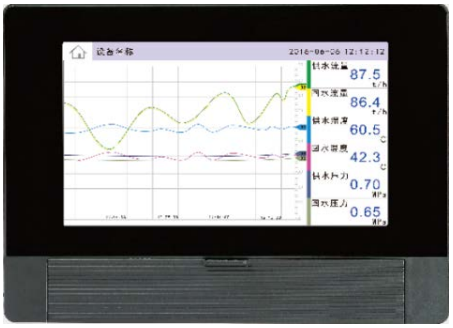
MS Series Touch Screen

Programmable Automation Controller



MS series Touch Screen Programmable Automation Controller design is unique in the system of intelligent and scalable and simple Touch Screen operation, through the hardware and software configuration for varies applications.

MS series of data collection, recording, control in one, rich display interface, a variety of recording mode, a variety of forms of cumulative reports, SD card automatic backup, USB interface data export function.

Supports Modbus-RTU master-slave mode for serial communication, supports Modbus-TCP server mode for Ethernet communication, and supports remote system updates.
Scalability, through the host with the form of modules, free configuration analog / digital input and output channels, to meet the monitoring and control requirements.

Using a combination of touch operation and key operation to give users a better human-computer interaction experience.

FEATURES

Construction

Ultra-thin design
Acrylic Panel
Modules design, easy for extensions

Display

Rich Displays
TFE color LCD touch screen
Visual icons in Status Indicator bar

Measurement

Analogue and Digital Input and Output
Flexible Configuration for input and output
Max 128 channels

Recorder

Rich recorder contents
Applicable to varies application environment
SD card with huge internal storage

Backup

SD/ U disk double backup

Connection

Remote system update

Convenient configuration mode
Rich backup contents
Serial communication/E-thernet Communication
Direct output to micro printer

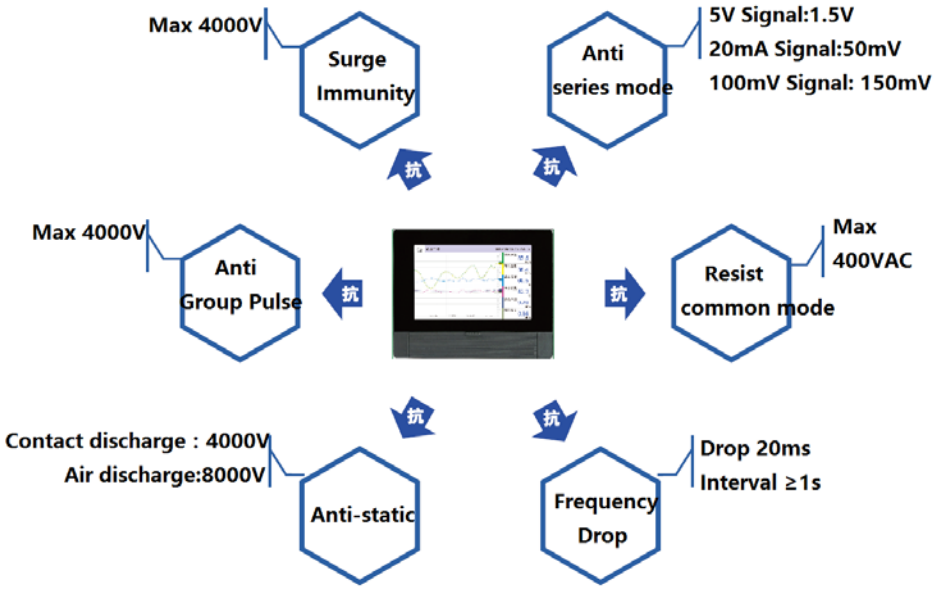
Platform Software Framework

- ✓ Using HAL Hardware abstraction Layer, reliable hardware drive
- ✓ Open source eCos real-time operating system, multitask dispatch
- ✓ Standard POSIX port, optimizing operating system & upper application connection
- ✓ Using FLTK as GUI library, elegant appearance widget, supports touch screen application

Application Layer	APP			
	Middleware		GUI	
Hardware Abstraction Layer)	POSIX		XLib	
System Layer	RTOS	File system	Protocol Stack	GDI
Hardware abstraction Layer	HAL(Drivers)			

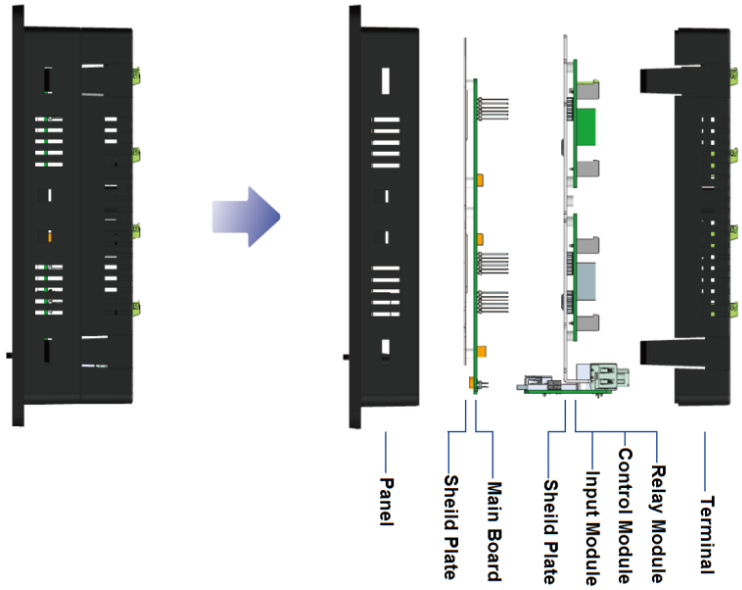
Certificate of Safety Compliance & EMC Specification

