CQ
Compact Recorder

The CQ Compact Recorder accommodates a chart 100mm wide, and comes in two types: pen type or dot printing type. The user can also choose from four available inputs: thermocouple, resistance temperature detector, DC voltage or DC current.

- **CQ1 : 1-pen type**
- **CQ2 : 2-pen type**
- **CQ3 : 3-dot printing, 1-type input**
- **CQ6 : 6-dot printing, 1-type input**
- **CQB : 2-dot printing, 1-type input**
- **CQC : 3-dot printing, 1-type input, double-scale**
- **CQD : 6-dot printing, 1-type input, double-scale**
- **CQE : 2-dot printing, 1-type input, double-scale**
- **CQA : 6-dot printing, 2-type input, double-scale**

Specifications

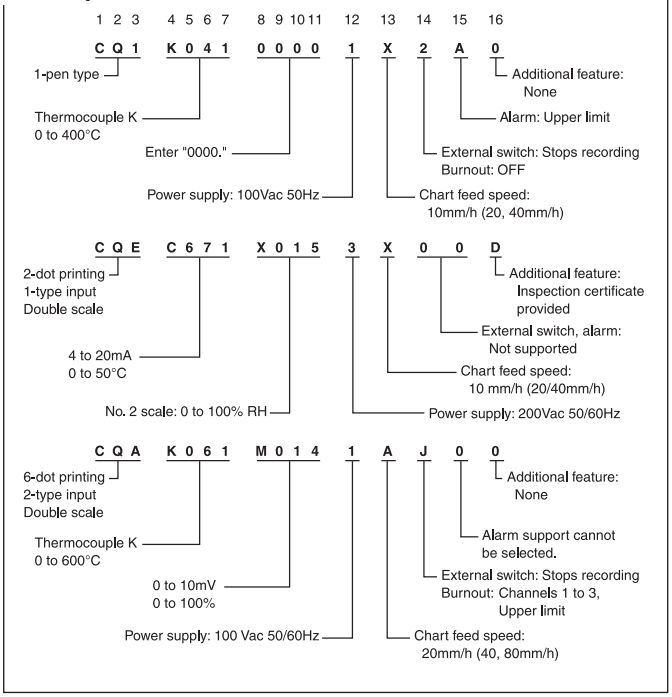
General	**Power**	100/110/120/200/220/240Vac, 50/60Hz; or 12/24Vdc
	Power consumption	13VA max.
	Ambient temperature	0 to 50°C
	Ambient humidity	35 to 85% RH (no condensation allowed)
	Mass	Approx. 1.8kg (1-pen type), approx. 2.0kg (2-pen type and dot printing type)
	Mounting	Embedded in indoor panel (changeable to a carrying type using carrying handle kit)
Input	**Type**	Thermocouple: T, E, J, K, R RTD: JISPt100 (IEC/DIN), JISJPt100 Voltage: 4 to 20mA, 1 to 5V, 0 to 10V, 0 to 10mV, -5 to +5mV
Indication	**Scale type**	Horizontal scale. Effective scale length: 100mm
	Range	0 to 100% FS
	Accuracy	± 0.5% FS
Recorder	**Recording method and recording color**	1-pen: Red 2-pen: Channel 1 (red), Channel 2 (blue) 2-dot printing: Channel 1 (red), Channel 2 (blue) 3-dot printing: Channel 1 (red), Channel 2 (blue), Channel 3 (green) 6-dot printing: Channel 1 (red), Channel 2 (blue), Channel 3 (green), Channel 4 (pink), Channel 5 (purple), Channel 6 (brown)
	Pen speed (pen type)	Approx. 1s/FS or less
	Recording cycle (dot printing type)	2-dot: 12s 3-dot: 18s 6-dot: 36s
	Chart	Folding type, effective width of 100mm and 16m length

Accessories (sold separately)

Model No.	Description
CRHL***	Chart paper (10 units per set) "****" is input type and range code.
CRP100R	Chart pen No. 1, red (10 units per set)
CRP100B	Chart pen No. 2, blue (10 units per set)
81446688-001	Ink pad for 2-dot printing (5 units per set)
81446689-001	Ink pad for 3-dot printing (5 units per set)
81446690-001	Ink pad for 6-dot printing (5 units per set)
81446695-001	Carrying handle kit
81446696-001	Power supply cable set

Selection Guide

• Examples of model No.



