100 and 180 mm Programmable Chart Recorders

NEW®

RD206, $1560, shown smaller than actual size.

RD2812, $2295, shown smaller than actual size.

RD200 and RD2800 Series Starts at
$1430

2 YEAR WARRANTY C€ CSA OMEGA CARE Extended Warranty Program

✔ **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.

Specifications
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)
Contact input [remote-contact input (option—up to 4 points) for operation printing for inputs]
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

RD204, $2630, shown
smaller than actual size.

RD206, $1560, shown
smaller than actual size.

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:
±0.5°C (0.9°F) or less
R, S, NiMo-Ni, CR-AuFe, WRe5-WRe26, W-Wre, U, L:
±1.0°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)

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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

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)
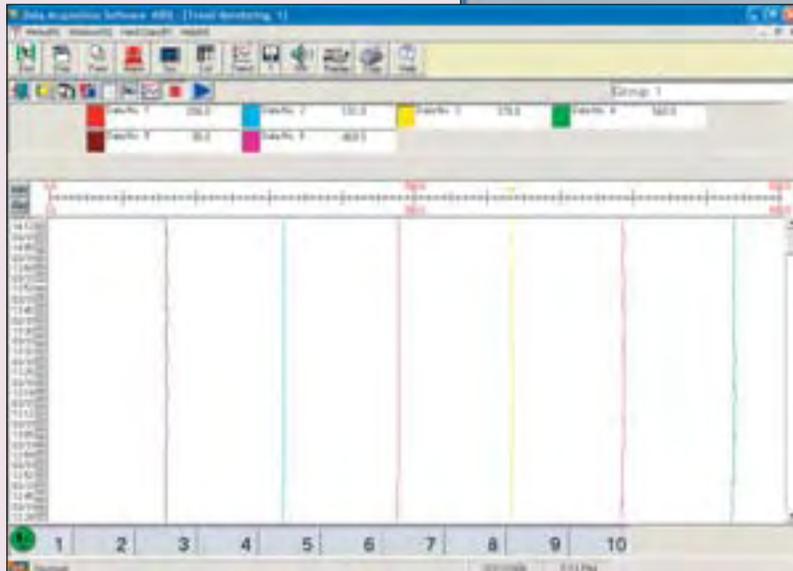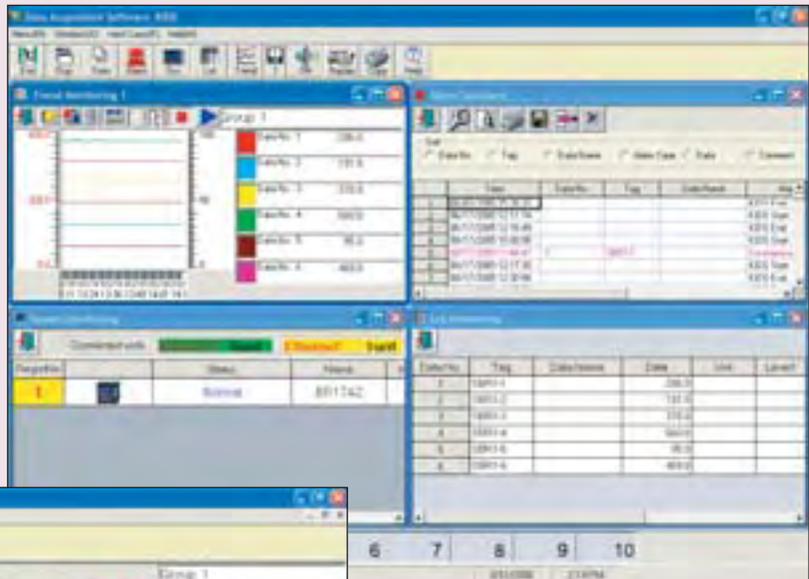
Digital Display: -9999 to 99999 [optional decimal place, with cursor (by each analog tracing color)]

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

KIDS software, $270.

Pass software, $270.

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%
Attitude:
  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

RD2804, $3850, shown smaller than actual size.

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RD2812, $2295.

RD2804, $3850.

RD204, $2630.

RD206, $1506.

