

데스크탑 로봇체결과 자동화 제결에 최적화 된 SH Torque-Angle control Digital Screwdriver

# SH Torque-Angle Control Digital Screwdriver

Optimized for desk top robot and custom automation screw fastening

**SEHAN**  
ELECTOOLS



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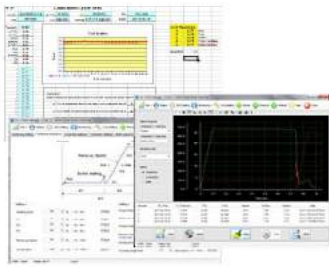
● Assurance of torque accuracy

SH Torque-Angle control Digital Screwdriver made by Sehan technology provide high precise torque accuracy.  
Torque accuracy : 10% in full scale, torque repeatability : ±3%

40년 역사의 세한전동 기술로 구현된 완벽한 전류제어 Torque-Angle control Digital Screwdriver 목표한 토크에 정확히 도달하여 일정시간 유지함으로써 우수한 조립, 품질력을 제공합니다.  
토크 정확도는 전체구간에서 10% 이내며, 반복정밀도는 ±3%로 매우 우수합니다.



Smart Manager (PC software)



Controller and screwdriver

● Improve fastening quality and monitor the data

Operator can set up the optimized fastening condition according to the various circumstance by setting detailed fastening pattern of each sequence.

All fastening data are monitored on real time display and output by RS232 or RS485 com ports.

제품 유형의 각 단계별로 작업자는 다양한 환경에 최적화된 체결조건을 설정할 수 있습니다.

모든 체결 정보는 실시간 디스플레이를 통하여 모니터링되며, 시리얼 포트(RS232, RS485)를 통해 출력됩니다.

NO	TIME	TORQUE	ANGLE	MODE	UNIT	STATUS	REMARK
01.00	01.00	1000	0.0	PRE	01	OK	PRE
01.01	01.01	1000	0.0	PRE	02	OK	PRE
01.02	01.02	1000	0.0	PRE	03	OK	PRE
01.03	01.03	1000	0.0	PRE	04	OK	PRE
01.04	01.04	1000	0.0	PRE	05	OK	PRE
01.05	01.05	1000	0.0	PRE	06	OK	PRE
01.06	01.06	1000	0.0	PRE	07	OK	PRE
01.07	01.07	1000	0.0	PRE	08	OK	PRE
01.08	01.08	1000	0.0	PRE	09	OK	PRE
01.09	01.09	1000	0.0	PRE	10	OK	PRE
01.10	01.10	1000	0.0	PRE	11	OK	PRE
01.11	01.11	1000	0.0	PRE	12	OK	PRE
01.12	01.12	1000	0.0	PRE	13	OK	PRE
01.13	01.13	1000	0.0	PRE	14	OK	PRE
01.14	01.14	1000	0.0	PRE	15	OK	PRE
01.15	01.15	1000	0.0	PRE	16	OK	PRE
01.16	01.16	1000	0.0	PRE	17	OK	PRE
01.17	01.17	1000	0.0	PRE	18	OK	PRE
01.18	01.18	1000	0.0	PRE	19	OK	PRE
01.19	01.19	1000	0.0	PRE	20	OK	PRE
01.20	01.20	1000	0.0	PRE	21	OK	PRE
01.21	01.21	1000	0.0	PRE	22	OK	PRE
01.22	01.22	1000	0.0	PRE	23	OK	PRE
01.23	01.23	1000	0.0	PRE	24	OK	PRE
01.24	01.24	1000	0.0	PRE	25	OK	PRE
01.25	01.25	1000	0.0	PRE	26	OK	PRE
01.26	01.26	1000	0.0	PRE	27	OK	PRE
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01.28	01.28	1000	0.0	PRE	29	OK	PRE
01.29	01.29	1000	0.0	PRE	30	OK	PRE
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01.42	01.42	1000	0.0	PRE	43	OK	PRE
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01.72	01.72	1000	0.0	PRE	73	OK	PRE
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01.74	01.74	1000	0.0	PRE	75	OK	PRE
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01.90	01.90	1000	0.0	PRE	91	OK	PRE
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01.94	01.94	1000	0.0	PRE	95	OK	PRE
01.95	01.95	1000	0.0	PRE	96	OK	PRE
01.96	01.96	1000	0.0	PRE	97	OK	PRE
01.97	01.97	1000	0.0	PRE	98	OK	PRE
01.98	01.98	1000	0.0	PRE	99	OK	PRE
01.99	01.99	1000	0.0	PRE	100	OK	PRE



