Modbus I/O Modules

SIO280 (8DI+8DO)

SDIDO(16DI+4DO)

LT3504(4DO)

SIO270 (8DI+2DO)

SIO235C [4AI+4DI+2DO +(8 thermistor)]

SIO235B(12AI+6DI+4DO)

LT3100(12DI/4DO)

SIO210

SDIDO(SOE)

SIO235A (4AI+4DI+2DO)

LT1050(1DI/1DO)

IS70

APPLICATIONS

- Power Monitoring and Control
- Building Automation
- Process Monitoring and Control
- Remote Telemetry
- Energy Management

OVERVIEW

The SIO series of input/output modules have been designed for power scada and energy facility management system, although they have been optimized for these applications they can of course be used as general purpose I/O such as process industry automation or data acquisition system.

DESIGNED FOR ELECTRICAL CONTROL SYSTEMS

Unlike conventional single function I/O modules (i.e. DI only module, DO only module and AI only module), the SIO series have a combination of I/O types per module. Besides, SIO also support modbus protocol over Rs485 interface port. Those features are very helpful for electrical control systems application.

DESIGNED FOR HIGH RELIABILITY

Typically, the cabling for electrical equipment can be wildly spread, the ideal location to affix the I/O module would be inside with the electrical panel itself. Doing so would not only reduce the labor cost of the piping and wiring, but will also reduce the costs associated with all design and commissioning and trouble shooting as well.

The module is required not only to have high immunity to noise and interference, but needs to have multiple I/O types to be combined together onto the same module in order to shrink the module to a size small enough to fit within the constrained space of the panel.

SIO module installed directly in the same panel as the electrical equipment, greatly reducing the cost of labor and work time

MODULE SELECTIONS



		SIO280	SIO270	SDIDO	SDIDO(SOE)
Model		SIO280	SIO270	SDIDO	SDIDO(SOE)
Product Name		8DI/8DO module	8DI/2DO module	16DI/4DO module	SOE module
DI	DI Channels				
	SOE	N/A	N/A	N/A	yes (times tamping 1 msec)
	DI input	dry sense contact			
	Voltage Isolation	5000KV optical isolation			
	Counter Accumulator	YES			
	low pass filter	30mSEC			
	Status Indicator LED	One per DI			
DO	DO channels	8 relays	2 relays	4 relays	4 relays
	Activity Indicator LED	one per relay			
	Form Factor	Form C(no+nc)	Form A	2 Form C+2 Form A	
	Manual backup switch	None			
	Contact capacity	220VAC/2A			220VAC/1A
	Control Modes	Direct/Pulse/Restore			Pulse
RS485	Address max	63	31	63	63
	Baud Rate	2400 or 9600 bps (set using DIP switch)			
	Comm Indicator LED	V			
	Protection	TVS, PTC, photo siolation			
Self Diagnostic and Recovery LED		V			
Power Supply	Voltage	DC24V/AC12-18V	DC12V/DC24V/AC12-18V	AC12-18V	DC12V/DC24V/AC12-18V
	Standby Power	2VA	0.5VA	1.2VA	1.2VA
	Highest Power (Relay actvity)	8VA	3VA	6VA	6VA

		LT3504	LT3100	LT1050	SIO210
Model		LT3504	LT3100	LT1050	SIO210
Product Name		4 addressable relays	12DI/4DO addressable relays	1DI/1DO	4DI
DI	DI Channels	None	12 (isolated)	1 (isolated)	4 (non-isolated)
	SOE	None	None	None	None
	Di input	dry sense contact			
	Voltage Isolation	2500 V optical isolation			
	Accumulator	None			
	low pass filter	30mSEC			
	Status Indicator LED	None			
DO	DO channels	4 relays	4 relays	1 relays	None
	Activity Indicator LED	one per relay			None
	Form Factor	Form A			None
	Manual backup switch	one per relay			None
	Contact capacity	220VAC/20A	220VAC/10A	220VAC/15A	None
	Control Modes	Direct/Restore (DIP switch)			
RS485	Address max	63 (set using DIP switch)			
	Baud Rate	2400/9600bps			
	Comm Indicator LED	RX/TX LED indicators			
	Voltage Isolation	TVS and PTC dual protection（Overvoltage and overcurrent）			
Self Diagnostic and Recovery LED		Included (flashes once per second)			
Power Supply	Voltage	AC18V/DC24V	AC18V/DC24V	AC110V或220V	DC12V或AC12V
	Regular Power	1.2VA	3VA	3.5VA	0.4VA
	Highest Power (Relay actvity)	8VA	3VA	6VA	6VA

