32V and 40VDC CESL8 and CESL9 Series Brushless Screwdrivers and Controllers - Operation Manual

Applies to the following Delta Regis products:

32VDC Screwdriver Models:	**CESL810(S)/811/812(P/S)(-ESD), CESL823/824(F/P/PF/S)(-ESD), CESL827B(P)(-ESD)**
40VDC Screwdriver Models:	**CESL828/829(F/P/PF/S)(-ESD), CESLT835M/845M/855M/865M/875M/885M/895M(PM)(-ESD)(-SQ) CESP835/845/855/865(-SQ)(-U), CESLT935(F/P/PF)(-ESD)(-SQ), CESLT945/955(P)(-ESD)(-SQ)**
32VDC Controller Models:	**BECT620C/820**
40VDC Controller Models:	**BECT640HL/940HL**

CAUTION - Please read, understand, and follow all operating and safety instructions in this manual before using the tools and controllers.

The CESL8 and CESL9 Series Brushless tools are designed for exclusive use with specific Delta Regis controllers as defined in this manual. Do not attempt to use the tools and/or controllers with any products other than as specified in this manual.

If you have any questions or concerns, please contact us at:

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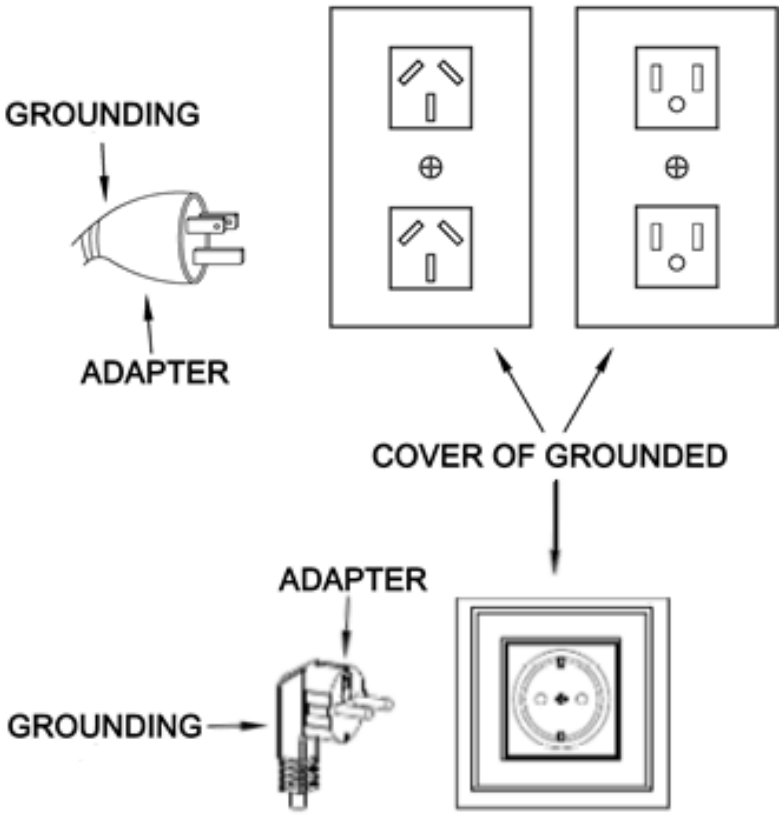
Important - Installation and Safety

Warning - Failure to understand and follow proper installation guidelines, safety requirements, and operating instructions may result in malfunction, component damage, property damage, shock hazard, fire hazard, injury or death.

