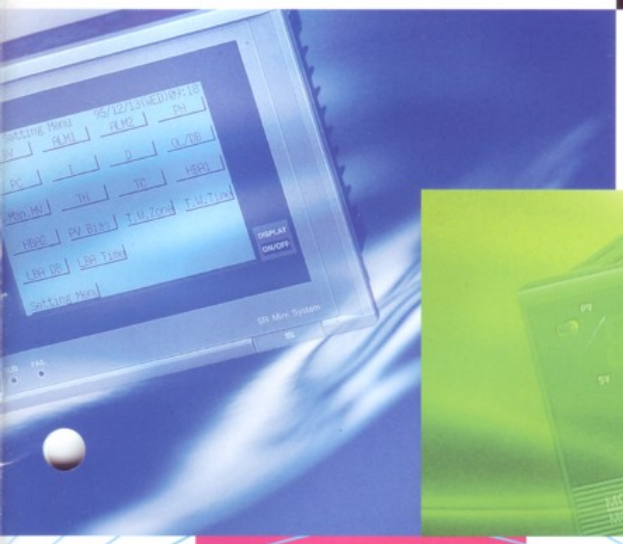
RKC

DIGITAL CONTROL EQUIPMENT

PRODUCT INFORMATION



Digital Control Equipment

RKC INSTRUMENT INC.

RKC's reliable user-oriented services

CONTENTS

JQA-0480

Quality System
ISO 9001

Accredited by RvA

1. More than 60 years of Experience in Temperature Control

RKC is making a steady growth as a manufacturer of industrial control instruments through its unique research and developments. RKC has started with electronic tube type controllers, then developed transistor type controllers, energy-saving controllers and others which were well accepted in each period. Today, the era of new materials and high-technology, RKC supplies microprocessor based multi-functional controllers which are fundemental elements of small and medium scale instrumentation system. Thus, RKC develops and supplies tomorrow's controllers today.

2. Adaptation to New Era

At present FA (Factory automation) for energy and labor saving is strongly promoted in every industrial field. NC machines, industrial robots, and FA which covers all of these. The wave of Automation is a trend essential to planning the industry of the 21st century. RKC is always sensitive to changes of the world and promptly adapts itself to new trends of each era. RKC contributes to the growth of the industry with abundant experience in temperature control field. RKC's control technology, originated in plastic industry, is now highly appreciated in other fields too. Scientific equipment, semiconductor manufacturing process, air-conditioning, textile manufacturing, food processing, automotives, rubber, electric cables, and many others. In addition to conventional single loop controllers, RKC develops compound control system which controls temperature, humidity, and sequence and total control system of a factory to satisfy the demand of new era.

3. Support of Factory Automation in Instrumintation Field

RKC is expanding product range from temperature control equipment to hybrid control equipment according to the increasing demand of the market. RKC's sophisticated models are incorporating microprocessor and digital interface to a host computer, and play an important role in FA (Factory Automation).

4. World-Wide Network

RKC has representatives in 27 countries to support customers, because RKC considers after-sale services are one of major activities. RKC products are manufactured under strict quality control system, but to maintain performance constantly, RKC extends satisfactory after-sale services to customers in cooperation with representatives in overseas. In addition, RKC thinks customers' opinions are very important to develop high quality advanced products, therefore, RKC is constantly collecting information from the field through the overseas representatives.

RKC is represented in the following countries.

North America : Canada, Mexico, U.S.A.
Asia : China, Hong Kong, Indonesia, Korea, Malaysia, Philippines, Singapore, Taiwan, Thailand
Europe : Austria, Denmark, Finland, France, Greece, Italy, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, United Kingdom,
Oceania : Australia, New Zealand
Africa : South Africa

Company profile
Establishment May 20, 1937

Firmenprofil
Grundung 20 Mai, 1937

Profilo dell' azienda
Costituzione 20 maggio 1937

RKC's Process Contol System
Most suitable for energy saving, automation, quality improvement.

