NF-Series
Operation Instructions

Rev 2.3 (4/26/17)
for V3 Models Only

RoHS

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NF-Series Operation Instructions

Introduction

- Various models that range from 2.6-39 lbf.in

- High performance brushless motor design provides durability and reduces the standard maintenance costs for electric screwdrivers.

- Designed for high production environments. Minimal heat build-up even when tool is operated continuously.

- Over Heat Protection (OHP) and Over Current Protection (OCP) protect driver from damage or malfunction. Features a LED display that signals the tool status for the operator to view.

- Can be connected with the Scout Screw Counter.

- External torque adjustment scale.

- Requires transformer (power supply).

- All models are ESD designed and prevent the occurrence of electrostatic discharge, which improves production yields, manufacturing costs, product quality, product reliability, reputation and profitability.

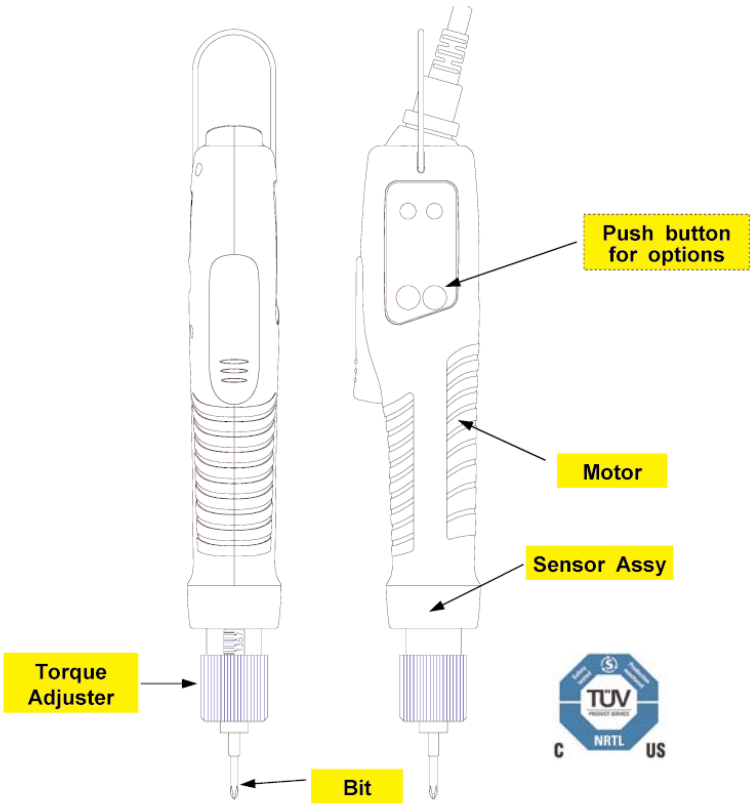
Four style of brushless screwdriver models:

- **Standard models**: Adjustable RPM setting on the tool. A selectable Soft Start mode from 0.2-0.6 seconds. (Lever Start & Push-to-Start)

- **Soft Stop models**: Precision "Soft-Stop" clutch prevents shock to sensitive assemblies like disk drives, plastics, electronics, etc. Adjustable RPM setting on the tool. A selectable Soft Start mode from 0.2-0.6 seconds. (Lever Start)

- **Angle Control & Auto Reverse models**: Set the start, stop and operating direction of the tool. Adjustable RPM setting on the \ tool.(Lever Start)

- **Plus models:** Features a selectable Double Hit Mode for soft joint applications and a selectable Soft Start mode (from 0.2-0.6 seconds). This option is available for Standard & Soft Stop screwdrivers (Lever Start & Push-to-Start)



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NF-Series Operation Instructions

General Operation for NF-Series models

1. Attach power tool cable to the NF-Series screwdriver and the transformer. Make sure notch at the cable end aligns with the notch on the driver connector. Tighten knurled ground ring.
2. Plug in power cord to the back of the transformer and power outlet. Flip power switch to "ON" position located on the back of transformer.
3. Select a bit. Slide the bit collar forward. Insert the bit and release the collar. To avoid damaging fasteners, make sure the proper bit is suitable for the head of the fastener.
4. The torque limit is determined by the tension of the coil spring housed in the tool. The tighter the coil spring is wound the higher the torque limit is raised. See Torque Charts on pages 14 & 15 to determine the appropriate torque adjustment setting.
5. Rotate the torque adjustment nut to set the torque limit. Turn clockwise to increase torque and counter clockwise to decrease torque. The scale adjacent to the Torque Adjustment Nut is a reference guide. The torque output from the driver can change depending on various fastening factors like friction, type of joint, and the type material being used like a washer. Verify torque setting with a torque testing system.
7. Turn driver on and check for proper rotation. FOR-clockwise, REV-counterclockwise.
8. To apply torque, squeeze the lever (Push-to-Start models - place light downward pressure on the nose of the driver). The driver will automatically stop when the preset torque has been reached.
9. To remove the screw, turn the FOR/REV switch to REV position.

