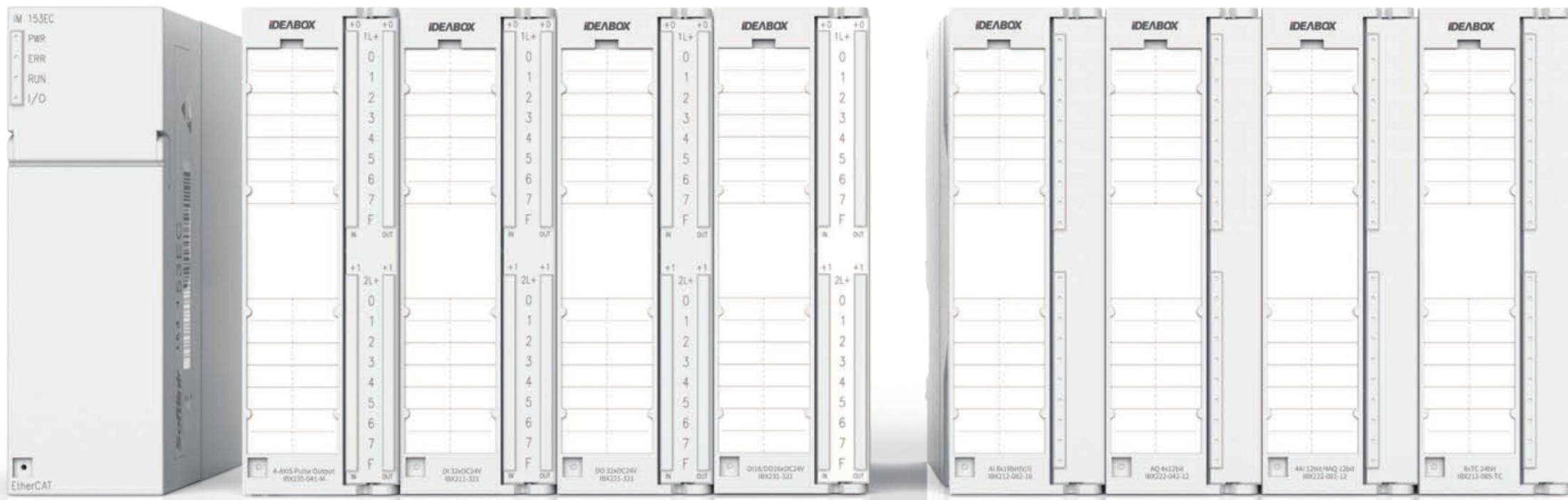


## iDEABOX Series Modularized I/O

Suitable for high-speed high-precision control of factory automation and machine automation, iDEABOX series I/O can realize networking based on EtherCAT network and gLink network. In addition to digital I/O and analog I/O, there are 17 I/O modules available, such as pulse input, axis control module and temperature input.



### EtherCAT Extension Module

Support 8pcs local I/O module expansion

### gLink Bus Extension Set

Support rack I/O expansion

### gLink Relay Module

Support local rack 8pcs I / O module expansion

### 4-Axis Motion Control Module

General purpose input and limit signals  
 Maximum output frequency 500KHz

### High Speed Counting Module

8 channel input, maximum pulse input frequency 500KHz

### Digital I/O Module

32 channel input units  
 16 channel, 32 channel output units  
 16 channel input/16 channel output mixing units

### Analog I/O Module

+/-10V voltage and 0~20mA current signal  
 4 channel, 8 channel input units  
 4 channel output units  
 4 channel input/4 channel output mixing units

## EtherCAT Extension Module

Model No.	Description
IM153-EC	EtherCAT coupling module, support 8pcs I/O module expansion

Parameter	
Rated supply voltage	24V DC (-15%/+20%), (IEC 61131-2, type 1)
Output current	3A, 5V

### Bus Accessories

Model No.	Description
300 901-1BB10	180 Degree rotary Ethernet bus connector
300 901-1BG10	90 Degree Ethernet bus connector
840-2AH10	EtherCAT Cable



## gLink Relay Module

Model No.	Description
IBX205-001-GD	Each relay module can support 8pcs I/O module expansion

Parameter	
Rated supply voltage	24V DC (-15%/+20%), (IEC 61131-2, type 1)
Output current	3A, 5V
Connector	DB9 Male



### Bus Accessories

Model No.	Description
300 972-GA1000 300 350-ST01	gLink bus connector gLink cable



## gLink Bus Extension Set

Model No.	Description
IBX205-001-GTR	Consisting of gLink sending module, receiving module, 2pcs gLink bus connector and 1.5m standard gLink cable

gLink sending module, converts gLink backplane bus to DB9 interface for remote device ex.

Parameter	
Rated supply voltage	24V DC (-15%/+20%), (IEC 61131-2, type 1)
Isolation withstand voltage	500V DC
Connector	DB9 Female



gLink receiving module, 24V input, used with gLink sending module to provide rack module expansion.

Parameter	
Rated supply voltage	24V DC (-15%/+20%), (IEC 61131-2, type 1)
Output current	3A, 5V
Connector	DB9 Male



