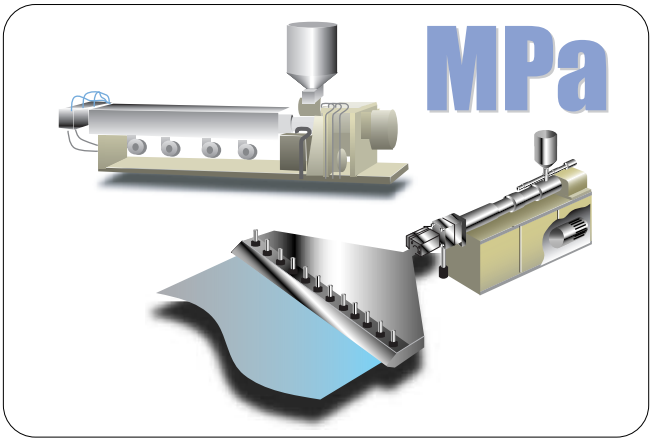
CONTROLLER

Resin Pressure Digital Controller
(Strain Gauge Input Type)

HA930
HA430

High-Speed
controller

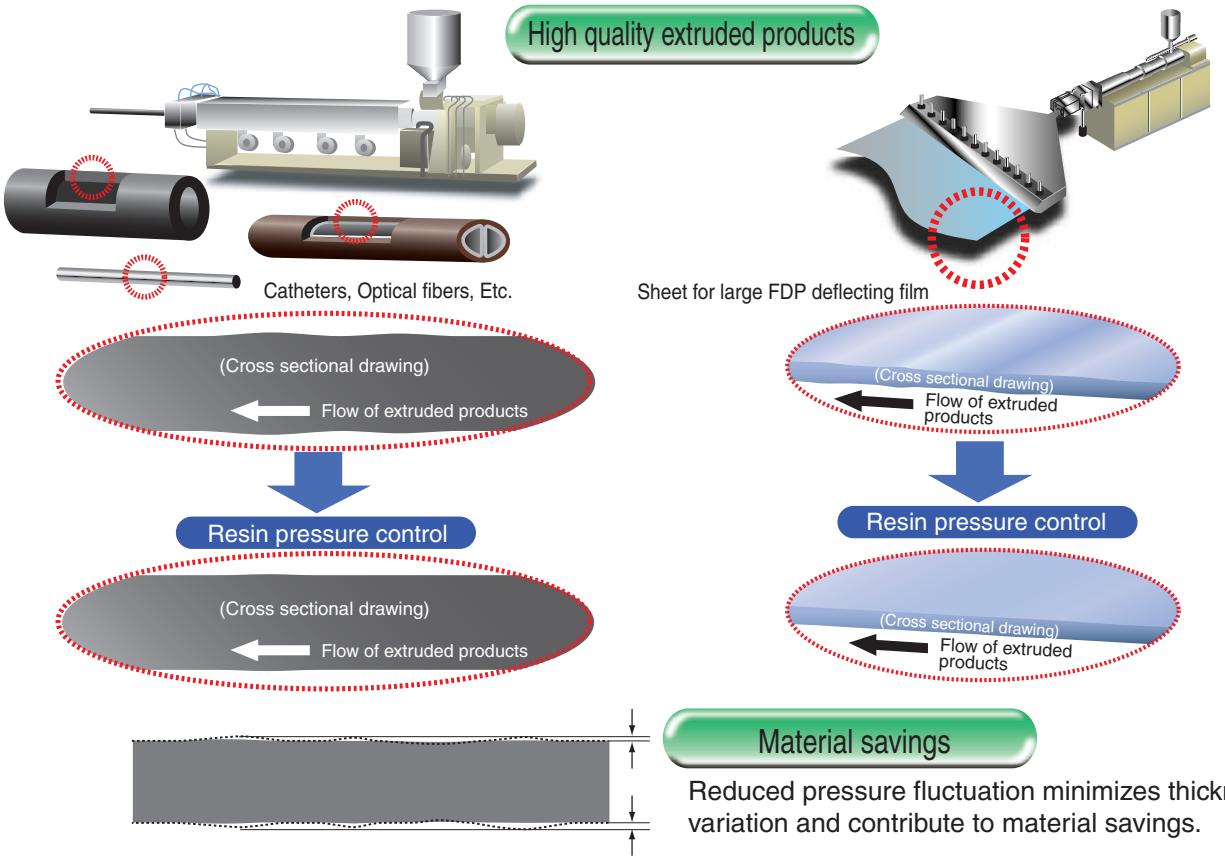


RKC INSTRUMENT INC.

