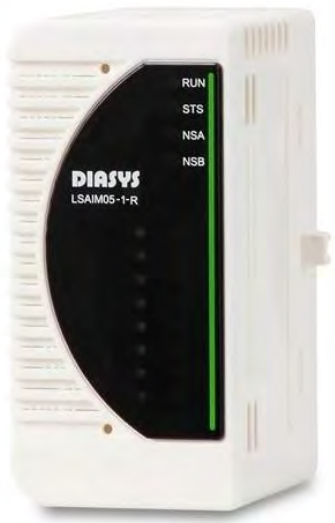
LSAIM05-1-R AI module

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	:	0 to 55°C
＊Insulation method	:	Photocoupler insulation
＊Supported FXtoLS adapter	:	LSRLTS-AI05

This module is dedicated to compact retrofit terminal blocks.
Dedicated lock pins are attached to the bottom.

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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℃ (Wide)	Pt100 (84.27 to 123.24 Ω) -40 to 60℃ (Narrow)	Cu10; 0 to 130℃ (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℃ 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	Communicaton method			LVDS		
	Communication speed			100 Mbps		
Self-diagnostic functions				Power voltage check (24 V, 3.3 V, 2.5V, 1.8V, 1.0 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 overange		
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) 0 to 55°C (Storage) -40 to 85°C		
	Module ambienthumidity			(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				82 mA		
Weight				0.12 kg		
Dimensions				62 mm (D) x 94 mm (H) x 46 mm (W) (Except projection)		
Standard/Directive				EN 61131-2:2007, RoHS		

*1 Input Overrange / 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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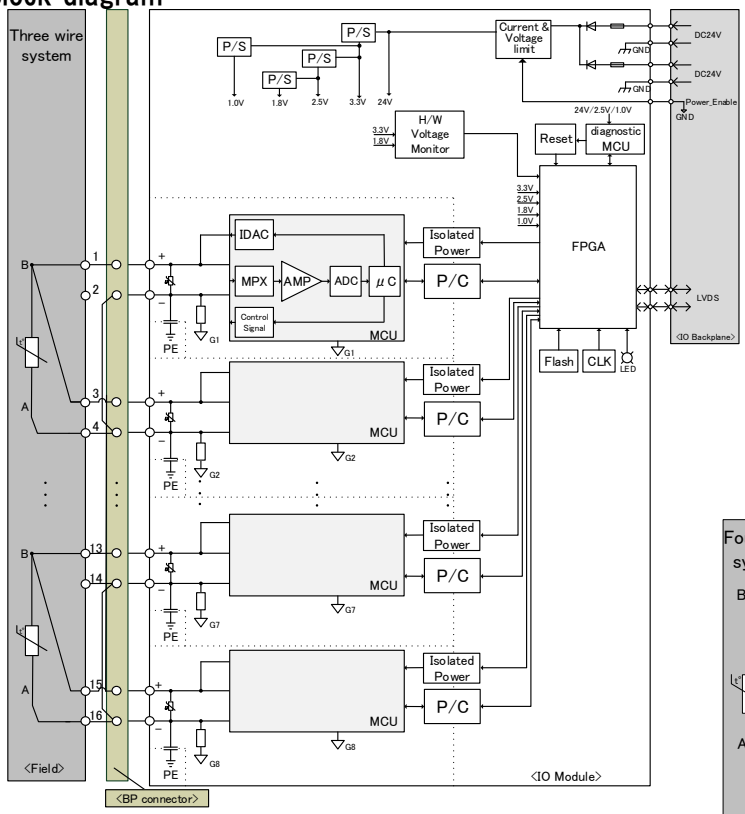
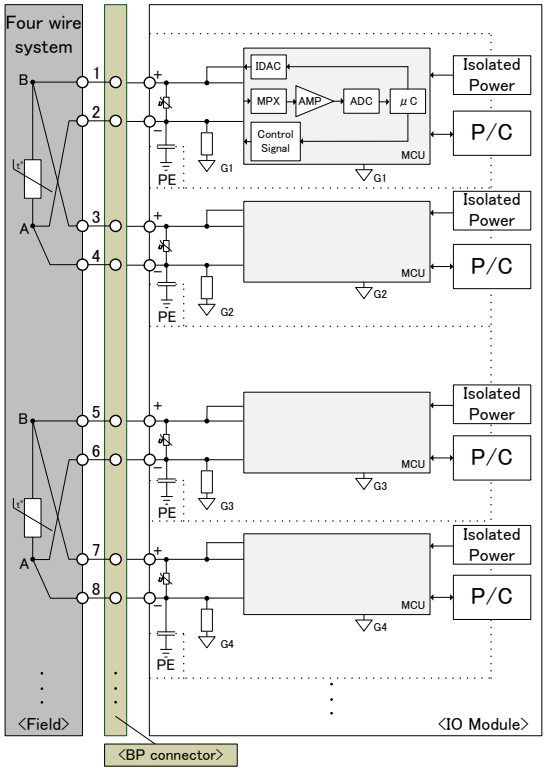
■Block diagram





P/S	:	Power supply
IDAC	:	Inout Digital analog converter
MPX	:	Multiplexer
AMP	:	Amplifier
ADC	:	Analog digital converter
μC	:	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

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