

應用領域

此遠程 IO 模組基於 RS485 Modbus RTU / 乙太 Modbus TCP 通信，用於數據採集和控制系統。此款 IO 模組提供了良好的可靠性、易於安裝、易於維護、極具成本效益的模組，適用於工業測量和監控應用。它們可以輕鬆添加到現有的 RS485 或 乙太 Modbus 網絡中。不同類型的 IO 模組可供用戶根據需要選擇。所有模組都有 LED 指示，用於監控數字輸入和輸出的狀態以及故障診斷。特殊模組可用於通道之間的通道間隔離。Modbus RTU 模組具有 Modbus RTU 協議的 2 線 RS485 接口，Modbus TCP 模組具有 Modbus TCP 協議的乙太接口。



特點

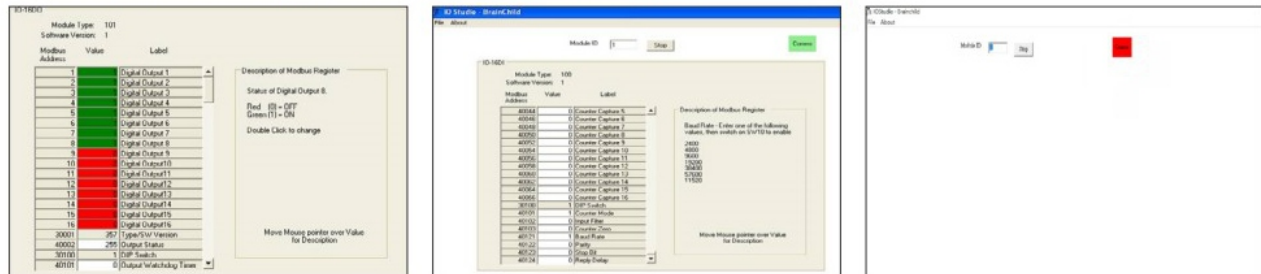
- 用於工業測量和監控應用的極具成本效益的模組
- 用於數據採集和控制系統的 Modbus RTU / Modbus TCP 模組
- 用於各種數字和模擬輸入和輸出的各種模組
- Modbus TCP 模組中的內置網絡服務器，用於監控即時數據和配置
- Modbus RTU 模塊提供多種速率速度
- 可選配數據採集軟體，用於在 PC 上進行數據採集和分析
- 可用於特殊應用的隔離模組
- 每個模組上的前面板狀態 LED 用於數字 IO 狀態、通信和電源
- 與現場設備接口，為 SCADA/PLC/HMI 提供即時數據
- 通過 Modbus RTU / Modbus TCP 協議與第三方軟體整合

IO Type	Interface	Model No	Description
Analog Input	Ethernet Modbus TCP	DCS-08AIIS-E	8 Channel Isolated Current Input Module
		DCS-08AIVS-E	8 Channel Isolated Voltage Input Module
		DCS-08TCS-E	8 Channel Isolated Thermocouple Input Module
		DCS-06RTD-E	6 Channel RTD Input Module
	RS-485 Modbus RTU	DCS-08AI	8 Channel Current Input Module
		DCS-08AIIS	8 Channel Isolated Current Input Module
		DCS-08AIV	8 Channel Voltage Input Module
		DCS-08AIVS	8 Channel Isolated Voltage Input Module
		DCS-08TC	8 Channel Thermocouple Input Module
		DCS-08TCS	8 Channel Isolated Thermocouple Input Module
		DCS-06RTD	6 Channel RTD Input Module
Analog Output	Ethernet Modbus TCP	DCS-08AOI-E	8 Channel Current Output Module
		DCS-08AOV-E	8 Channel Voltage Output Module
	RS-485 Modbus RTU	DCS-08AOI	8 Channel Current Output Module
		DCS-08AOV	8 Channel Voltage Output Module
Digital Input	Ethernet Modbus TCP	DCS-016DI-E	16 Channel Digital Input Module with Counters
	RS-485 Modbus RTU	DCS-016DI	16 Channel Digital Input Module with Counters
Digital Output	Ethernet Modbus TCP	DCS-016DO-E	16 Channel Digital Output(Sink or NPN Transistor) Module
	RS-485 Modbus RTU	DCS-016DO	16 Channel Digital Output(Sink or NPN Transistor) Module
Relay Output	Ethernet Modbus TCP	DCS-04RO-E	4 Channel Relay Output Module
	RS-485 Modbus RTU	DCS-04RO	4 Channel Relay Output Module
Combination Module	Ethernet Modbus TCP	DCS-08DIO-E	8 Channel Digital Input / 8 Channel Digital Output(Sink or NPN Transistor) Module
	RS-485 Modbus RTU	DCS-08DIO	8 Channel Digital Input / 8 Channel Digital Output(Sink or NPN Transistor) Module
	RS-485 Modbus RTU	DCS-DAIO	2 Channel Analog Input of Current Input (0(4)-20mA) or Voltage input (0(2)-10V), 1 Channel Analog Output of Current Output (0(4)-20mA) or Voltage Output (0(2)-10V), 4 Channel Digital Input with Counters, 2 Channel Digital Output(Sink or NPN Transistor) Module, 2 Channel RTD Input

