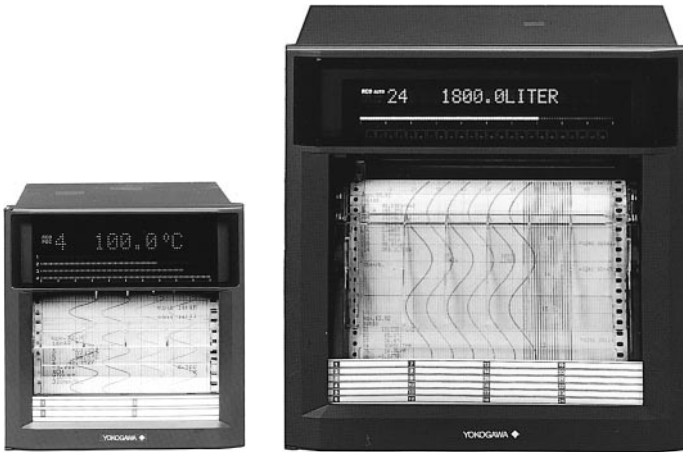


## 4360 & 4370 Recorders μR1000 & μR1800



μR1000(436004 4 Pens)  
144 × 144 × 220mm 3.8kg  
(5-11/16 × 5-11/16 × 8-5/8" 8.4lbs)

μR1800(437024 24 Dot)  
288 × 288 × 220mm 9.6kg  
(11-3/8 × 11-3/8 × 8-5/8" 21.2lbs)



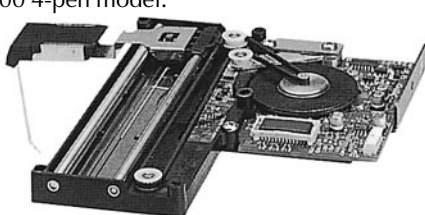
★	Safety Standards : CSA22.2 No.1010.1 (CSA C and US) EN61010-1
	EMC Standards : Emissions EN61326 Class A EN61000-3-2 Class D EN61000-3-3
	Immunity EN61326

The μR1000 and μR1800 are small recorders with effective recording widths of 100 mm and 180 mm respectively. These recorders come in 1-, 2-, 3- and 4-pen models as well as 6-, 12-, 18- and 24-dot models (the 12-, 18-, and 24-dot models are for the μR1800 only). With our contact-free technology, these recorders have attained high reliability, and have a small case only 220 mm deep. Universal inputs such as DC voltage, thermocouple inputs, RTDs, and contacts can be accepted. Besides analog recording, measurements and scales can also be printed. With 5 × 7 dot matrix displays, these recorders offer you easy-to-view data. Data setting is interactive and can be easily done.

The μR1000 and μR1800 can be used as monitoring devices or as quality control equipment in many applications such as process temperature monitoring, pollution control, construction, furnaces, and the fields of medical diagnosis and refrigeration.

### FEATURES

- **Fully contact-less technology in a compact, lightweight unit - only 220 mm deep**  
Thanks to high integration, all models - 1-pen, 2-pen, 3-pen, 4-pen, and 6, 12, 18, 24-point dot-printing (12, 18, 24-point dot-printing for the μR1800 only) - feature a case only 220 mm deep. And they are light-weight as well, and approx. 3.8 kg for the μR1000 4-pen model.



Brushless DC Servomotor

- **Moving sprocket**  
Moving sprocket technology is provided for smooth chart feed. Moving sprocket eliminates the problem of misfeed due to temperature and humidity changes. (for μR1800 only)



- **Splash-proof door for enhanced resistance to environmental conditions**  
The recorder front door meets DIN 40050-IP54 standards in panel-mount installations.

- **Improved writing technology for clearer recordings**  
Ink bleed along the chart folds at slow writing speeds was always a problem with Z-fold chart pen recorders. In the μR1000/μR1800, a precision slot along the platen under the folds eliminates this problem.

- **Pen-writing models up to four pens**

- **Fast dot-printing model - 6 points in 10 seconds (24 points in 30 seconds)**

- **Universal input circuits handle voltage, thermocouple, RTD, and operation-recording (contact) inputs**

- **Broad selection of options**

RS-422A communications, mathematical functions, IC memory card slot, alarm relay outputs up to 6 points, remote control, French/German displays.

- **Interactive setup dialogue**

- **Large bright dot-matrix display for measurement data and engineering units**

- **Simultaneous analog and digital display**

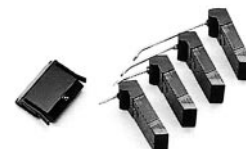
Measured values, tag name, and engineering units are simultaneously the large dot-matrix display.



An analog indication of the process value is also displayed by the 1%-resolution bar graph.

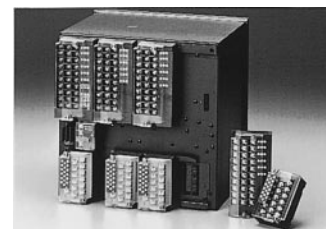
- **Disposable felt pens (pen model)**

Disposable felt pens are used for easy handling and quick replacement.



