

DPR100 A/B Analogue Scales Pen and Multipoint Specifications

EN01-6030 February 2011



Description

The DPR 100 is a low cost, high functionality 100 mm chart-width microprocessor-based recorder that has been designed for general purpose applications worldwide. Its design meets the requirements of quality, ruggedness, flexibility, ease of use and optimum price/functionality combination. The DPR100 exists in two versions:

- DPR100 A, a 1 to 3 continuous pen recorder ;
- DPR100B, a 3 or 6 channel multipoint recorder

The DPR100 has been designed for applications in the metal, glass, ceramics and utilities industries, as well as for the new and fast growing markets related to:

- Environmental monitoring
- Health and sanitation
- Food processing
- Pilot plants and laboratories

Main Features

- Microprocessor-based.
- 1, 2 or 3 pens, or 3 or 6 channels multipoint.
- 100 mm chart width (DIN 16230).
- 0.25% accuracy full scale (IEC 873).
- Analogue displays with a wide selection of ranges and scales.
- Fully configurable universal inputs (T/C, RTD, High level).
- Roll or fan fold chart paper.
- Chart documented with date, time, range, engineering unit, chart speed, identification number, alarm set-points and events.
- Up to 6 alarm relay outputs (Pen:2 alarm set-points per pen, Mpt:1 alarm set-point per channel)
- Up to 2 optional logic inputs for event recording, print inhibit and change speed.



DPR100 B Analogue Scales 1 to 3 continuous pens



DPR100 A Analogue Scales 3 or 6 channel multipoint

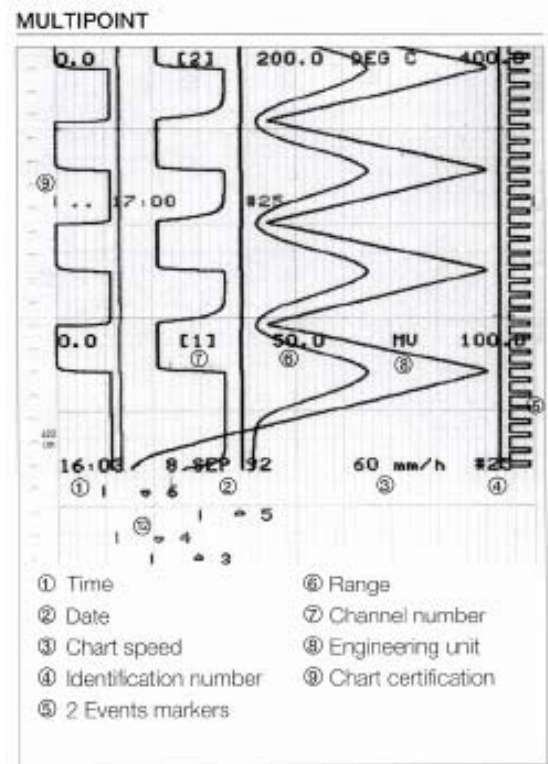
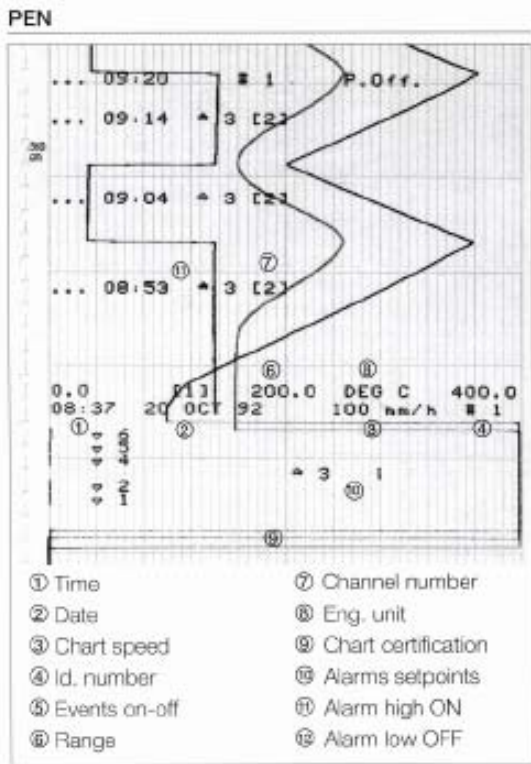
- Non-volatile memory.
- 2 configurable chart speeds (Pen: 10 to 6000 mm/h; Mpt : 10 to 1500 mm/h).
- Simplified product configuration with prompts printed on the chart.
- Full product configuration by PC software connected by a front jack connector.
- Product calibration to certify input sensor : zero, span adjustments per channel.
- Universal power supply : 90 to 264 VAC 50/60 Hz, 24 or 48 AC/DC.
- IP54 front protection (IEC 529)
- Permanent operation up to 60 °C (140°F) with chart roll, 50°C (120°F) with fanfold,
- Compact dimensions: 144 x 144 mm x 245 mm (5.67" x 5.67" x 9.7")

