DPR 180

180 MM DIGITAL STRIP CHART RECORDER PRODUCT SPECIFICATION SHEET

43-DR-03-11 06/2003

OVERVIEW

The DPR180 recorder offers the best price/performance in the market today of any 180mm (7 inch) wide chart recorder.

The recorder is able to monitor up to 24 analogue inputs and up to 36 digital inputs.

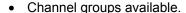
It produces clear, fully documented charts at any speed, and in different formats, providing the best, most flexible presentation of the process data.

The large, bright display, with fluorescent chart illumination, provides easy viewing of the data and chart. The flexible product configuration in 5 languages makes it easy to set up and use.

The DPR180 is especially suited to match the needs of chemical, pharmaceutical, power generation, metals processing, environmental monitoring, and other applications where the best chart resolution is required.

MAIN FEATURES

- 180 mm (7 inch) chart width.
- 0.05% accuracy full scale.
 Applicable on a wide choice of actuations and ranges.
- Each input span is adjustable within the selected range, with up to 2 ranges per input.
- Universal (T/C, RTD, mV, mA, V), or linear input (mV, mA, V).
- Fast input scanning (20/sec.)
- Fluorescent display of 2 row of 16 digits, with adjustable brightness.
- Roll or fan fold chart with same cassette. Fully documented chart with trace color assign, thin/thick trace, alarm in red tagging, zooming, zoning, trend, tabular, messages.

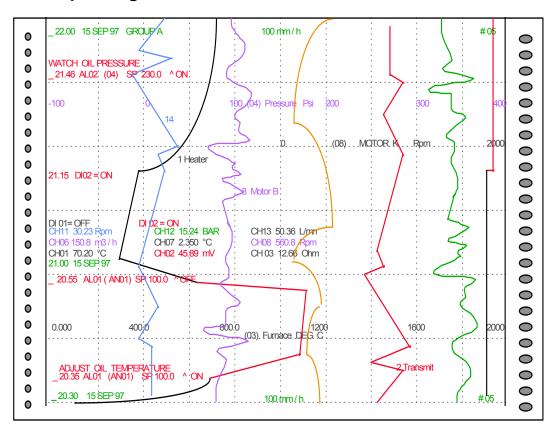


- I/O capability: up to 24 analogue inputs, up to 36 output relays, up to 36 digital inputs, up to 8 retransmitted signals.
- · Advanced math package
- Fully configurable through the front keys, front PC jack or communication link.
- 2 chart speeds configurable from 1 to 5000 mm/h (0.04 to 200 inch/hr).
- Up to 48 customer messages of 50 characters each.
- Firmware upgradable by PC (Flash memory).
- Input calibration traceable per channel, or channel group.
- Up to 2 custom-input characterizations available.

- Up to 48 alarm set points freely assignable on analogue inputs, maths, communication.
- Up to 36 internal output relays assignable on analogue inputs, maths, events, logic inputs.
- Configurable Periodic chart documentation.
- Periodic report.
- Universal power supply: 100 to 240 Vac/dc.
- PC application software (LPCS) for trending, monitoring, archiving, configuration.
- Up to 8 retransmitting outputs (4 to 20 mA).
- Universal comm. output: ASCII in RS232, 422/485. MODBUS RTU in RS422/485. ETHERNET/MODBUS RTU Interface.
- Metal door/case, IP55 rated



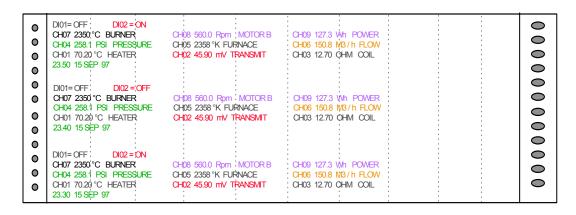
Trend printing mode



The trend printing mode offers a highly flexible documentation which includes:

Date and Time, Alarm reporting with: Time, Alarm SP, Channel #, Set Point value, Alarm, Chart certification,
Chart Speed with engineering unit, User defined message, Range subdivision, Recorder identification, Red
on alarm, Chart range, Channel reference with tag name (Configurable), Thick channel trace, Process value,
Channel tag name, Zone format, Channel reference, Engineering Unit, Tabular print out.

