



另行通知



Trademark

SINSEGYE® is registered trademarks of Sinsegye. All other merchants Logos, service marks and trade names are the property of their respective owners.



Technical support and after-sales service

If you have any technical questions related to the product, please contact us at:

Service hotline: (+86) 400-013-2158

Get manuals and information

If you need manuals or other technical information, please send your request to:

support@sinsegye.com.cn

Legal Notices

@2025 Sinsegye All Rights Reserved

Sinsegye (Shenzhen) Computer System Co., Ltd. (hereinafter referred to as "Sinsegye") reserves the right to modify the product information and product specifications in this manual.

For any direct, indirect, special, incidental or consequential losses caused by the incorrect use of this manual or the product, Sinsegye shall not be liable for any direct, indirect, special, incidental or consequential losses.

Sinsegye owns the patents, copyrights and other intellectual property rights of this product and its software right. This product or any related parts may not be copied, manufactured, processed or used, directly or indirectly, without authorization.

User Manual of SX Series Industrial Intelligent Computer

00 PREFACE	1
01 PRODUCT INTRODUCTION	6
1.1. Product Introduction	6
1.2. Product Model	6
1.3. Technical Specifications	7
1.4. Order Form Related to This Product	8
02 SX21 SERIES	9
2.1. Product Overview	9
2.2. Panel Description	9
2.3. Definition of Indicators	10
2.4. Structure Dimension Drawing	10
2.5. Description of SX21 Expansion Module	11
2.5.1. Gigabit Network Port Expansion Module	11
2.5.2. COM/CAN Port Expansion Module	11
2.5.3. Assembly of Expansion Module	12
03 SX52 SERIES	13
3.1. Product Overview	13
3.2. Panel Description	13
3.3. Definition of Indicators	14
3.3.1. Operation Status Indicator Light	14
3.3.2. Power Module Indicator Light	14
3.3.3. 16-Point Ontology IO Module Indicator Lights	14
3.4. Input/Output Specifications	15
3.5. Structural Dimension Drawing	15
3.6. Onboard IO Module	16
3.7. Local IO Module Expansion	16
04 SX51 SERIES	17
4.1. Product Overview	17
4.2. Panel Description	17
4.3. Definition of Indicators	18
4.4. Structure Dimension Drawing	18
4.5. Local IO Module Expansion	18
05 SX58 SERIES	19
5.1. Product Overview	19
5.2. Panel Description	19
5.3. Definition of Indicators	20
5.4. Structure Dimension Drawing	20
5.5. Local IO Module Expansion	20
06 ASSEMBLY OF EMBEDDED ICOMPUTER	21
6.1. Precautions before Assembly	21
6.2. Requirements for Assembly Environment	21
6.3. Fastening to the DIN Rail	21
6.4. DIN Rail Removal Method	21
07 ELECTRICAL INSTALLATION	22
7.1. Requirements for Field Wiring	22
7.1.1. Grounding Requirements	22
7.1.2. Wiring Requirements	22
7.2. Description of Power Supply Wiring	23
7.3. Description of Interface Wiring	23
7.3.1. Description of Network Port	23
7.3.2. Description of USB	25
7.3.3. Description of HDMI	25
7.3.4. Description of COM/CAN Port	25
08 CONFIGURATION	27
8.1. SF8010 Device Manager	27
8.2. Programming and Debugging	27
09 REPAIR AND MAINTENANCE	28
9.1. Precautions	28
9.2. Items Subject to Regular Inspection	28
9.3. Maintainable Parts	29
9.3.1. Replacement of Battery/CF Card	29
9.3.2. Replacement of the Fan	30
9.4. Storage and Recycling	30

00 PREFACE

Manual Users and Scope

This manual is intended for the assembly, operation and maintenance of the equipment by technicians who have received the necessary training and qualification. Only professionals or trained personnel with operation qualification may assemble, replace and repair this equipment.

Version Change Record

Version No.	Revision Date	Change Content
V1.0	2023-05	First version of integration, summary and arrangement
V1.1	2024-07	Added product models
V1.2	2024-08	Added product model SX58
V1.3	2025-07	Added product model SX52

Access to The Manual and Resources

This manual is not delivered with the product. If you need an electronic version or a paper version, you can obtain it through the following channels:

- Log in to the official website of Sinsegye: <https://www.sinsegye.com.cn> and download it from the resources list;
- Obtain through frontline technical support or sales;
- Search by WeChat and follow the WeChat official account of Sinsegye, and obtains it from the official account.

Safety Statement


Before using this product, please read the product manual and correctly understand the safety precautions. Failure to comply with the safety precautions may result in personal injury or death or equipment damage.

The “Danger”, “Warning”, “Caution” and “NOTICE” in the manual do not represent all the safety precautions to be observed and are only used as a supplement to all safety precautions.


This product shall be used in an environment that meets the design specification requirements, otherwise it may cause failure, abnormal function or component damage caused by non-compliance with relevant regulations, etc. are not within the scope of product quality assurance.

Safety Precautions

There are four types of safety tips in this manual:

	DANGER
	Hazard with high risk of death or serious injury

It indicates an imminent hazardous situation that, if not avoided, will result in serious injury or death.

	WARNING
	Hazard with medium risk of death or serious injury

Warning indicates a potentially hazardous situation that, if not avoided, could result in serious injury or death.

	CAUTION
	There is a low-risk hazard that can result in minor injury

"Caution" indicates a potentially hazardous situation that, if not avoided, may result in minor or moderate injury or damage to the equipment.

NOTICE
There is a potential hazard to the environment and equipment

Alert indicates a potentially hazardous situation that, if not avoided, may only result in damage to the equipment.

- When using this product, please be sure to check whether the appearance is good and whether there is cover according to the regulations, and operate it according to the regulations of the manual. Illustrations of the product in this manual are sometimes intended to show product details.
- The product diagram is for illustration, and may be slightly different from the final delivered products. Please refer to the actual products ordered. Product upgrades and iterations may occur without prior notice.
- Please wear necessary protective equipment or take other safety precautions to protect personal safety when operating the equipment.

1 Safety Tips for Unpacking Acceptance

- Do not assemble when you find water ingress inside the product, missing parts or damaged parts during unpacking!
- The product is damaged, rusted, used, etc. Do not assemble!
- Do not assemble if the packing list does not match the product name!
- Please check whether the outer packing of the equipment is intact before unpacking.
- Please open the package in the order of layers, and it is strictly prohibited to knock violently.

	DANGER
	Hazard with high risk of death or serious injury

	CAUTION
	There is a low-risk hazard that can result in minor injury

2 Safety Tips for Storage and Transport

- When the product is lifted by the lifting equipment, no person is allowed to stand or stay beneath the product.
- Please hoist the product stably and at a constant speed, do not make the product subject to vibration or impact, do not turn over the product, and do not keep the product in the lifted state for a long time, otherwise there is a risk of personal injury or product damage!
- When handling the product, please take and put it gently, and be careful of the objects under your feet at any time to prevent tripping or falling, otherwise there is a risk of injury or product damage!
- When handling the product with bare hands, please be sure to hold the shell of the product firmly to avoid falling parts of the product, otherwise there is a risk of injury and equipment damage!
- Please store and transport the product in strict accordance with the required storage and transport conditions, otherwise there is a risk of product damage.
- Avoid storage and transport in places with water splash and rain, direct sunlight, strong electric field, strong magnetic field and strong vibration and other conditions.
- Avoid storing the product for more than 3 months. If the product is stored for a long time, please conduct tighter protection and necessary inspection.
- It is strictly prohibited to transport this product together with equipment or articles that may affect or damage this product.



