

DIGITAL TEMPERATURE CONTROLLER

(New MICRO-Z)

DATA SHEET

PYK

The New MICRO-Z is an economical general-use digital temperature controller incorporating a microprocessor in a compact housing of 96mm square. Despite being a multifunction instrument, it has been designed for easy handling with an easy-to-see display, easy-to-operate keys plus an auto tuning function. Besides, it is standard-equipped with a number of input function including thermocouple, various control actions, high/low limit alarms, etc. A single controller is thus applicable to a wide range of temperature control.

FEATURES

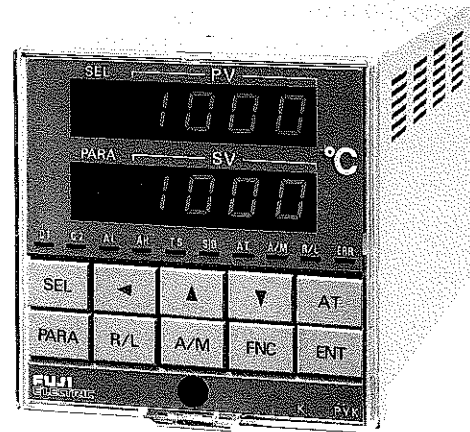
1. A single controller with its multiple functions is applicable to various kinds of temperature control.
 - Input selection from among 7 kinds of thermocouples, resistance bulb and voltage (1 to 5V DC) is done by changing internal pins and by key operation.
 - Either 2-position or PID usable for proportional action is settable for the control action. High/low limit alarms are standard-equipped.
2. PID constants are settable just by pressing the auto tuning key.
3. Both setting accuracy and indication accuracy are a high 0.3%.
4. Data transmission is available at option by connecting a T link of MICREX-F.
5. A power supply of either 100/110V or 200/220V AC is usable.
6. A 2-setting dual output type instrument is possible.

SPECIFICATIONS

Indication accuracy:

Input signal	Input range	Accuracy
Thermo-couple	J	0 to 500°C ±(1.5°C+1 digit)
	K	0 to 400°C ±(1.2°C+1 digit)
		401 to 800°C ±(2.4°C+1 digit)
		801 to 1200°C ±(3.6°C+1 digit)
	T	0 to 400°C ±(1.2°C+1 digit)
	R, S	0 to 400°C ±(10°C+1 digit)
401 to 1600°C ±(4.8°C+1 digit)		
B	800 to 1800°C ±(5.4°C+1 digit)	
Resistance bulb	JPt·Pt100	-100 to 100°C ±(0.6°C+1 digit)
		-101 to 400°C ±(1.2°C+1 digit)
DC voltage DC current	0 to 40mV 1 to 5V 4 to 20mA	0 to 1000 or specified input range ±(0.3% of input range+1 digit) or ±2, whichever larger

- Note 1: Accuracy not guaranteed outside the input ranges given above.
 Note 2: The accuracies given above apply under the following standard conditions.
- Ambient temperature: 23±2°C
 - Power supply voltage: 100±1V



Input, setting, indicating ranges

Kind of input	Input range (Note 1)	Setting range	PV indication range
Thermo-couple	J	-100 to 2000°C • Specification possible within above range • Indication resolution: 1°C	Indication corresponding to input voltage of about -10 to 50mV (indication resolution: 1°C)
	K		
	E		
	T		
	R		
	B		
	S		
Resistance bulb	JPt·Pt 100	-100 to 400°C	Indication corresponding to input resistance of about 40 to 300Ω (indication resolution: 1°C)
DC voltage, DC current	1 to 5V 4 to 20mA	Input full scale 0 to 1000 -100 to 2000 • Specification possible within range of -999 to 9999 for both input full scale and setting range • Decimal point position specifiable up to 3 digits leftward • Scale has linear characteristic	Indication corresponding to input voltage of about 0.5 to 6V and input current of about 2 to 24mA

Note 1: This is the accuracy-guaranteed input range.

