

Dec 3rd, 2020

EC- Series DC Torque Control System Operation Manual Using Controller's Display



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GENERAL SAFETY RULES

WARNING! Read and understand all instructions. Failure to follow all instructions listed below may result in electric shock, fire, and/or serious personal injury.

SAVE THESE INSTRUCTIONS

Work Area

Keep your work area clean and well lit. Cluttered benches and dark areas invite accidents.

Do not operate power tools in explosive atmospheres, such as in the presence of flammable liquids, gases, or dust. Power tools create sparks which may ignite the dust or fumes.

Keep bystanders, children, and visitors away while operating a power tool.

Distractions can cause you to lose control.

Electrical Safety

Grounded tools must be plugged into an outlet properly installed and grounded by all codes and ordinances. Never remove the grounding prong or modify the plug in any way. Do not use ungrounded plugs? . Check with a qualified electrician if you are in doubt as to whether the outlet is properly grounded. If the tools should electrically malfunction or break down, grounding provides a low resistance path to carry electricity away from the user.

Avoid body contact with grounded surface and pipes, radiators, ranges, and refrigerators. There is an increased risk of electric shock if your body is grounded.

Don't expose power tools to rain or wet conditions. Water entering a power tool will increase the risk of electric shock.

Take care when using and handling the power/data cord. Never use the cord to carry the tools or pull the plug from an outlet. Keep the cord away from heat, oil, sharp edges, or moving parts. Replace damaged cords immediately. Damaged cords increase the risk of electric shock.

When operating a power tool outside, use an outdoor extension cord marked W-A or W. These cords are rated for outdoor use and reduce the risk of electric shock.

Personal Safety

Stay alert, watch what you are doing, and use common sense when operating a power tool. Do not use tool while tired or under the influence of drugs, alcohol, or medication. A moment of inattention while operating power tools may result in serious personal injury.

Dress according to local safety guidelines . Do not wear loose clothing or jewelry. Contain long hair. Keep your hair, clothing, and gloves away from moving parts. Loose clothes, jewelry, or long hair can be caught in moving parts.

Avoid accidental starting of tool(s). Be sure the switch is off before plugging in. Carrying tools with your finger on the switch or plugging in tools may result in personal injury.

Remove adjusting keys or switches before turning the tool on. A wrench or a key that is left attached to a rotating part of the tool may result in personal injury.

. Keep proper footing and balance at all times. Proper footing and balance enable better control of the tool in unexpected situations.

Use safety equipment. Always wear eye protection. Dust mask, non-skid safety shoes, hard hat, or hearing protection must be used for appropriate conditions.

Tool use and Care

Use clamps or another practical way to secure and support the workplace to a stable platform. Holding the work by hand or against your body is unstable and may lead to loss of control.

Do not operate a tool beyond its defined limits. Use the correct tool for your application. The correct tool will do the job better and safer at the rate for which it is designed.

Do not use the tool if the switch does not turn it on or off. Any tool that cannot be controlled with the switch is dangerous and must be repaired.

Disconnect the plug from the power source before making any adjustments, changing accessories, or storing the tool. Store idle tools out of reach of children and other untrained persons. Tools are dangerous in the hands of untrained users.

Maintain tools with care. Keep cutting tools sharp and clean. Properly maintained tools, with sharp cutting edges, are less likely to bind and are easier to control.

Check for misalignment or binding of moving parts, breakage of parts, and any other condition that may affect the operation of the tool. If damaged, have the tool serviced before using it. Many accidents are caused by poorly maintained tools.

Use only accessories that are recommended by the manufacturer for your model.

Accessories that may be suitable for one tool, may become hazardous when used on another tool.

SERVICE

Tool service must be performed only by qualified personnel. Service or maintenance performed by unqualified personnel could result in a risk of injury.

When servicing a tool, use only identical replacement parts. Follow instructions in the Maintenance section of this manual. Use of unauthorized parts or failure to follow maintenance instructions may create a risk of electric shock or injury.

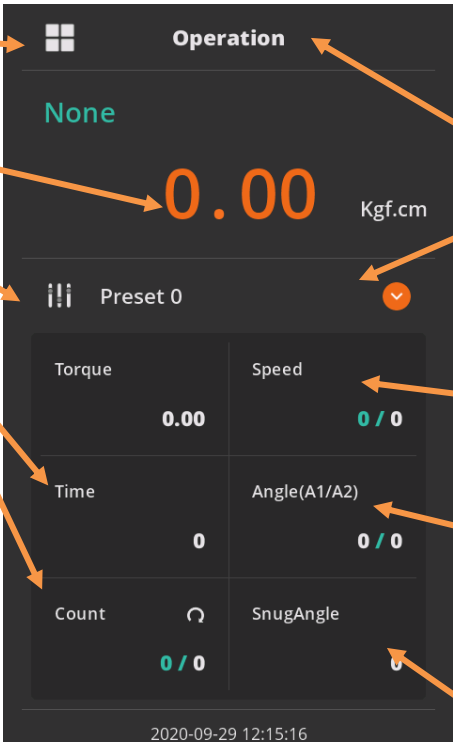
SPECIFIC SAFETY RULES

Hold tool by insulated gripping surfaces when performing an operation where the cutting tool may contact hidden wiring or its cord. Contact with a "live" wire will make exposed metal parts of the tool "live" and shock the operator.

Never lubricate aerosol oil on to the electrical part.

Operation Operation Screen

- Main Menu
- Running Torque / Units
- Programmed Torque
- Time to reach torque
- Count actual / set



The screenshot shows the 'Operation' screen with a dark background. At the top, it says 'Operation' with a grid icon. Below that, 'None' is displayed in green. A large orange '0.00' is shown with 'Kgf.cm' to its right. Below this is 'Preset 0' with a checkmark icon. A table-like structure contains: Torque (0.00), Speed (0 / 0), Time (0), Angle(A1/A2) (0 / 0), Count (0 / 0), and SnugAngle (0). At the bottom, the date and time '2020-09-29 12:15:16' are shown.

- Page Name
- Preset (Model) # (1 – 15)
- Actual / Set Speed
- Angle
- Snug Angle

Main Menu



Tool Name – Helps identify what tool the controller is for

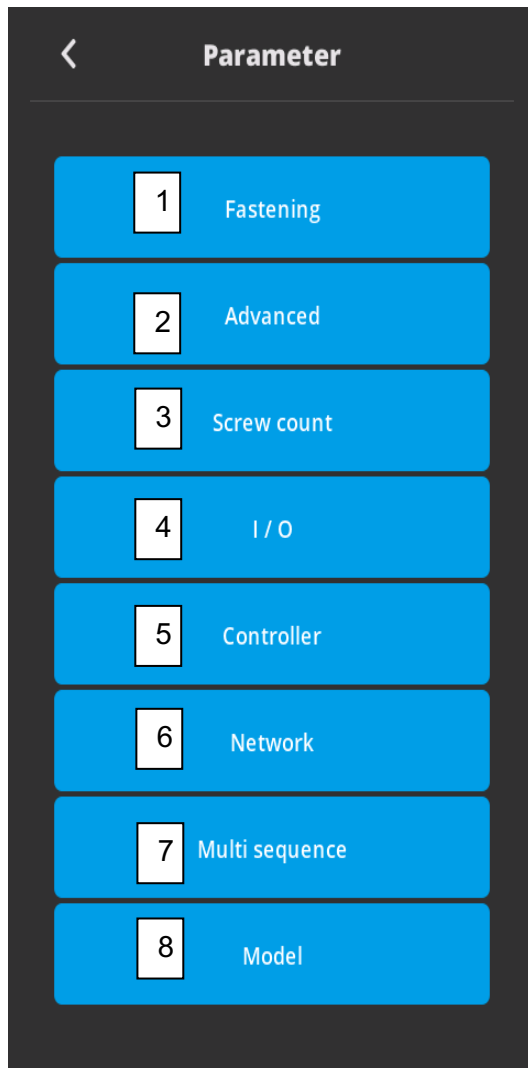
- Back – Goes to previous page
- Parameter – Create a custom procedure (define it better than me)
- Remote – Operate tool...remotely?
- Monitoring – View analytics for viewing data and troubleshooting
- Setting – System configuration and additional features
- Logout – Return to Operation Screen. Locks system to prevent changes



