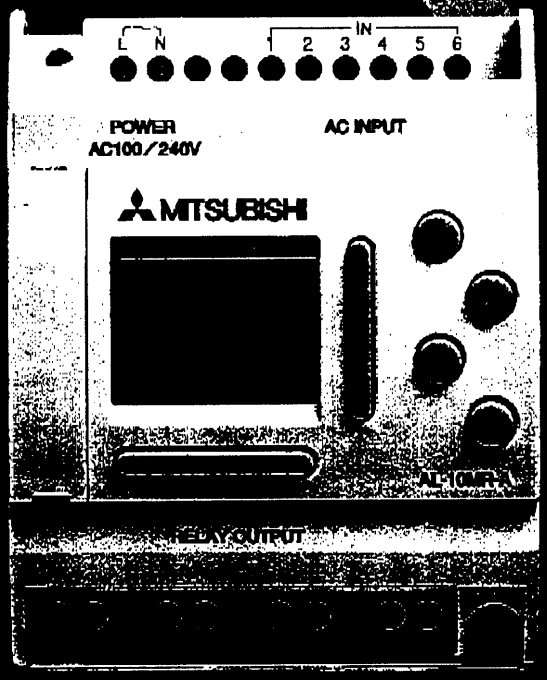
MITSUBISHI

ADVANCED AND EVER ADVANCING MITSUBISHI ELECTRIC

SIMPLE APPLICATION CONTROLLERS

Series



Tiny Giants

312-4745

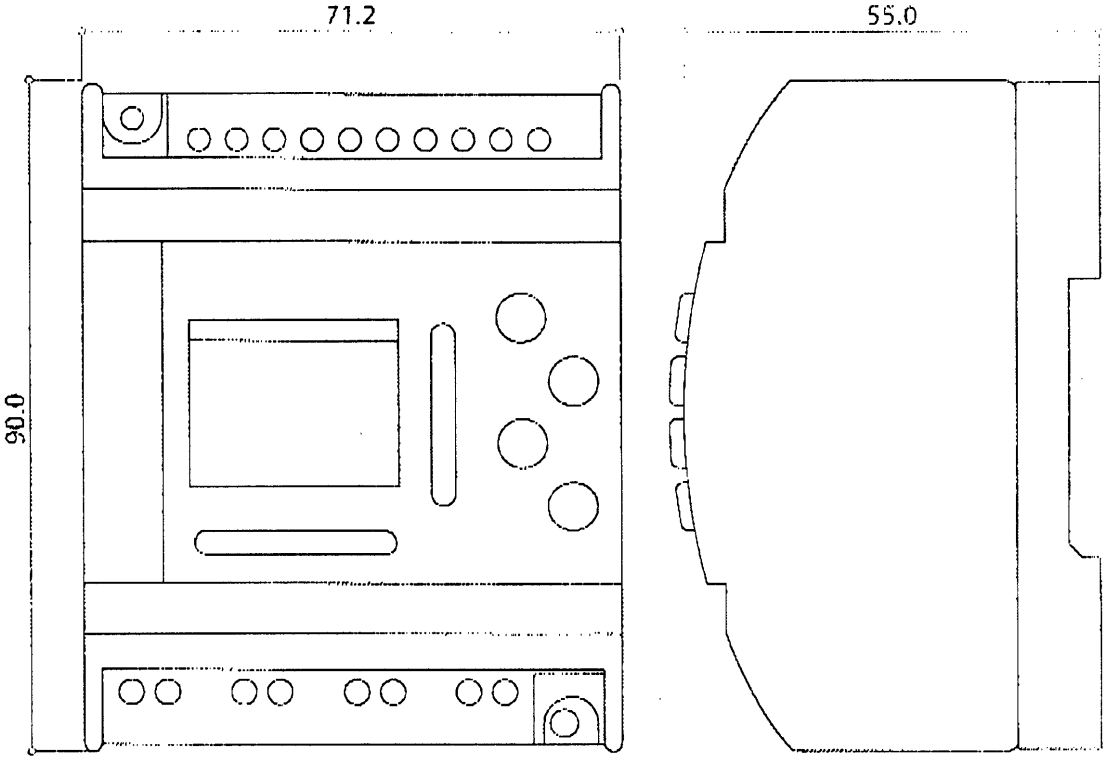
Overview

Do you need control? Do you have a process to automate, safety features to implement, or a home project that requires more hands than you have? Welcome to the α Series Controller from Mitsubishi, the Tiny Giant. The α has been designed to provide flexible supervisory control around your factory, home, office... anywhere you need it.