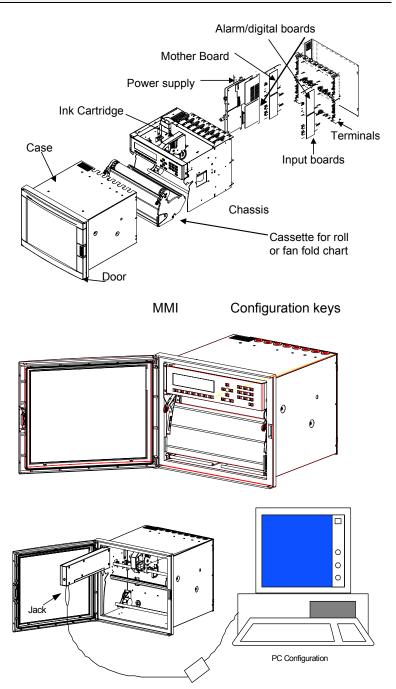
Tabular printing mode



- Easy to install ... easy to use ... easy to maintain: The DPR180 with its modular design and rugged construction, simplifies maintenance. Many of the electronic assemblies and mechanical parts are common with the DPR250 thus reducing spare parts inventory. Its operator friendly configuration keys, the sophisticated display, easy product configuration and customized charts insure accurate monitoring and recording of the process.
- Easy access: the access to the chart, and the ink cartridge is very easy. The simple, modular construction of plug-in modules, along with the low cost and extra long life of consumables, further reduces the maintenance cost.
- Universal power supply module: the universal switching mode power supply simplifies installation of the recorder by accepting voltages from 100 to 230 V ac/dc, 50/60 Hz.
- Local configuration: A user friendly program with local language prompts (English, French, German, Italian or Spanish) permits full configuration of the recorder using the front keys. A multilevel password protects against unauthorized changes of product configuration.
- **Digital Display**: The Vacuum fluorescent dot matrix display, is 2 lines of 16 digits, 8.5 mm (0.33") high. This allows for display flexibility and provides clear

operator information. Display illumination is configurable to allow for improved viewing based on customer requirements.

- Chart illumination : The chart illumination makes traces and current printed values immediately visible, even from a distance and in any ambient light condition.
- Two paper types: Either chart roll or fan fold paper can be installed into the common chart cassette. The large capacity cassette holds 35 meters (115ft) of chart paper, reducing the maintenance time required between chart changes. Uses the same ink cartridge as the DPR250, thus providing for common consumables.



PC configuration: By using the front communication jack, the recorder can be configured from a personal computer, using an optional PC interface module. In addition to configuration, the PC interface provides the ability to upload, download, modify, store the recorder configuration and initiate service diagnostics as well as being able to upgrade the recorder's product firmware. The PC Configuration software allows the creation of a custom characterization of up to 50 points for special ranges.