Options

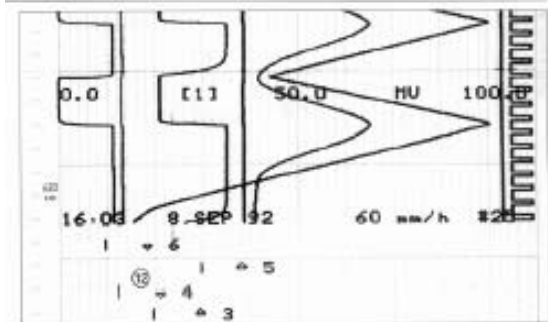
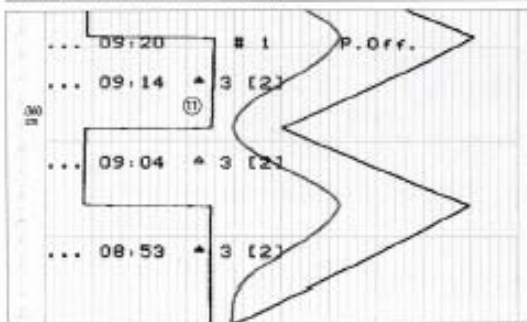
- Illuminated chart
- Key lock
- Rear terminal cover
- 24 Vdc 50 mA max. to supply 3 transmitters
- Pen offset compensation
- 2 logic inputs
- 2 or 6 alarms output
- Portable unit

Clear and Fully Documented Chart - DPR100 A/B

When roll paper is used, at any time more than 90 mm (3.54") of chart is visible. This corresponds to 4 ½ hours at 20 mm/h (0.79 in/h). When fan folder is used, 35 to 80 mm (1.4 to 3.1") of chart is visible.



Alarms are indicated clearly.



High Printing Performance - DPR100 A/B**DPR100 A Pen Recorder: Writing Speed**

Chart Speed		Chart documentation
Up to 700 mm/hr	Up to 28 in/hr	Chart fully documented
700 to 1000 mm/hr	28 to 40 in/hr	Alarm messages but no chart scales
1000 to 6000 mm/hr	40 to 240 in/hr	Traces only

DPR100 B Multipoint Recorder: Writing Speed

#Inputs (See Note 1)	Continuous traces in colour with full chart documentation mm/hr (in/hr)	Dotted traces in colour with full chart documentation	Dotted traces in colour without chart range markings. Alarm messages are printed.
1	10 to 1200 (0.5 to 48)	-	1200 to 1500 (48 to 60)
2	10 to 925 (0.5 to 37)	925 to 1000 (37 to 40)	1000 TO 1500 (40 TO 60)
3	10 to 775 (0.5 to 31)	775 to 1000 (31 to 40)	1000 TO 1500 (40 TO 60)
4	10 to 650 (0.5 to 26)	650 to 1000 (26 to 40)	1000 TO 1500 (40 TO 60)
5	10 to 550 (0.5 to 22)	550 to 1000 (22 to 40)	1000 TO 1500 (40 TO 60)
6	10 to 475 (0.5 to 19)	475 to 1000 (19 to 40)	1000 TO 1500 (40 TO 60)
7	10 to 400 (0.5 to 16)	400 to 1000 (16 to 40)	1000 TO 1500 (40 TO 60)
8	10 to 350 (0.5 to 14)	350 to 1000 (14 to 40)	1000 TO 1500 (40 TO 60)

Note: Number of traces: up to 6 analogue inputs and 4 digital event traces.