torque adjustment nut

Panel of each Model

Standard & Soft Stop models (Speed Control & Soft Start)

Plus models (Soft Start & Double Hit)

Angle Control & Auto Reverse models

Alarm display by LED

no	Alarm	Description	Reset
1	Over Voltage (over 48V)	**Green** light blinks for 0.5s	Auto reset under 48V
2	Overload (4A/0.5s)	**Red** light blinks for 0.5s	Auto reset after 5s
3	Overheat (over 80℃ of motor)	**Orange** light blinks for 0.5s	Auto reset lower than 80℃
4	Driver Lock by external signal	**Orange** light On continuously	Auto reset by signal off

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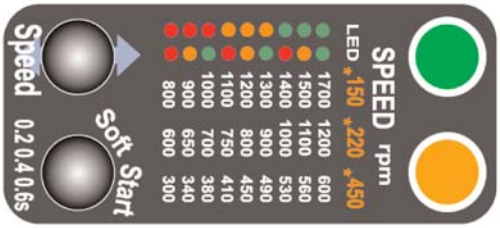
NF-Series Operation Instructions

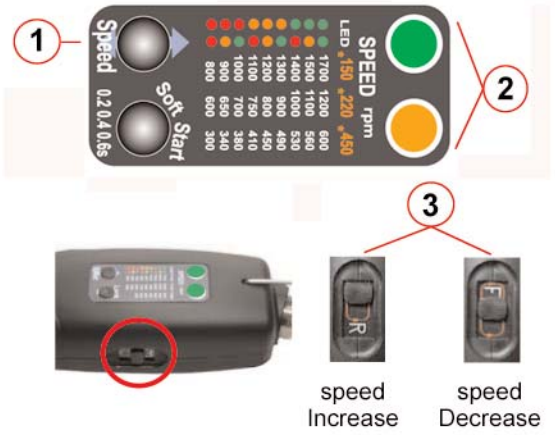
NF-Series Standard Models & Soft Stop Models



These models feature an adjustable RPM setting on the tool. The RPM settings can be adjusted to the preset increments as shown label (see image on the right).

These models also feature a selectable Soft Start mode (from 0.2, 0.4 & 0.6 seconds).

How to Adjust Speed Setting



1. Press and hold the Speed button for 2 seconds.

2. Two LEDs will display colors that show the current speed selection of the brushless screwdriver.

3. Position the F/R slide switch in R or F to increase (+) or decrease (-) RPM setting of the tool Slide switch to "R" position to increase speed. Slide switch to "F" to decrease speed. Then press the Speed button until the target speed is selected. The two LEDs will display colors that show the current speed selection (see table below for reference) **Note!** The RPM settings can only be adjusted to the preset increments as shown on the label (see chart below).

4. By starting the screwdriver, the selected speed is saved automatically.

Program Lock Key

The Program Lock Key protects from incidental or operator tampering of the programmable settings on the side of select NF-Series models* (V3 models only). To adjust the settings the Program Lock Key must be is plugged into the STC40 Transformer.

Note! The program Key cannot be used with NF-Series Standard Plus Models & Angle & Auto Reverse Models.

To adjust the settings the Program Lock Key must be is plugged into the STC40 Transformer.

Speed Selection

■ Speed display by two LED color (Standard model)

Model	LED	●●	●●	●●	●●	●●	●●	●●	●●	●●
	Button	1th	2nd	3rd	4th	5th	6th	7th	8th	9th
NF150	RPM	800	900	1000	1100	1200	1300	1400	1500	1700
NF220	RPM	600	650	700	750	800	900	1000	1100	1200
NF450	RPM	300	340	380	415	450	490	530	560	600

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NF-Series Operation Instructions

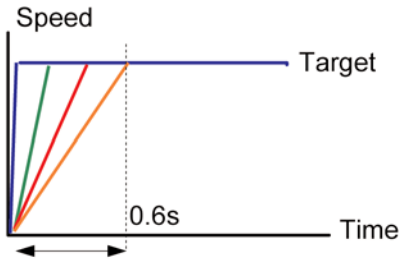
NF-Series Standard Models & Soft Stop Models (continued)

How to Adjust Soft Start Setting

There are 3 different time settings for the Soft Start mode which are (0.2, 0.4 & 0.6 seconds). The default setting is OFF.

1. Press and hold the Soft Start button for 2 seconds.
2. Two LEDs will display colors that show the current soft start selection of the brushless screwdriver.
3. Press Soft Start button until the target time is selected.
4. By starting the screwdriver, the selected soft start setting is saved automatically.

