SCIRS01 Safety IRS module

Safety I/O　Infrared flame detector control　1 ch

■Summary

＊Isolated digital input / output module : Sensor signal input (DC 0 to 10 V / AC 0 to 300 Hz) : 1 ch
Power to the sensor (DC 24 V) : 1 ch

＊User interface : Switch : 2
(Front panel upper side : for H/W reset, lower side : unused)

＊Module ambient temperature : -5 to 60℃

＊In compliance with Functional Safety Standard IEC 61508

DIASYS Netmation 4S

MOVE THE WORLD FORW>RD　MITSUBISHI HEAVY INDUSTRIES GROUP

Mitsubishi Power is a power solutions brand of Mitsubishi Heavy Industries.

CGS-S1001-E-09 (2023. 07. 31)
SL : 1　ECT : N/A

SCIRS01　Safety IRS module
Safety I/O　Infrared flame detector control　1 ch

■Specifications

ITEM			SPECIFICATION	
Input	Sensor signal input	Number of channels	1 ch (Channel individual insulation)	
		Range	DC 0 to 10 V / AC 0 to 300 Hz (Full scale)	
		Signal filter	−3 dB @ 1.5 kHz	
		Absolute accuracy	1% FS @ 25℃	
		Temperature drift	2% FS @ −5 to 60℃	
Output	Power to the sensor	Number of channels	1 ch (Channel individual insulation)	
		Output voltage	±12 V ±10%	
		Output current	0 to 30 mA	
Safe state			Communication cutoff	
Data refresh cycle			2 sec	
AD conversion type			⊿Σ, Successive approximation register (SAR)	
Isolation voltage			AC 500 V　Internal circuit (CPU/FPGA) - I/O terminal DC 500 V　I/O terminal − PE DC 200 V　Between I/O channels	
User interface			Switch	2 (Front panel upper side: for H/W reset, lower side: unused)
Self diagnosis			Redundant I/O circuit comparison check Redundant CPU comparison check Quadruplexed A/D converter comparison check ADC stuck check CRC check Data format check I/O signal range check Watchdog timer Communication timeout check Redundant voltage monitor Clock abnormal check Functional check of the abnormal communication signal TPFS(Temporal Programming Flow Supervision): Loss-of-function check for system timers LPFS(Logical Programming Flow Supervision): Loss-of-function check for logical programming flow	
Protection	Electrical		Overvoltage protection Overcurrent protection Double−insulated	
	Safety Function		Switch to safe state Accuracy: 7.0% FS @ −5℃ to 60℃ Abnormal communication signal cutoff	
Indicators			4 indicators: Power / Status / Network status A / Network status B 5 indicators: IO status for each channel (*2 indicators: I/O, 3 indicators: Brightness / non flame)	
Rated power consumption			296 mA	
Weight			Less than 300 g	
Size			152.5 mm (D) x 94 mm (H) x 46 mm (W) (Protrusions excluded)	
Certification body			TÜV SÜD	
Safety integrity level	(IEC 61508−1)		SIL3	
EMC Zone	(EN 61131−2)		B (Dedicated power distribution, rated voltage: 300 V or less)	
Overvoltage category	(IEC 60664−1)		II (Energy−consuming equipment to be supplied from the fixed installation)	
IEC protection class	(IEC 60204−1)		II (Double insulated)	
Isolation method			Channel individual insulation	
Hot−swapping			Supported　*However, depending on the field circuit and the application program	
Resolution			16 bit　*Two types of AD converters are duplexed.	
Rated voltage			DC 24 V −15% to +20% (The voltage supplied from the backplane)	
Environmental conditions	Module ambient temperature		(Operation) −5 to +60℃	(Storage) −25 to +85℃
	Module ambient humidity		(Operating / Storage) 0 to 95% RH (No condensation)	
Vibration			3.5 mm at 5 to 8.4 Hz, 1 G at 8.4 to 150 Hz	
Shock			15 G 11 ms	

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)″.