High-performance multi-point control system

SR Mini HG SYSTEM

(Except a few models)

COM AT+ HBA LBA MEM H/C VAL AO

The SR Mini HG system is a new control system corresponding to the miniaturization of equipment and the standardization of an operation panel board. The multipoint control system can be built up by the control units which consist of various kinds of modules such as a temperature control module, digital / analog input and output modules, etc. Thus the space to accommodate the system can also be saved.

The operation panel (OPC) is available to interface with other manufactures' PLCs without program. The PID control of temperature and the other processes, and the sequence control can be easily unified as a total control system, which can be used for the line management and the factory automation by adding optionally the printing and communication functions.

Explanation of Symbols
Erklärung der Zeichen
Simbologia usata

- COM ··· Digital communication. Digitale Schnittstelle. Interfaccia seriale.
- AT ··· Autotuning. Selbstoptimierung. Autotunung.
- AT+ ··· Brilliant PID (enhanced autotuning). Brilliant PID (Hochgenaues Selbstoptimierung). Brilliant PID (Autotuning avanzato).
- HBA ··· Heater Break Alarn. Heizuigsunterbrechungsalarm. Allarme di Riscaldatore interrotto.
- LBA ··· Loop Break Alarm. Regelkreisüberwachung. Anomalia del sistema diregolazione.
- MEM ··· Multi-memory area. Mechfachspeicher-Funktion. Aree di memoria mutiple.
- H/C ··· Heat/Cool action. Heizen/Kühlen Regelung. Azione Riscaldamento/Raffreddamento.
- REM ··· Remote setpoint function. Externe Sollwertvorgabe. Programmazione remota.
- PRG ··· Program control function. Programmregelungsfunktion. Funzione di controllo programmabile.
- VAL ··· Motor valve drive function. Motorventilsteuerung. Uscita per servomotore.
- AO ··· Analog output. Analogausgang. Uscita analogica.

SINGLE-LOOP CONTROLLER

FEATURES
- Highly accurate and multi-functional
- DC voltage/current input types are available for process control other than temperature

MAJOR APPLICATIONS
- Semiconductor manufacturing equipment
- Electric furnace
- Plastic molding (extrusion and injection molding)
- Scientific equipment
- Food processing equipment
- Other devices which require temperature and process control.

High accuracy · Brilliant PID applicable for various kinds of applications

HIGH PERFORMANCE DIGITAL CONTROLLER

REX-G9

DIN H96×W96 D150

The REX-G9 has realized, with its accuracy (±0.1% of span) and sampling cycle of 0.1 sec., the highly accurate and stable control for the rapidly changeable process such as flow, pressure and etc. At Brilliant PID control, the characteristics of the control system at the change of the set point is selectable from 3 modes such as Slow, Medium, and Fast. In addition to this function, the Enhanced autotuning, which is far better than the conventional autotuning, has improved the applicable range of this model.

AT+ COM AO MEM REM VAL

FUNCTION · OPTION
- Brilliant PID
- Enhanced autotuning
- Triple alarms
- Remote setting (With bias and ratio)
- Analog output
- Contact input
- Multi-memory area
- Square-root extraction and PV bias
- Programmable input
- Control Run/Stop

Input		Thermocouple · RTD DC voltage · DC current
Sampling cycle		0.1 sec.
Accuracy	Thermocouple	±(0.1% of span+1digit)
	RTD	±(0.1% of span+1digit)
	Voltage · current	±(0.1% of span+1digit)
Control action		Brilliant PID, position proportioning, ON/OFF actions.
Output		M · V · G · E · R

※Measurement accuracy

DIGITAL CONTROLLER

REX-F900

DIN H96×W96 D100

REX-F700

DIN H72×W72 D100

REX-F400

DIN H96×W48 D100

The setting screen can be easily accessed by the functionally arranged simple operation switches and easy-to-read display characters, and the setting has become quite simple.

