

Intelligent Pressure Controller

User's Manual

BANGKOK	
CRYSTAL	
เอกสารภายนอกในระบบคอมพิวเตอร์	
ชื่อเอกสาร INTELLIGENT PRESSURE CONTROLLER	
หมายเลขเอกสาร 00-F3-037	
ครั้งที่แก้ไข 00	วันที่บังคับใช้ 02/08/2564
ตัวแทนหน่วยงาน	Jan 6/8/64
QMR	db

IFANTIDIS Testing Equipment
for the Construction Industry

1. Description

The pressure controller is mainly designed for measuring and controlling the force applied on the specimen in the various compression testing machines. The force measured can be displayed, saved and transferred. Also, it can be used in the old-type dial testing machine for innovation.

2. Main Technical Data

2.1 Rated power supply:	~220V ± 10% 50Hz
2.2 Power consumption	≅ 30VA
2.3 Nonlinear repeatability error:	≅ ± 1%
2.4 Working temperature:	0-40°C
2.5 Overall size:	360x140x220 mm (opening size: 350x130x220 mm)
2.6 Paper size:	47 mm
2.7 Fuse:	15A

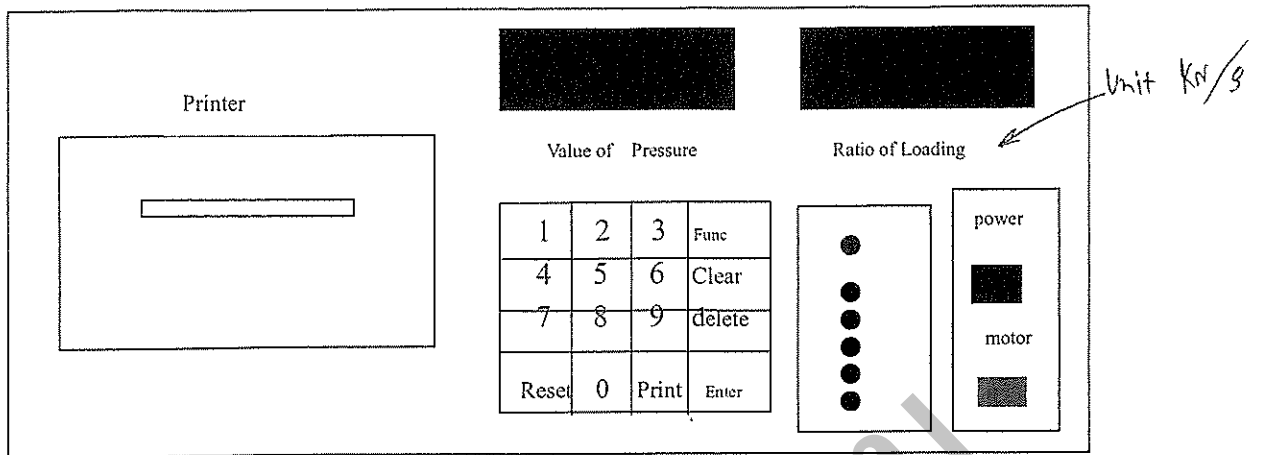
3. Features

- 3.1 Time: year, month, day, hour, minute
- 3.2 Group setting: 0001-9999
- 3.3 Codes of cross-section of specimen setting
 - 1- for 100 mm cubic compression specimen
 - 2- for 150 mm cubic compression specimen
 - 3- for 200 mm cubic compression specimen
 - 4- for non-standard compression specimen
 - 5- for 150x150x550 mm flexural specimen
 - 6- for 100x100x400 mm flexural specimen
 - 7- 40x40x160 mm flexural specimen
 - 8- for 70.7 mm cubic compression specimen

3.4 Save

The data saved will not be lost when the power supply is cut off. The max memory is 500 unit data from No. 01-9999 automatically. Also, the number can be input manually. Care must be taken that the last test data will be saved for the same number. If the saved data is over 500, the first data in the memory will be deleted

Operation Panel:



The indicating lamps (from top to bottom) Testing, Verifying, Calibrating, Information, Clock and Motor.

4. Installation and operation

4.1 Installation and wiring

The pressure controller should be assembled and fixed on the compression testing machine. The power input and output, socket of transducer etc are arranged on the rear of the controller. What the operator to do is insert the plugs into the sockets matched. The RS232C interface is used for the communication with the computer if necessary.