- ✓ Certificate of Safety Compliance: EN61010-1:2001
- ✓ Electromagnetic Compatibility:EN1326-1:2006 EN61000-3-2:2006 EN1000-3-3:2008



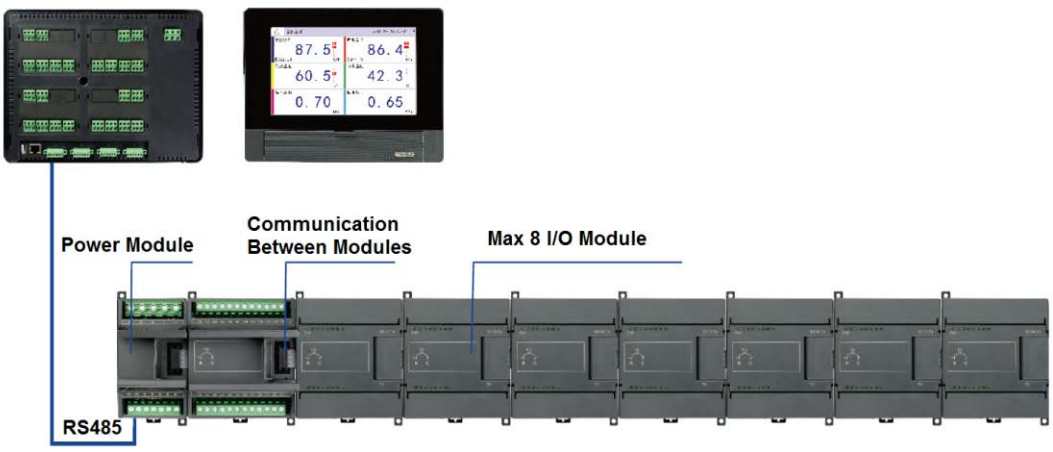
Product Construction

- ✓ Ultra-slim design, save installation space, and widely used in different applications.
- ✓ Flexible configurations, through software setting or functions customized to realize complex functions.



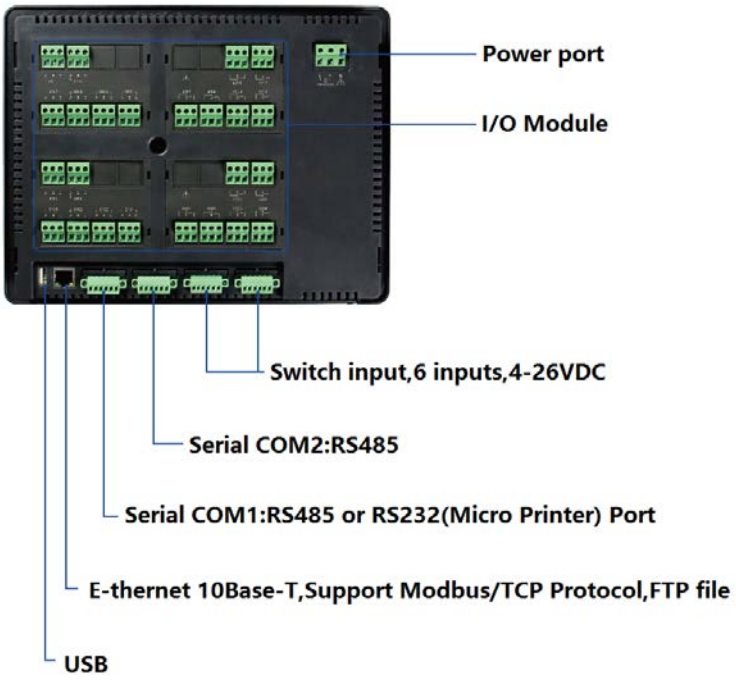
Max extensions to 128 channels

Module	Product	Measurement/Application	CHAN
MX10-UX8	Analog Input Module	volts d.c., dc current, resistance,thermocouple,RTD	8
MX10-TX12		thermocouple	12
MX10-RX8		RTD	8
MX10-FX12	Digital input Module	Frequency(0-10kHz)	12
MX10-DX8		Switch	8
MX10-AY2	Analog output Module	Direct Current	2
MX10-RY8	Digital Output Module	Relay Alarm Output	8