The control status can be confirmed easily by the bar-graph display which indicates the control output value or the deviation value between a set value and a measured value. This series of controllers correspond to the wider range of processes by combining abundant options.

AT+ COM HBA AO MEM H/C REM VAL

FUNCTION · OPTION
- Brilliant PID
- Enhanced autotuning
- Bar-graph display
- Remote setting (With bias and ratio)
- Analog output
- Contact input
- Multi-memory area
- Square-root extraction and PV bias
- Programmable input
- Control Run/Stop

Input	Thermocouple · RTD DC voltage · DC current
Sampling cycle	0.25 sec.
Accuracy CJ compensation accuracy	±(0.1% of span+1digit) ±1.0°C (at 0 ~ 50°C)
Control action	Brilliant PID, position proportioning, ON/OFF actions.
Output	M · V · G · E · R

※Measurement accuracy

SINGLE-LOOP TEMPERATURE CONTROLLER

FEATURES

- PID autotuning function installed in all models as a standard.
- Confirms to international safety standards (CE markings, UL, CSA)

OUTPUT CODE

M : Relay contact output
V : SSR drive output (voltage pulse)
R : DC current output
E : Continuous voltage output
G : Triac trigger output
D : Open collector output

Simple-operation temperature controller with abundant functions and low price

CB900

DIN H96×W96 D100

CB700

DIN H72×W72 D100

CB500

DIN H48×W96 D100

CB400

DIN H96×W48 D100

CB100

DIN H48×W48 D100

The control status judgement type active-tuning (self-tuning) function, which work only when control is Judged by the controller itself to be out of order, is installed as standard, An excellent visibility with a large size LED display. Available for closely contacted mounting in horizontal direction. Digital communication function (RS-485) is available for all models. We propose this series as the standard models of next generation.

AT COM HBA LBA H/C

FUNCTION · OPTION

- Control status judgement type active-tuning. (self-tunubg)
- Digital communications
- IP66 Dustproof and waterproof protection
- HBA function for single
- LBA function
- Heat/Cool outputs

Input	Thermocouple, RTD, DC voltage, DC current
Sampling cycle	0.5 sec.
PV accuracy	±(0.3% of display value+1digit)
Control action	PID control
Output	M·V·R·G

The contact input and Analog output functions can be selected from among this series.

REX-D900

DIN H96×W96 D100

REX-D400

DIN H96×W48 D100

REX-D100

DIN H48×W48 D100

AT Fuzzy COM HBA LBA AO H/C VAL

FUNCTION · OPTION

- Fuzzy function
- Universal input/output
- HBA function for single or three phase system
- Step function (With bias and ratio)
- Contact input
- Analog output
- Digital communications

Input	Universal input thermocouple, RTD, DC voltage, DC current
Sampling cycle	0.5 sec.
PV accuracy	±(0.3% of span+1digit)
Control action	PID control with/without fuzzy logic
Output	Universal outputs ; M·V·R ※2

※1 Some functions are not available depending on models or simultaneonsly on the same hardware.
※2 D100 is supplied with fixed output.

TEMPERATURE PROGRAM CONTROLLER

FEATURES

Controlling by changing the set value according to the programmed time.

(REX-P300)

- High speed sampling function. Applicable for the other applications besides temperature control.

(REX-P96/48)

- An economical program controller with high operability.

(REX-P24)

- A small sized program controller with timer fixed set point control function.

OUTPUT CODE

M : Relay contact output
V : SSR drive output (voltage pulse)
R : DC current output
E : Continuous voltage output
G : Triac trigger output

Most suitable for the control in which a temperature is changed according to the progress of time. Selectable from a high accuracy type to a compact type according to the applications.