3 Safety Tips During Assembly

- Only professionals who have received relevant training on electrical equipment and have electrical knowledge can operate the equipment. Operation by non-professional personnel is prohibited!
- Please read the product manual and safety precautions carefully before assembly!
- Please do not assemble this product in places with strong electric field or strong electromagnetic wave interference!
- Before carrying out assembly work, please make sure that the mechanical strength of the assembly position is sufficient to support the weight of the equipment, otherwise it may cause a mechanical hazard.
- Do not wear loose clothing or accessories when assembling, otherwise there may be a risk of electric shock!
- When the product is fastened in an enclosed environment (such as in a cabinet or chassis), the assembly environment requirements must be met, otherwise the product may overheat or fire.
- It is strictly prohibited to modify this product!
- When it is necessary to assemble the equipment with strong electromagnetic wave interference such as transformer, please assemble the shielding protection device!
- During assembly work, prevent foreign matters such as metal chips, oil, water, etc. from entering into the product during drilling to cause product failure.



4 Safety Tips for Equipment Wiring

- Equipment assembly, wiring, maintenance, inspection or component replacement shall be performed by professionals!
- Please power off all equipment before wiring. It is necessary to discharge the residual voltage and make sure it is below the safe voltage, otherwise there will be electric shock hazard.
- Please conduct wiring work, remove the product cover or touch the circuit board when the power supply is cut off, otherwise there will be electric shock hazard.
- Please be sure to ensure good grounding of equipment and products, otherwise there will be electric shock hazard and real-time performance cannot be guaranteed.
- It is strictly prohibited to connect the input power supply to the output end of the product, otherwise it may cause equipment damage or even fire.
- It is strictly prohibited to reverse polarity connection. Please follow the product instructions for wiring, otherwise the equipment will be damaged.
- The cable used for wiring must meet the requirements of corresponding wire diameter, shielding and other aspects, and the shielding layer of the shielded cable shall be reliably grounded at one end!
- Please tighten the terminal screws according to the tightening torque specified in the manual to avoid insufficient or excessive tightening torque.
- After completing wiring, please ensure that all cables are properly wired and that there are no missing screws, gaskets, or exposed cables inside the product.



5 Safety Tips for Equipment Power-on

- Before power-on, please confirm whether the power of the power supply matches the power of the equipment. Avoid product damage or fire.
- Before power-on, please confirm again whether the power supply meets the product requirements and whether the wiring is correct.
- It is strictly prohibited to open the protective cover of the product, touch any connecting terminal of the product or disassemble any device or part of the product under the power-on state, otherwise, there will be electric shock hazard!
- Make sure that there are no people around the product, the motor and the machinery before power-on, otherwise personal injury or death may result.



6 Safety Tips for Equipment Operation

- Non-professional personnel are forbidden to power on the product, otherwise it may cause personal injury or death risk!
- It is strictly prohibited to touch any connecting terminal of the equipment, disassemble the equipment and any device or part of the product under the operation state, otherwise there is electric shock hazard!
- During operation, avoid other objects or metal objects falling into the equipment, otherwise fire or product damage may be caused!



7 Safety Tips for Equipment Maintenance

- Non-professional personnel are strictly forbidden to carry out equipment assembly, wiring, maintenance, inspection or component replacement!
- It is strictly prohibited to carry out the equipment maintenance under the power-on state, otherwise there will be an electric shock hazard!
- After disconnecting all equipment, please release the induced voltage!
- Please carry out daily and regular inspection and maintenance of equipment and products according to the requirements for equipment maintenance, and make maintenance records.



8 Safety Tips for Equipment Repair

- Non-professional personnel are strictly forbidden to carry out equipment assembly, wiring, maintenance, inspection or component replacement!
- It is strictly prohibited to carry out equipment maintenance under the power-on state, otherwise there may be an electric shock hazard.
- Please report the equipment repair according to the product warranty agreement.
- Please replace the wearing parts according to the replacement instructions.



9 Safety Tips for Equipment Recycling

- The scrapped equipment and products shall be disposed and recycled according to the industrial waste treatment standard to avoid environmental pollution.

01 PRODUCT INTRODUCTION

1.1 Product Introduction

SX series embedded industrial intelligent computer is PC-based intelligent universal controller of Sinsegye. It integrates many functions such as logic control, motion control, industrial vision, and configuration display. It has the characteristics of localization, integrated control and computation, high real-time performance and expandability. The product body has rich interfaces and supports the expansion of each function expansion module to meet the requirements for application on various complex industrial fields.



1.2 Product Model

SX 21XX – XXXX
 ① ② ③

#	Item	Content
1	Product category	Embedded PC
2	Product model	21XX: Series 21
		52XX: Series 52
		51XX: Series 51
		58XX: Series 58
3	Sub-model	For details, please refer to the product selection table

1.3 Technical Specifications

Product Model		SX21	SX52	SX51	SX58
Main system	CPU	Hygon-3 series	Intel® Processor N series	Intel® Atom	Intel® Celeron
	Memory (G)	16	8/16	4/8	4
	Storage	Default 256G, expandable to 1T	Default 128/256G, expandable to 1T	Default 128G, expandable to 1T	Default 64G, expandable to 1T
Hardware interface	Network port	4	4	4	2
	USB	4	2	2	2
	Serial port	1*RS232/RS422/RS485			
	CAN	1			
	HDMI	1			
Software interface	Programming language	Support IEC61131-3 (LD/ST/CFC/SFC)			
	Program download	Support binary object code and user engineering (active, passive) downloads			
	Program upload	Support			
	Program encryption	Support user engineering, POU and target file encryption			
	Controller encryption	Support locking/unlocking of the controller			
	Power-down hold	Support			
	Automatically add libraries	Support			
Online system upgrade		Support			
Desktop operating system		Ubuntu/Win10	Win10	Ubuntu	Ubuntu
Real time clock (hold time)		Duration (15 days), accuracy ±60 seconds/month			
Module power supply	Working voltage	20.4~28.8(-15%~+20%)			
	Rated voltage (VDC)	24			
	Power consumption Pmax (W)	≤80	≤45	≤45	≤30
Environment	Operating temperature (°C)	-40~+60	-20~+60	-40~+60	-10~+60
	Storage temperature (°C)	-40~+80	-40~+80	-40~+80	-20~+80
	Humidity	5~95%, without condensation			
Certification	CE, FCC, CB, EAC, UKCA	N/A	CE, FCC, CB, EAC, UKCA	CE, FCC, CB, EAC, UKCA	

1.4 Order Form Related to This Product

Product series	Order model	Description
SX21 Series	SX2133	4*Ethernet ports, 4*USB, 1*RS232/RS485/RS422 (configurable via software), 1*CAN, 1*HDMI ECAT slaves: 256 (servo axes or IO) USB3.0 camera: 4, GigE camera: 6, memory: 16G
SX52 Series	SX5232-2112	Memory: 16G, default storage capacity: 256G ECAT slaves: 32 (servo axes or IO) Onboard IO: 8*DI (PNP/NPN), 4*DO (PNP), 4*adaptive DI/DO (PNP)
	SX5232-2122	Memory: 16G, default storage capacity: 256G ECAT slaves: 32 (servo axes or IO) Onboard IO: 8*DI (PNP/NPN), 4*DO (NPN), 4*adaptive DI/DO (NPN)
SX51 Series	SX5132-1010	4*Ethernet ports, 2*USB, 1*RS232/RS485/RS422 (configurable via software), 1*CAN, 1*HDMI ECAT slaves: 32 (servo axes or IO), memory: 4G
	SX5132-2010	4*Ethernet ports, 2*USB, 1*RS232/RS485/RS422 (configurable via software), 1*CAN, 1*HDMI ECAT slaves: 32 (servo axes or IO), memory: 8G
	SX5100-1010	4*Ethernet ports, 2*USB, 1*RS232/RS485/RS422 (configurable via software), 1*CAN, 1*HDMI ECAT slaves: 128 (servo axes or IO), memory: 4G
	SX5100-2010	4*Ethernet ports, 2*USB, 1*RS232/RS485/RS422 (configurable via software), 1*CAN, 1*HDMI ECAT slaves: 128 (servo axes or IO), memory: 8G
SX58 Series	SX5820-0001	Main frequency: 1.4GHz, 2*Ethernet ports, 2*USB, 1*RS232/RS485/RS422 (configurable via software), 1*CAN, 1*HDMI ECAT slaves: 32(servo axes or IO)
	SX5820-0002	Main frequency: 2.0GHz, 2*Ethernet ports, 2*USB, 1*RS232/RS485/RS422 (configurable via software), 1*CAN, 1*HDMI ECAT slaves: 64(servo axes or IO)

