AUTOMATIC VOLTAGE REGULATOR –
AVR DIAGRAM CONNECTIONS GUIDE

Revision 00 - 07/2021

SUMMARY

AUTOMATIC VOLTAGE REGULATOR

ATTENTION

THIS DOCUMENT DOES NOT REPLACE THE AVR AND ALTERNATOR MANUAL

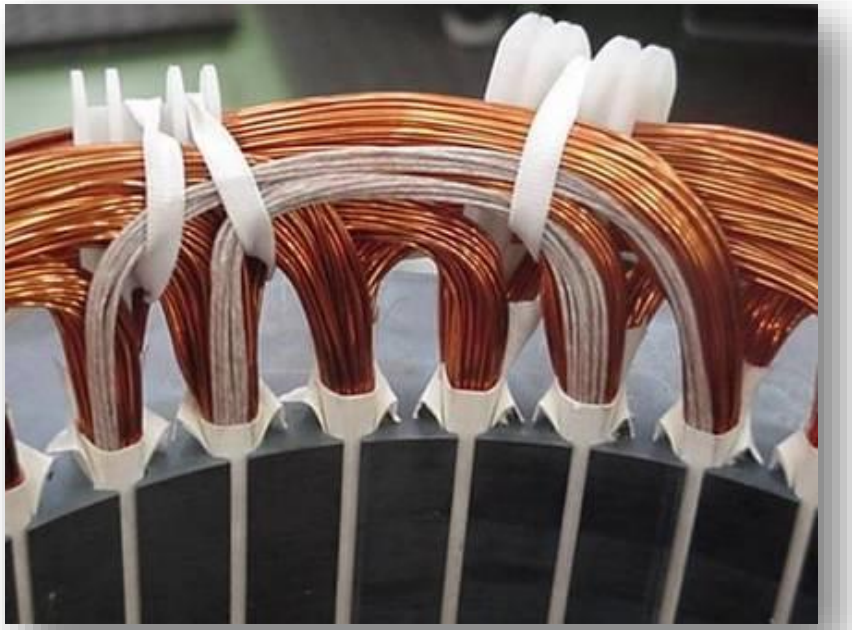
- The product instruction manual and specific product documentation must always be consulted before proceeding with its installation, handling and parameter setting
- Installation and maintenance services should be performed only by qualified personnel, using appropriate equipment
- Before connecting the AVR to the alternator, verify in the installation manual, the reference nominal voltage
- The sensing voltage can be different than the alternator phase voltage. Note the point where the sensing voltage is taken from (middle of the phase or complete phase)
- If the reference voltage is not equal to the output voltage of the generator, do not make the connections without consulting the service department

AUTOMATIC VOLTAGE REGULATOR

- The voltage regulator is electronic and automatic
- Its objective is to maintain a constant voltage regardless of load variations

EXCITATION SYSTEM

- Brushless with independent excitation system
  - GTA and AG10 Lines
    - Internal PMG (i-PMG) @Auxiliary coil (standard)
    - External PMG (optional)
  - GT10 Line
    - Shunt (standard)



AVRs = Optimus Models

AUTOMATIC VOLTAGE REGULATOR

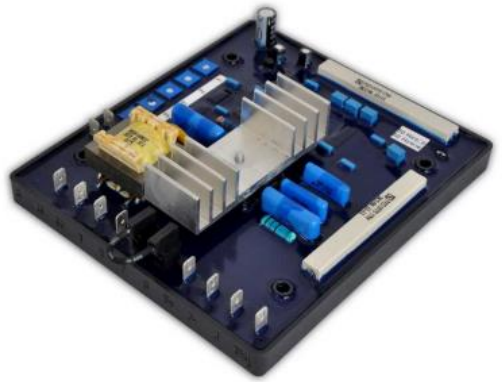
Model

AVR-OPT-03
Optimus

AUTOMATIC VOLTAGE REGULATOR

Model

AVR-A-OPT-06 5A AM/220M E9 PAR/5
Optimus



AVR-A-OPT-04E and AVR-OPT-05PE
Optimus

AVR-A-OPT-16 @PMG GTA Line
Optimus

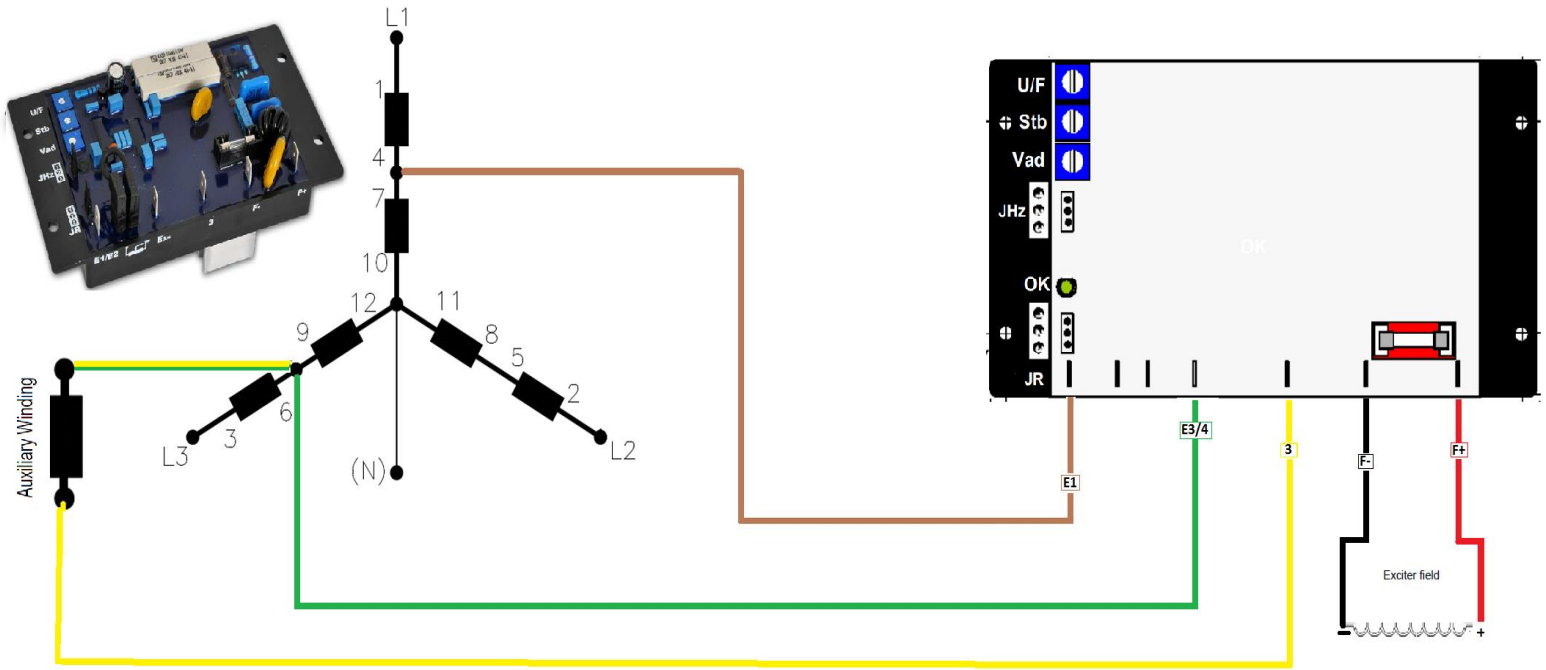
1. CONNECTION WITH AUXILIARY COIL

1.1. Y - STAR SERIES CONNECTION – 12 LEADS

(380-400 V @50 Hz _ 380-440-480 V @60 Hz)

AUTOMATIC VOLTAGE REGULATOR

AVR-A-OPT-03



TRIMPOT FUNCTIONS
Vad = Rotating it clockwise, the voltage increases;
Stb = Rotating it clockwise, the system becomes faster
U/F = Rotating it clockwise, the U/F range increases;

JR: E1: Sensing (Input) – 160-300Vca (Single phase) (pins 1 and 2)
JR: E2: Sensing (Input) – 320-600Vca (Single phase) (pins 2 and 3)

JHz : Jumper 50/60 Hz (JHz **1-2** = 50 Hz, JHz **2-3** = 60 Hz).

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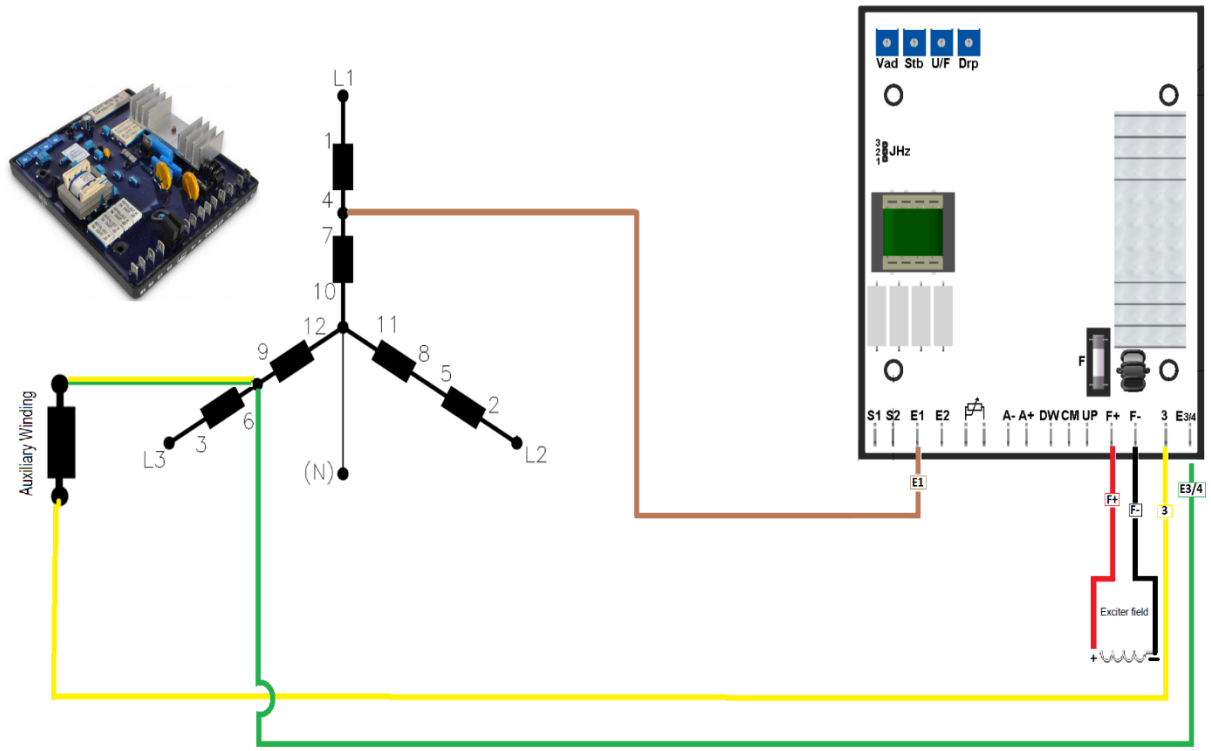
AUTOMATIC VOLTAGE REGULATOR

AVR-A-OPT-06



TRIMPOT FUNCTIONS

Vad: Voltage adjustments. Turning clockwise increases voltage;
Stb: Stability adjustments. Turning clockwise slows down stability response
U/F: U/F limiter. Turning clockwise increases the U/F range, counterclockwise it diminishes;
Drp: Droop adjustments. Turning clockwise increases the reactive compensation range;

JHz : Jumper 50/60 Hz (JHz **1-2** = 50 Hz, JHz **2-3** = 60 Hz).

E1: Sensing (Input) – 160-300Vca (Single phase)
E2: Sensing (Input) – 320-600Vca (Single phase)

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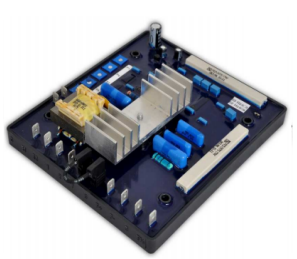
AUTOMATIC VOLTAGE REGULATOR

AVR-A-OPT-04E – AVR-A-OPT-05PE



TRIMPOT FUNCTIONS
P1: Rotating CW, voltage increases.
P2: Rotating CW, reactive compensation range increases.
P3: Rotating CW, dynamic response will be slower.
P4: Rotating CW, dynamic response will be slower.
P5: Rotating CW, U/F range increases and rotating CCW, it decreases.