REX-P300

DIN H96×W96 D100

COM AT AO
PRG

FUNCTION・OPTION

- 16 segments, 16 patterns (patterns are linkable)
- Digital communication (RS-422A, RS-485, RS-232C)
- Analog output
- Time signal output

(Released soon)

Input		(Universal input) Thermocouple・RTD DC voltage・DC current
Sampling cycle		0.1 sec.
Accuracy	Thermocouple	±(0.1% of display value+1digit)
	RTD	±(0.1% of display value+1digit)
	Voltage・current	±(0.1% of display value+1digit)
Control action		Brilliant PID control
Output		M・V・R・E・G

※Measurement accuracy

REX-P250

DIN H96×W96 D150

COM AT AO
VAL PRG

FUNCTION・OPTION

- 16 segments, 16 patterns (patterns are linkable)
- Digital communication (RS-422A, RS-232C)
- Analog output
- Time signal output

Input		Thermocouple・RTD DC voltage・DC current
Sampling cycle		0.5 sec.
Accuracy	Thermocouple	±(0.3% of display value+1digit)
	RTD	±(0.3% of display value+1digit)
	Voltage・current	±(0.2% of span+1digit)
Control action		PID control
Output		M・V・R・E・G

※Measurement accuracy

REX-P96

DIN H96×W96 D100

REX-P48

DIN H96×W48 D100

AT AO PRG

FUNCTION・OPTION

- 8 segments, 2 patterns (patterns are linkable)
- Analog output
- Time signal output

(Released soon)

Input		(Universal input) Thermocouple・RTD
Sampling cycle		0.5 sec.
Accuracy	Thermocouple	±(0.3% of span+1digit)
	RTD	±(0.3% of span+1digit)
Control action		PID control
Output		M・V・R

※Measurement accuracy

REX-P24

DIN H48×W48 D100

AT PRG

FUNCTION・OPTION

- 8 segments, 2 patterns (patterns are linkable)
- Timer control
- Time-up output
- Time signal output

Input		(Universal input) Thermocouple・RTD
Sampling cycle		0.5 sec.
Accuracy	Thermocouple	±(0.3% of span+1digit)
	RTD	±(0.3% of span+1digit)
Control action		PID control
Output		M・V・R

※Measurement accuracy

MULTI-ZONE TEMPERATURE CONTROLLER

FEATURES

The controller is mounted inside an equipment or a control board.
The dedicated operation panel is also available. It is used for setting and monitoring.
This multi-point temperature controller will be more powerful than using a many temperature controllers for the equipment with many control points to reduce the mounting space and cost.
The management in combination with computers and sequencer is also possible.

OUTPUT CODE

M : Relay contact output
V : SSR drive output (voltage pulse)
R : DC current output
E : Continuous voltage output
T : Triac output
D : Open collector output

From 2 to 320 points, a flexible and compact control system can be configured.

Modular type multi-zone temperature controller

SR Mini SYSTEM

(Except a few models)

Features

- Possible to configure only the necessary modules compactly to build up a system.
  (Kinds of module)
  Power · CPU module / Temperature control module / Current transformer input module / Digital input module / Digital output module, etc.
- Compact size of 96(H)×24(W)×100mm(D) is realized.
  Almost same size with 3.5 inch floppy disk.
- Maximum 10 pieces (total 20 channels) of temperature control modules can be accommodated in one control unit, and possible to expand to maximum 320 channels by connecting total 16 control units.
- Easy to replace modules.

Input		Thermocouple · RTD
Sampling cycle		0.5 sec.
Accuracy	Thermocouple	±(0.3% of span+1digit)
	RTD	±(0.3% of span+1digit)
Control action		Brilliant PID control PID control with fuzzy function
Output		M · V · D · T · E · R

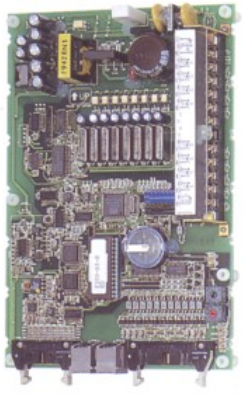
※Measurement accuracy

COM AT+ HBA LBA MEM H/C

Open-board type multi-zone temperature controller

REX-B850

SIZE H210×W145 D26



Features

- Compact board type possible to install in a narrow space inside an equipment, as it is compact board type.
- Available for 4, 6, 8 channels specifications.
- Heater break alarm function installed as a standard.
- Maximum 16 units (128 channels) can be connected.
- Small size, space saving display setting panel (OPL-B) is available.