② LED color	Time to target
OFF	0 sec
Green	0.2 sec
Red	0.4 sec
Orange	0.6 sec



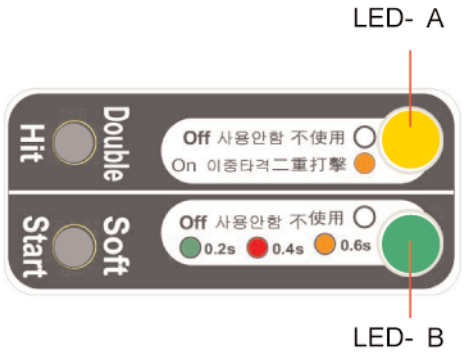
The Soft Start button is “wrap around” button meaning you can toggle through the settings continuously by pressing the button (OFF - 0.2s-0.4s-0.6s).

NF-Series Plus Models

The Plus models feature a selectable Double Hit Mode for soft joint applications and a selectable Soft Start mode (from 0.2-0.6 seconds).

The Plus model operate only at single speed, which is maximum speed range listed in the data sheet.
NF150 Plus Models: 1700 RPM
NF220 Plus Models: 1200 RPM
NF450 Plus Models: 600 RPM

Double Hit Mode
The Double Hit mode is for very soft joint applications. When an electric screwdriver runs down a fastener and the tool clutches off once the preset torque is achieved there can be some joint relaxation that can occur. The Double Hit mode has the electric screwdriver perform a second hit to stabilize the torque for joint relaxation.



Joint relaxation is caused by the surface of part(s) embedding or by "soft parts" such as gaskets, plastics or spongy material, which collapses under the clamping force created in a torque condition. For Hard Joint applications there is no need to use the Double Hit mode.

The clutch of the electric driver works twice at the set torque under the "Double Hit" mode. The Double Hit will increase the repeatability accuracy at the target torque by double checking.

Operating the Double Hit Feature with “Plus” models
1) Press the Double Hit button to select this mode. The LED (A) will display the color Orange.
2) When the motor runs, the LED (A) will display the color Green.

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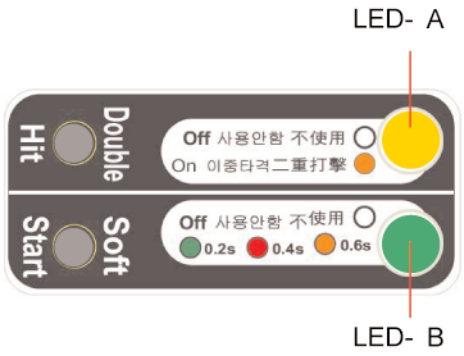
NF-Series Operation Instructions

NF-Series Plus Models (continued)

Soft Start Mode
There are 3 different time settings for the Soft Start mode which are (0.2, 0.4 & 0.6 seconds). The default setting is OFF.

1. Press the Soft Start button for 2 seconds to turn on Soft Start.
- Soft Start is ON and set for 0.2s (LED - Green)
- Soft Start is ON and set for 0.4s (LED - Red)
- Soft Start is ON and set for 0.6s (LED - Orange)

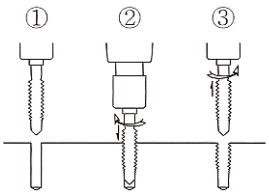
The Soft Start button is “wrap around” button meaning you can toggle through the settings continuously by pressing the button
(OFF - 0.2s-0.4s-0.6s).



NF-Series Time Control & Auto Reverse models
Set the start, stop and operating direction of the tool.

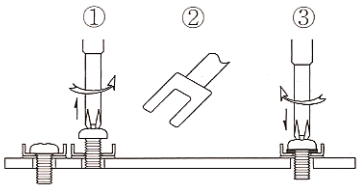
Ideal for installation of helically wound inserts, light tapping or gauging applications.

Example 1
Start from selected rotation by the lever and immediately change rotation to reverse at the set torque or releasing the lever. Useful for Tapping and Helical fastening.



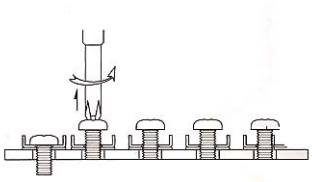
1. Start forward rotation.
2. Stop at the target torque or set time.
3. Auto reverse rotation and stop at releasing the lever or set time.

Example 2
Start from Reverse rotation by the lever for set time (A) and stop for a set time (B), then auto run for Forward fastening by set torque.



1. Start from reverse rotation.
2. Stop at the set time and wait for set time.
3. Auto forward rotation and stop at the target torque.

Example 3
Fasten or unfasten the set turns by timer.



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NF-Series Operation Instructions

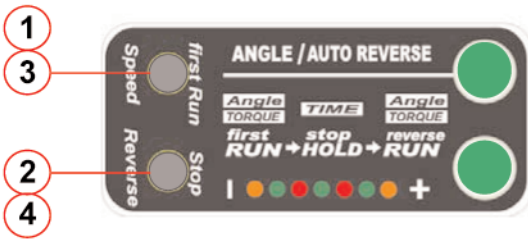
NF-Series Time Control & Auto Reverse models (Continued)

Start, Stop and Direction.