J1 closed = 60 Hz
J1 open = 50 Hz

E1: Sensing (Input) – 160-300Vca (Single phase)
E2: Sensing (Input) – 320-600Vca (Single phase)

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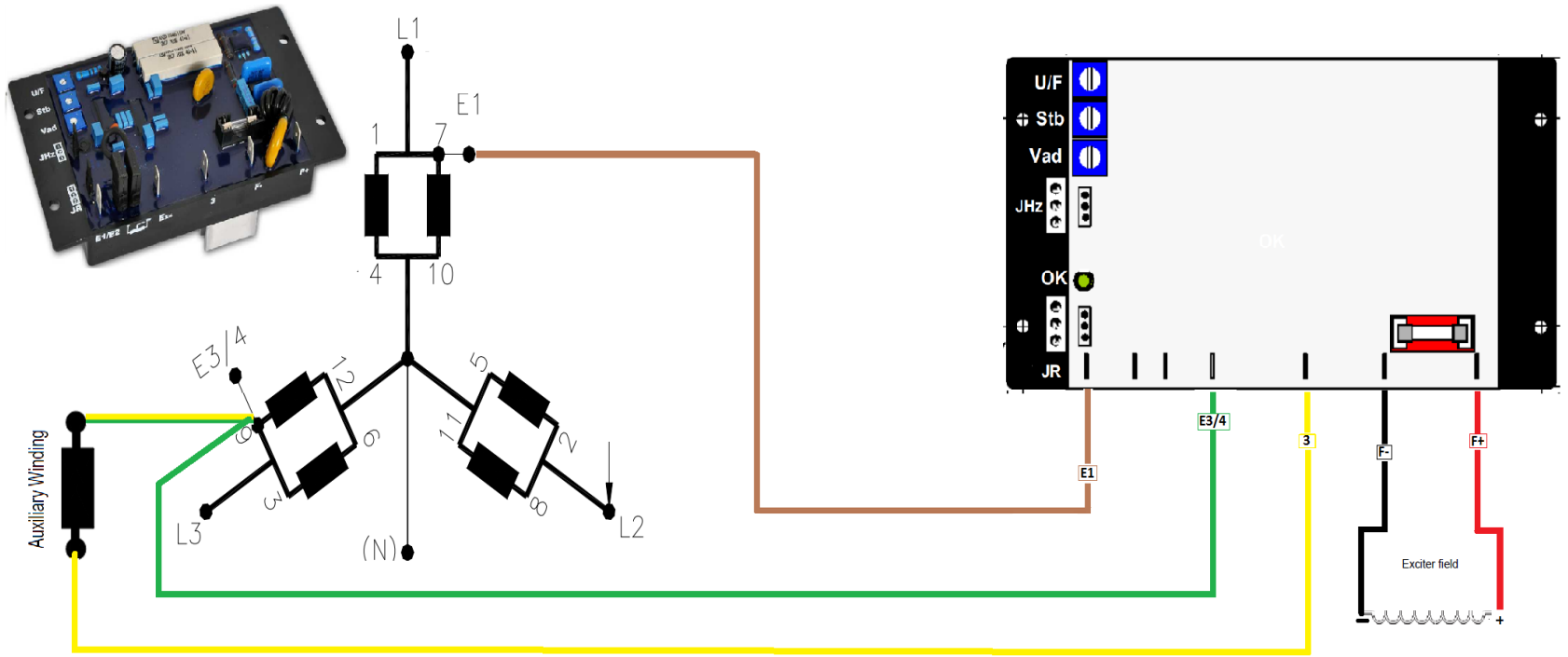
1.2. YY - STAR PARALLEL CONNECTION – 12 LEADS

(190-200V @50Hz _ 190-220-240V @60Hz)

AUTOMATIC VOLTAGE REGULATOR

AVR-A-OPT-03



TRIMPOT FUNCTIONS
Vad = Rotating it clockwise, the voltage increases;
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AUTOMATIC VOLTAGE REGULATOR

AVR-A-OPT-06

TRIMPOT FUNCTIONS

Vad: Voltage adjustments. Turning clockwise increases voltage;
Stb: Stability adjustments. Turning clockwise slows down stability response
U/F: U/F limiter. Turning clockwise increases the U/F range, counterclockwise it diminishes;
Drp: Droop adjustments. Turning clockwise increases the reactive compensation range;

JHz : Jumper 50/60 Hz (JHz **1-2** = 50 Hz, JHz **2-3** = 60 Hz).

E1: Sensing (Input) – 160-300Vca (Single phase)
E2: Sensing (Input) – 320-600Vca (Single phase)

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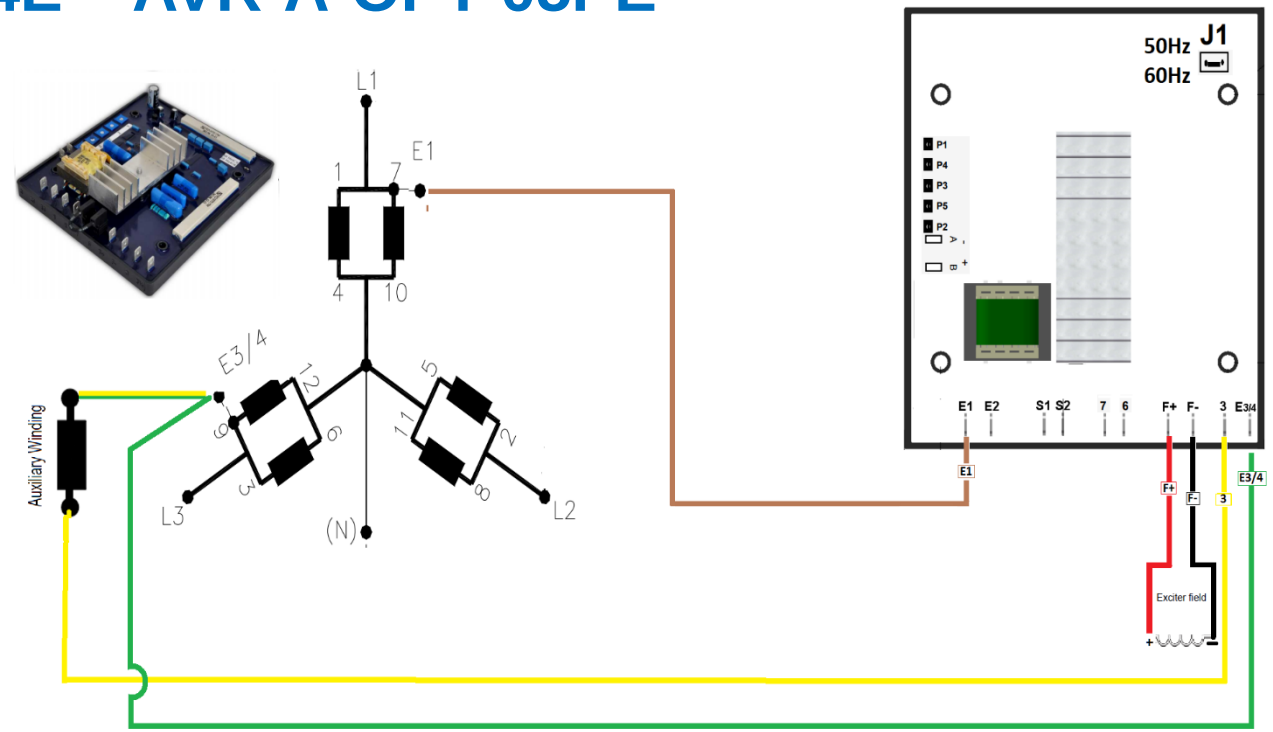
AUTOMATIC VOLTAGE REGULATOR

AVR-A-OPT-04E – AVR-A-OPT-05PE



TRIMPOT FUNCTIONS
P1: Rotating CW, voltage increases.
P2: Rotating CW, reactive compensation range increases.
P3: Rotating CW, dynamic response will be slower.
P4: Rotating CW, dynamic response will be slower.
P5: Rotating CW, U/F range increases and rotating CCW, it decreases.

J1 closed = 60 Hz
J1 open = 50 Hz

E1: Sensing (Input) – 160-300Vca (Single phase)
E2: Sensing (Input) – 320-600Vca (Single phase)

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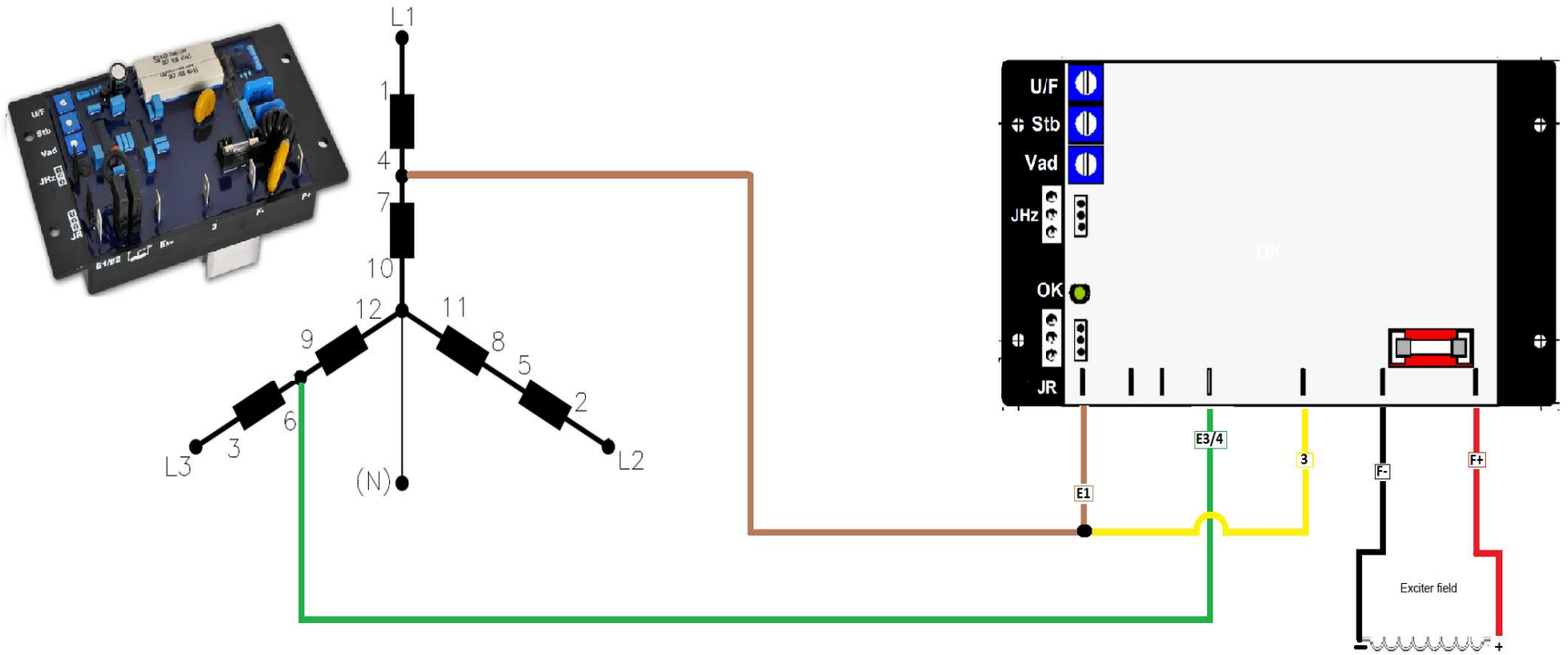
2. CONNECTION WITHOUT AUXILIARY COIL @SHUNT

2.1. Y - STAR SERIES CONNECTION – 12 LEADS

(380-400V @50Hz _ 380-440-480V @60Hz)

AUTOMATIC VOLTAGE REGULATOR

AVR-A-OPT-03



TRIMPOT FUNCTIONS
Vad = Rotating it clockwise, the voltage increases;
Stb = Rotating it clockwise, the system becomes faster
U/F = Rotating it clockwise, the U/F range increases;

JR: E1: Sensing (Input) – 160-300Vca (Single phase) (pins 1 and 2)
JR: E2: Sensing (Input) – 320-600Vca (Single phase) (pins 2 and 3)

JHz : Jumper 50/60 Hz (JHz **1-2** = 50 Hz, JHz **2-3** = 60 Hz).

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AUTOMATIC VOLTAGE REGULATOR

AVR-A-OPT-06

TRIMPOT FUNCTIONS

Vad: Voltage adjustments. Turning clockwise increases voltage;
Stb: Stability adjustments. Turning clockwise slows down stability response
U/F: U/F limiter. Turning clockwise increases the U/F range, counterclockwise it diminishes;
Drp: Droop adjustments. Turning clockwise increases the reactive compensation range;

JHz : Jumper 50/60 Hz (JHz **1-2** = 50 Hz, JHz **2-3** = 60 Hz).

E1: Sensing (Input) – 160-300Vca (Single phase)
E2: Sensing (Input) – 320-600Vca (Single phase)

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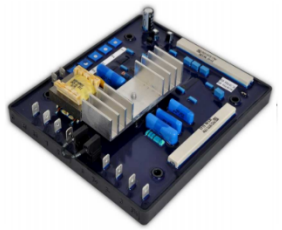
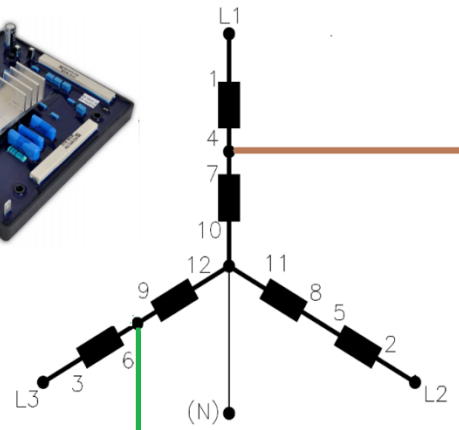
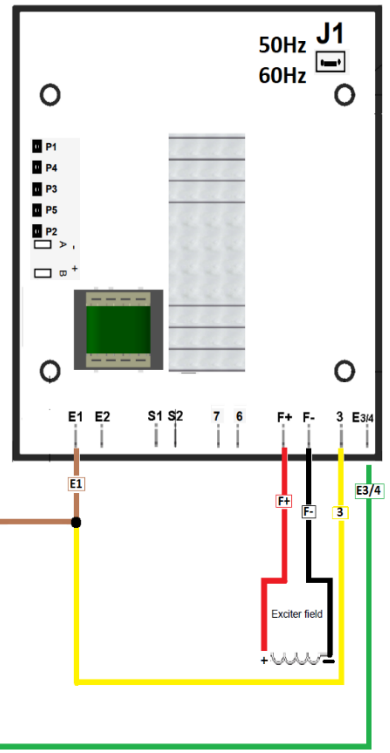
AUTOMATIC VOLTAGE REGULATOR

AVR-A-OPT-04E – AVR-A-OPT-05PE







TRIMPOT FUNCTIONS
P1: Rotating CW, voltage increases.
P2: Rotating CW, reactive compensation range increases.
P3: Rotating CW, dynamic response will be slower.
P4: Rotating CW, dynamic response will be slower.
P5: Rotating CW, U/F range increases and rotating CCW, it decreases.