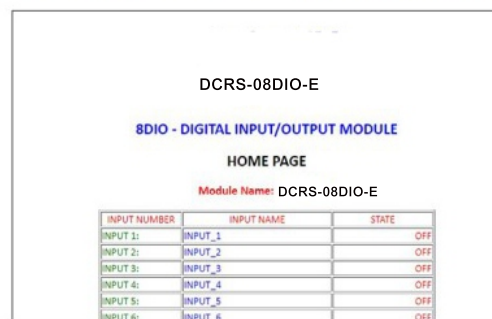
IO Studio

IO Studio is a windows based standard PC Software used to configure IO Modules on the network. Once the module is connected with the software, the real-time data and the configuration of the module can be viewed on the PC for troubleshooting.

RS485 Modbus RTU Modules can be connected to the PC by using RS485 serial port or RS232 to RS485 serial converters or USB to RS485 serial converter. The address of the RS485 module can be set on the module by the dip switches on the front panel.



The Ethernet module can be also configured via web page tool shown below.



← Web page configuration of Ethernet IO module

General Specifications

Parameters		Modbus RTU IO Modules	Modbus TCP IO Modules
Interface		RS-485 Modbus RTU	Ethernet Modbus TCP
Communication Speed		2400, 4800, 9600, 19200, 38400, 57600, 115200, 187500 BPS	10 / 100 MBPS
Operating Temperature		-10°C to 50°C	
Storage Temperature		-40°C to 85°C	
Humidity		Up to 95% Non-condensing	
Mounting		DIN Rail	
Weight		105 grams	
Dimensions (W*H*D)		23 * 109 * 98 mm	
Approval Standard	Safety	IEC 950	
Connectors	EMC	IEC 61000-4-2-A1 Level2, IEC 61000-4-3-A1 Level2, IEC 61000-4-4 Level3, CISPR 11:1997-A1, EN55011:1998 Group1 Class A	
	Input	18 Way screw connector on front	
	Communication	4 Pin Connector on bottom side of unit	RJ45 on topside of the unit
	Logic Power		4 Pin Connector on bottom side of unit

Analog Input Modules

Parameters		Model No	DCS-08AII	DCS-08AIIS	DCS-08AIIS-E	DCS-08AIV	DCS-08AIVS	DCS-08AIVS-E
Type of Input			Current			Voltage		
No of Channels			8			8		
Power Supply	Logic Supply Voltage	12 to 24 VDC			12 to 24 VDC			
	Logic Supply Current	27mA @ 12V / 16mA @ 24V	58mA @ 12V / 31mA @ 24V	105mA @ 12V / 54mA @ 24V	27mA @ 12V / 16mA @ 24V	58mA @ 12V / 31mA @ 24V	105mA @ 12V / 54mA @ 24V	
	Field Supply Voltage	12 to 24 VDC	N.A.		12 to 24 VDC	N.A.		
	Field Supply Current	8mA @ 12V / 15mA @ 24V	N.A.		8mA @ 12V / 15mA @ 24V	N.A.		
Voltage Input Range			N.A.			0(2) - 10 VDC or 0(1) - 5 VDC		
Current Input Range			0(4) to 20mA			N.A.		
RTD Type			N.A.			N.A.		
Thermocouple Type			N.A.			N.A.		
Cold Junction			N.A.			N.A.		
Burnout Detection			Yes			Yes		
Accuracy			± 0.2% FSR			± 0.2% FSR		
Resolution			12 Bit	16 Bit		12 Bit	16 Bit	
Sampling Rate			12.5 Samples / Second			12.5 Samples / Second		
Isolation between Channels			N. A.	350 V Peak		N. A.	350 V Peak	
Isolation between Field and Logic			1500 VRMS			1500 VRMS		
Input Impedance			250Ω			20KΩ	110KΩ	
Drift			50 ppm/°C			100 ppm/°C		

