LSSVT13　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 LSIOB02 or LSIOB03) 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℃	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℃	03 type	±100 ppm/℃ （Against full scale）
				04 type	
		Output current monitor		Built-in	
		Absolute precision	@25℃	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℃	03 type	±200 ppm/℃ (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℃	±0.15% FS (±0.016 mA)	
		Temperature drift	@–5 to 60℃	±100 ppm/℃ （Against full scale）	
	Ch 7: Analog output (Ch 9–: Common ground)	Number of channels		@–5 to 60℃	
		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℃	±0.3% FS (±12 mV)	
		Temperature drift	@–5 to 60℃	±200 ppm/℃ （Against full scale）	
	Ch 8+, Ch 8–, Ch 9+: Analog input (Ch 9–: 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℃	±0.3% FS (±12 mV)	
		Temperature drift	@–5 to 60℃	±200 ppm/℃ （Against full scale）	

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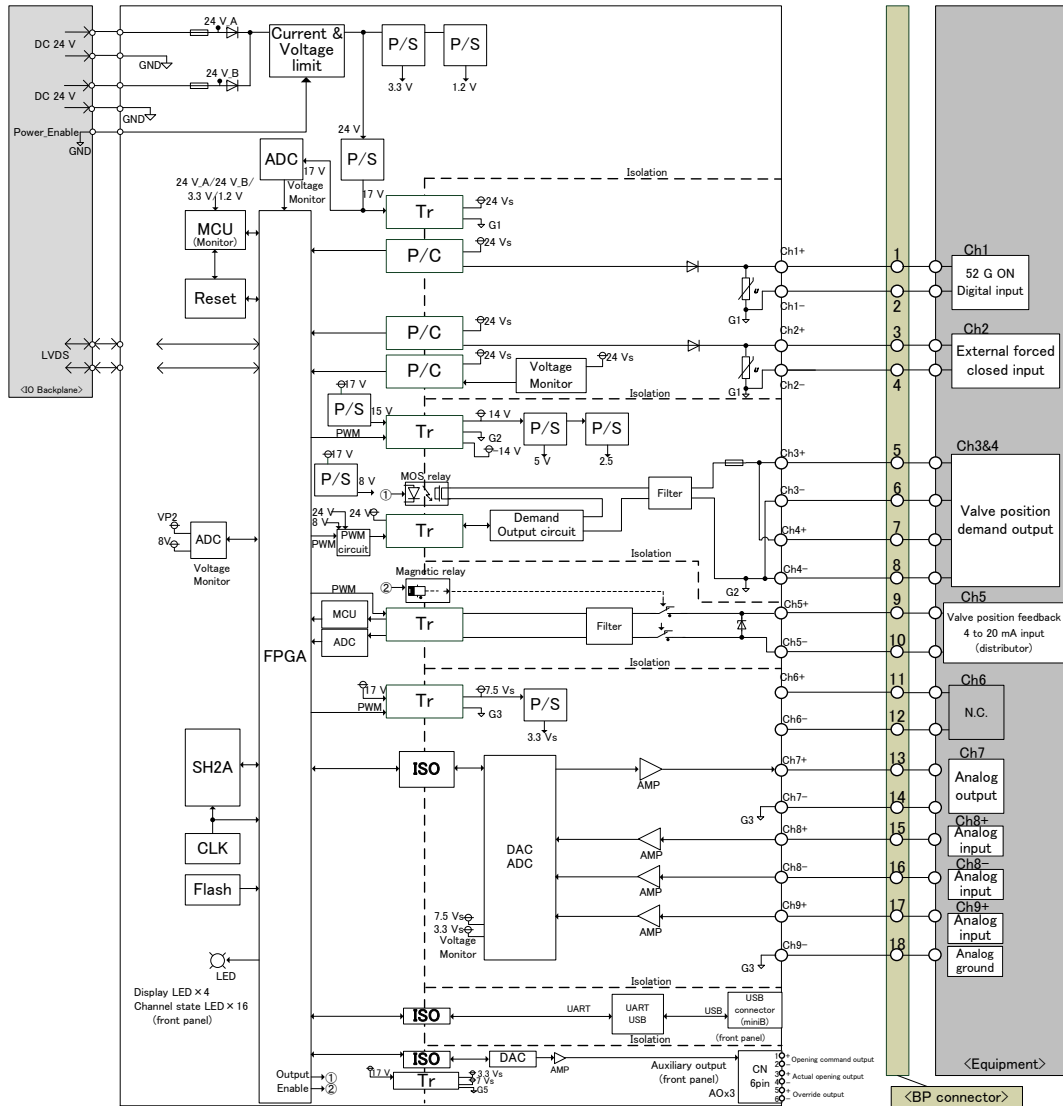| ITEM			SPECIFICATION
Auxiliary output connector	Analog output	Number of channels	3
		Insulation method	Digital isolator insulation
		Dielectric strength	AC 500 V Analog output terminal – PE Between
		Rated output voltage	1 to 5 V (full scale)
		Minimum load resistance	2 kΩ
		Absolute precision @25°C	±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, 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)
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			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
Current consumption			860 mA or less
Weight			0.24 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,G3,G4	:	Ground
LVDS	:	Low Voltage Differential Signaling	BP	:	Backplane
DP	:	Digital potentio meter	DDS	:	Direct digital synthesizer
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
	:	Fuse		:	Diode

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