

SC-755 System controller



SCA-725 Single channel analyzer

Description

System controller model SC-755 is a general purpose controller which is used in the master pillar of most TSA portal monitors. The SC-755 utilizes a Zilog Z8 family microcontroller and a programmable logic device to perform most of the control functions. It also contains two amplifier/SCA channels and a high-voltage power supply.

A four line, twenty character LCD display is used to monitor system status and setup information. Setup is accomplished using the twelve key, telephone style keypad mounted on the front of the unit. All of the settings and system status are stored in non-volatile RAM internal to the unit. The status information can be downloaded using TSA software.

OPERATION: The SC-755 is calibrated and programmed with default values before being shipped from the factory. Final setup is necessarily site specific, and should be optimized to meet local requirements.

The unit has a base time interval of 200ms. All internal timing is based on this interval. The number of base intervals used in the moving average may be programmed. The alarm comparisons are performed every 200ms when the system is occupied.

The system also logs system activity to non-volatile RAM. Each entry is time and date stamped. Events that are logged to NVRAM include: hourly background updates, tamper alarms, background alarms, and radiation alarms. The NVRAM may be downloaded to a PC via the RS-232 port.

Single channel analyzer model SCA-725 is a self-contained amplifier/SCA module designed for use in the slave pillar of most TSA portal monitors. The SCA-725 is designed to be used in conjunction with an SC-755. It supplies high voltage to the detectors, and amplifies the nuclear pulses from the photomultiplier tubes.

OPERATION: The SC-755 controls the discriminator settings via a serial link. The SCA outputs are sent to the SC-755 as a differential pulse to eliminate interference and crosstalk.

Specifications

Model SC-755 SPECIFICATIONS

- DISPLAY: LCD, 4 lines x 20 characters
- COMMUNICATIONS: DB-9F connector for interface to a PC
- POWER REQUIREMENTS: 9 - 15 Vdc, @ 200ma
- DIMENSIONS: 9" h x 4.5" w x 3" d (23 x 11 x 8cm)
- WEIGHT: 3 lb (1.3kg)

Special Features:

- KEYPAD: Twelve key, telephone style
- AMPLIFIERS: Two nuclear pulse amplifiers with discriminators and SCA outputs
- COUNTER CHANNELS: Four digital counter channels
- INPUT CONNECTORS: Two BNC connectors for detector signal inputs, circular connector for digital inputs from an SCA-725
- OUTPUT CONNECTORS: Two MHV connectors for detector high voltage, circular connector for power and control signals to an SCA-725, relay outputs for status to external indicators
- HIGH VOLTAGE POWER SUPPLY: Up to 1,500 Vdc, @ 50µA

Model SCA-725 SPECIFICATIONS

- POWER REQUIREMENTS: 9 - 15 Vdc, @ 75ma (in a standard, two channel configuration)
- DIMENSIONS: 9" h x 4.5" w x 3" d (23 x 11 x 8cm)
- WEIGHT: 3 lb (1.3kg)

Special Features:

- AMPLIFIERS: Up to four nuclear pulse amplifiers with discriminators and SCA outputs
- INPUT CONNECTORS: Up to four BNC connectors for detector signal inputs, circular connector for power and control signals from an SC-755
- OUTPUT CONNECTORS: Up to four MHV connectors for detector high voltage, circular connector for outputs to an SC-755
- HIGH VOLTAGE POWER SUPPLY: Up to 1,500 Vdc, @ 50µA

Applications

System controller model SC-755 and single channel analyzer model SCA-725 are designed as essential components located in the pillars of TSA's PM-700 series pedestrian portal monitors and VM-250 series vehicle portal monitors.

These components, inherent in the portal monitors, are intended for applications where the relatively low energy emissions from ²³⁵U and ²³⁹Pu are the main concern.