Honeywell

DPR100 C/D

PEN AND MULTIPOINT 100 mm DIGITAL RECORDERS

EN0I-6021 March 2010 **PRODUCT SPECIFICATION SHEET**

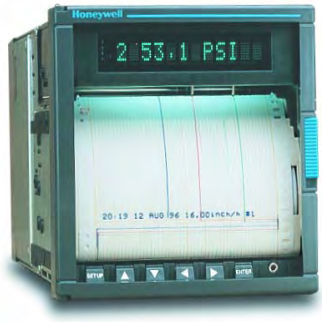
PRODUCT DESCRIPTION

The DPR 100 C and D recorders are designed to meet the recording needs for most recording applications. They provide clear and easy to understand charts, full chart documentation and a wide choice of ranges and actuations that allows the user to document the process and what has occurred.

The two versions are:
DPR 100C: 1 to 3 continuous pen
DPR 100D: 3 or 6 channel multipoint.

Their large bright display, together with their outstanding chart visibility and fluorescent illumination makes it easy to read and interpret from a considerable distance.

They are particularly suitable for chemicals, pharmaceuticals, power generation, metals, environmental monitoring and food processing applications.



DPR100 C
1 to 3 continuous pens

DPR100 D
3 or 6 channel multipoint

MAIN FEATURES

- 100 mm chart width (DIN 16230).
- 0.1 % accuracy full scale (IEC 873) applicable on a very wide choice of actuations and of ranges.
- Each input span is adjustable within the selected range, with up to 2 ranges per channel.
- Universal input board (T/C, RTD, mV, mA).
- Alphanumeric display: 12 digits or bargraphs, adjustable brightness.
- Roll or fan fold chart.
- Fully documented chart with trace colour assignment, alarm trend in red, tagging, zooming, zoning, trend or tabular print outs, Messages for all inputs up to 500 mm/h.
- Up to 10 traces (6 analogue, 4 digital inputs) on the multipoint DPR 100D
- Permanent operation up to 50°C (120°F) with fanfold, 60 °C (140°F) with chart roll.
- Full configurability thru: front keys and interactive program menu in 6 languages as standard, Optional: by Honeywell supplied PC software connected via the front jack, or by communication, with multilevel password security.
- 12 user configurable messages alarms or recorder events.
- 4 lines batch header automatically incremented and saved in case of power failure.
- Event precursor mode.
- Firmware upgrades via the front jack .
- Input calibration traceability (audit-trail).
- 12 alarm set points, assignable to any input, math result, comm signal.
- 2 configurable chart speeds, selectable via alarm, logic input, front keys andcommunication.
- Universal power supply 85 to 264 VAC 50/60 Hz, 24 or 48 AC/DC
- IP 54 front protection (IEC 529).
- Compact dimensions:
- 144 x 144mm x 245mm (5.67” x 5.67” x 9.7”)

OPTIONS

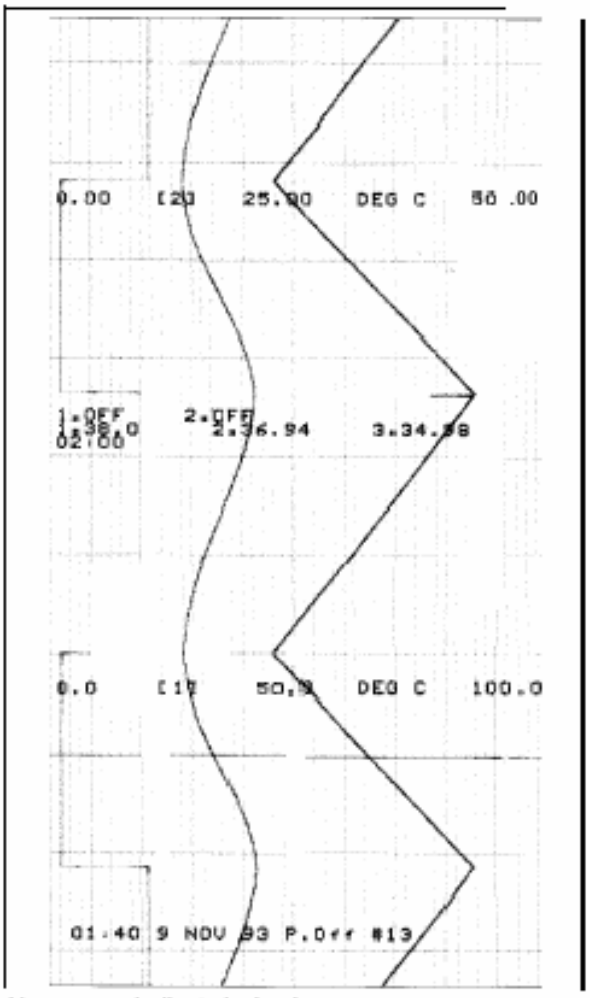
- Up to 12 relay outputs assignable to (14 characters each).
- Up to 4 logic inputs.
- Mathematic packages, with the results saved in case of power failure. Math functions can be interconnected.
- 24 VDC transmitter power supply.
- Communication: ASCII, MODBUS RTU
- CSA approved. UL Listed.
- 2 Current output 4 to 20 mA option configurable on Analog Inputs, Maths or Communication.

