**DC-2000 Installation Dimensions**

**Ordering Information**

**Display**
- C: TFT Active Matrix Display
- M: Monochrome Display

**Power**
- 1: 90-127, 194-264 Vac
- 2: 16-30 Vac
- 1st: 90-264 Vac w/screw terminal connectors

**Relay Input Modules**

<table>
<thead>
<tr>
<th>Module</th>
<th>Channels</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>U2</td>
<td>2</td>
<td>Universal DC V/I, TC and RTD</td>
</tr>
<tr>
<td>U4</td>
<td>4</td>
<td>Universal DC V/I, TC and RTD</td>
</tr>
<tr>
<td>U6</td>
<td>6</td>
<td>Universal DC V/I, TC and RTD</td>
</tr>
<tr>
<td>U12</td>
<td>12</td>
<td>Universal DC V/I, TC and RTD</td>
</tr>
</tbody>
</table>

**Data Storage - Removable**
- 2: 512 MB USB Flash Drive
- 1: Compact Flash Card Drive

**Output Options**
- 0: No Alarm Outputs
- 1: Form C Relays 3A@250 Vac, 3 Ctrl input
- 2: Form C Relays 3A@250 Vac, 3 Ctrl input

**Communications**
- 0: None
- 1: RS485 / RS232 - Isolated
- 2: Ethernet - 10BaseT

**Data Storage - Internal**
- 0: 1 Mbyte
- 1: 2 Mbyte

**Printer Port**
- 0: None
- 1: Parallel Printer Port (25 Pin D Shell)

**Accessories**
- 50 ohm precision external shunt resistor for current inputs (+/-0.05%).

**Isolation Input Modules**

**Data Storage - Removable**
- 256MB, 512MB, 1 Gig or 2 Gig CompactFlash™ memory cards.

**Ordering Information**

**Distributed by:**

15 Columbia Drive
Amherst, NH 03031-2334
Tel: (603) 883-3390 Fax: (603) 886-3300
e-mail: sales@monarchinstrument.com
www.monarchinstrument.com
DATA-CHART 2000 SERIES

Paperless Recording Systems

Industry demands a higher level of reliability, better efficiency, more flexibility and lower costs. These industry requirements were kept clearly in focus when we designed our fourth generation of Paperless Recording Systems:

The Data-Chart 2000 Series

Because your data is so important. Data Chart recorders were designed to be ultra-reliable. We chose the finest components available and combined them with a robust modular mechanical structure. Our optimized design means fewer components are needed. Fewer components mean fewer failures.

Up to 2 Megabytes of non-volatile memory keeps your data safe. You will never lose recorded data, even during a power outage. Data is downloaded automatically to your choice of removable media: 3.5" 1.44 Meg disk or Compact-Flash™ card (up to 2 Gb in size).

Time is Money! Corporate down-sizing and cost cutting leaves you with less time to accomplish your goals. Data Chart recorders are virtually maintenance-free. No paper or pens to replace, no mechanical parts to wear out and because they are digital instruments, they require less time to calibrate. This allows you to use your time more efficiently.

Simple Setup.

Our intuitive touchscreen control makes configuring the DC2000 a breeze. We make full use of our screen with a large, easy to follow menu system.

We're Flexible. Data Chart recorders are unparalleled in providing the highest level of flexibility of any paperless recorder made in the world. Universal inputs, networking capability, powerful math packages and a multitude of display choices allow you to display, record and communicate your data the way you want.

Display Modes

You can choose from more than 20 different display modes including trends, bar graphs and digital indicators. Select pen colors, background colors and much more.

Guardian Software

allows you to create a complete single station data super-center and storage system. If you need to monitor data in real time or if you require redundant data storage to a PC. Guardian Software is the solution.

Multiple Data-Chart 2000's can be placed on a standard ethernet or Modbus network along with your other plant instruments and monitored in real time. In addition, data can be stored on your local PC greatly improving data management and security.