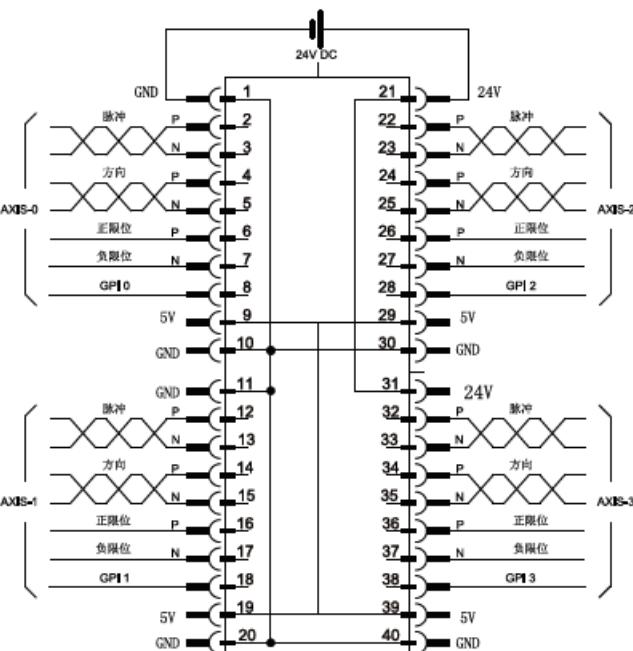
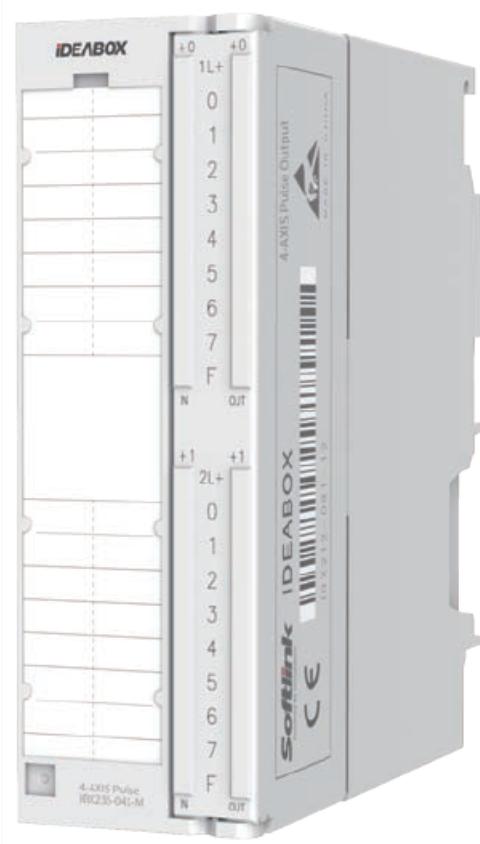
## 4-Axis Motion Control Module

## 32 Channel Digital Input Module

Model No.	Description
IBX235-041-M	4 Axis*500KHz

Parameter	
Power	DC24V, maximum power consumption<2W
Axis interface	4 Channels
Pulse output frequency	Maximum 500KHz/Channel
Universal input	4 Channels
Limit signal	8 Channels

Note: The pulse motion control module is installed in the first slot on the right side of the CPU.

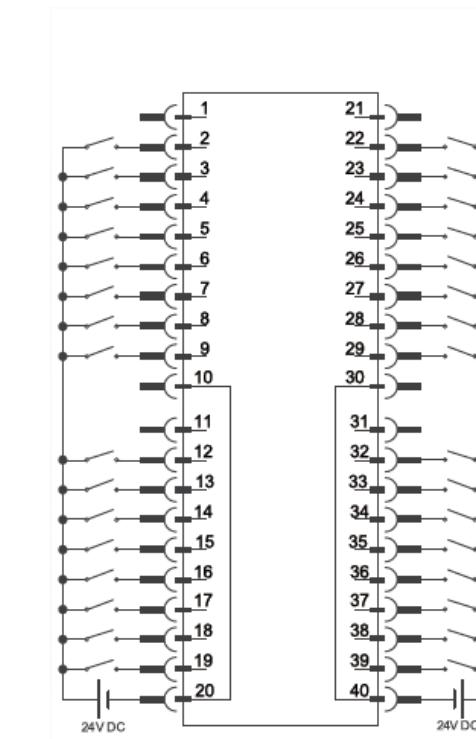


4-Axis motion control module front connector wiring diagram.

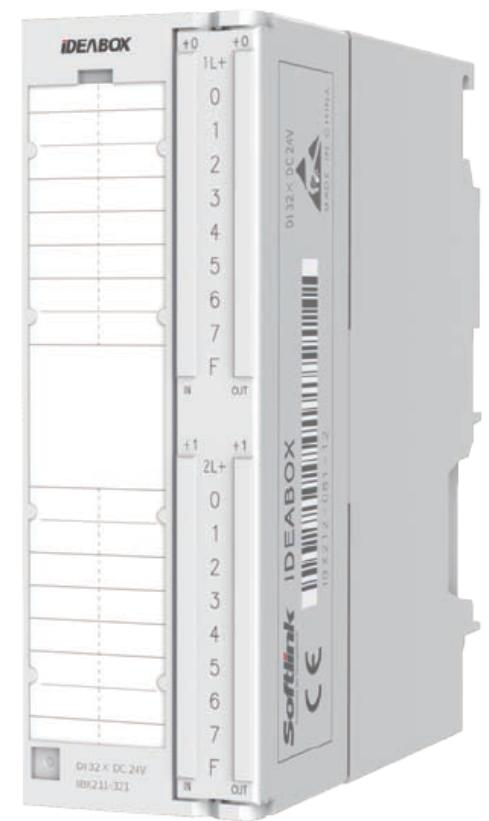
Model No.	Description
IBX211-321	DI 32*DC 24V PNP/NPN

Parameter	
Input channel	32
Input type	Support both sink & source input
Ton	Type. 18uS/Max. 35uS
Toff	Type. 135uS/Max. 250uS
Rated input voltage	24V DC (-15%/+20%) (IEC 61131-2, type 1)

Backplane bus power consumption	≤100mA@5V
"0" signal level	-3...+5V (IEC 61131-2, type1)
"1" signal level	15...30V (IEC 61131-2, type1)
Input current	typ. 10mA (IEC 61131-2, type1)
Electrical isolation	Input/Control area: 500V AC



Front connector wiring diagram and terminal assignment.  
(Source high level is valid)

