CZ-100P Resin Pressure Sensor

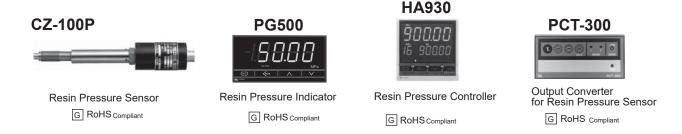




G RoHS 指令対応



As one of quality control method for products made by extrusion molding is a method of unifying the resin extruding pressure. The resin sensor (CZ-100P) is used to detect the resin extruding pressure.



Features



Resin Pressure Sensor

The CZ-100P pressure sensor is a push rod lead-type sensor and thus there is no concern of resin contamination, even if a diaphragm rupture occurs.

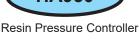


Resin Pressure Indicator

Easy-to-read large LED 100msec sampling cycle time Optional communication (RS422A/RS-485), retransmission output, up to two alarms



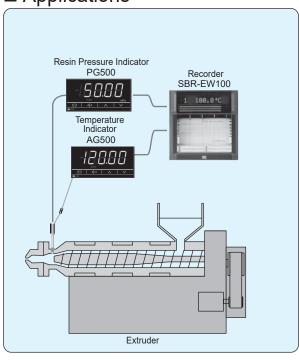
Strain gauge input type
Ultra High Speed Sampling 0.025 sec
7 inputs and 5 outputs
Two Channels in One Controller

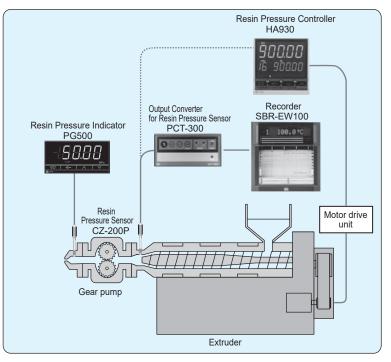




Signal converter for CZ-100P Up to four analog outputs Linearization function

Applications





2



Name of Parts (CZ-100P-H type)

Diaphragm

Pressure port of CZ-100P resin pressure sensor. In addition to the SUS630, Hastelloy C and ceramic

kanigen plating are available.



Diaphragm material and surface treatment

SUS630 (Standard)

High-strength stainless steel is used standard.

Hastelloy C

Ideal when using corrosive resin.

Ceramic kanigen plating

Plating that increases abrasion resistance.

Outer tube

The outer tube has a completely sealed double-layer structure that minimizes the effects of external temperature changes.

Connector

Connector for the converter. A water-proof connector type and water-proof direct-connection cable type are also available.

Specifications

Bridge Impressed Voltage

Accuracy

Construction

: 4 sides adhered strain gauge type wheatstone bridge : Fixed Nut type 20MPa, 35MPa, 50MPa, 70MPa, 100MPa Rated Pressure

Loose Nut type (LL type) 5MPa, 10MPa

Loose Nut type (HL type) 20MPa, 35MPa, 50MPa, 70MPa, 100MPa

Rated Output

Loose Nut type (LLA type) 0.5MPa, 1MPa :1.0 to 1.8mV/V [At 150°C of diaphragm temperature] (LLA type 1MPa : 1.0 to 1.6mV/V, LLA type 0.5MPa : 0.5 to 0.8mV/V :10V DC (at PCT-300, CT-300), 7.7V DC (at PG500, REX-PG410)

SUS630 type (At At 150°C of diaphragm temperature) Within ±1% of full scale

Within ±2% of full scale (Over 70 MPa)

Within ±2% of full scale (OVE) 70 MFa)

HASTELLOY C type

Contact to RKC

SUS630 type (At At 150°C of diaphragm temperature)

Within ±1% of full scale Linearity

Within ±2% of full scale (Over 70 MPa) HASTELLOY C type

Contact to RKC

: SUS630 type Within ±0.5% of full scale Hysteresis

Within ±1% of full scale (Over 50 MPa) Within ±2% of full scale (Over 70 MPa) Within ±0.2% of full scale (1MPa type)
HASTELLOY C type

