

FENWAL

TE 420B

FCJ

AG

Pb-Free Design

Digital Temperature Controller

SERIES



AR Series Retrospective

Features

- ① Available in Pb-Free Design**
 Correspond to JEITA ROAD MAP2002 PhaseⅡ
- ② Compatible with the AR Series**
 A Transmission Function can be added
- ③ Enable to choose four model under same Specification.**

PV Display

Displays Current value or settings items

M-LED

Control Output Operation LED

Left Shift Key

SV Display

Displays Set value or set contents

Down Key

S1-LED

Alarm 1 Operation LED

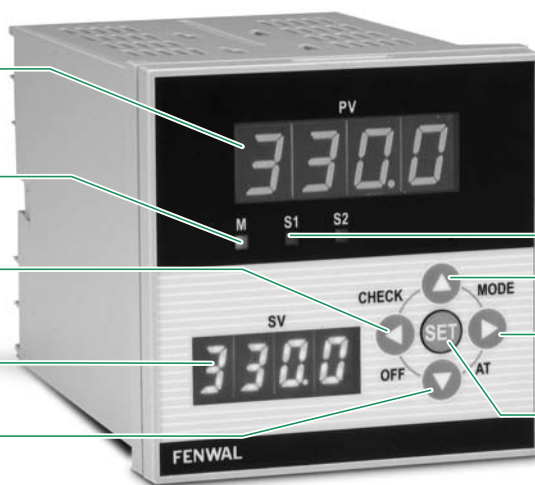
S2-LED

Alarm 2 Operation LED

Up Key

Right Shift Key

Set Key

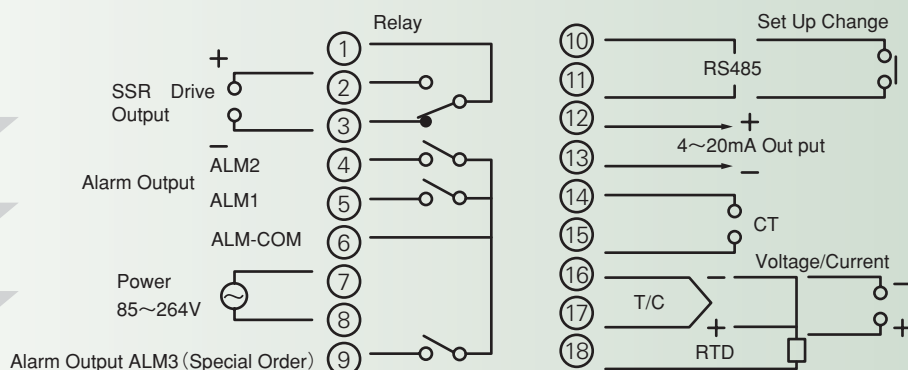


External Wiring

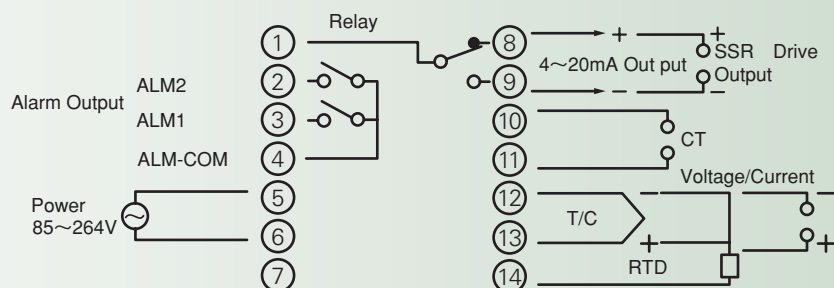
AG44

AG42

AG24



AG33

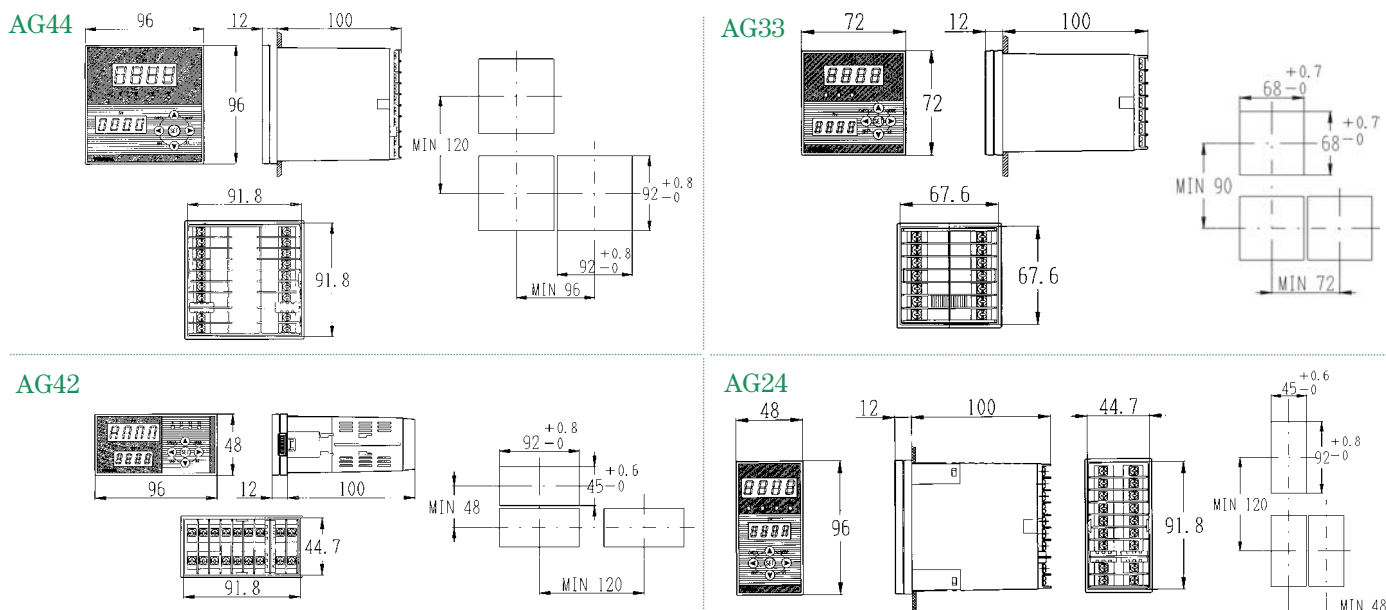


Fit and Pb-Free Design

■ Main Specification

Accuracy Under Surrounding Temperature 25±5℃	Thermocouple: K,J,E,T,R,S (Set Value+/-0.3 or +/-2℃, whichever is greater) +/-1 Digit Thermocouple: B (Set Value+/-0.3 or +/-3℃, whichever is greater) +/-1 Digit (However B input 0~500℃ is outside Guranteed Accuracy range) RTD: (Set Value+/-0.3 or +/-0.8℃, whichever is greater) +/-1 Digit Voltage/Current: (+/-0.3% of Scaling Width or +/-1 Digit, whichever is greater) +/-1 Digit
Input	Thermocouple: K,J,E,T,R,S(JIS,IEC,DIN Standard) B RTD: Pt100Ω (JIS,IEC,DIN Standard) ,JPt100Ω (Old JIS) Linear Input Voltage: DC1~5V Linear Input Current: DC4~20mA
Output	Relay Connection: (2A/250VAC,2A/30VDC, $\cos\phi=1$ 1c point) SSR Drive Voltage: DC12V Standard, Load Resitance 250Ω Min Standard (Special Order DC5V, Load Resitance 200Ω Min Standard) Current Output: 4~20mA Load Resitance 400Ω Max Standard 187 Resolution (Special Order 2907 Resolution)
