

Instructions for Installation and Operation

Bodine Electric Company

Type 34R6BXPP Motors & Gearmotors

AC 3-Phase, Inverter-Duty 230VAC or 460VAC

This apparatus is suitable for use in Hazardous Locations
Class I, Division 1, Groups C & D.



www.bodine-electric.com



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This manual contains the basic information needed to install and operate a Bodine type 34R6BXPP three-phase AC motor or gearmotor that is certified for use in Class I Division 1 hazardous locations. This manual does not profess to cover all details or variations in equipment, nor to provide for every possible contingency associated with installation, operation, or maintenance. No warranty of fitness for purpose is expressed or implied. It is the responsibility of the user to determine whether the installation location is hazardous, and to what degree it is hazardous. Should further information be desired or should particular problems arise which are not covered sufficiently for the user's purpose, the matter should be referred to the Bodine Electric Company.

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RoHS COMPLIANCE

This document certifies that the Bodine Electric type 34R6BXPP motor and type 34R6BXPP-FX gearmotors are manufactured with materials and processes that comply with European Directive 2011/65/EU, as amended by council directive 2015/863/EU, on the Restriction of Hazardous Substances (RoHS).

IMPORTANT SAFETY PRECAUTIONS

The use of electric machines, like that of all other utilization of concentrated power, is potentially hazardous. The degree of hazard can be greatly reduced by proper design, selection, installation, and use, but hazards cannot be completely eliminated. The reduction of hazard is the joint responsibility of the user, the manufacturer of the driven or driving equipment, and the manufacturer of the machine.



The Bodine type 34R6BXPP motor and 34R6BXPP-FX gearmotor were designed to meet the requirements of UL 674 and CSA C22.2 No. 145-M2017, electric motors for use in Division 1 Hazardous Locations. The motor ratings were established for operating temperatures from -20C to +40C. They have a T4A temperature code rating Reference UL file number E318315. These products bear the UL mark shown above.

Please read through this operations manual in detail and observe those paragraphs with the safety alert symbol.

WARNING

This indicates a potentially hazardous situation, which, if not avoided, could result in death or serious injury.

WARNING/AVERTISSEMENT

- **CAUTION**—To reduce the risk of ignition of hazardous atmospheres, disconnect the equipment from the supply circuit before opening. Keep assembly tightly closed when in operation.
- Leads factory-sealed. Do not disassemble any part of this product as that will compromise its safety in hazardous atmospheres.
- This product should be installed, inspected, and maintained by a qualified electrician only, in accordance with all applicable electrical codes.
- **ATTENTION**—Pour réduire le risque d'inflammation des atmosphères dangereuses, débranchez l'équipement du circuit d'alimentation avant de l'ouvrir. Gardez l'assemblage bien fermé lorsqu'il est en fonctionnement.
- Fils scellés en usine. Ne démontez aucune pièce de ce produit car cela compromettrait sa sécurité dans les atmosphères dangereuses.
- Ce produit doit être installé, inspecté et entretenu par un électricien qualifié seulement, conformément avec tous les codes de l'électricité pertinents.

IMPORTANT

Read this manual completely and carefully before making any connections. Pay special attention to all warnings, cautions, and safety rules. Failure to follow the instructions could produce safety hazards, which could injure personnel or damage the motor, gearmotor, or other equipment. If you have any doubts about how to connect the motor or gearmotor, refer to the detailed sections of this manual..

PRODUCT SPECIFICATIONS

The motors are 3-Phase AC induction motors. The 34R6BXPP is a 3-Phase AC induction motor, available with or without an integral gearbox, and a normally closed, self-resetting thermal switch attached to the motor windings.

Table 1 lists the specifications common to all variations of this product. Table 2 lists the specifications unique to each gear ratio that is offered.

