

1-4 Channel Flatbed Pen Recorders

Accept DC Voltage, Thermocouple
and RTD Inputs

RD3700 Series
Starts at

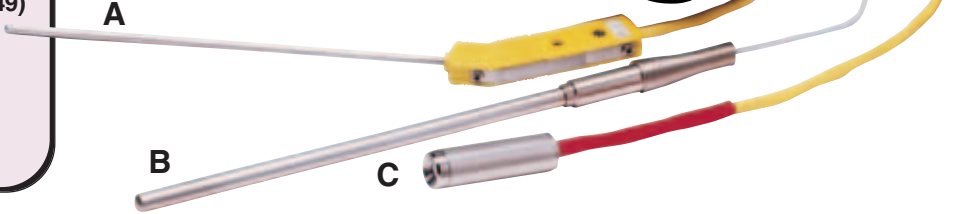
\$1864



Shown with:

- A) GKMSS-125G-6 low-noise thermocouple with 30° connector, \$27 (see page A-49)
- B) PR-11-2-100-1/4-6-E RTD probe, \$66 (see page C-8)
- C) OS36-K-240F infrared thermocouple, \$255 (see page J-61)

RD3722-42, \$4704, shown smaller than actual size.



- ✓ Accepts DC Voltage, 12 Types of Thermocouples and RTD Inputs
- ✓ Choice of Measured Data, Bar Graph or Range Data Display Modes

- ✓ Model RD3721 Has Printer and Electronic Pen Lift
- ✓ Alarm Outputs of up to Four Points (Optional)

- ✓ Optional 256 K Memory Card for Increased Data Storage
- ✓ Optional GPIB or RS232C Interface
- ✓ 250 mm (10") Chart
- ✓ 115/230 Vac Powered

The easy-to-operate OMEGA® RD3721 and RD3722 flatbed pen recorders are sophisticated, high performance units which accept a wide range of input types. Features include a choice of measured data, bar graph or range data display modes. Versatile optional capabilities include GPIB or RS232C interface to handle data output and panel setting data, a memory card with a capacity of 256 K, mathematical functions, remote controls, alarms, outputs up to four points and °F range data display. The RD3721 comes with an electronic pen lift and printer. The RD3722 comes with a manual pen lift. Both units provide high speed recording (1600 m/sec max), an auto span shift mode and partially expanded-scale recording, whereby any portion within full scale can be expanded or reduced for each pen.

Specifications Measurements

Drive System: Automatic null-balancing digital servo mechanism with brushless DC servomotor

Type of Input: dc V, 1 mV to 200V FS; T/C Types J, K, E, T, N, C, J DIN, T DIN, R, S, B, Kp vs Au7Fe; RTD Pt100, Pt50, Ni100

Reference Junction Compensating Accuracy (T/C): ±0.5°C (10.9°F) for K, E, J, T, N, C, J DIN, T DIN (and KP vs Au7Fe); 1°C for R, S and B

Filter: 0.1, 1 Hz or OFF (selectable)

Zero Set: Adjustable

Measuring Cycle: 135 Hz

Standard Pen Offset Compensation: Average, max/min recording selectable, resolution on time axis: 0.05 mm, automatic sweep function for pen offset, data selectable pen offset compensation reference pen

Input Impedance: Approx 1Ω (Vdc and thermocouple)

Allowable Source Resistance: <1 KΩ (Vdc and thermocouple)

Temperature Coefficient:

Zero Drift: 0.05 μV/°C +0.01% of range/°C

Full Scale: 0.01% of range/°C

Maximum Allowable Input Voltage: 250 Vdc

Maximum Common Mode Voltage: 250 Vrms AC

Common Mode Rejection: More than 150 dB at AC

Normal Mode Rejection: More than 50 dB at 50 or 60 Hz

Recording And Printing

Pens: Disposable felt-tip pen cartridges (analog data)

Remember to Order Extra Pens and Paper!

