

# Power Factor Controllers

RG / RG3 Series



RG3-15C/CS/CL/CLS



RG3-12e

The compensation of the systems, where RG-T and RG-B/BS series reactive power control relays and stable loads are present, is done by measuring the current info through single phase. And, RG3 series devices ensure compensation of the systems with unstable loads by measuring voltage and current values of each 3 phases separately. RG3-15CL/CLS relays provides exact solutions for compensation of inductive and capacitive loads by performing both condenser and shunt reactor controls. RG3-12e is a 12-phase Reactive Power Control Relay which is user-friendly with its plug & play feature and environment-friendly with its low energy consumption.

### Properties of Entes RG Series Reactive Power Control Relay

- Automatic measuring of each phase of condenser power
- Activating and deactivating required number of phases jointly
- Connecting single-phase and 3-phase condensers jointly to the system (RG3-12e/C/CS-RG3 15C/CS/CL/CLS)
- Adjustable pull, release and discharge time
- Adjustable Cos  $\phi$  value
- Adjustable number of phases
- 10 different programs for phase sequencing
- Equalization of power values with the electric meter (RG3-12C/CS-RG3-15C/CS/CL/CLS)
- Option to set on/off in case of blackouts (RG3-12C/CS-RG3-15C/CS/CL/CLS)
- % power rate alarm adjustable between 1-240 hours (RG3-12C, RG3-12CS, RG3-15C, RG3-15CS, RG3-15CL, RG3-15CLS)
- 1-19. Current and Voltage Harmonic Values (RG3-12C, RG3-12CS, RG3-15C, RG3-15CS, RG3-15CL, RG3-15CLS, RG-8BS-96)
- Total active reactive and apparent power measurement (RG3-12C, RG3-12CS, RG3-15C, RG3-15CS, RG3-15CL, RG3-15CLS)
- Active and Reactive energy management (RG3-12C, RG3-12CS, RG3-15C, RG3-15CS, RG3-15CL, RG3-15CLS)



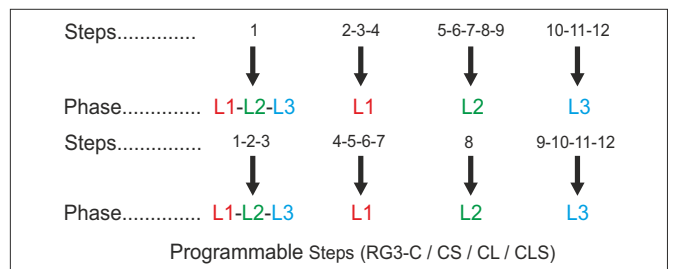
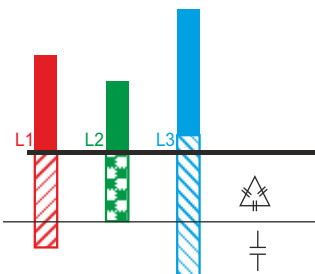
## PRODUCT SELECTION TABLE

Product Code	Size (mm)	Shunt Reactor (3 steps)	Smart Switching	1 Phase, 1 Current Transformer	3 Phase, 3 Current Transformer	1-Phase Capacitor	3 Phase Capacitor	Total Active, Reactive and Apparent Power,	Active and Reactive Energy	THD Protection	1-19. Current and Voltage Harmonics	Dual Target Cos	Auto Setup	Password Protection	RS-485 Communication	Internal Thermal Control	Contact Output	External Thermal Control	Pcs / Box
RG-6T	6 Steps	144x144		●			●												4
RG-8T	8 Steps	144x144		●			●												4
RG-12T	12 Steps	144x144		●			●												4
RG-8B-96	8 Steps	96x96	●	●			●			●		●	●	●		●			8
RG-8BS-96	8 Steps	96x96	●	●			●			●	●	●	●	●	●	●			8
RG-12B	12 Steps	144x144	●	●			●			●		●	●	●					4
RG-12BS	12 Steps	144x144	●	●			●			●		●	●	●	●				4
RG3-12e <span style="background-color: yellow;">NEW</span>	12 Steps	144x144	●		●	●	●			●			●	●					4
RG3-12C	12 Steps	144x144	●		●	●	●	●	●	●	●	●	●	●			●	○	4
RG3-12CS	12 Steps	144x144	●		●	●	●	●	●	●	●	●	●	●	●		●	○	4
RG3-15C	15 Steps	144x144	●		●	●	●	●	●	●	●	●	●	●			●		4
RG3-15CS	15 Steps	144x144	●		●	●	●	●	●	●	●	●	●	●	●		●		4
RG3-15CL	15 Steps	144x144	●	●	●	●	●	●	●	●	●	●	●	●	●		●		4
RG3-15CLS	15 Steps	144x144	●	●	●	●	●	●	●	●	●	●	●	●	●		●		4

\* RG3-15CL/CLS can be ordered as 14C+1L or 12C+3L.