TABLE 1

Parameter	Specification
Locations:	Hazardous locations Class I, Division 1, Groups C & D, or unclassified (non-hazardous) locations.
Temperature Code:	T4A or T3C
Horsepower:	¼ HP
Volts:	230 VAC, 3 Phase or 460 VAC, 3 Phase (separate models)
Line Frequency:	60 Hz
Inverter Frequency:	10 – 120 Hz for motors, 10 – 90 Hz for gearmotors
Ambient Temperature:	-20C to 40C
Insulation:	F8

TABLE 2

Product Type	Gear Ratio	LINE VOLTAGE RATINGS		INVERTER DUTY RATINGS	
		Speed (rpm)	Torque (lb-in)	Speed Range (rpm)	Torque @ 60 Hz (lb-in)
34R6BXPP	N/A	1600	9.9	214 – 3259	9.9, VT*
34R6BXPP-FX1	5:1	320	46	43 – 474	46, VT*
34R6BXPP-FX2	10:1	160	89	21 – 237	89, VT*
34R6BXPP-FX2	15:1	107	133	14 – 158	133, VT*
34R6BXPP-FX3	20:1	80	178	11 – 119	178, VT*
34R6BXPP-FX3	30:1	53	267	7.1 – 79	267, VT*
34R6BXPP-FX3	40:1	40	265	5.4 – 59	265, VT*
34R6BXPP-FX3	60:1	27	350	3.6 – 40	350, VT*
34R6BXPP-FX4	120:1	13	350	1.8 – 20	350, CT*
34R6BXPP-FX4	180:1	8.9	350	1.2 – 13	350, CT*
34R6BXPP-FX4	300:1	5.3	350	0.7 – 7.9	350, CT*

* VT = "Variable Torque, CT = "Constant Torque"

INSTALLATION

This product should only be installed by a qualified person familiar with its operation and associated hazards, and knowledgeable about the special requirements for installation in hazardous locations. The National Electrical Code (NEC), local electrical and safety codes, and when applicable, the Occupational Safety and Health Act (OSHA) should be observed to reduce hazards to personnel and property. NEC section 500 (Hazardous Locations) is particularly important. See pages 6 and 7 for motor and gearmotor dimensions.

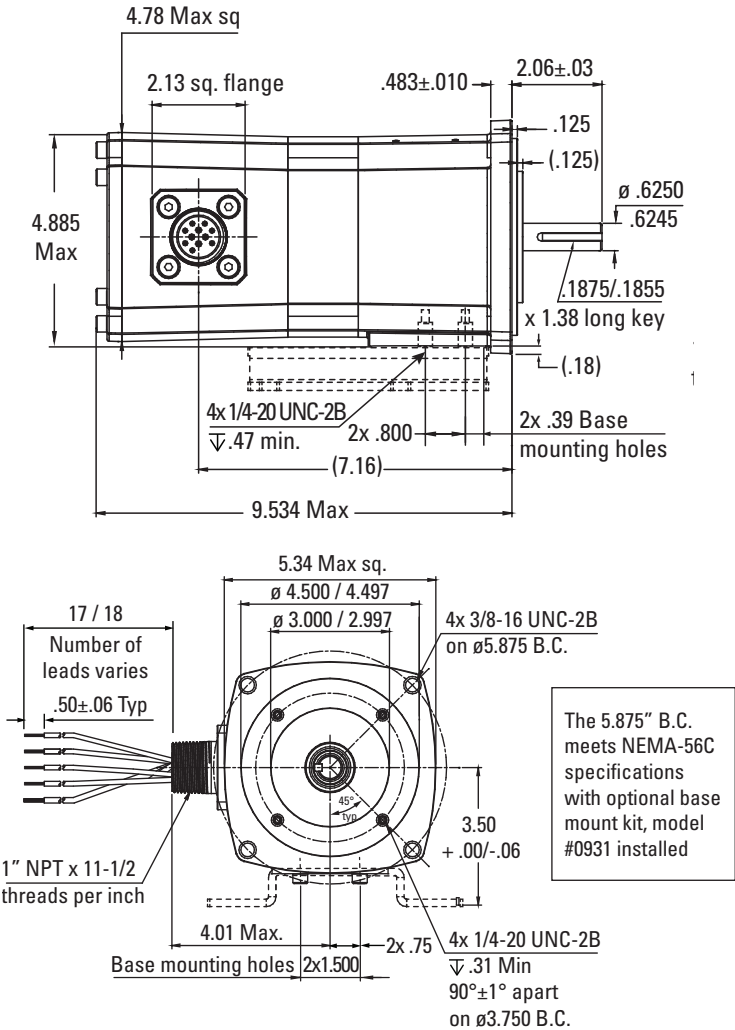
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- **ATTENTION**—Pour réduire le risque d'inflammation des atmosphères dangereuses, débranchez l'équipement du circuit d'alimentation avant de l'ouvrir. Gardez l'assemblage bien fermé lorsqu'il est en fonctionnement.
 - Fils scellés en usine. Ne démontez aucune pièce de ce produit car cela compromettrait sa sécurité dans les atmosphères dangereuses.
 - Ce produit doit être installé, inspecté et entretenu par un électricien qualifié seulement, conformément avec tous les codes de l'électricité pertinents.

