

LSAIM05 AI module

LS communication RTD inputs : 4 Pt100/Cu10

■ Summary



- * Number of inputs : 4: Resistance temperature input
(3 wire type, 4 wire type compatible, channel individual isolation)
- * Input range : Pt100 ; -100 to 650°C (Wide)
Pt100 ; -40 to 60°C (Narrow)
Cu10 ; 0 to 130°C
- * Module ambient temperature : -5 to 60°C
- * Insulation method : Photocoupler insulation

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■ Specifications

ITEM		SPECIFICATION		
Input	Number of channels	4 (3 wire type, 4 wire type compatible, channel individual isolation)		
	Resolution	16 bits		
	Range(Full Scale) * ¹	Pt100 (60.26 to 329.64 Ω) -100 to 650°C (Wide)	Pt100 (84.27 to 123.24 Ω) -40 to 60°C (Narrow)	Cu10; 0 to 130°C (9.038 to 14.043 Ω)
Data refresh cycle		50 ms/All channels	50 ms/All channels	50 ms/All channels
Absolute accuracy @25°C	4 wire type & 3 wire type	±0.75°C	±0.4°C	±1.0°C
Temperature drift @-5 to 60°C (Relative to full-scale)	4 wire type	±100 ppm/°C or less	±200 ppm/°C or less	±250 ppm/°C or less
	3 wire type	±100 ppm/°C or less	±333 ppm/°C or less	±500 ppm/°C or less
CMRR	RTD	4W-Pt100 (Wide)	When voltage	100 dB or more attenuation
			When Current	100 dB or more attenuation
	4W-Pt100 (Narrow)	When voltage	100 dB or more attenuation	
		When Current	100 dB or more attenuation	
	4W-Cu10	When voltage	100 dB or more attenuation	
		When Current	100 dB or more attenuation	
NMRR	RTD	20 dB or more attenuation		
Wiring resistance	One wiring neighborhood	5 Ω or less (At 850°C in Wide range)		2 Ω or less (4wire type) 1 Ω or less (3wire type)
Input filter	Software digital filter (Channel individual)			
Dielectric strength	AC 500 V input terminal – between PE Between input channels			
Communication with IOA	Communication method	LVDS		
	Communication speed	100 Mbps		
Self-diagnostic functions	Power voltage check (24 V, 3.3 V, 1.2 V) Clock check (FPGA-MCU for diagnosis, MCU for diagnosis -FPGA) Heartbeat check (FPGA-MCU for diagnosis, MCU for diagnosis -FPGA) CRC check (FPGA) AI communication error check			
Detective	ADC abnormal check I/O signal range check (Overrange, Underrange) * ¹			
When disconnected	Simultaneous detection of underrange and overrange			
Protection	(Power supply protection)	Overvoltage protection Overcurrent protection		
Indicator	Display LED	4: RUN(Run) / STS(Status) / NSA(Network status A) / NSB(Network status B)		
Insulation method	Photocoupler insulation			
Hot swap	Possible			
Power supply	DC 24 V ±20% (The voltage supplied from the backplane)			
Environmental conditions	Module ambient temperature	(Operating) -5 to 60°C (Storage) -40 to 85°C		
	Module ambient humidity	(Operating / Storage) 10 to 95% RH (No condensation)		
Vibration	3.5 mm @5 to 8.4 Hz 1 G @8.4 to 150 Hz			
Shock	15 G 11 ms			
Rated Current	68 mA			
Weight	0.10 kg			
Dimensions	62 mm (D) x 94 mm (H) x 46 mm (W) (Except projection)			
Standard/Directive	EN 61131-2:2007, RoHS			

About compliant module type

For compliant modules of this product, please refer to “Compliant backplane list (CGS-S9901-E-XX)”.

For compliant modules of this product, please refer to “Compliant accessory connector list (CGS-S9902-E-XX)”.