Model No. Selection Guide

● 1-pen type

1 2 3	4 5 6 7	8 9 10 11	12	13	14	15	16	Description
Basic No.	Input type, Range, Unit		Power	Chart feed speed	Additional function: External switch/burnout	Additional function: Alarm	Additional feature	
CQ1								1 pen
	Table 1 to 3							Input type, range, unit
		0000						Enter "0000."
			Table 4					Select from Table 4.
				X				10 mm/h (changeable to 20 or 40 mm/h)*
				A				20 mm/h (changeable to 40 or 80 mm/h)*
				C				10 mm/min (changeable to 20 or 40 mm/min)*
				D				20 mm/min (changeable to 40 or 80 mm/min)*
					Table 6			Select from Table 6.
						Table 7		Select from Table 7.
							Table 10	Select from Table 10.

● 2-pen type

1 2 3	4 5 6 7	8 9 10 11	12	13	14	15	16	Description
Basic No.	Input type, Range, Unit		Power	Chart feed speed	Additional function: External switch/burnout	Additional function: Alarm	Additional feature	
CQ2								2 pens
	Table 1 to 3							Input type, range and unit of channel 1
		Table 1 to 3						Input type, range and unit of channel 2
			Table 4					Select from Table 4.
				X				10 mm/h (changeable to 20 or 40 mm/h)*
				A				20 mm/h (changeable to 40 or 80 mm/h)*
				C				10 mm/min (changeable to 20 or 40 mm/min)*
				D				20 mm/min (changeable to 40 or 80 mm/min)*
					Table 6			Select from Table 6.
						Table 7		Select from Table 7.
							Table 10	Select from Table 10.

● Dot printing type/1-type input model

1 2 3	4 5 6 7	8 9 10 11	12	13	14 15	16	Description
Basic No.	Input type, Range, Unit		Power	Chart feed speed	Additional function: External switch/burnout/alarm	Additional feature	
CQ3							3-dot printing, 1-type input
CQ6							6-dot printing, 1-type input
CQB							2-dot printing, 1-type input
	Table 1 to 3						Input type, range, unit
		0000					Enter "0000."
			Table 5				Select from Table 5.
				X			10 mm/h (changeable to 20 or 40 mm/h)*
				A			20 mm/h (changeable to 40 or 80 mm/h)*
					Table 8		Select from Table 8.
						Table 10	Select from Table 10.

● Dot printing type/1-type input double-scale model

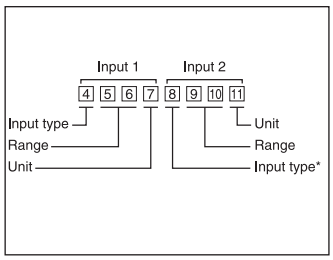
1 2 3	4 5 6 7	8	9 10 11	12	13	14 15	16	Description
Basic No.	Input type, Range, Unit		No. 2 scale Range unit	Power	Chart feed speed	Additional function: External switch/burnout/alarm	Additional feature	
CQC								3-dot printing, 1-type input, double-scale
CQD								6-dot printing, 1-type input, double-scale
CQE								2-dot printing, 1-type input, double-scale
	Table 1 to 3							Input type, range, unit
		X						Enter "X."
			Table 2, 3					Specify range and unit of the No. 2 scale range.
				Table 5				Select from Table 5.
					X			10 mm/h (changeable to 20 or 40 mm/h)*
					A			20 mm/h (changeable to 40 or 80 mm/h)*
						Table 8		Select from Table 8.
							Table 10	Select from Table 10.

