

LSEOS01 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 : 2
- 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 × 2, Maximum voltage DC 30 V, Maximum load current 0.1 A
Rectification speed pulse output	Maximum voltage DC 30 V × 2, 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	152.5 mm (D) x 94 mm (H) x 46 mm (W) (Except projection)

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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	DC 2 mA or more
			Sense supply voltage: DC 24 V $\pm 10\%$
	Ch 4: Power supply output for speed sensor supply	OFF current	DC 1 mA or less
		Number of channels	1
		Insulation method	Transformer insulation
		Dielectric strength	AC 1350 V Sensor power supply output terminal – PE Between
		Output voltage	DC 24 $\pm 10\%$
		Supply current limit	26 mA
	Ch 5: Rotational speed 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	$\pm 0.01\%$ FS @ (Input voltage) 1 Vp-p to 33 Vp-p: (Rotational speed measurement range) 1 Hz to 6 kHz,
			$\pm 0.01\%$ FS @ (Input voltage) 2 Vp-p to 33 Vp-p: (Rotational speed measurement range) 1 Hz to 8 kHz,
			$\pm 0.01\%$ FS @ (Input voltage) 3 Vp-p to 33 Vp-p: (Rotational speed measurement range) 1 Hz to 9 kHz,
	Ch 6, Ch 7: EOST output Digital output	$\pm 0.01\%$ FS @ (Input voltage) 6 Vp-p to 33 Vp-p: (Rotational speed measurement range) 1 Hz to 10 kHz,	
		$\pm 0.01\%$ FS @ (Input voltage) 11 Vp-p to 33 Vp-p: (Rotational speed measurement range) 1 Hz to 11 kHz,	
		$\pm 0.01\%$ FS @ (Input voltage) 20 Vp-p to 33 Vp-p: (Rotational speed measurement range) 1 Hz to 12 kHz,	
		$\pm 0.01\%$ FS @ (Input voltage) 33 Vp-p to 200 Vp-p: (Rotational speed measurement range) 2 Hz to 12 kHz	
		Number of channels	2 Open collector
		Insulation method	Photocoupler insulation (Individual isolation)
		Dielectric strength	AC 1500 V Digital output terminal – PE Between
		Contact maximum voltage	DC 30 V
Self-diagnostic functions	Ch 8, Ch 9: Rectification speed pulse output	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
		Number of channels	2
		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
	Calculation cycle usable in DPS	Leakage current at OFF	0.1 mA or less
		Maximum residual voltage when ON	DC 1.0 V @4 mA
		Communication method , communication speed	LVDS, 100 Mbps
		Power voltage check (24 V, 17 V, 3.3 V, 1.2 V, Other) *Refer to block diagram	
	Communication specification between IOA	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		180 mA
Weight		0.19 kg
Dimensions		152.5 mm (D) x 94 mm (H) x 46 mm (W) (Except projection)
Standard/Directive		EN 61131-2:2007, RoHS

About compliant module type

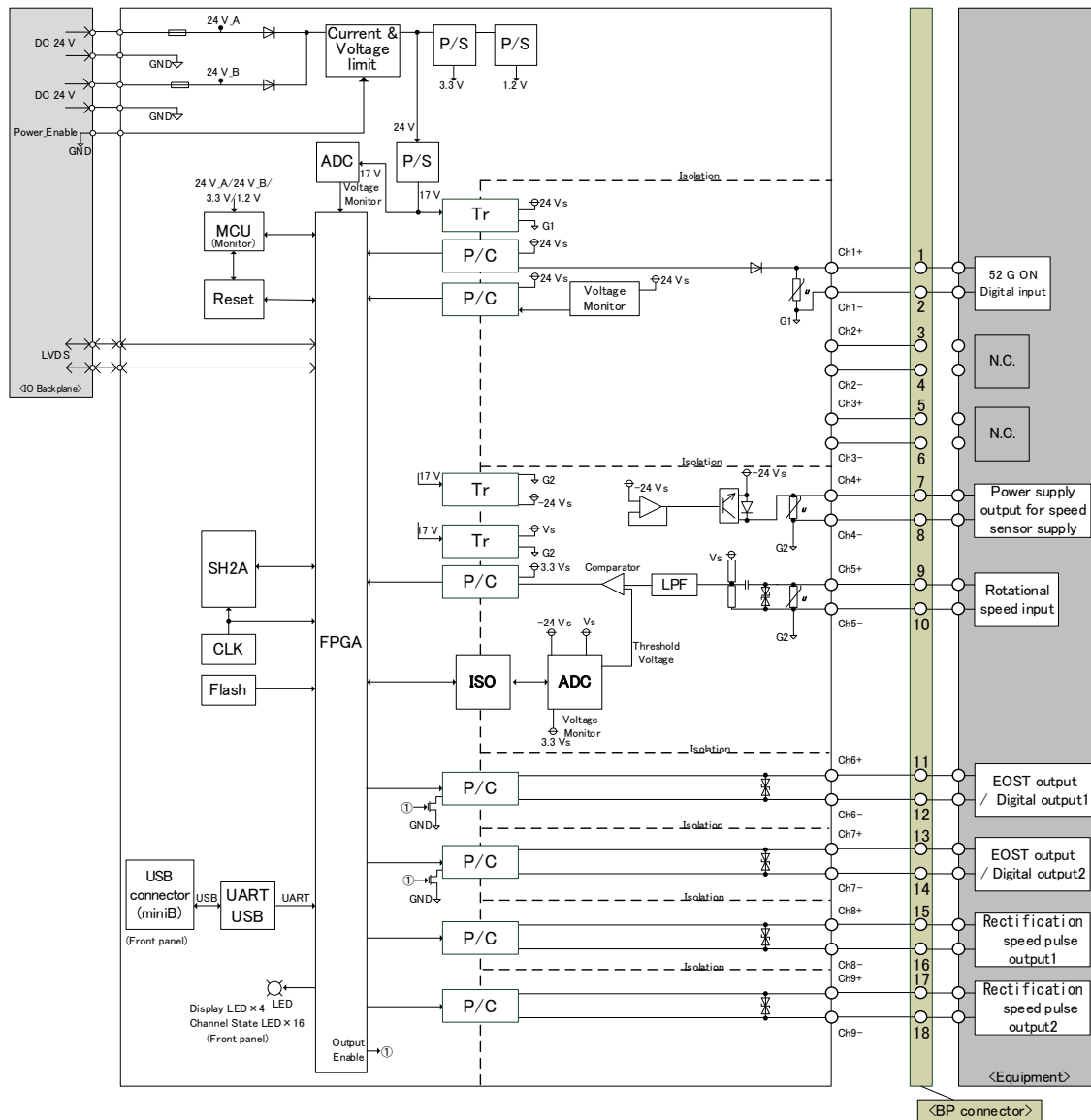
For compliant modules of this product, please refer to "Compliant backplane list (CGS-S9901-E-XX)".

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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