α has a number of powerful features packed in its tiny frame – Real Time Clock, High Current Switching Relays, Analog Inputs, Security Code Clearance, 100 Hrs Memory Backup – all in a range of sizes to meet your needs. But what truly separates the Tiny Giant from competitors is the ease of use.

The Windows based Visual Logic Software (VLS) is the most user friendly way to program a controller for any level user. The Function Block programming lets you select from a premade set of Inputs, Ourputs and Functions Blocks.

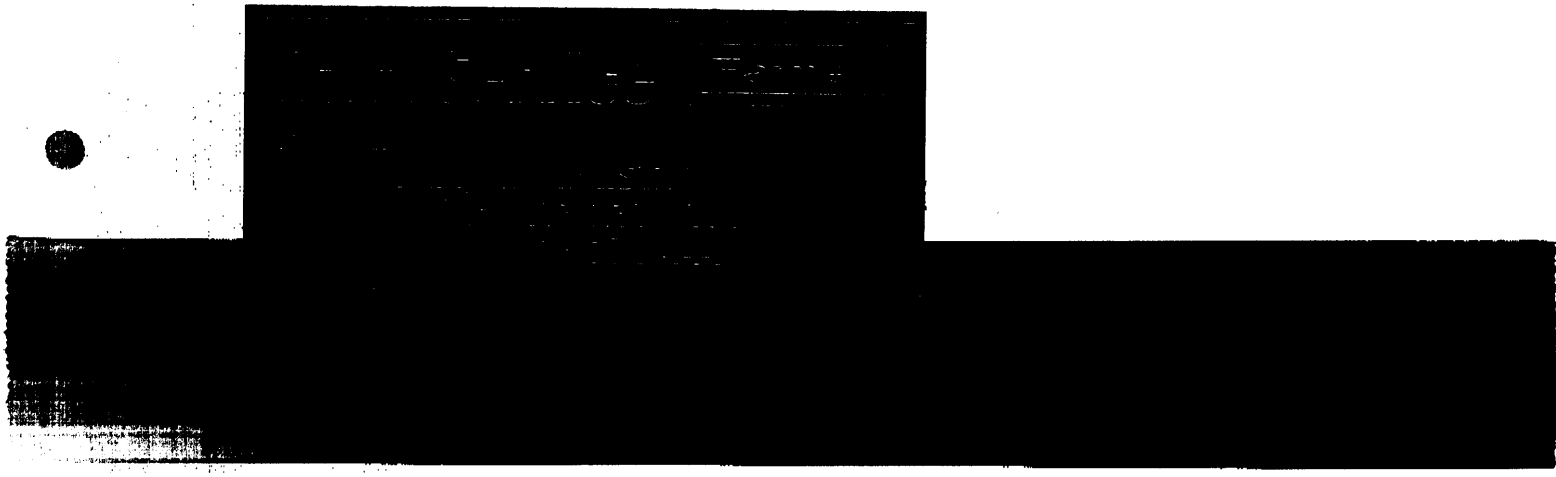
Anyone can drag, drop, point, and click their way to a complete program. Perfect for the beginning programmer yet powerful enough for the most advanced requirements! On device programming allows fingertip program updates or data entry directly from the front panel. The combination of α's small size, and DIN rail or screw type mounting capability enhance α's ability to be installed wherever necessary. α goes where you need it! The α also has the greatest level of functionality for any controller in its class. The sophisticated user will find a powerful range of options to satisfy the most advanced requirements. The simulation function even allows the user to view the operation of the program without the use of any hardware. Powerful, User Friendly, Price Competitive - The α is ready to solve problems for you!