Easy to Install, Easy to Use, Easy to Maintain - DPR100 A/B

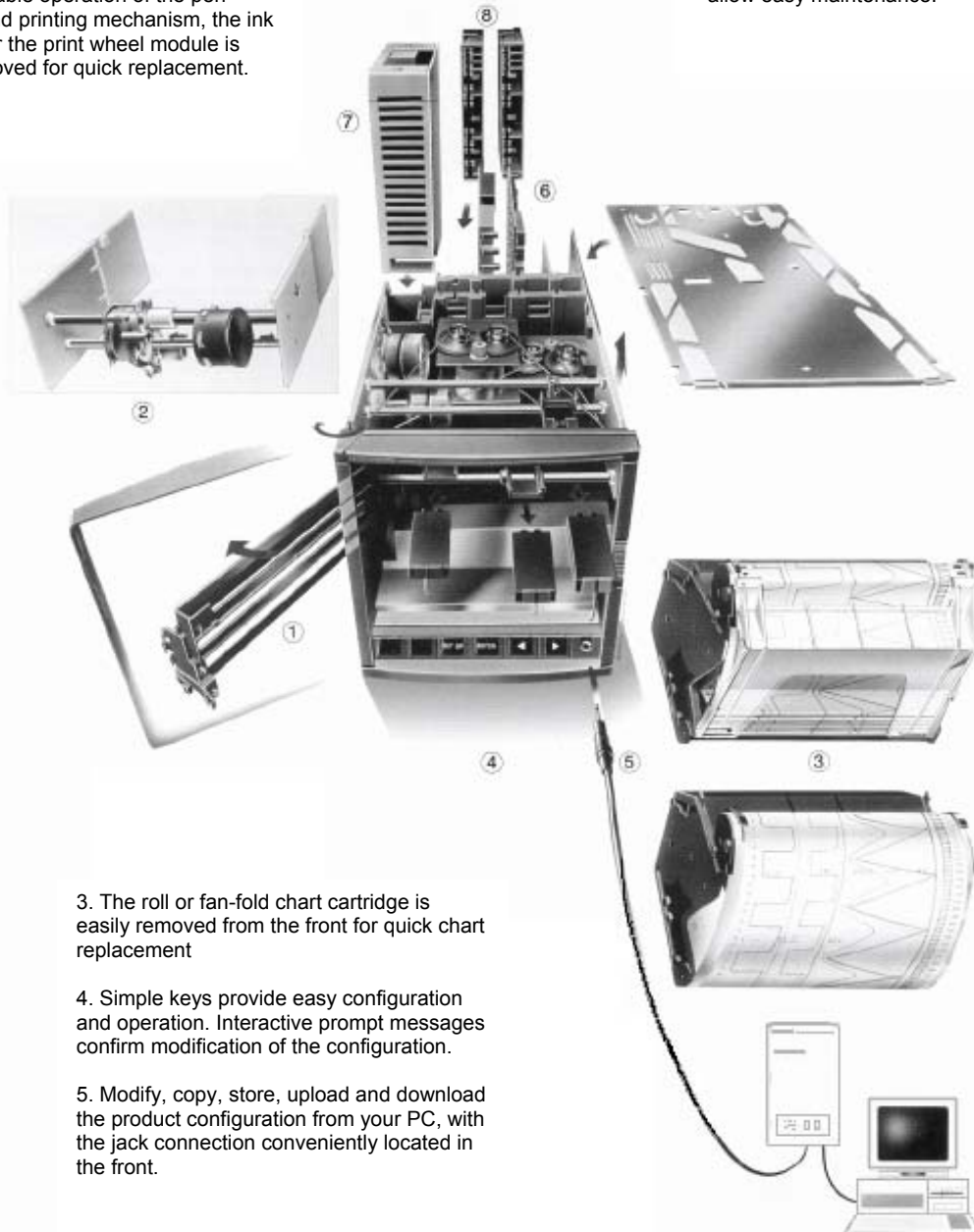
1. Process data is clearly displayed on analogue linear scales. Each "thin line" index displays precise values in colours that are visible up to 5 meters from the recorder.

2. The compact pen carriage module and high quality servo-motor chart drive ensure reliable operation of the pen carriage and printing mechanism, the ink cartridge or the print wheel module is easily removed for quick replacement.