Pressure Feedback Control in Extrusion Process

Stable extrusion output = uniform high quality products

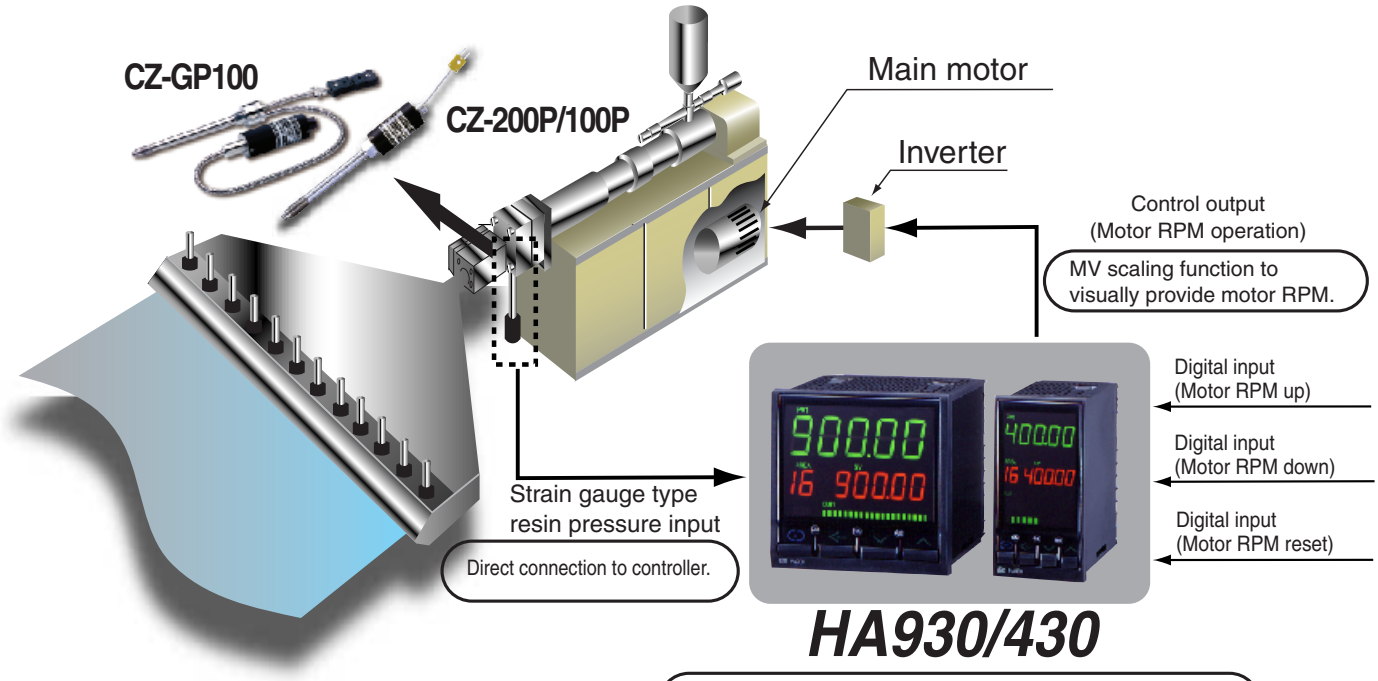
HA430/930 controls RPM of extruder's main motor so that the extrusion pressure can be constant.
The constant pressure stabilizes resin output and produces uniform and high quality extruded products.



Material savings

Reduced pressure fluctuation minimizes thickness variation and contribute to material savings.

Resin pressure control application



Fast sampling of 40 times per second

Provides 0.025 second sampling cycle to measure and control fast changing processes like pressure.

Numerous functions to improve quality

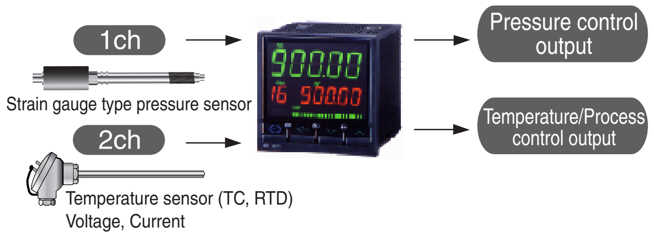
PV transfer function is activated when switching from MAN (manual) to AUTO (automatic) to keep the ideal RPM which is found at Manual Mode.
To protect screws from abrupt change of RPM, HA430/930 provides Manual output transfer function at input abnormality, motor RPM driving output transfer function, forced reset input of Manual value.

Easy zero and span adjustments

Auto-zero and span adjustments are available from the front panel. The span adjustment is accomplished by setting the sensor rated output value (gain setting).

