

## DPR100 C/D FUNCIONAL SPECIFICATIONS

<b>Technology</b>	Microprocessor-based, with nonvolatile memory. Flash memory for software upgrade via the front jack.
<b>Analog Inputs</b> DPR 100C pen recorder DPR 100D multipoint recorder Signal source Basic mathematic 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 $\Omega$ balanced. Square Root extraction ( $\sqrt{\quad}$ ) Differential = ( $\Delta T$ ) 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 $\geq$ 60 db. Common mode at 250 Vac $\geq$ 130 db
<b>Display</b> Brightness	12 digit fluorescent display: 8.5 mm (0.33 in.) high (matrix display) configurable in: - digital PV values with engineering unit in accordance with the input range - 1 or 2 bargraphs Can display analog input, Tags, math results, communication, alarms or event messages. The display brightness is configurable.
<b>Recording span</b> Scaling Zoning Pen offset (Pen recorder) Pen carriage speed	Per input, up to 2 analog 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 in) - Offset compensation configurable Chart definition: 1 step = 0.2 mm (0.008 in) 1 second full scale
<b>Chart length</b>	Fan-fold 18 m (59 ft.) (as DIN 16230) / Roll 24 m (79 ft.)
<b>Pen trace</b> Pen Multipoint	1400 m (4500 ft.) per pen 250 m (820 ft.) per color
<b>Chart speed</b>	1 or 2 chart speeds, fully configurable, selected by a logic input, alarm or configuration. Speed 1: fully adjustable per step of 1 mm/hr, (.04 in/hr) within limit Speed 2: fully adjustable per step of 1 mm/hr, (.04 in/hr) within limit

<b>Chart Speed, cont</b> Speed setting Stepping chart motor	Pen: 1 to 6000 mm/hr (0.04 in/hr to 240 in/hr). Mpt: 1 to 1500 mm/hr (0.04 in/hr to 60 in/hr). Continuous traces in color, dotted traces in configurable color with regular chart documentation (configurable). Resolution 0.12 mm (0.005 inches).
<b>Product configuration</b> Front configuration PC configuration	<ul style="list-style-type: none"> <li>• 2 product configurations can be stored and selected by the front keys.</li> <li>• A very simple and interactive product configuration can be carried out on the product with 6 front keys. Prompt messages confirm 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 nonauthorized modification (level 1 = limited access; level 2 = full protection).</li> <li>• Through the front jack, the unit can be configured from a PC through a Honeywell 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).</li> </ul>
<b>Logic inputs</b> Actions	Up to 4 dry contact inputs (1.5 mA - 12 Vdc) Change chart speed 1 to speed 2, tab interval 1 to tab interval 2, digital PVs printout, print message, print inhibit, event trace, print a batch message, tabulate math calculations or event markings. Event markings: 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.
<b>Alarms</b> Set-point Function Output	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). Can trigger a message, print channel red in alarm (multipoint only), print in alarm, change the range, change the speed, print digital PV values, trigger the event precursor. 2, 6 or 12 SPST relay outputs: 2A, 250 Vac on resistive load Contact N.C. in alarm condition (configurable to N.O.).
<b>Alphanumeric documentation</b> Messages Batch header Process variable Tag name	12 freely assignable and configurable messages of 14 characters each, including the specific letter used in German and Swedish. Can be printed with the date/time on top of the traces by alarms, logic inputs or communication. 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. The traces can be assigned to analog input, mathematics calculations or communication inputs, and are printed in channel color. Periodic digital printing at time intervals configurable from 1 to 1440 minutes. Digital printout of PV values through alarms, digital inputs, communication, or front keyboard. Each channel can have up to an 8 character name.
<b>Event precursor</b> Standby Downloading	The acquisition data is stored in a buffer memory (FiFo). A standby message is periodically printed. On event (alarm, digital input, front key, communication) the data is downloaded to be printed on the chart at a preconfigured speed. The history before and after the event represents about 50 mm (2.0") of chart paper.