SCIRS01 Safety IRS module

Safety I/O   Infrared flame detector control   1 ch
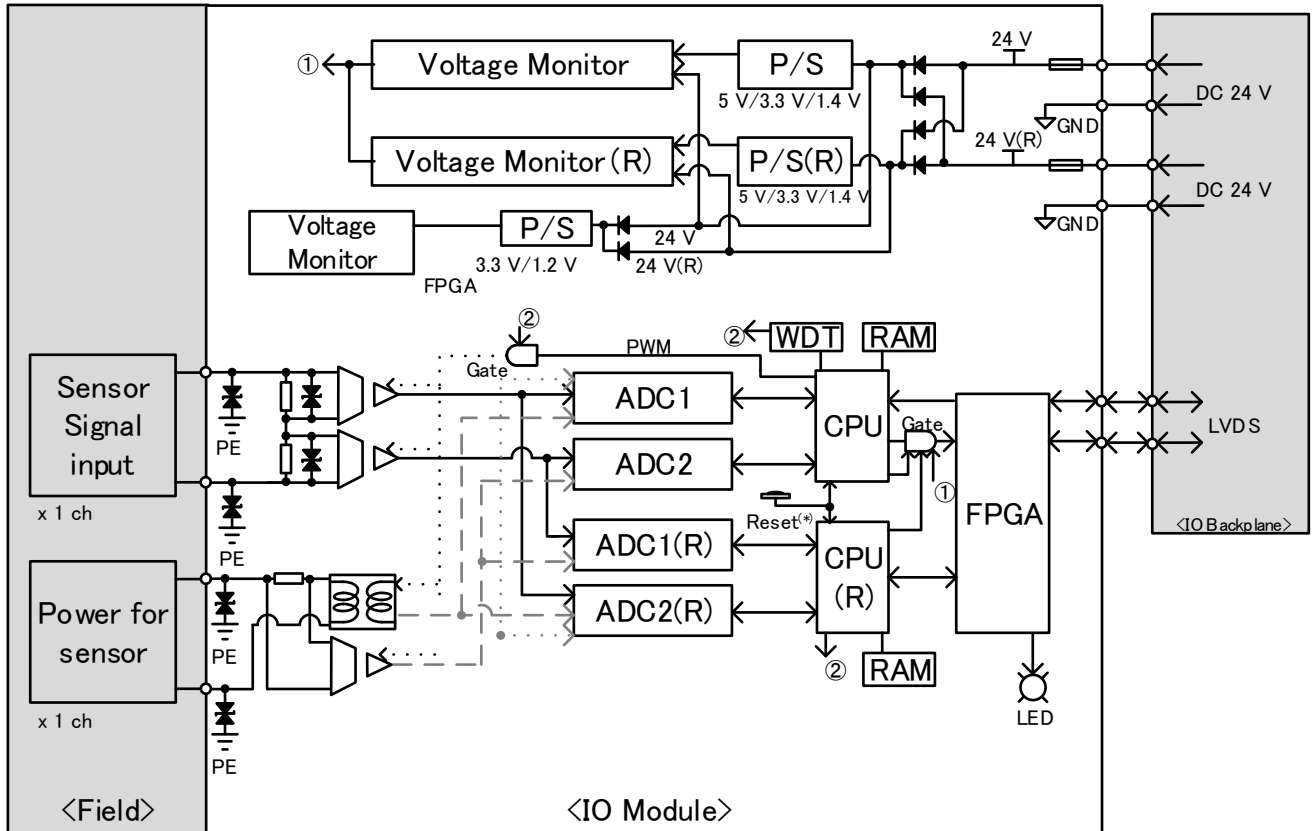
■Supported standards/Supported directives

Certified standard	Year	Title
IEC 61508	2010	Functional safety of electrical/electronic/programmable electronic safety-related systems
EN 61131-2	2007	Programmable controllers – Part 2: Equipment requirements and tests
IEC 61131-6	2012	Programmable controllers - Part 6: Functional safety
IEC 61511-1	2004	Functional safety - Safety instrumented systems for the process industry sector - Part 1: Framework, definitions, system, hardware and software requirements,
EN 50156-1	2004	Electrical equipment for furnaces and ancillary equipment - Part 1 : Requirements for application design and installation
ISO 13849-1	2008	Safety of machinery – Safety-related parts of control systems-Part 1:General principles for design
EN 54-2	2007	Fire detection and fire alarm systems Part 2: Control and indicating equipment

| Supported directive	Year	Title
RoHS	2011	DIRECTIVE 2011/65/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 27 January 2003 on the restriction of the use of certain hazardous substances in electrical and electronic equipment
Low Voltage	2006	DIRECTIVE 2006/95/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 12 December 2006 on the harmonisation of the laws of Member States relating to Electrical Equipment designed for use within certain voltage limits
EMC	2004	DIRECTIVE 2004/108/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 15 December 2004 on the approximation of the laws of the Member States relating to electromagnetic compatibility and repealing Directive 89/336/EEC
Machinery	2006	DIRECTIVE 2006/42/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 17 May 2006 on machinery, and amending Directive 95/16/EC

SCIRS01 Safety IRS module
Safety I/O Infrared flame detector control 1 ch

■Block diagram

(∗) Indicates the H/W reset switch on the upper side of the front panel.

(R)	:	Redundant
P/S	:	Power Supply
LVDS	:	Low Voltage Differential Signaling
FPGA	:	Field Programmable Gate Array
CPU	:	Central Processing Unit
RAM	:	Random Access Memory
WDT	:	Watch Dog Timer
ADC	:	Analog Digital Converter
PWM	:	Pulse Width Modulation
Gate	:	Buffer Gate
VF	:	Voltage field ※Analog distribute voltage
GND	:	Ground
PE	:	Protective Earth
FS	:	Full Scale
BP	:	Backplane
⊏⊐	:	Resistor
⊏⊐	:	Fuse
⊣◀	:	Zener diode
⊗⊗	:	Transformer

DIASYS Netmation 4S MOVE THE WORLD FORW>RD MITSUBISHI HEAVY INDUSTRIES GROUP

Mitsubishi Power is a power solutions brand of Mitsubishi Heavy Industries. CGS-S1001-E-09 (2023. 07. 31)