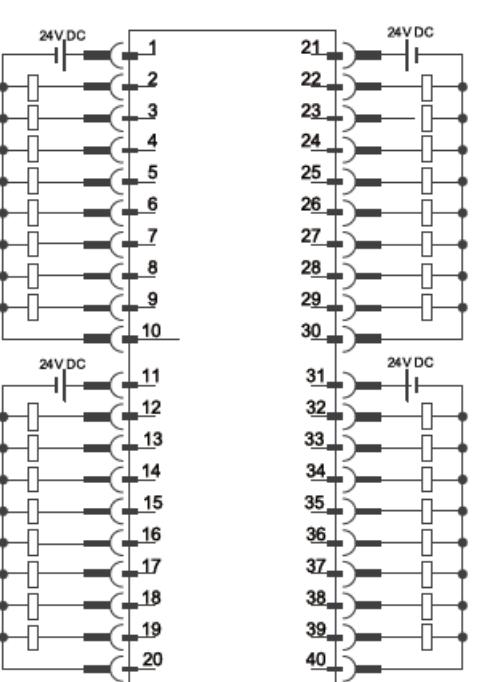
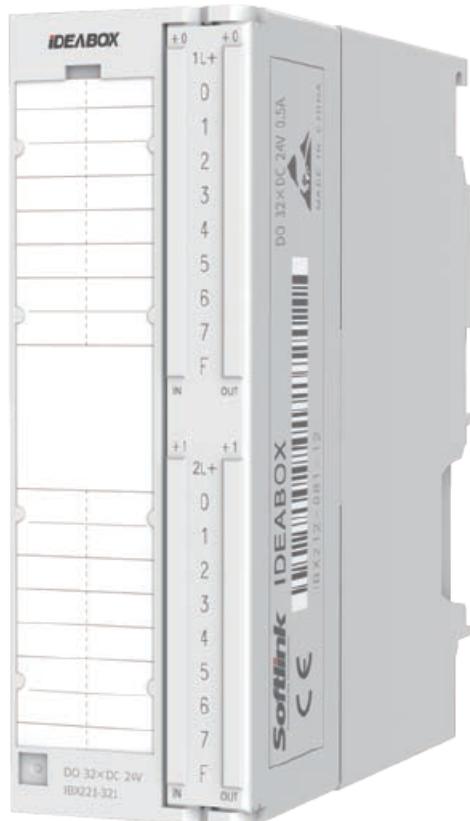


## 32 Channel MOSFET Output Module

Model No.	Description
IBX221-321	DO 32*DC24V/0.5A MOSFET

Parameter
-----------

Output channel	32	Load type	Pure group, inductive, bulb
Output type	MOSFET (Source output)	Backplane bus power consumption	$\leq 400\text{mA}@5\text{V}$
Ton	Type. 12uS/Max. 25uS	Rated output voltage	24V DC (-15%/+20%), (IEC 61131-2, type 1)
Toff	Type. 10mS/Max. 250mS (No load)	Maximum output current	Max. 0.5 A/Ch, Independent short circuit protection per channel
"1" signal level	MOSFET conduction output	Rated total output current	8A
"0" signal level	Max: 1.5VDC, 10kΩ load	Electrical isolation	Input/Control area: 500V AC
On-resistance	0.3Ω (Typical)/ 0.6Ω (Maximum)		



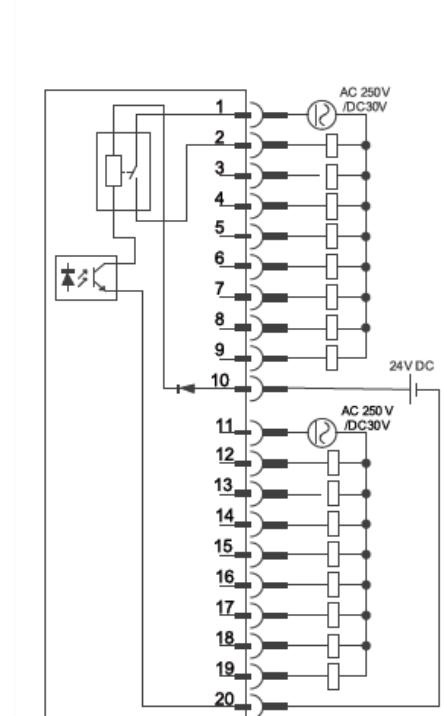
Front connector wiring diagram and terminal assignment.

## 16 Channel Relay Output Module

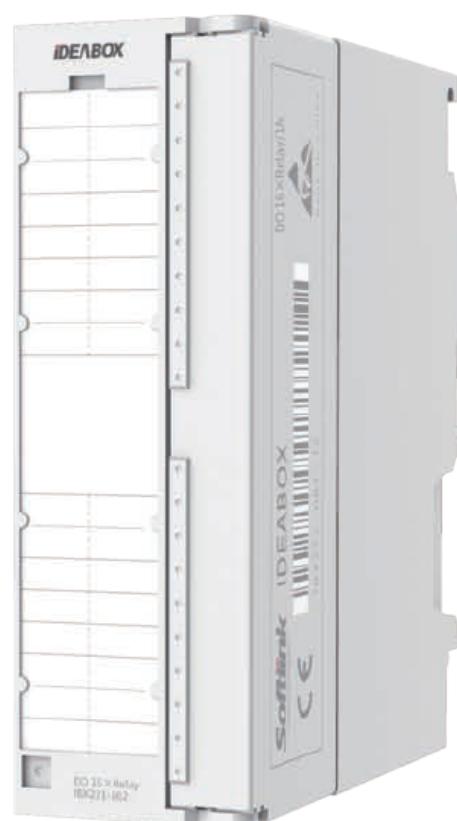
Model No.	Description
IBX221-162	DO 16*relay AC 250V/DC 30V (1A)

Parameter
-----------

Output channel	16 (8 channels for 1 group)	Maximum operating frequency	20 Times/ Minute
Output type	Relay (Dry contact)	Load type	Pure group/Inductive load: bulb, solenoid valve, contactor, etc.
Ton @20°C	<10mS	≤250mA@5V	
Toff @20°C	<5mS	Backplane bus power consumption	250V AC, 30V DC
"1" signal level	Contact closure	Rated output voltage	2A/Ch, Maximum withstand current 3A/Ch
"0" signal level	Contact disconnection	Rated output current	8A*2 groups
Contact contact resistance	<30mΩ	Rated total output current	Output/Control area: 500V DC
Contact electrical life	>10 Million times	Electrical isolation	



Front connector wiring diagram and terminal assignment.