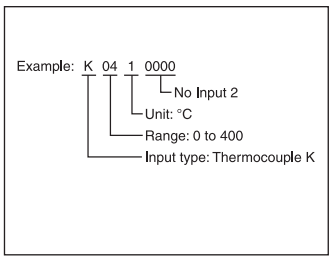
● 6-dot printing type/2-type input double-scale model

1 2 3	4 5 6 7	8 9 10 11	12	13	14	15	16	Description
Basic No.	Input type, Range, Unit		Power	Chart feed speed	Additional function: External switch/burnout	Additional function: Alarm	Additional feature	
CQA								6-dot printing, 2-type input, double-scale
	Table 1 to 3							Input type, range and unit of channels 1 to 3
		Table 1 to 3						Input type, range and unit of channels 4 to 6
			Table 5					Select from Table 5.
				X				10 mm/h (changeable to 20 or 40 mm/h)*
				A				20 mm/h (changeable to 40 or 80 mm/h)*
					Table 9			Select from Table 9.
						0		Alarm function cannot be selected.
							Table 10	Select from Table 10.

* The chart feed speed can be changed by replacing the gear (provided).

■ Model configuration of input type, range and unit





Model	Input 1	Input 2
1-pen type	Input type, range and unit of channel 1	"0000"
2-pen type	Input type, range and unit of channel 1	Input type, range and unit of channel 2
Dot printing type, 1-type input	Input type, range and unit of all channels	"0000"
Dot printing type, 1-type input, double-scale	Input type, range and unit of all channels	Range and unit of No. 2 scale*
6-dot printing type, 2-type input, double-scale	Input type, range and unit of channels 1 to 3	Input type, range and unit of channels 4 to 6

* When using 1-type input double-scale model, enter "X" in the Input 2 Input type box.

■ Table 1 Input type

Model No. code	Input type	
T	Thermocouple T	(JIS C 1602-1981)
E	Thermocouple E	(JIS C 1602-1981)
J	Thermocouple J	(JIS C 1602-1981)
K	Thermocouple K	(JIS C 1602-1981)
R	Thermocouple R	(JIS C 1602-1981)
P	Resistance temperature detector Pt 100 Ω	(JIS C 1604-1989)

Model No. code	Input type
Q	Resistance temperature detector JPt 100 Ω (JIS C 1604-1989)
C	DC current 4 to 20 mA
V	DC voltage 1 to 5 V
G	DC voltage 0 to 10 V
M	DC voltage 0 to 10 mV
L	DC voltage -5 to +5 mV

■ Table 2 Range

• Thermocouple

Model No. code	T	E	J	K	R
02	0 to 200	–	0 to 200	0 to 200	–
03	0 to 300	0 to 300	0 to 300	0 to 300	–
04	–	0 to 400	0 to 400	0 to 400	–
05	–	–	–	0 to 500	–
06	–	0 to 600	0 to 600	0 to 600	–
08	–	–	0 to 800	0 to 800	–
10	–	–	–	0 to 1000	–
12	–	–	–	0 to 1200	0 to 1200
14	–	–	–	–	0 to 1400
16	–	–	–	–	0 to 1600
30	-50 to +150	–	–	-50 to +150	–
35	-50 to +100	–	–	-50 to +100	–
46	-100 to +200	–	–	–	–

• RTD

Model No. code	Pt100	JPt100
01	0 to 100	0 to 100
02	0 to 200	0 to 200
03	0 to 300	0 to 300
04	0 to 400	0 to 400
05	0 to 500	0 to 500
10	0 to 50	0 to 50
11	0 to 150	0 to 150
12	0 to 250	0 to 250
21	100 to 200	100 to 200
24	50 to 100	50 to 100
25	50 to 150	50 to 150
30	-20 to +40	-20 to +40

Model No. code	Pt100	JPt100
32	-20 to +25	-20 to +25
33	-40 to +80	-40 to +80
34	-50 to +50	-50 to +50
35	-50 to +150	-50 to +150
36	-20 to +60	-20 to +60
37	-20 to +80	-20 to +80
38	-10 to +40	-10 to +40
41	-50 to +100	-50 to +100
42	-50 to +200	-50 to +200
44	-100 to +50	-100 to +50
45	-100 to +100	-100 to +100
46	-100 to +200	-100 to +200

Note: °F display is selectable.