<b>Mathematics package (optional)</b>	<p>Many functions are available such as:</p> <ul style="list-style-type: none"> <li>- Basic mathematics functions (Add, Subtract, Multiply, Divide)</li> <li>- Square root</li> <li>- F<sub>O</sub> sterilization</li> <li>- Totalization, Steam Flow Totalization</li> <li>- Mass flows (Liquid or Gas)</li> <li>- Energy consumption</li> <li>- Vacuum pressure</li> <li>- Averages</li> <li>- Min, max (Group or Periodic)</li> <li>- Timers (Cumulative, Elapse, Lap Time, Countdown, Synchronize)</li> <li>- Carbon potential</li> </ul> <p>The maths calculations and results are stored during power interruptions</p>
<b>Digital communication (optional)</b> Protocols  PC Supervision  Autodial	<p>RS232 ASCII communication to PC application or with auto-dial for modem to remote information. RS422 or RS485 ASCII communication output. RS422 or RS485 Modbus RTU communication output.</p> <p>Using ASCII communication, the application software provides the following functions:</p> <ul style="list-style-type: none"> <li>- reads PVs, alarms, or events status</li> <li>- stores information on a file</li> <li>- sends messages to the recorder</li> <li>- modifies product configuration</li> </ul> <p>The RS232 ASCII communication can automatically dial a phone number of a remote station to send, via modem, an alarm message or a periodic report.</p>
<b>Event</b>	<p>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.</p>
<b>Current output (optional)</b>	<p>Two current output signals (4 to 20 mA), configurable on Analog Inputs, Mathematic Calculations, or Communications signal.          Base load resistance: 400 ohms.</p>
<b>Power supply</b> Transmitter power Power consumption	<p>85 to 264 Vac/dc or 24 or 48 Vac/dc (+10-15% nominal)          24 V, 75 mA max. (optional)          3 pens and Mpt: 55 VA max. (active power 30W)</p>
<b>Clock timer</b> Format Power interruption Accuracy	<p>Year, month, hour, minute can be set          Battery backed (10 years time, 3 years off power)  <math>\pm 10^{-5}</math></p>
<b>Packaging</b> Weight Front face Depth Front window Front protection Lock Cutout Construction Chart illumination Option	<p>Pen &amp; Mpt: 3.5 kg (7.7 lbs.)          144 x 144 mm (5.7 x 5.7 inches) according to DIN 43718          245 mm (9.7") behind panel, including terminals and line protection cover          Acrylic          IP 54 (IEC 529)          Latch or optional key (DIN 43832-N)          DIN 138 x 138 mm (5.43 x 5.43 inches)          Silicon-free          Fluorescent light          Rear terminal cover, portable case</p>
<b>Mounting</b>	<p>Panel mounting <math>\pm 30^\circ</math> from horizontal (DIN 43834)</p>

<b>Wiring</b>	Rear screw terminals. Rear terminal blocks are plugged onto the instrument electronic boards.
<b>Writing</b> Pen Multipoint	1 cartridge per pen, fiber tip, 1400 m (4500 ft.) of trace per color (blue, red, green) 1 print wheel, 6 colors, 250 m (820 ft) of trace per color (purple, red, black, green, blue, brown).
<b>Noise Immunity</b>	Meets or exceeds: IEC 801-2: electrostatic discharge: meets level 3 IEC 801-3: radiated electrostatic field: meets level 3 IEC 801-4: electrical fast transients: meets level 3 IEC 801-5: line voltage surge: meets level 3 VDE 871 radio EMI interference (EN55022 class B): meets level B
<b>Safety protection</b>	Complies with 41614, 348, 914 and 1010 installation category 2 for personal protection. Designed to meet UL, CSA C22.2 N142 standard (CSA Approved) for general purpose electrical equipment.
<b>Electrical Insulation</b> 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 1.5 kVac for 1 minute Test voltage 2.3 kVac for 1 minute Test voltage 2.3 kVac for 1 minute Test voltage 2.3 kVac for 1 minute Test voltage 350 Vac for 1 minute
<b>Temperature</b> Ambient Storage	0 to 50°C (32 to 120°F) -40 to +70°C (-40 to +160°F)
<b>Humidity</b> Roll Fan-fold	10 to 90% RH non-condensing 15 to 80% RH non-condensing
<b>Vibrations</b>	Frequency 10 to 60 Hz, amplitude 0.07 mm; 60 to 150 Hz, acceleration 1 g
<b>Seismic test</b>	Qualified according to ANSI/IEEE Std. 344-1987
<b>Accuracy</b>	
<b>Reference conditions</b> 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 Ω 0 V 0 V ± 1%
<b>Accuracy</b>	0.1% of the selected range (IEC 873) (except ranges marked ** accuracy = 0.25%)