MULTIFUNCTION I/O MODULE




Model		SIO235A	SIO235B	SIO235C	IS70
Product name		4AI/4DI/2DO module	12AI/6DI/2DO module	4AI/8T/4DI/2DO module	Temperature Control
AI	Ai (single end):0-5vdc	4	4	4	N/A
	Ai (differential):0-20ma	0	8		humidity sensor(Optional)
	Temperature input (thermistor)	N/A	N/A	8 thermistor inputs	Thermistor included
	Resolution	0.10%	0.10%	0.5deg.C	0.1deg.C
	Update speed	1sec			
DI	Di channels	4isolated	6 isolated	4 isolated	1 isolated
	Di input	dry sense contact			
	Voltage isolation	5000V optical isolation			N/A
	Accumulator	Yes(65535 max.)			N/A
	Low pass filter	30mSEC			N/A
	Status indicator led	one per DI			N/A
DO	Do channels	2 relays	2 relays	4 relays	1 relays
	Activity indicator led	One for each relay			
	Contact form	Form C(no+nc)			Form A
	Manual backup switch	N/A			
	Contact capacity	220VAC/1A	220VAC/5A	220VAC/1A	220VAC/5A
	Control modes	Direct/Pulse/Restore			Direct
RS485	Address max	31 (set using DIP switch)			
	Baud rate	2400 or 9600 bps (set using DIP switch)			
	Comm indicator led	RX/TX LED indicators			
	Protection (Voltage surge and overcurrent)	TVS and PTC dual protection（Overvoltage and overcurrent）			
	Protection (optical isolation)	5000 Vrms isolation voltage			
Self diagnostic and recovery led		Included (flashes once per second)			
Power Supply	Voltage	DC12V/DC24V/ AC12V/AC18V	DC24V	DC12V/DC24V/ AC9-18V	AC12V/DC12V
	Stand by power	2VA	3VA	3VA	1VA
	Highest power(relay actvity)	6VA	8VA	6VA	6VA

DO WITH RELAY FEATURE

All the DO have built in relays, which can be connected directly to a 220 Vac source to drive a magnetic contactor, eliminating the need for an intermediate relay and a DC power supply. This not only saves on labor cost, shortens work time and saves on the equipment cost as well. The majority of the modules have NO and NC terminals to work with. For some application require to control high current load capacity, the LT series models offer high load relays and have on board manual override buttons.

Each DO can be controlled using one of three modes by sending the proper command through the specific data address:

(1) Restore Mode

The program commands the relay to turn either on/off. When the power is restored after being interrupted, the relay will automatically go back to the last state it was in before the interruption without needing any intervention from the controlling program.

(2) Direct Mode

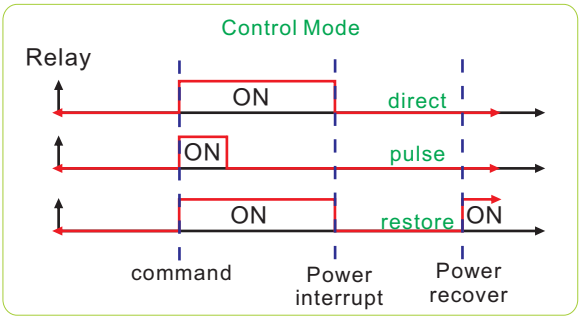
The program commands the relay directly to turn on/off. When the power is restored after being interrupted, the relay returns to its normal state.

(3) Pulse Mode(Not applicable for LT3504/LT3100/LT1050/IS70)

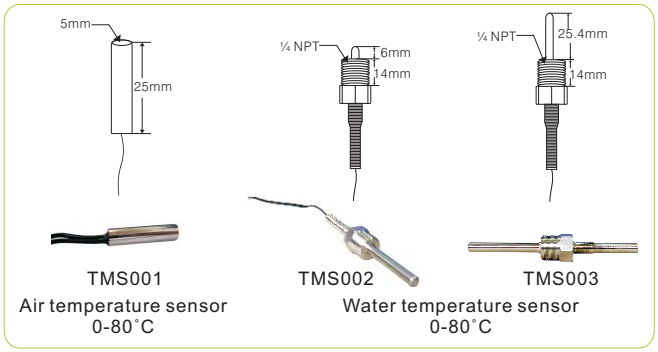
The program commands the relay to send out a pulse. The pulse duration can be set from 500 milliseconds to 2 seconds.

RELAY RATING TABLE

	110VAC	220VAC	DC24V
SIO 270	3A	2A	3A
SIO 280	3A	2A	3A
SDIDO	3A	1A	3A
SIO 235A/C	3A	1A	3A
SIO 235B	3A	1A	3A



TMS Temperature sensor for SIO235C&IS70



COMMUNICATIONS

Protection:
- TVS and PTC for over-voltage 5.8V and over-current 100mA
- Photo-isolated:5KVrms (SIO280,SDIDO,SIO235 series only)

Protocol:
- Modbus/RTU; 2-wire RS485 (2400 or 9600 baud);
- Response time: 150msec@9600bps

ENVIRONMENT&EMC TEST

Ambient Operation:
- 0°C to 70°C; 5% to 95% RH non-condensing

SWC test:
- meets generic standards for industrial environments; IEC 61000-4-4, 3KV; IEC 61000-4-5, 3KV

