

DR4500A Classic Series Circular Chart Recorder

Specification

Function

Honeywell's Classic Series recorder combines the simplicity of pen drawn analog traces with the sophistication of microprocessor controlled functions. This combination results in a user configurable recorder that is easily adapted to meet a variety of application requirements—from blast furnace to laboratory.

In addition to recording analog traces, the Classic Series recorder continuously displays process variable values in the selected engineering units.

Both one-pen and two-pen models accept inputs from any one of a variety of sensors or transmitters within the configurable range limits. Also, models are available with one or two digital controllers to generate controlled output signals to operate valves, dampers, heating elements, etc. for process control.

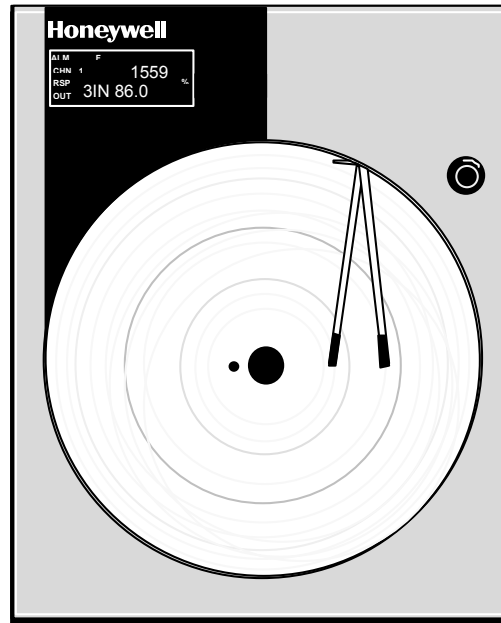


Figure 1—Classic Series recorder provides analog trace and continuous digital indication of process variable value.

Features

- **Charts** — Over 5000 preprinted charts are available to meet specific recording needs.
- **User configurable** — means that users can set and/or alter operating parameters to fit their requirements, including type of input, without recalibration. English language prompts, coupled with simple keystroke sequences, make configuring the recorder easy and straightforward.
- **Operator interface** — includes clear, brilliant alphanumeric displays; indicators; deviation bargraph; and keypad for visual and tactile interaction.
- **Ink cartridge** — Disposable, fiber-tip ink cartridge for reliable recording with minimal maintenance.
- **Control Output** — up to two versatile PID digital controllers lets users configure the exact control action needed for their process.
- **Alarms** — Integral "soft" alarms are easily set by users to announce selected out-of-limit conditions.

Features, continued

- **Setpoint Ramp** — A single setpoint ramp is user programmable and is easily repeated and activated through the Run/Hold key.
- **Setpoint Rate** — lets you define a ramp rate applied to any local setpoint change. A separate upscale or downscale rate is configurable.
- **Set Point Ramp/Soak Programming** — Lets users program and store 18 ramp and 18 soak segments. Run or Hold of program is keyboard or remote switch selectable. For each control loop, you can build up to 6 profiles using any number of consecutive segments of the program. You can select a recovery mode for powerup.
- **Accutune II™** — This standard feature provides a new, truly plug and play tuning algorithm, which will, at the touch of a button or through a digital input, accurately identify and tune any process including those with deadtime and integrating processes. This speeds up and simplifies start-up plus allows re-tuning at any setpoint.

Features, continued

- **Fuzzy Logic** — This standard feature uses fuzzy logic to suppress process variable overshoot due to SP changes or externally induced process disturbances. It operates independently from Accutunell™ tuning. It does not change the PID constants, but temporarily modifies the internal controller response to suppress overshoot. This allows more aggressive tuning to co-exist with smooth PV response. It can be enabled or disabled depending on the application or the control criteria.

External Interface Selections

- **Alarm Output** — Ties "soft" alarms to up to two integral SPST relays to activate users external equipment.
- **Modbus™ Communications** — option allows you to network your recorders to take advantage of overall monitoring of the system using an RS485 network.

