# DPR100 C/D

# PEN AND MULTIPOINT 100 mm DIGITAL RECORDERS

## EN0I-6021 06/2003

# 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 and communication.

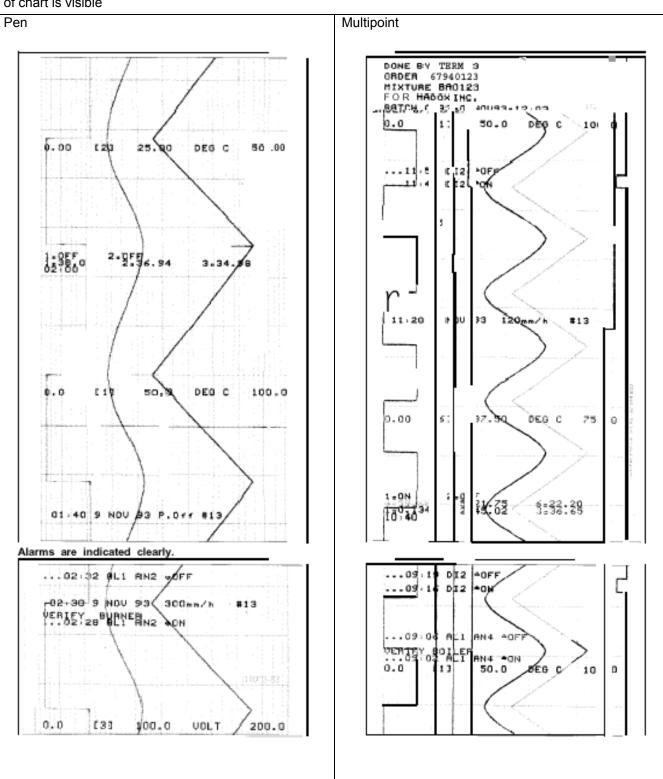
- Universal power supply 85 to 264 VAC 50/60 Hz, 24 or 48 AC/DC
- IP 54 front protection (IEC 529).
- Compact dimensions:
- 144 x 144mm x 245mm (5.67" x 5.67" x 9.7")

#### **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.

# The best chart in the industry

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



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

# **Easy configuration**

**DPR100 C/D** 

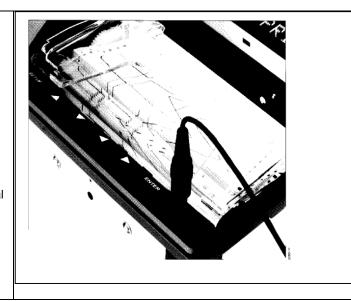
# **Front Configuration**

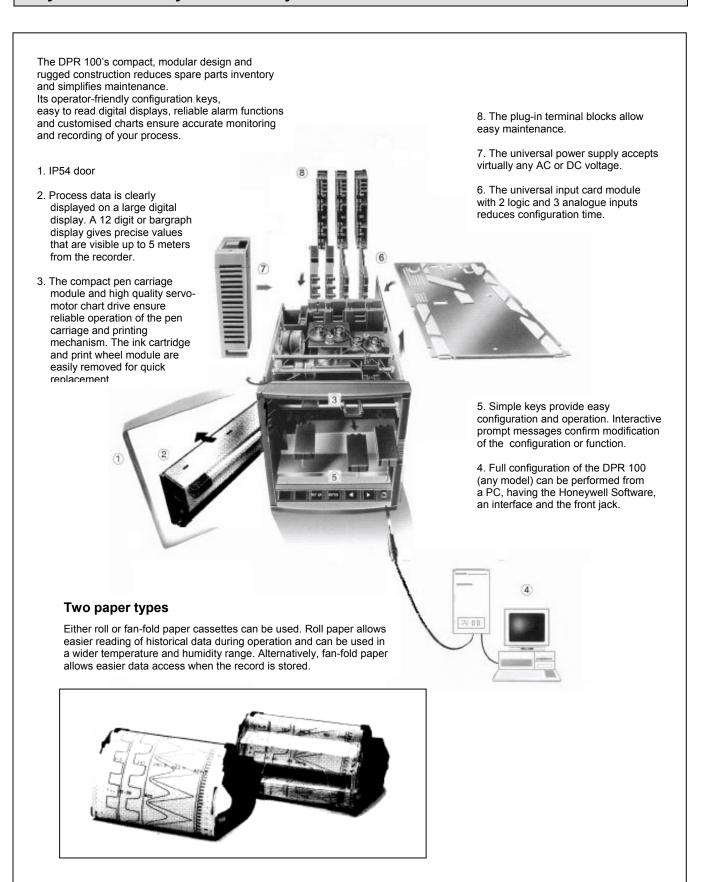
A user friendly program with local language prompts (English, French, German, Italian, Spanish and Swedish) permits a full configuration of the recorder using the 6 front keys.