Clear and fully documented chart — DPR100 C/D

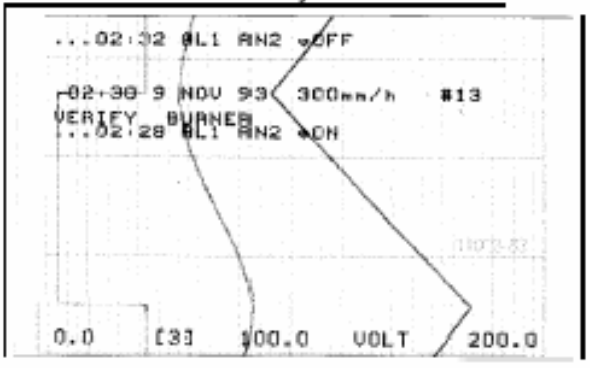
The best chart in the industry

With the roll chart, more than 90mm of of chart is visible at any time. When fan fold paper is used, up to 80mm of chart is visible

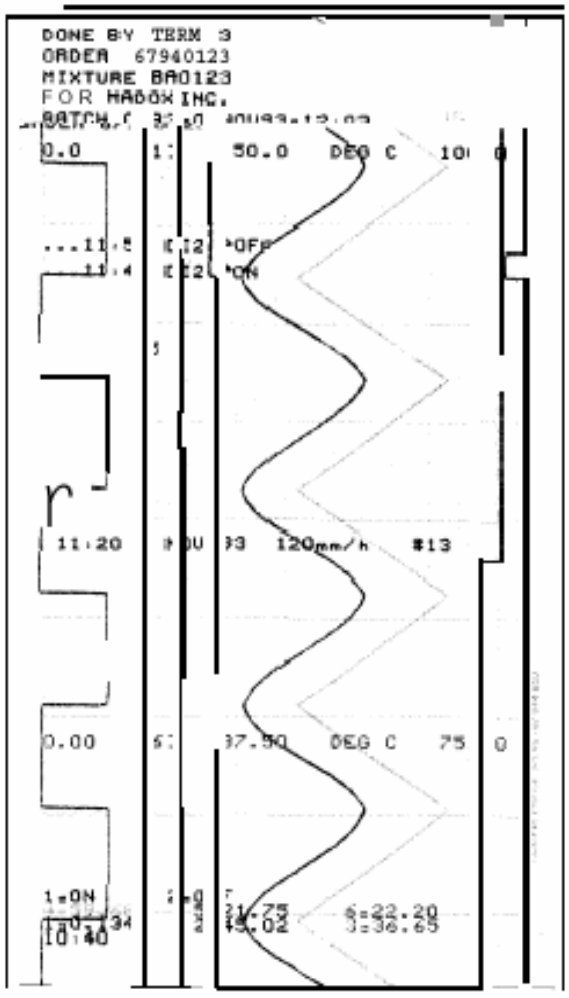
Pen

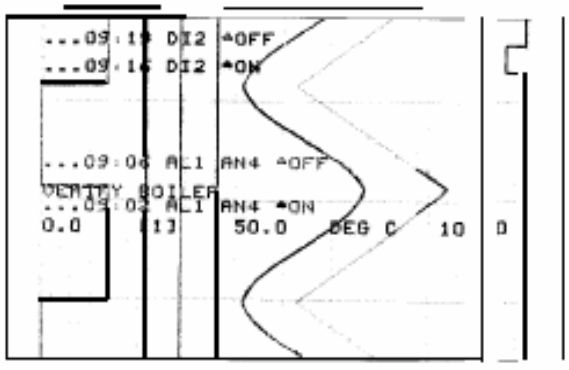


Alarms are indicated clearly.



Multipoint





High printing performance DPR100 C/D

DPR100 C 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 D 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.			

