

DIGITAL SETTING TEMPERATURE CONTROLLER DIGIZET MINI (DUAL Output Type)

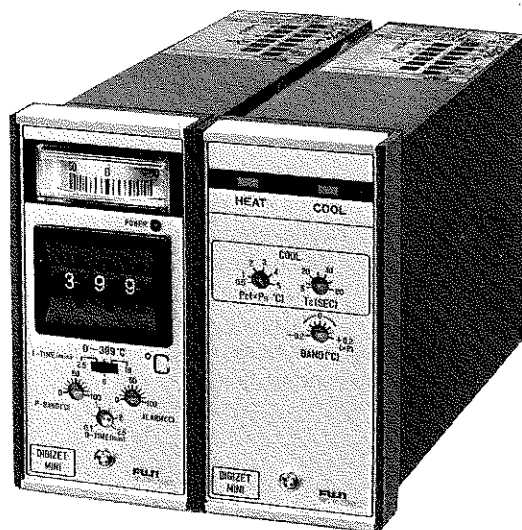
DATA SHEET

PZMM+PZMW

The digital setting temperature controller "Digizet Mini (DUAL output type)" is an instrument to be used for machines and devices such as plastic extrusion molding machines which need to be cooled and heated during operation. This instrument is composed of a current output controller and an output converter of the Digizet Mini Series, each being built into a case of 48 x 96 mm. This 2-housing system offers high performance and economical temperature control.

FEATURES

- 1) Economical operation**
 Compact and lightweight design for installation in a limited panel space.
 Cooling and heating control actions can be set individually. The two outputs can be overlapped or provided with a dead band to improve the controllability and to realize energy-saving.
- 2) Full variety of functions**
 The proportional band of the cooling side control action is variable with respect to the heating side, so a minimum pulse width can be set over a wide range.
 Digital setting system assures error-free setting and excellent repeatability.
 One-touch input changeover (J \rightleftharpoons K) system.
 Output signals include contact signal, current signal and SSR drive voltage signal, allowing easy selection of control elements.
 Overshoot prevention circuit and burnout circuit are also built into the casing.
 The adoption of plug-in system offers easy maintenance and inspection.



SPECIFICATIONS

Input signal, setting range, setting accuracy:

| Code | Input signal | Note 2) Setting range (°C) | Setting accuracy (°C) |
|------|--------------------------|----------------------------|-------------------------------------|
| 1 | | 0 to 399 | ±2 |
| 6 | Pt 100Ω resistance bulb | -99 to +99 | ±0.5 (0 to 99) ±0.75 (-50 to -1) |
| 8 | J/K thermocouple Note 1) | 0 to 399 | ±3 |

Note 1) Thermocouple input type is equipped with reference junction compensating device and burnout circuit (upper limit scale-out). Thermocouple inputs (J and K) can be selected by internal switch (common select type).

2) Mechanical stopper is provided for temperature setting range of 0 to 399°C.

Allowable external resistance:

Thermocouple input . . . less than 100Ω

Allowable wiring resistance:

Resistance bulb input . . . less than 10Ω per wire

Deviation indication:

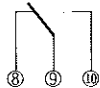
Meter
Scale range

| Control action / Input signal | P (°C) | PID (°C) |
|-------------------------------|--------|----------|
| Pt resistance bulb | 20 | 20 |
| J/K thermocouple | | 50 |

Output signal: Heating/cooling, 2 outputs
 The following 3 output signals can be combined as desired.

<Contact output>

Output contact; heating and cooling,
 1c contact each
 Contact capacity; AC 220V, 3A or less (resistive load)
 Heating contact function;
 Non-excited function
 When the heater temperature exceeds the set point or the power is OFF, the output relay is reset as illustrated below.



Cooling side contact operation;
 Non-excitation operation

When heater temperature drops below the setting temperature or the power source is OFF, the output relay is reset to the position shown below.