Input resistance and allowable signal source resistance:

Input signal	Input resistance	Allowable signal source resistance
Thermocouple	500kΩ or more	100Ω or less
Resistance bulb	—	10Ω or less per wire
1 to 5V	500kΩ or more	—
0 to 40mV	500kΩ or more	100Ω or less
4 to 20mA	250Ω	—

Setting accuracy: Same as indication accuracy (set value and indicated value are the same, without relative error versus indicated value)

Setting method: Function and shift keys

Indication method:

Measured value (PV) and set value (SV);
PV and SV indicated separately on
4-digit 7-segment LED's

PV select and SV parameter; PV and SV
indicated separately on 1-digit 7-seg-
ment LED's

Sampling cycle: 0.5 sec

Control action: 1-setting type; high limit (reverse action)
or low limit (normal action) PID control
2-setting type; high limit (reverse action)
PID control (main setting) + high or low
limit proportional action (sub-setting)
Proportional band; 0 to 9999°C (2-posi-
tion control at 0°C setting), ON-OFF
control gap for 2-position control 0 to
999.9°C

Reset time; 0 to 3600 sec (no integration
at 0 sec setting)

Rate time; 0 to 3600 sec (no differentia-
tion at 0 sec setting)

Proportional cycle; 1 to 255 sec

Auto tuning function equipped

Output signal:

Contact output
Output contact; PDT contact
Contact capacity; 220V AC, 3A or less
(resistive load)

Current output
Output current; 4 to 20mA DC
(10 bits)

Load resistance; 0 to 600Ω

SSR drive output
Output voltage; 15 to 25V when ON,
0.5V or less when OFF
Load resistance; 1000 to 1600Ω

Dual output
Contact output × 2 and current output
× 1
PID auto tuning impossible

Alarms:

1-setting type; high/low limit deviation, in-
dividual setting, individual alarms (with
low limit hold circuit)

2-setting type; high/low limit deviation, in-
dividual setting, common alarms (with
low limit hold circuit)

Setting range; -999 to 9999°C

Setting accuracy; same as control setting

Output contact; excited ON alarm

Contact capacity; 220V AC, 3A

Remote/local setting function:

Standard-equipped (function inhibited as
a standard)

Remote setting; transmission setting (T
link of MICREX-F) or analog setting 1 to
5V DC (at 0 to 1000°C as a standard)

Manual operating function:

Standard-equipped (function inhibited as
a standard)

Auto/manual soft manual

Measured value or set point transmitting function:

Standard-equipped (function inhibited as
a standard)

Not equipped with current output

Output; 4 to 20mA DC with 0 to 1000°C
scale

Load resistance; 0 to 600Ω

Input/output isolation; none

Transmitting function (option):

Connection with T link of MICREX-F

No. of units connectable with T link; 25

Transmission capacity; PV, SV to host
setting of SV from host

Transmission data; 0 to 10000 (standard
at 0 to 1000°C)

RAS functions: With watchdog timer

Countermeasure for power failure:

Momentary interruption lasting longer
than 20ms is considered a power failure.

Automatic start after power recovery.

Nonvolatile memory used for memory
protection.

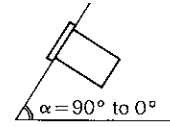
CODE SYMBOLS

1 2 3 4 5 6 7 8 9 10 11		Description	
P	Y	K	Input signal
D			J thermocouple
E			K "
F			E "
G			T "
H			R "
J			B "
K			S "
M			Resistance bulb (JPt100)
W			Resistance bulb (Pt100)
A			1 to 5V DC
B			0 to 40mV DC
C			4 to 20mA DC
} Scale 0 to 1000			
Control action and output signal			
1-setting type			
Y	S		High limit PID contact output and reverse action PID current output
R	Y		Low limit PID contact output and normal action PID current output
Y	U		High limit PID contact output and SSR drive output
W	Y		Dual output PID control Heating; contact output and current output Cooling; contact output
2-setting type			
S	C		High limit PID contact output and reverse action PID current output (main setting) + high limit propor- tional control (sub-setting)
S	D		High limit PID contact output and reverse action PID current output (main setting) + low limit propor- tional control (sub-setting)
Power supply			
1			100/110/200/220V AC 50/60Hz
Alarm device			
K			High/low limit individual setting, individ- ual alarms (1-setting type)
M			High/low limit individual setting, common alarms (2-setting, dual output type)
Transmitting function (connection with T link of MICREX-F)			
Y			None
T			Provided (possible on only main setting side with 2-setting type)