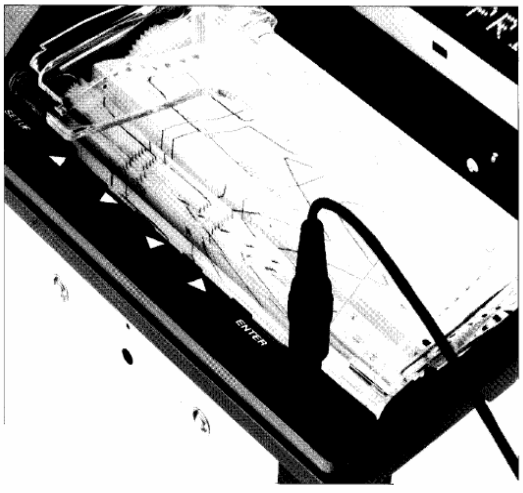
Easy configuration DPR100 C/D

Front Configuration

A user friendly program with local language prompts (English, French, German, Italian, Spanish and Swedish) permits a full configuration of the recorder using the 6 front keys.
A Multi level password protects against unauthorized changes to the configuration. 2 different product configurations can be stored in the memory.

PC Configuration

Via the front communications jack the recorder can be configured from a personal computer using an optional PC interface module. In addition to the configuration, the PC will provide the ability to upload, download, modify, store the recorder configuration, initiate diagnostic test and provides the facility to linearise up to 2 customised input sensors (50 segments each).

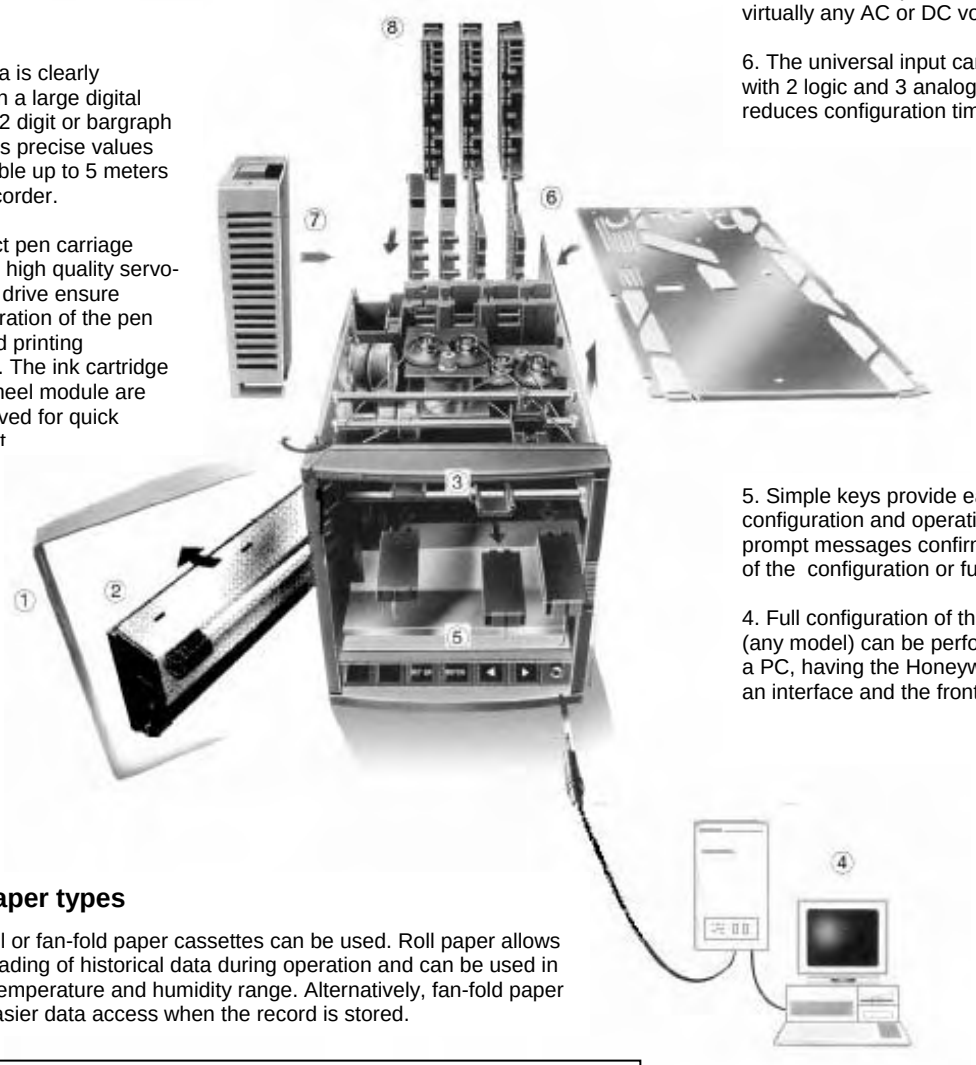


The DPR 100's compact, modular design and rugged construction reduces spare parts inventory and simplifies maintenance.
Its operator-friendly configuration keys, easy to read digital displays, reliable alarm functions and customised charts ensure accurate monitoring and recording of your process.

