. Dummy input

You will select "Dummy input" from "I/O monitor menu".

It will enter the provisions of the selected signal from the configuration PC to the controller.

When you select the input signal changes to green. Please select the input signal, press the Run button.

*Please see the instruction manual of the controller when you want to know the content of the signal.



Fig (8-3): Dummy input screen

It sends the selected signal to the controller.

It needs the password to run. (Initial Password: 2014)

- Cancel It clears the selected signal before transmission.
- Return to I/O monitor To return to the I/O monitor menu.

8-3. Dummy output

• Run

You will select "Dummy input" from "I/O monitor menu".

It sends a signal that you specified in the configuration PC from the controller to the PLC.

When you select the input signal changes to green. Please select the input signal, press the Run button.

hit No.				and may be set of the	Determinior on reser	marini reset	or apor	OF HODE
	Program bit 1	Program bit 2	Program bit 3	Program bit 4	Program bit \$	Program bit 6	Input enabled	GSK reset
1 .	XJ0G+	×103-	YJ03+	YJOG-	INK 1	INK 2	INY I	INY 2
	socket1 uped	socket I downed	X return signal	Yretum signal	WAIT I	WATT 2	SPW	JOG start
	Position1 signal	Position2 signal	Position4 signal	Position8 signal	Position 16 signal	Position32 signal	Position64 signal	Position 128 signal
	2N							Tightening samplin
	DUMMY OUT	PUT GSK =>	PLC					
	Operation ready completed	NR unit OK	Battery OK	Total OK	Total NG	NR running	QL COMP.	Program running
	Program bit 1	Program bit 2	Program bit 3	Program bit 4	Program bit \$	Program bit 6	Output enabled	
	Tightening total OK	Tightening total NG	X I home position	Y 8 home position	ZERO/GAIN OK	ZERO/GAIN NG	Cycle stop	OUT
							Tightening block OK	Tightening block
	Block 1 end	Block 2 end	Block 4 end	Block 8 end	Block 16 end	Block 32 end	Position locator running	
	Position1 output	Position2 output	Position4 output	Position® output	Position16 output	Position32 output	Position64 output	Position 128 output
	X extent output 1	X extent output2	Yextent output1	Y extent output2	Interference fault	Position locator fault	socket1 down	socket1 up
	Screw 1 OK	Screw 2 OK	Screw 3 OK	Screw 4 OK	Screw 5 OK	Screw 5 OK	Screw 7 OK	Screw II OK
	Screw 9 OK	Screw 10 OK	Screw 11 OK	Screw 12 OK	Screw 13 OK	Screw 14 OK	Screw 15 OK	Screw 16 OK
	Screw 17 OK	Screw 18 OK	Screw 19 OK	Screw 20 OK	Screw 21 OK	Screw 22 OK	Screw 23 OK	Screw 24 OK
	Screw 25 OK	Screw 26 OK	Screw 27 OK	Screw 28 OK	Screw 29 OK	Screw 38 OK	Screw 31 OK	Screw 32 OK
	Screw \$3 OK	Screw 34 OK	Screw 35 OK	Screw 16 OK	Screw 37 OK	Screw 38 OK	Screw 39 OK	Screw 48 OK
	Screw 41 OK	Screw 42 OK	Screw 43 OK	Screw 44 OK	Screw 45 OK	Screw 48 OK	Screw 47 OK	Screw 48 OK
	Screw #9 OK	Screw 50 OK	Screw 51 OK	Screw 52 OK	Screw 53 OK	Screw 54 OK	Screw 55 OK	Screw 58 OK
	Screw 57 OK	Screw 58 OK	Screw \$9 OK	Screw 60 OK				

Fig (8-4): Dummy output screen

• Run

Cancel

It sends the selected signal to the controller.

It needs the password to run. (Initial Password: 2014)

It clears the selected signal before transmission.

• Return to I/O monitor To return to the I/O monitor menu.

9. Others

9-1. Details of tightening program

The tightening program can be created in the following way.



Fig (9-1): About the tightening program how to create

9-2. About Operation preparation OFF of configuration reading

This section describes Operation preparation OFF at the time of reading and writing configuration.

Operation preparation OFF is done in order to ensure the time of the reading and writing of data.

The following table shows how read and write operations on whether the operation preparation OFF is necessary.

