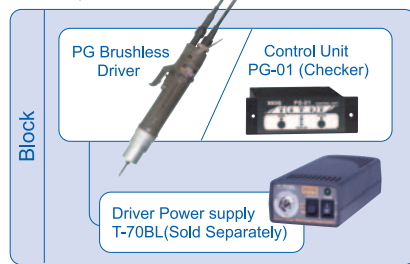
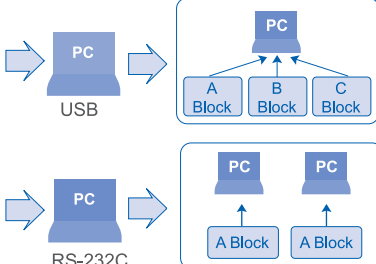


Pass-guard System Setup and Connections

● Setup



● Connections



Driver Power Supply T-70BL (Sold separately)

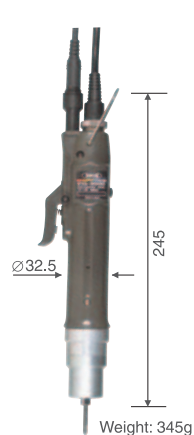
● Specifications

Model	T-70BL (Supports 1 driver)
Input voltage	AC100V-240V (47-63 Hz)
Power consumption	70W
Secondary output	2 step HI / LOW
External Dimensions (mm)	88x210x52 (H) mm
Weight (g)	830g
Power cord length (m)	1.8m (Insulated)
Accessories	Mounting brackets (2), Mounting screws (4)

PG Brushless Drivers

Lever start type

PG-3000



Lever start type

PG-5000



Lever start type

PG-7000



● Specifications

*PG Drivers are available only lever-start type

Model		PG-3000	PG-5000	PG-7000
Output Torque Range	N·m	0.2-0.55	0.4-1.2	0.7-2.8
	lbf·in	1.7-4.8	3.5-10	6.1-24
	(kgf·cm)	(2- 5.5)	(4-12)	(7-28)
Torque Switching		Stepless Adjustment		
Unloaded Rotation Speed (r.p.m) ±10%	High	980	900	960
	Low	680	590	630
Screw Size (mm)	Small Size Screw	1.7-2.3	2.3-3.0	2.6-5.0
	Tapping Screw	2.0-2.3	2.0-2.3	2.6-4.0
Bit Type		Hios H4	Hios H4	Hios H5 or 1/4HEX
Driver cord length / Sensor cord length(m)		2m(6P) / 2m	2m(6P) / 2m	2m(6P) / 2m
Included accessories		Hios bit, Sampling Demo software (Windows XP Excel), RS-232C cable, USB cable, AC adapter (AC100-240V compatible)		

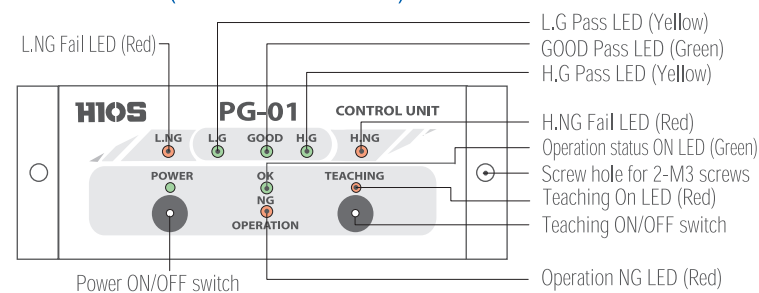
N.B: Windows XP and Excel is Trade mark of Microsoft.

RoHS The PG Brushless is RoHS compliant.

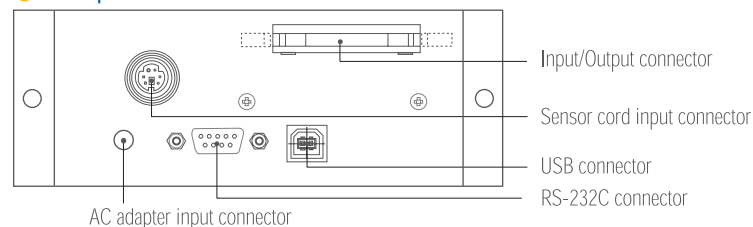
The PG Brushless body uses an antistatic body case to prevent the generation of static electricity, which is suitable for the assembly of precision equipment and electronic parts.