Temperature and Pressure control with a single instrument

The HA930 and HA430 provide dual loop control with a single instrument. The first loop is assigned to a strain gauge input and the second loop to a temperature input (T/C, RTD, and mV/V/mA).



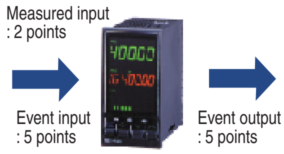
7 inputs and 5 outputs (Option)

A maximum of two measured inputs and five event inputs can be specified. A maximum of five outputs can be specified, and various output functions (control output, analog retransmission, event up to 4) can be allocated in output logic operation.

IN1
Strain gauge input

IN2
Temperature input, DC Voltage/Current input

DI1 to DI5
Area No. Switching
RUN/STOP,
Auto/Manual,
Remote/Local
Hold reset
Interlock reset
Motor rotary
Increase/decrease
Motor rotary reset



Event output types :
Deviation high, Deviation low
Deviation high/low, Band,
Process high, Process low
Set value high, Set value low
LBA (Assignable to event outputs 3 and 4)

DO1
Control output (CH1)

DO2
Control output (CH2)
Event 3, 4
Analog retransmission

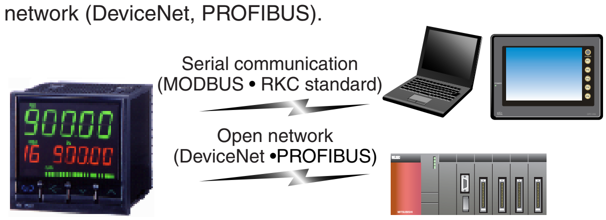
DO3
Event 2, 3, 4
Analog retransmission

DO4
Event 1, 2, 3

DO5
Event 1, 2
FAIL

Communications (Option)

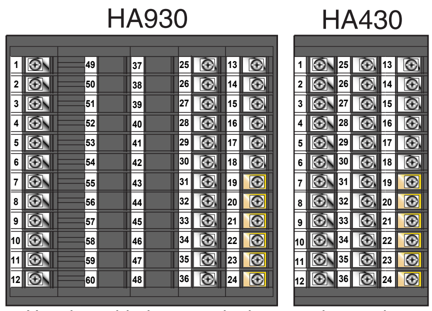
Communication function can be selected from serial communication (RS-232C, RS-422A, RS-485) and Open network (DeviceNet, PROFIBUS).



* Optional infrared communication function with a PDA.

HA930 and HA430 are similar in function.

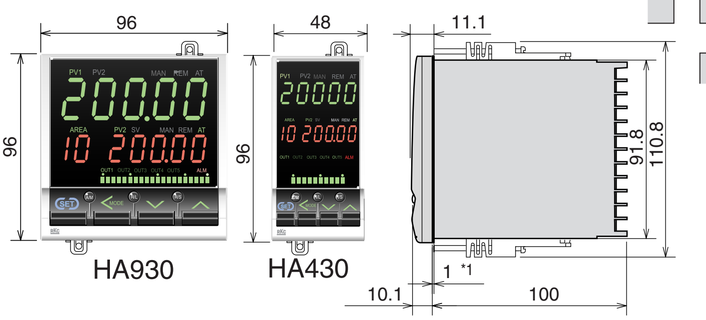
Rear Terminals



• Use the solderless terminal appropriate to the screw size. Screw size : M3X6

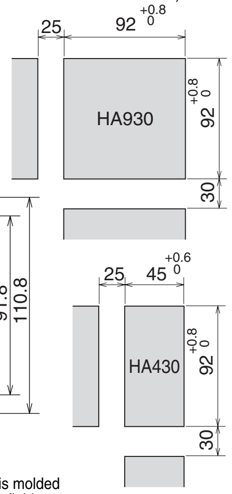
External Dimensions

(Unit:mm)



*1 IP65 waterproof/dustproof protection is molded into case and can not be added in the field.