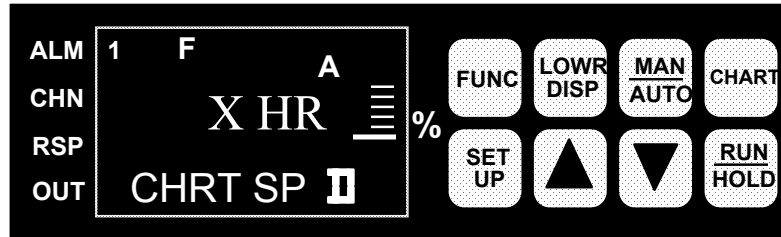
External Interface Selections, continued

- **Timer** — This optional feature provides a configurable time period of 0 to 99 hours, 59 minutes or units of minutes and seconds. It can be started via the keyboard, alarm 2, or by a digital input. The timer output is Alarm 1, which energizes at the end of the Timer Period. Alarm 1 can be automatically reset. The Timer Period can be changed between each batch. Status is shown on the lower display
- **Digital Input** — Allows users to initiate, from a remote location through two dry contact closures, selected recorder functions, such as switching from automatic to manual control mode, from direct to reverse controller action, or reset totalizer.
- **Auxiliary Output** — there is also a 4 to 20 mA current output available. It can be used to retransmit a process variable. In addition, the 4-20 outputs on the control board can be used as an auxiliary output if not used for control.

Options

- **Two Totalizers** — one or two totalizers are available. Eight digit totals with multiplier on digital display.
- **Chart Illumination** — Lights the chart area to improve readability in lower light areas.
- **Door Options** — Choice of gray, black or blue doors with standard latch or optional lock.
Optional UL and FM approved NEMA4X door available.
- **CE Mark** — Conformity with 73/23/EEC, Low Voltage Directive and 89/336/EEC EMC Directive.
- **Approval Body Options** — FM approval, CSA certification and UL Listing or a combination is available.
- **Customer ID Tag** — (30 characters max.)

*Restrictions apply -- Not all of the options can be supplied together



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Figure 2—Operator interface includes displays and keypad for comprehensive interaction with the recorder and the process.

User Configurable

In the Classic Series recorder, microprocessor control replaces conventional electro-mechanical recording techniques. This means that the recorder's capabilities are now primarily determined by its software.

Since Honeywell has preprogrammed a variety of functional capabilities into the recorder, a user only has to configure those functions that are specific for the given application.

The user configures the recorder by following English language prompts that appear in the digital displays.

The configuration data (type of input, chart speed, chart range, alarm settings, tuning constants, etc.) are stored in non-volatile memory for safe keeping in the event of a power failure.

Operator Interface

Two digital displays present the process variable (PV) value and by key selection, the controller set point; controller output; deviation from reference input; dry bulb temperature; totalization value; or engineering units as desired.

The lower display can also be set scroll or hold.

In configuration mode, digital displays are pre-empted by English language prompts and values that you use to enter configuration data. Indicators light to show alarm condition, which channel PV is on display, use of remote set point, which output relay is on, selected temperature unit, and controller's mode of operation.

Operator Interface, cont.

A deviation bargraph lets operators tell at a glance if the process variable is at, above, or below the controller's setpoint.

The keypad through which configuration data is entered also serves as an integral automatic/manual station that provides bumpless transfer for controllers.

On two-pen models, the Hold key allows continuous display of one channel process variable while the recording action proceeds automatically.

Microprocessor Controlled Recording and Printing

Both the chart and the pen are driven by stepper motors which are controlled by the microprocessor for precise maintenance free operation.

Since chart speed is configurable, users can easily alter the chart speed through the keypad. Gear changing or additional motors are no longer required.

The stepper motor accurately positions the pen drive without damping, thus eliminating the need for slidewire feedback gearing and drive cables.

A configurable deviation recording function lets users show graphically the difference between reference input and a process variable input.

Users can designate the channel 1 input or enter a deviation setpoint value as the reference input. This is an example of the versatility derived from microprocessor controlled recording.