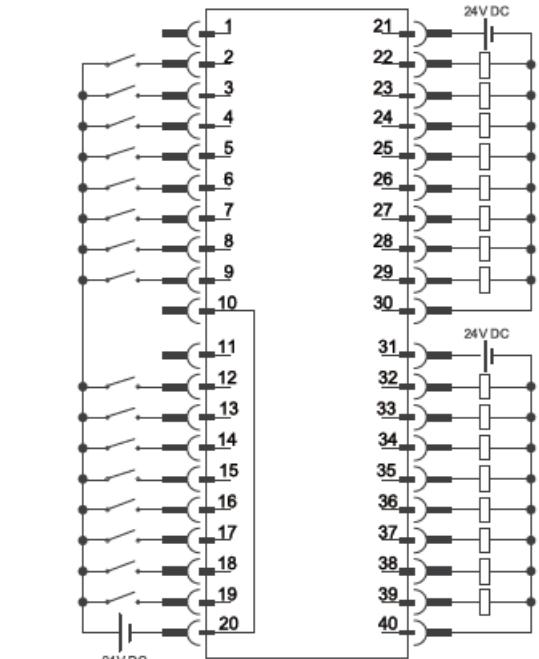
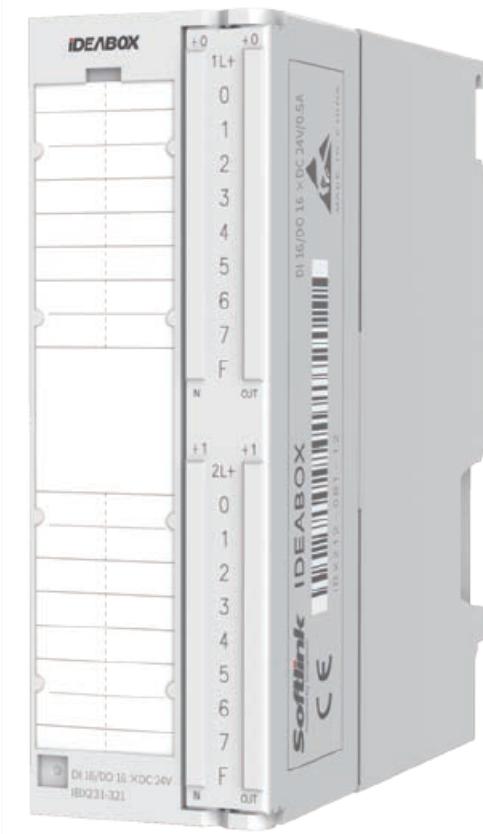


## 16 Channel Input / 16 Channel Output Digital Module

Model No.	Description
IBX231-321	DI 16/DO 16 DC 24V/0.5A

Parameter
-----------

Input channel	16	Output channel	16
Input Type	Support both sink & source input	Output type	MOSFET (Source output)
Ton	Type. 18uS/Max. 35uS	Ton	Type. 12uS/Max. 25uS
Toff	Type. 135uS/Max. 250uS	Toff	Type. 10ms/Max. 250ms (No load)
Rated input voltage	24V DC (-15%/+20%) (IEC 61131-2, type 1)	"1" signal level	MOSFET conduction output
"0" signal level	-3...+5V (IEC 61131-2, type1)	"0" signal level	Max: 1.5VDC, 10kΩ load
"1" signal level	15...30V (IEC 61131-2, type1)	On-resistance	0.3Ω (Typical)/ 0.6Ω (Maximum)
Input current	typ. 10mA (IEC 61131-2, type1)	Load type	Pure group, inductive, bulb
		Rated output voltage	24V DC (-15%/+20%), (IEC 61131-2, type 1)
		Maximum output current	Max. 0.5 A/Ch, Independent short circuit protection per channel
		Rated total output current	8A
		Backplane bus power consumption	≤400mA@5V
		Electrical isolation	Input/Control area: 500V AC



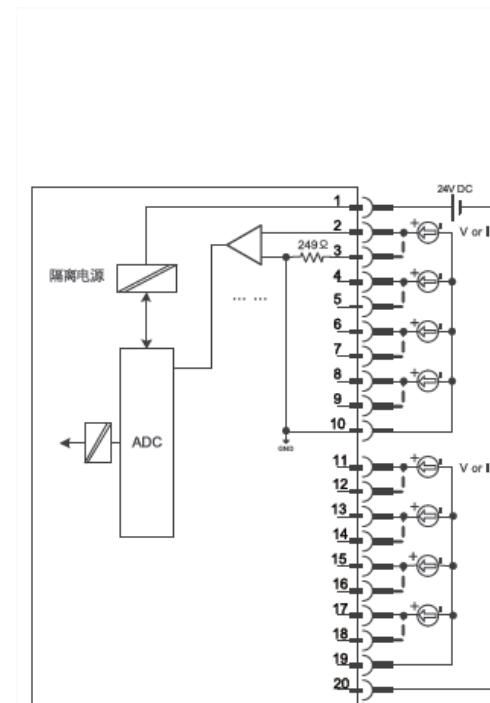
Front connector wiring diagram and terminal assignment.  
(Source high level is valid)

## 8 Channel Analog Input Module

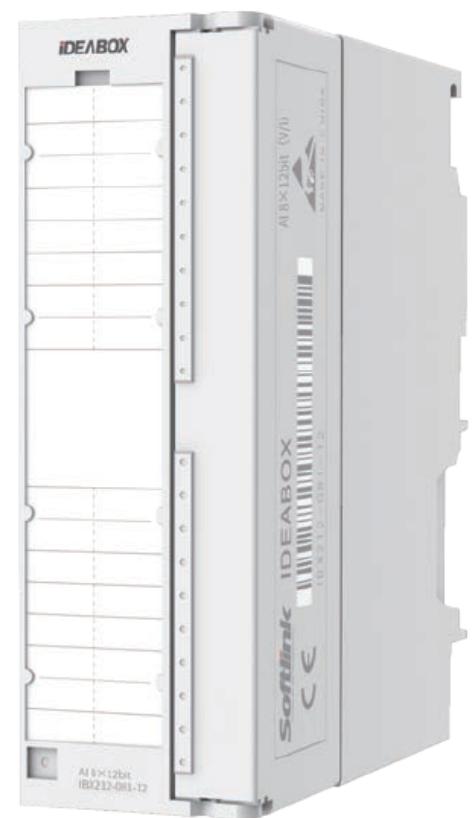
Model No.	Description
IBX212-081-12	8AI 12bit Voltage/Current

Parameter
-----------

Input channel	8	Sensor connection	Two-wire system, three-wire system, four-wire system
Resolution	IBX212-081-12: 12bit	Input resistance	Voltage type: ≥1MΩ, (IEC61131-2); Current type: 249Ω
Sampling	Successive approximation register (SAR)	Input limit (Destruction value)	Voltage: +/-15V, continuous Current: +/-60mA, continuous
Conversion rate	1MSPS (8Ch)	Rated supply voltage	Isolated power supply within module
Absolute error	<+/-1% (Full range)	Power consumption	Typ. 0.2W, Max. 0.5W
Measuring range	0~5V, 0~10V, +/-2.5V, +/-5V, +/-10V	Electrical isolation	AI Vs. Control area: 500V DC
Signal type	Single-ended unipolar, single-ended bipolar voltage		
	Unidirectional, bidirectional current		



Front connector wiring diagram and terminal assignment.