1. IP54 door

2. Process data is clearly displayed on a large digital display. A 12 digit or bargraph display gives precise values that are visible up to 5 meters from the recorder.

3. 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 and print wheel module are easily removed for quick replacement



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

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

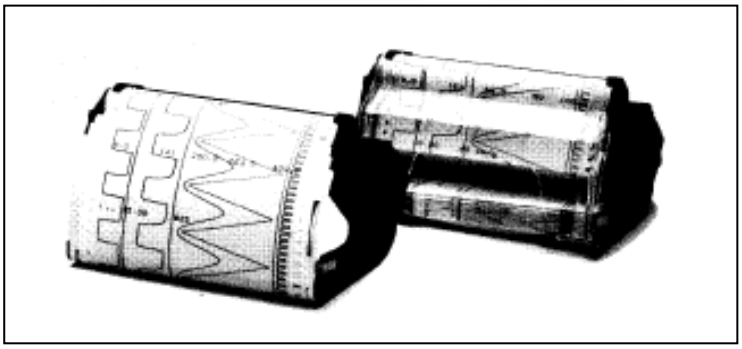
6. The universal input card module with 2 logic and 3 analogue inputs reduces configuration time.

5. Simple keys provide easy configuration and operation. Interactive prompt messages confirm modification of the configuration or function.

4. Full configuration of the DPR 100 (any model) can be performed from a PC, having the Honeywell Software, an interface and the front jack.

Two paper types

Either roll or fan-fold paper cassettes can be used. Roll paper allows easier reading of historical data during operation and can be used in a wider temperature and humidity range. Alternatively, fan-fold paper allows easier data access when the record is stored.



DPR 100 FUNCTIONAL SPECIFICATIONS

Technical data	**DPR100 C/D**

Technology	Microprocessor based, with non-volatile memory. Flash memory for software upgrade via the front jack.
Analogue inputs DPR 100C pen recorder DPR 100D multipoint recorder Signal source Basic mathematics functions Filter Field calibration Burnout Scanning time (solid state relays) Input impedance Stray rejection	 1, 2 or 3 continuous traces. 3 or 6 channels. Inputs are scanned by solid state switches and are galvanically isolated (except for RTD sensor). Thermocouple with individual cold junction compensation. Line resistance up to 1000 ohms T/C, mV, mA, V. RTD Pt 100 3-wire connections, lead resistance per wire 40 ohms balanced. Square Root extraction (√) Differential = (△**T**). A digital filter is configurable per input, 0 to 99 seconds. A channel field calibration - 0% and 100% span - may be made to certify input sensor loop. T/C, mV, Volt, configurable to upscale, to downscale or none. RTD: inherent upscale, mA: inherent downscale. Pen: 1 pen = 160 ms 2 pens = 240 ms 3 pens = 330 ms Mpt: 3 channels = 330 ms / 6 channels = 640 ms. 10 Mohm for T/C, mV inputs. >1 Mohm for volt inputs. Series mode 60 db, Common mode at 250 Vac 130 db (in t/c inputs config.).
Display Brightness	12 digit fluorescent display: 8.5 mm (0.33”) high (matrix display) configurable in: - digital PV values with engineering unit in accordance with the input range -1 or 2 bargraphs Can display analogue input, Tags, math results, communication, alarms or event messages. The display brightness is configurable.
Recording span Scaling Zoning Pen offset (Pen recorder) Pen cartiage speed	 Per input, up to 2 analogueue scales can be configured to be printed on the chart with the engineering unit channel reference and tag name, Each input can be configured differently. Each input can be configured on 0 to 100%, or 0 to 50%, or 50 to 100% of the chart. Distance between pen: 2 mm (0.08”) - Offset compensation configurable. Chart definition: 1 step = 0.2 mm (0.008”). 1 second full scale.
Chart length	Fan-fold 18m (59ft) (as DIN 16230)/ Roll 24m (79ft).
Chart speed Speed setting Stepping chart motor	1 or 2 chart speeds, fully configurable, selected by a logic input, alarm or configuration. Speed 1: fully adjustable per step of 1 mm/h, within limit Speed 2: fully adjustable per step of 1 mm/h, within limit Pen: 1 to 6000 mm/h (0.04 to 240’’/h), Mpt: 1 to 1500 mm/h (0,04 to 60’’/h). Continuous traces in color, dotted traces in configurable color with regular chart documentation (configurable). Resolution 0,12 mm.
Product configuration Front configuration PC configuration	• 2 product configurations can be stored and selected by the front keys. • A very simple and interactive product configuration can be carried out on the product with 6 front keys. A friendly program with prompt messages confirms the operation. The prompt messages can be selected in different languages: English, German, French, Spanish, Italian or Swedish, A 2-level password protects the unit from non-authorized modification (level 1 = limited access; level 2 = full protection). • Through the front jack the unit can be configured from a PC through a PC interface. This provides the facility to copy the configuration, modify, store, upload or download the product configuration or make a service diagnostic or upgrade a new software or linearize 2 special customer sensors (50 segments each).

