

Programmable Chart Recorders

100 and 180 mm

RD200 and RD2800 Series



RD206.



RD2812.

Simultaneous Digital Displays of Multipoint Data
Universal Input
Alarm Display/Printings
Software Package
“KIDS” Available
Conforms to CE, UL, and CSA Standards

The RD200 and RD2800 Series chart recorders are 100 mm, multipoint, hybrid recorders that can print/display multichannel and alarm data simultaneously. A total of 56 ranges can be programmed for each channel: 35 thermocouple, 11 RTD, and 10 DC voltage. The user can also program up to 4 levels of alarms for each channel; optional alarm outputs are available. The recorders display alarm settings (status and channels), and can print channel alarms and alarm numbers. A data acquisition software package, “KIDS”, lets the user create real-time and historical data/trend displays. The RD200 and 2800 Series chart recorders are manufactured in ISO9001-certified facilities and conform to CE, UL, and CSA safety standards.

Input Specifications

Number of Measuring Points:

RD200 Series:

Multipoint: 6 points
Pen Type: 1 to 4 points

RD2800 Series:

Multipoint: 6, 12, 24 points
Pen Type: 1 to 4 points

Input Signals: Universal input, DC voltage, thermocouple, DC current (requires shunt resistor)

Range Setup: Programming of input types and ranges by keys

Scale Setup: Programming of maximum value, minimum values, and engineering units by keys

Accuracy Rating:
Refer to the table of inputs

Measuring Interval:
About 5 s/6 points
About 10 s/12 points
About 20 s/24 points
About 100 ms (pen-type)

Reference Junction Compensation Accuracy:

K, E, J, T, N, Platinel II:
 $\pm 0.5^{\circ}\text{C}$ (0.9°F) or less

R, S, NiMo-Ni, CR-AuFe, WRe5-WRe26, W-Wre, U, L:
 $\pm 1.0^{\circ}\text{C}$ (1.8°F) or less

At measurements higher than 0°C (32°F), the above errors are added to the accuracy ratings for internal reference junction compensation.

Burnout: With function to detect input signal disconnection for thermocouple inputs and resistance thermometer inputs; up-scale burnout, down-scale burnout or burnout disable is selectable for each input

Terminal Board: Detachable type, removable on wirings

Alarm Specifications

Alarm Display: “ALARM” illumination and flashing of measured value at an alarm-activated channel.

Alarm Types: Absolute value alarm, differential alarm, rate-of-change alarm

Alarm Programming: Individual programming for each channel, maximum 4 levels (alarm points) per channel

Alarm Outputs (Optional):
Refer to list of options

Printing Specifications (Multipoint)

Printing Interval (Multipoint):
About 5 seconds per point

Printing System:
Wire-dot type 6-color ribbon

Printing Color:**Trace Printing:****Red:** 1, 7, 13, 19**Black:** 2, 8, 14, 20**Blue:** 3, 9, 15, 21**Green:** 4, 10, 16, 22**Brown:** 5, 11, 17, 23**Purple:** 6, 12, 18, 24**Digital Printing:** Periodic Data Printing, Digital**Data Printing:** Repetition of red, black, blue, green, brown and purple**Channel Number Printing:**

Same color as trace printing

Fixed-Time Printing: Range (Scale), Tag Engineering**Unit:** Same color as trace printing**Month/Day or Year/Month/Day, Time, Time Line, Chart Speed:** Black**List Printing:****Programmed Parameters:**

Same color as trace printing

Others: Black**Programming Change Mark:** Black**Alarm Printing:** Red**Chart:** Fan-fold**Chart Speed:** 1 to 1500 mm/hr**Chart Speed Default:**

RD200—20 mm/hr, RD2800—25 mm/hr

Periodic Data Printing: Digital printing of time, channel numbers and measured values on trace printing interval time (hour, minute); optional programming (limited by chart speeds)**Digital Data Printing:** Digital printing of time and measured values by interrupting trace printing on demand**Alarm Printing:****Alarm-Activated:** Time, channel number, alarm type and level (alarm point number)**Alarm Reset:** Time, channel number and level (alarm point number)**Subtract Printing:** Printing of difference between 2 channels or between a channel and a reference value (programmed value)**Fixed-Time Printing:** Printing of month/day, time, time line, ranges (scales), tags and engineering units every fixed-time (interlocking to chart speed)**Display Specifications (Multipoint)****Digital Display:** -9999 to 99999**Display Items:** Simultaneous display of 6 or 12 measured values per channel, or time(year/month/day/hour/minute), alarm-activated channel and chart speed**Status Display:** Printing status, key lock and alarm-activation condition**Printing Specifications (Pen-Type)****Printing System:****Analog Tracing:**

