

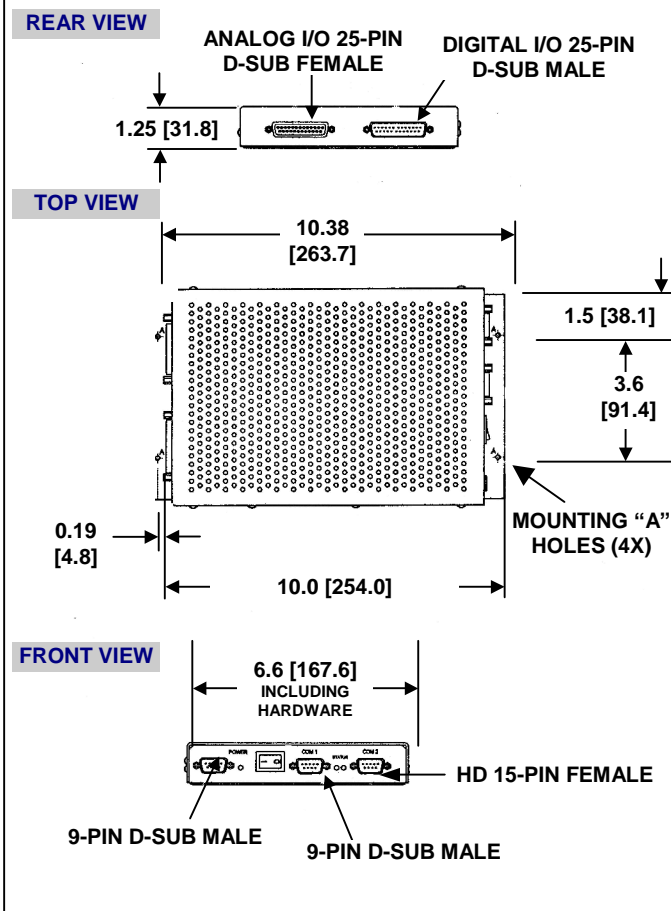


SDC2004

Features and Benefits

- Compact design for OEM applications
- Robust endpoint determination through proprietary Neural Network and threshold software
- Eliminates need for applications computer through fully integrated, embedded operation
- Can operate four synchronous manual monochromators or detectors
- Reduce processor overhead on application interface computer by running algorithms on SDC2004

Outline Drawing



Description

Recognizing the industry trend toward smart sensors, Verity Instruments has developed a new "smart detector" control module that adapts traditional analog endpoint sensors such as monochromators and filter detectors into a compact, powerful, stand-alone endpoint detection system with host interface capability. The SDC2004 offers this functionality through sophisticated embedded processors and software to provide data acquisition, instrument control, endpoint capability, and host interface without the requirement of an additional PC-based control computer.

The SDC2004 can support up to four synchronous manual monochromators, four detectors, or any combination thereof.

Operation

The SDC2004 provides superior data acquisition (16 bit), signal processing, sensor control (16-bit D/A and digital I/O), and endpoint detection. This controller executes Verity's proprietary Neural Network pattern recognition software, as well as traditional threshold-based endpointing algorithms. Since the resident program is flash-based, the firmware is easily field upgradeable. A wide voltage input range DC-to-DC converter provides isolated analog power supplies ensuring excellent noise immunity.