There are three sequences for this process: Start, Stop and Direction. With one pull of the lever on the electric screwdriver all 3 sequences occur within programmed cycle.

Step Sequence	**1 First Run**	**2 Stop & Hold**	**3 Reverse Run**
Rotating Direction	Clockwise or Counterclockclockwise by F/R Switch		Reverse
Activating	Screwdriver runs to the set time (angle) & stops. It always stops at set torque, even it doesn't reach set time (angle)	Stop and hold for set time	Rotate reverse until releasing the lever or stop at the preset torque
Time (Angle) Setting	0-5 sec / 30 steps	0-5 sec / 12 steps	None

Screwdriver stops immediately when the lever is released during any part of the sequence.



Sliding F/R switch works for:
Operating (Work) mode
1) Rotating direction (FOR-REV)

Program modes
1) First run angle (Increase / Decrease) with "First Run (Speed)" button
2) Time (Increase / Decrease) with "Stop (Reverse)" button
3) Rotation speed (Increase / Decrease) with "Speed (First Run)" button
4) Reverse run angle (Increase / Decrease) with "Reverse (Stop)" button

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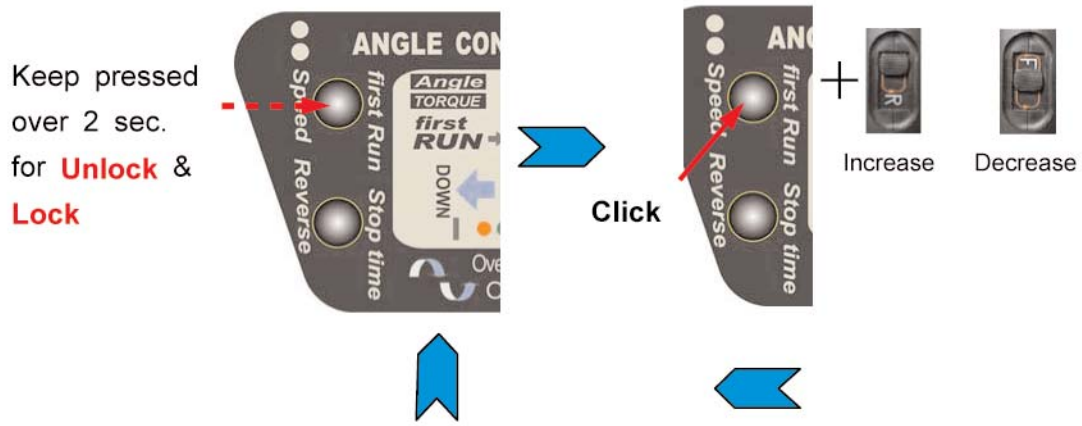
NF-Series Operation Instructions

NF-Series Time Control & Auto Reverse models (Continued)

Angle Setting for the first RUN

1. Keep the first Run button pressed for over 2 sec. for angle setting. Then press first Run button one by one for the desired rotating angle.
2. Select the R position of F/R switch for increasing set angle or F position or decreasing set angle.
3. Keep the first Run button pressed over 2 sec. for locking the tool into this setting.

Click	0	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
Turns	Off	1/4	2/4	3/4	1	5/4	6/4	7/4	2	9/4	10/4	11/4	3	4	5	6	7	8	9	10	12	14	16	18	20	22	24	26	28	30
LED	O	R	G	R	G	R	G	R	G	R	G	R	G	R	G	R	G	R	G	R	G	R	G	R	G	R	G	R	G	O



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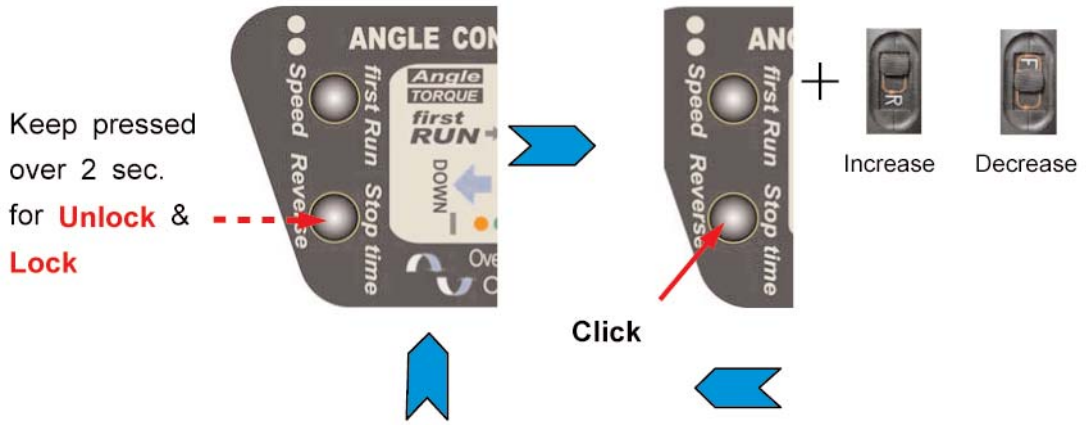
NF-Series Operation Instructions