- **Removable terminal blocks**

Each input and output terminal block can be removed for convenience when wiring.

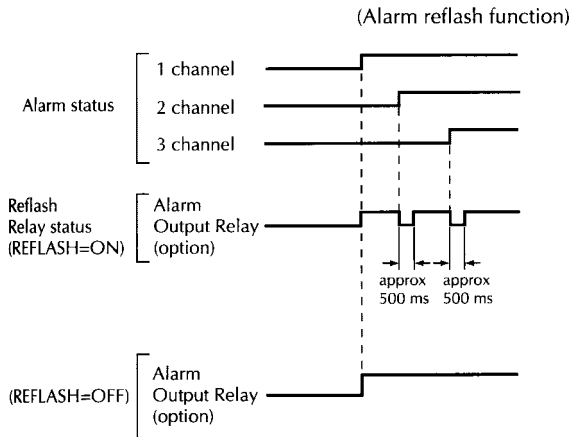


### FUNCTIONS

#### ■ VERSATILE ALARM FUNCTIONS

Select up to four of the following six alarm types — individually for each channel: High/low limit, deviation high/low limit, rate-of-change high/low limit.

Optional alarm relay contact outputs available in 2-, 4-, 6-, 12-, and 24-point configurations with versatile front-panel-selectable feature.



#### ■ STANDARD FUNCTIONS

Function	Description
<b>Pen offset compensation</b>	Cancels phase differences on a axis between pens (for 2-, 3-, or 4-pen recorders).
<b>Filter functions</b>	Enable input signals to be filtered. (For pen models, "signal damping" is used. For dot-printing models, "moving average" is used.)
<b>Scaling</b>	Scaling for DC voltage or temperature (TC or RTD) input between -20000 to +20000.
<b>Square-root</b>	DC voltage inputs are square-root extracted.
<b>Differential recording</b>	In the same range, the differential value between the referential channel and any other channel is recorded. (Temperature and DC voltage differences are measured.)
<b>Zone recording</b>	Zones can be selected and recorded for each channel.
<b>Partially compressed or portional recording</b>	Any important portion within the full scale can be expanded for recording. Any portion that is not so important for recording can be reduced.
<b>Battery-backup</b>	Built-in batteries maintain the set data if power is cut off.
<b>Burnout protection for TC input</b>	Temperature indication moves outside 100% or 0% scale for disconnected TC input

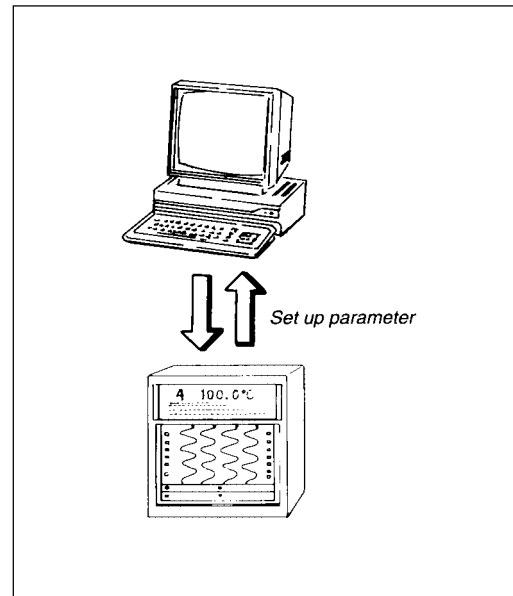
#### ■ REMOTE CONTROL

The optional remote control feature lets you select any five of the following remote control functions on-site through the front keypad:

- **Recording start/stop**
- **Chart speed change**
- **Manual printout start**
- **Message printout start (up to five user-defined messages)**
- **Digital (periodic) printout start**
- **Statistical computation (optional function) start/reset**
- **Saving of measured data to IC memory card (optional function) start**

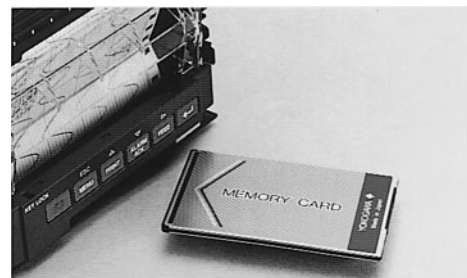
#### ■ COMPUTER-FRIENDLY

Optional RS-422A interface lets you connect up to 16 units on a multidrop line to a single host computer port for measured value acquisition, and input/output of any setup parameter. Simple temperature measurement and control systems can be constructed with ease by connecting recorders to temperature controllers via a computer.



#### ■ IC MEMORY CARD SLOT

With this optional feature, you can use IC memory cards to save the setup parameter and measurement data you entered through the front key-pad. Since you can also recall the data from the cards, you can use them to speed initial setup by copying parameter from one recorder to others, and to back up measurement data.



