

PC20·25 Programable Pressure Controller



OUTLINE

Rapid Stable Control of Precise Pressures.
This support equipment performs automatic labor-saving control of diverse inspection equipment developed using pressure control technologies. Through automatic control of pressure generation and increasing/decreasing speed, the equipment enables a test process independently of the skill level of test operators, improving the test accuracy and remarkably reducing the test time (tact time).

Automated and labor-saved test equipment for various DUTs

- Testing on instruments and converters
 - * Regulating valve, I/P positioner
 - * Pressure measurement and conversion instruments
- Testing and calibration on medical instrumentation
 - * Sphygmomanometer
 - * Inhaler, gas insufflator
- Testing on pressure vessels and safety parts
 - * Automobile parts
 - * Gas treatment equipment
 - * Pneumatic devices

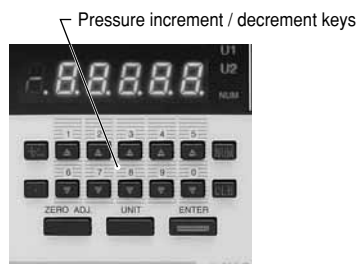
Dual LED Indicators and Offset Bar Chart Display

- Two large LED indicators improve legibility and operability.
- * The large output pressure LED indicator (red) and pressure setup LED indicator (green) allow grasp of the pressure setting and status at a glance.
 - * Operability in manual pressure regulation has been improved, allowing efficient data sampling application.
 - * Display scaling enables data conversion to non-Pa unit systems.



Easy Manual Setup Mode and Diverse Setup Program Memorizing Functions

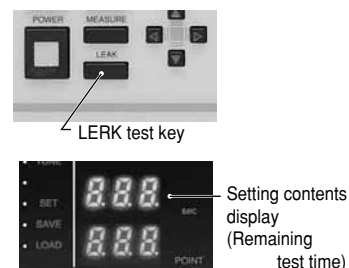
- < Manual >
- Since any desired pressure within the pressure range can be set for each digit, fine pressure regulation can easily be performed on a digit basis.



Simplified Leakage Test Function (Sealed Pressure Variation Measurement Method)

If leakage occurs in pressure-application test, the reliability of test data is lost, remarkably reducing the test efficiency. To eliminate this inefficiency, the sealed pressure measurement function is mounted to perform simplified leakage test based on pressure variation.

- Test can be performed at the touch of the LEAK button on the operation panel. No bothersome operations are required.
- Automatic Inspection with Condition Settings
- In leakage test, the output pressure indicator displays the current pressure, the pressure setup indicator displays pressure variation from the start of test, and the program setup indicator displays the remaining test time.



PC20·25 Programable Pressure Controller

Micro pressure, Low pressure (Air) / High pressure (Water)

PC20

Compressed Air (driving source)



PC25

Compressed Air (driving source)



PC28



Water



Return (drain)



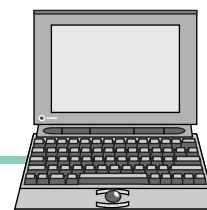
Analog output



Remote contact input



RS-232C or GP-IB communication



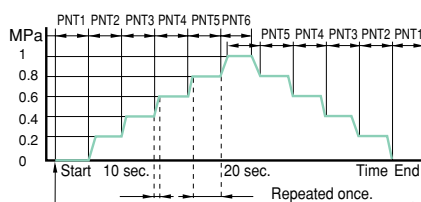
The number of the division is of 20 as a max. In addition, the program of the setting point is memorized and registered in 10 patterns.

A. Equal-division setting (setup name "divid")

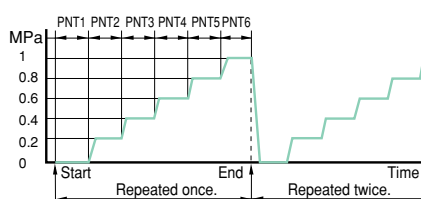
Sample program pattern

Pressure unit	MPa
Number of repetitions	3 (Max 99)
Minimum pressure	0.000
Maximum pressure	1.000
Number of divisions	5 (Max 20)
Sweep time (s)	10
Retaining time (s)	20

In addition to the necessary settings above, there is an item for selecting the repetition mode of program patterns. The operation is represented by the following two charts.