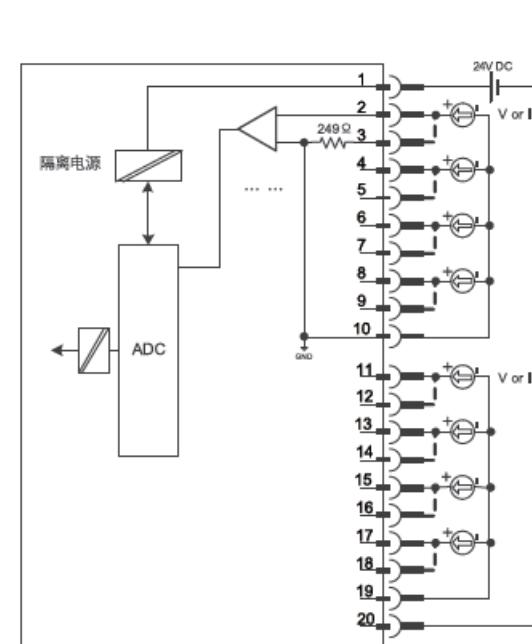


## 8 Channel High-Precision Analog Input Module

Model No.	Description
IBX212-082-16	8AI 16bit Voltage/Current

Parameter
-----------

Input channel	8	Sensor connection	Two-wire system, three-wire system, four-wire system
Resolution	IBX212-082-16: 16bit	Input resistance	Voltage input: $\geq 1M\Omega$ , (IEC61131-2); Current input: $249\Omega$
Sampling	Successive approximation register (SAR)	Input limit (Destruction value)	Voltage: +/-15V, continuous Current: +/-60mA, continuous
Conversion rate	1MSPS (8ch)	Rated supply voltage	Isolated power supply within module
Absolute error	<+/-0.8% (Full range)	Power consumption	Typ. 0.2W, Max. 0.5W
Measuring range	0~5V, 0~10V, +/-2.5V, +/-5V, +/-10V 4~20mA, 0~20mA, +/-20mA	Electrical isolation	AI Vs. Control area: 500V DC
Signal type	Single-ended unipolar, single-ended bipolar voltage Unidirectional, bidirectional current		



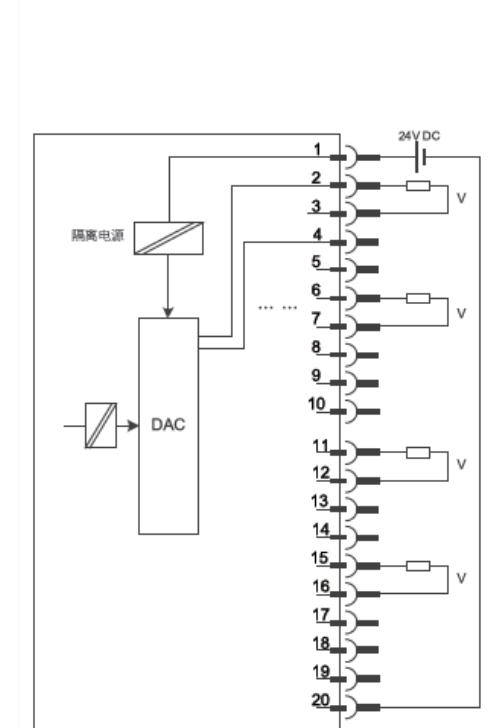
Front connector wiring diagram and terminal assignment.

## 4 Channel Analog Output Module

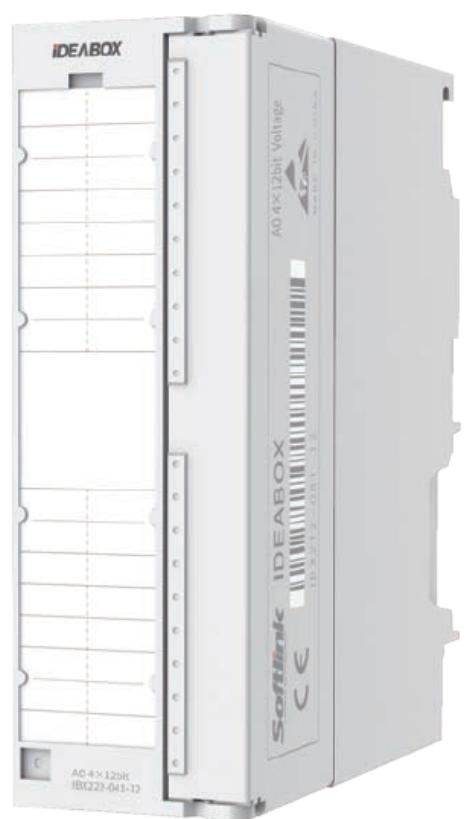
Model No.	Description
IBX222-041-12	4AO 12bit Voltage

Parameter
-----------

Input channel	4	Output protection	Short circuit current limit maximum 16mA
Resolution	12bit	Rated supply voltage	24V DC (-15%+/20%)
Output setup time	Voltage: <50μs (+10V step to -10V)	(IEC 61131-2, type 1)	
Absolute error	<+/-0.1%	Power consumption (Full load output)	Max. 0.5W
Measuring range	Voltage: 0~5V, 0~10V, +/-5V, +/-10V	Electrical isolation	AO Vs. Control area: 500V DC
Drive capability	Minimum resistive load 1kΩ		
	Maximum drivable capacitive load 1uF		
	(Limit value, it is recommended to reserve 30% margin when applied)		



Front connector wiring diagram and terminal assignment.

