

ELECTRIC SCREWDRIVER INTELLIGENT CONTROLLER

2021 CATALOG

v - en-3.3





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Upcoming

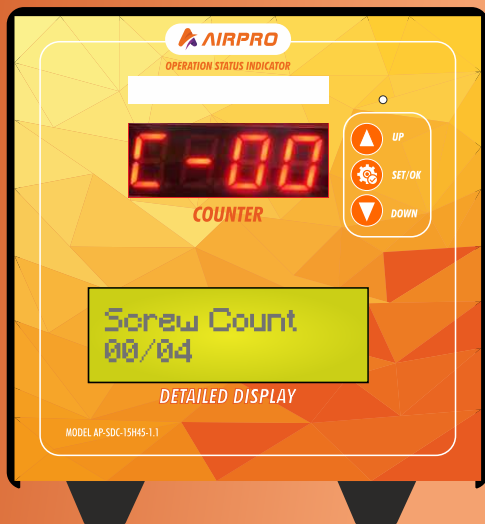
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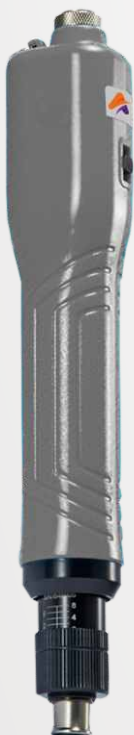
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Industry 4.0 ready



Now you can concentrate on your core Your Assembly Expert is Here !



BOOST YOUR UP TIME



KPI Management



Self Assessment



Self Calibration
Auto Learning



Predictive
Maintenance

BOOST YOUR FLEXIBILITY



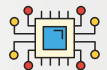
On Demand
Features



Optimize cost of
Ownership



Scalable



AI and ML
Based Technology

BOOST YOUR PRODUCTIVITY



Intuitive Process
Control



Intelligent
Poka-Yoke



Realtime
Monitoring & Alerts



Zero Defect

Industry 4.0 ready

Simply connect the intelligent controller to your PLC and Machine through proper connectors to manage input/output signals such as start, stop, error and move.

Key Features

- ✓ The best price to quality ratio
- ✓ Secure Product Quality
- ✓ Direct Error detection and intelligent Poka-Yoke
- ✓ Reduction of missing screws and stippled joints
- ✓ Improved process control and reduced setup time
- ✓ RFID Settings Access Control



Now you can concentrate on your core Intelligent Poka-Yoke Ready Screwdriver is here!

Fastening Quality guaranteed in all your products

Set up a batches count to ensure all screws are tightened with correct parameters