<Panel cutout>
(Panel thickness must be between 1 to 10mm)



No	Description		
1	L; 100 - 240V AC, 24V AC	+ ; 24V DC	Power supply
2	N	–	
3	NO Relay contact output		Output 5 (OUT5) *
4			
5	NO Relay contact output		Output 4 (OUT4) *
6			
7	NO (1); + (2); + (3); + (4)		Output 3 (OUT3) * (1) Relay contact output (2) Voltage pulse/Current/ Voltage output (3) SSR (Triac) output (4) Sensor power supply output
8	(1); – (2); – (3); – (4)		
9	NO (1); + (2); (3)		Output 2 (OUT2) * (1) Relay contact output (2) Voltage pulse/Current/ Voltage output (3) SSR (Triac) output
10	(1); – (2); (3)		
11	NO (1); + (2); (3)		Output 1 (OUT1) * (1) Relay contact output (2) Voltage pulse/Current/ Voltage output (3) SSR (Triac) output
12	(1); – (2); (3)		

No	(1)	(2)	(3)	(4)	(5)	Description
25	SG	SG	SG	V+	VP	Communication * (1) RS-422A (2) RS-485 (3) RS-232C (4) DeviceNet (5) PROFIBUS
26	T (A)	T/R (A)	SD	CAN_H	RxD/TxD-P	
27	T (B)	T/R (B)	RD	Drain	RxD/TxD-N	
28	R (A)			CAN_L	DGND	
29	R (B)			V-		
30	COM					Event input 1 to 4 *
31	DI1	Non-voltage contact input				
32	DI2					
33	DI3					
34	DI4					
35	DI5	Non-voltage contact input				Event input 5 *
36						

No	Description		
13	No used		
14	CAL+ Calibration input +		Strain gauge type pressure sensor input
15	CAL - Calibration input -		
16	SHD Shield		
17	EXC+ Sensor supply voltage +		
18	EXC - Sensor supply voltage -		
19	1 channel type: (A) Non isolated remote input +	2 channel type: (B) A	(A) 1 channel type Non-isolated type remote input (B) 2 channel type Temperature Voltage/Current input (1) Thermocouple (2) RTD (3 wire) (3) Voltage/Current
20	– (3)	+ B +	
21	No used	B (1) (2) (3) –	
22		No used	
23	SIG+ Sensor signal input +		
24	SIG- Sensor signal input -		

* Functions (A) to (C) and types (1) to (3) must be specified at the time of ordering.

Specifications

Input

Number of inputs 2 points (IN1 to IN2)
- Isolated between each channel
- 2nd input (IN2) can be used as a remote input
- Specify the number of inputs at the time of ordering.

Input
a) Input 1 (IN1) : Strain gauge type pressure sensor
- Bridge impressed voltage : 8V DC ±3%, 80ppm/°C, 30mA(MAX)

b) Input 2 (IN2) : Temperature input, Voltage/Current input
- Universal input within group

1) Low voltage input group
Thermocouple : K, J, E, T, R, S, B, N (JIS/IEC)
PLII (NBS), W5Re/W26Re (ASTM)
RTD : Pt100 (JIS/IEC), JPt100 (JIS)
- 3 wire system

Low voltage : 0 to 1V DC, 0 to 100mV DC, 0 to 10mV DC
Current : 4 to 20mA DC, 0 to 20mA DC
(Input impedance : 50Ω)

2) High voltage group
High voltage : 0 to 5V DC, 1 to 5V DC, 0 to 10V DC

Sampling time 0.025 sec.
- Common to 1ch/2ch

Zero point adjustment -5.0 to +5.0mV (Pressure sensor input)

Gain setting 0.500 to 4.000mV/V (Pressure sensor input)

Influence of external resistance 0.25μV/Ω (Thermocouple input)

Influence of lead resistance 0.01°C/Ω (RTD input)
- Maximum 10Ω per wire

Input break action
Pressure sensor input : Up-scale/Down-scale (Selectable)
Thermocouple input : Up-scale/Down-scale (Selectable)
RTD input : Up-scale
Low voltage input : Up-scale/Down-scale (Selectable)
High voltage input : Value around 0V
Current input : Value around 0mA

Input short action Down-scale (RTD input)

Input digital filter 0.01 to 10.00 sec. (OFF when 0 is set.)

PV bias -span to +span

PV ratio 0.500 to 1.500

Square root extraction PV = √(Input value x PV ratio + PV bias)
Low level cut off : 0.00 to 25.00% of span

Non-isolated remote setpoint input (Optional)

Input
a) 0 to 1V DC, 0 to 100mV DC, 0 to 10mV DC
b) 0 to 5V DC, 1 to 5V DC, 0 to 10V DC
c) 4 to 20mA DC, 0 to 20mA DC
- Please specify a) to c) at the time of ordering
- Not available when a 2-loop type is selected.

Sampling time 0.075 sec.