**TOUCH SCREEN
TECHNOLOGY**



Parameters



- Total of (15) Standard Preset + (2) Multi-Sequence Presets
- Each preset can be adjusted to these main MODES:
 - 1. FASTENING
 - 2. ADVANCED
 - 3. SCREW COUNT
 - 4. I/O
 - 7. MULTI SEQUENCE
 - 8. MODEL

1. Fastening

Fastening

Type

TC/AM

AC/TM

Target torque

▼

0.00

▲

Torque limit (%)

▼

0.00

▲

Snug torque

▼

0.00

▲

Target Speed (rpm)

▼

0

▲

Target angle (degree)

▼

0

▲

Min angle (degree)

▼

0

▲

Max angle (degree)

▼

0

▲

Angle for Free speed (degree)

▼

0

▲

Fastening

Soft start

▼

0

▲

Seating point torque (%)

▼

0

▲

Torque rising time (ms)

▼

0

▲

Ramp-up speed (rpm)

▼

0

▲

Torque compensation (%)

▼

0

▲

▲

B 1 / 15 Preset

▼

Fastening Features Page “A”

- Torque Control / Angle Monitoring
OR Angle Control and Torque Monitoring
- Target Torque
- Torque limits %
- Snug Torque
- Target Speed
- Target Angle
- Min Angle
- Max Angle
- Angle to free speed

Fastening Features Page “B”

- Free speed
- Soft Start
- Torque Setting Point %
- Torque Rising time
- Ramp Up Speed
- Torque Compensation %

3. Screw Counting

 **Screw count**

Cycle start signal	Auto	▼
Time limit (sec)	▼	0.0
Count port signal type	Count complete (500ms)	
Middle count number	▼	0
Sensor signal delay time	▼	0
Total count	▼	0

 A. Screw count 

Screw Counting Features

- Cycle start signal
- Time Limit
- Count port signal type
- Middle Count
- Sensor signal delay time
- Total Count

4. I/O

<

Input / Output

1	None (Unassigned)	▼
2	None (Unassigned)	▼
3	None (Unassigned)	▼
4	None (Unassigned)	▼
5	None (Unassigned)	▼
6	None (Unassigned)	▼
7	None (Unassigned)	▼
8	None (Unassigned)	▼

^

Input

▼

Input / Output

Input function dialog

X

None (Unassigned)	Preset1
Preset2	Preset3
Start	Fasten / Loosen
Lock	Multi sequence
Alarm Reset	Count Start
Count Reset	Count Out
Preset4	Model Cancel
Model Select 1	Model Select 2
Model Select 3	Model Select 4
F/L switch enable	Set origin
Move origin point	

^

Input

v

<

Input / Output

1	None (Unassigned)	▼
2	None (Unassigned)	▼
3	None (Unassigned)	▼
4	None (Unassigned)	▼
5	None (Unassigned)	▼
6	None (Unassigned)	▼
7	None (Unassigned)	▼
8	None (Unassigned)	▼

^

Output

▼

Input & Output

IN.

1	2	3	4	5	6	7	8
☐	☐	☐	☐	☐	☐	☐	☐
☐	☐	☐	☐	☐	☐	☐	
9	10	11	12	13	14	15	

OUT.

1	2	3	4	5	6	7	8
☒	☒	☒	☒	☒	☒	☒	☒

Driver I/O

Fastening
☒
Stop
☐

Temperature

Step

0.0 °C
0

5. Controller

Controller

Forward RUN time limit (sec) 0.0
Reverse RUN time limit (sec) 0.0
Motor stall time limit (sec) 0.0
Error display reset time (sec) 0.0
Fastening OK signal time (ms) 0
Screw type Screw type select ...
Judged fasten minimum turns 0.0
Fastening stop error OFF ON
Alarm sound control OFF ON
Torque calibration (%) 0

Controller 2

Controller

Driver ID 0
Dirver model Unknown
Torque unit (all params are init) Kgf.cm
Password 0
Controller parameter initialize 0
Auto speed OFF ON
Acceleration (ms) 0
Torque holding time (ms) 0
Use max torque for reverse OFF ON
Loosening speed (rpm) 0

Controller 1

Controller

Selection on panel OFF ON
Reverse lock (handheld only) OFF ON
Trigger start (handheld only) OFF ON
Reverse start (handheld only) OFF ON
Preset # display when power on 0
RS232 select MODBUS BARCODE
Comport baudrate setting 9600
Auto data output OFF ON
Auto data output port RS-232 ETHERNET
Protocol MODBUS OPEN

Controller 3

Controller

Model selection mode OFF ON
Preset/Model selection on panel PRESET MODEL
Model start by barcode OFF ON
Automatic driver lock OFF ON
Model auto restart OFF ON
Crowfoot OFF ON
Crowfoot ratio 0.00
Crowfoot efficiency (%) 0
Crowfoot reverse torque 0.00
Crowfoot reverse speed (rpm) 0

Controller 4

Controller

LED/Light on time (sec) 0
Holding time angle limit (degree) 0

Controller 5

6. Network

Network

Ethernet

IP Address : 0.0.0.0

Net mask : 0.0.0.0

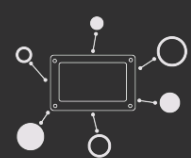
Gateway : 0.0.0.0

Port : 0

MAC : -

RS-232

Baudrate : 9600



Network

Mode **STATIC** DHCP

IP address 255.255.255.255

Net mask 255.255.255.255

Gateway 255.255.255.255

Port ▼ 0 ▲

< Ethernet >

7. Multi Sequence

Multi Sequence

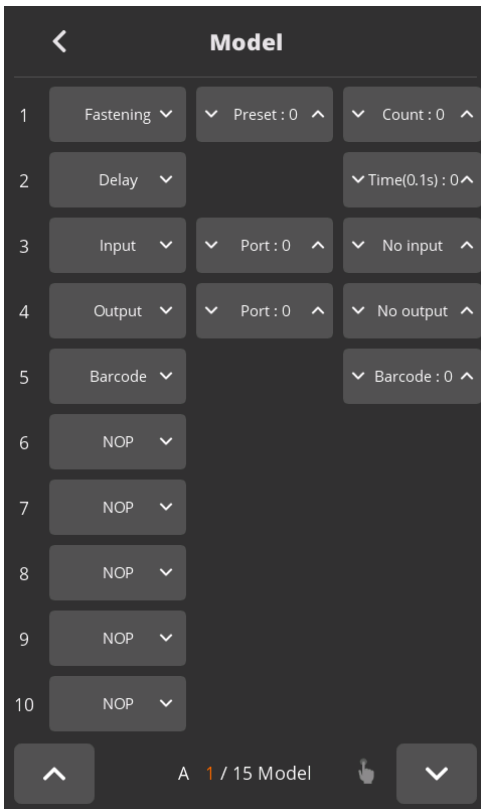
1	Fastening ▼	▼	Preset : 0 ▲
2	Delay (10 ms) ▼	▼	0 ▲
3	Loosening (0.1 turn) ▼	▼	0 ▲
4	Delay (10 ms) ▼	▼	0 ▲
5	NOP ▼		
6	NOP ▼		
7	NOP ▼		
8	NOP ▼		
9	NOP ▼		
10	NOP ▼		