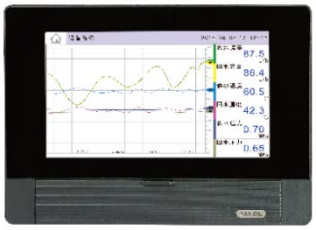


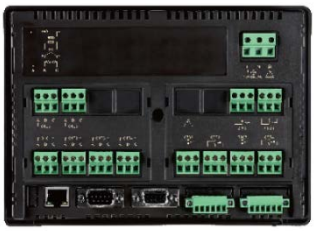
Component Name

MS80



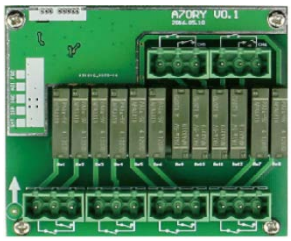
MS70





Input & Output modularization

6 Channels analog inputs



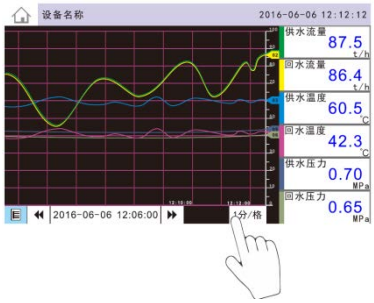
12 Channels NO contact output

ABUNDANT FUNCTIONS

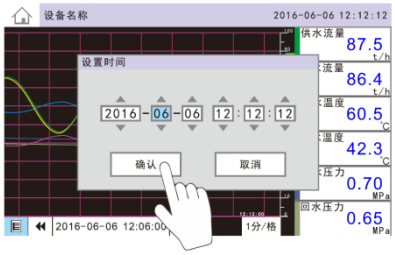
Easy to Review History Data

Select file to see history curve

Zoom history Trend



Quick search by setting time



Abundant Backup Contents

✓ **Auto Backup**

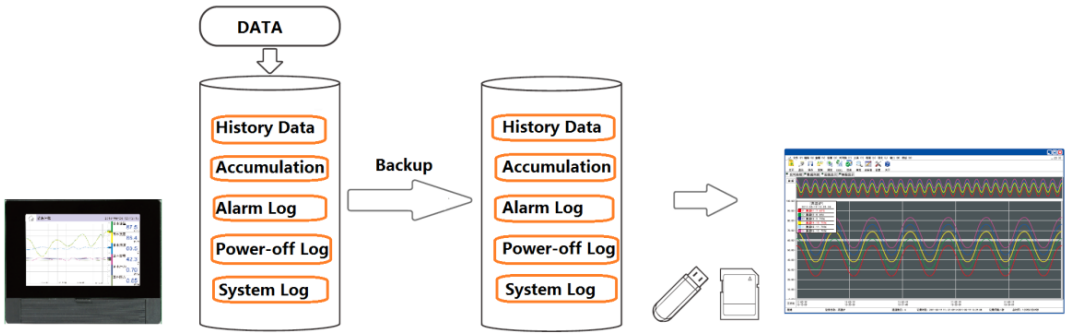
SD card can realize auto backup

At 12:00 or record stopping ,it will auto backup

✓ **Backup & Transferred Data**

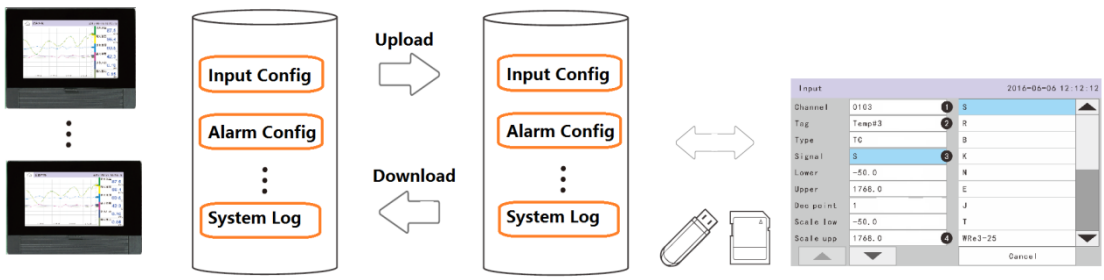
Transfer data through SD card or U Disk.

Through DMR PC software to analysis and save the data



Convenient Configuration Mode

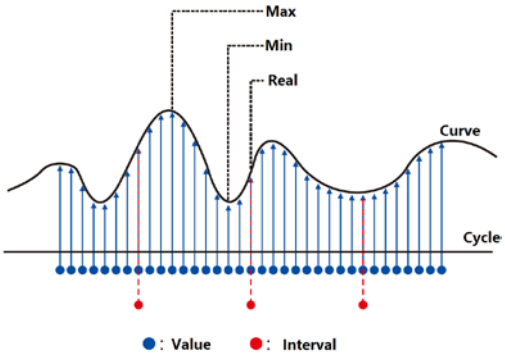
Configuration parameters can be exporting to PC through SD card or U disk. You can save,edit configuration parameters through DMR PC software. After editing, you can import to MS controllers by U disk or SD card. This convenient configuration saves time.



Record Mode Applicable to Varies Application

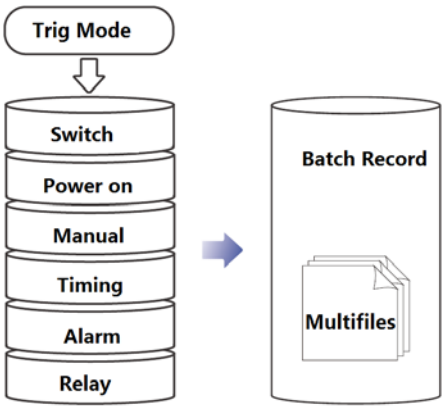
✓ **Data Type**

Real data, max data ,min data, average data can be selected

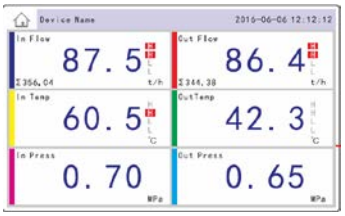


✓ **Record Trig Mode**

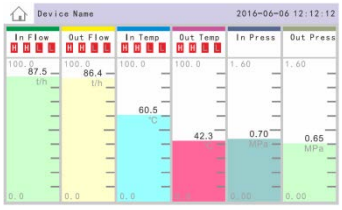
No mater normal file with continuous recording or multi files batch recording, it can have varies trig modes(Switch,power-on,manual,timing,alarm,relay)