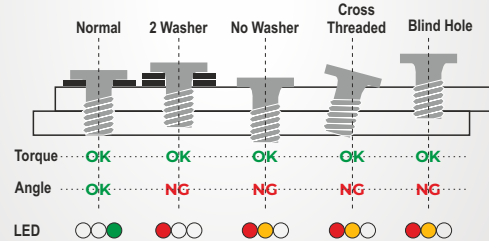
Batch NG



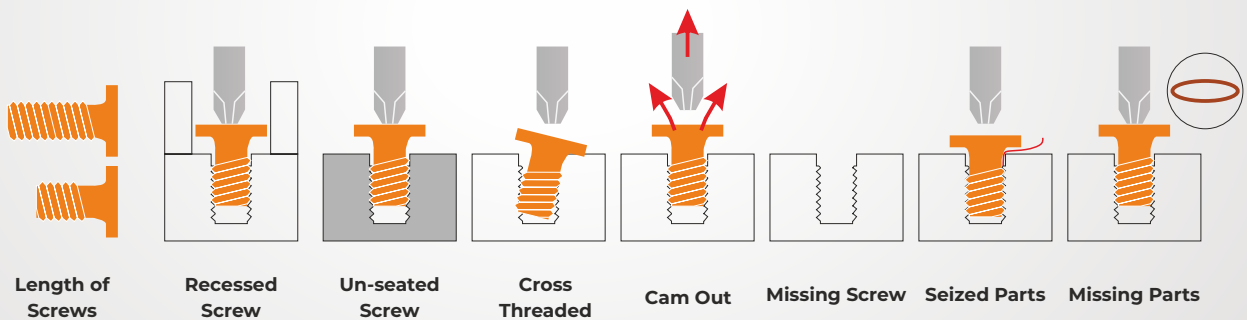
Batch OK

Quality of Tightening

Control torque and angle with multi phases strategies



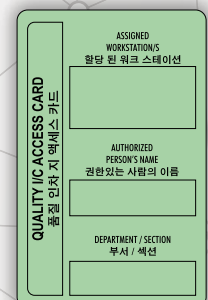
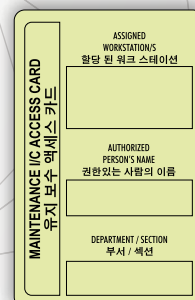
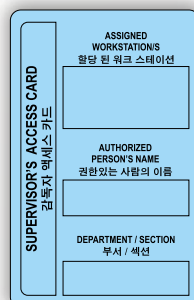
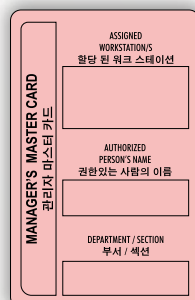
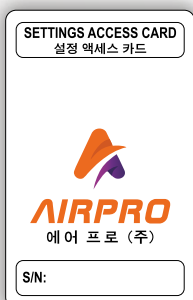
Detectable Errors



Maintenance Interval Alarm

When the total fastenings are within 10,000 fastenings of the preset maintenance interval, the display blinks notifying the operator. Once the tool reaches the preset interval, the tool is locked out from further use. This function can be set ON or OFF and is declined in 10,000 increment cycles. (Number of settings: 0-990,000pcs)

RFID Cards to Access the Settings



Can access all settings menu. Is able to Add or Delete other cards.

Can access general settings related to functioning of screwdriver.

Has access to Maintenance related settings only.

Has access to Calibration related settings only.

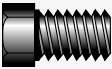
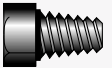


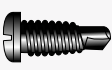



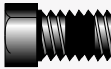
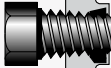
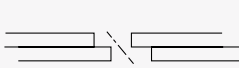
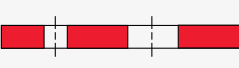

Tool Selection Guide

Criteria

- Type of Fastener / Component
- Joint Integrity
- Torque Required
- Tool Orientation and Operator Reference
- Productivity
- Access

Type of Fastener/Component

Fastener/Component	Recommended Tool Type
Machine Screw/Nut 	Shut Off/Impulse/Non Shut Off
Thread Rolling/Forming 	Shut Off/HLT/Impulse/Direct Drive
Self Tapping 	Non Shut Off/HLT/Direct Drive
Self Tapping in Plastic/ Thin Materials 	Shut Off/HLT
Self Drilling 	Non Shut Off/HLT/Direct Drive
Wood Screws 	Non Shut Off/Direct Drive

Fastener/Component	Recommended Tool Type
Screws with Adhesive 	HLT/Non Shut Off/Impulse
Self Lock Nuts 	HLT/Non Shut Off/Impulse
Misaligned Holes 	HLT
Variable Size Holes 	HLT
Fragile Components 	HLT/Low Voltage Screwdrivers

FASTENER TORQUE VALUES

MACHINE SCREWS						THREAD FORMING/ ROLLING SCREWS
ISO	4.6	5.8	8.8	10.9	12.9	8.8
THREAD SIZE	RECOMMENDED TORQUE (NM)					RECOMMENDED TORQUE (NM)
M1.6	0.07	0.12	0.19	—	—	—
M2	0.15	0.24	0.38	—	—	0.5
M2.2	0.19	0.31	0.51	—	—	—
M2.5	0.28	0.48	0.77	—	—	—
M3	0.51	0.85	1.4	1.9	2.3	1.4
M3.5	0.80	1.34	2.2	3.0	3.6	—
M4	1.20	2.00	3.2	4.5	5.4	3.2
M5	2.40	4.00	6.4	9.0	10.7	6.5
M6	4.10	6.80	10.9	15.3	18.3	11
M8	9.80	16.3	26.1	36.8	44.1	26
M10	19.3	32.2	51.5	72	86.9	52
M12	33.6	56.0	90	126	151	91
M14	53.0	89.0	142	200	239	—
M16	82.0	136	218	307	368	—
M18	114	190	304	428	513	—
M20	160	266	426	598	718	—
M22	215	358	573	806	967	—