Input Processing

The input can be one of many standard low-level electrical signals. And, for models with 2 pens, a relative humidity (wet/dry bulb) actuation is available using 100 ohm platinum bulbs ($\alpha = 0.00385$). The input type and range are user configurable.

Ranges are easily expanded and compressed within their span limitations to meet specific measurement needs. Users can select upscale or downscale sensor break protection for many of the actuations.

Each input is sampled at a rate of 3 times per second. Each sample is amplified and then converted to a digital signal, which is isolated and passed to the microprocessor.

A digital filter with configurable time constants lets users apply input signal smoothing as desired.

All non-linear inputs are linearized by the microprocessor, using look-up tables that reside in the software.

This allows mixed input actuations for 2-pen models to be recorded on a linear chart. Users can bypass linearization for recording on a non-linear chart.

An integral 24 Vdc power supply, along with 4-20 mA input configuration, allows direct operation with up to two transmitters without the need for any additional/external transmitter power supply.

To totalize a variable, such as a flow signal, users select the applicable input and set the digital display scaling factor through configuration. This eliminates the need for additional integration hardware including a mechanical counter. The totalizer has an eight-digit display.

Also has capability to reset the totalizer remotely with digital inputs, and a low flow cutoff can be set in percent of range below which the applicable totalizer does not increment.

Digital Controller

The DR4500A Series recorder controller (1 or 2 loops) includes an integral microprocessor-based PID controller.

A variety of output types, including a duplex variation for heat-cool applications, lets users select the output that is right for their final control element.

Depending on the output type users can configure the control action as On-Off, PID-A, PID-B or PD with Manual Reset.

As with the record functions, English language prompts quickly guide users through the entry of all the controller's configurable parameters.

Diagnostics

All DR4500A Series recorders include self-diagnostic systems that check critical operations and provide error messages to alert users about detected faults.

Power-up self-diagnostics is a microprocessor controlled diagnostic program that runs tests on selected circuitry when the recorder is powered up.

A "key" test allows a user to initiate, on demand, a self-diagnostic routine that checks the keypad and front panel displays.

Construction

The DR4500A Series recorder is housed in a molded case, which can be panel or surface, mounted.

A gasketed door with a glass or optional acrylic window protects internal components from harsh industrial environments while allowing easy access to the chart and operator interface.

Circuitry is partitioned on printed circuit boards for ease of service. A UL and FM approved NEMA4X door is also available.

Process Interface

Power, input, and output wiring connect to terminations inside the case.

Knockouts in the sides and bottom of the case accept conduit connections for convenient wire entry.

Specifications

Design	
Digital Indication Accuracy	1 digit
Minimum Input Span	Range is fully configurable with span limitation of the operating range selected.
Input Impedance	4-20 mAdc: 250 ohms 0-10 Vdc: 200K ohms All others: 10 Megohms
Source Impedance	RTD: 100 ohms per lead maximum
Span Step Response Time	6-seconds maximum with no filtering
Sampling Rate	Each input sampled 3 times a second.
Input Filter	Software: Single pole low pass section with selectable time constants (off to 120 seconds).
Digital Displays	Vacuum fluorescent, alphanumeric. A six-digit display dedicated to the process variable. Alternate information displayed during configuration mode. An eight-digit display shows key selected operating parameters. Also provides guidance during configuration.
Indicators	Channel PV display (CHN 1 or 2) Alarm status (ALM 1, 2) Controller Output (OUT 1, 2) Remote Set Point (RSP) for Control 1 Temperature unit (F or C) or Engineering units Controller's mode (A or MAN)
Deviation Bargraph	21 segment, color coded deviation bargraph: Green (large) = On Control Green (Small) = Deviation to $\pm 10\%$ of PV
Controller Modes of Operation	Manual Operation Automatic with local set point Automatic with remote set point
Transmitter Supply Voltage	22 to 26 Vdc at input terminals (50 mAdc at 24 Vdc)