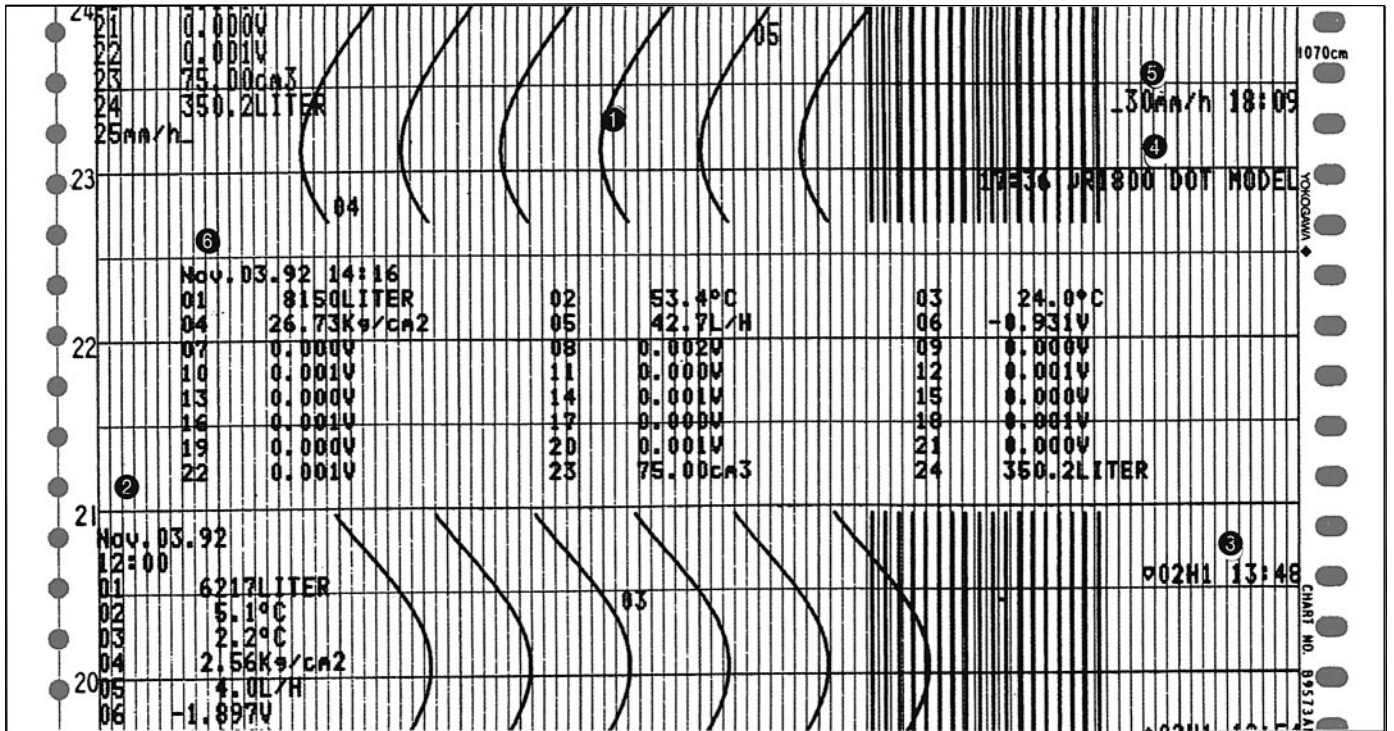
#### ■ EXTENSIVE COMPUTING FUNCTIONS

Optional mathematical functions let you program the recorder to do computations in realtime without a personal computer. Results can be recorded to the chart or output via communications. The math option offers the following functions and operators:

- General computation;
  - + , - , ÷ , × , SQR, ABS, LOG, EXP, comparison operations, logical operations, totalization
- Statistical computation;
  - Maximum, minimum, summation and average value.

### RECORDING AND PRINTING FUNCTIONS

Powerful set of recording and printing features



24 point Dot printing model

#### Normal recording

##### 1. Analog recording

Record continuously of up to 24 channels in case of μR1800 dot printing model (four channels in case of the pen model).

The dot-printing model offers color selection for each channel.

##### 2. Digital periodic printout

At fixed intervals linked to chart speed or user-set, the recorder prints the date and time, channel number or tag name, measured value, scale, engineering units, alarm status, analog trace color (pen model only), and chart speed.

Measured value printout can be turned on or off for each individual channel.

#### Scale printout

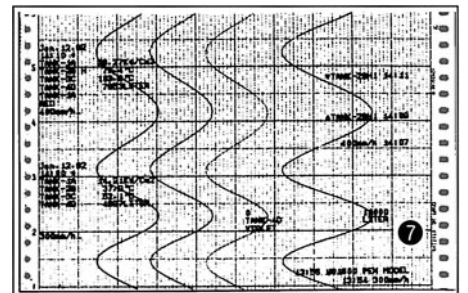
Prints scale positions in sync with the periodic printout (if recording width is 40 mm or more).

