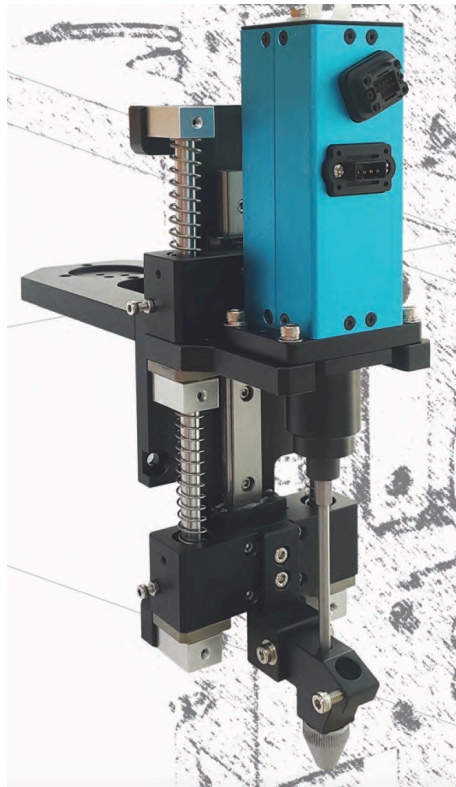


E-DRIV[®] ADC-Series DC Torque Control System Calibration Procedure



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 in accordance with all codes and ordinances. Never remove the grounding prong or modify the plug in any way. Do not use any 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 ad 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

Do not abuse the cord. Never use the cord to carry the tools or pull the plug from an outlet. Keep 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 properly. 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. Be sure 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.

Do not overreach. Keep proper footing and balance at all times. Proper footing and balance enables 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 other practical way to secure and support the workpiece to a stable platform. Holding the work by hand or against your body is unstable and may lead to loss of control.

Do not force tool. 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 tool if 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.
Such preventive safety
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 tools operation. If damaged, have the tool serviced before using. 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 own 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.

There are two ways of calibrating ADC tools:

Tool Compensation A015 that could be adjusted up to +/-20%. This is adjusted when an application target torque slightly exceeds max or min torque capacity. Mountz strongly recommends to select a higher or lower torque capacity tool if this feature will be adjusted permanently.

NOTE: Tool Compensation adjustment affects only the selected preset (program), this means that all other presets will remain as normal. Tool Compensation is stored on the Controller Memory

Tool Calibration using a torque meter master (Master must be calibrated and certified under ISO17025) to validate percentage adjusted on A278 that can be adjusted up to +/- 10%. This is adjusted when customer validates tool with their torque master equipment and there is a difference between tool and master readings. This calibration is also performed when Mountz services the tool as part of a standard process.

Note: Tool Calibration affects all programs (presets). Tool Calibration is stored on the Driver Memory

Difference between the two is that compensation increases or decreases the motor power to achieve higher or lower torque and Calibration is the actual voltage tuning that is adjusted (calibrated) from factory using ISO17025 certified equipment and environment conditions.

NOTE: It is Mountz recommendation to periodically verify torque accuracy of MDC tools with a torque verification meter and ensure quality of your process. It is up to customer's standards to determine how often the tools needs to be validated or calibrated.

Tool Calibration

Torque calibration using controller panel

The screenshot shows a control panel with a blue header labeled 'Parameter' and a 'Menu' button. Below the header, there are four settings, each with a minus button, a text input field, and a plus button:

- Torque calibration (%)**: The value '100' is displayed in red.
- LCD brightness**: The input field is empty.
- Initial torque preset # display when power on**: The value '1' is displayed.
- Controller parameter initialize**: The input field is empty.

At the bottom, there is a grey bar with a blue arrow pointing left, the text 'Controller 3 / 8', and a blue arrow pointing right.

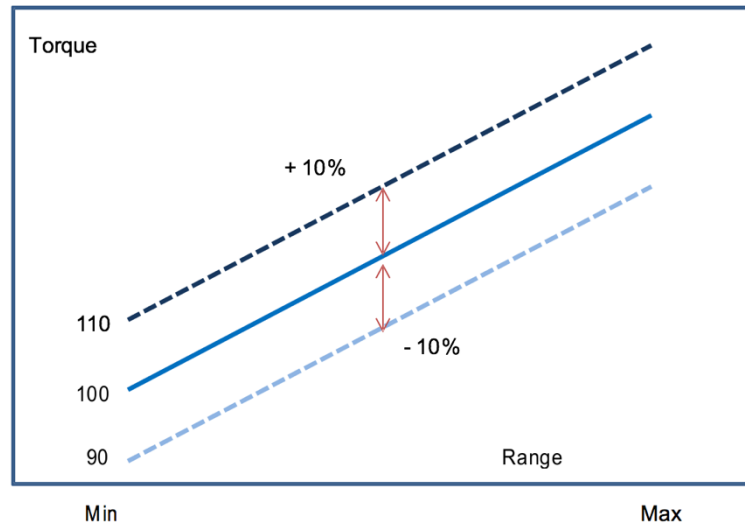
Torque calibration using ParaMon software

The screenshot shows the ParaMon software interface with a blue header 'ParaMon - Parameter & Remote control'. Below the header is a toolbar with icons for Controller, Multi Sequence, Models, Network, Backup, Restore, and Open. The main area is titled 'Controller Setting' and contains a table with a 'Category' dropdown set to 'Controller 1'.