E1: Sensing (Input) – 160-300Vca (Single phase)
E2: Sensing (Input) – 320-600Vca (Single phase)

J1 closed = 60 Hz
J1 open = 50 Hz

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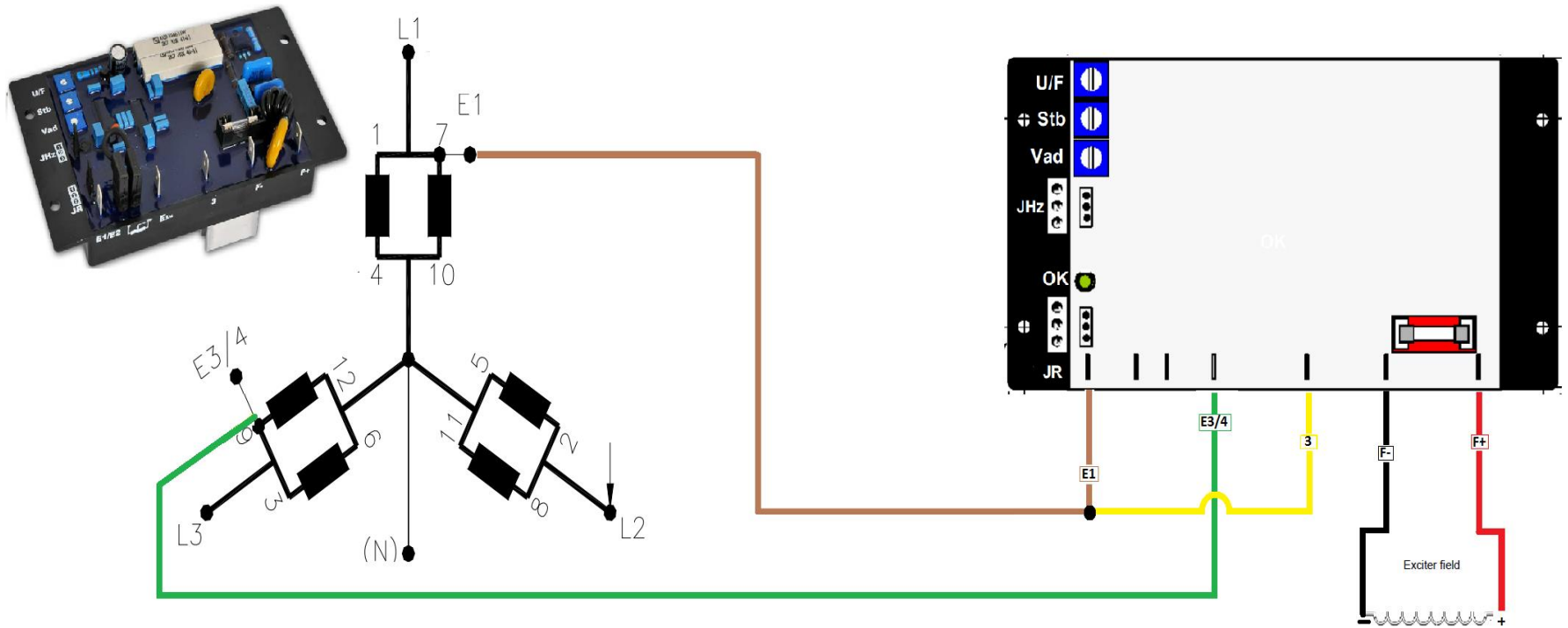
2.2. YY - STAR PARALLEL CONNECTION – 12 LEADS

(190-200V @50Hz _ 190-220-240V @60Hz)

AUTOMATIC VOLTAGE REGULATOR

AVR-A-OPT-03



TRIMPOT FUNCTIONS
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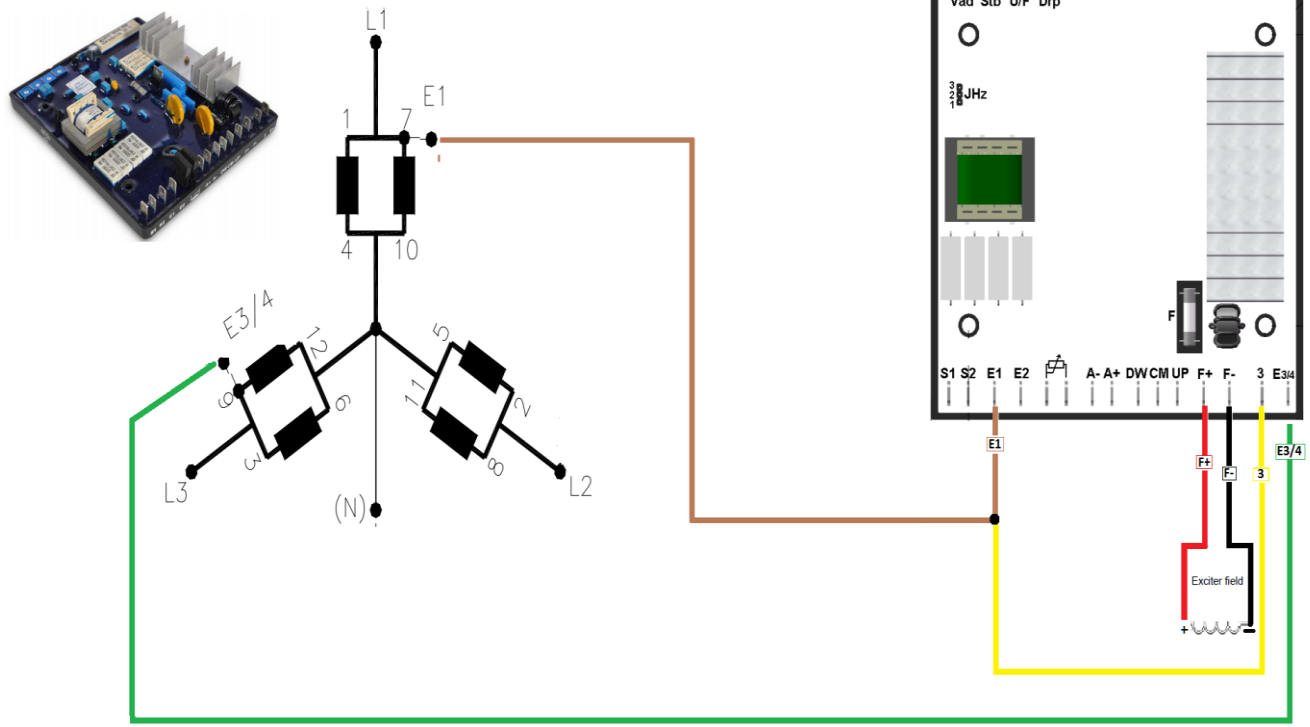
AUTOMATIC VOLTAGE REGULATOR

AVR-A-OPT-06



TRIMPOT FUNCTIONS

Vad: Voltage adjustments. Turning clockwise increases voltage;
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U/F: U/F limiter. Turning clockwise increases the U/F range, counterclockwise it diminishes;
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E1: Sensing (Input) – 160-300Vca (Single phase)
E2: Sensing (Input) – 320-600Vca (Single phase)

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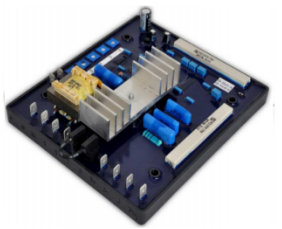
AUTOMATIC VOLTAGE REGULATOR

AVR-A-OPT-04E – AVR-A-OPT-05PE



TRIMPOT FUNCTIONS
P1: Rotating CW, voltage increases.
P2: Rotating CW, reactive compensation range increases.
P3: Rotating CW, dynamic response will be slower.
P4: Rotating CW, dynamic response will be slower.
P5: Rotating CW, U/F range increases and rotating CCW, it decreases.

J1 closed = 60 Hz
J1 open = 50 Hz

E1: Sensing (Input) – 160-300Vca (Single phase)
E2: Sensing (Input) – 320-600Vca (Single phase)

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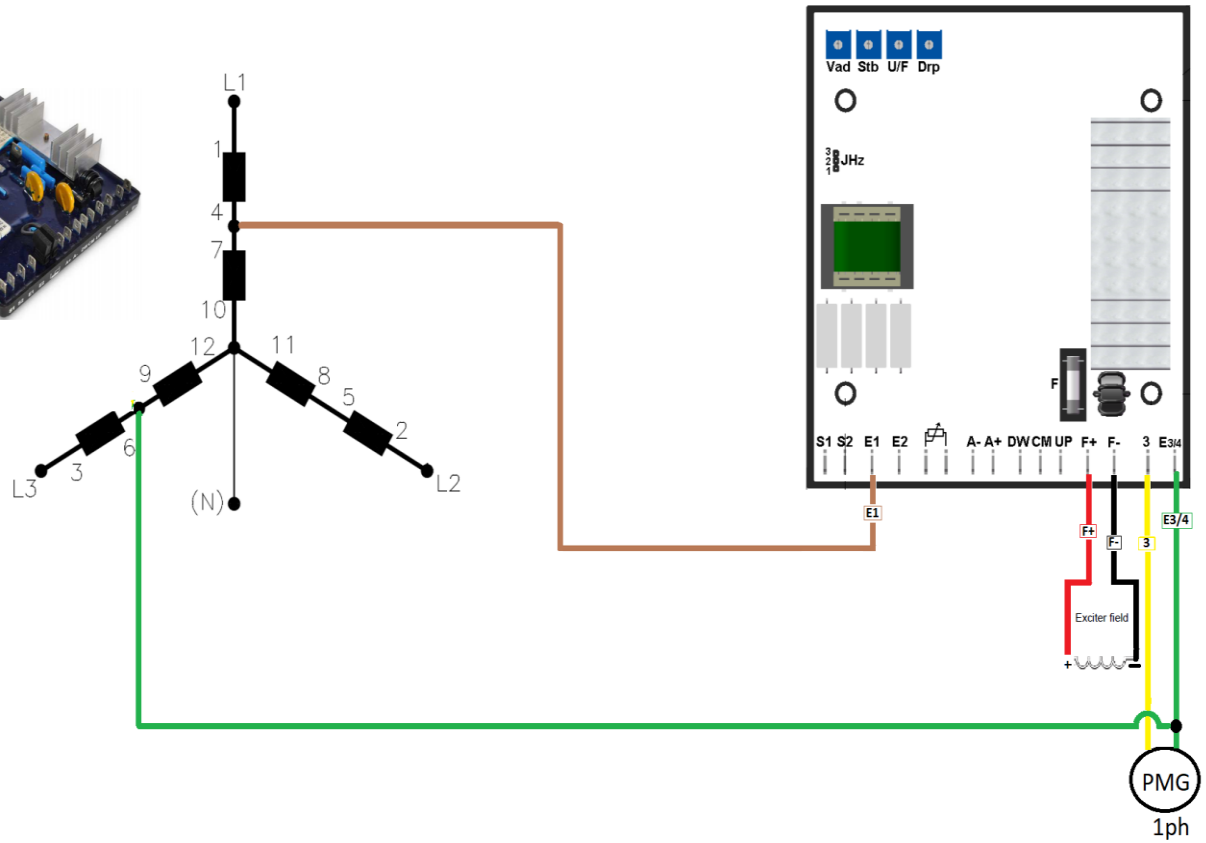
3. CONNECTION WITH 1PH PMG @AG10 LINE ONLY

3.1. Y - STAR SERIES CONNECTION – 12 LEADS

(380-400V @50Hz _ 380-440-480V @60Hz)

AUTOMATIC VOLTAGE REGULATOR

AVR-A-OPT-06



TRIMPOT FUNCTIONS
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E1: Sensing (Input) – 160-300Vca (Single phase)
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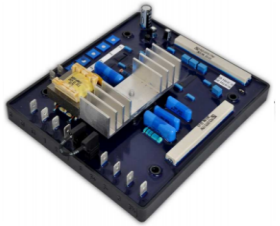
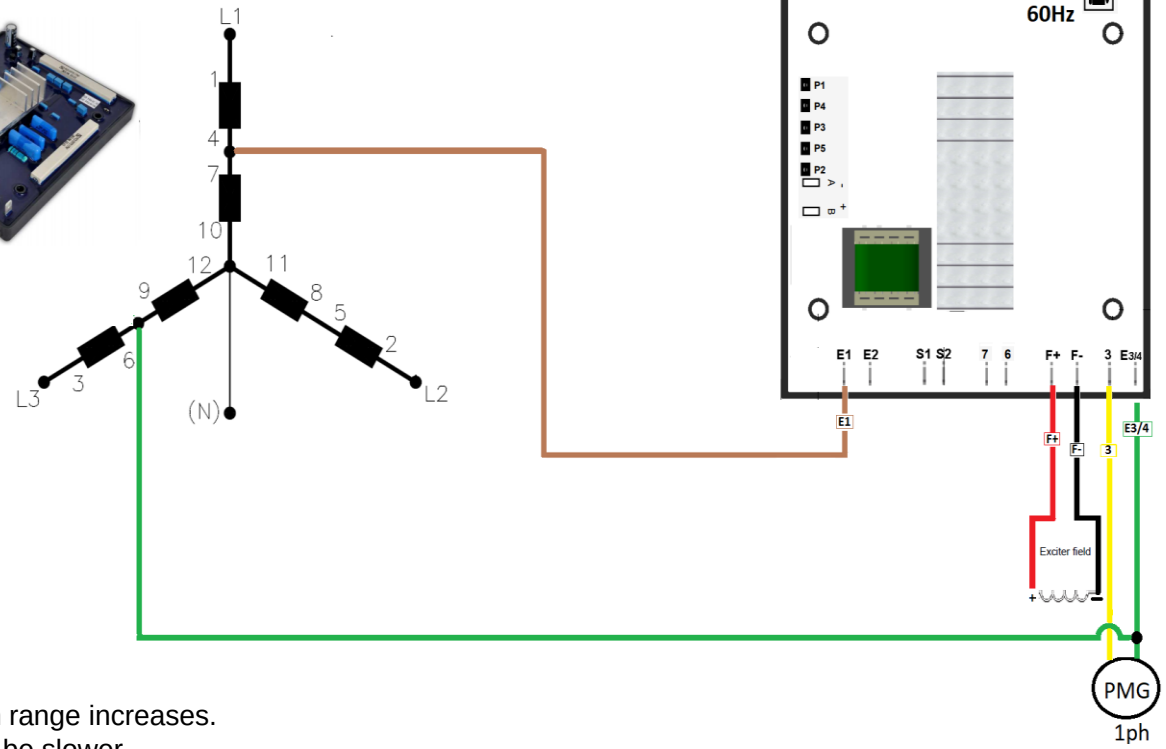
AUTOMATIC VOLTAGE REGULATOR

AVR-A-OPT-04E – AVR-A-OPT-05PE





TRIMPOT FUNCTIONS
P1: Rotating CW, voltage increases.
P2: Rotating CW, reactive compensation range increases.
P3: Rotating CW, dynamic response will be slower.
P4: Rotating CW, dynamic response will be slower.
P5: Rotating CW, U/F range increases and rotating CCW, it decreases.