$\bigcirc: \text{not need} \quad , \ \times: \text{need}$

Reading time

What settings				
The entire setting				
Nut runner setting (Rate setting, Block control, SOC.T, PRE.T, REV.T, REA.T)				
Unit setting				
Tightening data output setting				
Option setting				
Screw number setting				
Program setting				
Position setting(Cylinder name、X rate、Y rate、Interference)				
XY Point				
Timer setting				
Tightening record				

Writing time

What settings	Decision	
The entire setting	×	
Nut runner setting (Rate setting, Block control, SOC.T, PRE.T, REV.T, REA.T)		
Unit setting	×	
Tightening data output setting	×	
Option setting	×	
Screw number setting	×	
Program setting	×	
Position setting(Cylinder name、X rate、Y rate、Interference)	×	
Timer setting	×	
XY Point	∆(Note1)	

(Note1) You do not need only each manual operation

The terminology explanation

UNIT

Multiple axes control up to 30 axes can be treated as each axis to independently operate or as a group of several axes (a unit) to operate together. One interface unit can control the maximum 7 units. At least one controller belongs to one unit (maximum 30 axes control to one unit), and one input command is assigned to one unit and then all belonging axes start operation simultaneously. In SIO, different station numbers assigned to each unit.

PROGRAM

Program setting can be established to 30 spindles, 16 programs and 220 steps by default. Before entering program setting by a setting PC, you can program by the program Max value choice screen and change the number of steps. 1 program starts from a control flag (the presences which are a check zero magnification check) and rated setting, and at most 220 steps of movement can be established. (It depends on setting of the program Max value choice screen.)

But, an end is also handled as 1 step. At least more than 1 block has to be set as a program.

BLOCK

Block is a set of operations in tightening program. It's possible to establish each movement by a setting PC and judge the set value of the movement in a block by a corrugated image. The rated screw number and zero magnification check patterns, etc. are added by program setting and a block is inserted.

Starting in the block inserted in program setting starts from rating and indicates settlement to a step of an end. In automatic operation, one-time program start executes one block. It is also possible to start from the block on the way by designating the block number. The determination (Block OK/NG) against the operated block is output on the step in the block end declaration. If "NG" is determined on either step in the block, it becomes the "block NG" (excluding the case when there is a retry); the next step will not be executed. After determination output, the program start initiates the next block.

STEP

Each operation (socket adjusting, pre-tightening, reverse rotation and final tightening), block end declaration, and retry are called steps respectively. Step 1 will be always the block start declaration and the step 2 will be always the screw number because more than one program is needed in a program. Program is executed from the step 1 and finished by the end declaration at the final block. On the step of the final block end declaration, the total determination (Total OK/NG) is output. Each axis in the unit operates by step synchronization and the axis in which step has been complete turns OFF the servo motor and waits for the step completion of other axes. When steps of all axes are complete, the next step will be operated.

QL INPUT

In the block where the tightening operation is in progress, if the tightening operation is not within the OK range, "NG" determination is output in this block. Operator looks at this "NG" determination and needs to retighten the screw manually. At this time, it is possible to change the determination "NG" to "OK" by inputting the tightening output of the manual torque wrench to the controller. This input is called a QL input.

RETRY

It is possible to retry (try again) operation if NG occurred in set on the step, if NG occurred on the way from the block start declaration till the previous step of retry, the operation following the retry will be executed. If NG did not occur, the operation following the retry will not be executed.

SOCKET ADJUSTING

Used for screw pick up (a socket picks up a screw head) operation before tightening or preventive operation against socket-engagement after tightening.

PRETIGHTENING

Operation to perform temporary tightening until a screw seats

REVERSE ROTATION

It is operation to unfasten the seated screw by several turns in order to transit to final tightening. (Baking inspection of the screw by retightening)

FINAL TIGHTENING

It is final tightening operation of screws.

TIGHTENING OUTPUT SETTING

It's possible to send the calendar setting and the result data engine end no. delivers by interface unit connect to PLC by serial communication. Writing in to an ID controller will be from PLC.

TIGHTENING SUMPLING ACTION

If it revolves and reaches "tightening sampling stop torque" for how to tighten up in one constant speed, the movement I make end is called a tightening sampling action. This is the movement to measure the length of the screw. It's possible to acquire sampling data based on the setting made with this movement and make the set value. It's possible to establish a tightening program simply by this thing. (It's possible to carry out only from a PC.)

SMOOTHING TIGHTENING

While torque reaches "the cut torque" established by final tightening, as the torque rises, the tightening which slows down step by step is performed.

AREA CULCULATING

Integrated value of the torque value every 0.5 degree from this total or at the beginning of the temporary closing movement to the end (the 1Nm unit) is indicated. The indicated value is 1/10 of a calculation result.

END SAME YEAR

When pre-tightening and final tightening end, It rises and finish until it becomes last in the setting torque by 5RPM, and makes sure that each axis will finish finishing at the same time.

NOBI CORRUGATION

It is tightening corrugation from the measurement starting torque (snagged torque).

The revise history

Version	Change contents	notes
The 1st edition	Creation	April.2016
The 2nd edition	Added Z axis setting	November.2017
The 3 rd edition	Contact information update	March.2020



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The 3^{rd} edition