Screwdriver I/O Signal Control Box
User Operation Manual

Model : KL - SCBSN
(Ver 2.0)

KILEWS INDUSTRIAL CO., LTD.

http://www.kilews.com.tw

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Acknowledgements:

KL-SCBSN is a trademark of Kilews Industrial Co., Ltd.
BN is a series brushless screwdriver model with new control function of Kilews
SKP-32BC is a power supply with 24/32 voltage for screwdriver of Kilews
SKP-BE32HLN is a power supply with 24/32 voltage for screwdriver of Kilews
SKP-40B is a power supply with 40 voltage for power torque screwdriver of Kilews
SKP-40BHL-800N is a power supply with 40 voltage for power torque screwdriver of Kilews

1. Introduction :

1.1 Overview :

The KL-SCBSN is an intelligent PLC-to-Screwdriver I/O control module containing built-in microprocessor. Screwdriver is remotely controlled through a simple set of command protocols issued in binary format and transmitted in RS-485 communication interface.

KL-SCBSN provide digital input lines to support start ,reverse and gate function by external control and output start, brake and reverse signals to external device. All output signals use MOSFET relay output to support mostly PLC interface.

Besides I/O control interface for automatic application, KL-SCBSN include slow-start and running time control functions to improve screw tightening quality under manual operation.

KL-SCBSN is the best choice for screwdrivers apply to integrate with PLC in automatic applications.

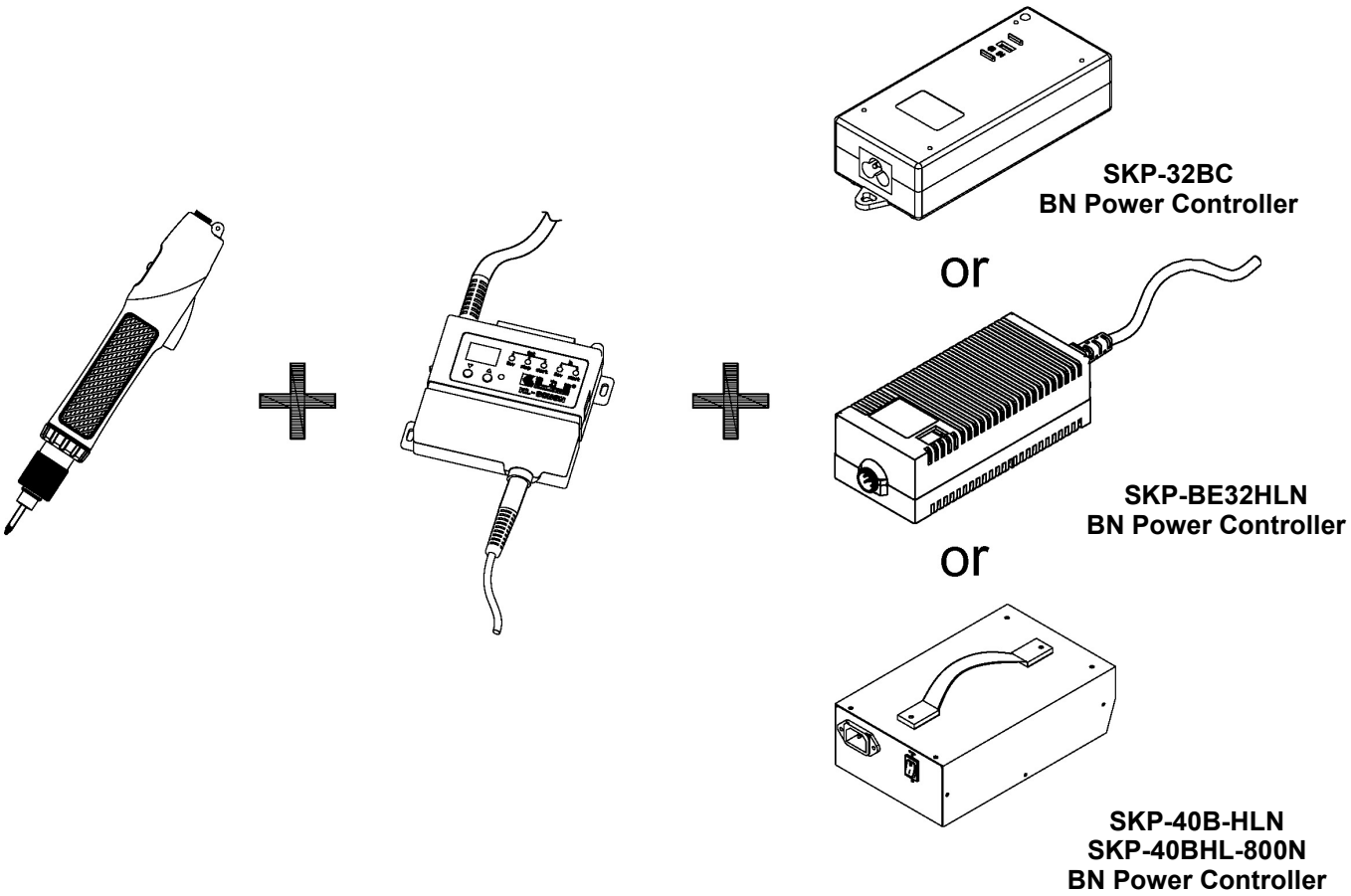
1.2 Applications :