Specifications

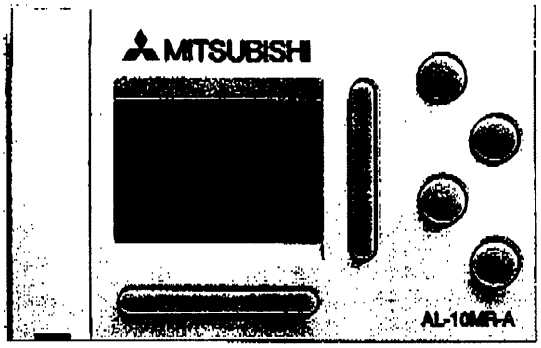
	I/O	Power	Input	Output	Dimensions
AL-6MR-A	6(4/2)	AC100-240V	AC100-240V	Relay	71.2×90×55
AL-10MR-A	10(6/4)				
AL-10MR-D		DC24V	DC24V (Sink / Source)		
AL-10MT-D				Transistor	
AL-20MR-A*	20(12/8)	AC100-240V	AC100-240V	Relay	124.6×90×55
AL-20MR-D*		DC24V	DC24V (Sink / Source)		
AL-20MT-D*				Transistor	

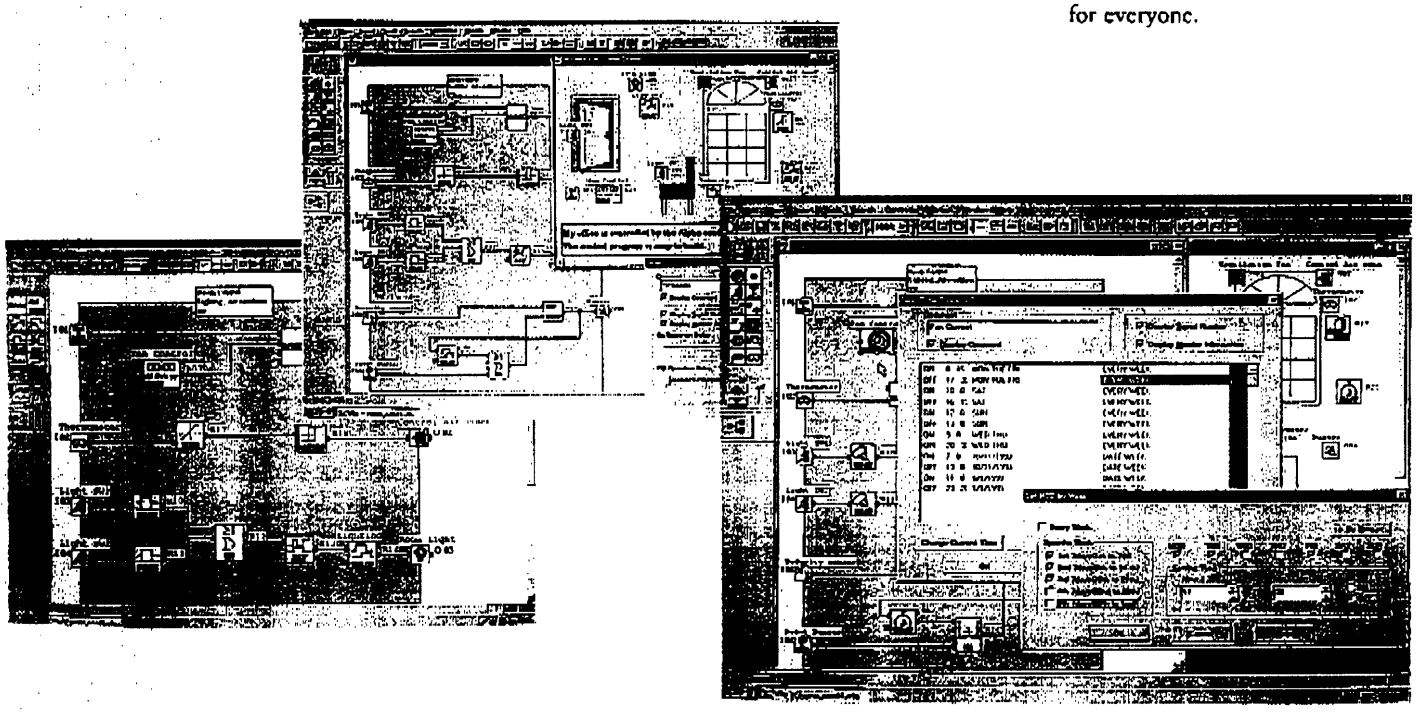
* Coming in 1999



Visual Logic Software (VLS)
What makes the VLS software easy to use? The VLS software uses a special, simple method of programming called Function Block. Function Blocks are small preprogrammed building blocks of software that process input data and then turn outputs ON and OFF providing the control you need. Premade icons (Inputs, Outputs, Function Blocks, and Logic Blocks) can be placed on screen, connected with the click of a mouse button, and you have a complete program.

The Function Block Diagram (FBD) Board has squares already labeled in which to place your Inputs and Outputs while the function blocks can be applied anywhere on the board. Timer values, ON/OFF patterns, counters, calendar date, and elapsed times can be optimized for specific applications by simply double clicking on the Function Block and entering the data in the option settings. Every part of your program appears on screen with interconnecting lines. The ability to see the relationships between the various parts of your system make both programming and troubleshooting easy to grasp. Since the blocks have predetermined functions, anyone can quickly recognize what each segment of the program is doing. You can add comments to the function blocks using the VLS software or import selected text of your own. After the program is complete, the VLS software lets you simulate the program in run mode without any hardware. Create your program as outlined above and then turn