Logic inputs	
Actions	Up to 4 dry contact inputs (1.5 mA - 12 V DC). Change chart speed 1 to speed 2, tab interval 1 to tab interval 2, digital print-out, print message, print inhibit, event trace, print a batch message, tabulate maths calculations. Event marking: Pen: Pen 1 used as operation marker on the right side of the chart for event 1 and on the left side of the chart for event 2. Mpt: 4 traces maximum on the chart. The trace position and the color are configurable.
Alarms	
Set-point	12 alarm set-points, freely assignable to any channel and output relay Full configurability of set-point, hysteresis and alarm type (high, low, rate of change, deviation).
Function	Can trigger a message, print channel red in alarm, print in alarm, change the range, change the speed, print digital PV values, trigger the event precursor.
Output	2, or 6, or 12 SPST relay outputs: 2 A, 250 V AC on resistive load. Contact N.C. in alarm condition (configurable in N.O.)
Alphanumeric documentation	
Messages	12 freely assignable and configurable messages of 14 characters each, including the specific letters used in GE & SW. Can be printed with the date/time on top of the traces by alarms, logic inputs or communication.
Batch header	One batch message of 4 lines of 14 characters, fully configurable, with incremented batch numbers and date/time. Printed through digital input and saved upon power interruption.
Process variable	The traces can be assigned to analogue input, mathematics calculations or communication inputs, and are printed in channel color. Periodic digital printing at intervals configurable from 60 to 480 mm (2.36” to 18.9”). Digital print-out of PV values through alarms, digital inputs, communication or front keyboard. Each channel can be named by 8 characters.
Tag name	
Event precursor	
Stand-by	The acquisition data is stored in a buffer memory (FiFo) A stand-by message is periodically printed.
Downloading	On event (alarm, digital input, front key, communication) the data is downloaded to be printed on the chart at pre-configured speed. The history before and after the event represents about 50 mm of chart paper.
Mathematics package (optional)	Many functions are available such as: - Basic mathematics functions - Fo sterilization - Mass flows - Vacuum pressure - Min, max - Square root - Totalization - Energy consumption - Averages - Timers - Carbon Potential The maths calculations and results are stored during power interruptions.
Digital communication (optional)	
Protocols	RS232 ASCII communication to PC application. RS422 or RS485 ASCII Communication output. RS422 or RS485 Modbus RTU communication output.
PC Supervision	Through ASCII communication, application software gives the facility to read PVs, alarms or event status, to store the information on a file, to send a message to the recorder or to modify the product configuration.
Autodial	The RS232 ASCII communication can dial automatically a phone number of a remote station to send via Modem an Alarm message or a periodic Report. **Note**: Dialing out via modem autodial can affect data over communications as it uses the same communications port.
Event	The recorder can be configured to deliver an output signal (alarm relay) on a recorder event such as burnout, paper cassette out, battery fail, alarm condition or communication interrupted.
Current output (optional)	2 Current output signals 4 to 20 mA. Configurable on - Analogue Inputs, Mathematics Calculations, or Communication Signals Base Load Resistor 400 ohms.
Power supply	100 to 240 V AC/DC or 24 or 48 VAC/DC (+10-15% nominal)
To transmitters	24 V, 50 mA typical, 75 mA maximum mA
Power consumption	3 pens & Mpt: 55 VA max. (Active power 30w)