SX21 SERIES

2.1 Product Overview

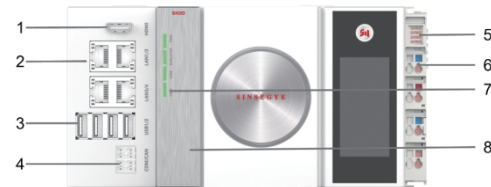


SX21 series iComputer is a high-end domestic industrial intelligent computer integrating control and computation independently developed by Sinsegye.

SX21 series product adopts an active cooling mode and is equipped with a high-performance domestic X86 processor. It supports 4*Gigabit Ethernet, 1*HDMI, 4*USB3.0, 1*serial port (RS232/RS422/RS485 can be configured) and 1*CAN. SX21 series iComputer has good expansibility, and supports the expansion of gigabit network port, AI inference card, serial port, wireless, I/O and other functional modules, meeting the application with a large demand for calculation power, functional module and I/O module on site and relatively complicated process.

Since the release of SX21 series, SX21 series products have been successively used in 3C, semiconductor, photovoltaic, automobile, energy storage and other fields to help customers realize the improvement of control accuracy and production efficiency.

2.2 Panel Description

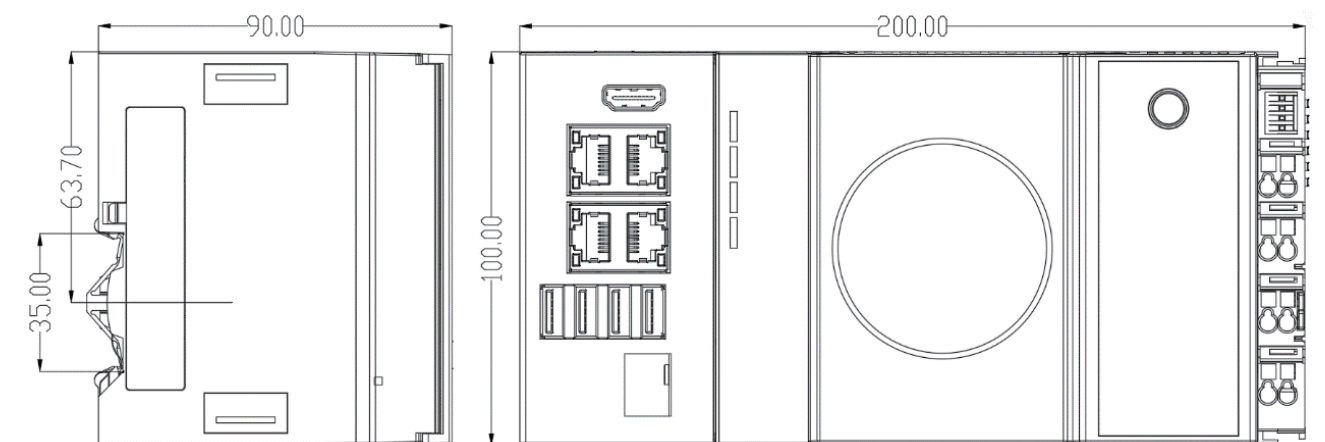


#	Name	Description
1	HDMI	The display interface supports 1080P, up to 2k
2	LAN1~4	LAN network port, supporting 10/100/1000MBASE-T(X) interface
3	USB1~4	4*USB3.0 interfaces
4	COM/CAN	Support RS232/RS485/RS422 which can be configured
5	Power indicator	-
6	Power interface	Support 24V (-15%~+20%) DC power supply
7	Operation status indicator	PWR: power indicator RUN/STOP: operation indicator COM: communication indicator HDD: hard disk indicator
8	CF card slot	The default configuration of the CFast card is 256G

2.3 Definition of Indicators

Indicator type	Color	Status	Meaning
PWR	Green	On	The power supply works normally.
		Off	Power supply does not work normally or the corresponding power supply is not loaded.
RUN/STOP	Green/Yellow/Red	Green on	The main controller is in RUN state and the user program is running.
		Green flashing	The user program area is empty or the user engineering is invalid.
		Yellow on	The main controller is in STOP state and the user program is stopped.
		Red flashing	The main controller is in the process of RTE upgrade.
COM	Green/Yellow	Green flashing	Serial port communication is sending and receiving data.
		Green off	Serial port communication has no data receiving and sending.
		Yellow flashing	Any network port is receiving and sending data.
		Yellow off	Any network port has no data receiving and sending.
HDD	Blue	Green and yellow alternately flashing	Serial port and network port have data receiving and sending.
		Blue flashing	HDD access or read/write operation in progress.
		Off	No HDD access or HDD not being accessed.

2.4 Structure Dimension Drawing



2.5 Description of SX21 Expansion Module

Name of SX21 expansion module	Model	Description of expansion interface	Remark
Gigabit network port expansion module	SX2500-0340	4* gigabit adaptive	This expansion on the SX21 series iComputer
Serial/CAN port expansion module	SX2500-0220	2* 232 serial port expansion module (DB9 interface) 2* CAN	
	SX2500-0221	2* 485/422 serial port expansion module (DB9 interface) 2* CAN	

Remark: Hot swap is not supported, and it may damage the host or expansion module.

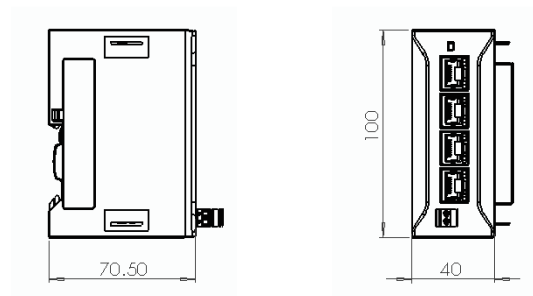
2.5.1 Gigabit Network Port Expansion Module

Indicator	Status	Meaning
PWR	Green	The expansion module is powered on normally
	Off	The expansion module is powered down
Network port	Green	The network connection has been established and the data can be transferred normally
	Yellow/green flashing	The data is being transferred or the network connection speed is 100M/Gigabit
	Red	There is network failure or loss of connection

▶ 4* gigabit network port expansion module



▶ Mechanical Dimensions

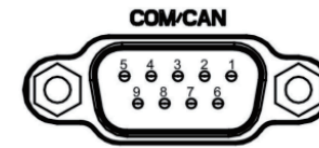


2.5.2 COM/CAN Port Expansion Module



Interface type	Number of supported interfaces	Remark
RS485	2	Default RS485 interface for shipment. Other interfaces shall be informed before shipment.
RS422	2	
RS232	2	
CAN□	2	

▶ Interface Definition



Pin	COM/CAN	RS-232	RS-422	RS-485
1	NDCD1	DCD	TX-	DATA-
2	NSIN1	RXD	TX+	DATA+
3	NSOUT1	TXD	RX+	-NC
4	NDTR1	DTR	RX-	-NC
5	UART_GND	UART_GND	UART_GND	UART_GND
6	CAN_ISO1_GND	-NC	-NC	-NC
7	NRTS1	-NC	-NC	-NC
8	CAN_1_H	-NC	-NC	-NC
9	CAN_1_L	-NC	-NC	-NC

▶ Mechanical Dimensions



2.5.3 Assembly of Expansion Module



It supports cascade connection of up to three expansion modules (excluding graphics cards), and supports up to one graphics card plus one additional expansion module for expansion.

