

LSSVT11 Servo valve interface module

LS communication Transmitter Servo valve interface Valve position demand output (± 20 mA/60 mA)

■ Summary



* Terminal block input / output unit

- 52 G ON Digital input : 1
- External forced closed input : 1
- Valve position demand output : 1
01 type : ± 20 mA
02 type : ± 60 mA
- Valve position feedback input : 1
Distributor input

* 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 \times 1, minimum ON Current 2 mA
External forced closed input	DC 24 V \times 1, minimum ON Current 2 mA
Valve position demand output	± 20 mA / ± 60 mA \times 1
Valve position feedback input	Distributor input \times 1, 4 to 20 mA
Analog output(Auxiliary output connector)	1 to 5 V DC \times 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 \times 4: Run / Status / Network status A / Network status B General purpose display LED \times 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 $\pm 20\%$ 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: 52G 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
	OFF current		Sense supply voltage: DC 24 V $\pm 10\%$ 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
	OFF current		Sense supply voltage: DC 24 V $\pm 10\%$ DC 1 mA or less	
	Ch 3, Ch 4: Valve position demand output *The type of 01/02 is switched by EMS	Number of channels		1
		Insulation method		Digital isolator insulation
		Dielectric strength		AC 1000 V Analog output terminal - PE Between
		Rated output current	01 type	-20 to +20 mA (full scale)
			02 type	-60 to +60 mA (full scale)
		Rated load resistance	01 type	250 Ω
			02 type	40 Ω
		Load resistance range	01 type	40 to 400 Ω
			02 type	10 to 160 Ω
		Absolute precision	@25°C	01 type $\pm 0.1\%$ FS (± 0.04 mA) @Calibration load (Factory shipped: 250 Ω)
			02 type $\pm 0.1\%$ FS (± 0.12 mA) @Calibration load (Factory shipped: 40 Ω)	
Temperature drift		@-5 to 60°C	01 type ± 100 ppm/°C (Against full scale)	
		02 type ± 100 ppm/°C (Against full scale)		
Output current monitor		Built-in		
Absolute precision	@25°C	01 type $\pm 0.3\%$ FS (± 0.12 mA) @Calibration load		
		02 type $\pm 0.3\%$ FS (± 0.36 mA) @Calibration load		
Temperature drift	@-5 to 60°C	01 type ± 200 ppm/°C (Against full scale)		
		02 type ± 200 ppm/°C (Against full scale)		
Ch 5: Valve position feedback input (Distributor input)	Number of channels		1	
	Insulation method		Transformer insulation	
	Dielectric strength		AC 1000 V Analog input terminal - PE Between	
	Input current range		4 to 20 mA (full scale)	
	Output voltage		14.5 to 28 V (4 to 20 mA)	
	Absolute precision	@25°C	$\pm 0.15\%$ FSD (± 0.016 mA)	
	Temperature drift	@-5 to 60°C	± 100 ppm/°C (Against full scale)	
Auxiliary output connector	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 k Ω	
	Absolute precision	@25°C	$\pm 0.3\%$ 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, 3.3 V, 1.2 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)		

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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 $\pm 20\%$ 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		240 mA
Weight		0.20 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

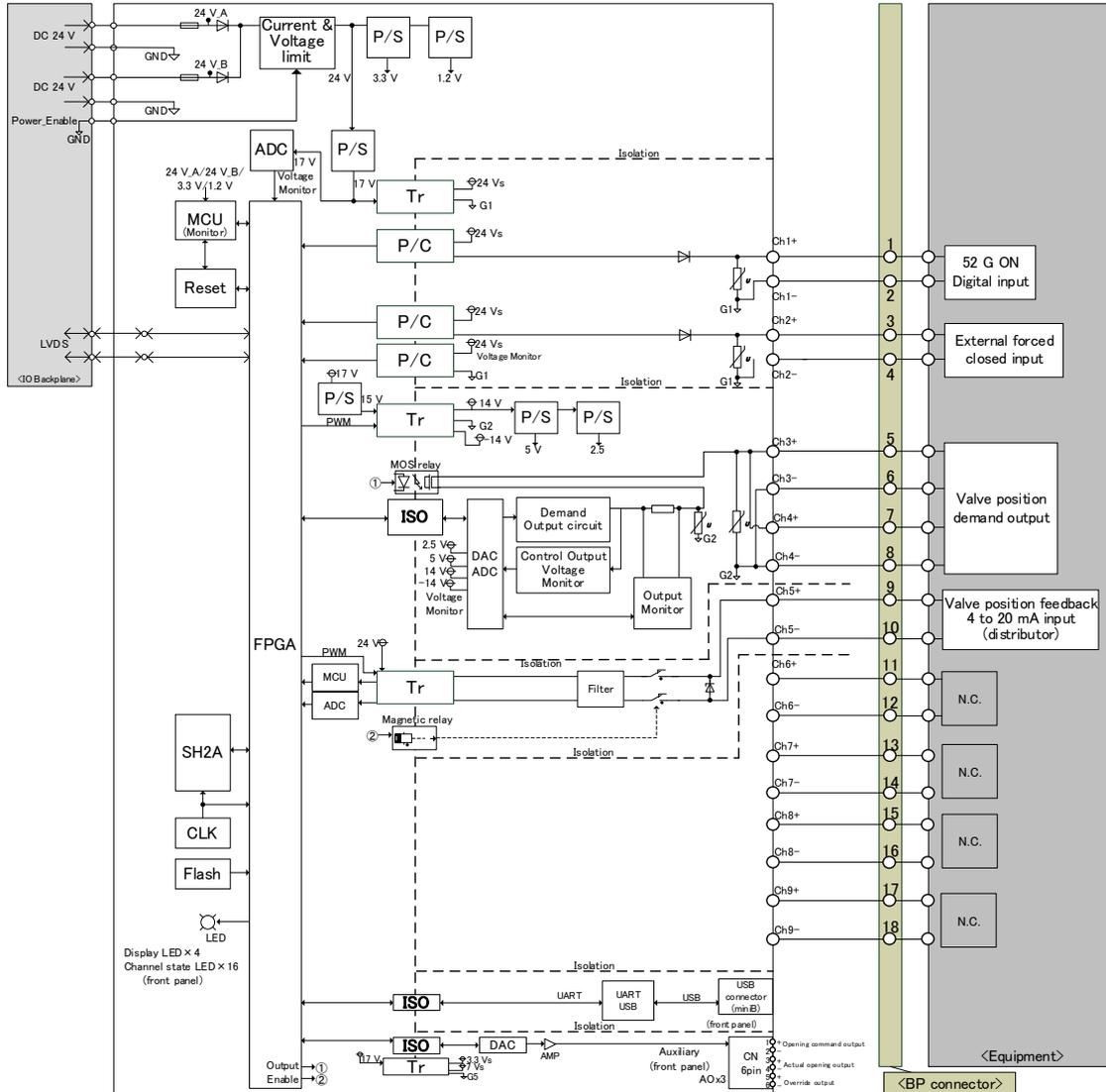
For compliant modules of this product, please refer to "Compliant backplane list (CGS-S9901-E-XX)".

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,G4	: Ground
LVDS	: Low Voltage Differential Signaling	BP	: Backplane
PWM	: Pulse width modulation	DAC	: Digital analog converter
AMP	: Amplifier	∇	: Zener diode
P/C	: Photo Coupler	Tr	: Transformer
N.C	: No Connection	CN	: Connector
AO	: Analog Output	Flash	: Flash ROM
∇	: Varistor	Resistor	: Resistor
\square	: Fuse	Diode	: Diode

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

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