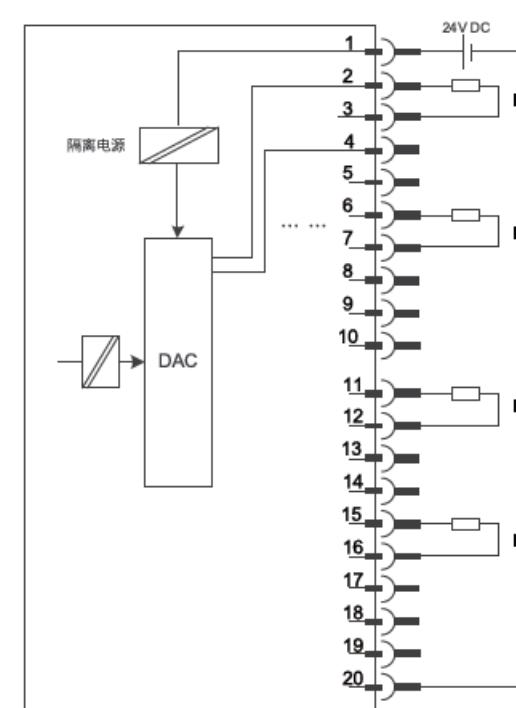
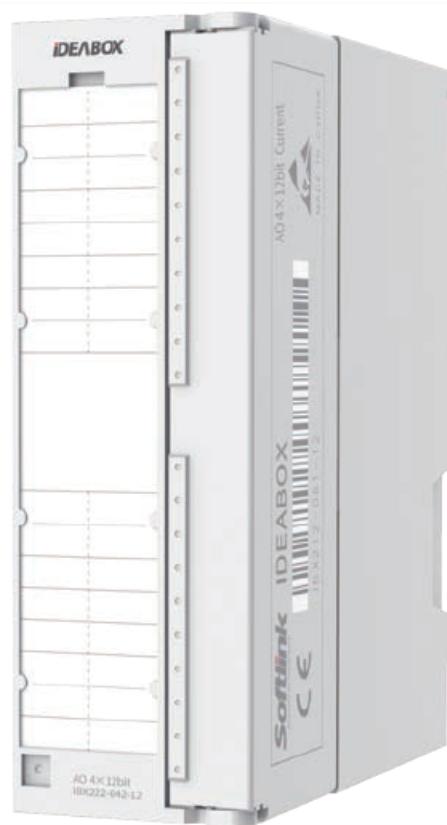


## 4 Channel Analog Output Module

Model No.	Description
IBX222-042-12	4AO 12bit Current

### Parameter

Output channel	4	Output protection	Current: Maximum no-load voltage 22V 24V DC (-15%+20%) (IEC 61131-2, type 1)
Resolution	12bit	Rated supply voltage	
Output setup time	Current: <1.5mS (1kΩ load, 0mA step to 20mA)	Power consumption (Full load output)	Max. 3.5W
Absolute error	<+-0.1%	Electrical isolation	AO Vs. Control area: 500V DC
Measuring range	Current: 4~20mA, 0~20mA		
Drive capability	Maximum resistive load 500Ω Maximum inductive load 50mH (Need to connect 0.01F compensation capacitor in parallel) Capacitive load is unlimited		



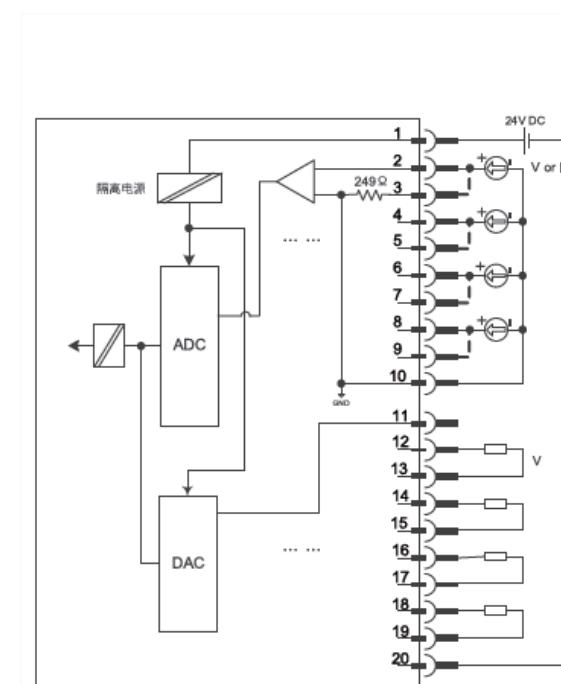
Front connector wiring diagram and terminal assignment.

## 4 Channel Input / 4 Channel Output Analog Module

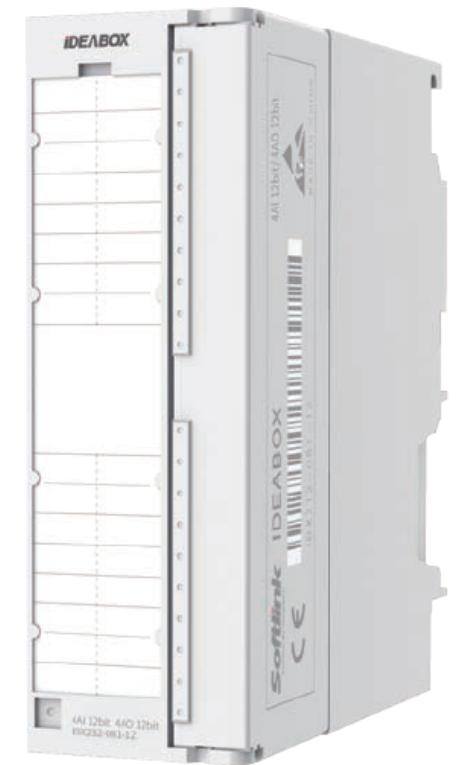
Model No.	Description
IBX232-081-12	4AI 12bit 4AO 12bit

### Parameter

Input channel	4	Output channel	4
Resolution	12bit	Resolution	12bit
Sampling	Successive approximation register (SAR)	Output setup time	<50μS (+10V step to -10V)
Conversion rate	1MSPS (4Ch)	Absolute error	<+-0.1%
Absolute error	<+-0.8% (Full range)	Measuring range	Voltage: 0~5V, 0~10V, +/-5V, +/-10V
Measuring range	0~5V, 0~10V, +/-5V, +/-10V	4~20mA, 0~20mA	4~20mA, 0~20mA
Drive capability	Single-ended unipolar, single-ended bipolar voltage Unidirectional, bidirectional current	Drive capability	Minimum resistive load 1kΩ Maximum drivable capacitive load 1uF (Limit value, it is recommended to reserve 30% margin when applied)
Sensor connection	Two-wire system, three-wire system, four-wire system	Output protection	Short circuit current limit maximum 16mA
Input resistance	Voltage input: ≥1MΩ, (IEC61131-2) Current input: 249Ω	Rated supply voltage	24V DC (-15%+20%) (IEC 61131-2, type 1)
Input limit (Destruction value)	Voltage: +/-15V, continuous Current: +/-60mA, continuous	Power consumption (Full load output)	Max. 4W
		Electrical isolation	AI/AO Vs. Control area: 500V DC