Time Setting for STOP & HOLD

1. Keep the stop time button pressed over 2 sec. Then click the stop time button one by one for desired stop holding time.
2. Select the R position of F/R switch for increasing set time or F position for decreasing set time.
3. Keep the stop time button pressed over 2 sec. for locking the tool into this setting.

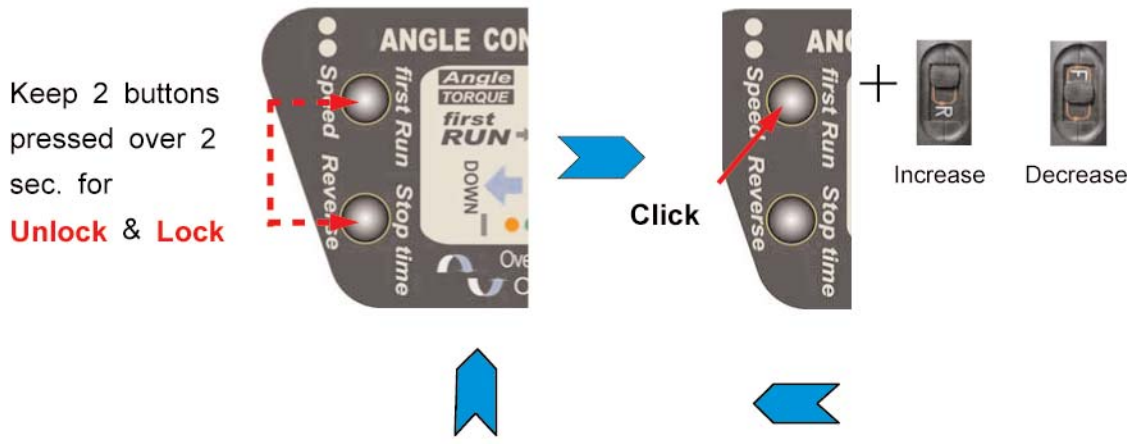
Click	0	1th	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th	13th	14th
Time (second)	Off	0.1	0.3	0.5	1	1.5	2	2.5	3	3.5	4	4.5	5	5.5	6
LED	Orange	R	G	R	G	R	G	R	G	R	G	R	G	R	O



Rotating speed setting

1. Keep the both first Run & stop time buttons pressed over 2 sec. for unlock. Then click one by one for the desired rotating speed.
2. Select the R position of F/R switch for increasing speed or F position for decreasing speed.
3. Keep the first Run button pressed over 2 sec. for locking the tool into this setting.

Click	0	1st	2nd	3rd	4th	5th	6th	7th	8th
Speed (rpm)	700	650	600	550	500	450	400	350	300
LED	Orange	Red	Green	Red	Green	Red	Green	Red	Orange



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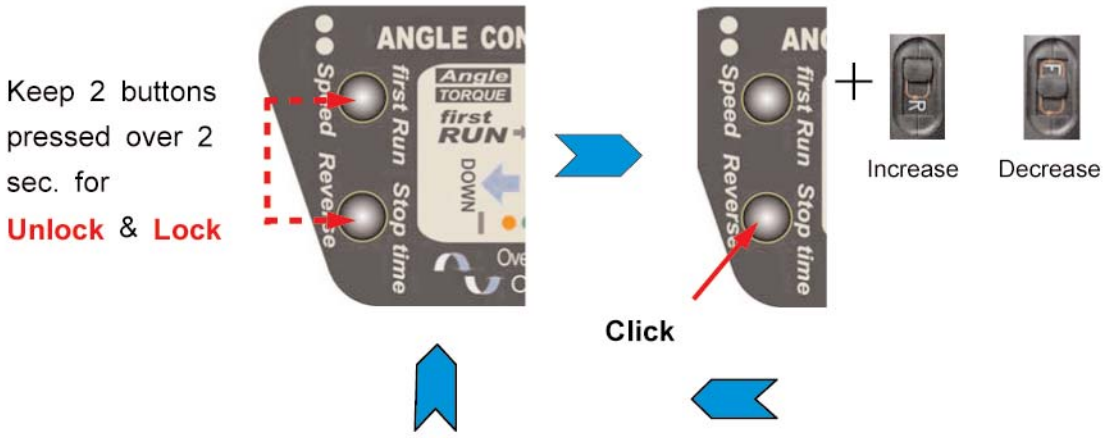
NF-Series Operation Instructions

NF-Series Time Control & Auto Reverse models (Continued)
Angle Setting for the reverse RUN

1. Keep the both first Run & stop time buttons pressed over 2 sec. for unlock. Then click stop time button one by one for the desired angle
2. Select the R position of F/R switch for increasing set angle or F position for decreasing set angle
3. Keep the stop time button pressed over 2 sec. for locking the tool into this setting..

