

LSEOS01-2 EOST module

LS communication Turbine overspeed trip function

■ Summary



* Terminal block input / output unit

-52 G ON Digital input	: 1
-Power supply output for speed sensor supply	: 1
-Rotational speed input	: 1
	1 to 12000 Hz 1 to 200 Vp-p
-EOST output / Digital output	: 4
-Rectification speed pulse output	: 2

* Indicator

-Display LED	: 4 RUN / STS / NSA / NSB
-Channel State LED	: 16 Ch 1 to Ch 16

* USB connector : 1 (For maintenance communication mini-B)

* Module operating ambient temperature range : -5 to 60°C

■ Overview Specifications

ITEM	SPECIFICATION
52 G ON Digital input	DC 24 V × 1, minimum ON Current 2 mA
Power supply output for speed sensor supply	DC 24 V ±10% × 1
Rotational speed input	1 to 12000 Hz, 1 to 200 Vp-p, Resolution: 0.1 Hz × 1
EOST output / Digital output	Open collector output × 4, Maximum voltage DC 30 V, Maximum load current 0.1 A
Rectification speed pulse output	Open collector output × 2, Maximum voltage DC 30 V, Maximum load current 4 mA (*)
Indicator	Display LED × 4: Run/ Status/ Network status A/ Network status B General purpose display LED × 16: Ch 1 to Ch 16 Arbitrarily set by internal logic
USB connector	For maintenance communication mini-B × 1
Self-diagnostic functions	Power voltage check, Clock abnormal check, Heartbeat check, CRC check
IDOL Implementation	Possible
Module Duplication	Unsupported
Dielectric strength	AC 1500 V Digital input / output terminal - PE Between AC 1350 V Rotation count input terminal - PE Between
Environmental conditions	Ambient temperature (Operating / Storage) -5 to 60°C Ambient humidity (Operating / Storage) 0 to 95% RH (No condensation)
Operating power supply	DC 24 V ±20% Dual power reception (The voltage supplied from the backplane)
Shock / Vibration	15 G 11 ms / 3.5 mm @5 Hz to 8.4 Hz, 1 G @8.4 Hz to 150 Hz
Dimensions	62 mm (D) x 94 mm (H) x 46 mm (W) (Except projection)

(*) Can be connected to the rotational speed input of LSOPC01 and LSOPC01-1.

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■Details Specifications

ITEM		SPECIFICATION		
I/O Input/output section	Ch 1: 52 G ON Digital input	Number of channels	1	
		Insulation method	Photocoupler insulation (Individual isolation)	
		Dielectric strength	AC 1500 V Digital input terminal - PE Between	
		Current range	ON current	DC 2 mA or more Sense supply voltage: DC 24 V ±10%
	OFF current		DC 1 mA or less	
	Ch 4: Power supply output for speed sensor supply	Number of channels	1	
		Insulation method	Transformer insulation	
		Dielectric strength	AC 1350 V Sensor power supply output terminal - PE Between	
		Output voltage	DC 24 ±10%	
		Supply current limit	26 mA	
	Ch 5: Rotational frequency input	Number of channels	1	
		Insulation method	Photocoupler insulation	
		Dielectric strength	AC 1350 V Rotation count input terminal - PE Between	
		Speed measurement range	1 to 12000 Hz (full scale)	
		Input voltage range	1 to 200 Vp-p Chopping Voltage: -18 to +18 V	
		Over speed trip setting range	800 to 11900 Hz	
		Resolution	0.1 Hz	
		Accuracy	±0.01% FS @ (Input voltage) 1 Vp-p to 33 Vp-p: (Rotational speed measurement range) 1 Hz to 6 kHz, ±0.01% FS @ (Input voltage) 2 Vp-p to 33 Vp-p: (Rotational speed measurement range) 1 Hz to 8 kHz, ±0.01% FS @ (Input voltage) 3 Vp-p to 33 Vp-p: (Rotational speed measurement range) 1 Hz to 9 kHz, ±0.01% FS @ (Input voltage) 6 Vp-p to 33 Vp-p: (Rotational speed measurement range) 1 Hz to 10 kHz, ±0.01% FS @ (Input voltage) 11 Vp-p to 33 Vp-p: (Rotational speed measurement range) 1 Hz to 11 kHz, ±0.01% FS @ (Input voltage) 20 Vp-p to 33 Vp-p: (Rotational speed measurement range) 1 Hz to 12 kHz, ±0.01% FS @ (Input voltage) 33 Vp-p to 200 Vp-p: (Rotational speed measurement range) 2 Hz to 12 kHz	
		Ch 2, Ch 3 Ch 6, Ch 7: EOST output Digital output	Number of channels	4 Open collector
			Insulation method	Photocoupler insulation (Individual isolation)
Dielectric strength	AC 1500 V Digital output terminal - PE Between			
Contact maximum voltage	DC 30 V			
Contact withstand current	100 mA			
Leakage current at OFF	0.1 mA or less			
Maximum residual voltage when ON	DC 1.2 V @100 mA			
Ch 8, Ch 9: Rectification speed pulse output	Number of channels	2 Open collector		
	Insulation method	Photocoupler insulation (Individual isolation)		
	Dielectric strength	AC 1500 V Digital output terminal - PE Between		
	Contact rated voltage	DC 30 V		
	Contact withstand current	4 mA *Can be connected to the rotational speed input of LSOPC01 and LSOPC01-1		
	Leakage current at OFF	0.1 mA or less		
Maximum residual voltage when ON	DC 1.0 V @4 mA			
Calculation cycle usable in DPS		10 msec or more		
Communication specification between IOA	Communication method , communication speed	LVDS, 100 Mbps		
Self-diagnostic functions		Power voltage check (24 V, 17 V, 5 V, 3.3 V, 2.5 V, 1.8 V, 1.0 V, Other) *Refer to block diagram Clock abnormal check (FPGA-MCU, FPGA-CPU) Heartbeat check (FPGA-MCU, FPGA-CPU) CRC check (FPGA-MCU)		