- Automatic fastening system
- Remote start/stop control system
- Multi steps fasten system
- Soft start control
- External enable/disable control
- Fastening time control

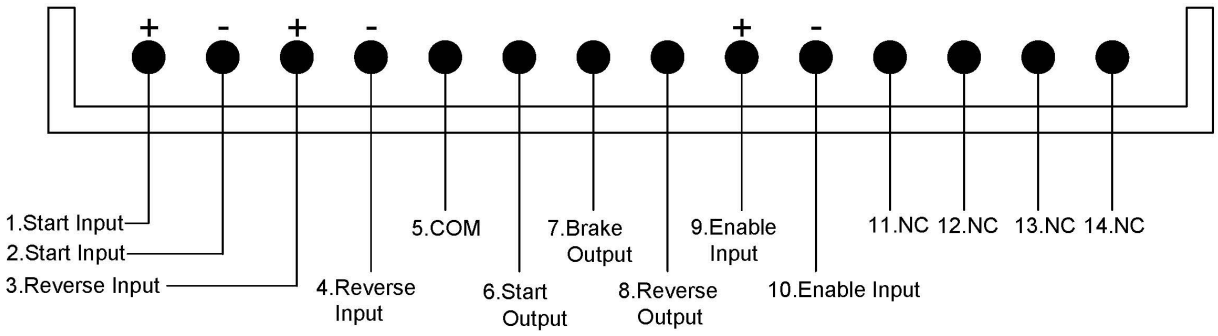
2. Installation Guideline :

2.1 Assembly Description :

1. KL-SCBSN signal I/O control box support connect to both 32V (SKP-32BC) and 40V (SKP-40B) power supply.
2. KL-SCBSN support all 24V, 32V and 40V voltage, it can apply to all KILEWS BN series screwdriver. (BN200 / BN500 / BN800 / TBN / RBN)
3. All KILEWS BN series brushless screwdrivers, KL-SCBSN and BN Power supply are designed to use the same 6 Pin connector.
4. Please make sure to connect screwdriver with the suitable power supply model.
5. Please use the KILEWS standard anti EMI cable (3M) to connect to BN series screwdriver
6. Please connect KL-SCBSN to screwdriver then connect to power supply
7. KL-SCBSN is designed to operation only with the KILEWS BN series brushless screwdriver.
   (If connect to the old BC series brushless screwdriver, all function will not work correctly)



2.2 Connector I/O wiring description :



Please find the 14 Pin connector on top of the controller box and follow the input and output control functions wiring :

1. Short Pin 1 and Pin 2 for input signal to start the screwdriver
2. Short Pin 3 and Pin 4 for input signal to change the screwdriver run in reverse, otherwise run in forward.
3. Short Pin 9 and Pin 10 for input signal to enable start screwdriver when SW1 is setted to ON
4. When screwdriver is started, output signal to Pin 6 and COM (Pin 5)
5. When screwdriver is braked, output signal to Pin 7 and COM (Pin 5)
6. When screwdriver run reversed, output signal to Pin 8 and COM (Pin 5)

2.3 Pin assignment description：

Pin No.	Function	I/O	Loop Interface
1	External Start Input	Input	Open Collector
2	Gnd	-	
3	External Reverse Input	Input	Open Collector
4	Gnd	-	
5	COM	Output	Common for output
6	Start Output	Output	MOS Relay
7	Brake Output	Output	MOS Relay
8	Reverse Output	Output	MOS Relay
9	Target Ready Confirm (Gate) Enable Input	Input	Open Collector
10	Gnd	-	
11、12 13、14	NC(N/A)	N/A	N/A