Printing System: Wire-dot printer using ribbon cassette (digital data)

Effective Recording Span: 250 mm (analog data)

Pen Offset Between Channels: Approx 4 mm on the time axis

Number of Channels: 1, 2, 3, or 4

Recording Colors: First pen is red, second pen is green, third pen is blue, fourth pen is brown

Recording Accuracy: Measurement accuracy plus ±0.2% of effective recording span (including non-linearity, deadband and error between ranges)

Maximum Pen Speed: Approx 1600 mm/s (63 in/s)

Maximum Pen Acceleration: Approx 8G

Printing Rate: Approx 1.5 sec/line (for RD3721 only)

Chart: Z-fold chart, 270 mm x 20 m (10.6" x 65'); optional roll chart, 270 mm x 20 m (10.6" x 65')

Chart Speeds: 10 to 1200 mm/min and mm/h (1 mm steps), and 0.5 to 45.0 in/min and in/hr (0.1" steps)

Change of Chart Speed (Optional): Changes chart speed with remote control signals

Record ON/OFF Selectors: Independently provided for each channel on front panel (ON: measurement/recording, OFF: measurement)

Pen Lift: All pens are lifted and lowered simultaneously (for RD3721 only)

Chart Drive: Pulse motor drive

Chart Speed Accuracy: ±0.1% (at recording of longer than 1 m)

Digital Data Printout: Time, chart speed, channel number (tag number), measured data and engineering unit are printed out at the following intervals:

Chart Speed (1 mm = 0.03937)		
mm/min	mm/h	Printing Intervals
1200 to 300	—	1 min
299 to 30	—	10 min
29 to 10	1200 to 120	1 h
—	199 to 60	2 h
—	59 to 40	3 h
—	39 to 20	4 h
—	19 to 10	12 h



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Tag Number Printout: Tag number can be printed out in place of channel number, up to 7 alphanumeric (for RD3721 only)

Alarm Printout: Channel number, alarm type and the time of alarm ON/ OFF are printed (for RD3721 only)

Scale Markings Printout: 0% and 100% scale values can be printed out at the same interval as digital printout (for RD3721 only)

Program List Printout: Contents of entire setting memory can be listed on the chart (for RD3721 only)

Manual Printout: Time and measured data for all channels can be printed out in a single line by depressing the MANUAL PRINT key (for RD3721 only)

Message Printout: Message of up to 70 characters can be printed by depressing the MANUAL MESSAGE key (message 0), or by external contact signal (message 1 to 4; optional, up to 4 channels), for RD3721 only

Change of Chart Speed Printout: Chart speed and time can be printed out at the change of chart speed (for RD3721 only)

Pen Offset Compensation: ON/OFF Printout: ON/OFF mark and time can be printed out (for RD3721 only)

Change of Range Printout: Changed contents and time can be printed at the change of range, on auto span shift mode (for RD3721 only)

Partially Expanded-Scale Recording: Any portion within full scale can be expanded or reduced for each channel

Auto Span Shift Mode: Automatically shifts to ±50% of span, and recording continues when the input exceeds the measuring span

External Input Span: Small error of external converter can be corrected by setting the span with actual input voltage (zero is span left, full is span right)

Display

Type of Display: Vacuum fluorescent display (5 x 7" dot matrix, blue), 20 characters for each channel

Display Modes: 3 display modes can be selected by depressing the DISPLAY SELECT key

Digital Data Display: Measured data (7 digits), date, time and chart speed;

Bar Graph Display: (2.5% resolution)

Range Data Display:
Same as input Table

Alarms

Number of Alarm Set Levels:

Up to 2 levels/channel

Alarm Types: High (H), low (L), delta high (dH), and delta low (dL)

Alarm Outputs (Optional): Up to 4 points (internal, contact rating: 24 Vdc and AC 1 A)