J1 closed = 60 Hz
J1 open = 50 Hz

E1: Sensing (Input) – 160-300Vca (Single phase)
E2: Sensing (Input) – 320-600Vca (Single phase)

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3.2. YY - STAR PARALLEL CONNECTION – 12 LEADS

(190-200V @50Hz _ 190-220-240V @60Hz)

AUTOMATIC VOLTAGE REGULATOR

AVR-A-OPT-06

TRIMPOT FUNCTIONS
Vad: Voltage adjustments. Turning clockwise increases voltage;
Stb: Stability adjustments. Turning clockwise slows down stability response
U/F: U/F limiter. Turning clockwise increases the U/F range, counterclockwise it diminishes;
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JHz : Jumper 50/60 Hz (JHz **1-2** = 50 Hz, JHz **2-3** = 60 Hz).

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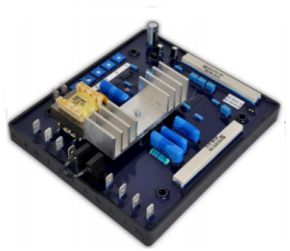
AUTOMATIC VOLTAGE REGULATOR

AVR-A-OPT-04E – AVR-A-OPT-05PE



TRIMPOT FUNCTIONS
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P2: Rotating CW, reactive compensation range increases.
P3: Rotating CW, dynamic response will be slower.
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P5: Rotating CW, U/F range increases and rotating CCW, it decreases.

J1 closed = 60 Hz
J1 open = 50 Hz

E1: Sensing (Input) – 160-300Vca (Single phase)
E2: Sensing (Input) – 320-600Vca (Single phase)

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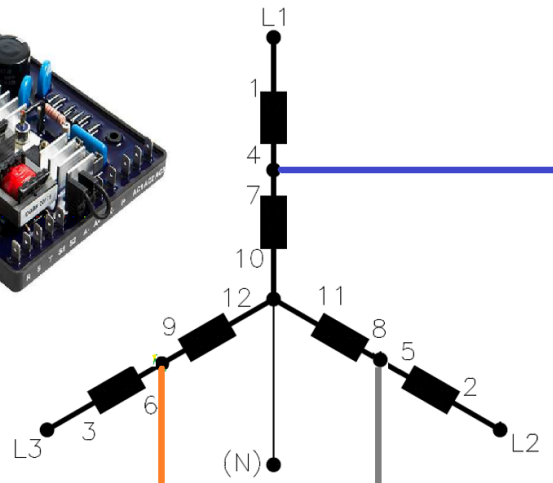
4. CONNECTION WITH 3PH PMG @GTA LINE ONLY

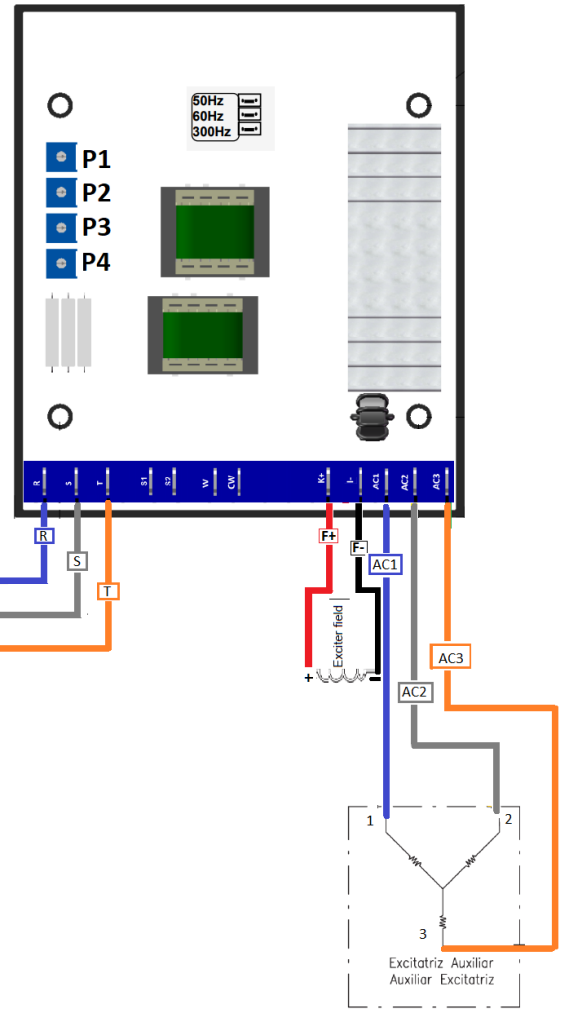
4.1. Y - STAR SERIES CONNECTION – 12 LEADS

(380-400V @50Hz _ 380-440-480V @60Hz)

AUTOMATIC VOLTAGE REGULATOR

AVR-A-OPT-16





TRIMPOT FUNCTIONS
P1: Voltage adjustment
P2: Stability adjustment.
P3: Under frequency adjustment.
P4: Droop adjustment.

P1: Rotating CW, voltage increases.
P2: Rotating CW, dynamic response will be slower.
P3: Rotating CW, U/F range increases and rotating CCW, it decreases.
P4: Rotating CW, reactive compensation range increases.

J1 A = 50 Hz
J1 B = 60 Hz

R;S;T: Sensing Voltage.
AC1;AC2;AC3: Power supply.
S1[1]: Connection for pole S1 of the CT.
S2[1]: Connection for pole S2 of the CT.
6 and 7: Connection for potentiometer 5KΩ/3W.
I+, K-: Connection for generator field. J1: Jumper 50/60Hz.
A+: Analog input voltage –Vdc.
A-: Analog input voltage + Vdc.

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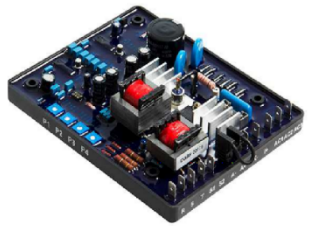
4.2. YY - STAR PARALLEL CONNECTION – 12 LEADS

(190-200V @50Hz _ 190-220-240V @60Hz)

AUTOMATIC VOLTAGE REGULATOR

AVR-A-OPT-16



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R;S;T: Sensing Voltage.
AC1;AC2;AC3: Power supply.
S1[1]: Connection for pole S1 of the CT.
S2[1]: Connection for pole S2 of the CT.
6 and 7: Connection for potentiometer 5KΩ/3W.
I+, K-: Connection for generator field. J1: Jumper 50/60Hz.
A+: Analog input voltage –Vdc.
A-: Analog input voltage + Vdc.

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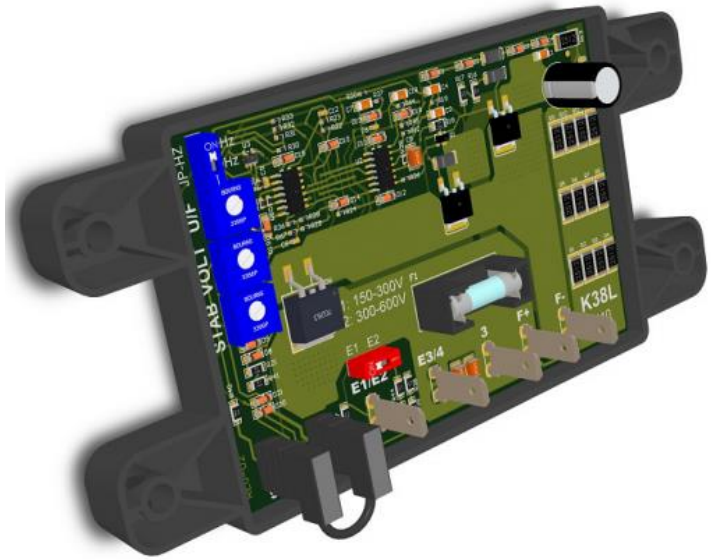
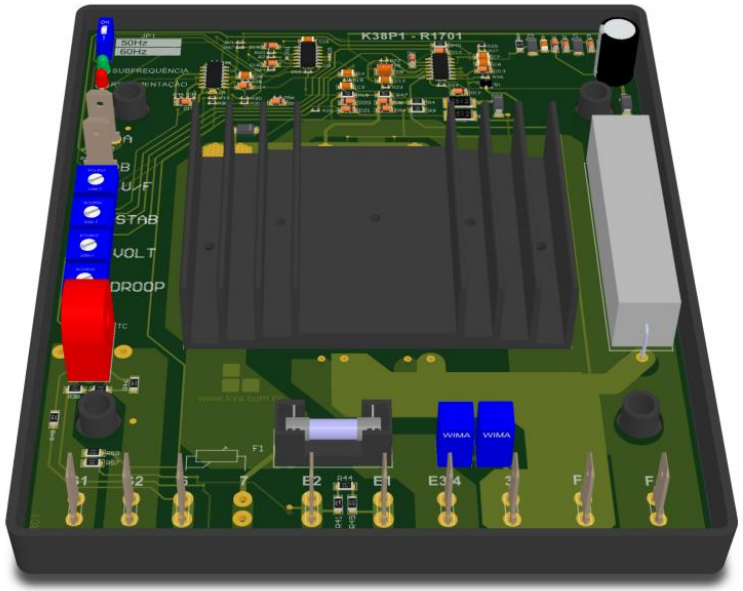
AVRs = KVA Models

AUTOMATIC VOLTAGE REGULATOR

Model



K38L
KVA



K38P1
KVA

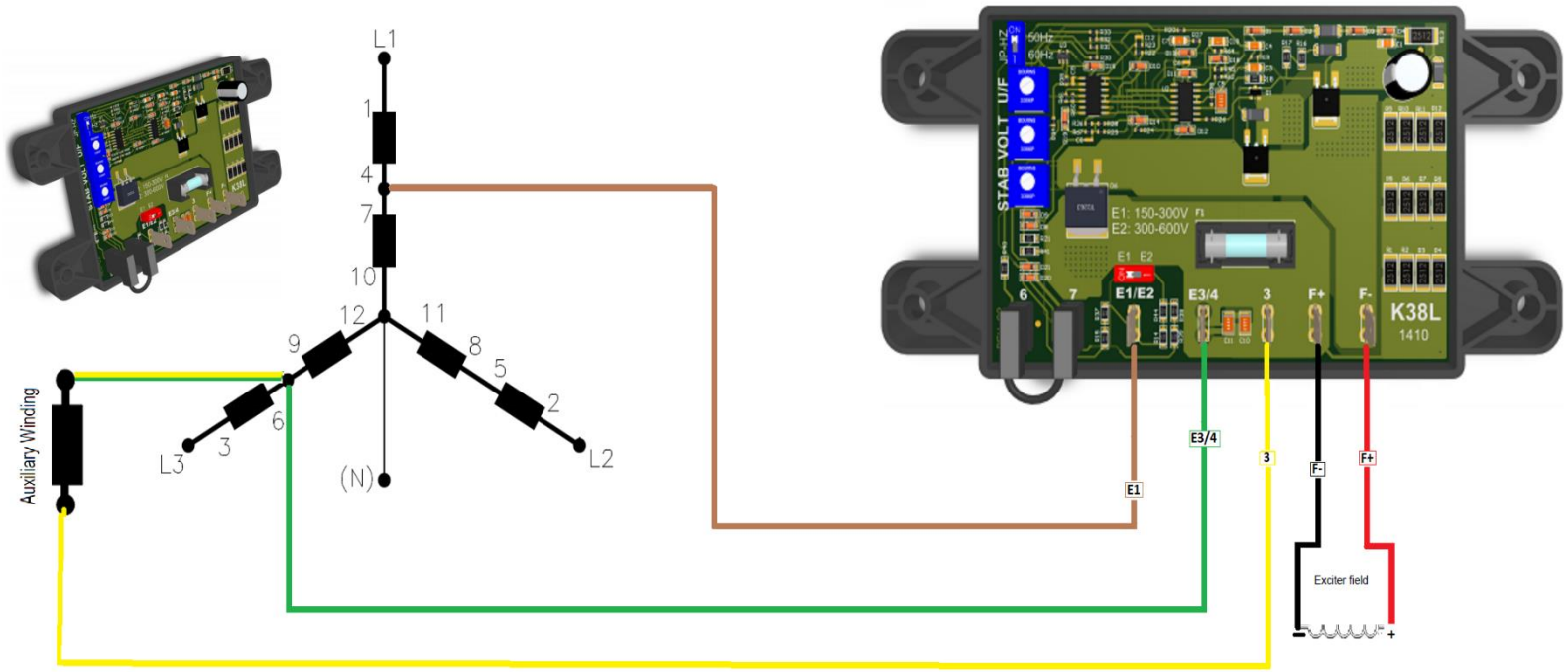
1. CONNECTION WITH AUXILIARY COIL

1.1. Y - STAR SERIES CONNECTION – 12 LEADS

(380-400V @50Hz _ 380-440-480V @60Hz)

AUTOMATIC VOLTAGE REGULATOR

K38L



SW1: Operation Frequency Selection. ON: 50Hz - OFF: 60Hz
SW2: E1/E2 Sensing Voltage Selection. ON: 150~300Vac OFF: 300~600Vac;

TRIMPOT FUNCTIONS
VOLT: Voltage adjustment. Turning clockwise increases the voltage;
U/F: Fine U/F trigger adjustment. Turning clockwise increases the actuation point;
STAB: Stability adjustment. Turning clockwise increases the stability but the response time to load variation is slower