Input		Thermocouple · RTD (Specify 4 ch, 6 ch or 8 ch)
Sampling cycle		1 sec.
Accuracy	Thermocouple	±(0.3% of span+1digit)
	RTD	±(0.3% of span+1digit)
Control action		Brilliant PID control
Output		D

※Measurement accuracy

COM AT+ HBA H/C MEM

Operation panel

OPL-B

DIN H96×W144 D82

RECORDER COMMUNICATION CONVERTER

HYBRID RECORDERS

SBR-EY180

DIN H288×W288 D220

SBR-EY100

DIN H144×W144 D220

Features

- Up to 4 pens
- Fast printing speed
- Universal input
- IC memory card slot
- Simultaneous analog and digital displays
- Digital communication
- Alarm output

COM

Input	Thermocouple・RTD・DC voltage
Sampling cycle	Pen type : 0.125 sec Dot-matrix type : 2.5 sec
Recording method	1・2・3・4 pens 6 dot-matrix (EY100) 6・12・18・24 dot-matrix (EY180)
Recording width	180 mm (EY180), 100 mm (EY100)

SBR-EM180

DIN H288×W288 D220

SBR-EM100

DIN H144×W144 D220

Features

- Up to 4 pens
- Fast printing speed
- Digital communication
- Alarm output

COM

Input	Thermocouple・RTD・DC voltage
Sampling cycle	Pen type : 0.125 sec Dot-matrix type : 10 sec / 24 ch (EY180) 2.5 sec (EY100)
Recording method	1・2・3・4 pens 6 dot-matrix (EY100) 6・12・18・24 dot-matrix (EY180)
Recording width	180 mm (EY180), 100 mm (EY100)

COMMUNICATION CONVERTERS

COM-A/B

SIZE H96×W24 D100

- RS-422A←→RS-232C [COM-A] (4-wire system)
- RS-485←→RS-232C [COM-B] (2-wire half-duplex)
- 6 pins modular connector type

COM-103C/104C

SIZE H181.8×W32 D111

- RS-422A/RS-485←→RS-232C [COM-103C] (2-wire half-duplex)
- RS-422A←→RS-232C [COM-104C] (4-wire system)
- Screw terminal type←→ Connector type

BRA-100B

SIZE H70×W120 D32

- Communication line brancher for RS-422A/RS-485 Screw terminal type

※Connector type BRA-100A is also available

INDICATOR THERMOMETER

DIGITAL INDICATOR WITH ALARM

REX-AD410

DIN H48×W96 D100

COM AO

Features

- Large size LED display with the height of letters 20 mm.
- Universal input function to accept any kinds of input.
- Peak and bottom hold functions as a standard.
- Maximum of 6 points of alarm output.
- Analog output, digital input and communication interface

Input	Thermocouple·RTD·DC voltage/current
Sampling cycle	0.5 sec
Accuracy	±(0.3% of span+1digit)
Analog output	DC voltage, DC current
Digital communication	RS-422A, RS-485

※Measurement accuracy

DIGITAL TEMPERATURE INDICATOR WITH ALARM

REX-AC410 REX-AC110

(Released soon)

DIN H48×W96 D100 DIN H48×W48 D100

Input	Thermocouple·RTD·DC voltage/current
Sampling cycle	0.5 sec
Accuracy	±(0.5% of displayed value+1digit)
Output	Relay contact output