Computing Functions

Standard Functions: Scaling (ranges: -22000 to +22000), and ΔT

Standard Memory Card: For storing and setting data (memory capacity of 8 K), comes with lithium battery (with life of about 5 years)

Battery Back-Up Memory: Maintains all settings for about 10 years (at room temperature) when power is removed

Chart END Alarm: Automatic pen lift (for RD3721 only) at out-of-chart condition (alarm output, optional)

Mounting: Horizontal (can be tilted up to 10%)

Operating Range: 0 to 40°C (32 to 104°F); 0 to 80% RH

Insulation Resistance: More than 100 M Ω at 500 Vdc between power line and case, and between input terminals and case

Dielectric Strength: 1500 Vac for 1 minute between power line and case, and between input terminals and case

Power Requirements:

90 to 250 Vac, for both 50 and 60 Hz

Power Consumption: 1-channel model, 85 VA max, 45 VA balanced; 2-channel model, 100 VA max 50 VA balanced; 3-channel model, 115 VA max, 55 VA balanced; 4-channel model, 130 VA max, 60 VA balanced

Dimensions: 185 H x 448 W x 455 D mm (7¼ x 17½ x 17¾")

Weight: from 14 kg (25.4) to 13.5 kg (29.8 lb) depending on configuration

Alarm Option (-AK04)