##### 3. Alarm printout

Prints alarm channel number, alarm type, and time when an alarm changes state.

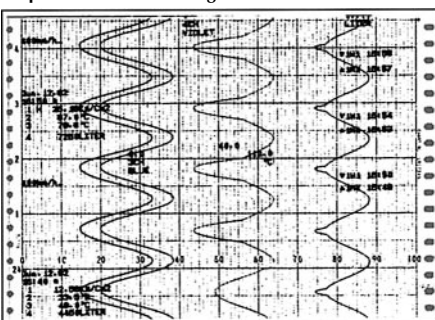
##### 4. Message printout

Prints any of up to five user-set 16-character messages, plus the time.

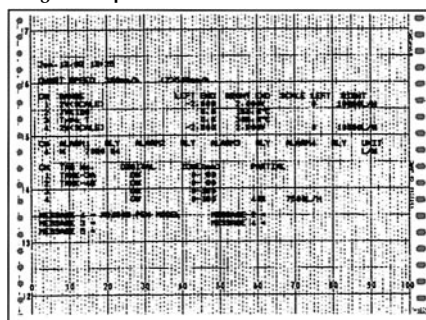


4 pen model

#### Expanded-scale recording



#### Program list printout



##### 5. Chart speed change printout

##### 6. Manual printout

Triggered by front panel key or remote control (optional function).

##### 7. Recording start printout

##### • Pen offset compensation

When on, eliminates time/phase skew between the pen traces in 2-, 3-, and 4-pen recorders.

##### • List printout

Prints information concerning setting parameters (range, alarm, chart speed ... etc.)

# μR SERIES RECORDERS



## μR1000 & μR1800

### SPECIFICATIONS

#### Input

Measurement points:

μR1000: 1, 2, 3, 4, (Pen), 6(dot)point

μR1800: 1, 2, 3, 4, (pen), 6, 12, 18, and 24 (dot) point

Input signals, Measurement range, and measurement range limits:

Input	RANGE	Measurement Range	
DC voltage (V)	20 mV	-20.00 to 20.00 mV	
	60 mV	-60.00 to 60.00 mV	
	200 mV	-200.0 to 200.0 mV	
	2 V	-2.000 to 2.000 V	
	6 V	-6.000 to 6.000 V	
	20 V	-20.00 to 20.00 V	
Thermocouple (TC)	<b>RANGE</b>	<b>Measurement Range °C</b>	<b>Measurement Range °F</b>
	R *1	0.0 to 1760.0°C	32 to 3200 °F
	S *1	0.0 to 1760.0°C	32 to 3200 °F
	B *1	0.0 to 1820.0°C	32 to 3308 °F
	K *1	-200.0 to 1370.0°C	-328 to 2498 °F
	E *1	-200.0 to 800.0°C	-328.0 to 1472.0°F
	J *1	-200.0 to 1100.0°C	-328.0 to 2012.0°F
	T *1	-200.0 to 400.0°C	-328.0 to 752.0°F
	N *2	0.0 to 1300.0°C	32 to 2372 °F
	W *3	0.0 to 2315.0°C	32 to 4199 °F
	L *4	-200.0 to 900.0°C	-328.0 to 1652.0°F
	U *4	-200.0 to 400.0°C	-328.0 to 752.0°F
	RTD	<b>RANGE</b>	<b>Measurement Range °C</b>
Pt100 *5		-200.0 to 600.0°C	-328.0 to 1112.0°F
JPt100 *5		-200.0 to 550.0°C	-328.0 to 1022.0°F
Contact input (operation recording)	<b>RANGE</b>	<b>Measurement Limit</b>	
	DI 1 voltage input	Less than 2.4 V: OFF; 24 V or more: ON (TTL)	
	DI 2 contact input	Contact ON/OFF	

\*1 R, S, B, K, E, J, T: ANSI, IEC 584, DIN IEC 584, JIS C 1602-1981

\*2 N: Nicrosil-Nisil, IEC 584, DIN IEC 584

\*3 W: W•5% Re-W•26% Re (Hoskins Mfg. Co.)

\*4 L: Fe-CuNi, DIN 43710 U: Cu-CuNi, 43710

\*5 Pt100: JIS C 1604-1989, JIS C 1606-1989, IEC 751, DIN IEC 751  
JPt100: JIS C 1604-1981, JIS C 1606-1989

DC A: DC current signal input (using external resistor)

Measurement and Recording Accuracy:

Input Type	RANGE	Measurement (digital display)		Recording (analog)
		Measurement Accuracy	Maximum Resolution	Recording Accuracy
DC voltage (DC V)	20 mV	±(0.2% of rdg + 3 digits)	10 μV	Measurement accuracy ±(0.3% of recording span)
	60 mV	±(0.2% of rdg + 2 digits)	10 μV	
	200 mV	±(0.2% of rdg + 2 digits)	100 μV	
	2 V	±(0.1% of rdg + 2 digits)	1 mV	
	6 V	±(0.3% of rdg + 2 digits)	1 mV	
	20 V	±(0.3% of rdg + 2 digits)	10 mV	
Thermocouple (TC)	R	±(0.15% of rdg + 1°C) But R,S: 0 to 100°C, ±3.7°C 100 to 300°C, ±1.5°C B: 400 to 600°C, ±2°C no guarantee under 400°C	0.1°C	Measurement accuracy, ±(0.3% of recording span)
	S			
	B			
	K	±(0.15% of rdg + 0.7°C) But -200 to -100°C, ±(0.15 of rdg + 1°C)		
	E	±(0.15% of rdg + 0.5°C)	0.1°C	
	J	±(0.15% of rdg + 0.5°C) But J: -200 to 100°C, ±(0.15% of rdg + 0.7°C)		
	T			
	N	±(0.15% of rdg + 0.7°C)		
	W	±(0.15% of rdg + 1°C)	0.1°C	
	L	±(0.15% of rdg + 0.5°C) But L: -200 to 100°C, ±(0.15% of rdg + 0.7°C)	0.1°C	
U				
RTD	Pt100	±(0.15% of rdg + 0.3°C)	0.1°C	Measurement accuracy ±(0.3% of recording span)
	JPt100			

Recording span = 100 mm/180 mm

(Performance under reference operating conditions:

temperature; 23°C ±2°C, humidity; 55% ±10% RH, power supply frequency; 50/60 Hz, Usable power voltage ranges; 90 to 132, 180 to 250 VAC, warm-up time; 30 minutes (min) (50/60 Hz), and no influence from operation of other instruments.)

Reference junction compensation accuracy: (more than 0°C)

Type R, S, B, W: ±1°C

Type K, J, E, T, N, L, U: ±0.5°C

Measurement interval:

Pen models: 125 ms/channel

Dot-model: 2.5 s/6, 12, 18, 24 channels

A/D integration time:

20 ms (50 Hz), 16.7 ms (60 Hz),

100 ms (50/60 Hz, dot model only) selectable

Input resistance:

DC voltage 2 V and lower ranges, TC ranges: 10 MΩ min.

DC voltage 6 V and higher ranges: Approx. 1 MΩ

Input bias current:

10 nA max. (approx. 100 nA on a TC input if burnout detection selected)

Thermocouple burnout detection:

Available on TC ranges (on/off selectable for each channel)

2 kΩ max. normal, 10 MΩ or more detected as open circuit, current approx. 100 nA

Filter functions

Pen model: Signal damping (can be turned ON/OFF for each channel)

Dot model: Moving average (can be turned ON/OFF for each channel)

Temperature coefficients:

Effect of ambient temperature of 10°C

Digital display: Within ±(0.1% of rdg + 1 digit)

Recording: Within digital display ±0.2% of recording span (excluding RJC error)

Maximum input voltage:

2 V DC or lower and TC ranges: ±10 V DC (continuous)

6 to 20 V DC ranges: ±30 V DC (continuous)

Common mode rejection ratio:

120 dB (50/60 Hz ±0.1%, 500 Ω imbalance, between minus terminal and ground)

Normal mode rejection ratio: 40 dB (50/60 Hz ±0.1%)

#### Recording

Recording system:

Pen-writing: Disposable felt pens (analog recording), plotter pen (digital recording)

Dot-printing: 6-color wire-dot recording

Recording paper:

Z-fold chart: (μR1000: 16m)  
(μR1800: 20m)

Effective analog recording width: 100/180 mm

Step response time (pen model):

μR1000: 1.0 s max. /IEC TC85

μR1800: 1.5 s max. /IEC TC85

Recording colors:

Pen-writing: Pen 1, red; Pen 2, green; Pen 3, blue; Pen 4, violet; plotter, purple

Dot-printing: CH. 1, 7, 13, 19 purple; CH. 2, 8, 14, 20, red; CH. 3, 9, 15, 21, green; CH. 4, 10, 16, 22, blue; CH. 5, 11, 17, 23, brown; CH. 6, 12, 18, 24, black (color can be assigned for each channel)

Deadband: (pen model) 0.2% of recording span max.

Maximum recording resolution:

0.1 mm. (dot printing model)

Recording formats:

Normal recording

Zone recording

Partial expanded recording

## μR1000 & μR1800

### Chart speed:

Pen model: 5 to 12,000 mm/h (82 increments)  
Dot-printing model: 1 to 1,500 mm/h (1 mm steps)

### Analog recording cycle:

Pen model: Continuous  
Dot model: 6 dots/10 seconds (max.)  
12 dots/15 seconds (max.)  
18 dots/20 seconds (max.)  
24 dots/30 seconds (max.)

### Print cycle time: (dot printing model)

(AUTO mode) chart speed determines analog recording interval.  
(FIX mode) recording is done at fastest analog recording cycle rate.

