ISO9001:2015 Quality System Recognition

AMZ 028 W06-1S14MR SERIES SPECIFICATION

Catalogs

1. Model Definition

The model number of the product is defined in the figure below:

AMZ028W06-1S14MR	
AMZ	Golden Seal All-in-One
028	Representing a product model size of 2.8
W06	Memory capacity and FLASH type: W01: 32MB DDR2+ 128MByte SPI NAND FLASH; W02: 32MB DDR2+ 16MByte SPI NOR FLASH; W06: 8MB DDR2+ 16MByte SPI NOR FLASH;
1S	Mitsubishi FX-1S series PLC;
*MR	*MR: relay output, *MT: transistor output;

2.Product Description

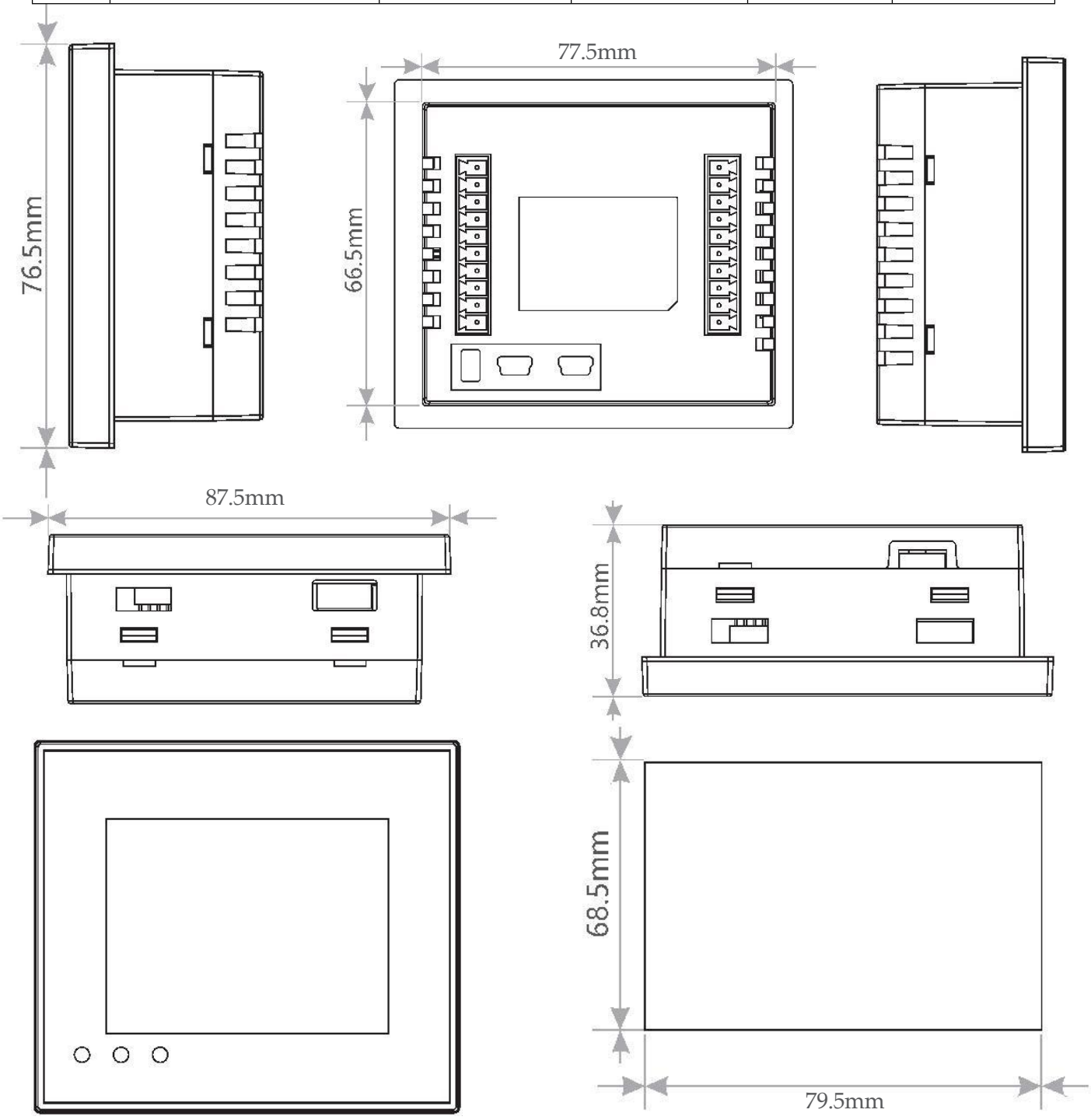
2.1 Product Model

Product Series	Specification
AMZ028W06-1S14MR	AMZ series, 2.8 inch 320X240 resolution display, DC24V power supply, 16MByte SPI NOR Flash, relay output;
AMZ028W06-1S16MT	AMZ series, 2.8 inch 320X240 resolution display, DC24V power supply, 16MByte SPI NOR Flash, transistor output;

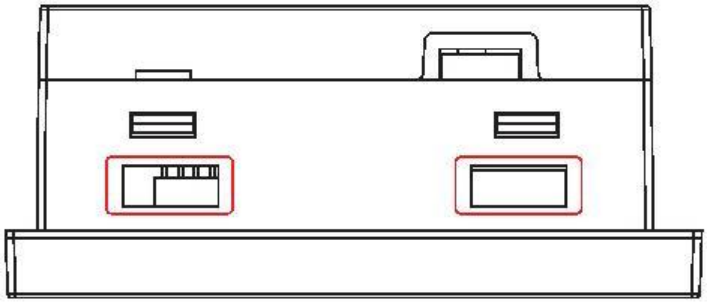
3.Product specification

3.1 Overall dimensions and opening dimensions

Display size	Product Series	Size of the whole machine	Effective display area size	Hole Size	Recommended opening size
2.8 inches	AMZ028W06-1S14MR	87.5*76.5*36.8mm	57*42.5mm	78.25*67.3mm	79.5*68.5mm



3.2Installation： Two top and two bottom mounts



4.Function

- Logic control, PLC/HMI in one package;
- PLC programming software is compatible with Mitsubishi FX1S;
- operates on a DC24V power supply;
- supports SD card to download configuration program;
- AMZ028W06-1S14MR:8*6 I/O inputs and outputs, fully opto-isolated;
- AMZ028W06-1S16MT:8*8 I/O inputs and outputs, fully opto-isolated;
- 1 bi-directional double counting inputs;
- 2 high speed pulse outputs (transistors);
- adopts imported 32-bit industrial grade CPU and internal bus design, which can be adapted to the industrial environment with high electromagnetic interference;