2.4 Digital Input :

1. Dry contact

   On : Close to Gnd

   Off : Open

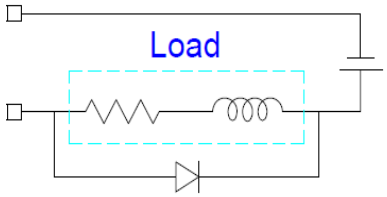
2. Wet contact

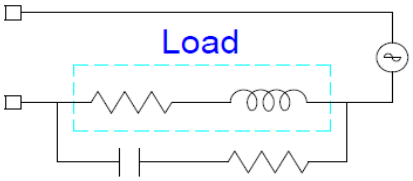
   On : +2 V Max

   Off : +4 V to 30 V

2.5 Relay output wiring diagrams

Regulate the spike voltage generated on the inductive load as follows :

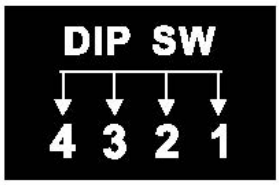




R-C Snubber

※ MOS Relay output circuit max is DC +/-40V, +/-250mA

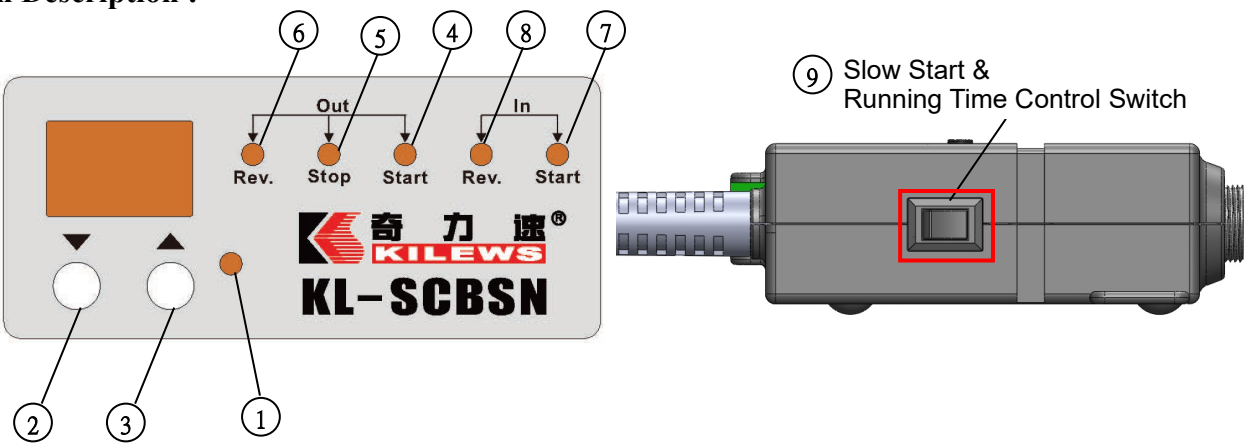
2.6 DIP Switch Function Description :



DIP SW Function		
SW	**Function**	**Description**
DIP SW1	Target Ready Confirm (Gate)	ON:Enable / OFF:Disable
DIP SW2	Brake Signal Off Mode	ON:Start off / OFF:Next Start on
DIP SW3	Trigger/Motor signal	ON: Start function (press on and off) OFF: Motor function (turn on and stop off)
DIP SW4	NC	N/A

1. When SW 1 is set to ON, the target ready confirm (Gate) function is enabled, screwdriver only allow to start when Pin 9 and Pin 10 is closed.
2. When SW 2 is ON, brake signal will continue output until the start switch is released , SW 2 is OFF, brake signal will continue output until next start switch is pressed.
3. Duration of start signal when screwdriver is stopped. Motor：The start signal disappears when screwdriver is stopped. Start signal：When the driver is stopped, the start switch (press lever plate/ push down/ external signal) is released. The start signal disappears.