○ Optional

Performing power factor correction with three-phase capacitors while the loads are balanced and with single-phase capacitors at phases where unbalance loads occur, RG3 series offers a unique solution for balanced and unbalanced loads.



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## MEASURED PARAMETERS

Phase - Neutral Voltages ( $V_{LN}$ )	Phase Current (I)	Active Power (P)	Apparent Power (S)
	Cos	Reactive Power (Q)	

### RG-T series



Individual Voltage Harmonics - up to 19th	Total Harmonic Distortion for Voltage (THD V)
Individual Current Harmonics - up to 19th	Total Harmonic Distortion for Current (THD I)

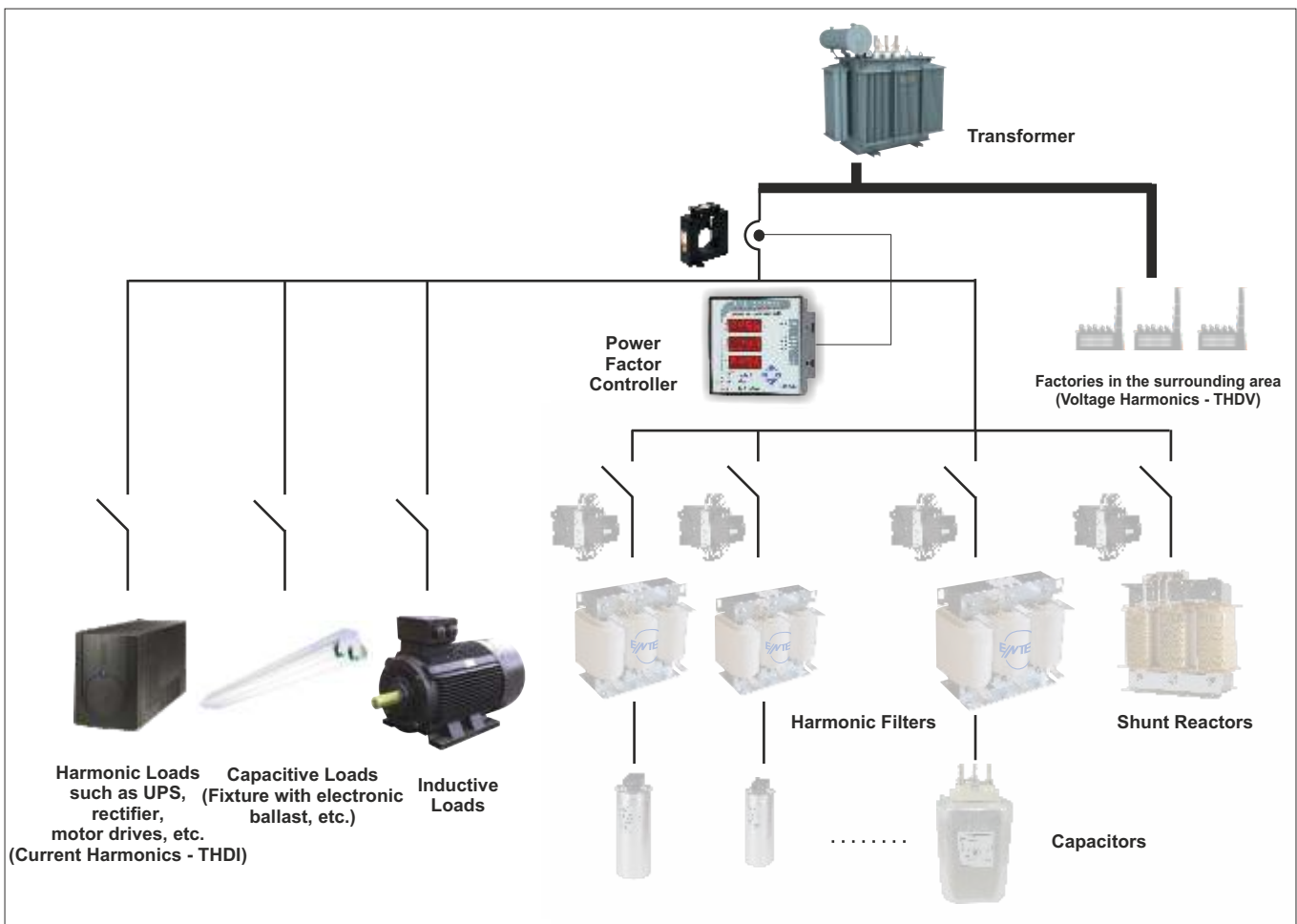
### RG-B / RG-BS series



3-Phase Currents (I)	Total Active power ( P )	Total Apparent Power ( S )	Total Reactive Power ( Q )
Active Energy - Import (kWh)	Active Energy - Export (kWh)	Capacitive Reactive Energy (kVArh C)	Inductive Reactive Energy (kVArh L)

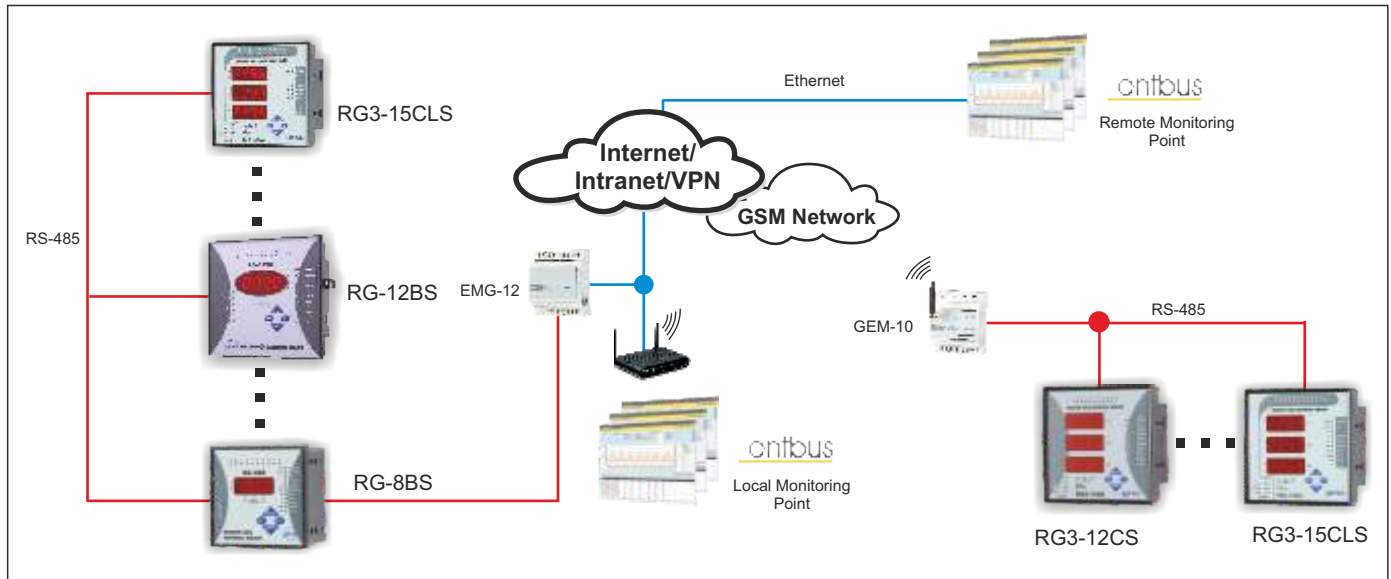
### RG3-C / RG3-CS series

Power Factor Correction



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Remote Monitoring for PFC Systems