- High-speed computing with 0.02 microseconds per step for basic instructions;
- The program control is 2000 steps with no battery memory and no maintenance (clock requires batteries);
- D Data Register 255 points;
- supports M,C,T,D power-down hold function;

- HMI programming software using full Chinese editing software HMIStudio.
- is easy and simple to edit, supports undo, redo, mouse box selection, copy and paste across projects;
- supports font selection function, register numbers, text and Chinese characters can be freely selected from a variety of fonts;
- displays a large amount of information and TFT true color support;
- The indicator ON/OFF graphic can be replaced with any drawing;
- supports multiple formats of graphic files, and the dynamic graphic function can realize 256 graphic switching display;
- supports linear, rectangular and circular input displays;
- The display of tuples has a hierarchical property, and the display of overlapping tuples above and below does not interfere with each other;
- The all-in-one unit is ultra-compact and designed for installation in confined spaces.

5.Product Parameters

Product Specification		
HMI Parameters	Model Series	AMZ028W06-1S14MR/AMZ028W06-1S16MT
	monitor	2.8" TFT LCD
	coloration	65536 colors
	Resolution (Px)	320*240;TN
	luminance	250 cd/m^2
	Backlight	LED
	LED Lifetime	20,000 hours
	touchscreens	Support 4-wire industrial resistive touch screen (surface hardness 4H)
	CPU	96MHz M0
	memory (unit)	16MByte SPI NOR Flash
	RTC	Real-time clock built-in
	liquid crystal screen	General view，250cd/m^2
PLC Parameters	hardware	Supports GX Developer and GX Works2 software for programming, reading, downloading, testing, diagnostics, and monitoring programs.
	program step	2000 steps