Number of Outputs: 4 points

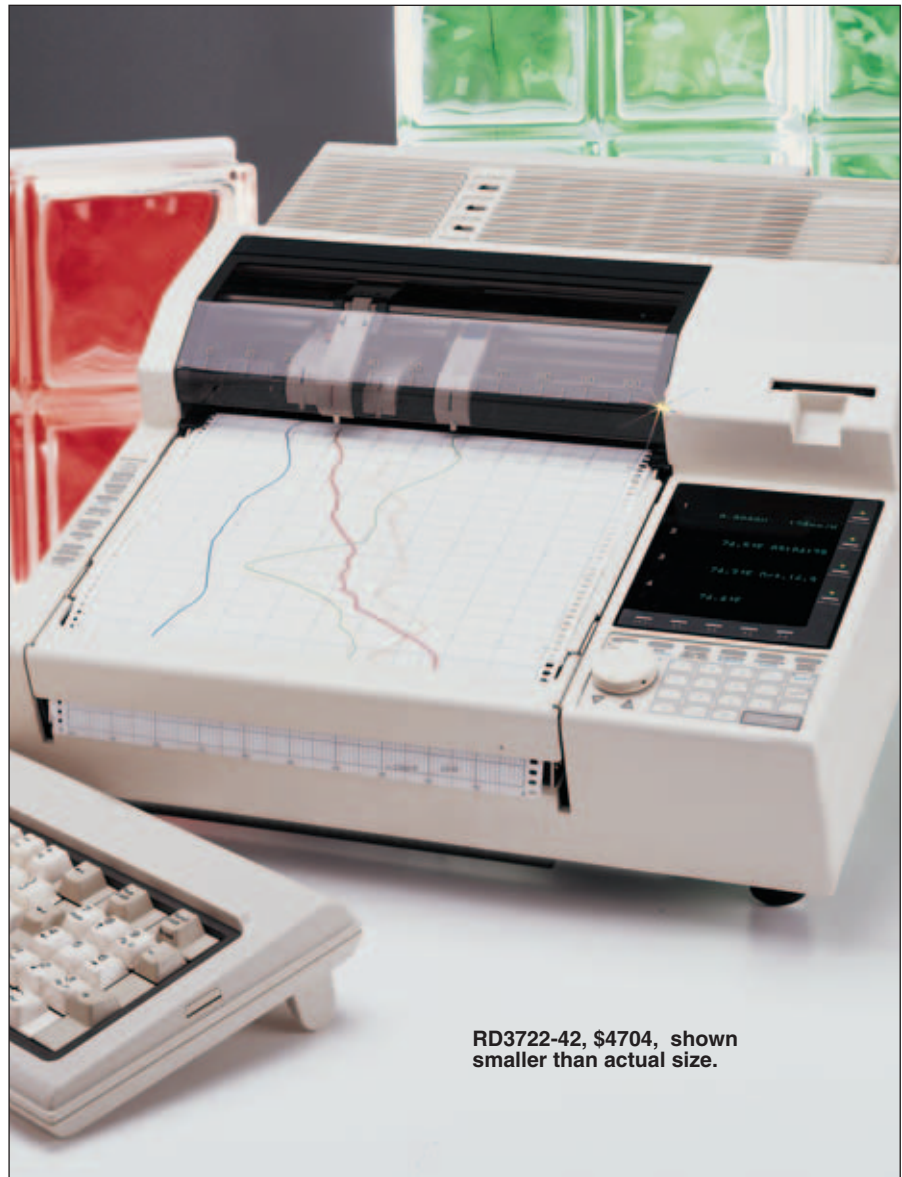
Contact Rating: 24 Vdc and AC 1 A

Outputs: Alarm, FAIL alarm and chart END alarm outputs

GPIB Interface (-GPIB)

Functional, Electrical and Mechanical Specifications: Meets the IEEE Standard of 488-1978

Talker Functions: Input of measured data (ASCII), output of measured data (ASCII and binary), input/output of setting data (ASCII), output of memory data (ASCII and binary)



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Listener Functions: Controls except for power ON/OFF key lock ON/OFF and chart drive

RS232C Interface (-RS232)

Functional, Electrical and Mechanical Specifications:

Meets the EIA RS232C

Controller Interface Functions:

Input of measured data (ASCII), output of measured data (ASCII and binary), input/output of setting data (ASCII), output of memory data (ASCII and binary)

Data Transfer Rates: 75, 150, 300, 600, 1200, 2400, 4800, 9600 bps

Remote Controls (-REM)

Remote Control Signals:

External contact, open collector of TTL-level signal

Chart Drive Control: Start, L logic level or closed contact; stop, H logic level or open contact

Message Printout: Start, L logic level or closed contact (for RD3731 only)

Change of Chart Speed: Chart speed 2, L logic level or closed contact, chart speed 1, H logic level or open contact

Pen Lift: All recording pens lowered, L logic level or closed contact; all recording pens lifted, H logic level or open contact (for RD3721 only)

Record On/Off Selection:

OFF (Measurement), L logic level or closed contact; OFF (measurement/recording), H logic level or open contact

External Trigger: Data memory write, L logic level or closed contact

Math Option (-MATH): +, -, x, ÷, square root, absolute value, logarithm, exponential function (up to 4 channels); not available for 1-pen model

Memory Card (RD-MC256)

Function: Setting and measured data memory

Sampling Rate: Free mode (manual start), 135, 9, 5, 3, 1, 0.5, 0.2 Hz, trigger mode (starts by trigger conditions), 9, 5, 3, 1, 0.5, 0.2 Hz



Convenient side panel inputs.

Input Type	Range	Accuracy
DC V	1 mV to 200V FS	±(0.05% of rdg + 0.03% of range and 0.5% μV)
T/C	R	±(0.05% of rdg. + 1°C)
	S	±(0.05% of rdg. + 1°C)
	B	±(0.05% of rdg. + 1°C)
	K	±(0.05% of rdg. + 0.5°C)
	E	±(0.05% of rdg. + 0.5°C)
	J	±(0.05% of rdg. + 0.5°C)
	T	±(0.05% of rdg. + 0.5°C)
	N	±(0.1% of rdg. + 0.5°C)
	C	±(0.1% of rdg. + 1°C)
	J DIN (L) T DIN (U) KP vs. Au7/Fe	±(0.05% of rdg. + 0.5°C) ±(0.05% of rdg. + 0.5°C) ±(0.05% of rdg. + 0.5°C)
RTD	Pt 100 (1 mA)	±(0.05% of rdg. + 0.2°C)
	Pt 50 (1 mA)	±(0.05% of rdg. + 0.3°C)
	Ni 100	±(0.05% of rdg. + 0.2°C)

Remember to Order Extra Pens and Paper!