- Reverse mode (setup name "rEvrS")
When output pressure reaches the maximum point number, it is performed for decreasing point number down to the minimum one.

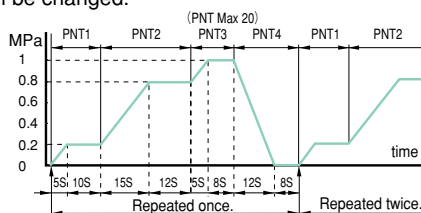


- Round mode (setup name "roUnd")
When output pressure reaches the maximum point number, it is repeated from the minimum point number.

B. User setup (setup name "FrEE")

When a user setup is used, the pressure values above and increasing and decreasing speeds can be changed.

	Pressure point			
Point number	1	2	3	4
Pressure (MPa)	0.2	0.8	1.0	0.0
Sweep time (s)	5	15	5	12
Step time (s)	10	12	8	8
Repeat time	3 (Max 99)			



It is possible to select reverse mode and round mode in the case of equal-division setting.

(Max. 10 pattern is available in A or B.)

PC20 For Air Pressure



This equipment performs automatic pressure regulation ranging from micro pressure ($\pm 1\text{kPa}$) to intermediate pressure (1MPa). When the positive continuous range is selected, it enables automatic continuous pressure control ranging from negative pressure to positive pressure.

PC25 For Water Pressure



This photo shows example of combination PC25 and pressure source unit (PC28).

For safety, this equipment applies to high pressure by using environmentally friendly water medium (deionized water) instead of gases. Outline dimension is the same as one of the PC20.

Pressure range (For Air Pressure)

Range			Minimum set resolution		Accuracy	
Positive only	Positive Continuous		Positive only	Positive Continuous	0.2%	0.1%*
0~1	± 1	kPa	0.0001	0.0001	○	
0~2	± 2	kPa	0.0001	0.001	○	
0~5	± 5	kPa	0.001	0.001	○	○
0~10	± 10	kPa	0.001	0.001	○	○
0~20	± 20	kPa	0.001	0.01	○	○
0~50	± 50	kPa	0.01	0.01	○	○
—	-0.1~0.1	MPa	—	0.0001	○	○
0~0.2	-0.1~0.2	MPa	0.0001	0.0001	○	○
0~0.5	-0.1~0.5	MPa	0.0001	0.0001	○	○
0~1	—	MPa	0.0001	—	○	○

In continuous range, controllable minimum pressure is -0.08MPa on negative side.

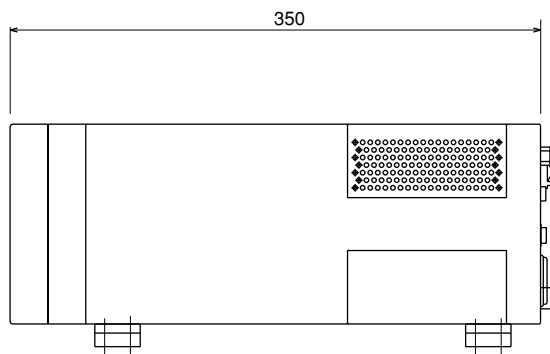
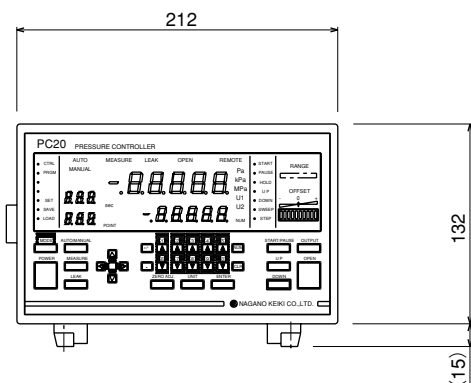
* When a precision of 0.1% is selected, the precision of negative pressure in the positive continuous range becomes $\pm 0.2\%$.

Pressure range (For Water Pressure)

Range			Minimum set resolution	Accuracy	
Range	Controllable			0.2%	0.1%
0~2	0.5~2	MPa	0.0001	○	○
0~5	0.5~5	MPa	0.001	○	○
0~10	0.5~10	MPa	0.001	○	○
0~20	0.5~15	MPa	0.001	○	○

In continuous range, controllable maximum pressure is 15MPa on 20MPa range side.