1. Please read and understand the operation manual and follow all safety and operation instructions.
2. Use these products in a suitable dry, indoor location. Do not use the tools and controllers in damp, wet or high temperature environments. Do not use in the presence of flammable liquids or gases.
3. Ensure that the controller has proper ventilation. Do not expose the tools and controllers to areas subject to airborne contaminants (eg. dust, metal filings).
4. Use only a properly grounded electrical outlet of the correct supply voltage to power the screwdriver controller.
5. Ensure that the supply outlet is overload protected and of sufficient amperage capacity.
6. Use only the correct plug for the controller and outlet. Hold the plug of the power cord when connecting or disconnecting. Do not pull on the cable.
7. Do not expose the cable, tool or controller to oil, chemicals, or heat. Ensure that the cable is routed and used in such a manner as to not be subject to sharp objects that may abrade or cut the cable.
8. Locate the controller in a suitable, safe location on a steady surface. Do not place in a high location where there may be a risk of it falling. Secure the controller in position to prevent possible movement caused by pulling on the power or tool cables.
9. Do not cover the controller or stack any objects on top of or near the controller. Ensure that adequate clearance and ventilation is provided around the perimeter of the controller.
10. Specific models of Delta Regis BECT series controller are designated for use with CESL8 and CESL9 series screwdrivers as specified on the following pages. Use of the controller (or screwdriver) with any other screwdriver (or controller) may result in malfunction, damage, or injury.
11. In the event that the controller is overloaded beyond the maximum current rating, an internal fuse will disrupt power. Should the controller stop functioning, or exhibit abnormal or intermittent operation, please discontinue use immediately and send the controller to an authorized service centre for troubleshooting and repair.
12. Excessive duty cycle will cause the tool and/or controller to overheat. If this occurs, discontinue use until cooled down and reduce cycle rate. As a general rule, do not exceed 10-15 screws/minute, one 8 hour shift per day.
13. The CESL8 and CESL9 series screwdrivers incorporate a protection circuit which stops the electric screwdriver if the tool is switched from forward to reverse while running. Should this happen, the operator must release the tool trigger and restart the fastening cycle.
14. Power the controller off and wait for 3 seconds before connecting/disconnecting the screwdriver tool cable to/from the controller.
15. Turn the main power switch off when the controller is not being used. Unplug the controller if it is not being used on a regular basis.
16. Do not attempt to disassemble or repair the screwdriver or controller. Repairs should only be performed by qualified technicians properly trained in the safe operation, troubleshooting, and repair of these devices. Please consult Delta Regis for the location of the nearest service depot.
17. Use only the factory specified Delta Regis brand replacement parts and accessories with these tools and controllers.
18. Any damage to the tool and/or controller resulting from misuse, abuse, or failure to follow these guidelines will void the limited product warranty.
19. Do not dispose of electrical appliances as unsorted municipal waste, use separate collection systems available. If electrical appliances are disposed of in landfills or dumps, hazardous substances can leak into the groundwater and get into the food chain, damaging your health and well-being. When replacing old appliance with new, the seller is legally obligated to take back your old appliance for disposal free of charge.

20. We emphasize that the power supply should be placed on a flat surface and secured. The power supply label/ specifications are located on the bottom of the most models. Place on a flat surface and use a M4 x 20mm screw to align the anchor hole and secure it to the flat surface.

Grounding - This controller (and AC power cord) is equipped with a 3-prong electrical receptacle/plug with ground pin. The controller must be connected to a properly grounded AC electrical outlet. Do not attempt to use this controller without a properly functioning ground connection. Never connect a live circuit to the ground pin or internal yellow-green ground wire.



Setting up your screwdriver and controller

Unpack the tool and controller from their boxes and confirm that all items have been received and are in good condition. The controller is shipped with the appropriate grounded power cord for connection to the AC supply receptacle. The screwdriver is shipped with a 2 meter tool cable that connects the screwdriver to the controller. CESLT8..M/PM, CESLT9 and CESP8 pistol housing tools also include an accessory side handle.

Select a suitable, stable location for the controller. Ensure that the location allows for the required range of motion of the screwdriver without stressing the tool cable that connects the tool to the controller. The cable should bend naturally and always have some play in it. Undue stress put on the cable will result in premature cable failure. If the standard cable length is unsuitable, longer lengths are available for purchase as an option.

If the tool is being mounted in a fixture or torque arm, mount the tool in the arm. 'M' series tools incorporate an aluminum mounting surface directly in front of the tool grip/housing nut. Please use this surface for fixturing. Fasten the tool securely to avoid it rotating in the fixture due to reaction torque. An optional metal torque lock sleeve is available for some models to aid in mounting in a torque arm.

We recommend that all higher torque CESL8/9 screwdrivers be mounted in a torque arm to isolate the operator from the reaction torque generated by tools in this torque range. If it is necessary to use a CESLT8..M or CESLT9 series in-line tool without a reaction arm, the accessory side handle must be installed and used by the operator to react torque.

Accessory Side Handle included with models CESLT8..M/PM and CESP8..

Always install and use for handheld applications to react torque.

The CESLT8..M/PM and CESP8.. screwdriver housings include a groove for installation of the side handle. Ensure that the notch in the handle is aligned properly with the groove and fasten securely.