### Chart speed accuracy:

Less than ±0.1% (chart running more than 1,000 mm continuously and related to the grid of the chart paper.)

### Message printout: 5 message, 16 characters

### Periodic printout:

Engineering unit (up to 6 alpha-numerics), tag number (up to 7 alphanumeric), scale marking (0/100%), the measured data printout.

### List printout:

Prints listing of range settings, alarm settings, and other parameters.

### Manual printout:

Provides a digital printout of measurement results.

## ■ Display

### Display system:

VFD (5 × 7 dot matrix, 11 character positions : μR1000  
20 character positions: μR1800)

Display & status indicator items

Measured data (channel No., or tag name alarm type, measured value, engineering units), date, time.

### Bar graph display:

Measured value: (1% resolution)  
Left-referenced or center-zero bar graph display (individually selectable for each channel).

### Alarm display:

Alarm setting level indication.  
Channel number of channel in alarm (dot-printing model).

## ■ Computing Functions

### Linear scaling:

Scaling ranges: DCV, TC, RTD  
Scaling limits: -20,000 to 20,000  
Data display/printout range: -19,999 to 20,000  
Decimal point position: User-set  
Engineering units: User-set  
(6 characters MAX.)

### Interchannel difference:

Between any two channels (Reference CH < Measurement CH)  
Range: DCV, TC, RTD

### Square root:

Available for DCV range.  
Scaling limits: -20,000 to 20,000  
Data display/printout range: -19,999 to 20,000  
Decimal point position: User-set  
Engineering units: User-set  
(6 characters MAX)

## ■ Alarms

Number of Alarm levels: Four levels/channel

### Types:

High, Low, High-rate of change, Low-rate of change, delta high, and delta low.

\* (Rate-of-change alarm time interval: Measurement interval × 1 to 15)

### Alarm Indications:

Shared alarm indicator flashes. In case of dot-printing model, alarm status of channel in alarm is also displayed.

### Alarm Recording:

Prints channel number, alarm type, and time ON or OFF on right side of chart.

### Alarm relay contact output (optional function):

2, 4, 6, 12, and 24 points; AND or OR output selectable.  
Energize or de-energize on alarm selectable (shared by all relays). Hold or non-hold output selectable. Reflash output is available (500 ms).

## ■ Construction /Power Source

### Dimensions: approx.

μR1000: 144 (W) × 144 (H) × 220 (D) mm

μR1800: 288 (W) × 288 (H) × 220 (D) mm

### Weight: approx.

μR1000 (4 pen: 3.8 kg, 6-dot: 3.5 kg)

μR1800 (4 pen: 9.4 kg, 6-dot: 9.1 kg, 24-dot: 9.6 kg)

### Case: Drawn steel

### Front door: Aluminum die casting

### Color: Lamp black (Mansell 0.8 Y 2.5/0.4)

### Power source:

#### Rated power voltage:

100 to 240 V AC

( model for /P1: 24V DC)

( model for /P5: 24V AC)

#### Usable power voltage ranges:

90 to 132, 180 to 250 V AC

( model for /P1: 21.6 to 26.4 V DC)

( model for /P5: 21.6 to 26.4 V AC)

Rated power frequency: 50/60 Hz

### Power consumption:

(\*standard condition)

μR1000	100 V AC*	240 V AC*	Max
4 pen	24 VA	34 VA	70 VA
6 dot	18 VA	24 VA	50 VA

μR1800	100 V AC*	240 V AC*	Max
4 pen	30 VA	40 VA	70 VA
dot	23 VA	32 VA	70 VA

## ■ General Specifications

### Ambient temperature and humidity:

0 to 50°C, 20 to 80% RH (at 5 to 40°C)

### Input source external resistance:

DC voltage, TC input: 2 kΩ max.

RTD input: 10 Ω max. each line

(Resistance is well-balanced)

### Mounting: Up to 30° backward from vertical.

### Insulation resistance:

Between terminals and ground:

20 MΩ or more (at 500 V DC)

### Dielectric strength:

Power terminals to ground:

Contact output terminals to ground:

1,500 V AC (50/60 Hz) for one minute

Measuring Input terminals to ground:

1,000 V AC (50/60 Hz) for one minute

Input terminals to input terminals

# μR SERIES RECORDERS



## μR1000 & μR1800

(between measuring channels):  
1,000 V AC (50/60 Hz) for one minute  
(Except dot printing model's RTD-'b' terminals are interconnected.)

### Memory backup:

Lithium battery to preserve setup parameters.  
Life: approx. 10 years (at 23°C ±2°C, 55 ±10% RH, for standard model)  
Battery end-of-life displays: 'BAT' status on recorder front.

### Panel key lock: Key-switch type

### Internal illumination:

Using internal reflection of VFD display.