on the Simulation mode in the "Controller" pull down menu. Click on inputs to turn them ON and OFF. The wires on the FBD Board light when energized, timer values are displayed on screen, and Outputs show their ON/OFF status. All the program debugging can be done from your computer! From program initiation to the final installation, the VLS package provides a powerful, intuitive, user friendly programming tool for everyone.

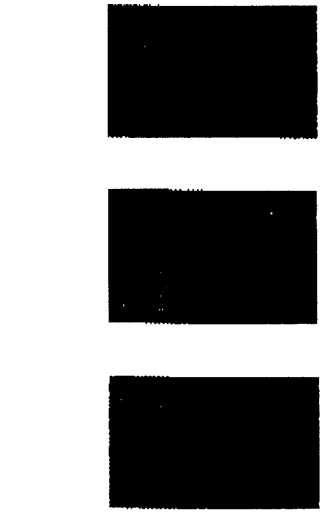


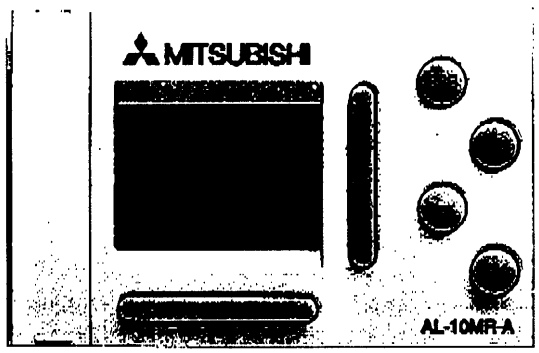


Real Time Clock Functions
The α has up to 160 entries for Real Time Clock Functions. Begin operations based on a calendar date, or on a daily, weekly, or monthly schedule. The calendar schedule takes precedence over weekly clock functions so that you can program special orders without reprogramming other routinely scheduled tasks. The four digit year display is Year 2000 Compliant.

Front Panel Programming
Do you need to control the α quickly and simply with the push of a button? The α allows you to program, edit, access data, or input data using only the keys on the front panel - no tools or cables are required! This makes the α convenient to use in applications where a computer is not available, for maintenance operations on the shop floor, or to change the temperature in your living room.

1500 Byte EEPROM Memory
The α provides enough memory for the most advanced applications. Up to 64 function blocks or 1500 bytes of memory can be programming into the α. Additional EEPROM memory cassettes can be used to store and run alternate programs.





Special Features

Analog Input :
Input your 0–10 volt Analog data into as many as eight of the α Inputs.

Wide Range AC or DC power Supply :
The α accepts 100-240 VAC or 24 VDC Power Supply for use anywhere in the world.

High Current Relay Outputs :
Switch currents up to 10 amps with α's heavy duty relays.