**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
Remote Contacts	By 4-point contact input (2-point common) signal, the following 6 kinds of operation are selectable; chart speed 3-speed/chart stop, digital data print, list print, 4-point operation printing (printing of contact on/off status), totalizing start/stop, 5 kinds of message printing
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
Remote Contacts		Contacts, the following operations are executed: selection of 3-chart speed/stop, digital data printing and list printing
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
Printing Format*	**Alarm Output**	Printing area is divided into 4 zones (RD2800) or 2 zones (RD200)
	Compressed/ Expanded Printing	A part of printing area of each channel is printing compressed or expanded
	Automatic Range-Shift	Printing range is automatically changed into a new printing compressed or expanded
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		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 2 V	±2 V	±0.1% ±1-digit	1 mV
		-5 to 5 V	±5 V		1 mV
		-10 to 10 V	±10 V		10 mV
		-20 to 20 V	±20 V		10 mV
		-50 to 50 V	±50 V		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% ±1-digit	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		0.1°C
		-200 to 750°C	±27.6 mV		0.1°C
		-200 to 1300°C	±69.0 mV	±0.15% ±1-digit	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	±0.2% ±1-digit	1°C
	NiMo-Ni	-50 to 290°C	±13.8 mV		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		0.1°C
		0 to 650°C	±27.6 mV		0.1°C
		0 to 1390°C	±69.0 mV	±0.15% ±1-digit	1°C
	U	-200 to 250°C	±13.8 mV		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°C
		-200 to 500°C	±27.6 mV	±0.1% ±1-digit	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°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°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, $1560, shown smaller than actual size.

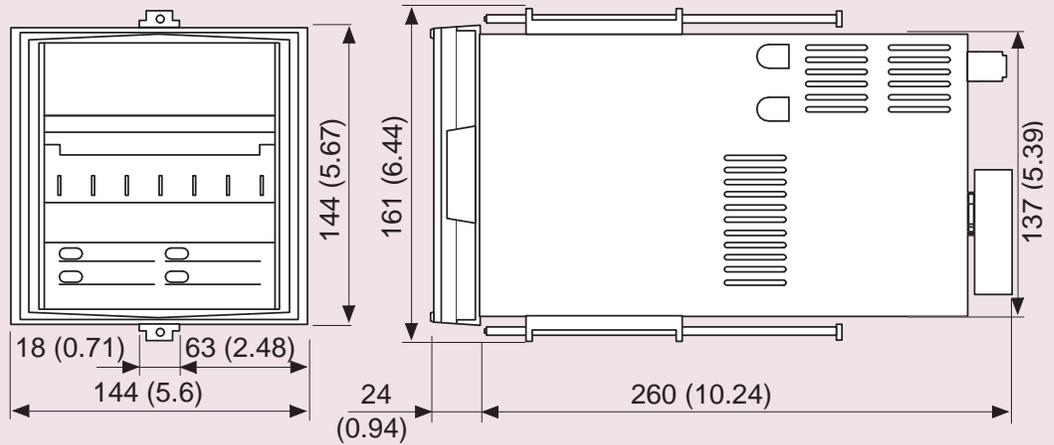**RD2812, $2295, shown smaller than actual size.**
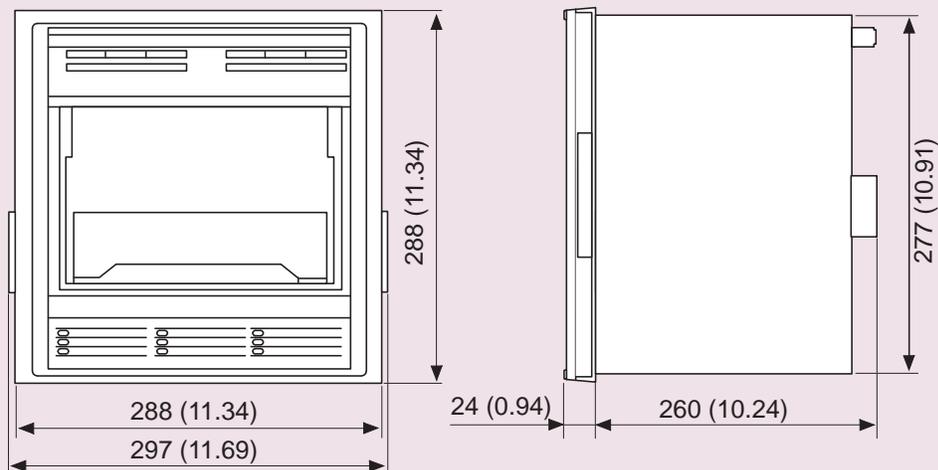
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External Dimensions

Dimensions: mm (in)

**RD200 Series
Multi-Points**

144 (5.67)
161 (6.34)
137 (5.39)
18 (0.71) 63 (2.48)
144 (5.6)
24 (0.94) 237 (9.33)

**RD200 Series
Pen-Type**

144 (5.67)
161 (6.44)
137 (5.39)
18 (0.71) 63 (2.48)
144 (5.6)
24 (0.94) 260 (10.24)