Address	Name	Value
Category: Controller 1		
A270	Forward RUN time limit (sec)	10
A271	Reverse RUN time limit (sec)	10
A272	Motor stall time limit (sec)	0,2
A273	Loosening speed (rpm)	690
A274	Acceleration (ms)	150
A275	Fastening OK signal out time (ms)	0
A276	Driver ID	1
A277	Error display reset time (sec)	10
A278	Torque calibration (%)	100
A279	LCD brightness	45
A280	Initial torque preset # display when power on	1
A282	Password	0
A283	Controller parameter initialize	0
A284	Automatic driver lock (Model mode only)	DISABLE

When the reading on the torque meter master is lower than the setting on the tool, increase the calibration value more than 100(%) which is basic on production. To increase the output torque 5% more, key in 105(%). The calibration value works through whole range of torque. It will be refreshed and stored in the memory of the tool so it can be still effective when using the tool on another controller.

NOTE: Different Torque Master Devices will provide different results. Make sure you always use the same ISO17025 Torque Tester Master Device with the same accessories and testing conditions: RDA, Tool Speed, Tester Filter Setting, Torque Arm, etc.



Standard test condition on factory calibration used by Mountz

Rundown screw size, joint type and filter

Tool Compensation

Torque compensation using controller panel

Parameter
Menu

Type

☐ TC/AM

☒ AC/TM

Target torque(TC) / Max torque(AC)

-

3

+

Torque limit(TC)(%) / Min torque(AC)

-

0

+

Speed (rpm)

-

5

+

Torque compensation (%)

-

+

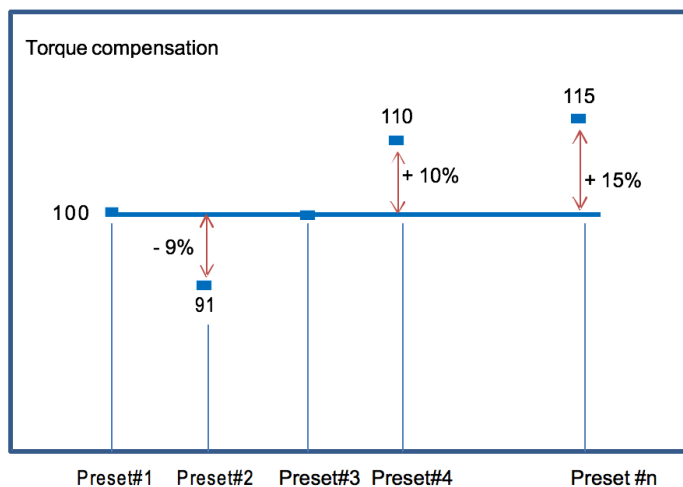
A / 15 Preset

Tool Compensation

Torque compensation using ParaMon software

Fastening Setting		
123 Preset No. ▲		
Address No.	Parameter	Parameter value
▲ Preset No.: 01		
A001	Type	0
A002	Target torque	30
A003	Torque limit (%)	0
A004	Target angle (not use)	0
A005	Min angle (degree)	0
A006	Max angle (degree)	0
A007	Snug torque	0
A008	Speed (rpm)	187
A009	Free angle (degree)	0
A010	Free speed (rpm)	0
A011	Soft start (ms)	0
A012	Seating point from 'Target torque' (%)	40
A013	Torque rising time (ms)	50
A014	Torque holding time (ms)	2
A015	Torque compensation (%)	100

Total adjustable range is +/- 20% (80% to 120%) for all 15 presets individually.



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 three state-of-the-art calibration lab and repair facilities that can calibrate up to 20,000 lbf.ft.

Since 1965, Mountz Inc. has proven in-depth knowledge of torque is reflected in our tool's craftsmanship and our ability to provide solutions to both common and uncommon torque applications. We perform calibrations in accordance with ANSI/NCSL-Z540. Mountz is dedicated solely to the manufacturing, marketing and servicing of high quality torque tools.

Tool Service & Repair Capability

- Torque Wrench Calibration: Click Wrench, Dial Torque Wrench, Beam Wrench, Cam-Over & Break-Over Wrench
 - 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

Eastern Service Center

19051 Underwood Rd.
Foley, AL 36535
Phone: (251) 943-4125
Fax: (251) 943-4979

Western Service Center

1080 N.11th Street
San Jose, CA 95112
Phone: (408) 292-2214
Fax: (408) 292-2733

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sales@mountztorque.com



Twitter: @mountztorque

Download a "Service Form" and include a copy when you send the tools in to be serviced.

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