※Measurement accuracy

DIGITAL TEMPERATURE INDICATOR

REX-DP410 REX-DP110

(Released soon)

DIN H48×W96 D100 DIN H48×W48 D100

Input	Thermocouple·RTD
Sampling cycle	0.5 sec
Accuracy	±(0.5% of displayed value+1digit)

※Measurement accuracy

HANDHELD THERMOMETER

DP-350

SIZE H145×W52 D25

Features

- Measured value hold function
- Peak hold function
- Automatic power off function
- Switching between 0.1℃ and 1℃
- Battery alarm function

Input	Thermocouple: K
Sampling cycle	Approx. 0.6 sec
Accuracy	±(0.2% of indicated value+1digit)

DP-500

SIZE H160×W66 D37

Features

- Data memory function
- Peak hold function
- High and low alarm function
- Switching type of inputs
- Switching between 0.1℃ and 1℃
- Battery alarm function

Input	Thermocouple·RTD
Sampling cycle	Approx. 0.4 sec
Accuracy	±(0.1% of indicated value+1digit)

RESIN PRESSURE GAUGE/INDICATOR ETC,

RESIN PRESSURE GAUGE/INDICATOR

CZ-200P　REX-PG410

DIN H48×W96 D100

Features
- Accuracy ±1% at diaphragm temperature of 150℃
- Available for low pressure range
- A temperature sensor (type K or J) built-in type is available.
- Easy and accurate calibration. Optional digital communication

VALVE POSITION INDICATOR/VALVE POSITIONER

REX-AP4　REX-EP4

DIN H48×W96 D100　DIN H48×W96 D100

Features
- LED bar-graph display of valve position
- Optional high/low alarm
- Auto/Manual transfer (REX-EP4 only)
- Output limiter (REX-EP4 only)

POWER CONTROL UNITS

THYCO-10 series (Thyristor units) (SSR units)

Features
- Compact size requiring less panel space
- Wide options including Auto/Manual transfer, fuse break alarm, etc.

SIGNAL TRANSMITTER

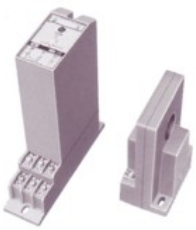
TRY-10series

SIZE H80×W50 D123

Features
- DIN rail mounting
- Transmitter, alarm unit, limitter, isolating distributor with trimming function.

HEATER BREAK ALARM

HBA-21　HBA-22　HBA-T120P　HBA-T130P



Features
- Detects even the break of a single heater in a system where two or more heaters are used.
- Not affected by heater current variation due to power supply fluctuation.
- Automatic load setting by the built-in CPU (HBA-T120/130 only)

TEMPERATURE SENSORS

We offer many other types of sensors in addition to those described in this catalog. Please contact us for more details.

unit:mm

T-30(S)R-30(S)

T-35(S)R-35(S)

T-90(S)R-90(S)

T-100

T-220

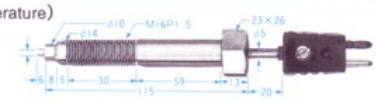
T-101(S)R-101(S)

T-240

T-230

T-250

T-270Z (for resin temperature)



SENSORS FOR HANDHELD THERMOMETERS

We offer many other types of sensors in addition to those described in this catalog. Please contact us for more details.

ST-23(23L)

ST-30(30L)

ST-32(32L)

ST-38

ST-39

ST-47

ST-28(28L)

ST-29(29L、29H、29HL)

ST-45L

ST-46(46L)

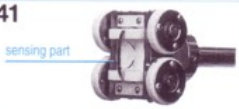
ST-50

JBS-3898

ST-36

ST-37

ST-41



ST-42

ST-44

JB-15

JB-16

JB-12,JB-13

JB-14

ST-100

ST-31

ST-25

ST-26

ST-34

ST-43

ST-91

SR-15 (RTD)

SR-16 (RTD)

SR-26 (RTD)