AI-100



Designed to meet the needs of today's demanding applications by offering unlimited control flexibility in a compact and economical 1/32 DIN package.

Extraordinary power, miniature size.

The Sixth Sense AI-100, the first 1/32 DIN controller in the world to offer advanced fuzzy logic control strategy to overcome the inadequacies of standard PID controllers, comes in a package that is half the size of a 1/16 DIN controller.

Fuzzy logic technology works with the autotune function such that the value of the PID parameters chosen by the controller is the starting point for all decisions made. The end result of this extra layer of "intelligence" is that your process will maintain a steady setpoint.

The AI-100 includes a host of extras, such as an optional RS-485 communications function. Free Windows 95™-based software allows monitoring up to 31 controllers from a PC. It features excellent graphics, including bar and trend display, and supports easy-to-use database control and back-up capability.



AI-100 BENEFITS

Advanced fuzzy logic control algorithms—insures close to perfect control of most complex process applications

PID autotune—the AI-100 will set up your proportional band, integral, and derivative parameters automatically

Auto/manual—operates as an auto/manual percent controller if you need to control the output manually

NEMA 4X faceplate—makes the controller water-, chemical-, splash-, and hosedown-proof

Universal input—features eight thermocouple, two RTD, and a variety of current/voltage inputs

Selectable outputs and alarms—outputs available include relay, DC pulse, 4–20mA, 0–20mA, 0–10 V. A second output is available and can be configured as one of many programmable alarms or as one of the above outputs

Timing functions—the built-in timer function allows you to use the controller as a simple ramp/soak programmer

Heat/cool operation—it can function as a heat/cool controller for various dual output machinery applications

Retransmission output—analog retransmission of PV, SV or MV possible, as either 4–20mA or 0–20mA

Communications interface—RS-485 serial communications

Many operating voltages—the AI-100 will operate on either 90–264V AC, or on 20–32V AC/DC

Two-year warranty—protects against manufacturing defects

INPUT

Thermocouple(T/C): Type J, K, T, E, B, R, S, N
RTD: Pt100Ω (DIN 43760/BS 1904 or JIS)
Linear: Scalable. Refer to table below
Range: User-configurable, refer to table below
Accuracy: Refer to table below
Cold Junction Compensation: 0.1°C/°C ambient typical
Normal Mode Rejection: 60dB
Common Mode Rejection: 120dB
Sample Rate: 5 times/sec

CONTROL

Proportional Band: 0–3600 E.U., 0–360°F, 0–200°C
Reset (Integral): 0–3600 sec
Rate (derivative): 0–1000 sec
Ramp Rate: 0–55.55°C/min, 0–99.99°F/min, 0–99.99 E.U./min
Dwell: 0–9999 min
ON-OFF: With adjustable hysteresis 0.1–11.0°C, 0.1–19.9°F, 0.1–199 E.U.
Cycle Time: 0–99 sec
Control Action: Direct (for cooling) and reverse (for heating)

INDICATION

Process Display: 0.4" red LED, 4-digit
Status Indicator: Control output and alarm

POWER

Rating: 90–264V AC, 50/60Hz, or 20–32V AC/DC
Consumption: Less than 5VA

ENVIRONMENTAL & PHYSICAL

Operating Temperature: -10–50°C
Humidity: 0–90%RH (non-condensing)
Insulation: 20MΩ Min (500V DC)
Breakdown: AC2000V, 50/60Hz, 1 min
Vibration: 10–55Hz amplitude 1mm
Shock: 200 m/s² (20g)
Weight: 110g
Dimensions: 24(H) x 48(W) x 99mm (depth behind panel)
Panel cutout: 22mm (+.5/-0) (H) 45mm (+.5/-0) (W)

MODEL CONFIGURATION

A I 1 0 0 – □ □ □ □ □

POWER INPUT	CODE
90–264V AC	4
20–32V AC/DC	5

INPUT SIGNAL	
J - Iron-Constantan	0
K - Chromel-Alumel	1
T - Copper-Constantan	2
E - Chromel-Constantan	3
B - Pt30%Rh/Pt6%Rh	4
R - Pt13%Rh/Pt	5
S - Pt10%Rh/Pt	6
N - NICROSIL-NISIL	7
RTD - Pt100 (DIN)	8
RTD - Pt100 (JIS)	9
4–20mA	A
0–20mA	B
0–10V	C
1–5V	D
0–5V	E
0–1V	F

OUTPUT OPTIONS	
None	0
Relay (3A/240V AC) resistive	1
SSR Drive (24V DC/20mA max)	2
4–20mA linear, max load 500Ω (Module OM 92-1)	3
0–20mA linear, max load 500Ω (Module OM 92-2)	4
0–10V linear, Min input impedance 500KΩ (Module OM 92-3)	5

ALARM/OUTPUT #2 OPTIONS	
None	0
Relay (3A/240V AC) resistive	1
SSR Drive (24V DC/20mA max)	2
4–20mA linear	3
0–20mA linear	4
0–10V linear	5

AUXILIARY OPTIONS	
None	0
RS-485 Communications*	1
Retransmission 4–20mA/0–20mA	2

*RSFC24 CONVERTER RECOMMENDED FOR RS232 TO RS485 CONVERSION

RANGE AND ACCURACY OF INPUTS

SENSOR	INPUT TYPE	RANGE (°F)	ACCURACY (FS)	RANGE (°C)	ACCURACY (FS)
J	Iron-Constantan	-58 to 1830°F	±3.6°F	-50 to 999°C	±2°C
K	Chromel-Alumel	-58 to 2500°F	±3.6°F	-50 to 1370°C	±2°C
T	Copper-Constantan	-454 to 752°F	±3.6°F	-270 to 400°C	±2°C
E	Chromel-Constantan	-58 to 1382°F	±3.6°F	-50 to 750°C	±2°C
B	Pt30%Rh/Pt6%Rh	572 to 3272°F	±3.6°F	300 to 1800°C	±3°C
R	Pt13%/Rh/Pt	32 to 3182°F	±3.6°F	0 to 1750°C	±2°C
S	Pt10%Rh/Pt	32 to 3182°F	±3.6°F	0 to 1750°C	±2°C
N	Nicrosil-Nisil	-58 to 2372°F	±3.6°F	-50 to 1300°C	±2°C
RTD	Pt100Ω (DIN)	-328 to 842°F	±0.72°F	-200 to 450°C	±0.4°C
RTD	Pt100Ω (JIS)	-328 to 842°F	±0.72°F	-200 to 450°C	±0.4°C

LINEAR RANGE OF INPUTS (ALL SCALABLE)

Input type: 4–20mA, 0–20mA, 0–1V, 0–5V, 1–5V, 0–10V Range: -1400–9400 Accuracy: ±0.05%