RD2800 Series

288 (11.34)
277 (10.91)
288 (11.34)
297 (11.69)
24 (0.94) 260 (10.24)
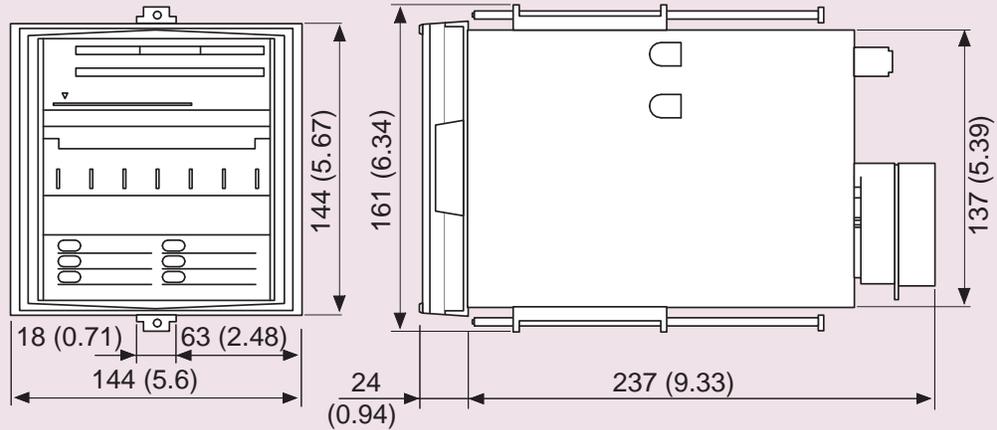
Note: *Accuracy ratings are of measuring ranges at reference operation conditions. The reference junction compensation accuracy is not included with the accuracy ratings of thermocouple inputs. The indication equivalent to 200 µV or 5°C (41°F) may vary under the test environment requested by EMC directive. Reference operating conditions:*

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

Power Voltage: *100 Vac ±1%*

Power Frequency: *50/60 Hz ±0.5%*

Attitude: *Left/right 0°, forward tilting 0°, backward tilting 0°*

Warm-Up Time: *More than 30 minutes*

To Order *(Specify Model Number)*

Model No.	Price	Description
RD201	$1430	100 mm, 1-pen
RD202	1830	100 mm, 2-pen
RD203	2230	100 mm, 3-pen
RD204	2630	100 mm, 4-pen
RD206	1560	100 mm, 6-dot points
RD2801	1850	180 mm, 1-pen
RD2802	2490	180 mm, 2-pen
RD2803	3150	180 mm, 3-pen
RD2804	3850	180 mm, 4-pen
RD2806	2130	180 mm, 6-dot points
RD2812	2295	180 mm, 12-dot points
RD2824	3130	180 mm, 24-dot points

Comes with user's manual, 1 pen per channel and 1 pack of chart paper.
Ordering Example: RD206, *6-point recorder,* **$1560.**

Accessories

Model No.	Price	Description
RD200-RC	$22	6-color ribbon cassette for RD200
RD2800-RC	60	6-color ribbon cassette for RD2800
180A-CP-0-100	12	Chart paper for RD2800 pen (1 pack)
RD200-CP-0/100	79	Chart paper for RD200 pen (1 pack)
RD2800-PASS	270	Parameter programming software
RD2800-KIDS	270	Data acquisition software
RD200-01	33	Red pen, 1-channel for RD200
RD200-02	33	Green pen, 2-channels for RD200
RD200-03	33	Blue pen, 3-channels for RD200
RD200-04	33	Brown pen, 4-channels for RD200
RD2800-01	38	Red pen, 1-channel for RD2800
RD2800-02	38	Green pen, 2-channels for RD2800
RD2800-03	38	Blue pen, 3-channels for RD2800
RD2800-04	38	Brown pen, 4-channels for RD2800
PE-1001	250	Reference Book: Instrumentation and Control
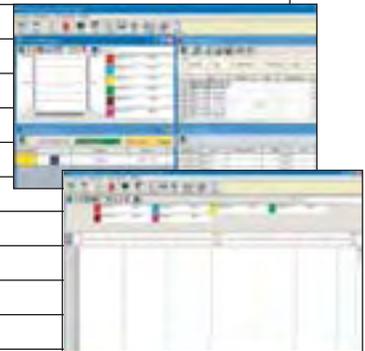
Optional Boards (Field Installable)

Model No.	Price	Description
RD2800-C422	$270	RS422A communication interface
RD2800-C485	270	RS485 communication interface
RD2800-C232	270	RS232C communication interface
RD2800-EI	270	Ethernet interface
RD2800-R6	255	6-point mechanical relay "C" SPST and remote contacts
RD2800-R12	510	12-point mechanical relay "C" SPST and remote contacts
RD2800-R24	670	24-point mechanical relay "C" SPST and remote contacts

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

Model No.	Price	Description
RD-MATH	$154	Mathematical calculation
RD-TOT	154	Totalizer
RD-FLOW	291	Totalizing/flow correction computation function (pen-type only)
RD-TFLOW	146	Basic + totalizing/flow correction computation function (pen-type only)

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