▲ A Multi Sequence ▼

Multi-Sequence Arrangements option A and B

- Fastening
- End
- Delay
- Preset
- Loosening
- Jump
- Count Value condition
- Sub If Condition

8. Model



The screenshot shows a mobile application interface for configuring a model. At the top, there is a back arrow and the title "Model". Below this is a list of 10 steps, each with a dropdown menu. Step 1 is "Fastening", Step 2 is "Delay", Step 3 is "Input", Step 4 is "Output", Step 5 is "Barcode", and Steps 6 through 10 are "NOP". Each dropdown menu has a small arrow indicating it can be expanded. To the right of the dropdowns, there are additional configuration options: "Preset : 0" and "Count : 0" for Step 1, "Time(0.1s) : 0" for Step 2, "Port : 0" and "No input" for Step 3, "Port : 0" and "No output" for Step 4, and "Barcode : 0" for Step 5. At the bottom, there is a navigation bar with an up arrow, a status indicator "A 1 / 15 Model", a hand icon, and a down arrow.

Step	Feature	Configuration
1	Fastening	Preset : 0, Count : 0
2	Delay	Time(0.1s) : 0
3	Input	Port : 0, No input
4	Output	Port : 0, No output
5	Barcode	Barcode : 0
6	NOP	
7	NOP	
8	NOP	
9	NOP	
10	NOP	

Modeling Features

- Up to (20) steps combining:
 - Fastening
 - Delays
 - Input
 - Output

Parameters Groups

Group	Parameter	Address
1. Fastening	Preset #1 to #15	A001 – A225
2. I/O	Input	A226 – A233
	Output	A234 – A241
3. Screw count	Number & cycle start	A242 – A247
4. Crow foot option		A265 – A269
5. Controller		A270 – A306
6. Network	IP address	A307 – 320
7. Multi sequence	Multi-A, Multi-B	A321 – 340
8. Error	8 error history	A341 – 348
	Controller model	A349
9. Model	Model #1 to 15	A350 – 649
10. Advanced Function	Advanced #1 to #15	A650 – 874
11. Firmware version		A875

Parameter details and factory setting

	Preset #	Parameter	Address	Factory Setting
Fastening	1	TC/AM_AC/TM	1	0
		Torque	2	Auto
		Torque min/max (%)	3	0
		Target angle(degree)	4	0
		Min angle(degree)	5	0
		Max angle(degree)	6	0
		Snug torque(%)	7	0
		Speed (rpm)	8	Auto
		Free fastening angle(degree)	9	0
		Free fastening speed(rpm)	10	0
		Soft start(1-300ms)	11	0
		Seating point (%) 10-90	12	Auto
		Torque rising rate(ms) 50-200	13	50
		Ramp up speed(rpm) 20-80% of max	14	Auto
		Torque compensation (%) 90-110	15	100
	2	TC/AM_AC/TM	16	0
		Torque	17	Auto
		Torque min/max (%)	18	0
		Target angle(degree)	19	0
		Min angle(degree)	20	0
		Max angle(degree)	21	0
		Snug torque(%)	22	0
		Speed (rpm)	23	Auto
		Free fastening angle(degree)	24	0
		Free fastening speed(rpm)	25	0
		Soft start(1-300ms)	26	0
		Seating point (%) 10-90	27	Auto
		Torque rising rate(ms) 50-200	28	50
		Ramp up speed(rpm) 20-80% of max	29	Auto
		Torque compensation (%) 90-110	30	100
	3	TC/AM_AC/TM	31	0

	Torque	32	Auto
--	--------	----	------

		Torque min/max (%)	33	0
		Target angle(degree)	34	0
		Min angle(degree)	35	0
		Max angle(degree)	36	0
		Snug torque(%)	37	0
		Speed (rpm)	38	Auto
		Free fastening angle(degree)	39	0
		Free fastening speed(rpm)	40	0
		Soft start(1-300ms)	41	0
		Seating point (%) 10-90	42	Auto
		Torque rising rate(ms) 50-200	43	50
		Ramp up speed(rpm) 20-80% of max	44	Auto
		Torque compensation (%) 90-110	45	100
	4	TC/AM_AC/TM	46	0
		Torque	47	Auto
		Torque min/max (%)	48	0
		Target angle(degree)	49	0
		Min angle(degree)	50	0
		Max angle(degree)	51	0
		Snug torque(%)	52	0
		Speed (rpm)	53	Auto
		Free fastening angle(degree)	54	0
		Free fastening speed(rpm)	55	0
		Soft start(1-300ms)	56	0
		Seating point (%) 10-90	57	Auto
		Torque rising rate(ms) 50-200	58	50
		Ramp up speed(rpm) 20-80% of max	59	Auto
		Torque compensation (%) 90-110	60	100
	5	TC/AM_AC/TM	61	0
		Torque	62	Auto
		Torque min/max (%)	63	0
		Target angle(degree)	64	0
		Min angle(degree)	65	0
		Max angle(degree)	66	0

		Snug torque(%)	67	0
		Speed (rpm)	68	Auto
		Free fastening angle(degree)	69	0
		Free fastening speed(rpm)	70	0
		Soft start(1-300ms)	71	0
		Seating point (%) 10-90	72	Auto
		Torque rising rate(ms) 50-200	73	50
		Ramp up speed(rpm) 20-80% of max	74	Auto

6		Torque compensation (%) 90-110	75	100
	6	TC/AM_AC/TM	76	0
		Torque	77	Auto
		Torque min/max (%)	78	0
		Target angle(degree)	79	0
		Min angle(degree)	80	0
		Max angle(degree)	81	0
		Snug torque(%)	82	0
		Speed (rpm)	83	Auto
		Free fastening angle(degree)	84	0
		Free fastening speed(rpm)	85	0
		Soft start(1-300ms)	86	0
		Seating point (%) 10-90	87	Auto
		Torque rising rate(ms) 50-200	88	50
		Ramp up speed(rpm) 20-80% of max	89	Auto
		Torque compensation (%) 90-110	90	100
	7	TC/AM_AC/TM	91	0
		Torque	92	Auto
		Torque min/max (%)	93	0
		Target angle(degree)	94	0
		Min angle(degree)	95	0
		Max angle(degree)	96	0
		Snug torque(%)	97	0
		Speed (rpm)	98	Auto
		Free fastening angle(degree)	99	0
		Free fastening speed(rpm)	100	0
		Soft start(1-300ms)	101	0

		Seating point (%) 10-90	102	Auto
		Torque rising rate(ms) 50-200	103	50
		Ramp up speed(rpm) 20-80% of max	104	Auto
		Torque compensation (%) 90-110	105	100
		TC/AM_AC/TM	106	0
		Torque	107	Auto
		Torque min/max (%)	108	0