▶ Assembly steps:

- Manually disassemble the left cover plate of the host
- Embed the expansion module on the host
- Fasten the entire structure to DIN rail
- Assemble locking bayonets at the left and right ends of the equipment for fixation

SX52 SERIES

3.1 Product Overview



The SX52 series industrial intelligent computer is a compact embedded PC independently developed by Sinsegye. As the first product in the SX5 family to support the Windows desktop operating system, the launch of the SX52 series will open up possibilities for more application scenarios.

The SX52 series industrial intelligent computer utilizes Intel low-power processor. The main unit supports 4*Gigabit Ethernet ports, 1*HDMI port, 2*USB 3.0 ports, 1*serial port (RS232/RS422/RS485 software configurable), and 1 CAN port. Additionally, the SX52 comes with a 16-point integrated I/O module, including 8*Digital Inputs (DI), 4*Digital Outputs (DO), and 4*adaptive DI/DO. Furthermore, the SX52 series industrial intelligent computer offers excellent expandability, supporting both standard I/O and process module expansion. This enables its use in applications requiring a large I/O scale and more complex processes.

3.2 Panel Description



#	Name	Description
1	HDMI	Display interface supports 1080P, up to 4k
2	LAN1~4	LAN network port, supporting 10/100/1000MBASE-T(X) interface
3	USB1/2	2*USB3.0
4	COM/CAN	Default RS485, using SF8010 to configurate RS232/ RS422
5	Power supply/IO terminal indicator	Power module indicator lights and 16-point main unit I/O indicator lights
6	Operation status indicator	PWR: power indicator RUN/STOP: running indicator COM: communication indicator HDD: hard disk drive indicator
7	Power interface	Support 24V (-15%~+20%) DC power supply, with a recommended rated voltage of 24V DC input
8	Onboard IO terminal	8*DI, 4*DO, 4*adaptive DI/DO module
9	CF card slot	Default configuration 128/256G

3.3 Definition of Indicators

3.3.1 Operation Status Indicator Light

Indicator type	Color	Status	Meaning
PWR	Green	On	The power supply is working normally.
		Off	Power supply is not working normally or the corresponding power supply is not loaded.
RUN/STOP	Green/ Yellow/ Red	Green on	The master controller is in the RUN state and the user program is running.
		Green flashing (1Hz)	The user program area is empty or the user engineering is invalid.
		Yellow on	The master controller is in the STOP state and the user program is stopped.
		Red flashing	The controller has experienced one or more diagnosable faults (1Hz flashing N times, followed by 30 seconds off, repeating in a cycle).
COM	Green	Green flashing (1Hz)	Serial communication is sending and receiving data.
		Green off	Serial communication is not sending or receiving data.
HDD	Blue	Flashing (1Hz)	The HDD is being accessed, or normal read/write operations are in progress.
		Off	The HDD cannot be or is not accessed.

3.3.2 Power Module Indicator Light

#	Indicator type	Color	Status	Meaning
1	Input power	Green	On	Power connected
			Off	No power connected
2	Output power	Green	On	5V output
			Off	No output
3	Field power	Green	On	Power connected
			Off	No connection
4	5V load	Red	On	Output load exceeds 80%
			Off	Output load within 80%

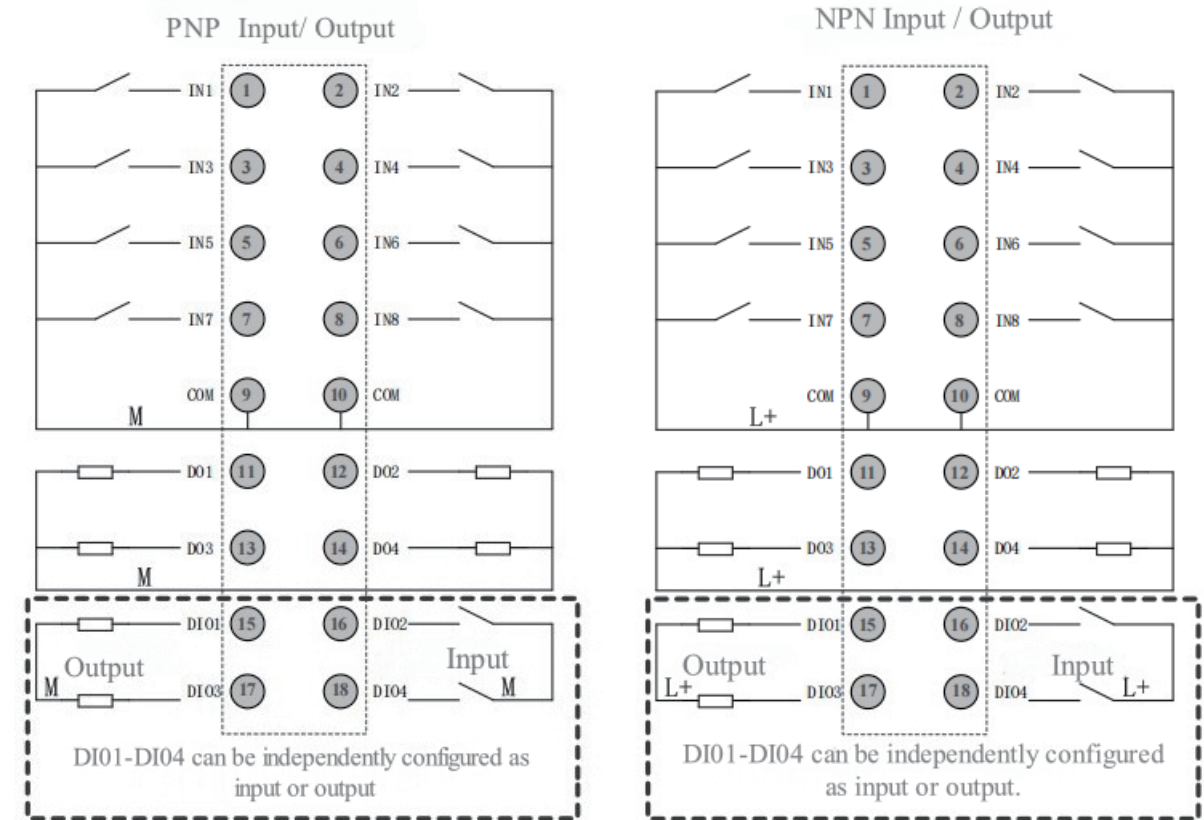
3.3.3 16-Point Ontology IO Module Indicator Lights

#	Indicator type	Color	Status	Meaning
1~16	DI/DO indicator	Green	On	Signal input detected
			Off	No signal input detected