Step 1: Mount the 34R6BXPP Motor or Gearmotor

Install the 34R6BXPP motor or gearmotor onto a secure mounting surface using the appropriate hardware for the desired mounting orientation, as indicated in Figure 1a and 1b. For example, if a gearmotor is to be mounted by the holes in the face where the output shaft exits, then four 1/4-28 UNF-2B screws are used (the max screw length is to be determined by the user).

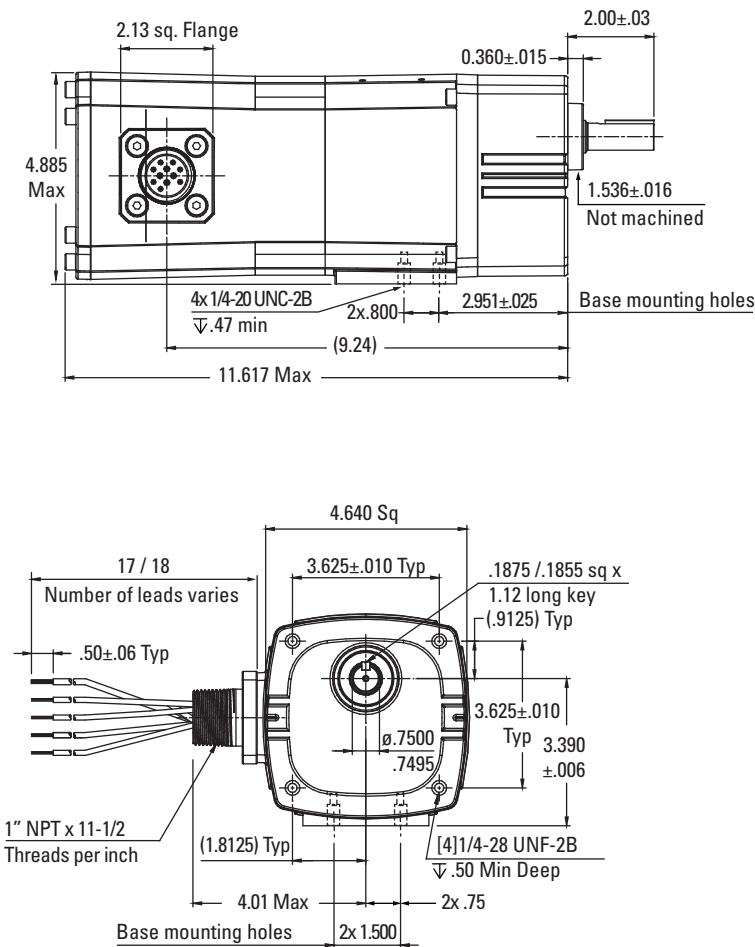
Figure 1a – Dimensions for Standard 34R6BXPP Motor



Drawings are for reference only. Please visit our website to download or view the latest revision of these CAD drawings.

If mounting from the four 1/4-20 UNC-2B base holes, the screw length should not exceed a maximum thread engagement depth of 0.47". See Figure 1a and 1b for the location of the mounting holes on Bodine's stock models. For custom variations of our stock models, refer to Bodine's "INFS" drawing instead. Please visit our website for optional base mount accessory kit, [model 0931](#).

Figure 1b – Dimensions for Standard 34R6BXP-FX Gearmotor



Drawings are for reference only. Please visit our website to download or view the latest revision of these CAD drawings.