SELF TAPPING/DRILLING SCREWS	
THREAD SIZE	RECOMMENDED TORQUE (NM)
ST2.2 (B2)	0.2
ST2.9 (B4)	1.0
ST3.5 (B6)	1.8
ST4.2 (B8)	2.9
ST4.8 (B10)	4.2
ST5.5 (B12)	6.7
ST6.3 (B14)	9.1

CONVERSION FACTORS

Nm x 141.6 = oz in
 Nm x 8.851 = in lb
 Nm x 0.73756 = ft lb
 Nm x 0.102 = kgf m/kpm
 Nm x 10.2 = kgf cm

Torque figures should be used as a guide only
 Table assumes fasteners are new, lightly lubricated and of a standard finish
 For lock nuts with a nylon insert, +10 %
 Torque values are recommended values for a working pressure of 6,3 bar (90 PSIG)



Screwdriver Controller

Salient Features

- ✓ 4 Digits 7 Segment of Counter Display
- ✓ 16 x 2 LCM Display Settings
- ✓ Role Based RFID Settings Access Cards to prevent unauthorized access to settings
- ✓ Counting Preference set up (Count UP / Count DOWN)
- ✓ Advanced Auto Learning (Prevent Manual Setting Errors)
- ✓ Workpiece in position sensor (ON/OFF)
- ✓ I/O signal (Optocouple)
- ✓ RS-232 interface for data output and storage
- ✓ Monitor fastening time range
- ✓ Error Code | Count Reset | Program Reset | End Cycle Signal
- ✓ Reverse Mode ON/OFF Setting
- ✓ easily be integrated with user's existing system.

Specifications

Model	AP-SDC-3H19	AP-SDC-15H19-1.1
Data Output	NO	YES
Electrical Specification	AC 100~120V / 220-240V 50-60Hz - (0.2 KWh)	
I/O Output Voltage	DC 24V 50mA / 12V 100mA	
Count	1 ~ 99	
Count Method	Count Up / Count Down	
Continued Induction Switch	Sensor ON / OFF	
Sensor Switch Mode	ON(2 Sensors) / OFF(1 Sensor)	
HT and LT Settings	Auto Learning / Manual Setup	
External connection Input	Start / Forward / Reverse / Disable / Confirm	
External Connection Output	OK / NG / OK ALL / Start / Reverse / Clamp / De-Clamp	
Serial Interface	RS-232	
External Dimensions	Length - 190 mm X Width - 118 mm X Height - 128mm	
Weight	1100 Gms	
Access to Settings	Roles based RFID User Access Cards	
Accessories	Power Cable x 1, RFID Cards x 4, Screwdriver cord x 1	
Compatible screwdrivers		



Brushless Electric Screwdriver (Trigger Type)



Torque Range

0.02—14.7 Nm (0.2—150 Kgf-Cm)

Features

- ✓ Consistent Torque Output — Torque Accuracy $\pm 3\%$ *
- ✓ Brushless Motor Technology - Long Lifespan
- ✓ Clutch Based Auto Shut-OFF
- ✓ Compatible with all Intelligent Controller range
- ✓ Forward / Reverse selection
- ✓ ESD Safe
- ✓ Included 2 Meter Tool Cable and Standard Bits

* Factory test values — actual torque results may vary depending on the specific application, operator input, and test equipment used.