6. The universal input card module with 2 logic and 3 analogue inputs reduces configuration time.

7. The universal power supply accepts virtually any AC or DC voltage.

8. The plug-in rear terminal blocks allow easy maintenance.



DPR100 Functional Specifications

Technical Data- DPR100 A/B																										
<p>Analogue inputs</p> <p>DPR100 A pen recorder</p> <p>DPR100 B multipoint recorder</p> <p>Signal Source</p> <p>Field calibration</p> <p>Burnout</p> <p>Scanning time</p> <p>Input impedance</p> <p>Stray rejection</p>	<p>1,2 or 3 continuous traces. Pen 1 also prints all chart documentation</p> <p>3 or 6 channels. Inputs are scanned by relays and individually configurable to any listed actuation.</p> <p>Thermocouple with individual cold junction compensation</p> <p>Line resistance up to 1000 ohms T/C, mV, mA, V</p> <p>RTD Pt 100 3-wire connections, lead resistance per wire 40 Ω balanced</p> <p>A channel field calibration – 0% and 100 % span – may be made to certify input sensor loop.</p> <p>T/C, mV, Volt, factory set up to upscale (configurable to downscale or none)</p> <p>RTD : inherent upscale.</p> <p>mA : inherent downscale</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th colspan="3"></th> <th colspan="2" style="text-align: center;">Input Type</th> </tr> <tr> <th style="text-align: center;">Chart Speed</th> <th style="text-align: center;">MV, V, mA</th> <th style="text-align: center;">T/C, RTD</th> <th colspan="2"></th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">at 10-60 mm/h (0.5 to 2.4 in/hr)</td> <td style="text-align: center;">330 ms</td> <td style="text-align: center;">2 sec</td> <td colspan="2"></td> </tr> <tr> <td style="text-align: center;">at 60-300 mm/h (2.4 to 12 in/hr)</td> <td style="text-align: center;">330 ms</td> <td style="text-align: center;">1 sec</td> <td colspan="2"></td> </tr> <tr> <td style="text-align: center;">at > 300 mm/h (>12 in/hr)</td> <td style="text-align: center;">330 ms</td> <td style="text-align: center;">330 ms</td> <td colspan="2"></td> </tr> </tbody> </table> <p>Mpt : 5 seconds for 6 channels</p> <p>10 Mohm for T/C, mV inputs. >1 Mohm for volt inputs</p> <p>Series mode ≥60 db. Common mode at 250 V AC ≥130 db.</p>				Input Type		Chart Speed	MV, V, mA	T/C, RTD			at 10-60 mm/h (0.5 to 2.4 in/hr)	330 ms	2 sec			at 60-300 mm/h (2.4 to 12 in/hr)	330 ms	1 sec			at > 300 mm/h (>12 in/hr)	330 ms	330 ms		
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<p>Logic inputs (option)</p> <p>Actions</p>	<p>Up to 2-dry contact inputs (1.5 mA – 12 Vdc)</p> <p>Change chart speed 1 to speed 2</p> <p>Print inhibit</p> <p>Event marking :</p> <p>Pen : Pen 1 used as operation marker on the right side of the chart</p> <p>Multipoint : 2 traces maximum on the right side of the chart (L1 = purple, L2 = red)</p>																									
<p>Scales</p> <p>Pen</p> <p>Multipoint</p>	<p>1 analogue scale per pen in accordance with the input range configuration</p> <p>1 analogue scale, 0 to 100 linear</p>																									
<p>Recording span</p> <p>Scaling</p> <p>Pen offset</p> <p>Pen carriage speed</p>	<p>Per input, an analogue scale is printed on the chart with the engineering unit</p> <p>Each input can be configured differently</p> <p>Distance between pens = 2 mm (0.08 in.)</p> <p>Chart definition: 1 step = 0.2 mm (0.008 in.)</p> <p>1 second full scale</p>																									
<p>Chart length</p>	<p>Fan-fold 18 m (59 ft) / Roll 24 m (79 ft)</p>																									