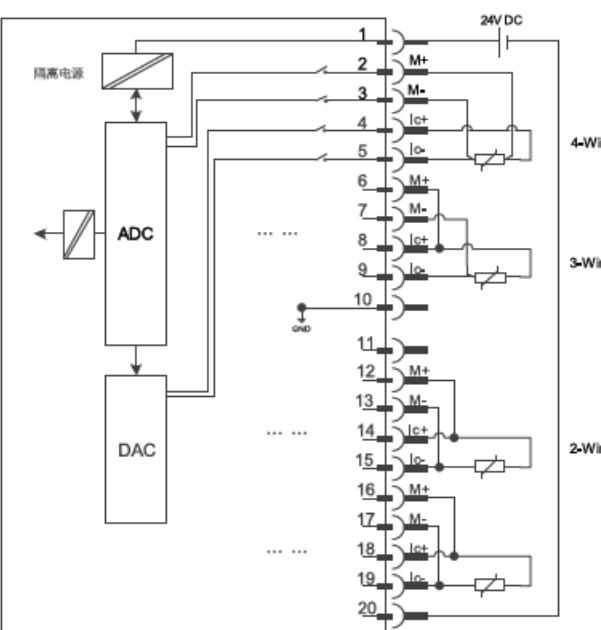
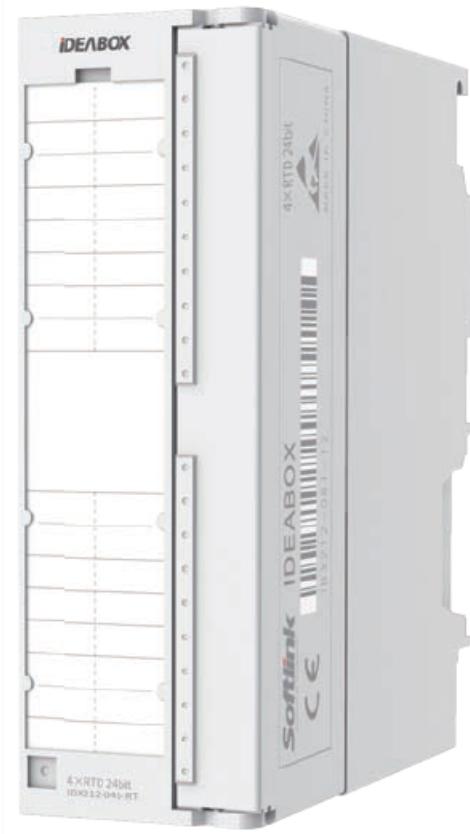
Front connector wiring diagram and terminal assignment.



## 4 Channel Thermocouple Input Module

Model No.	Description
IBX212-045-RT	4*RTD 24bit

Parameter	
Input channel	4
Sensor type	PT100, PT200, PT500, PT1000, Ni100, Ni120, Ni1000
Resolution	24bit, 0.1°C
Sampling range	100Ω, 200kΩ
Absolute error	<+-0.5% (Full range)
Conversion rate	250mS/4ch
Software filtering	0x, 1x, 2x, 3x, 4x Adjustable
Wiring	Two-wire system, three-wire system, four-wire system
Other function	With 50/60Hz power frequency filter Wire break indication
Conversion rate	1MSPS (8Ch)
Rated supply voltage	Isolated power supply within module
Power consumption	Typ. 0.1W, Max. 0.5W
Electrical isolation	RTD/Other area: 500V DC