DIMENSIONS



*The PC25 is the same as the PC20.

PC20·25 Programable Pressure Controller

SPECIFICATIONS 1

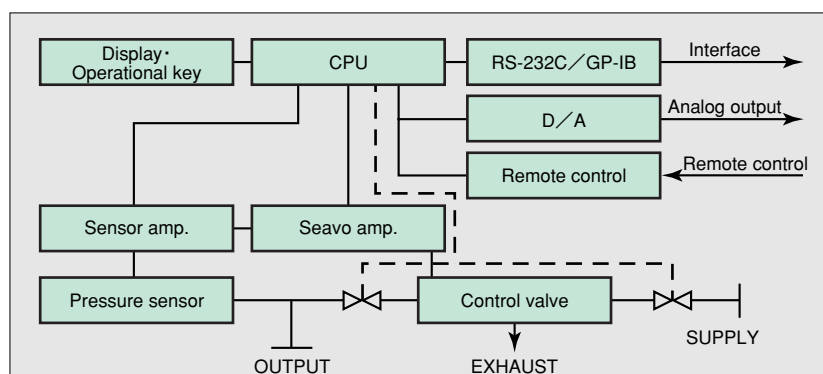
PC20 Pressure Controller (For Air Pressure)

Accuracy (23±3°C)		±0.2%F.S. (Standard) ±0.1%F.S. (Depending on pressure range. Except with negative pressure.)	Error display	[ErrXX] Code display overpressure input, equipment damage, setting error	
Stability		Within ±0.05%F.S.	Warm-up period Approx	5 minutes or over (Recommendation 30 mins.)	
Response time		Within 3 sec. From the start to change up to ±0.2%F.S. (With no load) From any pressure value up to ±25%F.S. (With a step)	Fluid	Dry and clean air only Nitrogen gas also usable. However, care is required when handling exhaust nitrogen gas.	
Temperature coefficient	Zero	±0.01%F.S./°C (±0.1%F.S. spec.) ±0.02%F.S./°C (±0.2%F.S. spec.)	Supply pressure (1.2MPa max.)	20kPa or less	0.05MPa or over
	Span	±0.01%F.S./°C (±0.1%F.S. spec.) ±0.02%F.S./°C (±0.2%F.S. spec.)		50kPa or less	Pressure range plus 0.1MPa or over
Continuous range				0.5MPa or over (0.1MPa or over for continuous range of ±5kPa or less)	
Influence of inclination (zero)		Within ±0.1%F.S./°C in all directions (Pressure range 50kPa or less and ±50kPa or less) Within ±0.01%F.S./°C in all directions (Pressure range ±0.1MPa or over)	Pressure connecting port	Rc1/4 exhaust port: Rc1/4	
Functions	Pressure unit	Pa, kPa, MPa, U1 (Scaling 1) U2 (Scaling 2)	Fluid consumption	approx. 30 l/min or less (20°C converted flow at 1MPa pressure range)	
	Points	1 to 20 divisions between upper and lower limits or any 21 points in a pressure range	Analog output	1 to 5V DC/F.S. (Accuracy: Pressure generation accuracy ±0.05%F.S.)	
	Sweep time	1 to 600 sec. with 1 sec. step	Interface	RS-232-C (Dsub9 pin) 9600/19200/38400bps synchronous Optional GP-IB (IEEE488 compliance)	
	Step time	1 to 600 sec. with 1 sec. step	Remote control terminal	UP/DOWN/OPEN operation Dead-front contact input (terminal block M3)	
	Repeat times	1 to 99 or infinite	Operating, storage position	In both cases, horizontal only	
Allowed No. of programs	10 numbers		Operating, storage temperature, humidity	5 to 40°C, 20 to 80%RH or less (But should no be frozen)	
Operation mode	Programmable auto sweep A movement along the establishment program pattern		Storage temperature	-10 to 50°C	
	Programmable manual sweep The operation by hand of the establishment program		Calibration interval	Six months	
	Manual output An optional setup of pressure		Power Supply voltage	100 to 240V AC (Allowable fluctuation range 85 to 264VAC) Frequency: 47 to 63Hz	
	Pressure measurement As a digital pressure gauge		Power consumption	40VA max.	
	Simple leak test Inspection pressure/A setup of time, Pressure descent indication		Withstand voltage	1000V AC between power source and casing, 1 min.	
Display	LED Controlled pressure values (14mm of letter height)		Insulation resistance	100MΩ or over, 500V DC between power source and casing	
	Preset pressure values (10mm of letter height)		Dimension	Approx. 212(W) × 132(H) × 340(D) (With noprojection)	
	Preset item values (8mm of letter height)		Weight	Approx. 8kg	
	Operation, status, unit, and offset monitors				