• DC current/voltage

Model No. code	DC current/ voltage range
00	Blank
01	0 to 100
02	0 to 200
03	0 to 300
04	0 to 400
05	0 to 500
06	0 to 600
07	0 to 700
08	0 to 800
09	0 to 900
10	-1 to 0
11	-1 to +1
12	-1 to +5
13	-1 to +10
14	-1 to +20
15	-1 to +35
16	-1 to +50
17	15 to 25
18	16 to 26
19	-25 to +25
20	-5 to +55
21	-5 to +60
22	-5 to +5
23	-4 to +4
24	-10 to +10
25	50 to 150
26	-30 to +10
27	-2 to +2
28	-3 to +3
29	–
30	-20 to +40
31	-20 to +85
32	-25 to +25
33	-40 to +80
34	-50 to +50
35	-50 to +150
36	-20 to +60
37	-20 to +80
38	-50 to 0
39	-45 to +70

Model No. code	DC current/ voltage range
40	-200 to +100
41	-50 to +100
42	-50 to +200
43	-80 to +100
44	-100 to +50
45	-100 to +100
46	-100 to +200
47	-200 to 0
48	-200 to +50
49	-150 to +200
50	2 to 10
51	1 to 5
52	17 to 27
53	2 to 12
54	2 to 14
55	4 to 20
56	0 to 760
57	-760 to 0
58	800 to 1200
59	0 to 14
60	0 to 1
61	0 to 2
62	0 to 5
63	0 to 10
64	0 to 20
65	0 to 30
66	0 to 40
67	0 to 50
68	0 to 60
69	0 to 70
70	0 to 80
71	0 to 90
72	0 to 1000
73	0 to 2000
74	0 to 3000
75	0 to 4000
76	0 to 5000
77	0 to 6000
78	0 to 7000
79	0 to 8000

Model No. code	DC current/ voltage range
80	0 to 9000
81	0 to 3
82	0 to 4
83	0 to 6
84	0 to 7
85	0 to 8
86	0 to 12
87	0 to 15
88	0 to 16
89	0 to 18
90	0 to 25
91	0 to 35
92	0 to 45
93	0 to 150
94	0 to 250
95	0 to 350
96	0 to 450
97	0 to 1500
98	0 to 2500
99	0 to 3500
A0	0 to 4500
A1	0 to 0.1
A2	0 to 0.2
A3	0 to 0.3
A4	0 to 0.4
A5	0 to 0.5
A6	0 to 0.6
A7	0 to 0.7
A8	0 to 0.8
A9	0 to 0.9
B0	0 to 1.5
B1	0 to 2.5
B2	0 to 3.5
B3	0 to 4.5
B4	0 to 1200
B5	0 to 1400
B6	0 to 1600
B7	100 to 300
B8	200 to 400
B9	50 to 100

■ Table 3 Unit

Model No. code	Unit
0	(No unit)
1	°C
3	pH
4	%
5	% RH
6	ppm
7	min^{-1}
8	mg/ℓ
9	mV
A	m^3

Model No. code	Unit
B	m^3/min
C	m^3/h
D	m^3/h [Normal]
E	Hz
F	Ω
G	kΩ
H	MΩ
J	µs/cm
K	mm
L	cm