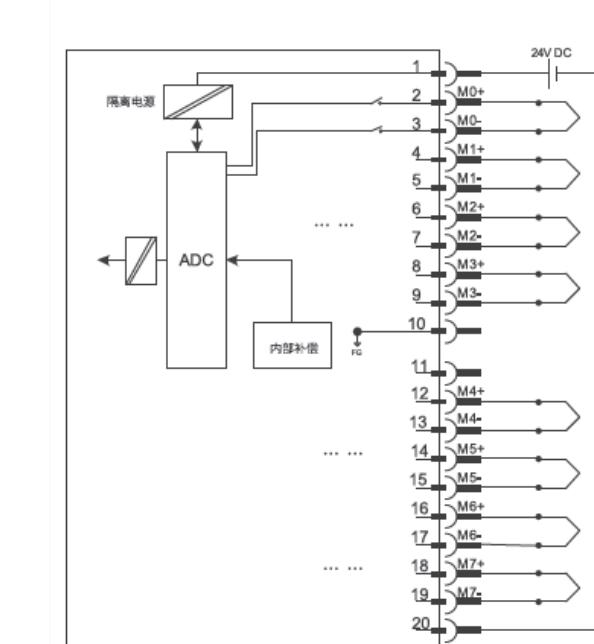
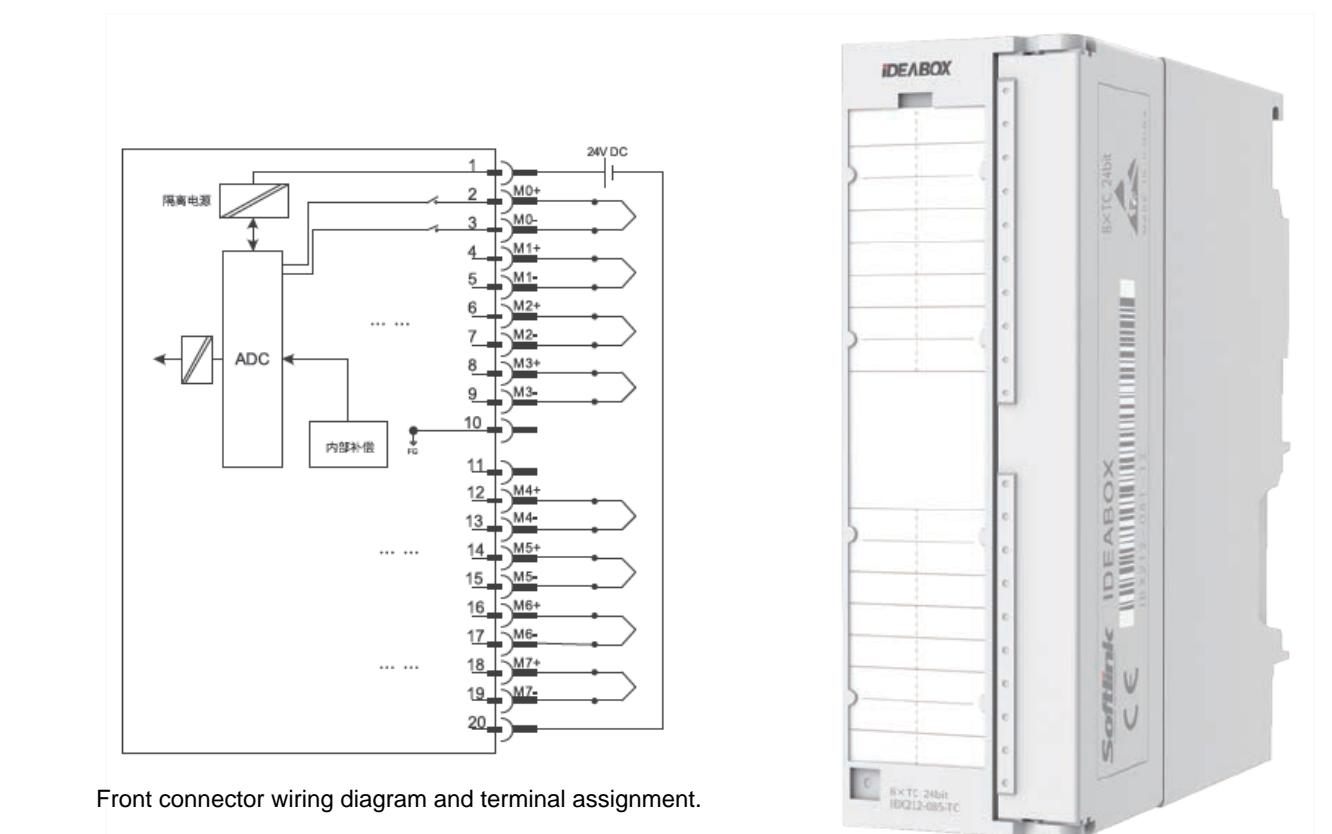


Front connector wiring diagram and terminal assignment.

## 8 Channel Thermocouple Input Module

Model No.	Description
IBX212-085-TC	8*TC 24bit

Parameter	
Input channel	8
Sensor type	Thermocouple types J, K, L, B, E, N, R, S, T, U (default setting type K)
Resolution	24bit, 0.1°C
Compensation method	Internal compensation
Sampling range	Depending on sensor type, default setting type K. -100...+1,370°C
Absolute error	<+-0.5% (Full range)
Conversion rate	1MSPS (8Ch)
Rated supply voltage	Isolated power supply within module
Power consumption	Typ. 0.1W, Max. 0.5W
Electrical isolation	RTD/Other area: 500V DC
Software filtering	0x, 1x, 2x, 3x, 4x Adjustable
Wiring	Two-wire system
Other function	With 50/60Hz power frequency filter Wire break indication



Front connector wiring diagram and terminal assignment.

## iDEABOX Series I/O Specifications

Environment - Operating				
Operating temperature	Horizontal installation	0 to 55°C		
	Vertical installation	0 to 45°C		
Relative humidity		95% relative humidity, non-condensing		
Atmospheric pressure	1080 to 795 hPa (Equivalent to altitude -1000 to 2000m)			
	Mechanical shock EN60068-2-27 vertical installation	15G, 11 ms pulse, 6 shocks in three axes		
Vibration & Shock	DIN rail installation: 5-9 Hz for 3.5mm, 9-150 Hz for 1G			
	Sinusoidal vibration EN60068-2-6	Panel Mounting: 5-9 Hz for 7.0mm, 9-150 Hz for 2G 10 Swings per axis, 1 frequency range per minute		
Environment - Transmission/Storage				
Storage temperature	-20 to 70°C			
Atmospheric pressure	1080 to 660 hPa (Equivalent to altitude -1000 to 3500m)			
Drop EN60068-2-32	0.3m, 5 times, packaging			
Relative humidity	Maximum humidity 95%			
Electromagnetic Compatibility (EMC)				
Electrostatic discharge EN61000-4-2	$\pm 8\text{kV}$ , Air discharge on all surfaces $\pm 4\text{kV}$ , Contact discharge on exposed conductive surfaces			
Fast transient pulse EN61000-4-4	$\pm 2\text{kV}$ , 5kHz, Coupling network to AC and DC power supplies $\pm 2\text{kV}$ , 5kHz, Coupling clamp to I/O			
Surge immunity EN61000-4-5 (External protection circuit required)	$\pm 2\text{kV}$ Common mode, 1kV Differential mode			
Conducted interference EN61000-4-6	150kHz to 80MHz, 10 V RMS, 1kHz for 80% AM			
Conducted emission EN55011, A type	0.15MHz to 0.5MHz <79 dB ( $\mu\text{V}$ ) quasi-peak; <66 dB ( $\mu\text{V}$ ) mean 0.5MHz to 5MHz <73 dB ( $\mu\text{V}$ ) quasi-peak; <60 dB ( $\mu\text{V}$ ) mean 5MHz to 30MHz <73 dB ( $\mu\text{V}$ ) quasi-peak; <60 dB ( $\mu\text{V}$ ) mean			
Radiation emission EN55011, A type	30MHz to 230MHz <40 dB ( $\mu\text{V/m}$ ) quasi-peak; measuring distance is 10m 230MHz to 1GHz <47 dB ( $\mu\text{V/m}$ ) quasi-peak; measuring distance is 10m			
IP Protection Level				
IP20 Mechanical protection, EN 60529				

## iDEABOX Series I/O Dimension

iDEABOX series I/O size is the same: 125mm X 40mm X 117mm