Ensure that the controller's power switch is in the 'off' position. Connect the 6-pin tool cable to the screwdriver. The cable has a spring guard at one end for added protection and durability. Plug this end of the cable into the tool. The connector is designed to be a tight fit - seat the connector firmly into the receptacle and tighten the nut securely by hand. Attach the other end of the cable to the controller in the same manner. Plug the supplied power cord from the controller into a suitable, properly grounded AC receptacle.

Push cable connector firmly into receptacle and secure retaining nut hand-tight. Do not overtighten.

32VDC 6-pin CESL8 Series Tool Connector

40VDC 6-pin CESL8/9 Series Tool Connector

Always turn off controller power and wait 3 seconds before connecting or disconnecting the screwdriver cable. Do not connect/disconnect the screwdriver with the power supply turned on.

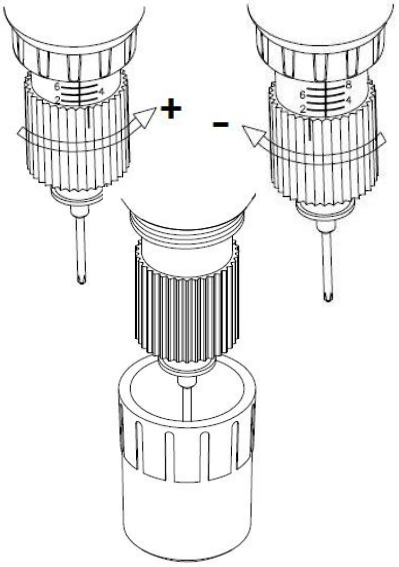
Before you turn on the controller

Insert the desired screwdriver bit into the quick change holder of the driver. For tools with 1/4" hex bit holders, insert the desired driver bit by pushing (or pulling, depending on the model) the outer sleeve of the bit holder to release the retainer. Insert an appropriate power bit, release the sleeve and ensure that the bit is properly locked in place by pulling back and forth on the bit.
Make sure that the tool's start mechanism (lever, trigger, or push-start) is not engaged to prevent the tool from accidentally starting when turning on the controller's power switch. Turn the controller's main power switch on. Select the desired speed (Hi/Lo) of the screwdriver via the speed switch on the controller.

Operating the screwdriver

Depending on the model of screwdriver selected, the screwdriver will have either a start lever, a push-to-start mechanism (models with 'P' suffix), or a trigger start (pistol grip models). All models also have a forward/reverse switch.
Grip the screwdriver so that the index finger is comfortably over the trigger mechanism and the thumb can be used to change the position of the fwd/rev switch if required. Hold securely to prevent the screwdriver from rotating in your hand during use.
If the tool has a side handle installed, grasp the side handle firmly with the other hand. Due to the torque output capabilities of some models, it is extremely important to use the supplied side handle in all handheld applications and to grip the tool firmly to react the torque.
Familiarize yourself with the operation of the tool by free running the tool before use at higher torque values.
Align the driver bit properly with the head of the fastener. Keeping the driver in-line with the fastener, activate and hold the start mechanism (lever, trigger or push). The screwdriver will install the fastener (FWD). When the preset torque is reached, the clutch will activate and the tool will shut off. Once the tool shuts off, release the start mechanism to reset. To stop the screwdriver before fastening is complete, release the start mechanism.
To remove a fastener, change the FWD/REV switch to the REV position. Press the start mechanism to run the driver in reverse (CCW). Do not switch from forward to reverse (or reverse to forward) while the motor is running. A protection circuit will stop the tool if it is inadvertently switched while running - if this happens, the trigger must be released and re-activated to continue operating.

Setting the torque



An external torque adjustment nut located at the nose of the screwdriver is used to set the output torque of the screwdriver. **A reference scale (0-8) is available as a guide - this scale is for reference only and does not indicate actual torque values.** Rotate the torque nut clockwise to increase torque output, ccw to decrease torque output. Make the torque adjustment through a series of gradual increases, starting below the desired torque level. We recommend the use of an appropriate torque tester and static joint testing after installation to verify proper torque settings.
Once the torque is set, remove the housing nut and cover the torque adjustment nut with the included torque lock sleeve (CESL810-829, CESLT8_M, CESPT8 models). This will help avoid accidental torque adjustments.
The torque output of the screwdriver should be verified on a regular basis. Frequency of verification will depend on the customer's specific application and quality control requirements. During the initial screwdriver break-in period, output torque may decay somewhat as the mechanical components wear in.