Model No. code	Unit
M	m
N	t/h
P	ℓ/min
Q	ℓ/h
S	hPa
T	Pa
V	kPa
W	MPa
Y	ℓ
Z	A

■ Table 4 Rated power (for pen types)

Model No. code	Power supply
1	100Vac 50Hz
2	100Vac 60Hz
3	200Vac 50Hz
4	200Vac 60Hz
5	110Vac 50Hz
6	110Vac 60Hz

Model No. code	Power supply
7	115Vac 50Hz
8	115Vac 60Hz
9	120Vac 50Hz
A	120Vac 60Hz
B	220Vac 50Hz
C	220Vac 60Hz

Model No. code	Power supply
D	230Vac 50Hz
E	230Vac 60Hz
F	240Vac 50Hz
G	240Vac 60Hz
R	12Vdc
S	24Vdc

■ Table 5 Rated power (for dot printing types)

Model No. code	Power supply
1	100Vac 50/60Hz
3	200Vac 50/60Hz
5	110Vac 50/60Hz
7	115Vac 50/60Hz

Model No. code	Power supply
9	120Vac 50/60Hz
B	220Vac 50/60Hz
D	230Vac 50/60Hz
F	240Vac 50/60Hz

Model No. code	Power supply
R	12Vdc
S	24Vdc

■ Table 6 External switch and burnout (for pen types)

Model No. code	External switch function	Burnout*		Applicable model (basic model No.)
		Channel 1	Channel 2	
0	None	None	None	CQ1, CQ2
1	Servo lock	None	None	CQ1, CQ2
2	Recording stop	None	None	CQ1, CQ2
3	Servo lock, recording stop	None	None	CQ1, CQ2
A	None	Upper limit	None	CQ1, CQ2
B	None	Lower limit	None	CQ1, CQ2
C	None	Upper limit	Upper limit	CQ2
D	None	Lower limit	Lower limit	CQ2
E	Servo lock	Upper limit	None	CQ1, CQ2
F	Servo lock	Lower limit	None	CQ1, CQ2
G	Servo lock	Upper limit	Upper limit	CQ2
H	Servo lock	Lower limit	Lower limit	CQ2
J	Recording stop	Upper limit	None	CQ1, CQ2
K	Recording stop	Lower limit	None	CQ1, CQ2
L	Recording stop	Upper limit	Upper limit	CQ2
M	Recording stop	Lower limit	Lower limit	CQ2
N	Servo lock, recording stop	Upper limit	None	CQ1, CQ2
P	Servo lock, recording stop	Lower limit	None	CQ1, CQ2
Q	Servo lock, recording stop	Upper limit	Upper limit	CQ2
R	Servo lock, recording stop	Lower limit	Lower limit	CQ2
4	None	Upper limit	Lower limit	CQ2
5	None	Lower limit	Upper limit	CQ2
6	Servo lock	Upper limit	Lower limit	CQ2
7	Servo lock	Lower limit	Upper limit	CQ2
8	Recording stop	Upper limit	Lower limit	CQ2
9	Recording stop	Lower limit	Upper limit	CQ2
S	Servo lock, recording stop	Upper limit	Lower limit	CQ2
T	Servo lock, recording stop	Lower limit	Upper limit	CQ2

■ Table 7 Alarm (for pen types)

Model No. code	Alarm type
0	None
A	Upper limit
B	Lower limit
C	Upper limit + lower limit
D	Upper limit + upper limit
E	Lower limit + lower limit

Note: Alarms for pen type models can be installed only on channel 1.