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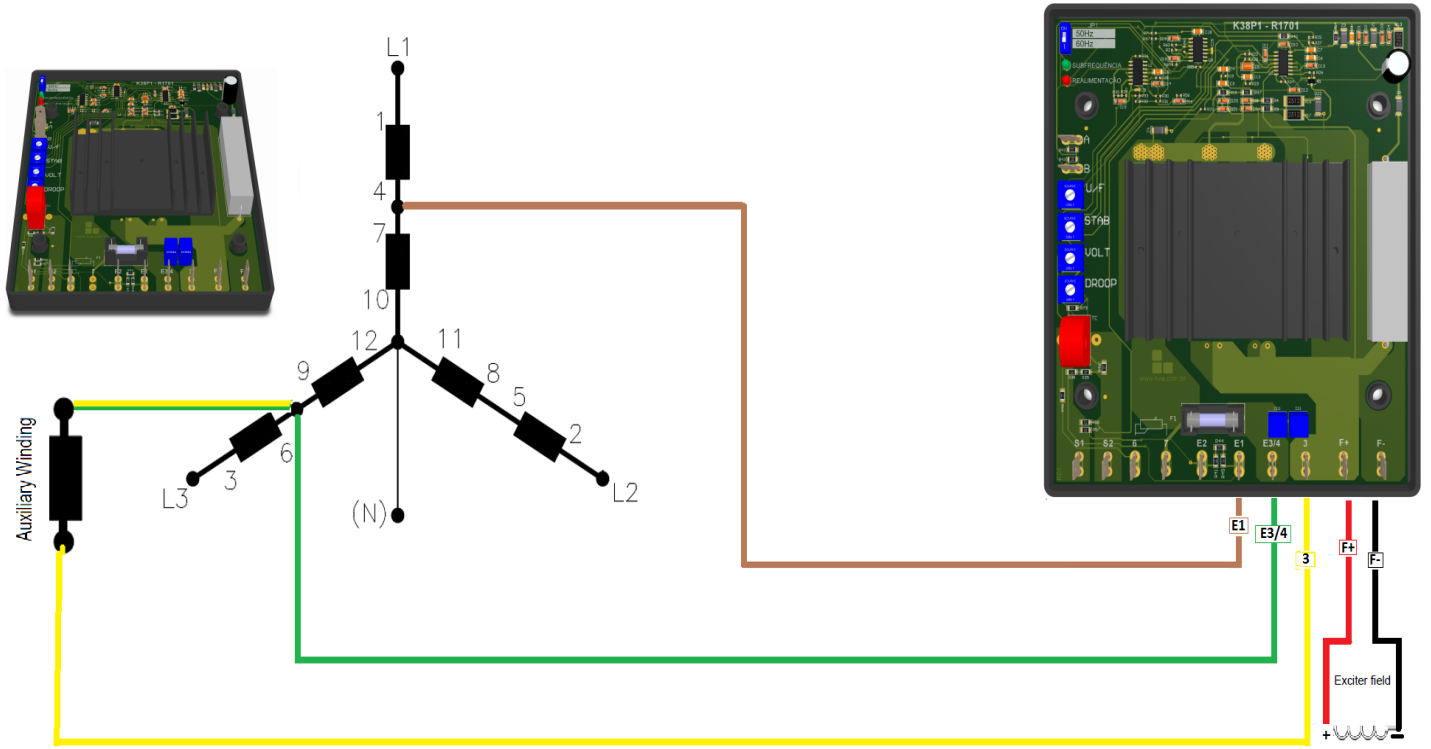
AUTOMATIC VOLTAGE REGULATOR

K38P1



TRIMPOT FUNCTIONS
VOLT: Voltage adjustments. Turning clockwise increases voltage;
Stb: Stability adjustments. Turning clockwise slows down stability response
U/F: U/F limiter. Turning clockwise increases the U/F range, counterclockwise it diminishes;
Droop: Droop adjustments. Turning clockwise increases the reactive compensation range;

JP1: Operation Frequency Selection. ON: 50Hz - OFF: 60Hz

E1: Sensing (Input) – 160-300Vac (Single Phase)
E2: Sensing (Input) – 320-600Vac (Single Phase)

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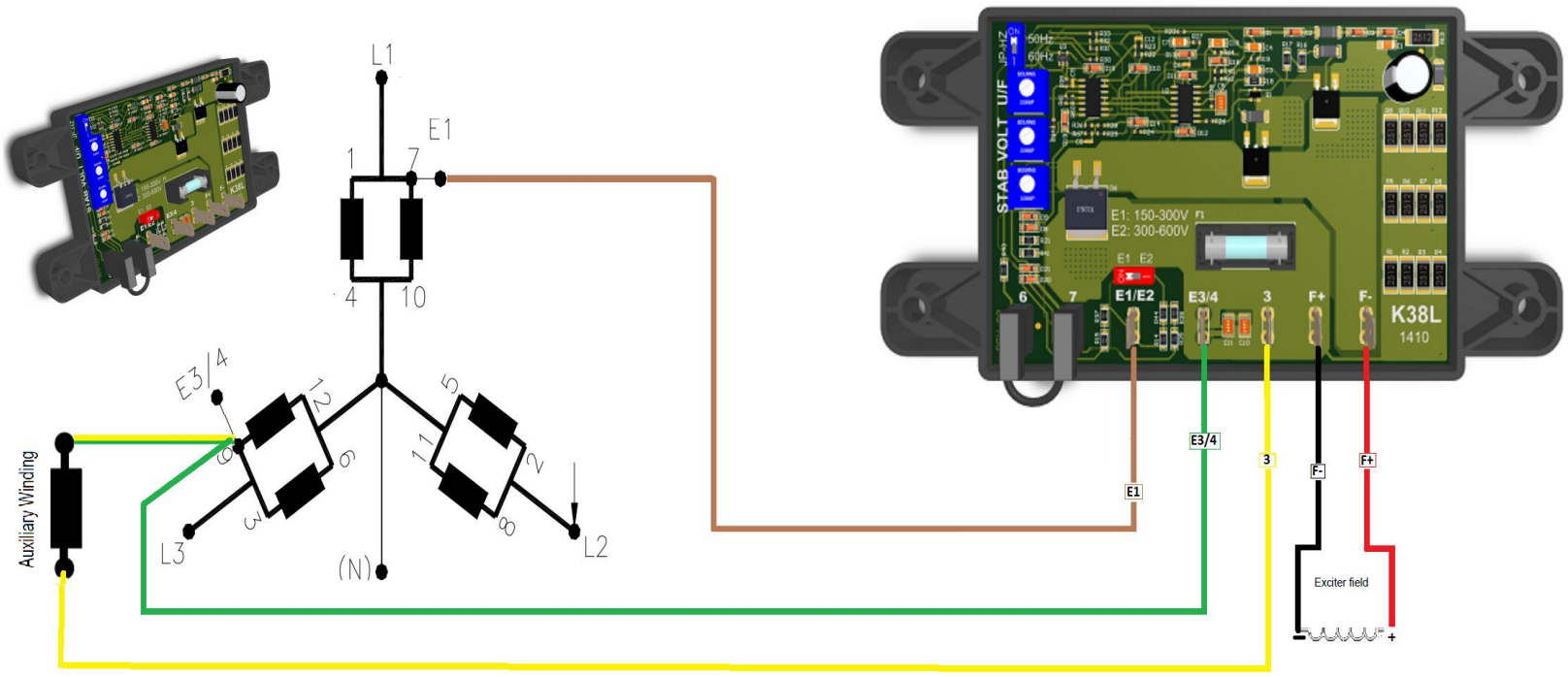
1.2. YY - STAR PARALLEL CONNECTION – 12 LEADS

(190-200V @50Hz _ 190-220-240V @60Hz)

AUTOMATIC VOLTAGE REGULATOR

K38L



SW1: Operation Frequency Selection. ON: 50Hz - OFF: 60Hz
SW2: E1/E2 Sensing Voltage Selection. ON: 150~300Vac OFF: 300~600Vac;

TRIMPOT FUNCTIONS
VOLT: Voltage adjustment. Turning clockwise increases the voltage;
U/F: Fine U/F trigger adjustment. Turning clockwise increases the actuation point;
STAB: Stability adjustment. Turning clockwise increases the stability but the response time to load variation is slower

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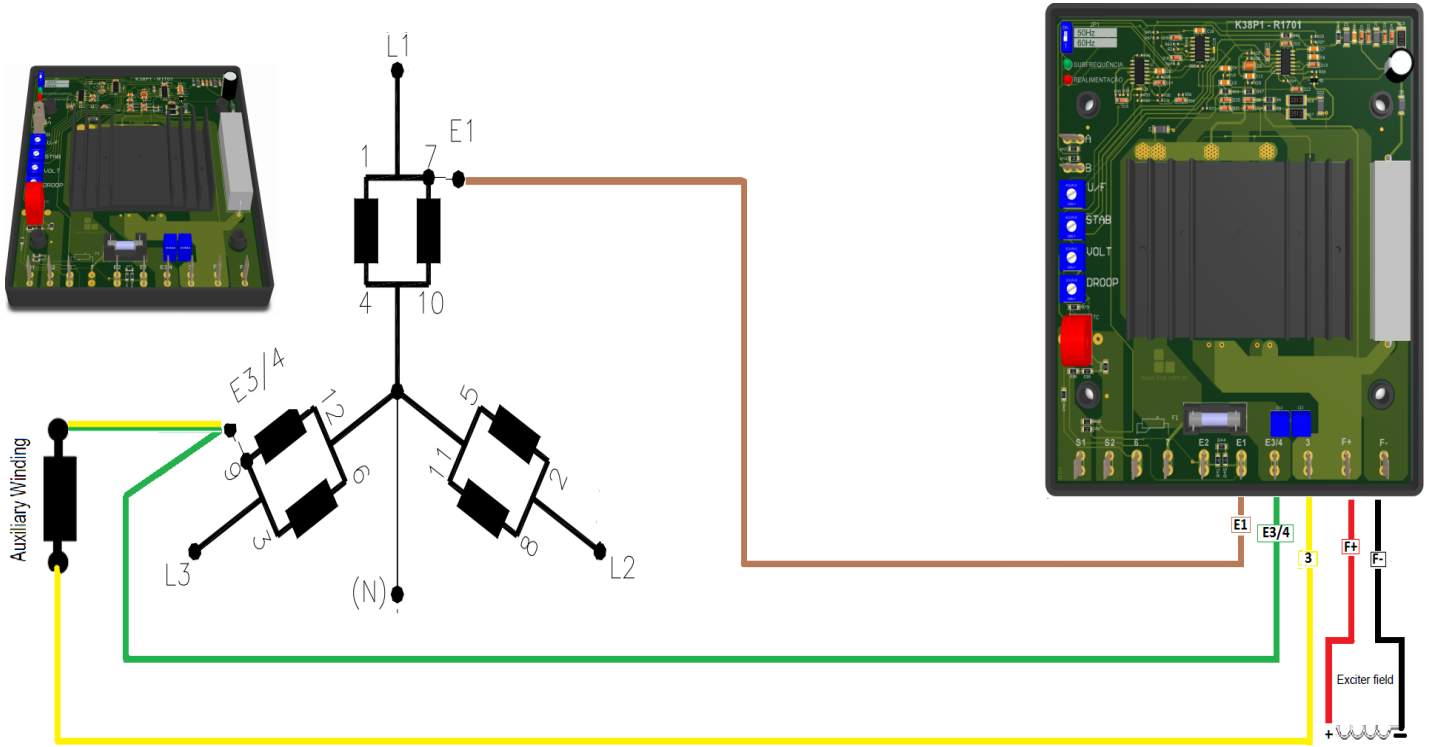
AUTOMATIC VOLTAGE REGULATOR

K38P1



TRIMPOT FUNCTIONS
VOLT: Voltage adjustments. Turning clockwise increases voltage;
Stb: Stability adjustments. Turning clockwise slows down stability response
U/F: U/F limiter. Turning clockwise increases the U/F range, counterclockwise it diminishes;
Droop: Droop adjustments. Turning clockwise increases the reactive compensation range;

JP1: Operation Frequency Selection. ON: 50Hz - OFF: 60Hz

E1: Sensing (Input) – 160-300Vac (Single Phase)
E2: Sensing (Input) – 320-600Vac (Single Phase)

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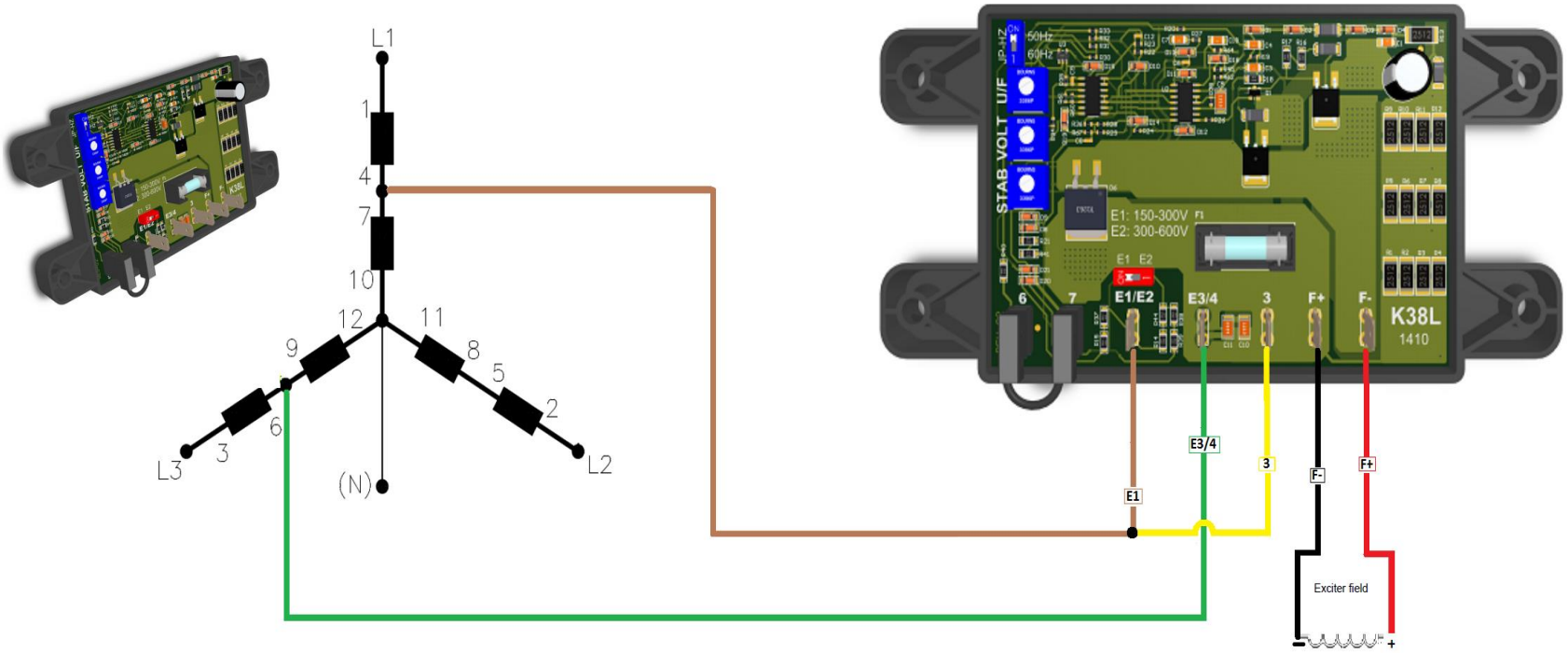
2. CONNECTION WITHOUT AUXILIARY COIL @SHUNT