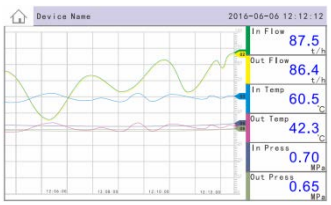
Rich Displays



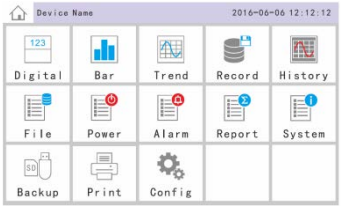
Digital



Bar



Trend



Function List

File list

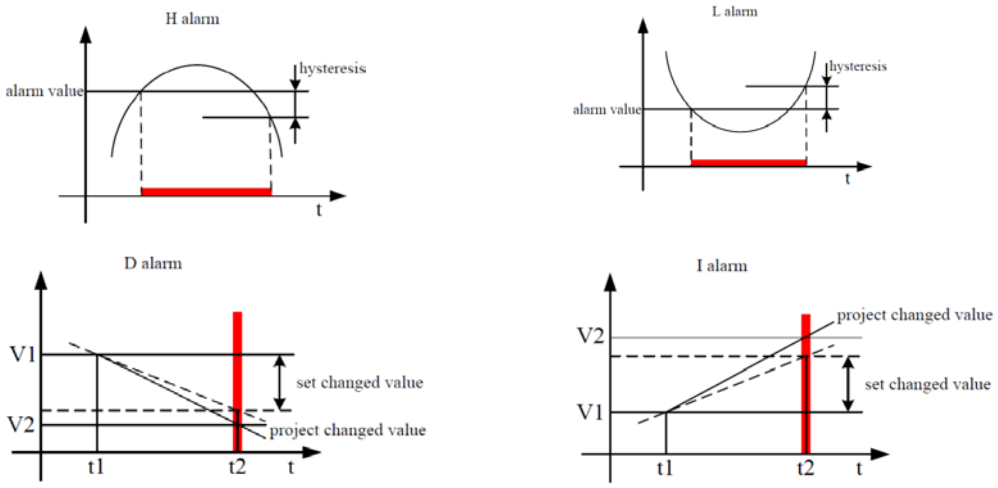
Alarm Log

Report Function

MS80/70 provides rich class report, hourly report, daily report, monthly report, annual report.,etc. freely set report time , batch .,etc. the report is exported in Excel file.

Alarm Function

Alarm types: H Alarm,L alarm, I alarm, D alarm, Each channel can set 4 any kind alarm separately



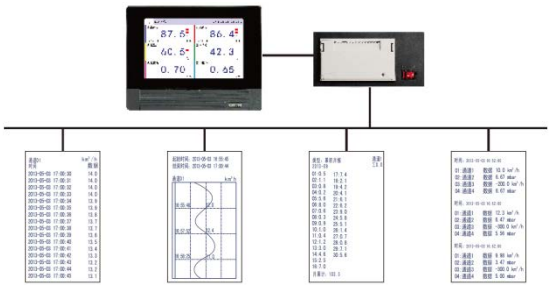
Confirm to 21 CFR Part11 Standards

MS80/MS70 confirms to FDA regarding 21 CFR Part11 Standards

Rights assigned by Administrator, users need sign up, also we add Electronic signature when operation. Audit track recording including system events (power-off,power-on,user locked.,etc) and user events (user log out/sign up, edit configuration parameters, clear system data, modify password/reset password, register new user/delete users.,etc)

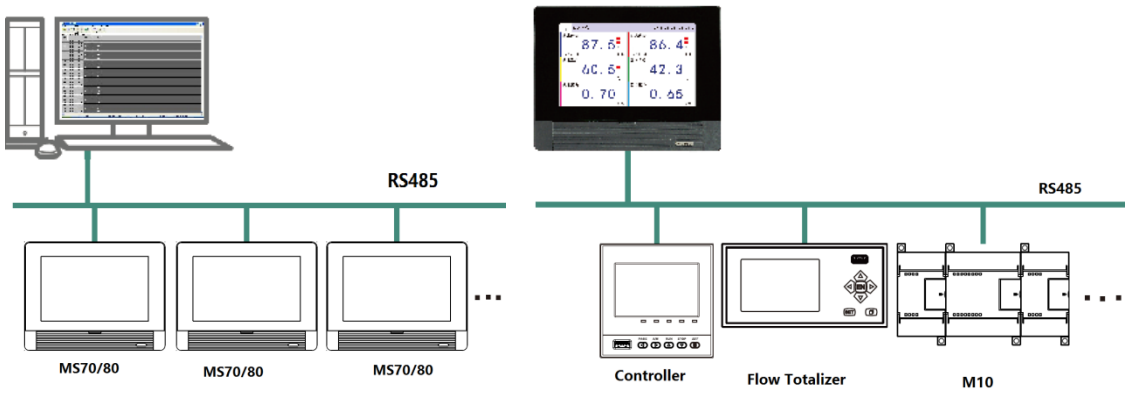
Print Function

MS70/80 can connect our dedicated micro printer to realize printing real time data automatically or manual printing history data, and history curve or accumulation report.



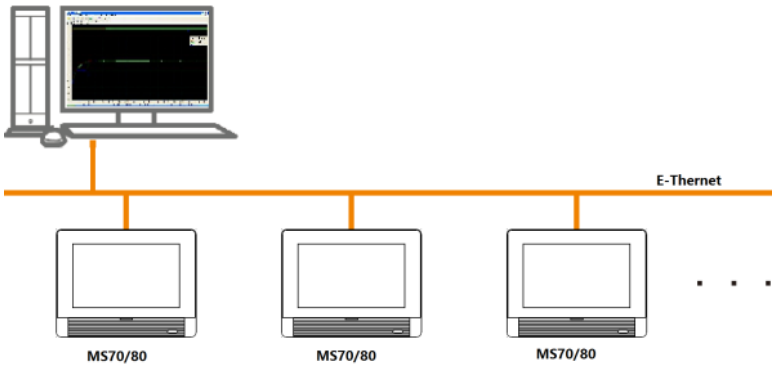
MODBUS-RTU Communication

MS70/80 supports Modbus-RTU.