Disposable cartridge pen

Digital Printing: Plotter pen**Printing Color:****Analog Tracing:** 1st pen red, 2nd pen green, 3rd pen blue, 4th pen brown

RD204 shown smaller than actual size.

RD206 shown smaller than actual size.

Digital Printing: Purple periodic data printing, digital data printing (analog tracing continuance/interruption), date and time printing (at power-on, every hour), chart speed printing, scale, unit and tag printing, alarm activation/reset printing, programming change mark, pen offset correction (POC)**Chart Speed:** 1 to 600 mm/hr, 1 to 200 mm/min**Default:**

RD200: 20 mm/hr

RD2800: 25 mm/hr

Phase Synchronizing Correction:

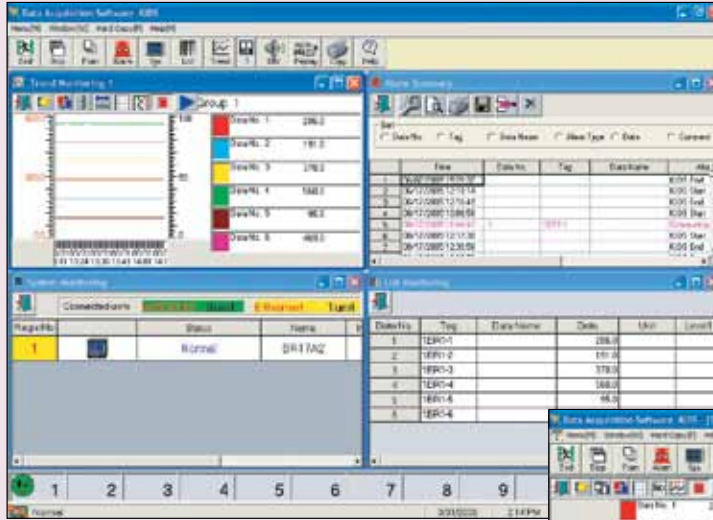
Time-axis POC

(POC) Subtract Printing: Printing of difference between 2 channels or between a channel and a reference value (programmed value)**Message Printing:** Pre-programmed letters are printed by a key or a remote contact (optional); 5 kinds of message (time + message of maximum 15 letters)**Pen-Lift Function:** By RECORD OFF key, all pens are lifted up simultaneously; at power-off, the last pen status is kept; a lever for manually lifting up/down of all pens is provided**Display Specifications (Pen-Type)****Analog Indication:****RD200 Series:** 100 mm bar graph for each input point (51 segments, same color as analog tracing is indicated at each 5 segments)**RD2800 Series:** 180 mm bar graph for each input point (101 segments, same color as analog tracing is indicated at each 10 segments)**Digital Display:** -9999 to 99999 [optional decimal place, with cursor (by each analog tracing color)]**Display Items:****RD200 Series:** Simultaneous display of 4-channel measured values, hour/minute, chart speed and alarm-activated channel**RD2800 Series:** Simultaneous display of 4-channel measured values or year, month/day, hour/minute, chart speed and alarm-activated channel lock and alarm-activation condition**General Specifications****Rated Power Supply:**