8	Target angle(degree)	109	0
	Min angle(degree)	110	0
	Max angle(degree)	111	0
	Snug torque(%)	112	0
	Speed (rpm)	113	Auto
	Free fastening angle(degree)	114	0
	Free fastening speed(rpm)	115	0
	Soft start(1-300ms)	116	0
	Seating point (%) 10-90	117	Auto
	Torque rising rate(ms) 50-200	118	50
	Ramp up speed(rpm) 20-80% of max	119	Auto
	Torque compensation (%) 90-110	120	100
9	TC/AM_AC/TM	121	0
	Torque	122	Auto
	Torque min/max (%)	123	0
	Target angle(degree)	124	0
	Min angle(degree)	125	0
	Max angle(degree)	126	0
	Snug torque(%)	127	0
	Speed (rpm)	128	Auto
	Free fastening angle(degree)	129	0
	Free fastening speed(rpm)	130	0
	Soft start(1-300ms)	131	0
	Seating point (%) 10-90	132	Auto
	Torque rising rate(ms) 50-200	133	50
	Ramp up speed(rpm) 20-80% of max	134	Auto
	Torque compensation (%) 90-110	135	100
10	TC/AM_AC/TM	136	0

	Torque	137	Auto
	Torque min/max (%)	138	0
	Target angle(degree)	139	0
	Min angle(degree)	140	0
	Max angle(degree)	141	0
	Snug torque(%)	142	0
	Speed (rpm)	143	Auto
	Free fastening angle(degree)	144	0
	Free fastening speed(rpm)	145	0

		Soft start(1-300ms)	146	0
		Seating point (%) 10-90	147	Auto
		Torque rising rate(ms) 50-200	148	50
		Ramp up speed(rpm) 20-80% of max	149	Auto
		Torque compensation (%) 90-110	150	100
	11	TC/AM_AC/TM	151	0
		Torque	152	Auto
		Torque min/max (%)	153	0
		Target angle(degree)	154	0
		Min angle(degree)	155	0
		Max angle(degree)	156	0
		Snug torque(%)	157	0
		Speed (rpm)	158	Auto
		Free fastening angle(degree)	159	0
		Free fastening speed(rpm)	160	0
		Soft start(1-300ms)	161	0
		Seating point (%) 10-90	162	Auto
		Torque rising rate(ms) 50-200	163	50
		Ramp up speed(rpm) 20-80% of max	164	Auto
		Torque compensation (%) 90-110	165	100
	12	TC/AM_AC/TM	166	0
		Torque	167	Auto
		Torque min/max (%)	168	0
		Target angle(degree)	169	0
		Min angle(degree)	170	0
		Max angle(degree)	171	0

	Snug torque(%)	172	0
	Speed (rpm)	173	Auto
	Free fastening angle(degree)	174	0
	Free fastening speed(rpm)	175	0
	Soft start(1-300ms)	176	0
	Seating point (%) 10-90	177	Auto
	Torque rising rate(ms) 50-200	178	50
	Ramp up speed(rpm) 20-80% of max	179	Auto

13		Torque compensation (%) 90-110	180	100
	13	TC/AM_AC/TM	181	0
		Torque	182	Auto
		Torque min/max (%)	183	0
		Target angle(degree)	184	0
		Min angle(degree)	185	0
		Max angle(degree)	186	0
		Snug torque(%)	187	0
		Speed (rpm)	188	Auto
		Free fastening angle(degree)	189	0
		Free fastening speed(rpm)	190	0
		Soft start(1-300ms)	191	0
		Seating point (%) 10-90	192	Auto
		Torque rising rate(ms) 50-200	193	50
		Ramp up speed(rpm) 20-80% of max	194	Auto
		Torque compensation (%) 90-110	195	100
	14	TC/AM_AC/TM	196	0
		Torque	197	Auto
		Torque min/max (%)	198	0
		Target angle(degree)	199	0
		Min angle(degree)	200	0
		Max angle(degree)	201	0
		Snug torque(%)	202	0
		Speed (rpm)	203	Auto
		Free fastenig angle(degree)	204	0
		Free fastenig speed(rpm)	205	0
		Soft start(1-300ms)	206	0

		Seating point (%) 10-90	207	Auto
		Torque rising rate(ms) 50-200	208	50
		Ramp up speed(rpm) 20-80% of max	209	Auto
		Torque compensation (%) 90-110	210	100
		TC/AM_AC/TM	211	0
		Torque	212	Auto
		Torque min/max (%)	213	0
		Target angle(degree)	214	0

	15	Min angle(degree)	215	0
		Max angle(degree)	216	0
		Snug torque(%)	217	0
		Speed (rpm)	218	Auto
		Free fastening angle(degree)	219	0
		Free fastening speed(rpm)	220	0
		Soft start(1-300ms)	221	0
		Seating point (%) 10-90	222	Auto
		Torque rising rate(ms) 50-200	223	50
		Ramp up speed(rpm) 20-80% of max	224	Auto
		Torque compensation (%) 90-110	225	100
I/O	I/O (IN)	Input #1	226	1
		Input #2	227	2
		Input #3	228	3
		Input #4	229	4
		Input #5	230	5
		Input #6	231	6
		Input #7	232	7
		Input #8	233	8
	I/O (OUT)	Output #1	234	1
		Output #2	235	2
		Output #3	236	3
		Output #4	237	4
		Output #5	238	5
		Output #6	239	6
		Output #7	240	7
		Output #8	241	8

Screw count	Screw count	Sensor signal type 0 - 3	242	0
		Time limit (if P122-->2)	243	0
		Count complete OUT manage	244	0
		Middle count no. 0 - 99	245	0
		Sensor signal delay time (x10ms)	246	0
		Total count (screw no.)	247	5
Crowfoot	Crowfoot		265	
			266	
			267	
			268	
			269	
Controller	Setting 1	Run time limit / Forward (sec)	270	10
		Run time limit / Reverse (sec)	271	10
		Motor stall time limit (sec)	272	0.2
		Loosening speed (rpm)	273	Auto
		Motor acceleration (ms)	274	100
		Fastening complete signal OUT time	275	0
		Driver ID no.	276	1
		Error display reset time	277	1
		Torque compensation master (%) 90-110	278	100
		Use max torque for Loosen	279	0
		Initial preset # when power ON	280	1
		Driver model no. 1-99	281	selectable
		Password 0-9999	282	0
		Parameter initialize to factory setting	283	0
		Driver auto lock (for Model)	284	0
		Selection on panel	285	0
		Torque holding time(ms) 1-20	286	2

		Protocol	287	0
		Auto speed on torque setting	290	1
		Judge fastening min turns	291	0
		Model select	292	0

		Fastening stop error	293	0
		Reverse Lock	294	0
		Trigger start (Handheld only)	295	0
		Reverse start (Handheld only)	296	0
		Auto data output	297	0
		Beep sound	298	1
		Preset change by Touch pannel	299	1
		COM port Baud rate	300	4
		Torque unit	301	0
		Screw type	302	0
		Auto update port	303	0
		Lamp on time	304	0
		Model start by barcode	305	0
		RS232 port select	306	0
IP Address		Static/DHCP	307	0
		IP Address1	308	192
		IP Address2	309	168
		IP Address3	310	1
		IP Address4	311	100
		Net mask1	312	255
		Net mask2	313	255
		Net mask3	314	255
		Net mask4	315	0
		Gateway 1	316	192
		Gateway 2	317	168
		Gateway 3	318	1
		Gateway 4	319	1
		Port	320	5000
Multi SQ	PG1	MS PG 1	321	0
		MS PG 2	322	0
		MS PG 3	323	0
		MS PG 4	324	0
		MS PG 5	325	0
		MS PG 6	326	0
		MS PG 7	327	0

