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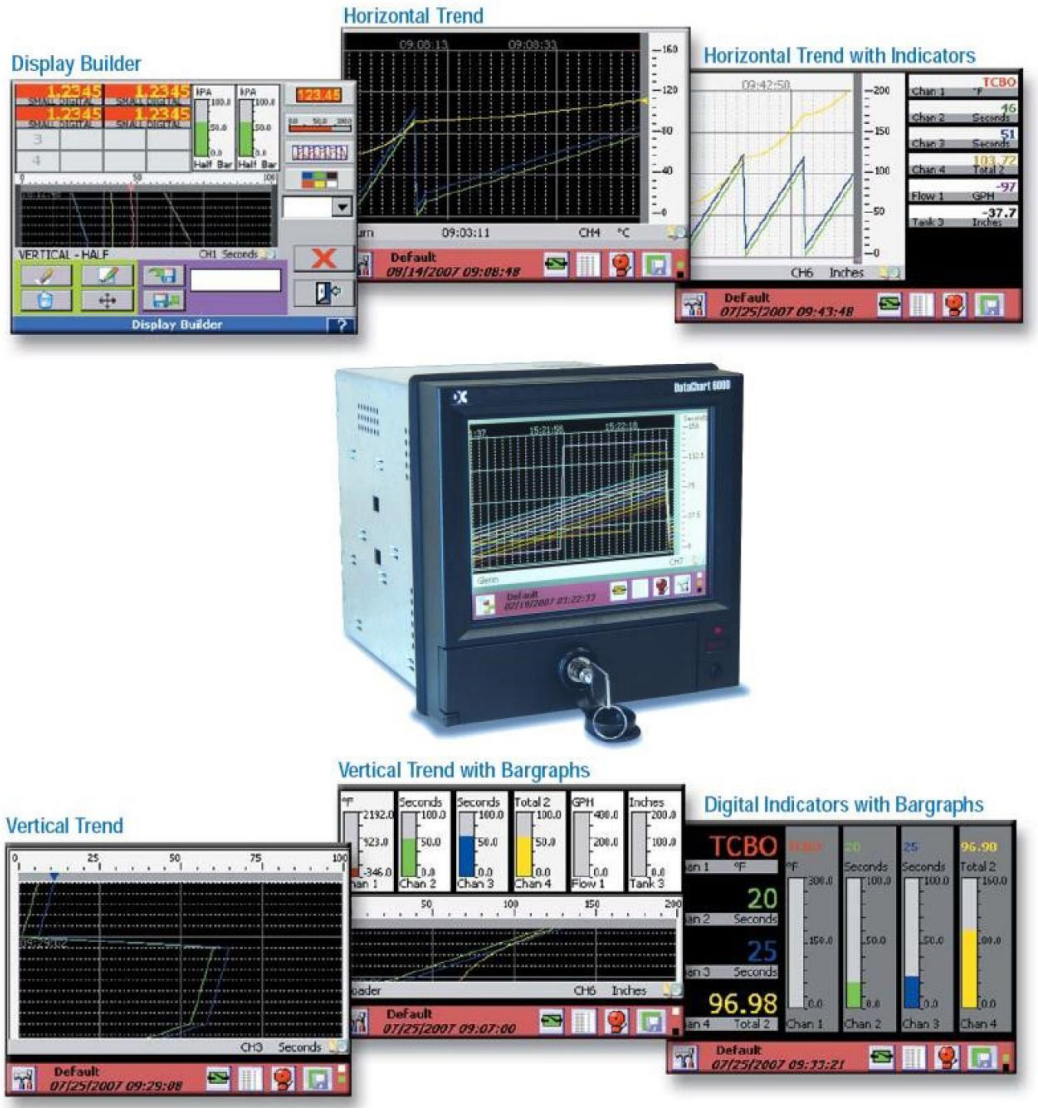
Slurry Engineering Electronic Data Logging System

DC6000 DATA RECORDER

USER MANUAL & REFERENCE GUIDE



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2.0 OVERVIEW

This manual applies to Firmware version 1.0 and above. This section gives a system overview of the recorder and the basic elements involved.

2.1 General Description

The recorder is an 18 channel unit capable of measuring 6 or 12 live inputs which can be a combination of linear inputs – voltage or current, thermocouples, RTDs, or Frequency. Those channels not associated with live inputs can be assigned as gated timers, totalizers, calculated or conditional inputs which are referred to as virtual channels. The recorder is extremely versatile and can be configured in many different ways to suit the user's environment. The user can also install an optional digital input/output module providing up to 12 potential free contact closures and up to 6 opto-isolated digital inputs that can be set to silence alarms, reset contacts and start recordings.