Transistor Outputs :
Fast switching, long life Outputs.

100 Hr Capacitor Backup for memory and RTC:
The α can retain its memory for 100 hours after a power outage. There is no need to lose your programs or information just because the power goes down.

Security Code Enabled:
Only authorized personnel can update the α programs with the Security Code Enable Feature.

Sink or Source Inputs :
The α Series can support your requirements for Sink or Source inputs.

LCD Display :
Access your data with the push of a button or automatically display messages on α's front panel LCD Display. α lets you display up to ten characters on each of four lines directly on the front panel.

NetWork Capability :
Network communication boards (starting with ASI) are coming in 1999.

Function Block Capabilities

Boolean Logic (And, Or, Not, Nand, Xor, Nor) -
Set up your Outputs to turn "ON" or "OFF " by any logical combination of input signals.

Set / Reset -
Latch outputs "ON" or "OFF " from your input data. Give priority to either the Set Function or the Reset Function depending on your programming needs.

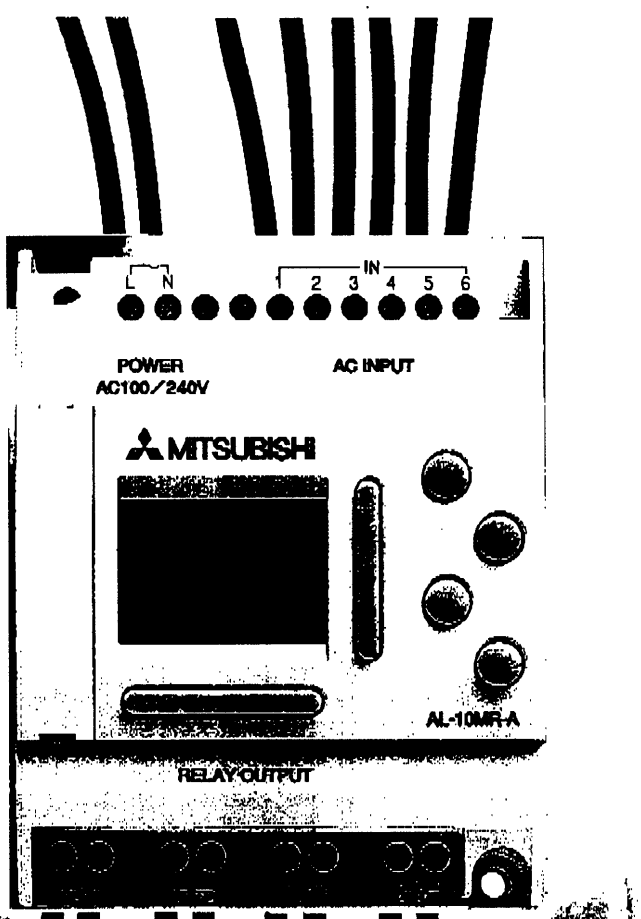
One Shot -
Copy a single pulse or specify your own pulse. Delay times and a reset trigger give this operation maximum flexibility.

Delay -
Delay your output pulse from starting or stopping (or both) with the Delay Function. Keep the light turned ON or the gate open for a set length of time after the switch has been turned off.

Pulse -
Configure and send pulses dependent on Up or Down triggers or both.

Alternate -
Alternate turning your output device "ON" and "OFF" from the same Input.

Real Time Clock (RTC) -
This year 2000 compliant RTC can control up to 160 time/date combinations. Set your outputs to function daily, weekly, monthly, or set operations by a calendar date.



Flicker -
Design a series of "ON" and "OFF" Output parterns. Have the horn sound four ten second blasts while your warning light flashes for sixty seconds.

Counter -
Keep track of the number of times an operation takes place for information or to control your outputs. Reset the counter with a predetermined signal.

Compare -
Compare data, current elapsed time, analog values, or direct input values for > ,< , = , >=, < =, or not equal to and manipulate outputs according to the results. The compare function can be turned "ON" and "OFF" with an input.