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 Construction Chart illumination Option	 Pen & Mpt: 3.5 kg (7.7lb) 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 Polycarbonate IP 54 (IEC 529) Latch or key (DIN 43832-N) Silicon-free Fluorescent light Rear terminal cover, portable case
Mounting	Panel mounting ± 30° from horizontal.
Wiring	Rear screw terminals, Terminal modules plug onto the instrument boards.
Writing Pen Multipoint	1 cartridge per pen, fiber tip, 1400 m (4593ft) of trace per color (blue, red, green) 1 print wheel, 6 colors, 250 m (820ft) of trace per color (purple, red, black, green, blue, brown)
Noise immunity	This product is in conformity with the protection requirements of the following European Council Directives: • 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. •
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	 Continuous voltage up to 280 VAC or 400 VDC (except for RTD input) Test voltage 2.1 kVDC for 1 minute Test voltage 2.1 kVDC for 1 minute Test voltage 2.1 kVDC for 1 minute Test voltage 2.1 kVdC for 1 minute Test voltage 500 VDC for 1 minute
Temperature Ambient Storage	 0 to 60°C (32 to 140°F) - Roll chart 0 to 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 C/D

Reference conditions	
Temperature	23 °C ± 2 °C (73 °F ± 3 °F)
Humidity	65 % RH ± 5 % RH
Line voltage nominal	± 1 %
Source resistance	0 ohms
Seties mode	0 V
Common mode	0 V
Frequency nominal	± 1 %
Accuracy	Accuracy of displayed values: 0.1 % of selected input range (IEC 873) (except for ranges marked **, see below) Cold junction accuracy: 0.5 °C For mA inputs, the accuracy of the input resistor shall be added to the instrument accuracy, Chart resolution: 0,2 mm.
Rated limits and associated drifts	**Parameter** — **Rated limits** — **Influence on accuracy** Temperature junction — 0 to 50°C (32 to 120°F) Fanfold, — 0.1% per 10°C (50°F) Cold — 0 to 60°C (32 to 140°F) Chart Roll — 0.3°C /10°C (32.5°F / 50°F) Supply voltage — 85 to 264 V AC — No influence Source resistance resistance — T/C, mV — 6 micro V per 100Ω of line — — 1000Ω mm — RTD — 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 — 1.25 mm at 0 to 14 Hz 1 g at 14 to 250 Hz
Extreme conditions:	
Operating	
Temperature	0 to 60°C (32 to 140°F)
Humidity	10 to 90% RH non-condensing
Storage	
Temperature	-40 to +70°C (-40 to 158°F)
Humidity	5 to 95% RH non-condensing

Minimum system requirements for PC software — DPR100 C/D

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

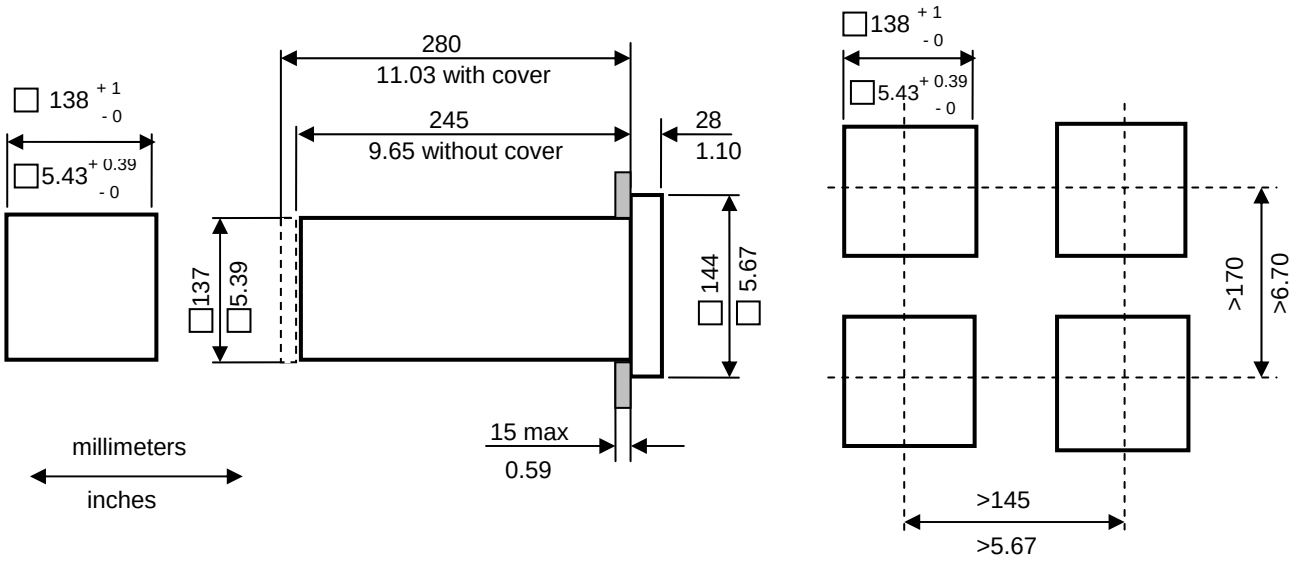
- Windows 7 Professional, Ultimate or Enterprise OS 32-bit or 64-bit edition requires 1 GHz Processor, 2GB RAM and 15GB Hard Disk Space
- Windows XP SP1 professional requires a 233 Mhz CPU with 128 MB of RAM
- Windows 2000 SP4 professional requires a Pentium 133 Mhz CPU with 64 MB of RAM
- Windows NT 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.