Technical data - DPR100 A/B	
Chart speed Speed setting Stepping chart motor	1 or 2 chart speeds, fully configurable, selected by a logic input, Speed 1 : fully adjustable per step of 1 mm/h (0.04in/hr), within limit Speed 2 : choice as per the model selection guide Pen: 10 to 6000 mm/h (0.5 to 240"/h). Mpt : 10 to 1500 mm/h (0.5 to 60"/h). Resolution 0.12 mm (0.005 in)
Alarms (option) Pen 1,2,3 or Mpt 3 CH Mpt (6 CH) Hysteresis Outputs Rating contact	2 alarm set-points, per channel, (factory set* 1 low, 1 high) 1 alarm set-point per channel, (factory set* high) 0.5% to 99% of Scale (Factory Set at 0.5%) Up to 6 alarm relays output contacts. 1 SPST normally closed contact (may be configured into normally open contact) 2 A, 250 VAC on resistive loads. * other alarm selections configured using the PC configuration software.
Power supply To transmitters Power consumption	100 to 240 VAC, 50/60 Hz or 24 or 48 VAC/DC (+/- 10% nominal) 24 VDC, 50 mA max. (optional) 3 pens & Mpt : 30 W max.
Clock timer Format Power interruption Accuracy	Year, month, hour, minute can be set Battery backed (10 years time, 3 years off power) $\pm 10^{-5}$
Packaging Weight Front face Depth Front window Front protection Lock Cut out Construction Optional	Pen & Mpt : 3.5 kg (7.7lbs) 144 x 144 mm (5.67" x 5.67") according to DIN 43718 245 mm (9.7") behind panel, including terminals and line protection cover Acrylic IP 54 (IEC 529) Latch or key (DIN 43882-N) DIN 138 X 138 mm (5.43" x 5.43") Silicon-free Chart illumination Rear terminal cover
Mounting	Panel mounting $\pm 30^\circ$ from horizontal (DIN 43834)
Wiring	Rear screw terminals. Terminal modules are plugged on the instrument
Writing Pen Multipoint	1 cartridge per pen, fibre tip, 1400 m (4500ft) of trace per colour (blue, red, green) 1 print wheel, 6 colours, 250m (820ft) of trace per colour (purple, red, black green, blue, brown)
Noise immunity	This product is in conformity with the protection requirements of the following European Council Directives: <ul style="list-style-type: none"> • 73/23/EEC, the Low Voltage Directive and 89/336/EEC, the EMC Directive. Conformity of this product with any other "CE Mark" Directive(s) shall not be assumed. • EMC Classification: EN 50081-2-1993 Electromagnetic Compatibility – General Emission Standard, Part 2: Industrial Environment. • EN 50082-2-1995 Electromagnetic Compatibility – General Immunity Standard, Part 2: Industrial Environment.

Technical data - DPR100 A/B	
Safety protection	Complies with EN61010-1 and UL 3121 for process control instrumentation. Pollution Degree 2. Installation Category II
Electrical insulation Input to input Input to ground Input to line voltage Line voltage to ground Alarm relay to ground Logic input to ground	Test voltage 350 VAC for 1 min (except for RTD input) or 280 VAC with option State Relay Test voltage 1.5 kV AC for 1 minute Test voltage 2.3 kV AC for 1 minute Test voltage 2.3 kV AC for 1 minute Test voltage 2.3 kV AC for 1 minute Test voltage 350 V AC for 1 minute
Temperature Ambient Storage	0 to 60°C (32 to 140°F) – Roll chart, 0-50°C (32 to 120°F) – Fan fold -40 to 70°C (-40 to +160°F)
Humidity Roll Fan-fold	10 to 90% RH non-condensing 15 to 80% RH non-condensing
Vibrations	Frequency 10 to 60 Hz, amplitude 0.07 mm; 60 to 150 Hz, acceleration 1 g

Accuracy - DPR100 A/B			
Reference conditions Temperature Humidity Line voltage nominal Source resistance Series mode Common mode Frequency nominal	20 °C ± 2 °C (68 °F ± 3 °F) 65 % RH ± 5 % RH ± 1 % 0 ohms 0 V 0 V ± 1 %		
Accuracy	0.25% of total span (IEC 873)		
Rated limits and associated drifts	Parameter	Rated limits	Influence on accuracy
	Temperature	0 to 50°C (32 to 120°F)	0.1% per 10°C Cold junction 0.3°C/10°C
	Supply voltage	85 to 264 V AC	No influence
	Source resistance	T/C, mV RTD	6 micro V per 100Ω of line resistance 1000Ω mm 0.1°C per Ω in each wire balanced leads 40Ω max.
	Humidity	10 to 90% RH at 25°C	0.1 % max.
	Long-term stability		0.1 % per year
	Vibrations	2.5 mm (0.1") at 0 to 14 Hz 1 g at 14 to 250 Hz	
Extreme conditions:			
Operating Temperature Humidity	0 to 60°C (32 to 140°F) 10 to 90% RH non-condensing		
Storage Temperature Humidity	-40 to +70°C (-40 to 158°F) 5 to 95% RH non-condensing		