Trigger Type Clutch based Auto Shut-Off Brushless Screwdriver

Model	Part No.	Free Speed (rpm)		Input Voltage	Applicable Screws	Screw bit Size	Torque Range		Weight
Trigger Type	Order Code	High	Low	Volt	Dia of Screws	Standard	in Kg-f cm	in Nm	Kgs
AP-SD300L	14001	1000	650	30V	M1.2—M2.5	ø4mm	0.2—3.4	0.02—0.34	0.3
AP-SD400L	14002	1000	650		M1.4—M2.6	ø4mm	0.3—6.5	0.03—0.65	0.3
AP-SD450L	14003	1000	650		M1.4—M3.0	ø5mm	1—10	0.1—1	0.4
AP-SD450F	14004	2000	1300		M1.4—M3.0	ø5mm	1—10	0.1—1	0.4
AP-SD500L	14005	1000	650		M1.6—M3.0	ø5mm	2—11.7	0.2—1.15	0.4
AP-SD500F	14006	2000	1300		M1.4—M2.6	ø5mm	2—11.7	0.2—1.15	0.4
AP-SD550L	14007	1000	650		M2.3—M3.5	ø5mm	3—19	0.29—1.86	0.4
AP-SD550F	14008	2000	1300		M2.3—M3.5	ø5mm	3—19	0.29—1.86	0.4
AP-SD600L	14009	1000	650		M2.6—M4.0	1/4hex	5—25	0.5—2.45	0.7
AP-SD600F	14010	2000	1300		M2.6—M4.0	1/4hex	5—23	0.5—2.45	0.7
AP-SD620L	14011	1000	650		M2.6—M4.5	1/4hex	10—30	0.98—2.94	0.7
AP-SD620F	14012	2000	1300		M2.6—M4.5	1/4hex	10—30	0.98—2.94	0.7
AP-SD630L	14013	500	350	36V	M3.0—M5.0	1/4hex	10—35	0.98—3.43	0.7
AP-SD700L	14014	500	350		M3.0—M5.0	1/4hex	10—35	0.98—3.43	0.7
AP-SD7500L	14015	500			M5.0—M6.0	1/4hex	35—70	3.43—6.86	0.8
AP-SD8000L	14016	500			M3.0—M5.0	1/4hex	40—105	3.92—10.3	0.8
AP-SD8500L	14017		350		M3.0—M5.0	1/4hex	65—150	6.37—14.7	0.8



Brushless Electric Screwdriver (Push Type)



Torque Range

0.1—4.41 Nm (1—45 Kgf-Cm)

Features

- ✓ Consistent Torque Output — Torque Accuracy $\pm 3\%$ *
- ✓ Brushless Motor Technology - Long Lifespan
- ✓ Clutch Based Auto Shut-OFF
- ✓ Compatible with all Intelligent Controller range
- ✓ Forward / Reverse selection
- ✓ ESD Safe
- ✓ Included 2 Meter Tool Cable and Standard Bits

* Factory test values — actual torque results may vary depending on the specific application, operator input, and test equipment used.

Push Type Clutch based Auto Shut-Off Brushless Screwdriver

Model	Part No.	Free Speed (rpm)		Input Voltage	Applicable Screws	Screw bit Size	Torque Range		Weight
		High	Low				in Kg-f cm	in Nm	
Trigger Type	Order Code			Volt	Dia of Screws	Standard			Kgs
AP-SD450PT	15001	1000	650	30V	M1.4—M3.0	ø5mm	1—10	0.1—1	0.5
AP-SD500PT	15001	1000	650		M1.6—M3.0	ø5mm	2—12	0.2—0.98	0.5
AP-SD550PT	15003	2000	1300		M2.3—M3.5	ø5mm	3—20	0.29—1.96	0.5
AP-SD450PT	15004	1000	650		M2.6—M4.0	ø5mm	6—25	0.58—2.45	0.7
AP-SD630PT	15005	500	350		M3.0—M5.0	ø5mm	12—35	1.17—3.43	0.7
AP-SD700PT	15006	500	350		M3.5—M5.5	ø5mm	16—45	1.56—4.41	0.7



Upcoming Range of Products Fastening Simplified

DIRECT Drive Fastening



PULSE Shock Free Fastening

CORDLESS Battery Operated Fastening



MINI RANGE Low Torque Fastening



Range of Fastening Solutions

Category	Type	Torque Range	
Category	Type	Min.	Max
Direct	Right Angle	4 N-m	180 N-m
	Straight Drive	1 N-m	200 N-m
	Pistol	1 N-m	120 N-m

Pulse	Right Angle	1 N-m	130 N-m
	Pistol	3 N-m	70 N-m

Category	Type	Torque Range	
Category	Type	Min.	Max
Cordless	Right Angle	1 N-m	130 N-m
	Pistol Type	2 N-m	50 N-m

Mini	Straight Drive	100mN-m	5000mN-m
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Features and Benefits

Auto Learning

→ Easy Settings

Tightening points can be taught by moving the robot directly.

