

# SCDOW02 Safety DO-WET (DC) module

Safety I/O DC110V Digital output Wet type contact 4ch

## ■ Summary



- \* Number of output channels : 4ch (Channel individual insulation)
- \* Contact : Wet type
- \* Contact voltage : DC110V
- \* Rating load : 20W/ch  
Switch : 2
- \* User interface : (Front panel upper side : for H/W reset,  
lower side : unused)
- \* Module ambient temperature : -5 to 60°C
- \* In compliance with Functional Safety Standard IEC61508

# SCDOW02 Safety DO-WET (DC) module

Safety I/O DC110V Digital output Wet type contact 4ch

## Specifications

ITEM		SPECIFICATION
Output	Number of channels	4ch (Channel individual insulation)
	Contact	Wet type
	Rating contact voltage	DC110V
	Delay	Less than 2msec
	Rating load	20W/ch
	Leakage current	1mA or less @ DC24V
	Safe state	Terminal contacts open (De-energized "Open" contact), Communication cutoff
Data refresh cycle	2msec	
AD conversion type	ΔΣ, Successive approximation register(SAR)	
Isolation voltage	DC2kV	Internal circuit(CPU/FPGA) - I/O terminal
	DC2kV	I/O terminal - PE
	DC200V	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 Open-wire/short-circuit check(Detected as read-back error of the output)	
Protection	Electrical	Overvoltage protection Overcurrent protection Double-insulated
	Safety Function	Abnormal communication signal cutoff
Indicators	4 indicators: Power / Status / Network status A / Network status B 4 indicators: IO status for each channel	
Current consumption	3.7A	
Weight	Less than 300g	
Size	46mmW x 94mmH x 152.5mmD (Protrusions excluded)	
Certification body	TÜV SÜD	
Safety integrity level	(IEC61508-1)	SIL3
EMC Zone	(IEC61131-2)	B (Dedicated power distribution, rated voltage: 300V or less)
Overvoltage category	(IEC60664-1)	II (Energy-consuming equipment to be supplied from the fixed installation)
IEC protection class	(IEC60204-1)	II (Double insulated)
Isolation method	Channel individual insulation	
Hot-swapping	Supported * However, depending on the field circuit and the application program	
Resolution	16bit *Two types of AD converters are duplexed.	
Rated voltage	DC24V -15% to +20% (The voltage supplied from the backplane)	
Environmental conditions	Module ambient temperature	(Operation) -5 to +60°C (Storage) -40 to +85°C
	Module ambient humidity	10 to 95% RH (Non-condensing)
Vibration	3.5mm at 5 to 8.4Hz, 1G at 8.4 to 150Hz	
Shock	15G 11m	

\*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)".

# SCDOW02 Safety DO-WET (DC) module

Safety I/O DC110V Digital output Wet type contact 4ch

## ■ Supported standards/Supported directives

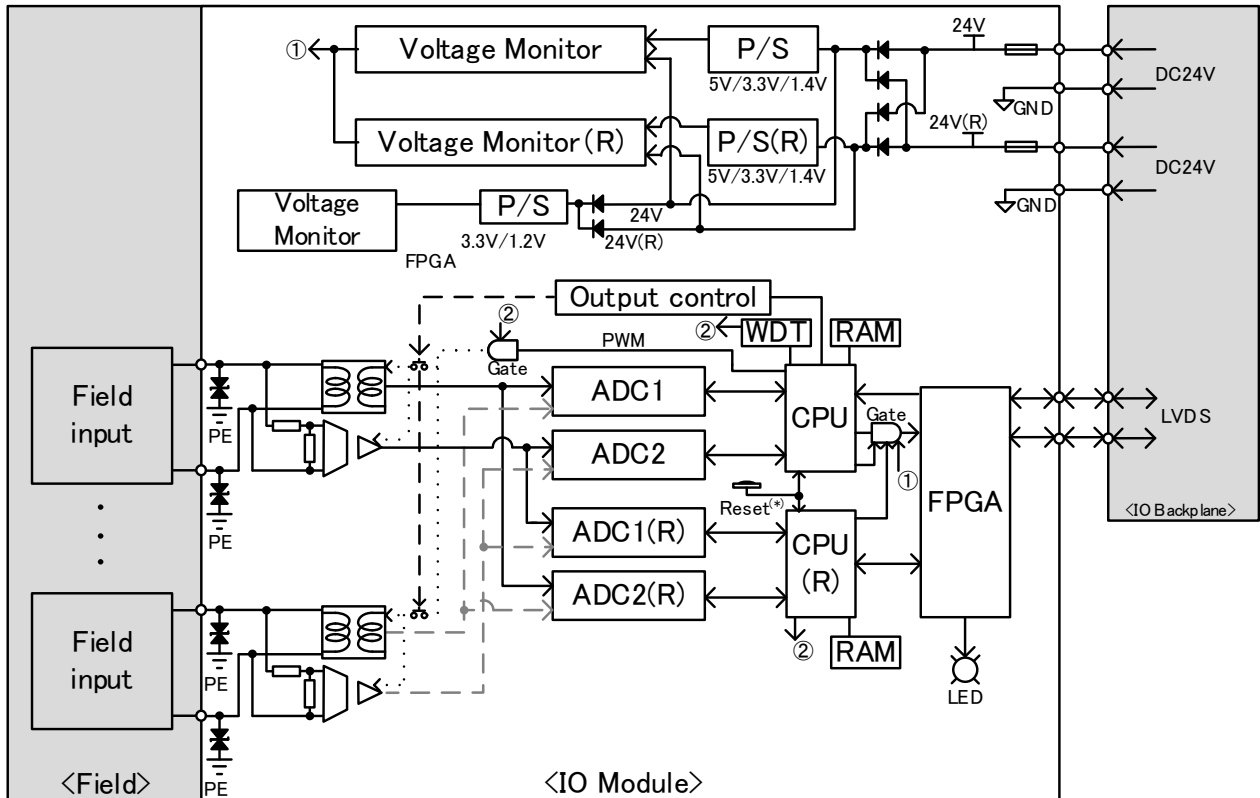
Certified standard	Year	Title
IEC61508	2010	Functional safety of electrical/electronic/programmable electronic safety-related systems
IEC61131-2	2007	Programmable controllers - Part 2: Equipment requirements and tests
IEC61131-6	2012	Programmable controllers - Part6: Functional safety
IEC62061	2005	Safety of machinery-Functional safety of safety-related electrical, electronic and programmable electronic control systems
IEC61511-1	2004	Functional safety - Safety instrumented systems for the process industry sector - Part1: Framework, definitions, system, hardware and software requirements,
EN50156-1	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-Part1:General principles for design
EN 54-2	2007	Fire detection and fire alarm systems Part2: 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





# SCDOW02 Safety DO-WET (DC) module

Safety I/O DC110V Digital output Wet type contact 4ch

## 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
- LED : Light Emitting Diode
- GND : Ground
- PE : Protective Earth
- F.S. : Full Scale
- BP : Backplane
-  : Resistor
-  : Fuse
-  : Zener diode
-  : Transformer

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

This catalog may not be distributed or reproduced in whole or in part without permission.

Please be aware that due to product improvements and modifications, the product description in this catalog may differ in certain respects from the actual product.

The service names and product names of other companies described in this catalog are the trademarks of each company.