Specifications, continued

Performance					
Number of Inputs	<i>One Pen model:</i> One input <i>Two Pen model:</i> Two inputs				
Types of Input Actuation¹	Range		Reference Accuracy		Temp. Stability ± Degrees Error Per 1 Degree ΔT
	°F	°C	± °F	± °C	
Thermocouples² B	105 to 3300 105 to 150 150 to 500 500 to 1000 1000 to 3300	41 to 1816 41 to 66 66 to 260 260 to 538 538 to 1816	 42.00 14.00 3.00 1.50	 23.00 7.70 1.70 0.80	 2.00 2.00 0.50 0.20
E	-454 to 1832 -454 to -202 -202 to 1832	-270 to 1000 -270 to -130 -130 to 1000	 18.00 1.00	 10.00 0.55	 0.70 0.35
E (low)	-200 to 1100	-129 to 593	0.50	0.30	0.20
J	0 to 1600	-18 to 871	0.40	0.22	0.06
J (low)	20 to 770	-7 to 410	0.20	0.11	0.04
K	-320 to 2500 -320 to 0 0 to 2500	-196 to 1371 -196 to -18 18 to 1371	 1.25 0.60	 0.70 0.35	 0.18 0.09
K (low)	-20 to 1000	-29 to 538	0.30	0.16	0.05
NNM (Ni Ni Moly)	32 to 2500 32 to 500 500 to 2500	0 to 1371 0 to 260 260 to 1371	 0.75 0.50	 0.40 0.30	 0.09 0.07
NIC (Nicrosil Nisil)	0 to 2372	-18 to 1300	1.0	0.55	0.01
R	0 to 3100 0 to 500 500 to 3100	-18 to 1704 -18 to 260 260 to 1704	 2.00 1.00	 1.10 0.55	 0.25 0.13
S	0 to 3100 0 to 500 500 to 3100	-18 to 1704 -18 to 260 260 to 1704	 2.00 1.00	 1.10 0.55	 0.23 0.13
T	-300 to 700	-184 to 371	0.60	0.35	0.07
T (low)	-200 to 600	-129 to 316	0.40	0.22	0.07
W5W26	0 to 4200 0 to 600 600 to 3600 3600 to 4200	-18 to 2315 -18 to 316 316 to 1982 1982 to 2315	 1.40 1.30 1.60	 0.77 0.70 0.90	 0.17 0.17 0.29
W5W26 (low)	0 to 2240 0 to 600 600 to 2240	-18 to 1227 -18 to 316 316 to 1227	 1.10 1.00	 0.60 0.55	 0.14 0.10
Radiamatic	1400 to 3400	760 to 1871	1.00	0.55	0.10

Specifications, continued

Types of Input Actuation ¹	Range		Reference Accuracy		Temp. Stability ± Degrees Error Per 1 Degree ΔT
	°F	°C	± °F	± °C	
RTDs					
Platinum					
100 ohms	-300 to 900	-184 to 482	0.40	0.22	0.05
500 ohms	-300 to 900	-184 to 482	0.20	0.11	0.05
Linear					
Milliamperes dc	4 to 20	--	0.10%	--	0.004% /°F
Millivolts dc	0 to 10	--	0.05%	--	0.004% /°F
	10 to 50	--	0.05%	--	0.004% /°F
Volts dc	1 to 5 (can be calibrated 0 to 5)	--	0.05%	--	0.004% /°F
	0 to 10	--	0.10%	--	0.004% /°F
Relative Humidity					
Platinum					
100 ohm Wet/Dry	-130 to 392	-90 to 200	0.30	0.03	0.03
Wet/Dry Input					
Bulb* %RH³					
		Dry Bulb Range		Reference Accuracy	Temp. Stability
		°F °C		± °F ± °C	53 to 104°F/ 12 to 40°C
	Measured %RH				
	0 to <20	-103 to 212	-75 to 100	2% RH	0.11% RH/°F
	20 to 100	35 to 40	2 to 4	2% RH	0.11% RH/°F
		>40 to 100	>4 to 38	1% RH	0.06% RH/°F
		100 to 212	38 to 100	1% RH	0.03% RH/°F

¹Consult Model Selection Guide 44-45-16-07 for information.