Reproducibility

Contact to RKC

: Within ±0.2% of span

• More than 480°C of 10,20MPa :Within ±2% of full scale

: ±0.6mV/V (Within ±40% of span

Zero Balance Bridge Resistance $374\Omega \pm 5\Omega$ (Input resistance) $350\Omega \pm 5\Omega$ (Output resistance)

Temperature characteristics

Maximum Temperature of the Diaphragm : 400°C Maximum Temperature of the Strain Gauge: 150°C

Zero Point Temperature Effect : SUS630 type ±0.2%/10°C

±0.4%/10°C (0.5MPa) HASTELLOY C type : Contact to RKC

Mechanical characteristics

Allowable Overload : Within 120% of span

(Within 500% of 1MPa type, Within 1000% of 0.5MPa type): Within 150% of span

Marginal Overload

(Within 1000% of 1MPa type, Within 2000% of 0.5MPa type

Recommended tightening torque Fixed nut type: 30 N·m (300 kgf·cm)

Loose nut type: 60 N·m (600 kg·cm)

^{*} When the temperature at the bottom of outer tube (nut side) is more than 134°C, the temperature at the strain gauge exceed 150°C. If the temperature at the strain gauge exceed 150°C, the performance cannot be assured.

Therefore, cover the heat source with a heat insulating material so thatb the above temperature does not exceed 150°C. The temperature at the strain gauge can be expected not to rise when:

• the long type of sensor is used or

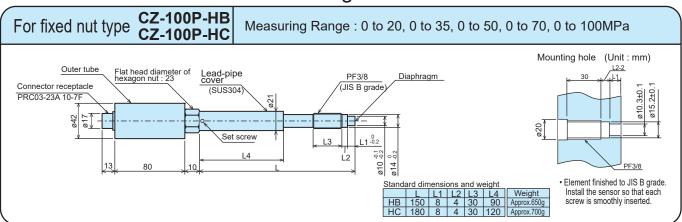
• the sensor is installed a slant or transversely.

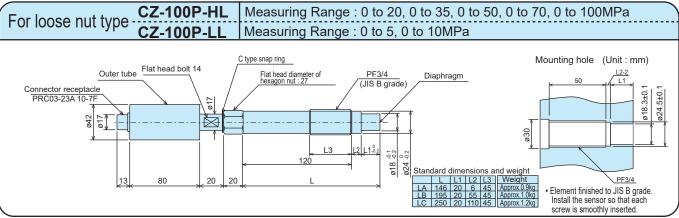
If any of the above measures can be taken, take it.