	importation	X0~X7	
	exports	AMZ028W06-1S14MR	AMZ028W06-1S16MT
		Y0~Y5, 6 points (relay output)	Y0~Y7, 8 points (transistor output)
Electrical Specifications	Rated power	2.2W	
	rated voltage	DC 24V	
Environmental specifications	operating temperature	-10℃~50℃	
	Storage temperature	-20℃~70℃	
	Environmental humidity	10~90%RH (non-condensing)	
	seismic defenses	10-25 Hz (X, Y, Z directions, 2g/30 min)	
	Cooling method	Natural air-cooled	
Other parameters	External dimensions (WxHxD)	87.5mmX76.5mmX36.8mm	
	Opening Size (AxB)	79.5mmX68.5mm	
	Effective display area size	57*42.5mm	
	Net weight	200g (without terminals)	

6.Performance Characteristics

sports event		performances
operational control method		Memory program iterative arithmetic approach with interrupt instructions
Input and output control method		Batch mode (when END instruction is executed), input/output refresh instruction, pulse capture function
programming language		Relay symbol method + step ladder method (can be expressed as SFC)
program memory	Memory capacity	Built-in 2K-step EEPROM (no demand memory backup) ● has up to 2K steps including comments and file registers. ● Rewritten 20,000 times
Instruction Type	Program: Step ladder	Shun control instructions: 27; step ladder instructions: 2;
	application instruction	85 species 167
OPERATING PROCESSING SPEED	basic instruction	0.55~0.7μs/instruction
	application instruction	3.7~number 100μs/instruction
Input and output points	Input Points	8 points X0-X7
	Output Points	6 points Y0-Y7

Auxiliary Relay	Generally used	M0~M383 384 points
	maintenance	M384~M511 128 points
	special use	M8000~M8255 256 points
state of affairs	initial state	S0~S9 10 points
	maintenance	All-point blackout Hold (S0~S127)
Timer (delayed ON)	100ms	T0~T62 63 points (0.1~S127)
	10ms	If M8028 is NO, the timer after T32~T62 (31 points) can be changed to 10ms timer (0.01~327.67 sec)
	1ms	T63 1 point (0.01 to 32.767 seconds)
register	16-bit incremental mode	C0~C15 16 points (0~32,767 counters)
	16-bit incremental mode (hold)	C16~C31 16 points (0~32,767 counters)
	32-bit high-speed bi-directional	6 points in C235~C255 (corresponding frequencies)
Data register (uses a pair of 32 bits)	16-bit general purpose	D0~D127 128 points
	16-bit hold	D128~D255 128 points
	File register (hold)	D1000~D2399 1500 points (500 points can be set in file registers)
	16-bit Special Purpose	D8000~D8255 256 points

	16-bit variable address	V0~V7, Z0~Z7 16 points
pointers	JUMP, CALL branch with	P0~P63 64 points
	input interruption	100~150 6 points
nested	master	N0~N7 8 points
constant	Decimal number (K)	16-bit: -32,768 ~ +32,767 32-bit: -2,147,483,648, ~ +2,147,483,647
	Hexadecimal digits (H)	16-bit: 0~FFFFFFF 32-bit: 0~FFFFFFFFFF

7.Electrical Design Reference Diagram

① IO Input Terminal Block

② IO Output Terminal Block

③ HMI download port

④ PLC download port

⑤ dipswitch(PLC start and stop)

⑥ SD card slot

AMZ028W06-1S16MT--① IO Input Terminal Block		
1	24V	24V Power Positive
2	0V	24V Power Supply Negative
3	X0	High-speed counter input (single-phase up to 60 HZ)
4	X1	High-speed counter input (single-phase up to 60 HZ)
5	X2	Normal Input Points
6	X3	Normal Input Points
7	X4	Normal Input Points
8	X5	Normal Input Points
9	X6	Normal Input Points
10	X7	Normal Input Points

AMZ028W06-1S16MT--② IO Output Terminal Block		
1	C0	Y0-Y3 input common
2	Y0	High-speed transistor output point (up to 100KHZ)
3	Y1	High-speed transistor output point (up to 100KHZ)
4	Y2	Common Transistor Output Point
5	Y3	Common Transistor Output Point
6	C1	Y4-Y7 input common
7	Y4	Common Transistor Output Point
8	Y5	Common Transistor Output Point
9	Y6	Common Transistor Output Point
10	Y7	Common Transistor Output Point