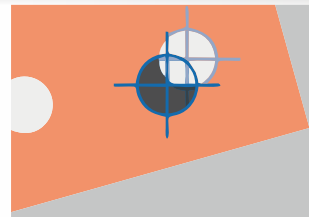
Vision position correction function (optional)

→ Improved Productivity

With the correction function of the camera, even the slightest misalignments will not be missed.



Master Image



Operating Image

Hole misalignment correction function.

Z-axis Thrust Control Function

→ Production Guarantee

Prevents workpiece overload and cam out by tightening screws or bolts with the appropriate thrust.

Dedicated Command

→ Reduces Cycle Time

Reduces communication time with the robot by using dedicated commands.

Management Software

→ Batch Setting

Robot operations such as screw/bolt receiving and tightening scan be set in a batch on the screwdriver side

Step Function

Detailed settings can be made by selecting an item from

- Tightening
- Move
- Return to the original position
- Skip

Auto Downshift Function

→ Improved Productivity

After a programmable period of time, the rpm automatically downshifts to lesser rpm. This can reduce the fasteners impact to the material, maximizing operators productivity

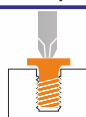


Product Damage

800 rpm



300 rpm



Reducing the fastener's impact to the material





Advanced Tool Functions



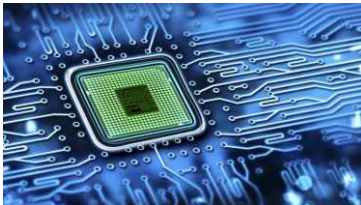
Angle/rotation speed sensor

The environmental friendly high resolution resolver detects the angle used to control the servo-motor feed-back process. The resolution of 2048 or greater per rotation assures highly accurate speed control and fastening rotational angle



Torque Sensor

The strain gauge type transducer is built in to detect the torque. Gauges at 8 points and external disturbance self cancellation function make the high accuracy torque detection possible



Intelligent ID

The Controller can be quickly setup when a tool is connected. An ID memory chip storing torque calibration value, gear ratio and tool model is embedded into the tool. The records for frequency of repair and fastening counts are helpful for maintenance control