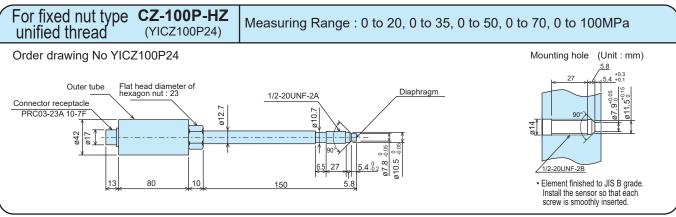


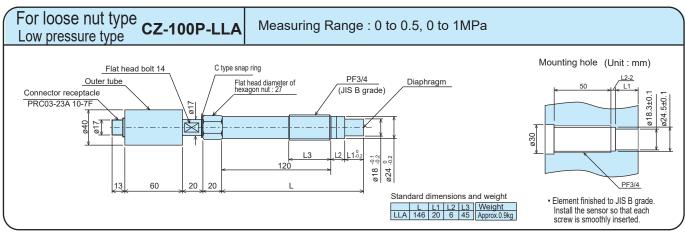
Resin Pressure Sensor

External Dimensions and Mounting Hole









4



Resin Pressure Indicator





Specifications

Input

Input type

Gain setting

: Strain gauge type pressure sensor
a) Pressure sensor gain setting range: 0.500 to 1.999mV/V
-6.0mV to 15.9mV (Including zero point adjustment range)
b) Pressure sensor gain setting range: 1.000 to 1.999mV/V
-9.8mV to 25.9mV (Including zero point adjustment range)
c) Pressure sensor gain setting range: 2.000 to 2.999mV/V
-12.3mV to 32.6mV (Including zero point adjustment range)
d) Pressure sensor gain setting range: 3.000 to 4.000mV/V
-16.1mV to 42.5mV (Including zero point adjustment range)
a) Gain setting decimal point position:
Three decimal place, Four decimal place
b) Setting range: 0.500 to 4.000mV/V (Three decimal place)
5.500 to 4.000mV/V (Three decimal place)
40.0 to 100.0% (Functions when a resistance for sensitivity adjustment built-in pressure sensor is used)
Wore than 1MΩ
Up-scale/Down-scale (Selectable)
7.7V DC±3% (Within 30mA DC)
5.0.1 sec Shunt resistance output value: Input impedance

Input break action Sensor power supply Sampling time Input adjustment

a) Zero point adjustment
1.Manual setting: -Input span to +Input span
2.Auto-zero function: -5.0 to +5.0mV (Input conversion)

b) Ratio setting

1. Manual setting (Gain adjustment setting): 0.500 to 1.500

2. Automatic calibration function

Auto calibration is used to automatically set the PV ratio so that the

measured value (PV) will be the pressure of the shunt resistance output

(Functions when a resistance for sensitivity adjustment built-in pressure sensor is used)

c) Linearize:

c) Linearize:
Use to correct the non-linear nature of pressure sensor CZ-100P/CZ-200P.
Select the linearizing type symbol engraved on the rated nameplate attached to the CZ-100P or CZ-200P housing.
d) Digital filter: 0.0 to 100.0 sec (OFF when 0 is set.)

Performance

Input accuracy : ±0.1% of Input span

: a) Input span : ±0.006% of Input span/°C b) Sensor power supply : ±0.013% of Output span/°C Influence of ambient temperature

Display

: 5-digits (The most significant digit : -1 or 1) Display digit

Hold function

Highest measured value is held Peak hold Bottom hold

Lowest measured value is held

The held values can be reset manually, by external contact signal or by communication after the confirmation by the operator.

Data is not backed up when the instrument power supply is off.

Digital input (Contact input)

Number of inputs

Input method

3 points (DI1 and DI2) Non-voltage contact input (OPEN : $500 k\Omega$ or more, CLOSE : 10Ω or less) DI1 : Auto-zero DI2: Hold reset, DI3 : Alarm interlock reset Function

Alarm (Optional)

Number of alarms Alarm type Alarm output

Up to 4 points
Process High, Process low (Available for hold function)
Relay output, Form A contact, 250V AC 0.5A (resistive load)
a) Energized/de-energized action is configurable.
b) Delay timer: 0.0 to 600.0 sec)
c) Interlock (latch) function is configurable. Other functions

Communication (Optional)

Communication method : RS-485 (2-wire), RS-422A (4-wire)
a) ANSI X3.28 sub-category 2.5A4 (RKC standard)
b) MODBUS-RTU

Selectable
 31 units

Maximum connection

Analog Retransmission Output (Optional)

Output signal

10 to 1V DC, 0 to 5V DC, 1 to 5V DC, 0 to 10V DC Load resistance : More than 1kΩ Output impedance : Less than 0.1Ω : 0 to 10mV DC, 0 to 100mV DC Load resistance : More than 20kΩ) Output impedance : Less than 10Ω : 4 to 20mA DC, 0 to 20mA DC Load resistance : Less than 10Ω : 4 to 20mA DC, 0 to 20mA DC . ¬ ω Δυπίλ DC, U to ZUMA DC Load resistance : Less than 600Ω Output impedance : More than 1MΩ : Measured value (PV) : ±0.1% of span : More than 12 bits

Output type Output accuracy Output resolution

General Specifications

Waterproof/Dustproof

: NEMA4X, IP66
• Waterproof/Dustproof protection only effective from

Supply voltage

the front in panel mounted installation.
a) 90 to 264V AC (50/60Hz, Selectable)
Rating: 100 to 240V AC
b) 21.6 to 26.4V AC ±10% (50/60Hz, Selectable)

Power consumption

b) 21.6 to 26.4V AC ±10% (50/60HZ, Selectable)
Rating : 24V AC C
c) 21.6 to 26.4V DC
Rating : 24V DC
a) 100 to 240V AC : Less than 10VA (at 240VAC)
b) 24V AC : Less than 7.0VA
c) 24V DC : Less than 210mA

Rush current

Memory backup

c) 24V DC: Less than 210mA:
Less than 12A
Backed up by non-volatile memory (FRAM)

• Data retaining period : Approx. 10 years

• Number of writing : Approx. 10,000,000,000 times.
(Depending on storage and operating conditions.)