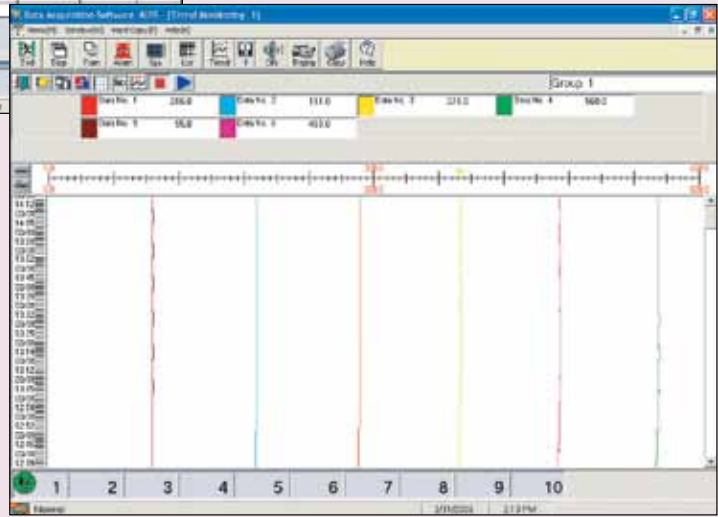
100 to 240 Vac, 50/60 Hz

Rated Power Consumption:**Multipoint:** Max 45 VA**Pen-Type:** Max 60 VA**Normal Operating Conditions:****Ambient Temp/Humidity:****Multi-Point:** 0 to 40°C (32 to 104°F), 20 to 80% RH**Pen Type:** 0 to 50°C (32 to 122°F), 20 to 80% RH**Power Voltage:** 90 to 264 Vac**Power Frequency:** 50/60 Hz ±2%**Altitude:** Left/right 0 to 10°, forward tilting 0°, backward tilting 0 to 30°**Power Failure Protection:****Multipoint:** Programmed parameters stored in EEPROM memory; clock circuit sustained for minimum 10 years by a lithium battery (at operation of more than 8 hours/day)**Pen-Type:** Programmed parameters stored in EEPROM memory; clock circuit and POC data sustained for minimum 8 years by a lithium battery (at operation of more than 8 hours/day)**Case Assembly Material:****Door:** ABS resin (frame) with glass**Enclosure:** Steel

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



RD2800-KIDS
KIDS data acquisition
and communications
setup software.



The screenshot shows the 'PASS Alarm' configuration window. It contains a table with columns for 'Level Item No.', 'Level Item Name', 'Level Range', 'Level AND/OR', 'Level Rel. Ch.', 'Level Status', 'Level Alarm Deadline', 'Level Alarm Mode', 'Level Alarm Value', 'Level Alarm Polarity', and 'Level AND/S'. The data is as follows:

| Level Item No. | Level Item Name | Level Range | Level AND/OR | Level Rel. Ch. | Level Status | Level Alarm Deadline | Level Alarm Mode | Level Alarm Value | Level Alarm Polarity | Level AND/S |
|----------------|-----------------|-------------|--------------|----------------|--------------|----------------------|------------------|-------------------|----------------------|-------------|
| CH 1 | Non | 0- | OR | CH0 | 0 | 0 Non | 0- | 0- | OR | |
| CH 2 | Non | 0- | OR | CH0 | 0 | 0 Non | 0- | 0- | OR | |
| CH 3 | Non | 0- | OR | CH0 | 0 | 0 Non | 0- | 0- | OR | |
| CH 4 | Non | 0- | OR | CH0 | 0 | 0 Non | 0- | 0- | OR | |
| CH 5 | Non | 0- | OR | CH0 | 0 | 0 Non | 0- | 0- | OR | |
| CH 6 | Non | 0- | OR | CH0 | 0 | 0 Non | 0- | 0- | OR | |
| CH 7 | Non | 0.000- | OR | CH0 | 0 | 0.000 Non | 0.000- | 0.000- | OR | |
| CH 8 | Non | 0.000- | OR | CH0 | 0 | 0.000 Non | 0.000- | 0.000- | OR | |
| CH 9 | Non | 0.000- | OR | CH0 | 0 | 0.000 Non | 0.000- | 0.000- | OR | |
| CH 10 | Non | 0.000- | OR | CH0 | 0 | 0.000 Non | 0.000- | 0.000- | OR | |
| CH 11 | Non | 0.000- | OR | CH0 | 0 | 0.000 Non | 0.000- | 0.000- | OR | |
| CH 12 | Non | 0.000- | OR | CH0 | 0 | 0.000 Non | 0.000- | 0.000- | OR | |
| CH 13 | | | | | | | | | | |

RD2800-PASS
Pass parameter programming
and communications setup
software.