Torque Adjusting Nut
Turn CW to increase torque setting, CCW to decrease torque output. Higher values on scale indicate a higher torque setting.
Please note - Numbers (1-8) on the scale are for reference only and are not actual torque values.

Start Lever
Press to start the screwdriver and hold until the driver shuts off (CW tightening).

Suspension Bail
Use the bail to hang the screwdriver from a tool balancer.

Bit Holder
Retract sleeve to insert/remove bits. Once the bit is inserted, release the sleeve and pull back and forth on the bit to verify proper retention.

Housing Nut
Remove the housing nut to install a torque locking sleeve. The lock sleeve covers the torque adjusting nut to deter unintentional changes to the adjustment.

FWD/REV Switch
Select the desired direction of rotation for the screwdriver - FWD (CW) or REV (CCW). Some models also have an OFF position.

Tool Cable Connection
Align the pins of the cable with the socket and push the cable's connector firmly into place. Carefully hand tighten the securing ring - do not overtighten.

Model Numbers and Specifications - 32VDC CESL8 Screwdrivers

Model No. w/ESD Housing	Model No. without ESD	Start Type	Range (In.Lbs)	Range (Nm)	Speed (RPM) Hi	Speed (RPM) Lo	Driver Bit Type	Length (mm)	Diameter (mm)	Weight (g)
CESL810-ESD [2]	-	Lever	0.2 - 3.1	0.02 - 0.35	1000	700	1/4" hex	185	32	385
CESL810S-ESD [2]	-		0.2 - 3.1	0.02 - 0.35	500	350				
CESL811-ESD [2]	-		0.4 - 6.2	0.05 - 0.69	1000	700				
CESL812-ESD [2]	-		0.9 - 8.7	0.10 - 0.98	1000	700				
CESL812S-ESD [2]	-		0.9 - 8.7	0.10 - 0.98	280	250				
CESL812P-ESD [2]	-	Push	1.8 - 8.7	0.20 - 0.98	1000	700		230	30	310
CESL823-ESD	CESL823	Lever	1.3 - 10.5	0.15 - 1.18	1000	700	1/4" hex	245	36	520
CESL823F-ESD [1]	CESL823F [1]		1.3 - 10.5	0.15 - 1.18	2000	-				
CESL824-ESD	CESL824		2.6 - 16.5	0.29 - 1.86	1000	700				
CESL824F-ESD [1]	CESL824F [1]		2.6 - 14.7	0.29 - 1.67	2000	-				
CESL823P-ESD	CESL823P	Push	1.3 - 10.5	0.15 - 1.18	1000	700				
CESL823PF-ESD [1]	CESL823PF [1]		1.3 - 10.5	0.15 - 1.18	2000	-				
CESL824P-ESD	CESL824P		2.6 - 16.5	0.29 - 1.86	1000	700				
CESL824PF-ESD [1]	CESL824PF [1]		2.6 - 14.7	0.29 - 1.67	2000	-				
CESL827B-ESD [1]	-	Lever	8.7 - 26.0	0.98 - 2.94	1200	900	1/4" hex	278	39.5	800
CESL827BP-ESD [1]	-	Push	8.7 - 26.0	0.98 - 2.94	1200	900				

[1] Use controller model BECT820 or BECT832-SSO with these screwdrivers.
[2] Driver available with optional 4mm round (winged bit) bit holder. Add suffix '-4mm' to model number.

Model Numbers and Specifications - 40VDC CESL8 Screwdrivers

Model Number	Start Type	Range (In.Lbs)	Range (Nm)	Speed (RPM)	Drive Type
Inline Body Style, Handheld [1]					
CESL828 [2]	Lever	8.9 - 26.0	0.98 - 2.94	1000 / 750	1/4" hex
CESL828F	Lever	8.9 - 26.0	0.98 - 2.94	2000 / 1400	1/4" hex
CESL828P [2]	Push	8.9 - 26.0	0.98 - 2.94	1000 / 750	1/4" hex
CESL828PF	Push	8.9 - 26.0	0.98 - 2.94	2000 / 1400	1/4" hex
CESL829 [2]	Lever	17.4 - 43.4	1.96 - 4.90	1000 / 750	1/4" hex
CESL829P	Push	17.4 - 43.4	1.96 - 4.90	1000 / 750	1/4" hex
Dimensions (mm): 278(L) x 39.5(dia)			Weight: 0.8 kg		