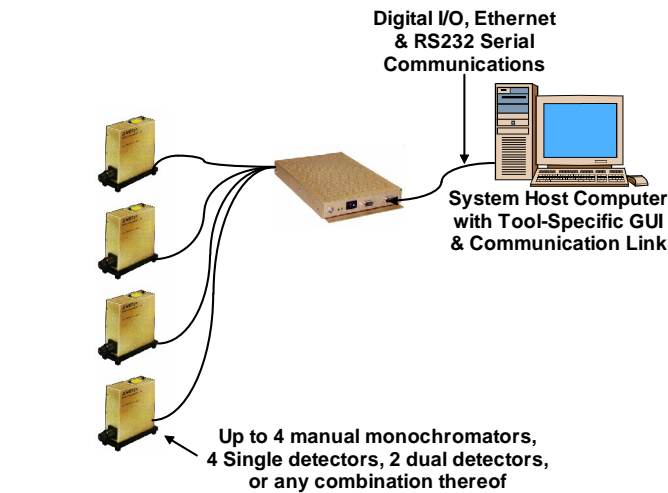
The compact, modular design of the SDC2004 affords easy mounting on any process module, preferably locating close to the analog sensor to minimize signal



detector cable length. An ActiveX control and RS232 protocol provides for host communications with additional discrete digital I/O available for dedicated event initiation or acknowledgement. In addition, the SDC2004 can communicate through an Ethernet connection.

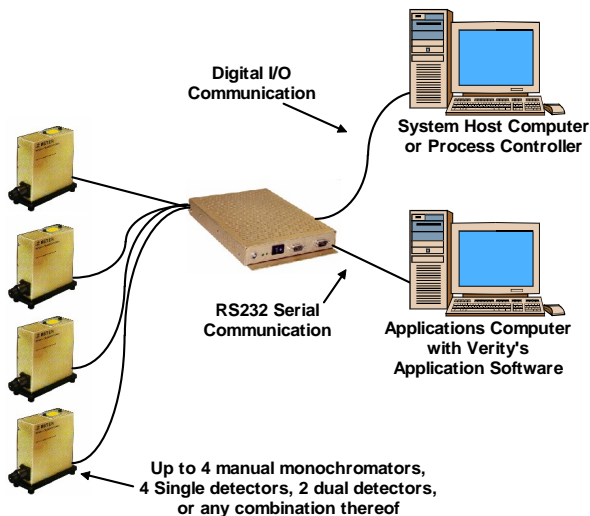
Verity provides Windows-based software that runs on a laptop or host computer to provide a graphical user interface to all functions for data presentation, parameter modification and file management. Alternately, the SDC2004 is fully integratable into a tool with the development of a tool-specific graphical user interface, thus eliminating the need for an additional application computer.

System Schematic



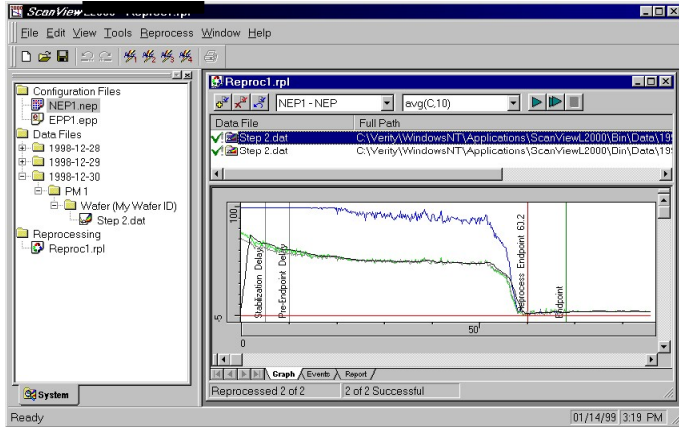
Fully Integrated Within a Tool

When fully integrated, the SDC2004 operates up to four synchronous manual monochromators or detectors without the need for an application computer or Verity-supplied application software. This cost-effective configuration does require the development of a tool-specific communication link and a tool-specific graphical user interface. All endpoint control algorithms reside on the SDC2004, thus avoiding overburdening the system host computer.