The screenshot shows the '-CH Configuration1' window. It contains a table with columns for 'Input Kind', 'RJ', 'Range Low limit value', 'Range High limit value', 'Range D Pnt', 'Scale Low limit value', 'Scale High limit value', 'Scale D Pnt', and 'Burnout'. The data is as follows:

| Input Kind | RJ | Range Low limit value | Range High limit value | Range D Pnt | Scale Low limit value | Scale High limit value | Scale D Pnt | Burnout |
|------------|---------------|-----------------------|------------------------|-------------|-----------------------|------------------------|-------------|------------|
| 1 | K(-200to1370) | Exter | 0 | 600 | 0 | 0 | 600 | 0 Not used |
| 2 | K(-200to1370) | Externa | 0 | 600 | 0 | 0 | 600 | 0 Not used |
| 3 | K(-200to1370) | Externa | 0 | 600 | 0 | 0 | 600 | 0 Not used |
| 4 | K(-200to1370) | Externa | 0 | 600 | 0 | 0 | 600 | 0 Not used |
| 5 | K(-200to1370) | Externa | 0 | 600 | 0 | 0 | 600 | 0 Not used |
| 6 | K(-200to1370) | Externa | 0 | 600 | 0 | 0 | 600 | 0 Not used |
| 7 | V(-5to5) | Externa | -5.000 | 5.000 | 3 | -5.000 | 5.000 | 3 Not used |
| 8 | V(-5to5) | Externa | -5.000 | 5.000 | 3 | -5.000 | 5.000 | 3 Not used |
| 9 | V(-5to5) | Externa | -5.000 | 5.000 | 3 | -5.000 | 5.000 | 3 Not used |
| 10 | V(-5to5) | Externa | -5.000 | 5.000 | 3 | -5.000 | 5.000 | 3 Not used |
| 11 | V(-5to5) | Externa | -5.000 | 5.000 | 3 | -5.000 | 5.000 | 3 Not used |
| 12 | V(-5to5) | Externa | -5.000 | 5.000 | 3 | -5.000 | 5.000 | 3 Not used |





RD2806.



RD2804.



RD2812.



RD204.

All models shown smaller than actual size.

Options (Pen-Type)

| Options | Explanations |
|----------------------------------|---|
| Alarm Output | Three kinds of output (alarm, fail and chart-end) are possible; output: 6 points and 12 points (RD2800 only); maximum contact rating: contact mechanical relay output 240 Vac/0.2 A, resistive load |
| Printing Format* | Zone printing: printing area is divided into 4 zones (RD2800) or 2 zones (RD200); compressed/expanded printing: a part of printing area of each channel is compressed or expanded; automatic range-shift printing: Printing range is automatically changed into a new printing area in the event of over-range or under-range |
| Communications | RS232C, RS422A, RS485 (user can specify); two kinds of protocol, MODBUS® and private, are built-in |
| Basic Mathematics | The following math functions can be executed in time order or between channels: arithmetic, absolute value, square root, logarithm, natural logarithm, exponential, maximum, minimum, average, temperature/humidity |
| Totalizer/Flow Correction | Totalizing of measured data or calculated results and correction of flow by pressure, temperature, etc. |

* One kind of printing format specified by user.

Options (Multipoint Type)

| Options | Explanations |
|---------------------------|---|
| Measuring Interval | 1 second/6 points, 2 second/12 points, 4 seconds/24 points; alarm judgment interval: same as measuring interval, multipoint simultaneous display only; printing interval: about 5 seconds/point, conforming to CE, UL, CSA; the indication equivalent to maximum 25°C or 2 mV may vary under the test environment requested by EMC directive; by signals of 4-point contacts and 2-point common |
| Alarm Output | Output: 6-, 12- or 24-point individual output possible; maximum contact rating: 100 Vac/0.5 A, 240 Vac/0.2 A, 100 Vdc/0.3 A |
| Communications | RS232C, RS422A, RS485 (user can specify); parameter programming, operation and data logging (MODBUS protocol) |
| Totalizer | Totalizing of measured data or calculated data; interval: 1 minute to 24 hours or no interval |