Available ranges — DPR100 C/D

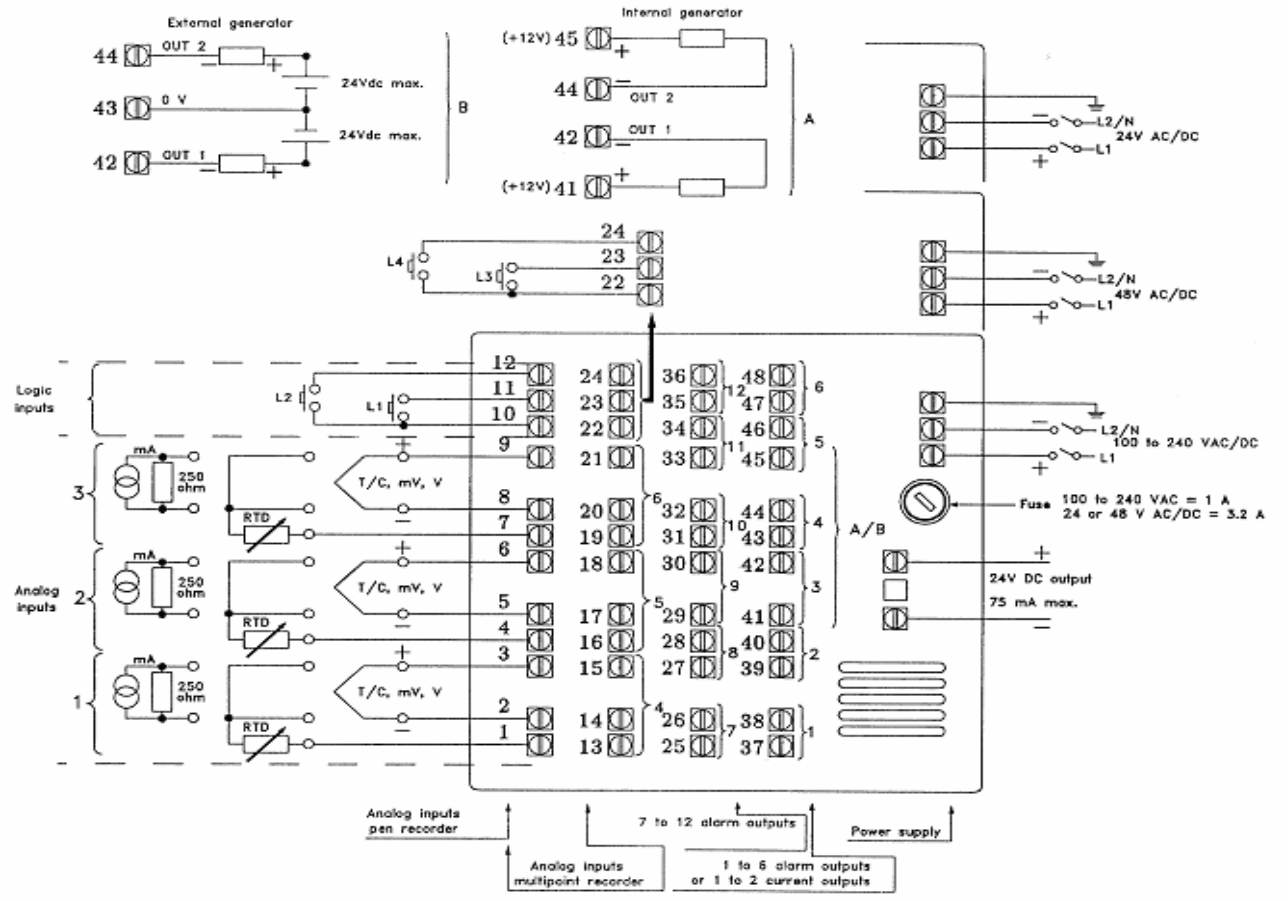
Linear	RTD/OHMS		Thermocouple			
0/10 mV	Pt 100 ohm at O°C		J -50/150°C	S 0/1600”C	U -50/150°C	
-10/10 mV	** IEC -50/150°C	**JIS -50/150°C	J -581302°F	S 32/2912°F	U -58/302°F	
0/20 mV	** IEC -58/302°F **	**JIS -58/302°F	J 0/400°C	S -20/1760”C	U 0/150°C	
-20/20 mV	** IEC 0/100°C **	**JIS 0/100°C	J 32/752°F	S -4/3200°F	U 32/302°F	
0/50 mV	** IEC 32/212°F	**JIS 32/212°F	J -200/870°C		U 50/150”C	
-50/50 mV	** IEC 0/200°C	**JIS 0/200°C	J -328/1598°F	N 0/400°C	U 122/302°F	
10/50 mV	** IEC 32/392°F	**JIS 32/392°F		N 32/752°F	U -200/400°C	
0/100 mV	** IEC 0/400°C	**JIS 0/400°C	L -50/150°C	N 0/800°C	U -328/752°F	
-100/100 mV	** IEC 32/752°F	**JIS 32/752°F	L -58/302°F	N 32/1452°F		
0/500 mV	** IEC -200/500°C	**JIS -200/500°C	L 0/400°C	N 0/1200”C	NiMo 0/1400°C	**Reference Accuracy Range**
-500/500 mV	** IEC -3281932°F	**JIS -3281932°F	L 32/752°F	N 32/2192°F	NiMo 32/2552°F	
0/1 V			L -200/870°C	N -20/1300”C		
-1/1 V	** Ni 50 ohm -80/320°C		L -328/1598°F	N -4/2372°F	W-W 26 -20/2320°C	400 to 2300°C
0/2 V	** Ni 50 ohm -112/608°F				W-W 26 -4/4208°F	750 to 4200°F
-2/2 V	‘* Ni 508 ohm -50/250°C		K 0/400°C	T -50/150”C	W5-W 26 -20/2320°C	400 to 2300°C
0/5 V	** Ni 508 ohm -58/482°F		K 32/752°F	T -58/302°F	W5-W 26 -4/4208°F	750 to 4200°F
-5/5 V	** Cu 10 ohm -20/250°C		K 0/800°C	T 0/150°C		
1/5 V	** Cu 10 ohm -4/482°F		K 32/1452°F	T 32/302°F	PR 20-40 0/1800”C	1100 to 1800°C
0/10 V	OHM 0/200		K 0/1200”C	T 50/150°C	PR 20-40 32/3272°F	2010 to 3270°F
-10/10 V	OHM 0/2000		K 32/2192°F	T 122/302°F		
0/20 mA *			K -200/1370°C	T -200/400°C	B 40/1820”C	600 to 1820°C
4/20 mA *			K -328/2498°F	T -328/752°F	B 104/3308°F	1110 to 3300°F
			R -20/1760”C			
			R -4/3200°F			