## SPECIFICATIONS

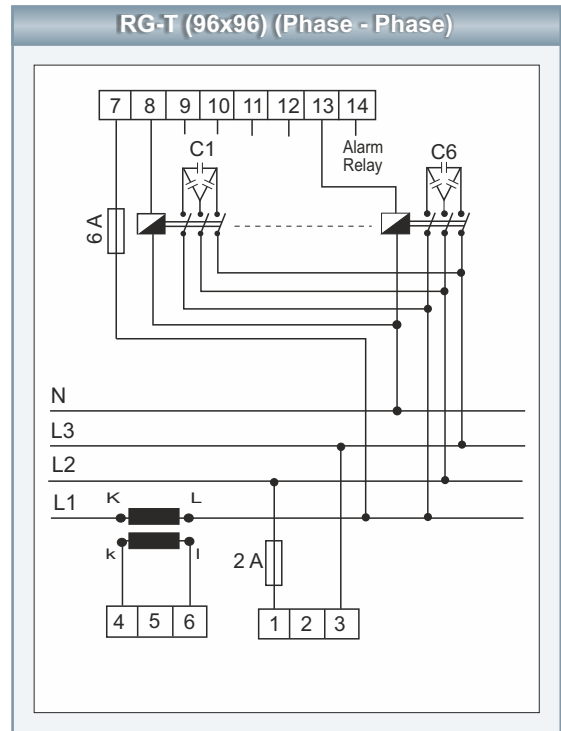
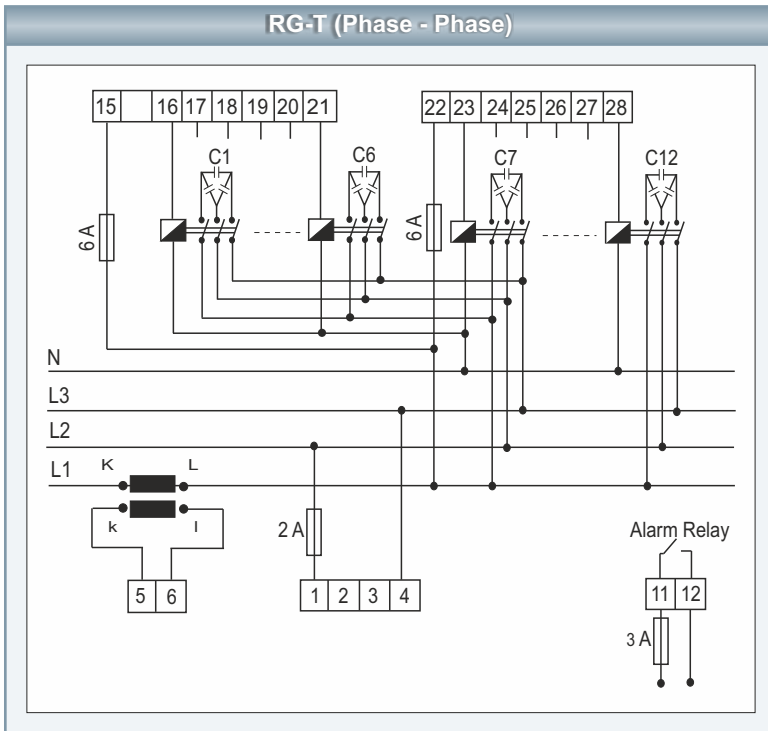
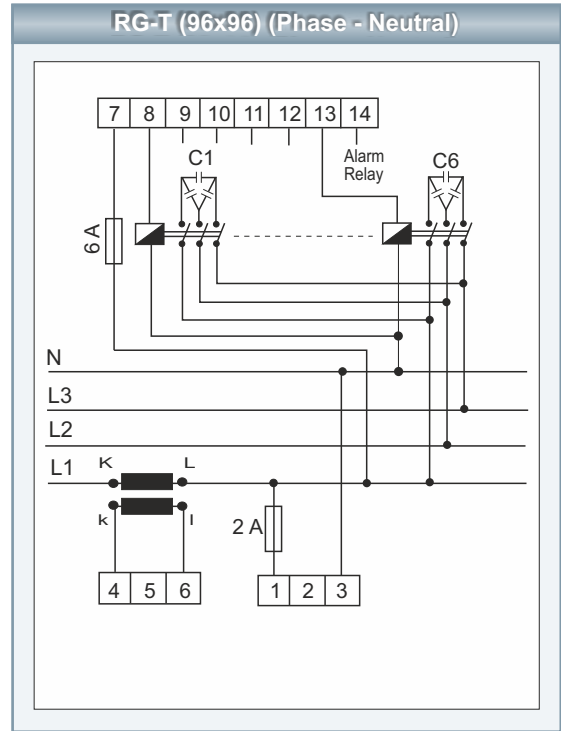
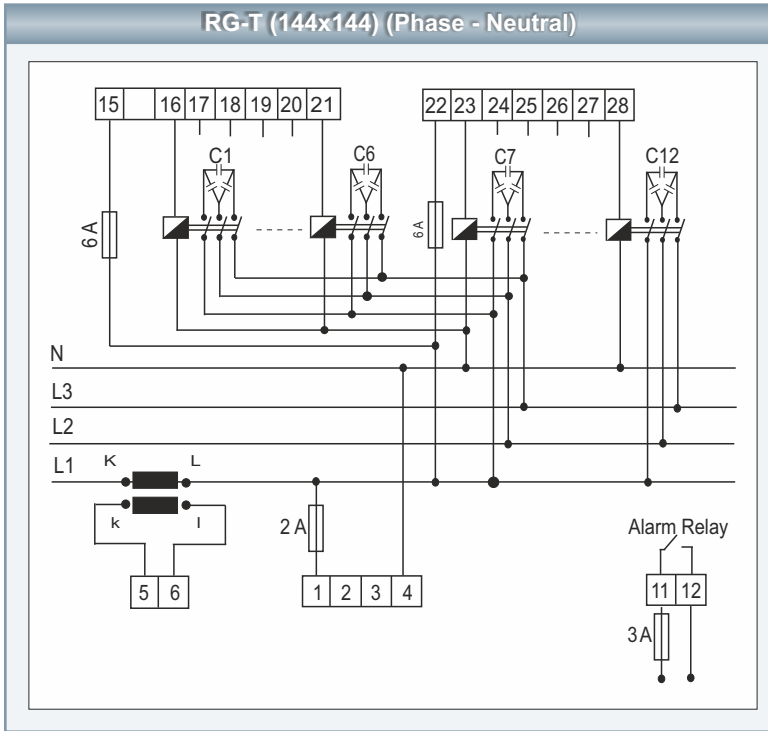
	RG-T	RG-B	RG-BS	RG3-C/CL	RG3-CS/CLS
<b>ENCLOSURE</b>					
Dimensions		144x144mm PR16; 96x96mm PR19 (RG-8B/BS)			
Protection Class		IP40 front panel, IP54 optional			
Weight		0,9kg/pcs (PR16); 0,6kg/pcs (PR19) (RG-8B/BS)			
<b>MEASUREMENTS / FUNCTIONS</b>					
Accuracy		1%±1 digit(V,I,cos );2%±1 digit (W,VA,r,VA,harmonics)			
Over Voltage Setting	240-275 VAC	0-500 VAC		0-300 VAC	
Current Range			50mA-5,5A		
Measurement Range with Transformer	50mA-10kA Transformer Ratio 5...10000/5A		50mA-10kA Transformer Ratio:1-2000		
Burden (Input Load)		<2VA Current, < 3VA Voltage			
Cos Setting	0,8<cos <1 inductive		0,8<cos <1 inductive/capacitive		
C/k Setting	0,02-1,00				
Time Delay Between Steps	2-1800 s for switch on / off separately			1-1800 s for switch on / off separately	
Discharge Time Setting		2-1800s		1-1800s	
Programmable THD-V Alarm			●	●	
Programmable Discharge Time			●	●	
Programmable Over Voltage Alarm			●	●	
Automatic Step Calculation			●	●	
Energy Measurement			●	●	
Adjustable Energy Ratio Alarm		●			
Displaying Parameters for Each Phase				●	
Alarm Contact Output	-		●		
<b>SUPPLY</b>					
Operating Voltage		230 VAC ± 10%			
Operating Frequency		50/60 Hz			
Power Consumption		<10 VA			
<b>INPUT/OUTPUT STRUCTURE</b>					
Step Number	6,8,12	6,8,12		12,15	
Output Contact	3A,750VA cos =1	5A,1250VA cos =1			
<b>AMBIENT CONDITIONS</b>					
Operating Temperature		- 5 ... +55°C			
Ambient Humidity		85%			
<b>CONNECTIONS</b>					
Mounting		Front Panel Mounting / Socket with Screw Terminal			
Connection Types	Single Phase, Neutral, 1 Current Transformer			3 Phase, Neutral, 3 Current Transformer 4 Wires	