### Standard Accessories:

One Z-fold chart paper, one 6-color ribbon (dot model), one of each color of disposable pens and plotter pen (pen model), time-lag fuse, two mounting brackets, two keys (for key lock), one instruction manual

## ■ Optional functions

### Alarm relay contact output (/A1, /A2, /A3, /A4, /A5):

Number of output points: 2, 4, 6, 12 or 24 points  
Contact capacity: 250 V DC, 0.1 A (resistive load); 250 V AC, 3 A

### RS-422A interface (/C3):

Conforms to EIA RS-422A  
Can be used to output measured values, input and output setup parameters.  
1: N (host: μR1000/ μR1800) multidrop compatible (N = 1 to 16)

Asynchronous: start-stop synchronization

Communication system: Half duplex

Wiring: 4 (5) wire

Data length: 7 or 8 bit

Stop bit: 1 or 2 bit

Parity: Odds even or none

Communication mode: ASCII or Binary (Measured data only)

Communication distance: 500 m

Communication rate: 75, 150, 300, 600, 1200, 2400, 4800, 9600 bps

### IC memory card slot (/E1):

Read/write setup parameters.

### IC memory card slot (/E2):

Read/write setup, measurement data and setup parameters.

### FALL/chart end detection/output (/F1):

FAIL: CPU malfunction causes 'FAIL' output relay to de-energize. (transfer contact)

Chart end: At chart paper end, recording stops automatically system goes to monitor status, and 'chart end' output relay is energized. (transfer contact)

\* If/F1 is installed /A5 can not be installed

### Roll chart cassette (/H1): chart length 20m: only μR1000

### Clamped input terminals (/H2):

Provides clamped input terminal instead of screw input terminal.

### Non-glare glass door (/H3):

Provides non-glare glass window in front door.

### Portable type (/H5□):

Selectable for JIS, UL, VDE, SAA, BS st'd Power code.

### Mathematical function (/M1):

(General computation)

Results of expressions using following operations can be assigned to measurement channels: Arithmetic operations, SQR (square root), ABS (absolute value), LOG (logarithm), EXP (exponent), relational operations, logical operations, totalization.

(Statistical computation)

Uses separate statistical computation channels. Enables time-series computations to obtain maximum, minimum,

summation and average values for measurement channels. (can be recorded only digitally at the periodic printout interval)

### Cu10, Cu25 RTD Input (/N1):

### 3-Leg Isolated RTD Input (/N2):

Provides input circuitry in which all RTD input terminals ("A", "B", and "b") for each channel are isolated from those of other channels.

### 24 V DC power supply (/P1):

Rated power voltage: 24 V DC

Usable power voltage ranges: 21.6 to 26.4 V DC

Maximum power consumption: 50 V A (approx.)

### Pt50 RTD, PR20-40, platinal TC input (/N3):

### Remote RJC (/N5):

### Remote control (/R1):

Enables any mix of the following to be assigned to five contact inputs: recording start/stop, chart speed change, message printout start (up to five), manual printout start, statistical computation start/stop (with/M1 option), and digital periodic printout start (with /E1 option), start saving of measured data to IC memory card (with/E2 option).

Input signal:

TTL, open collector, contact

Input signal pulse width: 1 second min.

### Language and summer/winter time (/L1):

French/German/English display selectable.

Summer/Winter time.

### 24 V DC power supply (/P1):

### 24 V AC power supply (/P5 (only μR1000) ):

## AVAILABLE MODELS

Model	Option Code	Description
436001	/	μR1000 1-pen recorder
436002		μR1000 2-pen recorder
436003		μR1000 3-pen recorder
436004		μR1000 4-pen recorder
436006		μR1000 6-dot recorder
437001	/	μR1800 1-pen recorder
437002		μR1800 2-pen recorder
437003		μR1800 3-pen recorder
437004		μR1800 4-pen recorder
437006		μR1800 6-dot recorder
437012		μR1800 12-dot recorder
437018		μR1800 18-dot recorder
437024		μR1800 24-dot recorder

### OPTIONAL FEATURES

Option Code	Description
/A1	Alarm output relay (2 points)
/A2	Alarm output relay (4 points)
/A3	Alarm output relay (6 points)
/A4	Alarm output relay (12 points, μR1800)
/A5	Alarm output relay (24 points, μR1800)
/C3	RS-422A Interface
/E1	IC Memory Card Slot (Setting data save/load)
/E2	IC Memory Card Slot (Setting, measurement data read/write)
/F1	FAIL/Chart end detection and output
/H1	Roll chart cassette for μR1000
/H2	Clamped input terminal
/H3	Non-glare door glass
/H5□ *1	Portable type
/M1	Mathematical Computations
/N1	Cu10, Cu25 RTD input
/N2	3 leg RTD (Dot printing model only)
/N3	Pt50 RTD, PR20-40, Platinel TC input
/N5	Remote RJC
/P1	24 V DC power supply
/P5	24 V AC power supply (μR1000)
/R1	Remote controls
/L1	French/German/English display & winter/summer time

