COAXIAL IGNITRON

INTEGRAL CONTROL THERMOSTAT FORCED-AIR COOLED

The GL-8420 is a forced-air-cooled igniton for use in railroad locomotive service as an electronic contactor. In such application two tubes in an inverse-parallel connection control the a-c voltage input to a semiconductor rectifier.

Features include a coaxial construction in which current flows from anode to cathode, then up the tube wall to a coaxial cathode terminal. Coaxial current flow provides a magnetic shield to eliminate arc deflection caused by high peak currents. An integral thermostat provides protection against excessive temperature and loss of cooling air. An igniton terminal block on the periphery of the tube facilitates connecting to the ignitor.

Electrical

Cathode Excitation—Cyclic
Cathode Spot Starting—Ignitor
Number of Electrodes
Main Anodes..................................................... 1
Main Cathodes.................................................... 1
Igniters........................................................... 1
Arc Drop, at 1100 Amperes Peak........................ 19 Volts

Mechanical

Envelope Material—Steel
Net Weight.......................................................... 130 Pounds
Mounting Position—Vertical, Anode Terminal Up

Thermal

Type of Cooling—Forced Air
Cooling Air Temperature
Maximum.......................................................... 45 C
Minimum.......................................................... 10 C
Air Flow at Rated Load, minimum....................... 600 Cubic Feet per Minute
Static Incoming Air Pressure at Minimum Flow........... 3.9 Inches—Water
Incoming Air Enters Beneath Tube—(See Outline Drawing)

MAXIMUM RATINGS—AC CONTACTOR SERVICE
(Two Tubes in Inverse Parallel, Ratings per Tube)

Peak Forward and Inverse Anode Voltage..... 1000 Volts
Average Anode Current
5 Cycles.......................................................... 1000 Amperes
2 Minutes......................................................... 130 Amperes
Frequency Range............................................... 25-60 Cycles per Second

Ignitor Requirements
Maximum Voltage
Positive—Anode Voltage
Negative.......................................................... 5 Volts
Maximum Current
Peak.............................................................. 100 Amperes
Root Mean Square............................................... 15 Amperes
Average.......................................................... 2 Amperes
Maximum Averaging Time..................................... 10 Seconds
Volt-Amperes Time Requirements—See Curve K-69087-79A992

Temperature-Control-Switch Ratings
Maximum Current, at 32 Volts DC......................... 1 Ampere
Maximum Peak Potential Difference Between Tube Cylinder and Switch Current 1500 Volts

from JEDEC release #4173, March 4, 1963
IGNITOR VOLT-AMPERE REQUIREMENTS FOR SEPARATE EXCITATION

THE IGNITOR FIRING CIRCUIT SHOULD BE DESIGNED TO OPERATE WITHIN THE SHADEd AREA.