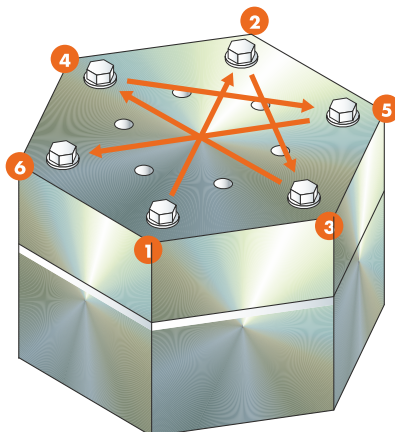


Reduction Gear

The compact design of the high power planetary gear assures excellent durability

Intelligent Arm Solutions

Fastening Sequence



STEP

#01

CH1 Pretightening with 21 N·m at 6 locations

START 1 ▶ 2 ▶ 3 ▶ 4 ▶ 5 ▶ 6 END

#02

CH2 Loosening with 90 degrees at 6 locations

START 1 ▶ 2 ▶ 3 ▶ 4 ▶ 5 ▶ 6 END

#03

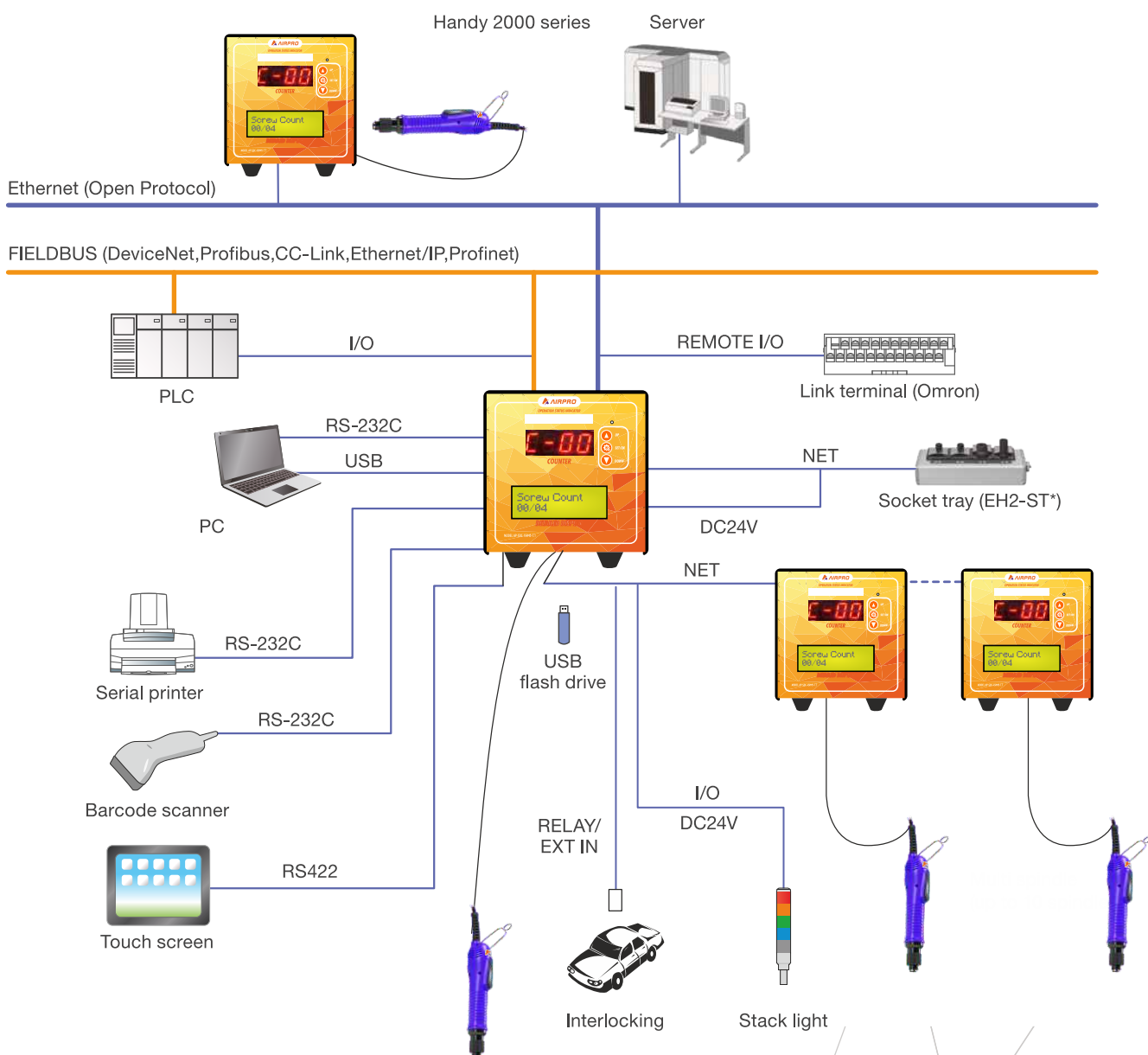
CH3 Final tightening with 49 N·m at 6 locations

START 1 ▶ 2 ▶ 3 ▶ 4 ▶ 5 ▶ 6 END



Screwdriver Controller Function

System configuration



Power cord

EH2-CP02-UL1



EH2-CP02-CN1



EH2-CP02-UK1



EH2-CP02-EU1



EH2-CP02-TH1



Model	Plug type
EH2-CP02-UL1	for Japan and USA 100V 2m
EH2-CP02-CN1	for China 200V 2m
EH2-CP02-UK1	for UK 200V 2m
EH2-CP02-EU1	for Europe 200V 2m
EH2-CP02-TH1	for Thailand 200V 2m
EH2-CP02-CE2	no plug 200V 2m