Step 2: Attach a Conduit Outlet Box to the Motor

Proper installation of this product in a hazardous location requires the use of a conduit outlet box listed for Class I, Division 1, Groups C & D. The conduit outlet box is not supplied by Bodine with the motor, so it must be purchased separately by the user. The conduit outlet box must have a hole with a 1" NPT, 11.5 threads per inch female thread in order to fit onto the Bodine motor. A minimum of 5 threads of engagement is required to meet the UL 674 standard. This conduit outlet box should be sized per NEC 314.16. Figure 2 shows one example of an appropriate conduit outlet box and Figure 3 shows that box installed on a Bodine motor. Regardless of what box is used, follow the manufacturer's instructions for installing it onto the Bodine motor and for attaching conduit to the exit hole.

Figure 2 – A Typical Conduit Outlet Box

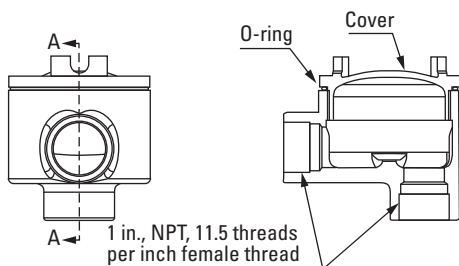


Figure 3 –
Motor after Conduit
Outlet Box Installation



Step 3: Make Electrical Connections

⚠ WARNING/AVERTISSEMENT

- **CAUTION**—To reduce the risk of ignition of hazardous atmospheres, disconnect the equipment from the supply circuit before opening. Keep assembly tightly closed when in operation.
- Leads factory-sealed. Do not disassemble any part of this product as that will compromise its safety in hazardous atmospheres.
- This product should be installed, inspected, and maintained by a qualified electrician only, in accordance with all applicable electrical codes.
- **ATTENTION**—Pour réduire le risque d'inflammation des atmosphères dangereuses, débranchez l'équipement du circuit d'alimentation avant de l'ouvrir. Gardez l'assemblage bien fermé lorsqu'il est en fonctionnement.
- Fils scellés en usine. Ne démontez aucune pièce de ce produit car cela compromettrait sa sécurité dans les atmosphères dangereuses.
- Ce produit doit être installé, inspecté et entretenu par un électricien qualifié seulement, conformément avec tous les codes de l'électricité pertinents.

These motors are 3-Phase AC induction motors. The 34R6BXPP is a 3-Phase AC induction motor, with or without an integral gearbox, and with a normally closed, self-resetting thermal switch attached to the motor windings and is represented schematically in Figures 4a, 4b, and 4c on pages 10 and 11.

⚠ WARNING/AVERTISSEMENT

- **CAUTION**—The motor may automatically restart, depending on how it is wired to the power source, after the temperature has cooled sufficiently to allow the protector contacts to reset and if AC power is present.
- **ATTENTION**—Le moteur peut redémarrer automatiquement, en fonction de la façon dont il est câblé à la source d'alimentation, une fois que la température a suffisamment refroidi pour permettre aux contacts de protection de se réinitialiser et si une alimentation CA est présente.

Installation of this motor requires either a 3 phase AC voltage source, or a controller (inverter) capable of operating a 3-Phase AC induction motor. The controller must incorporate or be used in conjunction with one of the following capabilities to prevent the motor from exceeding its temperature ratings under overload conditions:

- A logic input that will interrupt the power to the motor windings when the thermal switch opens
- A suitable electronic overload protection system integrated within the controller
- A suitable relay circuit that can be driven by the thermal switch to interrupt the controller's power supply
- A motor protection system suitable for operation with a motor in the hazardous locations environment

The following three figures illustrate three different recommended connections between the motor and the voltage source or control (inverter). When a controller (inverter) is used, refer to the controller's documentation for additional information regarding operation of the system.

Figure 4a – Electric Connections – Thermal Switch with Logic Control to Disable Motor Power