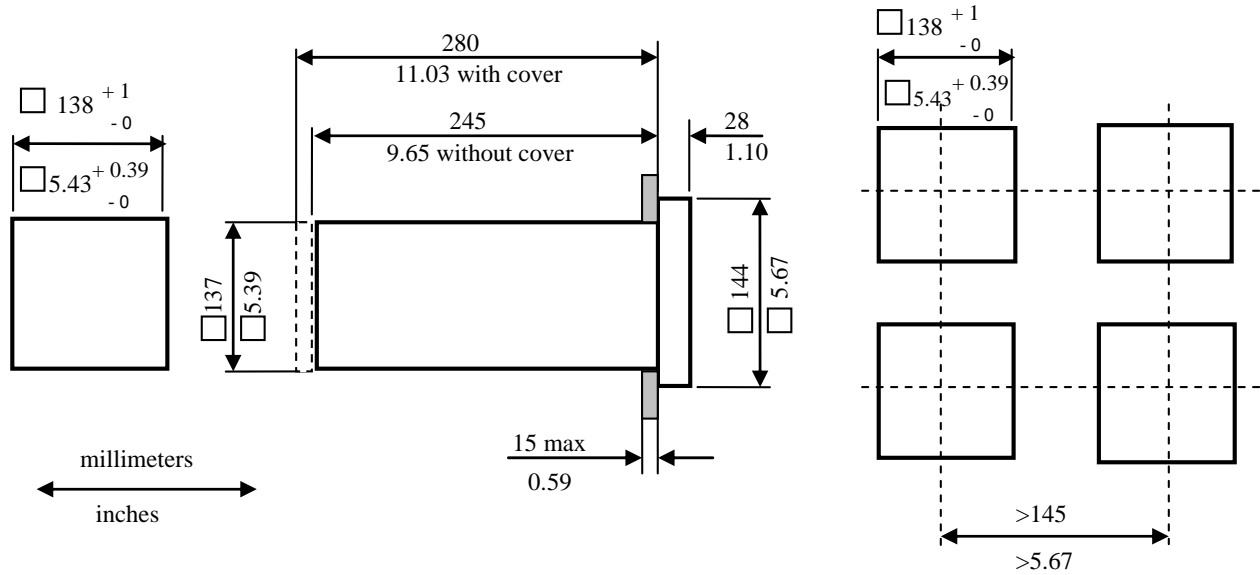
Available ranges - DPR100 A/B			
Thermocouples	J	°C	°F
		-50 to +150	-100, 0, 300
		0 to 400	0 to 800
	K	0 to 800	0 to 1500
		0 to 400	0 to 800
		0 to 800	0 to 1500
		0 to 1200	0 to 2400
Nicrosil-Nisil (N)	0 to 1400	0 to 2500	
	0 to 400	0 to 800	
	0 to 800	0 to 1500	
	0 to 1200	0 to 2400	
S	0 to 1600	0 to 3000	
R	0 to 1600	0 to 3000	
T	-100 to +200	-150 to +400	
	0 to 150	0 to 300	
	50 to 150	100 to 300	
Note : (provision to accept T/C input for remote compensation box at fixed temperature of 50°C or 60°C)			
RTD's	Pt 100 (Alpha = 0.00385)	°C	°F
		-50 to +50°C	-60 to +140°F
		-50 to +150	100, 0, +300
		0 to 100	0 to 200
		-200 to +200	-300 to +400
mV and Volt	0 to 10 mV	0 to 1 V	
	0 to 20 mV	0 to 5 V	
	0 to 50 mV	1 to 5 V	
	10 to 50 mV	0 to 10 V	
	0 to 100 mV		
mA	0 to 20 mA or 4 to 20 mA linear		
	4 to 20 mA SQRT		
	input resistor 250 ohms required		