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).





# **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	1, 2 or 3 continuous traces.			
DPR 100D multipoint recorder	3 or 6 channels.			
	Inputs are scanned by solid state switches and are galvanically isolated (except for RTD sensor).			
Signal source	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.			
Basic mathematics functions	Square Root extraction ( $$ ) Differential = ( $\triangle T$ ).			
Filter	A digital filter is configurable per input, 0 to 99 seconds.			
Field calibration	A channel field calibration - 0% and 100% span - may be made to certify input sensor			
Dumant	loop.			
Burnout	T/C, mV, Volt, configurable to upscale, to downscale or none.			
Coopping time	RTD: inherent upscale, mA: inherent downscale. Pen: 1 pen = 160 ms			
Scanning time	2 pens = 240 ms			
(solid state relays)	3 pens = 330 ms			
	Mpt: 3 channels = 330 ms / 6 channels = 640 ms.			
Input impedance	10 Mohm for T/C, mV inputs. >1 Mohm for volt inputs.			
Stray rejection	Series mode 60 db, Common mode at 250 Vac 130 db (in t/c inputs config.).			
3 ay 13,33 a 31	Times at as, sommen mode at 200 Year for the inpute coming.).			
Display	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.			
Brightness	The display brightness is configurable.			
Recording span				
Scaling	Per input, up to 2 analogueue scales can be configured to be printed on the chart with			
ŭ	the engineering unit channel reference and tag name,			
	Each input can be configured differently.			
Zoning	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.			
Pen offset (Pen recorder)	Chart definition: 1 step = 0.2 mm (0.008").			
Pen cartiage speed	1 second full scale.			
Chart length	Fan-fold 18m (59ft) (as DIN 16230)/ Roll 24m (79ft).			
Chart speed	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			
Speed setting	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.			
Stepping chart motor				
	2 product configurations can be stored and selected by the front keys.			
Product configuration	,			
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Technical data	DPR100 C/D
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Logic inputs			
Actions	Up to 4 day contact inputs (4.5 mA 12.V.DC)		
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	wipt. 4 traces maximum on the chart. The trace position and the color are comigurable.		
Set-point	12 alarm set-points, freely assignable to any channel and output relay		
Oct-point	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,		
T direction	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.		
Carpar	Contact N.C. in alarm condition (configurable in N.O.)		
Alphanumeric documentation	, ,		
Messages	12 freely assignable and configurable messages of 14 characters each,		
ssages	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		
Tag name	named by 8 characters.		
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 - Square root		
	- Fo sterilization - Totalization		
	- Mass flows - Energy consumption		
	- Vacuum pressure - Averages		
	- Min, max - Timers		
	- Carbon Potential		
	The maths calculations and results are stored during power interruptions.		
Digital communication (antique)			
Digital communication (optional)	DS222 ASCII communication to DC application, DS422 or DS405 ASCII		
Protocols	RS232 ASCII communication to PC application. RS422 or RS485 ASCII Communication output. RS422 or RS485 Modbus RTU communication output.		
DC Suponvision	Through ASCII communication, application software gives the facility to read PVs,		
PC Supervision	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		
Autodiai	a remote station to send via Modem an Alarm message or a periodic Report.		
	a tall the second secon		
	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)		