4.2 Setting of the clock

The time can be set as follows if necessary. Date and time format is (dd-mm-yyyy hh:mm:ss)

4.2.1 Press "**Func**" key continuously until the clock indicating lamp flashed, press "**Enter**" key for setting the data and time.

4.2.2 "**XX-XX**" will be displayed on the Force Value window and "**-20XX**" will be displayed on the Loading Rate window. Press the numbers to set the date and time.

4.2.3 After the date setting completed, the time setting is followed when "**XX-XX-**" is displayed on the Force Value window and "**XX**" is displayed on the Loading Rate window.

4.2.4 The clock indicating lamp will be off after the completion of the setting of the date and time.

4.3 Testing procedures

4.3.1 Place the specimen on the testing machine. Make the upper platen downward closing to the specimen by turning the lead screw. Care must be taken that the upper platen should not be contacted with the specimen. Turn on the testing machine to make the piston rising slowly. Press **“Clear”** key to remove the tare.

4.3.2 Press **“Func”** key until the indicating lamp test flashed and press **“Enter”** key. **“P 0 0 0 1”** **“S — — — 2”** will be displayed on the windows. Where: **“P0001”** is the number of the specimen and this number can be changed by entering the number required, and **“S---2”** is the code for the cross-section of the specimen

- 1- for 100 mm cubic compression specimen
- 2- for 150 mm cubic compression specimen (standard specimen)
- 3- for 200 mm cubic compression specimen
- 4- for non-standard compression specimen
- 5- for 150x150x550 mm flexural specimen
- 6- for 100x100x400 mm flexural specimen
- 7- 40x40x160 mm flexural specimen
- 8- for 70.7 mm cubic compression specimen

4.3.3 If **“0128”** is input, **“P0128”** will be displayed on the Force Value window. Press **“Enter”** key for cross-section of the specimen setting.

4.3.4 input the code of the specimen. e.g. if the 150 mm cubic specimen is placed on, input **“2”** and then press **“Enter”** key to start a trial test. If the non-standard specimen is placed on, input **“4”** and then press **“Enter”** key to start a trial test. **“000.0”** will be displayed on the Loading Rate window. The cross-section of the specimen can be input directly (unit: cm²). If the cross-section of the specimen is 123.5 cm², input **“1235”** and then press **“Enter”** key to start a trial test.

4.3.5 First, place on the specimen, and then turn off the oil returning valve and turn on the oil feeding valve to apply on the specimen in a fixed rate based on the testing regulations until the specimen is crashed. Turn off the oil feeding valve and turn on the oil returning valve at the same time to relief the load. Press **“0”** to delete the data tested if the data is not correct.

4.3.6 Place the second specimen on the testing machine after the Force Value window is zeroed. Repeat the procedures 4.3.5 above.

4.3.7 The test result will be printed automatically when a group of test specimens is completed. If necessary, press **“Print”** key to print the test result when one or two piece of specimens of the group is tested. Care must be taken that if

the code “7” or “8” is input, only the six pieces of the specimens are tested completely can the test result be printed out.

4.3.8 The number will be added automatically when a group of specimens is tested completely. Repeat the procedures 4.3.5 for the next test if the same kind of specimen will be test. Press “Reset” key and repeat the procedures from 4.3.1 to input the new code if the different specimen will be tested.

5. Data Searching

5.1 Press “Func” key until the indicating lamp “Information” flashed and press “Enter” key.

5.2 “P0000” and “S---2” will be displayed on the windows.

5.3 Input the 4-digit and the code, and press “Enter” key for searching

5.4 “E-01” will be displayed if the data can't be traced. 4-digit will be displayed on the Force Value window and the force value will be displayed on the Loading Rate window if the data is traced.

5.5 Press “Print” key to print the traced test result if necessary.

6. Operation of the Printer

(please refer to the user's manual of the printer)

Verification and Calibration

The testing machine must be verified every year by the authorized department. The pressure controller must be verified and calibrated by the qualified persons, otherwise the data will be in disorder or lost.

1. Verification

Verify the controller with a third-grade proving ring after the machine is turned on for about 3 minutes. Generally, 5 set loads (10%, 20%, 40%, 60% and 100%) of the full range will be verified.