2.1. Y - STAR SERIES CONNECTION – 12 LEADS

(380-400V @50Hz _ 380-440-480V @60Hz)

AUTOMATIC VOLTAGE REGULATOR

K38L



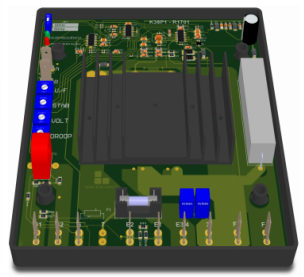
SW1: Operation Frequency Selection. ON: 50Hz - OFF: 60Hz
SW2: E1/E2 Sensing Voltage Selection. ON: 150~300Vac OFF: 300~600Vac;

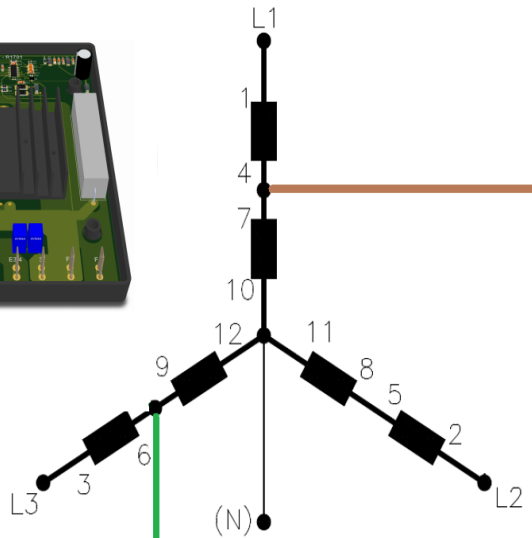
TRIMPOT FUNCTIONS
VOLT: Voltage adjustment. Turning clockwise increases the voltage;
U/F: Fine U/F trigger adjustment. Turning clockwise increases the actuation point;
STAB: Stability adjustment. Turning clockwise increases the stability but the response time to load variation is slower

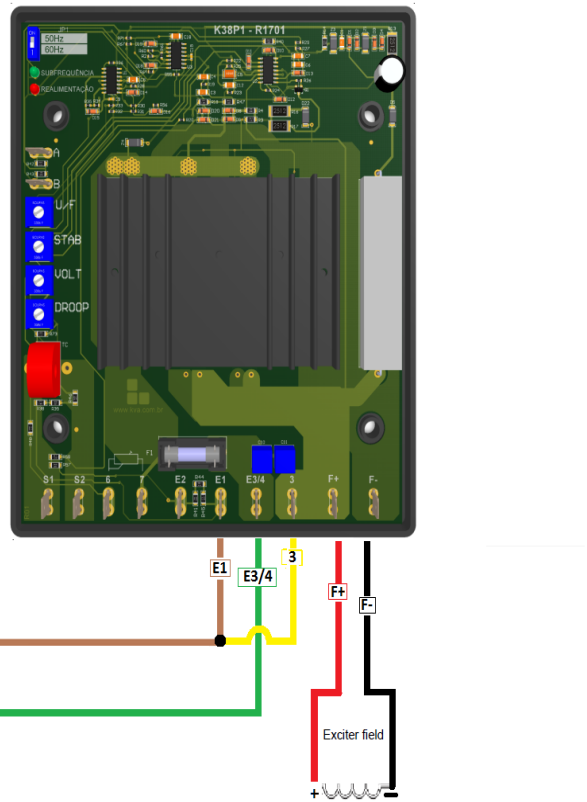
https://static.weg.net/medias/downloadcenter/hb2/h65/WEG-regulador-automatico-de-tensao-k38l-manual-portugues-br-dc.pdf

AUTOMATIC VOLTAGE REGULATOR

K38P1







TRIMPOT FUNCTIONS
VOLT: Voltage adjustments. Turning clockwise increases voltage;
Stb: Stability adjustments. Turning clockwise slows down stability response
U/F: U/F limiter. Turning clockwise increases the U/F range, counterclockwise it diminishes;
Droop: Droop adjustments. Turning clockwise increases the reactive compensation range;

JP1: Operation Frequency Selection. ON: 50Hz - OFF: 60Hz

E1: Sensing (Input) – 160-300Vac (Single Phase)
E2: Sensing (Input) – 320-600Vac (Single Phase)

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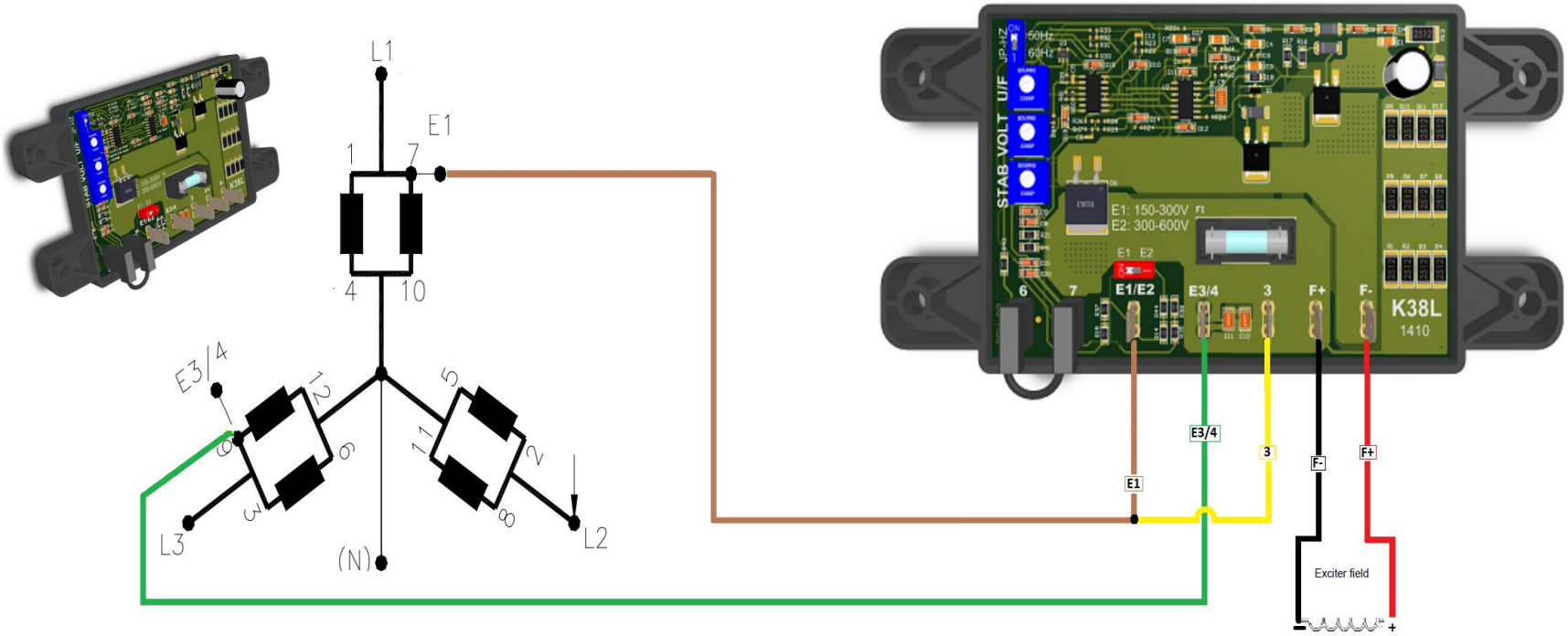
2.2. YY - STAR PARALLEL CONNECTION – 12 LEADS

(190-200V @50Hz _ 190-220-240V @60Hz)

AUTOMATIC VOLTAGE REGULATOR

K38L



SW1: Operation Frequency Selection. ON: 50Hz - OFF: 60Hz
SW2: E1/E2 Sensing Voltage Selection. ON: 150~300Vac OFF: 300~600Vac;

TRIMPOT FUNCTIONS
VOLT: Voltage adjustment. Turning clockwise increases the voltage;
U/F: Fine U/F trigger adjustment. Turning clockwise increases the actuation point;
STAB: Stability adjustment. Turning clockwise increases the stability but the response time to load variation is slower

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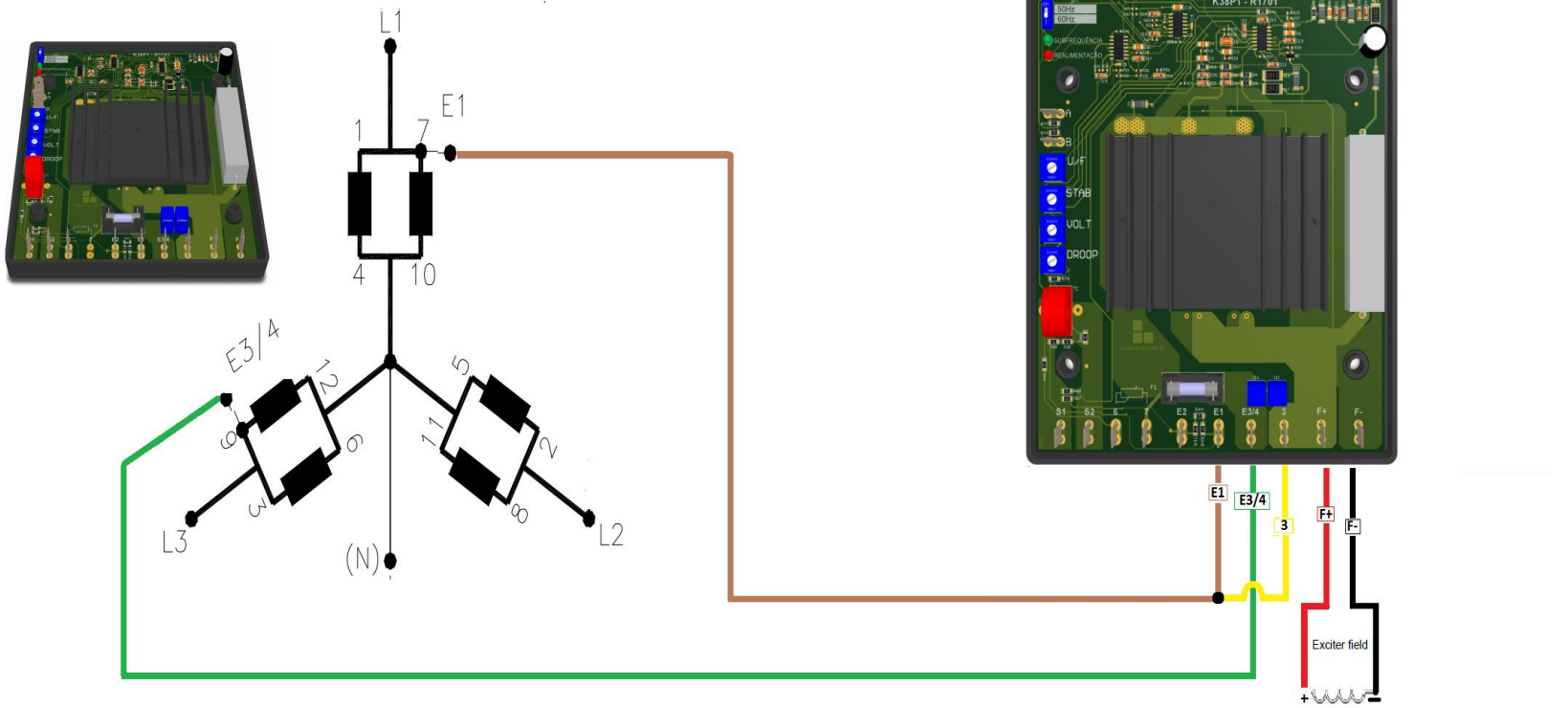
AUTOMATIC VOLTAGE REGULATOR

K38P1



TRIMPOT FUNCTIONS
VOLT: Voltage adjustments. Turning clockwise increases voltage;
Stb: Stability adjustments. Turning clockwise slows down stability response
U/F: U/F limiter. Turning clockwise increases the U/F range, counterclockwise it diminishes;
Droop: Droop adjustments. Turning clockwise increases the reactive compensation range;

JP1: Operation Frequency Selection. ON: 50Hz - OFF: 60Hz

E1: Sensing (Input) – 160-300Vac (Single Phase)
E2: Sensing (Input) – 320-600Vac (Single Phase)

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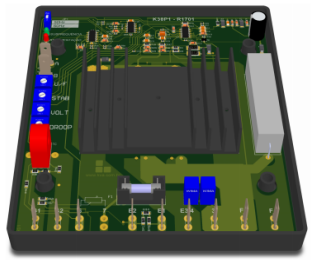
3. CONNECTION WITH 1PH PMG @AG10 LINE ONLY