Partially Integrated Within a Tool

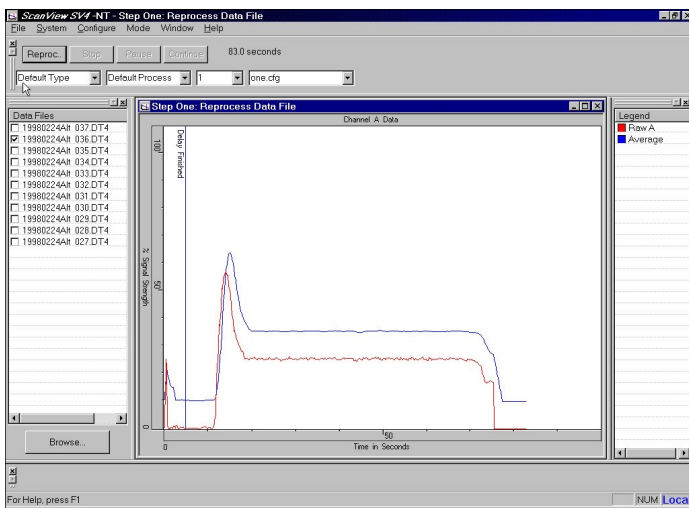
In partially integrated configurations, the SDC2004 operates up to four synchronous manual monochromators or detectors. Digital I/O signals are used to communicate start, stop, recipe select, and endpoint between the SDC2004 and the tool process controller. An application computer with Verity's ScanView IV application provides a user interface.



ScanView IV-NT

ScanView IV comes bundled with the Windows NT-based VM3400. This software application is an intuitive, powerful program, permitting graphical display of acquired data, data storage, retrieval of data files and complete instrument control. Since the software is NT-based, multiple instances of the application can perform asynchronous processing on multiple process modules. This means that the VM3400/ScanView IV can be used to support instruments that are running on different systems.

This software, when combined with the proper instrumentation, allows endpoint determination in a wide range of applications. ScanView IV uses a Windows-based GUI (graphical user interface) which allows the use of a pointing device, such as a mouse, to select the commands and options to perform optical emission spectroscopy (OES) analysis. The OES data received from ScanView IV is exportable to other analysis software applications.



Specifications

Model Number	SDC2004
Computing Specifications	
Processor Type	AMD SC520
General	
Interfaces With	4 Manual Monochromators – OR – 4 Single Detectors/2 Dual Detectors – OR – Any combination thereof
Synchronous or Asynchronous Operation	All instruments must be operated synchronously
Applications Software	
Type	ScanView IV
Platform (required to use)	Windows 2000 (preferred), and Windows NT 4.0
Communications	RS232
Multiple Instances	Multiple instances of ScanView IV can be run Note: one RS232 port is required per SDC2004 requirement
Archived Data	Includes signal data, wafer data, recipe information, and reprocess information
Wafer Tracking	Includes capabilities for Lot Number, Wafer ID, Cassette ID, Slot Number, Recipe name
Data File Viewing	In graphical and numerical format
Editing	sequence editor included for modifying parameters
Embedded Endpoint Algorithms	
Endpoint Algorithms	Neural Network pattern recognition, Threshold
Interfacing	
Instrument Input Signal	Four Analog (16-bit A/D)
Instrument AGC (Automatic Gain Control)	Four Analog (16-bit D/A)
Interfacing to Tool	If host runs Windows-32 platform: 1) ActiveX control provides for RS232 interfacing and Ethernet through WinSock (TCP/IP) 2) Discrete digital I/O If host runs non-Windows-32 platform: 1) RS232 interfacing 2) Discrete digital I/O
Enclosure	
Dimensions [inches (mm)]	10.38 (263.7) Length x 6.6 (167.6) Width x 1.25 (31.8) Height
Power	
Power Input	10–30 VDC @ 20 Watts
Safety	
Compliance	CE, Semi S2-93, and Year 2000 (Y2K) Compliant

Recommended Applications Computer Requirements

Platform	Windows 2000 or NT
Processor	Pentium 200
Memory	64MB
Hard Drive	4GB
Graphics	SVGA (800x600)

Ordering Information

SDC2004	Consult factory with your application.
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