● Convenient parameter setting and critical fastening

Parameter setting is very convenient on PC software, Smart-Manager. It provide the real time torque, speed and angle curve which is very useful to analyze the critical fastening.

전용 PC소프트웨어 Smart-Manager 를 이용하여 체결관련 파라미터를 쉽게 설정할 수 있으며, 데이터를 실시간으로 모니터링 할 수 있습니다. 특히 그래프 모니터링은 체결품질 관련 데이터 분석에 도움을 주어 귀사 제품의 품질향상에 큰 도움을 줄 수 있습니다.

### Easy connecting with other systems

SH Torque-Angle control Digital Screwdriver can be used with other systems including PLC flexibly.  
SH Torque-Angle control Digital Screwdriver는 PLC를 비롯한 외부설비에 유연하게 연동됩니다.

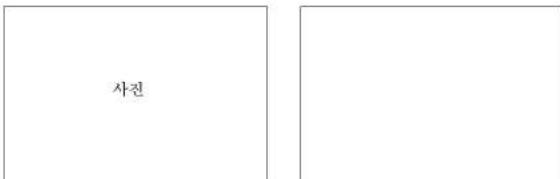
### No particle, Low noise and long-life expectancy

SH Torque-Angle control Digital Screwdriver with a Brushless Motor provide the extra features as below.

- Long life expectancy
- Low noise
- No particle : Suitable for clean room

SH Torque-Angle control Digital Screwdriver는 Brushless Motor를 내장하고 있기 때문에 내구성이 좋으며 소음이 적고, 미세먼지를 발생시키지 않습니다.

### User interface



사진

### SHC Controller

You can save max. 10 programs with different parameter setting including torque, speed and patterns. It provide the ideal rotation speed automatically according to the torque value. This speed can be adjusted by manually, too. All of real time fastening data including torque, rpm, angle etc output by RS-232C or RS-485.

토크, 회전속도, 각도등의 파라미터를 서로 다르게 하여 총 10개까지 다양하게 프로그램을 할 수 있습니다.  
회전속도는 설정된 토크 값에 따라 최적의 빠른 회전수가 자동으로 설정되며 이 회전 수는 수동으로 변경 가능합니다.  
또한 토크, 회전 수, 각도 등 모든 실시간 체결품질 관련 데이터들이 RS-232C 또는 RS-485 포트를 통해 출력됩니다.

- Auto Speed setting form 100 ~ 1,500 rpm (scale : 50rpm)
- Digital torque set and save 8 memories
- Real time fastening data (torque, rpm, angle..) output by RS-232C or RS485
- Firmware upgrade by Com port
- Error information by code display

### Main features

- 220VAC AC Servo motor (Japan)
- Over 5 million cycle of life expectancy
- Torque accuracy 10% in full scale
- Torque repeatability ±3%
- Auto Speed setting from 100-1,500rpm (scale: 1rpm)
- Digital torque set and save 8 memories
- Real time fastening data (torque, rpm, angle ) output by RS-232C, RS485
- Available for clean room
- Firmware upgrade by Com port
- Error information by code display
- Easy parameter setting by Smart-Manager (PC software)
- Real time torque data and curve display
- 8 latest error history memory



Fastening automation



Desk top robot fastening-AFS

### Smart manager

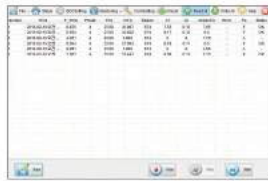
The PC software, Smart Manager is convenient to set the parameters and monitor the fastening data including torque, speed, angle etc.

