

LSSVT13-1 Servo valve interface module

LS communication Transmitter Servo valve interface Valve position demand output (0 to 250 mA/0 to 500 mA)

Summary



* Terminal block input / output unit

- 52 G ON Digital input : 1
- External forced closed input : 1
- Valve position demand output : 1
 - 03 type : 0 to 250 mA
 - 04 type : 0 to 500 mA

- Valve position feedback input : 1
 - Distributor input

- Analog output : 1
- Analog input : 3

* Auxiliary output connector

- Analog output : 3

* 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
External forced closed input	DC 24 V × 1, minimum ON Current 2 mA
Valve position demand output	0 to 250 mA / 0 to 500 mA × 1
Valve position feedback input	Distributor input × 1, 4 to 20 mA
Analog output	1 to 5 V DC × 1 (Minus common)
Analog input	1 to 5 V DC × 3 (Minus common)
Analog output(Auxiliary output connector)	1 to 5 V DC × 3
Self-diagnostic functions	Power voltage check, Clock abnormal check, Heartbeat check, CRC check, ADC communication error check, I/O signal range check
IDOL Implementation	Possible
Module Duplication	Supported (backplane uses LSI0B02 or LSI0B03) However, the signal of the auxiliary output connector does not support duplication
Indicator	Display LED × 4: Run / Status / Network status A / Network status B General purpose display LED × 16: Ch 1 to Ch 16 It can be arbitrarily set with internal logic
USB connector	1(For maintenance communication mini-B)
Dielectric strength	AC 1500 V Digital input / output terminal - PE Between AC 1000 V Analog input / output 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 to 8.4 Hz, 1 G @8.4 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		
Terminal block Input / output unit	Ch 1: 52 G ON Digital input	Number of channels	1		
		Insulation method	Photocoupler insulation		
		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 2: External forced closed input	Number of channels	1		
		Insulation method	Photocoupler insulation		
		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 3, Ch 4: Valve position demand output *The type of 03/04 is switched by EMS	Number of channels	1		
		Insulation method	Transformer insulation		
		Dielectric strength	AC 1000 V Analog output terminal - PE Between		
		Rated output current	03 type	0 to 250 mA (full scale)	
			04 type	0 to 500 mA (full scale)	
		Load resistance range	03 type	18 to 32 Ω	
			04 type		
		Absolute precision	@25°C	03 type	±0.1% FS (±0.25 mA) @10 to +250 mA
				04 type	±0.1% FS (±0.5 mA) @10 to +500 mA
		Temperature drift	@-5 to 60°C	03 type	±100 ppm/°C (Against full scale)
				04 type	
	Output current monitor	Built-in			
		Absolute precision	@25°C	03 type	±0.3% FS (±0.75 mA) @10 to +250 mA
				04 type	±0.3% FS (±1.5 mA) @10 to +500 mA
Temperature drift		@-5 to 60°C	03 type	±200 ppm/°C (Against full scale)	
		04 type			
Ch 5: Valve position feedback input (Distributor input)	Number of channels	1			
	Insulation method	Transformer insulation (Individual isolation)			
	Dielectric strength	AC 1000 V Analog input terminal - PE Between			
	Input current range	4 to 20 mA (full scale)			
	Output voltage	15 to 30 V (4 to 20 mA)			
	Absolute precision	@25°C	±0.15% FS (±0.016 mA)		
	Temperature drift	@-5 to 60°C	±100 ppm/°C (Against full scale)		
Ch 7: Analog output	Number of channels	@-5 to 60°C			
	Insulation method	Digital isolator insulation			
	Dielectric strength	AC 1000 V Analog output terminal - PE Between			
	Rated output voltage	1 to 5 V (full scale)			
	Minimum load resistance	2 kΩ			
	Absolute precision	@25°C	±0.3% FS (±12 mV)		
	Temperature drift	@-5 to 60°C	±200 ppm/°C (Against full scale)		
Ch 8+, Ch 8-, Ch 9+: Analog input (Ch 9-: ground) Ch 9- is common ground.	Number of channels	3			
	Insulation method	Digital isolator insulation			
	Dielectric strength	AC 1000 V Analog input terminal - PE Between			
	Rated input voltage	1 to 5 V (full scale)			
	Input resistance	100 kΩ or more			
	Absolute precision	@25°C	±0.3% FS (±12 mV)		
	Temperature drift	@-5 to 60°C	±200 ppm/°C (Against full scale)		

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ITEM		SPECIFICATION	
Auxiliary output connector	Analog output (Opening command output, Actual opening output, Override output)	Number of channels	3
		Insulation method	Digital isolator insulation
		Dielectric strength	AC 500 V Analog output terminal - PE Between
		Rated output voltage	1 to 5 V (full scale)
		Minimum load resistance	2 kΩ
		Absolute precision	@25°C ±0.3% FS (±0.12 mV)
		Temperature drift	@-5 to 60°C ±200 ppm/°C (Against full scale)
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) ADC communication error check I/O signal range check (Analog input channel: Overrange, Underrange)	
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		Supported (backplane uses LSIOB02 or LSIOB03) However, the signal of the auxiliary output connector does not support duplication	
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 ±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		840 mA	
Weight		0.25 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