	MS PG 8	328	0
	MS PG 9	329	0
	MS PG 10	330	0
	MS PG 11	331	0
	MS PG 12	332	0
	MS PG 13	333	0
	MS PG 14	334	0
	MS PG 15	335	0
	MS PG 16	336	0
	MS PG 17	337	0
	MS PG 18	338	0
	MS PG 19	339	0
	MS PG 20	340	0
	ERROR 1	341	0
	ERROR 2	342	0
	ERROR 3	343	0
	ERROR 4	344	0
	ERROR 5	345	0
	ERROR 6	346	0
	ERROR 7	347	0
	ERROR 8	348	0
	Controller model	349	Auto
	Model data(150)	350 ~ 649	0
	Speed (rpm)	650	0
	Angle (turn) 0 - 20	651	0
	Min torque	652	0
	Max torque	653	0
	Speed (rpm)	654	0

	Angle (degree) 0-3600	655	0
	Angle start from thread tapping	656	0

	Engaging torque detection	Speed (rpm)	657	0
		Torque(%)	658	0
		Angle limit (turn) 0 - 20	659	0
		Time limit (sec)	660	0
		Angle start from engaging	661	0
	Angel after torque up	Speed (rpm)	662	0
		Angle (degree) 0-3600	663	0
		Direction	664	0
Advanced preset 2	Free reverse rotation	Speed (rpm)	665	0
		Angle (turn) 0 - 20	666	0
	Thread tapping	Min torque	667	0
		Max torque	668	0
		Speed (rpm)	669	0
		Angle (degree) 0-3600	670	0
		Angle start from thread tapping	671	0
	Engaging torque detection	Speed (rpm)	672	0
		Torque(%)	673	0
		Angle limit (turn) 0 - 20	674	0
		Time limit (sec)	675	0
		Angle start from engaging	676	0
	Angel after torque up	Speed (rpm)	677	0
		Angle (degree) 0-3600	678	0
		Direction	679	0
		...	...	...
Advanced preset 15	Free reverse rotation	Speed (rpm)	860	0
		Angle (turn) 0 - 20	861	0
	Thread tapping	Min torque	862	0
		Max torque	863	0
		Speed (rpm)	864	0
		Angle (degree) 0-3600	865	0
		Angle start from thread tapping	866	0

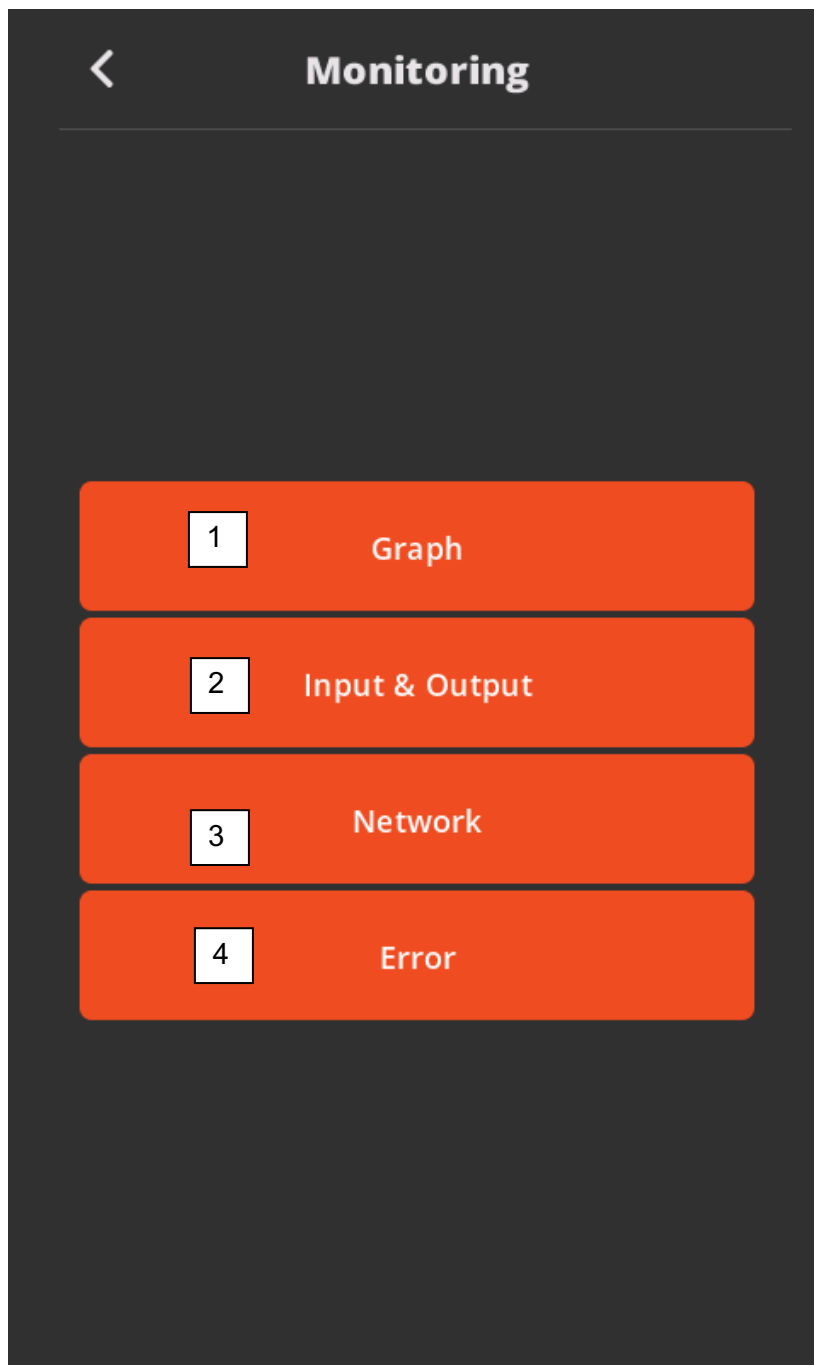
	Engaging torque detection	Speed (rpm)	867	0
		Torque(%)	868	0
		Angle limit (turn) 0 - 20	869	0
		Time limit (sec)	870	0
		Angle start from engaging	871	0
	Angel after torque up	Speed (rpm)	872	0
		Angle (degree) 0-3600	873	0
		Direction	874	0
Firmware Version			875	Auto
Monitoring data	Alarm data	Alarm no.	3100	
		Waring no.	3101	
	Data updated on events (Start, F/L, Preset, Torque up)	Event count no. (1- 65,536)	3200	
		Fastening time (ms)	3201	
		Preset no.	3202	
		Target torque (* x 100)	3203	
		Converted torque (* x 100)	3204	
		Target speed (rpm)	3205	
		A1 (* 100)	3206	
		A2 (* 100)	3207	
		A3 (* 100)	3208	
		Screw count value	3209	
		Error	3210	
		Forward / Loosening (F=0, L=1)	3211	
		Status (Fastening complete= 1, other=0, Fastening NG (E330,332,333,334,335,336,337)=2, F/L change=3, Preset change=4, Alarm reset=5, Error(except fastening NG)=6)	3212	
		Snug torque angle (degree)	3213	
		Barcode data 1 (LSB)	3214	
		Barcode data 2	3215	
		Barcode data 3	3216	
		Barcode data 4	3217	