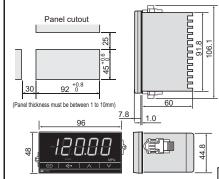
i More than 20MΩ (500V DC) between measured terminals and ground More than 20MΩ (500V DC) between power terminals and ground in 1500V AC for one minute between power terminals and ground 1500V AC for one minute between powe Insulation resistance Dielectric voltage

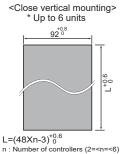
Weight Ambient temperature Ambient humidity Approx. 200g -10 to +50°C (14 to 122°F) 5 to 95% RH (Non condensing) Ambient atmosphere

Free from corrosive and flammable gas and dust.

Free from external noise, vibration, shock, and exposure to direct sunlight.

External Dimensions Unit: mm





Waterproof/dustproof is not available for close horizontal mounting.

Model and Suffix Code

NIa	Charifications	Model and Suffix Code	_	_	_	-		-	_	_	art code
INO.	Specifications	PG500	\mathbb{O}	② □,	<u>③</u> ⊦∏.	<u>(4)</u> -□-	<u>⑤</u> -□	<u>⑥</u> □-	<u>⑦ (</u> -□	<u>® (</u> 9	9 (1)
1	Input type	Standard type Intrinsic safety type Standard type (Lose Nut: 0.0 to 0.5MPa,Fixed Nut: 0 to 5MPa) Intrinsic safety type (Lose Nut: 0.0 to 0.5MPa,Fixed Nut: 0 to 5MPa) For 3.33mV/V output type	A B C D		_	_	_				
2	Power supply	100 to 240V AC 24V AC/DC		4							
3	Alarm	Not supplied Number of alarm output (Specify 1 to 4)			Z 🗌						
4	Analog output	Not supplied See Analog Output Signal Code Table, Code : 1 to 8)				N					
5	Communication	Not supplied RS-422A RS-485					N 4 5				
6	Initial setting	No quick start code (Default setting) Specify quick start code				•		N 1			
7	Alarm 1	See Alarm Code Table									
<u>8</u> 9	Alarm 2 Alarm 3	See Alarm Code Table See Alarm Code Table								<u> </u>	7
10	Alarm 4	See Alarm Code Table									

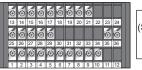
ble

An	Analog Output Signal Code Ta							
1	0 - 10mV DC	7	0 - 20mA DC					
2	0 - 100mV DC	8	4 - 20mA DC					
3	0 - 1V DC							
4	0 - 5V DC							
5	0 - 10V DC							
6	1 - 5V DC							

Alarm Code Table

	O / II allilli O C a O T a D l C						
N	No alarm						
Н	Process High						
J	Process Low						
K	Process High with Alarm Hold						
L	Process Low with Alarm Hold						

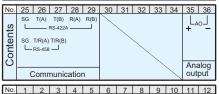
Rear Terminals



Terminal cover Sold separately) Model Code: KFB400-58

Use a solderless terminal for screw size M3X6.