Input Table

| Input Signals | Measuring Ranges | Reference Ranges | Accuracy Ratings | Display Resolutions | |
|------------------------|------------------|------------------|------------------|---------------------|-------|
| DC Voltage | -13.8 to 13.8 mV | 13.8 mV | ±0.1% ±1-digit | 10 µV | |
| | -27.6 to 27.6 mV | ±27.6 mV | | 10 µV | |
| | -200 to 200 mV | ±200 mV | | 100 µV | |
| | -500 to 500 mV | ±500 mV | | 100 µV | |
| | -2 to 2V | ±2V | | 1 mV | |
| | -5 to 5V | ±5V | | 1 mV | |
| | -10 to 10V | ±10V | | 10 mV | |
| | -20 to 20V | ±20V | | 10 mV | |
| -50 to 50V | ±50V | 10 mV | | | |
| Thermocouples | K | -200 to 300°C | ±13.8 mV | 0.1°C | |
| | | -200 to 600°C | ±27.6 mV | 0.1°C | |
| | | -200 to 1370°C | ±69.0 mV | 1°C | |
| | E | -200 to 200°C | ±13.8 mV | 0.1°C | |
| | | -200 to 350°C | ±27.6 mV | 0.1°C | |
| | | -200 to 900°C | ±69.0 mV | 1°C | |
| | J | -200 to 250°C | ±13.8 mV | 0.1°C | |
| | | -200 to 500°C | ±27.6 mV | 0.1°C | |
| | | -200 to 1200°C | ±69.0 mV | 1°C | |
| | T | -200 to 250°C | ±13.8 mV | 0.1°C | |
| | | -200 to 400°C | ±27.6 mV | 0.1°C | |
| | R | 0 to 1200°C | ±13.8 mV | 1°C | |
| | | 0 to 1760°C | ±27.6 mV | 1°C | |
| | S | 0 to 1300°C | ±13.8 mV | 1°C | |
| | | 0 to 1760°C | ±27.6 mV | 1°C | |
| | B | 0 to 1820°C | ±13.8 mV | 1°C | |
| | N | -200 to 400°C | ±13.8 mV | ±0.15% ±1-digit | 0.1°C |
| | | -200 to 750°C | ±27.6 mV | | 0.1°C |
| | | -200 to 1300°C | ±69.0 mV | | 1°C |
| | W-WRe26 | 0 to 2315°C | ±69.0 mV | 1°C | |
| | WRe5-WRe26 | 0 to 2315°C | ±69.0 mV | 1°C | |
| | PrRh40-PrRh20 | 0 to 1888°C | ±13.8 mV | 1°C | |
| | NiMo-Ni | -50 to 290°C | ±13.8 mV | ±0.2% ±1-digit | 0.1° |
| | | -50 to 600°C | ±27.6 mV | | 0.1°C |
| -50 to 1310°C | | ±69.0 mV | 1°C | | |
| CR-AuFe | 0 to 280 K | ±13.8 mV | 0.1 K | | |
| Platinel II | 0 to 350°C | ±13.8 mV | ±0.15% ±1-digit | 0.1°C | |
| | 0 to 650°C | ±27.6 mV | | 0.1°C | |
| | 0 to 1390°C | ±69.0 mV | | 1°C | |
| U | -200 to 250°C | ±13.8 mV | ±0.15% ±1-digit | 0.1°C | |
| | -200 to 500°C | ±27.6 mV | | 0.1°C | |
| | -200 to 600°C | ±69.0 mV | | 0.1°C | |
| L | -200 to 250°C | ±13.8 mV | ±0.1% ±1-digit | 0.1°C | |
| | -200 to 500°C | ±27.6 mV | | 0.1°C | |
| | -200 to 900°C | ±69.0 mV | | 1°C | |
| Resistance Thermometer | Pt100 | -140 to 150°C | 160 Ω | ±0.15% ±1-digit | 0.1°C |
| | | -200 to 300°C | 220 Ω | ±0.1% ±1-digit | 0.1°C |
| | | -200 to 850°C | 400 Ω | ±0.1% ±1-digit | 0.1°C |
| JPt100 | -140 to 150°C | 160 Ω | ±0.15% ±1-digit | 0.1°C | |
| | -200 to 300°C | 220 Ω | 0.1% ±1 digit | 0.1°C | |
| | -200 to 649°C | 400 Ω | ±0.1% ±1-digit | 0.1°C | |
| Pt50 | -200 to 649°C | 220 Ω | ±0.1% ±1-digit | 0.1°C | |
| Pt-Co | 4 to 374 K | 220 Ω | ±0.15% ±1-digit | 0.1 K | |



RD206 shown smaller than actual size.