<Current output>

Output current; DC 4 to 20 mA for both heating and cooling
 Allowable load resistance; 0 to 600Ω
 Output action;
 Heating side Reverse action
 Cooling side Normal action

<SSR drive output>

Output voltage;
 OFF DC 0.5V or less
 ON DC 10 to 25V or less
 (Load resistance 1.2 kΩ)

Dielectric strength; AC 500V, 1 min.

Control action: Proportional action, PID action

Input signal;
 Control action in setting range

| Control action / Input setting range (°C) | Proportional action / P band (°C) | PID action | | |
|---|-----------------------------------|-------------|--------------------------------------|-----------------------------------|
| | | P band (°C) | I time (min) | D time (min) |
| Pt 0 to 399 | About 12 | 0 to 50 | 2.5, 5 and 10, selectable in 3 steps | 0.1 to 2.5, continuously variable |
| Pt -99 to +99 | About 6 | | | |
| J/K 0 to 399 | About 12 | 0 to 100 | | |

Proportional action:
 With offset correcting device

PID action:
 With overshoot preventing circuit

Proportional/PID action specifications

| Specification | | Output signal | | |
|---------------|-------------------------|-----------------------------------|-------------|---------|
| | | Contact | SSR drive | Current |
| Heating side | Proportional band (PH) | 0.5 x P (°C) | | |
| | Proportional cycle (TH) | About 40 sec | About 1 sec | — |
| Cooling side | Proportional band (PC) | (0.5 to 5) x PH or (1 to 10) x PH | | |
| | Proportional cycle (TC) | About 10 to 120 sec | | — |
| | Minimum pulse time | See (Note) below | | — |
| Overlap band | | (0 to -0.2) x P (°C) | | |
| Dead band | | (0 to 0.2) x P (°C) | | |

(Note)

Variable from 0.25 to 3 seconds at 60 seconds proportional cycle. The variable range of minimum pulse time is practically proportional to the proportional cycle.

Power supply: AC 100/200V ±15%, 50/60 Hz or AC 110/220V ±15%, 50/60 Hz

Power consumption: Approx. 8VA

Ambient temperature: -10 to +50°C (storage temp.: -30 to +60°C)

Ambient humidity: 90% RH or less

Enclosure: Plastic housing

Alarm unit: As specified
 Upper or lower limit alarm
 Alarm common to upper and lower limits

| Control action | Setting range (°C) | Dead band (°C) | Accuracy (°C) |
|---------------------|--------------------|----------------|---------------|
| Proportional action | 0 to 50 | Less than 3 | Less than ±5 |
| PID action | Thermocouple input | Less than 4 | Less than ±10 |
| | Pt Input | Less than 3 | Less than ±5 |

Output contact; Excited ON alarm
 Contact capacity; AC 220V 3A

Dimensions (HxWxD):

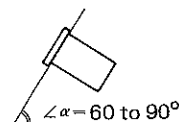
Controller 96 x 48 x 149 mm
 Output converter 96 x 48 x 149 mm

Weight: Approx. 680g (controller and output converter)