Accuracy 0.1% of span

Event input (Optional)

Number of inputs Up to 5 points

Input rating Non-voltage contact input

Functions
a) Memory area selection
b) RUN/STOP
c) Remote/Local
d) Auto/Manual
e) Hold reset
f) Interlock reset
g) CH1/CH2 MV value (Motor revolution) up/down
h) CH1/CH2 MV value (Motor revolution) reset
- See Event input logic selection functional allocation table

Memory area

Number of area 16 sets

Setting items
a) Set value (SV),
b) Event 1 to 4,
c) Proportional band,
d) Integral time
e) Derivative time
f) Control response
g) Setting change rate limiter (High/Low)
h) Soak time :
0 min 0.00 sec to 9 min 59.99 sec or
0 hr 0 min 00 sec to 9 hr 59 min 59 sec
(selectable)
i) Linking area number : OFF, 1 to 16

Control

Number of controls Up to 2 points

Control method Brilliant PID control (with autotuning)
- Direct action/reverse action selectable

Setting range
a) Proportional band : Temperature input, 0 to input span(°C,°F)
Voltage • Current input, 0.0 to 1000.0% of input span
b) Integral time : 0.00 to 360.00 sec or 0.0 to 3600.0 sec (selectable)
c) Derivative time : 0.00 to 360.00 sec or 0.0 to 3600.0 sec (selectable)
d) Control response : Slow, Medium, Fast
e) Output limiter : -5.0 to +105.0% (High/Low individual setting)
f) Output change rate limiter : 0.0 to 100.0% /sec (Up/down individual setting)
d) Proportional cycle : 0.1 to 100.0 sec

Other functions
a) PV transfer function
This is a function to set the PV to the SV when the operation mode has been changed from a Manual to an Auto mode to suppress rapid change in output.
b) Manual output transfer function at input abnormality
When the input exceeds the input abnormality decision point, the output reached at that time is maintained.
c) MV transfer function
In this function, an output value is stored when the operation mode is changed from MAN to AUTO mode, and when the mode changes from AUTO to MAN via digital input, the stored output value is retrieved.

Output

Main output
a) Number of outputs : Up to 3 points (OUT1 to OUT3)
- OUT3 is isolated from other outputs (Not isolated between OUT1-OUT2).
- Outputs are isolated for relay output and SSR output.
- Isolated between input-output and output-power supply.
- OUT2 and OUT3 are optional.

b) Output function
OUT1, 2 : Control output
OUT3 : Event output or analog retransmission output (Option)

c) Output type
1) Relay contact output, Form a contact, 250V AC 3A (resistive load)
- Electric life : 300,000 cycles or more (resistive load)

2) Voltage pulse output DC 0/12V
(Load resistance : more than 600Ω)
3) Current output 4 to 20mA DC, 0 to 20mA DC
(Load resistance : less than 600Ω)
4) Continuous voltage output 0 to 5V DC, 1 to 5V DC, 0 to 10V DC
(Load resistance : more than 1kΩ)
5) SSR (Triac) output, (Rated current : 0.4A)
- Please specify 1) to 5) at the time of ordering

Sub output (Option)
a) Number of outputs : Up to 2 points (OUT4 to OUT5)
b) Output function : Event output (Option)
c) Output type : Relay contact output, Form a contact, 250V AC 1A (resistive load)
- Electric life : 300,000 cycles or more (resistive load)

Sensor power supply output (Option) 24V DC ±5% (Max.24mA)
- Output from OUT3.
- When sensor power supply output is specified, OUT4 and OUT5 can not be added.

Event (Alarm) output (Optional)

Number of event outputs Up to 4 points (Event 1 to 4)
- Assignable to main output (OUT3) or aux.output (OUT4 to 5).

Event types Deviation high, Deviation low, Deviation high/low, Band, Process high, Process low, Set value high, Set value low, LBA
- LBA is assignable to event outputs 3 and 4.

Setting range
a) Deviation alarm
Event setting : -input span to +input span
Event action differential gap : 0 to input span
b) Process alarm/Set value
Event setting : Same as input range
Event action differential gap : 0 to input span
c) LBA
LBA time setting : 0 to 7200 sec.
(LBA is OFF when 0 is set)
LBD dead band setting : 0 to input span
- Each channel is independently settable with the two channel type.

Other functions
a) HOLD action (Valid for deviation/band/PV alarms only)
b) Selection of event action for input abnormality.
- Delay timer function is available depending on selection of output logic function.