Click	0	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
Turns	Off	14	24	34	1	54	64	74	2	94	104	114	3	4	5	6	7	8	9	10	12	14	16	18	20	22	24	26	28	30
LED	O	R	G	R	G	R	G	R	G	R	G	R	G	R	G	R	G	R	G	R	G	R	G	R	G	R	G	R	G	O



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NF-Series Operation Instructions

NF-Series Time Control & Auto Reverse models (Continued)

Applications for NF-Series Time (Angle Control) & Auto Reverse models
Applications upon different settings.

	first RUN ***Angle***	stop HOLD ***Time***	Auto Reverse ***Angle***	Applications with different sequence in a cycle
Normal screwdriver	off	off	off	Normal screwdriver It stops at the set torque
Angle control	ON(1)	off	off	It stops at set angle(1)
Tapper or Insert fastening	ON(1)	ON(2)	ON(3) or OFF	It stops at set angle(1) and waits for set time(2), and makes reverse rotation to the set angle(3)
Wire inserting on terminal block	ON(1)	ON(2)	OFF	It stops at set angle(1) and waits for set time(2), and makes reverse rotation and stops at set torque

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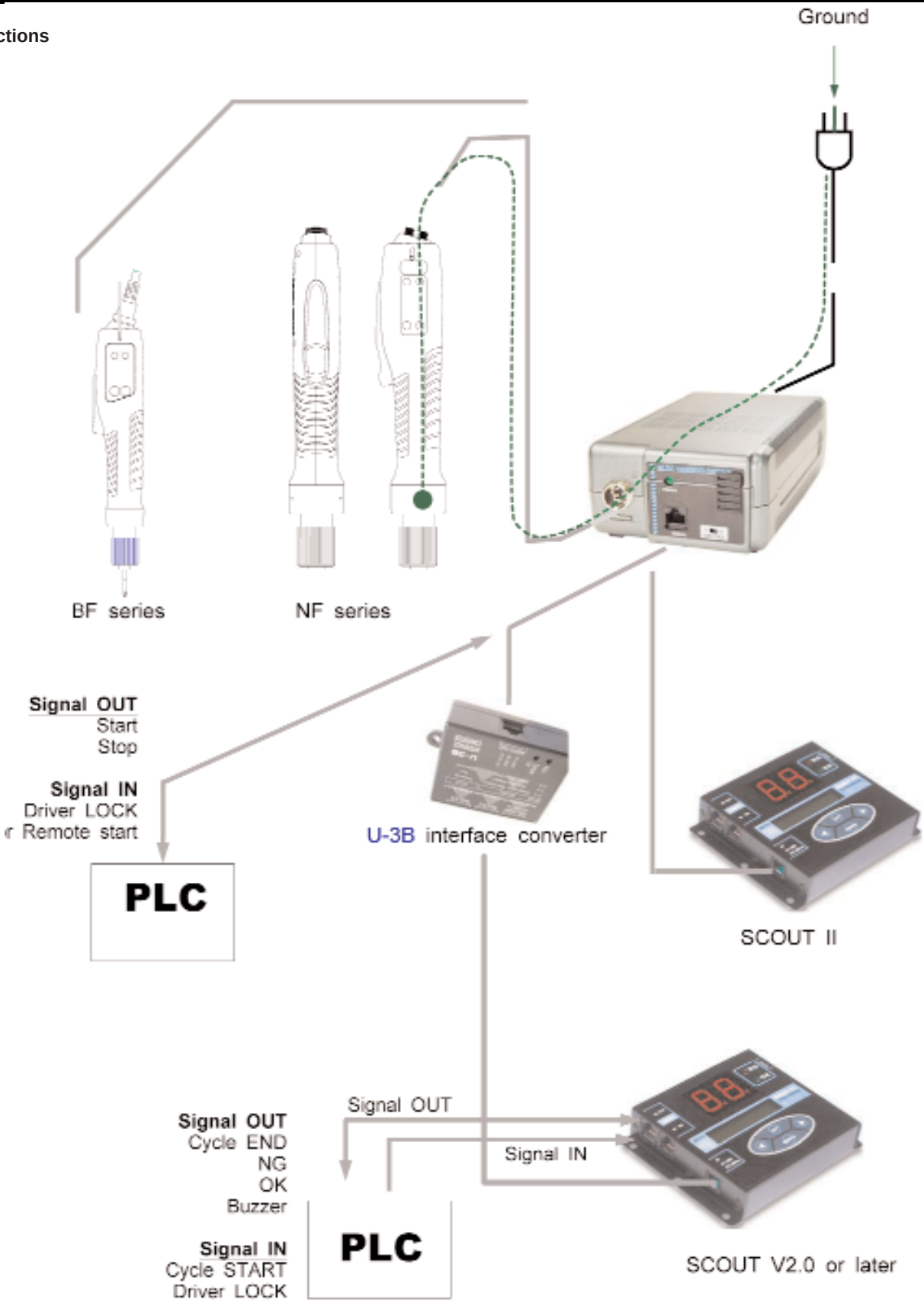
NF-Series Operation Instructions