Minimum System Requirements for PC Software- DPR100 A/B

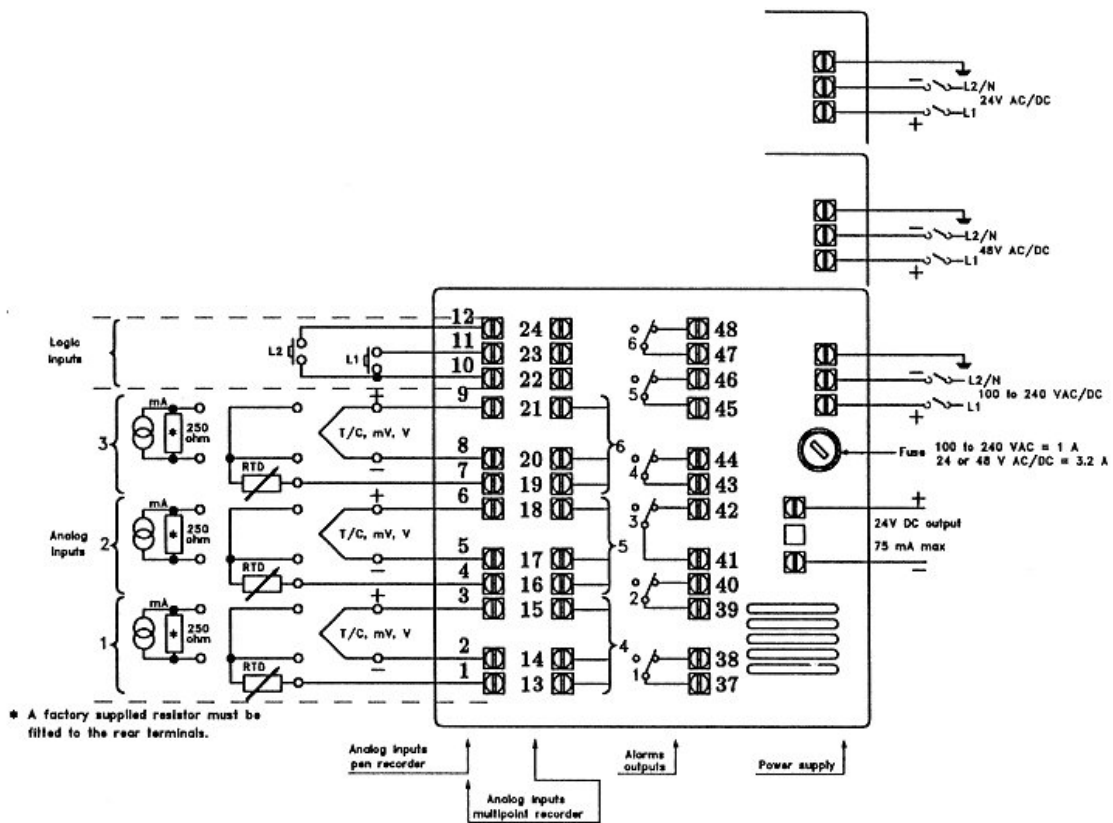
NOTE: Make sure you are an “Administrator” before installing the product.

- Windows 7 Professional, Ultimate or Enterprise OS 32-bit or 64-bit edition requires 1 GHz Processor, 2GB RAM and 15GB Hard Disk Space
- Windows XP SP1 professional requires a 233 Mhz CPU with 128 MB of RAM
- Windows 2000 SP4 professional requires a Pentium 133 Mhz CPU with 64 MB of RAM
- Windows NT Workstation 4.0 SP5 requires a 486 Mhz CPU with 32 MB of RAM
- Windows 98SE requires a Pentium 150MHz processor with 32 MB of RAM
- 10MB free on your hard disk for the PC Configuration software.
- Recommended video resolution: 800x600 or higher.

Dimensions - DPR100 A/B



Connections - DPR100 A/B



For More Information

Learn more about how Honeywell's DPR 100 Analogue Scales Pen and Multipoint can offer quality and flexibility for recording in a wide range of applications, visit our website www.honeywell.com/ps/hfs or contact your Honeywell account manager.

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