3. Operation Description :



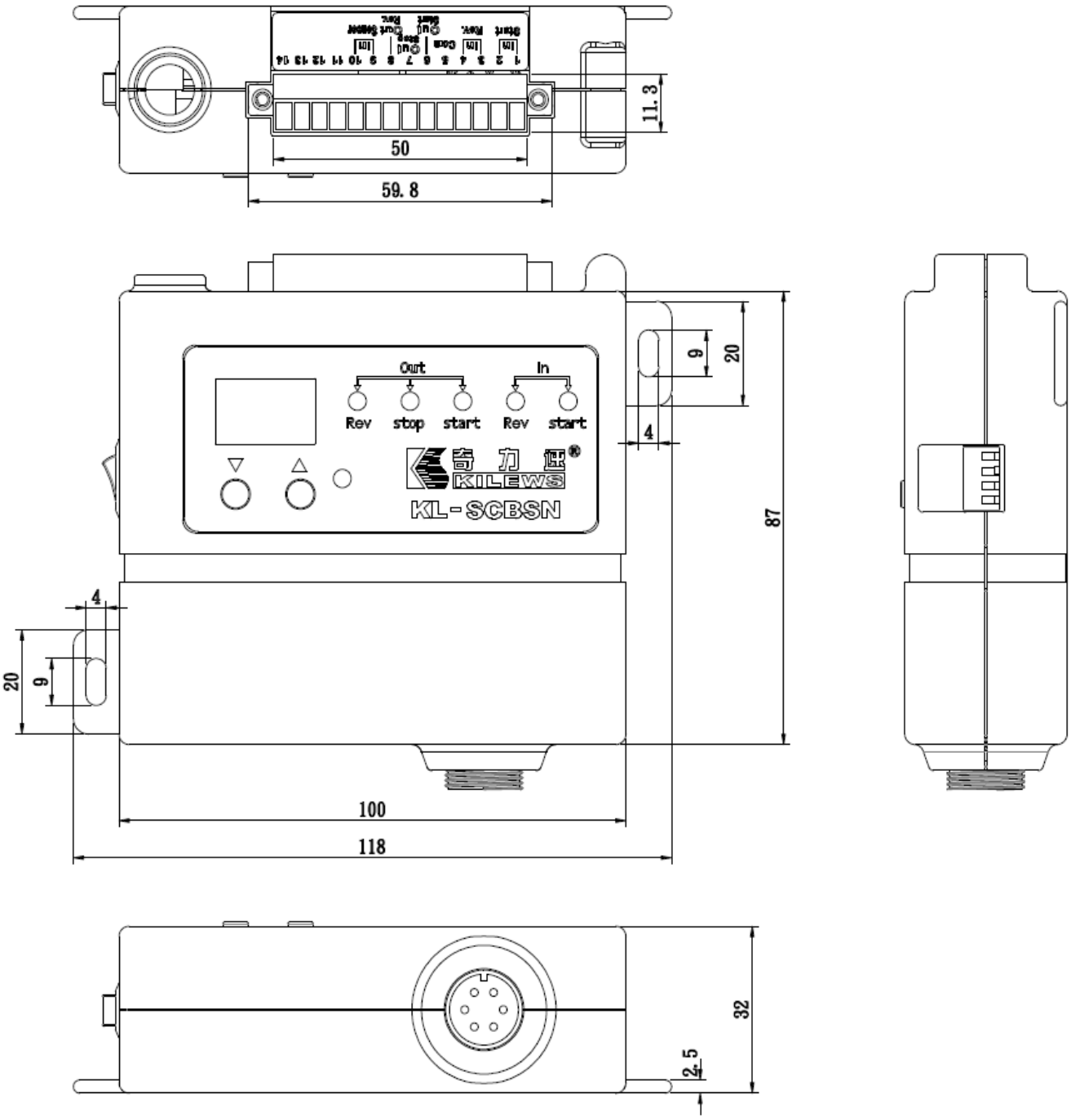
3.1 Panel setting description :