AMZ028W06-1S14MR① IO Input Terminal Block		
1	24V	24V Power Positive
2	0V	24V Power Supply Negative
3	X0	High-speed counter input (single-phase up to 60 HZ)
4	X1	High-speed counter input (single-phase up to 60 HZ)
5	X2	Normal Input Points
6	X3	Normal Input Points
7	X4	Normal Input Points
8	X5	Normal Input Points
9	X6	Normal Input Points
10	X7	Normal Input Points

AMZ028W06-1S14MR② IO Output Terminal Block		
1	C0	Y0-Y3 relay input points
2	Y0	Common relay output points
3	Y1	Normal relay output
4	Y2	Normal relay output
5	Y3	Normal relay output
6	C1	Y4-Y5 relay input points
7	Y4	Normal relay output
8	Y5	Normal relay output
9	NC	unoccupied
10	NC	unoccupied

Indicator light description	
HMI	Touch screen operation indicator
PLC	PLC operation indicator
ERR	PLC alarm indicator

8.High Speed Counter

(Capable of capturing high-speed pulses in the following ranges)
Inputs X000~X007, categorized as shown in the table below, correspond to each high-speed counter number, and inputs X000~X007 cannot be used repeatedly by high-speed counters. Inputs X000~X007 cannot be used repeatedly by the high-speed counter. When the input terminals are not used as high-speed counters, they can be used for general inputs.

interrupt input	Monophonic counting input											Single-phase double counting input					Dual-phase, dual-count inputs				
	C235	C236	C237	C238	C239	C240	C241	C242	C243	C244	C245	C246	C247	C248	C249	C250	C251	C252	C253	C254	C255
X000	U/D						U/D			U/D		U	U		U		A	A		A	
X001		U/D					R			R		D	D		D		B	B		B	
X002			U/D					U/D			U/D		R		R			R		R	
X003				U/D				R			R			U		U			A		A
X004					U/D				U/D					D		D			B		B
X005						U/D			R					R		R			R		R
X006										S					S					S	
X007											S					S					S

Capable of capturing high-speed pulses in the following ranges

C235, C236, C246 (1 phase)	: Up to 60KHz
C251 (2-phase)	: Up to 30KHz
C237~C245,C247~C250(1 phase)	: Up to 10KHz
C252~C255 (2 phases)	: Up to 5KHz

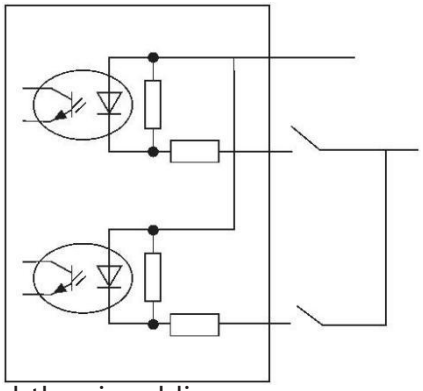
Calculation example (without FNC 53,54)		
<number>	<content of use>	<calculated value>
C235 (single phase)	Input 30KHz	30KHz
C237 (single-phase)	Input 10KHz	10KHz
C253 (biphasic)	Input 5KHz	10KHz (5KHz)
Total 50KHz ≤ 60KHz (total aggregate frequency)		