Operating principle

Controls the compressed air entering from the pressure supply slot (SUPPLY) using the control valve, transfers a control command to the servo circuit based on the value of the pressure sensor, controls the output pressure to the set pressure value, then outputs it from the pressure output (OUTPUT).

The value of the pressure sensor is processed by the CPU and then displayed as the current pressure value in real time.



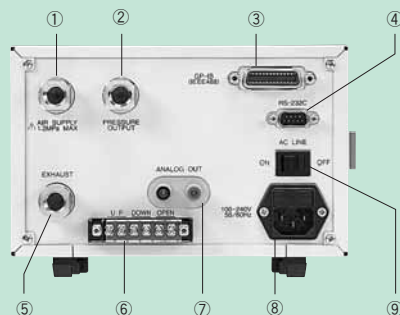
SPECIFICATIONS 2

PC25 Pressure Controller (For Water Pressure)

Accuracy (23±3°C)		±0.2%F.S. (Standard)	Error display	[ErrXX] Code display overpressure input, equipment damage, setting error
		±0.1%F.S. (High precision spec.)	Warm-up period Approx	5 minutes or over (Recommendation 30 mins.)
Stability		Within ±0.07%F.S.	Fluid	Deionized water or Distilled water
Response time		Within 10 sec. From the start to change up to ±0.2%F.S. (with no load) From any pressure value up to ±25%F.S. (with a step) In controllable range	Supply pressure (18MPa max.)	Control pressure plus 1MPa or over
Temperature coefficient	Zero	±0.01%F.S./°C (±0.1%F.S. spec.) ±0.02%F.S./°C (±0.2%F.S. spec.)	Pressure connecting port	Rc1/4 exhaust port: Rc1/4
	Span	±0.01%F.S./°C (±0.1%F.S. spec.) ±0.02%F.S./°C (±0.2%F.S. spec.)	Analog output	1 to 5V DC/F.S. (Accuracy: Pressure generation accuracy ±0.05%F.S.)
Influence of inclination (zero)		Within ±0.01%F.S./°C in all directions	Interface	RS-232-C (Dsub9 pin) 9600/19200/38400bps synchronous Optional GP-IB (IEEE488 compliance)
Functions	Pressure unit	kPa, MPa, U1 (Scaling 1) U2 (Scaling 2)	Remote control terminal	UP/DOWN/OPEN operation Dead-front contact input (Terminal block M3)
	Points	1 to 20 divisions between upper and lower limits or any 21 points in a pressure range	Operating, storage position	In both cases, horizontal only
	Sweep time	1 to 600 sec. with 1 sec. step	Operating, storage temperature, humidity	5 to 40°C, 20 to 80%RH or less (But should no be frozen)
	Step time	1 to 600 sec. with 1 sec. step	Storage temperature	-10 to 50°C, It should be drain of internal water
	Repeat times	1 to 99 or infinite	Calibration interval	Six months
Allowed No. of programs	10 numbers		Power Supply voltage	100 to 240V AC (Allowable fluctuation range 85 to 264VAC) Frequency: 47 to 63Hz
Operation mode	Programmable auto sweep A movement along the establishment program pattern		Power consumption	60VA max.
	Programmable manual sweep The operation by hand of the establishment program		Withstand voltage	1000V AC between power source and casing, 1 min.
	Manual output An optional setup of pressure within controllable		Insulation resistance	100MΩ or over, 500V DC between power source and casing
Display	LED Controlled pressure values (14mm of letter height)		Dimension	Approx. 212(W) × 132(H) × 340(D) (With noprojection)
	Preset pressure values (10mm of letter height)		Weight	Approx. 9kg
		Preset item values (8mm of letter height)		
		Operation, status, unit, and offset monitors		