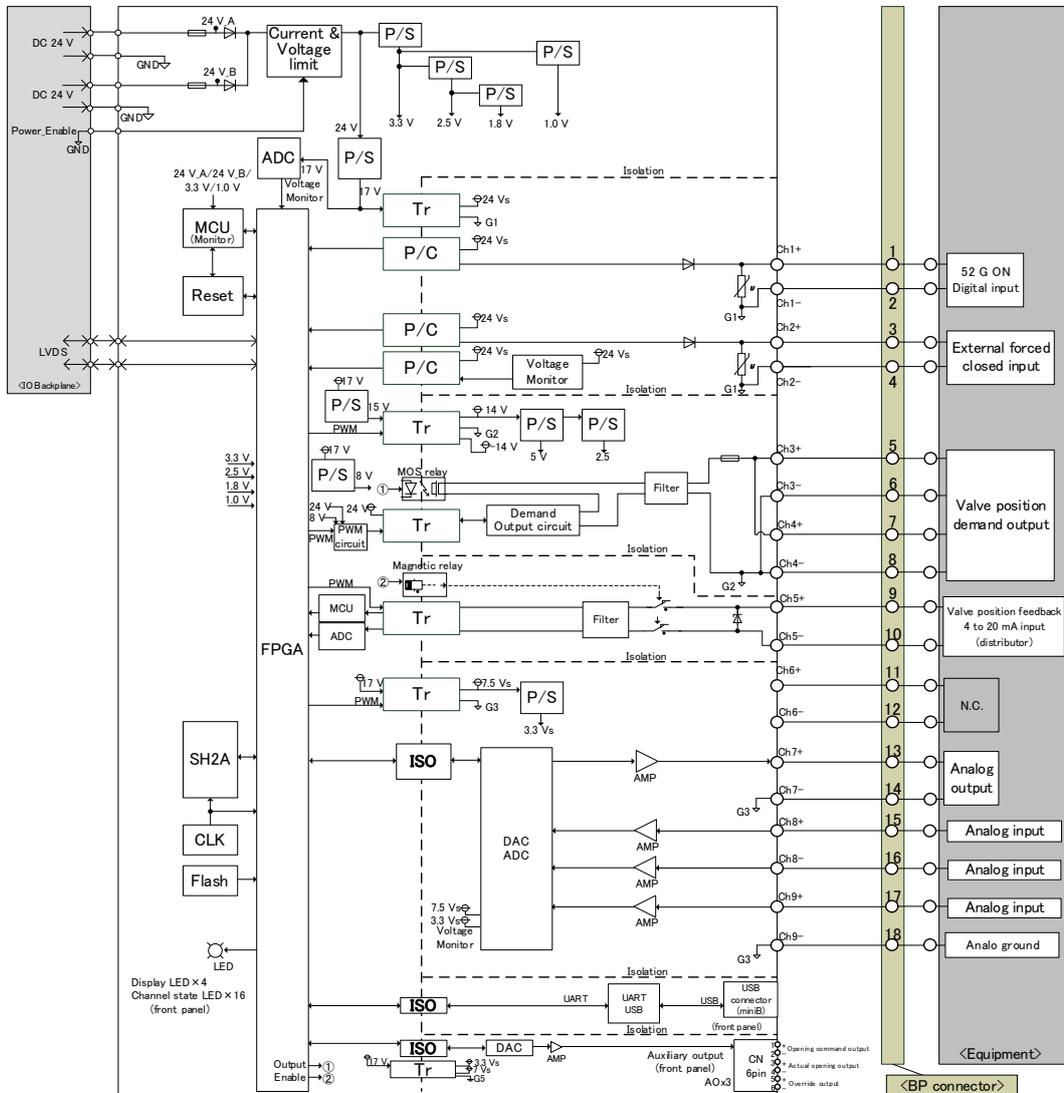
For compliant modules of this product, please refer to "Compliant backplane list (CGS-S9901-E-XX)".

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

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Block diagram



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|----------|--------------------------------------|-----------------|---------------------------------|
| 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 | : Ground |
| LVDS | : Low Voltage Differential Signaling | BP | : Backplane |
| DP | : Digital potentiometer | DDS | : Direct digital synthesizer |
| PWM | : Pulse width modulation | DAC | : Digital analog converter |
| AMP | : Amplifier | Tr | : Transformer |
| P/C | : Photo Coupler | CN | : Connector |
| N.C | : No Connection | Flash | : Flash ROM |
| AO | : Analog Output | Resistor | : Resistor |
| Varistor | : Varistor | Diode | : Diode |
| Fuse | : Fuse | | |

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

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