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	No influence
	Source resistance	T/C, mV  RTD	6 μV per 100Ω of line resistance 1000Ω max 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 at 0 to 14 Hz 1 g at 14 to 250 Hz	No influence
<b>Extreme conditions:</b>			
Operating Temperature Humidity	0°C to 60°C (32 to 140°F) 5 to 95% RH noncondensing		
Temperature Humidity	20°C ± 2°C (68°F ± 3°F) 65% RH ± 5% RH		

**Available Ranges** – Accuracy = 0.1% of the selected range (IEC 873) (except ranges marked \*\* = 0.25%)

Linear	RTD/OHMS	Thermocouple		
0/10 mV	Pt 100 Ω at 0°C	J -50/150°C	S 0/1600°C	U -50/150°C
-10/10 mV	IEC -50/150°C	J -58/302°F	S 32/2912°F	U -58/302°F
0/20 mV	IEC -58/302°F	J 0/400°C	S -20/1760°C	U 0/150°C
-20/20 mV	** IEC 0/100°C	J 32/752°F	S -4/3200°F	U 32/302°F
0/50 mV	** IEC 32/212°F	J -200/870°C		U 50/150°C
-50/50 mV	IEC 0/200°C	J -328/1598°F	N 0/400°C	U 122/302°F
10/50 mV	IEC 32/392°F		N 32/752°F	U -200/400°C
0/100 mV	IEC 0/400°C	L -50/150°C	N 0/800°C	U -328/752°F
-100/100 mV	IEC 32/752°F	L -58/302°F	N 32/1452°F	
0/500 mV	IEC -200/500°C	L 0/400°C	N 0/1200°C	NiMo 0/1400°C
-500/500 mV	IEC -328/932°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 Ω -80/320°C	L -328/1598°F	N -4/2372°F	W-W26 -20/2320°C
0/2 V	Ni 50 Ω -112/608°F			W-W26 -4/4208°F
-2/2 V	Ni 508 Ω -50/250°C (Ni "A" Bulb)	K 0/400°C	T -50/150°C	W5-W26 -20/2320°C
0/5 V	Ni 508 Ω -58/482°F (Ni "A" Bulb)	K 32/752°F	T -58/302°F	W5-W26 -4/4208°F
-5/5 V	**Cu 10 Ω -20/250°C			
1/5 V	**Cu 10 Ω -4/482°F	K 0/800°C	T 0/150°C	
0/10 V	OHM 0/200	K 32/1452°F	T 32/302°F	PR 20-40 0/1800°C
-10/10 V	OHM 0/2000	K 0/1200°C	T 50/150°C	PR 20-40 32/3272°F
0/20 mA		K 32/2192°F	T 122/302°F	
4/20 mA		K -200/1370°C	T -200/400°C	B 40/1820°C
		K -328/2498°F	T -328/752°F	B 104/3308°F
		R -20/1760°C		
		R -4/3200°F		

**Note:**

For nonlinear temperature transmitter (1 to 5 Vdc, 4 to 20 mA, 0 to 5 Vdc, 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.