Technical data DPR180

Technology		Microprocessor-based (32 bits), with non volatile memory.			
		Flash memory for product software upgrade, or specials, via the front jack.			
Analogue inputs	No. of inputs	From 4 up to 24 in groups of 4.			
	Input boards	2 types : 4 linear inputs per board : mV, V, mA			
	0: /	4 universal inputs per board : mV, V, mA, T/C, RTD, Ohms			
	Signal source	Thermocouple with cold junction compensation, or with remote compensation temperature configurable between 0 to 80°C (32 to 176°F)			
		Line resistance up to 1000 Ohms for T/C, mV, mA, V			
		RTD Pt100 Ohms, 3 wire connections, 40 Ohms balanced max.			
	Basic math	Square root extraction or channel differential are standard.			
	functions	'			
	Filter	Digital filter configurable per input from 0 to 99 sec.			
	Field calibration	Channel calibration 0 to 100% span (or calibration of a group of identical channels) can be made to certify sensor loop.			
	Burnout	T/C, mV, V (except following ranges) configurable to upscale, downscale or none Volt: -500, 0, 500 mV; -1, 0, 1V; -2, 0, 2V; -5, 0, 5V; 0, 10V; -10, 0, 10V:			
		Inherent to Zero volt.			
	Scanning time	RTD : inherent upscale ; mA : inherent downscale.			
	Scarming ume	2 channels = 105 msec, 4 ch = 210 msec, 8 ch = 420 msec, 12 ch = 630 msec, 16 ch = 840 msec, 20 ch = 1 sec, 24 ch = 1.2 sec			
	Input impedance	10 MOhms for T/C and mV inputs; > 1 MOhm for V input			
	Stray rejection	Series mode > 60 dB. Common mode at 120 Vac > 130 dB			
Display	Fluorescent	2 rows of 16 digits, 8.5 mm (.33 inch) high, matrix display.			
	display	Can display 1 or 2 PV values (5 digits) per line, engineering units (5 digits), alarm			
		status, tag name, math, speed, event messages etc.			
Dagard	Brightness	The display brightness is configurable			
Record	Chart Traces	180 mm (7.09") width			
	Traces	Up to 24 traces, configurable in 6 colors, thin or thick traces, plus digital traces Traces are configurable on analogue inputs, math, communication or digital inputs			
	assignment	Traces are configurable on analogue inputs, matri, communication of digital inputs			
	Scaling	Per input, up to 2 analogue scales can be configured to be printed on the chart,			
		with engineering units, channel reference and tag name. Each input can be			
		configured independently. The scale can be linear, with up to 10 sub-divisions			
	Print mode	Trend : Up to 24 traces, with periodic chart documentation configurable in time,			
		from 1 minute to 24 hours with date, time, scales, digital PV print-out over traces			
		or on blank paper, with channel reference, digital traces, alarm messages and customer message.			
		Tabular : Tabular print-out configurable in time from 1 to 1440 minutes with			
		channel number, tag name, digital PV value, engineering unit, alarm status.			
	Zoning	Each input can be scaled between 0 to 100% of the chart (minimum zone = 20%).			
	Printing group	Up to 2 groups of channels can be defined, with printing selection by :			
		Alarm, logic inputs or keypad			
	Pen carriage	1.4 second full scale			
Chart length	speed	Roll or fan fold chart 35 meters (115 ft)			
Chart speed		1 or 2 chart speed, fully configurable, selected by : Logic input, alarm			
opood		communication, front key.			
	Speed setting	Speeds 1 and 2 are configurable from 1 up to 5000 mm/hr (0.04 to 200 in/hr)			
	Resolution	Chart resolution is 0.19 mm (0.0075")			
Product	Access	The configuration can be accessed using front keys, PC configurator, or ASCII			
configuration		communication with LPCS software.			
	Protection	2 password levels protect the unit configuration from unauthorized access. Level 1 = limited access, Level 2 = full protection.			
	Front keyboard	Configurable and alphanumeric keys allow the operator to change the recorder operation			
	PC configuration	Through the front jack, the unit can be configured from a PC using a Honeywell PC interface. This provides the facility to copy the product configuration, modify, store, download or upload the configuration, access service diagnostics, and also to upgrade the recorder firmware.			

inputs, communication, when alarm is ON, OFF or ON/OFF. Process Values Periodic digital print-out at time intervals configurable from 1 minures.	rint message, 0 to 100% of w or deviation m, change the le to normally m, 1 channel in		
print inhibit, event traces, print math calculations. Change range, start/stop math operations Change print group, actuate a relay output Up to 20 event traces are configurable in color and position from 0 the chart Alarms	o to 100% of w or deviation m, change the le to normally m, 1 channel in		
Alarms Set points Up to 48 set points, freely assignable to analogue inputs, math or communication. Alarm type High, low, change rate low, change rate high, change rate high-low with configurable alarm occurrence. Actions Can trigger a message, print channel in red in alarm, print in alarm range, change the speed/tabular, print digital PV's Start/stop the math, select the print group, actuate a relay output (optional) Up to 36 internal relays: 2 A, 250 Vac on resistive load. 1 SPST contact output, normally closed contact (NC), configurable open (NO). Configurable alarm relay acknowledgement. Alarm event The recorder can be configured to display events such as: 1 alarm burnout, paper out, battery fail, communication interrupted Alphanumeric documentation Messages Up to 48 freely assignable messages of 50 characters each Can be printed with or without date and time over the traces, by al inputs, communication, when alarm is ON, OFF or ON/OFF. Process Values Periodic digital print-out at time intervals configurable from 1 minutical minutical methods.	w or deviation m, change the le to normally m, 1 channel in		
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	Can be printed with or without date and time over the traces, by alarms, logic inputs, communication, when alarm is ON, OFF or ON/OFF.		
or through alarms, digital inputs, communication.	ite to 24 hours		
Tag name Each channel can have up to an 8 character name			
Chart scales each can be configured from 0 to 9 subdivisions			
Periodic reports startup time and period configurable Min, Max, average of selected channels or (math computation) are alphanumeric. Report size max. = 20 lines.	e printed in		
User-Defined Actuations Up to 50 breakpoints can be used to define a custom range/actual ranges can be defined using the PC Configurator. Polynomial characterization available as special.	ition. Up to 2		
Mathematic Many functions are available such as : Basic math, SqRt, Fo, mas	ss flow		
package (optional) totalization, energy consumption, averages, timers, min., max., ca alarm/logic pulse totalization, RH.			
The calculations are stored during power interruption.			
Actions The results can be recorded as a trace, a tabular print-out, a period sent to the communication link, or used to generate a current outp			
Communication (optional) Protocols ASCII in RS232, 422/485. MODBUS RTU in RS422/485.			
ETHERNET/MODBUS RTU Interface,			
Interface configured with standard IP address and is utilized with 3	3 rd partv		
software that provides TCP/Modbus driver and OPC capability.	- p		
PC supervision In ASCII communication, an application software package LPCS profollowing functions: Monitor the PV's, alarms, events status			
Archiving of data in ASCII files Send a message to the recorder Configure the recorder			
PCMCIA Actions Archiving of PV traces, alarms and events with file names, file size max. Logging time selectable from 1 second up to 30 minutes.	e is 24Mbytes		
PC Analysis The SDA (Software Data Analysis) or TrendManager Pro provides powerful way to analyze trend, alarm and event files as well as to spreadsheet format (CSV).			
Retransmitting signals Current output Up to 8 signals, 4 to 20 mA dc, can be generated by the recorder (Organized in blocks of 4 output signals)			
(optional) Max. Line impedance = 800 Ohms These can be configured for : analogue traces, math calculations, communication link. The zero and span are configurable.			