9.application instruction

form	FNC No.	command mnemonic	functionality	D require	P require
program flow	00	CJ	Recommended conditions	—	○
	01	CALL	subroutine call	—	○
	02	SRET	The subroutine returns	—	—
	03	IRET	Interrupt Return	—	—
	04	EI	disruption license	—	—
	05	DI	interrupt prohibition	—	—
	06	FEND	End of main program	—	—
	07	WDT	watchdog timer	—	○
	08	FOR	Cycle range start	—	—
	09	NEXT	End of cycle range	—	—
Transmission - Comparison	10	CMP	comparisons	○	○
	11	ZCP	interval comparison	○	○
	12	MOV	transmission	○	○
	13				
	14				
	15	BMOV	batch delivery	—	○
	16				
	17				
	18	BCD	BCD: Conversion	○	○
	19	BIN	binary conversion	○	○
Quadratic - Logical Operations	20	ADD	binary addition	○	○
	21	SUB	binary subtraction	○	○
	22	MUL	binary multiplication	○	○
	23	DIV	binary division	○	○
	24	INC	Binary plus 1	○	○
	25	DEC	Binary minus 1	○	○
	26	WAND	logographic or	○	○
	27	WOR	logical word with	○	○
	28	WXOR	logical word all or none	○	○
	29				
Loop and Shift	34	SFTR	right shift	—	○
	35	SFTL	bit shift	—	○
	36				
	37				
	38	SFWR	Shift Write	—	○
	39	SFRD	shift reading	—	○
Data processing	40	ZRST	Batch reset	—	○
	41	DECO	decoder	—	○
	42	ENCO	encodings	—	○
	43				
	44				
High-speed processing	50	REF	I/O Refresh	—	○
	52	MTR	Matrix Input	—	—
	53	HSCS	Compare reset (high speed counter)	○	—
	54	HSCR	Compare reset (high speed counter)	○	—
	56	SPD	pulse density	—	—
	57	PLSY	pulse output	○	—
	58	PWM	pulse modulation	—	—
	59	PLSR	Output in pulse with acceleration and deceleration	○	—

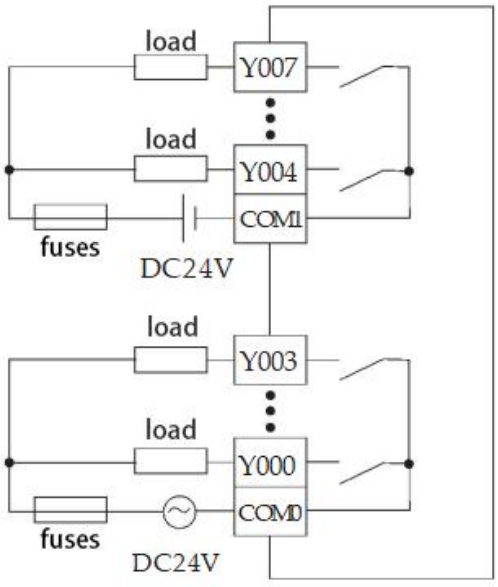
form	FNC No.	command mnemonic	functionality	D require	P require
Convenience Directive External Command I/O	60	IST	State Initialization	—	—
	61				
	62	ABSD	Cam control (absolute mode)	○	—
	63	INCD	Cam control (incremental)	—	—
	66	ALT	alternate output	—	○
	67	RAMP	Slope Signal	—	—
	70				
	71				
	72	DSW	digital switch	—	—
	73				
	74	SEGL	7SEG, respectively.	—	—
	75				
Peripheral equipment SHE	80	RS	serial data transmission	—	—
	81	PRUN	8-bit bit transfer	○	○
	82	ASCI	HEX to ASCII conversion	—	○
	83	HEX	ASCII to HEX conversion	—	○
	84	CCD	check digit	—	○
	85	VRRD	Potentiometer Readout	—	○
	86	VRSC	Potentiometer Readout	—	○
	87				
	88	PID	PID operation	—	—
localization	155	ABS	ABS current value readout	○	—
	156	ZRN	Home Reset	○	—
	157	PLSV	Adjustable pulse output	○	—
	158	DRVI	relative positioning	○	—
	159	DRVA	absolute positioning	○	—
clock operation	160	TCMP	Clock Data Comparison	—	○
	161	TZCP	Clock Data Interval Comparison	—	○
	162	TADD	Clock Data Addition	—	○
	163	TSUB	Clock data subtraction	—	○
	166	TRD	Clock data readout	—	○
	167	TWR	Clock Data Write	—	○
	169	HOUR	timekeeping device	—	○
localization	224	LD=	(S1)=(S2)	○	—
	225	LD>	(S1)>(S2)	○	—
	226	LD<	(S1)<(S2)	○	—
	228	LD<>	(S1)≠(S2)	○	—
	229	LD≦	(S1)≦(S2)	○	—
	230	LD≧	(S1)≧(S2)	○	—
	232	AND=	(S1)=(S2)	○	—
	233	AND>	(S1)>(S2)	○	—
	234	AND<	(S1)<(S2)	○	—
	236	AND<>	(S1)≠(S2)	○	—
	237	AND≦	(S1)≦(S2)	○	—
	238	AND≧	(S1)≧(S2)	○	—
	240	OR=	(S1)=(S2)	○	—
	241	OR>	(S1)>(S2)	○	—
	242	OR<	(S1)<(S2)	○	—
	244	OR<>	(S1)≠(S2)	○	—
	245	OR≦	(S1)≦(S2)	○	—
	246	OR≧	(S1)≧(S2)	○	—