■ Table 8 External switch, burnout and alarm (for dot printing models excluding 2-type input)

Model No. code	External switch function	Burnout*	Alarm type	Applicable model (basic model No.)
00	None	None	None	CQ3, CQ6, CQB, CQD, CQE
0A	None	None	Upper limit	CQ3, CQ6, CQB, CQD, CQE
0B	None	None	Lower limit	CQ3, CQ6, CQB, CQD, CQE
0C	None	None	Upper limit + lower limit	CQ3, CQ6, CQB, CQD, CQE
0D	None	None	Upper limit + upper limit	CQ3, CQ6, CQB, CQD, CQE
0E	None	None	Lower limit + lower limit	CQ3, CQ6, CQB, CQD, CQE
20	Recording stop	None	None	CQ3, CQ6, CQB, CQD, CQE
A0	None	Lower limit	None	CQ3, CQ6, CQB, CQD, CQE
AA	None	Lower limit	Upper limit	CQ3, CQ6, CQB, CQD, CQE
AB	None	Lower limit	Lower limit	CQ3, CQ6, CQB, CQD, CQE
AC	None	Lower limit	Upper limit + lower limit	CQ3, CQ6, CQB, CQD, CQE
AD	None	Lower limit	Upper limit + upper limit	CQ3, CQ6, CQB, CQD, CQE
AE	None	Lower limit	Lower limit + lower limit	CQ3, CQ6, CQB, CQD, CQE
B0	None	Upper limit	None	CQ3, CQ6, CQB, CQD, CQE
BA	None	Upper limit	Upper limit	CQ3, CQ6, CQB, CQD, CQE
BB	None	Upper limit	Lower limit	CQ3, CQ6, CQB, CQD, CQE
BC	None	Upper limit	Upper limit + lower limit	CQ3, CQ6, CQB, CQD, CQE
BD	None	Upper limit	Upper limit + upper limit	CQ3, CQ6, CQB, CQD, CQE
BE	None	Upper limit	Lower limit + lower limit	CQ3, CQ6, CQB, CQD, CQE
J0	Recording stop	Lower limit	None	CQ3, CQ6, CQB, CQD, CQE
K0	Recording stop	Upper limit	None	CQ3, CQ6, CQB, CQD, CQE

■ Table 9 External switch and burnout (for 6-dot printing, 2-type input double-scale)

Model No. code	External switch function	Burnout*		Applicable model (basic model No.)
		Channels 1 to 3	Channels 4 to 6	
0	None	None	None	CQA
2	Recording stop	None	None	CQA
A	None	Upper limit	None	CQA
B	None	Lower limit	None	CQA
C	None	Upper limit	Upper limit	CQA
D	None	Lower limit	Lower limit	CQA
J	Recording stop	Upper limit	None	CQA
K	Recording stop	Lower limit	None	CQA
L	Recording stop	Upper limit	Upper limit	CQA
M	Recording stop	Lower limit	Lower limit	CQA
4	None	Upper limit	Lower limit	CQA
5	None	Lower limit	Upper limit	CQA
8	Recording stop	Upper limit	Lower limit	CQA
9	Recording stop	Lower limit	Upper limit	CQA

■ Table 10 Additional feature

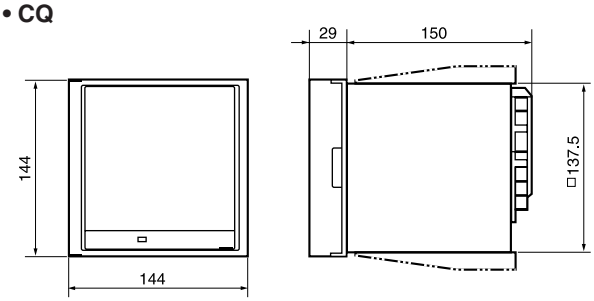
Model No. code	Mask color	Inspection certification provided	Tropicalization
0	Black	×	×
D	Black	○	×
T	Black	×	○
B	Black	○	○
1	Gray	×	×
2	Gray	○	×
3	Gray	×	○
4	Gray	○	○

• A circle (○) denotes availability.

* One of "none," "lower limit" and "upper limit" can be selected for burnout only when a thermocouple input is used. The burnout function is not available when resistance temperature detector and DC current inputs are used. When these inputs are used, select "none."

Dimensions (Unit: mm)

• CQ



• Panel cutout