Finish color: Munsell 7.5 BG 3.2/0.8

Scope of delivery: Instrument (controller, output converter), mounting bracket

Mounting method: Panel flush mounting



CODE SYMBOLS

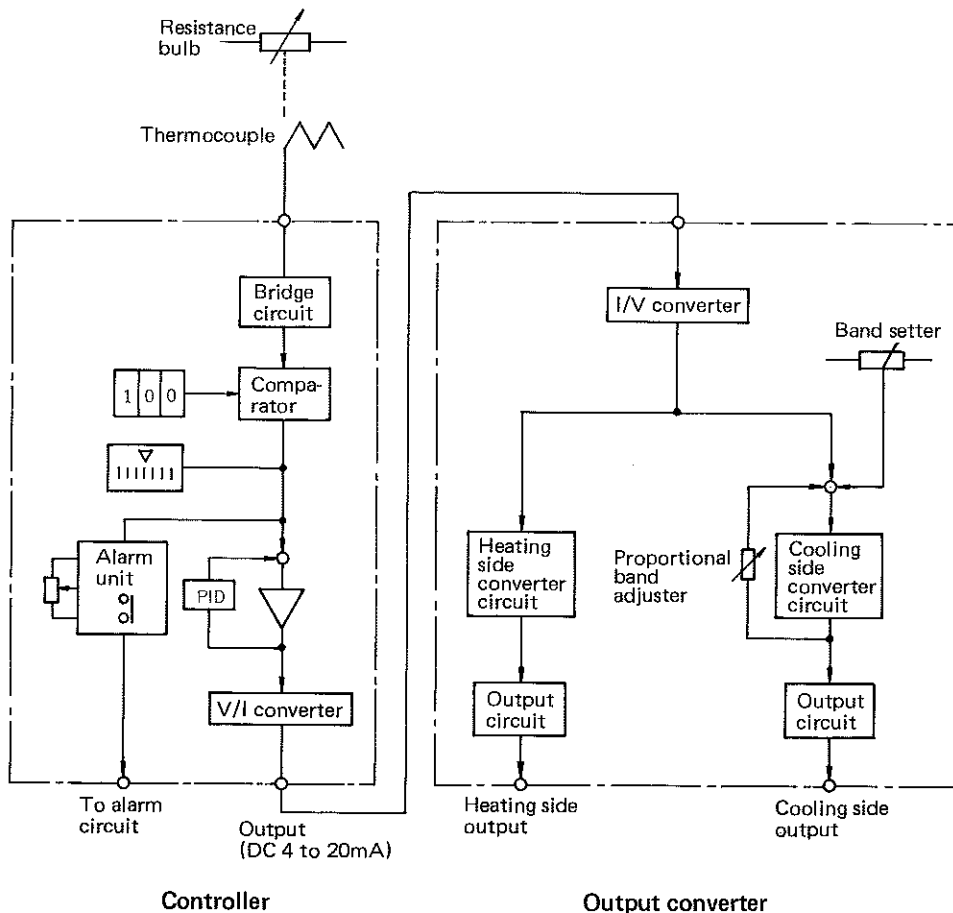
Digital setting temperature controller

| P | Z | M | M | 1 | 0 | Description |
|---|---|---|---|---|---|--|
| | | M | | | | Type Meter type |
| | | | 1 | | | Input signal and setting range Pt resistance bulb, 0 to 399°C |
| | | | 6 | | | Pt resistance bulb, -99 to +99°C |
| | | | 8 | | | J (IC)/K (CA) thermocouple, 0 to 399°C |
| | | K | | | | Control action Current output reverse action and proportional action |
| | | P | | | | Current output reverse action and PID action |
| | | | 7 | | | Power supply AC 100/200V, 50/60 Hz |
| | | | 8 | | | AC 110/220V, 50/60 Hz |
| | | H | | | | Alarm unit Upper limit alarm |
| | | L | | | | Lower limit alarm |
| | | M | | | | Alarm common to upper and lower limits |