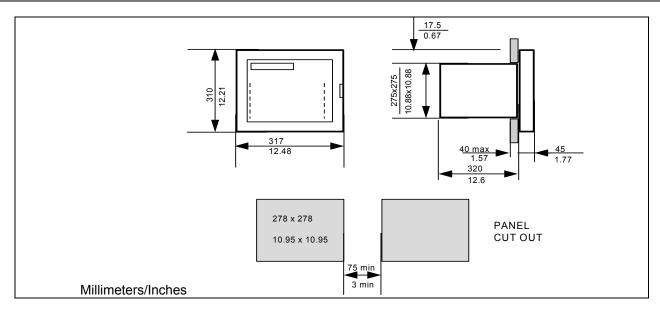
Clock timer	Format Year, month, hour, minute can be set					
CIOCK UITIEI	Power interruption	Year, month, hour, minute can be set Battery backed (10 years time, 3 years power off)				
	Accuracy	10 ⁻⁵ at reference conditions	cars power on,			
	riccuracy	To at reference conditions				
Power supply		100 to 230 Vac/dc, (24 Vac/dc on request). Consumption = 100 VA max				
Packaging	Weight	18 Kg max. (38 lbs)				
	Front bezel	310 x 317 mm (12.2 x 12.5 inches				
	Panel cutout	278 x 278 mm (10.9 x 10.9 inches	,			
	Depth	320 mm (12.6 inch) including the rear cover				
	Front protection	IP55				
	Lock	Latch, optional key DIN 43832-N				
	Door	Die cast aluminum: Dark gray or black (optional), door opens to 180°				
	Mounting	Panel mounting ± 30° from the horizontal				
	Wiring	Screw terminals: Terminal blocks plug on to the boards at the back of the recorder				
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		Complies with EN61010-1 and UL 3121 for process control instrumentation.				
protection		Pollution Degree 2. Installation Category II				
Electrical	Input/input	Continuous operation at 280 Vac or 400 Vdc (except for RTD)				
insulation	Input/logic/grd	/grd Test voltage 2.1 kV dc for 1 minute				
	alarm relay/grd	Test voltage 3,25kV dc for 1 minute				
	Input/line;	Test voltage 3,25kV dc for 1 minute				
	Line/grd; Cur output/grd	Test voltage 3,25kV dc for 1 minute				
	Cur output/gra	Test voltage 3,25kV dc for 1 minute Test voltage 500 Vdc for 1 minute				
Temperature	Ambient	0 to 50°C (32 to 132°F), 0 to 40°C (32 to 104°F) for fan fold paper				
Tomporataro	Storage	-40 to 70°C (-40 to 160°F)				
Humidity	Roll chart	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 to150 Hz acceleration1g				
Accuracy	Reference	Temperature = $23^{\circ}\text{C} \pm 2^{\circ}\text{C} (73^{\circ}\text{F} \pm 3^{\circ}\text{F})$				
-	conditions	Humidity = 65% RH ± 5%				
		Line voltage = Nominal ± 1%				
		Source resistance = 0 Ohm				
		Series mode and common mode = 0 V				
		Frequency = Nominal ± 1%				
	Accuracy	Field calibration accuracy 0.05% of the selected range (IEC 873),				
		Chart resolution : 0.18 mm (0.007").				
Datad limita	Doromotoro	Cold junction accuracy : ± 0.5°C (32.9°F)				
Rated limits and associated drifts	Parameters Temperature	Rated limits 0 to 50°C (32 to 120°F)	Influence on accuracy 0.15% per 10°C (50°F) of change (note A)			
	Temperature	0 10 30 0 (32 10 120 F)	Cold junction 0.3°C/10°C (32.5°F /50°F)			
	Supply voltage	85 to 250 V	No influence			
	Source resistance	T/C, mV	6 μV per 400 Ohms of line resistance max. = 1000 Ohms.			
		RTD	0.1°C (33.8°F) per Ohm in each wire balanced leads. 40 Ohms max. (From 0 to 400 °C (32 to 752°F)			
	Humidity	10 to 90% RH at 25°C	0.1% max			
	Long-term stability	10 to 50 /0 KH at 20 C	0.1% max 0.1% per year			
	Long-term stability	1	υ. i /0 μει yeai			