Control Unit PG-01 (Checker)

● Front Panel (Name and Functions)



● Rear panel



● Specifications

Model	PG-01				
RS-232C Communication	Communication speed	Start Bit	Stop Bit	Data	Data format
	4800BPS	1 Bit	1 Bit	8 Bit	ASCII
External Dimensions (mm)					*Dimensions do not include protrusions
Weight(g)		520g			
AC Adaptor		Input:AC100V-240V (50 / 60 Hz), Output:DC12V			

● I/O input/output connector

Pin No.	Output Signal	Description
13	L.NG (Fail)	Torque is below the LOW GOOD value (L.G)
14	L.G (Pass)	Torque is within the allowed percentage range of the LOW GOOD value
15	GOOD (Pass)	Within the HI and LOW values
16	H.G (Pass)	Torque is within the allowed percentage range of the HI GOOD value
17	H.NG (Fail)	Torque is above the HI GOOD value (H.G)
18	COM GND	—

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ISO 9001 certified: Headquarters/Osaka Sales Office/Nagoya Sales Office/Yamagata Factory



Safety Precautions

Please read the instruction manuals before use. These products should be used only for their intended purposes. The proper and recommended power supply and voltages must be used.

● Specifications or appearance may change/improved without notice. ● Reproduction of this catalog without per-mission is strictly prohibited. ● Information in this catalog is current as of April 2009 ● Catalogue No. EK-A006



HIOS®

Pass/Fail Checking Driver Catalog **09A**

Real-Time OK/Error Detecting Screwdriver

PG Brushless®

Brushless Driver Series

Are those screws properly tightened?

Pass-guard, for tightening all screws

Tighten

Check

Save



The color of actual drivers may differ from the picture

Is that screw really tightened?

You can check in realtime, if each and every screw is tightened properly. Prevents incomplete tightening and provides absolute confirmation and reliable "screw tightening quality."

Pass-guard

PG Brushless (DC Type)

All fastening operations are monitored and checked by the criteria, whose value is registered in advance the PG system. The problems in fastening operations such as insufficient torque, wrong thread joint and screw going askew are monitored and prevented from passing through the production line. PG Brushless drivers, which has data collecting function, is a part of "New Fastening System" that meets the demand of latest requirement where zero defect control is required.

NEW

Pass-guard "Tighten," "Check," "Save"

- Instantly determines if a screw passes or fails (OK/NG). (Items checked: torque and time)
- All items can be checked at the same time as the operation is conducted.
- Torque can be monitored for each tightening procedure.
- Can be connected to a PC for data recording.
- Job data can be checked at a glance.



The new style
of 100%
monitoring and
control

It's time for environmentally friendly "Brushless driver"

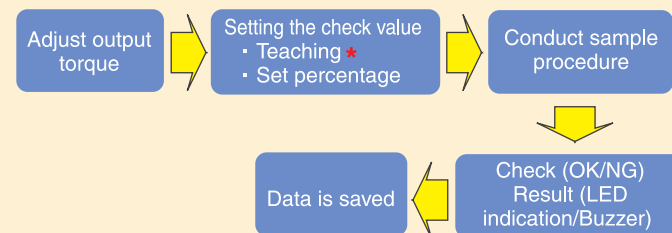
- By using high precision brushless motors, carbon particle emissions are eliminated.
- With a simplified design there is no malfunction nor accident caused by parts.
- A consistently clean environment can be maintained.
- In addition to long life, consistent and stable high precision torque control is promising.
- Minimum heat emissions. (Reduced by approximately 30% according to in-house comparisons)

Flow of setting Pass Guard System

1. Setting the Pass / Fail values

Screw tightening quality can be controlled by setting the checking criteria.

Setting Pass/Fail checking criteria (learned values)



*The learned values can be changed from the PC default settings screen.

Teaching

The checking criteria (learned values) is set by conducting actual screw tightening procedure, the torque value, minimum work time (Main), maximum work time (Max) are then stored.