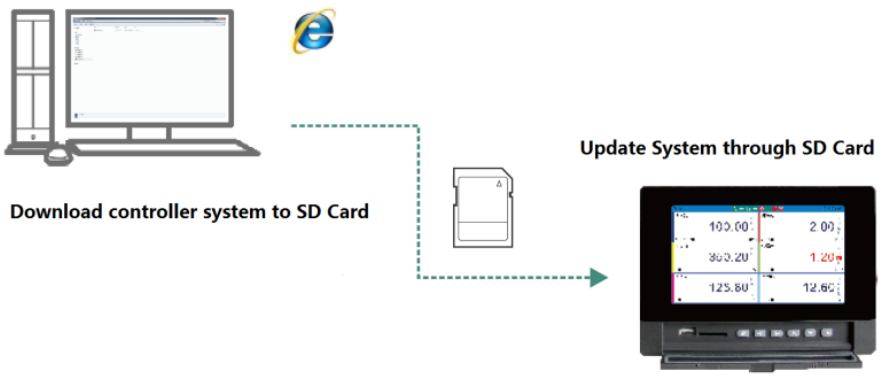
MODBUS-TCP Communication.

MS70/80 supports E-thernet MODBUS-TCP, Client side can see and save MS70/80,max support 4 client sides.



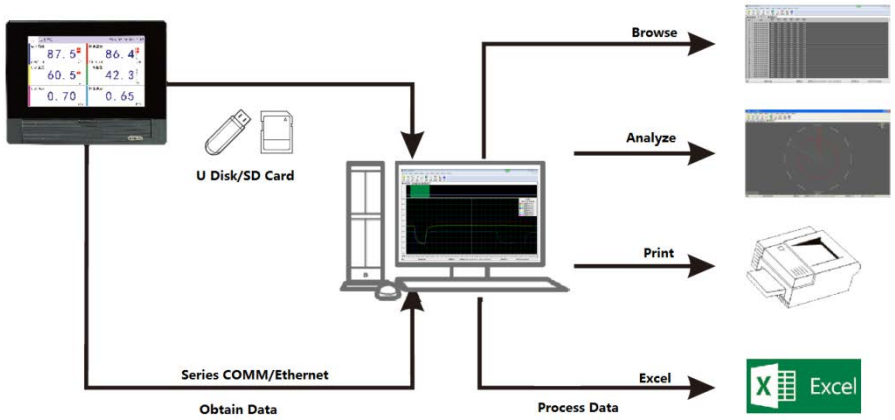
Remote System update

MS70/80 supports update system remotely



Data Management Software DMR

Collect Data through U disk, SD Card, Communication, and then save on PC. The data can be browsed, analysis, print and export through DMR software.



✓ History data can be browsed and analyzed by curves or by listing.

By curve browsing including zoom curve, select display, data analysis including data statistics, multi-documents display, data print.

✓ Data Statistics

Software provides some methods for data statistics, peak value, valley value, mean value; over-limit count; pulse count

✓ Combination different files

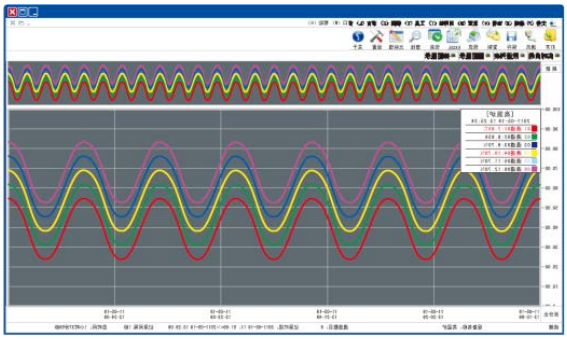
The same controller, different time data can be combined in one documents through DMR software for easy browsing.

✓ Data Print

Data can be printed in curve, listing, and circle chart

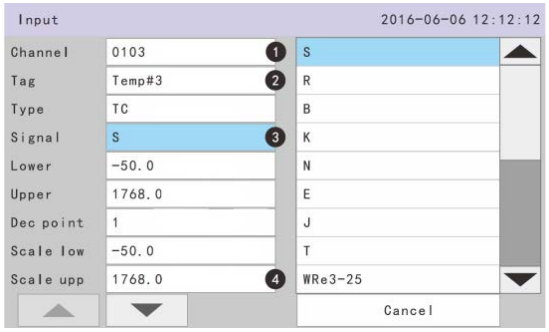
Real Time Data Collection by DMR

✓ DMR connects MS controller to realize real time data collection by RS232/RS485 or E-thernet



DMR Software Configuration

✓ Easy configuration through DMR PC software, it save times



TECHNICAL SPECIFICATIONS

MS80/70

Model	MS80	MS70
Display	10.1" TFT Color LCD	7" TFT Color LCD
Pixel	800*480 pixel	800*480 poxel
Touch Screen	4 wire resistive touch screen,1 touch screen detection	
Keys	6 Silicone Keypads, tact switch	
Built-in module Qty	Max 4	Max 2
External Modules	2 communication collection ports, max 16 modules	
Input Channels	Max 128 channels(built-in,external and mathematical channels)	
Sampling Rate	1 second	
Internal Storage	Standard 256MB;Large capacity option 1GB	
External Storage	SD Card, max 32GB,FAT32 file format	
	USB, compatible to USB2.0,max 32 GB,FAT32 format	
Communication	RS232,RS485,Modbus RTU	
	E-thernet,10M(10BASE-T)port,Modbus/TCP,FTP, max connect 4	
Power Supply	220V AC, voltage range 100VAC-240VAC,50Hz	
	24V DC,24VDC±10%	
Power Consumption	35W	25W
Size	288×222×68mm	213×153×64mm
Hole Sizes	260×201mm	193×139mm
Net Weight	2.1 kg (no accessories)	1.2 kg (no accessories)
Installation	Panel mounted	
Panel thickness	1-6mm	
Working Environment	-10-65°C,0-95% (Non-condensate)	
Transportation and Storage	-25-65°C,0-95% (Non-condensate)	