Parameters		Model No	DCS-08TC	DCS-08TCS	DCS-08TCS-E	DCS-06RTD	DCS-06RTD-E
Type of Input			Thermocouple, mV			2 or 3 Wire RTD	
No of Channels			8			6	
Power Supply	Logic Supply Voltage	12 to 24 VDC			12 to 24 VDC		
	Logic Supply Current	62mA @ 12V / 33mA @ 24V	58mA @ 12V / 31mA @ 24V	105mA @ 12V / 54mA @ 24V	87mA @ 12V / 45mA @ 24V	115mA @ 12V / 58mA @ 24V	
	Field Supply Voltage	N.A.			N.A.		
	Field Supply Current	N.A.			N.A.		
Voltage Input Range			0 to 50mV, ± 100mV			N.A.	
RTD Type			N.A.			Pt100, Ni120, Pt1000, Ni1000-DIN, Ni1000-Landys & Gyr,10 to 400Ω, 100 to 4000Ω	
Thermocouple Type			J, K, E, T, N, B, S, R, C, D, G			N.A.	
Cold Junction			CJC Error: ±0.5°C Typically After 30 Minutes warm up time.			N.A.	
Burnout Detection			Yes			Yes	
Accuracy			± 0.05% FSR			± 0.05% FSR	
Resolution			0.1°C			0.1°C	
Sampling Rate			42 Samples / Minute	37 Samples / Minute		31 Samples / Minute	
Isolation between Channels			N. A.	350 V Peak		N.A.	
Isolation between Field and Logic			1500 VRMS			1500 VRMS	
Drift			100 ppm/°C			100 ppm/°C	

Digital Output Modules

Parameters		Model No	DCS-016DI	DCS-016DI-E	DCS-08DIO	DCS-08DIO-E
Type of Module			Digital Input		Digital Input / Digital Output	
No of Channels			16		8 Digital Inputs / 8 Digital Outputs	
Power Supply	Logic Supply Voltage		12 to 24 VDC		12 to 24 VDC	
	Logic Supply Current		30mA @ 12V / 17mA @ 24V	75mA @ 12V / 39mA @ 24V	23mA @ 12V / 14mA @ 24V	75mA @ 12V / 39mA @ 24V
	Field Supply Voltage		N.A.		12 to 24 VDC	
	Field Supply Current		N.A.		6mA @ 12V / 6mA @ 24V	
No of Digital Inputs			16		8	
Input Voltage Range			12 to 24 VDC		12 to 24 VDC	
Input current per input			5mA @ 12VDC / 11mA @ 24VDC		5mA @ 12VDC / 11mA @ 24VDC	
Input Impedance			2200Ω		2200Ω	
Counters (Filter disabled)	Inputs		1 to 16		1 to 8	
	Resolution		32 Bits		32 Bits	
	Frequency		1KHz (Max)		1 KHz (Max)	
	Pulse Width		500μs (min)		500μs (min)	
	Retentive Counter		Yes		No	
Output Type			N.A.		Open Collector Transistor	
No of Outputs					8	
Output Specification					Sink (NPN)	
Output Voltage					36V DC (max)	
Vceon					1.1V (max)	
Load Current					100mA Per Output	
Isolation between Field and Logic					1500 VRMS	

		Model No	DCS-04RO	DCS-04RO-E	DCS-016DO	DCS-016DO-E
Type of Module			Relay Output		Digital Output	
No of Channels			4		16	
Power Supply	Logic Supply Voltage		24 VDC		12 to 24 VDC	
	Logic Supply Current		42mA	75mA	23mA @ 12V / 14mA @ 24V	75mA @ 12V / 39mA @ 24V
	Field Supply Voltage		N.A.		12 to 24 VDC	
	Field Supply Current		N.A.		6mA @ 12V / 6mA @ 24V	
Output Type			Relay		Open Collector Transistor	
No of Outputs			4		16	
Output Specification			Form C		Sink (NPN)	
Output Voltage			N.A.		36V DC (max)	
Vceon			N.A.		1.1V (max)	
Load Current			N.A.		100mA Per Output	
Relay Rating			0.5A @ 220VAC / 1A @ 28VDC	1A @ 220VAC / 2A @ 24VDC	N.A.	
Isolation between Channels			1000 VRMS		N.A.	
Isolation between Field and Logic			1000 VRMS		1500 VRMS	