		Barcode data 5	3218	
		Barcode data 6	3219	
		Barcode data 7	3220	
		Barcode data 8	3221	
		Barcode data 9	3222	
		Barcode data 10	3223	
		Barcode data 11	3224	
		Barcode data 12	3225	
		Barcode data 13	3226	
		Barcode data 14	3227	
		Barcode data 15	3228	
		Barcode data 16	3229	
		Barcode data 17	3230	
		Barcode data 18	3231	
		Barcode data 19	3232	
		Barcode data 20	3233	
		Barcode data 21	3234	
		Barcode data 22 (MSB)	3235	
	Realtime Data	Converted torque (* x 100)	3300	
		Speed (rpm)	3301	
		Motor current (mA)	3302	
		Current Preset #	3303	
		Torque up	3304	
		Fastening OK	3305	???????
		Ready	3306	
		Motor RUN	3307	
		Alarm no.	3308	
		Forward / Loosening (F=0, L=1)	3309	
		Screw count value	3310	
		Input status (MSB=IN 8, LSB=IN 1)	3311	
		Output status (MSB=OUT 8, LSB=OUT 1)	3312	
		Motor Temperature	3313	
		Model No	3314	
		Current step #	3315	

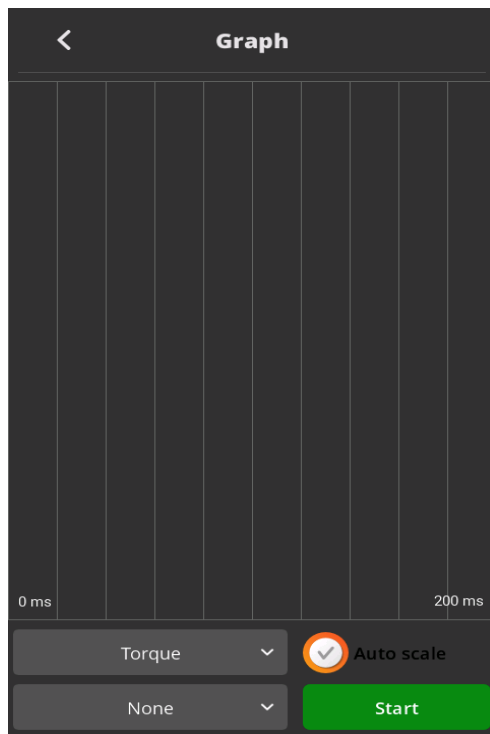
		Total count	3316	
		Current step count	3317	
		Current Preset #	3318	
		Function	3319	
		Model Complete	3320	
Temporary parameter in RAM	Virtual Preset #1	TC/AM_AC/TM	3500	
		Torque	3501	
		Torque min/max (%)	3502	
		Target angle(degree)	3503	
		Min angle(degree)	3504	
		Max angle(degree)	3505	
		Snug torque(%)	3506	
		Speed (rpm)	3507	
		Free fastening angle(degree)	3508	
		Free fastening speed(rpm)	3509	
		Soft start(1-300ms)	3510	
		Seating point (%) 10-90	3511	
		Torque rising rate(ms) 50-200	3512	
		Torque holding time(ms) 1-20	3513	
		Torque compensation (%) 90-110	3514	
Temporary parameter in RAM	Virtual model #1	Model1 - 20	3535 - 3554	
Temporary parameter in RAM	Virtual advanced #1	advanced parameter no 1	3520 - 3534	
Remote control	Operation	Alarm reset	4000	
		Driver Lock 0 : Unlock 1: Lock all direction 2 : Lock Loosening 3: Lock Fastening	4001	
		No use (Factory only)	4002	
		Remote start (0 : Stop, 1 : Start)	4003	

		Preset # change (Not available on RUN) Data : 1 - 15 for preset #1 - 15 for Multi sequence A for Multi sequence B	4004	
--	--	--	------	--