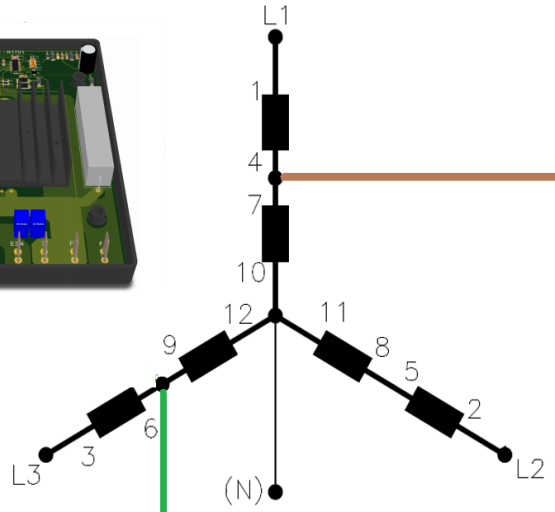
3.1. Y - STAR SERIES CONNECTION – 12 LEADS

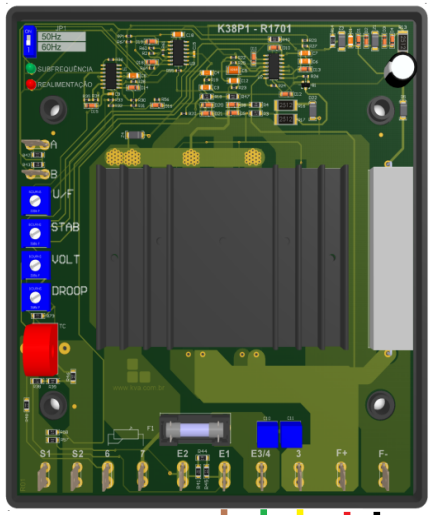
(380-400V @50Hz _ 380-440-480V @60Hz)

AUTOMATIC VOLTAGE REGULATOR

K38P1







TRIMPOT FUNCTIONS
VOLT: Voltage adjustments. Turning clockwise increases voltage;
Stb: Stability adjustments. Turning clockwise slows down stability response
U/F: U/F limiter. Turning clockwise increases the U/F range, counterclockwise it diminishes;
Droop: Droop adjustments. Turning clockwise increases the reactive compensation range;

JP1: Operation Frequency Selection. ON: 50Hz - OFF: 60Hz

E1: Sensing (Input) – 160-300Vac (Single Phase)
E2: Sensing (Input) – 320-600Vac (Single Phase)

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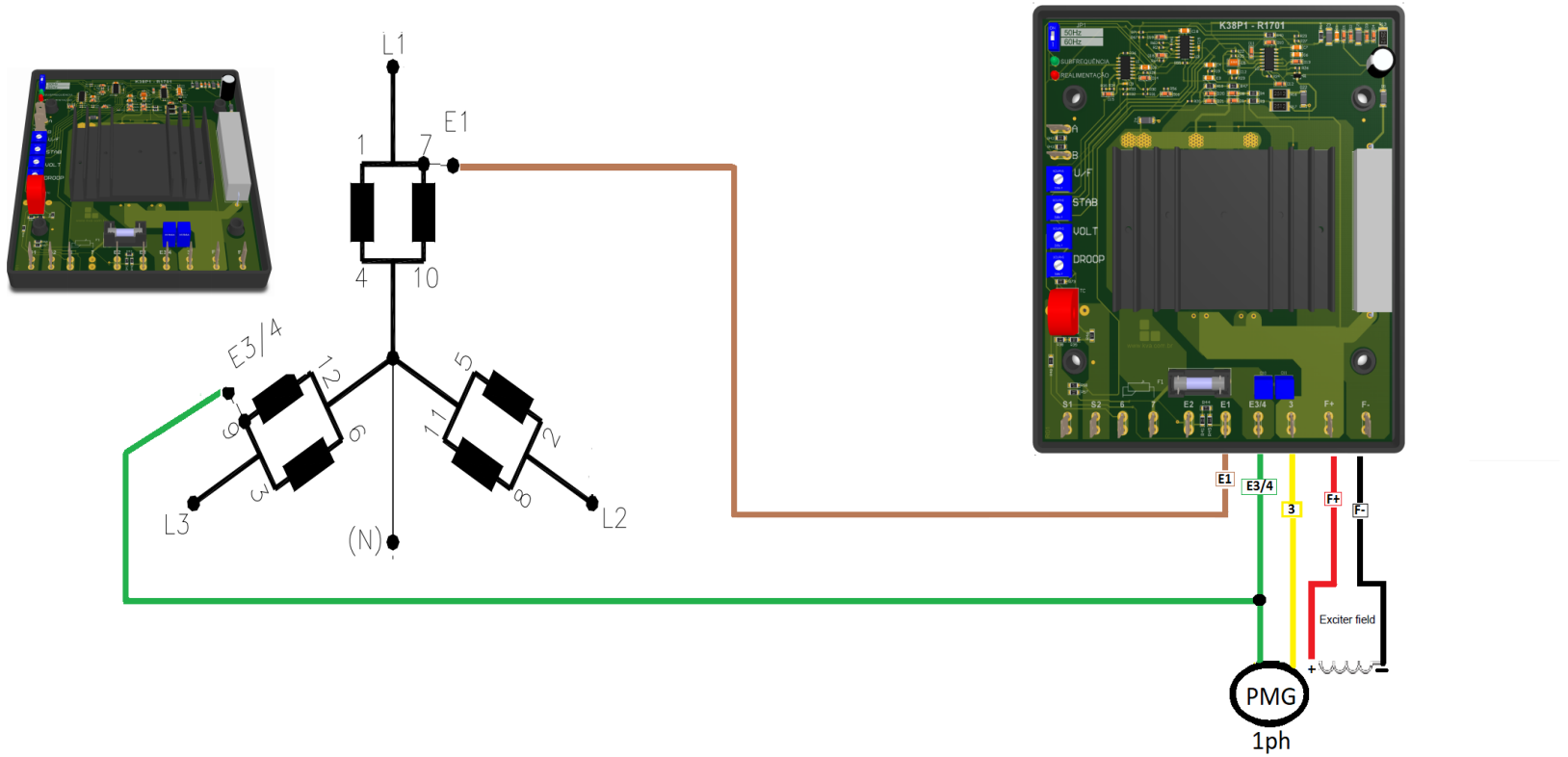
3.2. YY - STAR PARALLEL CONNECTION – 12 LEADS

(190-200V @50Hz _ 190-220-240V @60Hz)

AUTOMATIC VOLTAGE REGULATOR

K38P1



TRIMPOT FUNCTIONS
VOLT: Voltage adjustments. Turning clockwise increases voltage;
Stb: Stability adjustments. Turning clockwise slows down stability response
U/F: U/F limiter. Turning clockwise increases the U/F range, counterclockwise it diminishes;
Droop: Droop adjustments. Turning clockwise increases the reactive compensation range;

JP1: Operation Frequency Selection. ON: 50Hz - OFF: 60Hz

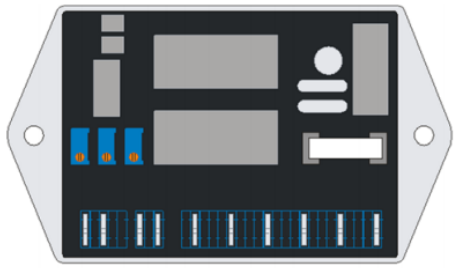
E1: Sensing (Input) – 160-300Vac (Single Phase)
E2: Sensing (Input) – 320-600Vac (Single Phase)

https://static.weg.net/medias/downloadcenter/h1d/hd4/WEG-regulador-automatico-de-tensao-k38P1-manual-portugues-br-dc.pdf

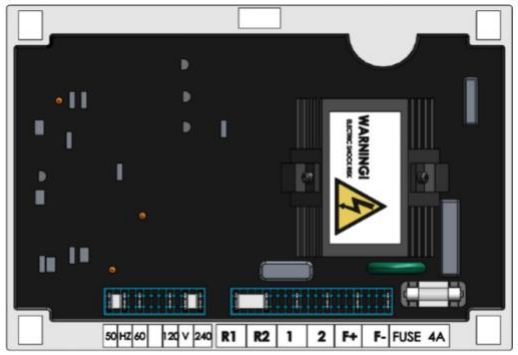
AVRs = GT10 Models

AUTOMATIC VOLTAGE REGULATOR

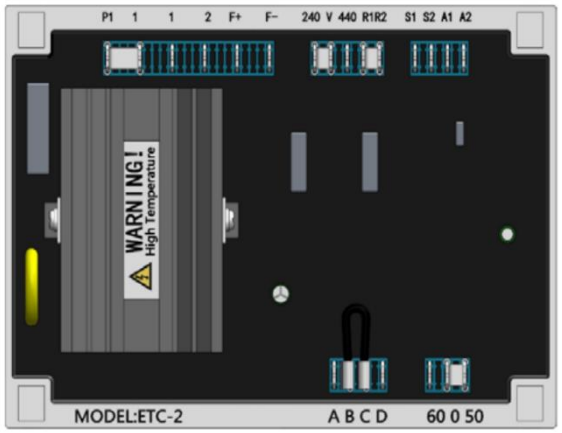
Model



ETCA-1 (Frame 160-180)
GT10 Line



ETC-1 (Frame 225)
GT10 Line



ETC-2 (Frame 250)
GT10 Line

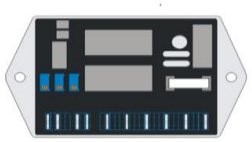
1. CONNECTION WITHOUT AUXILIARY COIL @SHUNT

1.1. Y - STAR SERIES CONNECTION – 12 LEADS

(380-415V @50Hz _ 380-440-480V @60Hz)

AUTOMATIC VOLTAGE REGULATOR

ETC-A1



“Hz1” and “Hz2” are the terminals for selecting the alternator frequency. To use at 50Hz, “Hz1” and “Hz2” must be short-circuited. To use at 60Hz, “Hz1” and “Hz2” must be disconected.

“V1” abd “V2” are the terminal for selecting the alternator checking voltage. “To use at 120V, “V1” and “V2” must be short-circuited. To use at 240V, “V1” and “V2” must be disconected.

By turning “VOLT” trimpot clockwise, tthe alternator output voltage increases.
By turning “VOLT” trimpot counterclockwise, tthe alternator output voltage decreases.

For rated frequency of 50Hz, the jnee point should be set at 47Hz.
For rated frequency of 60Hz, the jnee point should be set at 57Hz.

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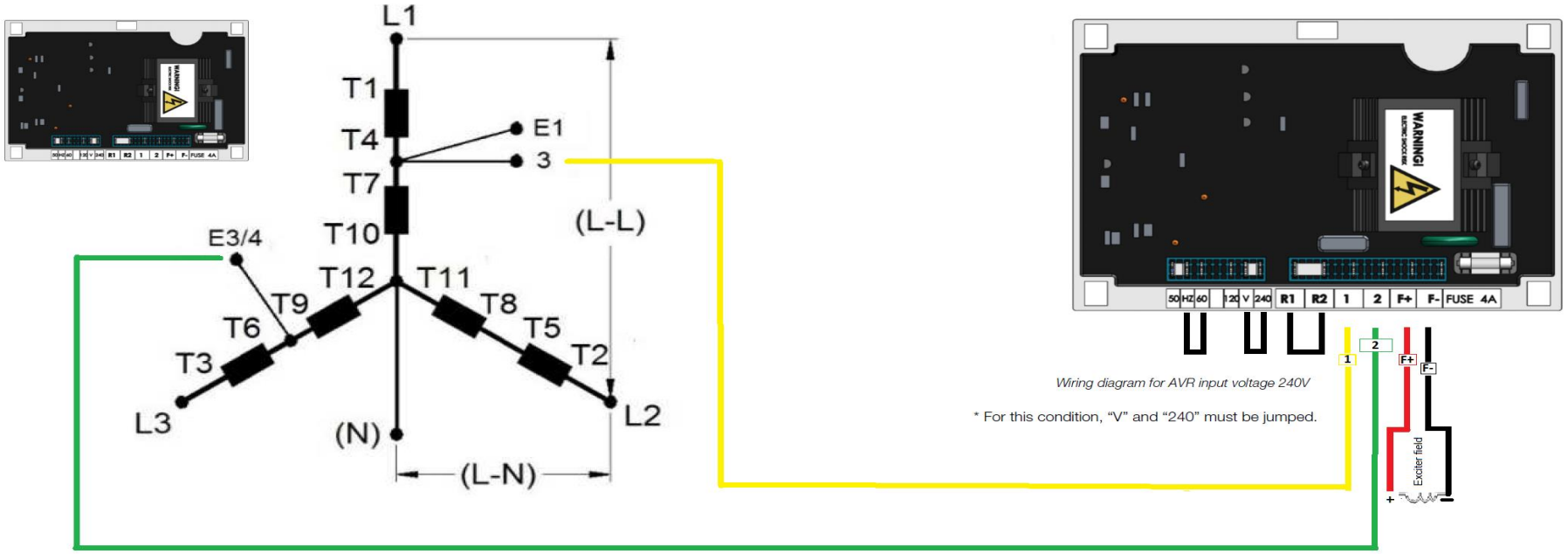
AUTOMATIC VOLTAGE REGULATOR

ETC-1



By turning "VOLT" trimpot clockwise, tthe alternator output voltage increases.
By turning "VOLT" trimpot counterclockwise, tthe alternator output voltage decreases.

For rated frequency of 50Hz, the jnee point should be set at 47Hz.
For rated frequency of 60Hz, the jnee point should be set at 57Hz.

