

Are those screws properly tightened?

Pass-guard, for tightening all screws



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 | 偏差率 | 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) | | 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

Real Value

More than 3 measurement is required. After 11th data, the oldest data will be

To see in the graph Value

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

List of status code

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

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

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



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.

The new style
of 100%
monitoring and
control

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.

PG-7000

PG-5000

PG-3000

It's time for environmentally friendly "Brushless driver"

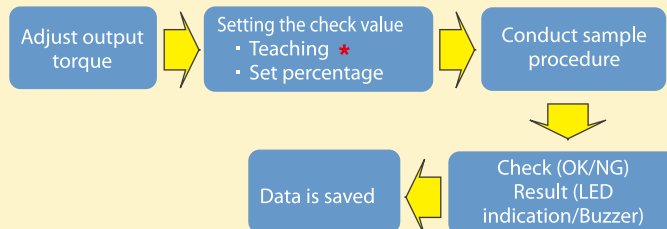
- By using high precision brushless motors, carbon particle emissions are eliminated.
- With a simplified design there is no malfunction nor accident caused by parts.
- A consistently clean environment can be maintained.
- In addition to long life, consistent and stable high precision torque control 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 7 (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

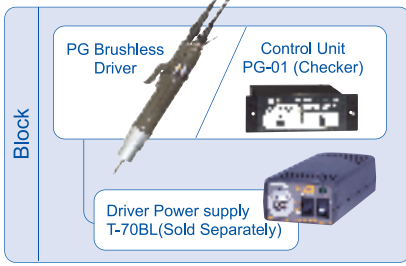
| Fail | Passing range | | | Fail |
|----------------------|---|--|--|---------------------------|
| L.NG | L.G | GOOD | H.G | H.NG |
| Below LOW GOOD value | Within the allowed percentage of LOW GOOD value | Within the HI GOOD and LOW GOOD values | Within the allowed percentage of HI GOOD value | Above 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:

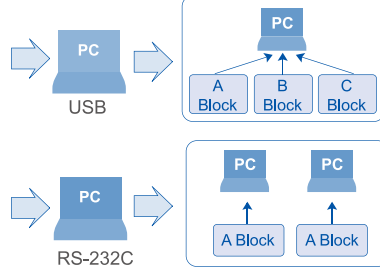
The table above indicates minimum value set at 0.80N · m (Converted to 80), maximum value set at 1.00N · m (Converted to 100) with to minimum work time set to 800ms and maximum work time set to 1000ms.

Pass-guard System Setup and Connections

● Setup



● Connections



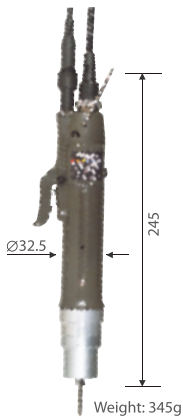
Driver Power Supply T-70BL (Sold separately)

● Specifications

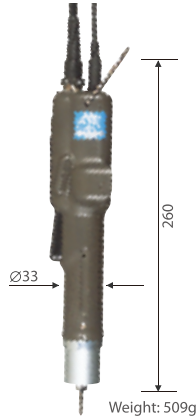
| | |
|--------------------------|---|
| Model | T-70BL (Supports 1 driver) |
| Input voltage | AC100V-240V (47-63 Hz) |
| Power consumption | 70W |
| Secondary output | 2 step HI / LOW |
| External Dimensions (mm) | 88x210x52 (H) mm |
| Weight (g) | 830g |
| Power cord length (m) | 1.8m (Insulated)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

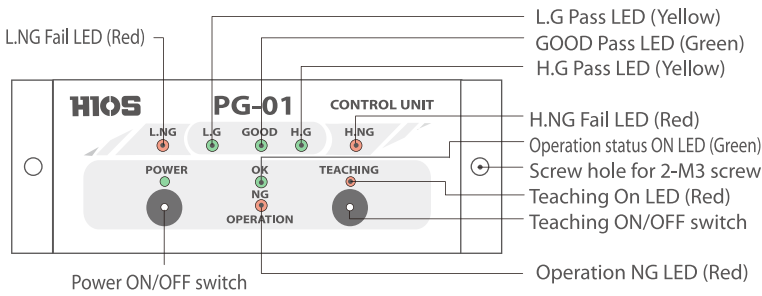
N.B: Windows XP and Excel is Trade mark of Microsoft.

☑ 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.

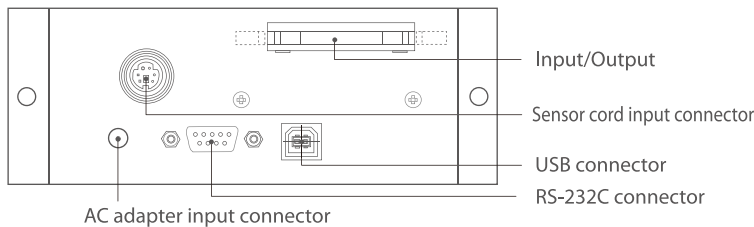
RoHS The PG Brushless is RoHS compliant.

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) | <p>*Dimensions do not include protrusions</p> | | | | |
| 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.