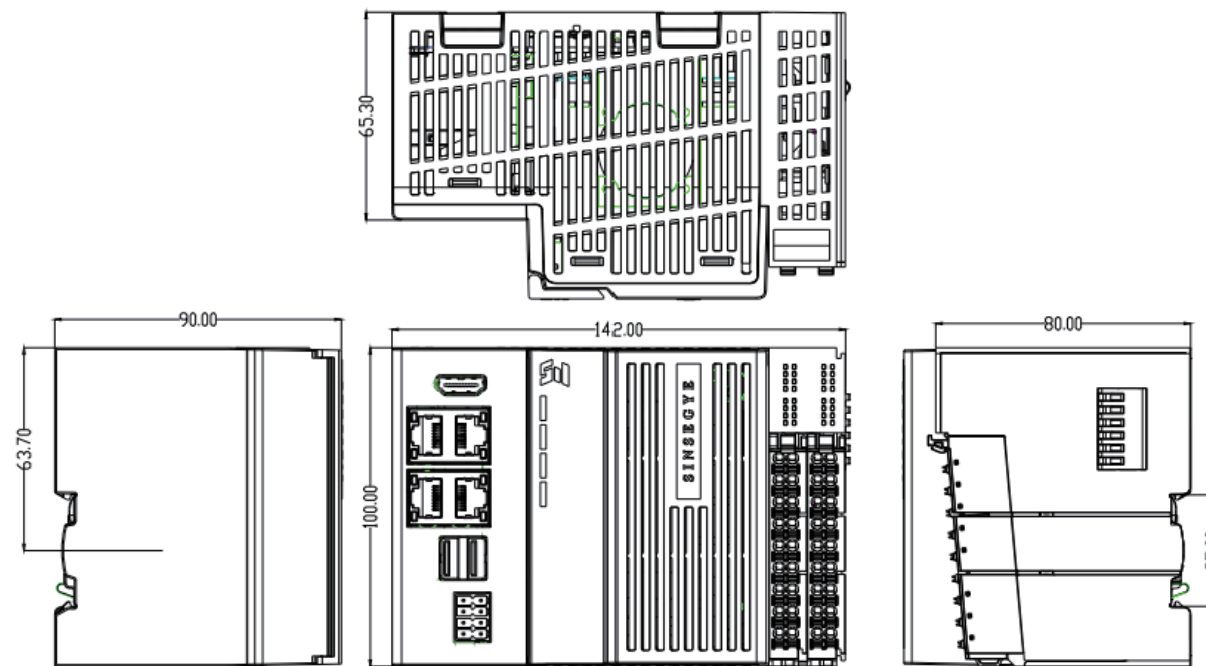
3.4 Input/Output Specifications

Item	Detailed specification
Input points	8*DI
Input current	4mA
0 Signal voltage	-3V ~ +5V
1 Signal voltage	15V ~ 30V
Input filtering	Typical 400μs, software configurable
Input delay	No more than 1ms
Output points	4*DO
Output type	NPN or PNP (distinguished by wiring)
Max output current	0.5A
Short-circuit protection current	Approx. 1.7A
Adaptive I/O	Supports 4 adaptive I/O (DI01-DI04)
Adaptive I/O configuration description	DI01-DI04 can be independently configured as input or output, distinguished by input connection method (connected to M/L+) and output status indication (LED).
Backplane bus current consumption (5V)	Approx. 150mA

3.6 Onboard IO Module



3.5 Structural Dimension Drawing



3.7 Local IO Module Expansion

The SX52 series supports the SRE series of local I/O modules. For the models of SRE series I/O modules, please refer to the *User Manual of SRE Series I/O Products*.

04 SX51 SERIES

4.1 Product Overview



SX51 series industrial intelligent computer is compact industrial intelligent equipment independently researched and developed by Sinsegye. Relying on industrial control and computer technology, it has the characteristic of integrating control and computation.

SX51 series iComputer adopts fanless and low power consumption design. It is equipped with Intel Atom® Processor. It supports 4*Gigabit Ethernet, 1*HDMI, 2*USB3.0, 1*serial port (RS232/RS422/RS485 can be configured) and 1*CAN. At the same time, the SX51 series iComputer has good expansibility, supports the expansion of common IO and process modules, and can realize the application with a large demand for I/O scale and relatively complicated process.

4.2 Panel Description

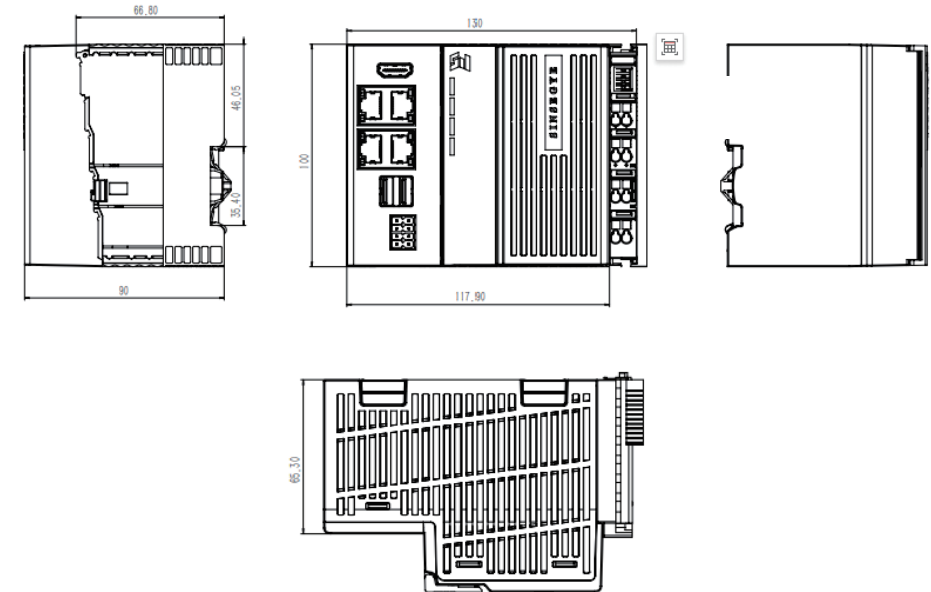


#	Name	Description
1	HDMI	The display interface supports 1080P, up to 4k
2	LAN1~4	LAN network port, supporting 10/100/1000MBASE-T(X) interface
3	USB1/2	2*USB3.0 interfaces
4	COM/CAN	Default RS485, using SF8010 to configurate RS232/ RS422
5	Power indicator	-
6	Power interface	Support 24V (-15%~+20%) DC power supply, with a recommended rated voltage of 24V DC input
7	Operation status indicator	PWR: power indicator RUN/STOP: operation indicator COM: communication indicator HDD: hard disk indicator
8	CF card slot	The default configuration of the CFAST card is 128G

4.3 Definition of Indicators

Indicator type	Color	Status	Meaning
PWR	Green	On	The power supply works normally.
		Off	The power supply does not work normally or the corresponding power supply is not loaded.
RUN/STOP	Green/ Yellow/ Red	Green on	The main controller is in RUN state and the user program is running.
		Green flashing (1Hz)	The user program area is empty or the user engineering is invalid.
		Yellow on	The main controller is in STOP state and the user program is stopped.
		Red flashing	The controller has experienced one or more diagnosable faults (1Hz flashing N times, followed by 30 seconds off, repeating in a cycle).
COM	Green	Green flashing (1Hz)	Serial port communication is sending and receiving data.
		Green off	Serial port communication has no data receiving and sending.
HDD	Blue	Flashing (1Hz)	HDD access or read/write operation in progress.
		Off	No HDD access or HDD not being accessed.

4.4 Structure Dimension Drawing



4.5 Local IO Module Expansion

The SX51 series supports the SRL series of local I/O modules. For the models of SRL series I/O modules, please refer to the *User Manual of SRL Series I/O Products*.

05 SX58 SERIES

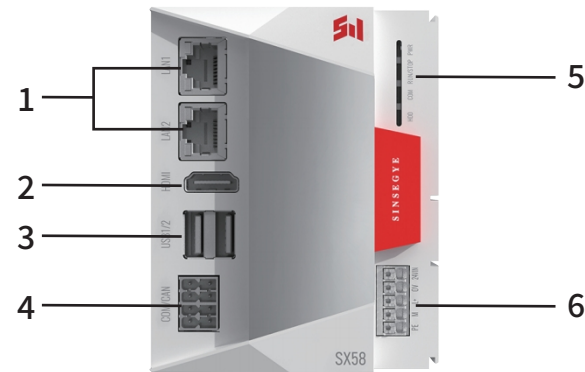
5.1 Product Overview



SX58 series iComputer is ultra-compact industrial intelligent equipment independently researched and developed by Sinsegye. Relying on industrial control and computer technology, it has the characteristic of integrating control and computation.

