

LSGTI01 GTI module

LS communication Gas turbine Interlock Control module

■ Summary



* Terminal block input / output unit

- External power supply : 1
Distributor input
 - Cabin pressure input force : 1
Passive input
 - RTD input : 1
 - Temperature input : 2
Blade path temperature
Exhaust gas temperature
 - Gas turbine interlock output : 4
 - * USB connector : 1(For maintenance communication mini-B)
- * Module operating ambient temperature range : -5 to 60°C

■ Overview Specifications

ITEM	SPECIFICATION
External power supply	Distributor input × 1 , 4 to 20mA/DC24V
Cabin pressure input force	Passive input × 1 , 4 to 20mA
RTD input	92.16 to 127.08Ω (Equivalent to -20°C to 70°C) × 1
Blade path temperature input	-5 to 75mV × 1
Exhaust gas temperature input	-5 to 75mV × 1
Gas turbine interlock output	Open collector output × 4 , Maximum voltage DC30V , Maximum load current 0.1A
Self-diagnostic functions	Power voltage check , Clock check , Heartbeat check , CRC check , ADC communication error check , Analog signal range check
IDOL Implementation	Possible
Module Duplication	Incompatible
Indicator	Display LED × 4 : Run / Status / Network status A / Network status B Channel State LED × 16 : Ch1 to Ch16 Arbitrarily set by internal logic
USB connector	For maintenance communication mini-B × 1
Dielectric strength	AC2000V Digital input / output terminal — FG Between AC1000V Analog input / output terminal — FG Between
Environmental conditions	(Operating) Ambient temperature : -5 to 60°C Ambient humidity : Less than 95%RH(No condensation) (Storage) Ambient temperature : -40 to 85°C Ambient humidity : Less than 95%RH(No condensation)
Operating power supply	DC 24V ±20% Dual power reception(The voltage supplied from the backplane)
Shock / Vibration	15G 11ms / 3.5mm @5 to 8.4Hz, 1G @8.4 to 150Hz
Dimensions	152.5mmD x 94mmH x 46mmW (Except projection)



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■ Details Specifications

ITEM			SPECIFICATION
Terminal block Input/output section	Ch1: External power supply (Distributor input)	Number of channels	1
		Insulation method	Transformer insulation (Channel individual isolation)
		Dielectric strength	AC1000V
		Output voltage	15 to 30V (4 to 20mA)
		Input current range	4 to 20mA (full scale)
	When used as a transmitter input	Absolute precision @25°C	±0.15%FS (±0.024mA)
		Temperature drift @-5 to 60°C	±100ppm/°C (Against full scale)
		Number of channels	1
		Insulation method	Digital Isolator Isolation (Channel Individual Isolation)
		Dielectric strength	AC1000V
Ch2: Cabin pressure input force (Passive input)	Ch3: RTD input	Input current range	4 to 20mA (full scale)
		Signal input resistance	300Ω or less
		Absolute precision @25°C	±0.1%FS (±0.016mA)
		Temperature drift @-5 to 60°C	±100ppm/°C (Against full scale)
		Number of channels	1
		Insulation method	Photocoupler insulation (channel individual isolation)
		Dielectric strength	AC1000V
		Input resistance range	92.16 to 127.08Ω (Equivalent to -20 to 70°C)
		Absolute precision @25°C	±0.1%FS (full scale : 64.83 to 146.8Ω)
		Temperature drift @-5 to 60°C	±100ppm/°C (Against full scale)
Ch4, Ch5: Blade path temperature input , Exhaust gas temperature input	Ch4, Ch5: Blade path temperature input , Exhaust gas temperature input	Number of channels	2
		Insulation method	Photocoupler insulation (channel individual isolation)
		Dielectric strength	AC1000V
		Input voltage range	-5 to 75mV
		Absolute precision @25°C	±0.1%FS (full scale : -10 to 80mV)
	Ch6, Ch7, Ch8, Ch9: Interlock output	Temperature drift @-5 to 60°C	±100ppm/°C (Against full scale)
		Number of channels	4
		Insulation method	Photocoupler insulation (channel individual isolation)
		Dielectric strength	AC2000V
		Maximum applied voltage	DC30V
Operation cycle usable in DPS	Communication specification between IOA	Contact breakdown current	100mA
		Leakage current at OFF	Less than 0.1mA
		Maximum residual voltage when ON	DC1.2V @100mA
		Communication method	LVDS , 100Mbps
		communication speed	
		Self-diagnostic functions	Power voltage check (24V, 17V, 3.3V, 1.2V, Other) *Refer to block diagram Clock check (FPGA-MCU , FPGA-CPU) Heartbeat check (FPGA-MCU , FPGA-CPU) CRC check (FPGA-MCU) ADC communication error check Analog signal range check(Overrange , Underrange)
		IDOL Implementation	Possible Supplement: IDOL is the logic description language used in DIASYS-UP , DIASYS-UP/V. The internal logic of this module is described in IDOL.
		Module Duplication	Incompatible
		Protective function (Backplane supply power protection)	Overvoltage protection , Overcurrent protection
		Indicator	Display LED 4 : RUN(Run) / STS(Status) / NSA(Network status A) / NSB(Network status B)
Environmental conditions	Indicator	Channel State LED	16 : Ch1 to Ch16 Arbitrarily set by internal logic
		Serial interface	For maintenance 1 : USB Serial (USB mini-B connector)
	Indicator	Hot swap	Possible
		Power supply	DC24V ±20% (The voltage supplied from the backplane)
	Indicator	Module ambient temperature	(Operating) -5 to 60°C (Storage) -40 to 85°C
		Module ambient humidity	Less than 95%RH (No condensation)
	Indicator	Vibration	3.5mm @5 to 8.4Hz 1G @8.4 to 150Hz
		Shock	15G 11ms
	Indicator	Current consumption	Less than 170mA
		Weight	0.19kg
	Indicator	Dimensions	152.5mmD x 94mmH x 46mmW (Except projection)
		Standard/Directive	IEC61131-2:2007, RoHS