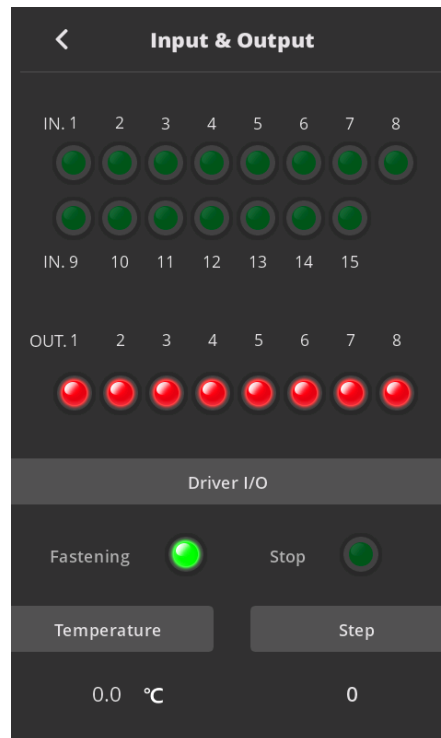
Monitoring



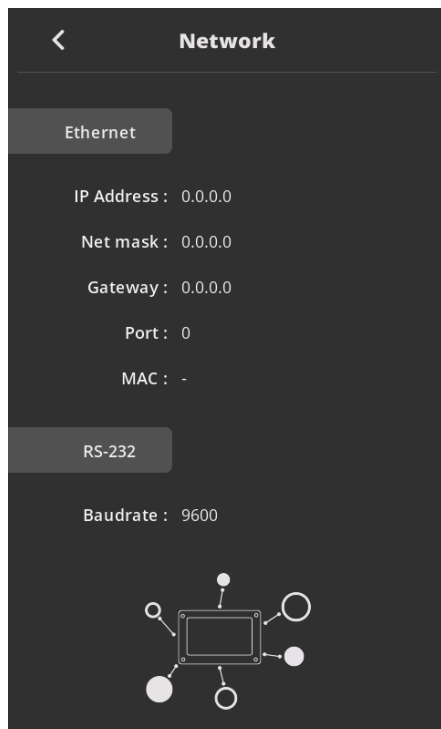
1. Graph - Monitoring Graph used



2. Input & Output - Monitoring I/O been



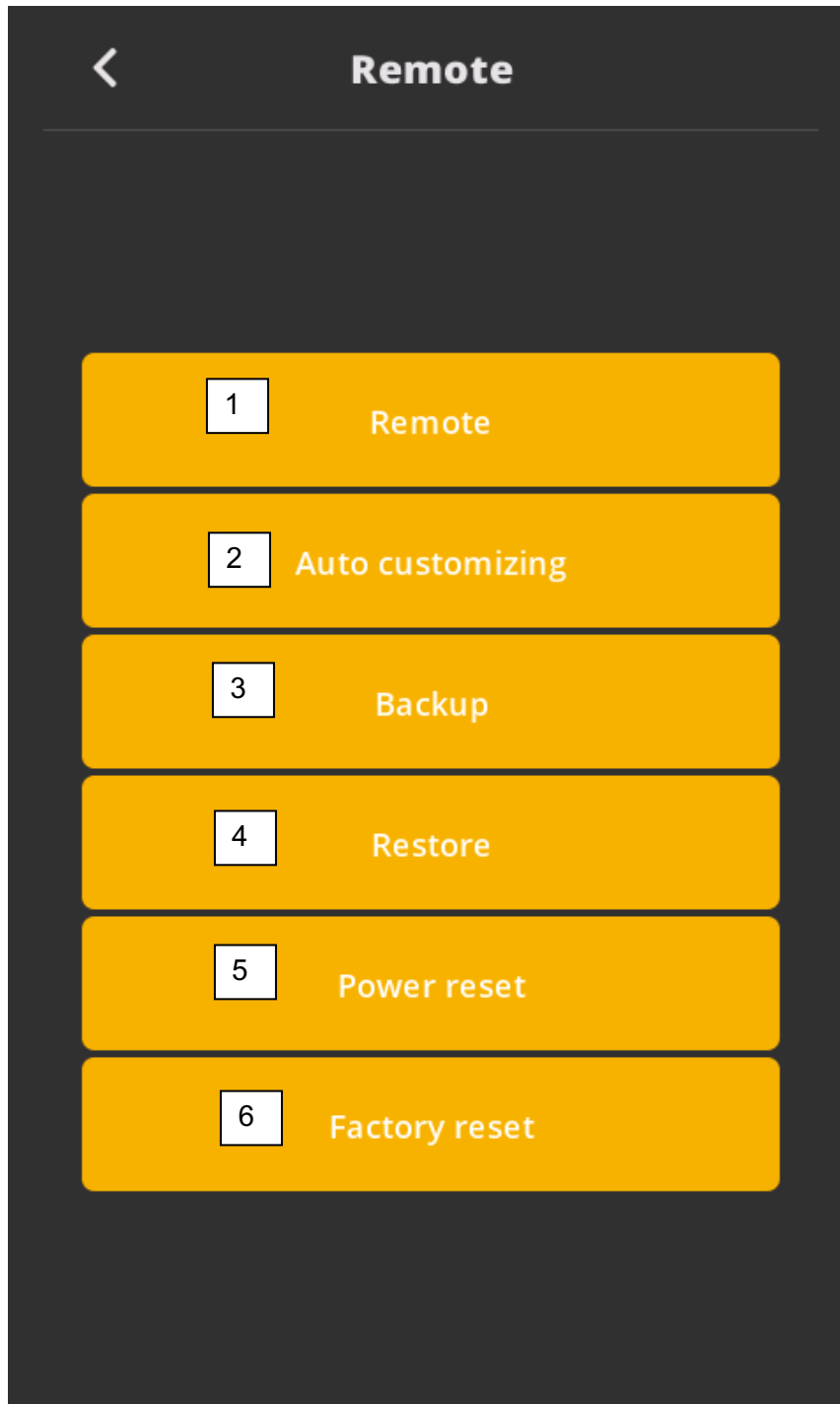
3. Network - Monitor Network Settings



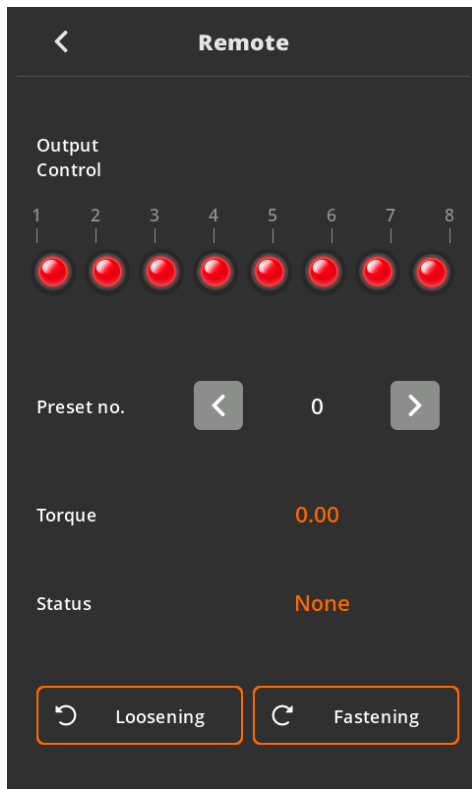
4. Error - Monitoring Error Codes

No	Code	Description
1	000	-
2	000	-
3	000	-
4	000	-
5	000	-
6	000	-
7	000	-
8	000	-

Remote Functions



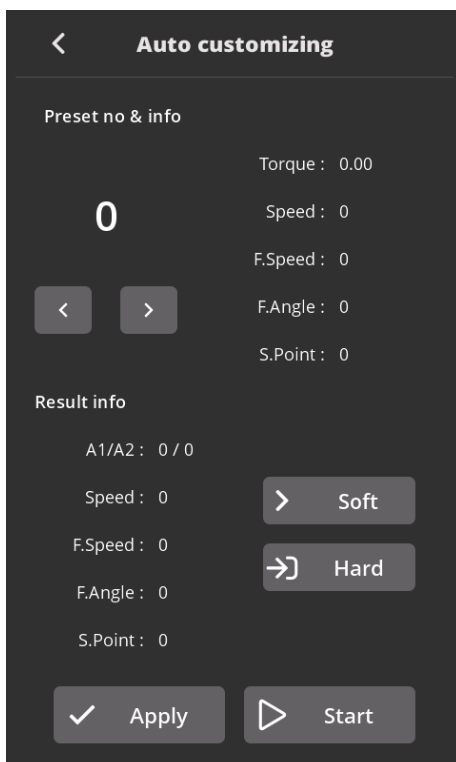
1. Remote



(For top image)

- User can visualize lighted sequences for outputs been used

2. Auto Customizing



(For bottom image)

- Auto Customizing is an option user can implement by selecting Start and Apply so Controller takes preset settings and fine tunes them into more optimal settings