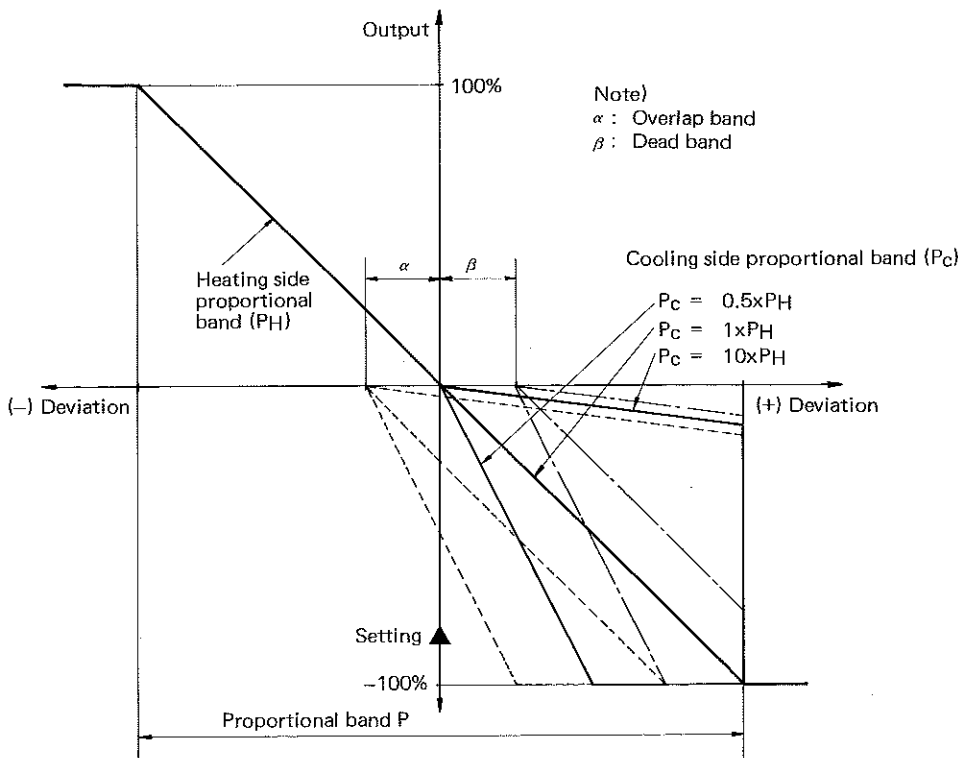
Output converter

| P | Z | M | W | 0 | 1 | Description |
|---|---|---|---|---|---|--|
| | | | | | A | Output signal Heating side contact output |
| | | | | | B | Heating side contact output |
| | | | | | C | current output |
| | | | | | D | SSR drive output |
| | | | | | E | current output |
| | | | | | F | current output |
| | | | | | G | SSR drive output |
| | | | | | H | contact output |
| | | | | | J | current output |
| | | | | | | SSR drive output |
| | | | | 7 | | Power supply AC 100/200V, 50/60 Hz |
| | | | | 8 | | AC 110/220V, 50/60 Hz |