²Includes reference junction calibration of ± 0.01degrees using standard "ice bath" method of calibration. Factory calibration at reference ± 1.2°F. Note that factory calibration may vary by as much as ± 10 microvolts or ± 0.3 ohms for RTDs which means recalibration may be required to achieve stated accuracy.

³The RH calculation is inoperative when temperature goes below 32 °F (0 °C) or above 212 °F (100 °C). However, the dry bulb temperature will be monitored to -103 °F (-75 °C). Accuracy stated is for Classic Series Recorder only, and does not include remaining system accuracies.

*IEC Alpha (α) = 0.00385 Ω/Ω/°C

Specifications, continued

Controller			
Group	Parameters	Setting Range or Selection	Resolution
SPRAMP 1(2)	SP Ramp (1 or 2) Time Min Final SP SPRate EU/HR UP EU/HR DN SP Program Recycles Soak Deviation Profile State Recovery Program End	Disable or Enable 0 to 255 0 to 100% of Span Enable or Disable 0 to 9999 0 to 9999 Disable or Enable 0 to 99 0.0 to 99.0 1 to 6 Disable or Hold Enable or Disable Last Setpoint or Failsafe	
SPPSEGS	Profile Start Segment Profile End Segment Ramp Unit Synchronize Profiles Segment X Ramp Segment X Setpoint Segment X Time	Ramp 1 to Ramp 35 Soak 2 to Soak 36 Time or Rate Enable, Disable 0.00 to 99:59 within High/Low Range Limits 0.00 to 99.59	
SPP EVENT	Segment X Event	None, Alarm 1, 2, 3, 4, 5, or 6	
TIMER	Timer Period Start Ldisplay Reset Increment	Enable/Disable 0.00 to 99:59 Run/Hold Key or Alarm 2 Time Remaining or Elapsed Time Run/Hold key or Alarm 1 Minute or Second	
AUXILIARY OUTPUT	Aux Output 4mA Val 20mA Val	Disable, IN1, IN2, PV1, PV2, Dev1, Dev2, Out1(2),SP1 (2) Low scaling factor High scaling factor	
ALARMS (1,2,3,4,5,6)	SP Value SP Type Alarm Type Alarm Scaling Multiplier for Totalizer Alarm Alarm Hysteresis	0.0 to 9999 None, Input 1 (2), RH, Dev, Output, Total 1, Total 2, Dev2, Out2, Event High or Low 1,10,100,1000,10000,100000, 1E6 0.0 to 100% of span	0.1
OPTIONS	Reject Frequency Relative Humidity Atm. Pressure Deviation Scroll (Lower Display)	60 or 50 Hz Yes or No 590 to 800 None, SetPnt, Chan 1 None, 1 sec, 2 sec, 3 sec	
MODBUS	Communications State Communications Address Baud Transmit Delay	Enable/Disable 1 to 99 300, 600, 1200, 2400, 4800, 9600, 19200, 38400 None, 10msec, 20msec, 30msec, 40msec, 50msec.	
LOCKOUT	Lockout (Software and/or Hardware)	None, Calib, +Conf, Max Hardware Configuration Lockout (Optional)	
STATUS	Version Failsafe RAM Test Configuration Test Calibration Test Fact CRC (Factory Set Input Constants) Battery Test	Latest Software Version Yes or No Pass or Fail Pass or Fail Pass or Fail Pass or Fail Pass or Fail	