Specifications

Communications (Optional)

Communication method	Based on RS-485/RS-422A/RS-232C, PROFIBUS, DeviceNet • Please specify at the time of ordering.
Protocol	a) ANSI X3.28 sub-category 2.5 A4 (RKC standard) b) MODBUS • Selectable
Communication speed	2400, 9600S, 19200, 38400 bps (selectable)
Bit configuration	a) RKC standard/ANSI protocol Start bit : 1, Data bit : 7 or 8 Parity bit : 1 (odd or even) or none. Stop bit : 1 or 2 b) MODBUS protocol Start bit : 1, Data bit : 8 (binary or byte data) Parity bit : 1 (odd or even) or none. Stop bit : 1 or 2 (Fixed to 1 bit for parity 1) • Selectable
Maximum connection	31 units

Performance

Measuring accuracy	See input code table • Cold junction temperature error : ±1.0℃(±1.8℉) [at 23℃±2℃ (73.4℉±3.6℉)], Within ±1.5℃ (±2.7℉) [Between 0 and 50℃ (14 to 122℉)]
Insulation resistance	More than 500V DC 20MΩ between measured terminals and ground More than 500V DC 20MΩ between power terminals and ground More than 500V DC 20MΩ between measured terminals and power terminals
Dielectric voltage	More than 1000V AC 1 minute between measured terminals and ground More than 1500V AC 1 minute between power terminals and ground More than 2300V AC 1 minute between measured terminals and power terminals

Input Accuracy Table

Input type	Measuring accuracy	Resolution
Strain gauge type input	±(0.1% of Span)	1, 0.1, 0.01, 0.001 (Selectable)
K, J, T, E, PLII	Less than -100℃ (-148℉) : ±1.0℃ (±1.8℉) * -100 to 500℃ (-148 to 932℉) : ±0.5℃ (±0.9℉) More than 500℃ (932℉) : ±(0.1% of Reading+1digit)	1℃, 0.1℃ 1℉, 0.1℉ (Selectable)
N, S, R, W5Re/W26Re	Less than -100℃(-148℉): ±2.0℃ (±3.6℉) * -100 to 1000℃ (-58 to 1832 ℉): ±1.0℃ (±1.8℉) More than 1000℃ (1832 ℉): ±(0.1% of Reading+1digit)	
B	Less than 400℃ (752℉): ±70.0℃ (±126℉) * 400 to 1000℃ (752 to 1832℉): ±1.0℃ (±1.8℉) More than 1000℃ (1832 ℉): ±(0.1% of Reading+1digit)	
Pt100, JPt100	Less than 200℃ (±392℉) : ±0.2℃ (±0.4℉) More than 200℃ (±392℉): ±(0.1% of Reading+1digit)	1℃, 0.1℃,0.01℃, 1℉, 0.1℉,0.01℉, (Selectable)
DC voltage, DC current	±(0.1% of Span)	1, 0.1, 0.01, 0.001, 0.0001 (Programmable)

* Cold junction temperature compensation error : ±1.0℃(±1.8℉) [at 23℃±2℃(73.4℉±3.6℉] Within ±1.5℃(±2.7℉) [Between 0 and 50℃(14 to 122℉)]

• Event output logic selection allocation table

	OUT1	OUT2	OUT3	OUT4	OUT5
A	CH1 control output	Event 3,4 (Energized)	Event 2 (Energized)	Event 1 (Energized)	FAIL (De-energized)
B	CH1 control output	Event 3, 4 (De-energized)	Event 2 (De-energized)	Event 1 (De-energized)	FAIL (De-energized)
C	CH1 control output	CH2 control output	Event 4 (Energized)	Event 3 (Energized)	Event 1,2 (Energized)
D	CH1 control output	CH2 control output	Event 4 (De-energized)	Event 3 (De-energized)	Event 1, 2 (De-energized)
E	CH1 control output	CH2 control output	Event 3,4 (Energized)	Event 2 (Energized)	Event 1 (Energized)
F	CH1 control output	CH2 control output	Event 3, 4 (De-energized)	Event 2 (De-energized)	Event 1 (De-energized)
G	CH1 control output	Event 4 (Energized)	Event 3 (Energized)	Event 2 (Energized)	Event 1 (Energized)

* An output logic becomes OR output when two or more output functions are assigned to one output.
* When three analog outputs are selected, the analog outputs are automatically assigned to OUT1 through OUT3 and it has priority over the output logic selection.

Analog retransmission output (Optional)

Number of outputs	Up to 3 points • Functions are assignable to OUT1 to OUT3.
Output function	Measured value (PV), Setting value (SV) Manipulated value (MV), Deviation value (DEV)
Scaling range	a) Measured value (PV) : Same as input range b) Setting value (SV) : Same as input range c) Manipulated value (MV) : -5.0 to 105.0% d) Deviation value (DEV) : -span to +span (PV-SV)

Infrared Port Communication (Standard)

Infrared Port	IrDA Standard
Support OS	Windows Pocket PC 2002
CPU	Strong RAM PXA250 (X scale) will be available soon.
Communication distance	20 to 30cm (depending on the environmental conditions)

* This software is downloadable from RKC's website at:www.rkcinst.com.