BASIC CIRCUIT DIAGRAM

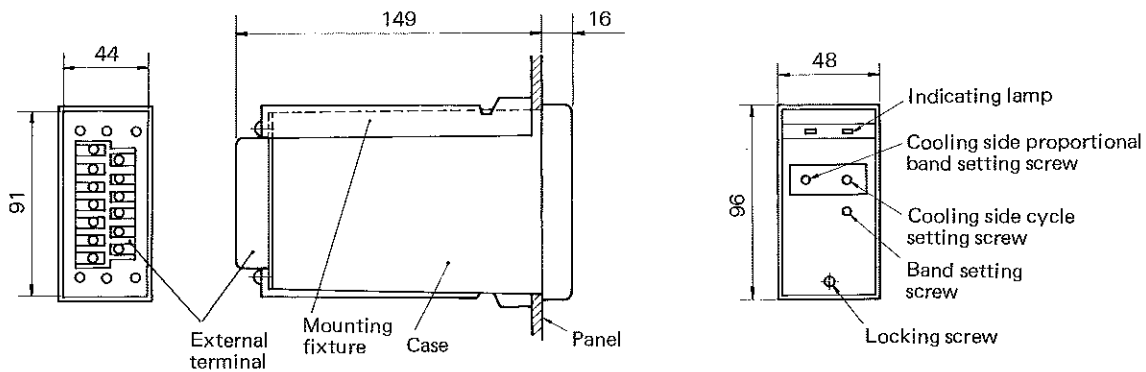


CONNECTION DIAGRAM

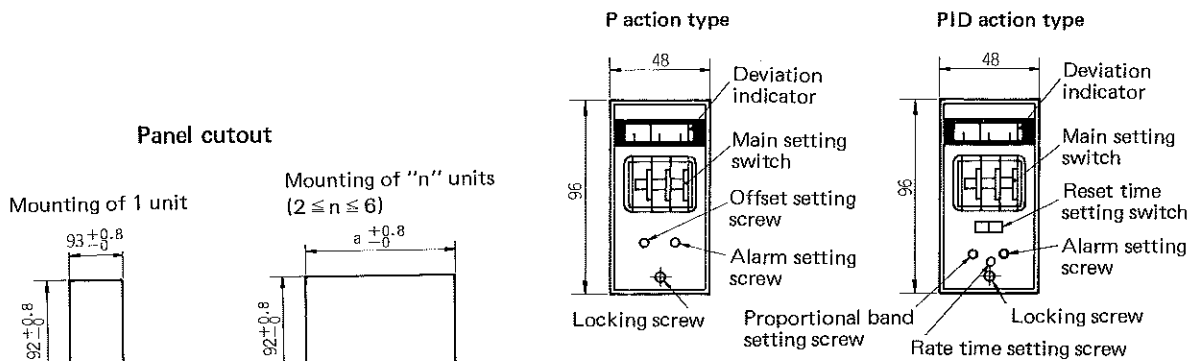


OUTLINE DIAGRAM (Unit: mm)

Output converter



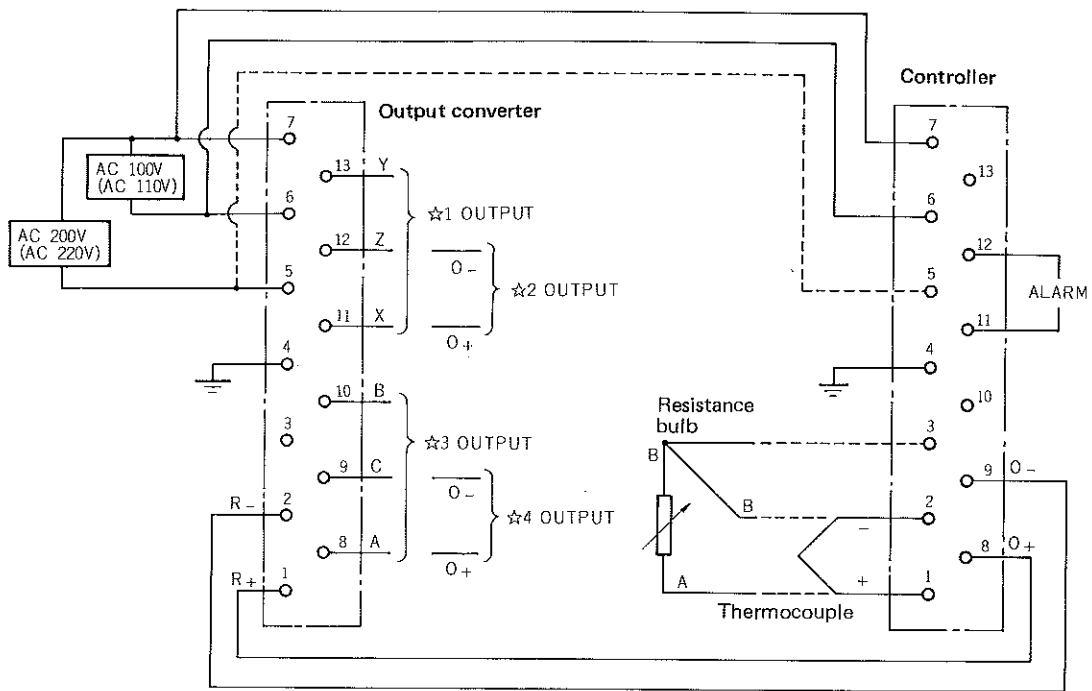
Current output type controller



Note) The controller enclosure is the same in shape and dimensions as the output converter enclosure.

| | | | | | |
|-------------|-----|-----|-----|-----|-----|
| No. of unit | 2 | 3 | 4 | 5 | 6 |
| a | 189 | 285 | 382 | 478 | 574 |

CONNECTION DIAGRAM



- Note) ☆ Cooling side contact output
 ☆ Cooling side current output or SSR drive output
 ☆ Heating side contact output
 ☆ Heating side current output or SSR drive output