

# LSVIM01 Vibration Interface module

LS communication Vibration pressure variation , Combustor vibration input , FFT analysis

## ■ Summary



### \*Vibration interface module input / output

Terminal block input / output unit

- Analog input (1 to 5 V) : 8

Panel I/O connector

- Auxiliary input(Analog) (1 to 5 V) : 2

- Digital output (Open collector) : 2

- Serial communication : 2

### \*USB connector (For maintenance)

- For maintenance communication mini-B : 1

### \*Indicator

- Display LED (RUN / STS / NSA / NSB) : 4

- General purpose display LED : 16

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

## ■ Overview Specifications

| ITEM                               | SPECIFICATION   |
|------------------------------------|---|
| Analog input                       | 8 1 to 5 V  |
| Auxiliary input(Analog)(Panel I/O) | 2 1 to 5 V  |
| Digital output(Panel I/O)          | 2 DC 30 V   |
| Serial communication               | 2 RS232C level  |
| USB connector(For maintenance)     | 1 For maintenance communication mini-B  |
| Self-diagnostic functions          | Watchdog timer, MCU communication monitoring, Flash access monitoring, Clock monitor, Power-supply voltage(Low / High), CRC check   |
| IDOL Implementation                | Possible  |
| Indicator                          | Display LED × 4: Run / Status / Network status A / Network status B<br>Channel State LED × 16: Ch 1 to Ch 16 Arbitrarily set by internal logic  |
| Dielectric strength                | AC 500V Analog input terminal (Terminal block) - PE<br>AC 500V Analog input terminal (Panel I/O) - PE<br>AC 500V Digital output terminal (Panel I/O) - PE<br>AC 500V RS232C Serial communication (Panel I/O) - PE |
| Environmental conditions           | Ambient temperature (Operating / Storage) -5 to 60°C<br>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                         | 62 mm (D) x 94 mm (H) x 46 mm (W) (Except projection)   |

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## ■ Specifications

| ITEM                            |                            | SPECIFICATION  |  |
|---------------------------------|----------------------------|--|--|
| Terminal block                  | Analog input               | Number of channels   | 8 (Channel Individual Isolation)   |
|                                 |                            | Input range  | 1 to 5 V   |
|                                 |                            | Signal filter  | Cutoff frequency 20 kHz<br>(Input frequency characteristics $\pm 0.2$ dB @ DC to 10 kHz) |
|                                 |                            | Input impedance  | 100 k $\Omega$ or more   |
|                                 |                            | Input frequency range  | 0 to 10 kHz  |
| Panel I/O                       | Auxiliary input(Analog)    | Number of channels   | 2 (Common)   |
|                                 |                            | Input range  | 1 to 5 V / 12 bit  |
|                                 |                            | Input impedance  | 100 k $\Omega$ or more   |
|                                 | Digital output             | Number of channels   | 2 (Common)   |
|                                 |                            | Applied maximum voltage  | DC 30 V  |
|                                 |                            | Maximum load current   | 0.1 A  |
|                                 |                            | Leakage current when OFF   | 0.1 mA or less   |
|                                 | Serial communication       | Number of channels   | 2 (Common)   |
|                                 |                            | Interface  | RS232C level   |
|                                 |                            | Maximum communication speed  | 115200 bps   |
| USB connector(For maintenance)  |                            | 1 (For maintenance communication mini-B)   |  |
| Calculation cycle usable in NPS |                            | 50 ms or more  |  |
| Dielectric strength             |                            | AC 500 V Analog input terminal (Terminal block) - PE<br>AC 500 V Analog input terminal (Panel I/O) - PE<br>AC 500 V Digital output terminal (Panel I/O) - PE<br>AC 500 V RS232C Serial communication (Panel I/O) - PE  |  |
| Self-diagnostic functions       |                            | Watchdog timer<br>MCU communication monitoring<br>Flash access monitoring<br>Clock monitor<br>Power-supply voltage (Low / High)<br>CRC check   |  |
| Protective function             |                            | Overvoltage protection<br>Overcurrent protection   |  |
| Indicator                       |                            | - Display LED (RUN / STS /NSA / NSB)<br>- Channel State LED (Arbitrarily set by internal logic)  |  |
| Rated Current                   |                            | 179 mA   |  |
| Weight                          |                            | 0.14 kg  |  |
| Dimensions                      |                            | 62 mm (D) x 94 mm (H) x 46 mm (W) (Except projection)  |  |
| Insulation method               |                            | Analog input<br>Analog input terminal (Terminal block): Transformer insulation<br>Analog input terminal (Panel I/O): Digital Isolator Isolation<br>Digital output terminal (Panel I/O): Photocoupler insulation<br>RS232C Serial communication (Panel I/O): Digital Isolator Isolation |  |
| Hot swap                        |                            | Possible   |  |
| Power supply                    |                            | DC 24 V $\pm 20\%$ (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<br>1 G @ 8.4 to 150 Hz  |  |
| Shock                           |                            | 15 G 11 ms   |  |
| Standard/Directive              |                            | EN 61131-2:2007, RoHS  |  |