Specifications, continued

Controller (continued)	
<p>Controller Output¹ (Optional)</p>	<ul style="list-style-type: none"> • <i>On-Off or Time Proportional</i> One SPST electromechanical relay. Control action can be set for direct or reverse; N.O. or N.C. contact selectable. • <i>On-Off Duplex or Time Proportional Duplex</i> Two SPST electromechanical relays. Control action can be set for direct or reverse; N.O. or N.C. contact selectable. • <i>Current Proportional</i> 21 mAdc maximum into a negative or positive grounded or non-grounded load of 0 to 1000 ohms. Output range can be set between 4 and 20 mA, and as direct or reverse action. <ul style="list-style-type: none"> <i>Resolution:</i> 10 bits <i>Accuracy:</i> 0.5 % full scale FM Approved Output (Optional) • <i>Position Proportional</i> Two SPST electromechanical relays operate motor having a 100 ohm to 1000 ohm slidewire. • <i>Current/Time Duplex and Time /Current Duplex</i> Variation of time proportional duplex for Heat/Cool applications. Time proportional output (heat or cool) is a SPST electromechanical relay. Current proportional output (heat or cool) is a 4-20 mA signal that can be fed into a negative or positive grounded load of 0 to 1000 ohms and is operational over 50 % of range or the entire range. Time Proportional Relay Resolution: 4.4 mSec. <i>Relay Contact Ratings:</i> <ul style="list-style-type: none"> Resistive Load: 5A @ 120 Vac, 2.5A @ 240 Vac Inductive Load: 50 VA @ 120 Vac or 240 Vac <i>Cycle Time:</i> 1 to 120 seconds Current Proportional: <ul style="list-style-type: none"> <i>Resolution:</i> 10 bits <i>Accuracy:</i> 0.5 % full scale
<p>CE Conformity (Europe) (Optional) <i>Product Classification:</i> <i>Enclosure Rating:</i> <i>Installation Category (Over-voltage Category)</i> <i>Pollution Degree:</i> <i>EMC Classification</i> <i>Method of EMC Assessment</i> <i>Declaration of Conformity</i></p>	<p>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.</p> <p>Class I: Permanently Connected, Panel Mounted Industrial Control Equipment with protective earthing (grounding). (EN 61010-1)</p> <p>Panel Mounted Equipment, IP 00, this recorder must be panel mounted. Terminals must be enclosed within the panel. Front panel IP 65 (IEC 529)</p> <p>Category II: Energy-consuming equipment supplied from the fixed installation. Local level appliances, and Industrial Control Equipment. (EN 61010-1)</p> <p>Pollution Degree 2: Normally non-conductive pollution with occasional conductivity caused by condensation. (Ref. IEC 664-1)</p> <p>Group 1, Class A, ISM Equipment (EN 55011, emissions), Industrial Equipment (EN 50082-2, immunity)</p> <p>Technical File (TF)</p> <p>51197635-000</p>

Specifications, continued

Controller, continued	
Case/Door	Molded, foamed-Noryl** with gasketed door to meet NEMA 3 enclosure requirements. Panel gasket available separately. An optional UL and FM approved NEMA4X door is also available.
Pen	Disposable fiber-tip ink cartridge. Line length per cartridge more than 1000 ft (305 m). <i>One Pen:</i> Purple <i>Two Pens:</i> Purple and Red
Chart	12-inch (304.8mm) diameter chart with standard preprinted markings and a calibrated width of 4.62-inches (117.5mm).
Wiring Connections	Terminals inside the case
Color	<i>Case:</i> Black <i>Door (standard):</i> Caribbean Blue, Black or Gray
Approval Bodies	U.L. approval depending on model. Consult Model Selection Guide for information. FM approved for Class I, Div 2, Groups A, B, C, D areas depending on model.
Dimensions	See Figure 3.
Weight	13.2 lb. (6 kg)
Mounting	Panel or surface mounted. Some adapter kits available for existing panel cutouts.
Options	
Auxiliary Linear Output (Optional)	Three Auxiliary Outputs are available: 21 mA dc maximum into a negative or positive grounded load or non-grounded load of 0 to 1000 ohms. Output range can be set between 2 to 21 mA, and as direct or reverse action. It can be configured to represent any one of 10 parameters: Input 1-2, PV 1-2, Deviation 1-2, Output 1-2, Setpoint 1-2. The range of the auxiliary output, as a function of the selected variable, can be scaled. Auxiliary Output 2 and Auxiliary Output 3 use Control Current Output 1 and Control Current Output 2 if Control "OUTALG" is not set to "CURRENT" or "POSITION". <i>Resolution:</i> 12 bits over 0 to 21 mA (10 bits for Auxiliary Output 2 and 3) <i>Accuracy:</i> 0.2 % of full scale <i>Temperature Stability:</i> 0.03% F.S. / °C
Alarm Output	Two SPST electromechanical relays <i>Relay Contact Ratings:</i> Resistive Load: 1A @ 120 Vac, 1/2A @ 240 Vac.
Digital Input	+20 Vdc source for external dry contact or isolated solid state contacts. Selects one configured input.
Totalizers	One or two Totalizers depending on model. Eight digit "totals" with multiplier on digital display.
Miscellaneous	<ul style="list-style-type: none"> • FM Approved 4-20 mA Control Output • UL and FM approved NEMA4X door • Door Lock • Chart Illumination • UL Listing, FM Approval, CSA, CE Conformity • Control with Accutune II tuning capability • Customer ID Tag • 4-20 mA Auxiliary Output