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ITEM		SPECIFICATION
IDOL Implementation		Possible (Shortest calculation cycle : 1ms) 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		Unsupported
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)
	General purpose display LED	16: Ch 1 to Ch 16 Arbitrarily set by internal logic
Serial interface	For maintenance	1: USB Serial (USB mini-B connector)
Hot swap		Possible
Operating power supply		DC 24 V \pm 20% Dual power reception (The voltage supplied from the backplane)
Environmental conditions	Module ambient temperature	(Operating / Storage) -5 to 60°C
	Module ambient humidity	(Operating / Storage) 0 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		200 mA
Weight		0.13 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

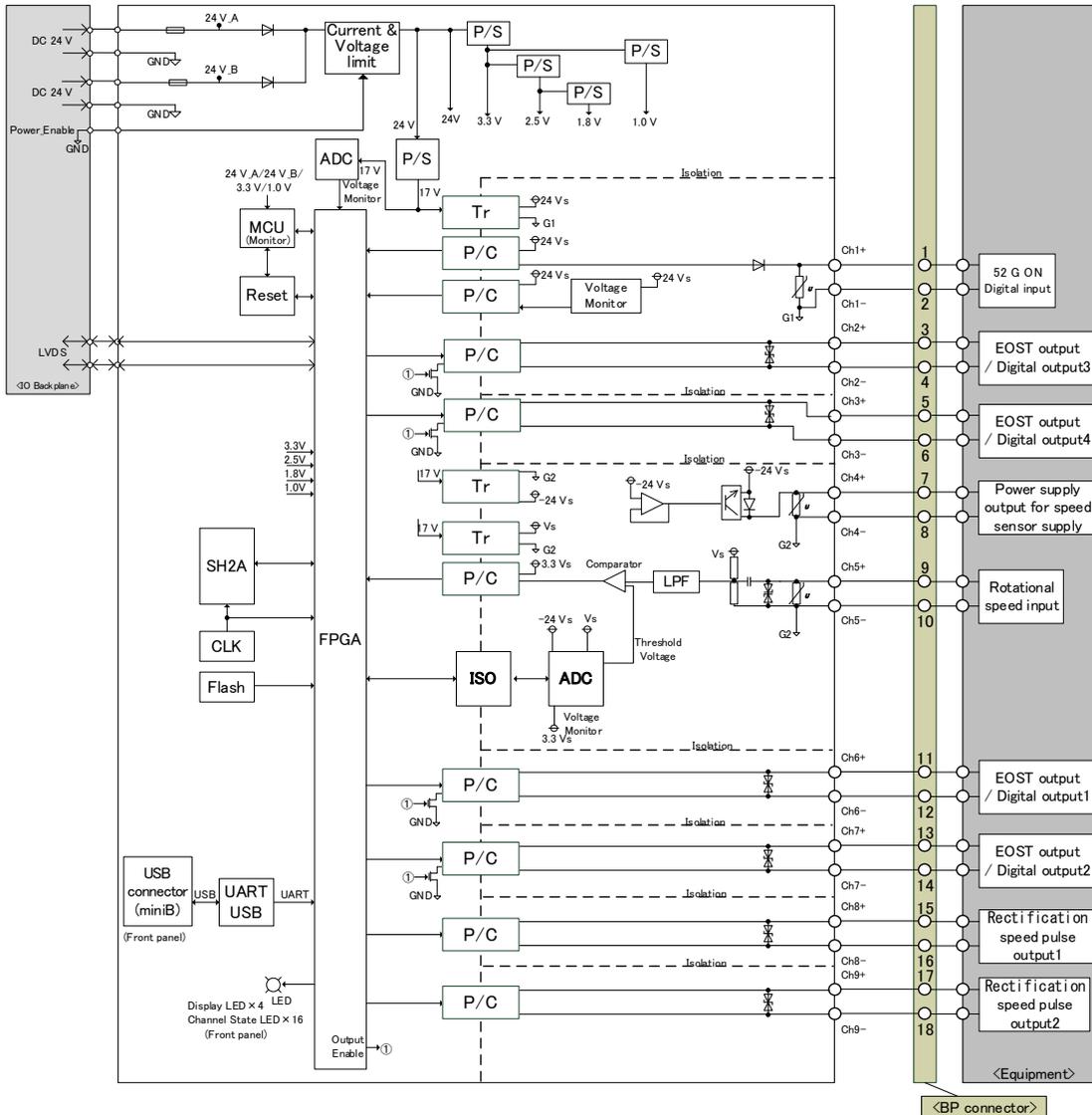
For compliant modules of this product, please refer to "Compliant backplane list (CGS-S9901-E-XX)".

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

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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 | : Ground |
| LVDS | : Low Voltage Differential Signaling | BP | : Backplane |
| P/C | : Photo Coupler | Tr | : Transformer |
| N.C. | : No Connection | Flash | : Flash ROM |
|  | : Varistor | UART | : Universal Asynchronous Receiver Transmitter |
|  | : Fuse |  | : Resistor |
|  | : Bidirectional diode |  | : Diode |

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

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