

Abstract

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GSM-GPRS Arduino Shield (GS-001) with SIM 900 chip module in wireless data transmission system for data acquisition and control of power induction furnace

This paper concerns the practical design and implementation of professional tool using GSM-GPRS Arduino Shield (GS-001) with SIM 900 chip module in wireless data transmission system for data acquisition and control of power induction melting furnace, We will respond with innovative, value added technique and services that improve quality, productivity, costs, environmental protection and working conditions. An induction heater (for any process) consists of an electromagnet, through which a high-frequency alternating current (AC) is passed. Heat may also be generated by magnetic hysteresis losses in materials that have significant relative permeability. The frequency of AC used depends on the object size, material type, coupling (between the work coil and the object to be heated) and the penetration depth. To ensure the quality of molten steel, its temperature and chemical composition must be constantly monitored. Using immersion sensors like Heraeus ones to take precise measurements of these parameters within seconds directly in the molten steel, rendering time-consuming sample analyses in laboratories unnecessary. This increases throughput and lowers energy consumption during steel making. Normally the obtained measurement data is sent locally to the control station through wires fibre optics, Our mission is to proactively find and satisfy the measurement, monitoring and control needs of the molten metal processes by sending these data to a remote station using SIM 900 chip module in wireless data transmission system for data acquisition and control of high power induction melter. For software part we will use GSM-GPRS Arduino Shield (GS-001), Using C language to program microcontroller, we put some strings in the program to make the GSM module understands them like AT commands. The complete designed system has basic and optional features as we operate in real time monitoring and control, use GPRS communication