Specifications

Operating

Input Signals

DC Voltage: Linear, Industrial square root, logarithmic: +/- 150mV +/-1.25V, +/- 2.5V Accuracy: 0.06% +/- 12.5V and +/- 25V Accuracy: 0.1%

DC Current: 4-20mA, 0 to 20mA and 10 to 50 mA. Accuracy: 0.15% using external 50 ohm 0.1% shunt.

Dry Contact: Open = 0. Closed = 1

Thermocouples

Resolution: 0.1°C. Curr. accuracy: 0.5°C (0 to 50°C)

Thermocouple burnout detection.

Accuracy: 0.1% of full scale.

RTD: Base accuracy: 0.2% or 0.5% (1°C). Resolution: 0.1°C or 2 or 3 wire connection. Cable compensation to +/- 50°C open and short circuit detection.

Input Resolution

0.0015% of full scale, 16 bit unless otherwise stated

Input Impedance

>10 Meg on 150mV, 1.25V and 2.5V ranges, >100 K on 5, 12.5, 25 Volts ranges.

Input Channels

2, 4, 6 or 12

Max Input

50V

CMRR

>100db, 50/60 Hz

Measurement Rate

Measures all direct input channels every 125 milliseconds (each channel 8 times/second independent of no. of channels).

Math Functions

+,-, x, /, logarithms, totalization, powers, averages, timers, and custom equations.

Recording

Selectables: Selectable from 8/sec. to 10 minutes

Data Format

Proprietary binary format for data security.

Data Storage

Data stored in non-volatile RAM and recorded automatically, or on demand, to on board removable media.

Data Format

Full media format and verify capability.

Data Storage Media

CompactFlash Card or Hard Drive (Up to 2 Gb in size)

Internal

1 MB RAM (Non-Volatile) Standard

2 MB RAM (Non-Volatile) Optional

File Types

Data files, Alarm and Event files, Configuration files, Language files. Multiple files of different names on a single disk.

Display

Display Type Color

CCFL backlit Active Matrix TFT Liquid Crystal Display (5.6 inch) with touchscreen control.

320 x 240 pixels.

Display Modes

Graphics: Trending vertical or horizontal, Bar Graphics (vertical or horizontal), Digital Meters, Alphanumeric Alarm and Event information, Data or combinations on a split screen. Review trended data. Search by time, date or signal value.

Virtual Chart Speed

Programmable from 0.5/sec. to 60/sec/hr or 10 mm/hr to 15,000 mm/hr. Chart speed is independent of storage rate.

Display Windows

Time/Date, Graphics (Bars, Large Digital Trends), Disk Status, Systems Status, Menu Button Bar, Unit Identification, Alarms/Events.

Power Requirements

100 to 240Vac, 50/60Hz or 125 to 300Vdc, 35VA max.

Power Failure Protection

Optional 240Vac, 50/60Hz or 125 to 300Vdc, 35VA max.

Safety


Power

100 to 240Vac, 50/60Hz or 125 to 300Vdc, 35VA max.

Operating Environment

Temperature

-10°C to 50°C

Humidity

10% to 80% RH per EN 61010-1:2010.

Wash Down

IP65 Front panel only.

Options

Alarm Contacts

3 or 6 isolated Form C, 3 amp @ 250Vac or 26 Vdc.

Remote Inputs

3 isolated inputs, user selectable as dry contact or 5 to 12 Vdc (modem relay), 12 to 24 Vdc (SS relay activated). Inputs share a common. Configurable for chart control, alarm acknowledge/reset, event markers, totalizer reset or logic input.

Communications

ESD protected RS232 with full hand shaking. Supports modem or isolated RS485 port. Protocol: MODBUS RTU, MODBUS ASCII or serial printer port. Ethernet: 10BaseT, Unit may be remotely configured.