☐ **MOST POPULAR MODEL HIGHLIGHTED!**



OMEGACARESM extended warranty program is available for models shown on this page. OMEGACARESM covers parts, labor, and equivalent loaners. Ask your sales representative for full details when placing an order.

- Memory Capacity:** 256 K
- Data Length:** 1000, 2000, 4000, 8000, 16000, 32000 data/channel (common setting to each channel, 2 bytes/data)
- Trigger Condition:** Alarm detection, CHART END or external contact input (optional)
- Pre-Trigger:** 0 to 100% (10% steps)
- Memory Data:** Measured, interface input and computed data
- Output:** Communication interface and recording output
- Standard Accessory:** Lithium battery, shelf life of three years

To Order (Specify Model Number)

Model No.	Price	No. of Pens	Inputs	Printer
RD3722-12	\$1864	1	T/C, V	No
RD3722-15	1948	1	T/C, RTD, V	No
RD3722-22	2819	2	T/C, V	No
RD3722-25	2977	2	T/C, RTD, V	No
RD3722-32	3770	3	T/C, V	No
RD3722-35	4000	3	T/C, RTD, V	No
RD3722-42	4704	4	T/C, V	No
RD3722-45	5008	4	T/C, RTD, V	No
RD3721-12	2394	1	T/C, 1 mV	Yes
RD3721-15	2473	1	T/C, RTD, V	Yes
RD3721-22	3397	2	T/C, V	Yes
RD3721-25	3565	2	T/C, RTD, V	Yes
RD3721-32	4583	3	T/C, V	Yes
RD3721-35	4840	3	T/C, RTD, V	Yes
RD3721-42	5744	4	T/C, V	Yes
RD3721-45	6085	4	T/C, RTD, V	Yes

Comes complete with power cord, paper, 1 pen per channel, ribbon for printer version, an 8 K memory card for storing setup parameters only, and operator's manual. If data storage is desired, purchase the **RD-MC256** memory card separately.

Ordering Example: RD3721-25, 2-pen recorder with printer, accepts thermocouple, RTD and voltage inputs, plus RD3720-RC, black ribbon cassette, RD3720-01 and RD3720-02, red and green pens, and RD3720-ZFP, Z-fold charts, \$3565 + 28 + 16 + 16 + 16 = **\$3641**.

OCW-3, OMEGACARESM extends standard 2-year warranty to a total of 5 years (\$350), \$3641 + 350 = **\$3991**.

Options

Ordering Suffix	Add'l Price	Description
-GPIB	\$830	GPIB communications*
-RS232	830	RS232 communications*
-MATH	830	Math option
-REM	631	Remote controls
-AK04	414	Alarm option
-ROL	27	Roll chart drive
-REROL	247	Chart reroll

* Mutually exclusive.

To order options: Add suffix to model number and appropriate amount to price.

Ordering Example: RD3722-12-GPIB, \$1864 + 830 = **\$2694**.

Accessories

Model No.	Price	Description
RD3720-ZFP	\$16	1 each, Z-fold charts, 250 mm x 20 m (10" x 65'), standard
RD3720-RP	18	1 each, roll charts, 250 mm x 20 m each* (10" x 65')
RD3720-01	16	3 red pens, channel-1
RD3720-02	16	3 green pens, channel-2
RD3720-03	16	3 blue pens, channel-3
RD3720-04	16	3 brown pens, channel-4
RD3720-RC	28	Black ribbon cassette

* Roll paper requires "ROL" option on recorder.

Recommended Reference Book: Centrifugal Pump User's Guide Book, **FW-0109, \$153**. See Section Y for Additional Books



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