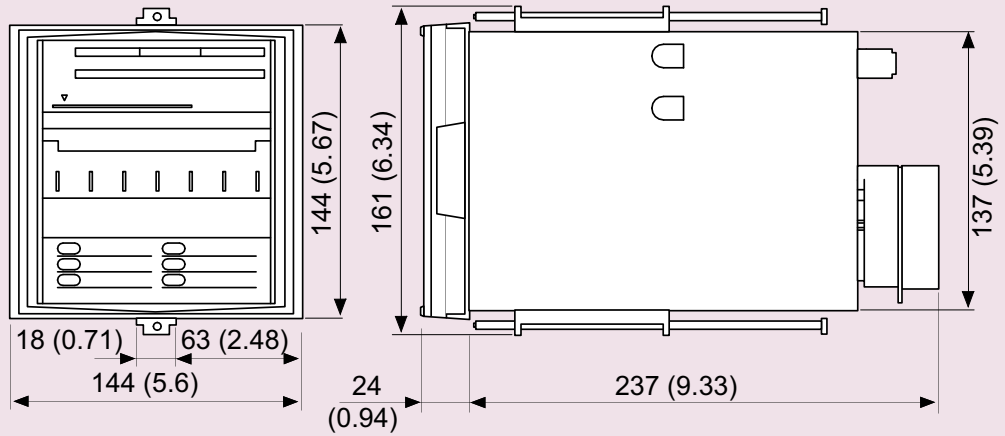


RD2812.

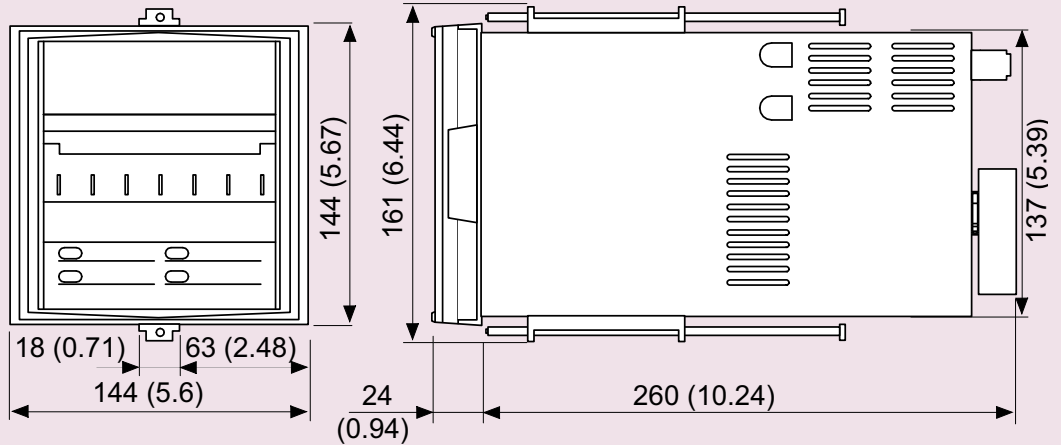
External Dimensions

Dimensions: mm (inch)