Transmission	Measured Value Output as DC4~20mA on External Output (Load Resistance 400ΩMax 2907 Resolution) (Control Output can not be included with Current Output)
Control Style	PID Auto tuning, PID Manual, P, On/Off Control Proportional Band (PB) = 0~200% of Temperature range, Integral Time (I) =0~3999 Sec Derivative Time (D) =0~3999 Sec Proportional Time (PT) =0.5~64 Sec Anti Reset Windup (ARW) =PB 1~100% of PB On/Off Sensitivity (DIF) =0.0~99.9℃
Temperature Range	K: -100~1200℃ (-99.9~199.9℃) B: 500~1800℃ E: -200~1000℃ S: 100~1600℃ J: -100~800℃ C: -200~400℃ (-199.9~400.0℃) T: -150~300℃ G: -200~600℃ (-199.9~600.0℃) R: 100~1600℃ IRt/c: 0~400℃ Ni: -50~300℃
Alarm Function	Max.3 Alarms (1a) 32 Types of temperature alarms, choose from Sensor/Heater Abnormalities, includes Heater (Current Display Function) * AR33 Max.2 Alarms
Communication Function	Compatible with RS-485 signal format
EEPROM	1,000,000 Write/Erase Cycle
Power Supply	AC100~240V -10%,+15% 50/60Hz Free Power
Operating Temperature	-10~60℃ (Assuming no dew condensation)
Storage Temperature	-20~70℃ (Assuming no dew condensation)
Operating Humidity	RH 40~85 % (Assuming no dew condensation)
Power Consumption	12VA Max
Dielectric Resistance	100MΩMis DC500V, Between Output relay terminals and power supply terminals
High Potencial Rating	AC2300V for 1 Min, Between Output relay terminals and power supply terminals
Earthquake- proof	10~55Hz, All Amplitude 0.3mm Each X,Y,Z Direction for 1 hour
Shock-proof	18.6 m/s ² (20G) Each X,Y,Z Direction for 5 times
Weight	350g Max (Without Option)
Standard	Safety Standard : IEC61010-1Contamination Level 2 Installation Category II EMC : EMI : EN50081-2/EN55011 Class A,Group 1 EMS:EN50082-2