- Notes**
- 1: Only one of /A1, /A2, /A3, /A4, /A5 can be selected
  - 2: /F1 cannot be combined with /A5.  
In case of 6 dot model,  
/F1 cannot be combined with /A4.  
/H2 cannot be combined with /N2.
  - 3: /H5□ cannot be combined with /P1 or /P5.
  - 4: \*1: /H5□
    - \_\_\_\_\_ B: Power cord JIS st'd
    - \_\_\_\_\_ D: Power cord UL st'd
    - \_\_\_\_\_ F: Power cord VDE st'd
    - \_\_\_\_\_ R: Power cord AS st'd
    - \_\_\_\_\_ J: Power cord BS st'd
  - 5: /N1 cannot be combined with /N3.
  - 6: /N1 cannot be used together with Pt100/JPt100.

### OPTIONAL ACCESSORIES

Name	Model	Specifications
Shunt resistor [For clamped input terminal block]	4389 20	250 Ω ± 0.1%
	4389 21	100 Ω ± 0.1%
	4389 22	10 Ω ± 0.1%
Shunt resistor [For screw input terminal block]	4159 20	250 Ω ± 0.1%
	4159 21	100 Ω ± 0.1%
	4159 22	10 Ω ± 0.1%
IC memory card	3789 04	256 K bytes
	3789 05	512 K bytes
	3789 06	1 M bytes

### SPARES

#### • for μR1000

Name	Part Number for Supplies	Order Q'ty	
Z-fold chart paper (1 chart/unit)	B9565AW	10 unit	
Roll chart paper (1 chart/unit)	B9902MY	10 unit	
6-color ribbon (1 pc/unit)	B9901AX	1 unit	
Disposable felt pens (3 pc/unit)	Red	B9902AM	1 unit
	Green	B9902AN	1 unit
	Blue	B9902AP	1 unit
	Violet	B9902AQ	1 unit
Plotter pen (3 pc/unit)	Purple	B9902AR	1 unit
Mounting hardware (1 pc/unit)	B9900BX	2 unit	
Key (for key lock) (1 pc/unit)	B9900HZ	2 unit	

#### • for μR1800

Name	Part Number for Supplies	Order Q'ty	
Z-fold chart paper (1 chart/unit)	B9573AN	10 unit	
6-color ribbon (1 pc/unit)	B9906JA	1 unit	
Disposable felt pens (3 pc/unit)	1 pen Red	B9902AM	1 unit
	2 pen Green	B9902AN	1 unit
	3 pen Blue	B9902AP	1 unit
	4 pen Violet	B9902AQ	1 unit
Plotter pen (3 pc/unit)	Purple	B9902AR	1 unit
Mounting hardware (1 pc/unit)	B9900BX	2 unit	
Key (for key lock) (1 pc/unit)	B9900HZ	2 unit	
Lubricating oil (1 pc/unit, dot model only)	B9901AZ	1 unit	

# μR SERIES RECORDERS



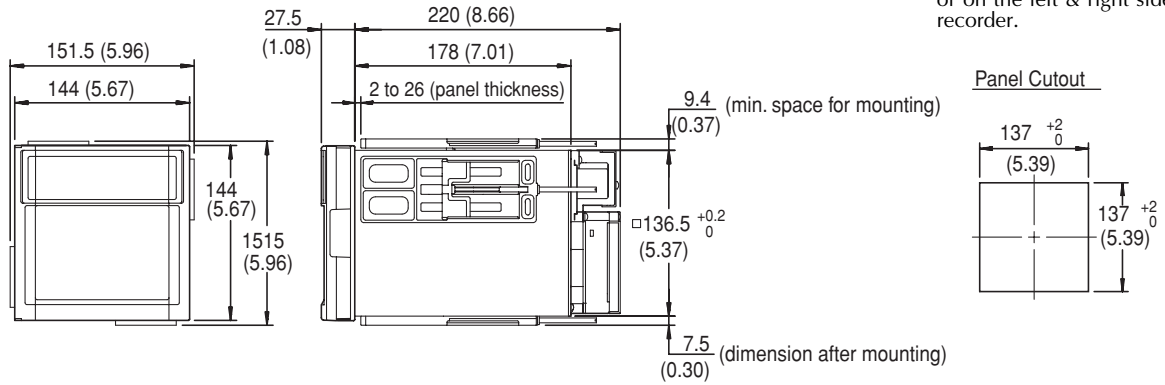
## μR1000 & μR1800

### DIMENSIONS

#### < μR1000 >

Unit: mm (inch)

**Note:** The μR1000 should be mounted by only two brackets, either on the top & bottom of the recorder, or on the left & right side of the recorder.



**Note:** In case of side by side mounting horizontally or vertically, please refer to the General Specification (GS 4D5B1-01E).

#### < μR1800 >

Unit: mm (inch)

**Note:** The μR1800 should be mounted by only two brackets, either on the top & bottom of the recorder, or on the left & right side of the recorder.