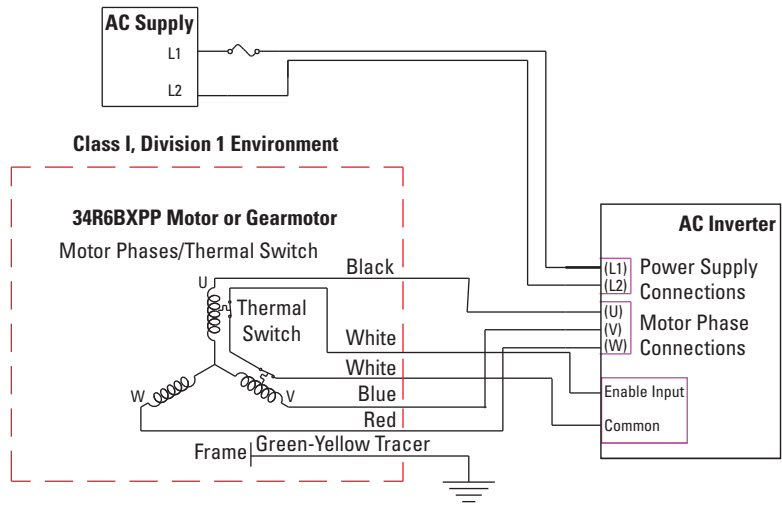


Figure 4b – Electric Connections – Thermal Switch with AC Relay to Interrupt Supply

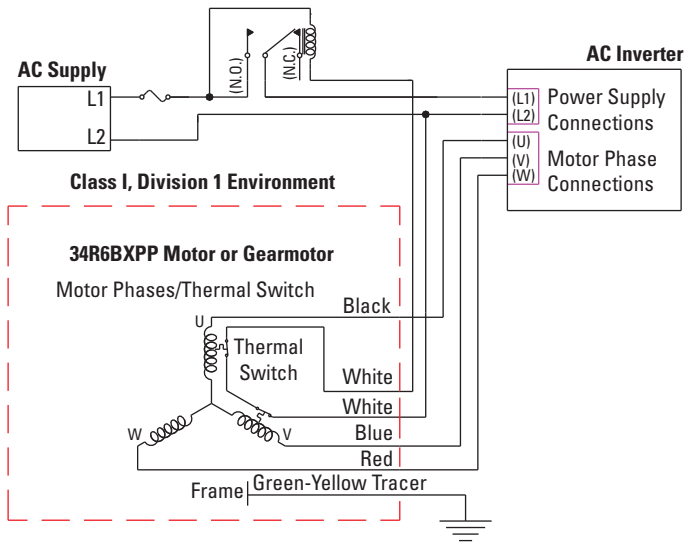
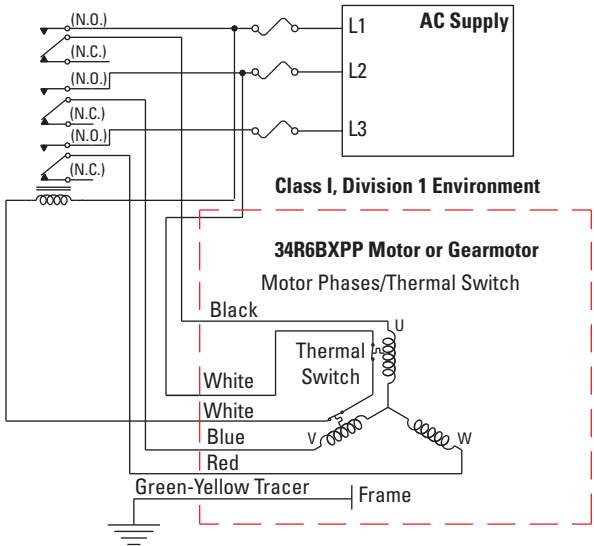


Figure 4c – Electric Connections – Thermal Switch with 3 Pole AC Relay to Interrupt Supply



THERMAL SWITCH NOTES:

Motor thermal switch must be connected to interrupt power to the controller and / or motor windings when the contact opens to limit motor temperature.

Thermal switch contact ratings:

AC-250VAC @ 2.5A 1.0 P.F., 250VAC @ 1.6A 0.6 P.F.

DC-24VDC @ 3.5A 48VDC @ 1.5A

WARNING: motor will automatically restart if allowed by control logic.