SH 전용 소프트웨어 Smart Manager로 손쉽게 파라미터를 세팅할 수 있으며 보오크, 회전 수, 각도 등 체결품질관련 데이터를 실시간 모니터링 할 수 있습니다.

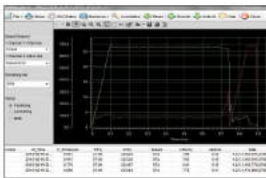
- Easy parameter setting by Smart Manager (PC software)
- Real time torque data and curve display
- 8 latest error history memory
- Save or open a file of parameter setting
- Language : Korean, English, French, German, Spanish



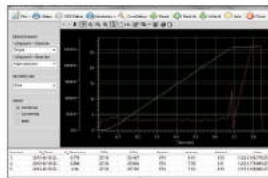
Parameter setting main window  
(Torque, Speed, Angle, etc)



Data output by RS232C/RS485  
(Torque, Speed, Angle, etc)



Real time monitoring CURVE  
(Angle, Torque vs time)



Real time monitoring CURVE  
(Speed, Torque vs time)

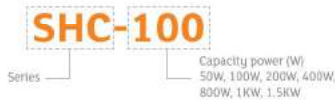


Scara robot fastening

• Controller specification



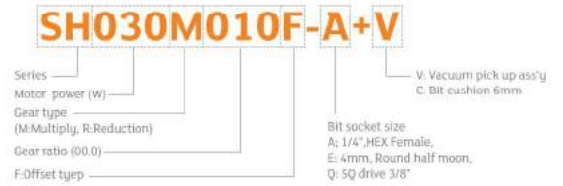
General specification		
No.	Item	Specification
1	Input	AC 220V, 50-60Hz Single / 3 phase
2	Control range	Torque 0.5 ~ 700.0 KgFcm in 9 models
		Speed 100 ~ 3,000 rpm in 8 models
		Angle 0.1 turn ( resolution 0.003 step)
3	Parameters	Torque, Speed, Angle, etc.
4	preset # selecting	1) Front panel button 2) SPI-30 interface
5	Torque calibration	-10% ~ +10%
6	Auto recognition	Auto-detection of connected driver when power ON of controller
7	Error display	Error code display (3 group)
8	Tightening quality control	Tightening data verification (NG/OK) against the pre-setting pattern of angle
9	Parameter setting and monitoring	MS windows PC software, Smart Manager or Front panel



• Digital screwdriver specification



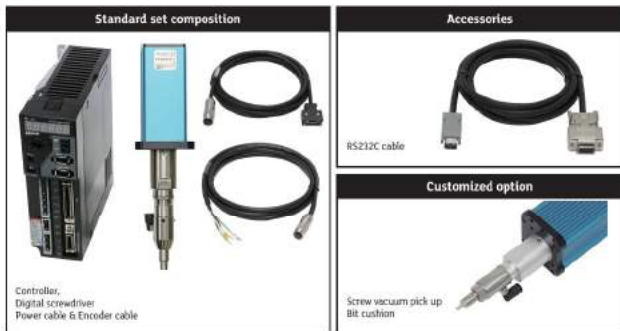
Digital screwdriver specification			
No.	Item	Specification	Remark
1	El.Power	AC220~240V, 50~60Hz	
2	Motor	220V AC servo motor, Japan	
3	Dimension	Refer the manual	
4	Torque range	Refer the manual	0.01 KgF.cm/scale
5	Speed range	100~1,500 rpm ± 5%	Auto change
6	Torque accuracy	10% in full scale	
7	Torque repeatability	± 3%	
8	Bit size	By request	
9	Cable	1.5m cable by 100	
10	Cable	4P motor cable 5P encoder cable	