No.	13	14	15	16	17	18	19	20	21	22	23	24
Contents	COM -DI1- DI2 DI3-				SHD	_ ((Blue)			\	
Digital input						Sens	or in	put				
No.	25	26	27	28	29	30	31	32	33	34	35	36



No.	1	2	3	4	5	6	7	8	9	10	11	12
Contents	24' +	40V AC V AC V DC		ALM2 NO	elay c	COM AL N	ALM4 NO	ut		 CAL-		\
	Pow	er olv		Alarm output						ration It		\







Specifications

Input

Input type Input range RKC's resin pressure sensor CZ-200P (CZ-100P) a)Standard type: 0 to 19.99mV

b)Safe explosion proof type: 0 to 11.6mV
• Excepting zero point adjustment range

More than $1M\Omega$

Input impedance Input break action : Up scale(The sensor power supply break is the same)

Sensor Power Supply

Applied voltage

: a) Standard type : 10V DC b) Safe explosion proof type : 8.2V DC : +0.1 to -0.4%

Accuracy : Less than 30ppm/°C Temperature drift

Zero point

Adjustment range

: a) Standard type : ±7mV (Input conversion) b) Safe explosion proof type : ±6mV (Input conversion)

Temperature drift : ±0.02%/°C of span

Gain

: a) Standard type : 10.00 to 19.99mV can be used as rating (10V etc.) Setting range

b) Safe explosion proof type : 5.08 to 11.60mV can be used

as rating (10V etc.)

: ±0.2%/°C of span : Less than ±100ppm/°C Setting accuracy

Temperature drift

Optional function Gain selector switch (Selection 1x/2x)

Output

Output signal 0 to 10V DC (Load resistance : More than 2kΩ)

0 to 10mV DC (Load resistance : More than 10k Ω) 1 to 5V DC (Load resistance : More than 1k Ω) 4 to 20mA DC (Load resistance : Less than 600Q)

Monitor voltage : 0 to 10V DC (Pin size of tester confirming: 2.0)

General Specifications

Linearity : ±0.01% of span

0.1%p-p of span (0.1 to 10Hz) 10Hz/100Hz selectable (Factory shipment : 10Hz) Response Power supply : 90 to 264V AC (Including supply voltage variation)
[Rating : 100 to 240V AC] (50/60Hz common use)
Power consumption : 100 to 240V AC : Less than 7.5VA (at 100V)

Less than 12.5VA (at 240V)

Insulation resistance : More than $100M\Omega$ (500V DC) between input/output terminals and power terminals

More than 100M Ω (500V DC) between input/output terminals and ground More than 100M Ω (500V DC) between power terminals and ground

Dielectric voltage 2300V AC for one minute between input/output terminals and power terminals 2300V AC for one minute between input/output terminals and ground

2300V AC for one minute between power terminals and ground

: Approx 290g Weight

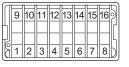
Operating Environments

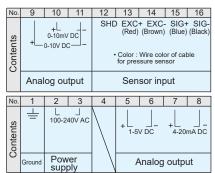
Ambient temperature: 0 to +50°C (32 to 122°F)
Ambient humidity : 45 to 85% RH (Non condensing)

Ambient atmosphere: Free from corrosive and flammable gas and dust.
Free from external noise, vibration, shock, and exposure

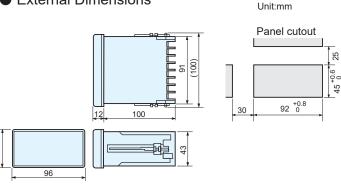
to direct sunlight.

Rear Terminals





External Dimensions



Model Code

Woder Code						
Cunnifications	Model and Suffix Code					
Specifications	PCT-300	- 🗆				
T	Standard type N					
Туре	Intrinsically safe explosion proof construction pass type					
Number of	2 outputs (0 to 10V DC, 0 to 100mV DC)	2				
output	3 outputs (0 to 10V DC, 0 to 100mV DC, 1 to 5V DC)	3				
ουιραι	4 outputs (0 to 10V DC, 0 to 100mV DC, 1 to 5V DC, 4 to 20mA DC)	4				
	Not supplied		N			
Option	Gain change switch (x1 or x2)		G			
+ p	Linearization function		L			

84

Power supply voltage 100 to 240V DC





High-resolution inputs with a sampling cycle of 0.025 seconds and PID constants that can be set in increments of 0.01 seconds enable this controller to control process quantities that change rapidly. A strain gauge type pressure sensor can be directly connected.