Step 4: Operate the 34R6BXPP Motor or Gearmotor

WARNING/AVERTISSEMENT

- **CAUTION**—To reduce the risk of ignition of hazardous atmospheres, disconnect the equipment from the supply circuit before opening. Keep assembly tightly closed when in operation.
 - Leads factory-sealed. Do not disassemble any part of this product as that will compromise its safety in hazardous atmospheres.
 - This product should be installed, inspected, and maintained by a qualified electrician only, in accordance with all applicable electrical codes.
-
- **ATTENTION**—Pour réduire le risque d'inflammation des atmosphères dangereuses, débranchez l'équipement du circuit d'alimentation avant de l'ouvrir. Gardez l'assemblage bien fermé lorsqu'il est en fonctionnement.
 - Fils scellés en usine. Ne démontez aucune pièce de ce produit car cela compromettrait sa sécurité dans les atmosphères dangereuses.
 - Ce produit doit être installé, inspecté et entretenu par un électricien qualifié seulement, conformément avec tous les codes de l'électricité pertinents.

CAUTION

- Check that gearmotor is securely mounted.
- Check all rotating members. Be sure keys, pulleys, etc. are securely fastened and safety guards are in place.
- Check for proper mounting and alignment of products, and verify safe loading on shafts and gears.

1. Start the Motor or Gearmotor

- a. Turn the AC power supply on.
- b. Turn the inverter on, if one is being used.
- c. The motor should start running at rated speed (if no inverter is used) or the set speed (if an inverter is used).

2. Adjust Speed

- a. If an inverter is being used, adjust the speed control of the inverter and observe if the motor also changes speed.

3. Stop the Motor or Gearmotor

- a. Turn the inverter off, if one is being used.
- b. Turn the AC power supply off.

TROUBLESHOOTING

WARNING/AVERTISSEMENT

- **CAUTION**—To reduce the risk of ignition of hazardous atmospheres, disconnect the equipment from the supply circuit before opening. Keep assembly tightly closed when in operation.
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 - Ce produit doit être installé, inspecté et entretenu par un électricien qualifié seulement, conformément avec tous les codes de l'électricité pertinents.

If you encounter a problem, read all instructions and double-check the wiring. Even if the 34R6BXPP motor or gearmotor itself shows obvious signs of damage, it may be that another component in the system or an incorrect installation or incorrect electrical connection caused it to fail. In which case, replacing the gearmotor alone and not tending to the root cause of the failure may result in another damaged product.

If problems persist, contact your source of purchase or a Bodine Authorized Service Center and describe the problem in detail. Do not disassemble the product. Performing unauthorized repairs will void the warranty and invalidate third-party certifications.

BODINE LIMITED WARRANTY

The Bodine Electric Company warrants all products it manufactures to be free of defects in workmanship and materials when used under Normal Operating Conditions and when applied in accordance with nameplate specifications. When Bodine motors and gearmotors have been purchased with and used only with appropriately applied Bodine controls, this warranty shall be in effect for a period of twenty-four months from date of purchase or thirty months from date of manufacture, whichever comes first. Bodine motors and gearmotors used with non-Bodine controls and Bodine controls used with non-Bodine motors and gearmotors are covered by a standard twelve-month warranty period.

The Bodine Electric Company will repair, replace, or refund at its option, any of its products, which has been found to be defective and is within the warranty period, provided that the product is shipped freight prepaid, with previous authorization, to Bodine Electric, or to the nearest Bodine Authorized Service Center. At its option, all return shipments are F.O.B. Bodine's plant or Authorized Service Center. Bodine is not responsible for removal, installation, or any other incidental expenses incurred in shipping the products to or from Bodine.

This warranty is in lieu of any other expressed or implied warranty - including (but not limited to) any implied warranties of merchantability and/or fitness for a particular use or purpose.

Bodine's liability under this warranty shall be solely limited to repair or replacement of the Bodine product within the warranty period and Bodine shall not be liable, under any circumstances, for any consequential, incidental or indirect damages or expenses associated with the warranted products. Commutator and/or brush wear and its associated effects are normal occurrence and are not covered by this warranty unless otherwise agreed to by Bodine in writing.

Proof of purchase of motor or gearmotor and matching control as a system must be provided with any claim.

Product Type: _____ **Serial No.** _____

Date of Purchase: _____ **Place of Purchase:** _____

NOTES

**Bodine offers over 1,400 standard
garmotors, motors and
system-matched speed controls.**



**Visit www.bodine-electric.com
for more information**

Bodine offers the widest selection of variable-speed AC, permanent magnet DC and brushless DC fractional horsepower garmotors and motors in the industry. For complete specifications, 3D CAD drawings, or to order online, visit bodine-electric.com.