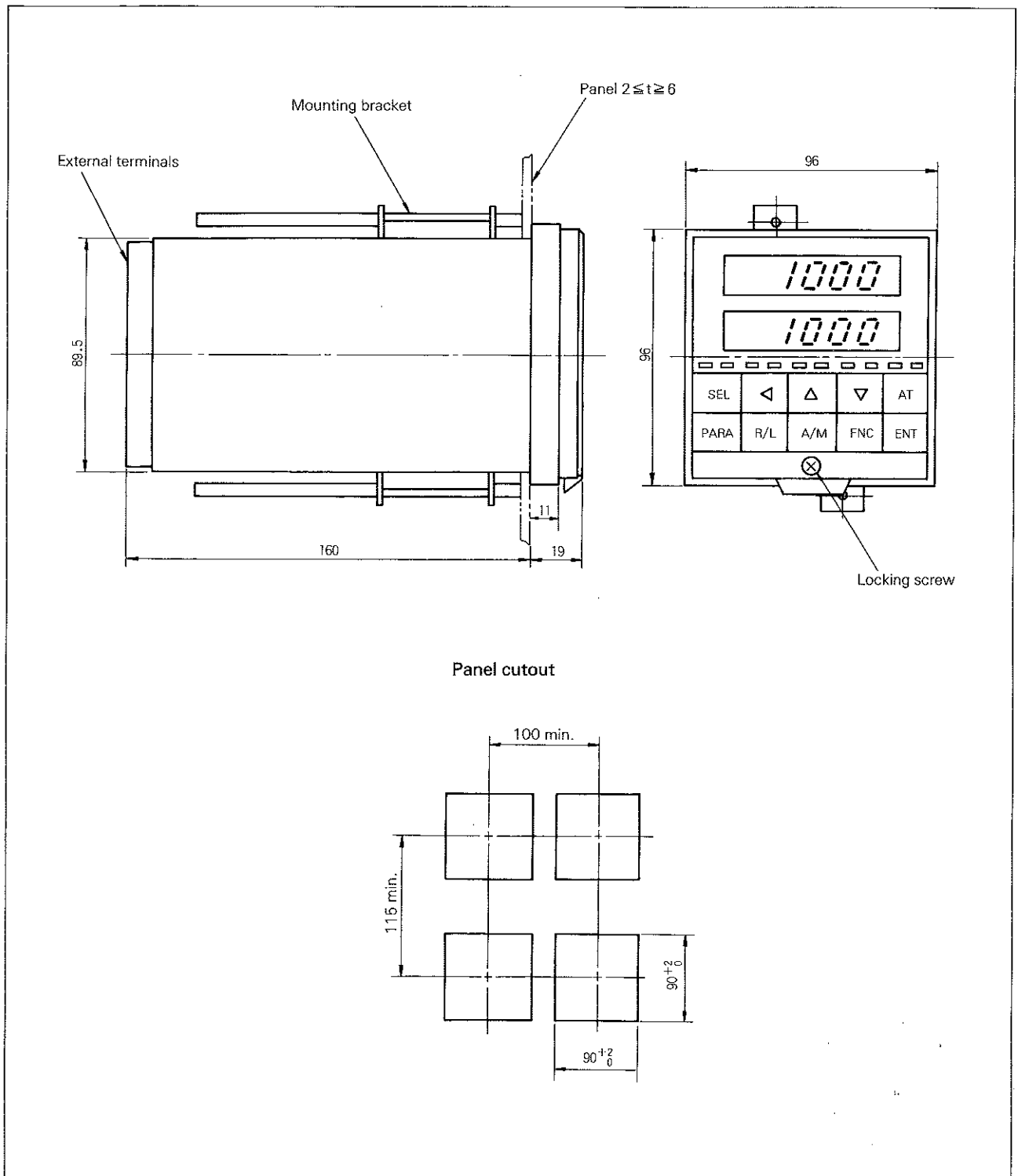
Note: Symbols of resistance bulb are as follows.
JPt100 Previous JIS standard
Pt100 New JIS standard.

Power supply: 100/110/200/220V ± 10% AC, 50/60Hz
Power consumption: Approx. 5VA
Ambient temperature: - 10 to 50°C (storage temperature - 30 to 60°C)
Ambient humidity: 90%RH or less
Enclosure: Plastic housing
External dimensions (H × W × D): 96 × 96 × 160mm