Technical data DPR100 C/D

Ola ala Mina an				
Clock timer Format	Year, month, hour, minute can be set			
Power interruption	Battery backed (10 years time, 3 years off power)			
Accuracy	±10 <sup>-5</sup>			
Packaging				
Weight	Pen & Mpt: 3.5 kg (7.7lb)			
Front face	144 x 144 mm (5.67" x 5.67") according to DIN 43718			
Depth	245 mm /9.7" behind panel, including terminals and line protection cover			
Front window	Polycarbonate IP 54 (IEC 529)			
Front protection Lock	Latch or key (DIN 43832-N)			
Construction	Silicon-free			
Chart illumination	Fluorescent light			
Option	Rear terminal cover, portable case			
Mounting	Panel mounting ± 30° from horizontal.			
Wiring	Rear screw terminals, Terminal modules plug onto the instrument boards.			
Writing	1 cartridge per pen, fiber tip, 1400 m (4593ft) of trace per color (blue, red, green)			
Pen	1 print wheel, 6 colors, 250 m (820ft) of trace per color (purple, red, black, green, blue, brown)			
Multipoint	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	Continuous voltage up to 280 VAC or 400 VDC (except for RTD input)			
Input to ground Input to line voltage	Test voltage 2.1 kVDC for 1 minute Test voltage 2.1 kVDC for 1 minute			
Line voltage to ground	Test voltage 2.1 kVDC for 1 minute  Test voltage 2.1 kVDC for 1 minute			
Alarm relay to ground	Test voltage 2.1 kVdC for 1 minute			
Logic input to ground	Test voltage 500 VDC for 1 minute			
Temperature				
Ambient	0 to 60°C (32 to 140°F) - Roll chart			
Storage	0 to 50°C (32 to 120°F) – Fan fold -40 to +70°C (-40 to +160°F)			
Humidity				
Roll	10 to 90% RH non-condensing			
Fan-fold	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** 

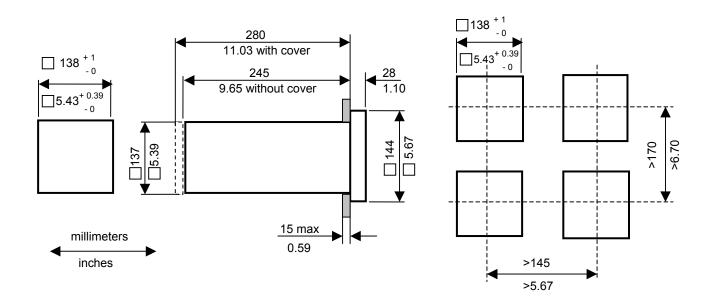
Reference conditions						
Temperature	23 °C ± 2 °C (73 °F ± 3 °F)					
Humidity	65 % RH ± 5 % RH					
Line voltage nominal	± 1 %	** ** ** ** ** ** ** ** ** ** ** ** **				
Source resistance	0 ohms					
Seties mode	0 V	* *·····				
Common mode	0 V					
Frequency nominal	± 1 %					
Accuracy	Accuracy of displayed values: 0.1 % of selected input range (IEC 873)					
Accuracy	(except for ranges marked **, see below)					
	Cold junction accura					
	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			
rated minto and accordated arms	Temperature	0 to 50°C (32 to 120°F) Fanfold,	0.1% per 10°C (50°F) Cold junction			
		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	T/C, mV	6 micro V per 100Ω of line resistance			
		., 0,	1000Q mm			
		RTD	$0.1^{\circ}$ C per $\Omega$ in each wire balanced			
		KIB	leads $40\Omega$ max.			
	Humidity	10 to 90% RH at 25°C	0.1 % max.			
	Long-term stability	10 to 90% KH at 25 C	0.1 % max. 0.1 % per year			
	Vibrations	1.25 mm at 0 to 14 Hz	0.1 70 per year			
	Vibrations	1 g at 14 to 250 Hz				
Extreme conditions:		1 9 00 1 1 10 200 112				
Operating						
Temperature	0 to 60°C (32 to 140°F)					
Humidity	10 to 90% RH non-condensing					
Storage	12 10 00 / 0 1 11 11011 0	<del>-</del>				
Temperature	-40 to +70°C (-40 to 158°F)					
Humidity	5 to 95% RH non-condensing					