10.equivalent circuit

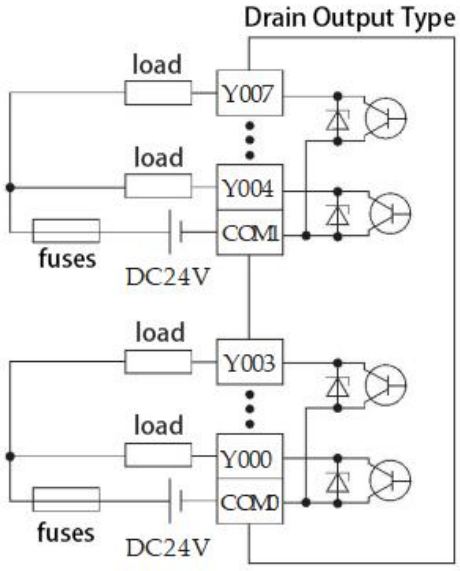


PLC input (X) is externally powered DC24V leakage type (passive NPN), the input signal is isolated from the power supply.
PLC switching input wiring:
Two-wire (magnetic switch): The PLC switching input is connected to a two-wire magnetic switch, and the positive pole of the magnetic switch is connected to the X terminal, and the negative pole is connected to 0V;
Three-wire (photoelectric sensor or encoder): PLC switch connects to three-wire photoelectric sensor or encoder , the power supply of the sensor or encoder connects to the positive pole of the power supply, and the signal line connects to the X terminal; the encoder and the photoelectric sensor are required to be of the NPN type (PNP needs to be specially customized).
PLC switching output wiring:
Character tube: output is NPN, COM is connected to negative pole, Y is connected to positive pole of power supply after load;
Relay: dry contact output, COM can be connected to positive or negative pole.

The following figure shows the equivalent circuit diagram of a relay output module with the output terminals Several groups, each group is electrically isolated from each other, the output contacts of different groupsConnect to different power circuits.