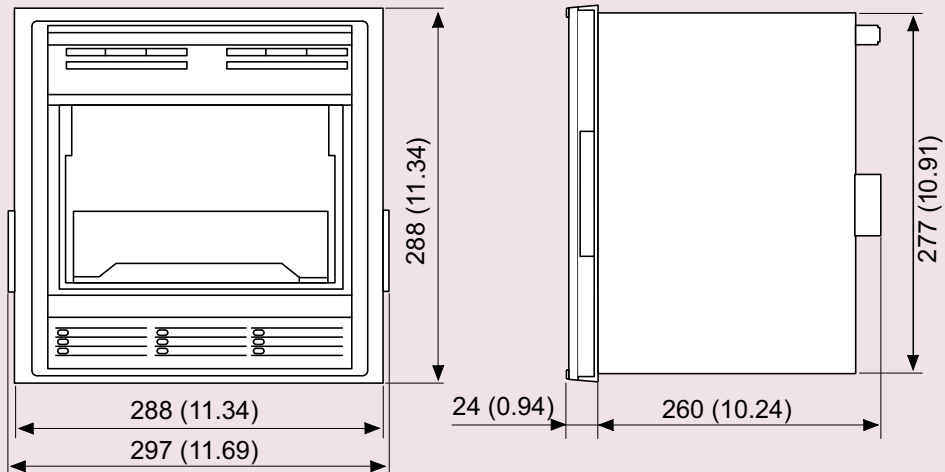
RD200 Series Multi-Points



RD200 Series Pen-Type



RD2800 Series



Note: Accuracy ratings are of measuring ranges at reference operation conditions. The reference junction compensation accuracy is not included with the accuracy ratings of thermocouple inputs. The indication equivalent to 200 μ V or 5°C (41°F) may vary under the test environment requested by EMC directive. Reference operating conditions:

Ambient Temperature/Humidity Range:
21 to 25°C (70 to 77°F), 45 to 65% RH

Power Voltage: 100 Vac \pm 1%

Power Frequency: 50/60 Hz \pm 0.5%

Altitude: Left/right 0°, forward tilting 0°, backward tilting 0°

Warm-Up Time: More than 30 minutes

| To Order | |
|------------------|-----------------------|
| Model No. | Description |
| RD201 | 100 mm, 1-pen |
| RD202 | 100 mm, 2-pen |
| RD203 | 100 mm, 3-pen |
| RD204 | 100 mm, 4-pen |
| RD206 | 100 mm, 6-dot points |
| RD2801 | 180 mm, 1-pen |
| RD2802 | 180 mm, 2-pen |
| RD2803 | 180 mm, 3-pen |
| RD2804 | 180 mm, 4-pen |
| RD2806 | 180 mm, 6-dot points |
| RD2812 | 180 mm, 12-dot points |
| RD2824 | 180 mm, 24-dot points |

Comes complete with user's manual, 1 pen per channel and 1 pack of chart paper.

Ordering Examples: RD206, 6-point recorder.

RD2812, 12-dot point recorder.

OCW-2 OMEGACARESM extends standard 2-year warranty to a total of 4 years.

Accessories

| Model No. | Description |
|------------------|------------------------------------|
| RD200-RC | 6-color ribbon cassette for RD200 |
| RD2800-RC | 6-color ribbon cassette for RD2800 |
| 180A-CP-0-100 | Chart paper for RD2800 (1 pack) |
| RD200-CP-0/100 | Chart Paper one box (15 packs) |
| RD2800-PASS | Parameter programming software |
| RD2800-KIDS | Data acquisition software |
| RD200-01 | Red pen, 1-channel for RD200 |
| RD200-02 | Green pen, 2-channels for RD200 |
| RD200-03 | Blue pen, 3-channels for RD200 |
| RD200-04 | Brown pen, 4-channels for RD200 |
| RD2800-01 | Red pen, 1-channel for RD2800 |
| RD2800-02 | Green pen, 2-channels for RD2800 |
| RD2800-03 | Blue pen, 3-channels for RD2800 |
| RD2800-04 | Brown pen, 4-channels for RD2800 |

Field Installable Option Boards (RD2800-PASS or KIDS Software Required for Setup of PC Interface Cards)

| Model No. | Description |
|------------------|--|
| RD2800-C422 | RS422A communication interface |
| RD2800-C485 | RS485 communication interface |
| RD2800-C232 | RS232C communication interface |
| RD2800-EI | Ethernet interface |
| RD2800-R6 | 6-point mechanical relay "C" SPST and remote contacts |
| RD2800-R12 | 12-point mechanical relay "C" SPST and remote contacts |
| RD2800-R24 | 24-point mechanical relay "C" SPST and remote contacts |

Other Options (Only 1 Option Available Per Unit—Not Field Installable)

| Model No. | Description |
|------------------|---|
| RD-MATH | Mathematical calculation |
| RD-TOT | Totalizer |
| RD-FLOW | Totalizing/flow correction computation function (pen-type only) |
| RD-TFLOW | Basic + totalizing/flow correction computation function (pen-type only) |