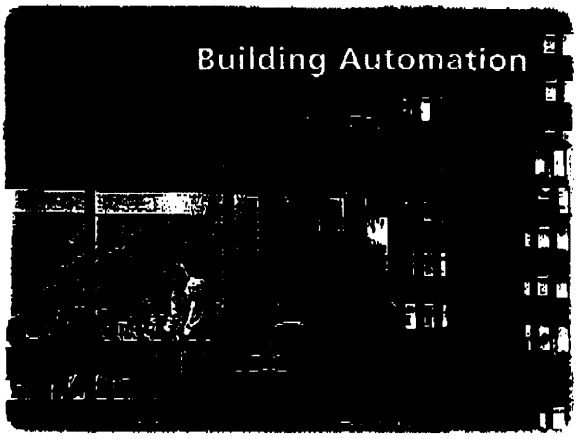
Zone Compare -
Check the same data as the compare function but this time check your data to a range of values.

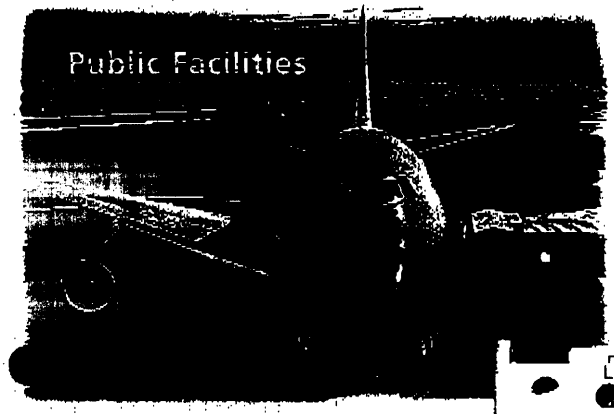
Offset Gain -
Adjust the slope and offset of Analog values with the Offset Gain Function. Includes both a High and Low clamp if desired.

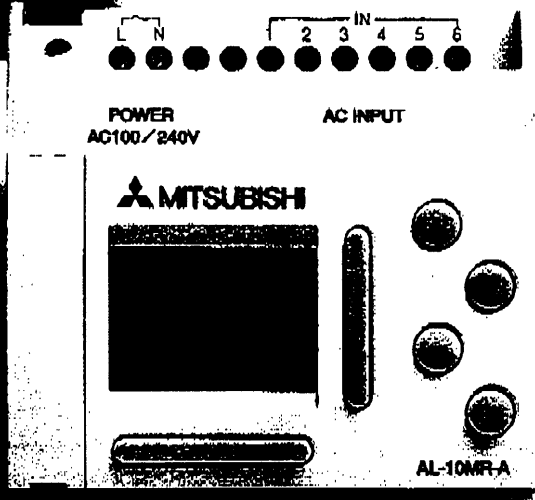
Schmitt Trigger -
Turn Outputs "ON" and "OFF" based upon a range of values. Turn the oven "ON" when the temperature reaches 110 degrees C and "OFF" when the temperature reaches 125 degrees C.

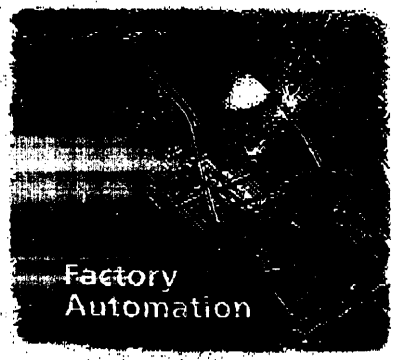
Display -
Present analog or digital data, counter values, function block values, or messages on your LED display. The display is enabled via an input signal.

Applications









Building Automation - Lighting, HVAC, Shutters/Gates, Security
Home Automation - ON/OFF of electrical products, Life Support for Aged, Security
Commerce - Parking, Stores, Gas Station, Hotels, Golf Courses
Public Facilities - Airports, Train Stations, Hospitals, Road Guidance
Testing Facilities - Testing and Measuring Equipment
Exhibition Stage Effects - Lighting, Movement Control
Agriculture - Farms, Green House, Animal House, Temperature, Watering, Feeding Control
Hobby - Model Making, Gardening, Weekend Carpenter
Education - Educational Materials in Schools
FA - Automation Equipment, Facility Retrofit, Controls