No.	Function	Description
1	Power / Comm. Error / Gate Enable LED (Red / Blink)	1. Power on and connected display RED light on 2. When disconnect or loss communication with screwdriver , display RED light and blink every 0.5 sec. 3. When SW1 is ON, the target ready confirm (Gate) function is enabled, display RED light and blink every 5 Sec.
2	▲+▼ [UP]+[DOWN]	1. Press both ▲and▼button for 2 Sec to enter setting mode, LED display **[RC]**. 2. Press both button for 1 Sec to change to set next function. 3. LED display **[RC]-[-SP]-[Ut]--** Exit. 4. Screwdriver control will be disabled, and the power light will flash each 5 Sec between setting mode. 5. Use▲or▼ button to change the setting value RC : Slow start time 0.0 ~ 9.9 Sec. SP : Slow start speed level L0 ~ L9 Ut : Max operation time 0.0 ~ 9.9 Sec. 6. When **[Ut]** is set, LED will display [Ut] screwdriver will stop and output a brake signal when **[Ut]** time is up.
3	▲[UP]	1. Press▲button for 6 sec to reset to factory default values (RC:0.0，SP:L0，Ut:0.0)
4	OUTPUT START LED (Green)	1. Turn ON to indicate screwdriver is running 2. Turn OFF when screwdriver is stop
5	OUTPUT STOP (BRAKE) LED (Green)	1. Turn ON to indicate Brake signal. 2. When SW 2 is ON, Brake signal will off when start switch is released 3. When SW 2 is OFF, Brake signal will keep until next start switch is pressed
6	OUTPUT REVERSE LED (Green)	1. Turn ON to indicate screwdriver run in reverse 2. Turn OFF when screwdriver run in forward
7	INPUT START LED (White)	1. Turn ON to indicate screwdriver is started by external start signal input 2. Turn OFF when external start input signal is off
8	INPUT REVERSE LED (White)	1. Turn ON to indicate screwdriver is started in reverse by external reverse start signal input 2. Turn OFF when external reverse start input signal is off
9	Slow Start & Running Time Control Switch	1. Toggle this switch to disable or enable both [RC] [SP] and [Ut] functions, LED display will turn off when function is disabled. 2. If function is enabled, LED will display [NO] , [L1] ~[L9] or [Ut] depends on the setting status.