Connections



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NF-Series Operation Instructions

Power Supply (Transformer)

STC40 transformer is power supply designed for operating the BF-Series & NF-Series brushless electric screwdrivers. Only use this transformer when operating any BF-Series & NF-Series models.

Features

- Over Heat Protection (OHP) and Over Current Protection (OCP) protect driver from damage or malfunction.
- Temperature Detection powers down the unit and resets automatically when unit restores to acceptable levels.
- Switchable 110V & 230V input voltage. Unit will reset itself if motor/current overload is too high.
- Start & Stop Signal Output (for PLC).
- Screwdriver Lock Signal Input (for PLC).
- Unit can be connected to the Scout (Screw Counter).

Model: STC40
Item # 145754
Specifications:
Rated Output: 2.6A 105W
Max. Output: 10A
Output VDC: 30/40V
Input VAC: 110/230V
Size inches (W x D x H): 4 3/8" x 7 1/2" x 2 3/8"
Weight: 1.8 lbs.
Operates with: BF-Series and NF-Series

Program Lock Key - Item # 145774

The Program Lock Key protects from incidental or operator tampering of the programmable settings on the side of select NF-Series models* (V3 models only). To adjust the settings the Program Lock Key must be is plugged into the STC40.

*** Note! The program key is required for the NF-Series Standard Models and Soft Stop Models. RPM & Soft Start Settings cannot be adjusted without it.**

The program Key cannot be used with NF-Series Standard Plus Models & Angle & Auto Reverse Models.

Accessories

Pistol Grip Attachment
The Pistol Grip attachment is an accessory item that converts the NF-Series inline electric screwdrivers into pistol grip style tools.

For: NF-Series
Item # 145789

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Accessories

The EZ-Glider torque arms are designed to improve production and quality control during the assembly process. The arms securely keep electric or pneumatic drivers in perpendicular alignment to help prevent side loading or cross threading occurring during the assembly process. The EZ-Glider helps remove the operator's influence in the assembly process and strengthens quality control.

The ergonomic design of the EZ-Glider torque arms reduces RMI (repetitive motion injury) and CTS (carpal tunnel syndrome). The effortless handling of the torque arm provides comfortable tool operation and increased production. The torque arm can be installed in space-restricted areas

Torque Cover protects the NF-Series from incidental or operator tampering of torque setting. Allows for color-coding of specific torque values in production areas.

Black Torque Cover (Item # 145654)
Blue Torque Cover (Item # 145655)
Green Torque Cover (Item # 145656)
Gold Torque Cover (Item # 145657)
Gray Torque Cover (Item # 145658)

Scout screw counter helps manufacturers detect and eliminate costly screw-fastening errors during the assembly process. Using a screw counter is like putting the eyes and ears of a quality control manager where they are needed most - right on the assembly area. The scout is designed to detect cross threading, omissions, unfinished rundowns and cycle complete. The screw counter takes the control of the assembly process out of the operator's hands.

Item # 145790

Screw presenters are small, tabletop devices used to organize and automate work areas and production cells. Screw presenters make assemblers and the assembly process more efficient by mechanically presenting a screw to a fixed pick up point. The inexpensive screw presenter is an alternative tool instead of the cumbersome and very expensive screwfeeder systems.

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NF-Series Operation Instructions

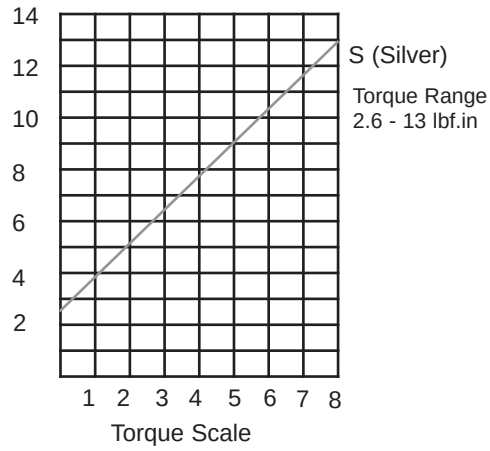
Torque Charts

These charts are meant to be used as guidelines for setting the torque on the NF-Series electric screwdrivers. The drivers have a torque scale on the torque adjustment nut showing reference numbers. These numbers determine the approximate torque setting. Refer to the charts to determine the reference number setting for your torque requirement.