SX58 series iComputer is equipped with Intel Celeron® Processor with low power consumption. It supports 2*Ethernet interface, 2*USB3.0, 1*HDMI, 1*serial port (RS232/RS422/RS485 interface can be configured), and 1*CAN. At the same time, the SX58 iComputer supports remote IO terminal and high and low speed local expansion modules (adaptive). In addition, the SX58 iComputer adopts modular design, with the size of only 80*100*90mm, which is suitable for applications with strict requirements for assembly space.

5.2 Panel Description

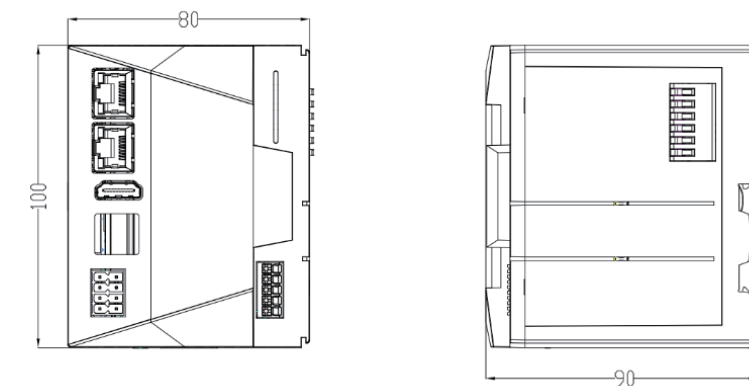


#	Name	Description
1	LAN1/2	LAN network port, supporting 10/100/1000MBASE-T(X) interface
2	HDMI	The display interface supports 1080P, up to 4k
3	USB1/2	2*USB3.0 interfaces
4	COM/CAN	RS232/RS485/RS422 can be configured
5	Operation status indicator	PWR: powerindicator RUN/STOP: operationindicator COM: communicationindicator HDD: harddiskindicator
6	Power interface	Support 24V (-15%~+20%) DC power supply, with a recommended rated voltage of 24V DC input

5.3 Definition of Indicators

Indicator type	Color	Status	Meaning
PWR	White	On	The power supply works normally.
		Off	Power supply does not work normally or the corresponding power supply is not loaded.
RUN/STOP	White/Red	White flashing (1Hz)	The main controller is in RUN state, and the user program runs normally.
		Red on	The main controller is in STOP state and the user program is stopped.
		Red flashing (1Hz)	The controller has experienced one or more diagnosable faults (1Hz flashing N times, followed by 30 seconds off, repeating in a cycle).
		Off	The user program area is empty or the user engineering is invalid.
COM	White	Flashing (1Hz)	Serial port communication is sending and receiving data.
		Off	Serial port communication has no data receiving and sending.
HDD	White	Flashing (1Hz)	HDD access or read/write operation in progress.
		Off	No HDD access or HDD not being accessed.

5.4 Structure Dimension Drawing



5.5 Local IO Module Expansion

The SX58 series supports the SRE series of local I/O modules. For the models of SRE series I/O modules, please refer to the *User Manual of SRL Series I/O Products*.

06 ASSEMBLY OF EMBEDDED ICOMPUTER

6.1 Precautions before Assembly

- Do not tighten the computer with excessive torque to avoid damaging the terminals and the computer;
- Ensure that the product is powered off prior to assembly.

6.2 Requirements for Assembly Environment

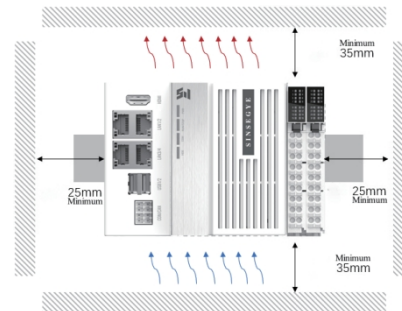
Embedded iComputer are not recommended for assembly in the following environments:

- A place where the ambient temperature exceeds the range of -40°C~+80°C (-20°C~+80°C for SX58);
- A place where the ambient humidity exceeds the range of 10%RH~95%RH;
- A place where there is corrosive gas and combustible gas;
- A place where there is dust, iron powder and other conductive powder, oil mist, salt and organic solvent;
- A place where strong electric and magnetic fields occur;
- A place where the computer body may be subjected to direct vibration and conductive impact.

The embedded iComputer shall be horizontally assembled in the control cabinet on the DIN rail to ensure the best heat dissipation effect.

Requirements for assembly space in the control cabinet:

- Minimum clearance for top/bottom/front: 35/35/60mm
- Minimum clearance for left/right: 25/25mm

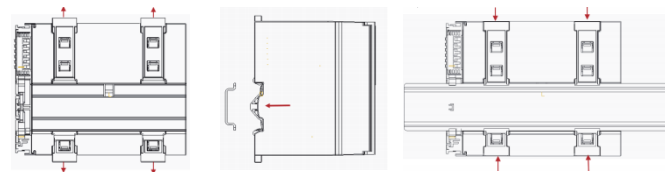


6.3 Fastening to the DIN Rail

Requirements for the DIN rail: DIN rail type shall be TS35/7.5 or TS35/15 according to EN 60715

Follow these steps to secure the embedded PC to the DIN rail:

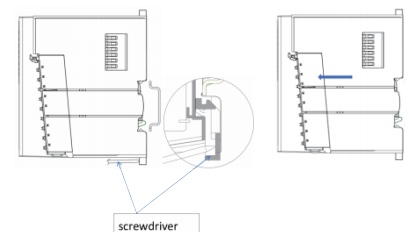
- Open the buckles 1 and 2 at the top and bottom
- Tilt the embedded PC and press the embedded PC against the DIN rail
- Re-lock the buckles 1 and 2



6.4 DIN Rail Removal Method

Please follow the steps below to remove the embedded controller from the DIN rail:

- Pry open the top and bottom clips 1 and 2 with a screwdriver.
- Remove the embedded controller from the DIN rail.

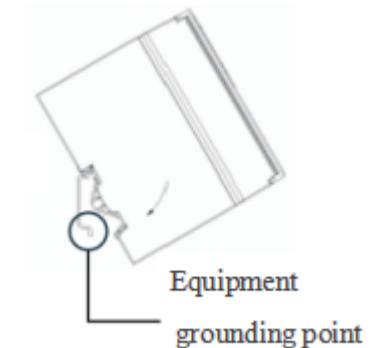


07 ELECTRICAL INSTALLATION

7.1 Requirements for Field Wiring

7.1.1 Grounding Requirements

A grounding point is designed at the DIN rail of the controller. Good grounding is required after fastening equipment to the DIN rail. Thick and short grounding wires shall be selected as much as possible.



7.1.2 Wiring Requirements

► Cable requirements

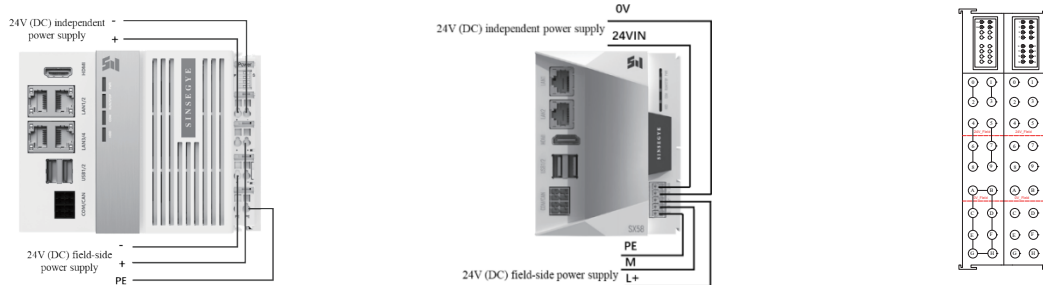
Classification	Typical cable	Cable requirements
High-speed signal cable	Ethernet	Above CAT-5 shielded cable
Low-speed signal cable	Serial port signal and low-speed IO	Standard cable
Power cable	DC power cable DC24V	Selected according to power
Display cable	HDMI display cable	Shielded cable

► Other precautions

- For the relationship between the cross-sectional area of the conductor and the current-carrying current, please select the power cable correctly according to the equipment power.
- When the length of parallel cable runs is increased, the spacing shall be increased appropriately.
- When near power cables or in harsh electromagnetic environments, the magnetic ring can be used to reduce the interference.
- When the length of parallel cable runs increases, the spacing should be increased appropriately to reduce cross interference.
- In addition to keeping spacing, shielding plates can be added between different types of cables to achieve shielding.