- 1.1 Place the proving ring on the testing machine and apply the load to the rated value for three times, and then relief it.
- 1.2 Press “Func” key until the indicating lamp “Verifing” flashed, press “Enter” key to start verification. “d0000” (set load for verification) will be displayed on the Force Value window and “XXXXX” (actual force value) will be displayed on Loading Rate window.
- 1.3 Verify the zero set load. Make the piston rise slowly, press “Clear” key to remove the tare when the proving ring is close to the upper platen. Press “Enter” key for the next verification.
- 1.4 The second set load will be displayed on the Force Value window and the actual force value will be shown on the Loading Rate window. Press “Enter” key when the value in the proving ring is the same with the standard value.
- 1.5 Repeat the procedures above for the next set loads verification.
- 1.6 Print the verification report after the verification is completed.
Sample report:

standard	verified
01) 0	0.00
02) 200	199.80
03) 400	399.51
04) 800	700.02
05) 1200	1199.3
06) 2000	1998.9
06-03-24 13:25	
Checked by: 01	
Verified by:02	

If the data verified is in conformity with the requirements, the pressure controller is passed, otherwise, it is necessary to calibrate the controller.

2. Calibration

It is necessary to calibrate the testing machine if the verification is not passed after the machine is used for a period of time.

2.1 Set the load of calibration

The loads for calibration is set in the factory before delivery. 5 set loads (10%, 20%, 40%, 60% and 100%) of the full range will be calibrated. For 2000 kN compression testing machine, the set loads will be 200kN, 400kN, 800kN, 1200kN and 2000kN. Follow the procedures below to change the set load of calibration, if necessary.

- 2.1.1 press "**Func**" key until the indicating lamp "**Calibrating**" flashed, press "**Enter**" key to start calibration. "**b-----**" will be displayed.
 - 2.1.2 Input code "**66367128**" and press "Enter" key to start calibration (take 2000 kN compression testing machine as the example)
 - 2.1.3 "**b----1**" will be displayed on the Force Value window and "**0000**" will be shown on the Loading Rate window. If the first set load is 200 kN, input "**200**" and press "**Enter**" key for the next set load.
 - 2.1.4 "**b----2**" will be displayed on the Force Value window and repeat the procedure 2.1.3 for next set load.
 - 2.1.5 The last set load is the overload and generically 103% load of the full range will be input (in b----6).
- ### 2.2 Calibration of the set load

- 2.2.1 Place the proving ring on the testing machine and apply the load to the rated value for three times, and then relief it.
- 2.2.2 Press "**Func**" key until the indicating lamp "**Calibrating**" flashed, press "**Enter**" key to start calibration. "**b-----**" will be displayed.
- 2.2.3 Input code "**66253681**" and press "**Enter**" key to start calibration.
- 2.2.4 "**0000**" will be shown on the Force Value window and "**XXX.XX**" will be displayed on the Loading Rate window.
- 2.2.5 Calibrate the zero set load. Make the piston rise slowly, press "**Clear**" key to remove the tare when the proving ring is close to the upper platen. Press "**Enter**" key for the next calibration.
- 2.2.6 The second set load will be displayed on the Force Value window and the actual force value will be shown on the Loading Rate window. Press "**Enter**" key when the value in the proving ring is the same with the standard value.
- 2.2.7 Repeat the procedures above for the next set loads calibration After the calibration is completed, verify the testing machine to see if it is in conformity with the requirement otherwise, re-calibrate it.

Appendix I Troubleshooting

Trouble	Cause	Elimination	Remark
No display on the windows when the power supply is on	Fuse damaged	Check and replace the 4 fuses in the rear of the panel	If the fuses are ok, check if the input is normal.
The contactor is actuated but the motor does not run when the motor button is pressed on the panel	No power supply to the motor	Check the wire connection of the motor and the socket	Check with the Qualified electrician
No character is printed out but the printer works normally	The ink ribbon is dried	Replace the ink ribbon according to the printer manual	
"E---2 is shown on the Loading Rate window	Transducer damaged. Overload of the compression testing machine. Transducer is not in good contact	Relief the compression testing machine. Re-connect the transducer	
It can't be reached to the full range load when calibration	Zero shift of the transducer	See Self-check of the transducer	Contact with The manufacturer

Self-check of the transducer

1. press "**Func**" key until the indicating lamp "**Calibrating**" flashed and then press "**Enter**" key.
2. "**b-----**" will be displayed. Input code "**66253681**" and press "**Enter**" Key
3. "**0000**" will be shown on the Force Value window and "**XXX.XX**" will be displayed on the Loading Rate window. The maximum value 800 and minimum value minus 500 will be displayed on the Loading Rate window with the last number is changing.
4. place a specimen on the testing machine and start loading. The number is increasing in the Loading Rate window.,
5. the transducer must be damaged if the result of self-check above is different.