Digital Output Modules

Parameters		Model No	DCS-016DI	DCS-016DI-E	DCS-08DIO	DCS-08DIO-E
Type of Module			Digital Input		Digital Input / Digital Output	
No of Channels			16		8 Digital Inputs / 8 Digital Outputs	
Power Supply	Logic Supply Voltage		12 to 24 VDC		12 to 24 VDC	
	Logic Supply Current		30mA @ 12V / 17mA @ 24V	75mA @ 12V / 39mA @ 24V	23mA @ 12V / 14mA @ 24V	75mA @ 12V / 39mA @ 24V
	Field Supply Voltage		N.A.		12 to 24 VDC	
	Field Supply Current		N.A.		6mA @ 12V / 6mA @ 24V	
No of Digital Inputs			16		8	
Input Voltage Range			12 to 24 VDC		12 to 24 VDC	
Input current per input			5mA @ 12VDC / 11mA @ 24VDC		5mA @ 12VDC / 11mA @ 24VDC	
Input Impedance			2200Ω		2200Ω	
Counters (Filter disabled)	Inputs		1 to 16		1 to 8	
	Resolution		32 Bits		32 Bits	
	Frequency		1KHz (Max)		1 KHz (Max)	
	Pulse Width		500μs (min)		500μs (min)	
	Retentive Counter		Yes		No	
Output Type			N.A.		Open Collector Transistor	
No of Outputs					8	
Output Specification					Sink (NPN)	
Output Voltage					36V DC (max)	
Vceon					1.1V (max)	
Load Current					100mA Per Output	
Isolation between Field and Logic					1500 VRMS	

			DCS-04RO	DCS-04RO-E	DCS-016DO	DCS-016DO-E
Type of Module			Relay Output		Digital Output	
No of Channels			4		16	
Power Supply	Logic Supply Voltage		24 VDC		12 to 24 VDC	
	Logic Supply Current		42mA	75mA	23mA @ 12V / 14mA @ 24V	75mA @ 12V / 39mA @ 24V
	Field Supply Voltage		N.A.		12 to 24 VDC	
	Field Supply Current		N.A.		6mA @ 12V / 6mA @ 24V	
Output Type			Relay		Open Collector Transistor	
No of Outputs			4		16	
Output Specification			Form C		Sink (NPN)	
Output Voltage			N.A.		36V DC (max)	
Vceon			N.A.		1.1V (max)	
Load Current			N.A.		100mA Per Output	
Relay Rating			0.5A @ 220VAC / 1A @ 28VDC	1A @ 220VAC / 2A @ 24VDC	N.A.	
Isolation between Channels			1000 VRMS		N.A.	
Isolation between Field and Logic			1000 VRMS		1500 VRMS	

Combination Modules

Parameters		Model No	DCS-DAIO
Power Supply	Logic Supply Voltage		12 to 24 VDC
	Logic Supply Current		115mA @ 12V / 58mA @ 24V
	Field Supply Voltage		24 VDC
	Field Supply Current		25mA
Analog Inputs (Voltage & Current)	No of Inputs		2
	Input Range		0(4) to 20mA, 0(2) to 10V DC
	Resolution		12Bit
	Input Impedance		250Ω for Current Inputs, 190KΩ for Voltage Inputs
	Isolation Between Field and Logic		1000 VRMS
	Accuracy		0.2% of FSR
RTD Inputs	No of Inputs		2
	Types		Pt100, Ni120, Pt1000, Ni1000-DIN, Ni1000-Landys&Gyr, 10 to 400Ω, 100 to 4000Ω
	Sensor Type		2 or 3 Wire
	Resolution		0.1°C
	Drift		100 ppm/°C
	Line Resistance Effect		< 0.1°C Balanced
	Max. line resistance		100Ω
	Isolation Between Field and Logic		1500VRMS
	Accuracy		0.3°C
Analog Outputs	No of Inputs		1
	Types		0(4) to 20mA, 0(2) to 10V DC
	Accuracy		0.05% of Span
	Resolution		12 Bit
	Drift		100 ppm/°C
	Load		1000 Ω max. @ 24VDC 500 Ω max. @ 12VDC for Current Output, 2000Ω min for Voltage Output
	Max. line resistance		100Ω
	Accuracy		0.05% of span
Digital Inputs	Digital Inputs	No of Inputs	4
		Input Voltage Range	10 to 26 VDC
		Input current Per Input	4mA@12VDC / 8mA @24VDC
	Counters	Inputs	1 to 4
		Resolution	32 Bits
		Frequency	1KHz (Max)
		Pulse Width	500μs (min)
		Retentive Counter	No
Digital Outputs	No of Inputs		2
	Output Type		Open Collector
	Output Specification		Sink (NPN)
	Output Voltage		36 VDC
	Vceon		1.1 V Max
	Load Current		100 mA per output

System Combination