[1] ESD Safe housing available - add suffix '-ESD'
[2] 350 RPM version available - add suffix 'S'

Model Number [2]	Start Type	Range (In.Lbs)	Range (Nm)	Speed (RPM)	Drive Type
Pistol Grip Body Style					
CESP835	Trigger	18 - 53	2 - 6	1000 / 750	1/4" hex
CESP835-SQ	Trigger	18 - 53	2 - 6	1000 / 750	3/8" square
CESP845	Trigger	27 - 79	3 - 9	800 / 600	1/4" hex
CESP845-SQ	Trigger	27 - 79	3 - 9	800 / 600	3/8" square
CESP855	Trigger	36 - 106	4 - 12	550 / 400	1/4" hex
CESP855-SQ	Trigger	36 - 106	4 - 12	550 / 400	3/8" square
CESP865	Trigger	53 - 159	6 - 18	350 / 250	1/4" hex
CESP865-SQ	Trigger	53 - 159	6 - 18	350 / 250	3/8" square
Dimensions (mm): 270(L) x 169(H) x 48(dia)			Weight: 1.2 kg		

[2] Pistol Grip tool has cable connection in bottom of handle as standard. For top rear connection, add suffix 'U' to model number.

Model Number	Start Type	Range (In.Lbs)	Range (Nm)	Speed (RPM)	Drive Type
Inline Body Style, Handheld or Fixture Mount [1]					
CESL835M	Lever	18 - 53	2 - 6	1000	1/4" hex [4]
CESL835PM	Push				
CESL845M	Lever	27 - 79	3 - 9	800	
CESL845PM	Push				
CESL855M	Lever	36 - 106	4 - 12	550	
CESL855PM	Push				
CESL865M	Lever	53 - 159	6 - 18	350	
CESL865PM	Push				
CESLT875M	Lever	71 - 221	8 - 25	350	
CESLT875PM	Push				
CESLT885M	Lever	106 - 310	12 - 35	350	3/8" sq.dr
CESLT885PM	Push				
CESLT895M	Lever	177 - 443	20 - 50	200	
CESLT895PM	Push				
Dimensions (mm): 297(L) x 46.2(dia)			Weight: 1.25 kg		

[1] ESD Safe housing available - add suffix '-ESD'
[4] Standard bit holder is 1/4" hex quick change type. For optional 3/8" square drive, add suffix '-SQ'

ALL CESP8 AND CESLT8_M MODELS INCLUDE AN ACCESSORY SIDE HANDLE ATTACHMENT

Model Numbers and Specifications - 40VDC CESL9 Screwdrivers

Model Number	Start Type	Range (In.Lbs)	Range (Nm)	Speed (RPM)	Drive Type
Inline Body Style, Handheld or Fixture Mount [1]					
CESLT935	Lever	18 - 53	2 - 6	1000 / 750	1/4" hex [4]
CESLT935F	Lever	18 - 53	2 - 6	2200	
CESLT935P	Push	18 - 53	2 - 6	1000 / 750	
CESLT935PF	Push	18 - 53	2 - 6	2200	
CESLT945	Lever	27 - 79	3 - 9	1000 / 750	
CESLT945P	Push	27 - 79	3 - 9	1000 / 750	
CESLT955	Lever	53 - 106	6 - 12	880 / 660	
CESLT955P	Push	53 - 106	6 - 12	880 / 660	
Dimensions (mm): 330(L) x 41.6(dia)			Weight: 1.1 kg		

[1] ESD Safe housing available - add suffix '-ESD'
[4] Standard bit holder is 1/4" hex quick change type.
For optional 3/8" square drive, add suffix '-SQ'


3/8" SQUARE DRIVE
ADD SUFFIX '-SQ'


ACCESSORY SIDE HANDLE ATTACHMENT AND SUSPENSION BAIL INCLUDED


METAL HOUSING THREAD (M35 x 1.0) FOR FIXTURE MOUNT APPLICATIONS

Fixture Mounting
The CESLT9 Series screwdriver has a threaded metal housing to facilitate fixture mounting. Remove the housing nut to expose the M35 x 1.0 thread.

Power Supply/Controller Specifications

The BECT620C and BECT820 32VDC Controllers are specifically for use with CESL810-827B Brushless Tools. One controller (order separately) is required per driver. CE/RoHS/ETL Approved.
Model BECT832-SSO is an optional count/verify controller for the 32VDC CESL8 series screwdrivers. Please refer to the separate BECT832-SSO Manual for further details and functionality.


