JLAR-ELC datasheet

Three phase 380/415 V Star – 220/240 V Delta – 50/60 Hz
Electronic Load Controllers

The JLAR-ELC (Electronic Load Controller) is an electronic unit designed to govern the speed of hydroelectric power plants without the intervention of mechanical components (like turbine's control gate(s)). For this, it maintains constant the power taken from the plant by continuously adjusting the power delivered to a separate electric ballast load that can be water or air cooled.

Power	- 380/415 V Star connected ELC: up to 90 kW - 220/240 V Delta connected ELC: up to 75 kW
Controlled variable	Frequency (50Hz or 60Hz)
Regulation Method	PID controller with individual adjustment of the 3 parameters
Power modules	Three phase-angle controlled thyristor pairs. Large heat sinks with fans on high power units
Characteristics	With proper set-up of the regulator, deviation +/- 1Hz transient and +/- 0.5Hz stable. The frequency is maintained constant for all turbine output powers.
Controls	Frequency, PID parameters
Frequency trip function	Adjustable from 0 up to + or - 5Hz from set frequency. With delay and memorization (LED) of last fault. Separated adjustments of high and low thresholds. Relay output with FailSafe mode.
Ballast fuses	Three Ultra Rapid special thyristor fuses to protect the thyristors against shortcuts in the ballast load.
Connections	Generator input (4 wires in Star – 3 wires in Delta), Ballast output (4 wires), Main Load output (4 wires). Terminals: depending on the power of the ELC.
Working temp.	Maximum 45 °C
Dimensions	Depending on the power of the ELC
Main Load restrictions	4 wires 380/415 V or 3 wires 220/240 V. Power factor of main load should be 0.8 or better.
Ballast Load restrictions	3x 220/240 V resistive heaters connected in 4 wires Star (380/415 V ELC) or in 3 wires Delta (220/240 V ELC). An over sizing of about 10% of the power of the plant is recommended.
Generator	Synchronous (Alternator), three phase, 4 wires, 220/380 or 240/415, 50 or 60Hz
Comments	- The Voltage Control has to be handled by the alternator AVR. - Ballast loads are best made by connecting readily available water heater elements in parallel to make up the required power in three banks. Heaters can be fitted into a metal tank with a through flow of water to remove the maximum heat generated when the Main Load is off. If circumstances permit the heat generated can be used for some useful purpose. - Option: automatic phase balance in response to unbalanced main load currents. Independent balance setting for each phase - No problem with tropical and/or high altitude conditions - We do reserve the right to change the specifications without notice but with advices for interconnection with earlier JLA regulators.

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