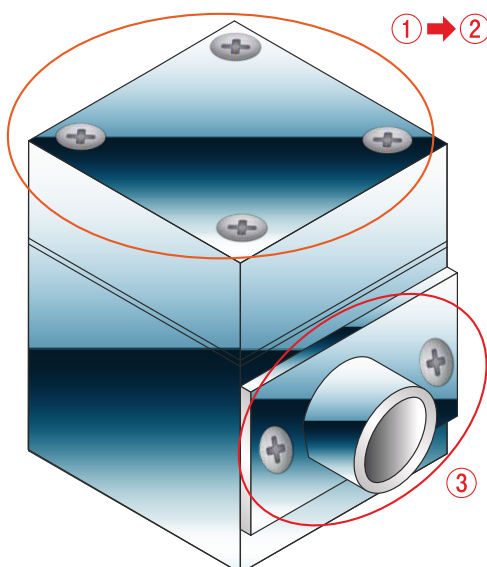
Screwdriver Controller Function

Basic specifications for the Screwdriver Controller

Fastening Methods	Torque control, Torque control Angle monitoring, Angle control, Torque or Angle control, Torque and Angle control, Yield control, Yield Angle control, Inspection torque control, Reverse Angle control
Fastening Mode	Selectable between Direct mode (Continuous fastening) and Pulse mode (Electrical pulse fastening).
No. of the fastening channel setting	Max. 99 channels
Fastening result record	Max. 33,000 records (Numbers of the records which can be stored in the controller varies depending on the items selected for fastening history)
Torque curve history	Max. 30 records (OK Fastening: 20 records, NG Fastening: 10 records)
Ethernet	Various protocols such as AirPro protocol (AirPro Management Software, AirPro Data Logger), Open Protocol and other are available
Fieldbus	DeviceNet, EtherNet/IP, Profinet, Profibus, CC-Link are available as an option.
Remote I/O PIO	As the option. According to user requirement, Adding these options for necessary environment.
Memory	Program/system parameter, Allocation of I/O, fastening Results, Fastening Result History, System Error History(FLASH-ROM Back-up) Torque Curve History(Battery Back-up) Parameter in USB memory.
Batch counter function	nx OK and nx NG output

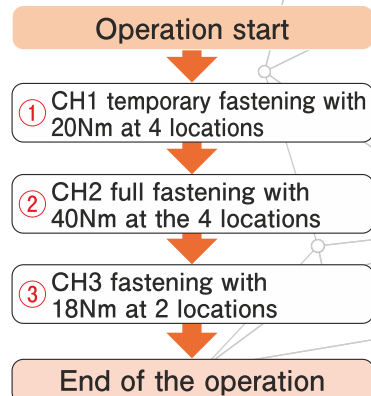
Job Control Function

A convenient function to permit the integrated control in the various torque fastening operation. The max. 99 jobs can be controlled with the function. All of the channels and fastening operations can be programmed with a maximum of 30 steps per job.



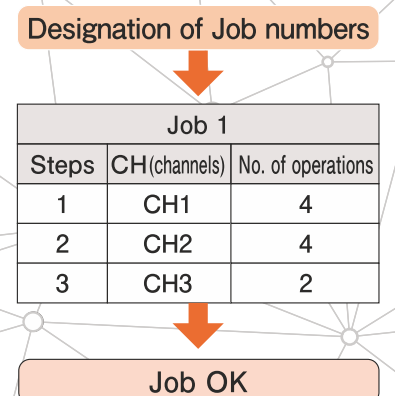
For instance, when 4 locations must be temporarily and then fully fastened with gaskets installed at the 4 locations, and then parts to be installed at two locations

Operation flow



A series of steps is programmed as a JOB parameter in the job control function so that you may execute a job by designating the job number and the job end may be informed with the JOB OK output message.

Job control function





AIRPRO INDIA

AIRPRO INDIA was established in association with Airpro Pneumatics India Pvt. Ltd. in Gurugram, Haryana, India with the intent to provide superior products and service to Indian customers. Covering the complete India we stand by the motto "our commitment towards client's satisfaction". The AirPro family of tools is one of the most comprehensive Poka-Yoke ready tools in the electric power tool industry covering a wide range of torque at several speeds, suitable for an infinite number of applications. Our common aim is to fuel the Industry 4.0 with our most advanced and integrated tools for any industries. If you are looking for a long lasting, cost effective solution along with excellent customer support in India then look no further than AIRPRO INDIA.

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Designed in Japan

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the design, data and specifications are subject to change without prior notice.

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