Intrinsically Safe Explosion proof Construction Resin Pressure Meter (For Indoor, outdoor)

The qualification No. of the intrinsically safe explosion proof construction resin pressure meter obtained from the ministry of Labor, Japan, is T55821 (For indoor use) T56658 (For outdoor use). The explosion class and ignition group of the objective gases and steam are i2G3. The qualified consists of the pressure sensor CZ-100P and safety barrier (RZB-001), but the output converter is not subject to qualification testing as a general sending/receiving instrument For indoor use, the standard connector or the waterproof connector can be selected. For outdoor use, the waterproof connector must be used.

Sensor Specifications

Construction

: 4 sides adhered strain gauge type wheatstone bridge : Fixed Nut type 20MPa, 35MPa, 50MPa, 70MPa, 100MPa Rated Pressure

5MPa, 10MPa Loose Nut type (LL type)

Loose Nut type (HL type) 20MPa, 35MPa, 50MPa, 70MPa, 100MPa

Loose Nut type (LLA type) 0.5MPa, 1MPa

Rated Output : 1.0 to 1.8mV/V [At 150°C of diaphragm temperature]

(LLA type 1MPa: 1.0 to 1.6mV/V, LLA type 0.5MPa: 0.5 to 0.8mV/V : 10V DC (at PCT-300, CT-300), 7.7V DC (at PG500, REX-PG410)

Bridge Impressed Voltage

Accuracy

: SUS630 type (At At 150°C of diaphragm temperature) Within ±1% of full scale

Within ±2% of full scale (Over 70 MPa)

HASTELLOY C type Contact to RKC

SUS630 type (At At 150°C of diaphragm temperature) Linearity

Within ±1% of full scale

Within ±2% of full scale (Over 70 MPa)

HASTELLOY C type Contact to RKC

Hysteresis SUS630 type

Within ±0.5% of full scale

Within ±1% of full scale (Over 50 MPa) Within ±2% of full scale (Over 70 MPa) Within ±0.2% of full scale (1MPa type)

HASTELLOY C type Contact to RKC

Reproducibility : Within ±0.2% of span

• More than 480°C of 10,20MPa :Within ±2% of full scale

Zero Balance ±0.6mV/V (Within ±40% of span Bridge Resistance : 374Ω±5Ω (Input resistance). $350\Omega \pm 5\Omega$ (Output resistance)

Temperature characteristics

Maximum Temperature of the Diaphragm Maximum Temperature of the Strain Gauge: 150°C

: SUS630 type ±0.2%/10°C Zero Point Temperature Effect

±0.4%/10°C (0.5MPa) HASTELLOY C type : Contact to RKC

* When the temperature at the bottom of outer tube (nut side) is more than 134°C, the temperature at the strain gauge exceed 150°C. If the temperature at the strain gauge exceed 150°C, the performance cannot be assured. Therefore, cover the heat source with a heat insulating material so that the above temperature does not exceed 150°C.

The temperature at the strain gauge can be expected not to rise when:

the long type of sensor is used or

the sensor is installed a slant or transversely.

If any of the above measures can be taken, take it

Mechanical characteristics

Allowable Overload : Within 120% of span

(Within 500% of 1MPa type, Within 1000% of 0.5MPa type)

Marginal Overload : Within 150% of span

(Within 1000% of 1MPa type, Within 2000% of 0.5MPa type

: Fixed nut type: 30 N·m (300 kgf·cm) Recommended tightening torque

Loose nut type: 60 N·m (600 kg·cm)

Safety Barrier Specifications

Explosion proof construction Use rated

: Intrinsically safe explosion proof construction (i2G3)

Power supply circuit 9V 50mA, Signal circuit 6V 50mA, Thermocouple circuit 6V 50mA 250V AC,50/60Hz,250V DC: Wiring between the resin Rating for maintaining safety pressure sensor and safety

Allowable inductance

pressure sensor and safety barrier: 0.6 mH or less Wiring between the resin pressure sensor and safety barrier: 0.1µF or less -10 to +40°C (14 to 104°F) 45 to 85% RH (Non condensing) Iron (Coating)
Brass (Nickel plating) Allowable capacitance Ambient temperature Ambient humidity