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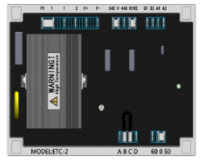
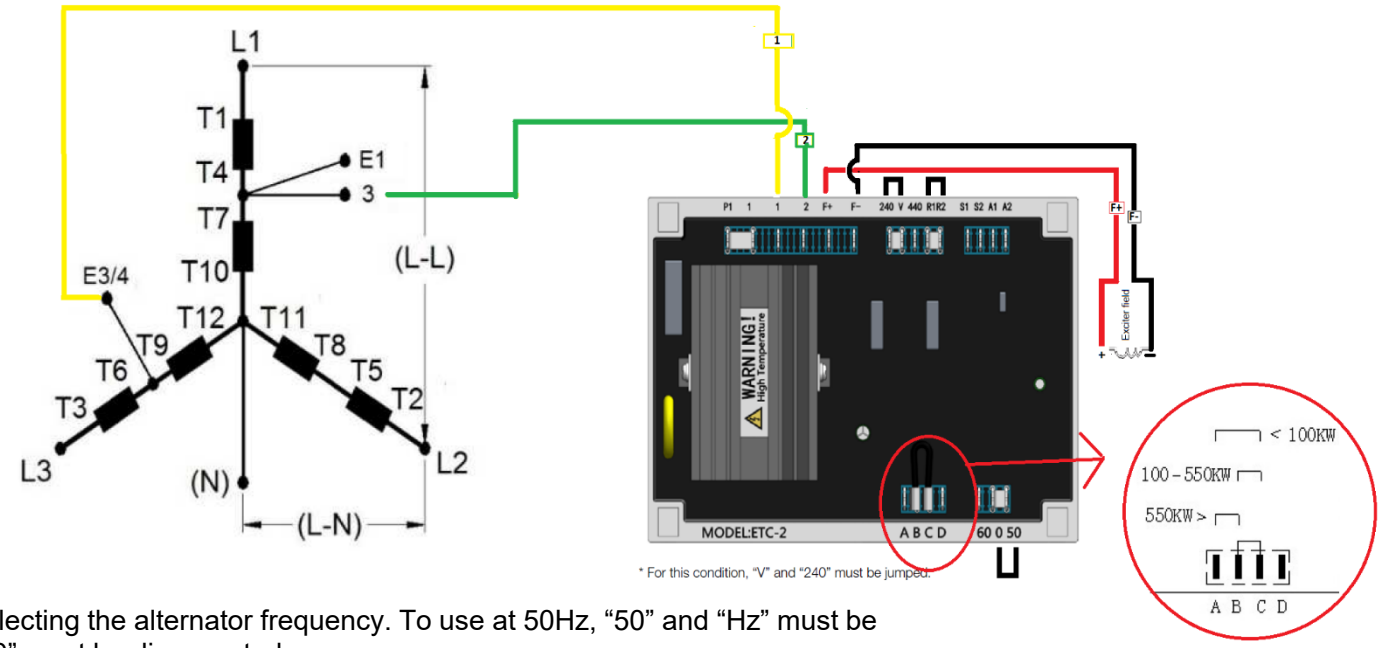
AUTOMATIC VOLTAGE REGULATOR

ETC-2





"50", "Hz" and "60" are the terminals for selecting the alternator frequency. To use at 50Hz, "50" and "Hz" must be short-circuited. To use at 60Hz, "Hz" and "60" must be disconected.

"240" abd **"440"** are the terminal for selecting the alternator checking voltage. "To use at 240V, "240" and "V" must be short-circuited. To use at 440V, "440" and "V" must be short-circuited..

By turning "VOLT" trimpot clockwise, tthe alternator output voltage increases.
By turning "VOLT" trimpot counterclockwise, tthe alternator output voltage decreases.

For rated frequency of 50Hz, the jnee point should be set at 47Hz.
For rated frequency of 60Hz, the jnee point should be set at 57Hz.

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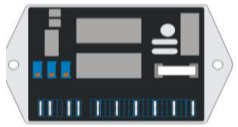
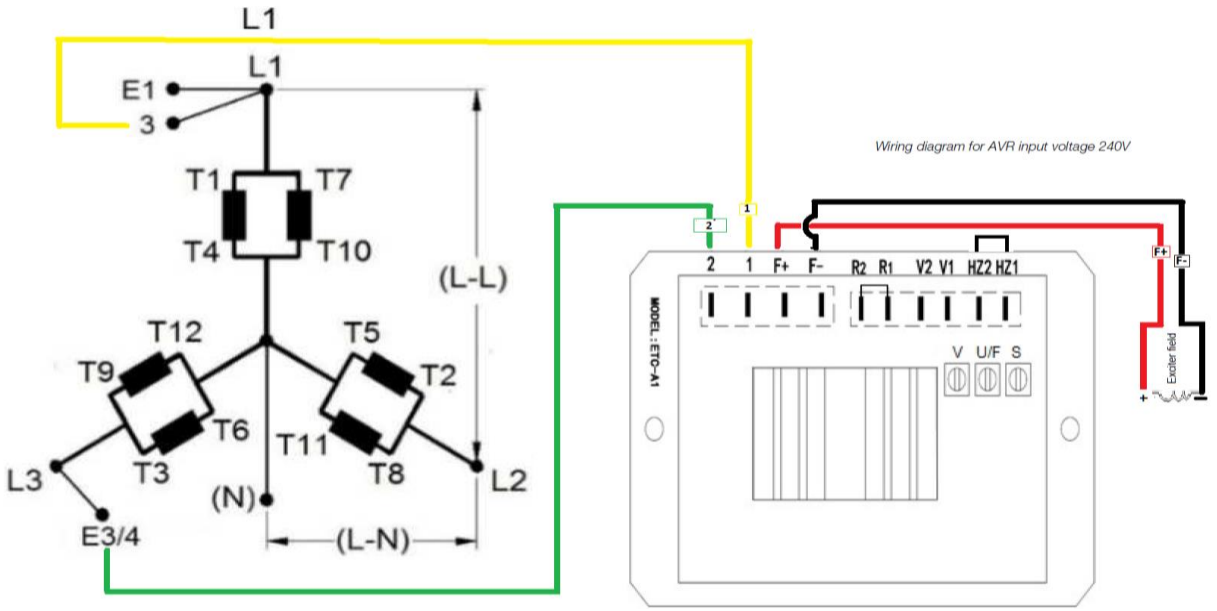
1.2. YY - STAR PARALLEL CONNECTION – 12 LEADS

(190-240V @50Hz _ 190-220-240V @60Hz)

AUTOMATIC VOLTAGE REGULATOR

ETC-A1





“Hz1” and “Hz2” are the terminals for selecting the alternator frequency. To use at 50Hz, “Hz1” and “Hz2” must be short-circuited. To use at 60Hz, “Hz1” and “Hz2” must be disconected.

“V1” abd “V2” are the terminal for selecting the alternator checking voltage. “To use at 120V, “V1” and “V2” must be short-circuited. To use at 240V, “V1” and “V2” must be disconected.

By turning “VOLT” trimpot clockwise, tthe alternator output voltage increases.
By turning “VOLT” trimpot counterclockwise, tthe alternator output voltage decreases.

For rated frequency of 50Hz, the jnee point should be set at 47Hz.
For rated frequency of 60Hz, the jnee point should be set at 57Hz.

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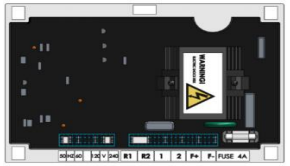
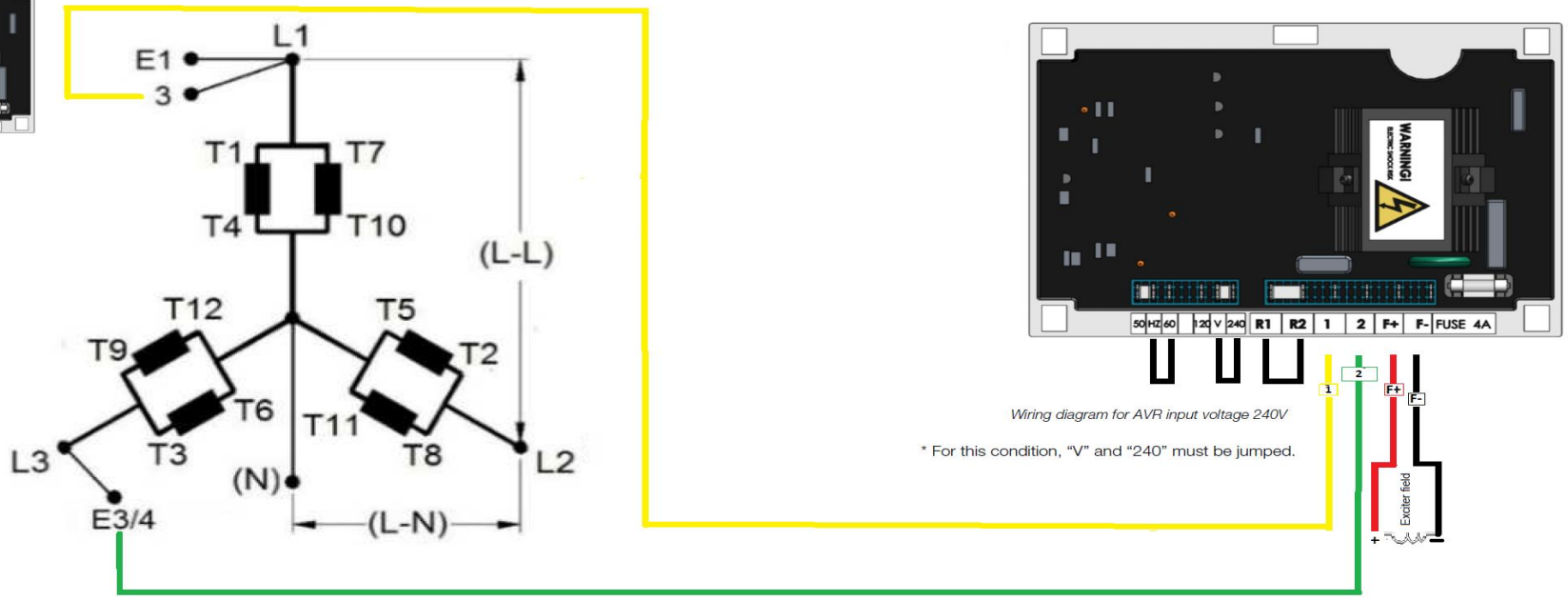
AUTOMATIC VOLTAGE REGULATOR

ETC-1





Wiring diagram for AVR input voltage 240V

* For this condition, "V" and "240" must be jumped.

By turning "VOLT" trimpot clockwise, tthe alternator output voltage increases.
By turning "VOLT" trimpot counterclockwise, tthe alternator output voltage decreases.

For rated frequency of 50Hz, the jnee point should be set at 47Hz.
For rated frequency of 60Hz, the jnee point should be set at 57Hz.

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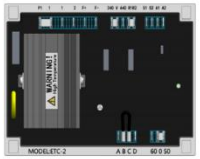
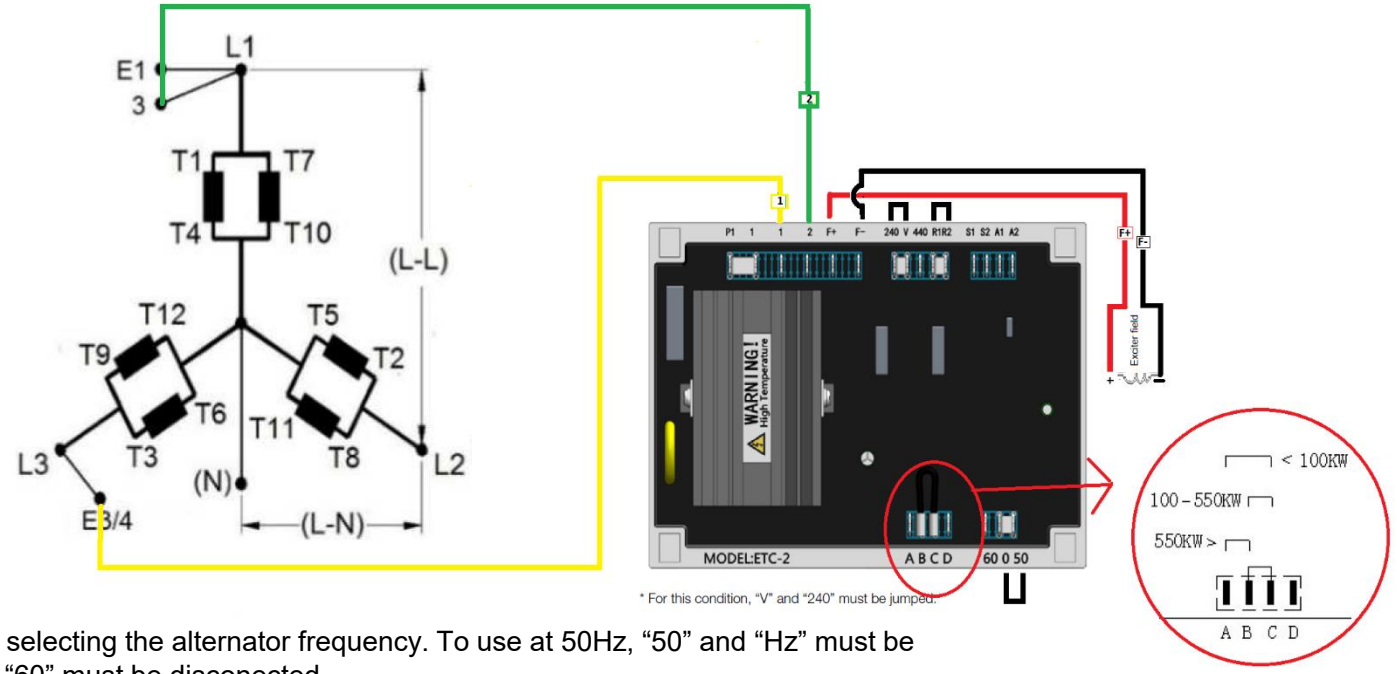
AUTOMATIC VOLTAGE REGULATOR

ETC-2





"50", "Hz" and "60" are the terminals for selecting the alternator frequency. To use at 50Hz, "50" and "Hz" must be short-circuited. To use at 60Hz, "Hz" and "60" must be disconected.

"240" abd **"440"** are the terminal for selecting the alternator checking voltage. "To use at 240V, "240" and "V" must be short-circuited. To use at 440V, "440" and "V" must be short-circuited..

By turning "VOLT" trimpot clockwise, tthe alternator output voltage increases.
By turning "VOLT" trimpot counterclockwise, tthe alternator output voltage decreases.

For rated frequency of 50Hz, the jnee point should be set at 47Hz.
For rated frequency of 60Hz, the jnee point should be set at 57Hz.

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