BECT820 CONTROLLER

Controllers for 32VDC Brushless CESL8 Drivers

Model Number [1][2]	Output Connector	Speeds	Output	Input	Dimensions L x W x H (mm)	Weight (kg)	Use with tool models [2]
BECT620C	1 (6 pin)	Hi/Lo	32/24 VDC	100-240 VAC	145 x 60 x 35	0.25	CESL810-812(P/S), 823(P), 824(P)
BECT820					195 x 76 x 56	0.45	CESL823F(PF), 824F(PF), 827B(P)
BECT832-SSO					200 x 130 x 100	1.6	All 32VDC CESL8 Models

[1] Part number with North American cordset. For EU cord, add suffix 'E', UK cord add suffix 'UK'.
[2] Controller BECT820 and BECT832-SSO can be used with all models of 32VDC CESL8 screwdriver.

Controller models BECT640HL and BECT940HL provide the power required to run the 40VDC Brushless Series Screwdriver. The more powerful BECT940HL should be used with higher torque CESLT835-865M(PM), CESP835-865, and all CESLT9 screwdriver models, especially when prevailing torques or higher duty cycles are involved. CE/RoHS/ETL Approved.
Models BECT840-SSO and BECT940-SSO are optional count/verify controllers for the 40VDC CESL8/9 series screwdrivers. Please refer to the separate BECT840-SSO Manual for further details and functionality.

BECT640HL
HI/LO SPD CONTROLLER

Controllers for 40VDC Brushless CESL8/9 Drivers

Model Number [1]	Outlets	Speeds	Tool Connector	Output	Input	Dimensions L x W x H (mm)	Weight (kg)	Use with Screwdriver Models
BECT640HL	1	Hi/Lo	6 pin	40/30VDC, 220W	100-240VAC, 6.3A	220 x 134 x 85	1.8	CESL828-829(P/F/PF/S)
BECT940HL				40/30VDC, 360W		220 x 134 x 85	1.8	CESLT8_M, CESP, CESLT9
BECT840-SSO				40/32VDC, 220W		248 x 130 x 100	2.5	CESL828-829(P/F/PF)
BECT940-SSO				40/32VDC, 360W		248 x 130 x 100	2.5	CESLT8_M, CESP, CESLT9

[1] Part number with North American cordset. For EU cord, add suffix 'E' , UK cord add suffix 'UK'.

Slow Start / Output Signal Modules

Optional modules are available to add slow start and I/O functionality to the standard CESL8 tool and controller. These modules plug in-line between the controller and the screwdriver. All modules offer adjustable slow start (0-9.9 sec, 30~100% of full speed). Some models include input signal capability to provide further screwdriver control.
Please contact us or visit our website for further details on available modules and their features.

Accessories and Parts

Delta Regis offers various accessories for use with the screwdrivers listed in this manual. Please contact us or visit our website for further details on available accessories.
If you require a parts drawing or replacement spare parts for your Delta Regis product, please call us or send an e-mail request to sales@deltaregis.com.

Service

The BECT6 and BECT8/9 Series Controllers are not user serviceable. Any repairs must be performed by a Delta Regis authorized service center. Please consult Delta Regis Tools for further information and the location of the nearest authorized service center. Repairs to CESL8/CESP8/CESLT9 series screwdrivers must be performed by trained personnel, knowledgeable and qualified in the repair of DC electric screwdrivers. Use only genuine Delta Regis parts when servicing these products. Do not attempt to modify the tools or controllers.

Warranty

The CESL8 and CESLT9 Series Tools and Controllers are warranted for one year from the date of purchase against defects in material and workmanship. In addition, the brushless motor in the CESL8/9 Series Screwdrivers is warranted for three years from the date of purchase against defects in material and workmanship. This warranty does not cover damage due to transportation, abuse, misuse, or improper service. Our sole remedy is to repair or replace (at our discretion) any unit found to be defective due to defects in material or workmanship. It is the responsibility of the user to return any product thought to be defective, freight prepaid, to our warehouse for inspection and evaluation.

There is no warranty of merchantability or fitness of purpose. In no event will Delta Regis Tools, Inc. be liable for business interruptions, loss of profits, harm, injury, damage, personal injury, cost of delay, or any other special, indirect, incidental, or consequential losses, costs, or damages.