About compliant module type

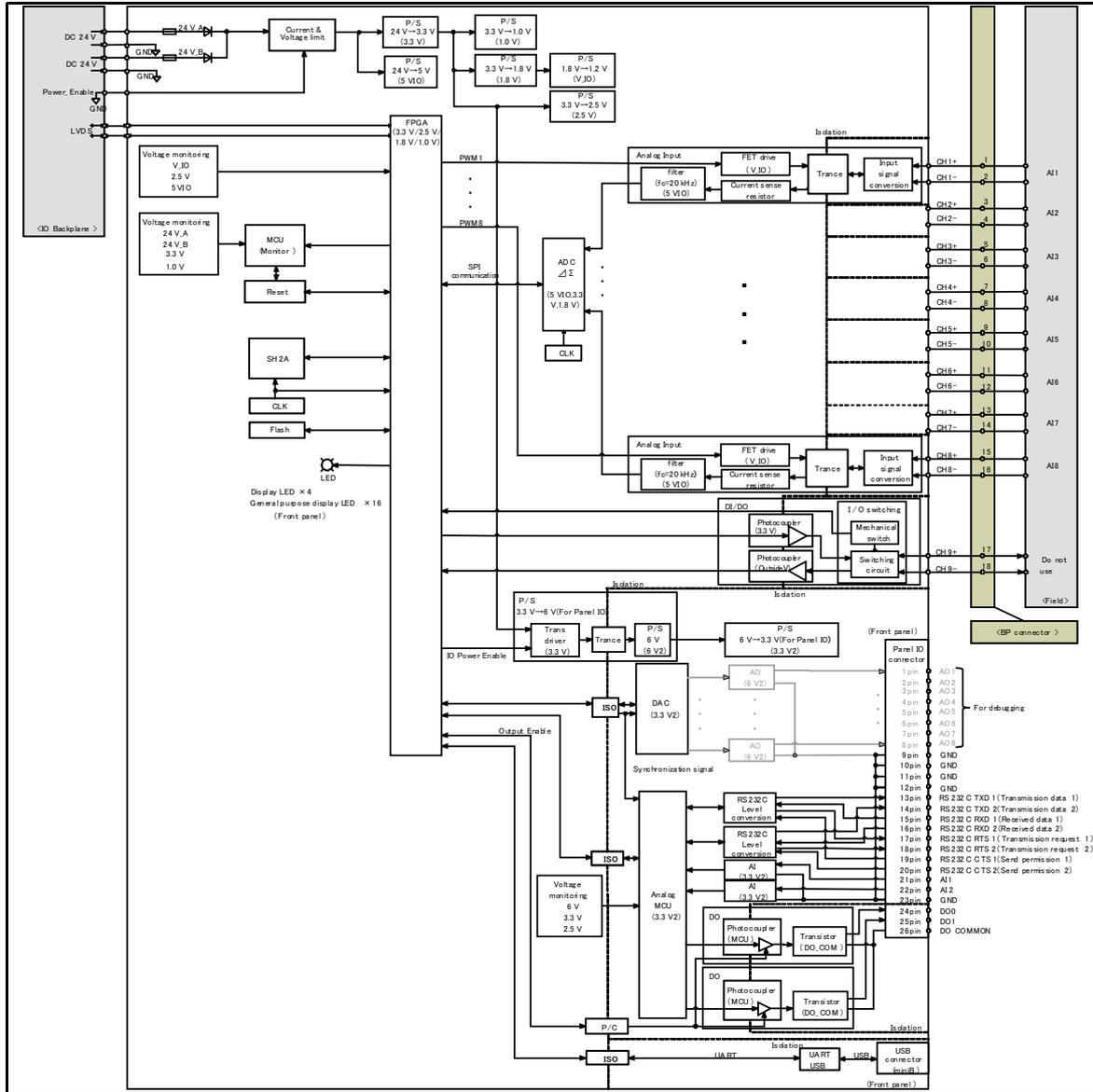
For compliant modules of this product, please refer to "Compliant backplane list (CGS-S9901-E-XX)".

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  
 SH2A : Renesas SH-2A micro processor  
 CLK : Clock generation circuit  
 ISO : Digital isolator  
 DAC : Digital analog converter  
 LVDS : Low Voltage Differential Signaling  
 PWM : Pulse width modulation  
 AMP : Amplifier  
 P/C : Photo Coupler  
 N.C : No Connection  
 : Fuse

MCU : Micro control unit  
 FPGA : Field programmable gate array  
 LED : Light emitting diode  
 ADC : Analog digital converter  
 Flash : Flash ROM  
 BP : Backplane  
 DAC : Digital analog converter  
 AI : Analog Input  
 AO : Analog Output  
 DO : Digital Output  
 : Diode

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

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