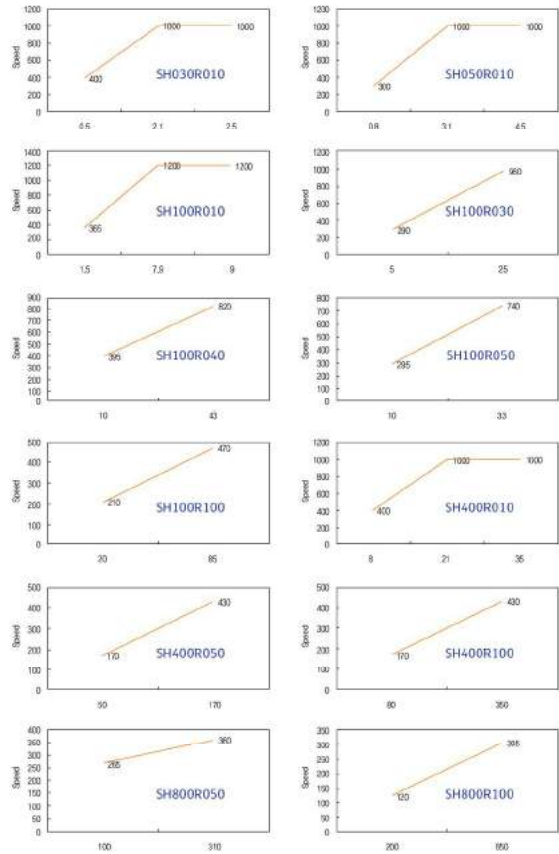
Model of Torque-Angle Control Digital Screwdriver

Type		Torque	Speed (RPM)	Length	Weight	Bit size	Option	Controller to be used
Offset type	Straight type	Kgf cm	#Auto speed	Range (mm)	(Kg)		Vacuum pickup Bit cushion	
	SH030R010-A	0.5 - 2.5	410 - 1,000	100 - 1,000	172.8	1/4" HEX		SHC-50
	SH030R010-A-V	0.5 - 2.5	410 - 1,000	100 - 1,000	172.8	1/4" HEX	○	SHC-50
	SH030R010-A-C	0.5 - 2.5	410 - 1,000	100 - 1,000	172.8	1/4" HEX	○	SHC-50
	SH030R010-A-V-C	0.5 - 2.5	410 - 1,000	100 - 1,000	172.8	1/4" HEX	○	SHC-50
	SH030R010-E	0.5 - 2.5	410 - 1,000	100 - 1,000	172.8	4mm, Round		SHC-50
	SH030R010-E-V	0.5 - 2.5	410 - 1,000	100 - 1,000	172.8	4mm, Round	○	SHC-50
	SH030R010-E-C	0.5 - 2.5	410 - 1,000	100 - 1,000	172.8	4mm, Round	○	SHC-50
	SH030R010-E-V-C	0.5 - 2.5	410 - 1,000	100 - 1,000	172.8	4mm, Round	○	SHC-50
	SH050R010-A	0.8 - 4.5	300 - 1,000	100 - 1,000	178.8	1/4" HEX		SHC-50
	SH050R010-A-V	0.8 - 4.5	300 - 1,000	100 - 1,000	178.8	1/4" HEX	○	SHC-50
	SH050R010-A-C	0.8 - 4.5	300 - 1,000	100 - 1,000	178.8	1/4" HEX	○	SHC-50
	SH050R010-A-V-C	0.8 - 4.5	300 - 1,000	100 - 1,000	178.8	1/4" HEX	○	SHC-50
	SH050R010-E	0.8 - 4.5	300 - 1,000	100 - 1,000	178.8	4mm, Round		SHC-50
	SH050R010-E-V	0.8 - 4.5	300 - 1,000	100 - 1,000	178.8	4mm, Round	○	SHC-50
	SH050R010-E-C	0.8 - 4.5	300 - 1,000	100 - 1,000	178.8	4mm, Round	○	SHC-50
	SH050R010-E-V-C	0.8 - 4.5	300 - 1,000	100 - 1,000	178.8	4mm, Round	○	SHC-50
	SH100R010-A	1.5 - 9.0	365 - 1,200	100 - 1,200	192.8	1/4" HEX		SHC-100
	SH100R010-A-V	1.5 - 9.0	365 - 1,200	100 - 1,200	192.8	1/4" HEX	○	SHC-100
	SH100R010-A-C	1.5 - 9.0	365 - 1,200	100 - 1,200	192.8	1/4" HEX	○	SHC-100
SH100R010E-A-V-C	SH100R010-A-V-C	1.5 - 9.0	365 - 1,200	100 - 1,200	192.8	1/4" HEX	○	SHC-100
	SH100R030-A	5 - 25	290 - 960	100 - 1,000	222.3	1/4" HEX		SHC-100
	SH100R040-A	10 - 33	295 - 740	100 - 1,000	222.3	1/4" HEX		SHC-100
	SH100R050-A	10 - 43	395 - 820	100 - 1,000	222.3	1/4" HEX		SHC-100
	SH100R100-A	20 - 85	210 - 470	100 - 500	222.3	1/4" HEX		SHC-100
	SH400R010-A	8 - 35	400 - 1,000	100 - 1,000		1/4" HEX		SHC-400
	SH800R050-S	50 - 170	170 - 430	100 - 1,000		3/8" SQ Male		SHC-400
	SH800R100-S	80 - 350	170 - 430	100 - 1,000		3/8" SQ Male		SHC-400
	SH800R050-S	100 - 310	265 - 360	100 - 1,000		3/8" SQ Male		SHC-800
	SH800R100-S	200 - 650	120 - 305	100 - 500		3/8" SQ Male		SHC-800