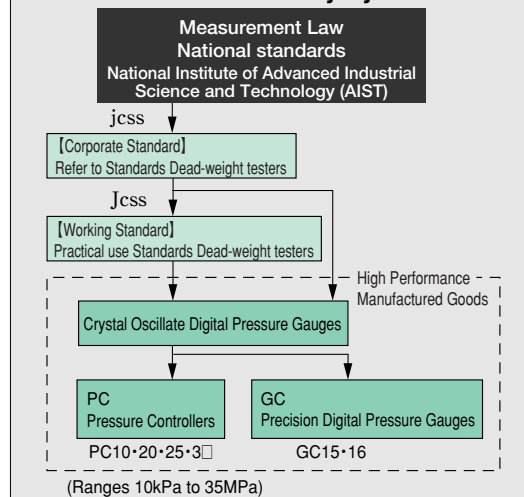
Rear panel interface block

* Photo by PC20



- ① Pressure supply
- ② Pressure output
- ③ GP-IB interface port
- ④ RS-232C interface port
- ⑤ Exhaust port
- ⑥ Remote control terminal
- ⑦ Analog output terminal
- ⑧ Power input socket
- ⑨ Main power switch

Pressure Traceability System



PC20·25 Programable Pressure Controller

製作仕様3 / SPECIFICATIONS 3

PC28 Pressure Source Unit (Option)

Supply pressure (Air)	0.7MPa max. (Compressed air)	Operating, storage temperature, humidity	5 to 40°C, 20-80%RH or less (But should no be frozen)
Output pressure	18MPa max. (Deionized water) Ratio 1:34		
Fluid	Deionized water or Distilled water (Built-in tank for 2 liters)	Storage temperature	5 to 50°C Up to 5°C, tank shall be drained.
Air consumption by output pump	Min. operation Approx. 0.040 N m ³ /min. (Supply puessure 0.55MPa) PC25: For pressure control near 0MPa Max. operation Approx. 0.096 N m ³ /min. (Supply puessure 0.55MPa) PC25: For pressure control near 8MPa	Dimension	Approx. 250(W) × 350(H) × 375(D) (with no projection)
Air consumption by drain pump	Approx. 0.080N ³ /min. Drain pump pressure -50kPa	Weight	Approx. 20kg
Pressure connecting port	Air supply Rc1/4 Pressure output Rc1/4 Exhaust Rc1/4	Accessories Instruction Mannal	1 copy
Safety system	Release valve Consumption pressure 18MPa	Option Flexible pipe	<ul style="list-style-type: none"> · 1 pipe length 2m Output and pressure supply port of PC25 connection line · Maximum operating pressure 20MPa (25°C) or less With R1/4 Joint

OPTION

Panel mount brackets (Opotional spec. for PC20,25):

Brackets for mounting the panel

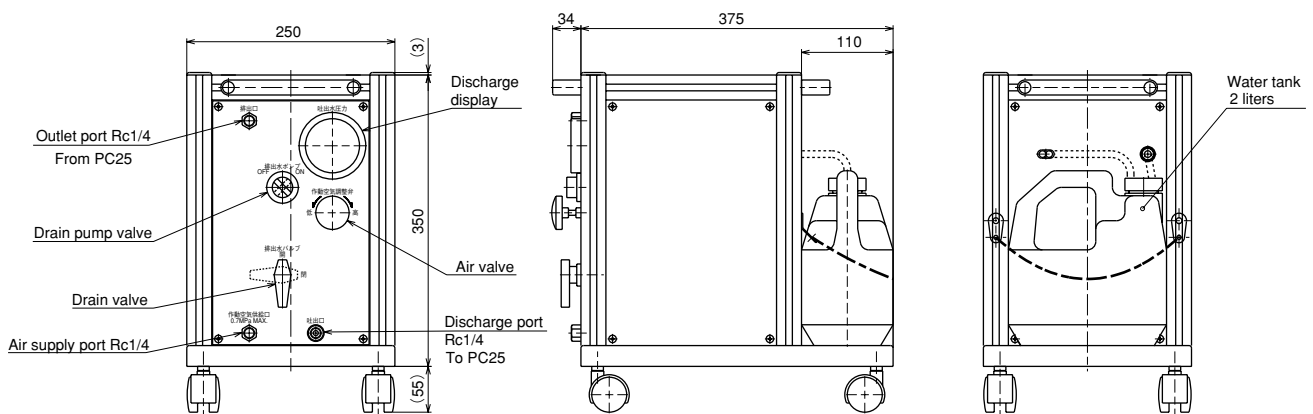
Rack mount set (Opotional spec. for PC20,25):