3. Backup

All settings and data saving on SD Memory

4. Restore

Settings and data saved from SD Card to Controller

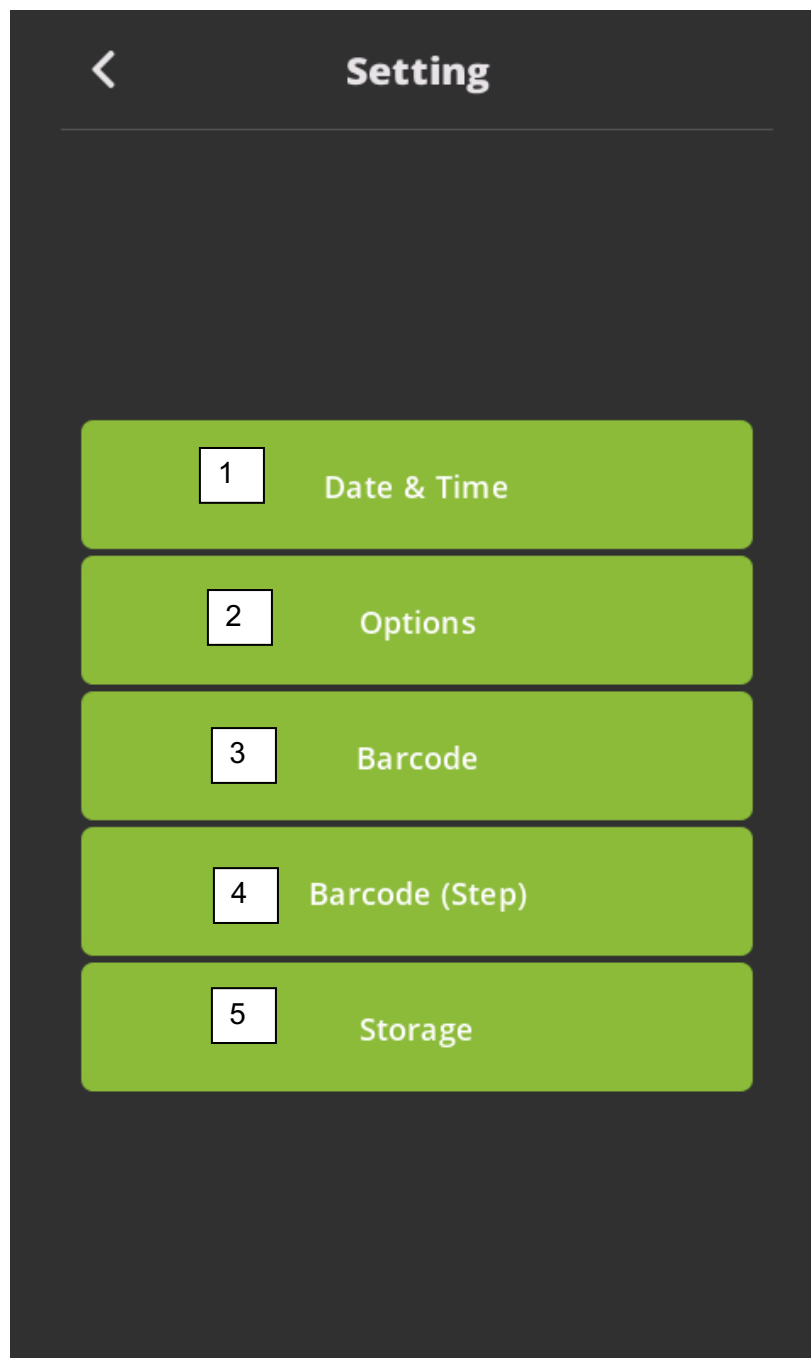
5. Power Reset

System Reset / No data loss

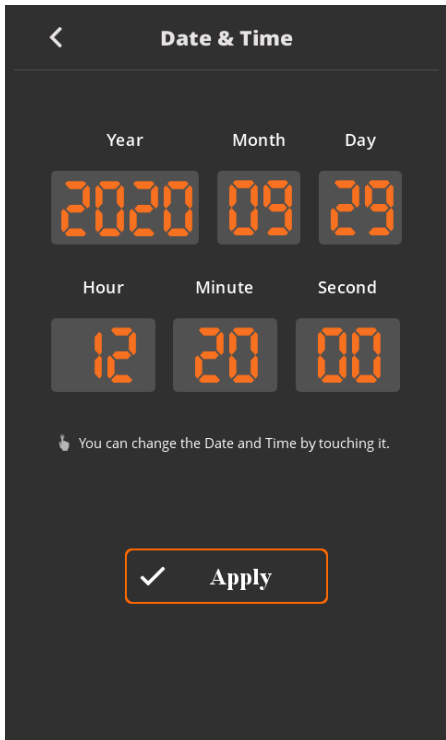
6. Factory Reset

System Reset / All data to factory settings

Settings



1. Data & Time



The screen displays date and time settings. At the top is a back arrow and the title "Date & Time". Below are two rows of digital displays. The first row is for the date: "Year" (2020), "Month" (09), and "Day" (29). The second row is for the time: "Hour" (12), "Minute" (20), and "Second" (00). Below the displays is a small icon of a hand and the text "You can change the Date and Time by touching it." At the bottom is a button with a checkmark icon and the text "Apply".

< **Date & Time**

Year Month Day

2020 09 29

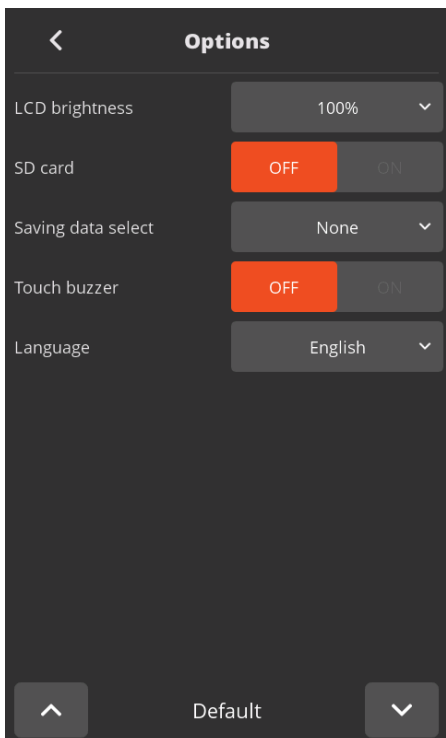
Hour Minute Second

12 20 00

👉 You can change the Date and Time by touching it.

✓ **Apply**

2. Options



The screen displays various system options. At the top is a back arrow and the title "Options". Below are five settings, each with a label on the left and a control on the right. "LCD brightness" has a slider set to 100%. "SD card" has a toggle switch set to OFF. "Saving data select" has a dropdown menu set to None. "Touch buzzer" has a toggle switch set to OFF. "Language" has a dropdown menu set to English. At the bottom are three buttons: an up arrow, the text "Default", and a down arrow.

< **Options**

LCD brightness 100% ▾

SD card OFF ON

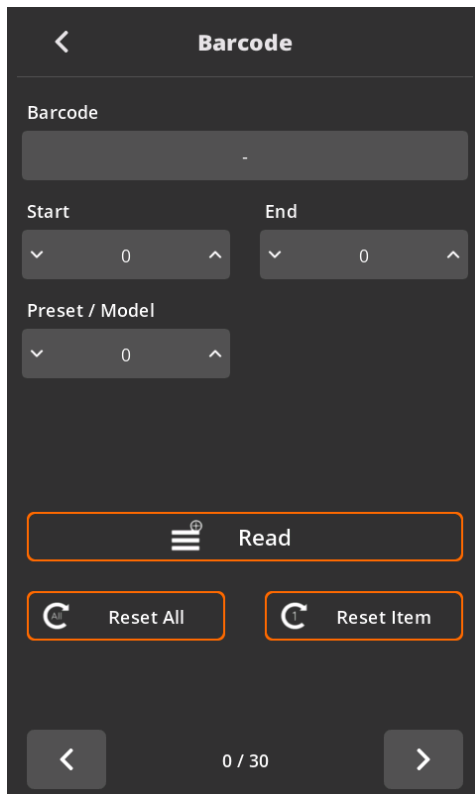
Saving data select None ▾

Touch buzzer OFF ON

Language English ▾

⬆ Default ⬇

3. Barcode

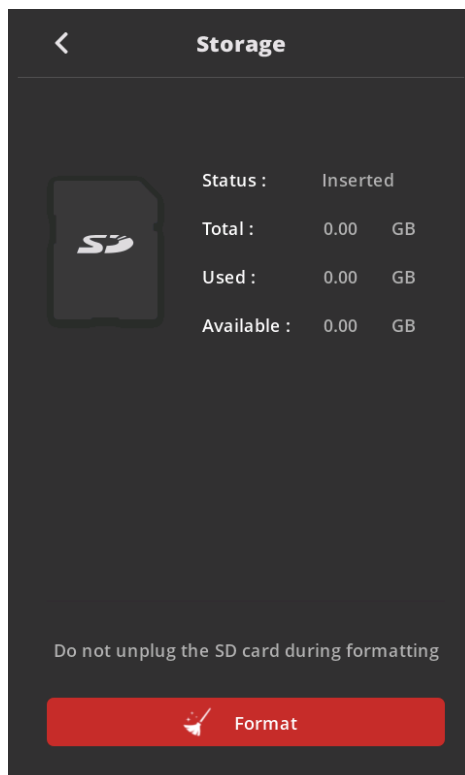


Features

- Up to 30 SCAN Codes

4. Barcode (Step)

5. Storage



Features

- SD Card info
- SD Card Formatting

How to:

- Remove the SD card for data saving and use the new SD card for firmware update only.
- Create the folder " Update "
- And copy the firmware files in each folder
- Insert the SD card, and power ON the controller, then it is updated automatically



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