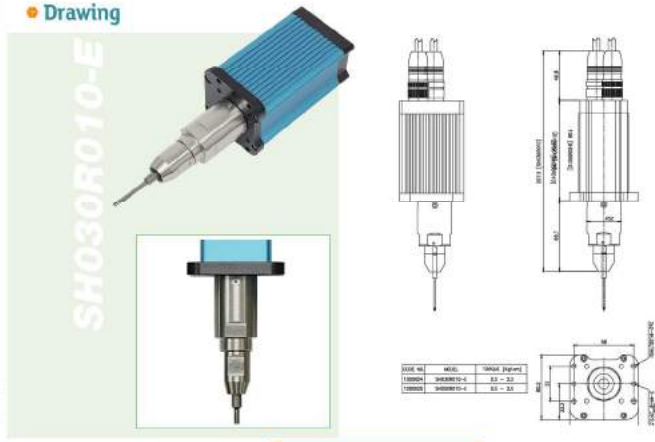
Component



Automatic rotation speed setting according to the torque



• Drawing



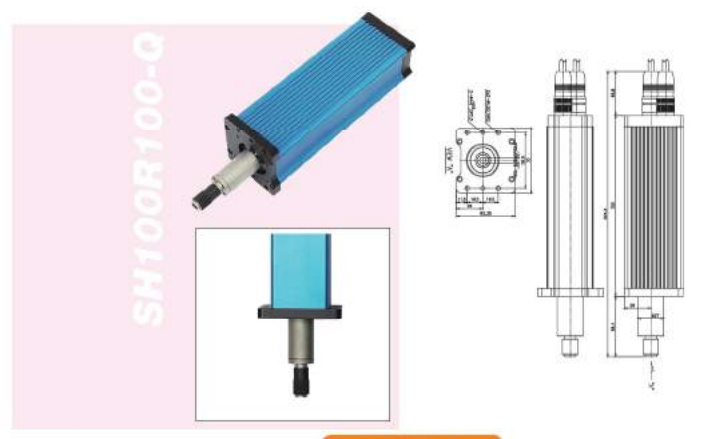
SH030R010-E, SH050R010-E



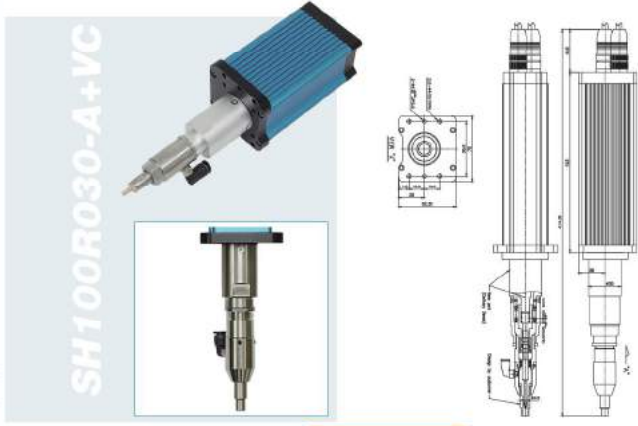
SH050R010-A-C