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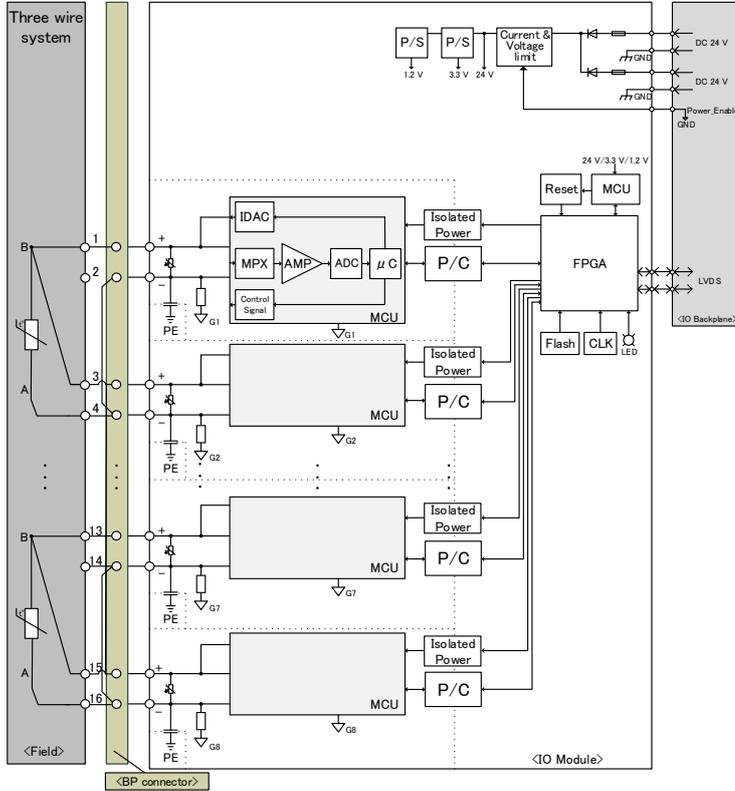
*¹ Input Overage / Input Underrange are detected under the following conditions.

- Pt100 (Wide) : Less than -200°C (18.52 Ω) / More than 850°C (390.48 Ω)
- Pt100 (Narrow) : Less than -42.957°C (83.10 Ω) / More than 63.044°C (124.41 Ω)
- Cu10 : Less than 0°C (9.038 Ω) / More than 130°C (14.043 Ω)

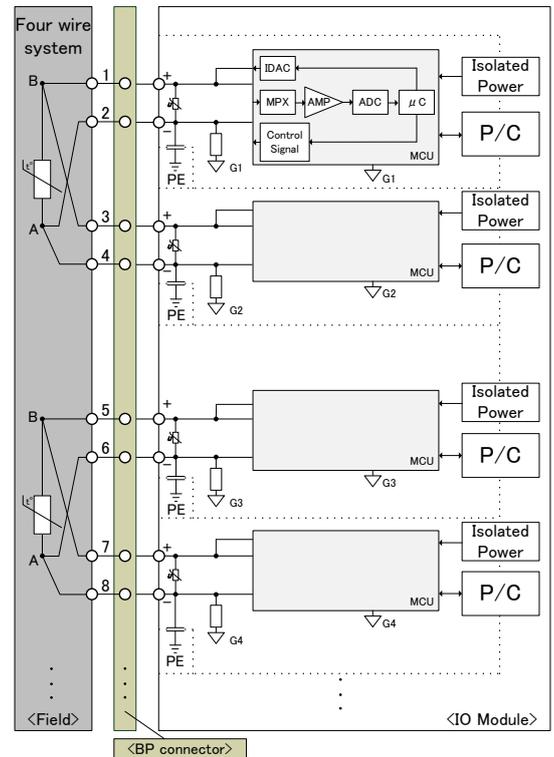
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Block diagram



P/S	: Power supply
IDAC	: Iout Digital analog converter
MPX	: Multiplexer
AMP	: Amplifier
ADC	: Analog digital converter
μ C	: Micro controller
CLK	: Clock
FPGA	: Field programmable gate array
LED	: Light emitting diode
MCU	: Micro control unit
GND,G1 to G8	: Ground
IOA	: I/O adapter
LVDS	: Low Voltage Differential Signaling
BP	: Backplane
PE	: Protective Earth
P/C	: Photocoupler
	: Varistor
	: Resistor
	: Fuse
	: Diode
	: Thermistor
	: Capacitor



When using, please read the instruction manual attached to the product carefully and use it properly.

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