Printer Port

Parallel printer port (25 pin D shell connector).
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**Display Type Color** CCFL backlit Active Matrix TFT Liquid Crystal Display (5.6 inch) with touchscreen control.

**Display Size** 320 x 240 pixels.

**Display Modes** Graphics (Trending vertical or horizontal), Bar Graphics (vertical or horizontal), Digital Metters, Alphanumeric Alarm and Event messages, data or combinations on a split screen. Review trending data. Display data stored in non-volatile RAM and recorded automatically, or on demand, to on board removable media.

**Virtual Chart Speed** Programmable from 0.5 inch/hr to 600 inch/hr or 10 mm/hr to 15,000 mm/hr. Chart speed is independent of storage rate.

**Display Windows** Time/Date, Graphics, Bars, Large Digital, Trends, Disk Status, Systems Status, Menu Button Bar, Unit Identification, Alarms/Events.

**Power Requirements**
- 100 to 240Vac, 50/60Hz or 125 to 300Vdc, 35VA max.
- Optional: 240Vac, 50/60Hz or 125 to 300Vdc, 35VA max.

**Power Fail Protection** Programmed parameters stored in non-volatile memory. Clock battery backed. Data retention time without power >12 months. Chart and alarm buffer data stored in non-volatile memory.

**Safety** CE low voltage directive 2014/35/EC. Complies with EN 61010-1:2010.

**Power Supply**
- DC Current: 4-20mA, 0mA to 20mA and 10 to 50 mA.
- Accuracy: 0.15% using external 50 ohm 0.1% shunt.
- Accuracy: ±0.75% using internal 50 ohm 0.1% shunt.
- Accuracy: Meter reading for 0mA to 20mA: 0-200mA +0.07%.
- Accuracy: Meter reading for 10mA to 50mA: 0-100mA +0.03%.

**Thermocouple** Resolution: 0.1°C, CJR accuracy: 0.5°C (0 to 50°C) Thermocouple burnout detection. Accuracy: 0.003°C.

**Temperature Operating Environment**
- -10°C to 50°C
- Humidity: 10% to 90% RH per EN 61010-1:2010.
- Wash Down: IP65 Front panel only.
### DATA-CHART 2000 SERIES

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<tbody>
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<td>M</td>
<td>Monochrome Display</td>
</tr>
</tbody>
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<tr>
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<th>90-127, 194-264 Vac</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2</td>
<td>18-30 Vdc</td>
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<td></td>
<td>1st</td>
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<tr>
<th>Data Storage: Removable</th>
<th>Capacity</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>USB port card reader.</td>
</tr>
</tbody>
</table>

| Output Options          | 0 | No Alarm Outputs                                |
|                        | 1 | 6 Form C Relays 3A@250 Vac, 3 Ctrl inpt.        |
|                        | 2 | 3 Form C Relays 3A@250 Vac, 3 Ctrl inpt.        |

| Communications          | 0 | None                                             |
|                        | 1 | RS485 / RS232 - Isolated                        |
|                        | 2 | Ethernet - 10BaseT                               |

| Data Storage: Internal  | 0 | 1 Mbyte                                          |
|                        | 1 | 2 Mbyte                                          |

| Printer Port            | 0 | None                                             |
|                        | 1 | Parallel Printer Port (25 Pin D Shell)           |

### Accessories

- 50 ohm precision external shunt resistor for current inputs (+/-0.05%)
- External USB port card reader.
- Companion Software for Windows 95, 98, NT, XP and 2000.
- Portable maintenance kit: includes: Rubber feet and carry handle. (Factory installed)
- Nerko padded carrying case with shoulder strap. (Factory installed)
- Power cable and detachments.
- 256MB, 512MB, 1 Gig or 2 Giga CompactFlash™ memory cards.

### DC-2000 Installation Dimensions

#### DC2

- Input: 11200
- Output: 00000
- Power: 11200
- Memory: 00000

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**Distributed by:**

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Amherst, NH 03031-2334
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