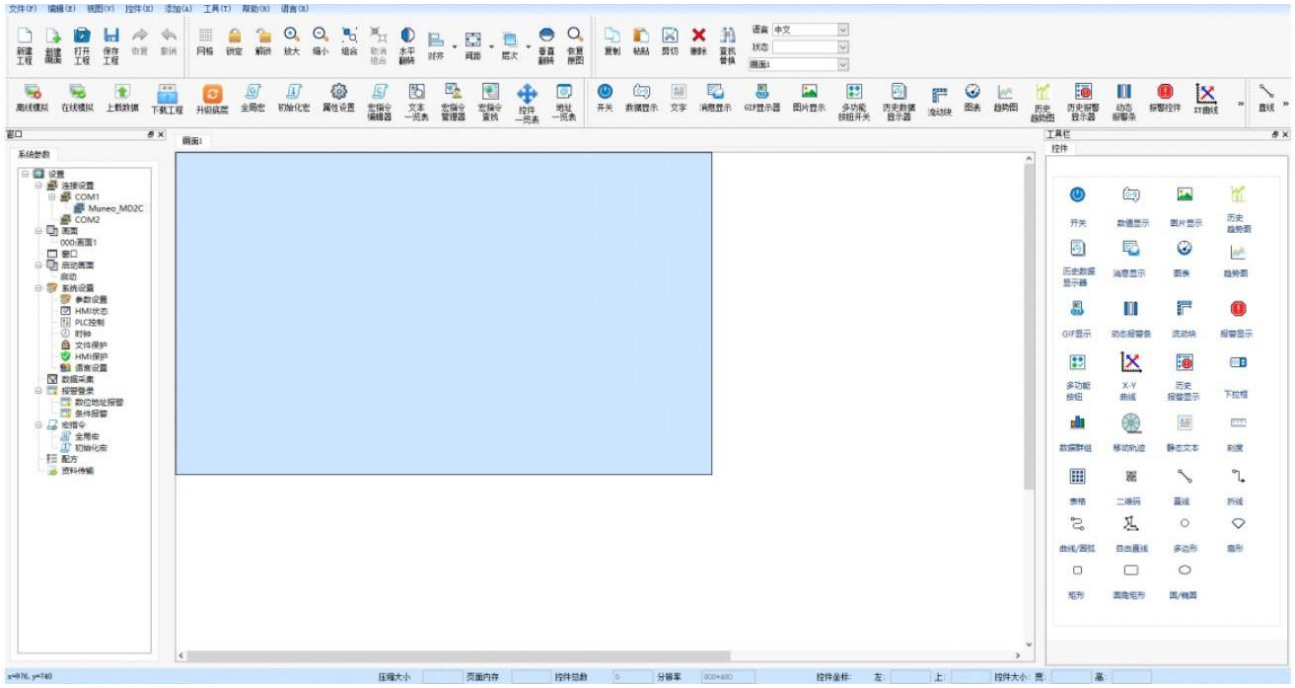


The equivalent circuit of the PLC output section of the transistor output type is shown below. Also from the diagram, it is known that the output terminals are grouped in sets, each of which is electrically isolated by .Different sets of output contacts can be connected to different power supplies.The transistor output can only be used for DC24V load circuit.Output wiring is NPN, COM common cathode.



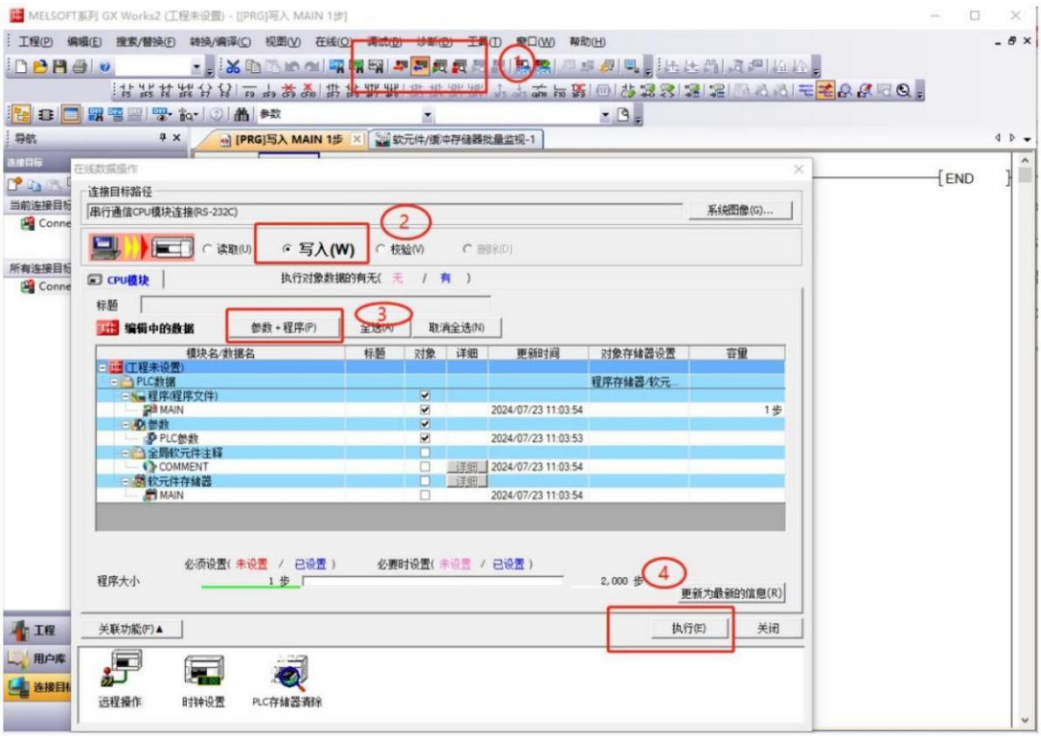
11.Configuration software description

11.1HMI development software



The configuration software HMIStudio is a set of upper software that can be edited at will by the customer, and the customer's application program is all based on the upper software.
Development is carried out, the upper software consists of a wealth of control, any combination, so as to realize the customer's desired functions:

11.2 PLC development software



PLC program download steps : 1, PLC read (upload icon) 2, write (check) 3, parameters + program (check) 4, execution (confirm)
control contains:

Controls are included:

switch button	Includes "bit buttons", "word buttons", "indicator lights", "screen buttons", "function buttons", and "multistate buttons". "Function buttons" and "Multi-state buttons" can be used to touch the connected device and monitor the status.
Numerical input and display	Includes multiple binary inputs and displays, ASCII inputs and displays for displaying monitored address values, and a time display for displaying real-time time value inputs and displays.
mobile block	Animated graphics that simulate the state of liquid flow in a pipe
Static text/table/scale	A variety of basic shapes, including lines, circles, ellipses, rectangles, etc.
Image display and gif animation	Picture display box showing one or more pictures
meter	Bar graphs, gauges, circles, showing some state value of the data
slide switch	Create a slider area to display values, or change the value of a specified word address by pressing the slider to move it.
tire	Slide to display the data.
Formulation Display	Displays the defined recipe records in a table format. Note: Recipe creation is required to use this control.
message display	playing pre-set messages
Alarm display	Displays information about alarms (digital and analog) that have occurred on the device. You must configure the alarm settings before using this control.(Up to 512 digital alarms and 32 conditional alarms can be created)
Dynamic Alarms	Used to display the current alarm, which is different from the alarm control in that the dynamic alarm bar displays the current alarm in the form of scrolling text.
XY curve	Real-time dynamic display of data from the data collector

historical curve	Display of the data saved by the history collector in the form of a curve
formulas	Create a menu of similar remedies(Each recipe supports up to 200 data, and up to 200 recipes can be created)
Multi-function buttons	An on/off button, with which the various functional requirements can be reached easily and quickly
trend chart	Plot reference curves for multiple data to accurately visualize the trend of a value over time
drop-down box	Used to select the corresponding state function
data cluster	Display the data change from register address N to register address N as a curve.
trajectory	Control of address data by dragging the scroll block
two-dimensional barcode	Dynamically generated QR code, access to web site by scanning, payment and other functions(Maximum 10 QR codes for a single screen, no more than 1000 QR codes for a configuration)

Extended functionality of the host machine configuration software:

macro instruction	C programming to implement a variety of more complex logic or functions
PLC control	HMI control via PLC(Control switching of HMI screen, modification of recipe, writing of recipe data to PLC, switching of current user level by PLC register value)
multilingualism	Multi-language support(up to 6 languages supported)
data acquisition	Data acquisition of temperature, pressure, humidity, etc. is possible(Up to 32 can be created for data collection)
data transmission	Refers to the transmission of data on the same type of address, the transmission can be periodic(Transfers as fast as 1 second)，It can also be triggered
HMI Protection	The HMI can be used normally within a certain period of time, if the time exceeds the time specified by the user, the HMI will jump to the specified screen previously set by the user, in the specified screen, the user only places the function button below the “panel protection unlock button”.
document protection	Do you need to enter a password to open the project?

User password level	Set user privileges and passwords, access to the appropriate privileges need to enter the appropriate passwords(8 user levels in total)
boot screen	User can customize the boot-up Logo screen
Offline simulation	Before compiling and downloading the screen to the HMI device, you can use the offline simulation function that comes with HMIStudio to check the correctness of the configuration screen and the effect of the display.
Online Simulation	Online simulation allows you to communicate with plc and other related devices through your personal computer (HMI configuration software needs to be installed first) without using HMI.
Supports multiple controller communication protocols	Suitable for a variety of PLC, inverter, servo controller, microcontroller control system, etc. (Mitsubishi, Panasonic, Omron, Delta, Xinjie, Yonghong, Siemens, Keens, LG, Modbus and customization and other protocols) the user only needs to operate directly in the software to select the call can be.
Custom Add Gallery	Support for customizing the gallery, users can intercept their favorite images loaded into the custom gallery to call according to need
Customizable Keyboards	When users need to use their own defined keyboard functions and styles, they can set up the required custom keyboards by using function key controls, numeric controls, character controls, pictures, text, etc. in conjunction.
image archive	Rich gallery, support Png, Jpg, Gif, Bmp and other formats of the picture, vector gallery, any zoom non-aliased

Dedicated to creating the best intelligent

control terminal possible