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1. Not all controller outputs are available on all models of the Classic Recorder. Consult Model Selection Guide 44-45-16-07 for information.

Specifications, continued

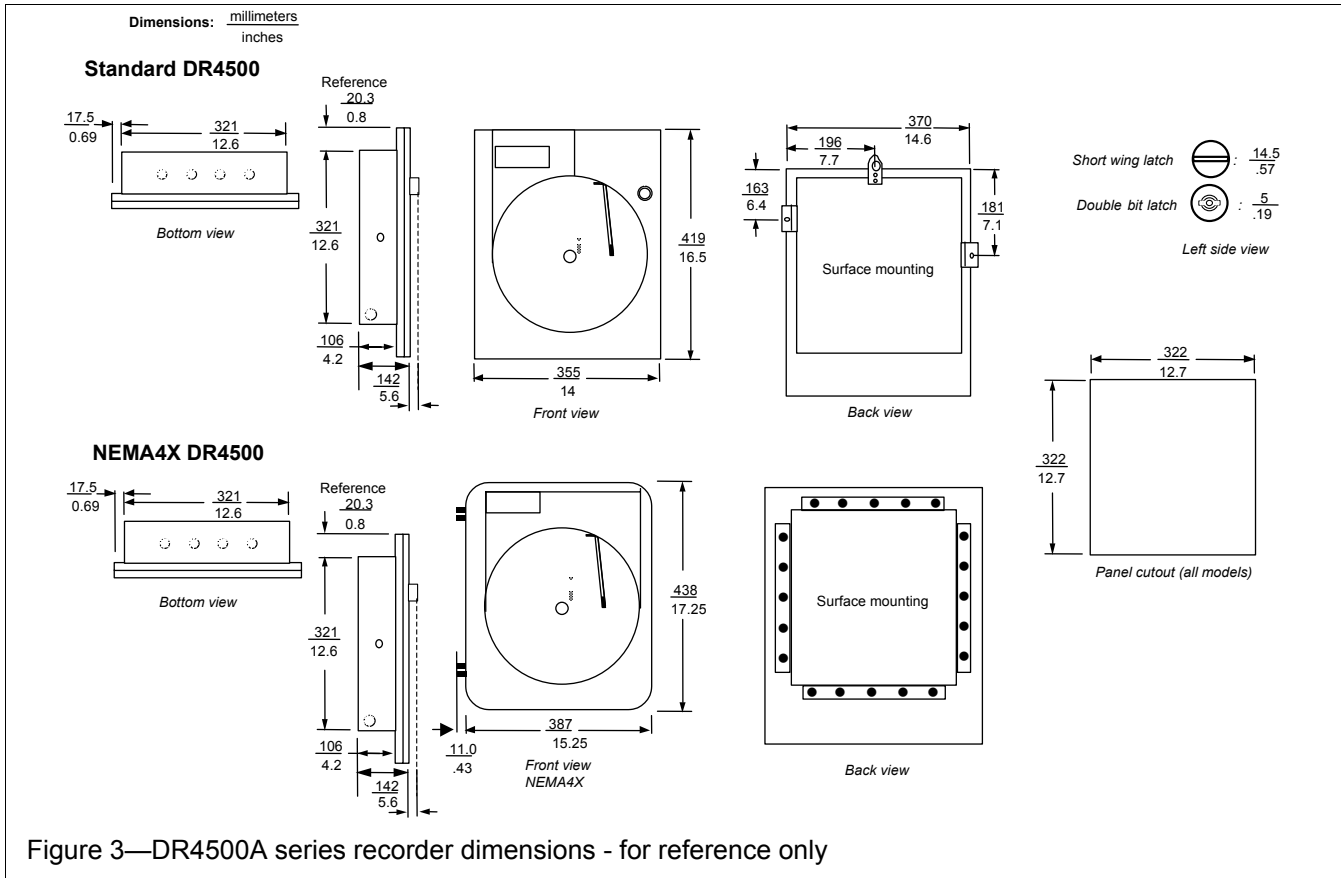
Environmental and Operating Conditions				
Parameter	Reference	Rated	Extreme	Transport and storage
Ambient Temperature	67 to 77 °F 19 to 25 °C	58 to 131 °F 15 to 55 °C	32 to 131 °F 0 to 55 °C	-40 to 151 °F -40 to 66 °C
Relative Humidity (%RH)	0 to 55*	10 to 90*	5 to 90*	5 to 95*
Vibration Frequency (Hz) Acceleration (g)	0 0	0 to 70 0.1	0 to 200 0.2	0 to 200 0.5
Mechanical Shock Acceleration (g) Duration (ms))	0 0	1 30	5 30	20 30
Mounting Position from Vertical Tilted Forward Tilted Backward Tilted to Side (±)	5° 5° 5°	5° 30° 10°	5° 90° 20°	Any Any Any
Power Requirements Voltage (VRMS) Frequency (Hz)	119 to 121 238 to 242 49.8 to 50.2 59.8 to 60.2	102 to 132 204 to 264 49 to 51 59 to 61	102 to 132 204 to 264 48 to 52 58 to 62	N/A N/A N/A N/A
Power Consumption	20 watts maximum			
General Reference Data				
Stray Rejection	<i>Common Mode Rejection Ratio:</i> 120dB or 1 LSB (whichever is greater) at 60 Hz with maximum source impedance of 100 ohms. <i>Normal Mode Rejection Ratio:</i> 60dB with a 100% span peak-to-peak maximum at 60 Hz.			
Static Charge Effects	Exposed panel surfaces capable of withstanding a discharge from a 250pf capacitor charged to 10KV through 100 ohms.			
Line Noise Effects	Field terminals for connecting power line to recorder can withstand the IEEE Surge Withstanding Capability Test to a level of 2.5KV.			
Technical Assistance	Toll-free 800 number puts technical assistance only a phone call away.			