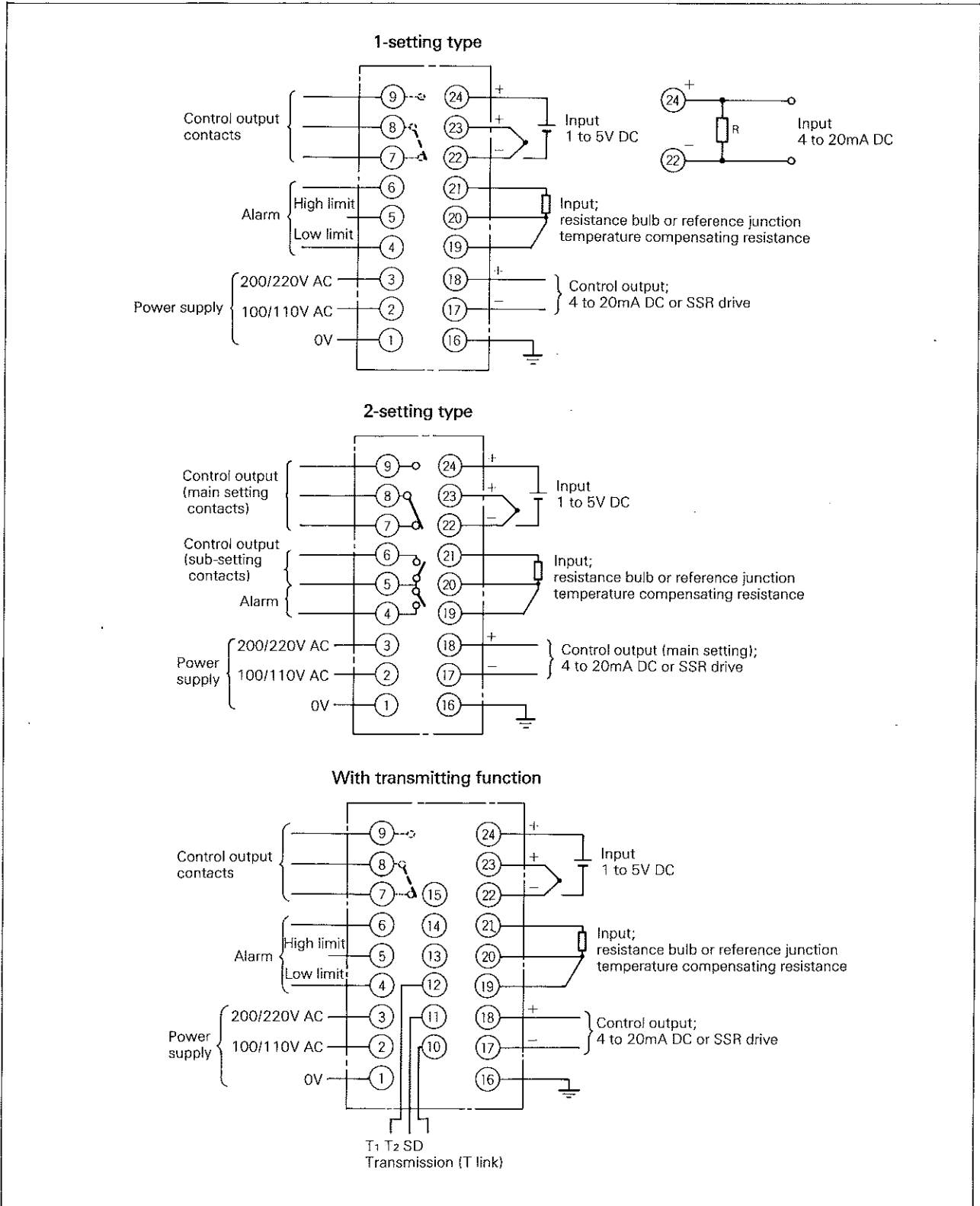
Weight: Approx. 1kg
Finish color: Case; Munsell 5Y 8/1
 Front panel; Munsell 5Y 4.5/1
Scope of delivery: Controller and mounting brackets
Mounting method: Flush on panel
Mounting angle:



OUTLINE DIAGRAM (Unit:mm)



CONNECTION DIAGRAM



Fuji Electric Co.,Ltd.

Shinjuku Office

Overseas Sales Division, Systems Sector
 30-3 Yoyogi 4-chome, Shibuya-ku
 Tokyo. 151 Japan
 Phone : Tokyo 3375-5031,7110
 Telex : 02322165 FDENKI/J

Head Office

12-1 Yurakucho 1-chome, Chiyoda-ku
 Tokyo. 100 Japan
 Phone : Tokyo 3211-7111
 Telex : J22331 FUJIELEA or FUJIELEB