Analog Input Module (Built-in)

Model	/RY2	/RY6	RY12
Output Channel	2 channels	6 channels	12 channels
Slot Occupied	1	1	2
Input Types	Current:4-20mA,0-20mA,0-10mA		
	Voltage:0-5V,1-5V,0-10V,0-20mV,0-100mV		
	Resistance:400Ω		
	Thermocouple:S,R,B,K,N,E,J,T,WRE5-26,WRE3-25,F1,F2		
	RTD:PT100,Cu50,Cu53,BA1,BA2		
Scan Cycle	1s		
Power &Consumption	Powered by host, consumption ≤0.5w		
Terminal	Screw crimp plug terminals		

Relay Output Module (Built-in)

Model	/RY2	/RY6	RY12
Output Channel	2 channels	6 channels	12 channels
Slot	1	1	1
Contact	Normal open contact,3A@220VAC,3A@24VDC		
Refresh Cycle	1s		
Power &Consumption	Powered by host, consumption ≤1.5w		
Terminal	Screw crimp plug terminals		

Host Module (External)

Model	MX10-PA	MX10-PB
Rated Voltage	220VAC(100VAC~240VAC)	24VDC±10%
Rated Frequency	50Hz	--
Consumption	≤6w	
Communication	RS485	
Connect Modules	Max 8	
Terminal	Screw crimp terminals	

Power Module (External)

Model	MX10-PT
Rated Voltage	220VAC(100VAC~240VAC)
Rated Frequency	50Hz
Communication	5W
Output voltage	24VDC±5%
Output channels	Max 10 channels, each channel 30mA
Terminal	Screw crimp terminals

Analog Input Module (External)

Model	MX10-UX8
Output Channel	8 Channels
Input Types	Current:4-20mA,0-20mA,0-10mA
	Voltage:0-5V,1-5V,0-10V,0-20mV,0-100mV
	Resistance:400Ω
	Thermocouple:S,R,B,K,N,E,J,T,WRE5-26,WRE3-25,F1,F2
	RTD:PT100,Cu50,Cu53,BA1,BA2
Scan Cycle	1s
Power &Consumption	Powered by host, consumption ≤0.5w
Terminal	Screw crimp terminals

Thermocouple Inputs Module (External)

Model	MX10-TX12
Input Channels	12 Channels
Input Type	S,R,B,K,N,E,J,T,WRE5-26,WRE3-25,F1,F2
Scan Period	1s
Power &Consumption	Powered by host, consumption ≤0.5w
Terminal	Screw crimp terminals

RTD Inputs Module (External)

Model	MX10-RX8
Input Channels	8 Channels
Input Type	PT100,Cu50,Cu53,BA1,BA2
Scan Period	1s
Power &Consumption	Powered by host, consumption ≤0.5w
Terminal	Screw crimp terminals

Frequency Inputs Module (External)

Model	MX10-FX12
Input Channels	12 Channels
Input Type	0-10000Hz,high level≥4.5VDC,low level ≤2VDC
Scan Period	1s
Power &Consumption	Powered by host, consumption ≤0.5w
Terminal	Screw crimp terminals

Switch Inputs Module (External)

Model	MX10-DX8
Input Channels	8 Channels
Input Type	ON/OFF, high level≥4.5VDC,low level ≤2VDC
Scan Period	1s
Power &Consumption	Powered by host, consumption ≤0.5w
Terminal	Screw crimp terminals

Current Outputs Module (External)

Model	MX10-AY2
Output Channels	2 Channels
Output Type	4-20mA
Scan Period	1s
Power &Consumption	5VDC,powered by host, consumption ≤0.5w
	24V DC, external powered, consumption ≤1.5w

Terminal	Screw crimp terminals

Relay Outputs Module (External)

Model	MX10-RY8
Output Channels	8 Channels
Output Type	Normal open contact,3A@220VAC,3A@24VDC
Scan Period	1s
Power &Consumption	5VDC,powered by host, consumption ≤0.5w
	24V DC, external power, consumption ≤1.5w
Terminal	Screw crimp terminals

MODEL SELECTION

Model	Function Code		Description
MS80			10.1” TFT Color LCD touch screen, 800*480 pixel
MS70			7” TFT Color LCD touch screen, 800*480 poxel
Function	R		Record
Option Functions	/C□	2	1 channel RS232
		3	1 channel R485
		4	1 channel micro printer port *1
		33	2 channels R485
		23	1 channel RS232, 1 channel R485
		34	1 channel R485, 1 channel micro printer port *1
	/E		Ethernet function
	/S		SD Card
	/U		USB port
	/L		Accumulation/Report
	/P1		24VDC power supply
	/PT		Anti-corrosion paint

Built-in I/O modules *2*3

Options	Function Code	Description
Analog inputs*4	/Ux2	Universal analog inputs 2 channels, occupy 1 slot
	/Ux6	Universal analog inputs 6 channels, occupy 1 slot
	/Ux12	Universal analog inputs 12 channels, occupy 2 slots
	/Ux18	Universal analog inputs 18 channels, occupy 3 slots *6
	/Ux24	Universal analog inputs 24 channels, occupy 4 slots *7
Relay Outputs*5	/RY2	Normal open contact output relay 2 channels,1slot
	/RY6	Normal open contact output relay 6 channels,1slot