Linear	RTD/Ohms		Thermocouples			
mV 0 to 10 mV -10, 0, +10 mV 0, 20 mV -20, 0, +20 mV 0, 50 mV -50, 0, +50mV 10, 50 mV 0, 100 mV -100, 0,+100mV 0, 500 mV	Pt 100 at 0°C -50, 0, 150°C -58, 0, 302°F 0, 100°C** 32, 212°F** 0, 200°C 32, 392°F 0, 400°C 32, 752°F -200, 0, 800°C -328, 0, 1472°F	JIS -50, 0, 150°C -58, 0, 302°F 0, 100°C** 32, 212°F** 0, 200°C 32, 392°F 0, 400°C 32, 752°F -200, 0, 500°C -328, 0, 932°F	J -50, 0, 150°C J -58, 0, 302°F J 0, 400°C J 32, 752°F J -200, 0, 870°C J -328, 0, 1598°F L -50, 0, 150°C L -58, 0, 302°F L 0, 400°C L 32, 752°F	S 0, 1600°C S 32, 2912°F S -20, 0, 1760°C S -4, 0, 3200°F N 0, 400°C N 32, 752°F N 0, 800°C N 32, 1472°F N 0, 1200°C N 32, 2192°F	U -50, 0, 150°C U -58, 0, 302°F U 0, 150°C U 32, 302°F U 50, 150°C U 122, 302°F U -200, 0, 400°C U -328, 0, 752°F NiMo 0, 1400°C NiMo 32, 2552°F	
-500, 0, +500mV Volt 0, 1 V	Ni 50 ohms -80, 0, 320°C -112, 0, 608°F	Ref. range 0, 320°C 32, 608°F	L -200, 0, 870°C L -328, 0, 1598°F K 0, 400°C	N -200, 0, 1300°C N -328, 0, 2372°F T -50, 0, 150°C	MoCo 0, 1400°C MoCo 32, 2552°F W-W26	Ref. range
0, 2 V -2, 0, +2V 0, 5 V -5, 0, +5 V 1,5 V	Ni 508 ohms -80, 0, 150°C -112, 0, 302°F		K 32, 752°F K 0, 800°C K 32, 1472°F K 0, 1200°C K 32, 2192°F	T -58, 0, 302°F T 0, 150°C T 32, 302°F T 50, 150°C T 122, 302°F	-20, 0, 2320°C -4, 0, 4208°F W5-W26 -20, 0, 2320°C	400, 2300°C 750, 4200°F Ref. range 400, 2300°C
0, 10 V -10, 0, +10 V	Cu 10 Ohms -20, 0, 250°C** -4, 0, 482°F		K -200, 0, 1370°C K-328, 0, 2498°F	T -200, 0, 400°C T -328, 0, 752°F	-4, 0, 4208°F PR 20-40	750, 4200°F Ref. range
mA 0, 20 mA 4, 20 mA	Ohms 0, 200 ohms 0, 2000 ohms		R -20, 0, 1760°C R -4, 0, 3200°F		0, 1800°C 32, 3272°F B 40, 1820°C B 104, 3308°F	600, 1800°C 1110, 3300°F Ref. range 400, 1820°C 752, 3308°F

Notes:

- Ranges with ** have an accuracy of 0.25%.
 For non linear temperature transmitter, the transmitter range MUST be identical to the input range of the recorder.
 The mA inputs has to be connected on a 250 Ohms input across the input terminals.
- 4. 0.5% per 10°C on Cu 10 ohms; 0.3% per 10°C on Pt100< 200°C
- The Reference range is the same as the stated range unless noted.

DPR180 Dimensions



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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