General Specifications

Supply voltage	a) 90 to 264V AC [including supply voltage variation] (50/60Hz) [Rating: 100-240V AC] b) 24V AC±10% [including supply voltage variation] (50/60Hz) [Rating 24V AC] c) 24V DC±10% [Including supply voltage variation] [Rating 24V DC]
Power consumption	a) 100-240V AC type HA930 : 20.4VA (240V), 17.5VA (100V) HA430 : 22.5VA (240V), 16.5VA (100V) b) 24V DC/AC types HA930 : 16.0VA (24V AC), 470mA (24V DC) HA430 : 15.0VA (24V AC), 430mA (24V DC)
Power failure	A power failure of 20msec or less will not affect the control action. If power failure of more than 20msec occurs, controller will restart. HOT start (1,2) or COLD start (selectable).
Memory backup	Backed up by non-volatile memory. (Data retaining period : Approx.10 years, Number of writing : Approx.100,000 times, • Depending on storage and operating conditions.
Operating environment	-10 to 50℃ (14 to 122℉) 5 to 95%RH (No condensing) Absolute sensitivity : Max. W.C 29g/m^3 dry air at 101.3kPa
Weight	HA930 : 460g HA430 : 360g
External dimensions	See external dimensions
Operating environment	Free from corrosive and flammable gas and dust. Free from external noise, vibration, shock and exposure to direct sunlight.

Compliance with Standards

CE Mark, UL Recognized, CSA Certified, C-Tick mark

• Event input logic selection functional allocation table

	DI1	DI2	DI3	DI4	DI5
A	Memory area selection (1 to 16)				Area set
B	Memory area selection (1 to 8)			Area set	Run/Stop
C	Memory area selection (1 to 8)			Area set	Remote/Local
D	Memory area selection (1 to 8)			Area set	Remote/Local
E	Memory area selection (1 to 8)			Area set	Peak/Bottom hold reset
F	Memory area selection (1 to 8)			Area set	Interlock release
G	Memory area selection (1 to 4)		Area set	Run/Stop	Auto/Manual
H	Memory area selection (1 to 4)		Area set	Run/Stop	Remote/Local
I	Memory area selection (1 to 4)		Area set	Remote/Local	Auto/Manual
J	Memory area selection (1 to 4)		Area set	Peak/Bottom hold reset	Interlock release
K	Auto/Manual	Run/Stop	Remote/Local	Peak/Bottom hold reset	Interlock release
L	Auto/Manual	CH1 manual output down	CH1 manual output up	CH1 manual output 0% reset	Run/Stop
M	Auto/Manual	CH2 manual output down	CH2 manual output up	CH2 manual output 0% reset	Run/Stop

Model and Suffix Code

● 1 channel control type

Specifications	Suffix Code	
	(96 X 96mm 1/4 DIN size) **HA930**	-□ □ □ □-□*□ □-□ □-□ □
	(48 X 96mm 1/8 DIN size) **HA430**	
Strain gauge type pressure sensor input	CZ-100P/200P input	H
	CZ-GP100 input	X
Non isolated type remote set value	Not supplied	0
	See Remote input code table	□
Output 1 (Main output)	See output code table	□
Output 2 (Main output) * Not isolated from OUT.	No output from OUT	N
	See output code table	□
Power supply	24V AC/DC	3
	100 to 240V AC	4
Output 3 (Main output)	No output from OUT	N
	See output code table	□
	Sensor power supply output *1	P
Output 4, 5 *1 (OUT, 5: Sub output)	No output from OUT and OUT	N
	Output 4 : Relay contact output, No output from OUT 5	1
	Output 4 and 5 : Relay contact output	2
Event input 1 to 5	Not supplied	N
	Event input : 5 points (DID to DID)	1
Communication	Not supplied	N
	RS-232C (ANSI/RKC standard)	1
	RS-422A (ANSI/RKC standard)	4
	RS-485 (ANSI/RKC standard)	5
	RS-485 (MODBUS)	6
	RS-422A (MODBUS)	7
	RS-232C (MODBUS)	8
	Device Net	A
	PROFIBUS	B
Case color	White	N
	Black	A
Instrument version	Version symbol	Y

*1 When sensor power supply output is specified, output 4 and 5 can not added.
<Remarks>
- OUT 1 can be used for control outputs.
- Event (alarm) outputs are assignable to OUT 2 - OUT 5.
- Analog output (PV, SV, etc) are assignable to OUT 1 - OUT 3.
- If two isolated analog outputs are required, use OUT 1 (or OUT 2) and OUT 3.