■ Exterior Dimensions / Panel Cutout



Model Number Identification

AG24 R - K R Z - N N N - 001

- Series Identifier
- DIN Size Identifier
 - 44 : W96×H96×D100mm
 - 42 : W96×H48×D100mm
 - 24 : W48×H96×D100mm
 - 33 : W72×H72×D100mm
- Remote Control
 - R : Communications Available(Remote)
 - L : Communications not Available(Local)
- Sensor Input
 - K : Thermocouple K (Chromel-Alumel)
 - J : Thermocouple J (Iron-Constantan)
 - E : Thermocouple E (Chromel-Constantan)
 - T : Thermocouple T (Copper-Constantan)
 - R : Thermocouple R (Platinum13% Rhodium-Platinum)
 - S : Thermocouple S (Platinum10% Rhodium-Platinum)
 - B : Thermocouple B (Platinum30% Rhodium6% Rhodium)
 - C : PT100Ω OLD-JIS RED
 - G : PT100Ω New-JIS RED(DIN)
 - A : Current Input 4~20mA
 - V : Voltage Input 1~5V
 - X : Non-contact Temperature Sensor I R-t/c (Special Order)
 - N : Nickel RTD (Special Order)
- Preset Number
 - 001 : STD
- Certification
 - N : None
- Option
 - N : None
 - T : Transmission Output 4~20mA 2907 Resolution
 - C : Setting Switch Connection Input
- Alarm Count
 - N : None
 - 1 : One
 - 2 : Two
 - 3 : Three(Special Order)
- Input Voltage
 - Z : AC100~240V
- Output Mode
 - R : Relay Connection Output
 - B : SSR Drive Voltage Pulse Output 12V
 - S : SSR Drive Voltage Pulse Output 5V
 - I : Current Output (4~20mA 187 Resolution)
 - F : Current Output (4~20mA 2907 Resolution)

A, V Input is unchangeable when purchasing K, J, E, T, R, S, B, C, G, A, V, X, N Input.
In similar ways, K, J, E, T, R, S, B, C, G, A, V, X, N Input is unchangeable when purchasing A, V input

Limitation of Choosing Model Number

- ◇Option T or alarm Count three is not available for Model 33.
- ◇Option C is not available with Remote Control.
- ◇Current Output and Option T can not choose at the Same time.
- ◇One Function only available for Option.

Temperature Alarm Table

Code Number		Alarm Mode	Initial Reset	Relay Operation
Without Latch	With Latch			
00	00	No Alarm	—	—
01	02	Upper/Lower Band, travel type	Without	
03	04	Upper/Lower Band, travel type	With	
05	06	Upper/Lower Band, travel type	Without	
07	08	Upper/Lower Band, travel type	With	
09	10	Upper/Lower Band, independent type	Without	
11	12	Upper/Lower Band, independent type	With	
13	14	Upper/Lower Band, independent type	Without	
15	16	Upper/Lower Band, independent type	With	
17	18	One point Alarm, travel type	Without	
19	20	One point Alarm, travel type	With	
21	22	One point Alarm, travel type	Without	
23	24	One point Alarm, travel type	With	
25	26	One point Alarm, independent type	Without	
27	28	One point Alarm, independent type	With	
29	30	One point Alarm, independent type	Without	
31	32	One point Alarm, independent type	With	

Abnormal Alarm

Code	0	1	2	3	4	5	6	7	
Heater Disconnection	×	×	×	×	×	×	×	×	○: With Alarm (Without latch)
Output Shortage	×	×	×	×	×	×	×	×	×
Sensor Disconnection	×	×	×	×	×	×	×	×	×

(Current output type cannot detect Heater Disconnection or Output Shot Circuit)

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