	/RY12	Normal open contact output relay 12channels,1slot
Switch Inputs	/D6	Level Switch inputs 6 channels, no slot

*1. Dedicated micro Pinter

*2. Module function code is after host codes

*3. MS70 only has 2 built-in moulds slots

*4 Analog inputs function code can only choose one

*5 Relay Outputs function code can only choose one

*6 Only for MS80

*7 Only for MS80

M10 Host Module

Host Module	Description
MX10-PA	Host module,485 communication,220VAC power supply
MX10-PB	Host module,485 communication,24VDC power supply

Signal Module	Description
MX10-UX8	8 Channels analog inputs *1*2
MX10-TX12	12 channels thermocouple inputs*1*3
MX10-RX8	8 channels RTD inputs*1*4
MX10-FX12	12 channels frequency inputs(0-10000Hz)*1
MX10-DX8	8 Channels switch inputs *1
MX10-AY2	2 channels current output (4-20mA) *1*5
MX10-RY8	8 channels normal open relay outputs *1*5

Other module	Description
MX10-PT10	Power supply module,220V AC inputs,10 channels 24V DC power output

*1 Input and output module need to be used together with host module.

*2 Analog input mould supports signals:

- Current: 4-20mA,0-20mA,0-10mA
- Voltage: ±5V,1-5V, ±10V,0-20mV,0-100mV, ±20mV, ±100mV
- Resistance:0-175Ω,0-400Ω
- Thermocouple:S,R,B,K,N,E,J,T,WRE5-26,WRE3-25,F1,F2
- RTD:PT100,Cu50,Cu53,BA1,BA2

*3 Thermocouple input module supports signals: S,R,B,K,N,E,J,T,WRE5-26,WRE3-25,F1,F2

*4 RTD input mould supports signals: PT100,Cu50,Cu53,BA1,BA2

*5 this mould needs external 24V DC power supply

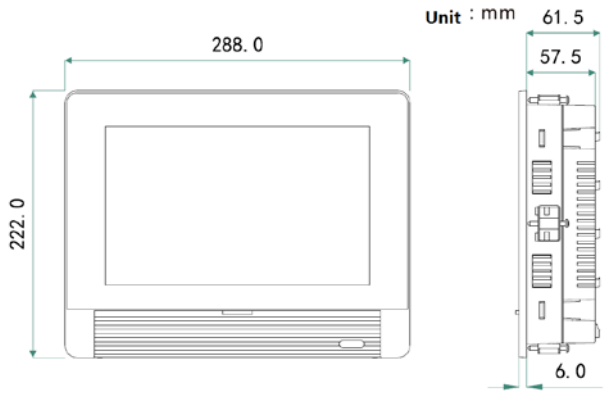
Accessories

Product	Model	Specification
U disk	860207	8G
	860208	16G
SD Card Reader	860301	USB port

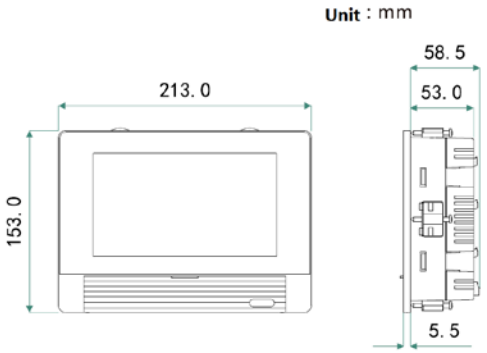
SD Card	860307	16 G
Power Filter	863101	220VAC/1:1/50W
Software	864801	MDMR multi-computer Data Management Software