3.2 LED Display in setting mode and error code description :

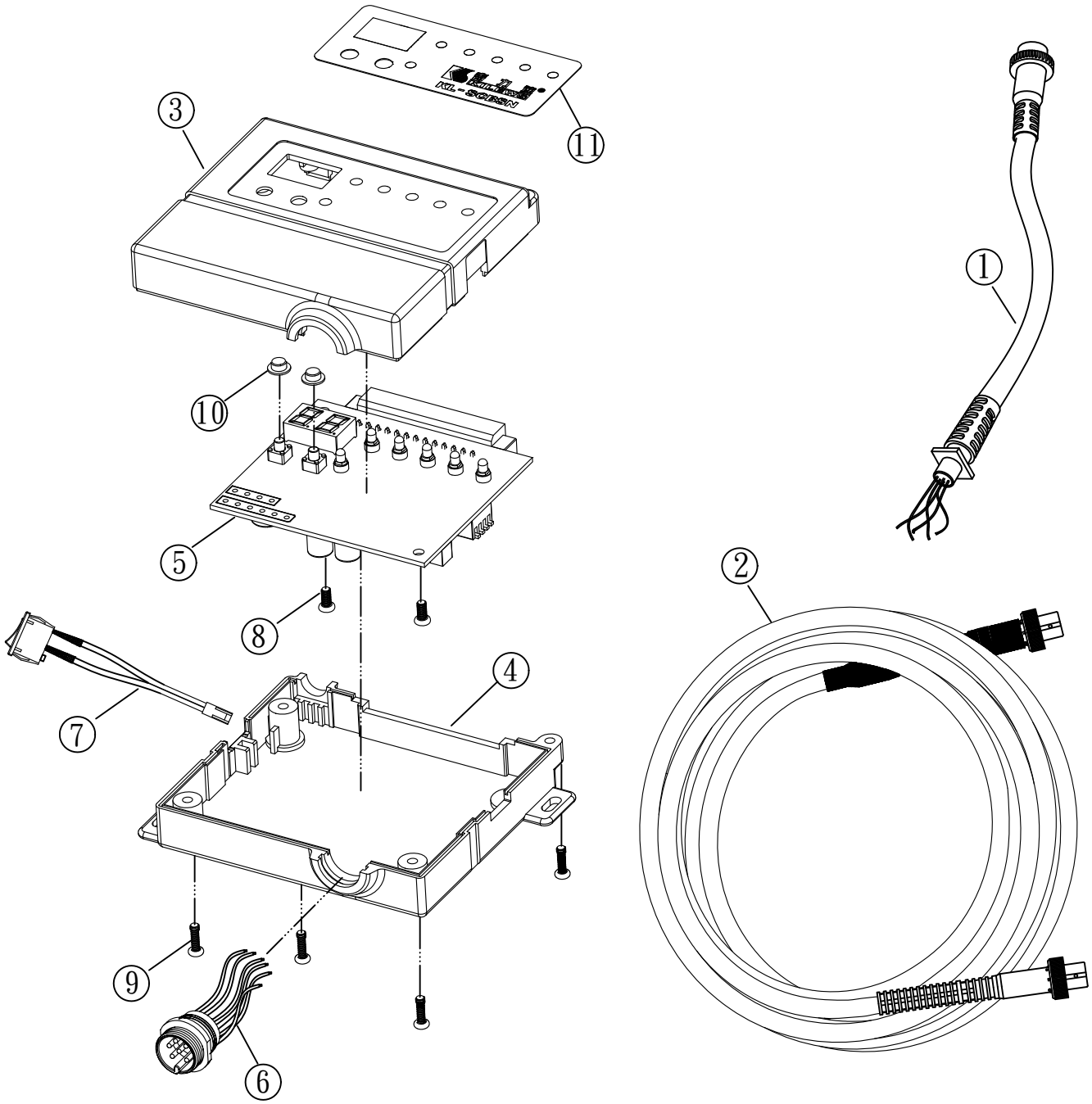
Symbol	Definition	Description
	Set Slow Start Time	1. Press▲+▼for 2 Sec, LED will display **[RC]**. 2. Use▲or▼to increase or decrease slow start time value from 0.0 to 9.9 sec.
	Set Slow Start Speed Level	1. Press▲+▼for 1 sec after set **[RC]**, LED will display **[SP]**. 2. Use▲or▼to increase or decrease slow start speed level from L0 (100%, Disable) or L1 to L9 (30%~90%).
	Set Running Time Control	1. Press▲+▼ for 1 sec after set **[SP]**, LED will display **[Ut]**. 2. Use▲or▼to increase or decrease the running time from 0.0 to 9.9 sec. 3. Screwdriver running time will count down to 0 then stop.
	Slow Start Speed Level	1. When **[SP]** set to **[L1] ~ [L9]**, indicate the slow start speed level.
	No Slow Start Function	1. When **[SP]** set to **[L0]** , disable slow start function.
	Under Voltage Protection	1. Screwdriver will stop when the operation voltage is lower. 2. LED will display **[E3]** to indicate under voltage Protection. 3. Screwdriver will disable 10 sec then automatic recovery.
	Over Temp. Protection	1. Screwdriver will stop when the operation temperature is higher. 2. LED will display **[E4]** to indicate over temperature Protection. 3. Screwdriver will disable 10 sec then automatic recovery.
	Stall Protection	1. Screwdriver will stop when motor is abnormal stalled after start. 2. LED will display **[E5]** to indicate stall protection. 3. Screwdriver will disable 10 sec then automatic recovery.
	Push plate Error	1. Screwdriver will stop when push plate change between motor running. 2. LED will display **[E7]** to indicate abnormal operation. 3. Switch push plate back to recovery.
	Brake Error	1. Screwdriver will stop when the abnormal brake signal appeared before start. 2. LED will display **[E8]** to indicate abnormal brake error. 3. Check and fix the brake mechanism to recovery.
	Memory Error	1. Screwdriver will stop when the internal flash memory fail. 2. LED will display **[E9]** to indicate internal flash memory error. 3. Screwdriver will disable 10 sec then automatic recovery.

4. Technical Diagram :



KILEWS

KL-SCBSN



No.	PARTS NO.	PARTS NAME-E	PARTS NAME-C	Q'ty
1	AA50001-83N	CORD ASSEMBLY (BC6Pin) 480mm	電源線 (BC6Pin) 480mm	1
2	AA50001-139N	CORD ASSEMBLY (BC6Pin) 3M	電源線 (BC6Pin) 3M	1
3	EC30007-1	Housung-Upside	外殼上蓋	1
4	EC30007-2	Housing-Underside	外殼下蓋	1
5	EG31435-3	PCB	機板成品	1
6	PZ50193-1	Connector (6PIN)	6芯插座	1
7	CPB0001	Switch	開關元件半成品	1
8	CH20161-3	SCREW 3*8	螺絲 3*8	2
9	CH20102	SCREW 3*12	螺絲3*12	4
10	H10205	Button	塑膠按鍵	2
11	YTM0249	Sticker-Model	面板貼紙	1