Fittings for rack mounting (JIS) (Including panel mount brackets)

Pressure source unit PC28 (Opotional spec. for PC25 only) :

Water pressure supply unit driven by air pressure

Pressure source unit (PC28) Dimensions



PC28 Pressure Source Unit



PC20·25 Programable Pressure Controller

Model number configuration

For ordering, please specify the model number, each specs and range.

Model name

P C 2 0

7

X X X

X X X

X X X

Programmable Pressure Controller
Air pressure type

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⑮

Model number

Selective spec.

Additional spec. (Option)

① Accuracy	1	± (0.2%F.S. + 1 digit) (Standard)
	2	± (0.1%F.S. + 1 digit) *
② Pressure connection	7	Rc1/4
③ External interface	0	RS-232C (Standard)
	1	RS-232C GP-IB (IEEE488)
④ Pressure range	1	0~1, 2, 5kPa, ±1, 2, 5kPa
	2	0~10, 20, 50kPa, ±10, 20, 50kPa
	3	0~0.2, 0.5MPa
	4	-0.1~0.1, 0.2, 0.5MPa
	5	0~1MPa
⑧ Other additional spec.	0	Nil
	2	Panel mounting bracket
	3	Rack mounting set
⑮ Documents	0	Nil
	1	Required (Please specify the desired documents separately.) Submission drawings, instruction manual, inspection procedure, test report (1 pc 1 copy), traceability certificate, inspection certificate, standard test report, attended inspection

(When ordering, please specify pressure range & unit)

* When a precision of 0.1% is selected, the precision of negative pressure in the positive continuous range becomes ±0.2%. (PC20)

Accessories

Power cable 1 piece (3 terminal)
Instruction Manual 1 copy

Specify "X" if there is no specification item.

PC20·25 Programable Pressure Controller

Model number configuration

For ordering, please specify the model number, each specs and range.

Model name

P C 2 5

①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫	⑬	⑭	⑮
	7		X	X	X		X	X	X	X	X	X		

Programmable Pressure Controller
Water pressure type

Model number

Selective spec.

Additional spec. (Option)

① Accuracy	1	± (0.2%F.S. + 1 digit) (Standard)	
	2	± (0.1%F.S. + 1 digit) (High precision spec.)	
② Pressure connection	7	Rc1/4	
③ External interface	0	RS-232C (Standard)	
	1	RS-232C GP-IB (IEEE488)	
④ Pressure range		Range	Controllable
	1	0~2MPa	0.5~2MPa
	2	0~5MPa	0.5~5MPa
	3	0~10MPa	0.5~10MPa
⑧ Other additional spec.	0	Nil	
	2	Panel mounting bracket	
	3	Rack mounting set	
⑮ Documents	0	Nil	
	1	Required (Please specify the desired documents separately.) Submission drawings, instruction manual, inspection procedure, test report (1 pc 1 copy), traceability certificate, inspection certificate, standard test report, attended inspection	

(When ordering, please specify pressure range & unit)

Accessories

Power cable 1 piece (3 terminal)
Instruction Manual 1 copy

Specify "X" if there is no specification item.

Model name

P C 2 8

①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫	⑬	⑭	⑮
	X	X	X	X	X	X		X	X	X	X	X	X	

Pressure Source Unit
for PC25 only

Model number

Selective spec.

Additional spec. (Option)

⑧ Other additional spec.	0	Nil	
	1	Flexible pipe	
⑮ ドキュメント Document	0	Nil	
	1	Required (Please specify the desired documents separately.) Submission drawings, instruction manual	

Specify "X" if there is no specification item.

The contents in the catalogue are subject to change without notice.

 **NAGANO KEIKI CO., LTD.**

Gets ISO 9001, ISO 14001, ISO/TS 16949 Certification

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