#### Available ranges **DPR100 C/D**

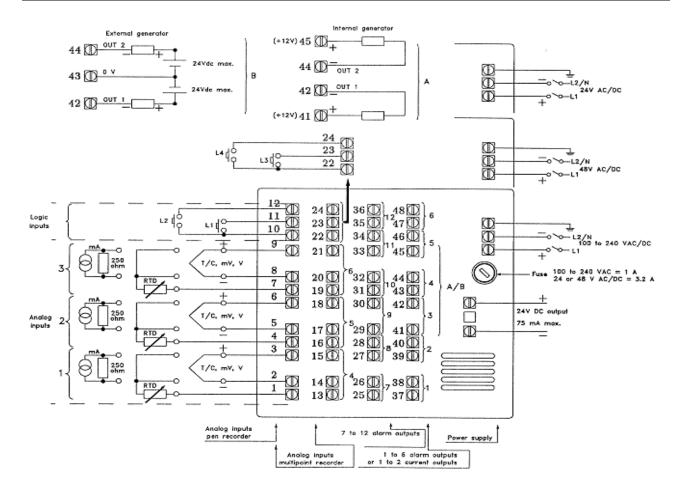
Linear	RTD/OHMS		Thermocouple			
0/10 mV -10/10 mV 0/20 mV -20/20 mV 0/50 mV -50/50 mV 10/50 mV -100/100 mV -100/100 mV -500/500 mV 0/1 V -1/1 V 0/2 V -2/2 V 0/5 V -5/5 V 1/5 V 0/10 V -10/10 V 0/20 mA * 4/20 mA *	Pt 100 ohm at O°C  ** IEC -50/150°C  ** IEC -58/302°F **  ** IEC 0/100°C **  ** IEC 32/212°F  ** IEC 0/200°C  ** IEC 32/392°F  ** IEC 0/400°C  ** IEC 32/392°F  ** IEC -200/500°C  ** IEC -3281932°F  ** Ni 50 ohm -80/320°C  ** Ni 50 ohm -112/608°F  '* Ni 508 ohm -50/250°C  ** Ni 508 ohm -58/482°F  ** Cu 10 ohm -20/250°C  ** Cu 10 ohm -4/482°F  OHM 0/2000  OHM 0/2000	**JIS -50/150°C  **JIS -58/302°F  **JIS 0/100°C  **JIS 32/212°F  **JIS 0/200°C  **JIS 32/392°F  **JIS 0/400°C  **JIS 32/752°F  **JIS -200/500°C  **JIS -3281932°F	J-50/150°C J-581302°F J0/400°C J32/752°F J-200/870°C J-328/1598°F  L-50/150°C L-58/302°F L0/400°C L32/752°F L-200/870°C L-328/1598°F  K0/400°C K32/752°F K0/800°C K32/752°F K0/800°C K32/1452°F K0/1200°C K32/2192°F K-200/1370°C K-328/2498°F  R-20/1760°C R-4/3200°F	S 0/1600"C S 32/2912°F S -20/1760"C S -4/3200°F N 0/400°C N 32/752°F N 0/800°C N 32/1452°F N 0/1200"C N 32/2192°F N -20/1300"C N -4/2372°F T -50/150"C T -58/302°F T 0/150°C T 32/302°F T 50/150°C T 122/302°F T -200/400°C T -328/752°F	U -50/150°C U -58/302°F U 0/150°C U 32/302°F U 50/150°C U 122/302°F U -200/400°C U -328/752°F NiMo 0/1400°C NiMo 32/2552°F W-W 26 -20/2320°C W-W 26 -4/4208°F W5-W 26 -4/4208°F PR 20-40 0/1800°C PR 20-40 32/3272°F B 40/1820°C B 104/3308°F	Reference Accuracy Range 400 to 2300°C 750 to 4200°F 400 to 2300°C 750 to 4200°F 1100 to 1800°C 2010 to 3270°F 600 to 1820°C 1110 to 3300°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



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#### Sales and Service

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

### 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.

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#### **Finland**

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#### France

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