The recorder's firmware is based on the Windows CE embedded operating system providing advanced connectivity and features. The system is Ethernet aware and runs as a secure web server providing browser accessibility via web pages and as an ftp server. It also runs an OPC (Open Connectivity) server allowing connectivity to a large selection of third party Data Access Specification compliant software and the companion Exhibitor Software, providing real time data update over Ethernet and off line data analysis. The recorder can be set up to send emails in the event of an alarm. See Section 4.10.3 Email on Alarm Event for more details.

The recorder can save data, alarms and events to a number of sources. The primary storage medium is to compact flash card that can be locked in the unit. Alternatively the unit can record to internal memory. Data is saved in an ADO (ActiveX Data Objects) database and is encrypted for security purposes. Internal memory can be expanded using a Secure Digital (SD) Card that plugs into the rear of the device.

The recorder is security enabled. If password protection is turned on, the unit requires the user to log in to operate. There are three classes of operators with different access rights – administrator, manager and user. All operations are logged to the alarm and event log and user privileges can be set to expire by date. The unit can be set to automatically log users out after a preset time.

In order to use the recorder the user has to set up various parameters to customize the unit to the environment. This set up is referred to as the configuration. Once configured, the settings can be saved to a configuration file. A number of default configurations are provided and any of these can be loaded as a default.

2.2

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2.3 Recorder Front

Figure 2-2 shows the front view of the recorder. The recorder has a ¼ VGA color display with touch screen. Below the display are a lockable media door, status indicator, IR COMM port and stylus used for data entry on the display.

The recorder is intended to be panel mounted and if mounted correctly using the supplied gasket, the unit is waterproof to IP65 when the media door is closed and the waterproof lock cover is in place.

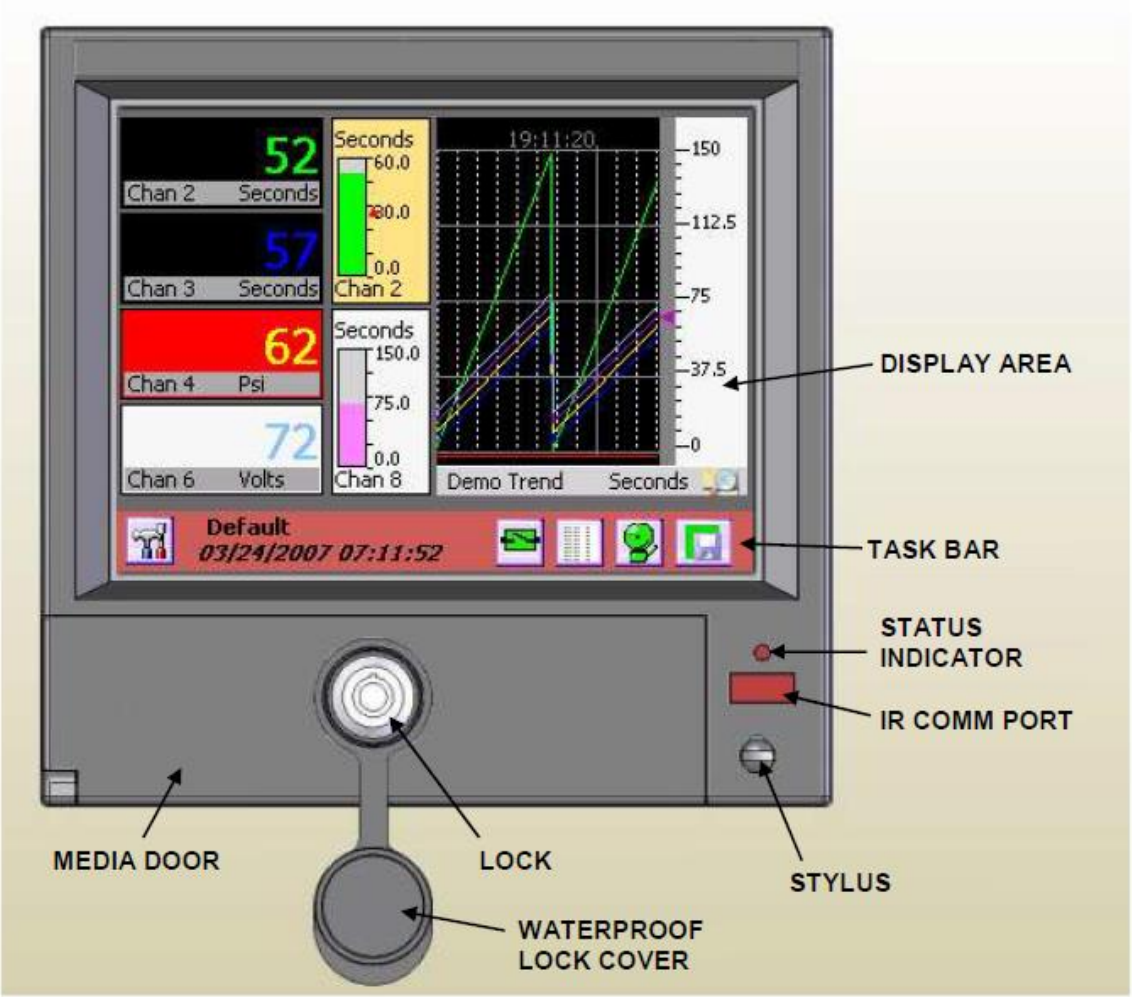

Figure 2-2 Recorder Front View

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Refer to the figure below:

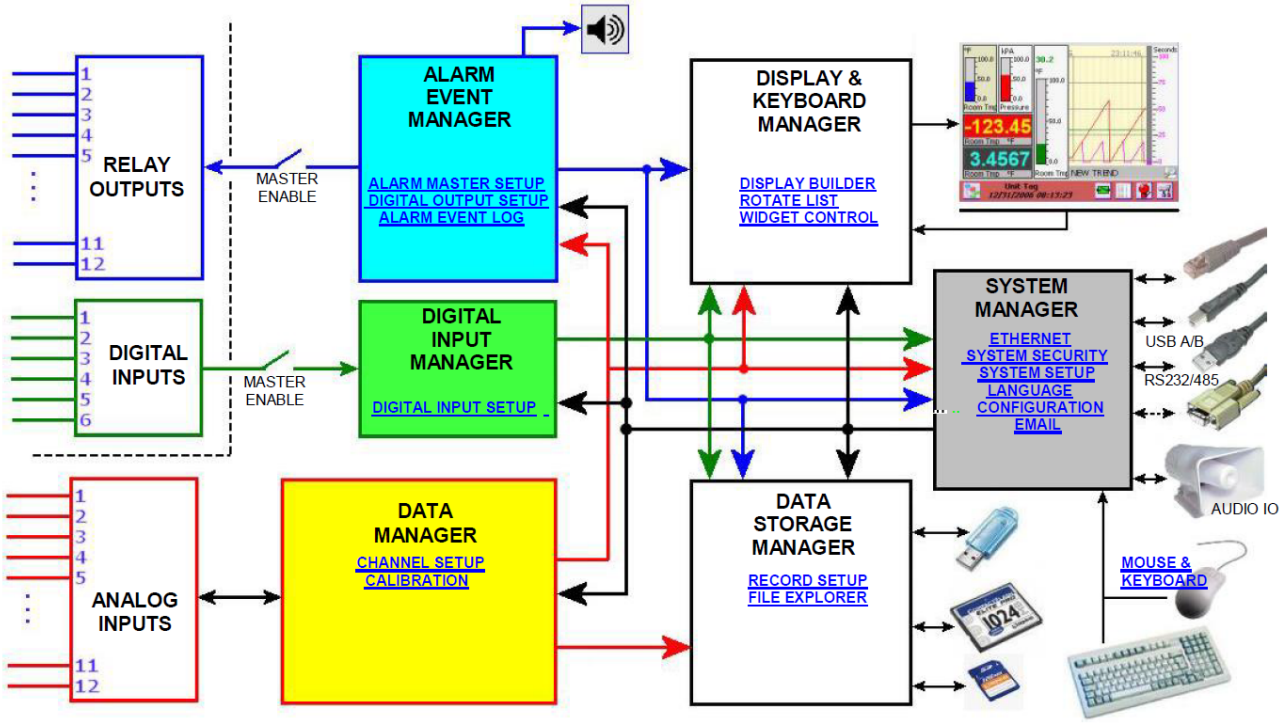

Figure 2-1 System Overview

The recorder block diagram shows the major elements of the unit.

The **Analog Inputs** module scans the live inputs (6 or 12 channel) at a rate of 10 times per second per channel, converting the analog inputs to digital values and applying a time stamp to the digitized data. The **Data Manager** collects this data at a rate of 120 samples per second from the **Analog Inputs** module and processes it in real time applying any scaling or linearization as required by user programming, and holds it in a buffer for use by the rest of the system. This process has the highest priority and runs irrespective of whatever other activity is going on in the recorder. Data is fed on demand to the following:

Data Storage Manager receives data at a rate set by the user for recording to the media. The media is selected by the user – compact flash, USB device or internal memory (SD card). The data is buffered till there is a suitable amount and is then flushed to the selected media.

Display & Keyboard Manager receives data at a rate to satisfy the displays setup by the user, trends, digital or bar graphs.

Alarm Event Manager receives all data required to do comparison to any user set up alarm. If any alarm is exceeded the Alarm Event Manager will perform the required user set action, including sounding the alarm, closing any contacts, updating the display, initiating an email and making an entry in the log.

System Manager receives all data required to keep the various communications servers up to date. This includes the web, Modbus and OPC servers, and ftp data files.

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