DIMENSIONS &WIRINGS

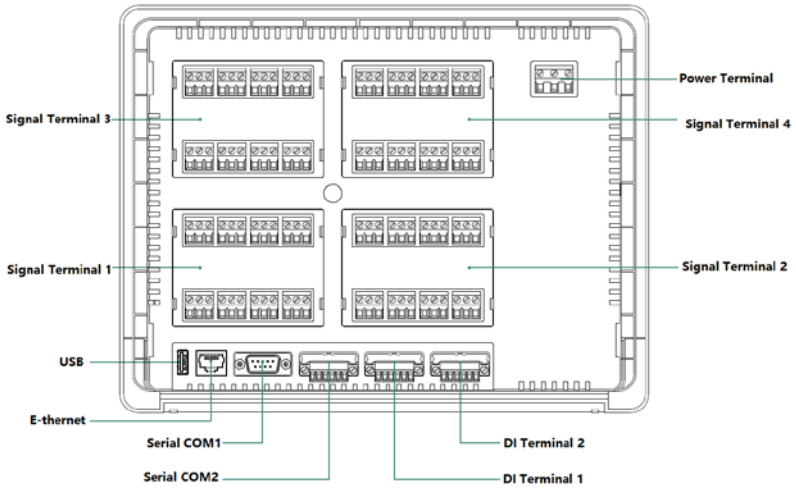
MS80



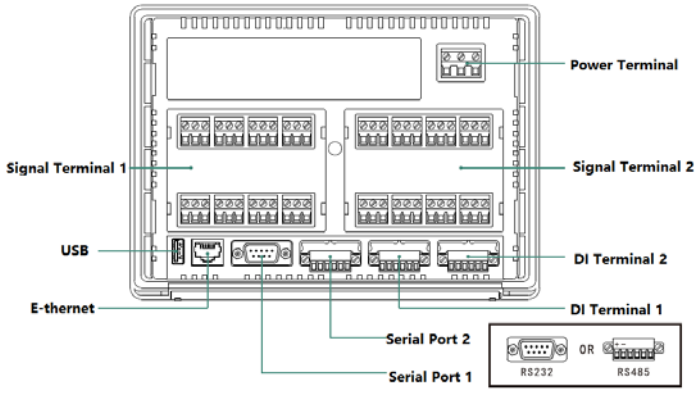
MS70



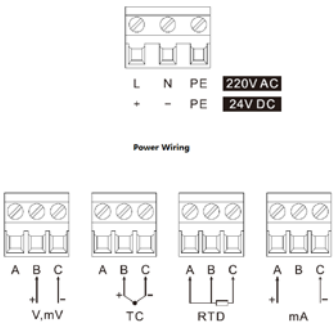
MS80 Terminals



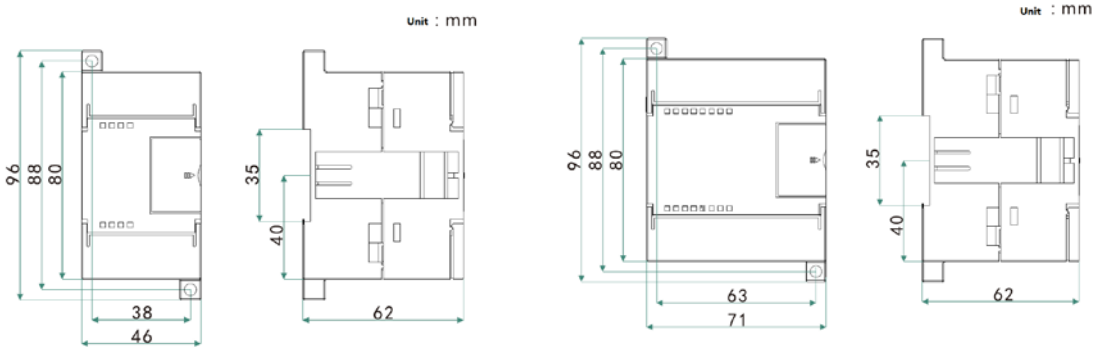
MS70 Terminals

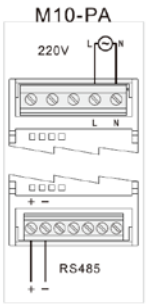


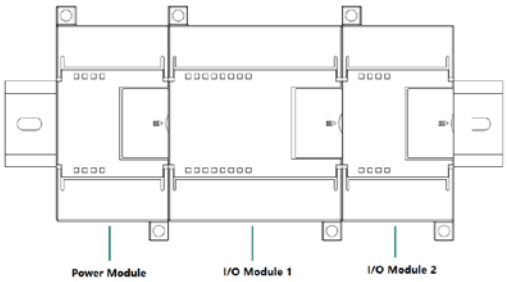
MS70/80 Wiring

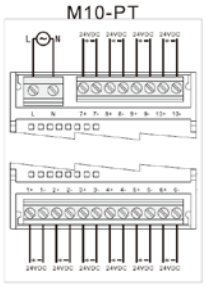


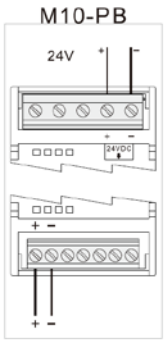
M10

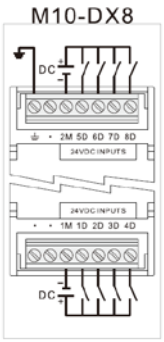

Unit : mm
96
88
80
38
46
35
40
62
Unit : mm
96
88
80
63
71
35
40
62

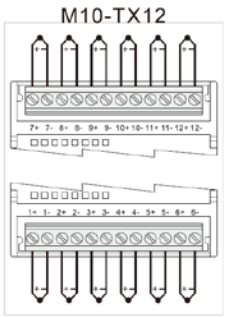

M10-PA
220V
L
N
L N
RS485

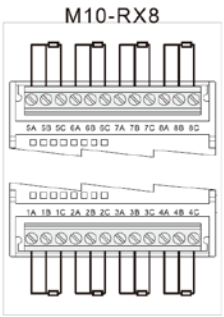

Power Module
I/O Module 1
I/O Module 2

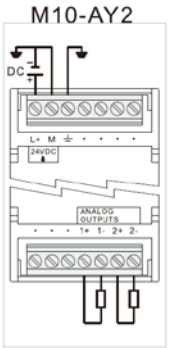

M10-PT

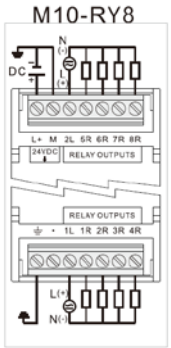

M10-PB
24V
24VDC

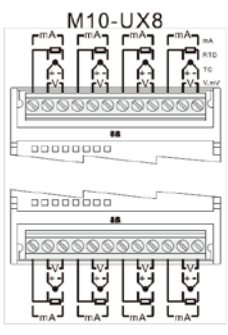

M10-DX8
DC
2M 5D 6D 7D 8D
24VDC INPUTS
1M 1D 2D 3D 4D
DC

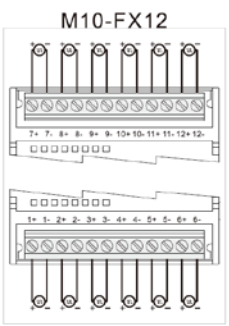

M10-TX12


M10-RX8


M10-AY2
DC
L+ M
24VDC
ANALOG OUTPUTS


M10-RY8
N
DC
L+ M 2L 5R 6R 7R 8R
24VDC
RELAY OUTPUTS
RELAY OUTPUTS
1L 1R 2R 3R 4R
L(+)
N(-)


M10-UX8
mA
RTD
TC
V,mV


M10-FX12