Notes: **: Accuracy: 1 °C (or 1.8 °F)
For non-linear temperature transmitter (1 to 5 V DC, 4 to 20 mA, 0 to 5 V DC, 0 to 20 mA) the transmitter range must be identical to the full actuation range of the recorder. Provision for T/C input for remote compensation box at fixed temperature of 50°C or 60°C. When temperature is not fixed, any input can be used as remote compensation temperature measurement. * mA inputs into 250 ohms input resistor.

DIMENSIONS DPR100 C/D



CONNECTIONS DPR100 C/D



Warranty/Remedy

Honeywell warrants goods of its manufacture as being free of defective materials and faulty work-manship. Contact your local sales office of warranty information. If warranted goods are returned to Honeywell during the period of coverage, Honeywell will repair of replace without charge those items it finds defective. ***The foregoing is Buyer's sole remedy and is in lieu of all other warranties, expressed or implied, including those of merchantability and fitness for a particular purpose.*** Specifications may change without notice. The information we supply is believed to be accurate and reliable as of printing. However, we assume no responsibility for its use. While we provide application assistance personally, through our literature and the Honeywell website, it is up to the customer to determine the suitability of the product in the application.

Sales and Service
For application assistance, current specifications, pricing, or name of the nearest Authorized Distributor, contact one of the offices below.

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