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## Connection Diagrams



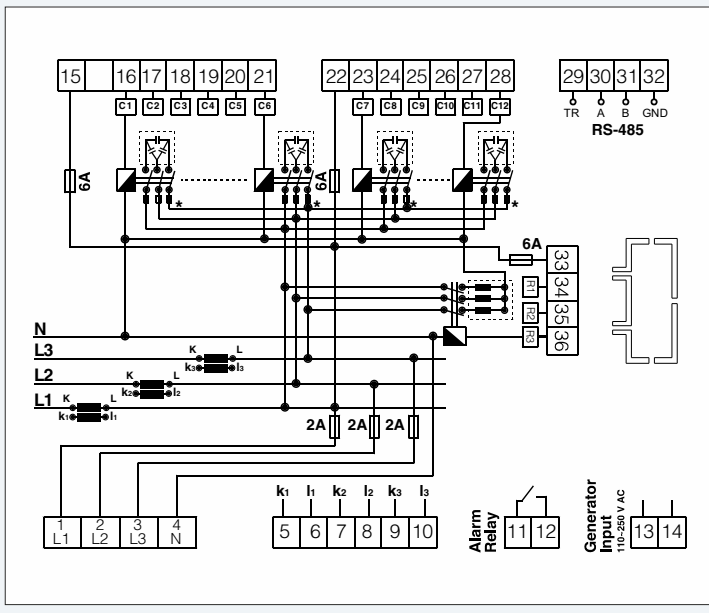
Power Factor Correction

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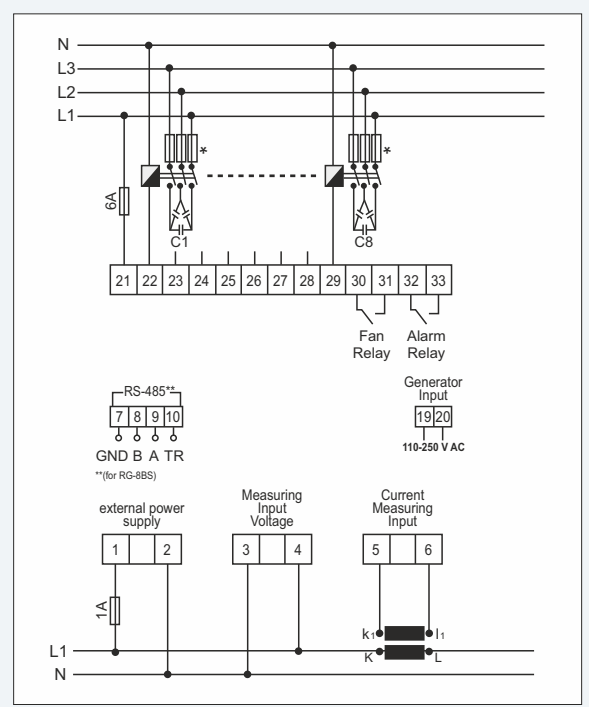
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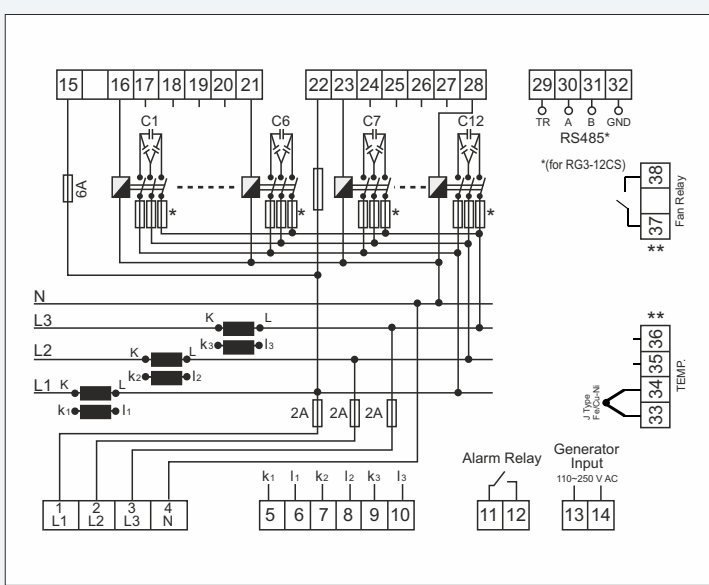
RG3-15CLS



RG8-BS (96x96)

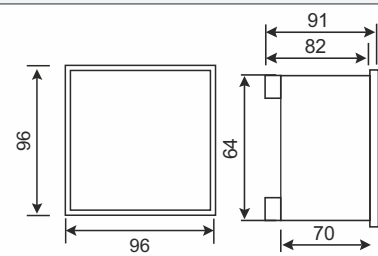


RG3-12CS

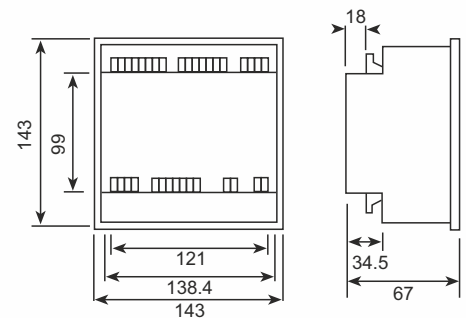


\* Current value of 3-Fuses, which are connected to protect the capacitors, is chosen according to the nominal current value of capacitors.

## Dimensions



TYPE PR 19



TYPE PR 16

\*\* Optional