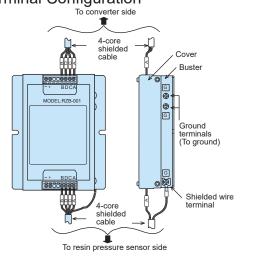
Cover

Weight

Bus bar Ground requirement

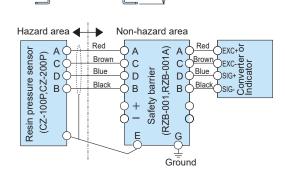
. סופא (אונהאו piating): Ground this safety barrier so that its grounding resistance will be less than the grounding reference resistance value of shunt diode type safety barriers (e.g. less than 1Ω) conforming to each national standard. (Requirements): Approx. 850g

Terminal Configuration



External **Dimensions** 86.5 Unit-mm 0 MODEL:RZB-001 99 0 137 39. 0 103 27 8888888 9

External Wiring



Model Code

Specification	Model Code
Intrinsic Safety (For indoor)	RZB-001A1
Intrinsic Safety (For outdoor)	RZB-001A2

	Model Code	
Connection cable	Intrinsically safe circuit side (Hazard area) CZ-100P RZB-001 (5m)	W-AB-YG-PB-5000
Connection cable	Non-intrinsically safe circuit side (Non hazard area) RZB-001 SAG500 (1m) or PCT-300(1m)	W-AB-NV-BA-1000

This product has passed the qualification test of intrinsically safe explosion proof when combined with our resin pressure sensor (CZ-100P/CZ-200P) Always combine and use this product with our resin pressure sensor.

Model and Suffix Code

0	Model and Suffix Code							
Specifications	CZ-100P -							
Screw type	Loose nut type (0 to 5, 0 to 10MPa) PF3/4 Tip diameter : 18mm, Under nut : L=146mm, L2=6mm	HB HC HZ HZ HL HLZ LL LL						
Diaphragm material	PF3/4 Tip diameter : 18mm, Under nut : L=146mm, L2=6mm SUS630 (Standard) Hastelloy C	S H						
Diaphragm surface treatment	Standard Ceramic kanigen plating	١	(
Intrinsically safe	Non-intrinsic safety (Standard) Intrinsic safety (For indoor use) Intrinsic safety (For outdoor use)	•	No symbol G H					

^{*1} Please specify Drawing No.YICZ100P24

Pressure Range Code Table

	. roodaro ranigo odao rabio								
Specifications	Range								
Fixed nut type	0 to 20MPa, 0 to 35MPa, 0 to 50MPa, 0 to 70MPa, 0 to 100MPa								
Loose nut type	CZ-100P-HL 0 to 20MPa, 0 to 35MPa, 0 to 50MPa, 0 to 70MPa, 0 to 100MPa CZ-100P-LL 0 to 5MPa, 0 to 10MPa CZ-100P-LLA 0 to 1MPa								

Cable

· For cables with specifications other than those below please Please contact RKC agent

	1 of dable that opening and a fact than those below, please i least three agent.							
Standard Type	CZ-100P PG500 (Length : 5m) : Y-shaped terminal lugs (M3)	Heat-resistant glass coated cable	W-AB-NG -PA-5000					
	PCT-300 (Length : 5m) : Y-shaped terminal lugs (M3)	Silicon coated cable	W-AB-NS -PA-5000					
	CZ-100P ← CT-300 (Length : 5m) : Plug	Heat-resistant glass coated cable	W-AB-NG -PP-5000					
		Silicon coated cable	W-AB-NS -PP-5000					

The letter in the ☐ indicates the cable coating type. Select from the three types below. G: Heat-resistant glass coated cable, V: Vinyl coated cable, S :Silicon coated cable



- 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

Caution for the	export trade
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All transactions must comply with laws, regulations, and treaties.

Caution for imitated products

As products imitating our product now appear on the market, be careful that you don't purchase these imitated products. We will not warrant such products nor bear the responsibility for any damage and/or accident caused by their use



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FAX: 03-3751-8585 (+81 3 3751 8585)

https://www.rkcinst.com/

[·] Please specify pressure range.