7.2 Description of Power Supply Wiring

The power terminal module requires an external voltage source to provide DC 24V (-15% to +20%) power. The power cable is connected to the power terminal module through the spring-loaded terminal module. It is recommended that the cross section of the cable be not less than 0.5mm².



Wiring Diagram for SX51/SX21 Power Supply

Wiring Diagram for SX52 Power Supply

Wiring Diagram for SX52 Power Supply

It is recommended that the CPU and the on-site measuring power supply be powered independently to ensure system stability. A 24V DC power supply (-15% ~ +20%) needs to be provided. The power cables are connected to the power terminal module through the spring-type terminal module. It is recommended that the cross-section of the cable used be not less than 0.5mm².

#	Definition
1 or 3	Positive pole of 24V DC power supply
2 or 4	Negative pole of 24V DC power supply
5 or 7 or 9	Positive pole of on-site 24V DC power supply
6 or 8 or 10	Negative pole of on-site 24V DC power supply
11-18	PE (Protective Earth)

7.3 Description of Interface Wiring

7.3.1 Description of Network Port

► Communication specification of network port

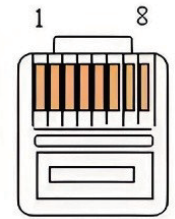
SX series iComputer is equipped with 2/4 gigabit Ethernet ports, which are defined as follows:

#	Network port	Description
1	LAN 1	Programming interface (for downloading and monitoring), supporting Modbus TCP, EtherNet/IP, Profinet, OPC UA, and free port communication Factory default fixed IP address: 192.168.1.200
2	LAN 2/3/4	Gigabit Ethernet port, supporting EtherCAT master station, Modbus TCP, EtherNet/IP, Profinet, OPC UA, and free port communication

Remark: IP address of LAN1 and LAN2/3/4 cannot be in the same network segment

► RJ45 network cable connection

The 100/1000Base-T(X) Ethernet interface adopts standard RJ45 connector, has self-adaptive function, can be automatically configured to 100M/1000M state and full duplex/half-duplex operation mode, and supports MDI/MDI-X self-identification function of cable, i.e., direct network cable or cross network cable can be used for connecting with terminal equipment and network equipment.



► Pin assignment

#	MDI-X	MDI
1	Send/Receive Data (TRD1+)	Send/Receive Data (TRD0+)
2	Send/Receive Data (TRD1-)	Send/Receive Data (TRD0-)
3	Send/Receive Data (TRD0+)	Send/Receive Data (TRD1+)
4	Send/Receive Data (TRD3+)	Send/Receive Data (TRD2+)
5	Send/Receive Data (TRD3-)	Send/Receive Data (TRD2-)
6	Send/Receive Data (TRD0-)	Send/Receive Data (TRD1-)
7	Send/Receive Data (TRD2+)	Send/Receive Data (TRD3+)
8	Send/Receive Data (TRD2-)	Send/Receive Data (TRD3-)

► SX21/SX52/SX51 Network port indicator

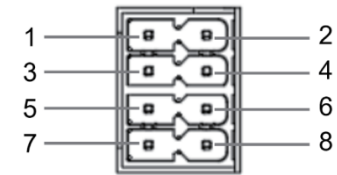
Indicator	Color	Status	Functional description
	Yellow	Off	Not connected
		Flashing	The 100M port has been connected and some data are sending and receiving
		Steadily lit	Connected
	Green	Off	Not connected
		Flashing	The gigabit port has been connected and some data are sending and receiving
		Steadily lit	The gigabit port has been connected

► SX58 Network port indicator

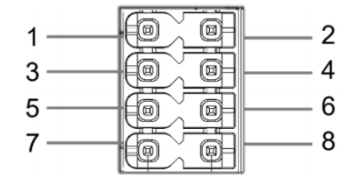
Indicator	Color	Status	Functional description
	Yellow	Off	Not connected
		Flashing	Some data are sending and receiving
	Green/ Orange	Off	Not connected
		Green on	The 100M port has been connected
		Orange on	The gigabit port has been connected

► Requirements for network port cable

Specification of network cable	Requirement
Type of network cable	CAT-5E/flexible crossover
Criteria	EIA/TIA568A, EN50173, ISO/IEC11801
Conductor type	AGW26
Number of cable pairs	4
Length of cable between two pieces of equipment	Not more than 100m



Schematic Diagram of Pins of SX21/SX52/SX51



Schematic Diagram of Pins of SX58

The pins of SX21/SX52/SX51 are defined as shown in the figure below:

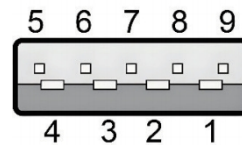
#	RS232/CAN	RS422/CAN	RS485/CAN
1	DCD	TX-	DATA-
2	COM_GND	COM_GND	COM_GND
3	RXD	TX+	DATA+
4	CAN_1_H	CAN_1_H	CAN_1_H
5	TXD	RX+	-
6	CAN_1_L	CAN_1_L	CAN_1_L
7	DTR	RX-	-
8	CAN_GND	CAN_GND	CAN_GND

The pins of SX58 are defined as shown in the figure below:

#	RS232/CAN	RS422/CAN	RS485/CAN
1	CAN_1_H	CAN_1_H	CAN_1_H
2	RXD	TX+	DATA+
3	CAN_1_L	CAN_1_L	CAN_1_L
4	TXD	RX+	-
5	-	-	-
6	-	TX-	DATA-
7	GND	GND	GND
8	-	RX-	-

7.3.2 Description of USB

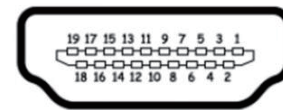
USB interfaces are located on the front panel of the equipment, and all of them are USB3.0 interfaces and adopt standard female Type-A interfaces. The pins of USB interface are defined as shown in the figure below:



Pin	Definition	Pin	Definition
1	VBUS	6	SSRX+
2	D-	7	GND
3	D+	8	SSTX-
4	GND	9	SSTX+
5	SSRX-		

7.3.3 Description of HDMI

The HDMI interface is located on the front panel of the equipment and adopts the standard female Type-A interface. The pins of HDMI interface are defined as shown in the figure below:



Pin#	Signal	Pin#	Signal
1	TMDS data 2+	11	TMDS clock shield
2	TMDS data 2 shield	12	TMDS clock-
3	TMDS data 2-	13	CEC
4	TMDS data 1+	14	No connected
5	TMDS data 1 shield	15	DDC clock
6	TMDS data 1-	16	DDC data
7	TMDS data 0+	17	Ground
8	TMDS data 0 shield	18	+5V power
9	TMDS data 0-	19	Hot plug detect
10	TMDS clock+		

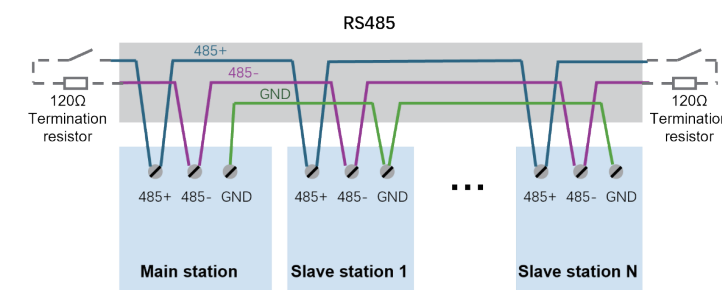
HDMI terminal

7.3.4 Description of COM/CAN Port

The COM/CAN interface adopts 2*4P spring terminals. The default serial port mode of SX21/51/52 is RS485, and RS232/RS422 can be selected and configured through SF8010; the default serial port mode of SX58 is RS232, and RS422/RS485 can be selected and configured through SF8010.