* The maximum rating only applies up to 104 °F (40 °C). For higher temperatures, the RH specification is derated to maintain constant moisture content.

WARRANTY/REMEDY

Honeywell warrants goods of its manufacture as being free of defective materials and faulty workmanship. Contact your local sales office for warranty information. If warranted goods are returned to Honeywell during the period of coverage, Honeywell will repair or 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 this printing. However, we assume no responsibility for its use.

While we provide application assistance personally, through our literature and the Honeywell web site, it is up to the customer to determine the suitability of the product in the application.



Ordering Information

For complete ordering information, request Model Selection Guide 44-45-16-07 for DR4500A Series Circular Chart Recorder.

Honeywell offers a full line of sensors and transmitters that produce a compatible range of dc voltage or current signals which can be used as inputs to the DR4500A Series Recorder.

These devices measure:

Temperature: (Thermocouple or RTD)

Pressure

Flow {4 to 20 mA dc or 1 to 5 Vdc process transmitter}

Liquid Level

Relative Humidity

Specifications are subject to change without notice.



Tlf: 67150 250 Faks: 67 150 251

Mail: post@instrumentteam.no

Web: www.instrumentteam.no

Honeywell

Industrial Measurement and Control

Honeywell

1100 Virginia Drive

Ft. Washington, PA 19034