● 2 channel control type

Specifications	Suffix Code	
	(96 X 96mm 1/4 DIN size) **HA930**	-□ □ □ □-□*□ □-□ □-□ □
	(48 X 96mm 1/8 DIN size) **HA430**	
Strain gauge type pressure sensor input	CZ-100P/200P input	H
	CZ-GP100 input	X
Input 2 (IN)	See Input code table	□
Output 1 (Main output)	See output code table	□
Output 2 (Main output) * Not isolated from OUT.	No output from OUT	N
	See output code table	□
Power supply	24V AC/DC	3
	100 to 240V AC	4
Output 3 (Main output)	No output from OUT	N
	See output code table	□
	Sensor power supply output *1	P
Output 4, 5 *1 (OUT, 5: Sub output)	No output from OUT and OUT	N
	Output 4 : Relay contact output, No output from OUT 5	1
	Output 4 and 5 : Relay contact output	2
Event input 1 to 5	Not supplied	N
	Event input : 5 points (DID to DID)	1
Communication	Not supplied	N
	RS-232C (ANSI/RKC standard)	1
	RS-422A (ANSI/RKC standard)	4
	RS-485 (ANSI/RKC standard)	5
	RS-485 (MODBUS)	6
	RS-422A (MODBUS)	7
	RS-232C (MODBUS)	8
	Device Net	A
	PROFIBUS	B
Case color	White	N
	Black	A
Instrument version	Version symbol	Y

*1 When sensor power supply output is specified, output 4 and 5 can not added.
<Remarks>
- OUT 1 and OUT 2 can be used for control outputs.
- Event (alarm) outputs are assignable to OUT 3 - OUT 5.
- Analog output (PV, SV, etc) are assignable to OUT 1 - OUT 3.
- If two isolated analog outputs are required, use OUT 1 (or OUT 2) and OUT 3.

Remote Signal Code Table

(* Not isolated from the No.1 input [IN])

Input type		Code
Low voltage group	0 to 10mV DC	G
	0 to 100mV DC	
	0 to 1V DC	
High voltage group	0 to 5V DC	V
	0 to 10V DC	
	1 to 5V DC	
Current group	0 to 20mA DC	Y
	4 to 20mA DC	

- Configurable within group.

Output Code Table

Output Type	Code
Relay contact output	M
Voltage pulse output DC0/12V	V
Continuous voltage output DC 0 to 1V	4
Continuous voltage output DC 0 to 10V	5
Continuous voltage output DC 1 to 5V	6
Current output DC 0 to 20mA	7
Current output DC 4 to 20mA	8
SSR (Triac) output	T

Input Code Table

Input type		Range	Code
Low voltage group (Thermocouple, RTD, voltage, current)	K	-200 to 1372℃, -328 to 2501℉	K
	J	-200 to 1200℃, -328 to 2192℉	J
	T	-200 to 400℃, -328 to 752℉	T
	E	-200 to 1000℃, -328 to 1832℉	E
	PLII	0 to 1390℃, 32 to 2534℉	A
	N	0 to 1300℃, 32 to 2372℉	N
	S	-50 to 1768℃, -58 to 3214℉	S
	R	-50 to 1768℃, -58 to 3214℉	R
	W5Re/W26Re	0 to 2300℃, 32 to 4172℉	W
	B	0 to 1800℃, 32 to 3272℉	B
	Pt100 (3 wire)	-200 to 850℃, -328 to 1562℉	D
	JPt100 (3 wire)	-200 to 600℃, -328 to 1112℉	
	0 to 10mV DC	-19999 to 99999 (Programmable)	3
	0 to 100mV DC		
	0 to 1V DC		
	0 to 20mA DC		8
	4 to 20mA DC		
High voltage group	0 to 5V DC	-19999 to 99999 (Programmable)	6
	0 to 10V DC		
	1 to 5V DC		

Strain gauge type pressure sensor available

CZ-200P/100P

NEW

CZ-GP100

(Flexible rod type)

Black or white case available

Safety Warning

- Before operating this product, read the instruction manual carefully to avoid incorrect operation.
- This product is intended for use with industrial machines, test and measuring equipment. It is not designed for use with medical equipment.
- If it is possible that an accident may occur as a result of the failure of the product or some other abnormality, an appropriate independent protection device must be installed.

When installing this product, avoid the following:
- Direct exposure to sunlight.
- Direct contact with water.
- Corrosive environments.
- Hazardous areas containing explosive or flammable gases.
- Vibration or shock.
- Areas subject to electrical noise caused by inductive interference, static electricity or magnetic fields.

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