ACCESSORIES

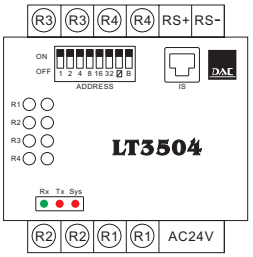
Power supply

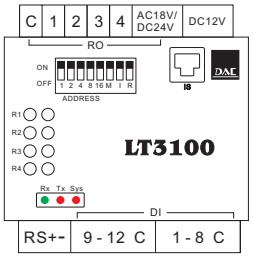
- Model: 24V,0.7A (NES-15-24)
- Model: 12V,1.3A(NES-15-12)
- Input: 85-264VAC
- Over voltage: 120%
- With stand voltage: 3KV(input/output)
- Safety: ul60950-1
- EMC: IEC61000-4-2,3,4,5,6,8,11
- Dimension: 79X51X28mm
- Protections: Short circuit/OLP/OVP

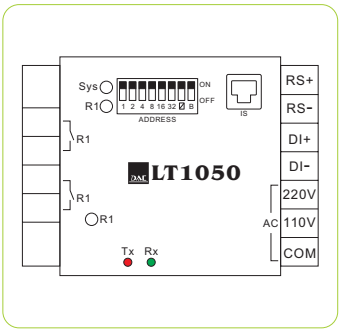
RS232/RS485 Converter

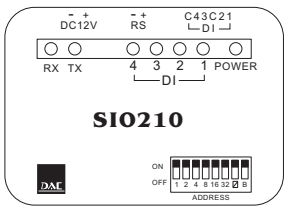
- Auto direction control
- Status indicator: 4 LED'S
- Photo-isolated: 5KVrms
- Protection:TVS&PTC
- Power: AC/DC 12V
- RS232: 9PIN DB-9 female
- Dimension: 75X60X23mm

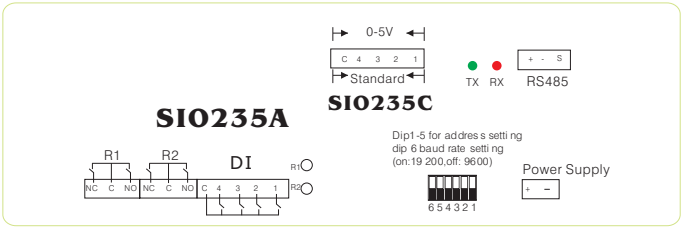
WIRING DIAGRAM

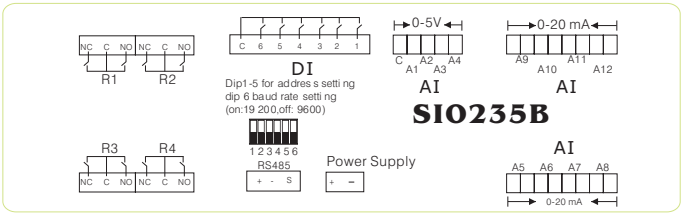


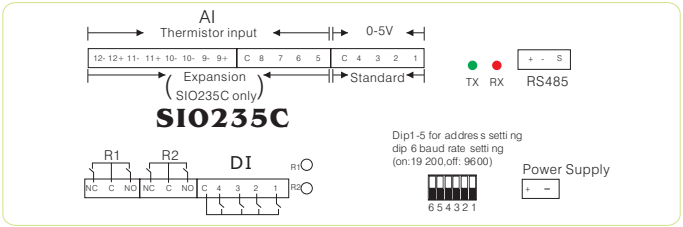


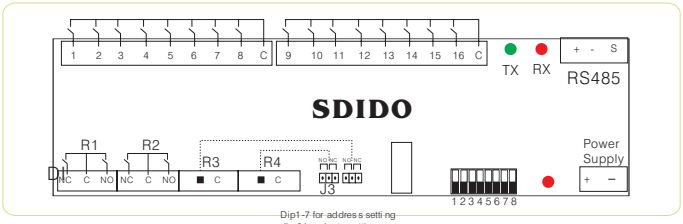


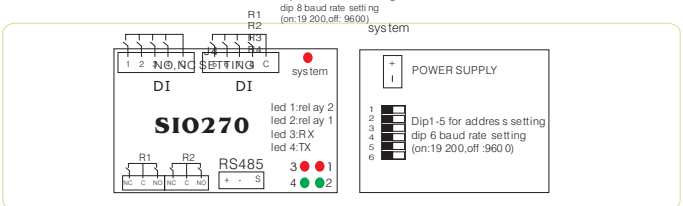


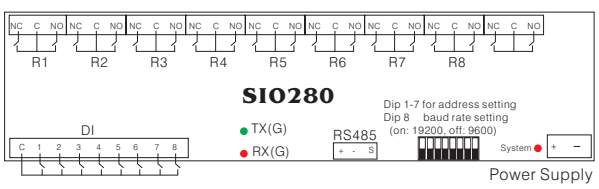












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