► Precautions for wiring

- When extending the cable wiring, the cable shall be separated from the power line (high voltage, large current) and other cables that transmit strong interference signals.
- Parallel wiring shall be avoided. It is recommended to use a shielded twisted cable pair to improve anti-interference capability. One 120Ω terminal matching resistor shall be connected respectively at both ends of the bus to prevent signal reflection, as shown in the figure.
- Up to 32 nodes shall be connected, and the distance of each node branch shall be less than 3 m.
- If a shielded cable is used, it is especially important to note that the shielding layer must also be connected to the GND terminal.
- At any node or halfway position, it is prohibited to connect the shielding layer at any place except the node GND.



Schematic Diagram of RS485 Communication Connection

08 CONFIGURATION

8.1 SF8010 Device Manager

SF8010 Device Manager is a device management tool software product used to manage the entire iComputer system, including system information, hardware information reading and secondary distribution functions. For specific operation, please refer to *Introduction to SF8010*.

8.2 Programming and Debugging

For the programming and debugging process, please refer to *Basic Operation of MetaFature for details*.

09 REPAIR AND MAINTENANCE

9.1 Precautions

- Non-professional personnel are forbidden to carry out product maintenance, inspection or component replacement!
- It is strictly prohibited to carry out product maintenance under the power-on state. Otherwise, there will be an electric shock hazard!
- After all products are powered off, wait for at least the time specified on the product warning label before performing operations such as product maintenance.
- During maintenance, products and components shall be kept away from contact with or attached with flammable articles, and anti-static measures shall be taken.
- The cover plate shall be prevented from falling off. Otherwise, it may cause injury to the product and personnel.
- It is necessary to avoid polluting or damaging the sealing ring. Otherwise, the sealing performance of the product will be affected, and the service life of the product may be shortened and even the computer may be exploded.

9.2 Items Subject to Regular Inspection

Parts and components of the iComputer may be subject to aging due to environmental conditions during long-term use, so regular inspection is required. The inspection period shall be once every 6~12 months. The inspection interval can be appropriately shortened according to the actual use conditions.

Item	Inspection method	Judgment standard
PWR	Use a multimeter to check and adjust the voltage between the terminals to control the power supply within the allowable voltage variation range	DC 24V (-15%~20%)
CPU resources	Regularly check CPU resources	Not more than 60%
Equipment surface temperature	Monitor the case temperature using a temperature gun	Below 70°C
Fan	Open the protective cover and visually observe the operation of the fan	The fan shall run, and the dust shall be cleaned regularly
Status indicator	Visually observe it, and compare it with the description of indic	No alarms
Ambient temperature	Measure the ambient temperature using a thermometer	Refer to the environment requirements corresponding to the equipment model
	Measure the ambient humidity using a hygrometer	Refer to the environment requirements corresponding to the equipment model
	Check whether there is dust, dirt, salt, and iron filings	Clean up in time and avoid spreading of pollution sources
	Check whether there is water, oil, and chemicals	Clean up in time and avoid spreading of pollution sources
	Check whether it directly causes vibration or shock to the main body	Clean up in time and avoid spreading of pollution sources
Installation wiring	Check whether there are interference sources nearby	-
	Check whether the screws of external wiring are loose.	-
Battery alarm	Check whether the external wiring cable is about to break	-
	The controller does not have a "Low Battery Voltage" alarm message	Check whether the expiration date has been exceeded or the service life has been reached. The shelf life is typically 5 years at 25°C and the battery life varies depending on model and ambient temperature

9.3 Maintainable Parts

Consumable name	Replaceable	Recommended replacement period
Cmos battery	Yes	5 years at room temperature
CF card	Yes	As per site requirements
Fan	Yes	5 years

9.3.1 Replacement of Battery/CF Card

▶ SX21/SX51/SX52 Series

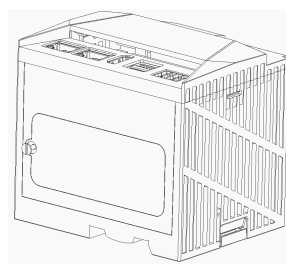
cover

Step 1: Open the cover.

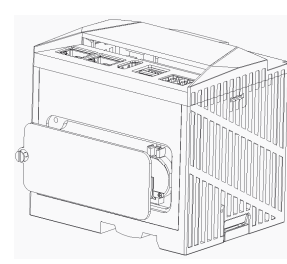
Battery
Mylar film

Step 2: Take out the CMOS battery by pressing or using Mylar Film and replace it with a new battery.

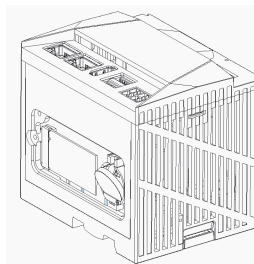
▶ SX58 Series



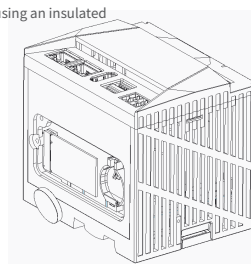
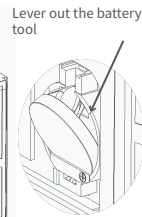
Step 1: Unscrew the captive screw.



Step 2: Remove the battery compartment cover .



Step 3: Lever out the battery using an insulated tool .



Step 4: Remove the battery.

▶ Precautions

- When the battery is installed and disassembled, the operation shall be conducted after the power is cut off;
- When installing the battery, ensure that the positive and negative poles of the battery are correct;
- When powering on after replacement of the battery, please note whether the controller has battery failure error;
- After power-on is correct, the system clock shall be recalibrated manually to ensure the correct system time.

9.3.2 Replacement of the Fan

▶ SX21 Series

cover

Step 1: Open the cover.

Left

Move to the left

Left

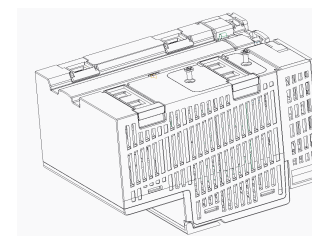
Step 2: Gently press cover plate 2 and slide it to the left to remove the cover plate.

Terminal

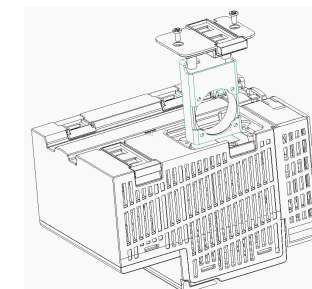
Screw

Step 3: screw off the four screws of the fan bracket, take out the fan bracket and the fan, and then pull out the butt-joint terminal of the fan to the host (Note: because of the limited length of the fan cable, do not pull it forcefully).

▶ SX 52 Series



Step 1: Unscrew the fixing screws on the rear side of the SX52 industrial intelligent machine.



Step2 : Pull out the fan fixing bracket and replace the fan.

9.4 Storage and Recycling

Please contact a qualified company to deal with electrical and electronic waste products for recycling and disposal in accordance with local regulations.