Percentage Setting Range selection ± (2%, 5%, 10%, 20%)

The acceptable range of passing values for torque, work time minimum and work time maximum can be set individually.

Pass/Fail Value

Fail	Passing range				Fail
L.NG	L.G	GOOD	H.G	H.NG	
Below LOW GOOD value	Within the allowed percentage of LOW GOOD value	Within the HI GOOD and LOW GOOD values	Within the allowed percentage of HI GOOD value	Above HI GOOD value	
	Min value + (Min % value)	Minimum value (Min)	Maximum value (Max)	Max value + (Max % value)	
《Torque value》					
	L.G	GOOD	H.G		
78	2%	80	100	2%	102
76	5%	80	100	5%	105
72	10%	80	100	10%	110
64	20%	80	100	20%	120
《Work time ms》					
	L.G	GOOD	H.G		
780	2%	800	1000	2%	1020
760	5%	800	1000	5%	1050
720	10%	800	1000	10%	1100
640	20%	800	1000	20%	1200

Example:

The table above indicates minimum value set at 0.80N·m (Converted to 80), maximum value set at 1.00N·m (Converted to 100) with to minimum work time set to 800ms and maximum work time set to 1000ms.

2. All data is saved as work is done

By managing data, it is possible to verify past work details.

Data display

Measurement data can be displayed in Excel format. Graphs are also generated automatically. You can also develop customized programs to meet the current needs and the current work environment of your application.

Data sheet (Excel)

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	日付	時間	トルク換算値	測定時間	学習数	学習最小値	学習最大値	学習最小測定時間	学習最大測定時間	誤差率	測定最小値	測定最大値	判定最小測定時間	判定最大測定時間	判定
2	2009/03/01	1:20:19PM	82	850	3	80	100	800	1000	2	78	102	780	1020	E00
3	2009/03/01	1:20:22PM	79	890	3	80	100	800	1000	2	78	102	780	1020	E01
4	2009/03/01	1:20:24PM	103	850	3	80	100	800	1000	2	78	102	780	1020	E94

Close-up of data sheet (Displayed items)

A Actual work values					B Teaching					C Set Percentages					D
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	Date	Time	Converted Torque Value (Torque value)	Measurement time (Work time)	Number of times learned (Torque)	Minimum learned value (Torque)	Maximum learned value (Torque)	Minimum learned Measurement time (Work time)	Minimum learned Measurement time (Work time)	Variance	Minimum check value (Torque)	Minimum check value (Torque)	Minimum learned measurement time (Work time)	Minimum learned measurement time (Work time)	Check *
2	2009/03/01	1:20:19PM	82	850	3	80	100	800	1000	2	78	102	780	1020	E00
3	2009/03/01	1:20:22PM	79	890	3	80	100	800	1000	2	78	102	780	1020	E01
4	2009/03/01	1:20:24PM	103	850	3	80	100	800	1000	2	78	102	780	1020	E94
5	2009/03/01	1:20:27PM	77	850	3	80	100	800	1000	2	78	102	780	1020	E93
6	2009/03/01	1:20:30PM	82	850	3	80	100	800	1000	2	78	102	780	1020	E00

* Description of check symbols ● E00 (Check=GOOD) ● E01 (Check=LOW OK) ● E02 (Check=HIGH OK) ● E90 (Ended with zero range detected-check not possible) ● E91 (Ended with measurement time error) ● E92 (Ended with incomplete learning-check not possible) ● E93 (Check=LOW NG) ● E94 (Check=HIGH NG) Other

PC Screen (Excel)

Click to receive data.

No of PC com port

Option only

Check to see in the data sheet "No check" to see in the irregular sheet.

List of status code

①: Gives ±5% of acceptable limit referring to the values of ①. You can choose limit from 2%, 5%, 10%, 15% or 20%.

Displays the results of fastening referring to the values of ② in yellow.

3. Indications during every tightening procedure

OK/NG results can be confirmed by LED and buzzer while work is in process.

OK/NG is displayed on the PC and measurement values are displayed in the data sheet.

OK

NG

*NG: Not OK