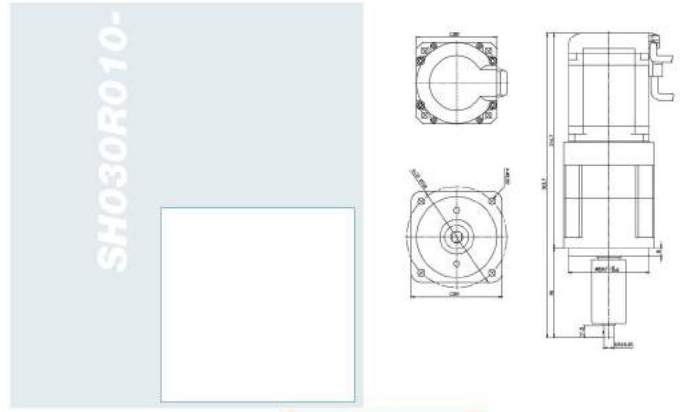
SH030R010-E-VC



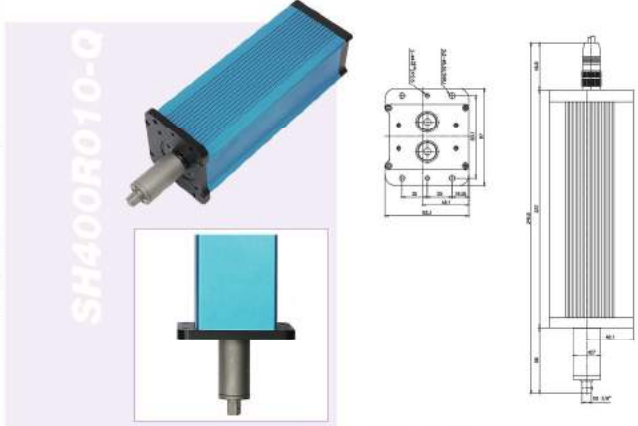
SH100R100-Q



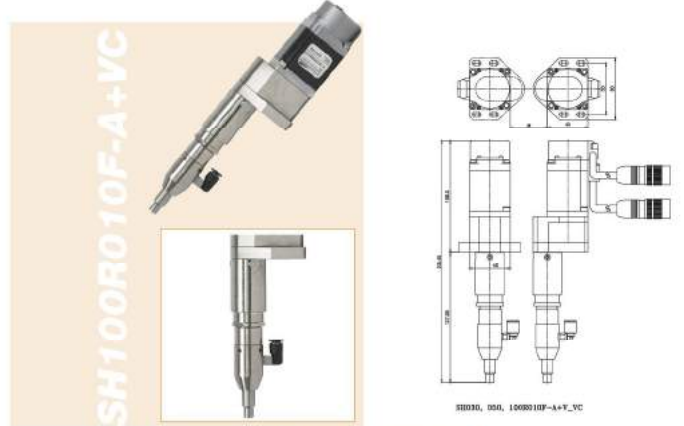
SH100R030-A+VC



SH030R010, SH050R010



SH400R010-Q



SH100R010F-A+VC

SH030, SH050, SH100R010F-A+VC