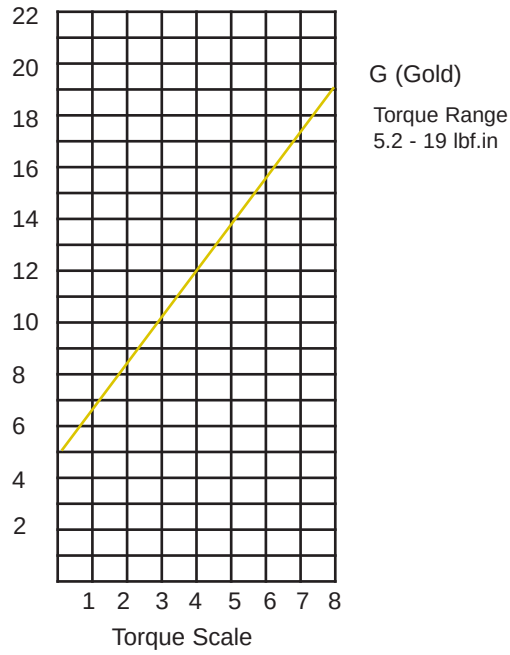
How to Read the Torque Charts

Torque ranges (lbf.in) approximate tightening torque, operated with no load at maximum speed

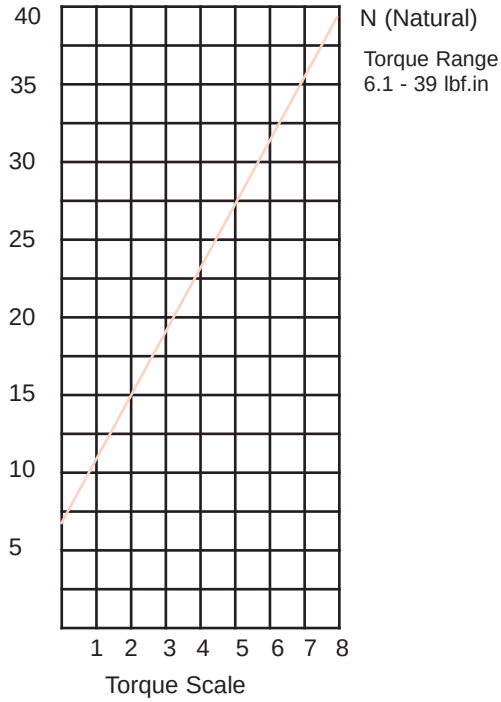
lbf.in NF150



lbf.in NF220



lbf.in NF450



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NF-Series Operation Instructions

Testing Power Tools:

1. Application Method: Use a torque analyzer in “Peak Mode” with a rotary transducer between the power tool and the actual application. This is the best way to test since you are using the actual joint as the test station. You will see the actual torque applied to the fastener. **Caution:** Variances in tool performance may occur do to the addition of the rotary transducer.

2. Simulated Method: Always use a quality joint rate simulator (run down adapter) with a torque analyzer when testing power tools in a simulated application. Use Joint rate and Breakaway methods to obtain most accurate torque readings in a simulated rundown.

Care

1. The NF-Series screwdrivers are a precision torque control instrument and should be handled with care at all times.
2. Only use the transformers listed in the Mountz catalog or website for appropriate NF-Series driver model (If you have any questions regarding the appropriate transformer set-up, contact Mountz Customer Service Department).
3. Operate under safe conditions. Do not place in operation where such objects as hair, strings, clothing, etc. can become tangled in the rotating bit.
4. Keep away from moisture. Never use in high humid, moist or damp environment.

Mountz Calibration & Repair Services

Mountz Inc. features an experienced calibration and repair staff. Our trained technicians can calibrate and repair most any tool. Mountz provides rapid service with quality that you can trust as we offer two state-of-the-art calibration lab and repair facilities that can calibrate up to 20,000 lbf.ft.

Mountz, The Torque Tool Specialists®, has been a leader in the torque tool industry for more than 50 years. Engineered in the Silicon Valley and serving the globe, Mountz focuses on delivering high-quality torque products, services, and solutions to ensure customers can always proceed with confidence. We are committed to forging a safer world through precision and accuracy, and by innovating every day.

Tool Service & Repair Capability

Torque Wrenches: Click, Dial, Beam, Cam-Over & Break-Over

Torque Screwdrivers: Dial, Micrometer, Preset & Adjustable

Torque Analyzers/Sensors: All brands

Electric Screwdrivers: All brands

Air Tools: All brands
Impact Wrenches, Drills, Pulse Tools, Grinders, Percussive Tools, Air Screwdrivers, Nutrunners, DC Controlled Nutrunners

Torque Multipliers: All brands

Mountz Service Locations

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