*About compliant module type

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

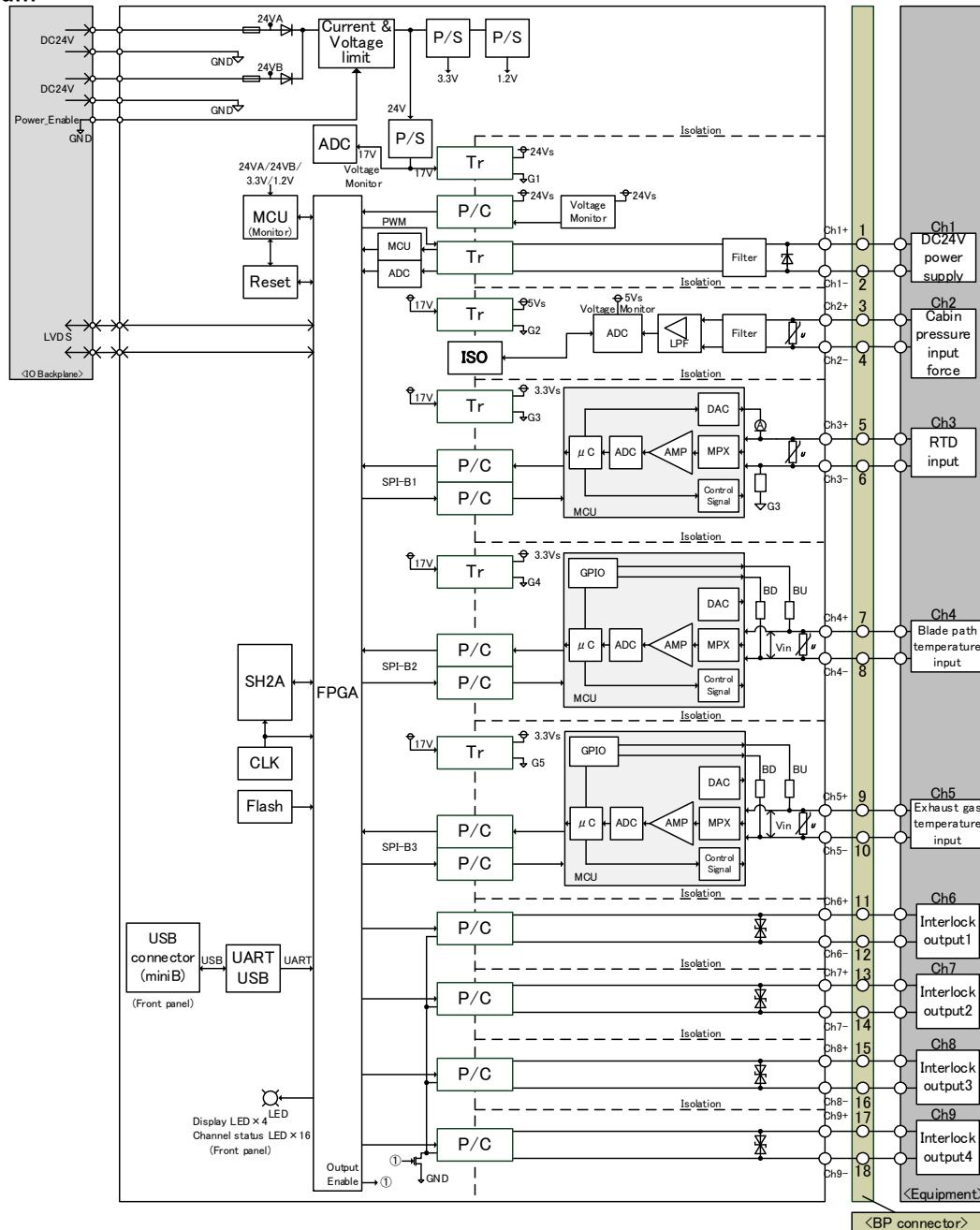
For compliant modules of this product, please refer to " Compliant accessory connector list (CGS-S9902-E-XX) ".



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■ Block diagram



P/S	: Power supply	MCU	: Micro control unit
SH2A	: Renesas SH-2A micro processor	FPGA	: Field programmable gate array
CLK	: Clock generation circuit	LED	: Light emitting diode
ISO	: Digital isolator	ADC	: Analog digital converter
LPF	: Low pass filter	GND,G1,G2,G3,G4,G5	: Ground
LVDS	: Low Voltage Differential Signaling	BP	: Backplane
PWM	: Pulse width modulation	DAC	: Digital analog converter
MPX	: Multiplexer	μ C	: Micro controller
P/C	: Photo Coupler	Tr	: Transformer
AMP	: Amplifier	Flash	: Flash ROM
	: Varistor	-	: Resistor
	: Fuse	-	: Diode
	: Zener diode	-	: Bidirectional diode

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

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